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# Development Document for Effluent Limitations Guidelines and Standards for the Centralized Waste Treatment Industry – Final

EPA

# Development Document for Effluent Limitations Guidelines and Standards for the Centralized Waste Treatment Industry – Final

## Volume I

(EPA 821-R-00-020)


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# EXECUTIVE SUMMARY

This technical development document describes the technical bases for the final Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards for the Centralized Waste Treatment (CWT) Industry Point Source Category. The regulation (40 CFR Part 437) establishes technology-based effluent limitations guidelines and standards to reduce the discharge of pollutants into waters of the United States and into publicly owned treatment works (POTWs) by existing and new facilities that treat or recover hazardous or non-hazardous industrial waste, wastewater, or used material from off- site. Although the numerical effluent limitations and standards are based on specific processes or treatment technologies to control pollutant discharges, EPA does not require dischargers to use these technologies. Individual facilities may meet the numerical requirements using whatever types of treatment technologies, process changes, and waste management practices they choose.

The regulation controls discharges from the treatment and recovery of metal-bearing waste receipts, oily waste receipts, and organic waste receipts. The wastewater flows covered by the rule include both off-site and on-site generated wastewater. This includes materials received from off-site, solubilization water, used oil/emulsion breaking wastewater, tanker truck/drum/roll-off box washes, equipment washes, air pollution control waters, laboratory-derived wastewater, wastewater from on-site industrial waste combustors and landfills, and contaminated stormwater.

EPA developed different limitations and standards for the CWT operations depending on the type of waste received for treatment or recovery. EPA established four subcategories for the CWT industry:

- Subcategory A: Facilities that treat or recover metal from metal-bearing waste, wastewater, or used material received from off-site (“metals subcategory”);
- Subcategory B: Facilities that treat or recover oil from oily waste, wastewater, or used material received from off-site (“oils subcategory”);
- Subcategory C: Facilities that treat or recover organics from organic waste, wastewater, or used material received from off-site (“organics subcategory”);
- Subcategory D: Facilities that treat or recover some combination of metal-bearing, oily, and organic waste, wastewater, or used material received from off-site (“multiple wastestream subcategory”).

The multiple wastestream subcategory simplifies implementation of the rule and compliance monitoring for CWT facilities that treat wastes subject to more than one of Subcategories A, B, and C. These facilities may elect to comply with the provisions of the multiple wastestream subcategory rather than the applicable provisions of subcategories A, B, or C. However, these facilities must certify that an equivalent treatment system is installed and properly designed, maintained, and operated.

### *BEST PRACTICABLE CONTROL TECHNOLOGY CURRENTLY AVAILABLE (BPT)* *ES.1*

The technology basis for the metals treatment and recovery subcategory BPT limitations is primary chemical precipitation, liquid-solid separation, secondary chemical precipitation, clarification, and sand filtration. For facilities that accept concentrated cyanide, metal-bearing wastestream, the rule is based on in-plant cyanide removal prior to metals treatment. The technology basis for in-plant cyanide control is alkaline chlorination in a two-step process.

The technology basis for the oils treatment and recovery subcategory BPT limitations is emulsion breaking/gravity separation, secondary gravity separation and dissolved air flotation.

The technology basis for the organics treatment and recovery subcategory BPT limitations is equalization and biological treatment (sequential batch reactor).

The BPT model technology long-term averages and effluent limitations for the metals, oils, and organics subcategories are listed in Table 1. The model technology long-term averages should be considered as design and operating targets – presented for informational purposes only. They are not effluent limitations and do not appear in 40 CFR Part 437. The long-term averages used in developing the effluent limitations are values that plants should design and operate to achieve on a consistent average basis. Plants that do this and maintain reasonable control over their operating and treatment system variability should have no difficulty in meeting the limitations. Plants that operate above the long-term averages must achieve good control of their treatment system variability to meet the limitations.

The BPT limitations for the multiple wastestream subcategory are subdivided into four segments. Each segment applies to one of the possible combinations of the first three subcategories of wastestreams. The multiple wastestream subcategory limitations were derived by combining BPT pollutant limitations from each possible combination of subcategories and selecting the most stringent pollutant value where they overlap[1]. Therefore, the technology bases for the multiple wastestream subcategory limitations reflect the technology basis for each applicable subcategory as detailed above. These limits may only apply to those facilities that accept wastes in multiple subcategories and elect to comply with the requirements of the multiple wastestream subcategory.

The BPT multiple wastestream long-term averages and limitations are listed in Table 2 for mixtures of:

- metal-bearing, oils, and organics waste receipts,
- metal-bearing and oils waste receipts,
- metal-bearing and organics waste receipts, and
- oils and organics waste receipts.

### *BEST CONVENTIONAL POLLUTANT CONTROL TECHNOLOGY (BCT)* *ES.2*

The BCT effluent limitations for the conventional pollutant parameters ($BOD_5$, O&G, and TSS) are equivalent to the BPT limitations listed in Tables 1 and 2 for all subcategories.

### *BEST AVAILABLE TECHNOLOGY ECONOMICALLY ACHIEVABLE (BAT)* *ES.3*

The BAT effluent limitations for the priority and non-conventional pollutants are equivalent to the BPT limitations listed in Tables 1 and 2 for all subcategories.

[1]EPA selected the most stringent maximum monthly average limitations and its corresponding maximum daily limitation.

### *NEW SOURCE PERFORMANCE STANDARDS (NSPS)* *ES.4*

For the oils and the organics subcategories, NSPS standards for the conventional, priority, and non-conventional pollutants are equivalent to the BPT/BCT/BAT limitations.

For the metals subcategory, NSPS standards are based on the recovery of metals for reuse through selective metals chemical precipitation, liquid-solid separation, secondary chemical precipitation, liquid-solid separation, and tertiary chemical precipitation and clarification. For in-plant cyanide control of concentrated cyanide wastes, the in-plant technology basis is alkaline chlorination in a two-step process. The NSPS long-term averages and standards for the metals, oils, and organics subcategories are listed in Table 3.

As was the case for BPT/BCT/BAT, the NSPS standards for the multiple wastestream subcategory are subdivided into four segments. The technology basis for the NSPS standards for the multiple wastestream subcategory reflect the technology bases for the applicable subcategories. The NSPS multiple wastestream long-term standards are listed in Table 4.

### *PRETREATMENT STANDARDS FOR EXISTING SOURCES (PSES)* *ES.5*

PSES standards are established for those BAT pollutants that are determined to pass through or otherwise interfere with the operations of publicly owned treatment works (POTWs). For the metals and organics subcategories the priority and non-conventional pollutant PSES standards are based on the same technology as the BPT/BAT limitations for those pollutants that pass through POTWs.

For the oils subcategory, the technology basis for PSES is emulsion breaking/gravity separation, and dissolved air flotation. The PSES long-term averages and standards for the metals, oils, and organics subcategories are listed in Table 5.

The PSES standards for the multiple wastestream subcategory are also subdivided into four segments. The technology basis for pretreatment standards for the multiple wastestream subcategory reflect the technology bases for the applicable subcategories. The PSES multiple wastestream long-term averages and standards are listed in Table 6.

### *PRETREATMENT STANDARDS FOR NEW SOURCES (PSNS)* *ES.6*

For the metals and organics subcategories, the technology bases for PSNS are equivalent to PSES. For the oils subcategory, the technology basis is equivalent to BPT/BAT. The PSNS long-term averages and standards for those pollutants that are determined to pass through POTWs are listed in Table 7 for the metals, oils, and organics subcategories .

The PSNS standards for the multiple wastestream subcategory are subdivided into four segments. The technology bases for the multiple wastestream subcategory new source standards reflect the technology bases for the applicable subcategories. The PSNS multiple wastestream long-term averages and standards are listed in Table 8.

Table Executive Summary-1. CWT design targets and BPT limitations by subcategory (mg/L)

| Pollutant Parameters | CAS Registry Number | Metals - Subcategory A: Long-Term Average Design Targets | Metals - Subcategory A: Limitations: Daily Maximum | Metals - Subcategory A: Limitations: Monthly Average Maximum | Oils - Subcategory B: Long-Term Average Design Targets | Oils - Subcategory B: Limitations: Daily Maximum | Oils - Subcategory B: Limitations: Monthly Average Maximum | Organics - Subcategory C: Long-Term Average Design Targets | Organics - Subcategory C: Limitations: Daily Maximum | Organics - Subcategory C: Limitations: Monthly Average Maximum |
|---|---|---|---|---|---|---|---|---|---|---|
| **CONVENTIONAL PARAMETERS*** | | | | | | | | | | |
| **$BOD_5$** | **C-003** | | | | | | | 41.0 | **163.** | **53.0** |
| **Oil & Grease** | **C-007** | 34.3 | **205.** | **50.2** | 28.3 | **127.** | **38.0** | | | |
| **TSS** | **C-009** | 16.8 | **60.0** | **31.0** | 25.5 | **74.1** | **30.6** | 45.0 | **216.** | **61.3** |
| **METAL ANALYTES** | | | | | | | | | | |
| **Antimony** | **7440-36-0** | 0.170 | **0.249** | **0.206** | 0.103 | **0.237** | **0.141** | 0.569 | **0.928** | **0.679** |
| **Arsenic** | **7440-38-2** | 0.0839 | **0.162** | **0.104** | 0.789 | **2.95** | **1.33** | | | |
| **Barium** | **7440-39-3** | | | | 0.221 | **0.427** | **0.281** | | | |
| **Cadium** | **7440-43-9** | 0.0580 | **0.474** | **0.0962** | 0.00746 | **0.0172** | **0.0102** | | | |
| **Chromium** | **7440-47-3** | 1.67 | **15.5** | **3.07** | 0.183 | **0.746** | **0.323** | | | |
| **Cobalt** | **7440-48-4** | 0.115 | **0.192** | **0.124** | 7.42 | **56.4** | **18.8** | | | |
| **Copper** | **7440-50-8** | 0.744 | **4.14** | **1.06** | 0.157 | **0.500** | **0.242** | 0.704 | **0.865** | **0.757** |
| **Cyanide (in-plant)** | | 136 | **500** | **178** | | | | | | |
| **Lead** | **7439-92-1** | 0.177 | **1.32** | **0.283** | 0.0986 | **0.350** | **0.160** | | | |
| **Mercury** | **7439-97-6** | 0.000560 | **0.00234** | **0.000739** | 0.00309 | **0.0172** | **0.00647** | | | |
| **Molybdenum** | **7439-98-7** | | | | 1.54 | **3.50** | **2.09** | 0.943 | **1.01** | **0.965** |
| **Nickel** | **7440-02-0** | 1.16 | **3.95** | **1.45** | | | | | | |
| **Selenium** | **7782-49-2** | 0.280 | **1.64** | **0.408** | | | | | | |
| **Silver** | **7440-22-4** | 0.0264 | **0.120** | **0.0351** | | | | | | |
| **Tin** | **7440-31-5** | 0.0898 | **0.409** | **0.120** | 0.107 | **0.335** | **0.165** | | | |
| **Titanium** | **7440-32-6** | 0.0569 | **0.0947** | **0.0618** | 0.0217 | **0.0510** | **0.0299** | | | |
| **Vanadium** | **7440-62-2** | 0.0500 | **0.218** | **0.0662** | | | | | | |
| **Zinc** | **7440-66-6** | 0.413 | **2.87** | **0.641** | 3.14 | **8.26** | **4.50** | 0.382 | **0.497** | **0.420** |
| **ORGANIC ANALYTES** | | | | | | | | | | |
| **Acetone** | **67-64-1** | | | | | | | 2.06 | **30.2** | **7.97** |
| **Acetophenone** | **98-86-2** | | | | | | | 0.0359 | **0.114** | **0.0562** |
| **Aniline** | **62-53-3** | | | | | | | 0.0105 | **0.0333** | **0.0164** |
| **Bis(2-ethylhexyl) phthalate** | **117-81-7** | | | | 0.0629 | **0.215** | **0.101** | | | |
| **Butanone** | **78-93-3** | | | | | | | 0.878 | **4.81** | **1.85** |
| **Butylbenzyl phthalate** | **85-68-7** | | | | 0.0550 | **0.188** | **0.0887** | | | |

| Pollutant Parameters | CAS Registry Number | Metals - Subcategory A: Long-Term Average Design Targets | Metals - Subcategory A: Limitations: Daily Maximum | Metals - Subcategory A: Limitations: Monthly Average Maximum | Oils - Subcategory B: Long-Term Average Design Targets | Oils - Subcategory B: Limitations: Daily Maximum | Oils - Subcategory B: Limitations: Monthly Average Maximum | Organics - Subcategory C: Long-Term Average Design Targets | Organics - Subcategory C: Limitations: Daily Maximum | Organics - Subcategory C: Limitations: Monthly Average Maximum |
|---|---|---|---|---|---|---|---|---|---|---|
| **Carbazole** | **86-74-8** | | | | 0.151 | **0.598** | **0.276** | | | |
| **o-Cresol** | **95-48-7** | | | | | | | 0.185 | **1.92** | **0.561** |
| **p-Cresol** | **106-44-5** | | | | | | | 0.0682 | **0.698** | **0.205** |
| **n-Decane** | **124-18-5** | | | | 0.238 | **0.948** | **0.437** | | | |
| **2,3-Dichloroaniline** | **608-27-5** | | | | | | | 0.0230 | **0.0731** | **0.0361** |
| **Fluoranthene** | **206-44-0** | | | | 0.0173 | **0.0537** | **0.0268** | | | |
| **n-Octadecane** | **593-45-3** | | | | 0.203 | **0.589** | **0.302** | | | |
| **Phenol** | **108-95-2** | | | | | | | 0.362 | **3.65** | **1.08** |
| **Pyridine** | **110-86-1** | | | | | | | 0.116 | **0.370** | **0.182** |
| **2,4,6-Trichlorophenol** | **88-06-2** | | | | | | | 0.0858 | **0.155** | **0.106** |

* – The promulgated performance bounds for pH are 6-9 in standard units.

Table Executive Summary-2. CWT design targets and BPT limitations for Subcategory D mixed wastestream combinations (mg/L)

| Pollutant Parameters | CAS Registry Number | Metals, Oils, Organics (A, B, & C) | | | Metals, Oils (A & B) | | | Metals, Organics (A & C) | | | Oils, Organics (B & C) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Long-Term Average Design Targets | Limitations | | Long-Term Average Design Targets | Limitations | | Long-Term Average Design Targets | Limitations | | Long-Term Average Design Targets | Limitations | |
| | | | Daily Maximum | Monthly Average Maximum | | Daily Maximum | Monthly Average Maximum | | Daily Maximum | Monthly Average Maximum | | Daily Maximum | Monthly Average Maximum |
| **CONVENTIONAL PARAMETERS*** | | | | | | | | | | | | | |
| **$BOD_5$** | **C-003** | 41.0 | **163.** | **53.0** | | | | 41.0 | **163.** | **53.0** | 41.0 | **163.** | **53.0** |
| **Oil & Grease** | **C-007** | 28.3 | **127.** | **38.0** | 28.3 | **127.** | **38.0** | 34.3 | **205.** | **50.2** | 28.3 | **127.** | **38.0** |
| **TSS** | **C-009** | 25.5 | **74.1** | **30.6** | 25.5 | **74.1** | **30.6** | 16.8 | **60.0** | **31.0** | 25.5 | **74.1** | **30.6** |
| **METAL ANALYTES** | | | | | | | | | | | | | |
| **Antimony** | **7440-36-0** | 0.103 | **0.237** | **0.141** | 0.103 | **0.237** | **0.141** | 0.170 | **0.249** | **0.206** | 0.103 | **0.237** | **0.141** |
| **Arsenic** | **7440-38-2** | 0.0839 | **0.162** | **0.104** | 0.0839 | **0.162** | **0.104** | 0.0839 | **0.162** | **0.104** | 0.789 | **2.95** | **1.33** |
| **Barium** | **7440-39-3** | 0.221 | **0.427** | **0.281** | 0.221 | **0.427** | **0.281** | | | | 0.221 | **0.427** | **0.281** |
| **Cadium** | **7440-43-9** | 0.00746 | **0.0172** | **0.0102** | 0.00746 | **0.0172** | **0.0102** | 0.0580 | **0.474** | **0.0962** | 0.00746 | **0.0172** | **0.0102** |
| **Chromium** | **7440-47-3** | 0.183 | **0.746** | **0.323** | 0.183 | **0.746** | **0.323** | 1.67 | **15.5** | **3.07** | 0.183 | **0.746** | **0.323** |
| **Cobalt** | **7440-48-4** | 0.115 | **0.192** | **0.124** | 0.115 | **0.192** | **0.124** | 0.115 | **0.192** | **0.124** | 7.42 | **56.4** | **18.8** |
| **Copper** | **7440-50-8** | 0.157 | **0.500** | **0.242** | 0.157 | **0.500** | **0.242** | 0.704 | **0.865** | **0.757** | 0.157 | **0.500** | **0.242** |
| **Cyanide (in-plant)** | | 136 | **500** | **178** | 136 | **500** | **178** | 136 | **500** | **178** | | | |
| **Lead** | **7439-92-1** | 0.0986 | **0.350** | **0.160** | 0.0986 | **0.350** | **0.160** | 0.177 | **1.32** | **0.283** | 0.0986 | **0.350** | **0.160** |
| **Mercury** | **7439-97-6** | 0.000560 | **0.00234** | **0.000739** | 0.000560 | **0.00234** | **0.000739** | 0.000560 | **0.00234** | **0.000739** | 0.00309 | **0.0172** | **0.00647** |
| **Molybdenum** | **7439-98-7** | 0.943 | **1.01** | **0.965** | 1.54 | **3.50** | **2.09** | 0.943 | **1.01** | **0.965** | 0.943 | **1.01** | **0.965** |
| **Nickel** | **7440-02-0** | 1.16 | **3.95** | **1.45** | 1.16 | **3.95** | **1.45** | 1.16 | **3.95** | **1.45** | | | |
| **Selenium** | **7782-49-2** | 0.280 | **1.64** | **0.408** | 0.280 | **1.64** | **0.408** | 0.280 | **1.64** | **0.408** | | | |
| **Silver** | **7440-22-4** | 0.0264 | **0.120** | **0.0351** | 0.0264 | **0.120** | **0.0351** | 0.0264 | **0.120** | **0.0351** | | | |
| **Tin** | **7440-31-5** | 0.0898 | **0.409** | **0.120** | 0.0898 | **0.409** | **0.120** | 0.0898 | **0.409** | **0.120** | 0.107 | **0.335** | **0.165** |
| **Titanium** | **7440-32-6** | 0.0217 | **0.0510** | **0.0299** | 0.0217 | **0.0510** | **0.0299** | 0.0569 | **0.0947** | **0.0618** | 0.0217 | **0.0510** | **0.0299** |
| **Vanadium** | **7440-62-2** | 0.0500 | **0.218** | **0.0662** | 0.0500 | **0.218** | **0.0662** | 0.0500 | **0.218** | **0.0662** | | | |
| **Zinc** | **7440-66-6** | 0.382 | **0.497** | **0.420** | 0.413 | **2.87** | **0.641** | 0.382 | **0.497** | **0.420** | 0.382 | **0.497** | **0.420** |
| **ORGANIC ANALYTES** | | | | | | | | | | | | | |
| **Acetone** | **67-64-1** | 2.06 | **30.2** | **7.97** | | | | 2.06 | **30.2** | **7.97** | 2.06 | **30.2** | **7.97** |
| **Acetophenone** | **98-86-2** | 0.0359 | **0.114** | **0.0562** | | | | 0.0359 | **0.114** | **0.0562** | 0.0359 | **0.114** | **0.0562** |
| **Aniline** | **62-53-3** | 0.0105 | **0.0333** | **0.0164** | | | | 0.0105 | **0.0333** | **0.0164** | 0.0105 | **0.0333** | **0.0164** |
| **Bis(2-ethylhexyl) phthalate** | **117-81-7** | 0.0629 | **0.215** | **0.101** | 0.0629 | **0.215** | **0.101** | | | | 0.0629 | **0.215** | **0.101** |
| **Butanone** | **78-93-3** | 0.878 | **4.81** | **1.85** | | | | 0.878 | **4.81** | **1.85** | 0.878 | **4.81** | **1.85** |
| **Butylbenzyl phthalate** | **85-68-7** | 0.0550 | **0.188** | **0.0887** | 0.0550 | **0.188** | **0.0887** | | | | 0.0550 | **0.188** | **0.0887** |
| **Carbazole** | **86-74-8** | 0.151 | **0.598** | **0.276** | 0.151 | **0.598** | **0.276** | | | | 0.151 | **0.598** | **0.276** |
| **o-Cresol** | **95-48-7** | 0.185 | **1.92** | **0.561** | | | | 0.185 | **1.92** | **0.561** | 0.185 | **1.92** | **0.561** |

| Pollutant Parameters | CAS Registry Number | Metals, Oils, Organics (A, B, & C) | | | Metals, Oils (A & B) | | | Metals, Organics (A & C) | | | Oils, Organics (B & C) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Long-Term Average Design Targets | Limitations | | Long-Term Average Design Targets | Limitations | | Long-Term Average Design Targets | Limitations | | Long-Term Average Design Targets | Limitations | |
| | | | **Daily Maximum** | **Monthly Average Maximum** | | **Daily Maximum** | **Monthly Average Maximum** | | **Daily Maximum** | **Monthly Average Maximum** | | **Daily Maximum** | **Monthly Average Maximum** |
| **p-Cresol** | **106-44-5** | 0.0682 | **0.698** | **0.205** | | | | 0.0682 | **0.698** | **0.205** | 0.0682 | **0.698** | **0.205** |
| **n-Decane** | **124-18-5** | 0.238 | **0.948** | **0.437** | 0.238 | **0.948** | **0.437** | | | | 0.238 | **0.948** | **0.437** |
| **2,3-Dichloroaniline** | **608-27-5** | 0.0230 | **0.0731** | **0.0361** | | | | 0.0230 | **0.0731** | **0.0361** | 0.0230 | **0.0731** | **0.0361** |
| **Fluoranthene** | **206-44-0** | 0.0173 | **0.0537** | **0.0268** | 0.0173 | **0.0537** | **0.0268** | | | | 0.0173 | **0.0537** | **0.0268** |
| **n-Octadecane** | **593-45-3** | 0.203 | **0.589** | **0.302** | 0.203 | **0.589** | **0.302** | | | | 0.203 | **0.589** | **0.302** |
| **Phenol** | **108-95-2** | 0.362 | **3.65** | **1.08** | | | | 0.362 | **3.65** | **1.08** | 0.362 | **3.65** | **1.08** |
| **Pyridine** | **110-86-1** | 0.116 | **0.370** | **0.182** | | | | 0.116 | **0.370** | **0.182** | 0.116 | **0.370** | **0.182** |
| **2,4,6-Trichlorophenol** | **88-06-2** | 0.0858 | **0.155** | **0.106** | | | | 0.0858 | **0.155** | **0.106** | 0.0858 | **0.155** | **0.106** |

* – The promulgated performance bounds for pH are 6-9 in standard units.

Table Executive Summary-3. CWT design targets and NSPS standards by subcategory (mg/L)

| Pollutant Parameters | CAS Registry Number | Metals - Subcategory A | | | Oils - Subcategory B | | | Organics - Subcategory C | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Long-Term Average Design Targets | Standards | | Long-Term Average Design Targets | Standards | | Long-Term Average Design Targets | Standards | |
| | | | **Daily Maximum** | **Monthly Average Maximum** | | **Daily Maximum** | **Monthly Average Maximum** | | **Daily Maximum** | **Monthly Average Maximum** |
| **CONVENTIONAL PARAMETERS*** | | | | | | | | | | |
| **$BOD_5$** | **C-003** | | | | | | | 41.0 | **163.** | **53.0** |
| **Oil & Grease** | **C-007** | 34.3 | **205.** | **50.2** | 28.3 | **127.** | **38.0** | | | |
| **TSS** | **C-009** | 9.25 | **29.6** | **11.3** | 25.5 | **74.1** | **30.6** | 45.0 | **216.** | **61.3** |
| **METAL ANALYTES** | | | | | | | | | | |
| **Antimony** | **7440-36-0** | 0.0213 | **0.111** | **0.0312** | 0.103 | **0.237** | **0.141** | 0.569 | **0.928** | **0.679** |
| **Arsenic** | **7440-38-2** | 0.0112 | **0.0993** | **0.0199** | 0.789 | **2.95** | **1.33** | | | |
| **Barium** | **7440-39-3** | | | | 0.221 | **0.427** | **0.281** | | | |
| **Cadium** | **7440-43-9** | 0.0819 | **0.782** | **0.163** | 0.00746 | **0.0172** | **0.0102** | | | |
| **Chromium** | **7440-47-3** | 0.0398 | **0.167** | **0.0522** | 0.183 | **0.746** | **0.323** | | | |
| **Cobalt** | **7440-48-4** | 0.0574 | **0.182** | **0.0703** | 7.42 | **56.4** | **18.8** | | | |
| **Copper** | **7440-50-8** | 0.169 | **0.659** | **0.216** | 0.157 | **0.500** | **0.242** | 0.704 | **0.865** | **0.757** |
| **Cyanide (in-plant)** | | 136 | **500** | **178** | | | | | | |
| **Lead** | **7439-92-1** | 0.177 | **1.32** | **0.283** | 0.0986 | **0.350** | **0.160** | | | |
| **Mercury** | **7439-97-6** | 0.000201 | **0.000641** | **0.000246** | 0.00309 | **0.0172** | **0.00647** | | | |
| **Molybdenum** | **7439-98-7** | | | | 1.54 | **3.50** | **2.09** | 0.943 | **1.01** | **0.965** |
| **Nickel** | **7440-02-0** | 0.255 | **0.794** | **0.309** | | | | | | |
| **Selenium** | **7782-49-2** | 0.0563 | **0.176** | **0.0698** | | | | | | |
| **Silver** | **7440-22-4** | 0.0100 | **0.0318** | **0.0122** | | | | | | |
| **Tin** | **7440-31-5** | 0.0300 | **0.0955** | **0.0367** | 0.107 | **0.335** | **0.165** | | | |
| **Titanium** | **7440-32-6** | 0.00500 | **0.0159** | **0.00612** | 0.0217 | **0.0510** | **0.0299** | | | |
| **Vanadium** | **7440-62-2** | 0.0500 | **0.0628** | **0.0518** | | | | | | |
| **Zinc** | **7440-66-6** | 0.206 | **0.657** | **0.252** | 3.14 | **8.26** | **4.50** | 0.382 | **0.497** | **0.420** |
| **ORGANIC ANALYTES** | | | | | | | | | | |
| **Acetone** | **67-64-1** | | | | | | | 2.06 | **30.2** | **7.97** |
| **Acetophenone** | **98-86-2** | | | | | | | 0.0359 | **0.114** | **0.0562** |
| **Aniline** | **62-53-3** | | | | | | | 0.0105 | **0.0333** | **0.0164** |
| **Bis(2-ethylhexyl) phthalate** | **117-81-7** | | | | 0.0629 | **0.215** | **0.101** | | | |
| **Butanone** | **78-93-3** | | | | | | | 0.878 | **4.81** | **1.85** |
| **Butylbenzyl phthalate** | **85-68-7** | | | | 0.0550 | **0.188** | **0.0887** | | | |

| Pollutant Parameters | CAS Registry Number | Metals - Subcategory A | | | Oils - Subcategory B | | | Organics - Subcategory C | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Long-Term Average Design Targets | Standards | | Long-Term Average Design Targets | Standards | | Long-Term Average Design Targets | Standards | |
| | | | Daily Maximum | Monthly Average Maximum | | Daily Maximum | Monthly Average Maximum | | Daily Maximum | Monthly Average Maximum |
| **Carbazole** | **86-74-8** | | | | 0.151 | **0.598** | **0.276** | | | |
| **o-Cresol** | **95-48-7** | | | | | | | 0.185 | **1.92** | **0.561** |
| **p-Cresol** | **106-44-5** | | | | | | | 0.0682 | **0.698** | **0.205** |
| **n-Decane** | **124-18-5** | | | | 0.238 | **0.948** | **0.437** | | | |
| **2,3-Dichloroaniline** | **608-27-5** | | | | | | | 0.0230 | **0.0731** | **0.0361** |
| **Fluoranthene** | **206-44-0** | | | | 0.0173 | **0.0537** | **0.0268** | | | |
| **n-Octadecane** | **593-45-3** | | | | 0.203 | **0.589** | **0.302** | | | |
| **Phenol** | **108-95-2** | | | | | | | 0.362 | **3.65** | **1.08** |
| **Pyridine** | **110-86-1** | | | | | | | 0.116 | **0.370** | **0.182** |
| **2,4,6-Trichlorophenol** | **88-06-2** | | | | | | | 0.0858 | **0.155** | **0.106** |

* – The promulgated performance bounds for pH are 6-9 in standard units.

Table Executive Summary-4. CWT design targets and NSPS standards for Subcategory D mixed wastestream combinations (mg/L)

| Pollutant Parameters | CAS Registry Number | Metals, Oils, Organics (A, B, & C) | | | Metals, Oils (A & B) | | | Metals, Organics (A & C) | | | Oils, Organics (B & C) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Long-Term Average Design Targets | Standards: Daily Maximum | Standards: Monthly Average Maximum | Long-Term Average Design Targets | Standards: Daily Maximum | Standards: Monthly Average Maximum | Long-Term Average Design Targets | Standards: Daily Maximum | Standards: Monthly Average Maximum | Long-Term Average Design Targets | Standards: Daily Maximum | Standards: Monthly Average Maximum |
| CONVENTIONALS PARAMETERS* | | | | | | | | | | | | | |
| **$BOD_5$** | **C-003** | 41.0 | **163.** | **53.0** | | | | 41.0 | **163.** | **53.0** | 41.0 | **163.** | **53.0** |
| **Oil & Grease** | **C-007** | 28.3 | **127.** | **38.0** | 28.3 | **127.** | **38.0** | 34.3 | **205.** | **50.2** | 28.3 | **127.** | **38.0** |
| **TSS** | **C-009** | 9.25 | **29.6** | **11.3** | 9.25 | **29.6** | **11.3** | 9.25 | **29.6** | **11.3** | 25.5 | **74.1** | **30.6** |
| METAL ANALYTES | | | | | | | | | | | | | |
| **Antimony** | **7440-36-0** | 0.0213 | **0.111** | **0.0312** | 0.0213 | **0.111** | **0.0312** | 0.0213 | **0.111** | **0.0312** | 0.103 | **0.237** | **0.141** |
| **Arsenic** | **7440-38-2** | 0.0112 | **0.0993** | **0.0199** | 0.0112 | **0.0993** | **0.0199** | 0.0112 | **0.0993** | **0.0199** | 0.789 | **2.95** | **1.33** |
| **Barium** | **7440-39-3** | 0.221 | **0.427** | **0.281** | 0.221 | **0.427** | **0.281** | | | | 0.221 | **0.427** | **0.281** |
| **Cadium** | **7440-43-9** | 0.00746 | **0.0172** | **0.0102** | 0.00746 | **0.0172** | **0.0102** | 0.0819 | **0.782** | **0.163** | 0.00746 | **0.0172** | **0.0102** |
| **Chromium** | **7440-47-3** | 0.0398 | **0.167** | **0.0522** | 0.0398 | **0.167** | **0.0522** | 0.0398 | **0.167** | **0.0522** | 0.183 | **0.746** | **0.323** |
| **Cobalt** | **7440-48-4** | 0.0574 | **0.182** | **0.0703** | 0.0574 | **0.182** | **0.0703** | 0.0574 | **0.182** | **0.0703** | 7.42 | **56.4** | **18.8** |
| **Copper** | **7440-50-8** | 0.169 | **0.659** | **0.216** | 0.169 | **0.659** | **0.216** | 0.169 | **0.659** | **0.216** | 0.157 | **0.500** | **0.242** |
| **Cyanide (in-plant)** | | 136 | **500** | **178** | | **500** | **178** | | **500** | **178** | | | |
| **Lead** | **7439-92-1** | 0.0986 | **0.350** | **0.160** | 0.0986 | **0.350** | **0.160** | 0.177 | **1.32** | **0.283** | 0.0986 | **0.350** | **0.160** |
| **Mercury** | **7439-97-6** | 0.000201 | **0.000641** | **0.000246** | 0.000201 | **0.000641** | **0.000246** | 0.000201 | **0.000641** | **0.000246** | 0.00309 | **0.0172** | **0.00647** |
| **Molybdenum** | **7439-98-7** | 0.943 | **1.01** | **0.965** | 1.54 | **3.50** | **2.09** | 0.943 | **1.01** | **0.965** | 0.943 | **1.01** | **0.965** |
| **Nickel** | **7440-02-0** | 0.255 | **0.794** | **0.309** | 0.255 | **0.794** | **0.309** | 0.255 | **0.794** | **0.309** | | | |
| **Selenium** | **7782-49-2** | 0.0563 | **0.176** | **0.0698** | 0.0563 | **0.176** | **0.0698** | 0.0563 | **0.176** | **0.0698** | | | |
| **Silver** | **7440-22-4** | 0.0100 | **0.0318** | **0.0122** | 0.0100 | **0.0318** | **0.0122** | 0.0100 | **0.0318** | **0.0122** | | | |
| **Tin** | **7440-31-5** | 0.0300 | **0.0955** | **0.0367** | 0.0300 | **0.0955** | **0.0367** | 0.0300 | **0.0955** | **0.0367** | 0.107 | **0.335** | **0.165** |
| **Titanium** | **7440-32-6** | 0.00500 | **0.0159** | **0.00612** | 0.00500 | **0.0159** | **0.00612** | 0.00500 | **0.0159** | **0.00612** | 0.0217 | **0.0510** | **0.0299** |
| **Vanadium** | **7440-62-2** | 0.0500 | **0.0628** | **0.0518** | 0.0500 | **0.0628** | **0.0518** | 0.0500 | **0.0628** | **0.0518** | | | |
| **Zinc** | **7440-66-6** | 0.206 | **0.657** | **0.252** | 0.206 | **0.657** | **0.252** | 0.206 | **0.657** | **0.252** | 0.382 | **0.497** | **0.420** |
| ORGANIC ANALYTES | | | | | | | | | | | | | |
| **Acetone** | **67-64-1** | 2.06 | **30.2** | **7.97** | | | | 2.06 | **30.2** | **7.97** | 2.06 | **30.2** | **7.97** |
| **Acetophenone** | **98-86-2** | 0.0359 | **0.114** | **0.0562** | | | | 0.0359 | **0.114** | **0.0562** | 0.0359 | **0.114** | **0.0562** |
| **Aniline** | **62-53-3** | 0.0105 | **0.0333** | **0.0164** | | | | 0.0105 | **0.0333** | **0.0164** | 0.0105 | **0.0333** | **0.0164** |
| **Bis(2-ethylhexyl) phthalate** | **117-81-7** | 0.0629 | **0.215** | **0.101** | 0.0629 | **0.215** | **0.101** | | | | 0.0629 | **0.215** | **0.101** |
| **Butanone** | **78-93-3** | 0.878 | **4.81** | **1.85** | | | | 0.878 | **4.81** | **1.85** | 0.878 | **4.81** | **1.85** |

| Pollutant Parameters | CAS Registry Number | Metals, Oils, Organics (A, B, & C) Long-Term Average Design Targets | Metals, Oils, Organics (A, B, & C) Standards Daily Maximum | Metals, Oils, Organics (A, B, & C) Standards Monthly Average Maximum | Metals, Oils (A & B) Long-Term Average Design Targets | Metals, Oils (A & B) Standards Daily Maximum | Metals, Oils (A & B) Standards Monthly Average Maximum | Metals, Organics (A & C) Long-Term Average Design Targets | Metals, Organics (A & C) Standards Daily Maximum | Metals, Organics (A & C) Standards Monthly Average Maximum | Oils, Organics (B & C) Long-Term Average Design Targets | Oils, Organics (B & C) Standards Daily Maximum | Oils, Organics (B & C) Standards Monthly Average Maximum |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Butylbenzyl phthalate** | **85-68-7** | 0.0550 | **0.188** | **0.0887** | 0.0550 | **0.188** | **0.0887** | | | | 0.0550 | **0.188** | **0.0887** |
| **Carbazole** | **86-74-8** | 0.151 | **0.598** | **0.276** | 0.151 | **0.598** | **0.276** | | | | 0.151 | **0.598** | **0.276** |
| **o-Cresol** | **95-48-7** | 0.185 | **1.92** | **0.561** | | | | 0.185 | **1.92** | **0.561** | 0.185 | **1.92** | **0.561** |
| **p-Cresol** | **106-44-5** | 0.0682 | **0.698** | **0.205** | | | | 0.0682 | **0.698** | **0.205** | 0.0682 | **0.698** | **0.205** |
| **n-Decane** | **124-18-5** | 0.238 | **0.948** | **0.437** | 0.238 | **0.948** | **0.437** | | | | 0.238 | **0.948** | **0.437** |
| **2,3-Dichloroaniline** | **608-27-5** | 0.0230 | **0.0731** | **0.0361** | | | | 0.0230 | **0.0731** | **0.0361** | 0.0230 | **0.0731** | **0.0361** |
| **Fluoranthene** | **206-44-0** | 0.0173 | **0.0537** | **0.0268** | 0.0173 | **0.0537** | **0.0268** | | | | 0.0173 | **0.0537** | **0.0268** |
| **n-Octadecane** | **593-45-3** | 0.203 | **0.589** | **0.302** | 0.203 | **0.589** | **0.302** | | | | 0.203 | **0.589** | **0.302** |
| **Phenol** | **108-95-2** | 0.362 | **3.65** | **1.08** | | | | 0.362 | **3.65** | **1.08** | 0.362 | **3.65** | **1.08** |
| **Pyridine** | **110-86-1** | 0.116 | **0.370** | **0.182** | | | | 0.116 | **0.370** | **0.182** | 0.116 | **0.370** | **0.182** |
| **2,4,6-Trichlorophenol** | **88-06-2** | 0.0858 | **0.155** | **0.106** | | | | 0.0858 | **0.155** | **0.106** | 0.0858 | **0.155** | **0.106** |

* – The promulgated performance bounds for pH are 6-9 in standard units.

Table Executive Summary-5. CWT design targets and PSES standards by subcategory (mg/L)

| Pollutant Parameters | CAS Registry Number | Metals - Subcategory A | | | Oils - Subcategory B | | | Organics - Subcategory C | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Long-Term Average Design Targets | Standards | | Long-Term Average Design Targets | Standards | | Long-Term Average Design Targets | Standards | |
| | | | **Daily Maximum** | **Monthly Average Maximum** | | **Daily Maximum** | **Monthly Average Maximum** | | **Daily Maximum** | **Monthly Average Maximum** |
| **METAL ANALYTES** | | | | | | | | | | |
| **Antimony** | **7440-36-0** | 0.170 | **0.249** | **0.206** | 0.103 | **0.237** | **0.141** | | | |
| **Arsenic** | **7440-38-2** | 0.0839 | **0.162** | **0.104** | | | | | | |
| **Barium** | **7440-39-3** | | | | 0.221 | **0.427** | **0.281** | | | |
| **Cadium** | **7440-43-9** | 0.0580 | **0.474** | **0.0962** | | | | | | |
| **Chromium** | **7440-47-3** | 1.67 | **15.5** | **3.07** | 0.323 | **0.947** | **0.487** | | | |
| **Cobalt** | **7440-48-4** | 0.115 | **0.192** | **0.124** | 7.42 | **56.4** | **18.8** | | | |
| **Copper** | **7440-50-8** | 0.744 | **4.14** | **1.06** | 0.257 | **0.405** | **0.301** | | | |
| **Cyanide (in-plant)** | | 136 | **500** | **178** | | | | | | |
| **Lead** | **7439-92-1** | 0.177 | **1.32** | **0.283** | 0.149 | **0.222** | **0.172** | | | |
| **Mercury** | **7439-97-6** | 0.000560 | **0.00234** | **0.000739** | | | | | | |
| **Molybdenum** | **7439-98-7** | | | | 1.54 | **3.50** | **2.09** | 0.943 | **1.01** | **0.965** |
| **Nickel** | **7440-02-0** | 1.16 | **3.95** | **1.45** | | | | | | |
| **Selenium** | **7782-49-2** | 0.280 | **1.64** | **0.408** | | | | | | |
| **Silver** | **7440-22-4** | 0.0264 | **0.120** | **0.0351** | | | | | | |
| **Tin** | **7440-31-5** | 0.0898 | **0.409** | **0.120** | 0.107 | **0.249** | **0.146** | | | |
| **Titanium** | **7440-32-6** | 0.0569 | **0.0947** | **0.0618** | | | | | | |
| **Vanadium** | **7440-62-2** | 0.0500 | **0.218** | **0.0662** | | | | | | |
| **Zinc** | **7440-66-6** | 0.413 | **2.87** | **0.641** | 3.45 | **6.95** | **4.46** | | | |
| **ORGANIC ANALYTES** | | | | | | | | | | |
| **Bis(2-ethylhexyl) phthalate** | **117-81-7** | | | | 0.116 | **0.267** | **0.158** | | | |
| **Carbazole** | **86-74-8** | | | | 0.151 | **0.392** | **0.233** | | | |
| **o-Cresol** | **95-48-7** | | | | | | | 0.185 | **1.92** | **0.561** |
| **p-Cresol** | **106-44-5** | | | | | | | 0.0682 | **0.698** | **0.205** |
| **n-Decane** | **124-18-5** | | | | 2.37 | **5.79** | **3.31** | | | |
| **2,3-Dichloroaniline** | **608-27-5** | | | | | | | 0.0230 | **0.0731** | **0.0361** |
| **Fluoranthene** | **206-44-0** | | | | 0.253 | **0.787** | **0.393** | | | |

| Pollutant Parameters | CAS Registry Number | Metals - Subcategory A | | | Oils - Subcategory B | | | Organics - Subcategory C | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Long-Term Average Design Targets | Standards | | Long-Term Average Design Targets | Standards | | Long-Term Average Design Targets | Standards | |
| | | | **Daily Maximum** | **Monthly Average Maximum** | | **Daily Maximum** | **Monthly Average Maximum** | | **Daily Maximum** | **Monthly Average Maximum** |
| **n-Octadecane** | **593-45-3** | | | | 0.793 | **1.22** | **0.925** | | | |
| **2,4,6-Trichlorophenol** | **88-06-2** | | | | | | | 0.0858 | **0.155** | **0.106** |

Table Executive Summary-6. CWT design targets and PSES standards for Subcategory D mixed wastestream combinations (mg/L)

| | | **Metals, Oils, Organics (A, B, & C)** | | | **Metals, Oils (A & B)** | | | **Metals, Organics (A & C)** | | | **Oils, Organics (B & C)** | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Pollutant Parameters** | **CAS Registry Number** | Long-Term Average Design Targets | **Standards** | | Long-Term Average Design Targets | **Standards** | | Long-Term Average Design Targets | **Standards** | | Long-Term Average Design Targets | **Standards** | |
| | | | **Daily Maximum** | **Monthly Average Maximum** | | **Daily Maximum** | **Monthly Average Maximum** | | **Daily Maximum** | **Monthly Average Maximum** | | **Daily Maximum** | **Monthly Average Maximum** |
| <u>METAL ANALYTES</u> | | | | | | | | | | | | | |
| **Antimony** | **7440-36-0** | 0.103 | **0.237** | **0.141** | 0.103 | **0.237** | **0.141** | 0.170 | **0.249** | **0.206** | 0.103 | **0.237** | **0.141** |
| **Arsenic** | **7440-38-2** | 0.0839 | **0.162** | **0.104** | 0.0839 | **0.162** | **0.104** | 0.0839 | **0.162** | **0.104** | | | |
| **Barium** | **7440-39-3** | 0.221 | **0.427** | **0.281** | 0.221 | **0.427** | **0.281** | | | | 0.221 | **0.427** | **0.281** |
| **Cadium** | **7440-43-9** | 0.0580 | **0.474** | **0.0962** | 0.0580 | **0.474** | **0.0962** | 0.0580 | **0.474** | **0.0962** | | | |
| **Chromium** | **7440-47-3** | 0.323 | **0.947** | **0.487** | 0.323 | **0.947** | **0.487** | 1.67 | **15.5** | **3.07** | 0.323 | **0.947** | **0.487** |
| **Cobalt** | **7440-48-4** | 0.115 | **0.192** | **0.124** | 0.115 | **0.192** | **0.124** | 0.115 | **0.192** | **0.124** | 7.42 | **56.4** | **18.8** |
| **Copper** | **7440-50-8** | 0.257 | **0.405** | **0.301** | 0.257 | **0.405** | **0.301** | 0.744 | **4.14** | **1.06** | 0.257 | **0.405** | **0.301** |
| **Cyanide (in-plant)** | | 136 | **500** | **178** | 136 | **500** | **178** | 136 | **500** | **178** | | | |
| **Lead** | **7439-92-1** | 0.149 | **0.222** | **0.172** | 0.149 | **0.222** | **0.172** | 0.177 | **1.32** | **0.283** | 0.149 | **0.222** | **0.172** |
| **Mercury** | **7439-97-6** | 0.000560 | **0.00234** | **0.000739** | 0.000560 | **0.00234** | **0.000739** | 0.000560 | **0.00234** | **0.000739** | | | |
| **Molybdenum** | **7439-98-7** | 0.943 | **1.01** | **0.965** | 1.54 | **3.50** | **2.09** | 0.943 | **1.01** | **0.965** | 0.943 | **1.01** | **0.965** |
| **Nickel** | **7440-02-0** | 1.16 | **3.95** | **1.45** | 1.16 | **3.95** | **1.45** | 1.16 | **3.95** | **1.45** | | | |
| **Selenium** | **7782-49-2** | 0.280 | **1.64** | **0.408** | 0.280 | **1.64** | **0.408** | 0.280 | **1.64** | **0.408** | | | |
| **Silver** | **7440-22-4** | 0.0264 | **0.120** | **0.0351** | 0.0264 | **0.120** | **0.0351** | 0.0264 | **0.120** | **0.0351** | | | |
| **Tin** | **7440-31-5** | 0.0898 | **0.409** | **0.120** | 0.0898 | **0.409** | **0.120** | 0.0898 | **0.409** | **0.120** | 0.107 | **0.249** | **0.146** |
| **Titanium** | **7440-32-6** | 0.0569 | **0.0947** | **0.0618** | 0.0569 | **0.0947** | **0.0618** | 0.0569 | **0.0947** | **0.0618** | | | |
| **Vanadium** | **7440-62-2** | 0.0500 | **0.218** | **0.0662** | 0.0500 | **0.218** | **0.0662** | 0.0500 | **0.218** | **0.0662** | | | |
| **Zinc** | **7440-66-6** | 0.413 | **2.87** | **0.641** | 0.413 | **2.87** | **0.641** | 0.413 | **2.87** | **0.641** | 3.45 | **6.95** | **4.46** |
| <u>ORGANIC ANALYTES</u> | | | | | | | | | | | | | |
| **Bis(2-ethylhexyl)phthalate** | **117-81-7** | 0.116 | **0.267** | **0.158** | 0.116 | **0.267** | **0.158** | | | | 0.116 | **0.267** | **0.158** |
| **Carbazole** | **86-74-8** | 0.151 | **0.392** | **0.233** | 0.151 | **0.392** | **0.233** | | | | 0.151 | **0.392** | **0.233** |
| **o-Cresol** | **95-48-7** | 0.185 | **1.92** | **0.561** | | | | 0.185 | **1.92** | **0.561** | 0.185 | **1.92** | **0.561** |
| **p-Cresol** | **106-44-5** | 0.0682 | **0.698** | **0.205** | | | | 0.0682 | **0.698** | **0.205** | 0.0682 | **0.698** | **0.205** |
| **n-Decane** | **124-18-5** | 2.37 | **5.79** | **3.31** | 2.37 | **5.79** | **3.31** | | | | 2.37 | **5.79** | **3.31** |
| **2,3-Dichloroaniline** | **608-27-5** | 0.0230 | **0.0731** | **0.0361** | | | | 0.0230 | **0.0731** | **0.0361** | 0.0230 | **0.0731** | **0.0361** |

| Pollutant Parameters | CAS Registry Number | Metals, Oils, Organics (A, B, & C) | | | Metals, Oils (A & B) | | | Metals, Organics (A & C) | | | Oils, Organics (B & C) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Long-Term Average Design Targets | Standards | | Long-Term Average Design Targets | Standards | | Long-Term Average Design Targets | Standards | | Long-Term Average Design Targets | Standards | |
| | | | **Daily Maximum** | **Monthly Average Maximum** | | **Daily Maximum** | **Monthly Average Maximum** | | **Daily Maximum** | **Monthly Average Maximum** | | **Daily Maximum** | **Monthly Average Maximum** |
| **Fluoranthene** | **206-44-0** | 0.253 | **0.787** | **0.393** | 0.253 | **0.787** | **0.393** | | | | 0.253 | **0.787** | **0.393** |
| **n-Octadecane** | **593-45-3** | 0.793 | **1.22** | **0.925** | 0.793 | **1.22** | **0.925** | | | | 0.793 | **1.22** | **0.925** |
| **2,4,6-Trichlorophenol** | **88-06-2** | 0.0858 | **0.155** | **0.106** | | | | 0.0858 | **0.155** | **0.106** | 0.0858 | **0.155** | **0.106** |

Table Executive Summary-7. CWT design targets and PSNS standards by subcategory (mg/L)

| Pollutant Parameters | CAS Registry Number | Metals - Subcategory A | | | Oils - Subcategory B | | | Organics - Subcategory C | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Long-Term Average Design Targets | Standards | | Long-Term Average Design Targets | Standards | | Long-Term Average Design Targets | Standards | |
| | | | Daily Maximum | Monthly Average Maximum | | Daily Maximum | Monthly Average Maximum | | Daily Maximum | Monthly Average Maximum |
| METAL ANALYTES | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.170 | 0.249 | 0.206 | 0.103 | 0.237 | 0.141 | | | |
| Arsenic | 7440-38-2 | 0.0839 | 0.162 | 0.104 | | | | | | |
| Barium | 7440-39-3 | | | | 0.221 | 0.427 | 0.281 | | | |
| Cadium | 7440-43-9 | 0.0580 | 0.474 | 0.0962 | | | | | | |
| Chromium | 7440-47-3 | 1.67 | 15.5 | 3.07 | 0.183 | 0.746 | 0.323 | | | |
| Cobalt | 7440-48-4 | 0.115 | 0.192 | 0.124 | 7.42 | 56.4 | 18.8 | | | |
| Copper | 7440-50-8 | 0.744 | 4.14 | 1.06 | 0.157 | 0.500 | 0.242 | | | |
| Cyanide (in-plant) | | 136 | 500 | 178 | | | | | | |
| Lead | 7439-92-1 | 0.177 | 1.32 | 0.283 | 0.0986 | 0.350 | 0.160 | | | |
| Mercury | 7439-97-6 | 0.000560 | 0.00234 | 0.000739 | | | | | | |
| Molybdenum | 7439-98-7 | | | | 1.54 | 3.50 | 2.09 | 0.943 | 1.01 | 0.965 |
| Nickel | 7440-02-0 | 1.16 | 3.95 | 1.45 | | | | | | |
| Selenium | 7782-49-2 | 0.280 | 1.64 | 0.408 | | | | | | |
| Silver | 7440-22-4 | 0.0264 | 0.120 | 0.0351 | | | | | | |
| Tin | 7440-31-5 | 0.0898 | 0.409 | 0.120 | 0.107 | 0.335 | 0.165 | | | |
| Titanium | 7440-32-6 | 0.0569 | 0.0947 | 0.0618 | | | | | | |
| Vanadium | 7440-62-2 | 0.0500 | 0.218 | 0.0662 | | | | | | |
| Zinc | 7440-66-6 | 0.413 | 2.87 | 0.641 | 3.14 | 8.26 | 4.50 | | | |
| ORGANIC ANALYTES | | | | | | | | | | |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | | | | 0.0629 | 0.215 | 0.101 | | | |
| Carbazole | 86-74-8 | | | | 0.151 | 0.598 | 0.276 | | | |
| o-Cresol | 95-48-7 | | | | | | | 0.185 | 1.92 | 0.561 |
| p-Cresol | 106-44-5 | | | | | | | 0.0682 | 0.698 | 0.205 |
| n-Decane | 124-18-5 | | | | 0.238 | 0.948 | 0.437 | | | |
| 2,3-Dichloroaniline | 608-27-5 | | | | | | | 0.0230 | 0.0731 | 0.0361 |

| Pollutant Parameters | CAS Registry Number | Metals - Subcategory A | | | Oils - Subcategory B | | | Organics - Subcategory C | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Long-Term Average Design Targets | Standards | | Long-Term Average Design Targets | Standards | | Long-Term Average Design Targets | Standards | |
| | | | Daily Maximum | Monthly Average Maximum | | Daily Maximum | Monthly Average Maximum | | Daily Maximum | Monthly Average Maximum |
| **Fluoranthene** | **206-44-0** | | | | 0.0173 | **0.0537** | **0.0268** | | | |
| **n-Octadecane** | **593-45-3** | | | | 0.203 | **0.589** | **0.302** | | | |
| **2,4,6-Trichlorophenol** | **88-06-2** | | | | | | | 0.0858 | **0.155** | **0.106** |

Table Executive Summary-8. CWT design targets and PSNS standards for Subcategory D mixed wastestream combinations (mg/L)

| Pollutant Parameters | CAS Registry Number | Metals, Oils, Organics (A, B, & C) | | | Metals, Oils (A & B) | | | Metals, Organics (A & C) | | | Oils, Organics (B & C) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Long-Term Average Design Targets | Standards: Daily Maximum | Standards: Monthly Average Maximum | Long-Term Average Design Targets | Standards: Daily Maximum | Standards: Monthly Average Maximum | Long-Term Average Design Targets | Standards: Daily Maximum | Standards: Monthly Average Maximum | Long-Term Average Design Targets | Standards: Daily Maximum | Standards: Monthly Average Maximum |
| **METAL ANALYTES** | | | | | | | | | | | | | |
| Antimony | 7440-36-0 | 0.103 | 0.237 | 0.141 | 0.103 | 0.237 | 0.141 | 0.170 | 0.249 | 0.206 | 0.103 | 0.237 | 0.141 |
| Arsenic | 7440-38-2 | 0.0839 | 0.162 | 0.104 | 0.0839 | 0.162 | 0.104 | 0.0839 | 0.162 | 0.104 | | | |
| Barium | 7440-39-3 | 0.221 | 0.427 | 0.281 | 0.221 | 0.427 | 0.281 | | | | 0.221 | 0.427 | 0.281 |
| Cadium | 7440-43-9 | 0.0580 | 0.474 | 0.0962 | 0.0580 | 0.474 | 0.0962 | 0.0580 | 0.474 | 0.0962 | | | |
| Chromium | 7440-47-3 | 0.183 | 0.746 | 0.323 | 0.183 | 0.746 | 0.323 | 1.67 | 15.5 | 3.07 | 0.183 | 0.746 | 0.323 |
| Cobalt | 7440-48-4 | 0.115 | 0.192 | 0.124 | 0.115 | 0.192 | 0.124 | 0.115 | 0.192 | 0.124 | 7.42 | 56.4 | 18.8 |
| Copper | 7440-50-8 | 0.157 | 0.500 | 0.242 | 0.157 | 0.500 | 0.242 | 0.744 | 4.14 | 1.06 | 0.157 | 0.500 | 0.242 |
| Cyanide (in-plant) | | 136 | 500 | 178 | 136 | 500 | 178 | 136 | 500 | 178 | | | |
| Lead | 7439-92-1 | 0.0986 | 0.350 | 0.160 | 0.0986 | 0.350 | 0.160 | 0.177 | 1.32 | 0.283 | 0.0986 | 0.350 | 0.160 |
| Mercury | 7439-97-6 | 0.000560 | 0.00234 | 0.000739 | 0.000560 | 0.00234 | 0.000739 | 0.000560 | 0.00234 | 0.000739 | | | |
| Molybdenum | 7439-98-7 | 0.943 | 1.01 | 0.965 | 1.54 | 3.50 | 2.09 | 0.943 | 1.01 | 0.965 | 0.943 | 1.01 | 0.965 |
| Nickel | 7440-02-0 | 1.16 | 3.95 | 1.45 | 1.16 | 3.95 | 1.45 | 1.16 | 3.95 | 1.45 | | | |
| Selenium | 7782-49-2 | 0.280 | 1.64 | 0.408 | 0.280 | 1.64 | 0.408 | 0.280 | 1.64 | 0.408 | | | |
| Silver | 7440-22-4 | 0.0264 | 0.120 | 0.0351 | 0.0264 | 0.120 | 0.0351 | 0.0264 | 0.120 | 0.0351 | | | |
| Tin | 7440-31-5 | 0.0898 | 0.409 | 0.120 | 0.0898 | 0.409 | 0.120 | 0.0898 | 0.409 | 0.120 | 0.107 | 0.335 | 0.165 |
| Titanium | 7440-32-6 | 0.0569 | 0.0947 | 0.0618 | 0.0569 | 0.0947 | 0.0618 | 0.0569 | 0.0947 | 0.0618 | | | |
| Vanadium | 7440-62-2 | 0.0500 | 0.218 | 0.0662 | 0.0500 | 0.218 | 0.0662 | 0.0500 | 0.218 | 0.0662 | | | |
| Zinc | 7440-66-6 | 0.413 | 2.87 | 0.641 | 0.413 | 2.87 | 0.641 | 0.413 | 2.87 | 0.641 | 3.14 | 8.26 | 4.50 |
| **ORGANIC ANALYTES** | | | | | | | | | | | | | |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | 0.0629 | 0.215 | 0.101 | 0.0629 | 0.215 | 0.101 | | | | 0.0629 | 0.215 | 0.101 |
| Carbazole | 86-74-8 | 0.151 | 0.598 | 0.276 | 0.151 | 0.598 | 0.276 | | | | 0.151 | 0.598 | 0.276 |
| o-Cresol | 95-48-7 | 0.185 | 1.92 | 0.561 | | | | 0.185 | 1.92 | 0.561 | 0.185 | 1.92 | 0.561 |
| p-Cresol | 106-44-5 | 0.0682 | 0.698 | 0.205 | | | | 0.0682 | 0.698 | 0.205 | 0.0682 | 0.698 | 0.205 |
| n-Decane | 124-18-5 | 0.238 | 0.948 | 0.437 | 0.238 | 0.948 | 0.437 | | | | 0.238 | 0.948 | 0.437 |
| 2,3-Dichloroaniline | 608-27-5 | 0.0230 | 0.0731 | 0.0361 | | | | 0.0230 | 0.0731 | 0.0361 | 0.0230 | 0.0731 | 0.0361 |

| Pollutant Parameters | CAS Registry Number | Metals, Oils, Organics (A, B, & C) | | | Metals, Oils (A & B) | | | Metals, Organics (A & C) | | | Oils, Organics (B & C) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Long-Term Average Design Targets | **Standards** | | Long-Term Average Design Targets | **Standards** | | Long-Term Average Design Targets | **Standards** | | Long-Term Average Design Targets | **Standards** | |
| | | | **Daily Maximum** | **Monthly Average Maximum** | | **Daily Maximum** | **Monthly Average Maximum** | | **Daily Maximum** | **Monthly Average Maximum** | | **Daily Maximum** | **Monthly Average Maximum** |
| **Fluoranthene** | **206-44-0** | 0.0173 | **0.0537** | **0.0268** | 0.0173 | **0.0537** | **0.0268** | | | | 0.0173 | **0.0537** | **0.0268** |
| **n-Octadecane** | **593-45-3** | 0.203 | **0.589** | **0.302** | 0.203 | **0.589** | **0.302** | | | | 0.203 | **0.589** | **0.302** |
| **2,4,6-Trichlorophenol** | **88-06-2** | 0.0858 | **0.155** | **0.106** | | | | 0.0858 | **0.155** | **0.106** | 0.0858 | **0.155** | **0.106** |

# Chapter 1
# BACKGROUND

This chapter provides background information on the development of this final rule. The first sections detail the legislative background while the later sections provide information on the 1995 CWT proposal, 1996 CWT Notice of Data Availability, and the 1999 CWT supplemental proposal.

## *LEGAL AUTHORITY* 1.0

These regulations are proposed under the authority of Sections 301, 304, 306, 307, 308, 402, and 501 of the Clean Water Act, 33 U.S.C.1311, 1314, 1316, 1317, 1318, 1342, and 1361.

## *LEGISLATIVE BACKGROUND* 1.1

### *Clean Water Act* 1.1.1

Congress adopted the Clean Water Act (CWA) to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters" (Section 101(a), 33 U.S.C. 1251(a)). To achieve this goal, the CWA prohibits the discharge of pollutants into navigable waters except in compliance with the statute. The Clean Water Act confronts the problem of water pollution on a number of different fronts. Its primary reliance, however, is on establishing restrictions on the types and amounts of pollutants discharged from various industrial, commercial, and public sources of wastewater.

Congress recognized that regulating only those sources that discharge effluent directly into the nation's waters would not be sufficient to achieve the CWA's goals. Consequently, the CWA requires EPA to promulgate nationally applicable pretreatment standards which restrict pollutant discharges for those who discharge wastewater indirectly through sewers flowing to publicly-owned treatment works (POTWs) (Section 307(b) and (c), 33 U.S.C. 1317(b) & (c)). National pretreatment standards are established for those pollutants in wastewater from indirect dischargers which may pass through or interfere with POTW operations. Generally, pretreatment standards are designed to ensure that wastewater from direct and indirect industrial dischargers are subject to similar levels of treatment. In addition, POTWs are required to implement local treatment limits applicable to their industrial indirect dischargers to satisfy any local requirements (40 CFR 403.5).

Direct dischargers must comply with effluent limitations in National Pollutant Discharge Elimination System ("NPDES") permits; indirect dischargers must comply with pretreatment standards. These limitations and standards are established by regulation for categories of industrial dischargers and are based on the degree of control that can be achieved using various levels of pollution control technology.

#### *Best Practicable Control Technology Currently Available (BPT) -- Sec. 304(b)(1) of the CWA* 1.1.1.1

In the guidelines, EPA defines BPT effluent limits for conventional, priority,[1] and non-

[1]In the initial stages of EPA CWA regulation, EPA efforts emphasized the achievement of BPT limitations for control of the "classical" pollutants (for example, TSS, pH, BOD5). However, nothing on the face of the statute explicitly restricted BPT limitation to such pollutants. Following passage of the Clean Water Act of 1977 with its requirement for points sources to achieve best available

conventional pollutants. In specifying BPT, EPA looks at a number of factors. EPA first considers the cost of achieving effluent reductions in relation to the effluent reduction benefits. The Agency also considers: the age of the equipment and facilities, the processes employed and any required process changes, engineering aspects of the control technologies, non-water quality environmental impacts (including energy requirements), and such other factors as the Agency deems appropriate (CWA 304(b)(1)(B)). Traditionally, EPA establishes BPT effluent limitations based on the average of the best performances of facilities within the industry of various ages, sizes, processes or other common characteristics. Where, however, existing performance is uniformly inadequate, EPA may require higher levels of control than currently in place in an industrial category if the Agency determines that the technology can be practically applied.

*Best Conventional Pollutant Control Technology (BCT) -- Sec. 304(b)(4) of the CWA* *1.1.1.2*

The 1977 amendments to the CWA required EPA to identify effluent reduction levels for conventional pollutants associated with BCT technology for discharges from existing industrial point sources. In addition to other factors specified in Section 304(b)(4)(B), the CWA requires that EPA establish BCT limitations after consideration of a two part "cost-reasonableness" test. EPA explained its methodology for the development of BCT limitations in July 1986 (51 FR 24974).

Section 304(a)(4) designates the following as conventional pollutants: biochemical oxygen demand ($BOD_5$), total suspended solids (TSS), fecal coliform, pH, and any additional pollutants defined by the Administrator as conventional. The Administrator designated oil and grease as an additional conventional pollutant on July 30, 1979 (44 FR 44501).

*Best Available Technology Economically Achievable (BAT) -- Sec. 304(b)(2) of the CWA* *1.1.1.3*

In general, BAT effluent limitations guidelines represent the best economically achievable performance of plants in the industrial subcategory or category. The factors considered in assessing BAT include the cost of achieving BAT effluent reductions, the age of equipment and facilities involved, the process employed, potential process changes, and non-water quality environmental impacts, including energy requirements. The Agency retains considerable discretion in assigning the weight to be accorded these factors. Unlike BPT limitations, BAT limitations may be based on effluent reductions attainable through changes in a facility's processes and operations. As with BPT, where existing performance is uniformly inadequate, BAT may require a higher level of performance than is currently being achieved based on technology transferred from a different subcategory or category. BAT may be based upon process changes or internal controls, even when these technologies are not common industry practice.

*New Source Performance Standards (NSPS) -- Sec. 306 of the CWA* *1.1.1.4*

NSPS reflect effluent reductions that are achievable based on the best available demonstrated control technology. New facilities have the opportunity to install the best and most efficient production processes and wastewater treatment technologies. As a result, NSPS should represent the most stringent controls attainable through the application of the best

(continued on next page)
technology limitations to control discharges of toxic pollutants, EPA shifted the focus of the guidelines program to address the listed priority pollutants. BPT guidelines continue to include limitations to address all pollutants.

available control technology for all pollutants (that is, conventional, nonconventional, and priority pollutants). In establishing NSPS, EPA is directed to take into consideration the cost of achieving the effluent reduction and any non-water quality environmental impacts and energy requirements.

*Pretreatment Standards for Existing Sources(PSES) -- Sec. 307(b) of the CWA 1.1.1.5*

PSES are designed to prevent the discharge of pollutants that pass-through, interfere-with, or are otherwise incompatible with the operation of publicly-owned treatment works (POTW). The CWA authorizes EPA to establish pretreatment standards for pollutants that pass-through POTWs or interfere with treatment processes or sludge disposal methods at POTWs. Pretreatment standards are technology-based and analogous to BAT effluent limitations guidelines.

The General Pretreatment Regulations, which set forth the framework for the implementation of categorical pretreatment standards, are found at 40 CFR Part 403. Those regulations contain a definition of pass-through that addresses localized rather than national instances of pass-through and establish pretreatment standards that apply to all non-domestic dischargers. See 52 FR 1586, January 14, 1987.

*Pretreatment Standards for New Sources (PSNS) -- Sec. 307(b) of the CWA 1.1.1.6*

Like PSES, PSNS are designed to prevent the discharges of pollutants that pass-through, interfere-with, or are otherwise incompatible with the operation of POTWs. PSNS are to be issued at the same time as NSPS. New indirect dischargers have the opportunity to incorporate into their plants the best available demonstrated technologies. The Agency considers the same factors in promulgating PSNS as it considers in promulgating NSPS.

***Section 304(m) Requirements and Litigation 1.1.2***

Section 304(m) of the CWA, added by the Water Quality Act of 1987, requires EPA to establish schedules for (1) reviewing and revising existing effluent limitations guidelines and standards ("effluent guidelines") and (2) promulgating new effluent guidelines. On January 2, 1990, EPA published an Effluent Guidelines Plan (55 FR 80) that established schedules for developing new and revised effluent guidelines for several industry categories. One of the industries for which the Agency established a schedule was the Centralized Waste Treatment Industry.

The Natural Resources Defense Council (NRDC) and Public Citizen, Inc. filed suit against the Agency, alleging violation of Section 304(m) and other statutory authorities requiring promulgation of effluent guidelines (NRDC *et al.* v. Browner, Civ. No. 89-2980 (D.D.C.)). Under the terms of a consent decree dated January 31, 1992, which settled the litigation, EPA agreed, among other things, to propose effluent guidelines for the "Centralized Waste Treatment Industry Category by April 31, 1994 and take final action on these effluent guidelines by January 31, 1996. On February 4, 1997, the court approved modifications to the Decree which revised the deadline to August 1999 for final action. EPA provided notice of these modifications on February 26, 1997 at 62 FR 8726. Due to the need to examine issues raised during the Small Business Advocacy Review (SBAR) process, the court approved a modification to the Decree that again extended the deadline for final action to August, 2000.

***The Land Disposal Restrictions Program: 1.1.3***

*Introduction to RCRA Land Disposal Restrictions (LDR) 1.1.3.1*

The Hazardous and Solid Waste Amendments (HSWA) to the Resource Conservation and Recovery Act (RCRA), enacted on November 8, 1984, largely prohibit the land disposal of untreated hazardous wastes. Once a hazardous waste is prohibited from land disposal, the statute provides only two options for legal land disposal: meet the treatment standard for the waste prior to land disposal, or dispose of the waste in a land disposal unit that has been found to satisfy the statutory no migration test. A no migration unit is one from which there will be no migration of hazardous constituents for as long as the waste remains hazardous (RCRA Sections 3004 (d),(e),(g)(5)).

Under section 3004, the treatment standards that EPA develops may be expressed as either constituent concentration levels or as specific methods of treatment. The criteria for these standards is that they must substantially diminish the toxicity of the waste or substantially reduce the likelihood of migration of hazardous constituents from the waste so that short-term and long-term threats to human health and the environment are minimized (RCRA Section 3004(m)(1)). For purposes of the restrictions, the RCRA program defines land disposal to include any placement of hazardous waste in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, salt bed formation, or underground mine or cave. Land disposal restrictions are published in 40 CFR Part 268.

EPA has used hazardous waste treatability data as the basis for land disposal restrictions standards. First, EPA has identified Best Demonstrated Available Treatment Technology (BDAT) for each listed hazardous waste. BDAT is that treatment technology that EPA finds to be the most effective for a waste which is also readily available to generators and treaters. In some cases, EPA has designated, for a particular waste stream, a treatment technology which has been shown to successfully treat a similar, but more difficult to treat, waste stream. This ensured that the land disposal restrictions standards for a listed waste stream were achievable since they always reflected the actual treatability of the waste itself or of a more refractory waste.

As part of the Land Disposal Restrictions (LDR), Universal Treatment Standards (UTS) were promulgated as part of the RCRA phase two final rule (July 27,1994). The UTS are a series of concentrations for wastewaters and non-wastewaters that provide a single treatment standard for each constituent. Previously, the LDR regulated constituents according to the identity of the original waste; thus, several numerical treatment standards might exist for each constituent. The UTS simplified the standards by having only one treatment standard for each constituent in any waste residue.

The LDR treatment standards established under RCRA may differ from the Clean Water Act effluent guidelines proposed here today both in their format and in the numerical values set for each constituent. The differences result from the use of different legal criteria for developing the limits and resulting differences in the technical and economic criteria and data sets used for establishing the respective limits. The differences in format of the LDR and effluent guidelines is that LDR establishes a single daily limit for each pollutant parameter whereas the effluent guidelines establish monthly and daily limits. Additionally, the effluent guidelines provide for several types of discharge, including new vs. existing sources, and indirect vs. direct discharge.

The differences in numerical limits established under the Clean Water Act may differ, not only from LDR and UTS, but also from point-source category to point-source category (for example, Electroplating, 40 CFR

Part 413; and Metal Finishing, 40 CFR Part 433). The effluent guidelines limitations and standards are industry-specific, subcategory-specific, and technology-based. The numerical limits are typically based on different data sets that reflect the performance of specific wastewater management and treatment practices. Differences in the limits reflect differences in the statutory factors that the Administrator is required to consider in developing technically and economically achievable limitations and standards -- manufacturing products and processes (which, for CWTs involves types of waste received for treatment), raw materials, wastewater characteristics, treatability, facility size, geographic location, age of facility and equipment, non-water quality environmental impacts, and energy requirements. A consequence of these differing approaches is that similar waste streams can be regulated at different levels.

*Overlap Between LDR Standards and the Centralized Waste Treatment Industry Effluent Guidelines 1.1.3.2*

EPA's survey for this guideline identified no facilities discharging wastewater effluent to land disposal units. There is consequently no overlap between the proposed regulations for the CWT Industry and the Universal Treatment Standards. Any CWT facility, however, discharging effluent to a land disposal unit that meets these limitations and standards would meet the Universal Treatment Standards.

## ***CENTRALIZED WASTE TREATMENT INDUSTRY EFFLUENT GUIDELINE RULEMAKING HISTORY 1.2***

### ***January 27, 1995 Proposal 1.2.1***

On January 27, 1995 (60 FR 5464), EPA proposed regulations to reduce discharges to navigable waters of toxic, conventional, and non-conventional pollutants in treated wastewater from facilities defined in the proposal as "centralized waste treatment facilities." As proposed, these effluent limitations guidelines and pretreatment standards would have applied to "any facility that treats any hazardous or non-hazardous industrial waste received from off-site by tanker truck, trailer/roll-off bins, drums, barge or other forms of shipment." Facilities which received waste from off-site solely from via pipeline were excluded from the proposed rule. Facilities proposed for regulation included both stand-alone waste treatment and recovery facilities that treat waste received from off-site as well as those facilities that treat on-site generated process wastewater with wastes received from off-site.

The Agency proposed limitations and standards for an estimated 85 facilities in three subcategories. The subcategories for the centralized waste treatment (CWT) industry were metal-bearing waste treatment and recovery, oily waste treatment and recovery, and organic waste treatment and recovery. EPA based the BPT effluent limitations proposed in 1995 on the technologies listed in Table 1.1 below. EPA based BCT, BAT, NSPS, PSES, and PSNS on the same technologies as BPT.

Table 1-1. Technology Basis for 1995 BPT Effluent Limitations

| Proposed Subpart | Name of Subcategory | Technology Basis |
|---|---|---|
| A | Metal-Bearing Waste Treatment and Recovery | Selective Metals Precipitation, Pressure Filtration, Secondary Precipitation, Solid-Liquid Separation, and Tertiary Precipitation<br><br>For Metal-Bearing Waste Which Includes Concentrated Cyanide Streams:<br>Pretreatment by Alkaline Chlorination at Elevated Operating Conditions |
| B | Oily Waste Treatment and Recovery | Ultrafiltration or Ultrafiltration, Carbon Adsorption, and Reverse Osmosis |
| C | Organic Waste Treatment and Recovery | Equalization, Air Stripping, Biological Treatment, and Multimedia Filtration |

### *September 16, 1996 Notice of Data Availability* *1.2.2*

Based on comments received on the 1995 proposal and new information, EPA reexamined its conclusions about the Oily Waste Treatment and Recovery subcategory, or "oils subcategory". (The 1995 proposal had defined facilities in this subcategory as "facilities that treat, and/or recover oil from oily waste received from off-site.") Subsequently, in 1996 EPA noticed the availability of the new data on this subcategory. EPA explained that it had underestimated the size of the oils subcategory, and that the data used to develop the original proposal may have mischaracterized this portion of the CWT industry. EPA had based its original estimates on the size of this segment of the industry on information obtained from the 1991 Waste Treatment Industry Questionnaire. The basis year for the questionnaire was 1989. Many of the new oils facilities discussed in this notice began operation after 1989. EPA concluded that many of these facilities may have started up or modified their existing operations in response to requirements in EPA regulations, specifically, the provisions of 40 CFR 279, promulgated on September 10, 1992 (Standards for the Management of Used Oil). These regulations govern the handling of used oils under the Solid Waste Disposal Act and CERCLA. EPA's 1996 notice discussed the additional facilities, provided a revised description of the subcategory and described how the 1995 proposal limitations and standards, if promulgated, would have affected such facilities. The notice, among other items, also solicited comments on the use of dissolved air flotation in this subcategory.

### *January 13, 1999 Supplemental Proposal* *1.2.3*

On January 13, 1999 (64 FR 2280), EPA published a supplemental proposal which represented the Agency's second look at Clean Water Act national effluent limitations and standards for wastewater discharges from centralized waste treatment facilities. The supplemental proposal presented revised limitations and standards based on the new information obtained from comments to the 1996

Notice of Data Availability and additional field sampling data. It also included changes to the scope of the rule.

In the supplemental proposal, the Agency proposed limitations and standards that EPA estimated would apply to 206 facilities in three subcategories. These subcategories were the same as those proposed in 1995: metal-bearing waste treatment and recovery, used/waste oil treatment and recovery, and organic waste treatment. EPA based the BPT effluent limitations proposed in 1999 on different technologies than those selected at the time of the 1995 proposal. The technology basis for the supplemental proposal are listed in Table 1.2 below.

Table 1-2. Technology Basis for 1999 Supplemental Proposal

| Proposed Subpart | Name of Subcategory | Technology Basis |
|---|---|---|
| A | Metal-Bearing Waste Treatment and Recovery | Batch Precipitation, Liquid-Solid Separation, Secondary Precipitation, Clarification, and Sand Filtration<br><br>For Metal-Bearing Waste Which Includes Concentrated Cyanide Streams:<br><br>Alkaline Chlorination in a two step process |
| B | Used/Waste Oil Treatment and Recovery | Emulsion Breaking/Gravity Separation, Secondary Gravity Separation and Dissolved Air Flotation |
| C | Organic Waste Treatment | Equalization and Biological Treatment |

For the metals subcategory, EPA proposed limitations and standards for BCT, BAT, and PSES based on the same technologies as BPT, but based NSPS and PSNS on a different technology: selective metals precipitation, liquid-solid separation, secondary precipitation, liquid-solid separation, tertiary precipitation, and clarification.

For the oils subcategory, EPA proposed to base BCT, BAT, NSPS, and PSNS on the same technologies as BPT, but based PSES on a different technology: emulsion breaking/gravity separation and dissolved air flotation.

For the organics subcategory, EPA based BCT, BAT, NSPS, PSES, and PSNS on the same technologies as BPT.

**Chapter**

**2**

# DATA COLLECTION

EPA gathered and evaluated technical and economic data from various sources in the course of developing the effluent limitations guidelines and standards for the centralized waste treatment industry. These data sources include the following:

- EPA's *Preliminary Data Summary for the Hazardous Waste Treatment Industry*;
- Responses to EPA's "1991 Waste Treatment Industry Questionnaire";
- Responses to EPA's "Detailed Monitoring Questionnaire";
- EPA's 1990 - 1997 sampling of selected Centralized waste treatment facilities;
- EPA's 1998 characterization sampling of oil treatment and recovery facilities;
- Public comments to EPA's 1995 Proposed Rule;
- Public comments to EPA's 1996 Notice of Data Availability;
- Public comments to EPA's 1999 Supplemental Proposal;
- Contact with members of the industry, environmental groups, pretreatment coordinators, Association of Municipal Sewage Authorities (AMSA), regional, state, and other government representatives; and
- Other literature data, commercial publications, and EPA data bases.

EPA used data from these sources to profile the industry with respect to the following: wastes received for treatment and/or recovery; treatment/recovery processes; geographical distribution; and wastewater and solid waste disposal practices. EPA then characterized the wastewater generated by treatment/recovery operations through an evaluation of water usage, type of discharge or disposal, and the occurrence of conventional, non-conventional, and priority pollutants.

The remainder of this chapter details the data sources utilized in the development of this final rule.

## *PRELIMINARY DATA SUMMARY* 2.1

EPA began an effort to develop effluent limitations guidelines and pretreatment standards for waste treatment operations in 1986. In this initial study, EPA looked at a range of facilities, including centralized waste treatment facilities, landfills, and industrial waste combustors, that received hazardous waste from off-site for treatment, recovery, or disposal. The purpose of the study was to characterize the hazardous waste treatment industry, its operations, and pollutant discharges into national waters. EPA published the results of this study in the *Preliminary Data Summary for the Hazardous Waste Treatment Industry* in 1989 (EPA 440/1-89/100). During the same time period, EPA conducted two similar, but separate, studies of the solvent recycling industry and the used oil reclamation and re-refining industry. In 1989, EPA also published the results of these studies in two reports entitled the *Preliminary Data Summary for the Solvent Recycling Industry* (EPA 440/1-89/102) and the *Preliminary Data Summary for Used Oil Reclamation and Re-refining Industry* (EPA 440/1-89/014).

Based on a thorough analysis of the data presented in the *Preliminary Data Summary for the Hazardous Waste Treatment Industry*, EPA decided it should develop effluent limitations guidelines and standards for the centralized waste treatment industry. EPA also decided to develop standards for landfills and industrial waste combustors which were promulgated in the

Federal Register on January 19, 2000 (65 FR 3007) and January 27, 2000 (65 FR 4360) respectively. In addition to centralized waste treatment facilities, EPA also studied fuel blending operations and waste solidification/ stabilization facilities. As detailed and defined in the applicability section of the preamble to this final rule, EPA has decided not to promulgate nationally applicable effluent limitations guidelines and standards for fuel blending and stabilization operations at this time.

## *CLEAN WATER ACT SECTION 308 QUESTIONNAIRES* 2.2

### *Development of Questionnaires* 2.2.1

A major source of information and data used in developing the effluent limitations guidelines and standards for the CWT category is industry responses to questionnaires distributed by EPA under the authority of Section 308 of the CWA. EPA developed two questionnaires, the 1991 Waste Treatment Industry Questionnaire and the Detailed Monitoring Questionnaire, for this study. The 1991 Waste Treatment Industry Questionnaire was designed to request 1989 technical, economic, and financial data from, what EPA believed to be, a census of the industry. The Detailed Monitoring Questionnaire was designed to elicit daily analytical data from a limited number of facilities which would be chosen after receipt and review of the 1991 Waste Treatment Industry Questionnaire responses.

In order to minimize the burden to centralized waste treatment facilities, EPA designed the 1991 Waste Treatment Industry Questionnaire such that recipients could use information reported in their 1989 Hazardous Waste Biennial Report as well as any other readily accessible data. The technical portion of the questionnaire, Part A, specifically requested information on the following:

- Treatment/recovery processes;
- Types and quantities of waste received for treatment;
- The industrial waste management practices used;
- Ancillary waste management operations;
- The quantity, treatment, and disposal of wastewater generated during industrial waste management;
- Summary analytical monitoring data;
- The degree of co-treatment (treatment of CWT wastewater with wastewater from other industrial operations at the facility);
- Cost of the waste treatment/recovery processes; and
- The extent of wastewater recycling or reuse at facilities.

Since the summary monitoring information requested in the 1991 Waste Treatment Industry Questionnaire was not sufficient for determination of limitations and industry variability, EPA designed a follow-up questionnaire, the Detailed Monitoring Questionnaire (DMQ), to collect daily analytical data from a limited number of facilities. EPA requested all DMQ facilities to submit effluent wastewater monitoring data in the form of individual data points rather than monthly aggregates, generally for the 1990 calendar year. Some facilities were also requested to submit monitoring data for intermediate waste treatment points in an effort to obtain pollutant removal information across specified treatment technologies.

Since most CWT facilities do not have analytical data for their wastewater treatment system influent, EPA additionally requested DMQ facilities to submit copies of their waste receipts for a six week period. Waste receipts are detailed logs of individual waste shipments sent to a CWT for treatment. EPA selected a six week period to minimize the burden to recipients and to create a manageable database.

EPA sent draft questionnaires to industry trade associations, treatment facilities that had expressed interest, and environmental groups for review and comment. EPA also conducted a pre-test of the 1991 Waste Treatment Industry Questionnaire at nine centralized waste treatment facilities to determine if the type of information necessary would be received from the questions posed as well as to determine if questions were designed to minimize the burden to facilities. EPA did not conduct a pre-test of the Detailed Monitoring Questionnaire due to the project schedule limitations.

Based on comments from the reviewers, EPA determined the draft questionnaire required minor adjustments in the technical section and substantial revisions for both the economic and financial sections. EPA anticipated extensive comments, since this was EPA's first attempt at requesting detailed information from a service industry as opposed to a manufacturing-based industry.

As required by the Paperwork Reduction Act, 44 U.S.C. 3501 et seq., EPA submitted the questionnaire package (including the revised 1991 Waste Treatment Industry Questionnaire and the Detailed Monitoring Questionnaire) to the Office of Management and Budget (OMB) for review, and published a notice in the *Federal Register* to announce the questionnaire was available for review and comment (55 FR 45161). EPA also redistributed the questionnaire package to industry trade associations, centralized waste treatment industry facilities, and environmental groups that had provided comments on the previous draft and to any others who requested a copy of the questionnaire package.

No additional comments were received and OMB cleared the entire questionnaire package for distribution on April 10, 1991.

### *Distribution of Questionnaires* 2.2.2

In 1991, under the authority of Section 308 of the CWA, EPA sent the Waste Treatment Industry Questionnaire to 455 facilities that the Agency had identified as possible CWT facilities. Because there is no specific centralized waste treatment industry Standard Industrial Code (SIC), identification of facilities was difficult. EPA looked to directories of treatment facilities, other Agency information sources, and even telephone directories to identify the 455 facilities which received the questionnaires. EPA received responses from 413 facilities indicating that 89 treated or recovered material from off-site industrial waste in 1989. The remaining 324 facilities did not treat or recover materials from industrial waste from off-site. Four of the 89 facilities only received waste via a pipeline (fixed delivery system) from the original source of wastewater generation.

EPA obtained additional information from the 1991 Waste Treatment Industry Questionnaire recipients through follow-up phone calls and written requests for clarification of questionnaire responses.

After evaluation of the 1991 Waste Treatment Industry Questionnaire responses, EPA selected 20 in-scope facilities from the 1991 Waste Treatment Industry Questionnaire mailing list to complete the Detailed Monitoring Questionnaire. These facilities were selected based on: the types and quantities of wastes received for treatment; the quantity of on-site generated wastewater not resulting from treatment or recovery of off-site generated waste; the treatment/recovery technologies and practices; and the facility's wastewater discharge permit requirements. All 20 DMQ recipients responded.

## *Wastewater Sampling and Site Visits* 2.3

### *Pre-1989 Sampling Program* 2.3.1

From 1986 to 1987, EPA conducted site visits and sampled at twelve facilities to characterize the waste streams and on-site treatment technology performance at hazardous waste incinerators, Subtitle C and D landfills, and hazardous waste treatment facilities as part of the

Hazardous Waste Treatment Industry Study. All of the facilities in this sampling program had multiple operations, such as incineration and commercial wastewater treatment. The sampling program did not focus on characterizing the individual waste streams from individual operations. Therefore, the data collected cannot be used for the characterization of centralized waste treatment wastewater, the assessment of treatment performance, or the development of limitations and standards. Information collected in the study is presented in the *Preliminary Data Summary for the Hazardous Waste Treatment Industry* (EPA 440/1-89/100).

***1989 - 1997 Site Visits*** ***2.3.2***

Between 1989 and 1993, EPA visited 27 centralized waste treatment facilities. The purpose of these visits was to collect various information about the operation of CWTs, and, in most cases, to evaluate each facility as a potential week-long sampling candidate. EPA selected these facilities based on the information gathered by EPA during the selection of the Waste Treatment Industry Questionnaire recipients and the subsequent questionnaire responses.

In late 1994, EPA visited an additional four facilities which specialize in the treatment of bilge waters and other dilute oily wastes. These facilities were not in operation at the time the questionnaire was mailed, but were identified by EPA through contact with the industry and AMSA. EPA visited these facilities to evaluate them as potential sampling candidates and to determine if CWT operations at facilities which accept dilute oily wastes or used material were significantly different than CWT operations at facilities that accept concentrated oily wastes.

Following the 1995 proposal, EPA visited nine centralized waste treatment facilities, including eight additional oils facilities and one metals facility which had also been visited prior to the proposal. EPA selected these facilities based on information obtained by EPA through proposal public comments, industry contacts, and EPA regional staff. In late 1997, EPA visited two pipeline facilities identified prior to the proposal (one via the questionnaire and the second through review of the Organic Chemicals, Plastics and Synthetic Fibers (OCPSF) database and follow-up phone calls) in order to characterize operations at pipeline facilities.

During each facility site visit, EPA gathered the following information:

- The process for accepting waste for treatment or recovery;
- The types of waste accepted for treatment;
- Design and operating procedures for treatment technologies;
- The location of potential sampling points;
- Site specific sampling requirements;
- Wastewater generated on-site and its sources;
- Wastewater discharge option and limitations;
- Solid waste disposal practices;
- General facility management practices; and
- Other facility operations.

Site visit reports were prepared for all visits and are located in the regulatory record for this proposal.

***Sampling Episodes*** ***2.3.3***

*Facility Selection* *2.3.3.1*

EPA selected facilities to be sampled by reviewing the information received during site visits and assessing whether the wastewater treatment system (1) was theoretically effective in removing pollutants, (2) treated wastes received from a variety of sources, (3) was operated in such a way as to optimize the performance of the treatment technologies, and (4) applied waste management practices that increased the effectiveness of the treatment unit.

EPA also evaluated whether the CWT portion of each facility flow was adequate to assess the treatment system performance for the centralized waste treatment waste stream. At some facilities, the centralized waste treatment operations were minor portions of the overall site operation. In such cases, where the centralized waste treatment waste stream is commingled with non-centralized waste treatment streams prior to treatment, characterization of this waste stream and assessment of treatment performance is difficult. Therefore, data from these commingled systems could not be used to establish effluent limitations guidelines and standards for the centralized waste treatment industry.

Another important consideration in the sampling facility selection process was the commingling of wastes from more than one centralized waste treatment subcategory. For example, many facilities treated metal-bearing and oily waste in the same treatment system. In such cases, EPA did not select these facilities for treatment technology sampling since EPA could not determine whether a decrease in pollutant concentrations in the commingled stream would be due to an efficient treatment system or dilution.

Using the criteria detailed above, EPA selected 14 facilities to sample in order to collect wastewater treatment efficiency data to be used to establish effluent limitations guidelines and standards for the centralized waste treatment industry. Twelve facilities were sampled prior to the 1995 proposal and four facilities (two additional and two resampled) were sampled after the proposal.

*Sampling Episodes* *2.3.3.2*

After EPA selected a facility to sample, EPA prepared a draft sampling plan which described the location of sample points, the analysis to be performed at specified sample points, and the procedures to be followed during the sampling episode. Prior to sampling, EPA provided a copy of the draft sampling plan to the facility for review and comment to ensure EPA properly described and understood facility operations. All comments were incorporated into the final sampling plan.

During the sampling episode, EPA collected samples of influent, intermediate, and effluent streams, preserved the samples, and sent them to EPA-approved laboratories. Facilities were given the option to split samples with EPA, but most facilities declined. Sampling episodes were generally conducted over a five-day period during which EPA obtained 24-hour composite samples for continuous systems and grab samples for batch systems.

Following the sampling episode, EPA prepared a draft sampling report that included descriptions of the treatment/recovery processes, sampling procedures, and analytical results. EPA provided draft reports to facilities for comment and review. All corrections were incorporated into the final report. Both final sampling plans and reports for all episodes are located in the regulatory record for this promulgated rule.

The specific constituents analyzed at each episode and sampling point varied and depended on the waste type being treated and the treatment technology being evaluated. At the initial two sampling episodes, the entire spectrum of chemical compounds for which there are EPA-approved analytical methods were analyzed (more than 480 compounds). Table 2-1 provides a complete list of these pollutants (this is a more complete and accurate list than in the 1999 Technical Development Document). After a review of the initial analytical data, the number of constituents analyzed was decreased by omitting analyses for dioxins/furans, pesticides/herbicides, methanol, ethanol, and formaldehyde. Pesticides/herbicides were analyzed on a limited basis depending on the treatment chemicals used at facilities. Dioxin/furan analysis was only performed on a limited basis for solid/filter cake samples to assess possible environmental impacts.

Data resulting from the influent samples contributed to the characterization of this industry, development of the list of pollutants of concern, and development of raw waste characteristics. EPA used the influent, intermediate, and effluent points to analyze the efficacy of treatment at the facilities and to develop current discharge concentrations, loadings, and treatment technology options for the centralized waste treatment industry. Finally, EPA used data collected from the effluent points to calculate the long term averages (LTAs) for each of the regulatory options. The use of this data is discussed in detail in subsequent chapters.

Table 2-1. Chemical Compounds Analyzed Under EPA Analytical Methods

| Pollutant | Cas Num | Pollutant | Cas Num | Pollutant | Cas Num |
|---|---|---|---|---|---|
| *CLASSSICAL WET CHEMISTRY* | | Aldrin | 309-00-2 | Mevinphos | 7786-34-7 |
| Amenable cyanide | C-025 | Alpha-BHC | 319-84-6 | Mirex | 2385-85-5 |
| Ammonia as nitrogen | 7664-41-7 | Alpha-chlordane | 5103-71-9 | Monocrotophos | 6923-22-4 |
| BOD | C-003 | Azinphos ethyl | 2642-71-9 | Naled | 300-76-5 |
| BOD 5-day | C-002 | Azinphos methyl | 86-50-0 | Nitrofen | 1836-75-5 |
| Chloride | 16887-00-6 | Beta-BHC | 319-85-7 | Parathion (Ethyl) | 56-38-2 |
| COD | C-004 | Captafol | 2425-06-1 | PCB 1016 | 12674-11-2 |
| DCOD | C-004D | Captan | 133-06-2 | PCB 1221 | 11104-28-2 |
| Fluoride | 16984-48-8 | Carbophenothion | 786-19-6 | PCB 1232 | 11141-16-5 |
| Hexane extractable material | C-036 | Chlorfenvinphos | 470-90-6 | PCB 1242 | 53469-21-9 |
| Hexavalent chromium | 18540-29-9 | Chlorobenzilate | 510-15-6 | PCB 1248 | 12672-29-6 |
| Nitrate/nitrite | C-005 | Chlorpyrifos | 2921-88-2 | PCB 1254 | 11097-69-1 |
| pH | C-006 | Coumaphos | 56-72-4 | PCB 1260 | 11096-82-5 |
| Recoverable oil & grease | C-007 | Dalapon | 75-99-0 | PCNB | 82-68-8 |
| SGT-HEM | C-037 | DEF | 78-48-8 | Phorate | 298-02-2 |
| TDS | C-010 | Delta-BHC | 319-86-8 | Phosmet | 732-11-6 |
| TOC | C-012 | Demeton | 8065-48-3 | Phosphamidon | 13171-21-6 |
| Total cyanide | 57-12-5 | Diallate | 2303-16-4 | Phosphamidon E | 297-99-4 |
| Total phenols | C-020 | Diazinon | 333-41-5 | Phosphamidon Z | 23783-98-4 |
| Total phosphorus | 14265-44-2 | Dicamba | 1918-00-9 | Ronnel | 299-84-3 |
| Total solids | C-008 | Dichlofenthion | 97-17-6 | Sulfotep | 3689-24-5 |
| Total sulfide | 18496-25-8 | Dichlone | 117-80-6 | Sulprofos | 35400-43-2 |
| Total sulfide (iodometric) | 18496-25-8 | Dichlorprop | 120-36-5 | TEPP | 107-49-3 |
| TSS | C-009 | Dichlorvos | 62-73-7 | Terbufos | 13071-79-9 |
| *1613: DIOXINS/FURANS* | | Dicrotophos | 141-66-2 | Tetrachlorvinphos | 22248-79-9 |
| 2378-TCDD | 1746-01-6 | Dieldrin | 60-57-1 | Toxaphene | 8001-35-2 |
| 2378-TCDF | 51207-31-9 | Dimethoate | 60-51-5 | Trichlorfon | 52-68-6 |
| 12378-PECDD | 40321-76-4 | Dinoseb | 88-85-7 | Trichloronate | 327-98-0 |
| 12378-PECDF | 57117-41-6 | Dioxathion | 78-34-2 | Tricresylphosphate | 78-30-8 |
| 23478-PECDF | 57117-31-4 | Disulfoton | 298-04-4 | Trifluralin | 1582-09-8 |
| 123478-HXCDD | 39227-28-6 | Endosulfan I | 959-98-8 | Trimethylphosphate | 512-56-1 |
| 123678-HXCDD | 57653-85-7 | Endosulfan II | 33213-65-9 | *1656: PESTICIDES/HERBICIDES* | |
| 123789-HXCDD | 19408-74-3 | Endosulfan sulfate | 1031-07-8 | (1,2)DB-(3)C-propane | 92-12-8 |
| 123478-HXCDF | 70648-26-9 | Endrin | 72-20-8 | 4,4'-DDD | 72-54-8 |
| 123678-HXCDF | 57117-44-9 | Endrin aldehyde | 7421-93-4 | 4,4'-DDE | 72-55-9 |
| 123789-HXCDF | 72918-21-9 | Endrin ketone | 53494-70-5 | 4,4'-DDT | 50-29-3 |
| 234678-HXCDF | 60851-34-5 | EPN | 2104-64-5 | Acephate | 30560-19-1 |
| 1234678-HPCDD | 35822-46-9 | Ethion | 563-12-2 | Alachlor | 15972-60-8 |
| 1234678-HPCDF | 67562-39-4 | Ethoprop | 13194-48-4 | Aldrin | 309-00-2 |
| 1234789-HPCDF | 55673-89-7 | Famphur | 52-85-7 | Alpha-BHC | 319-84-6 |
| OCDD | 3268-87-9 | Fensulfothion | 115-90-2 | Alpha-chlordane | 5103-71-9 |
| OCDF | 39001-02-0 | Fenthion | 55-38-9 | Atrazine | 1912-24-9 |
| Total HPCDD | 37871-00-4 | Gamma-BHC | 58-89-9 | Benzfluralin | 1861-40-1 |
| Total HPCDF | 38998-75-3 | Gamma-chlordane | 5103-74-2 | Beta-BHC | 319-85-7 |
| Total HXCDD | 34465-46-8 | Heptachlor | 76-44-8 | Bromacil | 314-40-9 |
| Total HXCDF | 55684-94-1 | Heptachlor epoxide | 1024-57-3 | Bromoxynil octanoate | 1689-99-2 |
| Total PECDD | 36088-22-9 | HXMeth.phosphoramide | 680-31-9 | Butachlor | 23184-66-9 |
| Total PECDF | 30402-15-4 | Isodrin | 465-73-6 | Captafol | 2425-06-1 |
| Total TCDD | 41903-57-5 | Kepone | 143-50-0 | Captan | 133-06-2 |
| Total TCDF | 55722-27-5 | Leptophos | 21609-90-5 | Carbophenothion | 786-19-6 |
| *1618: PESTICIDES/HERBICIDES* | | Malathion | 121-75-5 | Chlorobenzilate | 510-15-6 |
| 2,4,5-T | 93-76-5 | MCPA | 94-74-6 | Chloroneb | 2675-77-6 |
| 2,4,5-TP | 93-72-1 | MCPP | 7085-19-0 | Chloropropylate | 5836-10-2 |
| 2,4-D | 94-75-7 | Merphos | 150-50-5 | Chlorothalonil | 1897-45-6 |
| 2,4-DB | 94-82-6 | Methoxychlor | 72-43-5 | Cis-permethrin | 61949-76-6 |
| 4,4'-DDD | 72-54-8 | Methyl chlorpyrifos | 5598-13-0 | Dacthal (DCPA) | 1861-32-1 |
| 4,4'-DDE | 72-55-9 | Methyl parathion | 298-00-0 | Delta-BHC | 319-86-8 |
| 4,4'-DDT | 50-29-3 | Methyl trithion | 953-17-3 | Diallate A | 2303-16-4A |

Table 2-1. Chemical Compounds Analyzed Under EPA Analytical Methods (continued)

| Pollutant | Cas Num | Pollutant | Cas Num | Pollutant | Cas Num |
|---|---|---|---|---|---|
| Diallate B | 230-316-4B | 3,5-dichlorophenol | 591-35-5 | Praseodymium | 7440-10-0 |
| Dichlone | 117-80-6 | 3,6-dichlorocatechol | 3938-16-7 | Rhenium | 7440-15-5 |
| Dicofol | 115-32-2 | 4,5,6-trichloroguaiacol | 2668-24-8 | Rhodium | 7440-16-6 |
| Dieldrin | 60-57-1 | 4,5-dichlorocatechol | 3428-24-8 | Ruthenium | 7440-18-8 |
| Endosulfan I | 959-98-8 | 4,5-dichloroguaiacol | 2460-49-3 | Samarium | 7440-19-9 |
| Endosulfan II | 33213-65-9 | 4,6-dichloroguaiacol | 16766-31-7 | Scandium | 7440-20-2 |
| Endrin | 72-20-8 | 4-chloroguaiacol | 16766-30-6 | Selenium | 7782-49-2 |
| Endrin aldehyde | 7421-93-4 | 4-chlorophenol | 106-48-9 | Silicon | 7440-21-3 |
| Endrin ketone | 53494-70-5 | 5,6-dichlorovanillin | 18268-69-4 | Silver | 7440-22-4 |
| Ethalfluralin | 55283-68-6 | 5-chloroguaiacol | 3743-23-5 | Sodium | 7440-23-5 |
| Etridiazole | 2593-15-9 | 6-chlorovanillin | 18268-76-3 | Strontium | 7440-24-6 |
| Fenarimol | 60168-88-9 | Pentachlorophenol | 87-86-5 | Sulfur | 7704-34-9 |
| Gamma-BHC | 58-89-9 | Tetrachlorocatechol | 1198-55-6 | Tantalum | 7440-25-7 |
| Gamma-chlordane | 5103-74-2 | Tetrachloroguaiacol | 2539-17-5 | Tellurium | 13494-80-9 |
| Heptachlor | 76-44-8 | Trichlorosyringol | 2539-26-6 | Terbium | 7440-27-9 |
| Heptachlor epoxide | 1024-57-3 | *1620: Metals* | | Thallium | 7440-28-0 |
| Isodrin | 465-73-6 | Aluminum | 7429-90-5 | Thorium | 7440-29-1 |
| Isopropalin | 33820-53-0 | Antimony | 7440-36-0 | Thulium | 7440-30-4 |
| Kepone | 143-50-0 | Arsenic | 7440-38-2 | Tin | 7440-31-5 |
| Methoxychlor | 72-43-5 | Barium | 7440-39-3 | Titanium | 7440-32-6 |
| Metribuzin | 21087-64-9 | Beryllium | 7440-41-7 | Tungsten | 7440-33-7 |
| Mirex | 2385-85-5 | Bismuth | 7440-69-9 | Uranium | 7440-61-1 |
| Nitrofen | 1836-75-5 | Boron | 7440-42-8 | Vanadium | 7440-62-2 |
| Noflurazon | 27314-13-2 | Cadmium | 7440-43-9 | Ytterbium | 7440-64-4 |
| PCB 1016 | 12674-11-2 | Calcium | 7440-70-2 | Yttrium | 7440-65-5 |
| PCB 1221 | 11104-28-2 | Cerium | 7440-45-1 | Zinc | 7440-66-6 |
| PCB 1232 | 11141-16-5 | Chromium | 7440-47-3 | Zirconium | 7440-67-7 |
| PCB 1242 | 53469-21-9 | Cobalt | 7440-48-4 | *1624: Volatile Organics* | |
| PCB 1248 | 12672-29-6 | Copper | 7440-50-8 | 1,1,1,2-tetrachloroethane | 630-20-6 |
| PCB 1254 | 11097-69-1 | Dysprosium | 7429-91-6 | 1,1,1-trichloroethane | 71-55-6 |
| PCB 1260 | 11096-82-5 | Erbium | 7440-52-0 | 1,1,2,2-tetrachloroethane | 79-34-5 |
| Pendamethalin | 40487-42-1 | Europium | 7440-53-1 | 1,1,2-trichloroethane | 79-00-5 |
| PCNB | 82-68-8 | Gadolinium | 7440-54-2 | 1,1-dichloroethane | 75-34-3 |
| Perthane | 72-56-0 | Gallium | 7440-55-3 | 1,1-dichloroethene | 75-35-4 |
| Propachlor | 1918-16-7 | Germanium | 7440-56-4 | 1,2,3-trichloropropane | 96-18-4 |
| Propanil | 709-98-8 | Gold | 7440-57-5 | 1,2-dibromoethane | 106-93-4 |
| Propazine | 139-40-2 | Hafnium | 7440-58-6 | 1,2-dichloroethane | 107-06-2 |
| Simazine | 122-34-9 | Holmium | 7440-60-0 | 1,2-dichloropropane | 78-87-5 |
| Strobane | 8001-50-1 | Indium | 7440-74-6 | 1,3-butadiene, 2-chloro- | 126-99-8 |
| Terbacil | 5902-51-2 | Iodine | 7553-56-2 | 1,3-dichloropropane | 142-28-9 |
| Terbuthylazine | 5915-41-3 | Iridium | 7439-88-5 | 1,4-dioxane | 123-91-1 |
| Toxaphene | 8001-35-2 | Iron | 7439-89-6 | 2-butanone | 78-93-3 |
| Trans-permethrin | 61949-77-7 | Lanthanum | 7439-91-0 | 2-chloroethylvinyl ether | 110-75-8 |
| Triadimefon | 43121-43-3 | Lead | 7439-92-1 | 2-hexanone | 591-78-6 |
| Trifluralin | 1582-09-8 | Lithium | 7439-93-2 | 2-propanone | 67-64-1 |
| *85.01: Chlorinated Phenolics* | | Lutetium | 7439-94-3 | 2-propen-1-ol | 107-18-6 |
| 2,3,4,6-tetrachlorophenol | 58-90-2 | Magnesium | 7439-95-4 | 2-propenal | 107-02-8 |
| 2,3,6-trichlorophenol | 933-75-5 | Manganese | 7439-96-5 | 2-propenenitrile, 2-methyl- | 126-98-7 |
| 2,4,5-trichlorophenol | 95-95-4 | Mercury | 7439-97-6 | 3-chloropropene | 107-05-1 |
| 2,4,6-trichlorophenol | 88-06-2 | Molybdenum | 7439-98-7 | 4-methyl-2-pentanone | 108-10-1 |
| 2,4-dichlorophenol | 120-83-2 | Neodymium | 7440-00-8 | Acrylonitrile | 107-13-1 |
| 2,6-dichlorophenol | 87-65-0 | Nickel | 7440-02-0 | Benzene | 71-43-2 |
| 2-syringaldehyde | 134-96-3 | Niobium | 7440-03-1 | Bromodichloromethane | 75-27-4 |
| 3,4,5-trichlorocatechol | 56961-20-7 | Osmium | 7440-04-2 | Bromomethane | 74-83-9 |
| 3,4,5-trichloroguaiacol | 57057-83-7 | Palladium | 7440-05-3 | Carbon disulfide | 75-15-0 |
| 3,4,6-trichloroguaiacol | 60712-44-9 | Phosphorus | 7723-14-0 | Chloroacetonitrile | 107-14-2 |
| 3,4-dichlorophenol | 95-77-2 | Platinum | 7440-06-4 | Chlorobenzene | 108-90-7 |
| 3,5-dichlorocatechol | 13673-92-2 | Potassium | 7440-09-7 | Chloroethane | 75-00-3 |

Table 2-1. Chemical Compounds Analyzed Under EPA Analytical Methods (continued)

| Pollutant | Cas Num | Pollutant | Cas Num | Pollutant | Cas Num |
|---|---|---|---|---|---|
| Chloroform | 67-66-3 | 2,4,6-trichlorophenol | 88-06-2 | Bis(2-chloroisopropyl) ether | 108-60-1 |
| Chloromethane | 74-87-3 | 2,4-dichlorophenol | 120-83-2 | Bis(2-ethylhexyl) phthalate | 117-81-7 |
| Cis-1,3-dichloropropene | 10061-01-5 | 2,4-dimethylphenol | 105-67-9 | Butyl benzyl phthalate | 85-68-7 |
| Crotonaldehyde | 4170-30-3 | 2,4-dinitrophenol | 51-28-5 | Carbazole | 86-74-8 |
| Dibromochloromethane | 124-48-1 | 2,4-dinitrotoluene | 121-14-2 | Chrysene | 218-01-9 |
| Dibromomethane | 74-95-3 | 2,6-di-tert-butyl-p-benzoquinone | 719-22-2 | Crotoxyphos | 7700-17-6 |
| Diethyl ether | 60-29-7 | 2,6-dichloro-4-nitroaniline | 99-30-9 | Di-n-butyl phthalate | 84-74-2 |
| Ethyl cyanide | 107-12-0 | 2,6-dichlorophenol | 87-65-0 | Di-n-octyl phthalate | 117-84-0 |
| Ethyl methacrylate | 97-63-2 | 2,6-dinitrotoluene | 606-20-2 | Di-n-propylnitrosamine | 621-64-7 |
| Ethylbenzene | 100-41-4 | 2-(methylthio)benzothiazole | 615-22-5 | Dibenzo(a,h)anthracene | 53-70-3 |
| Iodomethane | 74-88-4 | 2-chloronaphthalene | 91-58-7 | Dibenzofuran | 132-64-9 |
| Isobutyl alcohol | 78-83-1 | 2-chlorophenol | 95-57-8 | Dibenzothiophene | 132-65-0 |
| M+P-xylene | 179601-23-1 | 2-isopropylnaphthalene | 2027-17-0 | Diethyl phthalate | 84-66-2 |
| M-xylene | 108-38-3 | 2-methylbenzothiazole | 120-75-2 | Dimethyl phthalate | 131-11-3 |
| Methyl methacrylate | 80-62-6 | 2-methylnaphthalene | 91-57-6 | Dimethyl sulfone | 67-71-0 |
| Methylene chloride | 75-09-2 | 2-nitroaniline | 88-74-4 | Diphenyl ether | 101-84-8 |
| O+P-xylene | 136777-61-2 | 2-nitrophenol | 88-75-5 | Diphenylamine | 122-39-4 |
| O-xylene | 95-47-6 | 2-phenylnaphthalene | 612-94-2 | Diphenyldisulfide | 882-33-7 |
| Tetrachloroethene | 127-18-4 | 2-picoline | 109-06-8 | Ethane, pentachloro- | 76-01-7 |
| Tatrachloromethane | 56-23-5 | 3,3'-dichlorobenzidine | 91-94-1 | Ethyl methanesulfonate | 62-50-0 |
| Toluene | 108-88-3 | 3,3'dimethoxybenzidine | 119-90-4 | Ethylenethiourea | 96-45-7 |
| Trans-1,2-dichloroethene | 156-60-5 | 3,6-dimethylphenanthrene | 1576-67-6 | Fluoranthene | 206-44-0 |
| Trans-1,3-dichloropropene | 10061-02-6 | 3-methylcholanthrene | 56-49-5 | Fluorene | 86-73-7 |
| Trans-1,4-dichloro-2-butene | 110-57-6 | 3-nitroaniline | 99-09-2 | Hexachlorobenzene | 118-74-1 |
| Tribromomethane | 75-25-2 | 4,4'-methylenebis(2-chloroaniline) | 101-14-4 | Hexachlorobutadiene | 87-68-3 |
| Trichloroethene | 79-01-6 | 4,5-methylene phenanthrene | 203-64-5 | Hexachlorocyclopentadiene | 77-47-4 |
| Trichlorofluoromethane | 75-69-4 | 4-aminobiphenyl | 92-67-1 | Hexachloroethane | 67-72-1 |
| Vinyl acetate | 108-05-4 | 4-bromophenyl phenyl ether | 101-55-3 | Hexachloropropene | 1888-71-7 |
| Vinyl chloride | 75-01-4 | 4-chloro-2-nitroaniline | 89-63-4 | Hexanoic acid | 142-62-1 |
| *1625: Semivolatile Organics* | | 4-chloro-3-methylphenol | 59-50-7 | Indeno(1,2,3-cd)pyrene | 193-39-5 |
| 1,2,3-trichlorobenzene | 87-61-6 | 4-chlorophenyl phenyl ether | 7005-72-3 | Isophorone | 78-59-1 |
| 1,2,3-trimethoxybenzene | 634-36-6 | 4-nitrophenol | 100-02-7 | Isosafrole | 120-58-1 |
| 1,2,4,5-tetrachlorobenzene | 95-94-3 | 5-nitro-o-toluidine | 99-55-8 | Longifolene | 475-20-7 |
| 1,2,4-trichlorobenzene | 120-82-1 | 7,12-dimethybenz(a)anthracene | 57-97-6 | Malachite green | 569-64-2 |
| 1,2-dibromo-3-chloropropane | 96-12-8 | Acenaphthene | 83-32-9 | Mestranol | 72-33-3 |
| 1,2-dichlorobenzene | 95-50-1 | Acenaphthylene | 208-96-8 | Methapyrilene | 91-80-5 |
| 1,2-diphenylhydrazine | 122-66-7 | Acetophenone | 98-86-2 | Methyl methanesulfonate | 66-27-3 |
| 1,2:3,4-diepoxybutane | 1464-53-5 | Alpha-terpineol | 98-55-5 | N,N-dimethylformamide | 68-12-2 |
| 1,3,5-trithiane | 291-21-4 | Aniline | 62-53-3 | N-decane | 124-18-5 |
| 1,3-dichloro-2-propanol | 96-23-1 | Aniline, 2,4,5-trimethyl- | 137-17-7 | N-docosane | 629-97-0 |
| 1,3-dichlorobenzene | 541-73-1 | Anthracene | 120-12-7 | N-dodecane | 112-40-3 |
| 1,4-dichlorobenzene | 106-46-7 | Aramite | 140-57-8 | N-eicosane | 112-95-8 |
| 1,4-dinitrobenzene | 100-25-4 | Benzanthrone | 82-05-3 | N-hexacosane | 630-01-3 |
| 1,4-naphthoquinone | 130-15-4 | Benzenethiol | 108-98-5 | N-hexadecane | 544-76-3 |
| 1,5-naphthalenediamine | 2243-62-1 | Benzidine | 92-87-5 | N-nitrosodi-n-butylamine | 924-16-3 |
| 1-bromo-2-chlorobenzene | 694-80-4 | Benzo(a)anthracene | 56-55-3 | N-nitrosodiethylamine | 55-18-5 |
| 1-bromo-3-chlorobenzene | 108-37-2 | Benzo(a)pyrene | 50-32-8 | N-nitrosodimethylamine | 62-75-9 |
| 1-chloro-3-nitrobenzene | 121-73-3 | Benzo(b)fluoranthene | 205-99-2 | N-nitrosodiphenylamine | 86-30-6 |
| 1-methylfluorene | 1730-37-6 | Benzo(ghi)perylene | 191-24-2 | N-nitrosomethylethylamine | 10595-95-6 |
| 1-methylphenanthrene | 832-69-9 | Benzo(k)fluoranthene | 207-08-9 | N-nitrosomethylphenylamine | 614-00-6 |
| 1-naphthylamine | 134-32-7 | Benzoic Acid | 65-85-0 | N-nitrosomorpholine | 59-89-2 |
| 1-phenylnaphthalene | 605-02-7 | Benzonitrile, 3,5-dibromo-4-hydroxy- | 1689-84-5 | N-nitrosopiperidine | 100-75-4 |
| 2,3,4,6-tetrachlorophenol | 58-90-2 | Benzyl alcohol | 100-51-6 | N-octacosane | 630-02-4 |
| 2,3,6-trichlorophenol | 933-75-5 | Beta-naphthylamine | 91-59-8 | N-octadecane | 593-45-3 |
| 2,3-benzofluorene | 243-17-4 | Biphenyl | 92-52-4 | N-tetracosane | 646-31-1 |
| 2,3-dichloroaniline | 608-27-5 | Biphenyl, 4-nitro- | 92-93-3 | N-tetradecane | 629-59-4 |
| 2,3-dichloronitrobenzene | 3209-22-1 | Bis(2-chloroethoxy)methane | 111-91-1 | N-triacontane | 638-68-6 |
| 2,4,5-trichlorophenol | 95-95-4 | Bis(2-chloroethyl) ether | 111-44-4 | Naphthalene | 91-20-3 |

Table 2-1. Chemical Compounds Analyzed Under EPA Analytical Methods (continued)

| Pollutant | Cas Num | Pollutant | Cas Num | Pollutant | Cas Num |
|---|---|---|---|---|---|
| Nitrobenzene | 98-95-3 | Phenanthrene | 85-01-8 | Triphenylene | 217-59-4 |
| O-anisidine | 90-04-0 | Phenol | 108-95-2 | Tripropyleneglycol methyl ether | 20324-33-8 |
| O-cresol | 95-48-7 | Phenol, 2-methyl-4,6-dinitro- | 534-52-1 | *630.1: Pesticides/Herbicides* | |
| O-toluidine | 95-53-4 | Phenothiazine | 92-84-2 | Dithiocarbamate anion | 4384-82-1 |
| O-toluidine, 5-chloro- | 95-79-4 | Pronamide | 23950-58-5 | *1648: Total Organic Halides* | |
| P-chloroaniline | 106-47-8 | Pyrene | 129-00-0 | Total Organic Halides (TOX) | C022 |
| P-cresol | 106-44-5 | Pyridine | 110-86-1 | *1650: Adsorbable Organic Halides* | |
| P-cymene | 99-87-6 | Resorcinol | 108-46-3 | Adsorbable organic halides (AOX) | 59473-04-0 |
| P-dimethylaminoazobenzene | 60-11-7 | Safrole | 94-59-7 | *8015: Ethanol/Methanol* | |
| P-nitroaniline | 100-01-6 | Squalene | 7683-64-9 | Ethanol | 64-17-5 |
| Pentachlorobenzene | 608-93-5 | Styrene | 100-42-5 | Methanol | 67-56-1 |
| Pentachlorophenol | 87-86-5 | Thianaphthene | 95-15-8 | *Region 9: Formaldehyde* | |
| Pentamethylbenzene | 700-12-9 | Thioacetamide | 62-55-5 | Formaldehyde | 50-00-0 |
| Perylene | 198-55-0 | Thioxanthe-9-one | 492-22-8 | | |
| Phenacetin | 62-44-2 | Toluene, 2,4-diamino- | 95-80-7 | | |

*Metal-Bearing Waste Treatment and Recovery Sampling* *2.3.3.3*

Between 1989 and 1994, EPA conducted six sampling episodes at facilities classified in the metals subcategory. Two of these facilities were re-sampled in 1996 following the proposal. Only one of those facilities sampled discharged to a surface water. The rest are indirect dischargers.

All of the facilities used metals precipitation as a means for treatment, but each of the systems was unique due to the treatment chemicals used and the system configuration and operation. Most facilities precipitated metals in batches. One facility segregated waste shipments into separate batches to optimize the precipitation of specific metals, then commingled the treated batches to precipitate additional metals. Another facility had a continuous system for precipitation in which the wastewater flowed through a series of treatment chambers, each using a different treatment chemical. EPA evaluated the following treatment technologies: primary, secondary, and tertiary precipitation, selective metals precipitation, gravity separation, multi-media filtration, clarification, liquid and sludge filtration, and treatment technologies for cyanide destruction.

EPA conducted sampling at metals facilities after the 1995 proposal to determine what effect total dissolved solids (TDS) concentrations had on the performance of metals precipitation processes. This issue was raised in public comments to the 1995 proposed rule. EPA resampled two facilities which had been sampled prior to the first proposal. The first facility formed the technology basis for the 1995 proposed metals subcategory regulatory option and the second was a facility with high levels of TDS in the influent waste stream. EPA was interested in obtaining additional data from the proposal option facility since they had altered their treatment systems from those previously sampled and because EPA failed to collect TDS information during the original sampling episode. EPA was interested in collecting additional data from the second facility because the facility has high TDS values. EPA used data from both of the post-proposal sampling episodes to develop regulatory options considered for the re-proposal and the final rule.

*Oily Waste Treatment and Recovery Sampling* *2.3.3.4*

Between 1989 and 1994, EPA conducted four sampling episodes at oils subcategory facilities. Two additional oils facilities were sampled in 1996 following the proposal. All six are indirect dischargers and performed an initial gravity separation step with or without emulsion breaking to remove oil from the wastewater. At two facilities, however, the wastewater from the separation step was commingled with other non-oily wastewater prior to further treatment. As such, EPA could only use data from these facilities to characterize the waste streams after emulsion breaking. The other four facilities treated the wastewater from the initial separation step without commingling with non-oils subcategory wastewaters in systems specifically designed to treat oily wastewater. EPA evaluated the following treatment technologies for this subcategory: gravity separation, emulsion breaking, ultrafiltration, dissolved air flotation, biological treatment, reverse osmosis, carbon adsorption, and air stripping.

EPA conducted sampling at oils facilities in late 1994 (just before the proposal) and again after the proposal to address concerns raised at the 1994 public meeting and in the proposal public comments. Specifically, in regard to oils wastewater treatment, the commenters stated that (1) the facility which formed the technology basis for EPA‘s 1995 proposed option did not treat wastes which were representative of the wastes treated by many other oils facilities, and (2) EPA should evaluate dissolved air flotation as a basis for the regulatory option. All three of the facilities sampled between 1994 and 1996 utilized dissolved air flotation and treated wastes which were generally more dilute than those treated by the 1995 proposal option facility. EPA used data from both of the post-proposal sampling episodes to develop regulatory options considered for the 1999 supplemental proposal. Data from the 1994 episode were not used to develop a regulatory option due to non-optimal performance and highly diluted influent streams; however, EPA used data from this facility to characterize the waste stream after emulsion breaking.

*Organic-Bearing Waste Treatment and Recovery Sampling* *2.3.3.5*

EPA had difficulty identifying facilities that could be used to characterize waste streams and assess treatment technology performance in the organics subcategory. A large portion of the facilities, whose organic waste treatment operations EPA evaluated, had other industrial operations on-site. For these facilities, CWT waste streams represented a minor component of the overall facility flow.

Between 1989 and 1994, EPA did identify and sample three facilities that treated a significant volume of off-site generated organic waste relative to non-CWT flows. None of these facilities were direct discharging facilities. EPA evaluated several treatment technologies, including the following: air stripping, biological treatment in a sequential batch reactor, multi-media filtration, coagulation/flocculation, carbon adsorption, and $CO_2$ extraction. EPA chose not to use data from one of the three facilities in calculating effluent levels achievable with its in-place technologies because the facility was experiencing operational difficulties with the treatment system at the time of sampling. In addition, after reviewing the facility's waste receipts during the sampling episode, EPA determined that the facility accepted both oils subcategory and organics subcategory wastestreams and commingled them for treatment. EPA has also not used data from a second facility in calculating effluent levels achievable with its in-place technologies because, after reviewing this facility's waste receipts during the sampling episode, EPA determined that this facility also accepted both oils subcategory and organics subcategory wastestreams and commingled them for treatment.

***1998 Characterization Sampling of Oil Treatment and Recovery Facilities*** ***2.3.4***

EPA received many comments to the original proposal concerning the size and diversity of the oils treatment and recovery subcategory. Many suggested that the subcategory needed to be further subdivided in an effort to better depict the industry. As a result, in 1998, EPA conducted site visits at eleven facilities which treat and/or recover non-hazardous oils wastes, oily wastewater, or used oil material from off-site. While the information collected at these facilities was similar to information collected during previous site visits, these facilities were selected based on waste receipts. The facilities represent a diverse mix of facility size, treatment processes, and geographical locations. EPA collected wastewater samples of their waste receipts and discharged effluent at 11 of these facilities. These samples were one-time grabs and were analyzed for metals, classicals, and semi-volatile organic compounds. In the 1999 supplemental proposal, EPA had not yet incorporated these results (except for influent data from E5046) in developing limitations. At a public hearing on February 18, 1999, EPA described the relevant sampling data, the constraints of evaluating this data, and a comparison of data from hazardous and non-hazardous waste streams. This data showed that, while the mean and median values of influent concentration of hazardous wastestream data are greater than for non-hazardous wastestreams for most pollutants examined, the ranges of concentration for the hazardous and non-hazardous wastestreams overlap for most pollutants. In its presentation, EPA indicated that it planned to re-examine the oils subcategory in terms of pollutant loadings, removals, limitations and standards, costs, impacts, and benefits. EPA requested comment on this issue, and extended the comment period for this issue by 30 days after the public hearing. EPA's presentation is included in the public record for this rulemaking as DCN 28.1.1 (other supporting information is in Section 28). These data were incorporated into the final analyses related to identifying pollutants of concern and calculating pollutant reductions.

### *PUBLIC COMMENTS TO THE 1995 PROPOSAL, THE 1996 NOTICE OF DATA AVAILABILITY, AND THE 1999 SUPPLEMENTAL PROPOSAL 2.4*

In addition to data obtained through the Waste Treatment Industry Questionnaire, DMQ, site visits and sampling episodes, commenters on the January 27, 1995 proposal (60 FR 5464), the September 16, 1996 Notice of Data Availability (61 FR 48805), and the January 13, 1999 supplemental proposal (64 FR 2280) provided data to EPA. In fact, much of EPA's current characterization of the oily waste treatment and recovery subcategory is based on comments to the 1996 Notice of Data Availability.

As described earlier, following the 1995 proposal, EPA revised its estimate of the number of facilities in the oils subcategory and its description of the oils subcategory. Using new information provided by the industry during the 1995 proposal comment period in conjunction with questionnaire responses and sampling data used to develop the proposal, EPA recharacterized this subcategory of the industry. This recharacterization reflected new data on the wastes treated by the subcategory, the technology in-place, and the pollutants discharged. As part of this recharacterization, EPA developed individual profiles for each of the newly identified oils facilities by modeling current wastewater treatment performance and treated effluent discharge flow rates. In addition, assuming the same treatment technology options identified at proposal, EPA recalculated the projected costs of the proposed options under consideration, expected pollutant reductions associated with the options, and the projected economic impacts. EPA presented its recharacterization of the oils subcategory in the September 1996 Notice of Data Availability (61 FR 48806).

At the time of the 1995 proposal, EPA estimated there were 35 facilities in the oily waste treatment and recovery subcategory. Through comments received in response to the proposed rule, and communication with the industry, the National Oil Recyclers Association, and EPA Regional staff, EPA identified an additional 240 facilities that appeared to treat oily wastes from off-site. While attempting to confirm mailing addresses for each facility, EPA discovered that 20 of these facilities were either closed or could not be located. EPA then revised its profile of the oily waste treatment and recovery subcategory to include 220 newly-identified facilities. The information in the Notice of Data Availability was based on these 220 additional facilities.

In lieu of sending questionnaires out to the newly-identified oils facilities to collect technical and economic information, EPA used data from secondary sources to estimate facility characteristics such as wastewater flow. For most facilities, information about total facility revenue and employment were available from public sources (such as Dunn and Bradstreet). EPA then used statistical procedures to match the newly-identified facilities to similar facilities that had provided responses to the 1991 Waste Treatment Industry Questionnaire. This matching enabled EPA to estimate the flow of treated wastewater from each of the newly identified facilities. Where EPA had actual estimates for facility characteristics from the facility or public sources, EPA used the reported values. The estimated facility characteristics included the following:

- RCRA status;
- Waste volumes;
- Recovered oil volume;
- Wastewater volumes treated and discharged;
- Wastewater discharge option;
- Wastewater characteristics;
- Treatment technologies utilized; and
- Economic information.

EPA hoped to obtain information from each of the newly identified facilities through comments to the 1996 Notice of Data Availability. In order to facilitate that effort, copies of the Notice and the individual facility profile were mailed to each of the 220 newly identified facilities. Of these, EPA received comments and revised profiles from 100. Therefore, 120 facilities did not provide comments to the Notice or revised facility profiles.

EPA determined the following about the list of newly identified oils facilities:

- 50 facilities were within the scope of the oily waste treatment and recovery subcategory;
- 16 facilities were fuel blenders;
- 31 facilities were out of scope of the oily waste treatment and recovery subcategory; and
- 3 facilities were closed.

EPA polled 9 of the 120 non-commenting facilities and determined that approximately half are within the scope of the industry. As a result, EPA estimates that half, or sixty, of the 120 non-commenting facilities are within the scope of the oily waste treatment and recovery subcategory. As to these sixty facilities that did not comment, EPA does not necessarily have facility specific information for them.

Finally, through comments to the Notice, EPA also obtained facility specific information on 19 facilities that EPA had not previously identified as possible CWT oils subcategory facilities.

Therefore, EPA's updated data base includes facility-specific information for a total of 104 facilities that are within the scope of the oily waste treatment and recovery subcategory. This total included the 50 facilities for which EPA prepared facility information sheets, 19 new facilities identified through the Notice, and 35 facilities from the questionnaire data base. The number of in-scope facilities from the questionnaire data base changed from the time of proposal due to other facility applicability issues, as discussed in Section 3.1. Finally, as described above, EPA estimated that the entire population of oils subcategory facilities includes an additional 60 facilities for which EPA does not have facility specific information. This brought the total estimate of oils facilities to 164.

Commenters also submitted data during the 1999 comment period. These data were of varying nature and included data characterizing influent and effluent wastestreams at facilities in all subcategories. Most of these data were not from the option technologies or were from mixed wastestreams. However, one facility submitted concentration data for three of its metal-bearing wastestreams. The Agency has used this submitted data to refine its understanding of CWT wastes and to aid in calculation of loadings, identification of pollutants of concern, and development of final limitations and standards.

## *ADDITIONAL DATA SOURCES* 2.5

### *Additional Databases* 2.5.1

Several other data sources were used in developing effluent guidelines for the centralized waste treatment industry. EPA used the data included in the report entitled *Fate of Priority Pollutants in Publicly Owned Treatment Works*

(EPA 440/1-82/303, September 1982), commonly referred to as the "50 POTW Study", in determining those pollutants that would pass through a POTW. EPA's National Risk Management Research Laboratory (NRMRL), formerly called the Risk Reduction Engineering Laboratory (RREL), treatability data base was used to supplement the information provided by the 50 POTW Study. A description of references is presented in Section 7.6.2.

### *Laboratory Study on the Effect of Total Dissolved Solids on Metals Precipitation* *2.5.2*

During the comment period for the 1995 proposal, EPA received comments which asserted that high levels of total dissolved solids (TDS) in CWT wastewaters may compromise a CWT's ability to meet the proposed metal subcategory limitations. The data indicated that for some metal-contaminated wastewaters, as TDS levels increased, the solubility of the metal in wastewater also increased. As such, the commenters claimed that metal-contaminated wastewaters with high TDS could not be treated to achieve the proposed limitations.

At the time of the original proposal, EPA had no data on TDS levels in CWT wastewaters. None of the facilities provided TDS data in their response to the Waste Treatment Industry Questionnaire or the Detailed Monitoring Questionnaire. Additionally, during the sampling episodes prior to the 1995 proposal, EPA did not collect TDS data. As such, EPA lacked the data to estimate TDS levels in wastewaters at the CWT facility which formed the technology basis for the 1995 proposed metals subcategory limitations.

In order to address the comment, EPA (1) collected additional information on TDS levels in metals subcategory wastewaters; (2) conducted additional sampling; (3) consulted literature sources; and (4) conducted bench scale studies.

First, EPA needed to determine the range of TDS levels in CWT metals subcategory wastewaters. As such, EPA contacted the metals subcategory Waste Treatment Industry Questionnaire respondents to determine the level of TDS in their wastewaters. Most CWT facilities do not collect information on the level of TDS in their wastewaters. Those facilities that provided information indicated that TDS levels in CWT metals subcategory wastewaters range from 10,000 ppm to 100,000 ppm (1 - 10 percent).

Second, EPA resampled the facility which formed the technology basis for the 1995 proposed metals subcategory limitations as well as one other metals subcategory facility, in part, to determine TDS levels in their wastewaters. EPA found TDS levels of 17,000 to 81,000 mg/L.

Third, EPA consulted various literature sources to obtain information about the effect of TDS levels on chemical precipitation. EPA found no data or information which related directly to TDS effects on chemical precipitation.

Fourth, EPA conducted a laboratory study designed to determine the effect of TDS levels on chemical precipitation treatment performance. In this study, EPA conducted a series of bench-scale experiments on five metals: arsenic, chromium, copper, nickel and titanium. These metals were selected because (1) they are commonly found in CWT metals subcategory wastewaters, (2) their optimal precipitation is carried out in a range of pH levels; and/or (3) the data provided in the comments indicated that TDS may have a negative effect on the precipitation of these metals. The preliminary statistical analyses of the data from these studies show no consistent relationship among the five metals, pH levels, TDS concentrations and chemical precipitation effectiveness using hydroxide or a combination of hydroxide and sulfide. (DCN 23.32 describes the study and the statistical analyses in further detail.)

Therefore, because none of these four sources provided consistent and convincing evidence that TDS compromises a facility's ability to meet the final metal subcategory limitations, EPA has not incorporated the TDS levels into the development of limitations on metals discharges.

### *PUBLIC PARTICIPATION* *2.6*

EPA has strived to encourage the participation of all interested parties throughout the development of the CWT guidelines and standards. EPA has met with various industry representatives including the Environmental Technology Council (formerly the Hazardous Waste Treatment Council), the National Solid Waste Management Association (NSWMA), the National Oil Recyclers Association (NORA), and the Chemical Manufacturers Association (CMA). EPA has also participated in industry meetings as well as meetings with individual companies that may be affected by this regulation. EPA also met with environmental groups including members of the Natural Resources Defense Council. Finally, EPA has made a concerted effort to consult with EPA regional staff, pretreatment coordinators, and other state and local entities that will be responsible for implementing this regulation.

EPA sponsored two public meetings, one prior to the original proposal on March 8, 1994 and one prior to this re-proposal on July 27, 1997. The purpose of the public meetings was to share information about the content and status of the proposed regulation. The public meetings also gave interested parties an opportunity to provide information and data on key issues.

On March 24, 1995 (following the original proposal), July 29, 1997 (following the Notice of Availability), and February 18, 1999 (following the supplemental proposal), EPA sponsored workshops and public meetings. The purpose of the workshops was to provide information about the proposed regulation and to present topics on which EPA was soliciting comments. The public meetings gave interested parties the opportunity to present oral comments on the proposed regulation.

Finally, as detailed in the *Economic Analysis of Effluent Limitations Guidelines and Standards for the Centralized Waste Treatment Industry (EPA 821-R-98-019)* , on November 6, 1997, EPA convened a Small Business Regulatory Flexibility Act (SBREFA) Review Panel in preparing this final rule. The review panel was composed of employees of the EPA program office developing this proposal, the Office of Information and Regulatory Affairs within the Office of Management and Budget and the Chief Counsel for Advocacy of the Small Business Administration (SBA). The panel met over the course of two months and collected the advice and recommendations of representatives of small entities that may be affected by this rule and reported their comments as well as the Panel's findings on the following:

- The type and number of small entities that would be subject to the proposal.
- Record keeping, reporting and other compliance requirements that the proposal would impose on small entities subject to the proposal, if promulgated.
- Identification of relevant Federal rules that may overlap or conflict with the proposed rule.
- Description of significant regulatory alternatives to the proposed rule which accomplish the stated objectives of the CWA and minimize any significant economic.

The small entity CWT population was represented by members of the National Oil Recyclers Association (NORA), the Environmental Technology Council, and a law firm representing a coalition of CWTs in Michigan. EPA provided each of the small entity representatives and panel members many materials related to the development of this rule. As such, the small entity representatives had the opportunity to comment on many aspects of this promulgated guideline in addition to those specified above. All of the small entity comments and the panel findings are detailed in the "Final Report of the SBREFA Small Business Advocacy Review Panel on EPA's Planned Proposed Rule for Effluent Limitations Guidelines and Standards for the Waste Treatment Industry" which is located in the regulatory record accompanying this rule.

# Chapter 3

# SCOPE/APPLICABILITY OF THE FINAL REGULATION

EPA received numerous comments on the 1995 proposal and 1996 Notice of Data Availability concerning the applicability of this rule to various operations. Consequently, EPA devoted significant discussion in the 1999 supplemental proposal to applicability issues. Again, in response, EPA received numerous comments on applicability issues. Many commenters were simply seeking clarification of the coverage of this rule to a specific operation. Table 3-3, located at the end of this chapter, provides a general overview of the applicability of the final rule on potentially-covered facilities and is based on some of the issues raised during the public comment periods. While many of these issues were discussed in the 1999 supplemental proposal and, in most cases, the final guideline retains the same approach as those explained in the supplemental proposal, EPA presents a detailed discussion of these issues in Sections 3.1.1 through 3.1.25.

## *APPLICABILITY* 3.1

The universe of facilities which would be potentially subject to this guideline, except where noted otherwise, include the following. First, EPA is establishing limitations and pretreatment standards for stand-alone waste treatment and recovery facilities receiving materials from off-site -- classic "centralized waste treaters". These facilities may treat either for recovery or disposal or recycle hazardous or non-hazardous waste, hazardous or non-hazardous wastewater, and/or used material received from off-site. Second, while EPA is generally not subjecting discharges from waste treatment systems at facilities primarily engaged in other industrial operations to the scope of this rule, the rule will regulate at least a portion of their wastewater in certain circumstances. Thus, industrial facilities which process their own, on-site generated, process wastewater along with hazardous or non-hazardous wastes, wastewaters, and/or used material received from off-site may be subject to this rule with respect to a portion of their discharge unless certain conditions are met.

The wastewater flows covered by this rule include some or all flows related to off-site waste receipts and on-site CWT wastewater generated as a result of CWT operations. The kinds of on-site CWT wastewater generated at these facilities include, for example, the following: solubilization wastewater, emulsion breaking/gravity separation wastewater, used oil processing wastewater, treatment equipment washes, transport washes (tanker truck, drum, and roll-off boxes), laboratory-derived wastewater, air pollution control wastewater, industrial waste combustor wastewater from on-site industrial waste combustors, landfill wastewater from on-site landfills, and contaminated storm water. A detailed discussion of CWT wastewaters is provided in Chapter 4. In summary, all wastewater discharges to a receiving stream or the introduction of wastewater to a publicly owned treatment works from a facility which this regulation defines as a centralized waste treatment facility are subject to the provisions of this rule unless specifically excluded. The following sections discuss the applicability of the CWT rule to various wastewater discharges associated with centralized waste treatment operations.

### *Manufacturing Facilities* 3.1.1

At the time of the original proposal, EPA defined a centralized waste treatment facility as any facility which received waste from off-site for treatment or recovery on a commercial or non-commercial basis. Non-commercial facilities were defined as facilities that accept off-site wastes from facilities under the same ownership.

Throughout the development of this rule, EPA has contemplated that the rule would apply to wastewater discharges from facilities that, while primarily engaged in other industrial operations, also may treat and/or treat for recovery or recycle hazardous or non-hazardous waste or wastewater and/or off-site wastes or used materials. These facilities primarily treat wastes generated as a result of their own on-site manufacturing operations. Their wastewater discharges are, by and large, already subject to effluent guidelines and standards (some treatment operations, however, may be located at manufacturing facilities which are not subject to effluent guidelines and standards). All of these facilities also accept off-site generated wastes for treatment. In some instances, a facility under the same corporate ownership generates these off-site wastes. The facility treats these intra-company transfers on a non-commercial basis. In other instances, the off-site wastestreams originate from a company under a different ownership -- an inter-company transfer. In some instances, the off-site wastes received at these industrial facilities are generated by a facility performing the same manufacturing operations, while in other instances, the off-site wastestreams are generated by facilities engaged in entirely unrelated manufacturing operations. Some receive a constant wastestream from only a handful of customers and some receive a wide variety of wastestreams from hundreds of customers.

EPA received extensive comment concerning how the CWT rule should apply to facilities that provide waste treatment and/or recovery operations for off-site generated wastes, but whose primary business is something other than waste treatment or recovery. In general, commenters urged EPA to limit the scope of the regulation in one of several ways. Commenters suggested restricting the scope to any of the following:

- facilities whose sole purpose is the treatment of off-site wastes and wastewaters; or
- facilities which only accept off-site wastes on a commercial basis; or
- facilities which accept off-site wastes which are not produced as a result of industrial operations subject to the same effluent guidelines and standards as the on-site generated wastes or off-site wastes which are not compatible with the on-site generated wastes and the on-site wastewater treatment system; or
- manufacturing facilities which accept off-site wastes in excess of a de minimis level.

EPA reexamined the database of facilities which form the basis of the CWT rule. EPA's database contains information on 17 manufacturing facilities which commingle waste generated by on-site manufacturing activities for treatment with waste generated off-site and one manufacturing facility which does not commingle waste generated by on-site manufacturing activities for treatment with waste generate off-site. Nine of these facilities treat waste on a non-commercial basis only and nine treat waste on a commercial basis. Of the eighteen facilities, eight facilities only accept and treat off-site wastes which are from the same categorical process as the on-site generated waste streams. Ten of the facilities, however, accept off-site wastes which are not subject to the same categorical standards as the on-site generated wastewater. The percentage of off-site wastewaters being commingled for treatment with on-site wastewater varies from 0.06% to 80% with the total volumes varying between 87,000 gallons per year to 381 million gallons per year.

The guidelines, as proposed in 1995, would have included both types of facilities within the scope of this rule. EPA included these facilities in the 1995 proposed CWT rule to ensure that all wastes receive adequate treatment -- even those shipped between facilities already subject to existing effluent limitations guidelines and standards (EPA agrees that, for off-site wastes which are generated by the same categorical process as on-site generated wastes, intracompany and intercompany transfers are a viable and often preferable method to treat waste streams efficiently at a reduced cost. EPA does not want to discourage these management practices. EPA is still concerned, however, that the effluent limitations and categorical standards currently in place may not ensure adequate treatment in circumstances where the off-site generated wastes are not from the same categorical group as the on-site generated wastes. It is not duplicative to include within the scope of the CWT guideline, wastewater that results from the treatment of off-site wastes not subject to the guidelines and standards applicable to the treatment of wastewater generated on-site. Additionally, even though the primary business at these facilities is not the treatment of off-site wastes, EPA does not believe that the burden to these facilities exceeds that of the facilities whose primary business is the treatment of off-site wastes. EPA has included these facilities in all of its economic analyses).

In the supplemental proposal, EPA proposed subjecting centralized waste treatment operations at manufacturing facilities to the provisions of the rule unless one of the following conditions was met:

- In the case of manufacturing facilities subject to national effluent limitations guidelines for existing sources, standards of performance for new sources, or pretreatment standards for new and existing sources (national effluent guidelines and standards), if the process or operation generating the wastes received from off-site for treatment is subject to the same national effluent guidelines and standards as the process or operation generating the on-site wastes; or
- In the case of manufacturing facilities not subject to existing national effluent guidelines and standards, if the process or operation generating the waste received from off-site is from the same industry (other than the waste treatment industry) and of a similar nature to the waste generated on-site.

After careful consideration of comments and further review of its database, EPA continues to regard this approach as appropriate, with some modifications. EPA has concluded that many manufacturing facilities, even though they are engaged primarily in another business, are also engaged in traditional CWT activities and, therefore, should be subject to this rule. EPA has been unable to establish any direct correlation between the source of the off-site waste (intra-company or inter-company) and the similarity (or compatibility with) of the off-site waste to the on-site generated wastes that would support a blanket exclusion from this rule for intra-company waste treatment. EPA further concludes that all off-site wastewaters should be treated effectively irrespective of their volume, or their volume in relation to the volume of on-site generated waste and, thus, has rejected any exception for small volumes. As explained in the 1999 proposal, EPA's primary concern is that the effluent guidelines and standards currently in place for one industry may not ensure adequate treatment for wastes generated at another industry.

EPA has, however, concluded that there are circumstances where an off-site waste will receive adequate treatment at the treating facility even though the off-site waste may be generated by a manufacturing process that (if treated at the generating location) would be subject to a different set of effluent guidelines and standards than the effluent guidelines and standards applicable to the treating site. The record for this rule provides information and data on such facilities that support EPA's conclusion. An example is a pesticide formulating and packaging facility (PFPR), subject to 40 CFR 455 Subpart C, which sends its wastewaters off-site for treatment to a facility which manufactures the pesticide active ingredients (the manufacturing facility is subject to a separate set of effluent guidelines and standards specific to pesticide manufacturers, 40 CFR 455 Subpart A and B). In this case, the same pollutants are likely to be present in the off-site and on-site generated wastewaters, even though the wastewaters are subject to different regulations. Therefore, the treating facility will need to use treatment appropriate for efficient removal of these pollutants. This situation would not be covered by this rule.

As a second example, consider a petroleum refinery that accepts off-site wastewaters. If the petroleum refinery (SIC Code 2911) accepts wastes generated off-site at petroleum distribution terminals (SIC Code 4612, 4613, 5171, and 5172), then the former is subject to effluent guidelines and standards for petroleum refineries (40 CFR 419), but the latter is not currently subject to any national effluent guidelines. However, the wastewaters generated at petroleum marketing terminals are based on materials manufactured at the refineries, and therefore would likely reflect the same pollutant profile. This situation would not be covered by this rule.

A third example involves clean-up activities at manufacturing sites. As part of clean-up operations at its facility, one commenter (called facility A) noted that it accepts contaminated groundwater from a different manufacturing facility located next door (facility B). The contaminated groundwater site (while not located on facility A, the treating facility) was contaminated by the manufacturing process at the treating site (facility A) and not at the site where located (facility B). Therefore, the contaminated wastewater would be similar and compatible with the on-site generated wastewater at facility A. In this case, the CWT rule would not apply.

EPA received information on each of the examples provided in comment on the rule. The comments detail instances in which the off-site wastewaters, while not subject to the same national effluent guidelines and standards as the wastewater generated on-site, are similar to the on-site generated manufacturing wastewaters and compatible with the on-site treatment system. In these cases, EPA concluded that the application of the CWT rule may not result in increased environmental protection, but simply add an additional layer of complexity for the treating facility and the permit writer.

Furthermore, EPA determined there are other instances of off-site waste acceptance at manufacturing facilities in which the off-site wastes, while not from the same industrial category, are similar to the on-site generated manufacturing wastewaters and compatible with the manufacturing wastewater treatment system. Consequently, for purposes of this rule, EPA has decided that, where the dischargers establishes that the wastes being treated are of similar nature and compatible with treatment of the on-site wastes, the CWT limitations and standards will not apply to the resulting discharge. EPA concluded that, in those circumstances, the permit writer should instead apply the limitations applicable to the treatment of on-site wastewater to wastewaters generated through treatment of the off-site waste. Under the approach adopted for the final rule, the permit writer will determine whether the off-site generated waste accepted for treatment and/or recovery at a manufacturing facility (whether subject to national effluent guidelines and standards or not) and commingled for treatment in the on-site treatment system is similar to the on-site generated wastes and compatible with the on-site treatment system. If it is, the discharge of the treated effluent should be subject to the applicable on-site limitations (or standards) even if the off-site wastes would be subject to a different set of national effluent guidelines and standards as the on-site generated wastes (or no national effluent guidelines and standards) if treated where generated. In the event that the permit writer makes this determination, the treating facility would be subject to the on-site limits only and not subject to the CWT guideline.

For this final rule, EPA has not rigidly defined when a waste is of similar character and the treatment of it is compatible with the treatment of the on-site wastes, believing that permit writers are in the best position to determine this term. Permit writers should compare the wastewaters at the manufacturing facility to the off-site generated wastewaters (constituents and concentrations) and the appropriateness of the treatment system to the off-site generated wastewaters on a case by case basis. The final guideline commits the decision that an off-site wastewater is similar and compatible (and thus whether CWT limitations or standards would apply) to the permit writer. A treating facility must submit information demonstrating to the permit writer that the off-site waste is similar and compatible. EPA cautions permit writers that the judgment of "similar and compatible" should be made based only on the development of a full record on this issue. If the treating facility has not clearly established that the off-site wastewaters are similar to the on-site generated manufacturing wastewaters and compatible with the treatment system in the permit writer's best judgment, the permit writer must apply the CWT limitations to the treating facility.

Therefore, EPA has concluded that centralized waste treatment operations at manufacturing facilities will be subject to provisions of the rule unless one of the following conditions is met:

- In the case of a facility subject to national effluent limitation guidelines for existing sources, standards of performance for new sources, or pretreatment standards for new and existing sources, if the facility demonstrates that the wastes received from off-site for treatment and/or recovery are generated in a process or operation that would be subject to the same national effluent guidelines and standards as the process or operation generating the on-site wastes; or
- In the case of a facility subject to national effluent guidelines and standards if the facility demonstrates that the waste received from off-site is similar in nature to the waste generated on-site and compatible with the on-site treatment system; or
- In the case of a facility not subject to national effluent limitations and standards, if the facility demonstrates that the waste received from off-site is similar in nature to the waste generated on-site and compatible with the on-site treatment system.

EPA contemplates that this approach would be implemented in the following manner. A facility that is currently subject to national effluent limitation guidelines or pretreatment standards receives wastewater from off-site for treatment. The wastewater is commingled for treatment with manufacturing wastewater generated on-site. If the off-site wastewater is subject to the same limitations or standards as the onsite wastewater (or would be if treated where generated) or if the off-site wastewater is similar to the onsite wastewater and compatible with the treatment system, the CWT limitations would not apply to the discharge associated with the off-site wastewater flows. In that case, another guideline or standard applies. If, however, the off-site wastewater is not subject to the same national limitation guidelines or standards (or if none exist) and if the off-site wastewater is not similar to the onsite wastewater and compatible with the treatment system, that portion of the discharge associated with the off-site flow would be subject to CWT requirements (of course, the portion of the wastewater generated on-site remains subject to applicable limitations and standards for the facility). If the off-site and on-site wastewaters are commingled prior to discharge, the permit writer would use the "'combined wastestream formula" or "building block approach" to determine limitations for the commingled wastestream (see Chapter 14).

Certain facilities that are subject to the CWT regulations because they accept wastes whose treatment is not compatible with the treatment of wastes generated on-site may nevertheless be subject to limitations and standards based on the otherwise applicable provisions of 40 CFR Subchapter N. Thus, the final regulations provide for the permit writer or pretreatment control authority to develop "alternative limitations and standards" for certain facilities in a narrow set of circumstances (see e.g., 40 CFR 437.10(b)). Under this approach, which EPA discussed in the 1999 proposal, permit writers could require manufacturing facilities that treat off-site wastes to meet all otherwise-applicable categorical limitations and standards for the industries from which the waste was generated. This approach would also determine limitations or standards for any commingled on-site and off-site wastewater using the "combined wastestream formula" or "building block approach." The permit writer would apply the categorical limitations from the industries generating the wastewater, rather than the CWT limitations, to the off-site portion of the commingled wastestream. The use of the combined wastestream formula and building block approaches for CWT wastes is discussed further in Section XIV.F of the 1999 proposal (64 FR 2342-2343). The permit writer (or pretreatment control authority) may establish alternative limitations and standards only when a facility receives continuous flows of process wastewaters with relatively consistent pollutant profiles from no more than five customers. EPA's information shows that, in practice, permit writers are currently following this approach for facilities that treat off-site waste for no more than five facilities. This approach is not appropriate for facilities that receive variable off-site wastewaters or that service more than a handful of customers.

After further consideration of the above described alternative and careful consideration of comments received on this alternative, EPA determined that the permit writer (or local pretreatment authority) should have the option in a limited set of circumstances of applying the applicable categorical limitations or standards to the off-site wastestreams. This is the approach described above. Thus, the final rule authorizes permit writers(at their discretion) to subject the wastewater associated with the treatment of the off-site wastes to limitations and standards based on the categorical limitations from the industries generating the wastewater, rather than applying the CWT limitations to the off-site portion of the commingled wastestream. Consequently, the applicability provisions of Subparts A, B, C and D provide for such authority. See 40 CFR §§ 437.10(b), 437.20(b), 437.30(b) & 437.40(b).

### *Pipeline Transfers (Fixed Delivery Systems) 3.1.2*

EPA did not propose to apply CWT limitations and standards to facilities that receive off-site wastes for treatment solely via an open or enclosed conduit (for example, pipeline, channels, ditches, trenches, etc.). EPA did not propose to include pipeline facilities because, based on information obtained by the Agency, facilities that receive all their wastes through a pipeline or trench (fixed delivery systems) from the original source of waste generation receive continuous flows of process wastewater with relatively consistent pollutant profiles. These wastewaters are traditional wastewaters from the applicable industrial category that generally remain constant from day to day in terms of the concentration and type of pollutant parameters. Unlike traditional CWT facilities, their customers and wastewater sources do not change and are limited by the physical and monetary constraints associated with pipelines.

EPA has reevaluated the database for this rule. EPA received questionnaire responses from four centralized waste treatment facilities which receive their waste streams solely via pipeline. EPA also examined the database that was developed for the organic chemicals, plastics, and synthetic fibers (OCPSF) effluent limitations guidelines to gather additional data on

OCPSF facilities which also have centralized waste treatment operations. Based on the OCPSF database, 16 additional facilities are treating wastewater received solely via pipeline from off-site for treatment. A review of the CWT and OCPSF databases supplemented by telephone calls to selected facilities reveals that one facility no longer accepts wastes from off-site, one facility is now operating as a POTW, and 11 facilities only accept off-site wastes that were generated by a facility within the same category as on-site generated waste. (The latter facilities, under the criteria explained above, would no longer be within the scope of the proposed rule because they are already subject to existing effluent guidelines and standards.) Therefore, EPA identified 7 facilities which receive off-site wastes solely via pipeline which may be subject to this rulemaking.

Of these seven facilities, one is a dedicated treatment facility which is not located at a manufacturing site. The other six pipeline facilities are located at manufacturing facilities which are already covered by an existing effluent limitation guideline. All of the facilities are direct dischargers and all receive waste receipts from no more than five customers (many receive waste receipts from three or fewer customers).

Since the 1995 proposal, EPA conducted site visits at two of these pipeline facilities. Information collected during these site visits confirmed EPA's original conclusion that wastes received by pipeline are more consistent in strength and treatability than "typical" CWT wastewaters. These wastewaters are traditional wastewaters from the applicable industrial category that generally remain relatively constant from day to day in terms of the concentration and type of pollutant parameters. Unlike traditional CWTs, their customers and wastewater sources do not change and are limited by the physical and monetary constraints associated with pipelines.

EPA has also reviewed the discharge permits for each of these pipeline facilities. EPA found that, in all cases, permit writers had carefully applied the "building block approach" in establishing the facility's discharge limitations. Therefore, in all cases, the treating facility was required to treat each of the piped wastewaters to comply with otherwise applicable effluent guidelines and standards.

EPA did not receive any information in response to the 1999 proposed rule that has convinced the Agency to change its treatment of pipeline facilities for purposes of this rule. Consequently, the scope of this final rule excludes wastes that are piped to waste treatment facilities. See 40 CFR § 437.1(b)(3). These wastes will continue to be subject to otherwise applicable effluent guidelines and standards. In EPA's view, it is more appropriate for permit writers to develop limitations for treatment facilities that receive wastewater by pipeline on an individual basis by applying the "combined wastestream formula" or "building block" approach.

There are two exceptions to this approach. The first is for facilities that receive waste via conduit (that is, pipeline, trenches, ditches, etc.) from facilities that are acting merely as waste collection or consolidation centers that are not the original source of the waste. These wastewaters are subject to the CWT rule. The basis for EPA's exclusion of waste treatment facilities receiving wastes by pipeline from the scope of the rule was that such facilities did not receive the same types of varying wastes as CWT facilities receiving wastes by truck or tanker. Pipeline facilities receive flows of wastes with consistent pollutant profiles. Waste consolidators, on the other hand, which send their flows to a treatment facility via pipeline are delivering wastes like those typically received by CWT facilities in tanks or trucks. See 40 CFR § 437.1(b)(3). The second is for facilities that serve as both CWT facilities and pipeline facilities (i.e., receive waste from off-site via pipeline as well as some other mode of transportation such as trucks). If this type of facility commingles the trucked and piped waste prior to discharge, then both the trucked and piped wastewaters at these facilities are subject to the CWT rule. The basis for the pipeline exclusion no longer applies because the addition of hauled waste introduces variability in pollutant concentrations and characteristics that are not true for the piped wastes. See 40 CFR § 437.1(b)(3). However, if such a facility discharges these wastewaters separately, then only the trucked off-site wastewater is subject to provisions of the CWT rule and the piped waste subject to limitations and standards based on the applicable 40 CFR Subchapter N limitations and standards. POTWs are not considered CWTs and are not subject to the limitations and standards of this rule. However, as discussed more fully in Section 3.1.6, POTWs should not be receiving wastes from industrial users subject to national effluent guidelines and standards (either by pipeline or otherwise) that do not comply with applicable pretreament standards.

### *Product Stewardship* *3.1.3*

Many members of the manufacturing community have adopted "product stewardship" programs as an additional service for their customers to promote recycling and reuse of products and to reduce the potential for adverse environmental impacts from chemical products. Many commenters have defined "product stewardship" in this way: "taking back spent, used, or unused products, shipping and storage containers with product residues, off-specification products and waste materials from use of products." Generally, whenever possible, these manufacturing plants recover and reuse materials in chemical processes at their facility. Manufacturing companies that cannot reuse the spent, used, or unused materials returned to them treat these materials/wastewaters in their wastewater treatment plant. With few exceptions, all of the materials (which are not reused in the manufacturing process) that are treated in the on-site wastewater treatment systems appear to have been produced in the same effluent limitations guidelines point source category as the on-site manufactured materials. In industry's view, such materials are inherently compatible with the treatment system. EPA received no specific information on these product stewardship activities in the responses to the 308 Waste Treatment Industry Questionnaire. EPA obtained information on this program from comment responses to the 1995 CWT proposal and in discussions with industry since the 1995 proposal. As part of their comment to the 1995 proposal, the Chemical Manufacturer's Association (CMA) provided results of a survey of their members on product stewardship activities. Based on these survey results, which are shown in Table 3-1 and Table 3-2, the vast majority of materials received under the product stewardship programs are materials received for product rework. A small amount is classified as residual recycling and an even smaller amount is classified as drum take backs. Of the materials received, the vast majority is reused in the manufacturing process. With few exceptions, all of the materials (which are not reused in the manufacturing process) that are treated in the on-site wastewater treatment systems, appear to be from the same categorical group as the on-site manufactured materials.

Table 3-1. Summary of the Frequency of the Types of Activities and Dispositions Reported

| | Item | Number | % of Total[1] |
|---|---|---|---|
| Activity | Drum Returns | 3 | 5% |
| | Residual Recycling | 7 | 12% |
| | Product Rework | 50 | 86% |
| | Other | 2 | 3% |
| Disposition | Rework/Reuse | 53 | 91% |
| | On-site Wastewater Treatment | 22 | 38% |
| | Off-site Disposal | 29 | 50% |

[1]Based on information submitted by 33 CMA member facilities. Of these 33 members, 13 reported information concerning more than one product type, or activity. Therefore, the percentage of the total is based on 58 separate entries on the survey.

Table 3-2. Summary of Frequency of Each Product Class Reported by Facilities

| Product Class | Number of Facilities | Percent of Total[1] |
|---|---|---|
| Polymers, Plastics, and Resins | 17 | 52% |
| Organic Chemicals | 6 | 18% |
| Solvents and Petroleum Products | 3 | 9% |
| Inorganic Chemicals | 4 | 12% |
| Pesticides | 2 | 6% |
| Unspecified | 4 | 12% |

[1]Based on Responses from 33 CMA facilities.

In the proposal, EPA explained that it had decided to apply the same approach to wastewater generated from materials that are taken back for recycle or re-use as is applied to wastewater received from off-site by a manufacturing facility (i.e., if the materials received from off-site under the product stewardship program would be subject to the same limitations and standards for the same categorical industry as the on-site generated manufacturing wastes, the treating facility would not be subject to CWT requirements). Because EPA remained concerned that circumstances exist in which used materials or waste products may not be compatible with the otherwise existing treatment system, EPA did not propose a blanket exemption for product stewardship activities from the scope of this rulemaking. EPA proposed that those activities that wastewater from the treatment of used products or waste materials would be subject to the CWT rule if it were not produced at facilities subject to the same provisions of Subchapter N as wastewater from the treatment of the other on-site generated wastes.

EPA received numerous comments on its proposed approach for treating product stewardship activities. Many commenters claimed that the proposed rule would deter product stewardship activities, and that EPA should not include any product stewardship activities in the scope of the CWT rule. Some commented that these materials are generally not "treated", but re-used or recovered, and that for that reason they were fundamentally different from other wastes in the CWT industry. Others commented that while EPA's intent seemed to be appropriate, the language was much too restrictive. For example, commenters noted that when a product goes off-site to another manufacturing facility which is subject to different categorical standards, the product (while it remains unchanged) would then be subject to a different set of categorical standards. If the manufacturing facilities which originally produced the product took back the off-spec product from its customer, the proposal, as written, would require that the treating facility be subject to CWT guidelines even though the off-spec waste would clearly be the same as those generated on-site.

EPA applauds the efforts of manufacturing facilities to reduce pollution and the environmental impacts of their products and does not want to discourage these practices. Consequently, EPA has decided that product stewardship activities at a manufacturing facility which involve taking back their unused products, shipping and storage containers with product residues, and off-spec products should not be subject to provisions of the CWT rule.

EPA remains concerned, however, about the treatment of spent, used, or waste materials returned to the original manufacturer. EPA's concern is that treatment of the spent, used, or waste materials with the on-site wastewater may not be compatible with the otherwise existing treatment system. The fact that these materials may be accepted for re-use or recycling rather than "treatment" does not ensure that resulting wastewaters would be inherently compatible with the treatment system. EPA is unable to see how such activities differ from waste recovery operations that the Agency has concluded should be subject to these guidelines. For example, a facility manufactures industrial chemicals which are then sent to a customer which uses these chemicals in the manufacture of printed circuit boards. The inorganic chemical manufacturer accepts spent etchants (waste materials from use of product) from its customer for recovery and re-use of certain metals in their inorganic chemical manufacturing process. (Note that CWT facilities not located at manufacturing sites also accept spent etchants). The recovery process generates a wastewater. This wastewater may contain many pollutants which were not present in the wastewater generated in manufacturing the inorganic chemical and which may not be compatible with, or effectively treated, in the treatment process at the inorganic chemical manufacturing facility. The same may be true if the accepting facility determined that spent etchant could not be effectively reused and recovered and directed the material to their wastewater treatment system.

Therefore, EPA has concluded that product stewardship activities that involve taking back spent, used, or waste materials from use of products should, as a general matter, be subject to provisions of this rule unless any of the exclusions established for manufacturing facilities, as explained in Section 3.1.1, would apply. Thus, those activities that involve used products or waste materials that are not subject to effluent guidelines or standards from the same category as the on-site generated wastes or that are not similar to the on-site generated manufacturing wastes and compatible with the treatment systems (as determined by the permit writer) are subject to the rule. EPA does not believe this approach will curtail product stewardship activities, in general, but will ensure that all wastes are treated effectively.

### *Federally-Owned Facilities* 3.1.4

Throughout development of this rule, EPA's database has included information on CWT facilities owned by the federal government. It has always been EPA's intention that federal facilities which accept wastes, wastewater, or used material from off-site for treatment and/or recovery of materials would be subject to provisions of this rule unless they meet the conditions under which the rule would not apply, e.g. treated off-site wastes subject to the same 40 CFR Subchapter N provisions as the federal facility.

EPA's database contains information on 23 federally owned facilities that operate treatment systems. EPA has determined that 15 of these facilities are not subject to provisions of the CWT rule because they do not accept off-site wastes. Of the remaining facilities, 6 are not subject to provisions of the CWT rule because they perform CWT activities to which the rule would not apply. Therefore, EPA has identified 1 federally-owned CWT facility that is subject to this rule. EPA has included this facility in all of its analyses.

### *Marine Generated Wastes 3.1.5*

EPA received many comments on the original proposal relating to marine generated wastes. Since these wastes are often generated while a ship is at sea and subsequently off-loaded at port for treatment, the treatment site could arguably be classified as a CWT due to its acceptance of "off" site wastes. Commenters, however, claimed that marine generated wastes should not be subject to the CWT rule for the following reasons:

- Unlike most CWT waste streams, bilge and/or ballast water is generally dilute and not toxic; and
- Most of the bilge water is generated while the ship is docked. If only the small portion of bilge water contained in the ship upon docking is subject to regulation, it would be expensive and inefficient to monitor only that small portion for compliance with the CWT rule.

EPA reexamined its database concerning these wastes as well as additional data on the characteristics of these types of wastes provided through comments to the 1995 proposal. Based on data provided by industry on bilge and ballast water characteristics, bilge and ballast water can vary greatly in terms of the breadth of analytes and the concentration of the analytes from one ship to another. In most instances, the analytes and concentrations are similar to those found in wastes typical of the oils subcategory. EPA found that while some shipyards have specialized treatment centers for bilge and/or ballast wastes, some of these wastes are being treated at traditional CWTs.

In the proposed rule (64 FR 2291), EPA defined "marine waste" as waste generated as part of the normal maintenance and operation of a ship, boat, or barge operating on inland, coastal or open waters. Such wastes may include ballast water, bilge water, and other wastes generated as part of routine ship operations. The proposal further explained that EPA considered wastewater off-loaded from a ship as being generated on-site at the point where it is off-loaded provided that the waste is generated as part of the routine maintenance and operation of the ship on which it originated while at sea. The waste is not considered an off-site generated waste (and thus subject to CWT requirements) as long as it is treated and discharged at the ship servicing facility where it is off-loaded. Therefore, EPA proposed not to include these facilities as CWT facilities. The proposal further clarified that if marine generated wastes are off-loaded and subsequently sent to a CWT facility at a separate location and commingled with other covered wastewater, these facilities and their wastestreams would be subject to provisions of this rule.

After careful consideration of comments, EPA has not modified its approach for marine generated waste with one exception. For today's rule, EPA defines marine waste as waste generated as part of the normal maintenance and operation of a ship, boat, or barge operating on inland, coastal or open waters, or while berthed. See 40 CFR § 437.1(c)(2). In response to commenters' requests for clarification, EPA has changed the definition to clarify that wastes generated while ships are berthed are part of normal maintenance and operational activities and are thus "on-site." As a further point of clarification, waste generated while a ship is berthed is not an off-site generated waste so long as it is treated and discharged at the ship servicing facility where it is off-loaded. If, however, marine generated wastes are off-loaded and subsequently sent to a CWT facility at a separate location and commingled with other covered wastewater, these facilities and their wastestreams are subject to provisions of this rule.

### *Publicly Owned Treatment Works (POTWs) 3.1.6*

Comments to the 1995 and 1999 CWT proposals establish that large and small POTWs accept a large volume of hauled wastes. A special discharge survey conducted by the Association of Metropolitan Sewerage Agencies (AMSA) indicates that 42.5 percent of POTW respondents accept hauled industrial wastes. This study was submitted as comment to the 1995 CWT proposal. Based on comments to the 1999 proposal, EPA believes this is likely an underestimate of current activities.

A large quantity of the wastes trucked to POTWs is septage and chemical toilet wastes. EPA did not evaluate these wastes for regulation and they are not subject to this rule. EPA would expect that POTWs would adequately treat these sanitary waste flows because EPA would expect septage and chemical toilet wastes to closely resemble sewage with respect to organic content.

POTWs also receive significant volumes of trucked industrial and commercial wastes. Examples of these include wastes subject to pretreatment standards under 40 CFR subchapter N, as well as wastes not subject to national effluent guidelines and standards. These wastes may include oil-water emulsions or mixtures, coolants, tank cleaning water, bilge water, restaurant grease trap wastes, groundwater remediation water, contaminated storm water run-off, interceptor wastewaters, and used glycols. CWT facilities also treat many of these wastes and discharges from these operations may be subject to the final CWT limits.

EPA received numerous comments on how the CWT rule should apply to POTWs. Commenters were largely divided on the applicability of the CWT rule to POTWs. All of the POTWs that commented on the proposal agreed that the CWT rule should not apply to POTWs. They stated that under the CWA, effluent guidelines and pretreatment standards do not apply to POTWs. Rather, as established by the CWA, POTWs are subject to secondary treatment and water quality standards. These commenters further stated that POTWs generally accept trucked wastes as a service to their community to insure that these wastes receive proper treatment. Commenting POTWs further cited that trucked wastes comprise a de minimis portion of the total volume of wastewater treated at their facilities.

Non-POTW commenters were, on the other hand, unanimous in stating that the CWT rule should apply to POTWs. These commenters asserted that POTWs and CWT facilities are competing for many of the same wastestreams, and therefore POTWs should be subject to the same standards as CWT facilities. These commenters stated that POTWs are actively competing for wastestreams not subject to national effluent guidelines and standards, and cautioned that EPA should be concerned that this hauled waste is being accepted with little or no documentation regarding the source, little or no monitoring of the shipments when they arrive, and no pretreatment before mixing with the normal POTW influent. They also expressed concern that POTWs often do not have equivalent treatment compared to CWT facilities and that pollutant reductions are often due to dilution rather than treatment. Finally, many CWT facilities commented that by not including POTWs in the scope of the CWT rule, EPA might actually increase the discharge of pollutants to the nation's waters since waste generators will have an incentive to ship directly to POTWs thus skipping what would have been effective pretreatment at the CWT facility.

It is clear from reviewing the comments that many commenters may misunderstand the interaction between effluent guidelines and pretreatment standards, and they are consequently confused about how this guideline will affect POTW operations. The following discussion is intended as clarification. Under the CWA, all direct dischargers must comply with technology-based effluent guidelines and any more stringent limitations necessary to meet State water quality standards. In the case of certain pollutants and for certain categories and classes of direct dischargers, EPA promulgates guidelines that establish these technology-based limitations. In the case of POTWs, the CWA specifically identifies the technology -- secondary treatment -- that is the basis for POTW effluent limitations.

In addition, the CWA also requires EPA to establish pretreatment standards for indirect dischargers – those introducing wastewater to a POTW either by pipe or sewer or by transporting the waste by truck or rail to the POTW. These standards are designed to prevent the discharges of pollutants that pass-through, interfere or are otherwise incompatible with POTW operations. The standards are technology-based and analogous to technology-based effluent limitations applicable to direct dischargers. Once EPA has established pretreatment standards, no indirect discharger may introduce wastewater to a POTW for which there are pretreatment standards except in compliance with the standard. The CWA specifically prohibits the owner or operator of any source from violating a pretreatment standard (see section 307(d) of the CWA). This prohibition applies whether the wastewater is discharged through a sewer system or sent to a POTW by truck or rail.

The CWA does authorize a POTW, in limited circumstances, to revise pretreatment standards for a discharger to take account of the POTW's actual removal of a particular pollutant. "Removal credits" may be available to a discharger generally under the following conditions. First, the granting of the removal credit by the POTW must not cause a violation of the POTW's permit limitations or conditions. Second, the POTW's treatment of the pollutant must not result in a sewage sludge that cannot be use of disposed of in accordance with sewage sludge regulations promulgated pursuant to section 405 of the CWA (see section 307(b) of the CWA).

EPA has promulgated regulations at 40 CFR Part 403 (General Pretreatment Regulations for Existing and New Sources of Pollution) that establish pretreatment standards and requirements that apply to any source introducing pollutants from a non-domestic source into a POTW. These standards include a general prohibition on the introduction of any pollutant that might pass through or interfere as well as prohibitions on specific pollutants such as those that may create a fire or explosion hazard or corrosive structural damage. EPA has also promulgated national effluent pretreatment standards (like the pretreatment standards promulgated here today) for specific industry categories as separate regulations at 40 CFR subchapter N.

The regulations at 40 CFR Part 403 also require all POTWs with a design flow greater than 5 MGD per day to develop a pretreatment program. Moreover, EPA or a State may require a POTW with a design flow that is less than or equal to 5 MGD to develop a pretreatment program if warranted by circumstances in order to prevent pass through or interference (see 40 CFR 403.8(a)). These pretreatment programs must require compliance with all applicable pretreatment standards and requirements by industrial users of the POTW (see 40 CFR 403.8(f)(ii)). Furthermore, each POTW developing a pretreatment program must develop and enforce specific local limits to implement the general and specific prohibition against pass-through and interference (see 40 CFR 403.5(c)). Thus, any POTW subject to the requirement to develop a pretreatment program that accepts waste that does not comply with a general or specific prohibition or with national effluent pretreatment standards is in violation of the regulations.

Consequently, following promulgation of this rule, POTWs with pretreatment programs that receive wastestreams both subject to and not regulated by national effluent standards and limitations must ensure the wastestreams do not violate these requirements. In practice, with respect to the wastestreams discussed by commenters, this means that a POTW may not accept untreated wastestreams subject to national effluent guidelines and standards. These would include wastestreams subject to pretreatment standards in 40 CFR subchapter N (e.g., electroplating wastes). Moreover, a POTW may not accept certain other streams not subject to national guidelines and standards such as oil-water emulsions or mixtures if those streams contain pollutants that would pass through or interfere with POTW operation. Note that 40 CFR 403.5(b)(5) specifically prohibits the introduction into a POTW of petroleum oil that will cause pass-through or interference. Given EPA's conclusion that oily wastewaters contain pollutants that will pass through POTWs, it is likely that many POTWs are accepting wastes for treatment that contain pollutants that will pass through.

EPA is concerned that wastestreams accepted at POTWs, both those subject to and those not regulated by national effluent guidelines and standards, receive proper treatment. In 1999, EPA's Office of Wastewater Management published the "Guidance Manual for the Control of Wastes Hauled to Publicly Owned Treatment Works" (EPA 833-B-98-003, September 1999). This document again stresses that national effluent pretreatment standards apply to waste generated by national effluent guidelines and standards (40 CFR parts 401 to 471), whether the waste is introduced to the POTW through the sewer system or hauled to the POTW. Moreover, EPA regulations require that POTWs must ensure pretreatment of wastes subject to national effluent standards received at the POTW regardless of the mode of transportation.

Similarly, because a POTW must ensure that no user is introducing pollutants into the POTW that would pass-through the POTW into the receiving waters or interfere with the POTW operation, EPA strongly recommends that each POTW should document and monitor all hauled wastestreams to ensure that necessary pretreatment steps have been performed. The guidance establishes a waste acceptance procedure that clearly resembles that generally performed at CWT facilities. Further, in the case of wastestreams not subject to national guidelines and standards, the POTW should also monitor the hauled wastestreams to ensure that pollutant reductions at the POTW will be achieved through treatment and not dilution.

Based on the types of hauled wastewater that commenters have indicated POTWs accept, EPA shares the concern of many commenters that pollutant reductions in these hauled wastewaters at POTWs are largely due to dilution. EPA reminds POTWs that wastewaters that contain significant quantities of metal pollutants, significant quantities of petroleum-based oil and grease, or significant quantities of non-biodegradable organic constituents should be pretreated by the generating facility or an appropriate treatment facility prior to acceptance at the POTW. EPA further reminds POTWs that this remains true regardless of whether or not these wastewaters comprise a de minimis portion of the total volume of the wastewaters treated at their facility. EPA concluded that if POTWs monitor hauled wastes appropriately and additionally ensure that all hauled wastes not subject to national effluent guidelines and standards can be effectively treated with their biological treatment systems then many of the issues raised by non-POTW commenters will be alleviated.

Finally, if a POTW chooses to establish a pretreatment business as an addition to their operation, they may, in given circumstances, be subject to provisions of this rule. EPA is aware of a POTW that plans to open a wastewater treatment system to operate in conjunction with its POTW operations. This facility would accept wastewaters subject to national guidelines and standards, treat them, and then discharge them to the POTW's treatment plant. The acceptance by a POTW of wastes subject to national effluent guidelines and standards that do not comply with pretreatment standards would seem to violate the requirements noted previously unless the POTW has revised the applicable standards to take account of its removal of certain pollutants. EPA's regulations at 40 CFR § 403.7 describe the process for obtaining removal credits and identifying the pollutants for which removal credits may be available. Under the current regulations, removal credits are only available for a limited number of pollutants. The 1999 notice described the removal credits program and when and for what pollutants such credits might be available at 64 FR 2339-10. EPA would note that the new wastewater treatment system would itself be a POTW (or part of the POTW) and, thus, any wastewater introduced to it must meet all applicable pretreatment standards. However, because POTWs are already covered by the technology requirements (i.e., secondary treatment) specified in the CWA (40 CFR 133), they are not considered CWT facilities and are not within the scope of this rule.

### *Thermal Drying of POTW Biosolids 3.1.7*

The thermal drying of POTW biosolids was not a focus of EPA's initial regulatory effort to develop this guideline. Consequently, EPA did not target thermal dryers during its data collection activities. However, commenters to the 1999 proposal provided information on thermal drying activities and requested EPA's views as to whether such operations would be subject to this rule. Thermal dryers accept off-site generated POTW biosolids (sludges that remain after wastewater treatment at a POTW) and treat these biosolids with a variety of technologies (e.g. rotary drum dryers) to form pellets. These biosolids can then be land applied. The thermal drying process generates two primary wastewater streams: facility water wash down and blowdown from wet scrubbers. These wastewaters are discharged back to the POTW that produced the biosolids.

Commenters to the 1999 proposal requested that EPA not include these activities within the scope of this rule for the following reasons:

- The POTW and the thermal dryer form a closed loop system. POTWs are the sole source of off-site waste received by thermal dryers. All wastewaters generated from the treatment of these biosolids are returned to the generator (the POTW).
- All storage and processing areas at these facilities are enclosed. Therefore, this material poses very little or no threat to storm water.
- Thermal drying activities bear little resemblance to the other regulated activities. Mandated testing parameters and other requirements under the CWT rule have little applicability to biosolids processing.

EPA agrees with commenters that thermal drying of biosolids should not be subject to provisions of the CWT rule. Because the only source of off-site wastes received at these drying facilities is biosolids produced at the POTW, the wastewater being generated from thermal drying of these biosolids should contain the same pollutants being treated at the POTW. As a result, the wastewater should be completely compatible with the treatment system at the POTW and should not cause any pass-through or interference. Consequently, thermal drying of POTW biosolids is not subject to provisions of the CWT rule. See 40 CFR § 437.1(b)(4).

### *Transporters and/or Transportation Equipment Cleaners 3.1.8*

Facilities that treat wastewater that results from cleaning tanker trucks, rail tank cars, or barges may be subject to the provisions of this rule if not subject to the Transportation

Equipment Cleaning (TEC) Point Source Category guidelines (40 CFR Part 442). Thus, the CWT rule does not apply to discharges from wastewater treatment at facilities engaged exclusively in cleaning the interiors of transportation equipment covered by the TEC regulation. EPA promulgated these guidelines on August 14, 2000 at 65 FR 49666. The TEC regulation applies to facilities that solely accept tanks which have been previously emptied or that contain a small amount of product, called a "heel," typically accounting for less than one percent of the volume of the tank. A facility that accepts for cleaning a tank truck, rail tank car, or barge not "empty" for purposes of TEC may be subject to the provisions established for the CWT rule.

There are some facilities that are engaged in traditional CWT activities and also engaged in traditional TEC activities. If the wastewaters from the two operations are commingled, under the approach adopted for TEC, the commingled wastewater flow from the transportation equipment cleaning activities would be subject to CWT limits. Therefore, a facility performing transportation equipment cleaning as well as other CWT services that commingles these wastes is a CWT facility and all of the wastewater discharges are subject to provisions of this rule. If, however, a facility is performing both operations and the wastestreams are not commingled (that is, transportation equipment cleaning process wastewater is treated in one system and CWT wastes are treated in a second, separate system), both the TEC rule and CWT rule apply to the respective wastewaters. See 40 CFR § 437.1(b)(10).

As a further point of clarification, the CWT rule does apply to transportation equipment cleaning wastewater received from off-site. Transportation equipment cleaning wastes received from off-site that are treated at CWT facilities along with other off-site wastes *are* subject to provisions of this rule.

### *Landfill Wastewaters* *3.1.9*

EPA published effluent limitations guidelines for Landfills (40 CFR Part 445) at 65 FR 3007 (January 19, 2000). There, EPA established limits for facilities which operate landfills subject to the provisions established in 40 CFR Parts 257, 258, 264, and 265. The final Landfills rule limitations do not apply to wastewater associated with landfills operated in conjunction with other industrial or commercial operations in most circumstances.

In the CWT industry, there are some facilities that are engaged both in CWT activities and in operating landfills. For the CWT final rule, EPA's approach to facilities which treat mixtures of CWT wastewater and landfill wastewater is consistent with that established for the landfill guideline. Therefore, a facility performing landfill activities as well as other CWT services that commingles the wastewater is a CWT facility only, and all of the wastewater discharges are subject to the provisions of this rule. If a facility is performing both operations and the wastestreams are not commingled (that is, landfill wastewater is treated in one treatment system and CWT wastewater is treated in a second, separate, treatment system), the provisions of the Landfill rule and CWT rule apply to their respective wastewater.

Additionally, under the approach established in the Landfills rulemaking, CWT facilities which are dedicated to landfill wastewater only, whether they are located at a landfill site or not, are subject to the effluent limitations for Landfills. These dedicated landfill CWT facilities are not subject to provisions of the CWT rulemaking.

As a further point of clarification, landfill wastewater is not specifically excluded from provisions of this rule. Landfill wastewater that is treated at CWT facilities along with other covered off-site wastestreams *are* subject to provisions of this rule. Furthermore, a landfill that commingles for treatment its own landfill wastewater with other landfill wastewater only is subject to the Landfill limits in the circumstances described in Section 3.1.1 above.

### *Incineration Activities* *3.1.10*

In January 2000, EPA promulgated effluent guidelines and pretreatment standards for wastewater discharges from a limited segment of the waste combustion industry at 65 FR 4360 (January 27, 2000). This regulation, codified at 40 CFR Part 444, applies to the discharge from a "commercial hazardous waste combustor" (CHWC). CHWCs are commercial incinerators that treat or recover energy from hazardous industrial waste.

There may be certain industrial facilities (for whom EPA has established guidelines limitations or standards in 40 CFR subpart N) which are subject to the CWT regulation that also operate incinerators or CHWCs. For the CWT final rule, EPA has adopted the same approach it has followed for other industrial facilities subject to national limitations and standards. Where a facility treats CHWC (or other incinerator wastewater) with CWT wastewater, the permit writer (or local control authority) would establish discharge limitations (or pretreatment standards) by using a flow-weighted combination of the CHWC limitations/standards (or BPJ incinerator wastewater limitations/standards) and the CWT limitations/standards. Thus, an organic chemical facility with an on-site CHWC (or other incinerator) that is also a CWT would be subject to combined wastestream formula pretreatment standards or building block limitations based on all three 40 CFR subpart N regulations.

Additionally, a facility which only treats CHWC wastewater (or other incinerator wastewaters or waste that is similar in nature as determined by the permitting authority, see Section 3.1.1), whether located at a CHWC site or not, would be subject not to the CWT regulations but to the otherwise applicable limitations or standards (either CHWC or, in the case of non-CHWC incinerator wastewater, limitations or standards developed by the permit writer or local control authority). EPA notes, however, that it has not identified any CWT facilities that are dedicated to CHWC (or other incineration) wastewaters only.

Further, incineration wastewaters are not specifically excluded from provisions of this rule. Incineration wastewaters received from off-site that are treated at CWT facilities along with other covered off-site wastestreams *are* subject to CWT limitations and provisions of this rule.

### *Solids, Soils, and Sludges* *3.1.11*

EPA did not distinguish in its information gathering efforts between those waste treatment and recovery facilities treating aqueous waste and those treating non-aqueous wastes or a combination of both. Thus, EPA's 308 Waste Treatment Industry Questionnaire and related CWT Detailed Monitoring Questionnaire (DMQ) asked for information on CWT operations without regard to the type of waste treated. EPA's sampling program also included facilities that accepted both aqueous and solid wastes for treatment and/or recovery. In fact, the facility that forms the technology basis for the metals subcategory limitations treats both liquid and solid wastes. A facility that accepts wastes from off-site for treatment and/or recovery that generates a wastewater is subject to the CWT rule regardless of whether the wastes are aqueous or non-aqueous. Therefore, wastewater generated in the treatment of solids received from off-site is subject to the CWT rule.

As a further point of clarification, the main concern in the treatment or recycling of off-site "solid wastes" is that pollutants contained in the solid waste may be transferred to a process or contact water resulting in a wastewater that may require treatment. Examples of such wastewaters include, but are not limited to the following:

- entrained water directly removed through dewatering operations (for example, sludge dewatering);

- contact water added to wash or leach contaminants from the waste material; and
- storm water that comes in direct contact with waste material which contain liquids.

The treatment or recovery of solids that remain in solid form when contacted with water and which do not leach any chemicals into the water are not subject to this rule. Examples of excluded solids recovery operations are the recycling of aluminum cans, glass and plastic bottles. As a further point of clarification, any wastewater generated at a municipal recycling center is not subject to provisions of this rule.

### *Scrap Metal Processors and Auto Salvage Operations* *3.1.12*

During development of this regulation, EPA did not examine facilities engaged in scrap metal processing or auto salvage operations as part of its study. EPA did not attempt to collect information on these types of operations. However, commenters to the 1999 proposal provided some information on these activities. Commenters noted that these operations often generate contaminated wastewaters as a secondary part of their operations. As described by commenters, wastewater is often produced when rainwater comes in contact with the scrap metal and/or automobiles during collection and storage. This rainwater then becomes contaminated with oily residue from the scrap metal and/or automobiles. Contaminated storm water is the only wastewater resulting from these operations.

Because contaminated storm water generated from centralized scrap metal processing or auto salvage operations would, as the regulatory language is specified, be subject to regulation, EPA considered whether it had a basis for regulating wastewaters from these operations. Other than the limited information supplied by commenters, EPA has very little data concerning these activities and the facilities that conduct these activities. As a result, EPA concluded that it should not include within the scope of the guideline wastewaters generated from centralized scrap metal processing or auto salvage at this time. EPA would expect that permit writers would develop limitations or local limits to establish site-specific permit requirements for any centralized scrap metal processing or auto salvage operations generating and discharging a contaminated stormwater.

### *Transfer Stations* *3.1.13*

During the initial stages of development of this rule, EPA did not envision transfer stations as part of the centralized waste treatment industry. As such, EPA did not attempt to collect information on the operation of transfer stations. However, EPA received comment to the 1999 proposal asking that EPA clarify its coverage of these facilities by this rule.

EPA has very little information on the operation of transfer stations. Based on comments, while transfer stations could fall within the definition of a CWT since they accept off-site industrial wastes, they do not perform any treatment or recovery of the off-site wastes. Transfer stations simply facilitate the distribution of wastes for disposal. Consequently, EPA has concluded that transfer stations should not be subject to provisions of the CWT rule.

### *Stabilization* *3.1.14*

As explained in the 1999 proposal, EPA concluded that, by definition, stabilization/solidification operations are "dry" and do not produce any wastewater. As such, EPA did not propose to include stabilization/solidification processes in the CWT rule. At that time, EPA also explained that it was considering a subcategory for stabilization operations with a zero discharge requirement, and requested comment on this approach.

EPA received very little comment on stabilization/solidification and no new data from industry following the 1999 proposal. One commenter suggested EPA require stabilization/solidification operations to be zero discharge. Another suggested EPA use the same approach proposed for facilities handling used oil filters. A third commented that EPA should not promulgate a zero discharge requirement because, in the event that a wastewater is produced by stabilization/solidification operations, the facility would not have the option to treat the wastewater on-site.

EPA re-examined its database and concluded that the while "solidification / stabilization" processes do not themselves produce any wastewater, there are often wastewaters associated with these processes. The major wastewater reported by questionnaire respondents associated with stabilization/solidification operations is equipment wash down. Further, the database shows that many of the wastes accepted from off-site for stabilization/solidification are the same or similar to wastes accepted for other covered CWT operations.

Consequently, EPA is not promulgating a subcategory for stabilization/solidification with a zero discharge requirement. EPA agrees with commenters that, in the event that there are wastewaters produced by or associated with these operations, facilities should have the option of choosing whether to treat the wastes on-site or through other means. If these operations produce a wastewater, then the discharge of wastewater from these facilities should be subject to provisions of this rule. Therefore, "dry" stabilization/solidification operations themselves are not subject to provisions of the CWT rule. However, wastewater discharges from stabilization/solidification operations that are performed on waste received from off site are subject to provisions of this rule. This approach is consistent with EPA's approach to fuel blending operations and used oil filter management.

### *Waste, Wastewater, or Used Material Re-use* *3.1.15*

EPA recognizes that some facilities accept wastewater from off-site for re-use rather than treatment or recovery. The intent in accepting these off-site "treated" wastewaters is to replace potable water or more expensive pure water obtained from wells, surface waters, etc. Examples include, but are not limited to the following:

- the acceptance of wastewater from off-site for use in place of potable water in industrial processes;
- the use of secondary POTW effluents as non-contact cooling water; and
- the use of storm water in place of potable water at shared industrial facilities located in industrial parks.

Likewise, EPA is also aware that some facilities accept used materials such as spent pickle liquor for re-use as a treatment chemical in place of virgin treatment chemicals.

EPA applauds all pollution prevention activities, especially those that allow treated wastewater or spent chemicals to be re-used rather than discharged. EPA does not define this type of activity as treatment or recovery. Therefore, the acceptance of off-site wastewater or spent chemicals for re-use in the treatment system or other industrial process is not a CWT activity and is not subject to provisions of this rule.

### *Recovery and Recycling Operations* *3.1.16*

Many CWT facilities perform recovery activities that lead to recycling of materials either at the recovering site or at another location. The purpose of these activities is to recycle product back into a use for which it was originally intended, not the treatment and disposal of wastewater streams. Examples of such activities include but are not limited to the following: used oil processing, used glycol recovery, fuel blending, metals recovery, and re-refining. Many commenters to both the 1995 proposal and the 1999 proposal noted that these activities should not be included under the scope of this rule because they are not "treatment," but "recovery" activities.

EPA applauds efforts to reduce pollution and the ancillary adverse consequences to the environment associated with product disposal and does not want to discourage these practices. However, EPA also recognizes that, while the intent of these activities is not treatment of a "wastewater" but rather recovery of a used or waste material, wastewater is usually generated from these recovery processes. Generally, the facility performing the recovery activity also performs on-site treatment of the resulting wastewater. EPA wants to ensure that these wastewaters receive appropriate treatment.

From the beginning of its data gathering activities associated with the development of this rule, EPA has included recycling and recovery activities along with wastewater treatment activities. In fact, EPA developed sections of the 308 Questionnaire to specifically target the collection of information on metals, solids, oils, and organics recovery activities. Many of the facilities visited and sampled by EPA perform recovery operations. Some of these facilities refer to themselves as "recyclers" and not "wastewater treatment facilities." EPA's sampling data show that in many instances the pollutants and concentrations of pollutants in wastewaters generated from recycling/recovery activities are very similar or more concentrated than wastewaters accepted for "treatment" only. In fact, many facilities that perform recovery operations combine the wastewater generated from the recovery operations with other off-site wastewater received for treatment. Consequently, EPA has concluded that recovery operations are included in the scope of this rule. Therefore, unless specifically stated elsewhere, facilities that recycle and recover off-site waste, wastewaters and/or used materials are considered "centralized waste treatment facilities" and are subject to provisions of this rule. However, if metals recovery operations are subject to the secondary metals provisions of 40 CFR 421, the Nonferrous Metals Manufacturing Point Source Category, then the provisions of this part do not apply. These secondary metals subcategories are Subpart C (Secondary Aluminum Smelting Subcategory), Subpart F (Secondary Copper Subcategory), Subpart L (Secondary Silver Subcategory), Subpart M (Secondary Lead Subcategory), Subpart P (Primary and Secondary Germanium and Gallium Subcategory), Subpart Q (Secondary Indium Subcategory), Subpart R (Secondary Mercury Subcategory), Subpart T (Secondary Molybdenum and Vanadium Subcategory), Subpart V (Secondary Nickel Subcategory), Subpart X (Secondary Precious Metals Subcategory), Subpart Z (Secondary Tantalum Subcategory), Subpart AA (Secondary Tin Subcategory), Subpart AB (Primary and Secondary Titanium Subcategory), Subpart AC (Secondary Tungsten and Cobalt Subcategory), and Subpart AD (secondary Uranium Subcategory).

### *Silver Recovery Operations from Used Photographic and X-Ray Materials 3.1.17*

At the time of the 1999 proposal, EPA proposed not to include electrolytic plating/metallic replacement silver recovery operations of used photographic and x-ray materials within the scope of this rule. The Agency based its conclusion on the fundamental difference in technology used to recover silver at facilities devoted exclusively to treatment of photographic and x-ray wastes. However, for off-site wastes that are treated/recovered at these facilities through any other process and/or waste generated at these facilities as a result of any other centralized treatment/recovery process, the Agency proposed that these wastewaters would be subject to provisions of this rule.

The Agency received many comments to the 1999 proposal that supported EPA's decision to not include electrolytic plating/metallic replacement silver recovery operation of used photographic and x-ray materials within the scope of this rule. However, commenters additionally noted that while many of these facilities primarily use electrolytic plating followed by metallic replacement in silver recovery operations, there are other processes that are also utilized. Commenters further noted that new silver recovery technologies are emerging and being studied and developed on a regular basis. As such, commenters asked EPA to not include silver recovery operations from used photographic and x-ray materials regardless of the method used to recover the silver.

EPA agrees with commenters that facilities that are devoted exclusively to the centralized recovery of silver from photographic and x-ray wastes should not be covered by this rule, regardless of the type of process used to recover the silver. As such, facilities that exclusively perform centralized silver recovery from used photographic and x-ray wastes are not subject to provisions of this rule. EPA would expect that, as is the case now with wastewater discharges associated with this operation, the control authority would determine whether to apply the provisions of 40 CFR 421, Subpart L (the Secondary Silver Subcategory of the Nonferrous Metals Manufacturing Regulation) or establish BPJ, site-specific permit requirements.

There are some facilities, however, which are engaged in traditional CWT activities and also engaged in centralized silver recovery from photographic and x-ray materials. If the wastewaters from the two operations are commingled, the commingled silver recovery wastewater flow would be subject to CWT limits. Therefore, a facility performing centralized silver recovery from used photographic and x-ray materials as well as some other covered CWT services that commingles these wastes are subject to provision of the CWT rule. All of the wastewater discharges are subject to provisions of this rule. If, however, a facility is performing both operations and the wastestreams are not commingled (that is, silver recovery wastewater is treated in one system and CWT wastes are treated in a second, separate system), the permit writer should apply the provision of 40 CFR 421, if applicable, or continue to establish BPJ, site-specific permit requirements for the discharge associated with the silver recovery operations and apply the CWT rule to the wastewaters associated with the other covered CWT activities.

As a further point of clarification, wastewater generated as a result of centralized silver recovery operations are not specifically excluded from provisions of this rule. Silver recovery wastewaters that are treated at CWT facilities with other covered off-site wastestreams are subject to provisions of this rule.

### *High Temperature Metals Recovery 3.1.18*

EPA is aware of three facilities in the U.S. that recover metal using a "high temperature metals recovery" process (HTMR). HTMR facilities recycle metal-bearing materials in a pyrometallurgical process that employs very high temperature furnaces. These facilities do not use the water-based precipitation/filtration technologies to recover metals from wastewater observed at metals subcategory facilities throughout the CWT industry. At the time of the proposal, EPA believed that all HTMR processes were "dry" (i.e., did not produce a wastewater). Consequently, in the 1999 proposal, EPA proposed not to include facilities that perform high temperature metals recovery (HTMR) within the coverage of this rule. EPA further requested comment on whether EPA should promulgate a zero discharge requirement for facilities that utilize the HTMR process.

Based on comment to the proposal, EPA has concluded that while most HTMR processes are dry, one of the three known HTMR facilities produces a wastewater (scrubber blowdown). As such, EPA has concluded that a zero discharge requirement for HTMR facilities is inappropriate and has not included it in the final

CWT rule. However, upon further examination of the comments and its database, EPA has concluded that HTMR facilities that generate a wastewater should be included within the scope of the CWT rule. While the HTMR process is different from other recycling technologies studied by EPA for this rulemaking, EPA has concluded that the wastewater produced from HTMR operations contains many of the CWT metals subcategory pollutants of concern and that the concentration of these pollutants falls solidly within the range of wastewaters in the CWT metals subcategory. As such, while the HTMR process may be different from water-based precipitation technologies, the resulting wastewaters are similar (see DCN 33.2.1). Therefore, it is appropriate for EPA to establish limits for HTMR wastewaters using the metals subcategory technology basis and these limits will be achievable. EPA has revised all of its analysis to reflect the inclusion of these "non-dry" HTMR facilities within the scope of the CWT rule. However, if high temperature metals recovery operations are subject to any of the secondary metals provisions of 40 CFR 421, the Nonferrous Metals Manufacturing Point Source Category, then the provisions of this part do not apply. See Section 3.1.16 for a list of the secondary metals subcategories.

### *Solvent Recycling/Fuel Blending 3.1.19*

The solvent recycling industry was studied by the EPA in the 1980s. EPA published its findings in the "Preliminary Data Summary for the Solvent Recycling Industry" (EPA 440/1-89/102) in September 1989 which describes this industry and the processes utilized. This document defines solvent recovery as "the recycling of spent solvents that are not the byproduct or waste product of a manufacturing process or cleaning operation located on the same site." Spent solvents are generally recycled in two main operations. Traditional solvent recovery involves pretreatment of the waste stream (in some cases) and separation of the solvent mixtures by specially constructed distillation columns. In most cases, traditional solvent recovery is performed at organic chemical manufacturing facilities. As such, wastewater discharges resulting from this process are subject to effluent limitations guidelines and standards for the organic chemicals industry (40 CFR 414).

EPA is aware that there are a few facilities which perform commercial solvent recovery operations. Some perform solvent recovery of spent or contaminated chemicals received from pharmaceutical and other chemical manufacturing companies. Some recycle spent solvents generated by parts washers and other cleaning devices operated by automotive shops, dry cleaners, and other small businesses. These commercial solvent recovery facilities, because they are not located at an organic manufacturing facility, are not directly subject to effluent limitations guidelines and standards for the organic chemicals industry (40 CFR 414).

Based on comments to the 1999 CWT proposal, EPA considered whether it should regulate commercial solvent recovery facilities under the provisions of this rule. EPA has determined, however, not to include these commercial solvent recovery operations within the scope of this rule at this time. Throughout the development of this rule, EPA has clearly stated that traditional solvent recovery operations would not be included within the scope of this rule. In developing its database to support this rule, while EPA did collect limited information on these activities, EPA intentionally excluded known solvent recoverers from its data collection activities. As such, EPA has only limited data on solvent recovery activities which are not already subject to OCPSF. It did not obtain information to characterize the wastewaters generated at such operations. Thus, EPA has no basis for determining whether or not such operations are sufficiently similar to the organic waste subcategory so that they may properly be regulated as organic waste streams. Therefore, wastewaters resulting from traditional solvent recovery activities as defined above are not subject to this effluent guidelines. For wastewaters associated with traditional solvent recovery activities located at organic chemical manufacturing facilities, permit writers should use OCPSF to establish discharge requirements. For commercial traditional solvent recovery activities (not located at an organic chemical manufacturing site), permit writers should use Best Professional Judgement or local limits to establish site-specific permit requirements.

Fuel blending is the second main operation which falls under the definition of solvent recovery. Fuel blending is the process of mixing wastes for the purpose of regenerating a fuel for reuse. At the time of the 1995 proposal, fuel blending operations were excluded from the CWT rule since EPA believed the fuel blending process was "dry" (that is, no wastewaters were produced). Based on comments to the original proposal and the Notice of Data Availability, EPA has concluded that this is valid and that true fuel blenders do not generate any process wastewaters and are, therefore, zero dischargers. EPA is concerned, however, that the term "fuel blending" may be loosely applied to any process where recovered hydrocarbons are combined as a fuel product. Such operations occur at nearly all used oil and fuel recovery facilities. Therefore, "dry" fuel blending operations are excluded from the CWT rule. In the event that wastewater is generated at a CWT fuel blending facility, the discharge of wastewaters associated with these operations are subject to this rule.

### *Re-refining* 3.1.20

When EPA initially proposed guidelines and standards for CWT facilities, the regulations would have limited discharges from used oil reprocessors/reclaimers, but did not specifically include or exclude discharges from used oil re-refiners. During review of information received on the proposal and assessment of the information collected, the Agency, at one point, considered limiting the scope of this regulation to reprocessors/reclaimers only because it was not clear whether re-refiners actually generated wastewater. However, further data gathering efforts have revealed that re-refiners may generate wastewater and that the principal sources of re-refining wastewaters are essentially the same as for reprocessors/reclaimers. Consequently, the re-refining wastewater is included within the scope of this rule.

The used oil reclamation and re-refining industry was studied by EPA in the 1980s. EPA published the "Preliminary Data Summary for the Used Oil Reclamation and Re-Refining Industry" (EPA 440/1-89/014) in September 1989 which describes this industry and the processes utilized. This document generally characterizes the industry in terms of the types of equipment used to process the used oil. Minor processors (reclaimers) generally separate water and solids from the used oil using simple settling technology, primarily in-line filtering and gravity settling with or without heat addition. Major processors (reclaimers) generally use various combinations of more sophisticated technology including screen filtration, heated settling, centrifugation, and light fraction distillation primarily to remove water. Re-refiners generally use the most sophisticated systems which generally include, in addition to the previous technologies, a vacuum distillation step to separate the oil into different components.

The final rule applies to the process wastewater discharges from used oil re-refining operations. The principal sources of wastewater include oil-water gravity separation (often accompanied by chemical/thermal emulsion breaking) and dehydration unit operations (including light distillation and the first stage of vacuum distillation). EPA has, to date, identified two re-refining facilities.

### *Used Oil Filter and Oily Absorbent Recycling* 3.1.21

EPA did not obtain information on used oil filter or oily-absorbent (oil soaked or contaminated disposable rags, paper, or pads) recycling through the Waste Treatment Industry Questionnaire. However, in response to the September 1996 Notice of Data Availability and the 1999 proposal, EPA received comments from facilities which recycle used oil filters and oily absorbents. In addition, EPA also visited several used oil reprocessors that recycle used oil filters or oily absorbents as part of their operations.

Used oil filter and oily absorbent recycling processes range from simple crushing and draining of entrained oil to more involved processes where filters or absorbent materials are shredded and the metal and filter material are separated. Generally, the resulting used oil is recycled, the separated metal product is sold to a smelter, and the separated filter material is sold as a solid fuel. Based on information collected during EPA's site visits and comments to the 1999 proposal, wastewater may be generated during all phases of the recycling activity including collection activities, plant maintenance, and air pollution control. EPA notes, however, that based on its observations, many of these activities are "dry" and do not produce associated wastewaters. In fact, at the time of the 1999 proposal, EPA believed these activities were largely "dry" and requested comment on whether EPA should promulgate a zero discharge requirement for facilities performing used oil filter recovery.

As detailed above, based on comment to the proposal, EPA no longer believes that all used oil filter and absorbent recycling activities are dry. As such, EPA has concluded that a zero discharge requirement for these activities is inappropriate and has not included it in the final CWT rule. However, upon further examination of the comments and its database, EPA has concluded that used oil filter and absorbent recovery facilities which generate a wastewater should be included within the scope of the CWT rule. While EPA does not have data in its database on the characteristics of these wastewaters, these wastewaters are often combined with other covered CWT wastewaters for treatment. Further, since the material being recovered is primarily used oil, EPA has every reason to believe that any resulting wastewaters will be similar (in terms of constituents and concentration) to wastewaters generated from used oil recovery. As such, EPA has concluded that these operations should be regulated as are other centralized used oil recovery activities. Where information is available to EPA on these operations, EPA has revised its analysis to reflect the inclusion of these "non-dry" used oil filter and absorbent facilities within the scope of the CWT rule.

### *Grease Trap/Interceptor Wastes* *3.1.22*

EPA received comments on coverage of grease, sand, and oil interceptor wastes by the CWT rule during the comment period for the original proposal, the 1996 Notice of Data Availability, and the 1999 proposal. Some of these wastes are from non-industrial sources and some are from industrial sources. Some are treated at central locations designed to exclusively treat grease trap/interceptor wastes and some of these wastes are treated at traditional CWT facilities with traditional CWT wastes. Examples of the types of customers which generate these grease trap/interceptor wastes include, but are not limited to, the following: auto and truck maintenance and repair shops, auto body and parts shops, car washes, gas stations, commercial bottling facilities, food and produce distribution shops, restaurants, and tire shops.

Throughout the development of this rule, EPA has directed its efforts to CWT operations that treat and/or recover off-site *industrial* wastes. As such, grease/trap interceptor wastes would not fall within the scope of this rule. Grease trap/interceptor wastes are defined as animal or vegetable fats/oils from grease traps or interceptors generated by facilities engaged in food service activities. Such facilities include, but are not limited to, restaurants, cafeterias, caterers, commercial bottling facilities, and food and distribution shops. Excluded grease trap/interceptor wastes should not contain any hazardous chemicals or materials that would prevent the fats/oils from being recovered and recycled.

Wastewater discharges from the centralized treatment of wastes produced from oil interceptors, however, which are designed to collect petroleum-based oils, sand, etc. from industrial type processes, are a different case and EPA has determined that this wastewater is properly subject to this rule. Examples of facilities that produce oil interceptor waste include, but are not limited to, auto and truck maintenance and repair shops; auto body and parts shops; car washes; and gas stations. EPA collected data on the types and concentrations of pollutants in oil interceptor wastes through comments and EPA sampling. The data show, that like other CWT wastes, the concentration of pollutants can vary greatly from one wastestream to another. EPA's sampling data show that these materials can be very similar in nature and concentration to other wastes covered by this rule. Consequently, EPA has determined these wastes should be included within the scope of this rule.

### *Food Processing Wastes* 3.1.23

During development of this rule, EPA did not collect information from facilities engaged in centralized waste treatment of food processing wastes. As detailed in Section 3.1.22, EPA envisioned that this rule would be limited to the treatment and/or recovery of off-site *industrial* wastes. While food processing may be an "industrial" activity, these wastes do not contain heavy metals, concentrated organics, or petroleum based oils. In terms of contaminants of concern, these wastes are similar to those generated by cafeterias, restaurants, etc. Consequently, the final guidelines will not apply to animal and vegetable fats/oils wastewaters at CWT facilities, specifically those generated by food processors/manufacturers.

### *Sanitary Wastes and/or Chemical Toilet Wastes* 3.1.24

The CWT rule would regulate facilities which treat, or recover materials from, off-site industrial wastes and wastewaters. Sanitary wastes such as chemical toilet wastes and septage are not covered by the provisions of the CWT rule. EPA expects that permit writers would develop BPJ limitations or local limits to establish site-specific permit requirements for any commercial sanitary waste treatment facility.

Similarly, sanitary wastes or chemical toilet wastes received from off-site and treated at an industrial facility or a CWT facility are not subject to the provisions of the CWT rule. If these wastes are mixed with industrial wastes, EPA would expect that, as is the case now with ancillary sanitary waste flows mixed for treatment at facilities subject to national effluent guidelines and standards, the permit writer would establish BPJ, site-specific permit requirements.

### *Treatability, Research and Development, and Analytical Studies* 3.1.25

During the initial stages of development of this rule, EPA did not envision regulation of facilities which accept off-site wastes for treatability studies, research and development, or chemical or physical analysis. As such, EPA did not attempt to collect information on these activities. However, EPA received comment to its proposals asking that EPA clarify its coverage of these activities by this rule.

EPA has very little information on these activities. Based on comments, these activities, arguably, would fall within the definition of Centralized Waste Treatment since they accept off-site wastes. The purpose of these activities is not treatment or recovery, but rather the evaluation of different treatment techniques. Consequently, EPA has concluded that treatability, research and development or analytical activities should not be subject to provisions of the CWT rule.

Permit writers and local authorities should use their Best Professional Judgment (BPJ) and local limits authority to establish limitations and standards for these wastestreams. Under EPA's regulations, permit writers or local control authorities must include technology-based limits either for any toxic pollutant which is or may be discharged at a level greater than the level which can be achieved by treatment requirements appropriate to the permittee or for any pollutant which may pass through or interfere with POTW operations. (See 40 CFR §§ 122.44(e), 125.3.) *See also* 40 CFR § 403.5. EPA would expect that, in some cases, wastewater associated with these activities might look very much like the wastestreams regulated under this rule. In those circumstances, permit writers (and local control authorities) may want to consider the technical development document developed for the CWT guideline when the permit writer establishes case-by-case limitations under NPDES regulations at 40 CFR § 125.3 or the control authority establishes local limits under the General Pretreatment Regulations at 40 CFR § 403.5.

EPA notes that if a CWT facility accepts off-site wastes for treatability, research and development, or analytical activities, and commingles any resulting wastewaters with other covered wastewaters prior to discharge, these wastewaters would be subject to provisions of this rule.

Table 3-3. Examples of Regulated and Non-Regulated CWT Operations

| Centralized Waste Treatment Activity | Regulated by this rule | Not Regulated by this rule | For Further Info See: |
|---|---|---|---|
| Those performed at federally owned facilities | All federally owned CWT operations | None | Section 3.1.4 |
| POTWs | None | All | Section 3.1.6 |
| Thermal drying of POTW biosolids | None | All | Section 3.1.7 |
| Sanitary wastes or toilet wastes | None | All | Section 3.1.24 |
| Food processing wastes | None | All | Section 3.1.23 |
| Manufacturing facilities | Those that accept off-site wastes for treatment and/or recovery that are not generated in a manufacturing process subject to the same limitations/standards as on-site generated waste or that the permit writer determines are not similar to, and compatible with, the on-site waste | All others | Section 3.1.1 |
| Product stewardship | Those that accept waste materials from use of their products that are not similar to, and compatible with, treatment of waste generated on-site | Those that accept back their unused products, shipping and storage containers with product residues, and off-specification products | Section 3.1.3 |
| Petroleum refineries (SIC Code 2911) and petroleum distribution terminals (SIC Code 4612, 4613, 5171, 5172) | For off-site materials other than those listed in the next column, see discussion for manufacturing facilities. | Those that receive and manage off-site petroleum-containing materials generated by petroleum exploration, production, transportation, refining and marketing activities | Section 3.1.1 |
| Pulp and paper off-site landfill leachates | None | Those that receive off-site leachates which are from dedicated pulp and paper landfills | Section 3.1.1 |
| Pipeline materials | Materials received via pipeline from waste consolidators or commingled with other covered CWT wastewaters | All other piped materials | Section 3.1.2 |
| Recycle/recovery activities | All unless specifically excluded elsewhere | | Section 3.1.16 |
| Traditional solvent recovery | None | All | Section 3.1.19 |
| Fuel blenders | Those that generate a wastewater | "Dry" operations | Section 3.1.19 |
| Scrap metals recyclers | None | All | Section 3.1.12 |
| Silver recovery | Only included where wastewater generated from these activities is commingled with other covered waters | All others | Section 3.1.17 |
| Used oil filters | Those that generate a wastewater | "Dry" operations | Section 3.1.21 |

| Centralized Waste Treatment Activity | Regulated by this rule | Not Regulated by this rule | For Further Info See: |
|---|---|---|---|
| HTMR | Those that generate a wastewater | "Dry" operations | Section 3.1.18 |
| Used glycol recovery | All | None | Section 3.1.16 |
| Re-refining | All | None | Section 3.1.20 |
| Solids, soils, and sludges | Those activities which generate a wastewater unless specifically excluded elsewhere | "Dry" operations | Section 3.1.11 |
| Stabilization/Solidification | Those that generate a wastewater | "Dry" operations | Section 3.1.14 |
| Transfer stations and recycling centers | None | All | Section 3.1.13 |
| Incinerators | All others | Facilities which accept off-site wastes exclusively for incineration activities | Section 3.1.10 |
| Transportation and/or transportation equipment cleaning | Only included where wastewater generated from these activities is commingled with other covered waters | All others | Section 3.1.8 |
| Landfills | Only included where wastewater generated from these activities is commingled with other covered waters | All others | Section 3.1.9 |
| Grease trap/interceptor wastes | Those which contain petroleum based oils | Those which contain animal or vegetable fats/oils | Section 3.1.22 |
| Marine generated wastes | Only included where wastewater generated from these activities is commingled with other covered waters | All others | Section 3.1.5 |
| Waste, wastewater or used material re-use | Those activities not listed in the next column or excluded elsewhere | Not covered if the wastewater is accepted for use in place of potable water or if materials are accepted in place of virgin treatment chemicals. | Section 3.1.15 |
| Treatability, research and development, or analytical activities | Only included where wastewater generated from these activities is commingled with other covered waters | All others | Section 3.1.25 |

# Chapter 4

# DESCRIPTION OF THE INDUSTRY

The adoption of the increased pollution control measures required by CWA and RCRA requirements had a number of ancillary effects, one of which has been the formation and development of a waste treatment industry. Several factors have contributed to the growth of this industry. These include: (a) the manner in which manufacturing facilities have elected to comply with CWA and RCRA requirements; (b) EPA's distinction for regulatory purposes between on- and off-site treatment of wastewater in the CWA guidelines program; and (c) the RCRA 1992 used oil management requirements.

A manufacturing facility's options for managing wastes include on-site treatment or sending them off-site. Because a large number of operations (both large and small) have chosen to send their wastes off-site, specialized facilities have developed whose sole commercial operation is the handling of wastewater treatment residuals and industrial process by-products.

Many promulgated effluent guidelines also encouraged the creation of these central treatment centers. Inconsistent treatment of facilities which send their waste off-site to CWT facilities in the guidelines program has resulted in wastewater that is treated off-site being subject to inconsistent standards. EPA acknowledges that this may have created a loop-hole for dischargers to avoid treating their wastewater to standards comparable to categorical standards before discharge. Additionally, RCRA regulations, such as the 1992 used oil management requirements (40 CFR 279) significantly influenced the size and service provided by this industry.

## *INDUSTRY SIZE* 4.1

Based upon responses to EPA's data gathering efforts, the Agency now estimates that there are approximately 223 centralized waste treatment facilities in 38 States. As shown below in Table 4-1, the major concentration of centralized waste treatment facilities is in EPA Regions 4, 5, and 6, due to the proximity of the industries generating the wastes undergoing treatment. Changes in the estimate of the total number of CWT facilities since the 1999 proposal reflect facilities that were included or excluded because of scope changes or clarification. EPA is aware that CWT facilities have entered or left the centralized waste treatment market. This is expected in a service industry. Even so, EPA is comfortable that its estimate of facilities is reasonable and has not adjusted it, other than to account for scope changes and clarifications.

As detailed in Chapter 2, while EPA estimates there are 223 CWT facilities, EPA only has facility-specific information for 163 of these facilities. In preparing the final limitations and standards, EPA conducted its analysis with the known facility specific information and then used the actual data to develop additional information to represent the entire population. Unless otherwise stated, information presented in this document represents the entire population. Table 4-1 provides an example where data is only presented for the facilities for which EPA has facility-specific information.

## *GENERAL DESCRIPTION* 4.2

Centralized waste treatment facilities do not fall into a single description and are as varied as the wastes they accept. Some treat wastes from a few generating facilities while others treat wastes from hundreds of generators. Some treat only certain types of waste while others accept many wastes. Some treat non-hazardous wastes exclusively while others treat hazardous and non-hazardous wastes. Some primarily treat concentrated wastes while others primarily treat more dilute wastes. For some, their primary business is the treatment of other company's wastes while, for others, centralized waste treatment is ancillary to their main business.

At the time of the original proposal, a few of the facilities in the industry database solely accepted wastes classified as non-hazardous under RCRA. The remaining facilities accepted either hazardous wastes only or a combination of hazardous and non-hazardous wastes. Now, however, the vast majority of the oils facilities accept non-hazardous materials only. As such, EPA believes the market for centralized waste treatment of non-hazardous materials has increased during the 1990s.

EPA has detailed waste receipt information for the facilities in the 1991 Waste Treatment Industry Questionnaire data base. Of the 85 in-scope facilities from the Questionnaire data base, 71 of them are RCRA-permitted treatment, storage, and disposal facilities (TSDFs). As such, most of these facilities were able to use information reported in the 1989 Biennial Hazardous Waste Report to classify the waste accepted for treatment by the appropriate Waste Form and RCRA codes. The Waste Form and RCRA codes reported by the questionnaire respondents are listed in Table 4-2 and Table 4-3, respectively. (Table 14-2 in Chapter 14 lists these Waste Form and RCRA codes along with their associated property and/or pollutants). Some questionnaire respondents, especially those that treat non-hazardous waste, did not report the Waste Form Code information due to the variety and complexity of their operations.

EPA does not have detailed RCRA code and waste code information on waste receipts for the facilities identified after the original proposal. It is known that the majority of these facilities accept non-hazardous wastes. Of the 78 post-proposal oily waste facilities for which EPA has specific data, only 20 are RCRA-permitted TSDFs.

Centralized waste treatment facilities service a variety of customers. A CWT generally receives a variety of wastes daily from dozens of customers. Some customers routinely generate a particular wastestream and are unable to provide effective on-site treatment of that particular wastestream. Some customers utilize CWT facilities because they generate wastestreams only sporadically (for example tank removal, tank cleaning and remediation wastes) and are unable to economically provide effective on-site treatment of these wastes. Others, many which are small businesses, utilize CWT facilities as their primary source of wastewater treatment.

Table 4-1. Geographic Distribution of CWT Facilities (163 Facilities)

| Region | State | # of CWTs | % of CWTs | Region | State | # of CWTs | % of CWTs |
|---|---|---|---|---|---|---|---|
| 1 | Connecticut | 5 | 4.9 | 5 | Illinois | 7 | 25.8 |
| | Maine | 1 | | | Indiana | 5 | |
| | Massachusetts | 1 | | | Michigan | 11 | |
| | Rhode Island | 1 | | | Minnesota | 2 | |
| 2 | New Jersey | 7 | 6.8 | | Ohio | 13 | |
| | New York | 4 | | | Wisconsin | 4 | |
| 3 | Delaware | 1 | 9.8 | 6 | Louisiana | 5 | 12.9 |
| | Maryland | 2 | | | Oklahoma | 2 | |
| | Pennsylvania | 7 | | | Texas | 14 | |
| | Virginia | 6 | | 7 | Iowa | 1 | 2.5 |
| 4 | Alabama | 3 | 19.6 | | Kansas | 2 | |
| | Florida | 9 | | | Missouri | 1 | |
| | Georgia | 3 | | 8 | Colorado | 2 | 1.8 |
| | Kentucky | 3 | | | Montana | 1 | |
| | Mississippi | 1 | | 9 | Arizona | 1 | 9.8 |
| | North Carolina | 3 | | | California | 13 | |
| | South Carolina | 2 | | | Hawaii | 1 | |
| | Tennessee | 8 | | | Nevada | 1 | |
| | | | | 10 | Oregon | 2 | 6.1 |
| | | | | | Washington | 8 | |

Table 4-2. Waste Form Codes Reported by CWT Facilities in 1989[1]

| Waste Form Codes | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| B001 | B106 | B112 | B119 | B206 | B219 | B310 | B501 | B507 | B515 | B604 |
| B101 | B107 | B113 | B201 | B207 | B305 | B312 | B502 | B508 | B518 | B605 |
| B102 | B108 | B114 | B202 | B208 | B306 | B313 | B504 | B510 | B519 | B607 |
| B103 | B109 | B115 | B203 | B209 | B307 | B315 | B505 | B511 | B601 | B608 |
| B104 | B110 | B116 | B204 | B210 | B308 | B316 | B506 | B513 | B603 | B609 |
| B105 | B111 | B117 | B205 | B211 | B309 | B319 | | | | |

[1]Table 14-2 in Chapter 14 lists Waste Form Codes and their associated properties.

Table 4-3. RCRA Codes Reported by Facilities in 1989[2]

| RCRA Codes | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| D001 | D012 | F009 | K016 | K063 | P020 | P069 | U002 | U052 | U118 | U161 |
| D002 | D017 | F010 | K031 | K064 | P022 | P071 | U003 | U054 | U122 | U162 |
| D003 | D035 | F011 | K035 | K086 | P028 | P074 | U008 | U057 | U125 | U188 |
| D004 | F001 | F012 | K044 | K093 | P029 | P078 | U009 | U069 | U134 | U190 |
| D005 | F002 | F019 | K045 | K094 | P030 | P087 | U012 | U080 | U135 | U205 |
| D006 | F003 | F039 | K048 | K098 | P040 | P089 | U013 | U092 | U139 | U210 |
| D007 | F004 | K001 | K049 | K103 | P044 | P098 | U019 | U098 | U140 | U213 |
| D008 | F005 | K011 | K050 | K104 | P048 | P104 | U020 | U105 | U150 | U220 |
| D009 | F006 | K013 | K051 | P011 | P050 | P106 | U031 | U106 | U151 | U226 |
| D010 | F007 | K014 | K052 | P012 | P063 | P121 | U044 | U107 | U154 | U228 |
| D011 | F008 | K015 | K061 | P013 | P064 | P123 | U045 | U113 | U159 | U239 |

[2]Table 14-2 in Chapter 14 lists Waste Form Codes and their associated properties.

Before a CWT accepts a waste for treatment, the waste generally undergoes rigorous screening for compatibility with other wastes being treated at the facility. Waste generators initially furnish the treatment facility with a sample of the waste stream to be treated. The sample is analyzed to characterize the level of pollutants in the sample and bench-scale treatability tests are performed to determine what treatment is necessary to treat the waste stream. After all analyses and tests are performed, the treatment facility determines the cost for treating the waste stream. If the waste generator accepts the cost of treatment, shipments of the waste stream to the treatment facility will begin. Generally, for each truck load of waste received for treatment, the treatment facility collects a sample from the shipment and analyzes the sample to determine if it is similar to the initial sample tested. If the sample is similar, the shipment of waste will be treated. If the sample is not similar but falls within an allowable range as determined by the treatment facility, the treatment facility will reevaluate the estimated cost of treatment for the shipment. Then, the waste generator decides if the waste will remain at the treatment facility for treatment. If the sample is not similar and does not fall within an allowable range, the treatment facility will decline the shipment for treatment.

Treatment facilities and waste generators complete extensive paperwork during the waste acceptance process. Most of the paperwork is required by Federal, State, and local regulations. The amount of paperwork necessary for accepting a waste stream emphasizes the difficulty of operating centralized waste treatment facilities.

### *WATER USE AND SOURCES OF WASTEWATER 4.3*

Approximately 2.0 billion gallons of wastewater are generated annually at CWT facilities. It is difficult to determine the quantity of wastes attributable to different sources because facilities generally mix the wastewater prior to treatment. EPA has, as a general matter, however, identified the sources described below as contributing to wastewater discharges at CWT operations that would be subject to the proposed effluent limitations and standards.

*Waste Receipts*. Most off-site waste received by CWT facilities is aqueous. These aqueous off-site waste receipts comprise the largest portion of the wastewater treated at CWT facilities. Typical waste receipts for the metals subcategory include but are not limited to the following: spent electroplating baths and sludges, spent anodizing solutions, metal finishing rinse water and sludges, and chromate and cyanide wastes. Types of waste accepted for treatment in the oils subcategory include, but are not limited to, the following: lubricants, used petroleum products, used oils, oil spill clean-up, bilge water, tank clean out, off-specification fuels, and underground storage tank remediation waste. Types of wastes accepted for treatment in the organics subcategory include, but are not limited to the following: landfill leachate, groundwater clean-up, solvent-bearing waste, off-specification organic products, still bottoms, used antifreeze, and wastewater from chemical product operations and paint washes.

*Solubilization Water.* A portion of the off-site waste receipts is in a solid form. Water may be added to the waste to render it treatable.

*Used Oil Emulsion-Breaking Wastewater*. The wastewater generated as a result of the emulsion breaking or gravity separation process used during the processing of used oil constitutes a major portion of the wastewater treated at oils facilities. EPA estimates that, at a typical oils facility, half of the wastewater treated is a result of oil/water separation processes.

*Tanker Truck/Drum/Roll-Off Box Washes.* Water is used to clean the equipment used for transporting wastes. The amount of wastewater generated was difficult to assess because the wash water is normally added to the wastes or used as solubilization water.

*Equipment Washes.* Water is used to clean waste treatment equipment during unit shut downs or in between batches of waste.

*Air Pollution Control Scrubber Blow-Down.* Water or acidic or basic solution is used in air emission control scrubbers to control fumes from treatment tanks, storage tanks, and other treatment equipment.

*Laboratory-Derived Wastewater.* Water is used in on-site laboratories which characterize incoming waste streams and monitor on-site treatment performance.

*Industrial Waste Combustor or Landfill Wastewater from On-Site Landfills.* Wastewater is generated at some CWT facilities as a result of on-site landfilling or incineration activities.

*Contaminated Stormwater.* This is stormwater which comes in direct contact with the waste or waste handling and treatment areas. If this contaminated CWT stormwater is introduced to the treatment system, its discharge is subject to the promulgated limitations. The Agency is not regulating under the CWT guideline non-contact stormwater or contaminated stormwater not introduced to the treatment system. Such flows may, in certain circumstances, require permitting under EPA's existing permitting program under 40 CFR 122.26(b)(14) and 40 CFR 403. CWT facilities that introduce non-contaminated stormwater into their treatment system will need to identify this as a source of non-CWT wastewater in their treatment system in their permit applications. This is necessary so that the permit writer may take account of these flows in developing permit limitations that reflect actual treatment.

## *VOLUME BY TYPE OF DISCHARGE* 4.4

In general, three basic options are available for disposal of wastewater treatment effluent: direct, indirect, and zero (or alternative) discharge. Some facilities utilize more than one option (for example, a portion of their wastewater is discharged to a surface water and a portion is evaporated). Direct dischargers are facilities which discharge effluent directly to a surface water. Indirect dischargers are facilities which discharge effluent to a publicly-owned treatment works (POTW). Zero or alternative dischargers do not generate a wastewater or do not discharge to a surface water or POTW. The types of zero or alternative discharge identified in the CWT industry are underground injection control (UIC), off-site transfer for further treatment or disposal, evaporation, and no wastewater generation. Table 4-4 lists the number of facilities utilizing each discharge option.

Average facility wastewater discharge information is presented in Table 4-5 for the indirect and direct discharge options. The proposed effluent limitations guidelines and standards for the CWT industry do not apply to facilities with a zero or alternative discharge.

Table 4-4. Facility Discharge Options

| Discharge Option | No. of Facilities with Specific Data | No. of Scaled-Up Facilities |
|---|---|---|
| Direct | 12 | 14 |
| Indirect | 105 | 148 |
| Indirect and off-site transfer | 1 | 1 |
| Indirect and no wastewater generation | 2 | 2 |
| UIC | 7 | 9 |
| Off-site transfer | 14 | 22 |
| Evaporation | 3 | 5 |
| Off-site transfer and evaporation | 1 | 1 |
| Zero (not specified) | 18 | 21 |
| Total | 163 | 223 |

Table 4-5. Quantity of Wastewater Discharged (223 Facilities)

| Discharge Option | Quantity of Wastewater Discharged (Million gallons/year) | | | |
|---|---|---|---|---|
| | Total | Average | Minimum | Maximum |
| Direct | 535 | 38.2 | 0.078 | 225 |
| Indirect | 1,547 | 10.2 | 0.0013 | 177 |

### *OFF-SITE TREATMENT INCENTIVES AND COMPARABLE TREATMENT* *4.5*

As noted before, the adoption of the increased pollution control measures required by the CWA and RCRA regulation was a significant factor in the formation and development of the centralized waste treatment industry. Major contributors to the growth of this industry include EPA decisions about how to structure its CWA effluent limitations guidelines program as well as the manner in which manufacturing facilities have elected to comply with CWA and RCRA requirements.

The CWA requires the establishment of limitations and standards for categories of point sources that discharge into surface waters or introduce pollutants into publicly owned treatment works. At present, facilities that do not discharge wastewater (or introduce pollutants to POTWs) may not be subject to the requirements of 40 CFR Subchapter N Parts 400 to 471. Such facilities include manufacturing or service facilities that generate no process wastewater, facilities that recycle all contaminated waters, and facilities that use some kind of alternative disposal technology or practice (for example, deep well injection, incineration, evaporation, surface impoundment, land application, and transfer to a centralized waste treatment facility).

Thus, for example, in implementing CWA and RCRA requirements in the electroplating industry, many facilities made process modifications to conserve and recycle process wastewater, to extend the lives of plating baths, and to minimize the generation of wastewater treatment sludges. As the volumes of wastewater were reduced, it became economically attractive to transfer electroplating metal-bearing wastewater to off-site centralized waste treatment facilities for treatment or metals recovery rather than to invest in on-site treatment systems. In the case of the organic chemicals, plastics, and synthetic fibers (OCPSF) industry, many facilities transferred selected process residuals and small volumes of process wastewater to off-site centralized waste treatment facilities. When estimating the engineering costs for the OCPSF industry to comply with the OCPSF regulation, the Agency assumed, based on economies of scale, in the case of facilities with wastewater flows less than 500 gallons per day, such plants would use off-site rather than on-site wastewater treatment.

The Agency believes that any wastes transferred to an off-site CWT facility should be treated to at least the same level as required for the same wastes if treated on-site at the manufacturing facility. In the absence of appropriate regulations to ensure at least comparable or adequate treatment, the CWT facility may inadvertently offer an economic incentive for increasing the pollutant load to the environment. One of the Agency's primary concerns is the potential for a discharger to reduce its wastewater pollutant concentrations through dilution rather than through appropriate treatment. The final standard is designed to ensure that wastes transferred to centralized waste treatment facilities would be treated to the same levels as on-site treatment or to adequate levels.

This is illustrated by the information the Agency obtained during the data gathering activities for the 1995 proposal. EPA visited 27 centralized waste treatment facilities in an effort to identify well-designed, well-operated candidate treatment systems for sampling. Two of the principal criteria for selecting plants for sampling were based on whether the plant applied waste management practices that increased the effectiveness of the treatment system and whether the treatment system was effective in removing pollutants. This effort was complicated by the level of dilution and co-dilution of one type of waste with another. For example, many facilities treated metal-bearing and oily wastes in the same treatment system and many facilities mixed non-CWT wastewater with CWT wastewater. Mixing metal-bearing with non-metal-bearing oily wastewater and mixing CWT with non-CWT wastewater provides a dilution effect which generally reduces the efficiency of the wastewater treatment system. Of the 27 plants visited, many were not sampled because of the problems of assessing CWT treatment efficiencies due to dilution of one type of wastewater with another.

The final limitations would ensure, to the extent possible, that metal-bearing wastes are treated with metals control technology, that oily wastes are treated with oils control technology, and that organic wastes are treated with organics control technology.

In developing the final guidelines, EPA noted a wide variation in the size of CWT facilities and the level of treatment provided by these facilities. Often, pollutant removals were poor, and, in some cases, significantly lower than would have been required had the wastewaters been treated at the site where generated. In particular, EPA's survey indicated that some facilities were employing only the most basic pollution control equipment and, as a result, achieved low pollutant removals relative to that easily obtained through the use of other, readily available pollutant control technology. Further, EPA had difficulty in identifying more than a handful of facilities throughout the CWT industry that were achieving optimal removals.

# Chapter 5

# INDUSTRY SUBCATEGORIZATION

### *Methodology and Factors Considered As the Basis For Subcategorization* *5.1*

The CWA requires EPA, in developing effluent limitations guidelines and pretreatment standards that represent the best available technology economically achievable for a particular industry category, to consider a number of different factors. Among others, these include the age of the equipment and facilities in the category, manufacturing processes employed, types of treatment technology to reduce effluent discharges, and the cost of effluent reductions (Section 304(b)(2)(b) of the CWA, 33 U.S.C. § 1314(b)(2)(B)). The statute also authorizes EPA to take into account other factors that the Agency deems appropriate.

One way in which the Agency has taken some of these factors into account is by breaking down categories of industries into separate classes of similar characteristics. This recognizes the major differences among companies within an industry that may reflect, for example, different manufacturing processes or other factors. One result of subdividing an industry by subcategories is to safeguard against overzealous regulatory standards, increase the confidence that the regulations are practicable, and diminish the need to address variations between facilities through a variance process (*Weyerhaeuser Co*. v. *Costle*, 590 F.2d 1011, 1053 (D.C. Cir. 1978)).

The centralized waste treatment industry, as previously explained, is not typical of many of the industries regulated under the CWA because it does not produce a product. Therefore, EPA considered certain additional factors that specifically apply to centralized waste treatment operations in its evaluation of how to establish appropriate limitations and standards and whether further subcategorization was warranted. Additionally, EPA did not consider certain other factors typically appropriate when subcategorizing manufacturing facilities as relevant when evaluating this industry. The factors EPA considered in the subcategorization of the centralized waste treatment industry include the following:

- Facility age;
- Facility size;
- Facility location;
- Non-water quality impacts;
- Treatment technologies and costs;
- RCRA classification;
- Type of wastes received for treatment; and
- Nature of wastewater generated.

EPA concluded that certain of these factors did not support further subcategorization of this industry. The Agency concluded that the age of a facility is not a basis for subcategorization, as many older facilities have unilaterally improved or modified their treatment processes over time. EPA also decided that facility size was not an appropriate basis for subcategorizing. EPA identified three parameters as relative measures of facility size: number of employees, amount of waste receipts accepted, and wastewater flow. EPA found that CWTs of varying sizes generate similar wastewaters and use similar treatment technologies. Furthermore, wastes can be treated to the same level regardless of the facility size. Likewise, facility location is not a good basis for subcategorization. Based on the data collected, no consistent differences in wastewater treatment technologies or performance exist because of geographical location. EPA recognizes, however, that geographic location may have an effect on the market for CWT services, the cost charged for these services, and the value of recovered product. These issues are addressed in the Economic Assessment Document.

While non-water quality characteristics (solid waste and air emission effects) are of concern to EPA, these characteristics did not constitute a basis for subcategorization. Environmental impacts from solid waste disposal and from the transport of potentially hazardous wastewater are a result of individual facility practices and EPA could not identify any common characteristics particular to a given segment of the industry. EPA did not use treatment costs as a basis for subcategorization because costs will vary and are dependent on the following waste stream variables: flow rates, wastewater quality, and pollutant loadings. Finally, EPA concluded that the RCRA classification was not an appropriate basis for subcategorization, as the type of waste accepted for treatment appears to be more important than whether the waste was classified as hazardous or non-hazardous.

EPA identified only one factor of primary significance for subcategorizing the centralized waste treatment industry -- the type of waste received for treatment or recovery. This factor encompasses many of the other subcategorization factors. The type of treatment processes used, nature of wastewater generated, solids generated, and potential air emissions directly correlate to the type of wastes received for treatment or recovery. For the final standards, EPA reviewed its earlier subcategorization approach and decided to retain it. It is still EPA's conclusion that the type of waste received for treatment or recovery is the only appropriate basis for subcategorization of this industry.

## *SUBCATEGORIES* 5.2

Based on the type of wastes accepted for treatment or recovery, EPA has determined that there are four subcategories appropriate for the centralized waste treatment industry:

- Subcategory A: Facilities that treat or recover metal from metal-bearing waste, wastewater, or used material received from off-site (Metals Subcategory);
- Subcategory B: Facilities that treat or recover oil from oily waste, wastewater, or used material received from off-site (Oils Subcategory); and
- Subcategory C: Facilities that treat or recover organics from other organic waste, wastewater, or used material received from off-site (Organics Subcategory); and
- Subcategory D: Facilities that treat or recover some combination of metal-bearing, oily, or organic waste, wastewater, or used materials received from off-site (Multiple Waste Stream Subcategory).

## *SUBCATEGORY DESCRIPTIONS* 5.3

### *Metals Subcategory* 5.3.1

The facilities in this subcategory are those treating metal-bearing waste received from off-site and/or recover metals from off-site metal-bearing wastes. Currently, EPA has identified 59 facilities in this subcategory. Fifty-two facilities treat metal-bearing waste exclusively, while another six facilities recover metals from the wastes for sale in commerce or for return to industrial processes. One facility provides metal-bearing waste treatment in addition to conducting a metals recovery operation. The vast majority of these facilities have RCRA permits to accept hazardous waste. Types of wastes accepted for treatment include spent electroplating baths and sludges, spent anodizing solutions, metal finishing rinse water and sludge, and chromate wastes.

The typical treatment process used for metal-bearing waste is precipitation with lime or caustic followed by filtration. The sludge generated is then landfilled in a RCRA Subtitle C or D landfill depending on its content. Most facilities that recover metals do not generate a sludge that requires disposal. Instead, the sludges are sold for metal content. In addition to treating metal bearing wastestreams, many facilities in this subcategory also treat cyanide wastestreams, many of which are highly-concentrated and complex. Because the presence of cyanide may interfere with the chemical precipitation process, these facilities generally pretreat to remove cyanide and then commingle the pretreated cyanide wastewaters with the other metal-containing wastewaters. EPA estimates that nineteen of the metals facilities also treat cyanide wastestreams.

### *Oils Subcategory* *5.3.2*

The facilities in this subcategory are those that treat oily waste, wastewater, or used material received from off-site and/or recover oil from off-site oily materials. Currently, EPA estimates that there are 164 facilities in this subcategory. Among the types of waste accepted for treatment are lubricants, used petroleum products, used oils, oil spill clean-up, bilge water, tank clean-out, off-specification fuels, and underground storage tank remediation waste. Many facilities in this subcategory only provide treatment for oily wastewaters while others pretreat the oily wastes for contaminants such as water and then blend the resulting oil residual to form a product, usually fuel. Most facilities perform both types of operations. EPA estimates that 53 of these facilities only treat oily wastewaters and 36 facilities primarily recover oil for re-use. The remaining 75 facilities both treat oily waste and recover oil for re-use.

At the time of the original proposal, EPA believed that 85 percent of oils facilities were primarily accepting concentrated, difficult-to-treat, stable, oil-water emulsions containing more than 10 percent oil. However, during post-proposal data collection, EPA learned that many of the wastes treated for oil content at these facilities were fairly dilute and consisted of less than 10 percent oils. While some facilities are accepting the more concentrated wastes, the majority of facilities in this subcategory are treating less concentrated wastes.

Further, at the time of the original proposal, only three of the facilities included in the data base for this subcategory were identified as solely accepting wastes classified as non-hazardous under RCRA. The remaining facilities accepted either hazardous wastes alone or a combination of hazardous and non-hazardous wastes. In contrast, based on more recent information, EPA has concluded that the majority of facilities in this subcategory only accept wastes that would be classified by RCRA as non-hazardous.

The most widely-used treatment technology in this subcategory is gravity separation and/or emulsion breaking. One-third of this industry only uses gravity separation and/or emulsion breaking to treat oily wastestreams. One-third of the industry also utilizes chemical precipitation and one-quarter also utilizes dissolved air flotation (DAF).

### *Organics Subcategory* *5.3.3*

The facilities in this subcategory are those that treat organic waste received from off-site and/or recover organics from off-site organic wastes. EPA estimates that there are 25 facilities in this subcategory. The majority of these facilities have RCRA permits to accept hazardous waste. Among the types of wastes accepted at these facilities are landfill leachate, groundwater cleanup, solvent-bearing waste, off-specification organic products, still bottoms, used antifreeze, and wastewater from chemical product operations and paint washes.

All of the organics facilities which discharge to a surface water use equalization and some form of biological treatment to handle the wastewater. The vast majority of organics facilities which discharge to a POTW primarily use equalization. One third of all the organics facilities also use activated carbon adsorption. Most of the facilities in the organics subcategory have other industrial operations as well, and the centralized waste treatment wastes are mixed with these wastewaters prior to treatment. The relatively constant make-up of on-site wastewater can support the operation of conventional, continuous biological treatment processes, which otherwise could be upset by the variability of the off-site waste receipts.

## *MULTIPLE WASTESTREAM SUBCATEGORY 5.4*

EPA based the 1999 proposal on establishing limitations and standards for three subcategories of CWT facilities: facilities treating either metals, oil, or organic wastes and wastewater. As explained in the proposal, EPA was considering developing mixed waste subcategory limitations for facilities which treated wastes in more than one subcategory. EPA indicated that such limitations and standards would be established by combining pollutant limitations from all three subcategories, selecting the most stringent value where they overlap.

EPA's consideration of this option responded to comments to the 1995 proposal and the 1996 Notice of Data Availability. The primary reason some members of the waste treatment industry favored development of a multiple wastestream subcategory was to simplify implementation for facilities treating wastes covered by multiple subcategories. As detailed in the 1999 proposal, EPA's primary reason for not proposing (and adopting) this option was its concern that facilities that accept wastes in multiple subcategories need to provide effective treatment of all waste receipts. This concern was based on EPA's data that showed such facilities did not currently have adequate treatment-in-place. While these facilities meet their permit limitations, EPA concluded that compliance was likely achieved through co-dilution of dissimilar wastes rather than treatment. As a result, EPA determined that adoption of multiple wastestream subcategory limitations as described above could arguably encourage ineffective treatment. EPA solicited comments on ways to develop a multiple wastestream subcategory which ensures treatment rather than dilution. The vast majority of comments on the 1999 proposal supported the establishment of a multiple wastestream subcategory for this rule, and re-iterated their concerns about implementing the three-subcategory scheme at multiple-subcategory facilities. One commenter suggested a way to implement a fourth subcategory while ensuring treatment. This commenter suggested that EPA follow the approach taken for the Pesticide Formulating, Packaging and Repackaging (PFPR) Point Source category (40 CFR Part 455). Under this approach, multiple wastestream subcategory facilities would have the option of 1) monitoring for compliance with the appropriate subcategory limitations after each treatment step or 2) monitoring for compliance with the multiple wastestream subcategory limitations at a combined discharge point and certifying that equivalent treatment to that which would be required for each subcategory waste separately is installed and properly designed, maintained, and operated. This option would eliminate the use of the combined waste stream formula or building block approach in calculating limits or standards for multiple wastestream subcategory CWT facilities (The combined waste stream formula and the building block approach are discussed in more detail in Chapter 14 of the this document). Commenters suggested that an equivalent treatment system could be defined as a wastewater treatment system that is demonstrated to achieve comparable removals to the treatment system on which EPA based the limitations and standards. Ways of demonstrating equivalence might include data from recognized sources of information on pollution control, treatability tests, or self-monitoring data showing comparable removals to the applicable pollution control technology.

EPA has now concluded that the approaches adopted in the PFPR rule address the concerns identified earlier. EPA agrees with commenters that developing appropriate limitations on a site-specific basis for multiple wastestream facilities presents many challenges and that the use of a multiple wastestream subcategory would simplify implementation of the rule. Moreover, the limits applied to multiple wastestream treaters would be a compilation of the most stringent limits from each applicable subcategory and would generally be similar to or stricter than the limits calculated via the application of the combined waste stream formula or building block approach. Most significantly, the equivalent treatment certification requirement would address EPA's concerns that the wastes receive adequate treatment.

Therefore, EPA has established a fourth subcategory: the mixed waste subcategory. Chapter 14 of this document details the manner in which EPA envisions the mixed waste subcategory will be implemented. Further, EPA has prepared a guidance manual to aid permit writers/control authorities as well as CWT facilities in implementing the certification process (available January 2001).

## *OTHER REGULATORY OPTIONS CONSIDERED FOR THE OILS SUBCATEGORY* — *5.5*

### *Consideration of Regulatory Options on the Basis of Revenue* — *5.5.1*

As detailed in the 1999 proposal, among other alternatives, EPA looked at whether it should develop alternative regulatory requirements for the oils subcategory facilities based on revenue because of potential adverse economic consequences to small businesses. The SBAR Panel, convened by EPA, discussed this option. Among the regulatory alternatives discussed by the panel and detailed in the 1999 proposal was limiting the scope of the rule to minimize impacts. Under this approach, EPA would not establish national pretreatment standards for indirect dischargers owned by small companies with less than $6 million in annual revenue. EPA did not propose to limit the scope of the rule based on this approach but did request comment on the issue.

Concerning the recommendation that EPA establish alternative limitations and standards on the basis of revenue, commenters largely supported EPA's conclusion that this approach should not be adopted. Commenters stated that small businesses should be subject to the same standards and requirements as other industrial users in this category because of the following reasons:

- the limitations and standards are economically achievable for small CWT facilities;
- the perception that small CWT facilities do not have the potential to cause significant impacts to the environment is not true;
- the quantity and toxicity of pollutants present are the only relevant factors for determining impacts to receiving streams and POTWs from CWT discharges;
- the business size is irrelevant to the impact of a facility's discharges;
- a small facility can have as great an impact on the environment as a large facility;
- there would be no incentive to ensure wastes are adequately treated at all CWT facilities;
- small facilities could operate at a fraction of the cost (since they would not have to meet the limitations and standards) and capture more market share leading to more wastes going to the POTW untreated; and
- large facilities could easily manipulate their corporate structure to take advantage of small business exemptions.

None of the commenters supported a small business exclusion, but a few noted that EPA should look at reducing monitoring requirements for small businesses in order to reduce their costs of compliance without compromising effective treatment. None of the commenters provided EPA with any other suggestions on ways to mitigate small business concerns that EPA had not already considered. After careful consideration of the comments and its database, EPA has decided that it should not limit the scope of the CWT rule based on revenue.

### *Consideration of Regulatory Options on the Basis of Flow* *5.5.2*

As detailed in the 1999 proposal, among other alternatives, EPA looked at whether it should develop alternative regulatory requirements for the oils subcategory facilities based on wastewater flow level because of potential adverse economic consequences to small businesses. The SBAR Panel, convened by EPA, discussed this option. Among the regulatory alternatives discussed by the panel and detailed in the 1999 proposal was limiting the scope of the rule to minimize impacts. Under this approach, EPA would not establish national pretreatment standards for indirect oils dischargers with flows under 3.5 million gallons per year, or alternately for non-hazardous oils facilities with flows under either 3.5 or 7.5 MGY. The SBAR Panel noted, in particular, that excluding indirect dischargers with flows of less than 3.5 MGY would significantly reduce the economic impact of the rule on small businesses while reducing pollutant removals by an estimated 6%. EPA did not propose to limit the scope of the rule based on these approaches but did request comment on the issue.

Concerning the recommendation that EPA establish alternative limitations and standards on the basis of flow, commenters largely supported EPA's conclusion that this approach should not be adopted. Commenters stated that low flow facilities should be subject to the same standards and requirements as other industrial users in this category because of the following reasons:

- the perception that small CWT facilities do not have the potential to cause significant impacts to the environment is not true;
- the amount of pollutants in wastewater for a CWT facility is not a function solely of the volume of wastes that the facility receives;
- the quantity of pollutants present and the toxicity of the pollutants are the only relevant factors for determining impacts to receiving streams and POTWs from CWT discharges;
- a small facility can have as great an impact on the environment as a large facility;
- there would be no incentive to ensure wastes are adequately treated at all CWT facilities; and
- small facilities could operate at a fraction of the cost (since they would not have to meet the limitations and standards) and capture more market share leading to more wastes going to the POTW untreated.

None of the commenters supported an exclusion based on flow, but a few noted that EPA should look at reducing monitoring requirements for small businesses in order to reduce their costs of compliance without compromising effective treatment. None of the commenters provided EPA with any other suggestions on ways to mitigate small business concerns that EPA had not already considered. After careful consideration of the comments and its database, EPA has decided that it should not limit the scope of the CWT rule based on flow.

### *Consideration of Regulatory Options on the Basis of the RCRA Classification of the Waste Receipts 5.5.3*

As explained in the 1999 proposal, among other alternatives, EPA was considering whether it should develop limitations and standards for two categories (rather than a single category) of oils treatment facilities. The Small Business Advocacy Review (SBAR) Panel for this rule, convened by EPA in November 1997, discussed this option. For a detailed summary of the panel's findings and discussion, see the 1999 proposal and "Final Report of the SBREFA Small Business Advocacy Review Panel on EPA's Planned Proposed Rule for Effluent Limitations Guidelines and Standards for the Centralized Waste Treatment Industry" (DCN 21.5.1). Under this approach EPA would establish different limitations and standards for oils subcategory facilities depending on whether they treat RCRA subtitle C hazardous wastes (either exclusively or in combination with non-hazardous wastes) or treat only non-hazardous wastes.

At the time of the SBAR Panel, EPA had collected certain information on facilities that treat a mixture of hazardous and non-hazardous wastes as well as facilities that treat non-hazardous wastes only. The bulk of the data was from RCRA facilities treating RCRA subtitle C hazardous waste together with non-hazardous waste. The data on wastestreams did not show a significant difference in the types of pollutants for the streams being treated at RCRA and at non-RCRA permitted facilities or the treatability of those pollutants. Although the data did suggest that pollutant concentrations tended to be somewhat higher in raw waste going to RCRA permitted facilities, which in turn suggested that treatment would be more cost-effective at such facilities, the information EPA had collected from non-RCRA permitted facilities was insufficient to support the conclusion that EPA should differentiate between oils facilities on the basis of RCRA classification of the wastes treated at the facility. Consequently, EPA did not propose different regulatory requirements for facilities based on distinctions between hazardous and non-hazardous wastes.

EPA, following the SBAR panel, collected wastewater samples at twelve other facilities that treat only non-hazardous materials. EPA collected the samples in order to broaden the database with additional information on the pollutant profiles of the wastes that are treated at these facilities. While EPA included the analytical results of the sampling efforts in the Appendix of the technical development document for the proposal, EPA had not, at the time of the proposal, reviewed the data in detail or compared the data to the earlier data it had collected. As the proposal also explained, EPA planned to review the data in detail and present a preliminary assessment of its findings at a public hearing during the comment period for the proposal.

At a public hearing on February 18, 1999, EPA described the relevant sampling data, the constraints of evaluating this data, and a comparison of data from hazardous and non-hazardous waste streams. This data showed that, while the mean and median values of influent concentration of hazardous wastestream data are greater than for non-hazardous wastestreams for most pollutants examined, the ranges of concentration for the hazardous and non-hazardous wastestreams overlap for most pollutants. In its presentation, EPA indicated that it planned to re-examine the oils subcategory in terms of pollutant loadings, removals, limitations and standards, costs, impacts, and benefits. EPA requested comment on this issue, and extended the comment period for this issue to 30 days after the public hearing. EPA's presentation is included in the public record for this rulemaking as DCN 28.1.1 (other supporting information is in Section 28).

Five commenters provided specific input on basing regulatory options for the oils subcategory on the RCRA classification of the waste receipts. Two commenters supported differentiation on this basis. They asserted that there are significant differences between facilities that accept non-hazardous wastes and those that accept a combination of hazardous and non-hazardous waste in terms of pollutant loadings and the number and type of pollutants, the types of treatment methods employed, and price structures. Three commenters opposed differentiation based on RCRA classification. These commenters do not believe that RCRA classification is a critical distinction, but rather believe that RCRA classification often has no impact on the treatability of the waste or final effluent quality. They commented that non-hazardous waste receipts have approximately the same constituents as hazardous waste receipts. From an environmental perspective, they believe that it is irrelevant whether the source of the pollutants of concern is a hazardous or non-hazardous facility.

EPA has reexamined this data using the same standards it applied earlier in this rulemaking for determining pollutants of concern for this industry (see Chapter 6 of this document). Based on this review, EPA determined that the pollutants of concern for non-hazardous facilities are largely the same as those previously identified for the oils subcategory (EPA had based its earlier conclusion on data from facilities processing a mix of hazardous and non-hazardous waste receipts).

EPA also looked to see if the treatment technologies at strictly non-hazardous facilities differ from those at facilities that accept both hazardous and non-hazardous wastes. EPA's database shows that the range of treatment technologies employed at both types of facilities is similar.

Essentially, the only operational difference EPA has observed between hazardous and non-hazardous oils treatment facilities is that hazardous oils waste facilities treat wastes with higher influent concentrations. EPA's data show that the *average* pollutant concentrations in non-hazardous wastes are lower than in hazardous wastes. Consequently, pollutant loadings, removals and treatment cost estimates will differ to some extent depending on the RCRA classification of the wastes that are treated. As explained above, however, both types of facilities treat for the same pollutants and the concentration ranges of these pollutants overlap at hazardous and non-hazardous operations. In these circumstances, the characteristics of wastes treated at hazardous operations do not require a different treatment technology from that used at non-hazardous operations. The choice of treatment technology for a particular facility is a function primarily of the effluent concentration required, not of any inherent differences in the wastes being treated. As a result, EPA concluded that there is no basis in the chemistry of the wastewaters being treated which supported development of different limitations and standards for hazardous and non-hazardous oils facilities. Furthermore, after evaluating treatment technology costs, EPA found that the costs for RCRA permitted facilities were equivalent to those for non-RCRA facilities, although, as noted above, loadings reductions at the non-RCRA permitted facilities will generally be lower. Given these factors, EPA decided that it should not develop different limitations and standards for RCRA hazardous and non-hazardous oils facilities. DCN 33.1.1 discusses the determination in more detail. EPA notes, however, that its estimates of loadings, removals, and revenue generated from treating the different types of wastes take account of differences in the type of wastes treated.

**Chapter**

# 6

# POLLUTANTS OF CONCERN FOR THE CENTRALIZED WASTE TREATMENT INDUSTRY

As discussed previously, wastewater receipts treated at centralized waste treatment facilities may have significantly different pollutants and pollutant loads depending on the customer and the process generating the waste receipt. In fact, at many CWT facilities, the pollutants and pollutant loads may vary daily and from batch to batch. As a result, it is difficult to characterize "typical" CWT wastewaters. In fact, one of the distinguishing characteristics of CWT wastewaters (as compared to traditional wastewaters subject to national effluent guidelines and standards) is that there is always the exception to the rule. For example, at one facility, EPA analyzed samples of wastewater received for treatment from a single facility that were obtained during three different, non-consecutive weeks. EPA found that the weekly waste receipts varied from the most concentrated (in terms of metal pollutants) to one of the least concentrated (in terms of metal pollutants).

## *METHODOLOGY* 6.1

EPA determined pollutants of concern for the CWT industry by assessing EPA sampling data and industry-supplied self-monitoring data. Because, industry has provided very little quantitative data on the concentrations of pollutants entering their wastewater treatment system, EPA was only able to use such data from a single facility in the metals subcategory.

For the metals and organics subcategory, EPA collected and analyzed samples of wastewater to determine the pollutants of concern at influent points to the wastewater treatment systems. For the oils subcategory, EPA collected samples following emulsion breaking and/or gravity separation. The pollutant concentrations at these points are lower than the original waste receipt concentrations as a result of the commingling of a variety of waste streams, and, in the case of the oils subcategory, as a result of pretreatment. In most cases, EPA could not collect samples from individual waste shipments because of physical constraints and excessive analytical costs.

EPA used two different analytical methods to analyze samples for oil and grease during the development of this guideline. EPA analyzed samples collected prior to the 1995 proposal using Method 413.1. This method uses freon and is being phased out. EPA analyzed oil and grease samples collected after the 1995 proposal using the newly promulgated EPA Method 1664. Method 1664 is used to measure oil and grease as hexane extractable material (HEM) and to measure silica gel treated-hexane extractable material (SGT-HEM). EPA believes that oil and grease measurements from Method 413.1 and Method 1664 are comparable and has used the data interchangeably.

EPA collected influent sampling data over a limited time span (generally one to five days). The samples represent a snapshot of the receipts accepted for treatment during the time the samples were collected. Because waste receipts may vary significantly from day to day, EPA can not know if, in fact, the data are also representative of waste receipts during any other time period. If EPA had sampled at more facilities or over longer periods of time, EPA would expect to observe a wider range of flows, pollutants, and pollutant concentrations in CWT industry raw wastewater. This has complicated the selection of pollutants of concern and regulated pollutants, and the estimation of current performance and removals associated with this rulemaking. Historically, in developing national effluent guidelines and standards, unlike the case for CWT waste receipts, influent wastestreams are generally consistent in strength and nature.

To establish the pollutants of concern, EPA reviewed the analytical data from influent wastewater samples to determine the number of times a pollutant was detected at treatable levels. EPA set treatable levels at ten times the baseline level[1] to ensure that pollutants detected as only trace amounts would not be selected. In the results presented today, EPA modified the baseline values used in the 1999 proposal to be consistent with those presented in chapter 15 of this document. However, EPA used all the available relevant data in these analyses and has provided opportunities for public comment. After reviewing the comments, EPA has concluded that it has adequately characterized CWT flows, pollutants, and pollutant concentrations.

For most organic pollutants, the baseline value is 10 ug/L. Therefore, for most organic parameters, EPA has defined treatable levels as 100 ug/L. For metals pollutants the baseline values range from 0.2 ug/L to 1000 ug/L.

EPA obtained the initial pollutants of concern listing for each subcategory by establishing which parameters were detected at treatable levels in at least 10 percent of the influent wastewater samples. Ten percent was used to account for the variability of CWT wastewaters. As mentioned previously in Section 2.3.3.2, after the initial two sampling episodes EPA discontinued the analyses for dioxins/furans, pesticides/herbicides, methanol, ethanol, and formaldehyde. As a result these parameters were not included in the pollutants of concern analysis. EPA also excluded amenable cyanide from the analyses because the detection of total cyanide in a particular sample sometimes determined whether the laboratory would analyze for amenable cyanide in that sample.

Table B-1 in Appendix B identifies the episodes and sample points used in the pollutants of concern analysis. For the organics subcategory, the episodes and sample points are the same as for the 1999 proposal. For the metals subcategory, EPA made some changes in the data selection after a thorough review of the process diagrams for the sampled facilities and the analyses performed on the wastewater samples collected from particular sample points. EPA also included self-monitoring data from one facility. For the oils subcategory, EPA included all of the sample points and episodes included in the 1999 proposal. Also, EPA has included samples from the characterization sampling described in section 2.3.4.

The concentration values corresponding to duplicate samples were averaged using the methodology in Table 10-1.

For sample points with continuous flow systems, EPA aggregated the data values corresponding to multiple samples into a single daily value using the methodology in Table 10-2. For example, oil and grease samples are typically collected four times a day and the laboratory results are mathematically combined into a single daily value for each day.

The references to ‘sample’ or ‘samples’ in the remainder of this chapter refer to the concentration values after averaging duplicates and aggregating multiple daily values.

Figure 6-1 depicts the methodology EPA used to select pollutants of concern for each subcategory.

Tables 6-1 through 6-3 provide a listing of the pollutants that were determined to be pollutants of concern for each subcategory.

[1]This chapter in the 1998 Development Document inaccurately refers to the baseline value as the ‘method detection limit.’

These tables list the pollutant name, CAS number, the number of times the pollutant was analyzed, the number of detects, the baseline value, the number of detects at treatable levels, and the minimum and maximum concentration detected. Tables 6-4 through 6-6 provide a listing of the pollutants that were not considered to be pollutants of concern for each subcategory and the reason they were not selected. While EPA generally uses the parameters established as pollutants of concern to estimate pollutant loadings and pollutant removals, EPA only selected some of these parameters for regulation. The regulated pollutants are a subset of the pollutants of concern and are discussed in Chapter 7. Chapter 12 discusses pollutant loading and removal estimates.

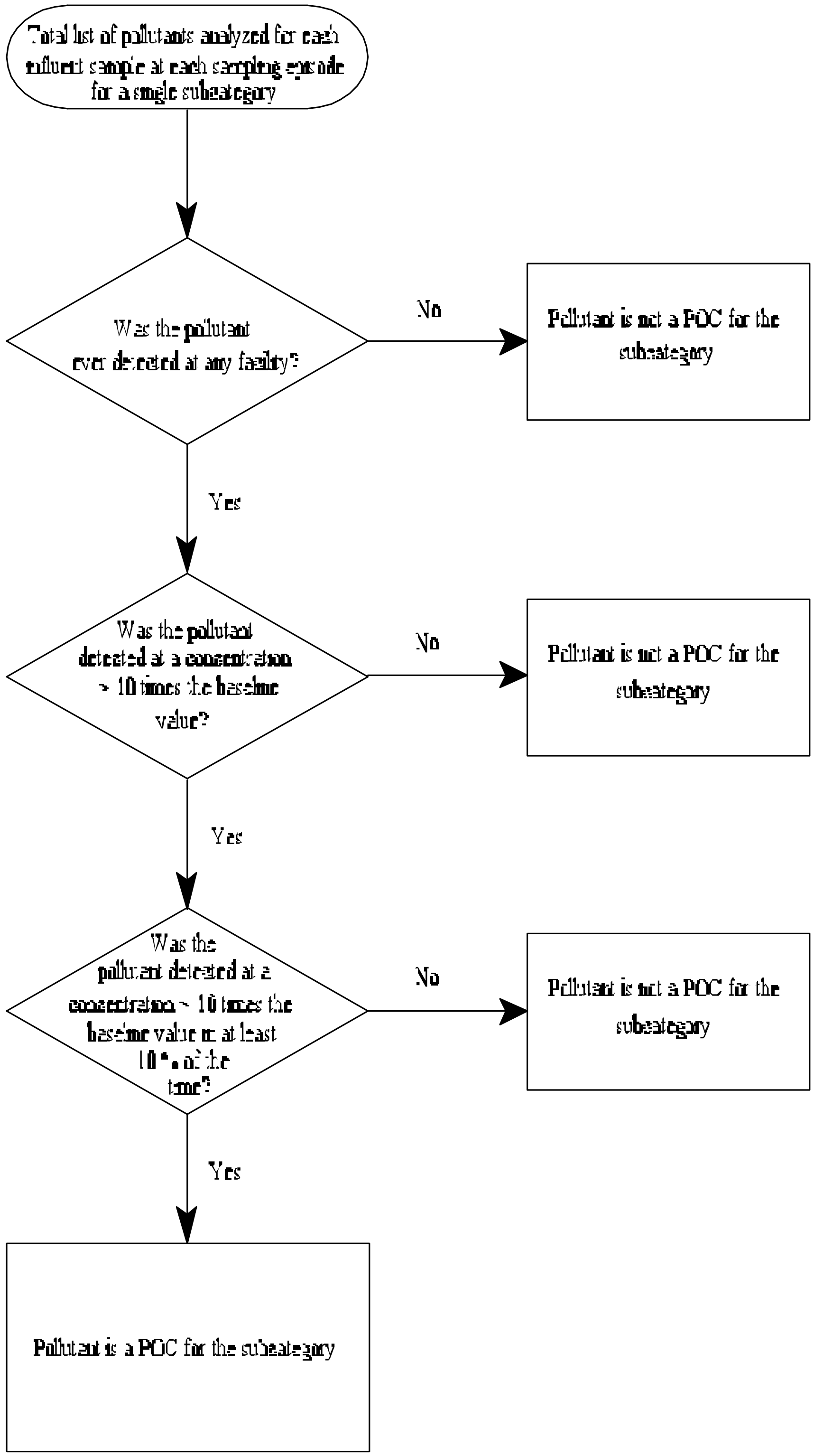


Figure 6-1. Pollutant of Concern Methodology

Table 6-1. Pollutants of Concern for the Metals Subcategory

| Pollutant | Cas No. | # Times Analyzed | # Detects | Baseline value | # Detects >10xBV | Minimum Conc. | Maximum Conc. |
|---|---|---|---|---|---|---|---|
| **CLASSICALS OR CONVENTIONALS** | | | | (ug/l) | | (ug/l) | (ug/l) |
| Ammonia as Nitrogen | 7664-41-7 | 90 | 90 | 50.0 | 84 | 300 | 1,650,000 |
| Biochemical Oxygen Demand | C-003 | 82 | 67 | 2,000.0 | 53 | 4,000 | 10,800,000 |
| BOD 5-Day (carbonaceous) | C-002 | 6 | 6 | 2,000.0 | 6 | 336,000 | 3,030,000 |
| Chemical Oxygen Demand (COD) | C-004 | 89 | 88 | 5,000.0 | 87 | 48,000 | 85,500,000 |
| Chloride | 16887-00-6 | 25 | 25 | 1,000.0 | 25 | 262,000 | 62,000,000 |
| D-Chemical Oxygen Demand | C-004D | 4 | 4 | 5,000.0 | 4 | 2,700,000 | 11,000,000 |
| Fluoride | 16984-48-8 | 90 | 90 | 100.0 | 79 | 123 | 28,000,000 |
| Hexavalent Chromium | 18540-29-9 | 78 | 43 | 10.0 | 22 | 1 | 40,000,000 |
| Nitrate/Nitrite | C-005 | 90 | 88 | 50.0 | 81 | 90 | 40,000,000 |
| Oil & Grease | C-007 | 68 | 48 | 5,000.0 | 15 | 4,500 | 143,000 |
| Total Cyanide | 57-12-5 | 38 | 25 | 20.0 | 25 | 288 | 13,300,000 |
| Total Dissolved Solids | C-010 | 30 | 30 | 10,000.0 | 30 | 12,700,000 | 223,000,000 |
| Total Organic Carbon (TOC) | C-012 | 90 | 87 | 1,000.0 | 85 | 6,600 | 19,300,000 |
| Total Phenols | C-020 | 84 | 58 | 50.0 | 10 | 11 | 2,900 |
| Total Phosphorus | 14265-44-2 | 85 | 77 | 10.0 | 77 | 380 | 15,000,000 |
| Total Sulfide | 18496-25-8 | 84 | 28 | 1,000.0 | 15 | 80 | 1,100,000 |
| Total Suspended Solids | C-009 | 95 | 95 | 4,000.0 | 91 | 10,000 | 237,000,000 |
| **METALS** | | | | (ug/l) | | (ug/l) | (ug/l) |
| Aluminum | 7429-90-5 | 90 | 87 | 200.0 | 76 | 388 | 3,090,000 |
| Antimony | 7440-36-0 | 95 | 63 | 20.0 | 47 | 20 | 1,160,000 |
| Arsenic | 7440-38-2 | 95 | 69 | 10.0 | 50 | 17 | 1,220,000 |
| Beryllium | 7440-41-7 | 90 | 42 | 5.0 | 17 | 1 | 1,190 |
| Boron | 7440-42-8 | 90 | 89 | 100.0 | 87 | 441 | 1,420,000 |
| Cadmium | 7440-43-9 | 95 | 91 | 5.0 | 85 | 7 | 19,300,000 |
| Calcium | 7440-70-2 | 90 | 90 | 5,000.0 | 85 | 6,630 | 9,100,000 |
| Chromium | 7440-47-3 | 95 | 95 | 10.0 | 94 | 73 | 65,000,000 |
| Cobalt | 7440-48-4 | 90 | 77 | 50.0 | 56 | 15 | 10,900,000 |
| Copper | 7440-50-8 | 95 | 95 | 25.0 | 95 | 635 | 40,200,000 |
| Gallium | 7440-55-3 | 39 | 9 | 500.0 | 5 | 1,125 | 36,350 |
| Indium | 7440-74-6 | 39 | 21 | 1,000.0 | 11 | 800 | 61,200 |
| Iodine | 7553-56-2 | 38 | 10 | 1,000.0 | 10 | 23,800 | 537,000 |
| Iridium | 7439-88-5 | 39 | 13 | 1,000.0 | 11 | 400 | 253,000 |
| Iron | 7439-89-6 | 90 | 89 | 100.0 | 88 | 222 | 9,400,000 |
| Lanthanum | 7439-91-0 | 39 | 9 | 100.0 | 4 | 484 | 1,660 |
| Lead | 7439-92-1 | 95 | 90 | 50.0 | 83 | 136 | 4,390,000 |
| Lithium | 7439-93-2 | 39 | 20 | 100.0 | 12 | 103 | 795,000 |
| Magnesium | 7439-95-4 | 90 | 83 | 5,000.0 | 44 | 5,920 | 2,980,000 |
| Manganese | 7439-96-5 | 95 | 94 | 15.0 | 84 | 26 | 6,480,000 |
| Mercury | 7439-97-6 | 95 | 76 | 0.2 | 73 | 1 | 3,100 |
| Molybdenum | 7439-98-7 | 90 | 78 | 10.0 | 71 | 11 | 1,390,000 |
| Nickel | 7440-02-0 | 95 | 95 | 40.0 | 95 | 539 | 3,200,000 |
| Osmium | 7440-04-2 | 39 | 17 | 100.0 | 8 | 149 | 21,800 |
| Phosphorus | 7723-14-0 | 38 | 31 | 1,000.0 | 25 | 1,730 | 2,550,000 |
| Potassium | 7440-09-7 | 39 | 38 | 1,000.0 | 38 | 15,100 | 9,720,000 |
| Selenium | 7782-49-2 | 95 | 36 | 5.0 | 33 | 3 | 11,800 |
| Silicon | 7440-21-3 | 39 | 37 | 100.0 | 35 | 111 | 1,330,000 |
| Silver | 7440-22-4 | 95 | 76 | 10.0 | 60 | 4 | 130,000 |
| Sodium | 7440-23-5 | 90 | 90 | 5,000.0 | 89 | 48,300 | 77,700,000 |

Table 6-1. Pollutants of Concern for the Metals Subcategory

| Pollutant | Cas No. | # Times Analyzed | # Detects | Baseline value | # Detects >10xBV | Minimum Conc. | Maximum Conc. |
|---|---|---|---|---|---|---|---|
| Strontium | 7440-24-6 | 39 | 17 | 100.0 | 13 | 202 | 16,300 |
| Sulfur | 7704-34-9 | 38 | 38 | 1,000.0 | 38 | 157,000 | 38,000,000 |
| Tantalum | 7440-25-7 | 39 | 7 | 500.0 | 4 | 1,270 | 20,000 |
| Tellurium | 13494-80-9 | 39 | 4 | 1,000.0 | 4 | 11,700 | 182,000 |
| Thallium | 7440-28-0 | 90 | 29 | 10.0 | 16 | 13 | 275,000 |
| Tin | 7440-31-5 | 95 | 83 | 30.0 | 77 | 55 | 15,100,000 |
| Titanium | 7440-32-6 | 95 | 82 | 5.0 | 75 | 9 | 7,500,000 |
| Vanadium | 7440-62-2 | 90 | 59 | 50.0 | 32 | 11 | 364,000 |
| Yttrium | 7440-65-5 | 90 | 59 | 5.0 | 39 | 2 | 900 |
| Zinc | 7440-66-6 | 95 | 94 | 20.0 | 92 | 166 | 21,400,000 |
| Zirconium | 7440-67-7 | 39 | 17 | 100.0 | 5 | 200 | 4,860 |
| **ORGANICS** | | | | (ug/l) | | (ug/l) | (ug/l) |
| 1,1,1-Trichloroethane | 71-55-6 | 27 | 5 | 10.0 | 3 | 38 | 601 |
| 1,1-Dichloroethene | 75-35-4 | 27 | 5 | 10.0 | 5 | 142 | 3,735 |
| 1,4-Dioxane | 123-91-1 | 27 | 5 | 10.0 | 5 | 404 | 83,352 |
| 2-Butanone | 78-93-3 | 27 | 9 | 50.0 | 8 | 65 | 71,102 |
| 2-Propanone | 67-64-1 | 27 | 25 | 50.0 | 16 | 52 | 488,102 |
| 4-Methyl-2-Pentanone | 108-10-1 | 27 | 7 | 50.0 | 5 | 73 | 9,295 |
| Benzoic Acid | 65-85-0 | 22 | 19 | 50.0 | 14 | 193 | 36,756 |
| Benzyl Alcohol | 100-51-6 | 22 | 5 | 10.0 | 4 | 13 | 7,929 |
| Bis(2-Ethylhexyl) Phthalate | 117-81-7 | 22 | 7 | 10.0 | 6 | 18 | 1,063 |
| Carbon Disulfide | 75-15-0 | 27 | 9 | 10.0 | 7 | 11 | 2,396 |
| Chloroform | 67-66-3 | 27 | 5 | 10.0 | 5 | 161 | 731 |
| Dibromochloromethane | 124-48-1 | 27 | 3 | 10.0 | 3 | 105 | 723 |
| Hexanoic Acid | 142-62-1 | 22 | 7 | 10.0 | 6 | 99 | 1,256 |
| m-Xylene | 108-38-3 | 27 | 7 | 10.0 | 3 | 25 | 646 |
| Methylene Chloride | 75-09-2 | 27 | 16 | 10.0 | 8 | 11 | 734 |
| n,n-Dimethylformamide | 68-12-2 | 22 | 12 | 10.0 | 8 | 11 | 583 |
| Phenol | 108-95-2 | 22 | 5 | 10.0 | 3 | 61 | 341 |
| Pyridine | 110-86-1 | 22 | 5 | 10.0 | 5 | 140 | 1,684 |
| Toluene | 108-88-3 | 27 | 9 | 10.0 | 5 | 47 | 1,977 |
| Trichloroethene | 79-01-6 | 27 | 8 | 10.0 | 5 | 12 | 360 |

Table 6-2. Pollutants of Concern for the Oils Subcategory

| Pollutant | Cas No. | # Times Analyzed | # | Baseline value | # Detects >10 x BV | Minimum Conc. | Maximum Conc. |
|---|---|---|---|---|---|---|---|
| **CLASSICALS OR CONVENTIONALS** | | | | (ug/l) | | (ug/l) | (ug/l) |
| Ammonia as Nitrogen | 7664-41-7 | 39 | 39 | 50.0 | 39 | 13,500 | 1,310,000 |
| Biochemical Oxygen Demand | C-003 | 54 | 54 | 2,000.0 | 54 | 500,000 | 62,500,000 |
| Chemical Oxygen Demand (COD) | C-004 | 54 | 54 | 5,000.0 | 54 | 1,440,000 | 824,000,000 |
| Chloride | 16887-00-6 | 14 | 14 | 1,000.0 | 14 | 19,400 | 6,180,000 |
| Fluoride | 16984-48-8 | 39 | 38 | 100.0 | 34 | 115 | 330,000 |
| Nitrate/Nitrite | C-005 | 39 | 37 | 50.0 | 32 | 130 | 103,000 |
| Oil & Grease | C-007 | 54 | 54 | 5,000.0 | 53 | 37,500 | 180,000,000 |
| SGT-HEM | C-037 | 25 | 25 | 5,000.0 | 22 | 17,500 | 40,100,000 |
| Total Cyanide | 57-12-5 | 18 | 12 | 20.0 | 5 | 22 | 980 |
| Total Dissolved Solids | C-010 | 29 | 29 | 10,000.0 | 29 | 1,270,000 | 40,200,000 |
| Total Organic Carbon (TOC) | C-012 | 54 | 54 | 1,000.0 | 54 | 298,000 | 157,000,000 |
| Total Phenols | C-020 | 39 | 39 | 50.0 | 38 | 42 | 185,000 |
| Total Phosphorus | 14265-44-2 | 39 | 39 | 10.0 | 39 | 650 | 19,000,000 |
| Total Suspended Solids | C-009 | 54 | 53 | 4,000.0 | 51 | 34,000 | 59,600,000 |
| **METALS** | | | | (ug/l) | | (ug/l) | (ug/l) |
| Aluminum | 7429-90-5 | 54 | 51 | 200.0 | 44 | 213 | 582,000 |
| Antimony | 7440-36-0 | 54 | 41 | 20.0 | 9 | 17 | 2,410 |
| Arsenic | 7440-38-2 | 54 | 51 | 10.0 | 33 | 6 | 9,170 |
| Barium | 7440-39-3 | 54 | 54 | 200.0 | 17 | 12 | 7,290 |
| Boron | 7440-42-8 | 54 | 54 | 100.0 | 54 | 1,050 | 1,710,000 |
| Cadmium | 7440-43-9 | 54 | 42 | 5.0 | 31 | 9 | 860 |
| Calcium | 7440-70-2 | 54 | 54 | 5,000.0 | 45 | 5,155 | 810,000 |
| Chromium | 7440-47-3 | 54 | 52 | 10.0 | 39 | 9 | 7,178 |
| Cobalt | 7440-48-4 | 54 | 42 | 50.0 | 25 | 9 | 116,000 |
| Copper | 7440-50-8 | 54 | 53 | 25.0 | 44 | 11 | 80,482 |
| Germanium | 7440-56-4 | 19 | 2 | 500.0 | 2 | 10,250 | 12,360 |
| Iron | 7439-89-6 | 54 | 54 | 100.0 | 52 | 494 | 630,000 |
| Lead | 7439-92-1 | 54 | 52 | 50.0 | 38 | 34 | 37,300 |
| Lutetium | 7439-94-3 | 19 | 3 | 100.0 | 3 | 1,165 | 1,315 |
| Magnesium | 7439-95-4 | 54 | 54 | 5,000.0 | 23 | 4,560 | 753,000 |
| Manganese | 7439-96-5 | 54 | 54 | 15.0 | 53 | 22 | 44,500 |
| Mercury | 7439-97-6 | 54 | 42 | 0.2 | 21 | 0 | 313 |
| Molybdenum | 7439-98-7 | 54 | 49 | 10.0 | 47 | 15 | 19,500 |
| Nickel | 7440-02-0 | 54 | 52 | 40.0 | 39 | 27 | 81,050 |
| Phosphorus | 7723-14-0 | 17 | 17 | 1,000.0 | 16 | 4,033 | 239,000 |
| Potassium | 7440-09-7 | 19 | 19 | 1,000.0 | 19 | 23,550 | 2,880,000 |
| Selenium | 7782-49-2 | 54 | 25 | 5.0 | 12 | 9 | 1,000 |
| Silicon | 7440-21-3 | 19 | 19 | 100.0 | 19 | 1,862 | 87,920 |
| Silver | 7440-22-4 | 54 | 32 | 10.0 | 6 | 8 | 7,740 |
| Sodium | 7440-23-5 | 54 | 53 | 5,000.0 | 52 | 12,400 | 11,200,000 |
| Strontium | 7440-24-6 | 19 | 13 | 100.0 | 8 | 128 | 3,470 |
| Sulfur | 7704-34-9 | 17 | 17 | 1,000.0 | 17 | 90,600 | 3,712,000 |
| Tantalum | 7440-25-7 | 19 | 3 | 500.0 | 2 | 1,474 | 15,190 |
| Tin | 7440-31-5 | 54 | 39 | 30.0 | 31 | 63 | 6,216 |
| Titanium | 7440-32-6 | 54 | 38 | 5.0 | 35 | 8 | 1,540 |
| Zinc | 7440-66-6 | 54 | 54 | 20.0 | 51 | 34 | 94,543 |
| **ORGANICS** | | | | (ug/l) | | (ug/l) | (ug/l) |
| 1,1,1-Trichloroethane | 71-55-6 | 28 | 23 | 10.0 | 19 | 10 | 14,455 |

Table 6-2. Pollutants of Concern for the Oils Subcategory

| Pollutant | Cas No. | # Times Analyzed | # | Baseline value | # Detects >10 x BV | Minimum Conc. | Maximum Conc. |
|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 75-35-4 | 28 | 7 | 10.0 | 6 | 11 | 1,968 |
| 1,2,4-Trichlorobenzene | 120-82-1 | 39 | 8 | 10.0 | 8 | 359 | 18,899 |
| 1,2-Dichlorobenzene | 95-50-1 | 39 | 4 | 10.0 | 4 | 171 | 4,186 |
| 1,2-Dichloroethane | 107-06-2 | 28 | 12 | 10.0 | 10 | 14 | 713 |
| 1,4-Dichlorobenzene | 106-46-7 | 39 | 7 | 10.0 | 7 | 454 | 2,334 |
| 1,4-Dioxane | 123-91-1 | 28 | 3 | 10.0 | 3 | 189 | 1,323 |
| 1-Methylfluorene | 1730-37-6 | 39 | 8 | 10.0 | 7 | 42 | 5,803 |
| 1-Methylphenanthrene | 832-69-9 | 39 | 11 | 10.0 | 9 | 92 | 7,111 |
| 2,3-Benzofluorene | 243-17-4 | 39 | 6 | 10.0 | 6 | 162 | 2,755 |
| 2,4-Dimethylphenol | 105-67-9 | 39 | 11 | 10.0 | 9 | 48 | 2,171 |
| 2-Butanone | 78-93-3 | 28 | 26 | 50.0 | 24 | 57 | 178,748 |
| 2-Isopropylnaphthalene | 2027-17-0 | 39 | 5 | 10.0 | 4 | 68 | 125,180 |
| 2-Methylnaphthalene | 91-57-6 | 39 | 28 | 10.0 | 25 | 80 | 46,108 |
| 2-Propanone | 67-64-1 | 28 | 27 | 50.0 | 27 | 974 | 2,099,340 |
| 3,6-Dimethylphenanthrene | 1576-67-6 | 39 | 5 | 10.0 | 5 | 114 | 2,762 |
| 4-Chloro-3-Methylphenol | 59-50-7 | 38 | 20 | 10.0 | 20 | 101 | 83,825 |
| 4-Methyl-2-Pentanone | 108-10-1 | 28 | 22 | 50.0 | 15 | 199 | 20,489 |
| Acenaphthene | 83-32-9 | 39 | 8 | 10.0 | 7 | 65 | 13,418 |
| Alpha-Terpineol | 98-55-5 | 39 | 13 | 10.0 | 11 | 57 | 2,245 |
| Aniline | 62-53-3 | 39 | 5 | 10.0 | 5 | 142 | 367 |
| Anthracene | 120-12-7 | 39 | 12 | 10.0 | 9 | 27 | 18,951 |
| Benzene | 71-43-2 | 28 | 28 | 10.0 | 24 | 70 | 20,425 |
| Benzo(a)anthracene | 56-55-3 | 39 | 12 | 10.0 | 8 | 25 | 6,303 |
| Benzoic Acid | 65-85-0 | 39 | 30 | 50.0 | 30 | 598 | 163,050 |
| Benzyl Alcohol | 100-51-6 | 39 | 13 | 10.0 | 11 | 40 | 12,700 |
| Biphenyl | 92-52-4 | 39 | 18 | 10.0 | 14 | 36 | 10,171 |
| Bis(2-Ethylhexyl) Phthalate | 117-81-7 | 39 | 18 | 10.0 | 13 | 33 | 838,450 |
| Butyl Benzyl Phthalate | 85-68-7 | 39 | 7 | 10.0 | 6 | 64 | 49,069 |
| Carbazole | 86-74-8 | 39 | 6 | 20.0 | 4 | 81 | 1,459 |
| Carbon Disulfide | 75-15-0 | 28 | 14 | 10.0 | 6 | 10 | 2,335 |
| Chlorobenzene | 108-90-7 | 28 | 11 | 10.0 | 6 | 12 | 326 |
| Chloroform | 67-66-3 | 28 | 12 | 10.0 | 12 | 160 | 1,828 |
| Chrysene | 218-01-9 | 39 | 12 | 10.0 | 10 | 39 | 8,879 |
| Dibenzofuran | 132-64-9 | 39 | 7 | 10.0 | 6 | 32 | 13,786 |
| Dibenzothiophene | 132-65-0 | 39 | 10 | 10.0 | 9 | 38 | 5,448 |
| Diethyl Phthalate | 84-66-2 | 39 | 10 | 10.0 | 10 | 145 | 9,309 |
| Diphenyl Ether | 101-84-8 | 39 | 8 | 10.0 | 8 | 149 | 13,751 |
| Ethylbenzene | 100-41-4 | 28 | 28 | 10.0 | 25 | 14 | 18,579 |
| Fluoranthene | 206-44-0 | 39 | 15 | 10.0 | 11 | 30 | 28,873 |
| Fluorene | 86-73-7 | 39 | 11 | 10.0 | 10 | 73 | 15,756 |
| Hexanoic Acid | 142-62-1 | 39 | 32 | 10.0 | 31 | 56 | 495,899 |
| m+p Xylene | 179601-23-1 | 5 | 5 | 10.0 | 5 | 838 | 1,660 |
| m-Xylene | 108-38-3 | 28 | 23 | 10.0 | 22 | 24 | 32,639 |
| Methylene Chloride | 75-09-2 | 28 | 25 | 10.0 | 16 | 13 | 10,524 |
| n,n-Dimethylformamide | 68-12-2 | 39 | 7 | 10.0 | 6 | 83 | 803 |
| n-Decane | 124-18-5 | 39 | 29 | 10.0 | 27 | 62 | 579,220 |
| n-Docosane | 629-97-0 | 39 | 24 | 10.0 | 20 | 17 | 66,926 |
| n-Dodecane | 112-40-3 | 39 | 30 | 10.0 | 30 | 125 | 472,570 |
| n-Eicosane | 112-95-8 | 39 | 32 | 10.0 | 28 | 58 | 319,080 |

Table 6-2. Pollutants of Concern for the Oils Subcategory

| Pollutant | Cas No. | # Times Analyzed | # | Baseline value | # Detects >10 x BV | Minimum Conc. | Maximum Conc. |
|---|---|---|---|---|---|---|---|
| n-Hexacosane | 630-01-3 | 39 | 13 | 10.0 | 10 | 16 | 9,561 |
| n-Hexadecane | 544-76-3 | 39 | 33 | 10.0 | 33 | 159 | 1,367,970 |
| n-Octacosane | 630-02-4 | 39 | 4 | 10.0 | 4 | 101 | 22,733 |
| n-Octadecane | 593-45-3 | 39 | 32 | 10.0 | 29 | 47 | 901,920 |
| n-Tetracosane | 646-31-1 | 38 | 17 | 10.0 | 12 | 18 | 12,111 |
| n-Tetradecane | 629-59-4 | 39 | 33 | 10.0 | 31 | 78 | 2,560,460 |
| Naphthalene | 91-20-3 | 39 | 33 | 10.0 | 31 | 24 | 53,949 |
| o+p Xylene | 136777-61-2 | 28 | 23 | 10.0 | 18 | 14 | 16,584 |
| o-Cresol | 95-48-7 | 39 | 17 | 10.0 | 16 | 85 | 8,273 |
| o-Toluidine | 95-53-4 | 39 | 7 | 10.0 | 4 | 26 | 248 |
| o-Xylene | 95-47-6 | 5 | 5 | 10.0 | 5 | 561 | 1,141 |
| p-Cresol | 106-44-5 | 39 | 26 | 10.0 | 25 | 15 | 3,607 |
| p-Cymene | 99-87-6 | 39 | 10 | 10.0 | 10 | 232 | 6,601 |
| Pentamethylbenzene | 700-12-9 | 39 | 7 | 10.0 | 7 | 116 | 11,186 |
| Phenanthrene | 85-01-8 | 39 | 22 | 10.0 | 17 | 12 | 49,016 |
| Phenol | 108-95-2 | 39 | 36 | 10.0 | 36 | 375 | 48,640 |
| Pyrene | 129-00-0 | 39 | 16 | 10.0 | 14 | 11 | 22,763 |
| Pyridine | 110-86-1 | 39 | 10 | 10.0 | 6 | 14 | 1,280 |
| Styrene | 100-42-5 | 39 | 8 | 10.0 | 7 | 28 | 1,019 |
| Tetrachloroethene | 127-18-4 | 28 | 19 | 10.0 | 18 | 24 | 12,789 |
| Toluene | 108-88-3 | 28 | 28 | 10.0 | 26 | 51 | 99,209 |
| Trichloroethene | 79-01-6 | 28 | 15 | 10.0 | 10 | 18 | 7,125 |
| Tripropyleneglycol Methyl Ether | 20324-33-8 | 39 | 13 | 99.0 | 13 | 1,495 | 383,151 |

Table 6-3. Pollutants of Concern for the Organics Subcategory

| Pollutant | Cas No. | # Times Analyzed | # | Baseline value | # Detects >10 x BV | Minimum Conc. | Maximum Conc. |
|---|---|---|---|---|---|---|---|
| **CLASSICALS OR CONVENTIONALS** | | | | (ug/l) | | (ug/l) | (ug/l) |
| Ammonia as Nitrogen | 7664-41-7 | 5 | 5 | 50.0 | 5 | 83,000 | 2,400,000 |
| Biochemical Oxygen Demand | C-003 | 5 | 5 | 2,000.0 | 5 | 790,000 | 7,550,000 |
| Chemical Oxygen Demand (COD) | C-004 | 5 | 5 | 5,000.0 | 5 | 1,400,000 | 11,000,000 |
| D-Chemical Oxygen Demand | C-004D | 5 | 5 | 5,000.0 | 5 | 1,200,000 | 9,900,000 |
| Fluoride | 16984-48-8 | 5 | 5 | 100.0 | 2 | 600 | 1,950 |
| Nitrate/nitrite | C-005 | 5 | 4 | 50.0 | 4 | 100,000 | 340,000 |
| Total Cyanide | 57-12-5 | 5 | 5 | 20.0 | 5 | 760 | 7,800 |
| Total Organic Carbon (TOC) | C-012 | 5 | 5 | 1,000.0 | 5 | 510,000 | 3,750,000 |
| Total Sulfide | 18496-25-8 | 5 | 3 | 1,000.0 | 2 | 4,000 | 24,000 |
| Total Suspended Solids | C-009 | 5 | 5 | 4,000.0 | 4 | 33,000 | 3,700,000 |
| **METALS** | | | | (ug/l) | | (ug/l) | (ug/l) |
| Aluminum | 7429-90-5 | 5 | 5 | 200.0 | 4 | 148 | 7,660 |
| Antimony | 7440-36-0 | 5 | 4 | 20.0 | 3 | 146 | 1,540 |
| Arsenic | 7440-38-2 | 5 | 5 | 10.0 | 1 | 8 | 152 |
| Barium | 7440-39-3 | 5 | 5 | 200.0 | 2 | 1,030 | 136,000 |
| Boron | 7440-42-8 | 5 | 5 | 100.0 | 5 | 2,950 | 4,320 |
| Calcium | 7440-70-2 | 5 | 5 | 5,000.0 | 5 | 1,025,000 | 1,410,000 |
| Chromium | 7440-47-3 | 5 | 4 | 10.0 | 2 | 63 | 274 |
| Cobalt | 7440-48-4 | 5 | 4 | 50.0 | 3 | 253 | 731 |
| Copper | 7440-50-8 | 5 | 5 | 25.0 | 4 | 7 | 2,690 |
| Iodine | 7553-56-2 | 5 | 4 | 1,000.0 | 1 | 3,800 | 15,100 |
| Iron | 7439-89-6 | 5 | 5 | 100.0 | 5 | 2,360 | 6,430 |
| Lead | 7439-92-1 | 5 | 4 | 50.0 | 1 | 109 | 687 |
| Lithium | 7439-93-2 | 5 | 5 | 100.0 | 5 | 1,100 | 18,750 |
| Manganese | 7439-96-5 | 5 | 5 | 15.0 | 5 | 179 | 513 |
| Molybdenum | 7439-98-7 | 5 | 5 | 10.0 | 4 | 33 | 6,950 |
| Nickel | 7440-02-0 | 5 | 5 | 40.0 | 4 | 55 | 2,610 |
| Phosphorus | 7723-14-0 | 5 | 4 | 1,000.0 | 1 | 3,000 | 15,900 |
| Potassium | 7440-09-7 | 5 | 5 | 1,000.0 | 5 | 383,000 | 1,240,000 |
| Silicon | 7440-21-3 | 5 | 5 | 100.0 | 5 | 1,550 | 3,600 |
| Sodium | 7440-23-5 | 5 | 5 | 5,000.0 | 5 | 2,470,000 | 6,390,000 |
| Strontium | 7440-24-6 | 5 | 5 | 100.0 | 5 | 3,900 | 14,000 |
| Sulfur | 7704-34-9 | 5 | 5 | 1,000.0 | 5 | 12,800 | 1,990,000 |
| Tin | 7440-31-5 | 5 | 4 | 30.0 | 2 | 200 | 2,530 |
| Titanium | 7440-32-6 | 5 | 5 | 5.0 | 1 | 9 | 64 |
| Zinc | 7440-66-6 | 5 | 5 | 20.0 | 4 | 40 | 1,210 |
| **ORGANICS** | | | | (ug/l) | | (ug/l) | (ug/l) |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | 5 | 5 | 10.0 | 5 | 249 | 2,573 |
| 1,1,1-Trichloroethane | 71-55-6 | 5 | 5 | 10.0 | 4 | 74 | 320 |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | 5 | 1 | 10.0 | 1 | 8,602 | 8,602 |
| 1,1,2-Trichloroethane | 79-00-5 | 5 | 5 | 10.0 | 5 | 776 | 6,781 |
| 1,1-Dichloroethane | 75-34-3 | 5 | 5 | 10.0 | 2 | 23 | 108 |
| 1,1-Dichloroethene | 75-35-4 | 5 | 5 | 10.0 | 5 | 112 | 461 |
| 1,2,3-Trichloropropane | 96-18-4 | 5 | 5 | 10.0 | 4 | 100 | 839 |
| 1,2-Dibromoethane | 106-93-4 | 5 | 5 | 10.0 | 5 | 297 | 6,094 |
| 1,2-Dichlorobenzene | 95-50-1 | 5 | 1 | 10.0 | 1 | 479 | 479 |
| 1,2-Dichloroethane | 107-06-2 | 5 | 4 | 10.0 | 4 | 855 | 5,748 |
| 1,3-Dichloropropane | 142-28-9 | 5 | 1 | 10.0 | 1 | 286 | 286 |

Table 6-3. Pollutants of Concern for the Organics Subcategory

| Pollutant | Cas No. | # Times Analyzed | # | Baseline value | # Detects >10 x BV | Minimum Conc. | Maximum Conc. |
|---|---|---|---|---|---|---|---|
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | 5 | 5 | 20.0 | 5 | 1,189 | 5,397 |
| 2,3-Dichloroaniline | 608-27-5 | 5 | 3 | 10.0 | 3 | 109 | 636 |
| 2,4,5-Trichlorophenol | 95-95-4 | 5 | 4 | 10.0 | 4 | 114 | 579 |
| 2,4,6-Trichlorophenol | 88-06-2 | 5 | 4 | 10.0 | 4 | 148 | 1,091 |
| 2,4-Dimethylphenol | 105-67-9 | 5 | 1 | 10.0 | 1 | 683 | 683 |
| 2-Butanone | 78-93-3 | 5 | 5 | 50.0 | 5 | 894 | 5,063 |
| 2-Propanone | 67-64-1 | 5 | 5 | 50.0 | 5 | 1,215 | 12,435 |
| 3,4,5-Trichlorocatechol | 56961-20-7 | 5 | 2 | 0.8 | 1 | 2 | 46 |
| 3,4,6-Trichloroguaiacol | 60712-44-9 | 5 | 2 | 0.8 | 1 | 7 | 12 |
| 3,4-Dichlorophenol | 95-77-2 | 5 | 4 | 0.8 | 4 | 71 | 470 |
| 3,5-Dichlorophenol | 591-35-5 | 5 | 3 | 0.8 | 3 | 38 | 170 |
| 3,6-Dichlorocatechol | 3938-16-7 | 5 | 1 | 0.8 | 1 | 12 | 12 |
| 4,5,6-Trichloroguaiacol | 2668-24-8 | 5 | 2 | 0.8 | 1 | 4 | 62 |
| 4,5-Dichloroguaiacol | 2460-49-3 | 5 | 1 | 0.8 | 1 | 9 | 9 |
| 4-Chloro-3-Methylphenol | 59-50-7 | 5 | 1 | 10.0 | 1 | 204 | 204 |
| 4-Chlorophenol | 106-48-9 | 5 | 4 | 240.0 | 2 | 1,450 | 7,940 |
| 4-Methyl-2-Pentanone | 108-10-1 | 5 | 5 | 50.0 | 4 | 290 | 4,038 |
| 5-Chloroguaiacol | 3743-23-5 | 5 | 1 | 160.0 | 1 | 2,350 | 2,350 |
| 6-Chlorovanillin | 18268-76-3 | 5 | 1 | 0.8 | 1 | 38 | 38 |
| Acetophenone | 98-86-2 | 5 | 4 | 10.0 | 4 | 336 | 739 |
| Aniline | 62-53-3 | 5 | 2 | 10.0 | 2 | 178 | 392 |
| Benzene | 71-43-2 | 5 | 5 | 10.0 | 3 | 30 | 179 |
| Benzoic Acid | 65-85-0 | 5 | 2 | 50.0 | 2 | 5,649 | 15,760 |
| Bromodichloromethane | 75-27-4 | 5 | 5 | 10.0 | 1 | 26 | 197 |
| Carbon Disulfide | 75-15-0 | 5 | 4 | 10.0 | 1 | 14 | 1,147 |
| Chlorobenzene | 108-90-7 | 5 | 4 | 10.0 | 1 | 70 | 101 |
| Chloroform | 67-66-3 | 5 | 4 | 10.0 | 4 | 5,224 | 32,301 |
| Dimethyl Sulfone | 67-71-0 | 5 | 3 | 10.0 | 3 | 315 | 892 |
| Ethylenethiourea | 96-45-7 | 5 | 2 | 20.0 | 2 | 8,306 | 9,655 |
| Hexachloroethane | 67-72-1 | 5 | 2 | 10.0 | 1 | 75 | 101 |
| Hexanoic Acid | 142-62-1 | 5 | 3 | 10.0 | 3 | 1,111 | 4,963 |
| Isophorone | 78-59-1 | 5 | 2 | 10.0 | 1 | 60 | 141 |
| m-Xylene | 108-38-3 | 5 | 5 | 10.0 | 1 | 45 | 310 |
| Methylene Chloride | 75-09-2 | 5 | 4 | 10.0 | 4 | 2,596 | 87,256 |
| n,n-Dimethylformamide | 68-12-2 | 5 | 3 | 10.0 | 2 | 23 | 225 |
| o+p Xylene | 136777-61-2 | 5 | 5 | 10.0 | 1 | 13 | 113 |
| o-Cresol | 95-48-7 | 5 | 4 | 10.0 | 4 | 7,162 | 14,313 |
| p-Cresol | 106-44-5 | 5 | 4 | 10.0 | 4 | 220 | 911 |
| Pentachlorophenol | 87-86-5 | 5 | 4 | 50.0 | 4 | 657 | 1,354 |
| Phenol | 108-95-2 | 5 | 4 | 10.0 | 4 | 483 | 9,491 |
| Pyridine | 110-86-1 | 5 | 5 | 10.0 | 4 | 29 | 444 |
| Tetrachloroethene | 127-18-4 | 5 | 4 | 10.0 | 4 | 2,235 | 19,496 |
| Tetrachloromethane | 56-23-5 | 5 | 5 | 10.0 | 5 | 1,862 | 16,126 |
| Toluene | 108-88-3 | 5 | 5 | 10.0 | 5 | 148 | 2,053 |
| Trans-1,2-Dichloroethene | 156-60-5 | 5 | 5 | 10.0 | 5 | 1,171 | 5,147 |
| Trichloroethene | 79-01-6 | 5 | 4 | 10.0 | 4 | 3,551 | 23,649 |
| Vinyl Chloride | 75-01-4 | 5 | 5 | 10.0 | 5 | 290 | 1,226 |

Table 6-4. Pollutants Not Selected as Pollutants of Concern for the Metals Subcategory

| Pollutant | Cas No. | Never Detected | Detected <10 x BV | Detected in <10% of infuent samples |
|---|---|---|---|---|
| **CLASSICALS OR CONVENTIONALS** | | | | |
| SGT-HEM | C-037 | | X | |
| **METALS** | | | | |
| Barium | 7440-39-3 | | | X |
| Bismuth | 7440-69-9 | | | X |
| Cerium | 7440-45-1 | | X | |
| Dysprosium | 7429-91-6 | | | X |
| Erbium | 7440-52-0 | | | X |
| Europium | 7440-53-1 | | | X |
| Gadolinium | 7440-54-2 | | | X |
| Germanium | 7440-56-4 | | X | |
| Gold | 7440-57-5 | | | X |
| Hafnium | 7440-58-6 | | X | |
| Holmium | 7440-60-0 | X | | |
| Lutetium | 7439-94-3 | | X | |
| Neodymium | 7440-00-8 | | | X |
| Niobium | 7440-03-1 | | | X |
| Palladium | 7440-05-3 | | | X |
| Platinum | 7440-06-4 | | X | |
| Praseodymium | 7440-10-0 | | | X |
| Rhenium | 7440-15-5 | | | X |
| Rhodium | 7440-16-6 | X | | |
| Ruthenium | 7440-18-8 | | | X |
| Samarium | 7440-19-9 | | X | |
| Scandium | 7440-20-2 | | | X |
| Terbium | 7440-27-9 | X | | |
| Thorium | 7440-29-1 | | | X |
| Thulium | 7440-30-4 | X | | |
| Tungsten | 7440-33-7 | | | X |
| Uranium | 7440-61-1 | | X | |
| Ytterbium | 7440-64-4 | | X | |
| **ORGANICS** | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | X | | |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | X | | |
| 1,1,2-Trichloroethane | 79-00-5 | X | | |
| 1,1-Dichloroethane | 75-34-3 | | X | |
| 1,2,3-Trichlorobenzene | 87-61-6 | X | | |
| 1,2,3-Trichloropropane | 96-18-4 | X | | |
| 1,2,3-Trimethoxybenzene | 634-36-6 | X | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | X | | |
| 1,2,4-Trichlorobenzene | 120-82-1 | X | | |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | X | | |
| 1,2-Dibromoethane | 106-93-4 | X | | |
| 1,2-Dichlorobenzene | 95-50-1 | | | X |
| 1,2-Dichloroethane | 107-06-2 | | X | |
| 1,2-Dichloropropane | 78-87-5 | X | | |
| 1,2-Diphenylhydrazine | 122-66-7 | X | | |
| 1,2:3,4-Diepoxybutane | 1464-53-5 | X | | |
| 1,3,5-Trithiane | 291-21-4 | X | | |
| 1,3-Butadiene, 2-Chloro | 126-99-8 | X | | |

Table 6-4. Pollutants Not Selected as Pollutants of Concern for the Metals Subcategory

| Pollutant | Cas No. | Never Detected | Detected <10 x BV | Detected in <10% of infuent samples |
|---|---|---|---|---|
| 1,3-Dichloro-2-Propanol | 96-23-1 | X | | |
| 1,3-Dichlorobenzene | 541-73-1 | X | | |
| 1,3-Dichloropropane | 142-28-9 | X | | |
| 1,4-Dichlorobenzene | 106-46-7 | X | | |
| 1,4-Dinitrobenzene | 100-25-4 | X | | |
| 1,4-Naphthoquinone | 130-15-4 | X | | |
| 1,5-Naphthalenediamine | 2243-62-1 | X | | |
| 1-Bromo-2-Chlorobenzene | 694-80-4 | X | | |
| 1-Bromo-3-Chlorobenzene | 108-37-2 | X | | |
| 1-Chloro-3-Nitrobenzene | 121-73-3 | X | | |
| 1-Methylfluorene | 1730-37-6 | X | | |
| 1-Methylphenanthrene | 832-69-9 | X | | |
| 1-Naphthylamine | 134-32-7 | X | | |
| 1-Phenylnaphthalene | 605-02-7 | X | | |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | X | | |
| 2,3,6-Trichlorophenol | 933-75-5 | X | | |
| 2,3-Benzofluorene | 243-17-4 | X | | |
| 2,3-Dichloroaniline | 608-27-5 | X | | |
| 2,3-Dichloronitrobenzene | 3209-22-1 | X | | |
| 2,4,5-Trichlorophenol | 95-95-4 | X | | |
| 2,4,6-Trichlorophenol | 88-06-2 | X | | |
| 2,4-Dichlorophenol | 120-83-2 | X | | |
| 2,4-Dimethylphenol | 105-67-9 | X | | |
| 2,4-Dinitrophenol | 51-28-5 | | | X |
| 2,4-Dinitrotoluene | 121-14-2 | X | | |
| 2,6-Di-Tert-Butyl-P-Benzoquinone | 719-22-2 | X | | |
| 2,6-Dichloro-4-Nitroaniline | 99-30-9 | X | | |
| 2,6-Dichlorophenol | 87-65-0 | | X | |
| 2,6-Dinitrotoluene | 606-20-2 | X | | |
| 2-(methylthio)benzothiazole | 615-22-5 | X | | |
| 2-Chloroethylvinyl Ether | 110-75-8 | X | | |
| 2-Chloronaphthalene | 91-58-7 | | | X |
| 2-Chlorophenol | 95-57-8 | | | X |
| 2-Hexanone | 591-78-6 | | X | |
| 2-Isopropylnaphthalene | 2027-17-0 | X | | |
| 2-Methylbenzothioazole | 120-75-2 | X | | |
| 2-Methylnaphthalene | 91-57-6 | X | | |
| 2-Nitroaniline | 88-74-4 | X | | |
| 2-Nitrophenol | 88-75-5 | | | X |
| 2-Phenylnaphthalene | 612-94-2 | X | | |
| 2-Picoline | 109-06-8 | | X | |
| 2-Propen-1-Ol | 107-18-6 | X | | |
| 2-Propenal | 107-02-8 | X | | |
| 2-Propenenitrile, 2-Methyl- | 126-98-7 | X | | |
| 3,3'-Dichlorobenzidine | 91-94-1 | X | | |
| 3,3'-Dimethoxybenzidine | 119-90-4 | X | | |
| 3,6-Dimethylphenanthrene | 1576-67-6 | X | | |
| 3-Chloropropene | 107-05-1 | X | | |
| 3-Methylcholanthrene | 56-49-5 | X | | |
| 3-Nitroaniline | 99-09-2 | X | | |

Table 6-4. Pollutants Not Selected as Pollutants of Concern for the Metals Subcategory

| Pollutant | Cas No. | Never Detected | Detected <10 x BV | Detected in <10% of infuent samples |
|---|---|---|---|---|
| 4,4'-Methylenebis(2-Chloroaniline) | 101-14-4 | X | | |
| 4,5-Methylene Phenanthrene | 203-64-5 | X | | |
| 4-Aminobiphenyl | 92-67-1 | X | | |
| 4-Bromophenyl Phenyl Ether | 101-55-3 | X | | |
| 4-Chloro-2-Nitroaniline | 89-63-4 | X | | |
| 4-Chloro-3-Methylphenol | 59-50-7 | X | | |
| 4-Chlorophenylphenyl Ether | 7005-72-3 | X | | |
| 4-Nitrophenol | 100-02-7 | | | X |
| 5-Nitro-O-Toluidine | 99-55-8 | X | | |
| 7,12-Dimethylbenz(a)anthracene | 57-97-6 | X | | |
| Acenaphthene | 83-32-9 | X | | |
| Acenaphthylene | 208-96-8 | X | | |
| Acetophenone | 98-86-2 | | X | |
| Acrylonitrile | 107-13-1 | | | X |
| Alpha-Terpineol | 98-55-5 | | | X |
| Aniline | 62-53-3 | | | X |
| Aniline, 2,4,5-Trimethyl- | 137-17-7 | X | | |
| Anthracene | 120-12-7 | X | | |
| Aramite | 140-57-8 | X | | |
| Benzanthrone | 82-05-3 | X | | |
| Benzene | 71-43-2 | | | X |
| Benzenethiol | 108-98-5 | X | | |
| Benzidine | 92-87-5 | X | | |
| Benzo(a)anthracene | 56-55-3 | X | | |
| Benzo(a)pyrene | 50-32-8 | X | | |
| Benzo(b)fluoranthene | 205-99-2 | X | | |
| Benzo(ghi)perylene | 191-24-2 | X | | |
| Benzo(k)fluoranthene | 207-08-9 | X | | |
| Benzonitrile, 3,5-Dibromo-4-Hydroxy- | 1689-84-5 | X | | |
| Beta-Naphthylamine | 91-59-8 | X | | |
| Biphenyl | 92-52-4 | | | X |
| Biphenyl, 4-Nitro | 92-93-3 | X | | |
| Bis(2-Chloroethoxy)methane | 111-91-1 | X | | |
| Bis(2-Chloroethyl) Ether | 111-44-4 | X | | |
| Bis(2-Chloroisopropyl) Ether | 108-60-1 | X | | |
| Bromodichloromethane | 75-27-4 | | | X |
| Bromomethane | 74-83-9 | X | | |
| Butyl Benzyl Phthalate | 85-68-7 | X | | |
| Carbazole | 86-74-8 | X | | |
| Chloroacetonitrile | 107-14-2 | X | | |
| Chlorobenzene | 108-90-7 | X | | |
| Chloroethane | 75-00-3 | X | | |
| Chloromethane | 74-87-3 | X | | |
| Chrysene | 218-01-9 | | | X |
| Cis-1,3-Dichloropropene | 10061-01-5 | X | | |
| Crotonaldehyde | 4170-30-3 | X | | |
| Crotoxyphos | 7700-17-6 | X | | |
| Di-N-Butyl Phthalate | 84-74-2 | X | | |
| Di-N-Octyl Phthalate | 117-84-0 | X | | |
| Di-N-Propylnitrosamine | 621-64-7 | X | | |

Table 6-4. Pollutants Not Selected as Pollutants of Concern for the Metals Subcategory

| Pollutant | Cas No. | Never Detected | Detected <10 x BV | Detected in <10% of infuent samples |
|---|---|---|---|---|
| Dibenzo(a,h)anthracene | 53-70-3 | X | | |
| Dibenzofuran | 132-64-9 | | | X |
| Dibenzothiophene | 132-65-0 | X | | |
| Dibromomethane | 74-95-3 | X | | |
| Diethyl Ether | 60-29-7 | | | X |
| Diethyl Phthalate | 84-66-2 | X | | |
| Dimethyl Phthalate | 131-11-3 | X | | |
| Dimethyl Sulfone | 67-71-0 | | | X |
| Diphenyl Ether | 101-84-8 | X | | |
| Diphenylamine | 122-39-4 | X | | |
| Diphenyldisulfide | 882-33-7 | X | | |
| Ethane, Pentachloro- | 76-01-7 | X | | |
| Ethyl Cyanide | 107-12-0 | X | | |
| Ethyl Methacrylate | 97-63-2 | X | | |
| Ethyl Methanesulfonate | 62-50-0 | X | | |
| Ethylbenzene | 100-41-4 | | | X |
| Ethylenethiourea | 96-45-7 | X | | |
| Fluoranthene | 206-44-0 | | | X |
| Fluorene | 86-73-7 | | | X |
| Hexachlorobenzene | 118-74-1 | X | | |
| Hexachlorobutadiene | 87-68-3 | X | | |
| Hexachlorocyclopentadiene | 77-47-4 | X | | |
| Hexachloroethane | 67-72-1 | X | | |
| Hexachloropropene | 1888-71-7 | X | | |
| Indeno(1,2,3-Cd)pyrene | 193-39-5 | X | | |
| Iodomethane | 74-88-4 | X | | |
| Isobutyl Alcohol | 78-83-1 | | | X |
| Isophorone | 78-59-1 | | X | |
| Isosafrole | 120-58-1 | X | | |
| Longifolene | 475-20-7 | X | | |
| Malachite Green | 569-64-2 | X | | |
| Mestranol | 72-33-3 | X | | |
| Methapyrilene | 91-80-5 | X | | |
| Methyl Methacrylate | 80-62-6 | X | | |
| Methyl Methanesulfonate | 66-27-3 | X | | |
| n-Decane | 124-18-5 | | | X |
| n-Docosane | 629-97-0 | | | X |
| n-Dodecane | 112-40-3 | | | X |
| n-Eicosane | 112-95-8 | | | X |
| n-Hexacosane | 630-01-3 | | X | |
| n-Hexadecane | 544-76-3 | | | X |
| n-Nitrosodi-n-Butylamine | 924-16-3 | X | | |
| n-Nitrosodiethylamine | 55-18-5 | | X | |
| n-Nitrosodimethylamine | 62-75-9 | | | X |
| n-Nitrosodiphenylamine | 86-30-6 | X | | |
| n-Nitrosomethylethylamine | 10595-95-6 | X | | |
| n-Nitrosomethylphenylamine | 614-00-6 | X | | |
| n-Nitrosomorpholine | 59-89-2 | | | X |
| n-Nitrosopiperidine | 100-75-4 | X | | |
| n-Octacosane | 630-02-4 | | | X |

Table 6-4. Pollutants Not Selected as Pollutants of Concern for the Metals Subcategory

| Pollutant | Cas No. | Never Detected | Detected <10 x BV | Detected in <10% of infuent samples |
|---|---|---|---|---|
| n-Octadecane | 593-45-3 | | | X |
| n-Tetracosane | 646-31-1 | | | X |
| n-Tetradecane | 629-59-4 | | | X |
| n-Triacontane | 638-68-6 | | | X |
| Naphthalene | 91-20-3 | | | X |
| Nitrobenzene | 98-95-3 | | X | |
| o+p Xylene | 136777-61-2 | | | X |
| o-Anisidine | 90-04-0 | X | | |
| o-Cresol | 95-48-7 | X | | |
| o-Toluidine | 95-53-4 | X | | |
| o-Toluidine, 5-Chloro- | 95-79-4 | X | | |
| p-Chloroaniline | 106-47-8 | X | | |
| p-Cresol | 106-44-5 | X | | |
| p-Cymene | 99-87-6 | X | | |
| p-Dimethylaminoazobenzene | 60-11-7 | X | | |
| p-Nitroaniline | 100-01-6 | X | | |
| Pentachlorobenzene | 608-93-5 | X | | |
| Pentachlorophenol | 87-86-5 | | | X |
| Pentamethylbenzene | 700-12-9 | X | | |
| Perylene | 198-55-0 | X | | |
| Phenacetin | 62-44-2 | X | | |
| Phenanthrene | 85-01-8 | | | X |
| Phenol, 2-Methyl-4,6-Dinitro- | 534-52-1 | X | | |
| Phenothiazine | 92-84-2 | X | | |
| Pronamide | 23950-58-5 | X | | |
| Pyrene | 129-00-0 | X | | |
| Resorcinol | 108-46-3 | X | | |
| Safrole | 94-59-7 | X | | |
| Squalene | 7683-64-9 | X | | |
| Styrene | 100-42-5 | X | | |
| Tetrachloroethene | 127-18-4 | | | X |
| Tetrachloromethane | 56-23-5 | X | | |
| Thianaphthene | 95-15-8 | X | | |
| Thioacetamide | 62-55-5 | X | | |
| Thioxanthe-9-One | 492-22-8 | X | | |
| Toluene, 2,4-Diamino- | 95-80-7 | X | | |
| Trans-1,2-Dichloroethene | 156-60-5 | X | | |
| Trans-1,3-Dichloropropene | 10061-02-6 | X | | |
| Trans-1,4-Dichloro-2-Butene | 110-57-6 | X | | |
| Tribromomethane | 75-25-2 | | | X |
| Trichlorofluoromethane | 75-69-4 | | | X |
| Triphenylene | 217-59-4 | X | | |
| Tripropyleneglycol Methyl Ether | 20324-33-8 | | | X |
| Vinyl Acetate | 108-05-4 | X | | |
| Vinyl Chloride | 75-01-4 | X | | |

Table 6-5. Pollutants Not Selected as Pollutants of Concern for the Oils Subcategory

| Pollutant | Cas No. | Never Detected | Detected <10 x BV | Detected in <10% of infuent samples |
|---|---|---|---|---|
| **CLASSICALS OR CONVENTIONALS** | | | | |
| Hexavalent Chromium | 18540-29-9 | | | X |
| Total Sulfide | 18496-25-8 | | X | |
| **METALS** | | | | |
| Beryllium | 7440-41-7 | | | X |
| Bismuth | 7440-69-9 | | | X |
| Cerium | 7440-45-1 | | X | |
| Dysprosium | 7429-91-6 | X | | |
| Erbium | 7440-52-0 | X | | |
| Europium | 7440-53-1 | X | | |
| Gadolinium | 7440-54-2 | X | | |
| Gallium | 7440-55-3 | X | | |
| Gold | 7440-57-5 | X | | |
| Hafnium | 7440-58-6 | X | | |
| Holmium | 7440-60-0 | X | | |
| Indium | 7440-74-6 | X | | |
| Iodine | 7553-56-2 | X | | |
| Iridium | 7439-88-5 | | | X |
| Lanthanum | 7439-91-0 | X | | |
| Lithium | 7439-93-2 | | | X |
| Neodymium | 7440-00-8 | X | | |
| Niobium | 7440-03-1 | X | | |
| Osmium | 7440-04-2 | X | | |
| Palladium | 7440-05-3 | X | | |
| Platinum | 7440-06-4 | | X | |
| Praseodymium | 7440-10-0 | X | | |
| Rhenium | 7440-15-5 | | X | |
| Rhodium | 7440-16-6 | X | | |
| Ruthenium | 7440-18-8 | X | | |
| Samarium | 7440-19-9 | X | | |
| Scandium | 7440-20-2 | X | | |
| Tellurium | 13494-80-9 | | X | |
| Terbium | 7440-27-9 | X | | |
| Thallium | 7440-28-0 | | X | |
| Thorium | 7440-29-1 | X | | |
| Thulium | 7440-30-4 | X | | |
| Tungsten | 7440-33-7 | | X | |
| Uranium | 7440-61-1 | X | | |
| Vanadium | 7440-62-2 | | | X |
| Ytterbium | 7440-64-4 | | X | |
| Yttrium | 7440-65-5 | | | X |
| Zirconium | 7440-67-7 | | X | |
| **ORGANICS** | | | | |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | X | | |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | | X | |
| 1,1,2-Trichloroethane | 79-00-5 | X | | |
| 1,1-Dichloroethane | 75-34-3 | | | X |
| 1,2,3-Trichlorobenzene | 87-61-6 | | | X |
| 1,2,3-Trichloropropane | 96-18-4 | X | | |

Table 6-5. Pollutants Not Selected as Pollutants of Concern for the Oils Subcategory

| Pollutant | Cas No. | Never Detected | Detected <10 x BV | Detected in <10% of infuent samples |
|---|---|---|---|---|
| 1,2,3-Trimethoxybenzene | 634-36-6 | X | | |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | X | | |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | X | | |
| 1,2-Dibromoethane | 106-93-4 | X | | |
| 1,2-Dichloropropane | 78-87-5 | X | | |
| 1,2-Diphenylhydrazine | 122-66-7 | X | | |
| 1,2:3,4-Diepoxybutane | 1464-53-5 | X | | |
| 1,3,5-Trithiane | 291-21-4 | | | X |
| 1,3-Butadiene, 2-Chloro | 126-99-8 | X | | |
| 1,3-Dichloro-2-Propanol | 96-23-1 | X | | |
| 1,3-Dichlorobenzene | 541-73-1 | | X | |
| 1,3-Dichloropropane | 142-28-9 | X | | |
| 1,4-Dinitrobenzene | 100-25-4 | X | | |
| 1,4-Naphthoquinone | 130-15-4 | X | | |
| 1,5-Naphthalenediamine | 2243-62-1 | X | | |
| 1-Bromo-2-Chlorobenzene | 694-80-4 | X | | |
| 1-Bromo-3-Chlorobenzene | 108-37-2 | X | | |
| 1-Chloro-3-Nitrobenzene | 121-73-3 | X | | |
| 1-Naphthylamine | 134-32-7 | X | | |
| 1-Phenylnaphthalene | 605-02-7 | | | X |
| 2,3,4,6-Tetrachlorophenol | 58-90-2 | X | | |
| 2,3,6-Trichlorophenol | 933-75-5 | X | | |
| 2,3-Dichloroaniline | 608-27-5 | | X | |
| 2,3-Dichloronitrobenzene | 3209-22-1 | X | | |
| 2,4,5-Trichlorophenol | 95-95-4 | X | | |
| 2,4,6-Trichlorophenol | 88-06-2 | X | | |
| 2,4-Dichlorophenol | 120-83-2 | X | | |
| 2,4-Dinitrophenol | 51-28-5 | X | | |
| 2,4-Dinitrotoluene | 121-14-2 | X | | |
| 2,6-Di-Tert-Butyl-P-Benzoquinone | 719-22-2 | X | | |
| 2,6-Dichloro-4-Nitroaniline | 99-30-9 | X | | |
| 2,6-Dichlorophenol | 87-65-0 | X | | |
| 2,6-Dinitrotoluene | 606-20-2 | X | | |
| 2-(methylthio)benzothiazole | 615-22-5 | X | | |
| 2-Chloroethylvinyl Ether | 110-75-8 | X | | |
| 2-Chloronaphthalene | 91-58-7 | X | | |
| 2-Chlorophenol | 95-57-8 | X | | |
| 2-Hexanone | 591-78-6 | | X | |
| 2-Methylbenzothioazole | 120-75-2 | X | | |
| 2-Nitroaniline | 88-74-4 | X | | |
| 2-Nitrophenol | 88-75-5 | | | X |
| 2-Phenylnaphthalene | 612-94-2 | | | X |
| 2-Picoline | 109-06-8 | X | | |
| 2-Propen-1-Ol | 107-18-6 | X | | |
| 2-Propenal | 107-02-8 | | | X |
| 2-Propenenitrile, 2-Methyl- | 126-98-7 | X | | |
| 3,3'-Dichlorobenzidine | 91-94-1 | X | | |
| 3,3'-Dimethoxybenzidine | 119-90-4 | X | | |
| 3-Chloropropene | 107-05-1 | X | | |

Table 6-5. Pollutants Not Selected as Pollutants of Concern for the Oils Subcategory

| Pollutant | Cas No. | Never Detected | Detected <10 x BV | Detected in <10% of infuent samples |
|---|---|---|---|---|
| 3-Methylcholanthrene | 56-49-5 | X | | |
| 3-Nitroaniline | 99-09-2 | X | | |
| 4,4'-Methylenebis(2-Chloroaniline) | 101-14-4 | X | | |
| 4,5-Methylene Phenanthrene | 203-64-5 | | | X |
| 4-Aminobiphenyl | 92-67-1 | X | | |
| 4-Bromophenyl Phenyl Ether | 101-55-3 | X | | |
| 4-Chloro-2-Nitroaniline | 89-63-4 | X | | |
| 4-Chlorophenylphenyl Ether | 7005-72-3 | X | | |
| 4-Nitrophenol | 100-02-7 | X | | |
| 5-Nitro-o-Toluidine | 99-55-8 | X | | |
| 7,12-Dimethylbenz(a)anthracene | 57-97-6 | X | | |
| Acenaphthylene | 208-96-8 | | | X |
| Acetophenone | 98-86-2 | | | X |
| Acrylonitrile | 107-13-1 | X | | |
| Aniline, 2,4,5-Trimethyl- | 137-17-7 | X | | |
| Aramite | 140-57-8 | X | | |
| Benzanthrone | 82-05-3 | X | | |
| Benzenethiol | 108-98-5 | X | | |
| Benzidine | 92-87-5 | X | | |
| Benzo(a)pyrene | 50-32-8 | | | X |
| Benzo(b)fluoranthene | 205-99-2 | | | X |
| Benzo(ghi)perylene | 191-24-2 | | | X |
| Benzo(k)fluoranthene | 207-08-9 | | | X |
| Benzonitrile, 3,5-Dibromo-4-Hydroxy- | 1689-84-5 | X | | |
| Beta-Naphthylamine | 91-59-8 | X | | |
| Biphenyl, 4-Nitro | 92-93-3 | X | | |
| Bis(2-Chloroethoxy)methane | 111-91-1 | X | | |
| Bis(2-Chloroethyl) Ether | 111-44-4 | X | | |
| Bis(2-Chloroisopropyl) Ether | 108-60-1 | X | | |
| Bromodichloromethane | 75-27-4 | X | | |
| Bromomethane | 74-83-9 | X | | |
| Chloroacetonitrile | 107-14-2 | X | | |
| Chloroethane | 75-00-3 | X | | |
| Chloromethane | 74-87-3 | X | | |
| Cis-1,3-Dichloropropene | 10061-01-5 | X | | |
| Crotonaldehyde | 4170-30-3 | X | | |
| Crotoxyphos | 7700-17-6 | X | | |
| Di-n-Butyl Phthalate | 84-74-2 | | | X |
| Di-n-Octyl Phthalate | 117-84-0 | | | X |
| Di-n-Propylnitrosamine | 621-64-7 | X | | |
| Dibenzo(a,h)anthracene | 53-70-3 | X | | |
| Dibromochloromethane | 124-48-1 | X | | |
| Dibromomethane | 74-95-3 | X | | |
| Diethyl Ether | 60-29-7 | | | X |
| Dimethyl Phthalate | 131-11-3 | | | X |
| Dimethyl Sulfone | 67-71-0 | | X | |
| Diphenylamine | 122-39-4 | | | X |
| Diphenyldisulfide | 882-33-7 | X | | |
| Ethane, Pentachloro- | 76-01-7 | X | | |

Table 6-5. Pollutants Not Selected as Pollutants of Concern for the Oils Subcategory

| Pollutant | Cas No. | Never Detected | Detected <10 x BV | Detected in <10% of infuent samples |
|---|---|---|---|---|
| Ethyl Cyanide | 107-12-0 | X | | |
| Ethyl Methacrylate | 97-63-2 | X | | |
| Ethyl Methanesulfonate | 62-50-0 | X | | |
| Ethylenethiourea | 96-45-7 | X | | |
| Hexachlorobenzene | 118-74-1 | X | | |
| Hexachlorobutadiene | 87-68-3 | | | X |
| Hexachlorocyclopentadiene | 77-47-4 | X | | |
| Hexachloroethane | 67-72-1 | X | | |
| Hexachloropropene | 1888-71-7 | X | | |
| Indeno(1,2,3-Cd)pyrene | 193-39-5 | X | | |
| Iodomethane | 74-88-4 | X | | |
| Isobutyl Alcohol | 78-83-1 | | X | |
| Isophorone | 78-59-1 | | | X |
| Isosafrole | 120-58-1 | X | | |
| Longifolene | 475-20-7 | X | | |
| Malachite Green | 569-64-2 | X | | |
| Mestranol | 72-33-3 | X | | |
| Methapyrilene | 91-80-5 | X | | |
| Methyl Methacrylate | 80-62-6 | X | | |
| Methyl Methanesulfonate | 66-27-3 | X | | |
| n-Nitrosodi-n-Butylamine | 924-16-3 | | | X |
| n-Nitrosodiethylamine | 55-18-5 | X | | |
| n-Nitrosodimethylamine | 62-75-9 | X | | |
| n-Nitrosodiphenylamine | 86-30-6 | | | X |
| n-Nitrosomethylethylamine | 10595-95-6 | X | | |
| n-Nitrosomethylphenylamine | 614-00-6 | X | | |
| n-Nitrosomorpholine | 59-89-2 | | | X |
| n-Nitrosopiperidine | 100-75-4 | | | X |
| n-Triacontane | 638-68-6 | | | X |
| Nitrobenzene | 98-95-3 | X | | |
| o-Anisidine | 90-04-0 | X | | |
| o-Toluidine, 5-Chloro- | 95-79-4 | X | | |
| p-Chloroaniline | 106-47-8 | X | | |
| p-Dimethylaminoazobenzene | 60-11-7 | X | | |
| p-Nitroaniline | 100-01-6 | X | | |
| Pentachlorobenzene | 608-93-5 | X | | |
| Pentachlorophenol | 87-86-5 | | X | |
| Perylene | 198-55-0 | X | | |
| Phenacetin | 62-44-2 | X | | |
| Phenol, 2-Methyl-4,6-Dinitro- | 534-52-1 | X | | |
| Phenothiazine | 92-84-2 | X | | |
| Pronamide | 23950-58-5 | X | | |
| Resorcinol | 108-46-3 | X | | |
| Safrole | 94-59-7 | X | | |
| Squalene | 7683-64-9 | X | | |
| Tetrachloromethane | 56-23-5 | | | X |
| Thianaphthene | 95-15-8 | | | X |
| Thioacetamide | 62-55-5 | X | | |
| Thioxanthe-9-One | 492-22-8 | X | | |

Table 6-5. Pollutants Not Selected as Pollutants of Concern for the Oils Subcategory

| Pollutant | Cas No. | Never Detected | Detected <10 x BV | Detected in <10% of infuent samples |
|---|---|---|---|---|
| Toluene, 2,4-Diamino- | 95-80-7 | | | X |
| Trans-1,2-Dichloroethene | 156-60-5 | | X | |
| Trans-1,3-Dichloropropene | 10061-02-6 | X | | |
| Trans-1,4-Dichloro-2-Butene | 110-57-6 | X | | |
| Tribromomethane | 75-25-2 | X | | |
| Trichlorofluoromethane | 75-69-4 | | | X |
| Triphenylene | 217-59-4 | | | X |
| Vinyl Acetate | 108-05-4 | | | X |
| Vinyl Chloride | 75-01-4 | | | X |

Table 6-6. Pollutants Not Selected as Pollutants of Concern for the Organics Subcategory

| Pollutant | Cas No. | Never Detected | Detected <10 x BV | Detected in <10% of infuent samples |
|---|---|---|---|---|
| **CLASSICALS OR CONVENTIONALS** | | | | |
| Oil & Grease | C-007 | | X | |
| **METALS** | | | | |
| Beryllium | 7440-41-7 | X | | |
| Bismuth | 7440-69-9 | X | | |
| Cadmium | 7440-43-9 | | X | |
| Cerium | 7440-45-1 | X | | |
| Dysprosium | 7429-91-6 | X | | |
| Erbium | 7440-52-0 | X | | |
| Europium | 7440-53-1 | X | | |
| Gadolinium | 7440-54-2 | X | | |
| Gallium | 7440-55-3 | | X | |
| Germanium | 7440-56-4 | X | | |
| Gold | 7440-57-5 | X | | |
| Hafnium | 7440-58-6 | | X | |
| Holmium | 7440-60-0 | X | | |
| Indium | 7440-74-6 | | X | |
| Iridium | 7439-88-5 | | X | |
| Lanthanum | 7439-91-0 | X | | |
| Lutetium | 7439-94-3 | X | | |
| Magnesium | 7439-95-4 | | X | |
| Mercury | 7439-97-6 | X | | |
| Neodymium | 7440-00-8 | X | | |
| Niobium | 7440-03-1 | X | | |
| Osmium | 7440-04-2 | X | | |
| Palladium | 7440-05-3 | X | | |
| Platinum | 7440-06-4 | | X | |
| Praseodymium | 7440-10-0 | X | | |
| Rhenium | 7440-15-5 | X | | |
| Rhodium | 7440-16-6 | X | | |
| Ruthenium | 7440-18-8 | X | | |
| Samarium | 7440-19-9 | X | | |
| Scandium | 7440-20-2 | X | | |
| Selenium | 7782-49-2 | X | | |
| Silver | 7440-22-4 | X | | |
| Tantalum | 7440-25-7 | X | | |
| Tellurium | 13494-80-9 | X | | |
| Terbium | 7440-27-9 | X | | |
| Thallium | 7440-28-0 | X | | |
| Thorium | 7440-29-1 | X | | |
| Thulium | 7440-30-4 | X | | |
| Tungsten | 7440-33-7 | X | | |
| Uranium | 7440-61-1 | X | | |
| Vanadium | 7440-62-2 | | X | |
| Ytterbium | 7440-64-4 | X | | |
| Yttrium | 7440-65-5 | | X | |
| Zirconium | 7440-67-7 | X | | |
| **ORGANICS** | | | | |
| 1,2,3-Trichlorobenzene | 87-61-6 | X | | |
| 1,2,3-Trimethoxybenzene | 634-36-6 | X | | |

Table 6-6. Pollutants Not Selected as Pollutants of Concern for the Organics Subcategory

| Pollutant | Cas No. | Never Detected | Detected <10 x BV | Detected in <10% of infuent samples |
|---|---|---|---|---|
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | X | | |
| 1,2,4-Trichlorobenzene | 120-82-1 | X | | |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | X | | |
| 1,2-Dichloropropane | 78-87-5 | | X | |
| 1,2-Diphenylhydrazine | 122-66-7 | X | | |
| 1,2:3,4-Diepoxybutane | 1464-53-5 | X | | |
| 1,3,5-Trithiane | 291-21-4 | X | | |
| 1,3-Butadiene, 2-Chloro | 126-99-8 | X | | |
| 1,3-Dichloro-2-Propanol | 96-23-1 | X | | |
| 1,3-Dichlorobenzene | 541-73-1 | X | | |
| 1,4-Dichlorobenzene | 106-46-7 | X | | |
| 1,4-Dinitrobenzene | 100-25-4 | X | | |
| 1,4-Dioxane | 123-91-1 | | X | |
| 1,4-Naphthoquinone | 130-15-4 | X | | |
| 1,5-Naphthalenediamine | 2243-62-1 | X | | |
| 1-Bromo-2-Chlorobenzene | 694-80-4 | X | | |
| 1-Bromo-3-Chlorobenzene | 108-37-2 | X | | |
| 1-Chloro-3-Nitrobenzene | 121-73-3 | X | | |
| 1-Methylfluorene | 1730-37-6 | X | | |
| 1-Methylphenanthrene | 832-69-9 | X | | |
| 1-Naphthylamine | 134-32-7 | X | | |
| 1-Phenylnaphthalene | 605-02-7 | X | | |
| 2,3,6-Trichlorophenol | 933-75-5 | X | | |
| 2,3-Benzofluorene | 243-17-4 | X | | |
| 2,3-Dichloronitrobenzene | 3209-22-1 | X | | |
| 2,4-Dichlorophenol | 120-83-2 | X | | |
| 2,4-Dinitrophenol | 51-28-5 | X | | |
| 2,4-Dinitrotoluene | 121-14-2 | X | | |
| 2,6-Di-Tert-Butyl-P-Benzoquinone | 719-22-2 | X | | |
| 2,6-Dichloro-4-Nitroaniline | 99-30-9 | X | | |
| 2,6-Dichlorophenol | 87-65-0 | X | | |
| 2,6-Dinitrotoluene | 606-20-2 | X | | |
| 2-(Methylthio)Benzothiazole | 615-22-5 | X | | |
| 2-Chloroethylvinyl Ether | 110-75-8 | X | | |
| 2-Chloronaphthalene | 91-58-7 | X | | |
| 2-Chlorophenol | 95-57-8 | X | | |
| 2-Hexanone | 591-78-6 | X | | |
| 2-Isopropylnaphthalene | 2027-17-0 | X | | |
| 2-Methylbenzothioazole | 120-75-2 | X | | |
| 2-Methylnaphthalene | 91-57-6 | X | | |
| 2-Nitroaniline | 88-74-4 | X | | |
| 2-Nitrophenol | 88-75-5 | X | | |
| 2-Phenylnaphthalene | 612-94-2 | X | | |
| 2-Picoline | 109-06-8 | | X | |
| 2-Propen-1-Ol | 107-18-6 | X | | |
| 2-Propenal | 107-02-8 | X | | |
| 2-Propenenitrile, 2-Methyl- | 126-98-7 | X | | |
| 2-Syringaldehyde | 134-96-3 | X | | |
| 3,3'-Dichlorobenzidine | 91-94-1 | X | | |
| 3,3'-Dimethoxybenzidine | 119-90-4 | X | | |

Table 6-6. Pollutants Not Selected as Pollutants of Concern for the Organics Subcategory

| Pollutant | Cas No. | Never Detected | Detected <10 x BV | Detected in <10% of infuent samples |
|---|---|---|---|---|
| 3,4,5-Trichloroguaiacol | 57057-83-7 | | X | |
| 3,5-Dichlorocatechol | 13673-92-2 | X | | |
| 3,6-Dimethylphenanthrene | 1576-67-6 | X | | |
| 3-Chloropropene | 107-05-1 | X | | |
| 3-Methylcholanthrene | 56-49-5 | X | | |
| 3-Nitroaniline | 99-09-2 | X | | |
| 4,4'-Methylenebis(2-Chloroaniline) | 101-14-4 | X | | |
| 4,5-Dichlorocatechol | 3428-24-8 | | X | |
| 4,5-Methylene Phenanthrene | 203-64-5 | X | | |
| 4,6-Dichloroguaiacol | 16766-31-7 | X | | |
| 4-Aminobiphenyl | 92-67-1 | X | | |
| 4-Bromophenyl Phenyl Ether | 101-55-3 | X | | |
| 4-Chloro-2-Nitroaniline | 89-63-4 | X | | |
| 4-Chloroguaiacol | 16766-30-6 | X | | |
| 4-Chlorophenylphenyl Ether | 7005-72-3 | X | | |
| 4-Nitrophenol | 100-02-7 | X | | |
| 5,6-Dichlorovanillin | 18268-69-4 | X | | |
| 5-Nitro-o-Toluidine | 99-55-8 | X | | |
| 7,12-Dimethylbenz(a)anthracene | 57-97-6 | X | | |
| Acenaphthene | 83-32-9 | X | | |
| Acenaphthylene | 208-96-8 | X | | |
| Acrylonitrile | 107-13-1 | X | | |
| Alpha-Terpineol | 98-55-5 | X | | |
| Aniline, 2,4,5-Trimethyl- | 137-17-7 | X | | |
| Anthracene | 120-12-7 | X | | |
| Aramite | 140-57-8 | X | | |
| Benzanthrone | 82-05-3 | X | | |
| Benzenethiol | 108-98-5 | X | | |
| Benzidine | 92-87-5 | X | | |
| Benzo(a)anthracene | 56-55-3 | X | | |
| Benzo(a)pyrene | 50-32-8 | X | | |
| Benzo(b)fluoranthene | 205-99-2 | X | | |
| Benzo(ghi)perylene | 191-24-2 | X | | |
| Benzo(k)fluoranthene | 207-08-9 | X | | |
| Benzonitrile, 3,5-Dibromo-4-Hydroxy- | 1689-84-5 | X | | |
| Benzyl Alcohol | 100-51-6 | X | | |
| Beta-Naphthylamine | 91-59-8 | X | | |
| Biphenyl | 92-52-4 | X | | |
| Biphenyl, 4-Nitro | 92-93-3 | X | | |
| Bis(2-Chloroethoxy)methane | 111-91-1 | X | | |
| Bis(2-Chloroethyl) Ether | 111-44-4 | X | | |
| Bis(2-Chloroisopropyl) Ether | 108-60-1 | X | | |
| Bis(2-Ethylhexyl) Phthalate | 117-81-7 | X | | |
| Bromomethane | 74-83-9 | X | | |
| Butyl Benzyl Phthalate | 85-68-7 | X | | |
| Carbazole | 86-74-8 | X | | |
| Chloroacetonitrile | 107-14-2 | X | | |
| Chloroethane | 75-00-3 | X | | |
| Chloromethane | 74-87-3 | X | | |
| Chrysene | 218-01-9 | X | | |

Table 6-6. Pollutants Not Selected as Pollutants of Concern for the Organics Subcategory

| Pollutant | Cas No. | Never Detected | Detected <10 x BV | Detected in <10% of infuent samples |
|---|---|---|---|---|
| Cis-1,3-Dichloropropene | 10061-01-5 | X | | |
| Crotonaldehyde | 4170-30-3 | X | | |
| Crotoxyphos | 7700-17-6 | X | | |
| Di-n-Butyl Phthalate | 84-74-2 | X | | |
| Di-n-Octyl Phthalate | 117-84-0 | X | | |
| Di-n-Propylnitrosamine | 621-64-7 | X | | |
| Dibenzo(a,h)anthracene | 53-70-3 | X | | |
| Dibenzofuran | 132-64-9 | X | | |
| Dibenzothiophene | 132-65-0 | X | | |
| Dibromochloromethane | 124-48-1 | X | | |
| Dibromomethane | 74-95-3 | X | | |
| Diethyl Ether | 60-29-7 | | X | |
| Diethyl Phthalate | 84-66-2 | X | | |
| Dimethyl Phthalate | 131-11-3 | X | | |
| Diphenyl Ether | 101-84-8 | X | | |
| Diphenylamine | 122-39-4 | X | | |
| Diphenyldisulfide | 882-33-7 | X | | |
| Ethane, Pentachloro- | 76-01-7 | | X | |
| Ethyl Cyanide | 107-12-0 | X | | |
| Ethyl Methacrylate | 97-63-2 | X | | |
| Ethyl Methanesulfonate | 62-50-0 | X | | |
| Ethylbenzene | 100-41-4 | | X | |
| Fluoranthene | 206-44-0 | X | | |
| Fluorene | 86-73-7 | X | | |
| Hexachlorobenzene | 118-74-1 | | X | |
| Hexachlorobutadiene | 87-68-3 | | X | |
| Hexachlorocyclopentadiene | 77-47-4 | X | | |
| Hexachloropropene | 1888-71-7 | X | | |
| Indeno(1,2,3-Cd)pyrene | 193-39-5 | X | | |
| Iodomethane | 74-88-4 | X | | |
| Isobutyl Alcohol | 78-83-1 | X | | |
| Isosafrole | 120-58-1 | X | | |
| Longifolene | 475-20-7 | X | | |
| Malachite Green | 569-64-2 | X | | |
| Mestranol | 72-33-3 | X | | |
| Methapyrilene | 91-80-5 | X | | |
| Methyl Methacrylate | 80-62-6 | X | | |
| Methyl Methanesulfonate | 66-27-3 | X | | |
| n-Decane | 124-18-5 | X | | |
| n-Docosane | 629-97-0 | X | | |
| n-Dodecane | 112-40-3 | X | | |
| n-Eicosane | 112-95-8 | X | | |
| n-Hexacosane | 630-01-3 | X | | |
| n-Hexadecane | 544-76-3 | X | | |
| n-Nitrosodi-n-Butylamine | 924-16-3 | X | | |
| n-Nitrosodiethylamine | 55-18-5 | X | | |
| n-Nitrosodimethylamine | 62-75-9 | | X | |
| n-Nitrosodiphenylamine | 86-30-6 | X | | |
| n-Nitrosomethylethylamine | 10595-95-6 | X | | |
| n-Nitrosomethylphenylamine | 614-00-6 | X | | |

Table 6-6. Pollutants Not Selected as Pollutants of Concern for the Organics Subcategory

| Pollutant | Cas No. | Never Detected | Detected <10 x BV | Detected in <10% of infuent samples |
|---|---|---|---|---|
| n-Nitrosomorpholine | 59-89-2 | X | | |
| n-Nitrosopiperidine | 100-75-4 | X | | |
| n-Octacosane | 630-02-4 | X | | |
| n-Octadecane | 593-45-3 | X | | |
| n-Tetracosane | 646-31-1 | | X | |
| n-Tetradecane | 629-59-4 | X | | |
| n-Triacontane | 638-68-6 | X | | |
| Naphthalene | 91-20-3 | X | | |
| Nitrobenzene | 98-95-3 | X | | |
| o-Anisidine | 90-04-0 | X | | |
| o-Toluidine | 95-53-4 | X | | |
| o-Toluidine, 5-Chloro- | 95-79-4 | X | | |
| p-Chloroaniline | 106-47-8 | X | | |
| p-Cymene | 99-87-6 | X | | |
| p-Dimethylaminoazobenzene | 60-11-7 | X | | |
| p-Nitroaniline | 100-01-6 | X | | |
| Pentachlorobenzene | 608-93-5 | X | | |
| Pentamethylbenzene | 700-12-9 | X | | |
| Perylene | 198-55-0 | X | | |
| Phenacetin | 62-44-2 | X | | |
| Phenanthrene | 85-01-8 | X | | |
| Phenol, 2-Methyl-4,6-Dinitro- | 534-52-1 | X | | |
| Phenothiazine | 92-84-2 | X | | |
| Pronamide | 23950-58-5 | X | | |
| Pyrene | 129-00-0 | X | | |
| Resorcinol | 108-46-3 | X | | |
| Safrole | 94-59-7 | X | | |
| Squalene | 7683-64-9 | X | | |
| Styrene | 100-42-5 | X | | |
| Tetrachlorocatechol | 1198-55-6 | | X | |
| Tetrachloroguaiacol | 2539-17-5 | X | | |
| Thianaphthene | 95-15-8 | X | | |
| Thioacetamide | 62-55-5 | X | | |
| Thioxanthe-9-One | 492-22-8 | X | | |
| Toluene, 2,4-Diamino- | 95-80-7 | X | | |
| Trans-1,3-Dichloropropene | 10061-02-6 | X | | |
| Trans-1,4-Dichloro-2-Butene | 110-57-6 | X | | |
| Tribromomethane | 75-25-2 | | X | |
| Trichlorofluoromethane | 75-69-4 | | X | |
| Trichlorosyringol | 2539-26-6 | | X | |
| Triphenylene | 217-59-4 | X | | |
| Tripropyleneglycol Methyl Ether | 20324-33-8 | X | | |
| Vinyl Acetate | 108-05-4 | X | | |

## *POLLUTANTS OF CONCERN FOR THE METALS SUBCATEGORY* *6.2*

Wastewaters treated at CWT facilities in the metals subcategory contain a range of conventional, toxic, and non-conventional pollutants. EPA analyzed influent samples for 320 conventional, classical, metal, and organic pollutants. EPA identified 78 pollutants of concern, including 41 metals, 20 organics, and 17 classical and conventional pollutants as presented in Table 6-1 and including pH. EPA excluded 242 pollutants from further review because they did not pass the pollutant of concern criteria. Table 6-4 lists these pollutants, including 167 pollutants that were never detected at any sampling episode, 19 pollutants that were detected at a concentration less than ten times the baseline value, and 56 pollutants that were present at treatable levels in less than ten percent of the influent samples. EPA selected only 24 percent of the list of pollutants analyzed as pollutants of concern, and as expected, the greatest number of pollutants of concern in the metals subcategory were found in the metals group.

Facilities in the metals subcategory had the highest occurrence and broadest range of metals detected in their raw wastewater. The sampling identified a total of 41 metals/semi-metals above treatable levels, compared to 31 metals/semi-metals in the oils subcategory, and 25 metals in the organics subcategory. Maximum metals concentrations in the metals subcategory were generally at least an order of magnitude higher than metals in the oils and organics subcategories, and were often two to three orders of magnitude greater. Wastewaters contained significant concentrations of common non-conventional metals such as aluminum, iron, and tin. In addition, given the processes generating these wastewaters, waste receipts in this subcategory generally contained toxic heavy metals. Toxic metals found in the highest concentrations were cadmium, chromium, cobalt, copper, nickel, and zinc.

EPA detected four conventional pollutants ($BOD_5$, TSS, oil and grease, and pH) and 13 classical pollutants above treatable levels in the metals subcategory, including hexavalent chromium, which was not found at treatable levels in the oils subcategory (EPA did not obtain any data on hexavalent chromium for the organics subcategory).

Concentrations for total cyanide, chloride, fluoride, nitrate/nitrite, TDS, TSS, and total sulfide were significantly higher for metals facilities than for facilities in the other subcategories (EPA did not obtain any data on chloride and TDS for the organics subcategory).

While sampling showed organic pollutants at selected facilities in the metals subcategory, these were not typically found in wastewaters resulting from this subcategory. Many metals facilities have placed acceptance restrictions on the concentration of organic pollutants allowed in the off-site wastestreams. Of the 233 organic pollutants analyzed in the metals subcategory, EPA only detected 20 in more than 10 percent of the samples, as compared to 73 in the oils subcategory and 58 in the organics subcategory. However, of the organic compounds detected in the metals subcategory, only one, specifically, dibromochloromethane, was not detected in any other subcategory. EPA sampling detected all other organic pollutants in the metals subcategory at relatively low concentrations, as compared to the oils and organics subcategories.

## *POLLUTANTS OF CONCERN FOR THE OILS SUBCATEGORY* *6.3*

As detailed in Chapters 2 and 12, EPA does not have data to characterize raw wastewater for the oils subcategory. Therefore, EPA based its influent wastewater characterization for this subcategory on an evaluation of samples obtained following the initial gravity separation/emulsion breaking step. EPA analyzed these samples for 321 conventional, classical, metal, and organic pollutants. EPA identified 118 pollutants of concern, including 73 organics, 31 metals/semi-metals, 13 classicals, and four conventional pollutants, pH plus the three presented in Table 6-2. EPA eliminated 202 pollutants after applying its criteria for selecting pollutants of concern. Table 6-5 lists these pollutants, including 145 pollutants that were never detected at any sampling episode, 17 pollutants that were detected at a concentration less than ten times the baseline value, and 40 pollutants that were present at treatable levels in less than ten percent of the influent samples. EPA selected slightly more than 30 percent of the list of pollutants analyzed as pollutants of concern, the majority of which were organic pollutants.

Facilities in the oils subcategory had the broadest spectrum of pollutants of concern in their raw wastewater with 4 conventional pollutants, 13 classical pollutants, and more than 100 organics and metals/semi-metals. As expected, oil and grease concentrations in this subcategory were significantly higher than for the other subcategories, and varied greatly from one facility to the next, ranging from 37.5 mg/L to 180,000 mg/L (see Table 6-2) after the first stage of treatment. The concentrations of ammonia, $BOD_5$, COD, TOC, total phenols, and total phosphorus were also higher for facilities in the oils subcategory.

Wastewaters contained significant concentrations of both non-conventional and toxic metals such as aluminum, boron, cobalt, iron, manganese, and zinc. EPA's sampling data show most pollutant of concern metals were detected at higher concentrations in the oils subcategory than those found in the organics subcategory, but at significantly lower concentrations than those found in the metals subcategory. Germanium and lutetium were the only metals/semi-metals detected at a treatable level in the oils subcategory but not in one or both of the other two subcategories.

Of the 73 organic pollutants selected as pollutants of concern in the oils subcategory, 43 were not present at treatable levels in the other two subcategories. Twenty seven pollutants of concern organics were common to both the oils and organics subcategories, but more than half of these organics were detected in oily wastewater at concentrations one to three orders of magnitude higher than those found in the organics subcategory wastewaters. Organic pollutants found in the highest concentrations were straight chain hydrocarbons such as n-decane and n-tetradecane, and aromatics such as naphthalene and bis(2-ethylhexyl)phthalate. EPA also detected polyaromatic hydrocarbons, such as fluoranthene in the wastewaters of oils facilities.

In the 1999 proposal, EPA had identified benzo(a)pyrene as a pollutant of concern for the oils subcategory. After further evaluation of the laboratory reports,[2] EPA corrected some reported amounts for benzo(a)pyrene. After these corrections were made to the database, benzo(a)pyrene failed to meet EPA's criteria to be a pollutant of concern.

## *POLLUTANTS OF CONCERN FOR THE ORGANICS SUBCATEGORY* *6.4*

Wastewaters treated at CWT facilities in the organics subcategory contain a range of conventional, toxic, and non-conventional pollutants. EPA analyzed influent samples for 334 classical, metal, and organic pollutants. EPA identified 93 pollutants of concern, including 58 organic pollutants, 25 metals/semi-metals, 8 classicals, and 3 conventional pollutants, pH plus the two presented in Table 6-3. EPA excluded 240 pollutants because they did not pass the pollutant of concern criteria. Table 6-6 presents these pollutants, including 214 pollutants that were never detected at any sampling episode,

[2]For more details, see DCN _____ in the record for this rule.

and 26 pollutants that were detected at a concentration less than ten times the baseline value. EPA determined that only 28 percent of the list of pollutants analyzed were pollutants of concern.

As expected, wastewaters contained significant concentrations of organic parameters, many of which were highly volatile. However, although EPA analyzed wastewater samples in the organics subcategory for a more extensive list of organics than samples in the metals or oils subcategories, EPA selected only 23 percent of those organic pollutants analyzed as pollutants of concern. EPA selected as pollutants of concern a total of 58 organics in the influent samples analyzed. Thirty one of these organics were present in the organics subcategory but not in the oils subcategory. EPA determined that the remaining 27 organics were pollutants of concern for both the organics and oils subcategories. EPA's sampling detected only six of these organic pollutants at higher concentrations at organics facilities, specifically, chloroform, methylene chloride, o-cresol, tetrachloroethene, trichloroethene, and 1,2-dichloroethane. EPA determined that only eight classical pollutants were pollutants of concern for this subcategory, and most of these were detected at lower concentrations than those found in the metals and oils subcategories.

The sampling detected a total of 25 metals/semi-metals above treatable levels, but these were present at concentrations significantly lower than in the metals subcategory. EPA's assessment showed that only five pollutant of concern metals/semi-metals (barium, calcium, iodine, lithium, and strontium) were detected at concentrations above those found in the oils subcategory.

# Chapter 7

# POLLUTANTS SELECTED FOR REGULATION

Chapter 6 details the pollutants of concern for each subcategory and the methodology used in selecting the pollutants. As expected for the CWT industry, these pollutants of concern lists contain a broad spectrum of pollutants. EPA has, however, chosen not to regulate all of these parameters. This chapter details the pollutants of concern which were not selected for regulation under each technology option selected as the basis for the final limitations and standards and provides a justification for eliminating these pollutants (the technology options are detailed in Chapter 9). Additionally, Figures 7-1 and 7-2 illustrate the procedures used to select the regulated pollutants for direct and indirect dischargers.

## *TREATMENT CHEMICALS* 7.1

EPA excluded all pollutants which may serve as treatment chemicals: aluminum, boron, calcium, chloride, fluoride, iron, magnesium, manganese, phosphorus, potassium, sodium, and sulfur. EPA eliminated these pollutants because regulation of these pollutants could interfere with their beneficial use as wastewater treatment additives.

## *NON-CONVENTIONAL BULK PARAMETERS* 7.2

EPA excluded many non-conventional bulk parameters such as total dissolved solids (TDS), chemical oxygen demand (COD), organic carbon (TOC), nitrate/nitrite, SGT-HEM, total phenols, total phosphorus, and total sulfide. EPA excluded these parameters because it is more appropriate to target specific compounds of interest rather than a parameter which measures a variety of pollutants for this industry. The specific pollutants which comprise the bulk parameter may or may not be of concern to EPA.

## *POLLUTANTS NOT DETECTED AT TREATABLE LEVELS* 7.3

EPA eliminated pollutants that were present below treatable concentrations in wastewater influent to the treatment system(s) selected as the basis for effluent limitations. EPA evaluated the data at each sampling episode separately. Section 10.4.3.1 describes this data editing criteria in greater detail and provides an example. Briefly, this procedure was nicknamed the "long-term average test" and was performed as follows. For a pollutant to be retained, the pollutant first had to be detected at any level in the influent samples at least 50 percent of the time during any sampling episode. The pollutant also had to be detected in the influent samples at treatable levels (ten times the baseline value[1]) in at least fifty percent of the samples; or b) the mean of the influent samples for the entire facility had to be greater than or equal to ten times the baseline value. EPA added the second condition to account for instances where a slug of pollutant was treated during the sampling episode. EPA added this condition since the CWT industry's waste receipts vary daily and EPA wanted to incorporate these variations in the calculations of long term averages and limitations. Pollutants excluded from regulation for the selected subcategory options because they were not detected at treatable levels are presented in Table 7-1.

[1]See Chapter 15 for a description of baseline values.

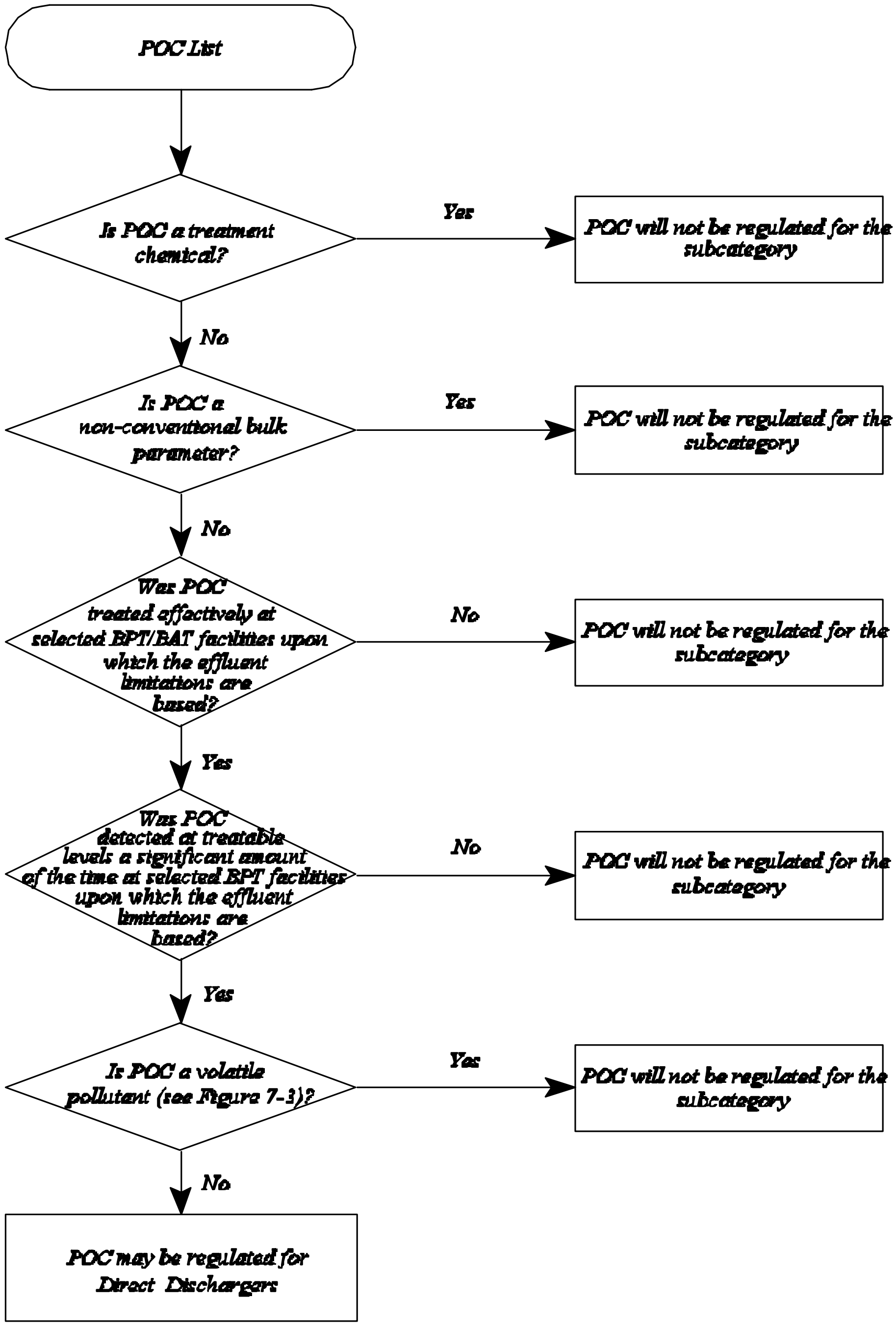


Figure 7-1. Selection of Pollutants That May Be Regulated for Direct Discharges for Each Subcategory

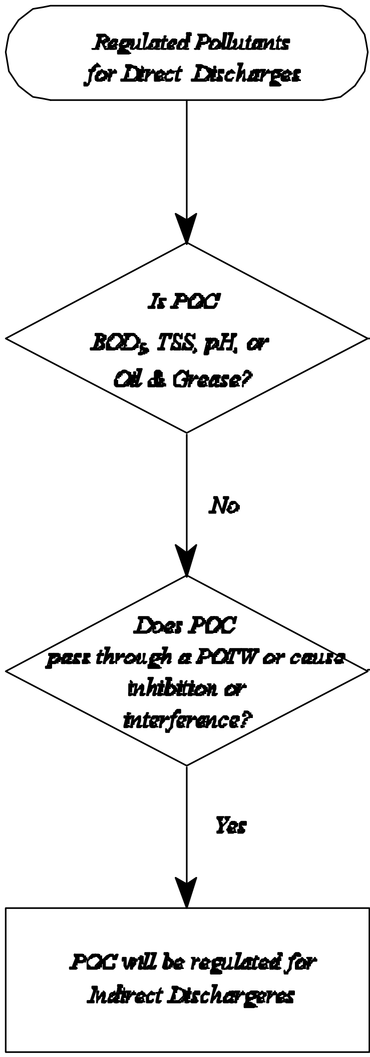


Figure 7-2. Selection of Pollutants to be Regulated for Indirect Discharges for Each Subcategory

Table 7-1. Pollutants of Concern Not Detected at Treatable Levels

| Metals Option 3 | Metals Option 4 | Oils Option 8 | Oils Option 9 | Organics Option 3/4 |
|---|---|---|---|---|
| Oil and Grease [2] | Arsenic [1] | Germanium | Germanium | Arsenic |
| Total Cyanide | Beryllium | Lutetium | Lutetium | Barium |
| Gallium | Gallium | Silver | Silver | Iodine |
| Iodine | Indium | Tantalum | Tantalum | Lead |
| Iridium | Iodine | Aniline | Aniline | Titanium |
| Lithium | Lanthanum | Benzyl Alcohol | N-hexacosane | Bromodichloromethane |
| Strontium | Osmium | Diphenyl Ether | N-octacosane | Carbon Disulfide |
| Tantalum | Tantalum | N,n-dimethylformamide | O-toluidine | Chlorobenzene |
| Tellurium | Tellurium | N-hexacosane | 1,4-dioxane | Hexachloroethane |
| Zirconium | Thallium | N-octacosane | 2-isopropylnaphthalene | Isophorone |
| Benzoic Acid | Benzyl Alcohol | N-tetracosane | | O+p Xylene |
| Benzyl Alcohol | Bis(2-ethylhexyl) Phthalate | O-cresol | | 1,1,2,2-tetrachloroethane |
| Bis(2-ethylhexyl) Phthalate | Carbon Disulfide | O-toluidine | | 1,2-dichlorobenzene |
| Chloroform | Hexanoic Acid | 1,4-dioxane | | 1,3-dichloropropane |
| Dibromochloromethane | M-xylene | 2,3-benzofluorene | | 2,4-dimethylphenol |
| Hexanoic Acid | Methylene Chloride | 2,4-dimethylphenol | | 3,4,6-trichloroguaiacol |
| M-xylene | Phenol | 2-isopropylnaphthalene | | 3,6-dichlorocatechol |
| Methylene Chloride | Toluene | 3,6-dimethylphenanthrene | | 4,5,6-trichloroguaiacol |
| Phenol | 1,1,1-trichloroethane | 4-chloro-3-methylphenol | | 4,5-dichloroguaiacol |
| Pyridine | 1,1-dichloroethene | | | 4-chloro-3-methylphenol |
| Toluene | 1,4-dioxane | | | 5-chloroguaiacol |
| Trichloroethene | 4-methyl-2-pentanone | | | 6-chlorovanillin |
| 1,1,1-trichloroethane | | | | |
| 1,1-dichloroethene | | | | |
| 1,4-dioxane | | | | |
| 2-butanone | | | | |
| 2-propanone | | | | |
| 4-methyl-2-pentanone | | | | |

[1] While arsenic was not detected at treatable levels at the facility forming the basis of Metals Option 4, EPA is transferring data from single stage precipitation and regulating arsenic for Metals Option 4.

[2] While oil and grease was not detected at treatable levels at the facility forming the basis of Metals Option 3, EPA is transferring data from Metals Option 4 regulating oil & grease for Metals Option 3.

$BOD_5$ (carbonaceous) and D-COD were also pollutants of concern for Metals Options 3 and 4. However, EPA does not have any data for these two pollutants at the sample points used in determining if analytes were found at treatable levels.

## *POLLUTANTS NOT TREATED* *7.4*

EPA excluded all pollutants for which the selected technology option was ineffective (i.e., pollutant concentrations remained the same or increased across the treatment system). For the organics subcategory, the selected treatment technology did not effectively treat chromium, lithium, nickel, and tin. For the oils subcategory, phenol in option 8 and 2-propane in options 8 and 9 were not effectively treated. For the metals subcategory, all pollutants of concern at treatable levels were effectively treated.

## *VOLATILE POLLUTANTS* *7.5*

EPA detected volatile organic pollutants in the waste receipts of all three subcategories. For this rule, EPA defines a volatile pollutant as a pollutant which has a Henry's Law constant in excess of $10^{-4}$ atm $m^3$ $mol^{-1}$. For each subcategory, Table 7-2 lists the organic pollutants (those analyzed using method 1624 or 1625) and ammonia with their Henry's Law constant. For pollutants in the oils subcategory, the solubility in water was reported in addition to the Henry's Law constant to determine whether volatile pollutants remained in the oil-phase or volatilized from the aqueous phase. If no data were available on the Henry's Law constant or solubility for a particular pollutant, then the pollutant was assigned an average pollutant group value. Pollutant groups were developed by combining pollutants with similar structures. If no data were available for any pollutant in the group, then all pollutants in the group were not considered volatile. The assignment of pollutant groups is discussed in more detail in Section 7.6.2.

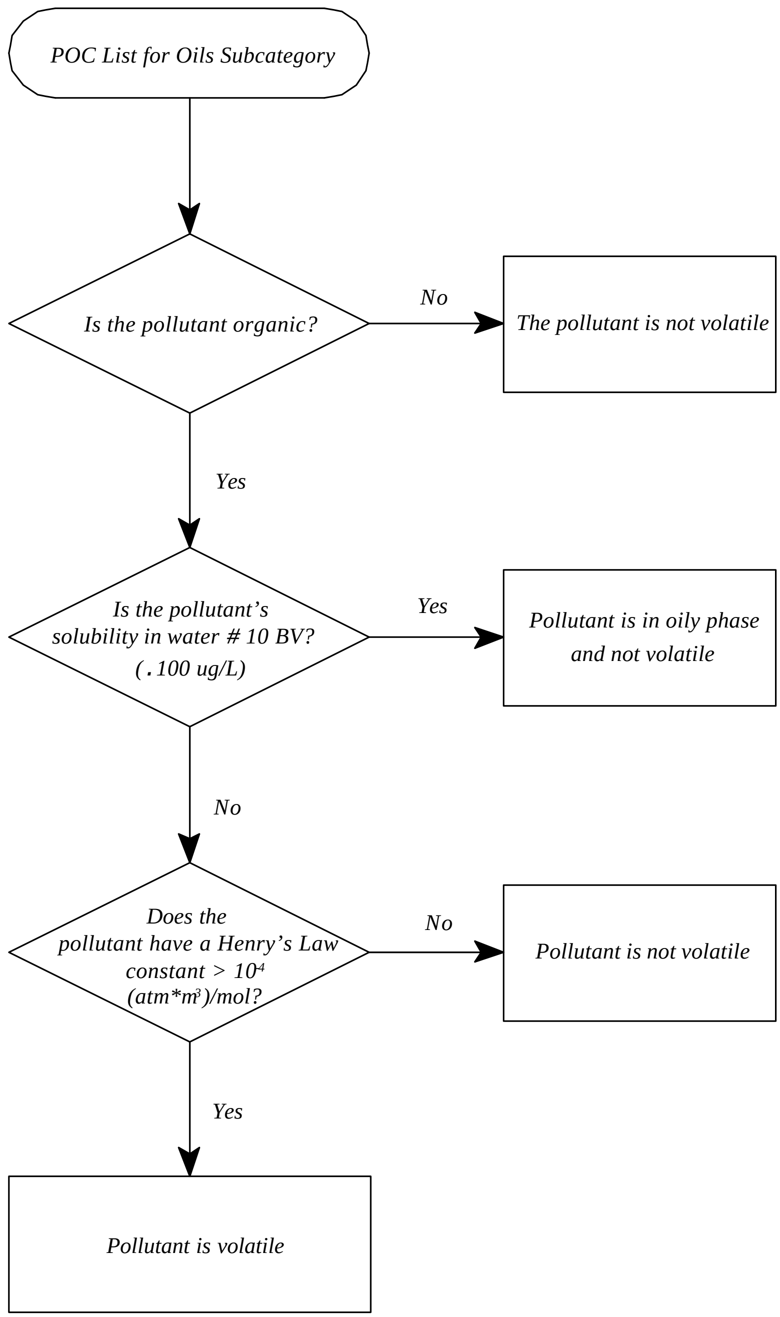


Figure 7-3.  Determination of Volatile Pollutants for Oils Subcategory

Table 7-2. Volatile Pollutant Properties By Subcategory

| Organic Pollutant | CAS # | Method | Subcategory | | | Henry's Law Constant $\frac{atm\ (\ m^3}{mol}$ | Solubility (mg/L) | Solubility Ref. and Temp. | Pollutant Group | Volatile ? | Volatile for Oils? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Metals | Oils | Organics | | | | | | |
| 1-methylfluorene | 1730-37-6 | 1625 | | X | | 4.26E-03 | 1.81E+04 | | | yes | yes |
| 1-methylphenanthrene | 832-64-9 | 1625 | | X | | >E-04 | 1.21E+03 | | Group DD | yes | yes |
| 1,1-dichloroethane | 75-34-3 | 1624 | X | | X | 5.50E-03 | | | | yes | |
| 1,1-dichloroethene | 75-35-4 | 1624 | | X | X | 1.90E-01 | 2.10E+02 | 25 | | yes | yes |
| 1,1,1-trichloroethane | 71-55-6 | 1624 | X | X | X | 3.00E-02 | 4.40E+03 | 20 | | yes | yes |
| 1,1,1,2-tetrachloroethane | 630-20-6 | 1624 | | | X | 3.00E-02 | | | | yes | |
| 1,1,2-trichloroethane | 79-00-5 | 1624 | | | X | 1.20E-03 | | | | yes | |
| 1,2-dibromoethane | 106-93-4 | 1624 | | | X | 2.00E-02 | | | | yes | |
| 1,2-dichlorobenzene | 95-50-1 | 1625 | | X | | 1.94E-02 | | | | yes | yes |
| 1,2-dichloroethane | 107-06-2 | 1624 | | X | X | 9.14E-04 | 8.69E+03 | 20 | | yes | yes |
| 1,2,3-trichloropropane | 96-18-4 | 1624 | | | X | 2.10E-04 | | | | yes | |
| 1,2,4-trichorobenzene | 120-82-1 | 1625 | | X | | 2.30E-03 | 1.90E+01 | 22 | | yes | yes |
| 1,4-dichlorobenzene | 106-46-7 | 1625 | | X | | 3.10E-03 | 7.90E+01 | 25 | | yes | yes |
| 2-butanone | 78-93-3 | 1624 | X | X | X | 2.70E-05 | 2.75E+05 | | | no | no |
| 2-methylnaphthalene | 91-57-6 | 1625 | | X | | 7.98E-04 | 2.60E+01 | 25 | | yes | yes |
| 2-propanone | 67-64-1 | 1624 | X | X | X | 2.10E-05 | | | | no | no |
| 2,3-benzofluorene | 243-17-4 | 1625 | | X | | >E-04 | 1.21E+03 | | Group DD | yes | yes |
| 2,3-dichloroaniline | 608-27-5 | 1625 | | | X | <E-04 | | | | no | |
| 2,4-dimethylphenol | 105-67-9 | 1625 | | X | | 1.70E-05 | | | | yes | yes |
| 2,3,4,6-tetrachlorophenol | 58-90-2 | 1625 | | | X | 3.00E-04 | | | | yes | |
| 2,4,5-trichlorophenol | 95-95-4 | 1625 | | | X | 2.20E-04 | | | | yes | |
| 2,4,6-trichlorophenol | 88-06-2 | 1625 | | | X | 4.00E-06 | | | | no | |
| 3,4-dichlorophenol | 95-77-2 | 1625 | | | X | >10E-4 | | | | | |
| 3,4,5-trichlorocatechol | 56961-20-7 | 1625 | | | X | >E-04 | | | | yes | |
| 3,5-dichlorophenol | 591-35-5 | 1625 | | | X | >10E-4 | | | | | |
| 3,6-dimethylphenanthrene | 1576-67-6 | 1625 | | X | | >E-04 | 1.21E+03 | | Group DD | yes | yes |

Table 7-2. Volatile Pollutant Properties By Subcategory

| Organic Pollutant | CAS # | Method | Subcategory | | | Henry's Law Constant $\frac{atm\ (\ m^{3}}{mol}$ | Solubility (mg/L) | Solubility Ref. and Temp. | Pollutant Group | Volatile ? | Volatile for Oils? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Metals | Oils | Organics | | | | | | |
| 4-chloro-3-methylphenol | 59-50-7 | 1625 | | X | | 2.50E-06 | 3.85E+03 | 20 | | no | no |
| 4-chlorophenol | 106-48-9 | 1625 | | | X | 2.88E-03 | | | | yes | |
| 4-methyl-2-pentanone | 108-10-1 | 1624 | X | X | X | 3.80E-04 | 1.91E+04 | | | yes | yes |
| Acenaphthene | 83-32-9 | 1625 | | X | | 9.10E-05 | 3.42E+00 | 25 | | no | no |
| Acetophenone | 98-86-2 | 1625 | | | X | <E-04 | 5.50E+03 | | | no | |
| Alpha-terpineol | 988-55-5 | 1625 | | X | | 6.90E-05 | | | | no | no |
| Ammonia-N | 7664-41-7 | 350.2 | X | X | X | | | | | yes | yes |
| Aniline | 62-53-3 | 1625 | | | X | <E-04 | | | Group J | no | |
| Anthracene | 120-12-7 | 1625 | | X | | 8.60E-05 | 1.29E+00 | 25 | | no | no |
| Benzene | 71-43-2 | 1624 | | X | X | 5.50E-03 | 1.78E+03 | 20 | | yes | yes |
| Benzo (a) anthracene | 56-55-3 | 1625 | | X | | 1.00E-06 | 1.00E-02 | 24 | | no | no |
| Benzoic acid | 65-85-0 | 1625 | X | X | X | 7.00E-08 | 2.90E+03 | 20 | | no | no |
| Benzyl alcohol | 100-51-6 | 1625 | | X | | 1.10E+00 | 3.50E+04 | 20 | | yes | yes |
| Biphenyl | 92-52-4 | 1625 | | X | | 4.80E-04 | 7.50E+00 | 25 | | yes | yes |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | 1625 | | X | | 3.00E-07 | 1.30E+00 | 25 | | no | no |
| Butyl benzyl phthalate | 85-68-7 | 1625 | | X | | 8.30E-06 | 2.90E+00 | | | no | no |
| Carbazole | 86-74-8 | 1625 | | X | | <E-04 | | | Group J | no | no |
| Carbon disulfide | 75-15-0 | 1624 | X | X | | 1.20E-02 | 2.90E+03 | 20 | | yes | yes |
| Chlorobenzene | 108-90-7 | 1624 | | X | | 3.58E-03 | 4.88E+02 | 25 | | yes | yes |
| Chloroform | 67-66-3 | 1624 | X | X | X | 2.88E-03 | 9.30E+03 | 25 | | yes | yes |
| Chrysene | 218-01-9 | 1625 | | X | | 1.50E-06 | 6.00E-03 | 25 | | no | no |
| Dibenzofuran | 132-64-9 | 1625 | | X | | >E-04 | 1.00E+01 | | | no | no |
| Dibenzothiophene | 132-65-0 | 1625 | | X | | 4.40E-04 | soluble | | Group II | no | no |
| Dibromochloromethane | 124-48-1 | 1624 | X | | | >E-04 | | | | yes | |
| Diethyl phthalate | 132-65-0 | 1625 | | X | | 1.20E-06 | 8.96E+02 | | | no | no |
| Dimethyl sulfone | 67-71-0 | 1625 | | | X | >E-04 | very soluble | | | no | |

Table 7-2. Volatile Pollutant Properties By Subcategory

| Organic Pollutant | CAS # | Method | Subcategory | | | Henry's Law Constant $\frac{atm\ (\ m^3}{mol}$ | Solubility (mg/L) | Solubility Ref. and Temp. | Pollutant Group | Volatile ? | Volatile for Oils? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Metals | Oils | Organics | | | | | | |
| Diphenyl ether | 101-84-8 | 1625 | | X | | 6.60E-03 | 2.10E+01 | 25 | | yes | yes |
| Ethyl benzene | 100-41-4 | 1624 | | X | | 6.60E-03 | 1.52E+02 | 20 | | yes | yes |
| Ethylenethiourea | 96-45-7 | 1625 | | | X | >E-04 | | | Group I | no | |
| Fluoranthene | 206-44-0 | 1625 | | X | | 6.50E-06 | 2.65E-01 | 25 | | no | no |
| Fluorene | 86-73-7 | 1625 | | X | | 6.40E-05 | 1.90E+00 | 25 | | no | no |
| Hexanoic Acid | 142-62-1 | 1625 | | X | X | 1.90E+00 | 1.10E+04 | | | yes | yes |
| Methylene chloride | 75-09-2 | 1624 | | X | X | 2.30E-03 | 1.67E+04 | 25 | | yes | yes |
| m-Xylene | 108-38-3 | 1624 | | X | X | 1.10E-02 | 2.00E+02 | | | yes | yes |
| m+p-Xylene | 179601-23-1 | 1624 | | X | | 7.00E-03 | 9.80E+02 | 20 | | yes | yes |
| Naphthalene | 91-20-3 | 1625 | | X | | 4.60E-04 | 3.00E+01 | 25 | | yes | yes |
| N-decane | 124-18-5 | 1625 | | X | | 7.14E+00 | 9.00E-03 | | | yes | no |
| n-Docosane | 629-97-0 | 1625 | | X | | >E-04 | 4.78E-03 | | Group CC | yes | no |
| n-Dodecane | 112-40-3 | 1625 | | X | | >E-04 | 4.78E-03 | | Group CC | yes | no |
| n-Eicosane | 112-95-8 | 1625 | | X | | >E-04 | 4.78E-03 | | Group CC | yes | no |
| n-Hexadecane | 544-76-3 | 1625 | | X | | >E-04 | 9.00E-04 | 25 | | yes | no |
| n-Octadecane | 593-45-3 | 1625 | | X | | >E-04 | 7.00E-03 | 25 | | yes | no |
| n-Tetracosane | 646-31-1 | 1625 | | X | | >E-04 | 4.78E-03 | | Group CC | yes | no |
| n-Tetradecane | 629-59-4 | 1625 | | X | | >E-04 | 2.20E-03 | 25 | | yes | no |
| n,n-Dimethylformamide | 68-12-2 | 1625 | X | X | X | <E-04 | | | | no | no |
| o-Cresol | 95-48-7 | 1625 | | X | X | 1.60E-06 | 3.10E+04 | | | no | no |
| o-Xylene | 95-47-6 | 1625 | | X | | 7.00E-03 | | | | yes | yes |
| o+p-Xylene | 136777-61-2 | 1624 | | X | | 7.00E-03 | 1.87E+02 | 20 | | yes | yes |
| p-Cresol | 106-44-5 | 1625 | | X | X | 9.60E-07 | 2.40E+04 | 40 | | no | no |
| p-Cymene | 99-87-6 | 1625 | | X | | >E-04 | 3.40E+02 | | | yes | yes |
| Pentachlorophenol | 87-86-5 | 1625 | | | X | 2.80E-06 | | | | no | |
| Pentamethlylbenzene | 700-12-9 | 1625 | | X | | >E-04 | 4.96E+02 | | Group K | yes | yes |

Table 7-2. Volatile Pollutant Properties By Subcategory

| Organic Pollutant | CAS # | Method | Subcategory | | | Henry's Law Constant $\frac{atm\ (\ m^3}{mol}$ | Solubility (mg/L) | Solubility Ref. and Temp. | Pollutant Group | Volatile ? | Volatile for Oils? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Metals | Oils | Organics | | | | | | |
| Phenanthrene | 85-01-8 | 1625 | | X | | 2.26E-04 | 8.16E-01 | 21 | | yes | yes |
| Phenol | 108-95-2 | 1625 | | X | X | 4.54E-07 | 8.00E+04 | 25 | | no | no |
| Pyrene | 129-00-0 | 1625 | | X | | 5.10E-06 | 1.60E-01 | 26 | | no | no |
| Pyridine | 110-86-1 | 1625 | X | X | X | 2.10E-06 | 3.88E+05 | | | no | no |
| Styrene | 100-42-5 | 1625 | | X | | 2.80E-03 | 3.00E+02 | 20 | | yes | yes |
| Tetrachloroethene | 127-18-4 | 1624 | | X | X | 1.53E-03 | 1.50E+02 | 25 | | yes | yes |
| Tetrachloromethane | 56-23-5 | 1624 | | | X | 2.90E-02 | | | | yes | |
| Toluene | 108-88-3 | 1624 | | X | X | 6.66E-03 | 5.15E+02 | 20 | | yes | yes |
| Trans-1,2-dichloroethene | 156-60-5 | 1624 | | | X | 5.30E-03 | | | | yes | |
| Trichloroethene | 79-01-6 | 1624 | X | X | X | 9.10E-03 | 1.10E+03 | 25 | | yes | yes |
| Tripropyleneglycol methyl ether | 20324-33-8 | 1625 | | X | | >E-04 | | | Group GG | no | no |
| Vinyl chloride | 75-01-4 | 1624 | | | X | 2.80E-02 | | | | yes | |

As shown in Table 7-2, volatile pollutants were regularly detected at treatable levels in waste receipts from CWT facilities, particularly in the oils and organics subcategory. An "X" in a subcategory column indicates that the analyte was detected at treated levels and not previously eliminated in sections 7.2 through 7.4. However, treatment technologies currently used at many of these facilities, while removing the pollutants from the wastewater, do not "treat" the volatiles. The volatile pollutants are simply transferred to the air. For example, in the metals subcategory, wastewater treatment technologies are generally based on chemical precipitation, and the removal of volatile pollutants from wastewater following treatment with chemical precipitation is due to volatilization. Some CWT facilities recognize that volatilization may be occurring and have installed air stripping systems equipped with emissions control to effectively remove the pollutants from both the water and the air.

EPA evaluated various wastewater treatment technologies during the development of this rule. These technologies were considered because of their efficacy in removing pollutants from wastewater. Since EPA is concerned about removing pollutants from all environmental media, EPA also evaluated wastewater treatment trains for the oils and organics subcategories which included air stripping with emissions control.

EPA did not regulate any predominantly volatile parameters. The non-regulated volatile parameters for the metals, organics, and oils subcategory options that were not already excluded as detailed in Sections 7.1, 7.2, 7.3, and 7.4 are presented in Table 7-3. Unlike the metals and the organics subcategories, for the oils subcategory, volatilization can not be predicted using the Henry's Law constant only. Henry's Law constants are established for pollutants in an aqueous phase only. For other non-aqueous single phase or two-phase systems (such as oil-water), other volatilization constants apply. Estimating these constants in oil-water mixtures can lead to engineering calculations which are generally based on empirical data. EPA chose an approach which is depicted in Figure 7-3 and discussed below. First, EPA reviewed water solubility data to estimate whether the organic pollutants would be primarily in an oil phase or aqueous phase. For pollutants which have a solubility less than ten times the baseline value (the same edit used to determine pollutants of concern and pollutants at treatable levels), EPA assumed that the amount of pollutants in the aqueous phase would be negligible and that all of the pollutant would be primarily in an oil phase. For pollutants which have a solubility greater than ten times the baseline value, EPA assumed that the amount of pollutant in the oil phase would be negligible and that all of the pollutant would be primarily in an aqueous phase. For pollutants determined to be in an aqueous phase, EPA then reviewed the Henry's law constant in the same manner as the other two subcategories. For pollutants determined to be in an oil phase, EPA assumed that volatilization would be negligible (regardless of their volatility in the aqueous phase) and has not categorized them as volatile pollutants.

Even though EPA has not regulated volatile pollutants through this rulemaking, EPA encourages all facilities which accept waste receipts containing volatile pollutants to incorporate air stripping with overhead recovery into their wastewater treatment systems. EPA also notes that CWT facilities determined to be major sources of hazardous air pollutants are subject to maximum achievable control technology (MACT) as promulgated for off-site waste and recovery operations on July 1, 1996 (61 FR 34140) as 40 CFR Part 63.

Table 7-3. Non-Regulated Volatile Pollutants by Subcategory and Option

| **Metals Option 3** | ***Metals Option 4*** | ***Organics Option 4*** | ***Oils Option 8*** | ***Oils Option 9*** |
|---|---|---|---|---|
| Ammonia-N | Ammonia-N | 1,1,1,2-tetrachloroethane | 1-methylfluorene | 1-methylfluorene |
| Carbon disulfide | Chloroform | 1,1,1-trichloroethane | 1-methylphenanthrene | 1-methylphenanthrene |
| 4-methyl-2-pentanone | Dibromochloromethane | 1,1,2-trichloroethane | 1,1,1-trichloroethane | 1,1,1-trichloroethane |
| | n,n-Dimethylformamide | 1,1-dichloroethane | 1,1-dichloroethene | 1,1-dichloroethene |
| | Trichloroethene | 1,1-dichloroethene | 1,2-dichlorobenzene | 1,2-dichlorobenzene |
| | | 1,2,3-trichloropropane | 1,2-dichloroethane | 1,2-dichloroethane |
| | | 1,2-dibromoethane | 1,2,4-trichlorobenzene | 1,2,4-trichlorobenzene |
| | | 1,2-dichloroethane | 1,4-dichlorobenzene | 1,4-dichlorobenzene |
| | | 2,3,4,6-tetrachlorophenol | 2-methylnapthalene | 2-methylnapthalene |
| | | 2,4,5-trichlorophenol | 4-methyl-2-pentanone | 2,3-benzofluorene |
| | | 3,4-dichlorphenol | Ammonia-N | 2,4-dimethylphenol |
| | | 3,4,5-trichlorocatechol | Benzene | 3,6-dimethylphenanthrene |
| | | 3,5-dichlorphenol | Biphenyl | 4-methyl-2-pentanone |
| | | 4-chlorophenol | Carbon disulfide | Ammonia-N |
| | | 4-methyl-2-pentanone | Chlorobenzene | Benzene |
| | | Ammonia-N | Chloroform | Benzyl alcohol |
| | | Benzene | Dibenzofuran | Biphenyl |
| | | Chloroform | Dibenzothiopene | Carbon disulfide |
| | | Dimethyl sulfone | Ethyl benzene | Chlorobenzene |
| | | Ethylenethiourea | Hexanoic Acid | Chloroform |
| | | Hexanoic Acid | Methylene chloride | Dibenzofuran |
| | | Methylene chloride | m-Xylene | Dibenzothiopene |
| | | m-Xylene | m+p-Xylene | Diphenyl ether |
| | | Tetrachloroethene | Naphthalene | Ethyl benzene |
| | | Tetrachloromethane | o-Xylene | Hexanoic Acid |
| | | Toluene | o+p-Xylene | Methylene chloride |
| | | Trans-1,2-dichloroethene | p-Cymene | m-Xylene |
| | | Trichloroethene | Pentamethylbenzene | m+p-Xylene |
| | | Vinyl chloride | Phenanthrene | Naphthalene |
| | | | Styrene | o-Xylene |
| | | | Tetrachloroethene | o+p-Xylene |
| | | | Toluene | p-Cymene |
| | | | Trichloroethene | Pentamethylbenzene |
| | | | Tripropyleneglycol methyl ether | Phenanthrene |
| | | | | Styrene |
| | | | | Tetrachloroethene |
| | | | | Toluene |
| | | | | Trichloroethene |
| | | | | Tripropyleneglycol methyl ether |

## *POLLUTANTS SELECTED FOR PRETREATMENT STANDARDS AND PRETREATMENT STANDARDS FOR NEW SOURCES (INDIRECT DISCHARGERS)* *7.6*

### *Background* *7.6.1*

Unlike direct dischargers whose wastewater will receive no further treatment once it leaves the facility, indirect dischargers send their wastewater to POTWs for further treatment. EPA establishes pretreatment standards for those BAT pollutants that pass through POTWs. Therefore, for indirect dischargers, before establishing pretreatment standards, EPA examines whether the pollutants discharged by the industry "pass through" POTWs to waters of the U.S. or interfere with POTW operations or sludge disposal practices. Generally, to determine if pollutants pass through POTWs, EPA compares the percentage of the pollutant removed by well-operated POTWs achieving secondary treatment with the percentage of the pollutant removed by facilities meeting BAT effluent limitations. A pollutant is determined to "pass through" POTWs when the median percentage removed by well-operated POTWs is less than the median percentage removed by direct dischargers complying with BAT effluent limitations. In this manner, EPA can ensure that the combined treatment at indirect discharging facilities and POTWs is at least equivalent to that obtained through treatment by direct dischargers.

This approach to the definition of pass-through satisfies two competing objectives set by Congress: (1) that standards for indirect dischargers be equivalent to standards for direct dischargers, and (2) that the treatment capability and performance of POTWs be recognized and taken into account in regulating the discharge of pollutants from indirect dischargers. Rather than compare the mass or concentration of pollutants discharged by POTWs with the mass or concentration of pollutants discharged by BAT facilities, EPA compares the percentage of the pollutants removed by BAT facilities to the POTW removals. EPA takes this approach because a comparison of the mass or concentration of pollutants in POTW effluents with pollutants in BAT facility effluents would not take into account the mass of pollutants discharged to the POTW from other industrial and non-industrial sources, nor the dilution of the pollutants in the POTW to lower concentrations from the addition of large amounts of other industrial and non-industrial water.

In selecting the regulated pollutants under the pretreatment standards, EPA starts with the toxic and non-conventional pollutants regulated for direct dischargers under BAT. For this analysis, EPA does not include the four regulated BPT conventional parameters, $BOD_5$, total suspended solids (TSS), oil and grease (measured as HEM), and pH because POTWs are designed to treat these parameters. Therefore, for this rulemaking, EPA evaluated 31 pollutants for metals option 4, 51 pollutants for oils option 9, and 23 pollutants for Organics Option 4 for PSES and PSNS regulation. The following sections describe the methodology used in determining median percent removals for the BAT technologies, median percent removals for "well-operated" POTWs, and the results of EPA's pass-through analysis.

### *Determination of Percent Removals for Well-Operated POTWs* *7.6.2*

The primary source of the POTW percent removal data was the "Fate of Priority Pollutants in Publicly Owned Treatment Works" (EPA 440/1-82/303, September 1982), commonly referred to as the "50-POTW Study". However, the 50-POTW Study did not contain data for all pollutants for which the pass-through analysis was required. Therefore, EPA obtained additional data from EPA's National Risk Management Research Laboratory's (NRMRL) Treatability Database (formerly called the Risk Reduction Engineering Laboratory (RREL)

Treatability Database). These sources and their uses are discussed below.

The 50-POTW Study presents data on the performance of 50 well-operated POTWs that employ secondary biological treatment in removing pollutants.

At the time of the 50-POTW sampling program, which spanned approximately 2 ½ years (July 1978 to November 1980), EPA collected samples at selected POTWs across the U.S. The samples were subsequently analyzed by either EPA or EPA-contract laboratories. These samples were analyzed for 3 conventional, 16 non-conventional, and 126 priority toxic pollutants using test procedures (analytical methods) specified by the Agency or in use at the laboratories. Laboratories typically reported the analytical method used along with the test results. However, for those cases in which the laboratory specified no analytical method, EPA was able to identify the method based on the nature of the results and knowledge of the methods available at the time.

Each laboratory reported results for the pollutants for which it tested. If the laboratory found a pollutant to be present, the laboratory reported a result. If the laboratory found the pollutant not to be present, the laboratory reported either that the pollutant was "not detected" or a value with a “less than” sign (<) indicating that the pollutant was below that value. The value reported along with the “less than” sign was the lowest level to which the laboratory believed it could reliably measure. EPA subsequently established these lowest levels as the minimum levels of quantitation (MLs). In some instances, different laboratories reported different MLs for the same pollutant using the same analytical method.

Because of the variety of reporting protocols among the 50-POTW Study laboratories (pages 27 to 30, 50-POTW Study), EPA reviewed the percent removal calculations used in the pass-through analysis for previous industry studies, including those performed when developing the CWT proposal and effluent guidelines for Organic Chemicals, Plastics, and Synthetic Fibers Manufacturing, Landfills, and Commercial Hazardous Waste Combustors. EPA found that, for 11 parameters, different analytical minimum levels were reported for different rulemaking studies (9 of the 25 metals, cyanide, and one of the 42 organics).

To provide consistency for data analylsis and establishment of removal efficiencies, EPA reviewed the 50-POTW Study, standardized the reported MLs for use in the CWT final rules and other ruflemaking efforts.

In using the 50-POTW Study data to estimate percent removals, EPA has established data editing criteria for determining pollutant percent removals. Some of the editing criteria are based on differences between POTW and industry BAT treatment system influent concentrations. For many toxic pollutants, POTW influent concentrations were much lower than those of BAT treatment systems. For many pollutants, particularly organic pollutants, the effluent concentrations from both POTW and BAT treatment systems, were below the level that could be found or measured. As noted in the 50-POTW Study, analytical laboratories reported pollutant concentrations below the analytical minimum level (ML), qualitatively, as “not detected” or “trace,” and reported a measured value above this level. Subsequent rulemaking studies such as the 1987 OCPSF study used the analytical method ML established in 40 CFR Part 136 for laboratory data reported below the analytical ML. Use of the ML may overestimate the effluent concentration and underestimate the percent removal. Because the data collected for evaluating POTW percent removals included both effluent and influent levels that were close to the analytical ML, EPA devised hierarchal data editing criteria to exclude data with low influent concentration levels, thereby minimizing the possibility that low POTW removals might simply reflect low influent concentrations instead of being a true measure of treatment effectiveness.

EPA has generally used hierarchic data editing criteria for the pollutants in the 50-POTW Study. For the final CWT rule, the editing criteria include the following:

1) substitute the standardized pollutant-specific analytical ML for values reported as "not detected," "trace," "less than [followed by a number]," or a number" less than the standardized analytical ML,
2) retain pollutant influent and corresponding effluent values if the average pollutant influent level is greater than or equal to 10 times the pollutant ML (10xML), and
3) if none of the average pollutant influent concentrations are at least 10 times the ML, then retain average influent values greater than or equal to two times the ML (2xML) along with the corresponding average effluent values. (EPA used 2xML for the final rule, instead of the 20 µg/l criterion used at proposal because it more accurately reflects the pollutant-specific data than using a fixed numerical cut-off. For the majority of pollutants 2xML is 20 µg/l. Therefore, this correction does not affect the percent removal estimates for most organic pollutants. However, it affects the metal pollutants because their MLs range from 0.2 to 5,000 µg/l.)

EPA then calculates each POTW percent removal for each pollutant based on its average influent and its average effluent values. The national POTW percent removal used for each pollutant in the pass-through test is the median value of all the POTW pollutant specific percent removals.

Additionally, due to the large number of pollutants of concern for the CWT industry, EPA also used data from the National Risk Management Research Laboratory (NRMRL) Treatability Database to augment the POTW database for the pollutants which the 50-POTW Study did not cover. This database provides information, by pollutant, on removals obtained by various treatment technologies. The database provides the user with the specific data source and the industry from which the wastewater was generated. For each pollutant of concern EPA considered for this rule not found in the 50-POTW database, EPA used data from the NRMRL database, using only treatment technologies representative of typical POTW secondary treatment operations (activated sludge, activated sludge with filtration, aerated lagoons). EPA further edited these files to include information pertaining only to domestic or industrial wastewater. EPA used pilot-scale and full-scale data only, and eliminated bench-scale data and data from less reliable references.

EPA selected the final percent removal for each pollutant based on a data hierarchy, which was related to the quality of the data source. The following data source hierarchy was used for selecting a percent removal for a pollutant: 1) if available, the median percent removal from the 50-POTW Study was chosen using all POTWs data with influent levels greater than or equal to 10 times the pollutant ML, 2) if not available, the median percent removal from the 50-POTW Study was chosen using all POTWs data with influent levels greater than 2 times the pollutant ML, 3) if not available, the average percent removal from the NRMRL Treatability Database was chosen using only domestic wastewater, 4) if not available, the average percent removal from the NRMRL Treatability Database was chosen using domestic and industrial wastewater, and finally 5) a pollutant was assigned an average group percent removal, or "generic" removal if no other data was available. Pollutant groups were developed by combining pollutants with similar chemical structures (a complete list of pollutants and pollutant groupings are available in Appendix A). EPA calculated the average group percent removal by using all pollutants in the group with selected percent removals from either the 50-POTW Study or the NRMRL Treatability Database. EPA then averaged percent removals together to determine the average group percent removal. Pollutant groups and generic removals used in the pass-through analysis are presented in Table 7-4. Only groups A (metals), J (anilines), and CC (n-paraffins) are presented in Table 7-4 since these are the only groups for which EPA assigned an average group percent removal in its pass-through analysis. The final POTW percent removal assigned to each pollutant is presented in Table 7-5, along with the source and data hierarchy of each removal.

Table 7-4. CWT Pass-Through Analysis Generic POTW Percent Removals

| Pollutant | CAS NO. | % Removal | Source |
|---|---|---|---|
| Group A: Metals | | | |
| Barium | 7440-39-3 | 55.15 | 50 POTW - 2 X ML |
| Beryllium | 7440-41-7 | 61.23 | RREL 5 - (IND WW) |
| Cadmium | 7440-43-9 | 90.05 | 50 POTW - 10 X ML |
| Chromium | 7440-47-3 | 80.33 | 50 POTW - 10 X ML |
| Cobalt | 7440-48-4 | 10.19 | 50 POTW - 2 X ML |
| Copper | 7440-50-8 | 84.20 | 50 POTW - 10 X ML |
| Iridium | 7439-88-5 | 74.00 | RREL 5 - (ALL WW) |
| Lead | 7439-92-1 | 77.45 | 50 POTW - 10 X ML |
| Lithium | 7439-93-2 | 26.00 | RREL 5 - (ALL WW) |
| Mercury | 7439-97-6 | 90.16 | 50 POTW - 10 X ML |
| Molybdenum | 7439-98-7 | 18.93 | 50 POTW - 10 X ML |
| Nickel | 7440-02-0 | 51.44 | 50 POTW - 10 X ML |
| Silver | 7440-22-4 | 88.28 | 50 POTW - 10 X ML |
| Strontium | 7440-24-6 | 14.83 | RREL 5 - (DOM WW) |
| Thallium | 7440-28-0 | 53.80 | RREL 5 - (ALL WW) |
| Tin | 7440-31-5 | 42.63 | 50 POTW - 2 X ML |
| Titanium | 7440-32-6 | 91.82 | 50 POTW - 10 X ML |
| Vanadium | 7440-62-2 | 8.28 | 50 POTW - 2 X ML |
| Yttrium | 7440-65-5 | 21.04 | 50 POTW - 2 X ML |
| Zinc | 7440-66-6 | 79.14 | 50 POTW - 10 X ML |
| Zirconium | 7440-17-7 | | Average Group Removal |
| Average Group Removal | | 55.95 | |

| Pollutant | CAS NO. | % Removal | Source |
|---|---|---|---|
| Group J: Anilines | | | |
| Aniline | 62-53-3 | 93.41 | RREL 5 - (ALL WW) |
| Carbazole | 86-74-8 | | Average Group Removal |
| Average Group Removal | | 93.41 | |

| Pollutant | CAS NO. | % Removal | Source |
|---|---|---|---|
| Group CC: n-Paraffins | | | |
| n-Decane | 124-18-5 | 9.00 | RREL 5 - (ALL WW) |
| n-Docosane | 629-97-0 | 88.00 | RREL 5 - (ALL WW) |
| n-Dodecane | 112-40-3 | 95.05 | RREL 5 - (ALL WW) |
| n-Eicosane | 112-95-8 | 92.40 | RREL 5 - (ALL WW) |
| n-Hexacosane | 630-01-3 | | Average Group Removal |
| n-Hexadecane | 544-76-3 | | Average Group Removal |
| n-Octacosane | 630-02-4 | | Average Group Removal |
| n-Octadecane | 593-45-3 | | Average Group Removal |
| n-Tetracosane | 646-31-1 | | Average Group Removal |
| n-Tetradecane | 629-59-4 | | Average Group Removal |
| Average Group Removal | | 71.11 | |

Table 7-5. Final POTW Percent Removals

| Pollutant | Metals | Oils | Organics | CAS NO. | Percent Removal | Source |
|---|---|---|---|---|---|---|
| CLASSICAL | | | | | | |
| Ammonia as N | X | X | X | 766-41-7 | 38.94 | 50 POTW - 10 X ML |
| Hexavalent Chromium | X | | | 18540-29-9 | 5.68 | RREL 5 - (ALL WW) |
| Total Cyanide | X | X | X | 57-12-5 | 70.44 | 50 POTW - 10 X ML |
| METALS | | | | | | |
| Antimony | X | X | X | 7440-36-0 | 66.78 | 50 POTW - 2 X ML |
| Arsenic | | X | | 7440-38-2 | 65.77 | 50 POTW - 2 X ML |
| Barium | | X | | 7440-39-3 | 55.15 | 50 POTW - 2 X ML |
| Beryllium | X | | | 7440-41-7 | 61.23 | RREL 5 - (ALL WW) |
| Cadmium | X | X | | 7440-43-9 | 90.05 | 50 POTW - 10 X ML |
| Chromium | X | X | | 7440-47-3 | 80.33 | 50 POTW - 10 X ML |
| Cobalt | X | X | X | 7440-48-4 | 10.19 | 50 POTW - 2 X ML |
| Copper | X | X | X | 7440-50-8 | 84.20 | 50 POTW - 10 X ML |
| Iridium | X | | | 7439-88-5 | 74.00 | RREL 5 - (ALL WW) |
| Lanthanium | X | | | 7439-91-0 | 54.44 | Generic Removal-Group A |
| Lead | X | X | | 7439-92-1 | 77.45 | 50 POTW - 10 X ML |
| Lithium | X | | | 7439-93-2 | 26.00 | RREL 5 - (ALL WW) |
| Mercury | X | X | | 7439-97-6 | 90.16 | 50 POTW - 10 X ML |
| Molybdenum | X | X | X | 7439-98-7 | 18.93 | 50 POTW - 10 X ML |
| Nickel | X | X | | 7440-02-0 | 51.44 | 50 POTW - 10 X ML |
| Osmium | X | | | 7440-04-2 | 48.00 | RREL 5 - (ALL WW) |
| Selenium | X | X | | 7782-49-2 | 34.33 | RREL 5 - (DOM WW) |
| Silicon | X | X | X | 7440-21-3 | 27.29 | RREL 5 - (ALL WW) |
| Silver | X | | | 7440-22-4 | 88.28 | 50 POTW - 10 X ML |
| Strontium | X | X | X | 7440-24-6 | 14.83 | RREL 5 - (DOM WW) |
| Thallium | X | | | 7440-28-0 | 53.80 | RREL 5 - (ALL WW) |
| Tin | X | X | | 7440-31-5 | 42.63 | 50 POTW - 2 X ML |
| Titanium | X | X | | 7440-32-6 | 91.82 | 50 POTW - 10 X ML |
| Vanadium | X | | | 7440-62-2 | 8.28 | 50 POTW - 2 X ML |
| Yttrium | X | | | 7440-65-5 | 21.04 | RREL 5 - (ALL WW) |
| Zinc | X | X | X | 7440-66-6 | 79.14 | 50 POTW - 10 X ML |
| Zirconium | X | | | 7440-67-7 | 54.44 | Generic Removal-Group A |
| ORGANICS | | | | | | |
| 2-butanone | X | X | X | 78-93-3 | 96.60 | RREL 5 - (ALL WW) |
| 2-propanone | X | | X | 67-64-1 | 83.75 | RREL 5 - (ALL WW) |
| 2,3-dichloroaniline | | | X | 608-27-5 | 41.00 | RREL 5 - (ALL WW) |
| 2,4,6-trichlorophenol | | | X | 88-06-2 | 28.00 | RREL 5 - (ALL WW) |
| 4-chloro-3-methylphenol | | X | | 59-50-7 | 63.00 | RREL 5 - (IND WW) |
| Acenaphthene | | X | | 83-32-9 | 98.29 | 50 POTW - 10 X ML |
| Acetophenone | | | X | 98-86-2 | 95.34 | RREL 5 - (ALL WW) |

Table 7-5. Final POTW Percent Removals

| Pollutant | Metals | Oils | Organics | CAS NO. | Percent Removal | Source |
|---|---|---|---|---|---|---|
| Alpha-terpineol | | X | | 988-55-5 | 94.40 | RREL 5 - (IND WW) |
| Aniline | | | X | 62-53-3 | 93.41 | RREL 5 - (ALL WW) |
| Anthracene | | X | | 120-12-7 | 95.56 | 50 POTW - 10 X ML |
| Benzo (a) anthracine | | X | | 56-55-3 | 97.50 | RREL 5 - (DOM WW) |
| Benzoic Acid | X | X | X | 65-85-0 | 80.50 | RREL 5 - (IND WW) |
| Bis(2-ethylhexyl) phthalate | | X | | 117-81-7 | 59.78 | 50 POTW - 10 X ML |
| Butyl benzyl phthalate | | X | | 85-68-7 | 94.33 | 50 POTW - 10 X ML |
| Carbazole | | X | | 86-74-8 | 62.00 | Generic Removal-Group J |
| Chrysene | | X | | 218-01-9 | 96.90 | RREL 5 - (DOM WW) |
| Diethyl phthalate | | X | | 84-66-2 | 59.73 | 50 POTW - 2X ML |
| Fluoranthene | | X | | 206-44-0 | 42.46 | 50 POTW - 2X ML |
| Fluorene | | X | | 86-73-7 | 69.85 | 50 POTW - 2X ML |
| n-Decane | | X | | 124-18-5 | 9.00 | RREL 5 - (IND WW) |
| n-Docosane | | X | | 629-97-0 | 88.00 | RREL 5 - (IND WW) |
| n-Dodecane | | X | | 112-40-3 | 95.05 | RREL 5 - (IND WW) |
| n-Eicosane | | X | | 112-95-8 | 92.40 | RREL 5 - (IND WW) |
| n-Hexadecane | | X | | 544-76-3 | 71.11 | Generic Removal-Group CC |
| n-Octadecane | | X | | 593-45-3 | 71.11 | Generic Removal-Group CC |
| n-Tetracosane | | X | | 646-31-1 | 71.11 | Generic Removal-Group CC |
| n-Tetradecane | | X | | 629-59-4 | 71.11 | Generic Removal-Group CC |
| n,n-Dimethylformamide | X | X | X | 68-12-2 | 84.75 | RREL 5 - (IND WW) |
| o-Cresol | | X | X | 95-48-7 | 52.50 | RREL 5 - (IND WW) |
| p-Cresol | | X | X | 106-44-5 | 71.67 | RREL 5 - (IND WW) |
| Pentachlorophenol | | | X | 87-86-5 | 35.92 | 50 POTW - 2X ML |
| Phenol | | X | X | 108-95-2 | 95.25 | 50 POTW - 10 X ML |
| Pyrene | | X | | 129-00-0 | 83.90 | RREL 5 - (DOM WW) |
| Pyridine | X | X | X | 110-86-1 | 95.40 | RREL 5 - (IND WW) |

***Methodology for Determining Treatment Technology Percent Removals 7.6.3***

EPA calculated treatment percent removals for each subcategory BAT option with the data used to determine the long-term averages. Therefore, the data used to calculate BAT treatment percent removals included the influent and effluent data for pollutants that were detected in the influent at treatable levels, excluding data for pollutants which were not treated by the technology, and excluding data that were associated with process upsets. In one sampling episode, EPA had only one effluent measurement and multiple influent measurements. In this one case, EPA kept only the influent measurements from the same day as the effluent measurement.

After the data were edited, EPA used the following methodology to calculate percent removal:

1) For each pollutant and each sampled facility, EPA averaged the influent data and effluent data to give an average influent concentration and an average effluent concentration, respectively.

2) EPA calculated percent removals for each pollutant and each sampling episode from the average influent and average effluent concentrations using the following equation:

$$\%\ \text{Removal} = \frac{\text{(Avg Influent - Avg Effluent)}}{\text{Average Influent}} \times 100$$

3) EPA calculated the BAT median percent removal for each pollutant for each option from the facility-specific percent removals.

Section 10.4.3.2 discusses this in greater detail and provides and example.

***Pass-Through Analysis Results 7.6.4***

The results of the Pass-Through Analysis are presented in Tables 7-6 through 7-8 by subcategory and treatment option.

*Pass-Through Analysis Results for the Metals Subcategory 7.6.4.1*

For metals subcategory option 4, pass-through results are presented in Table 7-6. All non-conventional pollutants analyzed passed through, and all metals passed through with the exception of zirconium. However, for organic pollutants analyzed, only benzoic acid passed through. All pollutants that passed through may be regulated under PSES and PSNS.

Table 7-6. Final Pass-Through Results For Metals Subcategory Option 4

| Pollutant Parameter | Option 4 Removal (%) | Median POTW Removal (%) | Pass-Through |
|---|---|---|---|
| CLASSICALS | | | |
| Hexavalent Chromium | 98.01 | 5.68 | yes |
| Total Cyanide | 99.30 | 70.44 | yes |
| METALS | | | |
| Antimony | 94.30 | 66.78 | yes |
| Arsenic | 91.74 | 65.77 | yes |
| Cadmium | 99.97 | 90.05 | yes |
| Chromium | 99.91 | 80.33 | yes |
| Cobalt | 98.47 | 10.19 | yes |
| Copper | 99.91 | 84.20 | yes |
| Iridium | 99.69 | 74.00 | yes |
| Lead | 99.95 | 77.45 | yes |
| Lithium | 66.83 | 26.00 | yes |
| Mercury | 98.38 | 90.16 | yes |
| Molybdenum | 26.40 | 18.93 | yes |
| Nickel | 99.59 | 51.44 | yes |
| Selenium | 57.54 | 34.33 | yes |
| Silicon | 98.58 | 27.29 | yes |
| Silver | 99.62 | 88.28 | yes |
| Strontium | 95.89 | 14.83 | yes |
| Tin | 99.94 | 42.63 | yes |
| Titanium | 99.84 | 91.82 | yes |
| Vanadium | 99.46 | 8.28 | yes |
| Yttrium | 95.39 | 21.04 | yes |
| Zinc | 99.93 | 79.14 | yes |
| Zirconium | 42.13 | 54.97 | no |
| ORGANICS | | | |
| 2-Butanone | 74.72 | 96.60 | no |
| 2-Propanone | 65.62 | 83.75 | no |
| Benzoic Acid | 82.99 | 80.50 | yes |
| n,n-Dimethylformamide | 54.81 | 84.75 | no |
| Pyridine | 48.49 | 95.40 | no |

### *Pass-Through Analysis Results for the Oils Subcategory* *7.6.4.2*

The final pass-through analysis results for the oils subcategory options 8 and 9 are presented in Table 7-7. Several metals and organic pollutants passed through, and therefore may be regulated under PSES and PSNS.

Table 7-7. Final Pass-Through Results For Oils Subcategory Options 8 and 9

| Pollutant Parameter | Option 8 Removal (%) | Option 9 Removal (%) | Median POTW Removal (%) | Pass-Through |
|---|---|---|---|---|
| CLASSICALS | | | | |
| Total Cyanide | 64.38 | 64.38 | 70.44 | no |
| METALS | | | | |
| Antimony | 87.99 | 87.99 | 66.78 | yes |
| Arsenic | 57.64 | 57.64 | 65.77 | no |
| Barium | 91.91 | 91.91 | 55.15 | yes |
| Cadmium | 88.07 | 88.07 | 90.05 | no |
| Chromium | 80.54 | 86.24 | 80.33 | yes |
| Cobalt | 52.20 | 52.20 | 10.19 | yes |
| Copper | 91.09 | 90.02 | 84.20 | yes |
| Lead | 92.64 | 88.26 | 77.45 | yes |
| Mercury | 77.43 | 77.43 | 90.16 | no |
| Molybdenum | 53.73 | 53.73 | 18.93 | yes |
| Nickel | 41.24 | 41.24 | 51.44 | no |
| Selenium | 36.94 | 36.94 | 34.33 | yes |
| Silicon | 54.16 | 54.16 | 27.29 | yes |
| Strontium | 50.68 | 50.68 | 14.83 | yes |
| Tin | 90.77 | 90.77 | 42.63 | yes |
| Titanium | 89.99 | 89.99 | 91.82 | no |
| Zinc | 80.33 | 83.48 | 79.14 | yes |
| ORGANICS | | | | |
| 2-Butanone | 15.41 | 15.41 | 96.60 | no |
| 4-chloro-3-methylphenol* | - | 27.48 | 63.00 | no |
| Acenapthene | 96.75 | 96.75 | 98.29 | no |
| Alpha-terpineol | 94.77 | 94.77 | 94.40 | yes |
| Anthracene | 97.07 | 96.67 | 95.56 | yes |
| Benzo (a) anthracene | 94.38 | 95.69 | 97.50 | no |
| Benzoic acid | 6.54 | 19.32 | 80.50 | no |
| Bis(2-ethylhexyl)phthalate | 93.22 | 93.66 | 59.78 | yes |
| Butyl benzyl phthalate | 92.19 | 92.19 | 94.33 | no |
| Carbazole | 81.09 | 81.09 | 62.00 | yes |
| Chrysene | 96.93 | 97.22 | 96.90 | yes |
| Diethyl phthalate | 77.01 | 63.97 | 59.73 | yes |
| Fluoranthene | 96.24 | 95.21 | 42.46 | yes |

| | | | | |
|---|---|---|---|---|
| Fluorene | 95.32 | 92.86 | 69.85 | yes |
| n-Decane | 97.36 | 94.98 | 9.00 | yes |
| n-Docosane | 97.25 | 96.87 | 88.00 | yes |
| n-Dodecane | 94.14 | 96.50 | 95.05 | no for 8/ yes for 9 |
| n-Eicosane | 95.88 | 95.54 | 92.40 | yes |
| n-Hexadecane | 97.38 | 96.53 | 71.11 | yes |
| n-Octadecane | 97.32 | 97.20 | 71.11 | yes |
| n-Tetradecane | 97.26 | 96.85 | 71.11 | yes |
| o-cresol* | - | 21.08 | 52.50 | no |
| p-cresol* | - | 34.88 | 71.67 | no |
| Phenol | 53.68 | 14.88 | 95.25 | no |
| Pyrene | 97.10 | 97.63 | 83.90 | yes |
| Pyridine | 21.45 | 21.45 | 95.40 | no |

* Not applicable for option 8

### *Pass-Through Analysis Results for the Organics Subcategory* *7.6.4.3*

The results of the pass-through analysis for the organics subcategory option 4 is presented in Table 7-8. Several metals and organic pollutants passed through, and therefore may be regulated under PSES and PSNS.

Table 7-8. Final Pass-Through Results For Organics Subcategory Option 4

| Pollutant Parameter | Option 4 Removal (%) | Median POTW Removal (%) | Pass-Through |
|---|---|---|---|
| CLASSICALS | | | |
| Total Cyanide | 33.46 | 70.44 | no |
| METALS | | | |
| Antimony | 33.27 | 66.78 | no |
| Cobalt | 17.31 | 10.19 | yes |
| Copper | 38.04 | 84.20 | no |
| Molybdenum | 57.10 | 18.93 | yes |
| Silicon | 4.71 | 88.28 | no |
| Strontium | 59.51 | 14.83 | yes |
| Zinc | 60.51 | 79.14 | no |
| ORGANICS | | | |
| 2-butanone | 69.20 | 96.60 | no |
| 2-propanone | 68.57 | 83.75 | no |
| 2,3-dichloroaniline | 80.45 | 41.00 | yes |
| 2,4,6-trichlorophenol | 45.16 | 28.00 | yes |
| Acetophenone | 92.44 | 95.34 | no |
| Aniline | 92.88 | 93.41 | no |
| Benzoic Acid | 94.29 | 80.50 | yes |
| n,n-Dimethylformamide | 89.26 | 84.75 | yes |
| o-Cresol | 98.39 | 52.50 | yes |
| p-Cresol | 85.38 | 71.67 | yes |
| Pentachlorophenol | 23.19 | 35.92 | no |
| Phenol | 87.08 | 95.25 | no |
| Pyridine | 61.69 | 95.40 | no |

### *FINAL LIST OF POLLUTANTS SELECTED FOR REGULATION* *7.7*

### *Direct Dischargers* *7.7.1*

After EPA eliminated pollutants of concern which were treatment chemicals, non-conventional bulk parameters, not detected at treatable levels, not treated, or volatile, EPA still had a lengthy list of pollutants which could be regulated -- particularly in the oils subcategory. EPA further eliminated pollutants that were identified during screening, but not analyzed in a quantitative manner[2]. These pollutants are indium, iridium, lanthanum, lithium, osmium, silicon, strontium, and zirconium. EPA also eliminated pollutants that are not toxic as quantified by their toxic weighting factor (TWF)[3]. A single pollutant, yttrium, has a TWF of zero and was, therefore, eliminated. EPA also eliminated pollutants that were removed by the proposed treatment technologies, but whose removal was not optimal. EPA eliminated pollutants that were removed by less than 30% with the proposed technology options for the organics subcategory and by less than 50% with the proposed technology options for the metals and oils subcategories. These pollutants are listed in Table 7-9.

Table 7-9. Pollutants Eliminated Due to Non-Optimal Performance

| Metals Option 4 | Metals Option 3 | Oils Option 8 | Oils Option 9 | Organics Option 4 |
|---|---|---|---|---|
| $BOD_5$ | Molybdenum | $BOD_5$ | $BOD_5$ | Cobalt |
| Molybdenum | | Nickel | Nickel | Pentachlorophenol |
| Pyridine | | Selenium | Selenium | |
| | | Benzoic Acid | Benzoic Acid | |
| | | p-Cresol[4] | o-Cresol | |
| | | Pyridine | p-Cresol | |
| | | 2-butanone | Phenol | |
| | | | Pyridine | |
| | | | 2-butanone | |
| | | | 4-methyl-2-pentanone | |

EPA also eliminated those pollutants for which the treatment technology forming the basis of the option is not a standard method of treatment. For example, chemical precipitation systems are not designed to remove $BOD_5$. Table 7-10 lists these pollutants for each subcategory and option.

[2]Analyses for these pollutants were not subject to the quality assurance/quality control (QA/QC) procedures required by analytical Method 1620.

[3]Toxic weighting factors are derived from chronic aquatic life criteria and human health criteria established for the consumption of fish. Toxic weighting factors can be used to compare the toxicity of one pollutant relative to another and are normalized based on the toxicity of copper. TWFs are discussed in detail in the Cost Effectiveness Analysis Document.

[4]Removals for this pollutant for option 8 were greater than 50%. However, since removals for this pollutant for option 9 (the BAT selected option) were less than 50%, for consistency, they were similarly eliminated for option 8.

Table 7-10. Pollutants Eliminated Since Technology Basis is Not Standard Method of Treatment

| Metals Option 4 | Metals Option 3 | Oils Option 8/9 | Organics Option 3/4 |
|---|---|---|---|
| $BOD_5$ | $BOD_5$ | Total Cyanide | Total Cyanide |
| Boron | n,n-Dimethylformamide | | |
| 2-butanone | | | |
| 2-propanone | | | |
| benzoic acid | | | |
| n,n-Dimethylformamide | | | |

For the metals subcategory, 2 pollutants, beryllium and thallium, remained for metals option 3, but has been eliminated for metals option 4. For consistency, EPA eliminated these two pollutants. EPA also eliminated hexavalent chromium because it has regulated total chromium. EPA's final list of regulated pollutants for direct dischargers in the metals subcategory is based on these additional edits.

For the organics subcategory, EPA eliminated benzoic acid because of its low and highly variable recovery using EPA Methods 625 and 1625. EPA also eliminated n,n-dimethylformamide because there is no approved method for this pollutant. EPA's final list of regulated pollutants for direct discharges in the organics subcategory is based on these additional edits.

For the oils subcategory, EPA eliminated alpha terpineol. EPA only has data from a single episode that passed its data editing criteria (see Chapter 10) upon which to develop limits for alpha terpineol. EPA subsequently eliminated this data because the effluent samples also contained high levels of phenol (alpha terpineol measurements can be affected by high phenol levels). Further, two pollutants, n-tetracosane and n,n-dimethylformamide remained for one oil option, but had been eliminated for the other. For consistency, EPA eliminated these two pollutants.

Also, for the organic pollutants in the oils subcategory, EPA further reduced the number of regulated pollutants as detailed in the following paragraphs. EPA selected this approach based on comments to the 1995 proposal. This approach uses the same methodology as proposed in 1999. However this analysis reflects corrections to the CWT sampling analytical database.

EPA organized the remaining organic pollutants in the oils subcategory into pollutant groups. As described in Section 7.6.2, pollutant groups were developed by combining pollutants of similar structures. The remaining list of organic pollutants in the oils subcategory are in four pollutant groups: n-paraffins, polyaromatic hydrocarbons, phthalates, and anilines. EPA reviewed the influent characterization data from the oils subcategory facilities (including the additional data collected at non-hazardous oils facilities) to determine which pollutants in each structural group are generally detected together. If pollutants in a structural group are always detected together, then EPA can establish some (or one) pollutants in each group as indicator pollutants. Since the effectiveness of the treatment technologies which form the basis of the proposed oils subcategory limitations is similar for pollutants in each group, EPA can be confident that regulation of the group indicator pollutant(s) will ensure control of all the group pollutants. This approach allows EPA to reduce the list of regulated pollutants for the oils subcategory substantially. Tables 7-11, 7-12, and 7-13 summarize the data for each structural group with more than one pollutant remaining. In these tables, an "X" indicates the pollutant was detected at the sampled facility while a "blank" indicates the pollutant was not detected at the sampled facility.

At the time of the 1999 proposal, EPA selected n-decane and n-octadecane from the n-paraffins group. Data for n-paraffins continue to show that while n-decane is usually detected in combination with other n-paraffins, it does not respond to treatment in a similar manner as other n-paraffins. Therefore, no other n-paraffins in this group can be used as an indicator of n-decane. At the time of the proposal, EPA selected n-octadecane because the data showed that it would be an appropriate indicator for the remainder of the n-paraffins. With one exception, this remains accurate. The one exception is n-hexadecane. EPA analysis now shows that n-octadecane was detected in 13 of the facilities sampled and that n-hexadecane was detected in these same 13 facilities and one other. The additional detection represents a single grab sample. In EPA's view, a single grab sample does not warrant the regulation of an additional or different pollutant. Consequently, EPA continues to select n-octadecane along with n-decane from the n-paraffins group.

At the time of the 1999 proposal, EPA's data showed that either fluoranthene or pyrene would be an appropriate indicator for the polyaromatic hydrocarbon group and EPA selected fluoranthene. With one exception, this remains accurate. The one exception is pyrene. EPA analysis now shows that fluroanthene was detected in six of the facilities sampled and that pyrene was detected in these same six facilities and one other. The additional detection represents a single grab sample. In EPA's view, a single grab sample does not warrant the regulation of a different pollutant. Consequently, EPA continues to select fluroanthene from the polyaromatic group.

At the time of the 1999 proposal, EPA's data showed that bis(2-ethylhexyl)phthalate and butyl benzyl phthalate should be selected for the phthalate group. This remains accurate. Consequently, EPA selected both of these compounds from the phthalate group.

Finally, carbazole is the only pollutant remaining from the aniline group. Therefore, EPA selected carbazole from the aniline group.

EPA's final list of regulated pollutants for direct dischargers in the oils subcategory is based on these additional edits/selections.

Table 7-14 shows the final list of pollutants selected for regulation in all subcategories for direct dischargers.

Table 7-11. Frequency of Detection[5] of n-Paraffins in CWT Oils Subcategory Wastes

| Pollutant | Facility | | | | | | | | | | | | | | | | | | Total Number of Detects at Combined Facilities |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | |
| n-Decane | X | | X | X | X | X | X | X | X | | X | X | | | | X | | | 29/39 |
| n-Docosane | X | | X | X | X | X | X | X | X | | | X | X | X | | X | | | 24/39 |
| n-Dodecane | X | X | X | X | X | X | X | X | | | | X | X | X | | X | | X | 30/39 |
| n-Eicosane | X | X | X | X | X | X | X | X | X | | | X | X | | | X | | X | 32/39 |
| n-Hexadecane | X | X | X | X | X | X | X | X | X | | | X | X | X | | X | | X | 33/39 |
| n-Octadecane | X | X | X | X | X | X | X | X | X | | | X | X | X | | X | X | | 32/39 |
| n-Tetradecane | X | X | X | X | X | X | X | X | X | | | X | X | X | | X | X | | 33/39 |

X = Pollutant was detected at the sampled facility

“blank = Pollutant was not detected at the sampled facility

[5]For some facilities, the data represent daily composite samples collected over two to five days, while for other facilities the data represent grab samples collected on one to five days.

Table 7-12. Frequency of Detection[6] of Polyaromatic Hydrocarbons in CWT Oils Subcategory Wastes

| Pollutant | Facility | | | | | | | | | | | | | | | | | | Total Number of Detects at Combined Facilities |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | |
| Acenaphthene | | | | | | X | X | X | X | | | | | | | | | | 8/39 |
| Anthracene | | | | | X | X | X | X | X | | | | | | | | | | 12/39 |
| Benzo(a)anthracene | | | | | X | X | X | X | | | | | | | | | | | 12/39 |
| Chrysene | | | | | X | X | X | X | | | | | | | | | | | 12/39 |
| Fluoranthene | | | | | X | X | X | X | X | | | | | | | | | | 15/39 |
| Fluorene | | | | | X | X | X | X | X | | | | | | | | | | 11/39 |
| Pyrene | | | | | X | X | X | X | X | | | | | X | | | | X | 16/39 |

X = Pollutant was detected at the sampled facility

“blank = Pollutant was not detected at the sampled facility

[6]For some facilities, the data represent composite samples collected over two to five days, while for other facilities the data represent grab samples collected on one to five days.

Table 7-13. Frequency of Detection[7] of Phthalates in CWT Oils Subcategory Wastes

| Pollutant | Facility | | | | | | | | | | | | | | | | | | Total Number of Detects at Combined Facilities |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | |
| Bis(2-ethylhexyl)phthalate | X | | X | | X | X | X | X | | | | X | | X | | X | | X | 18/39 |
| Butylbenzylphthalate | | X | | | | X | X | X | | | | | | | | | | | 7/39 |
| Diethylphthalate | | | | | X | X | X | | | | | | | | | | | | 10/39 |

X = Pollutant was detected at the sampled facility

“blank = Pollutant was not detected at the sampled facility

[7]For some facilities, the data represent composite samples collected over two to five days, while for other facilities the data represent grab samples collected on one to five days.

Table 7-14. Final List of Regulated Pollutants for Direct Discharging CWTs

| Metals Subcategory Option 4 (BPT, BAT) | Metals Subcategory Option 3 (NSPS) | Oils Subcategory Option 9 BPT, BAT, NSPS | Organics Subcategory Option 4 BPT, BAT, NSPS |
|---|---|---|---|
| TSS | TSS | Oil and Grease | $BOD_5$ |
| Oil and Grease | Oil and Grease | TSS | TSS |
| Antimony | Antimony | Antimony | Antimony |
| Arsenic | Arsenic | Arsenic | Copper |
| Cadmium | Cadmium | Barium | Molybdenum |
| Chromium | Chromium | Cadmium | Zinc |
| Cobalt | Cobalt | Chromium | Acetophenone |
| Copper | Copper | Cobalt | Aniline |
| Lead | Lead | Copper | o-Cresol |
| Mercury | Mercury | Lead | p-Cresol |
| Nickel | Nickel | Mercury | pH |
| pH | pH | Molybdenum | Phenol |
| Selenium | Selenium | pH | Pyridine |
| Silver | Silver | Tin | 2-butanone |
| Tin | Tin | Titanium | 2-propanone |
| Titanium | Titanium | Zinc | 2,3-dichloroaniline |
| Total cyanide | Total cyanide | Bis(2-ethylhexyl)phthalate | 2,4,6-trichlorophenol |
| Vanadium | Vanadium | Butylbenzyl phthalate | |
| Zinc | Zinc | Carbazole | |
| | | Fluoranthene | |
| | | N-decane | |
| | | N-octadecane | |

### *Indirect Dischargers* *7.7.2*

*Consideration of Indicator Parameters for the Oils Subcategory*

As detailed in the 1999 proposal, EPA looked at various ways to reduce the costs of this rule (particularly the costs to small businesses) while ensuring proper treatment of off-site wastes. One of the options considered by EPA and discussed in the 1999 proposal was providing an alternative compliance-monitoring regime for indirect discharging facilities in the oils subcategory. Under this alternative monitoring approach, facilities could choose to (1) monitor for all regulated pollutants, or (2) monitor for the conventional parameters, metal parameters, and monitor for the regulated organic pollutants in this subcategory using an indicator parameter such as hexane extractable material (HEM) or silica gel treated-hexane extractable material (SGT-HEM). The 1999 proposal further noted that EPA was conducting a study to determine which organic pollutants are measured by SGT-HEM and HEM and solicited comment on the use of indicator parameters.

Many commenters responded to EPA's request with essentially an equivalent number opposing and favoring the use of indicator parameters. The commenters that supported its use cited the decreased analytical costs and the wide range of organic compounds that can be measured with these analyses. Commenters that did not support the use of SGT-HEM or HEM as indicator pollutants raised a number of concerns including the following:

- these measurements are non-specific and highly subject to interferences;
- no direct and quantified correlation has ever been developed between HEM (or

SGT-HEM) and specific organic pollutants;
- there is no evidence that regulating HEM or SGT-HEM would result in adequate regulation of toxics;
- the determination has not been made that the organic pollutants of interest are measured by either HEM or SGT-HEM; and
- SGT-HEM does not measure all of the regulated pollutants, particularly polyaromatic hydrocarbons (PAHs).

None of the commenters suggested possible alternative indicator parameters.

During its development of proposed effluent limitations guidelines and pretreatment standards for the industrial laundries point source category, EPA evaluated the suitability of SGT-HEM and HEM as indicator parameters for that rulemaking. EPA presented the results of its study in a Notice of Data Availability on December 23, 1998 (63 FR 71054). In the study, EPA attempted to identify compounds present in HEM/SGT-HEM extracts from industrial laundry wastewaters using gas chromatography/mass spectroscopy (GC/MS) in order to determine which pollutants of concern might be components of, and therefore measured by, HEM or SGT-HEM. However, EPA was only able to identify approximately two percent of the constituents present in the waste stream. Most of these constituents identified were alkanes. In general, the data from this study also do not support the use of SGT-HEM as an appropriate indicator parameter for the organic pollutants present in CWT wastewaters since few of these pollutants were identified in the HEM/SGT-HEM extract.

As part of its consideration of the use of an indicator parameter for this rule, EPA again reviewed the data from the industrial laundries study as well as the data collected here. EPA statistically analyzed the relationship between seven organic pollutants and SGT-HEM or HEM. EPA's data show general trends of increasing concentrations of HEM and SGT-HEM with increasing concentrations of organic pollutants. However, the data demonstrate substantial variability and, despite this general trend, EPA noted that the non-detected values for organics were associated with just about every level of HEM and SGT-HEM and conversely, that high levels of some organic pollutants were associated with low levels of HEM/SGT-HEM. As a result, EPA cannot demonstrate that establishing a numerical limit for SGT-HEM or HEM would provide consistent control of the organic pollutants by the model treatment technologies.

Therefore, while EPA is cognizant of the cost savings that can be achieved in some instances by using indicator parameters, EPA has rejected this alternative monitoring approach for CWT wastewaters.

*Final List of Regulatory Parameters for Indirect Discharging CWT Facilities*

As detailed in Section 7.6, all pollutants regulated for direct dischargers which pass-through well-operated POTWs are regulated for indirect dischargers. Table 7-15 shows the final list of regulated pollutants for indirect dischargers selected by EPA.

Table 7-15. Final List of Regulated Pollutants for Indirect Discharging CWT Facilities

| Metals Subcategory Option 4 PSES/PSNS | Oils Subcategory Option 8 (PSES) Option 9 (PSNS) | Organics Subcategory Option 3 PSES, PSNS |
|---|---|---|
| Antimony | Antimony | Molybdenum |
| Arsenic | Barium | o-Cresol |
| Cadmium | Chromium | p-Cresol |
| Chromium | Cobalt | 2,3-dichloroaniline |
| Cobalt | Copper | 2,4,6-trichlorophenol |
| Copper | Lead | |
| Lead | Molybdenum | |
| Mercury | Tin | |
| Nickel | Zinc | |
| Selenium | Bis(2-ethylhexyl)phthalate | |
| Silver | Carbazole | |
| Tin | Fluoranthene | |
| Titanium | N-decane | |
| Total cyanide | N-octadecane | |
| Vanadium | | |
| Zinc | | |

# Chapter 8

# WASTEWATER TREATMENT TECHNOLOGIES

This section discusses a number of wastewater treatment technologies considered by EPA for the development of these guidelines and standards for the CWT Industry. Many of these technologies are being used currently at CWT facilities. This section also reviews other technologies with potential application in treating certain CWT pollutants of concern.

Facilities in the CWT industry use a wide variety of technologies for treating wastes received for treatment or recovery operations and wastewater generated on site. The technologies are grouped into the following five categories for this discussion:

- Best Management Practices, section 8.2.1;
- Physical/Chemical/Thermal Treatment, section 8.2.2;
- Biological Treatment, section 8.2.3;
- Sludge Treatment and Disposal, section 8.2.4; and
- Zero Discharge Options, section 8.2.5.

The processes reviewed here include both those that remove pollutant contaminants in wastewater and those that destroy them. Using a wastewater treatment technology that removes, rather than destroys, a pollutant will produce a treatment residual. In many instances, this residual is in the form of a sludge, that, typically, a CWT further treats on site in preparation for disposal. Section 8.2.4 discusses technologies for dewatering sludges to concentrate them prior to disposal. In the case of other types of treatment residuals, such as spent activated carbon and filter media, CWT facilities generally send those off site to a vendor facility for management.

## *TECHNOLOGIES CURRENTLY IN USE* — *8.1*

EPA obtained information on the treatment technologies in use in the CWT industry from responses to the Waste Treatment Industry (WTI) Questionnaire, site visits, public comments to the original proposal and the 1996 Notice of Data Availability. As described in Section 4, of the estimated 205 CWT facilities, EPA has obtained detailed facility–specific technology information for 116 of the direct and indirect discharging CWT facilities. Although EPA has facility-specific information for 145 facilities, only 116 of these facilities provided technology information. The detail provided regarding the technology information differs depending on the source. Information for the 65 facilities that completed the WTI Questionnaire was the most explicit because the questionnaire contained a detailed checklist of wastewater treatment technologies, many of which are discussed in this section. Technology information from other sources, however, is much less descriptive.

Table 8-1 presents treatment technology information by subcategory for the 116 indirect and direct discharging CWT facilities for which EPA has facility-specific treatment technology information. The information in Table 8-1 has not been scaled to represent the entire population of CWT facilities. Responses to the WTI Questionnaire provide the primary basis for the technology information for the metals and the organics subcategories. Comments to the 1996 Notice of Data Availability provide the primary source of the technology information for the oils subcategory. It should be noted that a number of facilities commingle different subcategory wastes for treatment. EPA has attributed these treatment technologies to all appropriate subcategories.

Table 8-1. Percent Treatment In-place by Subcategory and by Method of Wastewater Disposal

| | Metals Subcategory | | Oils Subcategory | | Organics Subcategory | |
|---|---|---|---|---|---|---|
| Disposal Type | Direct | Indirect | Direct | Indirect | Direct | Indirect |
| Number of Facilities with Treatment Technology Data | 9[1] | 41[1] | 3[1,2] | 80[1,3] | 4[1] | 14[1] |
| Equalization[4] | 78 | 68 | 100 | 65 | 75 | 71 |
| Neutralization[4] | 89 | 73 | 100 | 61 | 100 | 57 |
| Flocculation[4] | 44 | 51 | 100 | 48 | 75 | 57 |
| Emulsion Breaking | 11 | 29 | 33 | 56 | 25 | 50 |
| Gravity-Assisted Separation | 89 | 61 | 100 | 85 | 100 | 64 |
| Skimming[4] | 22 | 27 | 100 | 58 | 25 | 57 |
| Plate/Tube Separation[4] | 0 | 10 | 0 | 19 | 0 | 21 |
| Dissolved Air Flotation | 22 | 5 | 33 | 23 | 50 | 0 |
| Chromium Reduction[4] | 33 | 76 | 0 | 48 | 0 | 57 |
| Cyanide Destruction[4] | 33 | 46 | 100 | 23 | 25 | 29 |
| Chemical Precipitation | 78 | 88 | 0 | 34 | 25 | 64 |
| Filtration | 44 | 32 | 33 | 19 | 25 | 21 |
| Sand Filtration[4] | 11 | 15 | 0 | 16 | 0 | 21 |
| Mutimedia Filtration[4] | 11 | 5 | 0 | 0 | 0 | 7 |
| Ultrafiltration | 0 | 0 | 0 | 8 | 0 | 0 |
| Reverse Osmosis[4] | 11 | 0 | 0 | 3 | 0 | 0 |
| Carbon Adsorption | 22 | 12 | 67 | 18 | 0 | 21 |
| Ion Exchange[4] | 0 | 2 | 0 | 0 | 0 | 0 |
| Air Stripping | 0 | 7 | 0 | 11 | 0 | 0 |
| Biological Treatment | 56 | 2 | 100 | 11 | 100 | 7 |
| Activated Sludge | 33 | 0 | 100 | 0 | 100 | 0 |
| Sequencing Batch Reactors[4] | 0 | 2 | 0 | 0 | 0 | 7 |
| Vacuum Filtration[4] | 11 | 17 | 100 | 6 | 25 | 7 |
| Pressure Filtration[4] | 67 | 61 | 100 | 39 | 75 | 36 |

[1]Sum does not add to 116 facilities. Some facilities treat wastes in multiple subcategories.
[2]Of the 3 direct discharging oils facilities for which EPA has facility-specific information, only one completed the WTI Questionnaire.
[3]Of the 80 indirect discharging oils facilities for which EPA has facility-specific information, only 31 completed the WTI Questionnaire.
[4]Information for these technologies for the oils subcategory is based on responses to the WTI Questionnaire only.

## *TECHNOLOGY DESCRIPTIONS* 8.2

### *Best Management Practices* 8.2.1

In addition to physical/chemical treatment technologies, CWT facilities employ a number of ancillary means to prevent or reduce the discharge of pollutants. These efforts are termed "best management practices. EPA believes that CWT facilities should design best management practices in the CWT industry with the following objectives in mind:

- Maximize the amount of waste materials and residuals that are recycled rather than disposed as residuals, as wastewater, or as waste material.
- Maximize recycling and reuse of wastewaters generated on site.
- Minimize the introduction of uncontaminated wastewaters into the treatment waste stream.
- Encourage waste generators to minimize the mixing of different wastes.
- Segregate wastes for treatment particularly where waste segregation would improve treatment performance and maximize opportunities for recycling.

Waste segregation is one of the most important tools available for maximizing waste recycling and improving treatment performance. For example, separate treatment of wastes containing different types of metals allows the recovery of the individual metals from the resultant sludges. Similarly, separate treatment collection and treatment of waste oils will allow recycling. Many oils subcategory facilities currently practice waste oil recycling.

## ***Physical/Chemical/Thermal Treatment 8.2.2***

### *Equalization 8.2.2.1*

GENERAL DESCRIPTION

The wastes received at many facilities in the CWT industry vary considerably in both strength and volume. Waste treatment facilities often need to equalize wastes by holding wastestreams in a tank for a certain period of time prior to treatment in order to obtain a stable waste stream which is easier to treat. CWT facilities frequently use holding tanks to consolidate small waste volumes and to minimize the variability of incoming wastes prior to certain treatment operations. The receiving or initial treatment tanks of a facility often serve as equalization tanks.

The equalization tank serves many functions. Facilities use equalization tanks to consolidate smaller volumes of wastes so that, for batch treatment systems, full batch volumes are available. For continuous treatment systems, facilities equalize the waste volumes so that they may introduce effluent to downstream processes at a uniform rate and strength. This dampens the effect of peak and minimum flows. Introducing a waste stream with a more uniform pollutant profile to the treatment system facilitates control of the operation of downstream treatment units, resulting in more predictable and uniform treatment results. Equalization tanks are usually equipped with agitators or aerators where mixing of the wastewater is desired and to prevent suspended solids from settling to the bottom of the unit. An example of effective equalization is the mixing of acid and alkaline wastes. Figure 8-1 illustrates an equalization system.

EPA does not consider the use of equalization tanks for dilution as a legitemate use. In this context, EPA defines dilution as the mixing of more concentrated wastes with greater volumes of less concentrated wastes in a manner that reduces the concentration of pollutant in the concentrated wastes to a level that enables the facility to avoid treatment of the pollutant.

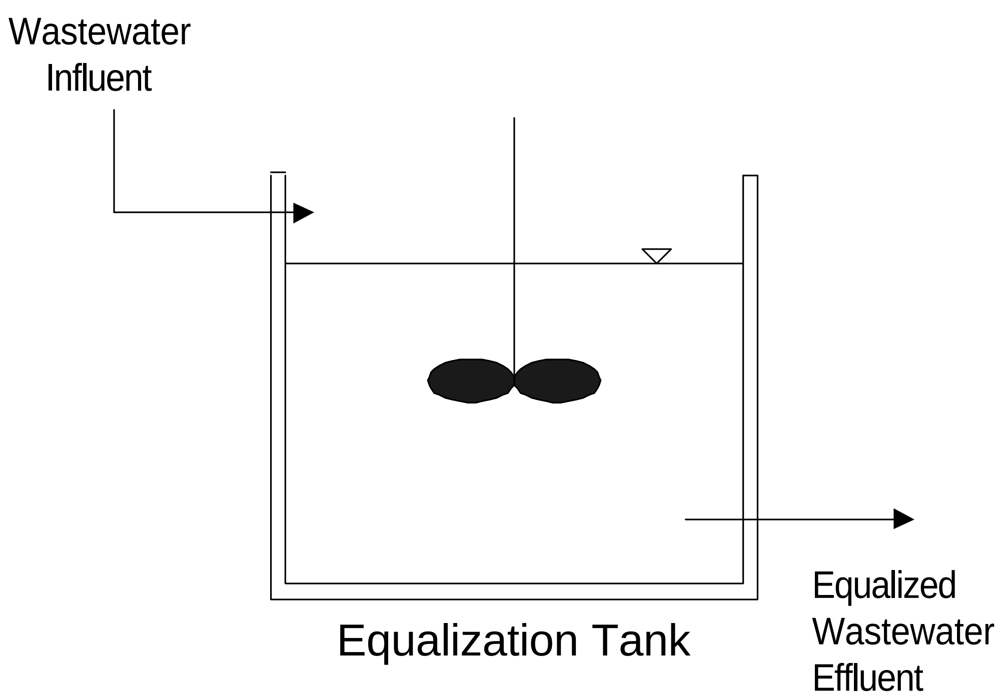


Figure 8-1. Equalization System Diagram

INDUSTRY PRACTICE

EPA found equalization being used at facilities in all of the CWT subcategories. Of the 65 CWT facilities in EPA's WTI Questionnaire data base that provided information concerning the use of equalization, 44 operate equalization systems. Of these, approximately 44 percent emply unstirred tanks and 56 percent use stirred or aerated tanks.

The combining of separate waste receipts in large receiving tanks provides for effective equalization even though it is not necessarily recognized as such. Nearly every facility visited by EPA performed equalization, either in tanks specifically designed for that purpose or in waste receiving tanks. Consequently, EPA has concluded that equalization is underreported in the data base.

*Neutralization* *8.2.2.2*

GENERAL DESCRIPTION

Wastewaters treated at CWT facilities have a wide range of pH values depending on the types of wastes accepted. Untreated wastewater may require neutralization to eliminate either high or low pH values prior to certain treatment systems, such as biological treatment. Facilities often use neutralization systems also in conjunction with certain chemical treatment processes, such as chemical precipitation, to adjust the pH of the wastewater to optimize treatment efficiencies. These facilities may add acids, such as sulfuric acid or hydrochloric acid, to reduce pH, and alkalies, such as sodium hydroxides, to raise pH values. Many metals subcategory facilities use waste acids and waste alkalies for pH adjustment. Neutralization may be performed in a holding tank, rapid mix tank, or an equalization tank. Typically, facilities use neutralization systems at the end of a treatment system to control the pH of the discharge to between 6 and 9 in order to meet NPDES and POTW pretreatment limitations.

Figure 8-2 presents a flow diagram for a typical neutralization system.

INDUSTRY PRACTICE

EPA found neutralization systems in-place at facilities identified in all of the CWT subcategories. Of the 65 CWT facilities in EPA's WTI Questionnaire data base that provided information concerning the use of neutralization, 45 operate neutralization systems.

*Flocculation/Coagulation* *8.2.2.3*

GENERAL DESCRIPTION

Flocculation is the stirring or agitation of chemically-treated water to induce coagulation. The terms coagulation and flocculation are often used interchangeably. More specifically, "coagulation" is the reduction of the net electrical repulsive forces at particle surfaces by addition of coagulating chemicals, whereas "flocculation" is the agglomeration of the destabilized particles by chemical joining and bridging. Flocculation enhances sedimentation or filtration treatment system performance by increasing particle size resulting in increased settling rates and filter capture rates.

Flocculation generally precedes sedimentation and filtration processes and usually consists of a rapid mix tank or in-line mixer, and a flocculation tank. The waste stream is initially mixed while a coagulant and/or a coagulant aid is added. A rapid mix tank is usually designed for a detention time of 15 seconds to several minutes. After mixing, the coagulated wastewater flows to a flocculation basin where slow mixing of the waste occurs. The slow mixing allows the particles to agglomerate into heavier, more settleable/filterable solids. Either mechanical paddle mixers or diffused air provides mixing. Flocculation basins are typically designed for a detention time of 15 to 60 minutes. Figure 8-3 presents a diagram of a clarification system incorporating coagulation and flocculation.

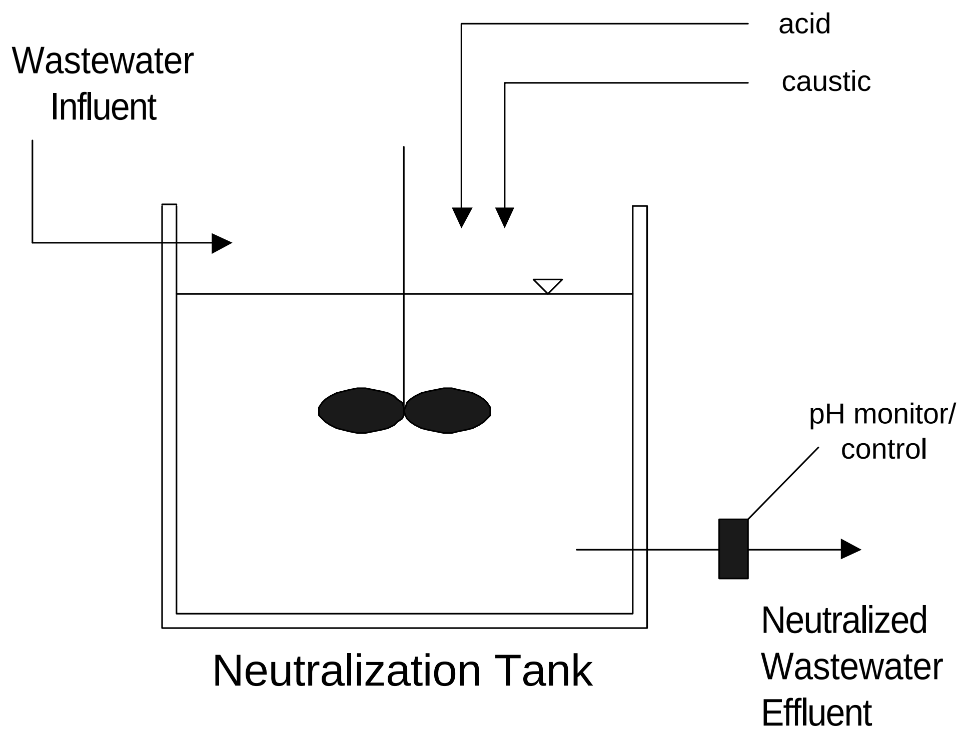


Figure 8-2. Neutralization System Diagram

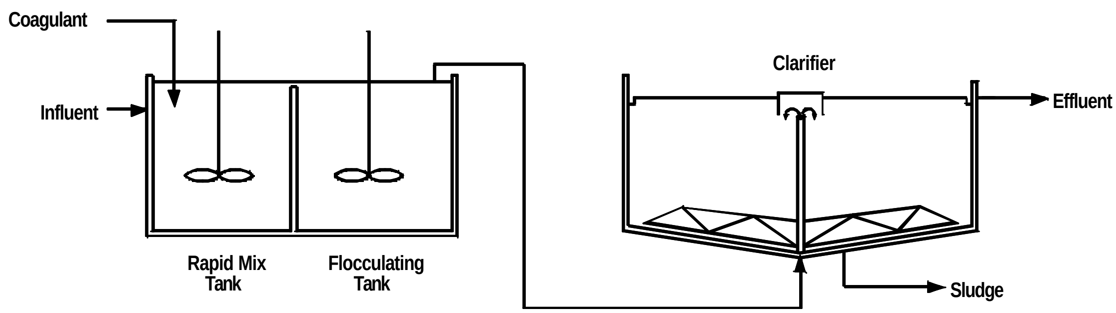


Figure 8-3. Clarification System Incorporating Coagulation and Flocculation

There are three different types of treatment chemicals commonly used in coagulation/flocculation processes: inorganic electrolytes, natural organic polymers, and synthetic polyelectrolytes. The selection of the specific treatment chemical is highly dependent upon the characteristics and chemical properties of the contaminants. Many CWT facilities use bench-scale jar tests to determine the appropriate type and optimal dosage of coagulant/flocculent for a given waste stream.

INDUSTRY PRACTICE

Chemical treatment methods to enhance the separation of pollutants from water as a solid residual may include both chemical precipitation and coagulation/flocculation. Chemical precipitation is the conversion of soluble pollutants such as metals into an insoluble precipitate and is described separately. Flocculation is often an integral step in chemical precipitation, gravity separation, and filtration. Of the 65 CWT facilities in EPA's WTI Questionnaire data base that provided information concerning the use of coagulation/flocculation, 31 operate coagulation/flocculation systems. However, due to the integral nature of flocculation in chemical precipitation and coagulation, and the interchangeable use of the terminology, the use of coagulation/flocculation at CWT facilities may have been underreported.

### *Emulsion Breaking* *8.2.2.4*

GENERAL DESCRIPTION

One process used to treat emulsified oil/water mixtures is emulsion breaking. An emulsion, by definition, is either stable or unstable. A stable emulsion is one where small droplets of oil are dispersed within the water and are prevented from coalescing by repulsive electrical surface charges that are often a result of the presence of emulsifying agents and/or surfactants. In stable emulsions, coalescing and settling of the dispersed oil droplets would occur very slowly or not at all. Stable emulsions are often intentionally formed by chemical addition to stabilize the oil mixture for a specific application. Some examples of stable emulsified oils are metal-working coolants, lubricants, and antioxidants. An unstable emulsion, or dispersion, settles very rapidly and does not require treatment to break the emulsion.

Emulsion breaking is achieved through the addition of chemicals and/or heat to the emulsified oil/water mixture. The most commonly-used method of emulsion breaking is acid-cracking where sulfuric or hydrochloric acid is added to the oil/water mixture until the pH reaches 1 or 2. An alternative to acid-cracking is chemical treatment using emulsion–breaking chemicals such as surfactants and coagulants. After addition of the treatment chemical, the tank contents are mixed. After the emulsion bond is broken, the oil residue is allowed to float to the top of the tank. At this point, heat (100 to 150º F) may be applied to speed the separation process. The oil is then skimmed by mechanical means, or the water is decanted from the bottom of the tank. The oil residue is then further processed or disposed. A diagram of an emulsion breaking system is presented in Figure 8-4.

INDUSTRY PRACTICE

Emulsion breaking is a common process in the CWT industry. Of the 116 CWT facilities in EPA's WTI Questionnaire and NOA comment data base that provided information concerning the use of emulsion breaking, 49 operate emulsion breaking systems. Forty-six of the 83 oils subcategory facilities in EPA's data base use emulsion-breaking. As such, EPA has concluded that emulsion breaking is the baseline, current performance technology for oils subcategory facilities that treat emulsified oily wastes.

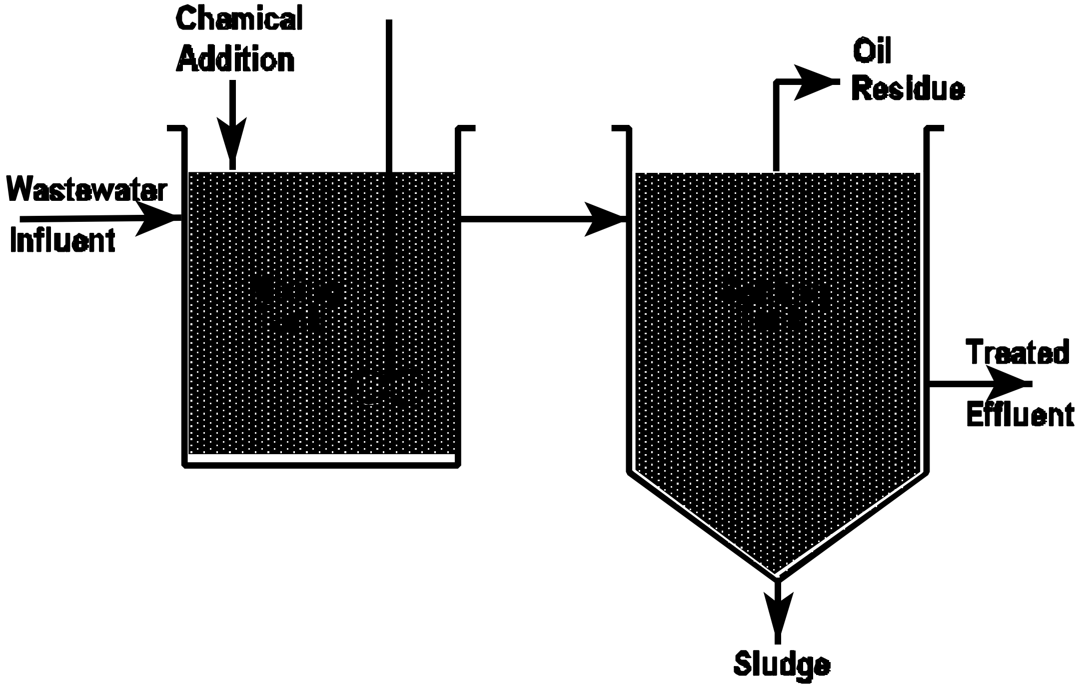


Figure 8-4. Emulsion Breaking System Diagram

### *Gravity Assisted Separation* *8.2.2.5*

#### *1. Gravity Oil/Water Separation*

GENERAL DESCRIPTION

Like emulsion breaking, another in-place treatment process used to remove oil and grease and related pollutants from oil/water mixtures is gravity separation. Unlike emulsion breaking, gravity separation is only effective for the bulk removal of free oil and grease. It is not effective in the removal of emulsified or soluble oils. Gravity separation is often used in conjunction with emulsion breaking at CWT facilities.

Gravity separation may be performed using specially designed tanks or it may occur within storage tanks. During gravity oil/water separation, the wastewater is held under quiescent conditions long enough to allow the oil droplets, which have a lower specific gravity than water, to rise and form a layer on the surface. Large droplets rise more readily than smaller droplets. Once the oil has risen to the surface of the wastewater, it must be removed. This is done mechanically via skimmers, baffles, plates, slotted pipes, or dip tubes. When treatment or storage tanks serve as gravity separators, the oil may be decanted off the surface or, alternately, the separated water may be drawn off the bottom until the oil layer appears. The resulting oily residue from a gravity separator must then be further processed or disposed.

Because gravity separation is such a widely-used technology, there is an abundance of equipment configurations available. A very common unit is the API (American Petroleum Institute) separator, shown in Figure 8-5. This unit uses an overflow and an underflow baffle to skim the floating oil layer from the surface. Another oil/water gravity separation process utilizes parallel plates which shorten the necessary retention time by shortening the distance the oil droplets must travel before separation occurs.

INDUSTRY PRACTICE

Of the 116 CWT facilities in EPA's WTI Questionnaire and NOA comment data base that provided information concerning the use of oil/water gravity separation, 16 operate skimming systems, seven operate coalescing plate or tube separation systems, and 42 operate oil/water gravity separation systems. Oil/water separation is such an integral step at oils subcategory facilities that every oils subcategory facility visited by EPA performed gravity oil/water separation, either in tanks specifically designed for that purpose or in waste receiving or storage tanks.

#### *2. Clarification*

GENERAL DESCRIPTION

Like oil/water separators, clarification systems utilize gravity to provide continuous, low-cost separation and removal of particulates, flocculated impurities, and precipitates from water. These systems typically follow wastewater treatment processes which generate suspended solids, such as chemical precipitation and biological treatment.

In a clarifier, wastewater is allowed to flow slowly and uniformly, permitting the solids more dense than water to settle to the bottom. The clarified wastewater is discharged by flowing from the top of the clarifier over a weir. Solids accumulate at the bottom of a clarifier and a sludge must be periodically removed, dewatered and disposed. Conventional clarifiers are typically circular or rectangular tanks. Some specialized types of clarifiers additionally incorporate tubes, plates, or lamellar networks to increase the settling area. A circular clarification system is illustrated in Figure 8-6.

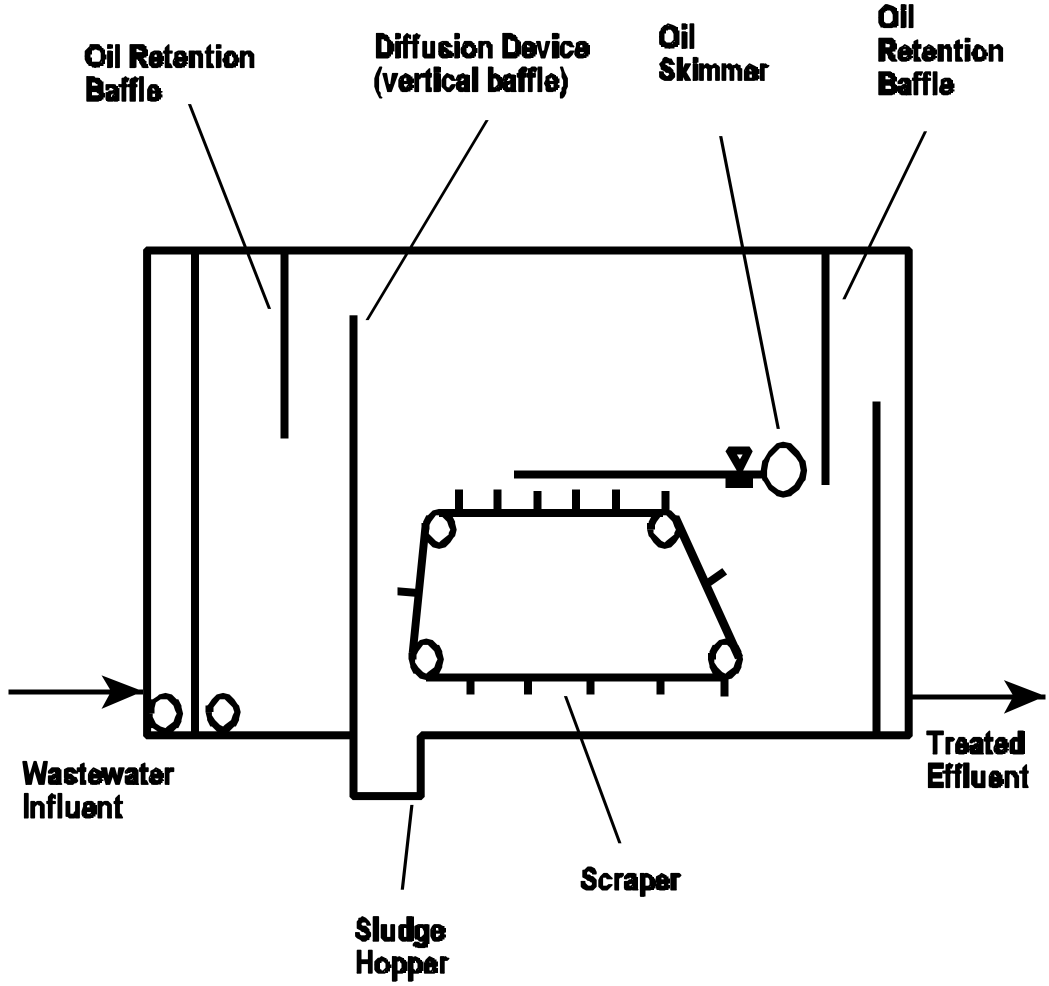


Figure 8-5. Gravity Separation System Diagram

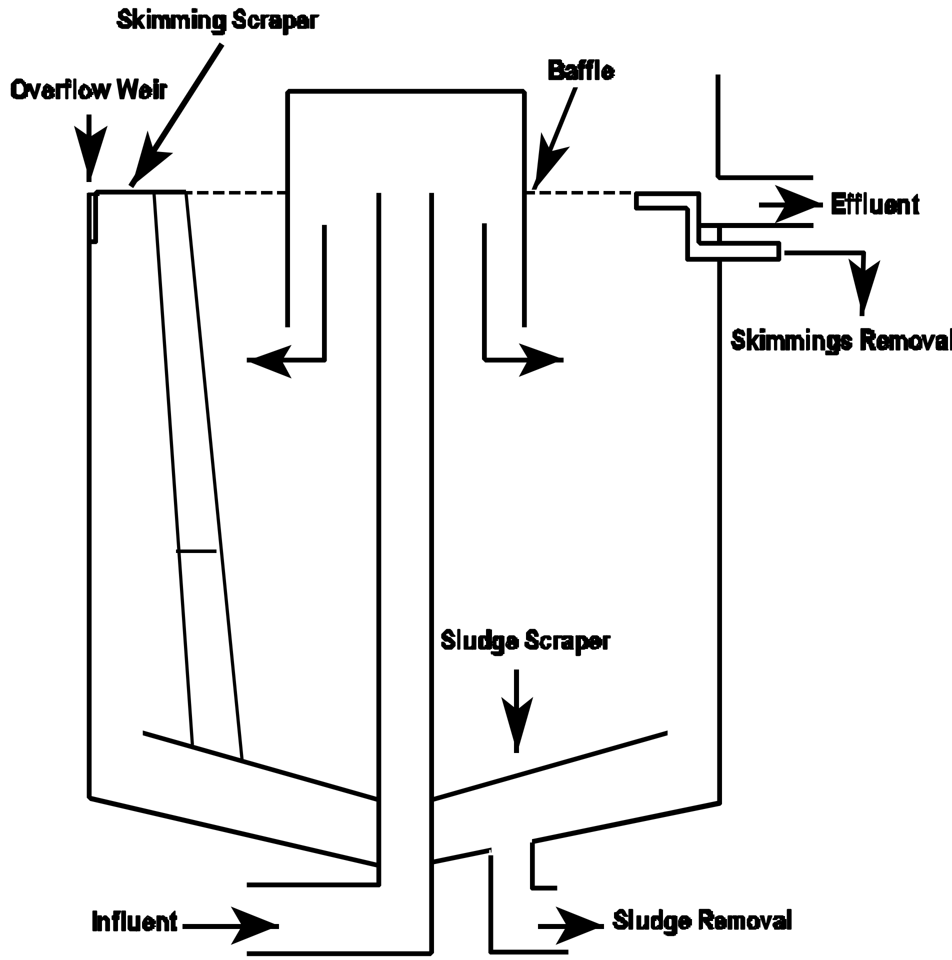


Figure 8-6. Clarification System Diagram

INDUSTRY PRACTICE

Of the 65 CWT facilities in EPA's WTI Questionnaire data base that provided information concerning the use of clarification systems, 39 operate settling systems and seven operate coalescing plate or tube separation systems. EPA did not obtain detailed enough treatment technology information from the Notice of Data Availability comments for the oils subcategory facilities to determine the presence or absence of clarification systems. In general, oils subcategory facilities are more likely to utilize gravity oil/water separation. However, oils facilities that also utilize solids generation processes such as chemical precipitation or biological treatment as part of their waste treatment train will likely utilize clarification systems.

### 3. *DISSOLVED AIR FLOTATION*

GENERAL DESCRIPTION

Flotation is the process of using fine bubbles to induce suspended particles to rise to the surface of a tank where they can be collected and removed. Gas bubbles are introduced into the wastewater and attach themselves to the particles, thereby reducing their specific gravity and causing them to float. Fine bubbles may be generated by dispersing air mechanically, by drawing them from the water using a vacuum, or by forcing air into solution under elevated pressure followed by pressure release. The latter, called dissolved air flotation (DAF), is the flotation process used most frequently by CWT facilities and is the focus of the remaining discussion.

DAF is commonly used to remove suspended solids and dispersed oil and grease from oily wastewater. It may effectively reduce the sedimentation times of suspended particles that have a specific gravity close to that of water. Such particles may include both solids with specific gravity slightly greater than water and oil/grease particles with specific gravity slightly less than water. Flotation processes are particularly useful for inducing the removal of oil-wet solids that may exhibit a combined specific gravity nearly the same as water. Oil-wet solids are difficult to remove from wastewater using gravity sedimentation alone, even when extended sedimentation times are utilized. Figure 8-7 is a flow diagram of a DAF system.

The major components of a conventional DAF unit include a centrifugal pump, a retention tank, an air compressor, and a flotation tank. For small volume systems, the entire influent wastewater stream is pressurized and contacted with air in a retention tank for several minutes to allow time for the air to dissolve. The pressurized water that is nearly saturated with air is then passed through a pressure reducing valve and introduced into the flotation tank near the bottom. In larger units, rather than pressurizing the entire wastewater stream, a portion of the flotation cell effluent is recycled through the pressurizing pump and the retention tank. The recycled flow is then mixed with the unpressurized main stream just prior to entering the flotation tank.

As soon as the pressure is released, the supersaturated air begins to come out of solution in the form of fine bubbles. The bubbles attach to suspended particles and become enmeshed in sludge flocs, floating them to the surface. The float is continuously swept from the tank surface and is discharged over the end wall of the tank. Sludge, if generated, may be collected from the bottom of the tank. The mechanics of the bubble-particle interaction include: (1) attachment of the bubbles on the particle surface, (2) collision between a bubble and a particle, (3) agglomeration of individual particles or a floc structure as the bubbles rise, and (4) absorption of the bubbles into a floc structure as it forms. As such, surface chemistry plays a critical role in the effective performance of air flotation.

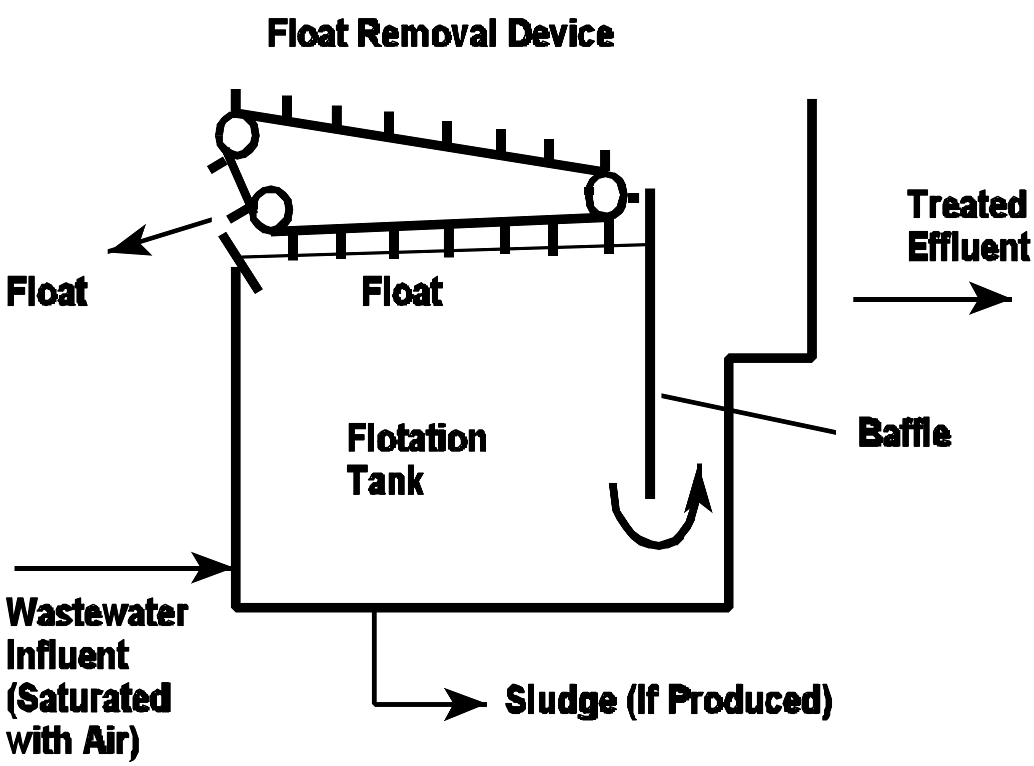


Figure 8-7. Dissolved Air Flotation System Diagram

Other operating variables which affect the performance of DAF include the operating pressure, recycle ratio, detention time, the air/solids ratio, solids and hydraulic loading rates, and the application of chemical aids.

The operating pressure of the retention tank influences the size of the bubbles released. If the bubbles are too large, they do not attach readily to the suspended particles. If the bubbles are too fine, they will disperse and break up fragile floc. Wastewater treatment textbooks generally recommend a bubble size of 100 micrometers. The most practical way to establish the proper rise rate is to conduct experiments at various air pressures.

The air-to-solids ratio in the DAF unit determines the effluent quality and solids concentration in the float. This is because adequate air bubbles are needed to float suspended solids to the surface of the tank. Partial flotation of solids will occur if inadequate or excessive amounts of air bubbles are present.

Researchers have demonstrated that the addition of chemicals to the water stream is an effective means of increasing the efficiencies of DAF treatment systems. The use of coagulants can drastically increase the oil removal efficiency of DAF units. Three types of chemicals are generally utilized to improve the efficiency of air flotation units used for treatment of produced water; these chemicals are surface active agents, coagulating agents, and polyelectrolytes. The use of treatment chemicals may also enhance the removal of metals in air flotation units. EPA's collection of data from the CWT industry has shown that many facilities use DAF systems to remove metals from their waste streams.

#### Industry Practice

Of the 116 CWT facilities in EPA's WTI Questionnaire and NOA comment data base that provided information concerning use of DAF, 21 operate DAF systems.

### *Chromium Reduction* *8.2.2.6*

#### General Description

Reduction is a chemical reaction in which electrons are transferred from one chemical to another. The main reduction application at CWT facilities is the reduction of hexavalent chromium to trivalent chromium, which is subsequently precipitated from the wastewater in conjunction with other metallic salts. A low pH of 2 to 3 will promote chromium reduction reactions. At pH levels above 5, the reduction rate is slow. Oxidizing agents such as dissolved oxygen and ferric iron interfere with the reduction process by consuming the reducing agent.

The use of strong reducing agents such as sulfur dioxide, sodium bisulfite, sodium metabisulfite, and ferrous sulfate also promotesshexavalent chromium reduction. The two most commonly used reducing agents in the CWT industry are sodium metabisulfite or sodium bisulfite and gaseous sulfur dioxide. The remaining discussion will focus on chromium reduction using these agents only. Figure 8-8 is a diagram of a chromium reduction system.

Chromium reduction using sodium metabisulfite ($Na_2S_2O_5$) and sodium bisulfite ($NaHSO_3$) are essentially similar. The mechanism for the reaction using sodium bisulfite as the reducing agent is:

$$3NaHSO_3 + 3H_2SO_4 + 2H_2CrO_4$$
$$6\ Cr_2(SO_4)_3 + 3NaHSO_4 + 5H_2O$$

The hexavalent chromium is reduced to trivalent chromium using sodium metabisulfite, with sulfuric acid used to lower the pH of the solution. The amount of sodium metabisulfite needed to reduce the hexavalent chromium is reported as 3 parts of sodium bisulfite per part of chromium, while the amount of sulfuric acid is 1 part per part of chromium. The theoretical retention time is about 30 to 60 minutes.

A second process uses sulfur dioxide ($SO_2$) as the reducing agent. The reaction mechanism is as follows:

$$3SO_2 + 3H_2O \rightarrow 3H_2SO_3$$

$$3H_2SO_3 + 2H_2CrO_4 \rightarrow Cr_2(SO_4)_3 + 5H_2O$$

The hexavalent chromium is reduced to trivalent chromium using sulfur dioxide, with sulfuric acid used to lower the pH of the solution. The amount of sulfur dioxide needed to reduce the hexavalent chromium is reported as 1.9 parts of sulfur dioxide per part of chromium, while the amount of sulfuric acid is 1 part per part of chromium. At a pH of 3, the theoretical retention time is approximately 30 to 45 minutes.

#### INDUSTRY PRACTICE

Of the 65 CWT facilities in EPA's WTI Questionnaire data base that provided information concerning the use of chromium reduction, 35 operate chromium reduction systems. All of the 35 facilities are in the metals subcategory. At these 35 facilities, there are four sulfur dioxide processes, 21 sodium bisulfite processes, and two sodium metabisulfite processes. The remaining systems use various other reducing agents.

### *Cyanide Destruction* *8.2.2.7*

#### GENERAL DESCRIPTION

Electroplating and metal finishing operations produce the major portion of cyanide-bearing wastes accepted at CWT facilities. EPA observed three separate cyanide destruction techniques during site visits at CWT facilities. The first two methods are alkaline chlorination with gaseous chlorine and alkaline chlorination with sodium hypochlorite. The third method is a cyanide destruction process, details of which the generator has claimed are confidential business information (CBI). The two alkaline chlorination procedures are discussed here.

Alkaline chlorination can destroy free dissolved hydrogen cyanide and can oxidize all simple and some complex inorganic cyanides. It, however, cannot effectively oxidize stable iron, copper, and nickel cyanide complexes. The addition of heat to the alkaline chlorination process can facilitate the more complete destruction of total cyanides. The use of an extended retention time can also improve overall cyanide destruction. Figure 8-9 is a diagram of an alkaline chlorination system.

In alkaline chlorination using gaseous chlorine, the oxidation process is accomplished by direct addition of chlorine ($Cl_2$) as the oxidizer and sodium hydroxide (NaOH) to maintain pH levels. The reaction mechanism is as follows:

$$NaCN + Cl_2 + 2NaOH \rightarrow NaCNO + 2NaCl + H_2O$$

$$2NaCNO + 3Cl_2 + 6NaOH \rightarrow 2NaHCO_3 + N_2 + 6NaCl + 2H_2O$$

The destruction of the cyanide takes place in two stages. The primary reaction is the partial oxidation of the cyanide to cyanate at a pH above 9. In the second stage, the pH is lowered to a range of 8 to 8.5 for the oxidation of the cyanate to nitrogen and carbon dioxide (as sodium bicarbonate). Each part of cyanide requires 2.73 parts of chlorine to convert it to cyanate and an additional 4.1 parts of chlorine to oxidize the cyanate to nitrogen and carbon dioxide. At least 1.125 parts of sodium hydroxide are required to control the pH with each stage.

Alkaline chlorination can also be conducted with sodium hypochlorite (NaOCl) as the oxidizer. The oxidation of cyanide waste using sodium hypochlorite is similar to the gaseous chlorine process. The reaction mechanism is:

$$NaCN + NaOCl \rightarrow NaCNO + NaCl$$

$$2NaCNO + 3NaOCl + H_2O \rightarrow 2NaHCO_3 + N_2 + 3NaCl$$

In the first step, cyanide is oxidized to cyanate with the pH maintained in the range of 9 to 11. The second step oxidizes cyanate to carbon dioxide (as sodium bicarbonate) and nitrogen at a controlled pH of 8.5. The amount of sodium hypochlorite and sodium hydroxide needed to perform the oxidation is 7.5 parts and 8 parts per part of cyanide, respectively.

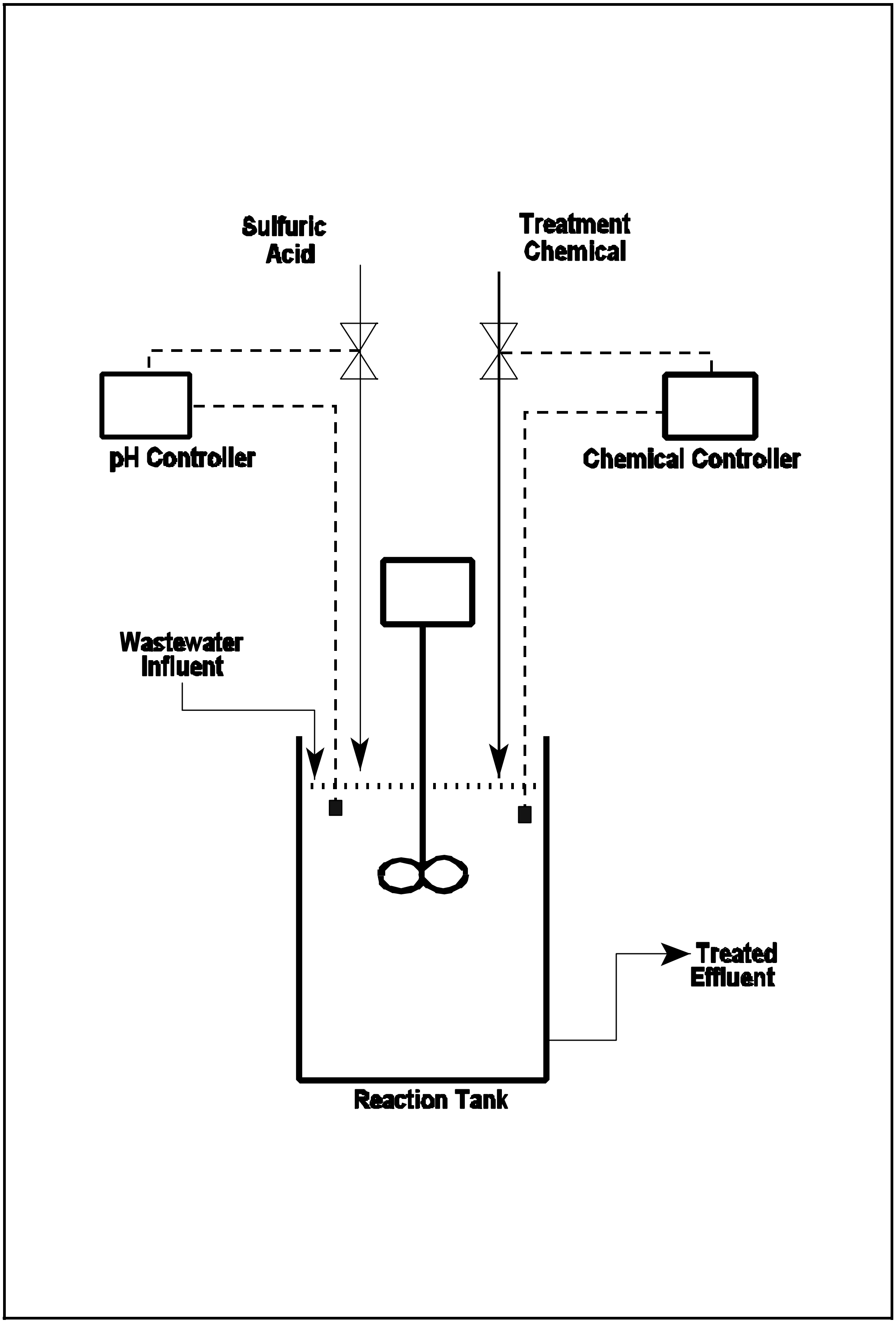


Figure 8-8.	Chromium Reduction System Diagram

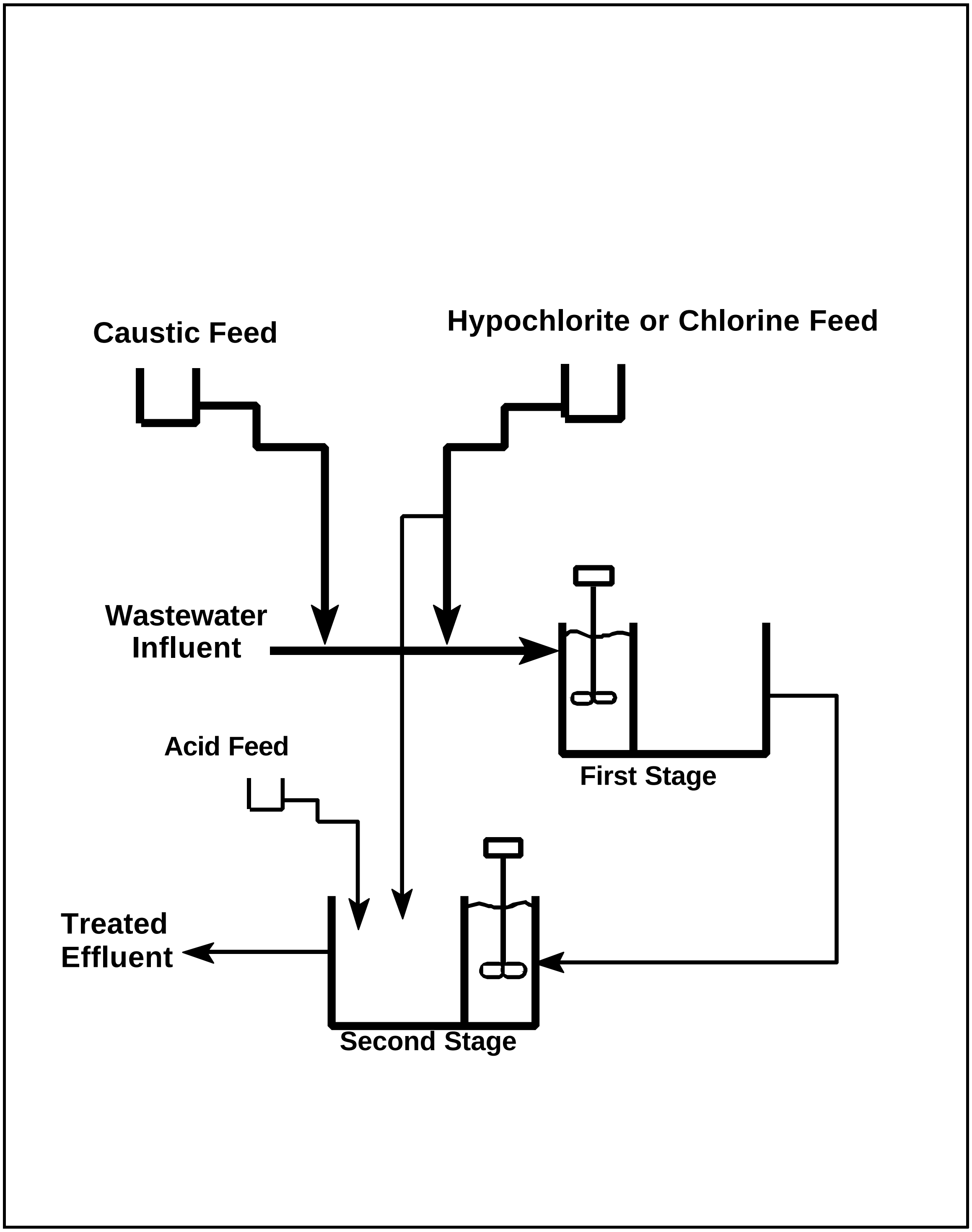


Figure 8.9 Cyanide Destruction by Alkaline Chlorination

INDUSTRY PRACTICE

Of the 65 CWT facilities in EPA's WTI Questionnaire data base that provided information concerning the use of cyanide destruction, 22 operate cyanide destruction systems. All of the 22 facilities are in the metals subcategory. Of these 22 facilities, one is a thermal unit, one is the CBI unit, and the rest are chemical reagent systems.

### *Chemical Precipitation 8.2.2.8*

GENERAL DESCRIPTION

Many CWT facilities use chemical precipitation to remove metal compounds from wastewater. Chemical precipitation converts soluble metallic ions and certain anions to insoluble forms, which precipitate from solution. Chemical precipitation is usually performed in conjunction with coagulation/flocculation processes which facilitate the agglomeration of suspended and colloidal material. Most metals are relatively insoluble as hydroxides, sulfides, or carbonates. Coagulation/flocculation processes are used in conjunction with precipitation to facilitate removal by agglomeration of suspended and colloidal materials. The precipitated metals are subsequently removed from the wastewater stream by liquid filtration or clarification (or some other form of gravity-assisted separation). Other treatment processes such as equalization, or chemical oxidation or reduction (e.g., hexavalent chromium reduction) usually precede the chemical precipitation process. Chemical interactions, temperature, pH, solubility of waste contaminants, and mixing effects all affect the performance of the chemical precipitation process.

Chemical precipitation is a two-step process. At CWT facilities, it is typically performed in batch operations. In the first step, precipitants are mixed with the wastewater, typically by mechanical means, such as mixers, allowing the formation of the insoluble metal precipitants. The detention time in this step of the process is specific to the wastewater being treated, the treatment chemicals used, and the desired effluent quality. In the second step, the precipitated metals are removed from the wastewater, typically through filtration or clarification. If clarification is used, a flocculent is sometimes added to aid the settling process. The resulting sludge from the clarifier or filter must be further treated, disposed, or recycled. A typical chemical precipitation system is shown in Figure 8-10.

Various chemicals may be used as precipitants. These include lime, sodium hydroxide (caustic), soda ash, sodium sulfide, and ferrous sulfate. Other chemicals used in the precipitation process for pH adjustment and/or coagulation include sulfuric and phosphoric acid, ferric chloride, and polyelectrolytes. Often, facilities use a combination of these chemicals. CWT facilities generally use hydroxide precipitation and/or sulfide precipitation. Hydroxide precipitation is effective in removing metals such as antimony, arsenic, chromium, copper, lead, mercury, nickel, and zinc. Sulfide precipitation is used instead of, or in addition to, hydroxide precipitation to remove specific metal ions including lead, copper, silver, cadmium, zinc, mercury, nickel, thallium, arsenic, antimony, and vanadium. Both hydroxide and sulfide precipitation are discussed in greater detail below.

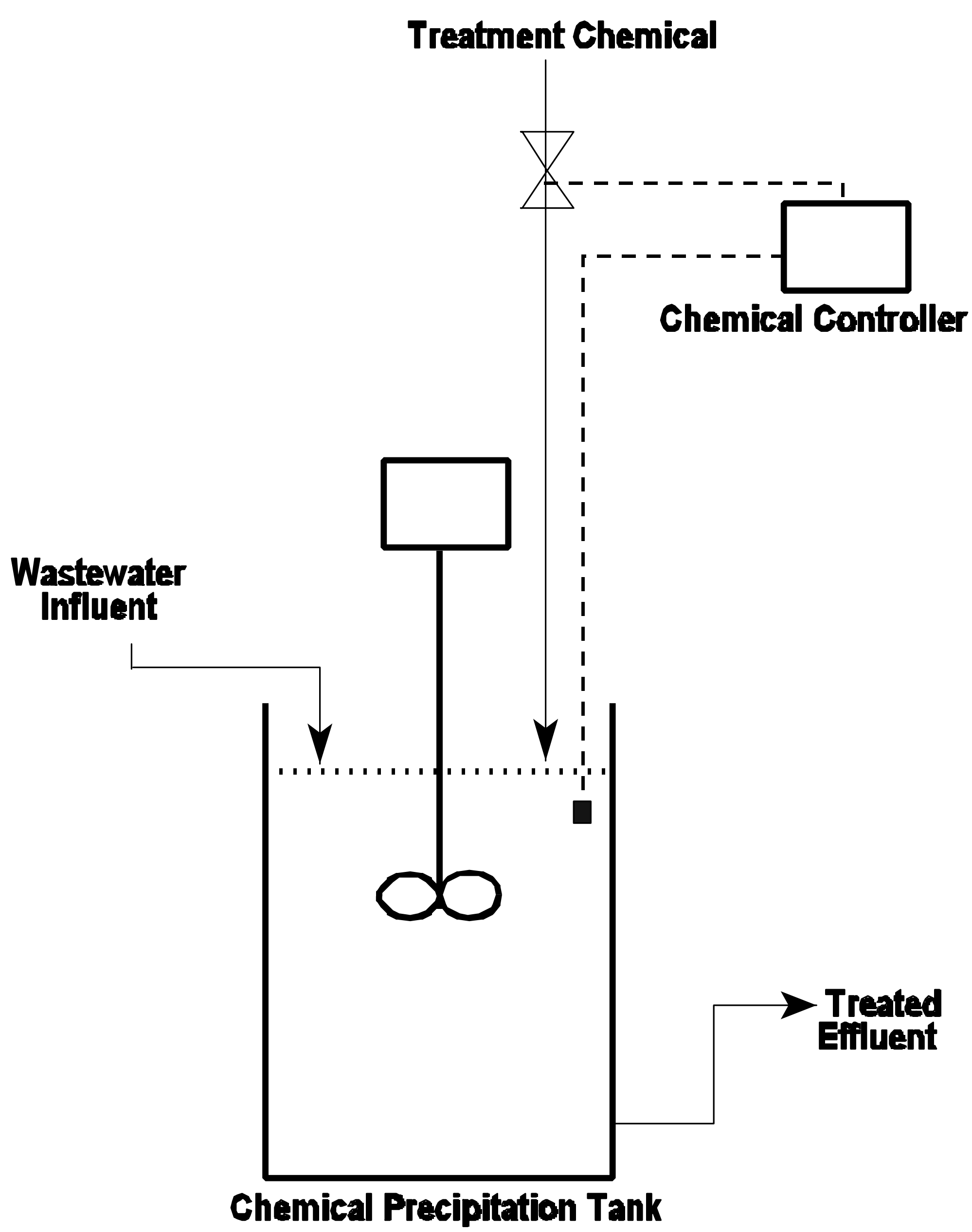


Figure 8-10. Chemical Precipitation System Diagram

Hydroxide precipitation using lime or caustic is the most commonly-used means of chemical precipitation at CWT facilities. Of these, lime is used more often than caustic. The reaction mechanism for each of these is as follows:

$$M^{++} + Ca(OH)_2 \rightarrow M(OH)_2\downarrow + Ca^{++}$$

$$M^{++} + 2NaOH \rightarrow M(OH)_2\downarrow + 2Na^{++}$$

The chief advantage of lime over caustic is its lower cost. However, lime is more difficult to handle and feed, as it must be slaked, slurried, and mixed, and can plug the feed system lines. Lime also produces a larger volume of sludge than caustic, and the sludge is generally not suitable for reclamation due to its homogeneous nature.

Sulfide precipitation is the next most commonly-used means of chemical precipitation at CWT facilities. It is used to remove lead, copper, silver, cadmium, zinc, mercury, nickel, thallium, arsenic, antimony, and vanadium from wastewaters. An advantage of the sulfide process over the hydroxide process is that it can reduce hexavalent chromium to the trivalent state under the same process conditions required for metals precipitation. The use of sulfides also allows for the precipitation of metals when chelating agents are present. The two most common sulfide precipitation processes are the soluble sulfide process and the insoluble sulfide (Sulfex) process.

In the soluble sulfide process, either sodium sulfide or sodium hydrosulfide, both highly soluble, is added in high concentration either as a liquid reagent or from rapid mix tanks using solid reagents. This high concentration of soluble sulfides results in rapid precipitation of metals which then results in the generation of fine precipitate particles and hydrated colloidal particles. These fine particles do not settle or filter well without the addition of coagulating and flocculating agents to aid in the formation of larger, fast-settling floc. The high concentration of soluble sulfides may also lead to the generation of highly toxic and odorous hydrogen sulfide gas. To control this problem, the treatment facility must carefully control the dosage and/or the process vessels must be enclosed and vacuum evacuated. The reaction mechanism for soluble sulfide precipitation is as follows:

$$M^{++} + S^{--} \rightarrow MS\downarrow$$

The basic principle governing the insoluble sulfide process is that ferrous sulfide (FeS) will disassociate into ferrous and sulfide ions, as predicted by its solubility, producing a sulfide concentration of approximately 2 mg/l under normal conditions. In the insoluble sulfide process, a slurry of freshly prepared FeS (prepared by reactive $FeSO_4$ and NaHS) is added to the wastewater. As the sulfide ions are consumed in precipitating the metal pollutants, additional FeS will disassociate. This will continue as long as other heavy metals with lower equilibrium constants are present in solution. Because most heavy metals have sulfides that are less soluble than ferrous sulfate, they will precipitate as metal sulfides. In addition, if given enough time, any metal hydroxides present will dissolve and precipitate out as sulfides. If the operation is performed under alkaline conditions, the released ferrous ion will precipitate out as a hydroxide. The following reactions occur when FeS is added to a solution that contains dissolved metal and metal hydroxide:

$$FeS \rightarrow Fe^{++} + S^{--}$$

$$M^{++} + S^{--} \rightarrow MS\downarrow$$

$$M(OH)_2 \rightarrow M^{++} + 2(OH)^-$$

$$Fe^{++} + 2(OH)^- \rightarrow Fe(OH)_2\downarrow$$

One advantage of the insoluble sulfide process over the soluble sulfide process is that the insoluble sulfide process generates no detectable $H_2S$ gas odor. This is because the dissolved sulfide concentration is maintained at a relatively low concentration. Disadvantages of the insoluble sulfide process include considerably higher than stoichiometric reagent consumption and significantly higher sludge generation than either the hydroxide or soluble sulfide process.

Wastewater treatment facilities often choose to combine hydroxide precipitation and sulfide precipitation for optimal metals removal. A common configuration is a two-stage process in which hydroxide precipitation is followed by sulfide precipitation with each stage followed by a separate solids removal step. This will produce the high quality effluent of the sulfide precipitation process while significantly reducing the volume of sludge generated and the consumption of sulfide reagent.

In addition to the type of treatment chemical chosen, another important operational variable in chemical precipitation is pH. Metal hydroxides are amphoteric, meaning they can react chemically as acids or bases. As such, their solubilities increase toward both lower and higher pH levels. Therefore, there is an optimum pH for hydroxide precipitation for each metal, which corresponds to its point of minimum solubility. Figure 8-11 presents calculated solubilities of metal hydroxides. For example, as demonstrated in this figure, the optimum pH range where zinc is the least soluble is between 8 and 10. The solubility of metal sulfides is not as sensitive to changes in pH as hydroxides and generally decreases as pH increases. The typical operating pH range for sulfide precipitation is between 7 and 9. Arsenic and antimony are exceptions to this rule and require a pH below 7 for optimum removal. As such, another advantage of sulfide precipitation over hydroxide precipitation is that most metals can be removed to extremely low concentrations at a single pH.

For wastewater contaminated with a single metal, selecting the optimum treatment chemical and treatment pH for precipitation simply requires the identification of the treatment chemical/pH combination that produces the lowest solubility of that metal. This is typically done using a series of bench-scale treatability tests. However, when wastewater is contaminated with more than one metal, as is often the case for wastewaters at CWT facilities, selecting the optimum treatment chemical and pH for a single-stage precipitation process becomes more difficult and often involves a tradeoff between optimal removal of two or more metals. In general, for wastewater contaminated with multiple metals, EPA has concluded that a single-stage precipitation process does not provide for adequate treatment. In such cases, a series of chemical treatment steps using different pH values and/or different treatment chemicals may be more appropriate. Each of these treatment steps needs to be followed by a solids separation step in order to prevent the resolubilization of metal precipitates during the subsequent treatment step.

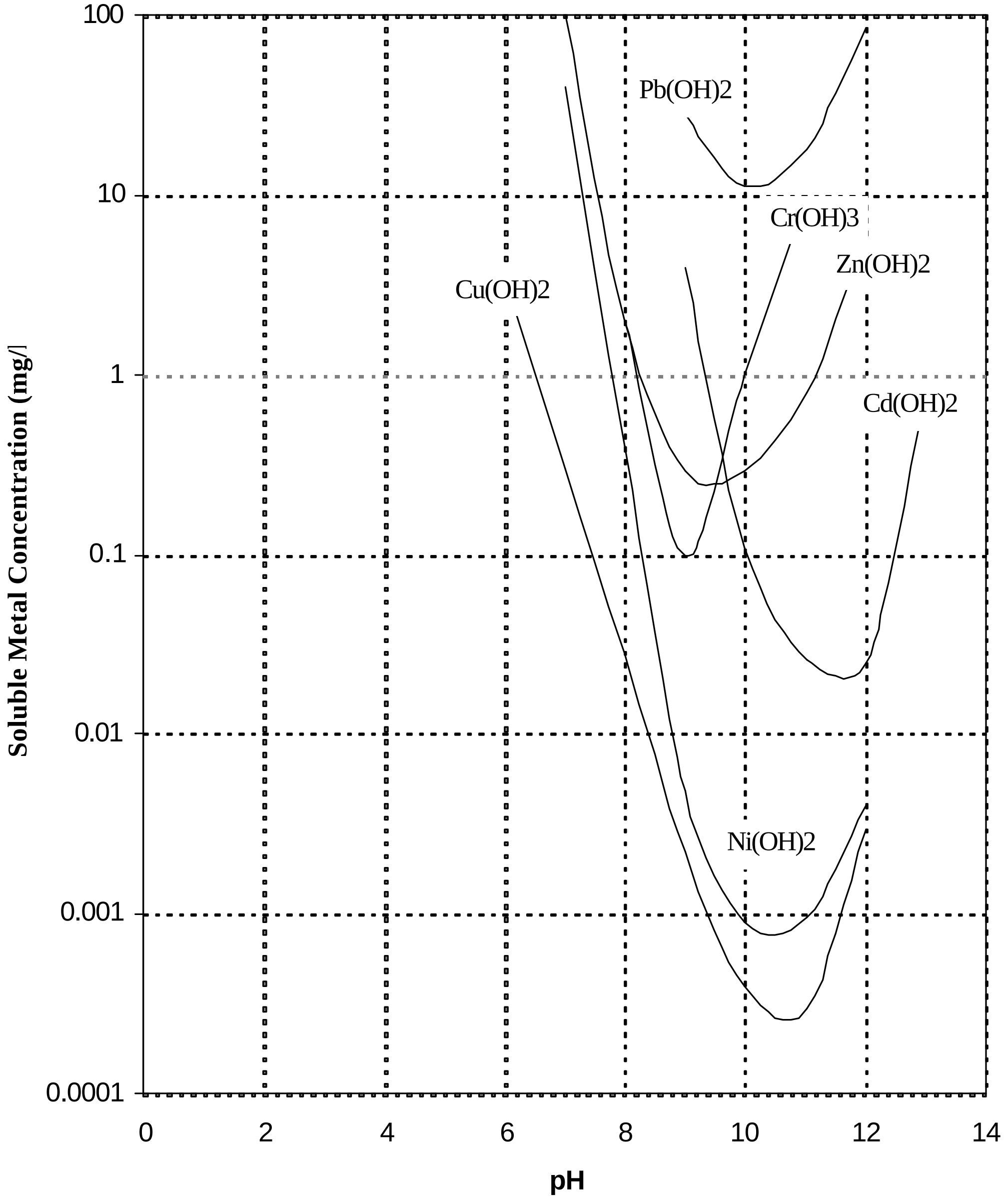


Figure 8-11. Calculated Solubilities of Metal Hydroxides

In order to take advantage of the effects of pH and treatment chemical selection on metals precipitation, a facility may hold its wastes and segregate them by pollutant content for treatment. This type of waste treatment management, called selective metals precipitation, may be adopted in order to optimize the recovery of specific metal pollutants. In instances where the segregated wastes contain several metals, the pH of the precipitation process may be adjusted so that the desired metal for recovery is precipitated in greater proportion than the other metals. Multiple precipitation steps are then performed in series on a single waste stream using different pH values, resulting in different metals being selectively precipitated into separate sludges. The production of specific sludges containing only the target metals makes the sludges more suitable for reclamation. If the sludge is to be sold to a smelter for re-use, then hydroxide precipitation using only caustic should be performed. The calcium compounds from lime would interfere with the smelting process.

Selective precipitation is advantageous because the metals may be reclaimed and re-used rather than disposed as a sludge in a landfill and because it allows for optimal removal of the metals of concern. However, selective metals precipitation does have additional costs such as those associated with the extra tanks and operating personnel required for waste segregation.

INDUSTRY PRACTICE

Of the 116 CWT facilities in EPA's WTI Questionnaire and NOA comment data base that provided information concerning the use of chemical precipitation, 57 operate chemical precipitation systems. Fifty-one of these facilities treat metals subcategory wastewaters. As discussed previously, a single facility may use several chemical precipitation steps, depending upon the type of waste being treated. Of the 51 chemical precipitation systems at metals subcategory facilities, 13 operate secondary precipitation processes, four operate tertiary precipitation processes, and one employs selective chemical precipitation processes.

### *Filtration* *8.2.2.9*

Filtration is a method for separating solid particles from a fluid through the use of a porous medium. The driving force in filtration is a pressure gradient caused by gravity, centrifugal force, pressure, or a vacuum. CWT facilities use filtration treatment processes to remove solids from wastewaters after physical/chemical or biological treatment, or as the primary source of waste treatment. Filtration processes utilized in the CWT industry include a broad range of media and membrane separation technologies.

To aid in removal, the filter medium may be precoated with a filtration aid such as ground cellulose or diatomaceous earth. Polymers are sometimes injected into the filter feed piping downstream of feed pumps to enhance flocculation of smaller flocs to improve solids capture. The following sections discuss the various types of filtration in use at CWT facilities.

#### *1. Sand Filtration*

GENERAL DESCRIPTION

Sand filtration processes consist of either a fixed or moving bed of media that traps and removes suspended solids from water passing through the media. There are two types of fixed sand bed filters: pressure and gravity. Pressure filters contain media in an enclosed, watertight pressure vessel and require a feed pump to force the water through the media. A gravity filter operates on the basis of differential pressure of a static head of water above the media, which causes flow through the filter. Filter loading rates for sand filters are typically between 2 to 6 gpm/sq-ft.

Fixed media filters have influent and effluent distribution systems consisting of pipes and fittings. A stainless steel screen covered with gravel generally serves as the tank bottom and support for the sand. Dirty water enters the top of the filter and travels downward.

Moving bed filters use an air lift pump and draft tube to recirculate sand from the bottom to the top of the filter vessel, which is usually open at the top. Dirty water entering the filter at the bottom must travel upward, countercurrently, through the downward moving fluidized sand bed. Particles are strained from the rising water and carried downward with the sand. Due to the difference in specific gravity, the lighter particles are removed from the filter when the sand is recycled through a separation box often located at the top of the filter. The heavier sand falls back into the filter, while the lighter particles are washed over a weir to waste.

Both fixed media and moving bed filters build up head loss over time. Head loss is a measure of solids trapped in the filter. As the filter becomes filled with trapped solids, the efficiency of the filtration process falls off, and the filter must be backwashed. Reversing the flow will backwash filters so that the solids in the media are dislodged and may exit the filter. Sometimes air is dispersed into the sand bed to scour the media.

Fixed bed filters may be automatically backwashed when the differential pressure exceeds a preset limit or when a timer starts the backwash cycle. A supply of clean backwash water is required. Backwash water and trapped particles are commonly discharged to an equalization tank upstream of the wastewater treatment system's gravity separation system or screen for removal. Moving bed filters are continuously backwashed and have a constant rate of effluent flow.

#### INDUSTRY PRACTICE

Of the 65 CWT facilities in EPA's WTI Questionnaire data base that provided information concerning use of sand filtration, eight operate sand filtration systems.

### 2. *MULTIMEDIA FILTRATION*

#### GENERAL DESCRIPTION

CWT facilities may use multimedia, or granular bed, filtration to achieve supplemental removal of residual suspended solids from the effluent of chemical and biological treatment processes. In granular bed filtration, the wastewater stream is sent through a bed containing two or more layers of different granular materials. The solids are retained in the voids between the media particles while the wastewater passes through the bed. Typical media used in granular bed filters include anthracite coal, sand, and garnet.

A multimedia filter is designed so that the finer, denser media is at the bottom and the coarser, less dense media at the top. A common arrangement is garnet at the bottom of the bed, sand in the middle, and anthracite coal at the top. Some mixing of these layers occurs and is anticipated. During filtration, the removal of the suspended solids is accomplished by a complex process involving one or more mechanisms such as straining, sedimentation, interception, impaction, and adsorption. The medium size is the principal characteristic that affects the filtration operation. If the medium is too small, much of the driving force will be wasted in overcoming the frictional resistance of the filter bed. If the medium is too large, small particles will travel through the bed, preventing optimum filtration.

By designing the filter bed so that pore size decreases from the influent to the effluent side of the bed, different size particles are filtered out at different depths (larger particles first) of the filter bed. This helps prevent the build up of a single layer of solids at the bed surface which can quickly increase the pressure drop over the bed resulting in shorter filter runs and more frequent backwash cycles. Thus, the advantage of multimedia filtration over sand filtration is longer filter runs and less frequent backwash cycles.

The flow pattern of multimedia filters is usually top-to-bottom. Upflow filters, horizontal filters, and biflow filters are also used. Figure 8-12 is a top-to-bottom multimedia filter. The classic multimedia filter operates by gravity. However, pressure filters are occasionally used.

The complete filtration process involves two phases: filtration and backwashing. As the filter becomes filled with trapped solids, the efficiency of the filtration process falls off. Head loss is a measure of solids trapped in the filter. As the head loss across the filter bed increases to a limiting value, the end of the filter run is reached and the filter must be backwashed to remove the suspended solids in the bed. During backwashing, the flow through the filter is reversed so that the solids trapped in the media are dislodged and can exit the filter. The bed may also be agitated with air to aid in solids removal. Backwash water and trapped particles are commonly discharged to an equalization tank upstream of the wastewater treatment system's gravity separation system or screen for removal.

An important feature in filtration and backwashing is the underdrain. The underdrain is the support structure for the filtration bed. The underdrain provides an area for the accumulation of the filtered water without it being clogged from the filtered solids or the media particles. During backwash, the underdrain provides even flow distribution over the bed. This is important because the backwash flowrate is set so that the filter bed expands but the media is not carried out with the backwashed solids. The media with different densities then settle back down in somewhat discrete layers at the end of the backwash step.

#### INDUSTRY PRACTICE

Of the 65 CWT facilities in EPA's WTI Questionnaire data base that provided information concerning use of multimedia filtration, four operate multimedia filtration systems.

### 3. *PLATE AND FRAME PRESSURE FILTRATION*

#### GENERAL DESCRIPTION

Another filtration system for the removal of solids from waste streams is a plate and frame pressure filtration systems. Although plate and frame filter presses are more commonly used for dewatering sludges, they are also used to remove solids directly from wastewater streams. The liquid stream plate and frame pressure filtration system is identical to the system used for the sludge stream (section 8.4.1) with the exception of a lower solids level in the influent stream. The same equipment is used for both applications, with the difference being the sizing of the sludge and liquid units. See section 8.4.1 for a detailed description of plate and frame pressure filtration. No CWT facilities in EPA's database use plate and frame filtration.

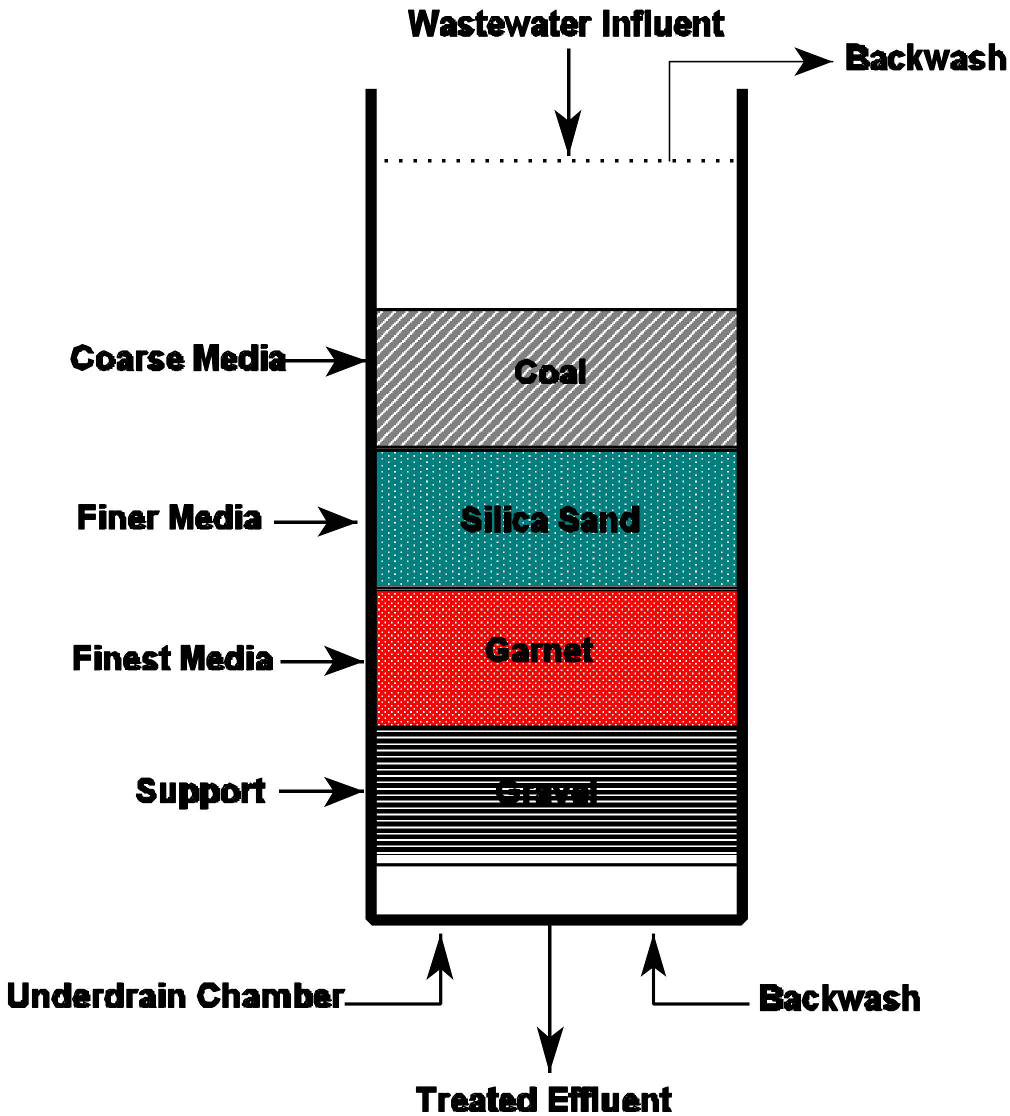


Figure 8-12. Multi-Media Filtration System Diagram

### 4. *MEMBRANE FILTRATION*

GENERAL DESCRIPTION

Membrane filtration systems are processes which employ semi-permeable membranes and a pressure differential to remove solids in wastestreams. Reverse osmosis and ultrafiltration are two commonly-used membrane filtration processes.

#### *A. ULTRAFILTRATION*

GENERAL DESCRIPTION

CWT facilities commonly use ultrafiltration (UF) for the treatment of metal-finishing wastewater and oily wastes. It can remove substances with molecular weights greater than 500, including suspended solids, oil and grease, large organic molecules, and complexed heavy metals. UF can be used when the solute molecules are greater than ten times the size of the solvent molecules, and are less than one-half micron. In the CWT industry, UF is applied in the treatment of oil/water emulsions. Oil/water emulsions contain both soluble and insoluble oil. Typically the insoluble oil is removed from the emulsion by gravity separation assisted by emulsion breaking. The soluble oil is then removed by UF. Oily wastewater containing 0.1 to 10 percent oil can be effectively treated by UF. Figure 8-13 shows a UF system.

In UF, a semi-permeable microporous membrane performs the separation. Wastewater is sent through membrane modules under pressure. Water and low–molecular –weight solutes (for example, salts and some surfactants) pass through the membrane and are removed as permeate. Emulsified oil and suspended solids are rejected by the membrane and are removed as concentrate. The concentrate is recirculated through the membrane unit until the flow of permeate drops. The permeate may either be discharged or passed along to another treatment unit. The concentrate is contained and held for further treatment or disposal. An important advantage of UF over reverse osmosis is that the concentrate may be treated to remove the concentrated solids and the separated water may then be retreated through the UF system.

The primary design consideration in UF is the membrane selection. A membrane pore size is chosen based on the size of the contaminant particles targeted for removal. Other design parameters to be considered are the solids concentration, viscosity, and temperature of the feed stream, pressure differential, and the membrane permeability and thickness. The rate at which a membrane fouls is also an important design consideration.

INDUSTRY PRACTICE

Of the 116 CWT facilities in EPA’s WTI Questionnaire and NOA comment data base that provided information concerning use of ultrafiltration, six operate ultrafiltration systems.

#### *B. REVERSE OSMOSIS*

GENERAL DESCRIPTION

Reverse osmosis (RO) is a process for separating dissolved solids from water. CWT facilities commonly use RO in treating oily or metal-bearing wastewater. RO is applicable when the solute molecules are approximately the same size as the solvent molecules. A semi–permeable, microporous membrane and pressure are used to perform the separation. RO systems are typically used as polishing processes, prior to final discharge of the treated wastewater. Reverse osmosis systems have been demonstrated to be effective in removing dissolved metals.

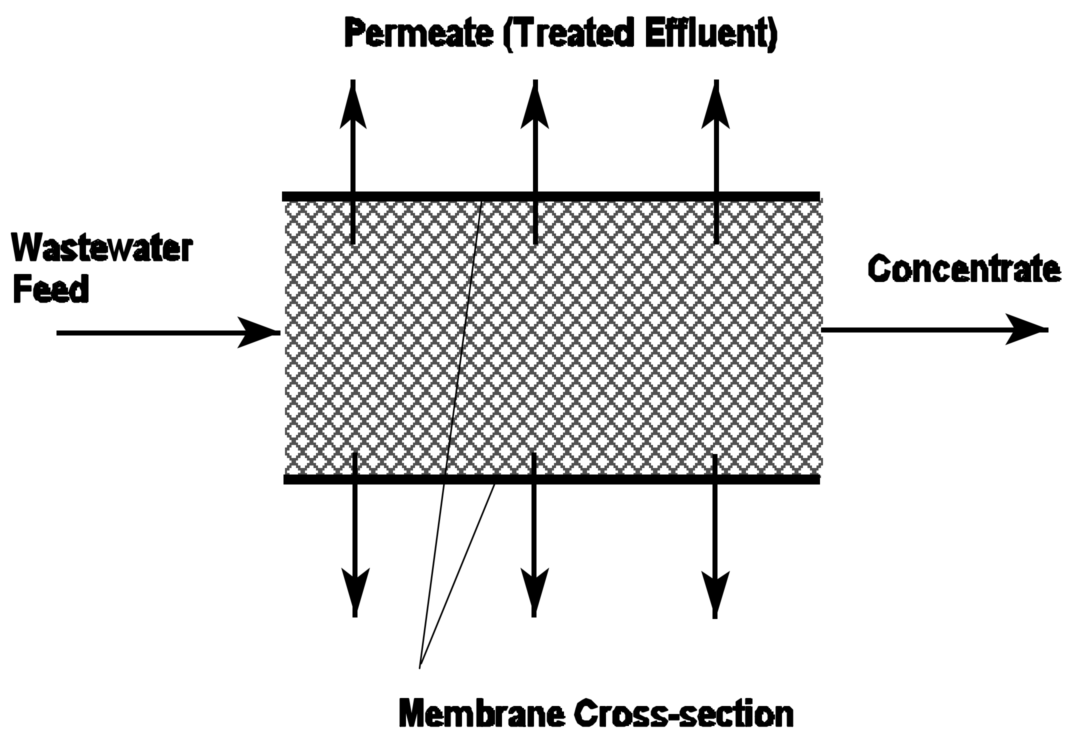


Figure 8-13. Ultrafiltration System Diagram

Osmosis is the diffusion of a solvent (such as water) across a semi-permeable membrane from a less concentrated solution into a more concentrated solution. In the reverse osmosis process, pressure greater than the normal osmotic pressure is applied to the more concentrated solution (the waste stream being treated), forcing the purified water through the membrane and into the less concentrated stream which is called the permeate. The low-molecular-weight solutes (for example, salts and some surfactants) do not pass through the membrane. They are referred to as concentrate. The concentrate is recirculated through the membrane unit until the flow of permeate drops. The permeate can either be discharged or passed along to another treatment unit. The concentrate is contained and held for further treatment or disposal. Figure 8–14 shows an RO system.

The performance of an RO system is dependent upon the dissolved solids concentration and temperature of the feed stream, the applied pressure, and the type of membrane selected. The key RO membrane properties to be considered are: selectivity for water over ions, permeation rate, and durability. RO modules are available in various membrane configurations, such as spiral-wound, tubular, hollow-fiber, and plate and frame. In addition to the membrane modules, other capital items needed for an RO installation include pumps, piping, instrumentation, and storage tanks. The major operating cost is attributed to membrane replacement. A major consideration for RO systems is the disposal of the concentrate due to its elevated concentrations of salts, metals, and other dissolved solids.

#### INDUSTRY PRACTICE

Of the 65 CWT facilities in EPA's WTI Questionnaire data base that provided information concerning use of reverse osmosis, two operate reverse osmosis systems.

### 5. *LANCY FILTRATION*

#### GENERAL DESCRIPTION

The Lancy Sorption Filter System is a patented method for the continuous recovery of heavy metals. The Lancy sorption filtration process may reduce metals not removed by conventional waste treatment technologies to low concentrations.

In the first stage of the Lancy filtration process, a soluble sulfide is added to the wastewater in a reaction tank, converting most of the heavy metals to sulfides. From the sulfide reaction tank, the solution is passed through the sorption filter media. Precipitated metal sulfides and other suspended solids are filtered out. Any remaining soluble metals are absorbed by the media. Excess soluble sulfides are also removed from the waste stream.

The Lancy filtration process reportedly reduces zinc, silver, copper, lead, and cadmium to less than 0.05 mg/l and mercury to less than 2 Fg/l. In addition to the effective removal of heavy metals, the system has a high solids filtration capacity and a fully automatic, continuous operation. The system continuously recycles and reuses the same filter media thereby saving on operating costs. The system may be installed with a choice of media discharge - slurry or solid cake. Figure 8-15 illustrates the Lancy Sorption Filtration System.

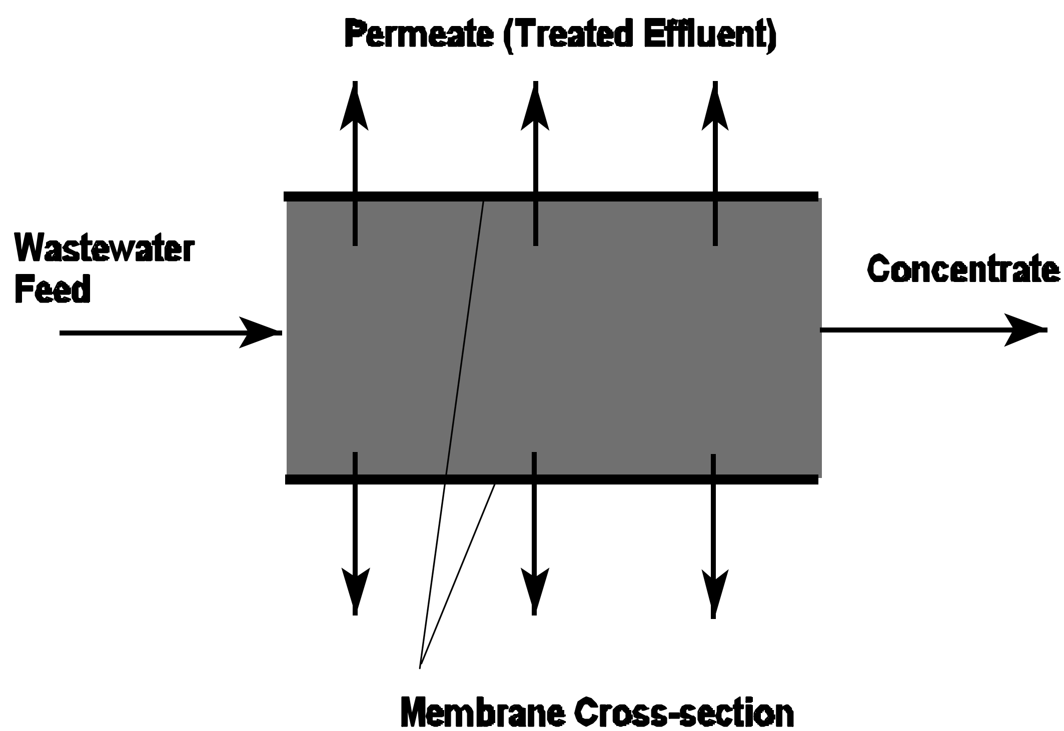


Figure 8-14. Reverse Osmosis System Diagram

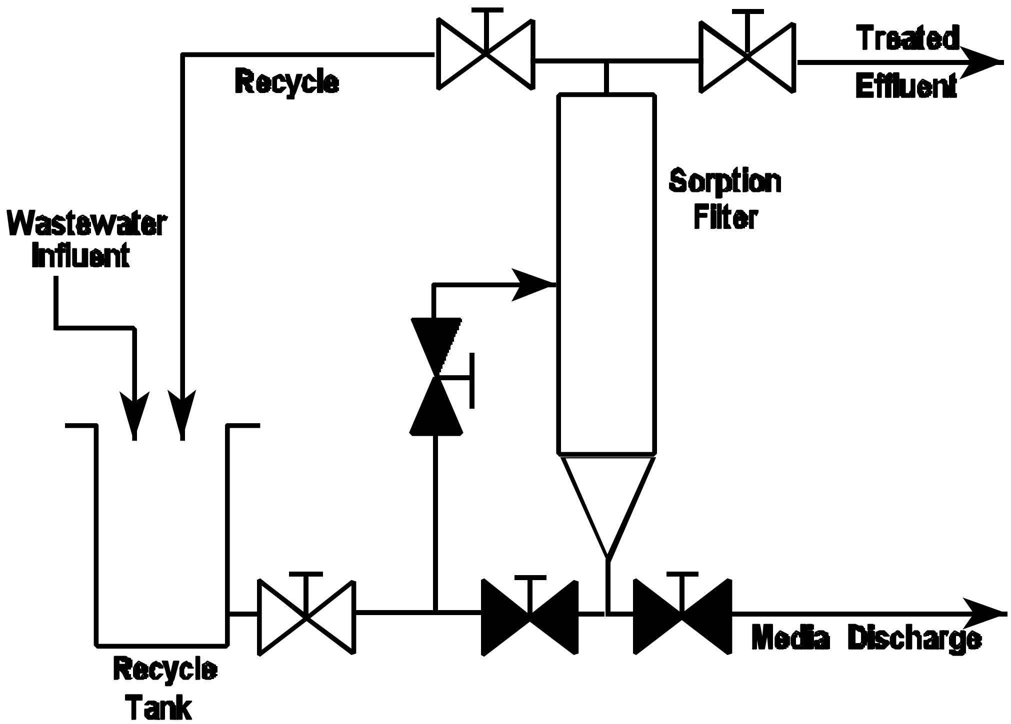


Figure 8-15. Lancy Filtration System Diagram

INDUSTRY PRACTICE

Of the 65 CWT facilities in EPA's WTI Questionnaire data base that provided information concerning use of filtration systems, only one operates the Lancy Sorption Filtration System. This unit is used for polishing effluent from a treatment sequence including chemical precipitation, clarification, and sand filtration. EPA obtained performance data for this system during a sampling episode at one of the metals subcategory facilities. The performance data showed that some metals were reduced to the target levels while the concentration of some pollutants increased. This may not represent optimal performance of the system, however, because the facility reported that they were experiencing operational problems throughout the sampling episode.

### *Carbon Adsorption* *8.2.2.10*

GENERAL DESCRIPTION

Activated carbon adsorption is a demonstrated wastewater treatment technology that uses activated carbon to remove dissolved organic pollutants from wastewater. The activated carbon is made from many carbonaceous sources including coal, coke, peat, wood, and coconut shells. The carbon source material is "activated" by treating it with an oxidizing gas to form a highly porous structure with a large internal surface area. CWT facilities generally use granular forms of activated carbon (GAC) in fixed bed columns to treat wastewater. However, some use powdered activated carbon (PAC) alone or in conjunction with biological treatment. Figure 8-16 presents a diagram of a fixed-bed GAC collumn.

In a fixed bed system, the wastewater enters the top of the unit and is allowed to flow downward through a bed of granular activated carbon. As the wastewater comes into contact with the activated carbon, the dissolved organic compounds adsorb onto the surface of the activated carbon. In the upper area of the bed, the pollutants are rapidly adsorbed. As more wastewater passes through the bed, this rapid adsorption zone moves downward until it reaches the bottom of the bed. At this point, all of the available adsorption sites are filled and the carbon is said to be exhausted. This condition can be detected by an increase in the effluent pollutant concentration, and is called breakthrough.

GAC systems are usually comprised of several beds operated in series. This design allows the first bed to go to exhaustion, while the other beds still have the capacity to treat to an acceptable effluent quality. The carbon in the first bed is replaced, and the second bed then becomes the lead bed. The GAC system piping is designed to allow switching of bed order.

After the carbon is exhausted, it can be removed and regenerated. Usually heat or steam is used to reverse the adsorption process. The light organic compounds are volatilized and the heavy organic compounds are pyrolyzed. Spent carbon may also be regenerated by contacting it with a solvent which dissolves the adsorbed pollutants. Depending on system size and economics, some facilities may choose to dispose of the spent carbon instead of regenerating it. For very large applications, an on-site regeneration facility is more economical. For smaller applications, such as in the CWT industry, it is generally cost-effective to use a vendor service to deliver regenerated carbon and remove the spent carbon. These vendors transport the spent carbon to their centralized facilities for regeneration.

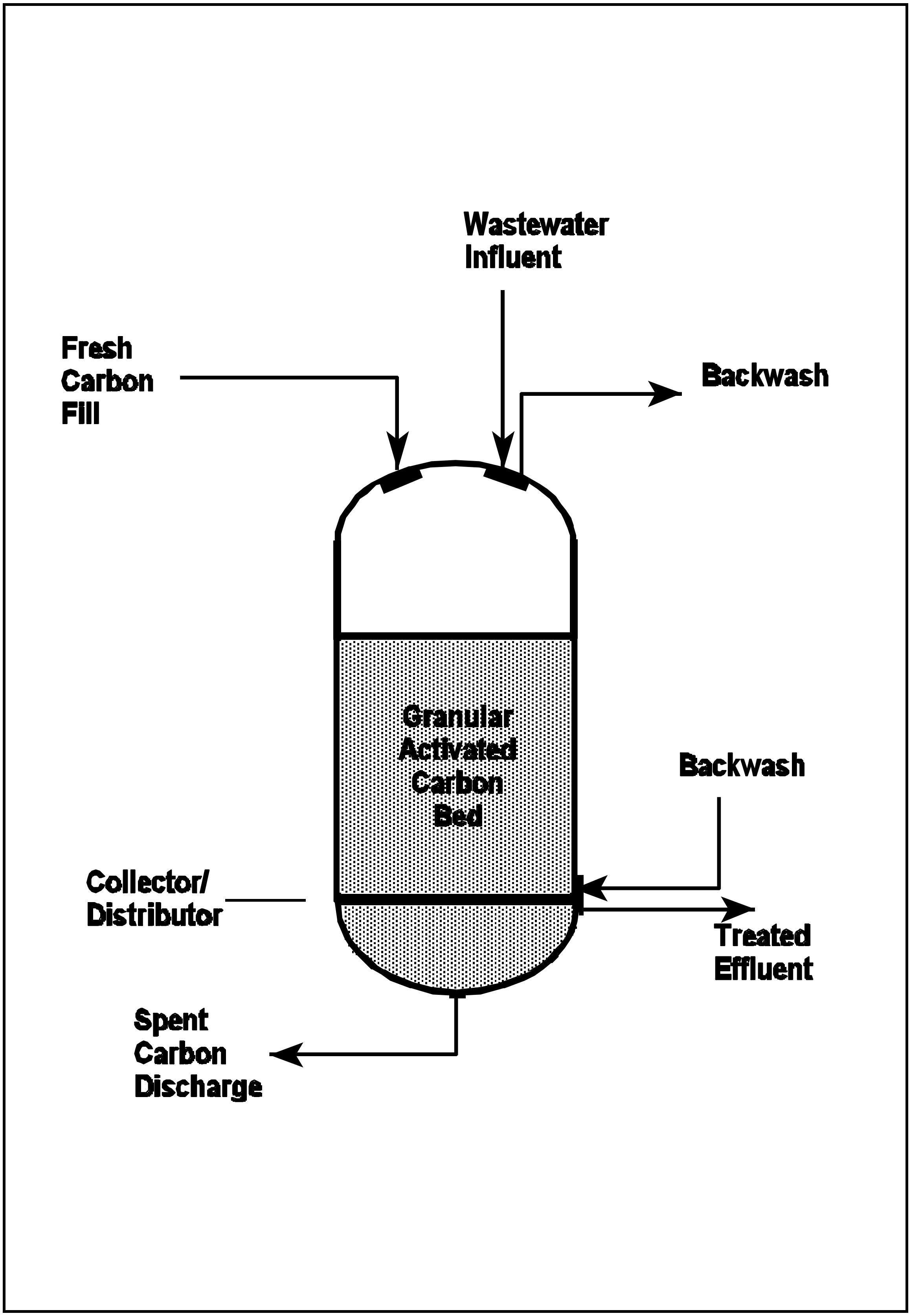


Figure 8-16. Carbon Adsorption System Diagram

The carbon adsorption mechanism is complicated and, although the attraction is primarily physical, is a combination of physical, chemical, and electrostatic interactions between the activated carbon and the organic compound. The key design parameter for activated carbon is the adsorption capacity of the carbon. The adsorption capacity is a measure of the mass of contaminant adsorbed per unit mass of activated carbon and is a function of the compound being adsorbed, the type of carbon used, and the process design and operating conditions. In general, the adsorption capacity is inversely proportional to the adsorbate solubility. Nonpolar, high molecular weight organics with low solubility are readily adsorbed. Polar, low molecular weight organics with high solubilities are more poorly adsorbed.

Competitive adsorption between compounds has an effect on adsorption. The carbon may preferentially adsorb one compound over another. This competition could result in an adsorbed compound being desorbed from the carbon. This is most pronounced when carbon adsorption is used to treat wastewater with highly variable pollutant character and concentration.

INDUSTRY PRACTICE

Of the 116 CWT facilities in EPA's WTI Questionnaire and NOA comment data base that provided information concerning use of carbon adsorption, 17 operate carbon adsorption systems.

### *Ion Exchange* *8.2.2.11*

GENERAL DESCRIPTION

A common process employed to remove heavy metals from relatively low–concentration waste streams, such as electroplating wastewater, is ion exchange. A key advantage of the ion exchange process is that the metal contaminants can be recovered and reused. Another advantage is that ion exchange may be designed to remove certain metals only, providing effective removal of these metals from highly-contaminated wastewater. A disadvantage is that the resins may be fouled by some organic substances.

In an ion exchange system, the wastewater stream is passed through a bed of resin. The resin contains bound groups of ionic charge on its surface, which are exchanged for ions of the same charge in the wastewater. Resins are classified by type, either cationic or anionic. The selection is dependent upon the wastewater contaminant to be removed. A commonly-used resin is polystyrene copolymerized with divinylbenzene.

The ion exchange process involves four steps: treatment, backwash, regeneration, and rinse. During the treatment step, wastewater is passed through the resin bed and ions are exchanged until pollutant breakthrough occurs. The resin is then backwashed to reclassify the bed and to remove suspended solids. During the regeneration step, the resin is contacted with either an acidic or alkaline solution containing high concentrations of the ion originally present in the resin. This "reverses" the ion exchange process and removes the metal ions from the resin. The bed is then rinsed to remove residual regenerating solution. The resulting contaminated regenerating solution must be further processed for reuse or disposal. Depending upon system size and economics, some facilities choose to remove the spent resin and replace it with resin regenerated off-site instead of regenerating the resin in-place.

Ion exchange equipment ranges from simple, inexpensive systems such as domestic water softeners, to large, continuous industrial applications. The most commonly-encountered industrial setup is a fixed-bed resin in a vertical column, where the resin is regenerated in-place. Figure 8-17 is a diagram of this type of system. These systems may be designed so that the regenerant flow is concurrent or countercurrent to the treatment flow. A countercurrent design, although more complex to operate, provides a higher treatment efficiency. The beds may contain a single type of resin for selective treatment, or the beds may be mixed to provide for more complete deionization of the waste stream. Often, individual beds containing different resins are arranged in series, which makes regeneration easier than in the mixed bed system.

#### INDUSTRY PRACTICE

EPA is aware of only one CWT facility using ion exchange.

### *Electrolytic Recovery* *8.2.2.12*

#### GENERAL DESCRIPTION

Another process for reclaiming metals from wastewater is electrolytic recovery. It is a common technology in the electroplating, mining, and electronic industries. It is used for the recovery of copper, zinc, silver, cadmium, gold, and other heavy metals. Nickel is poorly recovered due to its low standard potential.

The electrolytic recovery process uses an oxidation and reduction reaction. Conductive electrodes (anodes and cathodes) are immersed in the metal-bearing wastewater, with an electric potential applied to them. At the cathode, a metal ion is reduced to its elemental form (electron-consuming reaction). At the same time, gases such as oxygen, hydrogen, or nitrogen form at the anode (electron-producing reaction). After the metal coating on the cathode reaches a desired thickness, it may be removed and recovered. The metal-stripped cathode can then be used as the anode.

The equipment consists of an electrochemical reactor with electrodes, a gas-venting system, recirculation pumps, and a power supply. Figure 8-18 ia a diagram of an electrolytic recovery system. Electrochemical reactors are typically designed to produce high flow rates to increase the process efficiency.

A conventional electrolytic recovery system is effective for the recovery of metals from relatively high-concentration wastewater. A specialized adaptation of electrolytic recovery, called extended surface electrolysis, or ESE, operates effectively at lower concentration levels. The ESE system uses a spiral cell containing a flow-through cathode which has a very open structure and therefore a lower resistance to fluid flow. This also provides a larger electrode surface. ESE systems are often used for the recovery of copper, lead, mercury, silver, and gold.

#### INDUSTRY PRACTICE

Of the 65 CWT facilities in EPA's WTI Questionnaire data base that provided information concerning use of electrolytic recovery, three operate electrolytic recovery systems.

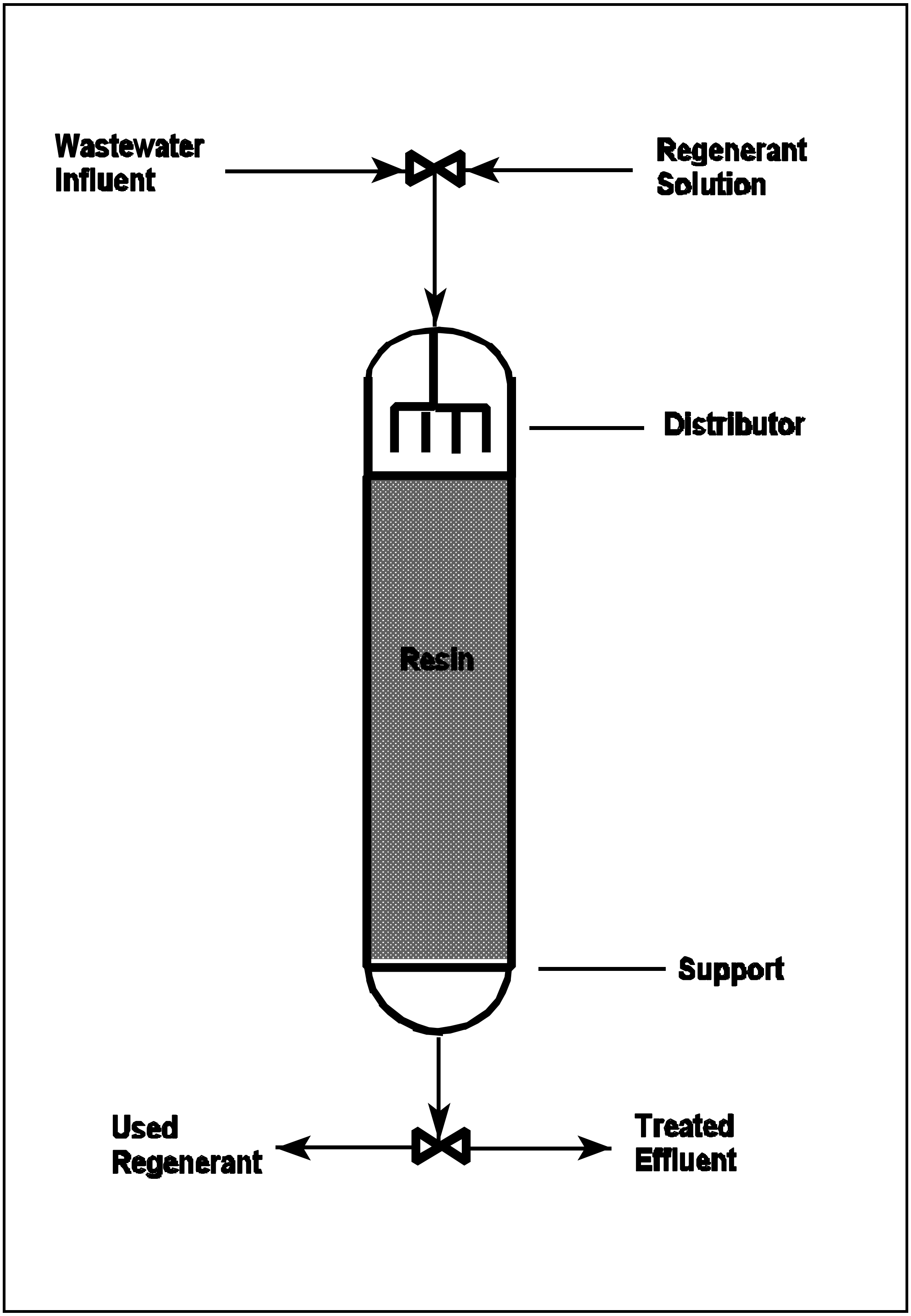


Figure 8-17. Ion Exchange System Diagram

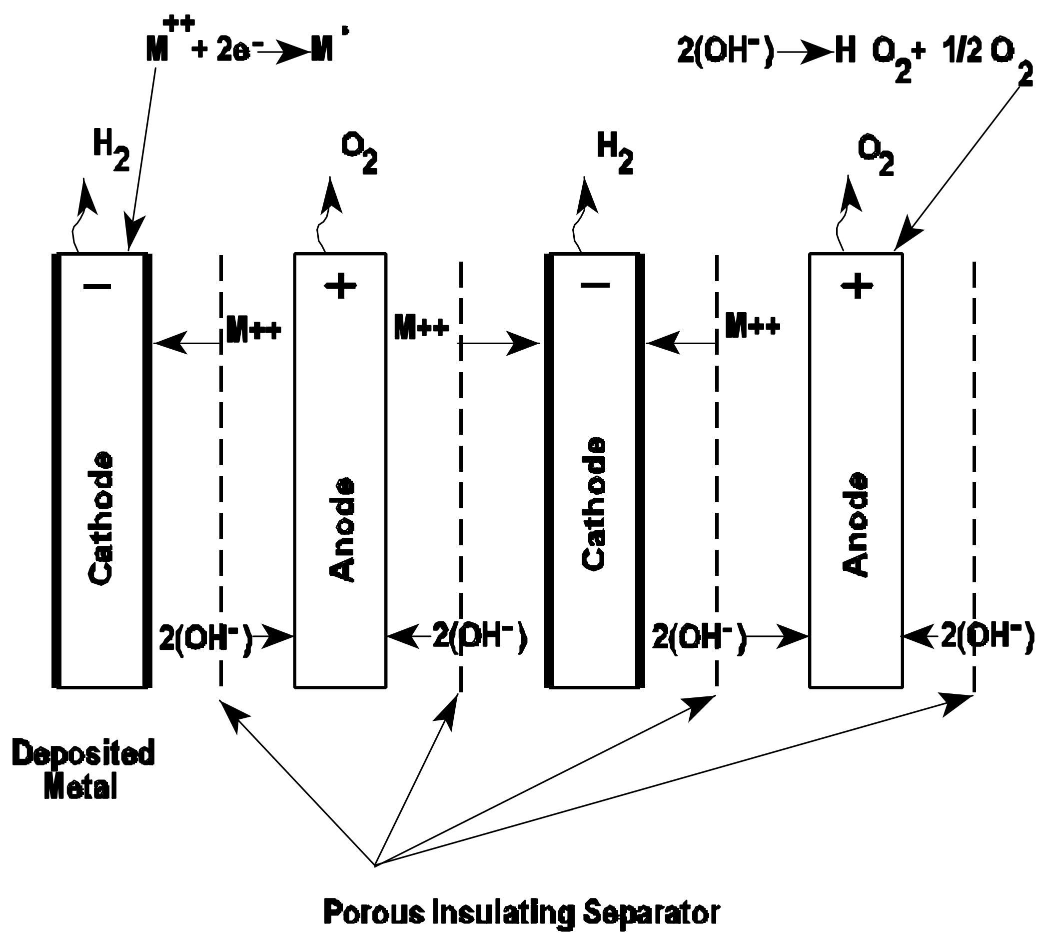


Figure 8-18. Electrolytic Recovery System Diagram

### *Stripping* *8.2.2.13*

Stripping is a method for removing dissolved volatile organic compounds from wastewater. The removal is accomplished by passing air or steam through the agitated waste stream. The primary difference between air stripping and steam stripping is that steam stripping is operated at higher temperatures and the resultant off-gas stream is usually condensed and recovered or incinerated. The off-gas from air stripping contains non-condenseable air which must be either passed through an adsorption unit or incinerated in order to prevent transfer of the volatile pollutants to the environment. EPA is not aware of any applications of steam stripping technologies in the CWT industry.

#### 1. *AIR STRIPPING*

GENERAL DESCRIPTION

Air stripping is effective in removing dissolved volatile organic compounds from wastewater. The removal is accomplished by passing high volumes of air through the agitated wastewater stream. The process results in a contaminated off-gas stream which, depending upon air emissions standards, usually requires air pollution control equipment. Stripping can be performed in tanks or in spray or packed towers. Treatment in packed towers is the most efficient application. The packing typically consists of plastic rings or saddles. The two types of towers that are commonly used, cross-flow and countercurrent, differ in design only in the location of the air inlets. In the cross-flow tower, the air is drawn through the sides for the total height of the packing. The countercurrent tower draws the entire air flow from the bottom. Cross-flow towers have been found to be more susceptible to scaling problems and are less efficient than countercurrent towers. Figure 8-19 is a countercurrent air stripper.

The driving force of the air stripping mass-transfer operation is the difference in concentrations between the air and water streams. Pollutants are transferred from the more concentrated wastewater stream to the less concentrated air stream until equilibrium is reached. This equilibrium relationship is known as Henry's Law. The strippability of a pollutant is expressed as its Henry's Law Constant, which is a function of both its volatility or vapor pressure and solubility.

Air strippers are designed according to the strippability of the pollutants to be removed. For evaluation purposes, organic pollutants can be divided into three general strippability ranges (low, medium, and high) according to their Henry's Law Constants. The low strippability group (Henry's Law Constants of $10^{-4}$ [mg/m$^3$ air]/[mg/m$^3$ water] and lower) are not effectively removed. Pollutants in the medium ($10^{-1}$ to $10^{-4}$) and high ($10^{-1}$ and greater) groups are effectively stripped. Pollutants with lower Henry's law constants require greater column height, more trays or packing material, greater temperature, and more frequent cleaning than pollutants with a higher strippability.

The air stripping process is adversely affected by low temperatures. Air strippers experience lower efficiencies at lower temperatures, with the possibility of freezing within the tower. For this reason, depending on the location of the tower, it may be necessary to preheat the wastewater and the air feed streams. The column and packing materials must be cleaned regularly to ensure that low effluent levels are attained.

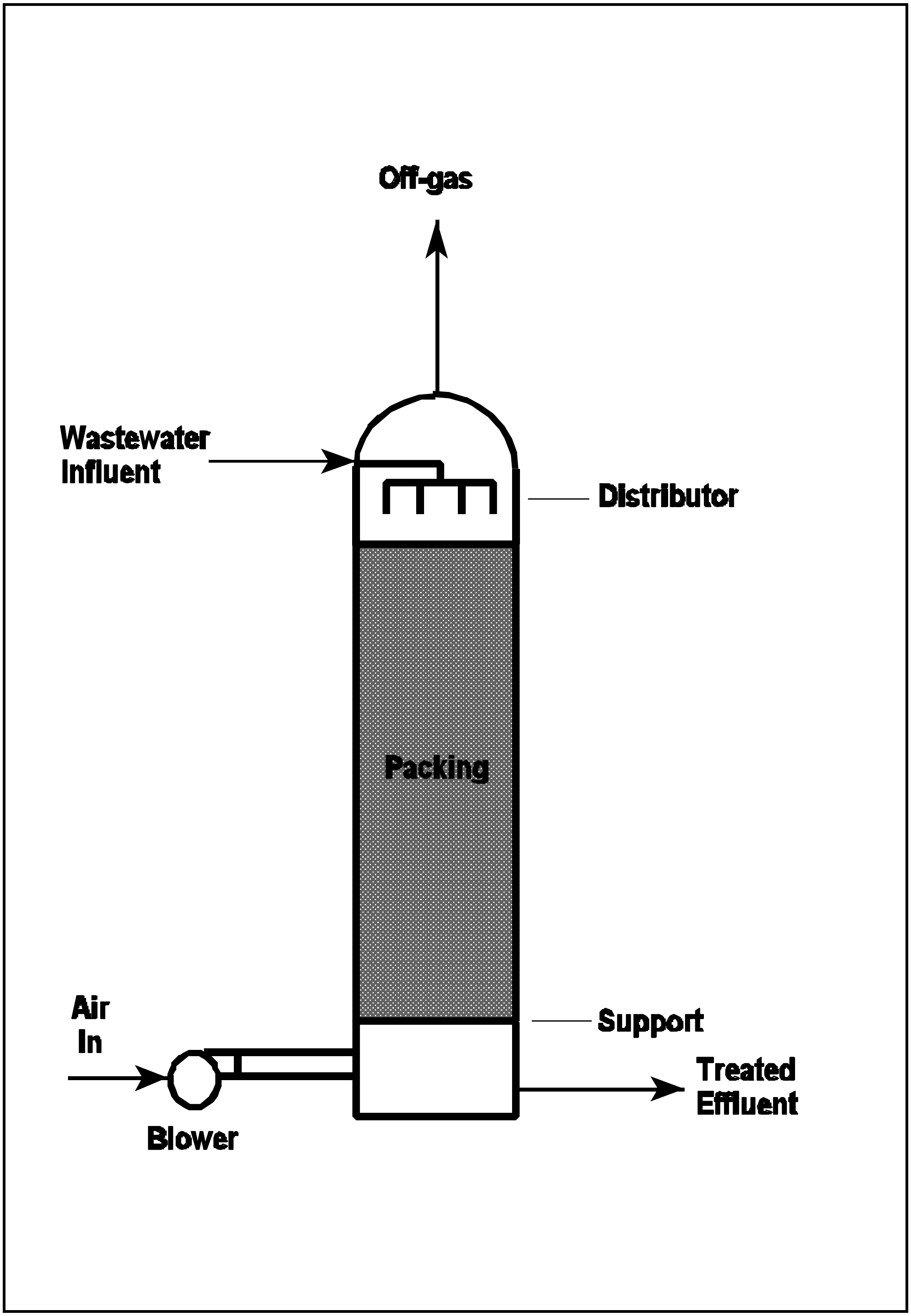


Figure 8-19. Air Stripping System Diagram

Air stripping has proved to be an effective process in the removal of volatile pollutants from wastewater. It is generally limited to influent concentrations of less than 100 mg/l organics. Well-designed and operated systems can achieve over 99 percent removals.

INDUSTRY PRACTICE

Of the 65 CWT facilities in EPA's WTI Questionnaire data base that provided information concerning use of air stripping, 11 operate air stripping systems.

*Liquid Carbon Dioxide Extraction 8.2.2.14*

GENERAL DESCRIPTION

Liquid carbon dioxide ($CO_2$) extraction is a process used to extract and recover organic contaminants from aqueous waste streams. A licensed, commercial application of this technology is utilized in the CWT industry under the name "Clean Extraction System" (CES). The process may be effective in the removal of organic substances such as hydrocarbons, aldehydes and ketones, nitriles, halogenated compounds, phenols, esters, and heterocyclics. It is not effective in the removal of some compounds which are very water-soluble, such as ethylene glycol, and low molecular weight alcohols. It may provide an alternative in the treatment of waste streams which historically have been incinerated.

In liquid carbon dioxide extraction, the waste stream is fed into the top of a pressurized extraction tower containing perforated plates, where it is contacted with a countercurrent stream of liquefied $CO_2$. The organic contaminants in the waste stream are dissolved in the $CO_2$; this extract is then sent to a separator, where the $CO_2$ is redistilled. The distilled $CO_2$ vapor is compressed and reused. The concentrated organics bottoms from the separator can then be disposed or recovered. The treated wastewater stream which exits the extractor (raffinate) is pressure-reduced and may be further treated for residual organics removal if necessary to meet discharge standards. Figure 8-20 is a diagram of the CES is presented in.

INDUSTRY PRACTICE

EPA is aware of only one facility using this technology in the CWT industry. Pilot–scale information submitted to EPA by the CWT facility showed effective removal for a variety of organic compounds. EPA sampled this commercial CWT CES unit during this rulemaking effort. Performance was not optimal, however, as the facility reported operational problems with the unit throughout the sampling episode.

## ***Biological Treatment 8.2.3***

A portion of the CWT industry accepts waste receipts that contain organic pollutants, which are often amenable to biological degradation. This subset of CWT facilities is referred to as the organics subcategory. In addition, a portion of the facilities in the oils subcategory also use biological treatment to treat wastewater separated from oily wastes.

Biological treatment systems use microbes which consume, and thereby destroy, organic compounds as a food source. The microbes use the organic compounds as both a source of carbon and as a source of energy. These microbes may also need supplemental nutrients for growth, such as nitrogen and phosphorus, if the waste stream is deficient in these nutrients. Aerobic microbes require oxygen to grow, whereas anaerobic microbes will grow only in the absence of oxygen. Facultative microbes are an adaptive type of microbe that can grow with or without oxygen.

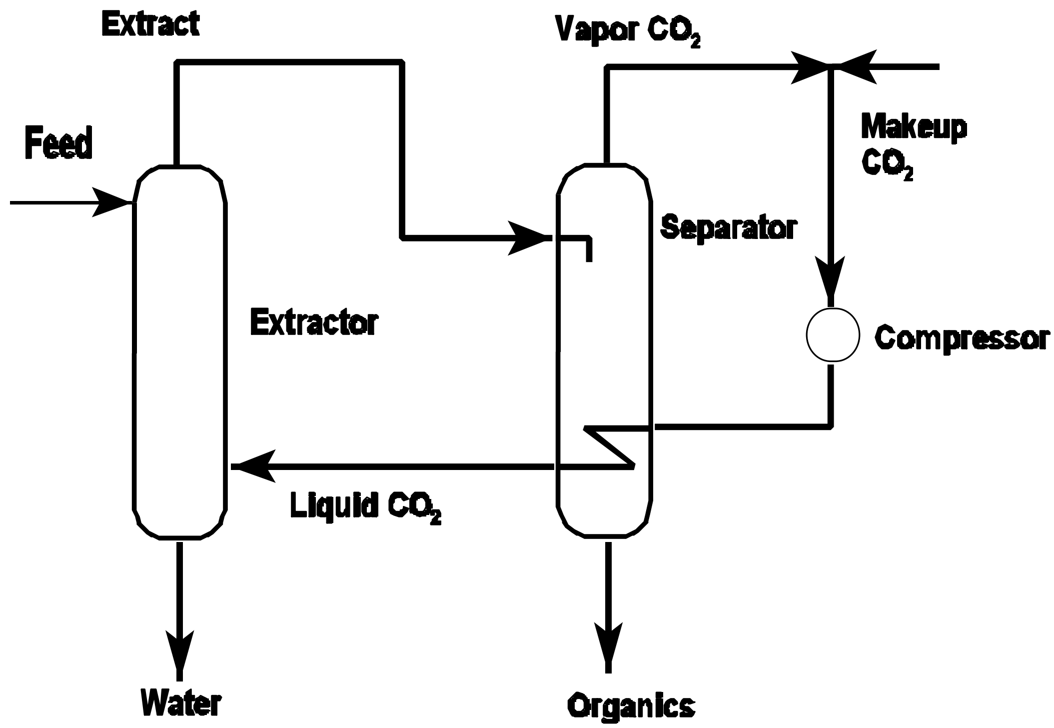


Figure 8-20. Liquid $CO_2$ Extraction System Diagram

The success of biological treatment is dependent on many factors, such as the pH and temperature of the wastewater, the nature of the pollutants, the nutrient requirements of the microbes, the presence of inhibiting pollutants, and variations in the feed stream loading. Certain compounds, such as heavy metals, may be toxic to the microorganisms and must be removed from the waste stream prior to biological treatment. Load variations are a major concern, especially in the CWT industry, where waste receipts vary over time in both concentration and volume.

There are several adaptations of biological treatment. These adaptations differ in three basic ways. First, a system may be aerobic, anaerobic, or facultative. Second, the microorganisms may either be attached to a surface (as in a trickling filter), or be unattached in a liquid suspension (as in an activated sludge system). Third, the operation may be either batch or continuous.

Of the 116 facilities in the WTI Questionnaire and NOA comment data base that responded to EPA's inquiry concerning the use of biological treatment, 17 operate biological treatment systems. There were no anaerobic systems reported. Theses systems include sequencing batch reactors, attached growth systems (biotowers and trickling filters) and activated sludge systems. With the exception of trickling filters, EPA sampled at least one application of each of the following biological treatment technologies during the development of these effluent guidelines.

### *Sequencing Batch Reactors* *8.2.3.1*

GENERAL DESCRIPTION

A sequencing batch reactor (SBR) is a suspended growth system in which wastewater is mixed with existing biological floc in an aeration basin. SBRs are unique in that a single tank acts as an equalization tank, an aeration tank, and a clarifier. An SBR is operated on a batch basis where the wastewater is mixed and aerated with the biological floc for a specific period of time. The contents of the basin are allowed to settle and the supernatant is decanted. The batch operation of an SBR makes it a useful biological treatment option for the CWT industry, where the wastewater volumes and characteristics are often highly variable. Each batch can be treated differently depending on waste characteristics. Figure 8-21 shows an SBR.

The SBR has a four cycle process: fill, react, settle, and decant. The fill cycle has two phases. The first phase, called static fill, introduces the wastewater to the system under static conditions. This is an anaerobic period and may enhance biological phosphorus uptake. During the second phase of the fill cycle wastewater is mechanically mixed to eliminate the scum layer and prepare the microorganisms to receive oxygen. In the second cycle, the react cycle, aeration is performed. The react cycle is a time–dependent process where wastewater is continually mixed and aerated, allowing the biological degradation process to occur. The third cycle, called the settling cycle, provides quiescent conditions throughout the tank and may accommodate low settling rates by increasing the settling time. During the last or decant cycle, the treated wastewater is decanted by subsurface withdrawal from below the scum layer. This treated, clarified effluent may then be further treated or discharged.

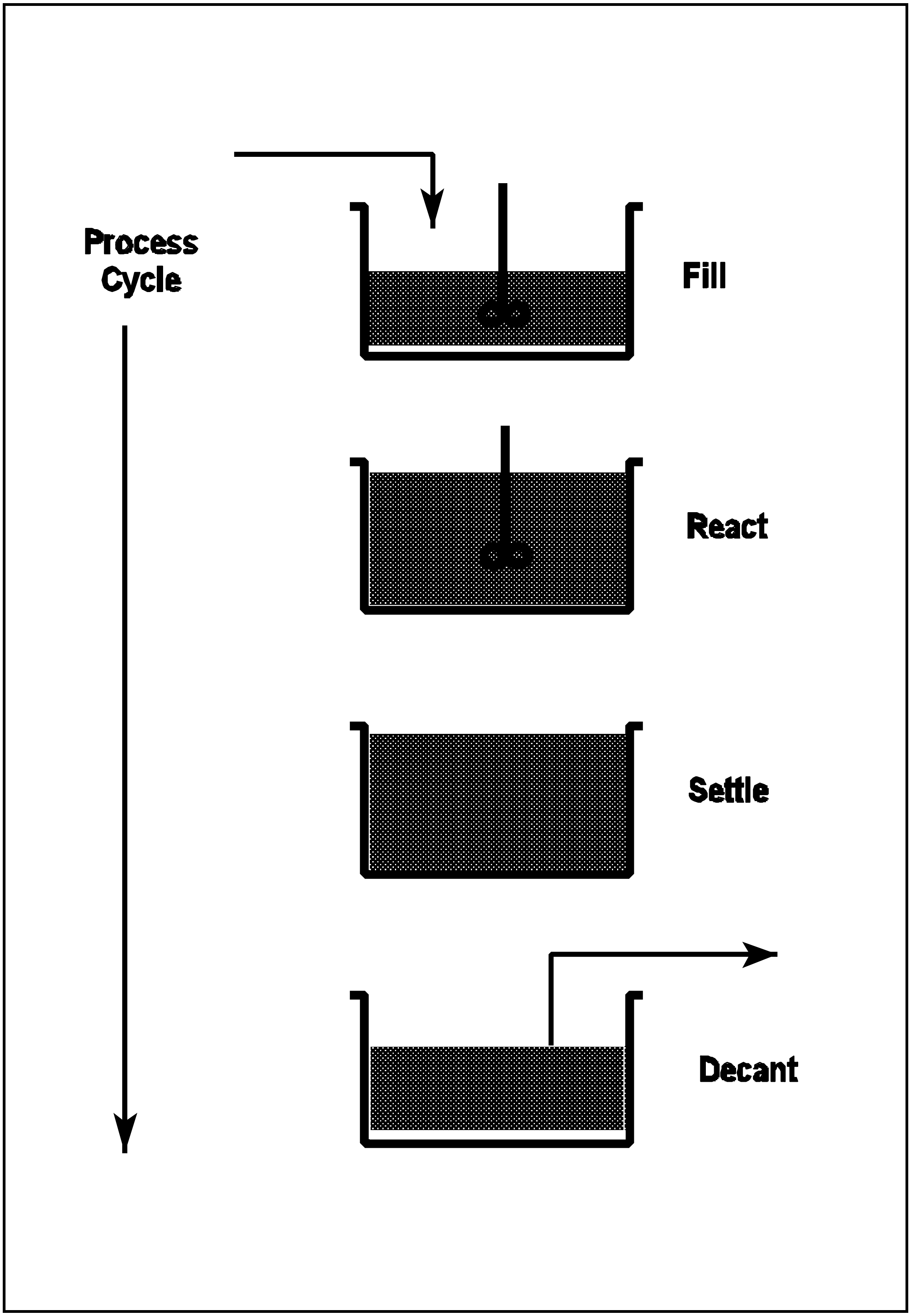


Figure 8-21. Sequencing Batch Reactor System Diagram

When the quantity of biomass in the SBR exceeds that needed for operation, the excess biomass is removed. The sludge that is removed from the SBR may be reduced in volume by thickening and dewatering using any of the sludge treatment processes discussed in section 8.2.4. The dewatered sludge may be disposed in a landfill or used as an agricultural fertilizer.

An SBR carries out all of the functions of a conventional continuous flow activated sludge process, such as equalization, biological treatment, and sedimentation, in a time sequence rather than a space sequence. Detention times and loadings vary with each batch and are highly dependent on the specific raw wastewater loadings. Typically, an SBR operates with a hydraulic detention time of 1 to 10 days and a sludge retention time of 10 to 30 days. The mixed liquor suspended solids (MLSS) concentration is maintained at 3,500 to 10,000 mg/l. The overall control of the system may be accomplished automatically by using level sensors or timing devices. By using a single tank to perform all of the required functions associated with biological treatment, an SBR reduces land requirements. It also provides for greater operation flexibility for treating wastes with viable characteristics by allowing the capability to vary detention time and mode of aeration in each stage. SBRs also may be used to achieve complete nitrification/denitrification and phosphorus removal.

#### INDUSTRY PRACTICE

EPA is aware of only one CWT facility that uses an SBR. This facility is in the organics subcategory, and its SBR unit was sampled during the development of these effluent guidelines.

### *Attached Growth Biological Treatment Systems* *8.2.3.2*

Another system used to biodegrade the organic components of a wastewater is the attached growth biological treatment system. In these systems, the biomass adheres to the surfaces of rigid supporting media. As wastewater contacts the supporting medium, a thin-film biological slime develops and coats the surfaces. As this film (consisting primarily of bacteria, protozoa, and fungi) grows, the slime periodically breaks off the medium and is replaced by new growth. This phenomenon of losing the slime layer is called sloughing and is primarily a function of organic and hydraulic loadings on the system. The effluent from the system is usually discharged to a clarifier to settle and remove the agglomerated solids.

Attached growth biological systems are appropriate for treating industrial wastewaters amenable to aerobic biological treatment. When used in conjunction with suitable pre- and post-treatment processes, attached growth biological systems remove suspended and colloidal materials effectively. The two major types of attached growth systems used at CWT facilities are trickling filters and biotowers. This section describes these processes.

#### *1. TRICKLING FILTERS*

#### GENERAL DESCRIPTION

Trickling filtration is an aerobic fixed-film biological treatment process that consists of a structure, packed with inert medium such as rock, wood, or plastic. The wastewater is distributed over the upper surface of the medium by either a fixed spray nozzle system or a rotating distribution system. The inert medium develops a biological slime that absorbs and biodegrades organic pollutants. Air flows through the filter by convection, thereby providing the oxygen needed to maintain aerobic conditions. Figure 8-22 is a flow diagram of a trickling filter.

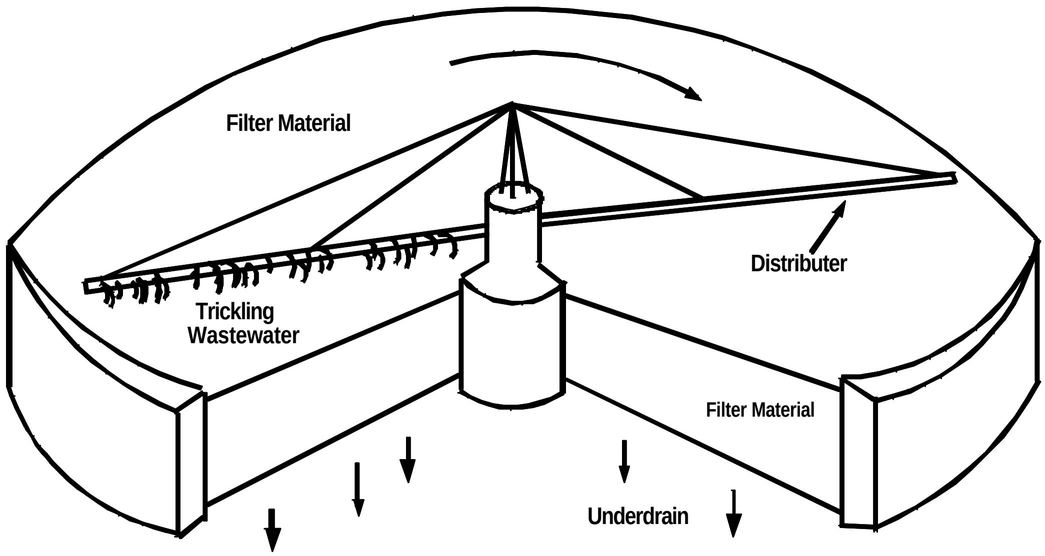


Figure 8-22. Trickling Filter System Diagram

Trickling filters are classified as low-rate or high-rate, depending on the organic loading. Typical design organic loading values range from 5 to 25 pounds and 25 to 45 pounds $BOD_5$ per 1,000 cubic feet per day for low-rate and high-rate, respectively. A low-rate filter generally has a media bed depth of 1.5 to 3 meters and does not use recirculation. A high-rate filter may have a bed depth from 1 to 9 meters and recirculates a portion of the effluent for further treatment.

INDUSTRY PRACTICE

EPA is aware of only one CWT facility that uses a trickling filter. This facility is in the oils subcategory.

2. *BIOTOWERS*

GENERAL DESCRIPTION

A variation of a trickling filtration process is the aerobic biotower. Biotowers may be operated in a continuous or semi-continuous manner and may be operated in an upflow or downflow manner. In the downflow mode, influent is pumped to the top of a tower, where it flows by gravity through the tower. The tower is packed with plastic or redwood media containing the attached microbial growth. Biological degradation occurs as the wastewater passes over the media. Treated wastewater collects in the bottom of the tower. If needed, additional oxygen is provided via air blowers countercurrent to the wastewater flow. In the upflow mode, the wastewater stream is fed into the bottom of the biotower and is passed up through the packing along with diffused air supplied by air blowers. The treated effluent exits from the top of the biotower.

Variations of this treatment process involve the inoculation of the raw influent with bacteria and the addition of nutrients. Wastewater collected in the biotowers is delivered to a clarifier to separate the biological solids from the treated effluent. A diagram of a biotower is presented in Figure 8-23.

INDUSTRY PRACTICE

EPA is aware of two biotowers in operation in the CWT Industry. One system treats a waste stream which is primarily composed of leachate from an on-site landfill operation. The other system treats high-TOC wastewater from a metals recovery operation. EPA conducted sampling at this facility during the development of these effluent guidelines.

### *Activated Sludge* *8.2.3.3*

GENERAL DESCRIPTION

The activated sludge process is a continuous-flow, aerobic biological treatment process that employs suspended-growth aerobic microorganisms to biodegrade organic contaminants. In this process, a suspension of aerobic microorganisms is maintained by mechanical mixing or turbulence induced by diffused aerators in an aeration basin. This suspension of microorganisms is called the mixed liquor. Figure 8-24 is a diagram of a conventional activated sludge system.

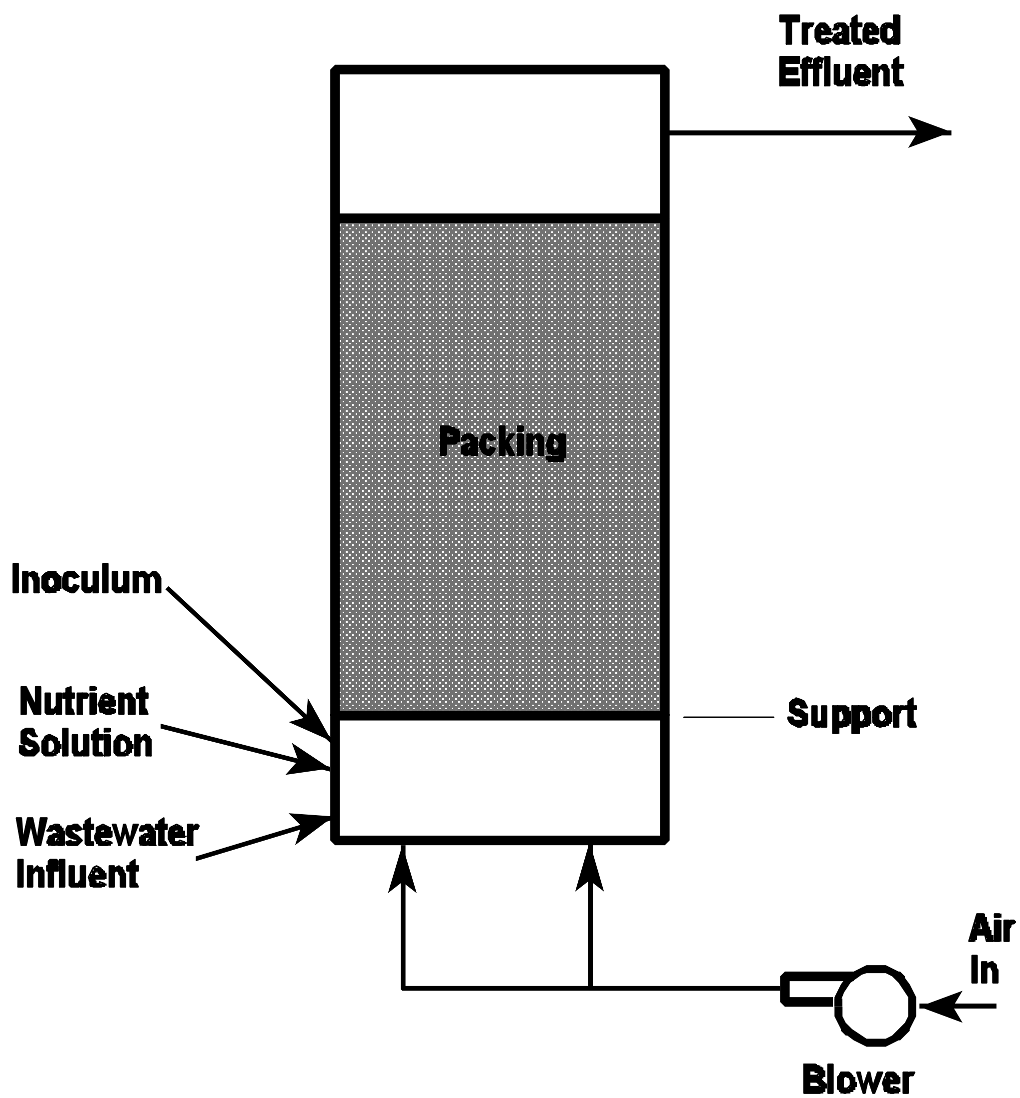


Figure 8-23. Biotower System Diagram

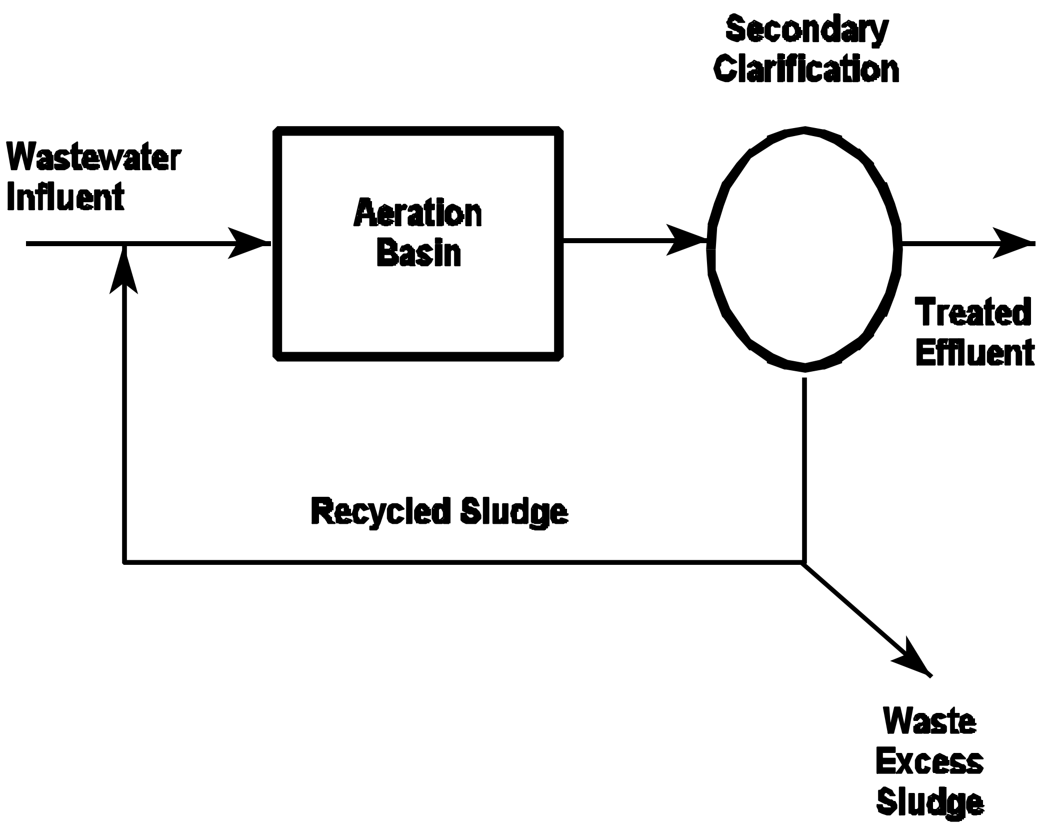


Figure 8-24. Activated Sludge System Diagram

Influent is introduced into the aeration basin and is allowed to mix with the contents. A series of biochemical reactions is performed in the aeration basin, degrading organics and generating new biomass. Microorganisms oxidize the soluble and suspended organic pollutants to carbon dioxide and water using the available supplied oxygen. These organisms also agglomerate colloidal and particulate solids. After a specific contact period in the aeration basin, the mixture is passed to a settling tank, or clarifier, where the microorganisms are separated from the treated water. A major portion of the settled solids in the clarifier is recycled back to the aeration system to maintain the desired concentration of microorganisms in the reactor. The remainder of the settled solids is wasted and sent to sludge handling facilities.

To ensure biological stabilization of organic compounds in activated sludge systems, adequate nutrient levels must be available to the biomass. The primary nutrients are nitrogen and phosphorus. Lack of these nutrients can impair biological activity and result in reduced removal efficiencies. Certain wastes may have low concentrations of nitrogen and phosphorus relative to the oxygen demand. As a result, nutrient supplements (e.g., phosphoric acid addition for additional phosphorus) have been used in activated sludge systems at CWT facilities.

The effectiveness of the activated sludge process is governed by several design and operation variables. The key variables are organic loading, sludge retention time, hydraulic or aeration detention time, and oxygen requirements. The organic loading is described as the food-to-microorganism (F/M) ratio, or kilograms of $BOD_5$ applied daily to the system per kilogram of mixed liquor suspended solids (MLSS). The MLSS in the aeration tank is determined by the rate and concentration of activated sludge returned to the tank. The organic loading (F/M ratio) affects the $BOD_5$ removal, oxygen requirements, biomass production, and the settleability of the biomass. The sludge retention time (SRT) or sludge age is a measure of the average retention time of solids in the activated sludge system. The SRT affects the degree of treatment and production of waste sludge. A high SRT results in a high quantity of solids in the system and therefore a higher degree of treatment while also resulting in the production of less waste sludge. The hydraulic detention time determines the size of the aeration tank and is calculated using the F/M ratio, SRT, and MLSS. Oxygen requirements are based on the amount required for biodegradation of organic matter and the amount required for endogenous respiration of the microorganisms. The design parameters will vary with the type of wastewater to be treated and are usually determined in a treatability study.

Modifications of the activated sludge process are common, as the process is extremely versatile and can be adapted for a wide variety of organically contaminated wastewaters. The typical modification may include a variation of one or more of the key design parameters, including the F/M loading, aeration location and type, sludge return, and contact basin configuration. The modifications in practice have been identified by the major characteristics that distinguish the particular configuration. The characteristic types and modifications are briefly described as follows:

- Conventional The aeration tanks are long and narrow, with plug flow (i.e., little forward or backwards mixing).

- Complete Mix The aeration tanks are shorter and wider, and the aerators, diffusers, and entry points of the influent and return sludge are arranged so that the wastewater mixes completely.

- Tapered Aeration  A modification of the conventional process in which the diffusers are arranged to supply more air to the influent end of the tank, where the oxygen demand is highest.

- Step Aeration  A modification of the conventional process in which the wastewater is introduced to the aeration tank at several points, lowering the peak oxygen demand.

- High Rate Activated Sludge  A modification of conventional or tapered aeration in which the aeration times are shorter, the pollutants loadings are higher per unit mass of microorganisms in the tank. The rate of $BOD_5$ removal for this process is higher than that of conventional activated sludge processes, but the total removals are lower.

- Pure Oxygen  An activated sludge variation in which pure oxygen instead of air is added to the aeration tanks, the tanks are covered, and the oxygen-containing off-gas is recycled. Compared to normal air aeration, pure oxygen aeration requires a smaller aeration tank volume and treats high-strength wastewaters and widely fluctuating organic loadings more efficiently.

- Extended Aeration  A variation of complete mix in which low organic loadings and long aeration times permit more complete wastewater degradation and partial aerobic digestion of the microorganisms.

- Contact Stabilization  An activated sludge modification using two aeration stages. In the first, wastewater is aerated with the return sludge in the contact tank for 30 to 90 minutes, allowing finely suspended colloidal and dissolved organics to absorb to the activated sludge. The solids are settled out in a clarifier and then aerated in the sludge aeration (stabilization) tank for 3 to 6 hours before flowing into the first aeration tank.

- Oxidation Ditch Activated Sludge  An extended aeration process in which aeration and mixing are provided by brush rotors placed across a race-track-shaped basin. Waste enters the ditch at one end, is aerated by the rotors, and circulates.

INDUSTRY PRACTICE

Because activated sludge systems are sensitive to the loading and flow variations typically found at CWT facilities, equalization is often required prior to activated sludge treatment. Of the 65 CWT facilities in EPA's WTI Questionnaire data base that provided information concerning use of activated sludge, four operate activated sludge systems.

### *Sludge Treatment and Disposal* *8.2.4*

Several of the waste treatment processes used in the CWT industry generate a sludge. These processes include chemical precipitation of metals, clarification, filtration, and biological treatment. Some oily waste treatment processes, such as dissolved air flotation and centrifugation, also produce sludges. These sludges typically contain between one and five percent solids. They require dewatering to concentrate them and prepare them for transport and/or disposal.

Sludges are dewatered using pressure, gravity, vacuum, or centrifugal force. There are several widely-used, commercially-available methods for sludge dewatering. Plate and frame pressure filtration, belt pressure filtration, and vacuum filtration are the primary methods used for sludge dewatering at CWT facilities. A plate and frame filter press can produce the driest filter cake of these three systems, followed by the belt press, and lastly, the vacuum filter. Each of these sludge dewatering methods are discussed below.

In some instances, depending upon the nature of the sludge and the dewatering process used, the sludge may first be stabilized, conditioned, and/or thickened prior to dewatering. Certain sludges require stabilization (via chemical addition or biological digestion) because they have an objectionable odor or are a health threat. Sludges produced by the CWT industry usually do not fall into this category. Sludge conditioning is used to improve dewaterability; it can be accomplished via the addition of heat or chemicals. Sludge thickening, or concentration, reduces the volume of sludge to be dewatered and is accomplished by gravity settling, flotation, or centrifugation.

### *Plate and Frame Pressure Filtration 8.2.4.1*

#### General Description

Plate and frame pressure filtration systems is a widely used method for the removal of solids from waste streams. In the CWT industry, plate and frame pressure filtration system are used for filtering solids out of treated wastewater streams and sludges. The same equipment is used for both applications, with the difference being the solids level in the influent stream and the sizing of the sludge and liquid units. Figure 8-25 is a plate and frame filter press.

A plate and frame filter press consists of a number of recessed filter plates or trays connected to a frame and pressed together between a fixed end and a moving end. Each plate is constructed with a drainage surface on the depressed portion of the face. Filter cloth is mounted on the face of each plate and then the plates are pressed together. The sludge is pumped under pressure into the chambers between the plates of the assembly while water passes through the media and drains to the filtrate outlets. The solids are retained in the cavities of the filter press between the cloth surfaces and form a cake that ultimately fills the chamber. At the end of the cycle when the filtrate flow stops, the pressure is released and the plates are separated. The filter cake drops into a hopper below the press. The filter cake may then be disposed in a landfill. The filter cloth is washed before the next cycle begins.

The key advantage of plate and frame pressure filtration is that it can produce a drier filter cake than is possible with the other methods of sludge dewatering. In a typical plate and frame pressure filtration unit, the filter cake may exhibit a dry solids content between 30 and 50 percent. It is well-suited for use in the CWT industry as it is a batch process. However, its batch operation results in greater operating labor requirements.

INDUSTRY PRACTICE

Of the 65 CWT facilities in EPA's WTI Questionnaire data base that provided information concerning the use of pressure filtration, 34 operate pressure filtration systems. Of these 34 facilities, 25 operate plate and frame pressure filtration systems, three operate belt pressure filtration systems, and six did not specify the type of presure filtration systems utilized.

### *Belt Pressure Filtration* *8.2.4.2*

GENERAL DESCRIPTION

A belt pressure filtration system uses gravity followed by mechanical compression and shear force to produce a sludge filter cake. Belt filter presses are continuous systems which are commonly used to dewater biological treatment sludge. Most belt filter installations are preceded by a flocculation step, where polymer is added to create a sludge which has the strength to withstand being compressed between the belts without being squeezed out. Figure 8-26 shows a typical belt filter press.

During the press operation, the sludge stream is fed onto the first of two moving cloth filter belts. The sludge is gravity-thickened as the water drains through the belt. As the belt holding the sludge advances, it approaches a second moving belt. As the first and second belts move closer together, the sludge is compressed between them. The pressure is increased as the two belts travel together over and under a series of rollers. The turning of the belts around the rollers shear the cake which furthers the dewatering process. At the end of the roller pass, the belts move apart and the cake drops off. The feed belt is washed before the sludge feed point. The dropped filter cake may then be disposed.

The advantages of a belt filtration system are its lower labor requirements and lower power consumption. The disadvantages are that the belt filter presses produce a poorer quality filtrate, and require a relatively large volume of belt wash water.

Typical belt filtration applications may dewater an undigested activated sludge to a cake containing 15 to 25 percent solids. Heat-treated, digested sludges may be reduced to a cake of up to 50 percent solids.

INDUSTRY PRACTICE

Of the 65 CWT facilities in EPA's WTI Questionnaire data base that provided information concerning the use of pressure filtration, 36 operate pressure filtration systems. Of these 34 facilities, 25 operate plate and frame pressure filtration systems, three operate belt pressure filtration systems, and six did not specify the type of presure filtration systems utilized.

### *Vacuum Filtration* *8.2.4.3*

GENERAL DESCRIPTION

A commonly-used process for dewatering sludge is rotary vacuum filtration. These filters come in drum, coil, and belt configurations. The filter medium may be made of cloth, coil springs, or wire-mesh fabric. A typical application is a rotary vacuum belt filter; a diagram of this equipment is shown in Figure 8-27.

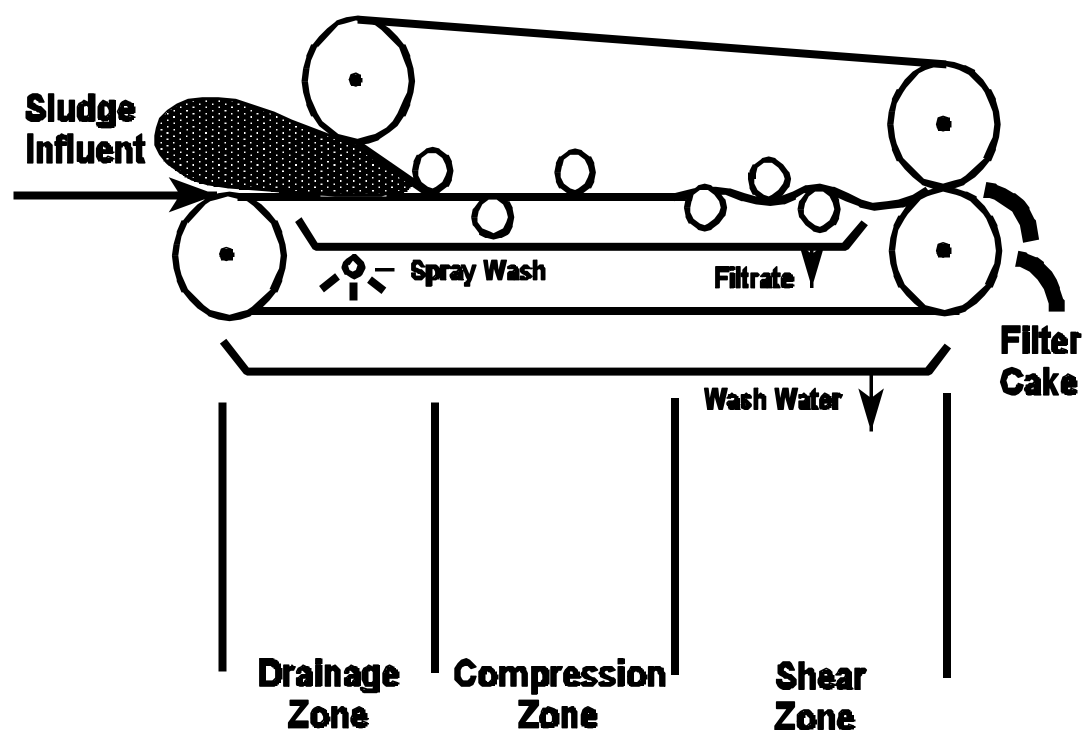


Figure 8-26. Belt Pressure Filtration System Diagram

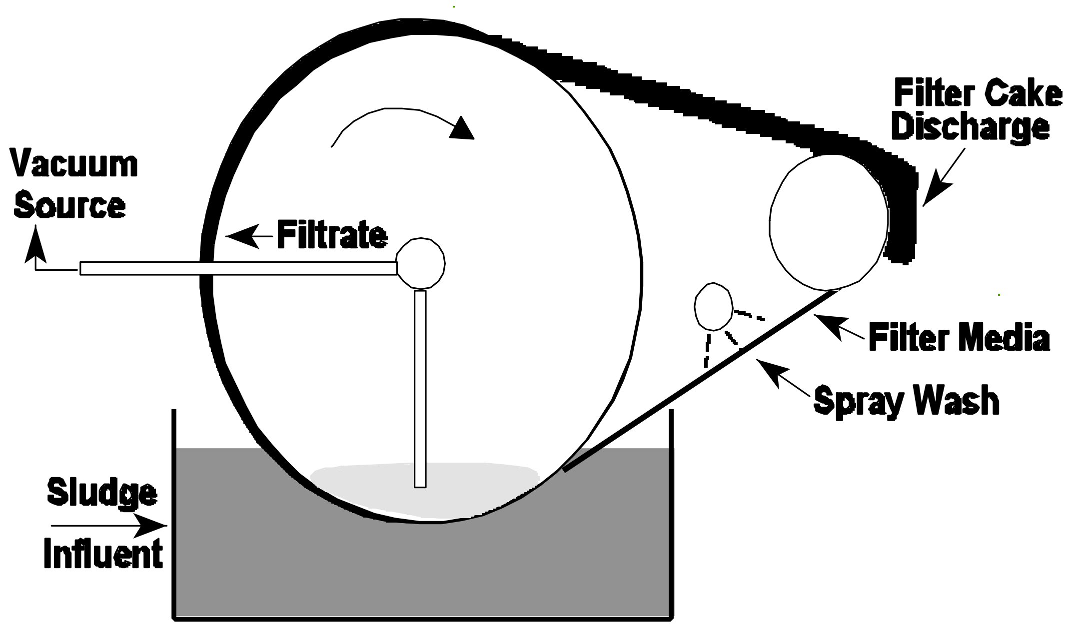


Figure 8-27. Vacuum Filtration System Diagram

In a rotary vacuum belt filter, a continuous belt of filter fabric is wound around a horizontal rotating drum and rollers. The drum is perforated and is connected to a vacuum. The drum is partially immersed in a shallow tank containing the sludge. As the drum rotates, the vacuum which is applied to the inside of the drum draws the sludge onto the filter fabric. The water from the sludge passes through the filter and into the drum, where it exits via a discharge port. As the fabric leaves the drum and passes over the roller, the vacuum is released. The filter cake drops off of the belt as it turns around the roller. The filter cake may then be disposed.

Vacuum filtration may reduce activated sludge to a cake containing 12 to 20 percent solids. Lime sludge may be reduced to a cake of 25 to 40 percent solids.

Because vacuum filtration systems are relatively expensive to operate, they are usually preceded by a thickening step which reduces the volume of sludge to be dewatered. An advantage of vacuum filtration is that it is a continuous process and therefore requires less operator attention.

INDUSTRY PRACTICE

Of the 65 CWT facilities in EPA's WTI Questionnaire data base that provided information concerning the use of vacuum filtration, eight operate vacuum filtration systems.

#### *Filter Cake Disposal* *8.2.4.4*

After a sludge is dewatered, the resultant filter cake must be disposed. The most common method of filter cake management used in the CWT industry is transport to an off–site landfill for disposal. Other disposal options are incineration or land application. Land application is usually restricted to biological treatment residuals.

### ***Zero or Alternate Discharge Treatment Options*** ***8.2.5***

This section discusses zero discharge wastewater treatment and disposal methods. In this context, zero discharge refers to any wastewater disposal method other than indirect discharge to a POTW or direct discharge to a surface water. A common zero discharge method employed by CWT facilities that generate small volumes of wastewater is transportation of the wastewater to an off-site disposal facility such as another CWT facility. Other methods discussed below include deep well disposal, evaporation, and solidification.

Deep well disposal consists of pumping the wastewater into a disposal well, that discharges the liquid into a deep aquifer. Normally, these aquifers are thoroughly characterized to insure that they are not hydrogeologically-connected to a drinking water supply. The characterization requires the confirmation of the existence of impervious layers of rock above and below the aquifer. Pretreatment of the wastewater using filtration is often practiced to prevent the plugging of the face of the receiving aquifer.

Traditionally used as a method of sludge dewatering, evaporation (or solar evaporation) also can involve the discharge and ultimate storage of wastewater into a shallow, lined, on-site basin or ditch. Because the system is open to the atmosphere, the degree of evaporation is greatly dependent upon climatic conditions. This option is generally available only to those facilities located in arid regions.

Solidification is a process in which materials, such as fly ash, cement, and lime, are added to the waste to produce a solid. Depending on both the contaminant and binding material, the solidified waste may be disposed of in a landfill or incinerated.

### INDUSTRY PRACTICE

EPA has information for 24 CWT facilities not discharging directly to surface waters or POTWs that employ zero and alternate discharge methods. Of those 24 facilities, seven dispose of wastewater by deep well injection, 13 transport wastewater to an off-site commercial or intra-company wastewater treatment facility, two dispose of wastewater by evaporation, one solidifies wastewater and landfills it on-site, and one discharges wastewater to a privately-owned treatment works.

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Chapter

# 9

# REGULATORY OPTIONS CONSIDERED AND SELECTED FOR BASIS OF REGULATION

This section presents the technology options considered by EPA as the basis for the effluent limitations guidelines and standards for the CWT industry. It also describes the methodology for EPA's selection of the final technology options. The limitations and standards discussed in this section are Best Practicable Control Technology Currently Available (BPT), Best Conventional Pollutant Control Technology (BCT), Best Available Technology Economically Achievable (BAT), New Source Performance Standards (NSPS), Pretreatment Standards for Existing Sources (PSES), and Pretreatment Standards for New Sources (PSNS).

## *ESTABLISHMENT OF BPT* 9.1

Section 304(b)(1)(A) requires EPA to identify effluent reductions attainable through the application of "best practicable control technology currently available for classes and categories of point sources." EPA determines BPT effluent levels based upon the average of the best existing performance by facilities of various sizes, ages, and unit processes within each industrial category or subcategory. However, in industrial categories where present practices are uniformly inadequate, EPA may determine that BPT requires higher levels of control than any currently in place if the technology to achieve those levels can be practicably applied.

In addition, CWA Section 304(b)(1)(B) requires a cost reasonableness assessment for BPT limitations. In determining the BPT limits, EPA must consider the total cost of treatment technologies in relation to the effluent reduction benefits achieved.

In balancing costs against the benefits of effluent reduction, EPA considers the volume and nature of expected discharges after application of BPT, the general environmental effects of pollutants, and the cost and economic impacts of the required level of pollution control.

In assessing BPT for this industry, EPA considered age, size, unit processes, other engineering factors, and non-water quality impacts pertinent to the facilities treating waste in each subcategory. For all subcategories, no basis could be found for identifying different BPT limitations based on age, size, process, or other engineering factors for the reasons previously discussed. For a service industry whose service is wastewater treatment, the pertinent factors for establishing the limitations are cost of treatment, the level of effluent reductions obtainable, and non-water quality effects.

EPA determined that, while some CWT facilities are providing adequate treatment of all wastestreams, wastewater treatment at some CWT facilities is poor. EPA has determined that facilities which mix different types of highly concentrated CWT wastes with non-CWT wastestreams or with storm water are not providing BPT treatment. In addition, while some CWT facilities pretreat subcategory wastestreams for optimal removal prior to commingling, some facilities mix wastes from different subcategories without pretreatment. This practice essentially dilutes the waste rather than treats the waste. As such, the mass of pollutants being discharged at some CWT facilities is higher than that which can be achieved, given the demonstrated removal capacity of treatment systems that the Agency reviewed. Many CWT facilities recognize that commingling often leads only to dilution and have encouraged their customers to segregate wastes as much as possible. Waste minimization techniques at most manufacturing facilities have also led to increased waste stream segregation.

Comparison of EPA sampling data and CWT industry-supplied monitoring information establishes that, in the case of metal-bearing wastestreams, virtually all the facilities are discharging large amounts of heavy metals. As measured by total suspended solids (TSS) levels following treatment, TSS concentrations are substantially higher than levels observed at facilities in other industry categories employing the very same treatment technology.

In the case of oil discharges, many facilities are achieving low removal of oil and grease relative to the performance required for other point source categories. Many collect samples infrequently to analyze for metal and organic constituents in their discharge since these parameters are not included in their discharge permits. Further, facilities treating organic wastes, while successfully removing organic pollutants through biological treatment, fail to remove metals associated with these organic wastes.

The poor pollutant removal performance observed for some direct discharging CWT facilities is not unexpected. As pointed out previously, some of these facilities are treating highly concentrated wastes that, in many cases, are process residuals and sludges from other point source categories. EPA's review of permit limitations for the direct dischargers show that, in most cases, the dischargers are subject to "best professional judgment" limitations which were based primarily on guidelines for facilities treating and discharging much more dilute wastestreams. EPA has concluded that treatment performance in the industry is often inadequate and that the mass of pollutants being discharged is high, given the demonstrated removal capability of treatment option that the Agency has reviewed.

EPA’s options to evaluate treatment systems in place at direct discharging CWTs were extremely limited since most of the facilities in this industry are indirect dischargers. This is particularly true of the metals and oils facilities. Many indirect discharging CWTs are not required to control discharges of conventional pollutants because the receiving POTWs are designed to achieve removal of conventional pollutants and therefore, generally do not monitor or optimize the performance of their treatment systems for control of conventional pollutants. Because BPT applies to direct dischargers, the data used to establish limitations and standards are normally collected from such facilities. For this rule, EPA relied on information and data from widely available treatment technologies in use at CWT facilities discharging indirectly -- so called “technology transfer.” EPA concluded that certain technologies in place at indirect discharging CWT facilities are appropriate for use as the basis for regulation of direct dischargers.

### *Technological Options Considered as the Basis for the Metals Subcategory Limitations and Standards 9.1.1*

EPA has considered four technology options in establishing BPT effluent level reductions for the metals subcategory. All rely on chemical precipitation to reduce the discharge of pollutants from CWT facilities. The four technology options are as follows:

Option 1: chemical precipitation, and liquid solid separation;

Option 2: selective metals precipitation, liquid-solid separation, secondary precipitation, and liquid-solid separation;

Option 3: selective metals precipitation, secondary precipitation, liquid-solid separation, tertiary precipitation, and clarification; and

Option 4: primary precipitation, liquid-solid separation, secondary precipitation, liquid solid separation, and sand filtration.

As detailed in the 1995 proposal and the 1999 supplemental proposal, while single stage chemical precipitation followed by liquid-solid separation is widely used in this subcategory, EPA dropped it from further consideration at the time of the original proposal. EPA concluded that single stage, chemical precipitation of mixed disparate metal-bearing waste streams is not an acceptable technology basis for BPT limitations. The Agency also dropped the option 2 technology at the time of the 1999 proposal because it estimated that the option 2 and option 3 technologies have nearly equivalent costs and that pollutant removals are greater for option 3. Therefore, EPA now considers two technology options as the basis for the metals subcategory limitations and standards. Each is explained in detail below.

METALS SUBCATEGORY OPTION 3[1] - SELECTIVE METALS PRECIPITATION, LIQUID-SOLID SEPARATION, SECONDARY PRECIPITATION, LIQUID-SOLID SEPARATION, TERTIARY PRECIPITATION, AND CLARIFICATION

The first treatment option (option 3) that EPA evaluated is based on "selective metals precipitation." "Selective metals precipitation" is a specialized metals removal technology that tailors precipitation conditions to the metal to be removed. The extent to which a metal is precipitated from a solution will vary with a number of factors including pH, temperature, and treatment chemicals. Selective metals precipitation adjusts these conditions sequentially in order to provide maximum precipitation of metals. Selective metals precipitation requires segregation of incoming wastestreams and careful characterization of the metals content of the waste stream. Next, there are multiple precipitations in batches at different pH levels in order to achieve maximum removal of specific metals. Selective metals precipitation results in the formation of a metal-rich filter cake. This treatment option requires numerous treatment tanks and personnel to handle incoming wastestreams, greater quantities of treatment chemicals, and better control of the precipitation steps. One of the benefits of this technology, however, is that it results in a metal-rich filter cake that facilities employing this treatment have the option of selling as feed material for metal reclamation. For metal streams which contain concentrated cyanide complexes, achievement of the BPT limitations under this option would require alkaline chlorination in a two step process prior to metals treatment. These BPT cyanide limitations are discussed in greater detail below.

METALS SUBCATEGORY OPTION 4[1] - PRIMARY PRECIPITATION, LIQUID-SOLID SEPARATION, SECONDARY PRECIPITATION, AND SAND FILTRATION

The second technology EPA evaluated as the technology basis for limitations and standards in the metals subcategory is option 4, a two stage precipitation process. The first stage of this technology is similar to the option 1 chemical precipitation technology considered (and rejected) during the development of this rule and is based on chemical precipitation, followed by some form of solids separation and sludge dewatering. In option 4, however, a second precipitation step is also performed followed by sand filtration. Under option 4, the treater varies pH levels and treatment chemicals in order to promote optimal removal of the wide

[1] The numbering of options reflects the numbering for the 1999 proposal. Option 3 was first considered for the 1995 proposal. Option 4 is a technology EPA evaluated for the 1999 proposal.

range of metal pollutants found in CWT metals wastewaters. Since most CWT metal facilities utilize single-stage chemical precipitation only, generally limitations and standards based on option 4 would require some facilities to more carefully control their treatment steps, increase quantities of treatment chemicals they use, perform an additional precipitation step, and add a clarification sand filtration step. Once again, for metals which contain concentrated cyanide complexes, like option 3, alkaline chlorination in a two step process is also part of the option 4 treatment process.

*Rationale for the Final Metals Subcategory BPT Limitations 9.1.1.1*

For the final CWT rule, EPA established BPT limitations for the metals subcategory based on the option 4 technology. The Agency concluded that this treatment system represented the best practicable technology currently available and should be the basis for the BPT metals limitations for the following reasons. First, the option 4 technology is one that is readily applicable to all facilities that are treating metal-bearing waste streams. It is based on a technology including two-stage chemical precipitation that is currently used at approximately 25 percent of the facilities in this subcategory. Second, the adoption of this level of control would represent a significant reduction in pollutants discharged into the environment by facilities in this subcategory. Option 4 would annually remove approximately 4.1 million pounds of TSS and metals now discharged to the Nation's waters. Third, the Agency assessed the total cost of water pollution controls likely to be incurred for option 4 in relation to the effluent reduction benefits and determined these costs were reasonable – $0.40 per pound ($1997). In the 1999 proposal, EPA explained why it rejected metals option 3 as the basis for BPT. See 64 FR 2280 at 2306.

The Agency used chemical precipitation treatment technology performance data from the Metal Finishing regulation (40 CFR Part 433) to establish direct discharge limitations for TSS because the facility from which the option 4 limitations were derived is an indirect discharger and the treatment system is not necessarily designed for optimum removal of conventional parameters, due to the lack of stringent local limits for these parameters. EPA has concluded that the transfer of this data is appropriate given the absence of adequate treatment technology for this pollutant at the only otherwise well-operated BPT CWT facility examined by EPA. Based on a review of the data, EPA concluded that similar wastes (in terms of TSS concentrations) are being treated at both metal finishing and centralized waste treatment facilities, and that the use of the metal finishing data to derive TSS limits for this subcategory is warranted. Because the technology basis for the transferred limitations includes clarification rather than sand filtration, the Agency also included a clarification step prior to sand filtration (which the option 4 facility does not have) in the technology basis for option 4 for facilities subject to BPT. Therefore, because the technology basis for CWT is based on primary chemical precipitation, primary clarification, secondary chemical precipitation, secondary clarification, and sand filtration and the technology basis for Metal Finishing is based on primary precipitation and clarification only, EPA concluded that CWT facilities will perform similarly (or better) when treating TSS in wastes in this subcategory.

BPT limitations established by option 4 (except TSS) are based on data from a single, well-operated system. Generally, for purposes of defining BPT effluent limitations, EPA looks at the performance of the best treatment technology and calculates limitations from some level of average performance measured at facilities that employ this "best" treatment technology. In reviewing technologies currently in use in this subcategory, however, EPA found that facilities generally utilize a single stage chemical precipitation step -- a technology which does not achieve adequate metals removals for the waste streams observed at these operations. EPA did identify facilities that utilize additional metals wastewater treatment, generally secondary chemical precipitation, but without the final multimedia filtration step. Also, EPA found that only the BPT model facility accepts a full spectrum of waste, often with extremely high metals concentrations and provides, therefore, a suitable basis to determine the performance that a well-designed and operated system can achieve for a wide range of raw waste concentrations. Consequently, EPA adopted BPT limitations based on performance data from this facility. For further discussion, see the 1999 proposal at 64 FR 2280-2357.

## CYANIDE SUBSET

### *TECHNOLOGIES EVALUATED*

As discussed above, the presence of high cyanide concentrations detrimentally affects the performance of metal precipitation processes due to the formation of metal-cyanide complexes. Effective treatment of such wastes typically involves a cyanide destruction step prior to any metal precipitation steps. Consequently, in the case of metal streams which contain concentrated cyanide complexes, EPA concluded an additional treatment step is required to destroy cyanide prior to metals precipitation. During development of this rule, EPA considered the following three regulatory options for the destruction of cyanide.

#### CYANIDE SUBSET OPTION 1 - ALKALINE CHLORINATION

The option 1 technology, alkaline chlorination, is widely used for cyanide destruction in this industry as well as in others. For this subset, it represents current performance. While this technology can effectively treat non-complexed, dilute cyanide -bearing wastestreams, it is often ineffective in treating concentrated cyanide complexes.

#### CYANIDE SUBSET OPTION 2 - ALKALINE CHLORINATION IN A TWO STEP PROCESS

The cyanide option 2 technology is alkaline chlorination in a two step process. In the first step, cyanide is oxidized to cyanate in a pH range of 9 to 11. The second step oxidizes cyanate to carbon dioxide and nitrogen at a controlled pH of 8.5. EPA's data demonstrate that this technology is effective in treating concentrated cyanide complexes.

#### CYANIDE SUBSET OPTION 3 - CONFIDENTIAL CYANIDE DESTRUCTION

EPA evaluated a third technology which is extremely effective in reducing cyanide (including concentrated cyanide complexes). Application of this technology resulted in cyanide reductions of 99.8 percent for both amenable and total cyanide. The option 3 technology is also claimed confidential

As detailed in the 1995 and 1999 proposals, the cyanide option 3 technology is a proprietary process that does not employ off-the-shelf technology. Consequently, EPA dropped it from further consideration since it is not publicly available.

### *RATIONALE FOR FINAL CYANIDE SUBSET BPT LIMITATIONS*

EPA based the final BPT limitations on cyanide option 2. This is the same technology that was the basis for the 1999 proposed limitations. There are several reasons supporting the selection of limitations based on cyanide option 2, as explained in detail in the 1999 proposal at 64 FR 2309. First, the facility achieving cyanide option 2 removals accepts a full spectrum of cyanide waste. Consequently, the treatment used by the cyanide option 2 facility can be readily applied to all facilities in the subset of this subcategory. Second, adoption of this level of control would represent a significant reduction in pollutants discharged into the environment by facilities in this subset.

Finally, the Agency assessed the total cost for cyanide option 2 in relation to the effluent reduction benefits and determined these costs were economically reasonable.

### *Technological Options Considered as the Basis for the Oils Subcategory Limitations and Standards* *9.1.2*

EPA has considered twelve technology options in establishing BPT effluent reduction levels for the oils subcategory during development of this rule. The first four options were evaluated at the time of the 1995 proposal (60 FR 5478); the other eight options, following the 1995 proposal. The twelve technology options considered are as follows:

Option 1: emulsion breaking/gravity separation;
Option 2: emulsion breaking/gravity separation and ultrafiltration;
Option 3: emulsion breaking/gravity separation, ultrafiltration, carbon adsorption, and reverse osmosis;
Option 4: emulsion breaking/gravity separation, ultrafiltration, carbon adsorption, reverse osmosis, and carbon adsorption;
Option 5: emulsion breaking/gravity separation, ultrafiltration, and chemical precipitation;
Option 6: emulsion breaking/gravity separation, dissolved air flotation, and gravity separation;
Option 7: emulsion breaking/gravity separation, secondary gravity separation, dissolved air flotation, and biological treatment;
Option 8: emulsion breaking/gravity separation and dissolved air flotation;
Option 8v: emulsion breaking/gravity separation, air stripping, and dissolved air flotation;
Option 9: emulsion breaking/gravity separation, secondary gravity separation, and dissolved air flotation;
Option 9v: emulsion breaking/gravity separation, air stripping, secondary gravity separation, and dissolved air flotation; and
Option 10: emulsion breaking/gravity separation and secondary gravity separation.

As detailed in the 1995 proposal and 1999 supplemental proposal, while emulsion breaking/gravity separation (option 1) is widely used in this subcategory, the data EPA has examined supports the Agency's concerns that the performance of emulsion breaking and/or gravity separation unit operations are inadequate because they do not achieve acceptable pollutant removals. For example, one of the facilities in the oils subcategory that EPA sampled discharged a biphasic sample (oil and water) from the emulsion breaking/gravity separation unit during an EPA sampling visit. When EPA analyzed the sample, the biphasic liquid stream had a relatively small organic phase percentage, yet contained extremely high overall concentrations of toxic pollutants, especially priority, semi-volatile organics (such as polynuclear aromatic hydrocarbons, phthalates, aromatic hydrocarbons, n-paraffins, and phenols). Hence, the Agency concluded that gravity separation systems without further treatment provide inadequate removals. Consequently, EPA dropped the oils option 1 technology from further consideration.

The Agency also dropped the option 4 technology (emulsion breaking/gravity separation, ultrafiltration, carbon adsorption, reverse osmosis, and carbon adsorption) from consideration at the time of the original proposal because EPA's analysis showed that some pollutant concentrations actually increased following the additional carbon adsorption.

At the time of the 1995 proposal, the

Agency co-proposed BPT limitations based on emulsion breaking/gravity separation and ultrafiltration as well as emulsion breaking/gravity separation and ultrafiltration with added carbon adsorption and reverse osmosis to remove metal compounds found at significant levels in this subcategory. Because the costs associated with the latter option were four times higher than ultrafiltration alone, EPA was concerned about its impacts on facilities in this subcategory. After the 1995 proposal, EPA collected additional information on facilities in the oils subcategory and revisited its conclusion about the size and nature of the oils subcategory. EPA published a Notice of Data Availability in 1996 describing the new information and EPA's revised assessment of the oils subcategory. Based on analyses presented in the 1996 Notice, EPA determined it should no longer consider emulsion breaking/gravity separation and ultrafiltration with added treatment steps (option 3) as the basis for BPT limitations because the projected total costs relative to effluent reductions benefit were not economically reasonable.

Based on comments to the 1995 proposal and the 1996 Notice of Data Availability, EPA was strongly encouraged to look at alternate technology options to emulsion breaking/gravity filtration and ultrafiltration. This concern was driven in large measure by the fact that many of the facilities in the oils subcategory are classified as "small businesses" and the economic cost of installing and operating ultrafiltration technology was quite high. Additionally, many commenters stated that ultrafiltration is a sophisticated technology which would be difficult to operate and maintain with the majority of these wastestreams. Commenters also noted that the Agency had failed to consider non-water quality impacts adequately -- particularly those associated with the disposal of the concentrated filtrate from these operations. As a result, based on comments to the original proposal, the 1996 Notice of Data Availability, and additional site visits, EPA identified several other treatment options that were efficient, produced tighter oil and grease limits, and were less expensive. As such, EPA did not consider emulsion breaking/gravity separation and ultrafiltration (option 2) as an appropriate technology for limitations for the oils subcategory.

Following the 1995 proposal and the 1996 Notice of Data Availability, EPA preliminarily considered options 5 - 9v in establishing BPT effluent reduction levels for this subcategory. However, EPA dropped options 5, 6, and 7 early in the process. EPA dropped option 5 since it relied on ultrafiltration which, as described previously, the Agency determined was inappropriate for this subcategory. The Agency dropped option 6 since EPA is unaware of any CWT facilities that currently use the option 6 treatment technologies in the sequence considered. Finally, EPA dropped option 7 because EPA's sampling data showed little additional pollutant reduction associated with the addition of the biological treatment system.

Following the SBREFA panel, at the request of panel members, EPA also examined another option, option 10, which is based on emulsion breaking/gravity separation followed by a second gravity separation step. At the time of the 1999 proposal the Agency concluded it should not propose BPT limitations based on this technology because EPA's data show that this technology alone did not adequately control the metal pollutants of concern relative to other widely available technologies.

Finally, as described in more detail in the 1999 proposal (See 64 FR 2311), the Agency dropped option 8v and 9v from consideration because the addition of air stripping with overhead recovery or destruction would not achieve any substantial additional removal of volatile and semi-volaitel parameters from the wastewater. The discharge limits would be the same with or without the additional technology basis of air stripping with overhead recovery.

Consequently, EPA now considers only two technology options for the basis for establishing the oils subcategory limitations and standards. These are as follows:

Option 8[2]: emulsion breaking/gravity separation and dissolved air flotation; and

Option 9[2]: emulsion breaking/gravity separation, secondary gravity separation, and dissolved air flotation

Each of these are discussed below.

OILS SUBCATEGORY OPTION 8[2] - DISSOLVED AIR FLOTATION

The technology basis for option 8 is dissolved air flotation (DAF). DAF separates solid or liquid particles from a liquid phase by introducing air bubbles into the liquid phase. The bubbles attach to the particles and rise to the top of the mixture. Often chemicals are added to increase the removal of metal constituents. Generally, limitations and standards based on option 8 would require facilities to more carefully control their treatment systems and/or to install and operate a DAF system. For oils streams with significant concentrations of metals, option 8 would also require increased quantities of treatment chemicals to enhance metals removals.

OILS SUBCATEGORY OPTION 9[2] - SECONDARY GRAVITY SEPARATION AND DISSOLVED AIR FLOTATION

The technology basis for limitations based on option 9 is secondary gravity separation and DAF. Secondary gravity separation involves using a series of tanks to separate the oil and water and then skimming the oily component off. The resulting water moves to the next step. The gravity separation steps are then followed by DAF. As mentioned previously, EPA concluded all oils facilities currently utilize some form of gravity separation, although most perform primary gravity separation only. Generally, limitations and standards based on option 9 would require facilities to more carefully control their treatment systems, perform additional gravity separation steps, and/or install and operate a DAF system. For oils streams with relatively high concentrations of metals, option 9 would also require the use of increased quantities of treatment chemicals to enhance the removal of metals.

*Rationale for Oils Subcategory BPT Limitations* *9.1.2.1*

The technology basis for the final BPT limitations is oils option 9: *emulsion breaking/gravity separation, secondary gravity separation and dissolved air flotation*. This is the same technology that was the basis for the 1999 proposed limitations. EPA notes that all direct discharging oils facilities already have treatment-in-place equivalent to secondary gravity separation. Therefore, EPA can not consider the option 8 technology as the basis for BPT limitations in the oils subcategory.

EPA developed the final limitations for this option using sampling data from facilities both with and without the secondary gravity separation step. EPA's data show that the secondary gravity separation step may not always be necessary to meet the final limitations, depending on the level of treatment in the initial gravity-separation/emulsion-breaking step. EPA's data show there is a wide range of pollutants being discharged from this initial treatment step. EPA concluded that if many of the facilities optimize treatment at this level, the secondary gravity separation step may not be required. However, EPA estimated the costs to comply with the limitations with the secondary gravity separation step included to ensure this technology option's economic achievability.

[2]As noted above, EPA is no longer considering oils Options 1- 4 proposed in 1995. During development of the 1999 proposal, EPA also preliminarily considered seven other options numbered 5 - 9v. EPA has chosen to focus its attention on options 8 and 9.

The Agency adopted BPT limitations for the oils subcategory based on option 9, emulsion breaking/gravity separation, secondary gravity separation and dissolved air flotation for two reasons. First, the adoption of this level of control would represent a significant reduction in pollutants discharged into the environment by facilities in this subcategory. Second, the Agency assessed the total costs of water pollution controls likely to be incurred for this option in relation to the effluent reduction benefits and determined these costs were reasonable at $0.63/lb ($1997). EPA believes it is important to note that BPT limitations for conventional parameters established by option 9 are based on data from a single, well-operated, indirect-discharging system. Generally, for purposes of defining BPT effluent limitations, EPA looks at the performance of the best treatment technology and calculates limitations from some level of average performance measured at facilities that employ this “best" treatment technology. The facilities sampled as the technology basis for this subcategory, however, were not required to optimize their oil and grease or TSS removals because they discharge to POTWs. Current POTW/local permit limitations for oil and grease in this subcategory range from 100 mg/L to 2,000 mg/L and for TSS from 250 mg/L to 10,000 mg/L. Many have no oil and grease or TSS limits at all. EPA concluded that only one of the systems in this subcategory for which EPA has data was designed to remove oil and grease and TSS effectively. EPA concluded that the oil and grease and TSS removals are uniformly inadequate at the other facilities included in the BPT limitations calculations for other parameters. Consequently, EPA based the oil and grease and TSS limitations on data from a single facility.

### *Technological Options Considered as the Basis for the Organics Subcategory Limitations and Standards 9.1.3*

EPA has considered four technology options in establishing limitations and standards for the organics subcategory during development of this rule. The four technology options are as follows:

Option 1: equalization, air stripping with emissions control, biological treatment, and multimedia filtration;

Option 2: equalization, air stripping with emissions control, biological treatment, multimedia filtration, and carbon adsorption;

Option 3: equalization, air-stripping with emissions control, and biological treatment; and

Option 4: equalization and biological treatment.

The 1999 proposal explained that the Agency dropped option 2 from further consideration because EPA’s sampling data showed that, following the carbon adsorption step, specific pollutants of concern actually increased. The 1999 proposal also explained that EPA dropped option 1 from consideration because the multimedia filtration step is primarily included to protect the carbon adsorption unit installed downstream from high TSS levels. Since EPA rejected option 2 which includes the carbon adsorption unit, EPA similarly rejected the option which includes the multimedia filtrations step.

Also, as described in more detail in the 1999 proposal (see 64 FR 2312), the Agency dropped option 3 from consideration because the addition of air stripping with overhead recovery or destruction would not achieve any substantial additional removal of volatile and semi-volatile parameters from the wastewater. Effluent limitations and standards based on option 3 treatment would be essentially the same as those established by option 4.

Consequently, for the final CWT rule, EPA considered only one technology basis, option 4, for the development of limitations and standards for the organics subcategory.

*Rationale for Organics Subcategory BPT Limitations* *9.1.3.1*

The technology basis for the final BPT limitations is organics option 4: *equalization and biological treatment.* Biological treatment for this option is in the form of a sequential batch reactor. This is the same technology that was the basis for the 1999 proposed limitations. The preamble to the proposal provided further explanation of EPA's decision (64 FR 2311-12).

The Agency concluded that this treatment system represented the best practicable technology currently available and should be the basis for the BPT organics limitations for several reasons. The technology is already used at the four direct discharging facilities that treat organic wastes and results in the removal of 28,700 lbs annually of conventional pollutants (at baseline). Moreover, because the treatment is in place, the cost of compliance with the limitations will obviously be reasonable.

Unlike the other BPT limitations adopted in the final CWT rule, the adoption of limitations based on option 4 will not, in all probability, result in any significant change in the quantity of pollutants discharged into the environment by facilities in this subcategory. As noted, EPA's data suggests that all direct discharging facilities in this subcategory currently employ equalization and biological treatment systems, and EPA assumed that all those facilities will be able to meet the BPT limitations without additional capital or operating costs. If any facilities were to incur increased operating costs associated with the limits, EPA concluded these increases are negligible and has not quantified them. Many of these facilities are not currently required to monitor for organic parameters or are only required to monitor a couple of times a year. Thus, the estimated costs for complying with BPT limitations for this subcategory are associated with additional monitoring only. The Agency determined the additional monitoring is warranted, and will promote more effective and consistent treatment at these facilities.

The selected BPT option is based on the performance of a single indirect discharging facility. While EPA identified four direct discharging organics subcategory facilities that utilize biological treatment, EPA did not use data from these facilities to establish limitations because they commingle organics subcategory wastewaters with other CWT subcategory wastewaters or wastewaters subject to other national effluent guidelines and standards. Many facilities that are treating wastes that will be subject to effluent limitations for the Organic Waste Subcategory also operate other industrial processes that generate much larger amounts of wastewater than the quantity of off-site generated organic waste receipts. The off-site generated organic waste receipts are directly mixed with the wastewater from the other industrial processes for treatment. Therefore, identifying facilities to sample for limitations development was difficult because the waste received for treatment and treatment unit effectiveness could not be properly characterized for off-site generated waste. The treatment system on which EPA based option 4 was one of the few facilities identified which treated organic waste receipts separately from other on-site industrial wastewater.

The Agency used biological treatment performance data from the Thermosetting Resin Subcategory of the OCPSF regulation to establish direct discharge limitations for $BOD_5$ and TSS because the facility from which Option 4 limitations were derived is an indirect discharger and the treatment system is not operated to effectively remove conventional pollutants. EPA has concluded that the transfer of this data is appropriate given the absence of adequate treatment technology for these pollutants at the only otherwise well-operated BPT CWT facility in this subcategory that the Agency was able to evaluate. Moreover, EPA concluded that the biological treatment systems at CWT facilities will perform similarly to those at OCPSF facilities. EPA based this conclusion on its review of the NPDES permits for the four direct discharging facilities in this subcategory. Two of these facilities are located at manufacturing facilities that commingle their wastewater for treatment and are already subject to OCPSF. The other two facilities have conventional pollutant limits which are lower than those adopted for the final CWT rule. EPA has concluded that all of these facilities should be able to comply with the transferred limitations without incurring additional costs. Likewise, EPA has not estimated any additional pollutant removals associated with this data transfer.

### *Rationale for Multiple Wastestream Subcategory BPT Limitations 9.1.4*

EPA developed four sets of limitations for each of the possible combinations of the three subcategories of wastestreams: oils and metals, oils and organics, metals and organics, and oils, metals and organics. The multiple wastestream subcategory limitations were derived by combining BPT pollutant limitations from up to all three subcategories selecting the most stringent values where they overlap[3]. Therefore, the technology basis for the multiple wastestream subcategory limitations reflects the technology basis for the applicable subcategories.

Multiple wastestream subcategory limitations are only available to CWT facilities which accept waste in multiple subcategories. These facilities must certify as well as demonstrate that their treatment system obtains equivalent removals to those which are the basis for the separate subcategory limits. The multiple wastestream subcategory allows the facility to monitor for compliance just prior to discharge rather than directly following treatment of each subcategory's waste stream. For multiple subcategory facilities, this option simplifies implementation and reduces monitoring costs. EPA has, however, estimated additional burden associated with the certification process in "National Pollutant Discharge Elimination System (NPDES) /Compliance Assessment/Certification Information," ICR (No.1427.05), for direct dischargers and "National Pretreatment Program (40 CFR part 403)," ICR (No. 0002.08), for indirect dischargers.

EPA has determined these limitations are also best practicable technology limitations for facilities that operate in one or more CWT categories for the following reasons. EPA has concluded that, for multiple subcategory facilities, the limitations adopted in this subcategory in combination with the certification process will provide pollutant removals equal to or greater than those projected if the facility elects to comply with the individual subcategory limitations. Further, analysis shows that the costs for multi-subcategory facilities to comply with the multiple wastestream subcategory limitations are generally equal to or less than the costs associated with complying with each applicable subcategory's limitations individually. Because EPA determined that costs of complying with the individual subcategory limits are achievable and costs of complying with the multiple subcategory limits are no greater, EPA concluded that the multiple wastestream subcategory limits are economically achievable.

[3]EPA selected the most stringent maximum monthly average limitations and its corresponding maximum daily limitation.

## *BEST CONVENTIONAL TECHNOLOGY (BCT) 9.2*

For the final CWT rule, EPA adopted BCT limitations equivalent to BPT for all subcategories. In deciding whether to adopt different BCT limits, EPA considered whether there are technologies that achieve greater removals of conventional pollutants than adopted for BPT, and whether those technologies are cost-reasonable under the standards established by the CWA, and implemented through regulation. EPA generally refers to the decision criteria as the "BCT Cost Test." For all four subcategories, EPA identified no technologies that can achieve greater removals of conventional pollutants than those that are the basis for BPT that are also cost-reasonable under the BCT Cost Test. Accordingly, EPA adopted BCT effluent limitations equal to the BPT effluent limitations.

## *BEST AVAILABLE TECHNOLOGY (BAT) 9.3*

EPA adopted BAT effluent limitations for all subcategories of the CWT industry based on the same technologies selected as the basis for BPT for each subcategory. The BAT limitations are the same as the BPT limitations for priority and non-conventional pollutants. As described in the BPT discussion, in general, the adoption of this level of control will represent a significant reduction in pollutants discharged into the environment by facilities in this industry. Additionally, EPA has evaluated the economic impacts associated with compliance and found the technologies to be economically achievable.

With the exception of the metals subcategory, EPA has not identified any more stringent treatment technology option different from those evaluated for BPT that might represent best available technology economically achievable for this industry. For the metals subcategory, EPA did consider as BAT technology a treatment technology that it had evaluated for the 1999 proposal, option 3, based on the use of selective metals precipitation. However, as detailed in the proposal (64 FR 2307-2308, 2312), there is little additional toxic removal associated with option 3 while the costs to the industry for are four times greater than the cost of the BPT option, option 4[4].

EPA has concluded that it should not adopt BAT limitations based on option 3 for several reasons. First, the option 3 technology may not be the best "available" technology for existing metals subcategory facilities because physical constraints may prevent its use at certain facilities. Currently, only one facility in the metals subcategory is employing selective metals precipitation, which requires the separation and holding of wastestreams in numerous treatment tanks. EPA is aware that some facilities do not have, and may not be able to obtain, sufficient space to install the additional treatment tanks that would be needed for selective metals precipitation. Second, while the removals associated with option 4 are not as great as those calculated for option 3, achievement of limitations based on the option 4 technology will still represent a significant advance in removals for the industry over those obtained from conventional precipitation technology. Given these factors, EPA has concluded it should adopt BAT limitations based on the option 4 technology.

For the oils and organics subcategories, as detailed in the proposal (64 FR 2312-2313), EPA has evaluated treatment technologies for BAT limitations, which theoretically should provide greater removal of pollutants of concern. For example, EPA identified an add-on treatment technology to technologies considered for BPT -- carbon adsorption -- that should have further increased removals of pollutants of concern. However, EPA's data show increases rather than decreases in concentrations of specific pollutants of concern. EPA has found that the treatment performance

[4] EPA's data show that option 3 would remove approximately 6 % more additional toxic pound-equivalents than option 4.

of activated carbon is sometimes unreliable due to the competitive adsorption and desorption of pollutants that have different affinities for adsorption on activated carbon. Also, pH changes of the wastewater going through the carbon adsorption system may cause stable metal complexes to dissolve and thus cause an increase in some metal concentrations through the adsorption system. Consequently, EPA did not adopt BAT limitations based on this technology.

### *NEW SOURCE PERFORMANCE STANDARDS (NSPS)* *9.4*

Under Section 306 of the Act, EPA must propose and promulgate Federal standards of performance for categories of new sources. Section 306(e) provides that, after the effective date of the standards of performance, the owner or operator of a new source may not operate the source in violation of any applicable standard of performance. The statute defines “standard of performance” as a standard for the control of the discharge of pollutants which reflects the greatest degree of effluent reduction achievable through application of the best available demonstrated control technologies, processes, operating methods or other alternatives, including, where practicable, a standard permitting no discharge of pollutants (see Section 306(a)(1) of the CWA, 33 U.S.C. § 1316(a)(1)). Congress envisioned that new treatment systems could meet tighter controls than existing sources because of the opportunity to incorporate the most efficient processes and treatment systems into plant design (see general discussion of legislative history in *American Iron and Steel Institute v. EPA*, 526 F.2d 1027, 1057-59 (3rd Cir. 1975)). In establishing these standards, Congress directed EPA to consider the cost of achieving the effluent reduction and any non-water quality environmental impacts and energy requirements. As the legislative history of the CWA makes clear, consideration of cost in establishing new source standards is given less weight than in establishing BAT limitations because pollution control alternatives are available to new sources that would not be available to existing sources (see Legis. Hist. (Sen. Muskie statement of House-Senate Conference Report on 1972 Act)).

For the oils and the organics subcategory, EPA promulgated NSPS that would control the same conventional, priority, and non-conventional pollutants as the BPT effluent limitations. The technologies used to control pollutants at existing facilities are fully applicable to new facilities. Therefore, EPA promulgated NSPS oils and organics subcategory limitations that are identical to BPT/BCT/BAT.

For the metals subcategory, however, EPA promulgated NSPS effluent limitations based on a technology which is different from that that used to establish BPT/BCT/BAT limitations. EPA promulgated NSPS for the metals subcategory based on the NSPS technology proposed in 1999 -- selective metals precipitation, liquid-solid separation, secondary precipitation, liquid-solid separation, and tertiary precipitation and clarification. This technology (option 3) provides the most stringent controls attainable through the application of demonstrated technology. EPA has concluded that this technology is the best demonstrated control technology for removing metals from the metal waste streams typically treated in the CWT industry. Additionally, EPA has concluded that there is no barrier to entry for new sources to install, operate, and maintain treatment systems that will achieve discharge levels associated with these option 3 technologies.

An additional critical factor in EPA’s decision is that new facilities will not face the same constraints on using selective metals precipitation that existing facilities may. Thus, new facilities in configuring their operation will have the opportunity to provide sufficient space to operate the multiple tanks associated with the option 3 technology.

EPA’s determination to establish new source limitations based on option 3 is also tied to its conclusion that facilities using this technology have the technical capability to recover and reuse metals, whereas facilities employing technologies to comply with option 4 limitations do not generally have the capability to reuse the metals and will dispose of metal-bearing sludges in landfills. EPA's analysis shows that in the event that a new facility elects to recover and re-use metals rather than simply treating the wastes, the start-up costs for the option 3 technology may actually be less than the start-up costs for the option 4 technology. This is because of the significant reduction in RCRA permitting costs associated with recycling activities versus wastewater treatment activities. Furthermore, EPA has examined the market for re-use of metals and has concluded that these markets exist. Consequently, EPA has concluded that metals re-use with option 3 is viable. As such, this technology selection promotes the objectives of both the Clean Water Act and the Pollution Prevention Act. While EPA has concluded there is no barrier to entry associated with the option 3 technology, EPA recognizes that a CWT metals recycling facility will be required to be somewhat more selective about the waste receipts it accepts than a CWT treatment facility. However, EPA's data show that the vast majority of metal-bearing wastewaters accepted at CWT facilities are not dilute. In EPA's view, this is because generating facilities elect to treat dilute metal-bearing wastestreams on-site because of the ease in treating these wastes and the costs associated with the transport and treatment of these dilute wastes off-site. Also, there is a large amount of capacity available at existing CWT metals subcategory facilities. Consequently, EPA has concluded that existing CWT metals subcategory facilities already provide adequate capacity for dilute metal-bearing wastestreams in the event that the frequency of dilute wastes being transferred off-site for treatment increases. Finally, EPA notes that new CWT metals subcategory facilities are not required to install the option 3 technology or to recover metals. However, EPA's economic analyses show that new sources should carefully consider recycling as an alternative to wastewater treatment.

The Agency used performance data from the CWT metals subcategory BAT limitations data set to promulgate NSPS limitations for oil and grease because the facility from which the NSPS limitations were derived did not have oil and grease in its influent at treatable levels during EPA's sampling episodes. EPA has concluded that transfer of this data is appropriate given that the technology basis for NSPS includes selective metals precipitation and an additional precipitation step. As such, EPA has every reason to conclude that facilities employing the NSPS technology could achieve the limitations, given the fact that the oil and grease limitations are based on performance at a facility employing fewer treatment steps.

As was the case for BPT/BAT, the technology basis for the multiple wastestream subcategory new source limitations reflects the technology basis for the applicable subcategories.

## *PRETREATMENT STANDARDS FOR EXISTING SOURCES (PSES)* 9.5

Section 307(b) of the Clean Water Act requires EPA to promulgate pretreatment standards for pollutants that are not susceptible to treatment by POTWs or which would interfere with the operation of POTWs. EPA looks at a number of factors in deciding whether a pollutant is not susceptible to treatment at a POTW or would interfere with POTW operations -- the predicate to establishment of pretreatment standards. First, EPA assesses the pollutant removals achieved by directly discharging CWT facilities using BAT treatment. Second, for CWT facilities that are indirect dischargers, EPA estimates the quantity of pollutants likely to be discharged to receiving waters after POTW removals. Third, EPA studies whether any of the pollutants introduced to POTWs by CWT facilities interfere with or are otherwise incompatible with POTW operations. In some cases, EPA also looks at the costs, other economic impacts, likely effluent reduction benefits, and treatment systems currently in-place at CWT facilities.

Among the factors EPA considers before establishing pretreatment standards is whether the pollutants discharged by an industry pass through a POTW or interfere with the POTW operation or sludge disposal practices. One of the tools traditionally used by EPA in evaluating whether pollutants pass through a POTW, is a comparison of the percentage of a pollutant removed by POTWs with the percentage of the pollutant removed by discharging facilities applying BAT. In most cases, EPA has concluded that a pollutant passes through the POTW when the median percentage removed nationwide by representative POTWs (those meeting secondary treatment requirements) is less than the median percentage removed by facilities complying with BAT effluent limitations guidelines for that pollutant. For a full explanation of how EPA performs its removal analysis, see Chapter 7.

For the metal and organics subcategories, the Agency promulgated pretreatment standards for existing sources (PSES) based on the same technologies as adopted for BPT and BAT[5]. EPA has determined that the technologies that form the basis for PSES for this final rule are economically achievable for both subcategories. These standards will apply to existing facilities in the metals and organics subcategories of the CWT industry that introduce wastewater to publicly-owned treatment works (POTWs). These standards will prevent pass-through of pollutants from POTWs into receiving streams and also help control contamination of POTW sludge. The final CWT pretreatment standards represent a national baseline for treatment of CWT wastewaters. Local authorities may establish stricter limitations (based on site-specific water quality concerns or other local factors) where necessary.

For the oils subcategory, EPA proposed to base PSES on option 8 even though option 9 (the BAT technology) achieved greater removals. Option 8 is the same technology as option 9, but does not include the secondary gravity separation step. At that time, the economic analysis showed that the additional costs associated with option 9 resulted in higher economic impacts for the subcategory. In particular, EPA expressed concerns about the economic impacts of the more expensive technology for small businesses in the oils subcategory. Furthermore, EPA estimated that pollutant removals (in pound-equivalents) for option 9 were only one percent higher than the removals for option 8.

Following proposal, EPA finalized its estimates of costs, loadings reductions, and economic impacts, and then re-examined its technology selection for PSES in the oils subcategory. As part of this examination, EPA carefully considered the impacts of both option 8 and option 9 and the differences between them. EPA also looked at subsets of the oils facilities, including the set of small businesses. Based on an evaluation of all factors, EPA has not changed the technology basis from the 1999 proposal and set PSES standards for the oils subcategory based on option 8.

The Agency's economic analysis is discussed in detail in Section X of the final preamble and Chapter 5 of the final EA. Briefly, in evaluating economic impacts, EPA looks at a variety of impacts to facilities and firms (in particular, small businesses). For this industry, EPA determined that the most relevant economic impacts are on CWT processes and facilities. Waste industries such as the CWT industry are difficult to model economically; EPA's first attempts to model CWT operations as part of a larger facility greatly overestimated closures (see Section 7.2 of the 1995 EA and 64

[5] For the metals subcategory, the technology basis for PSES does not include the second clarification step since this step was only included to meet the transferred TSS limitations that apply to direct dischargers only.

FR 2326). EPA therefore decided to examine the impacts on the CWT operations and, in particular, the profitability of individual CWT processes and facilities (note that a CWT "facility" is all of the CWT processes at a given facility and does not include the non-CWT operations at a given facility).

EPA estimates that option 8 will cost $8.2 million per year while option 9 would cost $11.9 million per year. As discussed in Section X.H of the final preamble, based on these costs EPA projects 10 process closures (4.7 percent of indirect oils processes) and 12 facility closures (9.4 percent of indirect oils facilities) associated with option 8. EPA projects 15 process closures (7.0 percent of indirect oils processes) and 12 facility closures associated with option 9. The incremental economic impact of option 9 relative to option 8 for oils indirect dischargers is thus five process closures. For small businesses, however, EPA projects two process closures (2.1 percent of indirect oils processes owned by small businesses) and eight facility closures (14.0 percent of indirect oils facilities owned by small businesses) for option 8. EPA projects seven process closures (7.4 percent of indirect oils processes owned by small businesses) and eight facility closures for option 9. Thus, small businesses represent a significant share of facility closures and all of the additional process closures associated with moving from option 8 to option 9. However, EPA estimates lower additional pollutant removals between option 8 and option 9 than estimated in 1999. For the final rule, EPA estimates an incremental pollutant reduction of only 2,644 pound-equivalents between option 8 and option 9, compared to 3,658 pound equivalents estimated at the 1999 proposal (see Section IV.J of the final preamble for a discussion of changes in estimated pollutant reductions). EPA has determined that achieving these slight additional pound-equivalent removals does not warrant imposition of the additional cost and impacts of option 9. All of these reasons support the selection of option 8 as the PSES technology basis. Therefore, EPA promulgated PSES standards for the oils subcategory technology based on option 8

In determining economic achievability for indirect dischargers in the oils subcategory, EPA acknowledges that its estimates of the impacts are not trivial (e.g., an almost 10% facility closure rate). However, EPA has determined that the standards are economically achievable for the oils subcategory as a whole. EPA has concluded that, in the circumstances of this industry, the costs reflect appropriate levels for PSES control for a number of reasons. First, costs are high because a significant number of facilities in the oils subcategory will require major upgrades to their in-place treatment. The information collected for this rulemaking shows that many of the facilities with the larger impacts have little effective treatment in place. Second, this rule represents the first time EPA has established limitations and standards for this industry, so some economic impact may be expected (*American Iron and Steel Institute v. EPA*, 526 F.2d 1027,1052 (3rd Cir. 1975)).

As was the case for BPT/BAT, the technology basis for pretreatment standards for the multiple wastestream subcategory reflect the technology bases for the applicable subcategories.

## *PRETREATMENT STANDARDS FOR NEW SOURCES (PSNS)* 9.6

EPA established pretreatment standards for new sources that are equal to NSPS for priority and non-conventional pollutants for the oils and organics subcategories. Since the pass-through analysis remains unchanged, for these subcategories, the Agency established PSNS for the same priority and non-conventional pollutants as were established for PSES. EPA considered the cost of the PSNS technology for new oils and organics facilities. EPA concluded that such costs are not so great as to present a barrier to entry, as demonstrated by the fact that currently operating facilities are using these technologies. The Agency considered energy requirements and other non-water quality environmental impacts and found no basis for any different standards than the selected PSNS.

For the metals subcategory, however, EPA established PSNS based on a different technology than that proposed in 1999. At that time, EPA proposed to base PSNS on the option 3 technology. For the final rule, however, EPA based the pretreatment standards for new sources on the option 4 technology. EPA concluded the additional removals projected with the option 3 technology for indirect dischargers do not justify the selection of option 3. This is because, unlike in the case of direct dischargers, a significant share of the additional pollutant removals associated with option 3 for indirect dischargers will occur at the POTW anyway.

As was the case for PSES, the technology basis for the multiple wastestream subcategory new source limitations reflects the technology basis for the applicable subcategories.

# Chapter 10

# DATA CONVENTIONS AND CALCULATIONS OF LIMITATIONS AND STANDARDS

This chapter describes the data selection, data conventions, and statistical methodology used by EPA in calculating the long-term averages, variability factors, and limitations. Effluent limitations and standards[1] for each subcategory are based on long-term average effluent values and variability factors that account for variation in treatment performance within a particular treatment technology over time. This chapter replaces the discussion of how limitations were determined in the 1995 statistical support document[2] and Chapter 10 of the Development Document for the 1999 proposal.

## *FACILITY SELECTION* *10.1*

In determining the long-term averages and limitations for each pollutant of concern and each subcategory option, EPA first evaluated information about individual facilities and the analytical data from their treatment systems. As a result of this evaluation, EPA selected only those facilities that operated the model technology to achieve adequate pollutant removals for use in calculating subcategory long-term averages and limitations. EPA used data from the appropriate influent and effluent sample points to develop the long-term averages, variability factors, and limitations. Tables B-2 and B-3 of Appendix B identifies these facilities and sampling points for the regulatory options.

### *Selection of Facilities for More than One Option* *10.1.1*

EPA selected some facilities for more than one subcategory option if the facility treated its wastes using more than one of the model technologies. For the oils subcategory, facilities 4814A and 4814B had the model technology for option 8.[3] The model technology for option 9 is a combination of the option 8 model technology and an additional pretreatment step of gravity separation. The limitations for this option are based on data from facilities 4813, 4814A, 4814B, and 651.[4] Even though the technology basis for option 9 is based on an additional treatment step, EPA included the data from the option 8 facilities to ensure that the limitations were based on facilities which treat the full

[1]In the remainder of this chapter, references to ‘limitations’ includes ‘standards.’

[2]*Statistical Support Document For Proposed Effluent Limitations Guidelines And Standards For The Centralized Waste Treatment Industry*, EPA 821-R-95-005, January 1995.

[3]In the 1999 proposal, EPA included facility 651 in this option. However, after the proposal, EPA re-evaluated the technology at this facility and determined that its technology was more sophisticated than option 8 and thus, the data from this facility were excluded from option 8.

[4]In the 1999 proposal, EPA referred to facility 651 as facility 701. Similarly, EPA referred to facility 650 as 700. However, elsewhere in the CWT record, the identifiers 700 and 701 correspond to two other facilities. To minimize the confusion, EPA is using the identifiers 650 and 651 for the self-monitoring data and retaining the identifiers 700 and 701 for the other facilities.

breadth of pollutants and pollutant concentrations found in oils subcategory wastes. Thus, EPA selected these facilities to characterize both model technologies for options 8 and 9.

### *Data from a Facility for More than One Time Period* 10.1.2

If the concentration data from a facility were collected over two or more distinct time periods, EPA analyzed the data from each time period separately. In the documentation, EPA identifies each time period with a distinct "facility" identifier. For example, facilities 4378 and 4803 are actually one facility, but the corresponding data are from two time periods. In effluent guidelines for other industrial categories, EPA has made similar assumptions for such data, because data from different time periods generally characterize different operating conditions due to changes such as management, personnel, and procedures.

### *Data from a Facility for the Same Time Period* 10.1.3

If EPA obtained the concentration data from both an EPA sampling episode and self-monitoring data for the same time period, EPA combined the data from both sources into a single data set for the statistical analyses.

This approach was consistent with EPA's treatment of facility 651 in the 1999 proposal. In this case, the facility provided effluent measurements collected on four consecutive days by the control authority and effluent measurements collected once a month by the facility. EPA, however, only collected influent and effluent measurements on one day. EPA excluded the effluent measurements from the EPA sampling episode in its calculations because the sample was collected as a grab sample rather than as a composite sample of the continuous flow system at that sample point (measurements from continuous flow systems are generally composite, rather than grab, samples). However, EPA retained the influent measurements because influent measurements were otherwise unavailable and this information was crucial for determining if the facility accepted wastes containing the pollutants that were measured in the effluent. EPA also used this influent information in evaluating the pollutant removals for facility 651 (in this document, the EPA sampling data and the self-monitoring data are collectively identified as 'facility 651'; the EPA sampling data also is identified as 'E5046').

This approach was also used for the data for option 4 of the metals subcategory in calculating the long-term averages, variability factors, and limitations. In the calculations for the 1999 proposal, EPA had used the data from EPA's sampling episode 4798 and the facility-supplied self-monitoring data (called facility 650) as if they were collected at separate facilities. EPA received comments suggesting that EPA should combine the sampling episode and self-monitoring data sets into a single data set for limitations development. EPA also received comments that the limitations could not be met by the facilities with the model technologies. For this option, EPA believes that the combined dataset is more appropriate for limitations development. The resulting values for the long-term averages and limitations are generally greater than the values used for the 1999 proposal. However, EPA notes that it continued to use only sampling episode data in the data editing criteria because this was the only source of influent data. For better comparisons between influent and effluent data, EPA also used only the effluent data from the sampling episode in the percent removals part of the data editing criteria (section 10.4.3.2) because the sampling dates and analytical methods were identical for both influent and effluent data.

### *Different Treatment Trains at a Facility* 10.1.4

Although EPA collected all the data for Episode 4814 during the same time period and from the same facility, EPA has determined that data from facility 4814 should be used to characterize two separate facilities. Facility 4814 has two entirely separate treatment trains which EPA sampled separately. Because the systems were operated separately and treated different wastes, EPA has treated the data as if they were collected from two different facilities (EPA has identified the systems as 4814A and 4814B).

This is also consistent with EPA's conventions for the characterization sampling used in developing the current loadings for the oils subcategory (see section 12.3.2). In that analysis, EPA considered treatment trains separately for two of the facilities. The different treatment trains were identified as 5053A, 5053B, 5054A, and 5054B.

## SAMPLE POINT SELECTION 10.2

### *Effluent Sample Point* 10.2.1

For each facility used in developing the limitations, EPA selected the effluent sample point representing wastewater discharged by the model technology which was the basis for that subcategory option. For example, the effluent discharged from sample point SP12 at facility 1987 is the effluent resulting from the model technology selected for option 4 of the organics subcategory.

### *Influent Sample Point* 10.2.2

Influent data were available for all EPA sampling episodes. However, relevant influent data were not available for any of the self-monitoring effluent data except for Facility 651 (as explained in section 10.1.3). As detailed in Chapter 12, for the metals and organics subcategories, influent data represent pollutant concentrations in "raw", untreated wastes. For the oils subcategory, however, influent data represent pollutant concentrations following emulsion breaking/gravity separation. Therefore, for each facility, EPA determined the relevant influent sample point for the waste entering the model technology selected as the basis for that subcategory option.

In some cases, EPA estimated influent pollutant concentrations by combining pollutant measurements from two or more influent sample points into a single flow-weighted value. For example, in option 3 of the metals subcategory, EPA collected influent samples at five points (SP01, SP03, SP05, SP07, and SP10) during the sampling episode at Facility 4803. EPA calculated a single value from these five sampling points representing the influent to the model technology using the methodology described in Section 10.4.3.3.

### *Special Cases* 10.2.3

As detailed previously in Chapter 2, for samples collected during EPA sampling episodes, EPA did not analyze for the full spectrum of pollutants at each sampling point. The specific constituents analyzed at each episode and sampling point varied and depended on the waste type being treated and the treatment technology being evaluated. For example, for the metals subcategory, EPA did not generally analyze for organic pollutants in effluent from chemical precipitation and clarification. Therefore, in some cases, for specific pollutants, EPA selected a different sample point to represent influent to and effluent from the model treatment technology than the sample point selected for all other pollutants. For example, for Episode 4803 in metals option 3, EPA selected sample point 15 to represent the effluent from the model technology. Since EPA did not analyze the wastewater collected at sample point 15 for oil and grease/n-hexane extractable material (HEM), silica gel treated n-hexane extractable material (SGT-HEM), total cyanide, and organic constituents, for these pollutants only, EPA selected sample point 16 to represent the effluent point for Episode 4803 of metals option 3. EPA concluded that this is appropriate since the treatment step between sample point 15 and sample point 16 should not have affected the levels of these pollutants in the wastewater. Other such cases are identified in the tables in Appendix B and in the CBI record (for the oils subcategory).

### *DETERMINATION OF BATCH AND CONTINUOUS FLOW SYSTEMS* *10.3*

For each influent and effluent sample point of interest, EPA determined whether wastewater flows were '*continuous*' or '*batch.*' These designations are provided in the tables in Appendix B.

At sample points associated with continuous flow processes, EPA collected composite samples for all analytes except for oil and grease and HEM for which the analytical methods specify grab samples. Also, if EPA field composited samples of batches for each day at a batch flow system, the statistical analyses used the data as if they were from continuous flow systems.

At sample points associated with batch flow processes, EPA usually collected grab samples of different batches.

For self-monitoring data, EPA assumed the wastewater flow to be either continuous or batch based on the type of discharge at the facility (i.e., continuous or batch discharge).

EPA made different assumptions in analyzing the data depending on the two types of flow processes. For each sample point associated with a *continuous* flow process, EPA aggregated all measurements within a day to obtain one value for the day. This daily value was then used in the calculations of long-term averages, variability factors, and limitations. For example, if samples were collected at the sample point on four consecutive days, the long-term average would be the arithmetic average of four daily values. (Sections 10.4.2 and 10.5 discuss data aggregation and calculation of long-term averages, respectively.) In contrast, for each sample point associated with a *batch* flow process, EPA aggregated the measurements to obtain one value for each batch. This batch value was then used as if it were a daily value. For example, if one sample was collected from each of 20 batches treated on four consecutive days (i.e., a total of 20 samples during a four day period), the long-term average for the facility would be the arithmetic average of the 20 batch values.

For simplicity, the remainder of the chapter refers to both types of aggregated values (i.e., daily and batch values) as 'daily values.' In addition, references to 'sampling day' or 'day' mean either a sampling day at a continuous flow facility or a batch from a batch flow facility.

### *DATA SELECTION* *10.4*

After the 1999 proposal, EPA re-evaluated the bases for the data exclusions and assumptions used in calculating limitations. As a result of its review of sampling episode reports, EPA retained the same exclusions and assumptions with some minor modifications.

EPA also performed a detailed review of the analytical data. As a result, EPA's database was corrected and the corrected version has been placed in the record for this rulemaking.

The modifications to the data exclusions and assumptions and the corrections to the database are discussed in this section.

#### *Data Exclusions and Substitutions* *10.4.1*

In some cases, EPA did not use all of the data detailed in Appendix B to calculate long-term averages, variability factors and limitations. This section details these data exclusions and substitutions. Other than the data exclusions and substitutions described in this section and those resulting from the data editing procedures (described in section 10.4.3), EPA has used all the data from the facilities and sample points presented in Appendix B.

*Operational Difficulties 10.4.1.1*

EPA excluded data that were collected while the facility was experiencing operational difficulties. For the data used in calculating long-term averages and limitations, this occurred during sampling at episode 4814 only. During the second day of sampling, 9/17/96, the facility was required to shut-down and re-start the operation of both of its DAF systems due to poor performance and equipment failures. As such, EPA excluded all data collected on 9/17/96 associated with sample point 09 at facility 4814A and sample point 10 at facility 4814B.

*Treatment Not Reflective of BPT/BCT/BAT Treatment 10.4.1.2*

EPA reviewed the effluent data used to develop the limitations and excluded any facility data set where the long-term average did not reflect the performance expected by BPT/BCT/BAT treatment. As a result of this review, EPA excluded some of the metals and conventionals data as representing less than optimal treatment.

EPA continued to exclude the mercury values from facility 602 in option 3 of the metals subcategory (these were previously excluded for the 1999 proposal). EPA excluded these values because the smallest value was 1 ug/L when the largest effluent value obtained during two different EPA sampling episodes at that facility was almost five times less at 0.21 ug/L.

EPA also continued to exclude nickel from facility 651[5] in option 9 of the oils subcategory because it had one extremely large effluent value of 25,000 ug/L. The facility indicated that the waste receipts from a single source were unexpectedly concentrated with nickel and the facility did not optimize its treatment accordingly. The facility no longer handles such highly concentrated nickel wastes.

As a result of its review after the 1999 proposal, EPA excluded all of the metals data from sampling episode 4813 because its treatment system generally demonstrated poor removals of metals. For most metals, the facility had low levels in the influent and the data did not even pass EPA's data editing criteria described in section 10.4.3.1. For the remaining metals, the facility generally demonstrated poor removals with much lower influent and effluent levels than the other facilities used as a basis for that option. By removing these data, the limitations for two analytes, copper and zinc, have higher values than those in the 1999 proposal.

As explained in section 10.8, as a result of its review after the 1999 proposal, EPA transferred the limitations for lead for metals option 4 to metals option 3. However, in the group variability factor[6] calculations, EPA retained these data because they still represent the

[5] Although the Development Document for 1999 proposal did not cite this exclusion, EPA excluded these data in the 1999 proposal. In any case, the data do not pass the LTA test described in Section 10.4.3.1 and thus would not have been included in any calculations for the limitations, even if they had not been specifically excluded.

[6] As explained later in this chapter, EPA generally used pollutant variability factors rather than group variability factors in calculating the limitations. For a few pollutants, however, pollutant variability factors could not be calculated because the data were mostly non-detects. In these cases, EPA used group variability factors or the organics variability factors instead.

variability expected by the model technologies for option 3.

The remaining excluded facility data sets were for conventional parameters (i.e., oil and grease, $BOD_5$, and TSS) and EPA also excluded these for the 1999 proposal. In all cases, these data sets were collected at facilities that are indirect dischargers that are not required to optimize performance of their system for removal of these pollutants. In most cases, the conventional pollutants are not limited by the POTW and the facility is not required to monitor for these pollutants. These exclusions were for oil and grease (facilities 4813, 4814A, and 4814B for option 9[7] of the oils subcategory), $BOD_5$ (facility 1987 for option 4 of the organics subcategory), TSS (facility 1987 for option 4 of the organics subcategory, and facilities 4798 and 700 for option 4 of the metals subcategory).

Similarly, in calculating long-term averages for oils option 9, EPA excluded the TSS data for facilities 4813, 4814A, and 4814B. However, EPA used these data to calculate variability factors for TSS for oils option 9 because EPA concluded that the data reflected the overall variability associated with the model technology (Sections 10.5, 10.6, and 10.7 describe the development of the long-term averages, variability factors, and limitations, respectively).

#### *Exclusions to EPA Sampling Data Based Upon the Availability of the Influent and Effluent 10.4.1.3*

After the 1999 proposal, EPA reviewed its assumptions based on the availability of influent and effluent data. For the final CWT rule, EPA has retained these same assumptions. This section describes those assumptions.

For the data from the EPA sampling episodes, EPA determined the availability of the influent and effluent data for each sampling day. Both influent and effluent levels are important in evaluating whether the treatment system efficiently removed the pollutants. In addition, the pollutant levels in the influent indicate whether the pollutants existed at treatable levels. In most cases, both influent and effluent data were available for a given day.

For the cases when effluent data were unavailable for some days, but influent data were available, EPA generally determined that the influent data still provided useful information about the pollutant levels and should be retained. However, for the organic pollutants at facility 4378, the effluent data were only available for one day while the influent data were available for several days. In this case, EPA determined that the percent removals for the facility should be calculated by pairing the influent and effluent levels for that single day. Otherwise, the percent removals would be calculated using an average over several days of influent compared to one effluent value from a single day. However, all of the influent data were used for the long-term average test described in section 10.4.3.1. This is because the test only considers influent data and does not consider effluent values.

When effluent data were available but influent data were unavailable, EPA determined that the effluent data should be excluded from further consideration. Without the influent data, EPA could not evaluate the treatability of the pollutants and the effectiveness of the treatment system.

#### *More Reliable Results Available 10.4.1.4*

In some cases, EPA had analytical data which represent a single facility (and time period) that were analyzed by two different laboratories or using two different analytical methods. For several of these cases, EPA determined that one analytical result was more reliable than the other and excluded the less reliable result. This section describes these cases.

[7] EPA did not similarly exclude data for facilities 4814A and 4814B from the option 8 calculations since EPA did not select this option as the basis of the BPT/BCT limitations.

In limited instances, facility 650 (used for metals subcategory option 4) provided two analytical results for the same date from different laboratories. For the total cyanide effluent data collected on 11/6/96, the analytical results from the two laboratories differed considerably. This facility considered the result generated by the off-site laboratory to be more reliable than the result generated by its on-site laboratory and recommended that EPA use the off-site data only. EPA agrees with this suggestion and has used only the value from the off-site laboratory in the final rule (this is the same assumption used in the 1999 proposal).

Some chlorinated phenolics in episode 1987 (used for the organics subcategory[8]) were analyzed by both Method 85.01 and Method 1625. Thus, for a given sample, EPA obtained two results for each chlorinated phenolic. Of the pollutants of concern for the organics subcategory, these compounds were pentachlorophenol, 2,3,4,6-tetrachlorophenol, 2,4,5-trichlorophenol, and 2,4,6-trichlorophenol. Where two results were provided for the same pollutant in a sample, EPA used the analytical result from Method 1625 in the final rule and in the 1999 proposal. This decision is based on the knowledge that Method 1625 is an isotope dilution GC/MS procedure, and therefore produces more reliable results than Method 85.01.

After the 1999 proposal, EPA excluded the remaining Method 85.01 data in calculating variability factors used to develop the limitations. As explained in Chapter 15, Method 85.01 was only used to analyze samples from one CWT sampling episode and has been replaced by Method 1653. Because of some large discrepancies between some of the values from Method 85.01 and Method 1625 (which also was used to analyze some chlorinated phenolics), EPA decided that it was more appropriate to exclude all Method 85.01 data from any of the calculations for limitations. This included calculation of group variability factors as described in section 10.6.7. However, when Method 1625 data were not available for the analyte, EPA retained the Method 85.01 data as the best available information to calculate current loadings for the organics subcategory as described in section 12.3.3.

*Data from Facilities Which Accepted Waste from More than One Subcategory 10.4.1.5*

For the final rule, EPA also continued to exclude data that were collected during time periods when the facility treated wastes from more than one CWT subcategory. For metals option 4, EPA excluded the data for all analytes when oil and grease values in the effluent were greater than 143 mg/L. Such high values were obtained in the effluent monitoring data provided by the facility, but not in the data from EPA's sampling episode at that facility. As is common practice, the facility monitored its effluent and not its influent. This meant that EPA was unable to fully evaluate the cause of such high levels of oil and grease in the effluent. However, EPA concluded that these oil and grease levels indicated the facility treated both oils and metals subcategory wastes on those days and the data were not representative of the metals wastes alone. EPA concluded that the value of 143 mg/L indicated that the wastes were a combination of oils and metals wastes because 143 mg/L was the highest value measured for oil and grease in the *influent* samples collected at any other metals subcategory facility. Because such high levels are common in the oils subcategory, EPA considers values of oil and grease in the *effluent* above this level to indicate that the facility was also treating oils subcategory wastes. For the days when such high levels were

[8] EPA also used the data from E1987 for the metals subcategory to determine pollutants of concern and baseline loadings. However, none of the chlorinated phenolics were pollutants of concern for the metals subcategory.

reported, EPA excluded the oil and grease data and the data for other analytes from its calculations for metals option 4.

*Data Collected by EPA and the Facility on the Same Day 10.4.1.6*

After the 1999 proposal, EPA determined that it was appropriate to combine the data from the EPA sampling episodes and the facility's self-monitoring data from the same time period (see section 10.1.3) for metals option 4. EPA generally retained both measurements for all analytes where both the self-monitoring data and the sampling episode data contained measurements for the same day. In the analyses, EPA arithmetically averaged the two values to obtain a single daily value.

The only exception to this general rule was for the oil and grease measurements. For this analyte, EPA collected a series of grab samples throughout each day while the facility collected a single grab sample. Without referring to detailed information about the facility's sample collection on that day, EPA could not determine if the grab sample should be combined with one of EPA's grab samples from approximately the same time period or whether the time periods were substantially different. Furthermore, it is also likely that the facility used a different method than EPA in its laboratory analysis (EPA used Method 1664 and, at that time, facilities more commonly used Method 413.1).

*Substitution Using the Baseline Values 10.4.1.7*

In determining the pollutants of concern (Chapter 6), calculating the baseline loadings (Chapter 12), and developing the pollutant long-term averages and limitations, EPA compared each laboratory-reported sample result to a baseline value (defined in Chapter 15). For certain pollutants, EPA substituted a larger value than the measured value or sample-specific detection limit. These pollutants were measured by Methods 1624 and 1625 (organic pollutants) and Method 1664 (n-hexane extractable material (HEM) and silica gel treated n-hexane extractable material (SGT-HEM)). For these pollutants, EPA substituted the baseline value and assumed that the measurement was non-detected when a measured value or sample-specific detection limit was reported with a value less than the baseline value.[9] For example, if the baseline value was 10 ug/l and the laboratory reported a detected value of 5 ug/l, EPA assumed that the concentration was non-detected with a sample-specific detection limit of 10 ug/l. This was consistent with the procedure used in the 1999 proposal.

For consistency, when the oil and grease values (measured by Method 413.1) for facility 651 were below the Method 1664 baseline value of 5 mg/L, EPA considered the measurement to be non-detected with a sample-specific detection limit of 5 mg/L in the calculations for both the 1999 proposal and the final rule.

As explained in Chapters 15 and 12, in determining the pollutants of concern and the pollutant loadings, respectively, EPA used the baseline value for semiquantitative analytes from episode 1987. However, in calculating the long-term averages and limitations, this substitution was unnecessary because these data either had reported measured values or sample-specific detection limits.

Other than the exceptions in this subsection, for all other pollutants at this and other episodes, EPA used the reported measured value or sample-specific detection limit in its calculations.

[9]For p-cresol, EPA used the baseline value of 10 ug/L (which was based on the results of one early study of the analytical method) in all analyses except in calculating the limitations. In calculating limitations, EPA used the value of 20 ug/L which is identified as the minimum level in the final rule.

*Corrections to the Database and Changes in Data Selections* *10.4.1.8*

After the 1999 proposal, EPA re-examined its databases and corrected some errors.

Correcting two errors in the facility 602 database slightly changed the nickel and arsenic long-term averages and limitations for option 3 of the metals subcategory. For nickel, EPA corrected one value of 1000 ug/L to 10 ug/L (previously, it was the maximum value in the data set; it is now the minimum value). EPA also included one additional value for arsenic which had previously been overlooked (this value was close to the average value).

For the data collected during EPA sampling episodes at some oils subcategory facilities, EPA also corrected some of the semi-volatile values measured by Method 1625. These values had been over-adjusted for dilution during chemical analysis at the laboratory. As a result of these corrections, some measurements had lower values than those used in the 1999 proposal. In addition, some values were corrected to be below detection and were then identified as 'non-detected' with sample-specific detection limits equal to the baseline values from Method 1625. None of the effluent values changed that were used in calculating the limitations. The adjusted data were for concentrated samples from non-effluent sample points (e.g., influent). These adjusted data values were used to determine the pollutants of concern, the industry current loadings, and the influent levels used in the data editing criteria which determined if the data should be used in developing the limitations. As a result of these changes, some analytes, such as benzo(a)pyrene, which had been identified as pollutants of concern in the 1999 proposal, were no longer identified as pollutants of concern and were not used in calculating the current loadings or the group variability factors. Other than changes to the pollutants of concern, EPA cannot readily determine the impact of these corrections to its current loadings for the oils subcategory because EPA also made methodology changes for these calculations as described in Chapter 12. It is easier for EPA to determine the effect of these data corrections on the results of the data editing criteria. This can be done by comparing the influent results in Appendix C in this document to Appendix C in the 1999 proposal Development Document. For example, the daily influent value for acenaphthene for facility 651 (which is the influent from episode 5046) has changed from 366 ug/L to 238 ug/L.[10] None of the corrections to the data from Method 1625 changed the selection of regulated analytes or the values of the limitations and group variability factors.

In developing the pollutants of concern for all three subcategories for the 1999 proposal, EPA intended to select those pollutants that were detected (at treatable levels) 10 percent of the time. However, in reviewing the computer programs prior to promulgating the final rule, EPA determined that the programs selected those analytes detected 50 percent of the time. For the final rule, EPA has corrected its programs to 10 percent. This correction has little effect on the final selection of pollutants of concern and <u>no</u> effect on the choice of regulated pollutants. However, it did change a few of the pollutants used in developing group variability factors. One such case is lithium in the oils subcategory which was previously used in the group variability factor calculations (for the metals group), but is no longer a pollutant of concern and consequently has been excluded from those calculations. Changes to the pollutants of concern are identified in DCN 36.1.1.

In its data editing criteria, EPA changed the wastestream flows for the influent sample points for facility 4803 in metals option 3. For the

[10] In the proposal Development Document, Appendix C incorrectly identifies the sampling date for facility 651 as 04/06/98. The correct date is 03/03/98 which corresponds to the influent from episode 5046.

1999 proposal, EPA used the average flow at each sample point. For the final rule, EPA used the flow corresponding to each sample point on the day that it was sampled because this provides more accurate estimates. As a result of this change in the flows, for the final rule, selenium passed the data editing criteria (previously it had failed). Because EPA indicated its intention to regulate selenium for the metals subcategory in the 1999 proposal, the final rule regulates selenium for option 3 (which is the basis for NSPS). The change in the flows also changed the analytes that passed the data editing criteria and that subsequently were used for group variability factor calculations for metals option 3. These can be identified by comparing Attachment 10-1 in Appendix E of the 1999 proposal Development Document to the Appendix D in this document.

For the final rule, EPA also incorporated the changes described in Chapter 7 in its selection of analytes used to develop the group variability factors and the analytes selected for regulation. For example, in the metals subcategory, EPA excluded maganese as a regulated analyte and from the group variability factor calculations because it is used as a treatment chemical and its variability could be different than analytes treated by the model technologies.

### *Data Aggregation* *10.4.2*

In some cases, EPA determined that two or more samples had to be mathematically aggregated to obtain a single value that could be used in other calculations. In some cases, this meant that field duplicates, grab samples, and/or multiple daily observations were aggregated for a single sample point or batch. In other cases, data from multiple sample points were aggregated to obtain a single value representing the influent to the model technology (aggregating over multiple sample points was not necessary for *effluent* from the model technologies because the effluent data for any one particular analyte were all obtained from a single sample point at each facility).

In all aggregation procedures, EPA considered the censoring type associated with the data. EPA considered measured values to be *detected*. In statistical terms, the censoring type for such data was 'non-censored' (NC). Measurements reported as being less than some sample-specific detection limit (e.g., <10 mg/L) are censored and were considered to be *non-detected* (ND). In the tables and data listings in this document and the record for the rulemaking, EPA has used the abbreviations NC and ND to indicate the censoring types.[11]

The distinction between the two censoring types is important because the procedure used to determine the variability factors considers censoring type explicitly. This estimation procedure modeled the facility data sets using the modified delta-lognormal distribution. In this distribution, data are modeled as a mixture of two distributions corresponding to different process conditions. Because this industry treats different types of waste from day to day, EPA assumed that the process conditions leading to non-detected values are generally different than process conditions leading to the detected values (for example, a facility may treat wastewater with relatively high levels of organics and low levels of metals and the next day treat wastes that have high metals concentrations and non-detectable levels of organics). Thus, EPA concluded that the distinctions between detected and non-detected measurements were important in estimating the variability factors.

Because each aggregated data value entered into the model as a single value, the censoring

[11] In very few instances, some of the laboratories reported numerical results for specific pollutants detected in the samples as "right-censored." Right-censored measurements are those that were reported as being greater than the highest calibration value of the analysis (e.g., >1000 ug/L). EPA used these values as though they were non-censored.

type associated with that value was also important. In many cases, a single aggregated value was created from unaggregated data that were all either detected or non-detected. In the remaining cases with a mixture of detected and non-detected unaggregated values, EPA determined that the resulting aggregated value should be considered to be detected because the pollutant was measured at detectable levels.

This section describes each of the different aggregation procedures. They are presented in the order that the aggregation was performed. That is, field duplicates were aggregated first, grab and multiple samples second, and finally multiple streams. For example, if EPA has four pairs of data (i.e., four influent samples and four duplicate influent samples), then EPA aggregated each of the four pairs to obtain four values -- one for each pair of data. These four values were then aggregated to obtain one daily value for the influent stream at that particular sample point. As a further example, suppose the same facility had two additional streams entering into the treatment system. Thus, the influent into the treatment system would be characterized by the combination of the pollutant levels at three different sample points for the three streams. To obtain one value to characterize the influent, the pollutant levels at the three sample points would be '*flow-weighted*' by the wastewater flow at each sample point. The following three sections specify the procedures used to aggregate field duplicates, grab samples (and daily values), and multiple influent streams, respectively. These aggregation procedures are the same as those used in the 1999 proposal.

*Aggregation of Field Duplicates 10.4.2.1*

During the EPA sampling episodes, EPA collected a small number of field duplicates. Generally, ten percent of the number of samples collected were duplicated. Field duplicates are two samples collected for the same sampling point at approximately the same time, assigned different sample numbers, and flagged as duplicates for a single sample point at a facility.

Because the analytical data from each duplicate pair characterize the same conditions at that time at a single sampling point, EPA aggregated the data to obtain one data value for those conditions. The data value associated with those conditions was the arithmetic average of the duplicate pair.

In most cases, both duplicates in a pair had the same censoring type. In these cases, the censoring type of the aggregate was the same as the duplicates. In the remaining cases, one duplicate was a non-censored value and the other duplicate was a non-detected value. In these cases, EPA determined that the appropriate censoring type of the aggregate was 'non-censored' because the pollutant had been present in one sample (even if the other duplicate had a zero value[12], the pollutant still would have been present if the samples had been physically combined). Table 10-1 summarizes the procedure for aggregating the analytical results from the field duplicates. This aggregation step for the duplicate pairs was the first step in the aggregation procedures for both influent and effluent measurements.

[12] This is presented as a 'worst-case' scenario. In practice, the laboratories cannot measure 'zero' values. Rather they report that the value is less than some level (see Chapter 15).

Table 10-1. Aggregation of Field Duplicates

| If the field duplicates are: | Censoring type of average is: | Value of aggregate is: | Formulas for aggregate value of duplicates: |
|---|---|---|---|
| Both non-censored | NC | arithmetic average of measured values | $(NC_1 + NC_2)/2$ |
| Both non-detected | ND | arithmetic average of sample-specific detection limits | $(DL_1 + DL_2)/2$ |
| One non-censored and one non-detected | NC | arithmetic average of measured value and sample-specific detection limit | $(NC + DL)/2$ |

NC=non-censored (or detected) ND=non-detected DL=sample-specific detection limit

### *Aggregation of Grab Samples and Multiple Daily Values 10.4.2.2*

This section describes the aggregation of grab samples and multiple daily values for effluent sample points associated with continuous flow facilities (defined in section 10.3).

During the EPA sampling episodes, EPA collected two types of samples: grab and composite. Typically, for a continuous flow system, EPA collected composite samples; however, for oil and grease, the method specifies that grab samples must be used. For that pollutant, EPA collected multiple (usually four) grab samples during a sampling day at a sample point associated with a continuous flow system. To obtain one value characterizing the pollutant levels at the sample point on a single day, EPA mathematically aggregated the measurements from the grab samples.

In the self-monitoring data, facilities occasionally reported more than one value for a single day. If the sample point was associated with a continuous flow system, then EPA mathematically aggregated the results to obtain one daily value.

EPA used the same procedure for grab samples and multiple daily values. The procedure arithmetically averaged the measurements to obtain a single value for the day. When one or more measurements were non-censored, EPA determined that the appropriate censoring type of the aggregate was 'non-censored' because the pollutant was present. Table 10-2 summarizes the procedure.

Table 10-2. Aggregation of Grab Samples and Daily Values

| If the grab or multiple samples are: | Censoring type of Daily Value is: | Daily value is: | Formulas for Calculating Daily Value: |
|---|---|---|---|
| All non-censored | NC | arithmetic average of measured values | $\frac{\sum_{i=1}^{n} NC_i}{n}$ |
| All non-detected | ND | arithmetic average of sample-specific detection limits | $\frac{\sum_{i=1}^{n} DL_i}{n}$ |
| Mixture of non-censored and non-detected values (total number of observations is n=k+m) | NC | arithmetic average of measured values and sample-specific detection limits | $\frac{\sum_{i=1}^{k} NC_i + \sum_{i=1}^{m} DL_i}{n}$ |

NC=non-censored (or detected) ND=non-detected DL=sample-specific detection limit

*Aggregation of Data Across Streams ("Flow-Weighting") 10.4.2.3*

After field duplicates and grab samples were aggregated, the data were further aggregated across sample points. This step was necessary when more than one sample point characterized the wastestream of concern. For example, this situation occurred for facility 4803 where five different wastestreams entered into the treatment process. EPA sampled each of these wastestreams individually at sample points SP01, SP03, SP05, SP07, and SP10. In aggregating values across sample points, if one or more of the values were non-censored, then the aggregated result was non-censored (because the pollutant was present in at least one stream). When all of the values were non-detected, then the aggregated result was considered to be non-detected. The procedure for aggregating data across streams is summarized in Table 10-3. The following example demonstrates the procedure for hypothetical pollutant X at a facility with three streams entering into the treatment system on day 1 of the sampling episode.

Example of calculating an aggregated flow-weighted value:

| Day | Sample Point | Flow (gal) | Concentration (ug/L) | Censoring |
|---|---|---|---|---|
| 1 | SP33 | 10,000 | 10 | ND |
| 1 | SP34 | 20,000 | 50 | NC |
| 1 | SP35 | 5,000 | 100 | ND |

Calculation to obtain aggregated, flow-weighted value:

$$\frac{(10{,}000\,gal \times 10\,ug/L) + (20{,}000\,gal \times 50\,ug/L) + (5{,}000\,gal \times 100\,ug/L)}{10{,}000\,gal + 20{,}000\,gal + 5{,}000\,gal} = 45.7\,ug/L$$

Because one of the three values was non-censored, the aggregated value of 45.7 ug/L is non-censored.

Table 10-3. Aggregation of Data Across Streams

| If the n observations are: | Censoring type is: | Formulas for value of aggregate |
|---|---|---|
| All non-censored | NC | $\dfrac{\sum_{i=1}^{n} NC_i \times flow_i}{\sum_{i=1}^{n} flow_i}$ |
| All non-detected | ND | $\dfrac{\sum_{i=1}^{n} DL_i \times flow_i}{\sum_{i=1}^{n} flow_i}$ |
| Mixture of k non-censored and m non-detected<br><br>(total number of observations is n=k+m) | NC | $\dfrac{\sum_{i=1}^{k} NC_i \times flow_i + \sum_{i=1}^{m} DL_i \times flow_i}{\sum_{i=1}^{n} flow_i}$ |

NC=non-censored (or detected) ND=non-detected DL=sample-specific detection limit

### *Data Editing Criteria* *10.4.3*

After excluding some data (as detailed in Section 10.4.1) and aggregating the data (section 10.4.2), EPA applied data editing criteria to select facility data sets to be used in calculating the long-term averages and limitations. These criteria were specified by the 'long-term average test' (or LTA test) and 'percent removals test.'

For each of the regulatory options and pollutants of concern evaluated for long-term averages and limitations, Attachment 10-1 in Appendix D indicates whether the data from the EPA sampling episodes failed the data editing criteria, indicates when no data were available for a pollutant at any of the facilities, or provides the facility-specific long-term average (calculated as described in section 10.5). Table 12-9 presents the results on an option-level basis. If all of the facility data sets within an option failed the tests, then the table indicates that the analyte failed the tests. Otherwise, the table lists the pollutant long-term average calculated using the facility data sets that passed the tests (see section 10.5.2).

The criteria for the self-monitoring data depended upon the results of the data editing criteria for facility data sets from the EPA sampling episodes.

These data editing criteria for the EPA sampling episodes and the self-monitoring data are described in the following sections. These criteria are the same as used in the 1999 proposal. However, the following discussion provides additional clarification and information.

### *Long-Term Average Test* *10.4.3.1*

EPA established the long-term average test ('LTA test') to ensure that the pollutants were present in the influent at sufficient concentrations to evaluate treatment effectiveness at the facility. After the data aggregation described in section 10.4.2, EPA compared the daily values of the influent and their long-term average to the baseline values described in Chapter 15. The influent had to pass a basic requirement and one of the following two steps to pass the LTA test:

*Basic Requirement:* Fifty percent of the influent measurements had to be detected *at any level*.

If the data set passed this basic requirement, the data set then had to pass *one* of the following two conditions:

*Step 1*: Fifty percent of the influent measurements had to be detected at concentration levels at *treatable levels* which was any value equal to or greater than *ten times the baseline value* for the pollutant (the baseline values are listed in Attachment 15-1); or

*Step 2:* The influent *long-term average* had to be equal to or greater than ten times the baseline value (Section 10.5 describes the calculations for long-term averages).

If the data set failed the basic requirement, then EPA automatically set Step 1 and Step 2 to 'fail.'

When the data set at a facility failed the basic requirement or both steps, EPA excluded the effluent data for the facility in calculating the long-term averages, variability factors, and limitations for the corresponding option in the subcategory.

For example, at facility 1987, if the arsenic data from influent sample point 07B failed any of the editing criteria, then the effluent data at sample point SP12 were excluded from calculating the long-term averages and limitations for option 4 of the organics subcategory.

In performing the LTA test, EPA used the influent sample points identified in Table B-2 in Appendix B. An example of the LTA test is provided in section 10.4.3.4.

### *Percent Removal Test* *10.4.3.2*

If the influent data passed either step in the LTA test, then EPA calculated the facility's influent and effluent averages using the aggregation steps previously described. This is a deviation from the procedure used in the 1999 proposal where EPA did not aggregate batches, grabs, or multiple daily values (other than duplicates) as an interim step prior to obtaining one overall value for the wastestream. This procedure is now consistent with the calculations for the influent averages used in LTA test (in section 10.4.3.1) and the effluent long-term averages used in the limitations (in section 10.7).

The percent removal test compared the influent and effluent averages to determine if the treatment associated with the effluent sample point removed any of the pollutant. If the removals were negative, then EPA excluded the effluent data from developing the long-term averages and limitations.

$$Percent\,removal = \frac{Influent\,average - Effluent\,average}{Influent\,average} \times 100$$

In performing the percent removals test for each facility, EPA used the influent and corresponding effluent points identified in Tables B-2 and B-3, respectively, in Appendix B. Section 10.4.3.4 provides an example of the percent removal test.

*Evaluation of Self-Monitoring Data 10.4.3.3*

EPA used self-monitoring data for effluent at three facilities in developing the long-term averages and limitations. These facilities were 602, 650, and 651. These facilities provided concentration values for some of the pollutants that EPA considered in developing the long-term averages and limitations. However, the self-monitoring data were for effluent only (i.e., no influent data were provided). In its evaluation of the data, EPA determined that influent data provided critical evidence that the facility treated wastes containing these pollutants. Thus, EPA used influent data from its sampling episodes to determine if the facility accepted wastes containing these pollutants.

For facility 651, EPA collected influent information during the same time period as the effluent data provided by the facility. As described in section 10.1, EPA used this influent information with the facility 651 effluent data.

For facility 602, EPA considered the pollutant levels in the influent at the EPA sampling episodes. As explained in section 10.1, different facility numbers may refer to the same facility. For option 3 of the metals subcategory, facilities 602, 4378, and 4803 are the same facility (Facilities 4378 and 4803 were EPA sampling episodes). If the influent data at facility 4378 or facility 4803 met the data editing criteria (i.e., LTA test and percent removals test), then EPA used the effluent data from facility 602 in calculating the long-term averages and limitations for the pollutant. If the influent data for the pollutant at facility 4378 and facility 4803 did not meet the criteria, then EPA excluded the data from facility 602.

In a similar manner, facilities 4798 and 650 for option 4 of the metals subcategory were linked. As described in section 10.1.3, EPA used the data from the EPA sampling episode 4798 in the data editing criteria. In developing the limitations, EPA used the combined data set from the sampling episode 4798 and facility 650. Thus, if the influent data for a pollutant at facility 4798 passed the LTA test and the influent and effluent data passed the percent removals test, then EPA used the effluent data from the combined data set in calculating the long-term averages and limitations for the pollutant. If the data for the pollutant at facility 4798 did not meet the criteria, then EPA excluded the combined data set in calculating the long-term averages and limitations for the pollutant.

### *Examples of Applying Data Editing Criteria* *10.4.3.4*

This section provides four examples of applying the data editing criteria described in sections 10.4.3.1 and 10.4.3.2. In the following examples, there is a short summary of the purpose of the example, followed by a listing of the data. After the data, there is another short summary that provides the results of the data editing criteria demonstrated in the example.

In each of the data listings, the column "Concentration value" lists the reported data values prior to aggregating duplicates (if the data is from a duplicate pair, then the phrase '- dup' follows the concentration value and the matching duplicate is listed either directly above or below that value). The column "Influent daily value (aggregated)" provides one value for each day after aggregating any duplicate samples (Table 10-1 identifies the methodology for aggregating duplicates). If the "Concentration value" column is not provided, then none of the data were duplicates. In these cases, the "Influent daily value" is provided with the phrase "(aggregated)" omitted from the column heading. Unless specified in the example summary, the censoring is indicated after the concentration and daily values (NC=non-censored and ND=non-detected).

<u>EXAMPLE 1:</u> This is an example of the LTA test (section 10.4.3.1) where the data meet the general requirement, pass Step 1, but fail Step 2. Because the data pass Step 1, they pass the LTA test. This example uses the n,n-dimethylformamide data from sampling episode 1987. The influent sample point is 07B. The baseline value is 10 ug/L. So, the treatable level is any value equal to or greater than 10*10 ug/L=100 ug/L.

| Date Sample was Collected | Concentration value (ug/L) | Influent daily value (aggregated) (ug/L) | Detected at any level? | Detected at treatable levels? |
|---:|---:|---:|---:|---:|
| 16-Jul-90 | 10 (ND) | 10 (ND) | No | No |
| 17-Jul-90 | no data | no data | n/a | n/a |
| 18-Jul-90 | 34.2 (NC) - dup<br>12.5 (ND) - dup | 23.35 (NC) | Yes | no |
| 19-Jul-90 | 132.45 (NC) | 132.45 (NC) | Yes | Yes |
| 20-Jul-90 | 225.19 (NC) | 225.19 (NC) | Yes | Yes |

Basic Requirement is met: 3 of the 4 daily values were detected.
Step 1 passes: 2 of the 4 daily values were detected at treatable levels.
Step 2 fails: The influent long-term average is less than the treatable level of 100 ug/L. (The influent long-term average is the arithmetic average of the four influent daily values and is equal to 97.75 ug/L which is less than 100 ug/L.)
LTA Test passes: Data pass one of the steps, Step 1.

<u>EXAMPLE 2:</u> This is an example of the percent removal test (section 10.4.3.2) where the data have passed the LTA Test. This example uses the n,n-dimethylformamide data from example 1. The influent sample point is again sample point 07B and the effluent point is sample point 12 (which does not have any duplicates, so the reported value for each sample is the same as the daily average). All

of the effluent data are non-detected (ND).

| Date Sample was Collected | Influent daily value (aggregated) (ug/L) | Effluent daily value (ug/L) |
|---:|---:|---:|
| 16-Jul-90 | 10 (ND) | 10 (ND) |
| 17-Jul-90 | no data | 10 (ND) |
| 18-Jul-90 | 23.35 (NC) | 12.5 (ND) |
| 19-Jul-90 | 132.45 (NC) | 10 (ND) |
| 20-Jul-90 | 225.19 (NC) | 10 (ND) |
| Averages: | 97.75 | 10.5 |

The percent removal is then:

$$\frac{97.75 - 10.5}{97.75} \times 100 = 89.3\%$$

Percent removals test passes: Data pass because the percent removal is greater than zero at 89.3%.

<u>EXAMPLE 3:</u> This is an example of flow-weighting to obtain one of the daily values that was used in calculating the facility long-term average in Step 2 of the LTA test. As explained in section 10.4.2.3, this step was necessary when more than one sample point characterized the wastestream of concern. This example shows the flow-weighted calculations to obtain one of the daily values used to calculate the facility long-term average (which is calculated as the arithmetic average of the four daily values for the sampling episode). These aluminum data are from the influent sample points for episode 4803. Of the five influent sample points selected from episode 4803 for the metals data, only sample points 05 and 10 have any data for aluminum on 6/13/96. Batch samples were collected at each of these sampling points. The batches at each sample point are identified by the characters A, B, C, and D immediately after the sample point (for example, batches 05B, 10C). All of the values were detected (non-censored or ‘NC').

| Sample Point and Batch | Influent daily value (ug/L) | Flow for batch (gal/day) | Flow *Influent daily value | total of flow*influent daily values' total flow at sample point | Average Flow at Sample Point | |
|---|---:|---:|---:|---:|---:|---:|
| Column Abbrev. | A | B | A*B | C=3A*B'3B | D=average(B) | E=C*D |
| 05B | 1,910,000 | 18,000 | 34,380,000,000 | | | |
| 05C | 1,180,000 | 18,000 | 21,240,000,000 | | | |
| totals sp05 | | 36,000 | 55,620,000,000 | 1,545,000 | 18,000 | 27,810,000,000 |
| 10A | 164,000 | 3,850 | 631,400,000 | | | |
| 10B | 160,000 | 5,775 | 924,000,000 | | | |
| 10C | 169,000 | 3,850 | 650,650,000 | | | |
| 10D | 144,000 | 5,775 | 831,600,000 | | | |
| totals sp10 | | 19,250 | 3,037,650,000 | 157,800 | 4,813 | 759,412,500 |
| | | | | totals for day: | 22,813 | 28,569,412,500 |
| | | | | Daily average: | total E/total D=1,252,358 ug/L | |

EXAMPLE 4: This is an example where the facility influent long-term averages are different for the LTA test and the percent removals test. This example uses the data from carbon disulfide at facility 4378 sample point 8 where all of the amounts were detected. As shown below, the influent average for the LTA test is 1,709 and the influent average for the percent removals test is 1,664:

For the LTA test, the data are:

| Date | Sample Number | Concentration value (ug/L) | Influent daily value (aggregated) (ug/L) |
|---|---|---|---|
| 05/11/1992 | 22415 | 2,395.75 | 2,395.75 |
| 05/12/1992 | 22439 | 317.64 | 317.64 |
| 05/13/1992 | 22481-dup | 2,346.56 | 1,984.84 |
| | 22494-dup | 1,623.12 | |
| 05/14/1992 | 22518 | 1,664.00 | 1,664.00 |
| 05/15/1992 | 22533 | 2,184.97 | 2,184.97 |
| | | facility average: | 1,709.44 |

For the percent removals test, only the data for 5/14/92 is retained as this is the only sampling day for which effluent data is available (see section 10.4.1.3). So, the data for the other days is 'not applicable' as shown below.

| Date | Sample Number | Concentration value (ug/L) | Influent daily value (aggregated) (ug/L) |
|---|---|---|---|
| 05/11/1992 | 22415 | NA | NA |
| 05/12/1992 | 22439 | NA | NA |
| 05/13/1992 | 22481-dup | NA | NA |
| | 22494-dup | NA | |
| 05/14/1992 | 22518 | 1,664.00 | 1,664.00 |
| 05/15/1992 | 22533 | NA | NA |
| | | facility average: | 1,664.00 |

## *DEVELOPMENT OF LONG-TERM AVERAGES 10.5*

In order to develop the limitations for the CWT industry, it was necessary to calculate long-term averages and variability factors. This section discusses the calculation of long-term averages by facility ("facility-specific") and by option ("pollutant-specific").

For each pollutant of concern (see Chapter 6), EPA calculated long-term averages for each regulatory option and each subcategory. The long-term average represents the average performance level that a facility with well-designed and operated model technologies is capable of achieving. These long-term averages for each option and subcategory are listed in Table 12-9.

EPA calculated the long-term average for each pollutant for each facility by arithmetically averaging the pollutant concentrations. The pollutant long-term average for an option was the median of the long-term averages from selected facilities with the technology basis for the option. The following two subsections describe the estimation of the facility-specific and pollutant-specific long-term averages. This procedure is the same as that used for the 1999 proposal.

### *Estimation of Facility-Specific Long-Term Averages* *10.5.1*

The facility-specific long-term average for each pollutant for each facility is the arithmetic average of the daily pollutant concentrations of wastewater from the facility. EPA substituted the sample-specific detection limit for each non-detected measurement.

For example, for facility A, if the concentration values for hypothetical pollutant X are:

10 mg/l,
13 mg/l,
non-detect ("ND") with sample-specific detection limit = 5 mg/l,
12 mg/l, and
15 mg/l

then the facility-specific long-term average is calculated using the sample-specific detection limit of 5 mg/l for the non-detected measurement. This facility-specific long-term average is equal to the average of the five values:

(10 + 13 + 5 + 12 + 15)/5 mg/L = 11 mg/L.

Attachment 10-2 in Appendix D lists the facility-specific long-term averages for the regulated pollutants.

### *Estimation of Pollutant-Specific Long-Term Averages* *10.5.2*

The pollutant-specific long-term average was the median of the facility-specific long-term averages from the facilities with the model technologies for the option. The median is the midpoint of the values ordered (i.e., ranked) from smallest to largest. If there is an odd number of values (with n=number of values), then the value of the (n+1)/2 ordered observation is the median. If there are an even number of values, then the two values of the n/2 and [(n/2)+1] ordered observations are arithmetically averaged to obtain the median value.

For example, for subcategory Y option Z, if the four (i.e., n=4) facility-specific long-term averages for pollutant X are:

| Facility | Facility Long-term average |
|---|---|
| A | 20 mg/l |
| B | 9 mg/l |
| C | 16 mg/l |
| D | 10 mg/l |

then the ordered values are:

| Order | Facility | Facility Long-term average |
|---|---|---|
| 1 | B | 9 mg/l |
| 2 | D | 10 mg/l |
| 3 | C | 16 mg/l |
| 4 | A | 20 mg/l |

and the pollutant-specific long-term average for option Z is the median of the ordered values (i.e., the average of the 2nd and 3rd ordered values):

(10+16)/2 mg/l = 13 mg/l.

The pollutant-specific long-term averages were used in developing the limitations for each pollutant within each regulatory option.

Attachment 10-3 in Appendix D lists the pollutant-specific long-term averages for the regulated pollutants.

### *Baseline Values Substituted for Long-Term Averages* *10.5.3*

After calculating the pollutant-specific long-term averages for the regulatory options, EPA compared these values to the baseline values provided in Chapter 15. EPA performed this comparison in response to comments on the 1995 proposal. These comments stated that it was not possible to measure to the low levels required in that proposal. EPA agreed with such comments and adjusted the pollutant-specific long-term averages accordingly. If the pollutant-specific long-term average was less than the baseline value, EPA substituted the baseline value for the pollutant-specific long-term average. Table 10-4 identifies the pollutants where this situation occurs for the regulated analytes in the final rule. This situation occurred only for metals pollutants in the metals subcategory.

Table 10-4. Metals Subcategory: Long-Term Averages Replaced by the Baseline Values

| Option | Pollutant | Baseline Value (mg/L) | Pollutant-specific Long-Term Average (mg/L) |
|---|---|---|---|
| 3 | silver | 10 | 4.5 |
| | tin | 30 | 28.25 |
| | titanium | 5 | 3.5 |
| | vanadium | 50 | 11.0 |
| 4 | vanadium | 50 | 11.9 |

## *DEVELOPMENT OF VARIABILITY FACTORS* 10.6

In developing the variability factors used in calculating the limitations, EPA first developed facility-specific variability factors using the modified delta-lognormal distribution. Second, EPA used these facility-specific variability factors to develop the pollutant-specific variability factors. Third, EPA used these pollutant-specific variability factors to develop the group-level variability factors (Appendix A identifies the assignment of pollutants to groups). Fourth, EPA used the group-level variability factors to develop organic variability factors for some pollutants in the oils and organics subcategories.

In the 1999 proposal, EPA generally used the group-level variability factors to calculate the proposed limitations. EPA requested comment on whether the pollutant-specific variability factors or the group-level variability factors were more appropriate for calculating the limitations. EPA received several comments that stated the pollutant-specific variability factors were more appropriate as estimates for the corresponding pollutants. In calculating the limitations for the final rule, EPA has used the pollutant-specific variability factors wherever possible. EPA even relaxed its criteria for calculating facility-specific variability factors to obtain more pollutant-specific variability factors. For the remaining pollutants where pollutant-specific variability factors could not be calculated, EPA used either the group-level variability factor or the organics variability factors.

The following sections describe the modified delta-lognormal distribution and the estimation of the facility-specific, pollutant-specific, group-level, and organics variability factors. Except as noted, EPA has used the same statistical methodology as in the 1999 proposal; however, EPA has provided a different explanation which simplifies the computations.

### *Basic Overview of the Modified Delta-Lognormal Distribution* 10.6.1

EPA selected the modified delta-lognormal distribution to model pollutant effluent concentrations from the CWT industry in developing the variability factors. In this industry, wastewater is generated from treating wastes from different sources and industrial processes. A typical effluent data set from a facility in this industry consists of a mixture of measured (detected) and non-detected values. Within a data set, gaps between the values of detected measurements and the sample-specific detection limits associated with non-detected measurements may indicate that different pollutants were present in the different industrial wastes treated by a facility. Non-detected measurements may indicate that the pollutant is not generated by a particular source or industrial process. The modified delta-lognormal distribution is appropriate for such data sets because it models the data as a mixture of measurements that follow a lognormal distribution and non-detect measurements that occur with a certain probability. The model also allows for the possibility that non-detect measurements occur at multiple sample-specific detection limits. Because the data appeared to fit the modified delta-lognormal model reasonably well, EPA believes that this model is the most appropriate model of those evaluated for the CWT industry data.

The modified delta-lognormal distribution is a modification of the 'delta distribution' originally developed by Aitchison and Brown.[13] While this distribution was originally developed to model economic data, other researchers have shown the application to environmental data.[14] The resulting mixed distributional model, that combines a continuous density portion with a discrete-valued spike at zero, is also known as the delta-lognormal distribution. The delta in the name refers to the proportion of the overall distribution contained in the discrete distributional spike at zero, that is, the proportion of zero amounts. The remaining non-zero, non-censored (NC) amounts are grouped together and fit to a lognormal distribution.

EPA modified this delta-lognormal distribution to incorporate multiple detection limits. In the modification of the delta portion, the single spike located at zero is replaced by a discrete distribution made up of multiple spikes. Each spike in this modification is associated with a distinct sample-specific detection limit associated with non-detected (ND) measurements in the database.[15] A lognormal density is used to represent the set of measured values. This modification of the delta-lognormal distribution is illustrated in Figure 10-1.

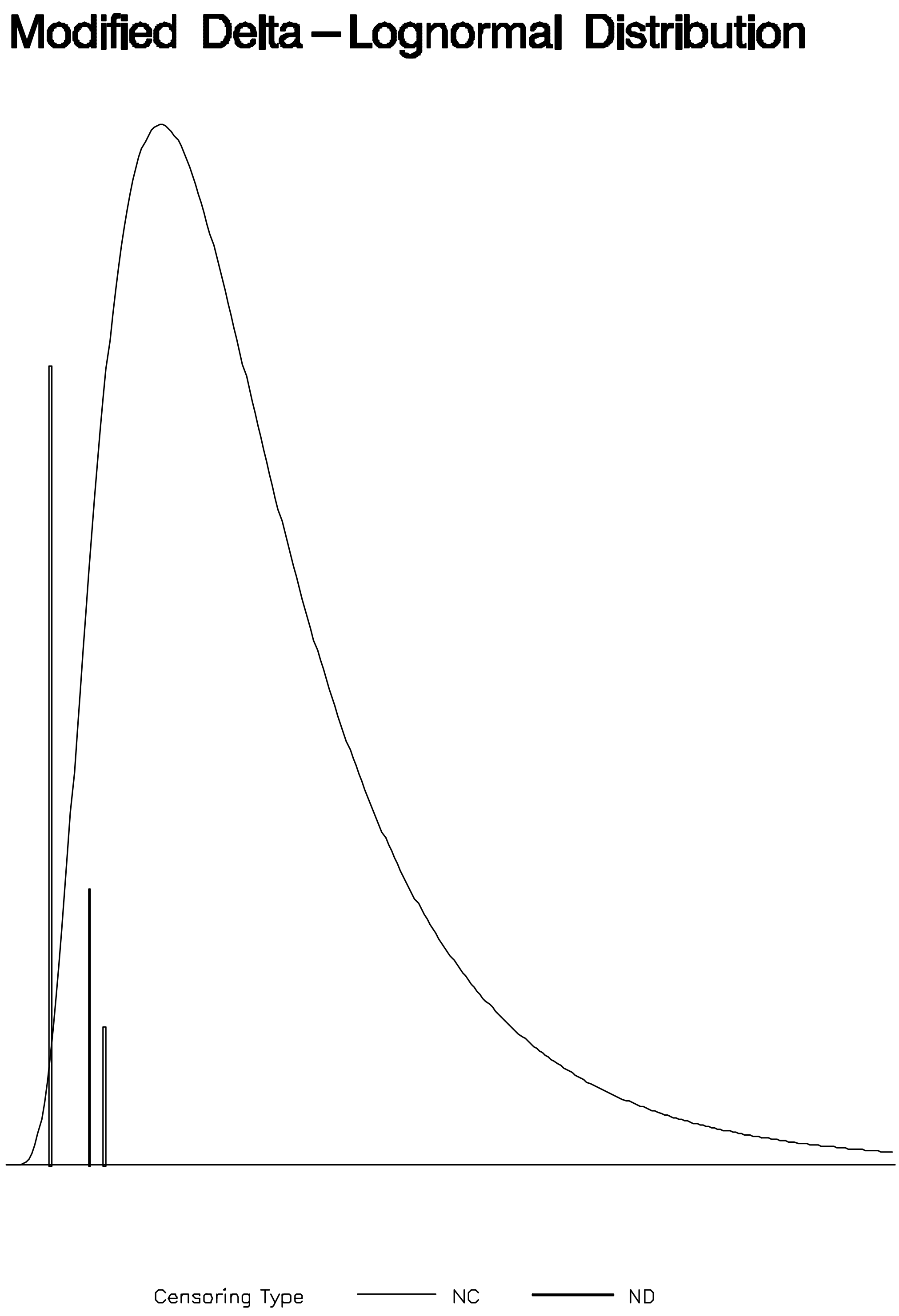
The following two subsections describe the delta and lognormal portions of the modified delta-lognormal distribution in further detail.

[13] Aitchison, J. and Brown, J.A.C. (1963) The Lognormal Distribution. Cambridge University Press, pages 87-99.

[14] Owen, W.J. and T.A. DeRouen. 1980. "Estimation of the Mean for Lognormal Data Containing Zeroes and Left-Censored Values, with Applications to the Measurement of Worker Exposure to Air Contaminants." *Biometrics*, 36:707-719.

[15] Previously, EPA had modified the delta-lognormal model to account for non-detected measurements by placing the distributional "spike" at a single positive value, usually equal to the nominal method detection limit, rather than at zero. For further details, see Kahn and Rubin, 1989. This adaptation was used in developing limitations and standards for the organic chemicals, plastics, and synthetic fibers (OCPSF) and pesticides manufacturing rulemakings. EPA has used the current modification in several, more recent, rulemakings.

**Figure 10-1**


Modified Delta-Lognormal Distribution
Censoring Type
NC
ND

### *Continuous and Discrete Portions of the Modified Delta-Lognormal Distribution 10.6.2*

The discrete portion of the modified delta-lognormal distribution models the non-detected values corresponding to the k reported sample-specific detection limits. In the model, $\delta$ represents the proportion of non-detected values and is the sum of smaller fractions, $\delta_i$, each representing the proportion of non-detected values associated with each distinct detection limit value. By letting $D_i$ equal the value of the i[th] smallest distinct detection limit in the data set and the random variable $X_D$ represents a randomly chosen non-detected measurement, the cumulative distribution function of the discrete portion of the modified delta-lognormal model can be mathematically expressed as:

$$\Pr\left(X_D \le c\right) = \frac{1}{d} \sum_{i:D_i \le c} d_i \qquad 0 < c \tag{1}$$

The mean and variance of this discrete distribution can be calculated using the following formulas:

$$E(X_D) = \frac{1}{d} \sum_{i=1}^{k} d_i \; D_i \tag{2}$$

$$Var(X_D) = \frac{1}{d} \sum_{i=1}^{k} d_i \left(D_i - E(X_D)\right)^2 \tag{3}$$

The continuous, lognormal portion of the modified delta-lognormal distribution was used to model the detected measurements from the CWT industry database. The cumulative probability distribution of the continuous portion of the modified delta-lognormal distribution can be mathematically expressed as:

$$\Pr\left[X_C \le c\right] = \Phi\left[\frac{\ln(c) - m}{s}\right] \tag{4}$$

where the random variable $X_C$ represents a randomly chosen detected measurement, $\Phi$ is the standard normal distribution, and $m$ and $s$ are parameters of the distribution.

The expected value, E($X_C$), and the variance, Var($X_C$), of the lognormal distribution can be calculated as:

$$E\left(X_C\right) = \exp\left(m + \frac{s^2}{2}\right) \tag{5}$$

$$Var\left(X_C\right) = \left[E\left(X_C\right)\right]^2 \left(\exp\left(s^2\right) - 1\right) \tag{6}$$

### *Combining the Continuous and Discrete Portions of the Modified Delta-Lognormal Distribution 10.6.3*

The continuous portion of the modified delta-lognormal distribution is combined with the discrete portion to model data sets that contain a mixture of non-detected and detected measurements. It is possible to fit a wide variety of observed effluent data sets to the modified delta-lognormal distribution.

Multiple detection limits for non-detect measurements are incorporated, as are measured ("detected") values. The same basic framework can be used even if there are no non-detected values in the data set (in this case, it is the same as the lognormal distribution). Thus, the modified delta-lognormal distribution offers a large degree of flexibility in modeling effluent data.

The modified delta-lognormal random variable U can be expressed as a combination of three other independent variables, that is,

$$U = I_u X_D + \left(1 - I_u\right) X_C \tag{7}$$

where $X_D$ represents a random non-detect from the discrete portion of the distribution, $X_C$ represents a random detected measurement from the continuous lognormal portion, and $I_u$ is an indicator variable signaling whether any particular random measurement, u, is non-detected or non-censored (that is, $I_u$=1 if u is non-detected; $I_u$=0 if u is non-censored). Using a weighted sum, the cumulative distribution function from the discrete portion of the distribution (equation 1) can be combined with the function from the continuous portion (equation 4) to obtain the overall cumulative probability distribution of the modified delta-lognormal distribution as follows,

$$\Pr\left(U \le c\right) = \sum_{i:D_i \le c} d_i + \left(1 - d\right) \Phi\left[\frac{\ln(c) - m}{s}\right] \tag{8}$$

where $D_i$ is the value of the $i^{th}$ sample-specific detection limit.

The expected value of the random variable *U* can be derived as a weighted sum of the expected values of the discrete and continuous portions of the distribution (equations 2 and 5, respectively) as follows

$$E\left(U\right) = d\, E(X_D) + \left(1 - d\right) E\left(X_C\right) \tag{9}$$

In a similar manner, the expected value of the random variable squared can be written as a weighted sum of the expected values of the squares of the discrete and continuous portions of the distribution as follows

$$E\left(U^2\right) = d\, E\left(X_D^2\right) + \left(1 - d\right) E\left(X_C^2\right) \tag{10}$$

Although written in terms of U, the following relationship holds for all random variables, U, $X_D$, and $X_C$.

$$E\left(U^2\right) = Var\left(U\right) + \left[E\left(U\right)\right]^2 \tag{11}$$

So using equation 11 to solve for Var(U), and applying the relationships in equations 9 and 10, the variance of *U* can be obtained as

$$\mathrm{Var}\left(U\right) = d\left(\mathrm{Var}\left(X_D\right) + \left[\mathrm{E}\left(X_D\right)\right]^2\right) + \left(1 - d\right)\left(\mathrm{Var}\left(X_C\right) + \left[\mathrm{E}\left(X_C\right)\right]^2\right) - \left[\mathrm{E}\left(U\right)\right]^2 \tag{12}$$

### *Estimation Under the Modified Delta-Lognormal Distribution* *10.6.4*

In order to use the modified delta-lognormal model to calculate limitations, the parameters of the distribution are estimated from the data. These estimates are then used to calculate the limitations.

The parameters $d_i$ and $d$ are estimated from the data using the following formulas:

$$\hat{d}_i = \frac{1}{n}\sum_{j=1}^{n_d} I\left(d_j = D_i\right)$$
$$\hat{d} = \frac{n_d}{n} \tag{13}$$

where $n_d$ is the number of non-detected measurements, $d_j$, $j$ = 1 to $n_d$, are the detection limits for the non-detected measurements, $n$ is the number of measurements (both detected and non-detected) and I(…) is an indicator function equal to one if the phrase within the parentheses is true and zero otherwise. The "hat" over the parameters indicates that they are estimated from the data.

The expected value and the variance of the lognormal portion of the modified delta-lognormal distribution can be calculated from the data as:

$$\hat{E}\left(X_D\right) = \frac{1}{\hat{d}}\sum_{i=1}^{k} \hat{d}_i D_i \tag{14}$$

$$\hat{V}ar\left(X_D\right) = \frac{1}{\hat{d}}\sum_{i=1}^{k} \hat{d}_i \left(D_i - E\left(X_D\right)\right)^2 \tag{15}$$

The parameters of the continuous portion of the modified delta-lognormal distribution, $m$ and $s$, are estimated by

$$\hat{m} = \sum_{i=1}^{n_c} \frac{\ln\left(x_i\right)}{n_c}$$
$$\hat{s}^2 = \sum_{i=1}^{n_c} \frac{\left(\ln\left(x_i\right) - \hat{m}\right)^2}{n_c - 1} \tag{16}$$

where $x_i$ is the $i^{th}$ detected measurement value and $n_c$ is the number of detected measurements. Note that $n = n_d + n_c$.

The expected value and the variance of the lognormal portion of the modified delta-lognormal distribution can be calculated from the data as:

$$\hat{E}\left(X_C\right) = \exp\left(\hat{m} + \frac{\hat{s}^2}{2}\right) \tag{17}$$

$$\hat{V}ar\left(X_C\right) = \left[\hat{E}\left(X_C\right)\right]^2 \left(\exp\left(\hat{s}^2\right) - 1\right) \tag{18}$$

Finally, the expected value and variance of the modified delta-lognormal distribution can be estimated using the following formulas:

$$\hat{E}\left(U\right) = \hat{d}\,\hat{E}\left(X_D\right) + \left(1 - \hat{d}\right)\hat{E}\left(X_C\right) \tag{19}$$

$$\hat{V}ar(U) = \hat{d}\left(\hat{V}ar(X_D) + \left[\hat{E}(X_D)\right]^2\right) + \left(1-\hat{d}\right)\left(\hat{V}ar(X_C) + \left[\hat{E}(X_C)\right]^2\right) - \left[\hat{E}(U)\right]^2 \quad (20)$$

The next section applies the modified delta-lognormal distribution to the data for estimating facility-specific variability factors for the CWT industry. Equations 17 through 20 are particularly important in the estimation of facility-specific variability factors described in the next section.

### ***Estimation of Facility-Specific Variability Factors*** ***10.6.5***

This section applies the methodology described in the previous section to the estimation of facility-specific variability factors for each pollutant. For each facility, EPA estimated the daily variability factors by fitting a modified delta-lognormal distribution to the daily measurements for each pollutant. In contrast, EPA estimated monthly variability factors by fitting a modified delta-lognormal distribution to the monthly averages for the pollutant at the facility. EPA developed these averages using the same number of measurements as the assumed monitoring frequency for the pollutant. EPA is assuming that some pollutants such as organics will be monitored weekly (approximately four times a month) and others will be monitored daily (approximately 20 times a month).[16] Chapter 11 identifies these assumed monitoring frequencies. The following sections describe the facility data set requirements EPA used in estimating variability factors, and its estimation of facility-specific daily and monthly variability factors used in developing the limitations. These facility-specific variability factors are listed in Attachment 10-2 in Appendix D.

#### *Facility Data Set Requirements* *10.6.5.1*

Estimates of the necessary parameters for the lognormal portion of the distribution can be calculated with as few as two distinct detected values in a data set (in order to calculate the variance of the modified delta-lognormal distribution, two distinct detected values are the minimum number that can be used and still obtain an estimate of the variance for the distribution).

EPA used the facility data set for a pollutant if the data set contained three or more observations with two or more distinct detected concentration values. This requirement was slightly less stringent than the requirement in the 1999 proposal. EPA relaxed the requirement in order to calculate a few additional pollutant-specific variability factors which was the preference stated in comments to the 1999 proposal. If EPA had not relaxed this requirement, it would have had to use more group-level variability factors instead of pollutant-specific variability factors in developing the limitations for the final rule.

Further, as in the 1999 proposal, each facility data set for a pollutant had to pass the data editing criteria described in section 10.4.3.

In statistical terms, each measurement was assumed to be independently and identically distributed from the other measurements of that pollutant in the facility data set.

[16]Compliance with the monthly average limitations will be required in the final rulemaking regardless of the number of samples analyzed and averaged.

*Estimation of Facility-Specific Daily Variability Factors* *10.6.5.2*

The facility-specific daily variability factor is a function of the expected value, and the 99th percentile of the modified delta-lognormal distribution fit to the daily concentration values of the pollutant in the wastewater from the facility. The expected value, was estimated using equation 19.

The 99th percentile of the modified delta-lognormal distribution fit to each data set was estimated by using an iterative approach. First, the pollutant-specific detection limits were ordered from smallest to largest. Next, the cumulative distribution function, p, for each detection limit was computed. The general form, for a given value c, was:

$$p = \sum_{i:D_i \le c} \hat{d}_i + \left(1 - \hat{d}\right)\Phi\left[\frac{\ln(c) - \hat{m}}{\hat{s}}\right] \qquad (21)$$

where $\Phi$ is the standard normal cumulative distribution function. Next, the interval containing the 99th percentile was identified. Finally, the 99th percentile of the modified delta-lognormal distribution was calculated. The following steps were completed to compute the estimated 99th percentile of each data subset:

Step 1 Using equation 21, k values of p at $c=D_m$, m=1,...,k were computed and labeled $p_m$.

Step 2 The smallest value of m (m=1,...,k), such that $p_m \geq 0.99$, was determined and labeled as $p_j$. If no such m existed, steps 3 and 4 were skipped and step 5 was computed instead.

Step 3 Computed $p^* = p_j - \delta_j$.

Step 4 If $p^* < 0.99$, then $\hat{P}99 = D_j$
else if $p^* \geq 0.99$, then

$$\hat{P}99 = \exp\left(\hat{m} + \hat{s}\,\Phi^{-1}\left[\frac{0.99 - \sum_{i=1}^{j-1} \hat{d}_i}{1 - \hat{d}}\right]\right) \qquad (22)$$

where $\Phi^{-1}$ is the inverse normal distribution function.

Step 5 If no such m exists such that $p_m > 0.99$ (m=1,...,k), then

$$\hat{P}99 = \exp\left(\hat{m} + \hat{s}\,\Phi^{-1}\left[\frac{0.99 - \hat{d}}{1 - \hat{d}}\right]\right) \qquad (23)$$

The facility-specific daily variability factor, VF1, was then calculated as:

$$VF1 = \frac{\hat{P}99}{\hat{E}(U)} \qquad (24)$$

*Estimation of Facility-Specific Monthly Variability Factors* *10.6.5.3*

EPA estimated the monthly variability factors by fitting a modified delta-lognormal distribution to the monthly averages. EPA developed these averages using the same number of measurements as the assumed monitoring frequency for the pollutant. EPA is assuming that some pollutants such as organics will be monitored weekly (approximately four times a month) and others will be monitored daily (approximately 20 times a month). Chapter 11 identifies these assumed monitoring frequencies.

ESTIMATION OF FACILITY-SPECIFIC 4-DAY VARIABILITY FACTORS

Variability factors based on 4-day monthly averages were estimated for pollutants with the monitoring frequency assumed to be weekly (approximately four times a month). In order to calculate the 4-day variability factors (VF4), the assumption was made that the approximating distribution of $\overline{U}_4$, the sample mean for a random sample of four independent concentrations, was also derived from the modified delta-lognormal distribution.[17,18] To obtain the expected value of the 4-day averages, equation 19 is modified for the mean of the distribution of 4-day averages in equation 25:

$$\hat{E}\left(\overline{U}_4\right) = \hat{d}_4 \hat{E}\left(\overline{X}_4\right)_D + \left(1-\hat{d}_4\right)\hat{E}\left(\overline{X}_4\right)_C \tag{25}$$

where $\left(\overline{X}_4\right)_D$ denotes the mean of the discrete portion of the distribution of the average of four independent concentrations, (i.e., when all observations are non-detected values) and $\left(\overline{X}_4\right)_C$ denotes the mean of the continuous lognormal portion (i.e., when any observations are detected).

First, it was assumed that the probability of detection ($\delta$) on each of the four days was independent of the measurements on the other three days (as explained in section 10.6.5.1, daily measurements were also assumed to be independent) and therefore, $\delta_4 = \delta^4$. Because the measurements are assumed to be independent, the following relationships hold:

$$\begin{aligned}
\hat{E}\left(\overline{U}_4\right) &= \hat{E}(U) \\
\hat{V}ar\left(\overline{U}_4\right) &= \frac{\hat{V}ar(U)}{4} \\
\hat{E}\left(\left(\overline{X}_4\right)_D\right) &= \hat{E}\left(X_D\right) \\
\hat{V}ar\left(\left(\overline{X}_4\right)_D\right) &= \frac{\hat{V}ar\left(X_D\right)}{4}
\end{aligned} \tag{26}$$

[17]This assumption appeared to be reasonable for the pulp and paper industry data that had percentages of non-detected and detected measurements similar to the data sets for the CWT industry. This conclusion was based on the results of a simulation of 7,000 4-day averages. A description of this simulation and the results are provided in the record for the proposed rulemaking.

[18]As described in section 10.4, when non-detected measurements are aggregated with non-censored measurements, EPA determined that the result should be considered non-censored.

Substituting into equation 25 and solving for the expected value of the continuous portion of the distribution gives:

$$\hat{E}\left(\overline{X}_4\right)_C = \frac{\hat{E}(U) - \hat{d}^{\,4}\ \hat{E}\left(X_D\right)}{1-\hat{d}^{\,4}} \tag{27}$$

Using the relationship in equation 19 for the averages of 4 daily measurements and substituting terms from equation 26 and solving for the variance of the continuous portion of $\overline{U}_4$ gives:

$$\hat{V}ar\left(\overline{X}_4\right)_C = \frac{\frac{\hat{V}ar(U)}{4} + \left[\hat{E}(U)\right]^2 - \hat{d}^{\,4}\left(\frac{\hat{V}ar\left(X_D\right)}{4} + \left[\hat{E}\left(X_D\right)\right]^2\right)}{1-\hat{d}^{\,4}} - \left[\hat{E}\left(\overline{X}_4\right)_C\right]^2$$

(28)

Using equations 17 and 18 and solving for the parameters of the lognormal distribution describing the distribution of $\left(\overline{X}_4\right)_C$ gives:

$$\hat{s}_4^{\,2} = \ln\left(\frac{\hat{V}ar\left(\overline{X}_4\right)_C}{\left(\hat{E}\left(\overline{X}_4\right)_C\right)^2} + 1\right)$$

and (29)

$$\hat{m}_4 = \ln\left(\hat{E}\left(\overline{X}_4\right)_C\right) - \frac{\hat{s}_4^{\,2}}{2}$$

In finding the estimated 95th percentile of the average of four observations, four non-detects, not all at the same sample-specific detection limit, can generate an average that is not necessarily equal to $D_1$, $D_2$,..., or $D_k$. Consequently, more than k discrete points exist in the distribution of the 4-day averages. For example, the average of four non-detects at k=2 detection limits, are at the following discrete points with the associated probabilities:

| $i$ | $D_i^*$ | $d_i^*$ |
|---|---|---|
| 1 | $D_1$ | $d_1^4$ |
| 2 | $\left(3D_1 + D_2\right)/4$ | $4d_1^3d_2$ |
| 3 | $\left(2D_1 + 2D_2\right)/4$ | $6d_1^2d_2^2$ |
| 4 | $\left(D_1 + 3D_2\right)/4$ | $4d_1d_2^3$ |
| 5 | $D_2$ | $d_2^4$ |

When all four observations are non-detected values, and when k distinct non-detected values exist, the multinomial distribution can be used to determine associated probabilities. That is,

$$\Pr\left[\overline{U}_4 = \frac{\sum_{i=1}^{k} u_i D_i}{4}\right] = \frac{4!}{u_1!u_2!\ldots u_k!}\prod_{i=1}^{k} d_i^{u_i} \tag{30}$$

where $u_i$ is the number of non-detected measurements in the data set with the $D_i$ detection limit. The number of possible discrete points, $k^*$, for k=1,2,3,4, and 5 are as follows:

| k | $k^*$ |
|---|---|
| 1 | 1 |
| 2 | 5 |
| 3 | 15 |
| 4 | 35 |
| 5 | 70 |

To find the estimated 95^th percentile of the distribution of the average of four observations, the same basic steps (described in section 10.6.5.2) as for the 99^th percentile of the distribution of daily observations, were used with the following changes:

Step 1 Change $P_{99}$ to $P_{95}$, and 0.99 to 0.95.
Step 2 Change $D_m$ to $D_m^*$, the weighted averages of the sample-specific detection limits.
Step 3 Change $*_i$ to $*_i^*$.
Step 4 Change k to $k^*$, the number of possible discrete points based on k detection limits.
Step 5 Change the estimates of *, $\hat{m}$ ,and $\hat{s}$ to estimates of $*^4$, $\hat{m}_4$ and $\hat{s}_4^2$ respectively.

Then, using $\hat{E}\left(\overline{U}_4\right) = \hat{E}(U)$, the estimate of the facility-specific 4-day variability factor, VF4, was calculated as:

$$VF4 = \frac{\hat{P}95}{\hat{E}(U)} \tag{31}$$

### AUTOCORRELATION IN THE DAILY MEASUREMENTS

Before estimating the facility-specific 20-day variability factors, EPA considered whether autocorrelation was likely to be present in the effluent data. When data are said to be positively autocorrelated, it means that measurements taken at consecutive time periods are related. For example, positive autocorrelation would be present in the data if the final effluent concentration of oil and grease was relatively high one day and was likely to remain at similar high values the next and possibly succeeding days. Because EPA is assuming that some pollutants ($BOD_5$, TSS, oil and grease, metals (in the metals subcategory), and total cyanide) will be monitored daily, EPA based the 20-day variability factors on the distribution of the averages of 20 measurements.[19] If concentrations measured on consecutive days were positively correlated, then the autocorrelation would have had an effect on the estimate of the variance of the monthly average and thus on the 20-day variability factor. (The estimate of the long-term average and the daily variability factor are generally only slightly affected by autocorrelation.)

In EPA's view, autocorrelation in any significant amount is unlikely to be present in daily measurements in wastewater from this industry. Thus, EPA has not incorporated autocorrelation into its estimates of the 20-day variability factors. In many industries, measurements in final effluent are likely to be similar from one day to the next because of the consistency from day-to-day in the production processes and in final effluent discharges due to the hydraulic retention time of wastewater in basins, holding ponds, and other components of wastewater treatment systems. Unlike these other industries, where the industrial processes are expected to produce the same type of wastewater from one day to the next, the wastewater from CWT industry is generated by treating wastes from different sources and industrial processes. The wastes treated on a given day will often be different than the waste treated on the following day. Because of this, autocorrelation would be expected to be absent from measurements of wastewater from the CWT industry.

EPA concluded that a statistical evaluation of appropriate data sets would likely support its assertion that autocorrelation is absent from daily measurements in the CWT industry. However, the monitoring data that EPA received in response to its multiple requests were insufficient for the purpose of evaluating the autocorrelation.[20] To determine autocorrelation in the data, many measurements for each pollutant would be required with values for every single day over an extended period of time.

### ESTIMATION OF FACILITY-SPECIFIC 20-DAY VARIABILITY FACTORS

Based upon the discussion on autocorrelation in the previous section, it was assumed that consecutive daily measurements were independent of one another, and therefore

$$\hat{E}\left(\overline{U}_{20}\right) = \hat{E}(U) \qquad and \qquad \hat{V}ar\left(\overline{U}_{20}\right) = \frac{\hat{V}ar(U)}{20} \tag{32}$$

where $\hat{E}(U)$ and $\hat{V}ar(U)$ were calculated as shown in section 10.6.4 (see equations 19 and 20). Finally, since $\hat{a}_{20}$ is approximately normally distributed by the Central Limit Theorem, the estimate of the 95th percentile of a 20-day mean and the corresponding facility-specific 20-day variability factor (VF20) were approximated by

$$\hat{P}95_{20} = \hat{E}\left(\overline{U}_{20}\right) + \left[\Phi^{-1}(0.95)\right]\sqrt{\hat{V}ar\left(\overline{U}_{20}\right)} \tag{33}$$

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[19]In other rulemakings, EPA has used the averages of 30 measurements when the assumed monitoring frequency was daily measurements throughout the month. However, many CWT facilities are closed on weekends. Therefore, EPA assumed that 20 daily measurements rather than 30 would be collected each month.

[20]In the 1995 statistical support document, EPA included a discussion of the autocorrelation in the effluent data from facility 602. The document states that the facility provided 'sufficient amounts of pollutant measurements.' That statement is not correct. To have sufficient amounts of data, the data set would need to include many more measurements for every single day. In addition, in the 1995 document, the conclusions about statistical significance were flawed due to an error in the software.

By using the substitutions in equation 32, equation 33 simplified to

$$\hat{P}95_{20} = \hat{E}(U) + \left[\Phi^{-1}(0.95)\right]\sqrt{\frac{1}{20}\hat{V}ar(U)} \qquad (34)$$

Then, the estimate of the facility-specific 20-day variability factor, VF20, was calculated using:

$$VF20 = \frac{\hat{P}95}{\hat{E}(U)} \qquad because \qquad \hat{E}(\overline{U}_{20}) = \hat{E}(U) \qquad (35)$$

where $\Phi^{-1}(0.95)$ is the 95th percentile of the inverse normal distribution.

*Evaluation of Facility-Specific Variability Factors* *10.6.5.4*

Estimates of the necessary parameters for the lognormal portion of the distribution can be calculated with as few as two distinct measured values in a data set (in order to calculate the variance); however, these estimates can be unstable (as can estimates from larger data sets). As stated in section 10.6.5.1, EPA used the modified delta-lognormal distribution to develop facility-specific variability factors for data sets that had a three or more observations with two or more distinct measured concentration values.

Some variance estimates produced unexpected results such as a daily variability factor with a value less than 1.0 which would result in a limitation with a value less than the long-term average. This was an indication that the estimate of $\hat{s}$ (the log standard deviation) was unstable. To identify situations producing unexpected results, EPA reviewed all of the variability factors and compared daily to monthly variability factors. EPA determined that when the facility's daily variability factor was less than 1.0, the daily and monthly variability factors for that pollutant at that facility should be excluded from further consideration. In developing the limitations for the final rule, EPA found that this situation no longer existed. Thus, none of the facility-specific variability factors were excluded for this reason.

Similarly, when the facility's monthly variability factors for a pollutant were greater than the daily variability factor, EPA's intention was to exclude the daily and monthly variability factors from further consideration. This was the case for the cadmium and acenaphthene data from facility 4814B in oils options 8 and 9.

If the daily variability factor was greater than 10.5, EPA reviewed the data to determine if one or more values were the result of process upsets or data errors. With the exception of nickel from facility 651 (see section 10.4.1.2), EPA did not find any reason to exclude the data and has retained all such variability factors.

EPA also excluded the facility-specific variability factors for 2,4,6-trichlorophenol from facility 1987 in option 4 of the organics subcategory. The facility data set had three non-detected values, all with sample-specific sample-specific detection limits greater than the detected values. For this reason, EPA determined that it was not appropriate to model this data set using the modified delta-lognormal distribution.

In all other cases, EPA used the calculated facility-specific variability factors in calculating the pollutant-specific variability factors.

Attachment 10-2 in Appendix D lists the facility-specific variability factors.

***Estimation of Pollutant-Specific Variability Factors*** ***10.6.6***

After the facility-specific variability factors were estimated for a pollutant as described in section 10.6.5, the pollutant-specific daily variability factor was calculated as the mean of the facility-specific daily variability factors for that pollutant in the subcategory and option. Likewise, the pollutant-specific monthly variability factor was the mean of the facility-specific monthly variability factors for that pollutant in the subcategory and option. For example, for oils option 8, the cobalt daily variability factor was the mean of the cobalt daily variability factors from facilities 4814A and facility 4814B. A more detailed example of estimating pollutant-specific monthly variability factors is provided in section 10.7.2. Attachment 10-3 in Appendix D lists the pollutant-specific variability factors.

In the 1999 proposal, EPA requested comments on whether EPA should use pollutant-specific variability factors or group-level variability factors in calculating the limitations. The comments recommended using the pollutant-specific variability factors and this is what EPA has used whenever possible in developing the limitations and standards for the final rule. The next section discusses the cases where EPA was unable to calculate the pollutant-specific variability factors and used the group variability factors or the organics variability factors.

### *Cases when Pollutant-Specific Variability Factors Could Not Be Calculated* 10.6.7

After the pollutant-specific variability factors were estimated as described in section 10.6.6, EPA identified several pollutants for which variability factors could not be calculated due to the data restrictions that requiring a minimum of three observations with a minimum of two distinct detected values (that could be used to calculate the variance). For example, if a pollutant had all non-detected values in the effluent, then it was not possible to calculate pollutant-specific variability factors. Table 10-5 lists the pollutants for which EPA was unable to calculate pollutant-specific variability factors.

Of these pollutants identified in Table 10-5, EPA was able to calculate group variability factors for pollutants in the metals, phenols, phthalate, and chlorophenols groups. For the remaining cases, EPA calculated organics variability factors. The following two sections describe the group-level variability factors and the organics variability factors.

Table 10-5. Cases where Pollutant Variability Factors Could Not be Calculated

| Subcategory | Option | Pollutant | Variability Factors Used | | Source of variability factors |
|---|---|---|---|---|---|
| | | | Daily | Monthly | |
| Metals | 3 | Antimony | 5.208 | 1.469 | Semi-metals group |
| | | Mercury | 3.185 | 1.225 | Metals group |
| | | Silver | | | |
| | | Tin | | | |
| | | Titanium | | | |
| | 4 | Vanadium | 4.350 | 1.323 | Metals group |
| Oils | 8 | Tin | 2.329 | 1.369 | Metals group |
| | | Bis(2-ethylhexyl) phthalate | 2.310 | 1.367 | Phthalates group |
| | | Carbazole | 2.586 | 1.536 | Organics VFs |
| | 9 | Tin | 3.128 | 1.538 | Metals group |
| | | Butylbenzyl phthalate | 3.414 | 1.614 | Phthalates group |
| | | Bis(2-ethylhexyl) phthalate | | | |
| | | Carbazole | 3.948 | 1.820 | Organics VFs |
| Organics | 4 | Acetophenone | 3.175 | 1.566 | Organics VFs |
| | | Aniline | | | |
| | | 2,3-dichloroaniline | | | |
| | | p-cresol | 10.228 | 3.009 | Phenols group |
| | | 2,4,6-Trichlorophenol | 1.811 | 1.242 | Chlorophenols group |

### *Group-Level Variability Factors 10.6.7.1*

Appendix A identifies the pollutant groups for all pollutants of concern except conventional and classical pollutants. EPA assigned the pollutants to groups containing pollutants that had similar chemical structure (e.g., the metals group consisted of metal pollutants).

There are two types of designations assigned to the pollutants within each group. Some pollutants were only used to estimate the current loadings for Chapter 12. The remaining pollutants were used for both the current loadings and in calculating facility-specific variability factors. Each type is identified with different designations 'Load' and 'VF & Load' in Appendix A. Although many pollutants are identified as appropriate for calculating group variability factors, EPA did not use group variability factors from all groups. Attachment 10-4 in Appendix D identifies the groups and interim calculations for the group variability factors that EPA used for the final regulations.

For those pollutants for which EPA used group variability factors, EPA concluded that the variability of the pollutants in each group would be similar because the chemical structure of these pollutants is similar therefore the treatment system would perform similarly. Thus, EPA concluded that using group variability factors for a particular pollutant is appropriate when the pollutant-specific variability factors could not be calculated for an option in a subcategory.

The group-level daily variability factor was the median of the pollutant-specific daily variability factors for the pollutants within the group. Similarly for the monthly variability factors, the group-level monthly variability factor was the median of the pollutant-specific monthly variability factors for the pollutants within the group. These values are listed in Table 10-5.

### *Organics Variability Factors 10.6.7.2*

For carbazole in the oils subcategory and three organic pollutants (acetophenone, aniline, and 2,3-dichloroaniline) in the organics subcategory, each pollutant's structural group either had only one pollutant of concern assigned to it or only one pollutant of concern in the group passed the data editing criteria (section 10.4.3). Even when a pollutant in the group passed the data editing criteria, the data restrictions (i.e., three or more observations with two or more distinct detected values) meant that neither pollutant-specific nor group-level variability factors could be calculated for these pollutants. Instead, EPA developed organics variability factors using the group variability factors that could be calculated for the following groups of organic pollutants: aliphatic alcohols, amides, aliphatic amines, anilines, chloroanilines, chlorophenols, aromatic ketones, n-paraffins, polyaromatic hydrocarbons (PAHs), phenols, phthalates, polyglycol monoethers, pyridines, and aromatic sulfides. EPA used these groups because they largely represent the non-volatile pollutants considered for regulation in the final rule. EPA excluded the volatile pollutant groups because their removals are largely due to volatilization rather than treatment.

The organics daily variability factor was the median of the group-level daily variability factors for the selected groups. Similarly for the monthly variability factors, the organics monthly variability factor was the median of the group-level monthly variability factors for the selected groups. These values are provided in Table 10-5. Attachment 10-4 in Appendix D identifies the groups and interim calculations for the organics variability factors.

In the 1999 proposal for those cases without pollutant-specific and group-level variability factors, EPA transferred variability factors using other group-level variability factors in the option for the subcategory. EPA calculated the transferred variability factors as the median of the group-level variability factors from *all* groups except the metals, semi-metals, and non-metals groups. This included conventional and classical pollutants, each of which was considered as a separate group in the 1999 proposal (but are excluded from all groups in the final rule). In the 1995 proposal, EPA proposed using fraction-level variability factors when group-level variability factors were unavailable. Rather than these two alternatives, EPA has determined that its organics variability factors are more appropriate for the organic pollutants and has used them in calculating the limitations in the final rule.

## *LIMITATIONS* 10.7

The limitations and standards are the result of multiplying the long-term averages by the appropriate variability factors. The same basic procedures apply to the calculation of all limitations and standards for this industry, regardless of whether the technology is BPT, BCT, BAT, NSPS, PSES or PSNS.

The limitations for pollutants for each option are provided as ‘daily maximums’ and ‘maximums for monthly averages.’ Definitions provided in 40 CFR 122.2 state that the daily maximum limitation is the “highest allowable ‘daily discharge’” and the maximum for monthly average limitation (also referred to as the “monthly average limitation”) is the “highest allowable average of ‘daily discharges’ over a calendar month, calculated as the sum of all ‘daily discharges’ measured during a calendar month divided by the number of ‘daily discharges’ measured during that month.” Daily discharges are defined to be the “‘discharge of a pollutant’ measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of samplings.”

EPA calculates the limitations based upon percentiles chosen with the intention, on one hand, to be high enough to accommodate reasonably anticipated variability within control of the facility and, on the other hand, to be low enough to reflect a level of performance consistent with the Clean Water Act requirement that these effluent limitations be based on the “best” technologies. The daily maximum limitation is an estimate of the 99th percentile of the distribution of the *daily* measurements. The monthly average limitation is an estimate of the 95th percentile of the distribution of the *monthly* averages of the daily measurements.

In establishing daily maximum limitations, EPA's objective is to restrict the discharges on a daily basis at a level that is achievable for a facility that targets its treatment at the long-term average. EPA acknowledges that variability around the long-term average results from normal operations. This variability means that occasionally facilities may discharge at a level that is greater than the long-term average. This variability also means that facilities may occasionally discharge at a level that is considerably lower than the long-term average. To allow for these possibly higher daily discharges, EPA has established the daily maximum limitation. A facility that discharges consistently at a level near the daily maximum limitation would not be operating its treatment to achieve the long-term average which is part of EPA's objective in establishing the daily maximum limitations.

In establishing monthly average limitations, EPA's objective is to provide an additional restriction that supports EPA's objective of having facilities target their average discharges to achieve the long-term average. The monthly average limitation requires continuous dischargers to provide on-going control, on a monthly basis, that complements controls imposed by the daily maximum limitation. In order to meet the monthly average limitation, a facility must counterbalance a value near the daily maximum limitation with one or more values well below the daily maximum limitation. To achieve compliance, these values must result in a monthly average value at or below the monthly average limitation.

In the first of two steps in estimating both types of limitations, EPA determines an average performance level (the "long-term average" discussed in section 10.7) that a facility with well-designed and operated model technologies (which reflect the appropriate level of control) is capable of achieving. This long-term average is calculated from the data from the facilities using the model technologies for the option. EPA expects that all facilities subject to the limitations will design and operate their treatment systems to achieve the long-term average performance level on a consistent basis because facilities with well-designed and operated model technologies have demonstrated that this can be done.

In the second step of developing a limitation, EPA determines an allowance for the variation in pollutant concentrations when processed through extensive and well designed treatment systems. This allowance for variance incorporates all components of variability including shipping, sampling, storage, and analytical variability. This allowance is incorporated into the limitations through the use of the variability factors (discussed in section 10.6) which are calculated from the data from the facilities using the model technologies. If a facility operates its treatment system to meet the relevant long-term average, EPA expects the facility to be able to meet the limitations. Variability factors assure that normal fluctuations in a facility's treatment are accounted for in the limitations. By accounting for these reasonable excursions above the long-term average, EPA's use of variability factors results in limitations that are generally well above the actual long-term averages.

The limitations are listed in Attachment 10-5 in Appendix D.

### *Steps Used to Derive Limitations 10.7.1*

This section summarizes the steps used to derive the limitations. These steps were used separately for the daily maximum limitation and the monthly average limitation. Depending on the assumed monitoring frequency (see chapter 11) of the pollutant, either the 4-day variability factor or the 20-day variability factor was used in deriving the monthly average limitation.

For each regulated analyte in the option for a subcategory, EPA performed the following steps in calculating the limitations:

Step 1 EPA calculated the facility-specific long-term averages and variability factors for all facilities that had the model technology for the option in the subcategory. EPA calculated facility-specific variability factors when the facility had three or more observations with two or more distinct detected values (required to calculate the variance). In addition, the facility data set for the pollutant had to meet the data editing criteria.

Step 2 EPA calculated the median of the facility-specific long-term averages as the pollutant long-term average.

Step 3 EPA calculated the mean of the facility-specific variability factors from the facilities with the model technology to provide the pollutant-specific variability factors for each pollutant.

Step 4 For the regulated pollutants for which Steps 1 and 3 failed to provide variability factors for that pollutant, EPA calculated the group-level variability factor using the median of the pollutant-specific variability factors for the pollutants within each group.

Step 5 For the organic pollutants for which Steps 1, 3, and 4 failed to provide any variability factors, EPA calculated the organics variability factors as the median of selected groups of organic pollutants.

Step 6 In most cases, EPA calculated the limitation for a pollutant using the product of the pollutant-specific long-term average and the pollutant-specific variability factor. If the pollutant-specific variability factor could not be estimated (because none of the facility-specific variability factors could be estimated), then EPA used the group-level variability factor or the organics variability factor.

***Example*** **10.7.2**

This example illustrates the derivation of limitations using the steps described above. In this example, four pollutants, A, B, C, and D all belong to hypothetical group X. The facility-specific long-term averages and variability factors for the pollutants are shown in Attachments 10-1 and 10-3, respectively (step 1). Table 10-6 shows the pollutant-specific long-term averages and variability factors calculated as described in step 2. Then, using the procedure in step 3, the group-level variability factor (see attachment 10-4 in Appendix D) is the median of the variability factors for pollutants A, B, and C (D is excluded because facility-specific variability factors could not be calculated for any of the facilities that provided data on pollutant D).

- The group-level daily variability factor for group X is 2.2 which is the median of 2.2 (pollutant A), 2.4 (pollutant B), and 2.1 (pollutant C).
- The group-level 4-day variability factor for group X is 1.4 which is the median of 1.5 (pollutant A), 1.4 (pollutant B), and 1.2 (pollutant C).

In this example, the limitations are calculated using the pollutant-specific long-term averages, pollutant-specific variability factors, and the group-level variability factors in the following way:

*Daily maximum limitation* for pollutants A, B, and C
= pollutant-specific long-term average * pollutant-specific daily variability factor

For pollutants A, B, and C, the daily maximum limitations are:

| | |
|---|---|
| Pollutant A: | 15 mg/l * 2.2 = 33 mg/L |
| Pollutant B: | 14 mg/l * 2.4 = 33.6 mg/L |
| Pollutant C: | 22 mg/l * 2.1 = 46.2 mg/L |

*Daily maximum limitation* for pollutant D
= pollutant-specific long-term average * group-level daily variability factor
= 20 mg/l * 2.2 = 44 mg/L

*Monthly average limitation* for pollutants A, B, and C
= pollutant-specific long-term average * pollutant-specific 4-day variability factor

| | |
|---|---|
| Pollutant A: | 15 mg/l * 1.5 = 22.5 mg/L |
| Pollutant B: | 14 mg/l * 1.4 = 20 mg/L |
| Pollutant C: | 22 mg/l * 1.2 = 26.4 mg/L |

*Monthly average limitation* for pollutant D
= pollutant-specific long-term average * group-level 4-day variability factor
= 20 mg/l * 1.4 = 28 mg/L

Table 10-6. Long-Term Averages and Variability Factors Corresponding to Example for Hypothetical Group X

| Pollutant | Facility | Long-term Average (mg/l) | Daily Variability Factor | 4-day Variability Factor |
|---|---|---|---|---|
| A | A1 | 10 | 2.1 | 1.4 |
| | A2 | 12 | 2.3 | 1.5 |
| | A3 | 15 | 2.0 | 1.4 |
| | A4 | 20 | 1.8 | 1.3 |
| | A5 | 26 | 2.8 | 1.9 |
| | Pollutant-specific | 15 (median) | 2.2 (mean) | 1.5 (mean) |
| B | B1 | 17 | 2.7 | 1.7 |
| | B2 | 16 | 2.2 | 1.2 |
| | B3 | 10 | 2.3 | 1.3 |
| | B4 | 12 | * | * |
| | Pollutant-specific | 14 (median) | 2.4 (mean) | 1.4 (mean) |
| C | C1 | 22 | 1.9 | 1.1 |
| | C2 | 24 | * | * |
| | C3 | 12 | 2.3 | 1.3 |
| | Pollutant-specific | 22 (median) | 2.1 (mean) | 1.2 (mean) |
| D | D1 | 20 | * | * |
| | D2 | 22 | * | * |
| | D3 | 14 | * | * |
| | Pollutant-specific | 20 (median) | * | * |

* could not be estimated (i.e., the data set did not contain three or more observations with two or more distinct detected values.)

## *TRANSFERS OF LIMITATIONS* *10.8*

In some cases, EPA was either unable to calculate a limitation using the available data for an option or determined that the treatment provided by facilities employing the option did not represent the appropriate level of treatment for the model technologies. In these cases, EPA transferred limitations from another option or from another industrial category. The following sections describe each case where the limitations were transferred.

### ***Transfer of Oil and Grease Limitation for Metals Subcategory from Option 4 to Option 3*** ***10.8.1***

Because of the relatively low levels of oil and grease in the influent of the facilities with the model technology for metals option 3, application of the data editing criteria (described in section 10.4.3.1) resulted in excluding the oil and grease effluent data from all facilities for this option. Because the data for option 4 pass the data editing criteria, this indicates that oil and grease is present in the types of influent wastes in this subcategory. Thus, EPA determined that this parameter should be regulated for both options in this subcategory.

EPA based the oil and grease limitations for option 3 upon data from the option 4 model technology. In effect, EPA has transferred the oil and grease limitations from option 4 to option 3. EPA has concluded that transfer of these data are appropriate given that the technology basis for metals option 3 includes additional treatment steps than the technology basis for metals option 4. As such, EPA has every reason to conclude that facilities employing the option 3 technology could achieve the limitations based on the option 4 technology. This is the same assumption used for the 1999 proposal.

### *Transfer of Arsenic for Metals Subcategory from Option 1A to Option 4* 10.8.2

Similarly, because of the relatively low levels of arsenic in the influent of the facilities with the model technology for metals option 4, application of the data editing criteria (described in section 10.4.3.1) resulted in excluding the effluent data from this option.

Because the data for option 1A pass the data editing criteria, this indicates that arsenic is present in the types of influent wastes in this subcategory. In addition, the arsenic data for option 3 pass the data editing criteria. Thus, EPA determined that this parameter should be regulated for both options in this subcategory. However, option 3 is a more sophisticated technology than option 4, so EPA chose to use the data from option 1A to develop limitations for option 4. In effect, EPA has transferred the arsenic limitations from option 1A to option 4. EPA has concluded that transfer of these data are appropriate given that the technology basis for metals option 4 includes additional treatment steps and should provide better removals than option 1A. As such, EPA expects that facilities utilizing the option 4 technologies can achieve arsenic effluent concentration levels at least as low as the values from facilities using the option 1A technologies. Thus, EPA has transferred the arsenic limitations from option 1A to option 4.

In the 1999 proposal, EPA transferred the long-term average from arsenic from option 1A and used the group-level variability factors from option 4. Under the data restrictions for the 1999 proposal (which were more stringent than those for the final rule), silicon was the only pollutant in the semi-metals group for which EPA could calculate variability factors to apply to the arsenic limitations. The daily variability factor for silicon was among the lowest calculated for the 1999 proposal. After the proposal, EPA determined that the arsenic effluent values for option 4 have different variability than those for silicon.[21] Thus, EPA also transferred the arsenic variability factors from option 1A for the final rule. By transferring both the long-term average and the variability factors from option 1A to option 4, EPA has, in effect, transferred the limitations.

### *Transfer of Lead for Metals Subcategory from Option 4 to Option 3* 10.8.3

For option 3, EPA used the data from the two sampling episodes and the self-monitoring data to develop a daily maximum standard for lead. Based upon these data, the daily maximum standard would be 0.329 mg/L. However, all four data values from the second sampling episode were greater than this daily maximum standard. In EPA's view, the data from this second sampling episode should be less than the daily maximum standard, because the facility's permit required the facility to have more carefully controlled lead discharges during the second sampling episode than the time periods corresponding to the self-monitoring data and the first sampling episode. Therefore, EPA concluded that facilities employing this technology option may not be able to comply with this daily maximum standard for lead. To

[21] As detailed in Chapter 7, EPA analyzed silicon using semi-quantitative methods. In contrast, arsenic is analyzed quantitatively.

resolve this, EPA transferred the daily maximum (1.32 mg/L) and monthly average standards (0.283 mg/L) for lead from metals option 4. These standards are based on less treatment technology than the option 3 technology and EPA expects an option 3 model facility to be able to comply with these standards.

### *Transfers of Limitations from Other Rulemakings to CWT Industry 10.8.4*

In some cases, the model technology did not optimally remove $BOD_5$ and TSS for an option in a subcategory. In EPA's view, this occurred because the limitations are largely based on indirect discharging facilities that are not required to control or optimize their treatment systems for the removal of conventional parameters. Thus, EPA transferred the BPT/BCT/NSPS limitations (for direct dischargers data) from effluent guidelines from other industries with similar wastewaters and treatment technologies. In one case, EPA transferred the BPT/BCT TSS limitations from the Metal Finishing rulemaking to the metals subcategory BPT/BCT limitations (option 4). In the other case, EPA transferred the BPT/BCT $BOD_5$ and TSS limitations from the Organic Chemical, Plastics, and Synthetic Fibers (OCPSF) rulemaking to the organics subcategory BPT/BCT/NSPS limitations (option 4). EPA used different procedures from the one discussed in section 10.7.1 to develop the limitations for $BOD_5$ and TSS for the organics subcategory and TSS for option 4 in the metals subcategory. The following sections describe these different procedures.

#### *Transfer of $BOD_5$ and TSS for the Organics Subcategory 10.8.4.1*

EPA based the transferred limitations of $BOD_5$ and TSS for the organics subcategory on biological treatment performance data used to develop the limitations for the thermosetting resins subcategory in the Organic Chemicals, Plastics, and Synthetic Fibers (OCPSF) industry rulemaking. As described in the final CWT preamble, EPA determined that the transfer of the data was warranted because facilities in the organics subcategory treat wastes similar to wastes treated by OCPSF facilities.

For the organics subcategory of the CWT industry, the daily maximum limitations for $BOD_5$ and TSS were transferred directly from the OCPSF rulemaking. No modifications were required before transferring these daily maximum limitations.

Some modifications of the OCPSF monthly average limitations were required before the values could be transferred to the CWT industry. The OCPSF limitations for $BOD_5$ and TSS were based on assumptions of a monitoring frequency of 30 days and the presence of autocorrelation in the measurements. In the rulemaking for the CWT industry, the monthly limitations for $BOD_5$ and TSS were based on an assumed monitoring frequency of 20 days and no autocorrelation (see section 10.6.5.3.2 for a discussion of the absence of autocorrelation in the CWT data). Therefore, the following conversion steps were necessary to convert the OCPSF 30-day variability factors to 20-day variability factors.

The following formula was used in the OCPSF rulemaking to calculate the 30-day variability factors. This formula incorporates autocorrelation, D, between measurements on adjacent days (i.e., the lag-1 autocorrelation).

$$VF_{30} = 1 + 1.645\sqrt{\frac{\left(e^{s^2} - 1\right) f_{30}(r, s)}{30}} \tag{36}$$

where the function $f_{30}$(D,F) represents the additional variability attributable to autocorrelation, and is given by

$$f_{30}(r, s) = 1 + \frac{2}{30\left(e^{s^2} - 1\right)} \sum_{k=1}^{29} (30 - k)\left(e^{r^k s^2} - 1\right) \tag{37}$$

The above two formulas can be generalized to estimate n-day variability factors. These formulas are:

$$VF_n = 1 + 1.645\sqrt{\frac{\left(e^{s^2} - 1\right) f_n(r, s)}{n}} \qquad n \geq 2 \tag{38}$$

where

$$f_n(r, s) = 1 + \frac{2}{n\left(e^{s^2} - 1\right)} \sum_{k=1}^{n-1} (n - k)\left(e^{r^k s^2} - 1\right) \qquad n \geq 2 \tag{39}$$

For the limitations, the autocorrelation, D, has been assumed to be absent; thus, the value of D is set equal to zero. Therefore, the value of $f_n$(0,F) is equal to 1, and equation 38 becomes:

$$VF_n = 1 + 1.645\sqrt{\frac{\left(e^{s^2} - 1\right)}{n}} \qquad n \geq 2 \tag{40}$$

Because all of the values were detected (i.e., there were no non-detected measurements) in the OCPSF data base for $BOD_5$ and TSS, the modified delta-lognormal distribution of these data is the same as the lognormal distribution (i.e., the delta portion does not enter into the calculations because it is used to model non-detect measurements). Therefore, an estimate of $F^2$ was obtained from the daily variability factor from the lognormal distribution by using the following equation:

$$VF_1 = e^{s\,\Phi^{-1}(0.99) - \frac{s^2}{2}} \tag{41}$$

where $M^{-1}$(0.99) is the 99th percentile of the inverse normal distribution. (The value of $M^{-1}$(0.99) is 2.326.) By solving this equation using maximum likelihood estimation for F and substituting it into equation 40, an estimate of $VF_n$ may be obtained. Finally, the n-day limitation is calculated as:

$$Limit_n = \frac{VF_n}{E(X)} \tag{42}$$

The expected value, E(X) can be estimated by solving for E(X) in the following equation for the daily maximum limitation (which is the same for both the OCPSF, and the CWT industry):

$$Limit_1 = \frac{VF_1}{E(X)} \tag{43}$$

to obtain

$$E(X) = \frac{VF_1}{Limit_1} \tag{44}$$

Then, equation 40 (using the estimate of $F^2$ from equation 41) and equation 44 can be substituted into equation 42 to obtain:

$$Limit_n = \frac{Limit_1}{VF_1}\left(1 + 1.645\sqrt{\frac{e^{s^2} - 1}{n}}\right) \tag{45}$$

In particular, for the monthly average limitation based on assuming daily monitoring (i.e., approximately 20 times a month), the limitation is

$$Limit_{20} = \frac{Limit_1}{VF_1}\left(1 + 1.645\sqrt{\frac{e^{s^2} - 1}{20}}\right) \tag{46}$$

Table 10-7 provides the values of the $BOD_5$ and TSS limitations and other parameters for the thermosetting resins subcategory from the OCPSF industry and the organics subcategory in the CWT industry.

Table 10-7. $BOD_5$ and TSS Parameters for Organics Subcategory

| Parameter | OCPSF: Thermosetting Resins Subcategory | | Centralized Waste Treatment: Organics Subcategory | |
|---|---|---|---|---|
| | $BOD_5$ | TSS | $BOD_5$ | TSS |
| F | 0.6971 | 0.8174 | 0.6971 | 0.8174 |
| Long-Term Average (mg/l) | 41 | 45 | 41 | 45 |
| $VF_1$ | 3.97 | 4.79 | 3.97 | 4.79 |
| $VF_{30}$ | 1.58 | 1.45 | n/a | n/a |
| $VF_{20}$ | n/a | n/a | 1.29 | 1.36 |
| Daily Maximum Limitation (mg/l) | 163 | 216 | 163 | 216 |
| Monthly Average Limitation (mg/l) | 61 | 67 | 53.0 | 61.3 |

*Transfer of TSS for Option 4 of the Metals Subcategory* *10.8.2.2*

For TSS for option 4 of the metals subcategory, EPA transferred the limitations directly from the Metal Finishing rulemaking (see Table 10-8). EPA based the Metal Finishing monthly average limitation for TSS upon an assumed monitoring frequency of ten days per month and the absence of autocorrelation in the measurements. EPA has also assumed an absence of autocorrelation in TSS for the CWT industry. However, EPA assumed a monitoring frequency of 20 measurements a month for TSS for the CWT industry, rather than the ten measurements assumed in the metal finishing rulemaking. EPA determined that it was unnecessary to adjust the monthly average limitation from the metal finishing rulemaking for the increase in monitoring frequency. This adjustment would have resulted in a monthly average limitation with a slightly lower value than the value from the metal finishing rule (the monitoring frequency does not effect the value of long-term averages and daily maximum limitations).

Table 10-8. TSS Parameters for Metal Finishing

| Metal Finishing TSS Values | TSS (mg/L) |
|---|---|
| Long-Term Average (mg/l) | 16.8 |
| Daily variability factor | 3.59 |
| Monthly Variability Factor | 1.85 |
| Assumed monitoring frequency | 10/month |
| Daily Maximum Limitation (mg/l) | 60.0 |
| Monthly Average Limitation (mg/l) | 31.0 |

## *LIMITATIONS FOR THE MULTIPLE WASTESTREAM SUBCATEGORY* *10.9*

As described in section IV.F and XIII.A.5, after the 1999 proposal, EPA developed one additional subcategory for the CWT industry. This 'Multiple Wastestream Subcategory' applies to facilities that treat wastes in more than one subcategory and meet other requirements as explained in Chapters 5 and 14.

For each type of limitation or standard (i.e., BPT, BCT, BAT, NSPS, PSES, PSNS), EPA developed four sets of limitations for each of the possible combinations of the three subcategories of wastestreams: oils and metals, oils and organics, metals and organics, and oils, metals and organics. Table 10-9 identifies the options corresponding to each of these types of limitations and standards.

Table 10-9. Options Corresponding to Multiple Wastestream Subcategory

| | Metals | Oils | Organics |
|---|---|---|---|
| BPT | 4 | 9 | 4 |
| BCT | 4 | 9 | 4 |
| BAT | 4 | 9 | 4 |
| NSPS | 3 | 9 | 4 |
| PSES | 4 | 8 | 4 |
| PSNS | 4 | 9 | 4 |

Some pollutants are only regulated in one of the metals, oils, or organics subcategories. For these pollutants, the limitations are directly transferred to the multiple wastestream subcategory. For other pollutants regulated by more than one of the metals, oils, or organics subcategories, the multiple wastestream subcategory limitations were derived by selecting the most stringent monthly average limitation and its corresponding maximum daily limitation. In almost all cases, the most stringent monthly average limitation and the most stringent daily maximum limitation were derived from the same subcategory. Table 10-10 shows some BPT limitations for all four subcategories for three of the regulated pollutants.

Regardless of the source of the limitations, facilities in the multiple wastestream subcategory are expected to design and operate their treatment systems in a manner that will ensure compliance with the limitations. Facilities that are designed and operated to achieve long-term average effluent levels should be capable of compliance the with limitations at all times.

Table 10-10 BPT Limitations for Wastestreams from All Three Subcategories

| BPT | | Metals Option 4 | Oils Option 9 | Organics Option 4 | Multiple Wastestream | Values for Multiple wastestream subcategory selected from: |
|---|---|---|---|---|---|---|
| Oil & Grease | Long-Term Average | 34.3 | 28.3 | N/A | 28.3 | Oils option 9 (because the monthly average limitation is the most stringent) |
| | Daily Maximum Limitation | 205 | 127 | N/A | 127 | |
| | Monthly Average Limitation | 50.2 | 38.0 | N/A | 38.0 | |
| Antimony | Long-Term Average | 0.170 | 0.103 | 0.569 | 0.103 | Oils option 9 |
| | Daily Maximum Limitation | 0.249 | 0.237 | 0.928 | 0.237 | |
| | Monthly Average Limitation | 0.206 | 0.141 | 0.679 | 0.141 | |
| Pyridine | Long-Term Average | N/A | N/A | 0.116 | 0.116 | Organics 4 |
| | Daily Maximum Limitation | N/A | N/A | 0.370 | 0.370 | |
| | Monthly Average Limitation | N/A | N/A | 0.182 | 0.182 | |

N/A: not regulated for that subcategory

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Chapter

# 11

# COST OF TREATMENT TECHNOLOGIES

This chapter explains what EPA has estimated it will cost to comply with the CWT effluent limitations guidelines and standards. Section 11.1 provides a general description of how EPA developed costs for the different individual treatment technology and regulatory option considered for this rule. Sections 11.2 through 11.4 describe the development of costs for each of the wastewater and sludge treatment technologies evaluated.

Section 11.5 describes additional compliance costs not related to a specific technology that a facility may incur. These additional items are retrofit costs, monitoring costs, RCRA permit modification costs, and land costs.

In Section 11.6, EPA presents some examples of capital and O&M cost calculations for CWT facilities using this methodology. Finally, Section 11.7 summarizes, by subcategory, the total capital expenditures and annual O&M costs for implementing the regulation. Appendix D contains, by subcategory, the facility-specific capital, O&M, land, RCRA, and monitoring cost estimates for each facility to comply with the limitations and standards.

## *COSTS DEVELOPMENT* 11.1

### *Technology Costs* 11.1.1

EPA obtained cost information for the technologies that it considered in developing the limitations guidelines and standards from the following sources:

- The data base developed from the information provided in response to the 1991 Waste Treatment Industry (WTI) Questionnaire (this contained some process cost information, and EPA used this wherever possible);
- Technical information developed for other rulemaking such as the guidelines and standards for the Organic Chemicals, Plastics, and Synthetic Fibers (OCPSF) category, Metal Products and Machinery (MP&M) category, and Industrial Laundries industries category;
- Engineering literature;
- Data obtained in sampling at the CWT model facilities; and
- Cost quotations obtained from vendors (EPA used these extensively in estimating the cost of the various technologies).

The total costs developed by EPA include the following elements: capital costs of investment in pollutant control equipment, annual O&M costs, land requirement costs, sludge disposal costs, monitoring costs, and retrofit costs. Because 1989 is the base year for the WTI Questionnaire, EPA scaled all of the costs either up or down to 1989 dollars using the Engineering News Record (ENR) Construction Cost Index. EPA uses a 1989 base year to facilitate comparison from guideline to guideline.

EPA based the capital costs for the technologies primarily on cost quotations from vendors. Table 11-1 lists the standard factors used to estimate the capital costs. Equipment costs typically include the cost of the treatment unit and some ancillary equipment associated with that technology. Other investment costs in addition to the equipment cost include piping, instrumentation and controls, pumps, installation, engineering, delivery, and contingency.

EPA estimated certain design parameters for costing purposes. One such parameter is the flow rate used to size many of the treatment technologies. EPA used the total daily flow in all cases, unless specifically stated. The total daily flow represents the annual flow divided by 260, the standard number of operating days for a CWT per year.

EPA derived the annual O&M costs for the various systems from vendors' information or from engineering literature, unless otherwise stated. The annual O&M costs represent the costs of maintenance, taxes and insurance, labor, energy, treatment chemicals (if needed), and residuals management (also if needed). Table 11-2 lists the standard factors EPA used to estimate the O&M costs.

Sections 11.2 through 11.4 present cost equations for capital costs, O&M costs, and land requirements for each technology and option. For most technologies, EPA also developed capital cost upgrade and O&M cost upgrade equations. EPA used these equations for facilities which already have the treatment technology forming the basis of the option (or some portion of the treatment technology) in place. EPA also presents the flow rate ranges recommended for use in each equation. EPA is confident the equations are representative of costs for such facilities within these ranges. Outside these ranges, the equations become extrapolations. These equations, in EPA's views, do not yield reliable results below the recommended low flow rate.

Table 11-1. Standard Capital Cost Algorithm

| Factor | Capital Cost |
|---|---|
| Equipment Cost | Technology-Specific Cost |
| Installation | 25 to 55 percent of Equipment Cost |
| Piping | 31 to 66 percent of Equipment Cost |
| Instrumentation and Controls | 6 to 30 percent of Equipment Cost |
| *Total Construction Cost* | Equipment + Installation + Piping + Instrumentation and Controls |
| Engineering | 15 percent of Total Construction Cost |
| Contingency | 15 percent of Total Construction Cost |
| *Total Indirect Cost* | Engineering + Contingency |
| *Total Capital Cost* | Total Construction Cost + Total Indirect Cost |

### *Option Costs* *11.1.2*

EPA developed engineering costs for each of the individual treatment technologies which EPA considered in developing the CWT limitations guidelines and standards. This chapter breaks down these technology-specific costs into capital, O&M, and land components. To estimate the cost of any individual regulatory option EPA considered for this guideline, it is necessary to sum the costs of the individual treatment technologies which make up that option. In a few instances, an option consists of only one treatment technology. In those instances, the option cost is obviously equal to the technology cost. Table 11-3 shows the CWT subcategory technology options EPA considered. The table lists the treatment technologies included in each option, and indicates the subsections which provide the corresponding cost information.

EPA generally calculated the capital and O&M costs for each of the individual treatment technologies using a flow rate range of 1 gallon per day to five million gallons per day. However, the flow rate ranges recommended for use in the equations are in a smaller range. Sections 11.2 to 11.4 present these ranges for each cost equation.

*Land Requirements and Costs 11.1.2.1*

EPA calculated land requirements for each piece of new equipment based on the equipment dimensions. The land requirements include the total area needed for the equipment plus peripherals (pumps, controls, access areas, etc.). Additionally, EPA included a 20-foot perimeter around each unit. In the cases where adjacent tanks or pieces of equipment were required, EPA used a 20-foot perimeter for each piece of equipment, and used the minimum area requirements possible. The tables throughout Sections 11.2 to 11.4 present the land requirement equations for each technology. EPA then multiplied the land requirements by the corresponding land costs (as detailed in 11.5.4) to obtain facility specific land cost estimates.

Table 11-2. Standard Operation and Maintenance Cost Factor Breakdown

| Factor | O&M Cost (1989 $/year) |
|---|---|
| Maintenance | 4 percent of Total Capital Cost |
| Taxes and Insurance | 2 percent of Total Capital Cost |
| Labor | $30,300 to $31,200 per man-year |
| Electricity | $0.08 per kilowatt-hour |
| Chemicals: | |
| Lime (Calcium Hydroxide) | $57 per ton |
| Polymer | $3.38 per pound |
| Sodium Hydroxide (100 percent solution) | $560 per ton |
| Sodium Hydroxide (50 percent solution) | $275 per ton |
| Sodium Hypochlorite | $0.64 per pound |
| Sulfuric Acid | $80 per ton |
| Aries Tek Ltd Cationic Polymer | $1.34 per pound |
| Ferrous Sulfate | $0.09 per pound |
| Hydrated Lime | $0.04 per pound |
| Sodium Sulfide | $0.30 per pound |
| Residuals Management | Technology-Specific Cost |
| *Total O&M Cost* | Maintenance + Taxes and Insurance + Labor + Electricity + Chemicals + Residuals |

*Operation and Maintenance Costs 11.1.2.2*

EPA based O&M costs on estimated energy usage, maintenance, labor, taxes and insurance, and chemical usage cost. With the principal exception of chemical usage and labor costs, EPA calculated the O&M costs using a single methodology. This methodology is relatively consistent for each treatment technology, unless specifically noted otherwise.

EPA's energy usage costs include electricity, lighting, and controls. EPA estimated electricity requirements at 0.5 Kwhr per 1,000 gallons of wastewater treated. EPA assumed lighting and controls to cost $1,000 per year and electricity cost $0.08 per Kwhr. Manufacturers' recommendations form the basis of these estimates.

EPA based maintenance, taxes, and insurance on a percentage of the total capital cost as detailed in Table 11-2.

Chemical usage and labor requirements are technology specific. These costs are detailed for each specific technology according to the index given in Table 11-3.

Table 11-3. CWT Treatment Technology Costing Index – A Guide to the Costing Methodology Sections

| Subcategory/ Option | Treatment Technology | Section |
|---|---|---|
| Metals 2 | Selective Metals Precipitation | 11.2.1.1 |
| | Plate and Frame Liquid Filtration | 11.2.2.1 |
| | Secondary Chemical Precipitation | 11.2.1.2 |
| | Clarification | 11.2.2.2 |
| | Plate and Frame Sludge Filtration | 11.4.1 |
| | Filter Cake Disposal | 11.4.2 |
| Metals 3 | Selective Metals Precipitation | 11.2.1.1 |
| | Plate and Frame Liquid Filtration | 11.2.2.1 |
| | Secondary Chemical Precipitation | 11.2.1.2 |
| | Clarification | 11.2.2.2 |
| | Tertiary Chemical Precipitation and pH Adjustment | 11.2.1.3 |
| | Clarification | 11.2.2.2 |
| | Plate and Frame Sludge Filtration | 11.4.1 |
| | Filter Cake Disposal | 11.4.2 |
| Metals 4 | Primary Chemical Precipitation | 11.2.1.4 |
| | Clarification | 11.2.2.2 |
| | Secondary (Sulfide) Chemical Precipitation | 11.2.1.5 |
| | Secondary Clarification (for Direct Dischargers Only) | 11.2.2.2 |
| | Multi-Media Filtration | 11.2.5 |
| | Plate and Frame Sludge Filtration[1] | 11.4.1 |
| Metals - Cyanide Waste Pretreatment | Cyanide Destruction at Special Operating Conditions | 11.2.6 |
| Oils 8 | Dissolved Air Flotation | 11.2.8 |
| Oils 8v | Dissolved Air Flotation | 11.2.8 |
| | Air Stripping | 11.2.4 |
| Oils 9 | Secondary Gravity Separation | 11.2.7 |
| | Dissolved Air Flotation | 11.2.8 |
| Oils 9v | Secondary Gravity Separation | 11.2.7 |
| | Dissolved Air Flotation | 11.2.8 |
| | Air Stripping | 11.2.4 |
| Organics 4 | Equalization | 11.2.3 |
| | Sequencing Batch Reactor | 11.3.1 |
| Organics 3 | Equalization | 11.2.3 |
| | Sequencing Batch Reactor | 11.3.1 |
| | Air Stripping | 11.2.4 |

[1]Metals option 4 sludge filtration includes filter cake disposal.

## PHYSICAL/CHEMICAL WASTEWATER TREATMENT TECHNOLOGY COSTS 11.2

### Chemical Precipitation 11.2.1

Wastewater treatment facilities widely use chemical precipitation systems to remove dissolved metals from wastewater. EPA evaluated systems that utilize sulfide, lime, and caustic as the precipitants because of their common use in CWT chemical precipitation systems and their effectiveness in removing dissolved metals.

#### *Selective Metals Precipitation – Metals Options 2 and 3 11.2.1.1*

Among the technologies EPA evaluated for treating metal-bearing wastestreams were systems that "selectively" removed metals. These are systems designed to address the fact that different metals are more efficiently removed at different pHs. These systems perform a series of precipitations at different pHs in order to maximize removals. The selective metals precipitation equipment assumed by EPA for costing purposes for Metals option 2 and Metals option 3 consists of four mixed reaction tanks, each sized for 25 percent of the total daily flow, with pumps and treatment chemical feed systems. EPA costed for four reaction tanks to allow a facility to segregate its wastes into small batches, thereby facilitating metals recovery and avoiding interference with other incoming waste receipts. EPA assumed that these four tanks would provide adequate surge and equalization capacity for a metals subcategory CWT. EPA based costs on a four batch per day treatment schedule (that is, the sum of four batch volumes equals the facility's daily incoming waste volume).

As shown in Table 11-3, plate and frame liquid filtration follows selective metals precipitation for Metals options 2 and 3. EPA has not presented the costing discussion for plate and frame liquid filtration in this section (consult section 11.2.3.2). Likewise, Sections 11.4.1 and 11.4.2 discuss sludge filtration and filter cake disposal.

CAPITAL COSTS

Because only one facility in the metals subcategory has selective metals precipitation in-place, EPA included selected metals precipitation capital costs for all facilities (except one) for Metals options 2 and 3.

EPA obtained the equipment capital cost estimates for the selective metals precipitation systems from vendor quotations. These costs include the cost of the mixed reaction tanks with pumps and treatment chemical feed systems. The total construction cost estimates include installation, piping and instrumentation, and controls. The total capital cost includes engineering and contingency at a percentage of the total construction cost plus the total construction cost (as explained in Table 11-1). Table 11-4 at the end of this section presents the equation for calculating selective metals precipitation capital costs for Metals option 2 and option 3.

CHEMICAL USAGE AND LABOR REQUIREMENT COSTS

EPA based the labor requirements for selective metals precipitation on the model facility's operation. EPA estimated the labor cost at eight man-hours per batch (four treatment tanks per batch, two hours per treatment tank per batch).

EPA estimated selective metals precipitation chemical costs based on stoichiometric, pH adjustment, and buffer adjustment requirements. For facilities with no form of chemical precipitation in-place, EPA based the stoichiometric requirements on the amount of chemicals required to precipitate each of the metal and semi-metal pollutants of concern from the metals subcategory average raw influent concentrations to current performance levels (see Chapter 12 for a discussion of raw influent concentrations and current loadings). The chemicals used were caustic at 40 percent of the required removals and lime at 60 percent of the required removals (caustic at 40 percent and lime at 60 percent add up to 100 percent of the stoichiometric requirements.) These chemical dosages reflect the operation of the selective metals precipitation model facility. Selective metals precipitation uses a relatively high percentage of caustic because the sludge resulting from caustic precipitation is amenable to metals recovery. EPA estimated the pH adjustment and buffer adjustment requirements to be 40 percent of the stoichiometric requirement. EPA added an excess of 10 percent to the pH and buffer adjustment requirements, bringing the total to 50 percent. EPA included a 10 percent excess because this is typical of the operation of the CWT facilities visited and sampled by EPA.

EPA estimated selective metals precipitation upgrade costs for facilities that currently utilize some form of chemical precipitation. Based on responses to the Waste Treatment Industry Questionnaire, EPA assumed that the in-place chemical precipitation systems use a dosage ratio of 25% caustic and 75% lime and achieve a reduction of pollutants from "raw" to "current" levels. The selective metals precipitation upgrade would require a change in the existing dosage mix to 40% caustic and 60 % lime. Therefore, the selective metals precipitation upgrade for facilities with in-place chemical precipitation is the increase in caustic cost ( from 25 % to 40%) minus the lime credit (to decrease from 75% to 60%).

Table 11-4 presents the O&M cost equation for selective metals precipitation along with the O&M upgrade cost equation for facilities with primary and secondary chemical precipitation in-place.

Table 11-4. Cost Equations for *Selective Metals Precipitation* in Metals Options 2 and 3

| Description | Equation | Recommended Flow Rate Range (MGD) |
|---|---|---|
| Capital cost | $\ln(Y1) = 14.461 + 0.544\ln(X) + 0.0000047(\ln(X))^2$ | 1.0 E -6 to 5.0 |
| O&M cost for facilities without chem. precipitation treatment in-place | $\ln(Y2) = 15.6402 + 1.001\ln(X) + 0.04857(\ln(X))^2$ | 3.4 E -5 to 5.0 |
| O&M *upgrade* cost for facilities with precipitation in-place | $\ln(Y2) = 14.2545 + 0.8066\ln(X) + 0.04214(\ln(X))^2$ | 7.4 E -5 to 5.0 |
| Land requirements | $\ln(Y3) = -0.575 + 0.420\ln(X) + 0.025(\ln(X))^2$ | 1.6 E -2 to 4.0 |

Y1 = Capital Costs (1989 $)
Y2 = Operation and Maintenance Costs (1989 $ /year)
Y3 = Land Requirement (Acres)
X = Flow Rate (million gallons per day)

### *Secondary Precipitation – Metals Options 2 and 3* *11.2.1.2*

The secondary precipitation system in the model technology for Metals option 2 and Metals option 3 follows selective metals precipitation and plate and frame liquid filtration. This secondary chemical precipitation equipment consists of a single mixed reaction tank with pumps and a treatment chemical feed system, which is sized for the full daily batch volume.

As shown in Table 11-3, clarification follows secondary chemical precipitation for Metals options 2 and 3. Section 11.2.2.2 discusses the costing for clarification following secondary precipitation. Sections 11.4.1 and 11.4.2 discuss sludge filtration and the associated filter cake disposal.

Many facilities in the metals subcategory currently have chemical precipitation units in-place. For these facilities, cost upgrades may be appropriate. EPA used the following set of rules to decide whether a facility's costs should be based on a full cost equation or an upgrade equation for the secondary chemical precipitation step of metals options 2 and 3:

- Facilities with no chemical precipitation in-place should use the full capital and O&M costs;
- Facilities with primary chemical precipitation in-place should assume no capital costs, no land requirements, but an O&M upgrade cost for the primary step; and
- Facilities with secondary chemical precipitation currently in-place should assume no capital costs, no land requirements, and no O&M costs for the secondary step.

#### CAPITAL COSTS

For facilities that have no chemical precipitation in-place, EPA calculated capital cost estimates for the secondary precipitation treatment systems from vendor quotations.

EPA estimated the other components (i.e., piping, instrumentation and controls, etc.) of the total capital cost by applying the same factors and additional costs as detailed for selective metals precipitation (see Section 11.2.1.1 above). Table 11-5 at the end of this section shows the capital cost equation for secondary precipitation in Metals option 2 and option 3.

For the facilities that have at least primary chemical precipitation in-place, EPA assumed that the capital cost for the secondary precipitation treatment system would be zero. The in-place primary chemical precipitation systems would serve as secondary precipitation systems after the installation of upstream selective metals precipitation units.

#### CHEMICAL USAGE AND LABOR REQUIREMENT COSTS

EPA developed O&M cost estimates for the secondary precipitation step of Metals option 2 and 3 for facilities with and without chemical precipitation currently in-place. For facilities with no chemical precipitation in-place, EPA calculated the amount of lime required to precipitate each of the metals and semi-metals from the metals subcategory current performance concentrations (achieved with the previously explained selective metals precipitation step) to the Metals option 2 long-term average concentrations. EPA then added a ten percent excess dosage factor and based the chemical addition costs on the required amount of lime only, which is based on the operation of the model facility for this technology. EPA assumed the labor cost to be two hours per batch, based on recommendations from manufacturers.

For facilities with chemical precipitation in-place, EPA calculated an O&M upgrade cost. In calculating the O&M upgrade cost, EPA assumed that there would be no additional costs associated with any of the components of the annual O&M cost, except for increased chemical costs.

Because EPA already applied credit for chemical costs for facilities with primary precipitation in estimating the selective metals precipitation chemical costs, the chemical upgrade costs for facilities with primary precipitation are identical to facilities with no chemical precipitation in-place.

Because EPA assumed that facilities with secondary precipitation would achieve the metals option 2 long term average concentrations with their current system and chemical additions (after installing the selective metals precipitation system), EPA assumed these facilities would not incur any additional chemical costs. In turn, EPA also assumed that facilities with secondary precipitation units in-place would incur no O&M upgrade costs.

Table 11-5. Cost Equations for *Secondary Chemical Precipitation* in Metals Options 2 and 3

| Description | Equation | Recommended Flow Rate Range (MGD) |
|---|---|---|
| Capital cost | $\ln(Y1) = 13.829 + 0.544\ln(X) + 0.00000496(\ln(X))^2$ | 1.0 E -6 to 5.0 |
| O&M cost for facilities with no chemical precipitation in-place | $\ln(Y2) = 11.6553 + 0.48348\ln(X) + 0.02485(\ln(X))^2$ | 6.5 E -5 to 5.0 |
| O&M *upgrade* cost for facilities with primary precipitation in-place | $\ln(Y2) = 9.97021 + 1.00162\ln(X) + 0.00037(\ln(X))^2$ | 5.0 E -4 to 5.0 |
| Land requirements | $\ln(Y3) = -1.15 + 0.449\ln(X) + 0.027(\ln(X))^2$ | 4.0 E -3 to 1.0 |

Y1 = Capital Costs (1989 $)
Y2 = Operation and Maintenance Costs (1989 $ /year)
Y3 = Land Requirement (Acres)
X = Flow Rate (million gallons per day)

### *Tertiary Precipitation and pH Adjustment – Metals Option 3* *11.2.1.3*

The tertiary chemical precipitation step for Metals option 3 follows the secondary precipitation and clarification steps. This tertiary precipitation system consists of a rapid mix neutralization tank and a pH adjustment tank. In this step, the wastewater is fed to the rapid mix neutralization tank where lime slurry is added to raise the pH to 11.0. Effluent from the neutralization tank then flows to a clarifier for solids removal. The clarifier overflow goes to a pH adjustment tank where sulfuric acid is added to achieve the desired final pH of 9.0. This section explains the development of the cost estimates for the rapid mix neutralization tank and the pH adjustment tank. Sections 11.2.2.2, 11.4.1, and 11.4.2 discuss clarification, sludge filtration, and associated filter cake disposal.

#### CAPITAL COSTS

EPA developed the capital cost estimates for the rapid mix tank assuming continuous flow and a 15-minute detention time, which is based on the model facility's standard operation. The equipment cost includes one tank, one agitator, and one lime feed system.

EPA developed the capital cost estimates for the pH adjustment tank assuming continuous flow and a five-minute detention time, also based on the model facility's operation. The equipment cost includes one tank, one agitator, and one sulfuric acid feed system.

EPA estimated the other components (i.e., piping, instrumentation and controls, etc.) of the total capital cost for both the rapid mix and pH adjustment tank by applying the same factors and additional costs as detailed for selective metals precipitation (see Section 11.2.1.1 above). Table 11-6 at the end of this section presents the capital cost equations for the rapid mix and pH adjustment tanks.

#### Chemical Usage and Labor Requirement Costs

EPA did not assign O&M costs, and in turn, chemical usage and labor requirement costs for tertiary precipitation and pH adjustment to the few facilities which have tertiary precipitation (and pH adjustment) systems in-place. For those facilities without tertiary precipitation (and pH adjustment) in-place, EPA estimated the labor requirements at one man-hour per day for the rapid mix and pH adjustment tanks. EPA based this estimate on the model facility's typical operation.

EPA estimated chemical costs for the rapid mix tank based on lime addition to achieve the stoichiometric requirements of reducing the metals in the wastewater from the Metals option 2 long-term averages to the Metals option 3 long-term averages, with a 10 percent excess. EPA estimated the chemical requirements for the pH adjustment tank based on the addition of sulfuric acid to lower the pH from 11.0 to 9.0, based on the model facility's operation. Table 11-6 the O&M cost equations for the rapid mix tank and pH adjustment tank.

Table 11-6. Cost Equations for *Tertiary Chemical Precipitation* in Metals Option 3

| Description | Equation | Recommended Flow Rate Range (MGD) |
|---|---|---|
| Capital cost for rapid mix tank | $\ln(Y1) = 12.318 + 0.543\ln(X) - 0.000179(\ln(X))^2$ | 1.0 E -5 to 5.0 |
| Capital cost for pH adjustment tank | $\ln(Y1) = 11.721 + 0.543\ln(X) + 0.000139(\ln(X))^2$ | 1.0 E -5 to 5.0 |
| O&M cost for rapid mix tank | $\ln(Y2) = 9.98761 + 0.37514\ln(X) + 0.02124(\ln(X))^2$ | 1.6 E -4 to 5.0 |
| O&M cost for pH adjustment tank | $\ln(Y2) = 9.71626 + 0.33275\ln(X) + 0.0196(\ln(X))^2$ | 2.5 E -4 to 5.0 |
| Land requirements for rapid mix tank | $\ln(Y3) = -2.330 + 0.352\ln(X) + 0.019(\ln(X))^2$ | 1.0 E -2 to 5.0 |
| Land requirements for pH adjust. tank | $\ln(Y3) = -2.67 + 0.30\ln(X) + 0.033(\ln(X))^2$ | 1.0 E -2 to 5.0 |

Y1 = Capital Costs (1989 $)
Y2 = Operation and Maintenance Costs (1989 $ /year)
Y3 = Land Requirement (Acres)
X = Flow Rate (million gallons per day)

### *Primary Chemical Precipitation – Metals Option 4* *11.2.1.4*

The primary chemical precipitation system equipment for the model technology for Metals option 4 consists of a mixed reaction tank with pumps, a treatment chemical feed system, and an unmixed wastewater holding tank. EPA designed the system to operate on a batch basis, treating one batch per day, five days per week. The average chemical precipitation batch duration reported by respondents to the WTI Questionnaire was four hours. Therefore, a one batch per day treatment schedule should provide sufficient time for the average facility to pump, treat, and test its waste. EPA also included a holding tank, equal to the daily waste volume, up to a maximum size of 5,000 gallons (equivalent to the average tank truck receipt volume throughout the industry), to allow facilities flexibility in managing waste receipts (the Metals option 4 model facility utilizes a holding tank).

As shown in Table 11-3, clarification follows primary chemical precipitation for metals option 4. The costing discussion for clarification following primary precipitation in Metals option 4 is presented in section 11.2.2.2. Sections 11.4.1 and 11.4.2 discuss sludge filtration and the associated filter cake disposal.

#### Capital Costs

EPA developed total capital cost estimates for the Metals option 4 primary chemical precipitation systems. For facilities with no chemical precipitation units in-place, the components of the chemical precipitation system included a precipitation tank with a mixer, pumps, and a feed system. In addition, EPA included a holding tank equal to the size of the precipitation tank, up to 5,000 gallons. EPA obtained these cost estimates from manufacturer's recommendations.

EPA estimated the other components (i.e., piping, instrumentation and controls, etc.) of the total capital cost for both the rapid mix and pH adjustment tank by applying the same factors and additional costs as detailed for selective metals precipitation (see Section 11.2.1.1 above).

For facilities that already have any chemical precipitation (treatment in-place), EPA included as capital expense only the cost of a holding tank. Table 11-7 presents the capital cost equations for primary chemical precipitation and the holding tank only for Metals option 4.

#### Labor and Chemical Costs

EPA approximated the labor cost for primary chemical precipitation in Metals option 4 at two hours per batch, one batch per day. EPA based this approach on the model facility's operation.

EPA estimated chemical costs based on stoichiometric, pH adjustment, and buffer adjustment requirements. For facilities with no chemical precipitation in-place, EPA based the stoichiometric requirements on the amount of chemicals required to precipitate each of the metal pollutants of concern from the metals subcategory average raw influent concentrations to Metals option 4 (Sample Point - 03) concentrations. Metals option 4, Sample Point - 03 concentrations represent the sampled effluent from primary chemical precipitation at the model facility. The chemicals used were lime at 75 percent of the required removals and caustic at 25 percent of the required removals, which are based on the option facility's operation. EPA estimated the pH adjustment and buffer adjustment requirements to be 50 percent of the stoichiometric requirement, which includes a 10 percent excess of chemical dosage. Table 11-7 presents the O&M cost equation for primary chemical precipitation in Metals option 4 for facilities with no treatment in-place.

For facilities which already have chemical precipitation treatment in-place, EPA estimated an O&M upgrade cost. EPA assumed that facilities with primary chemical precipitation in-place have effluent concentrations exiting the primary precipitation/solid-liquids separation system equal to the metals subcategory primary precipitation current loadings. Similarly, EPA assumed that facilities with secondary chemical precipitation in place have effluent concentrations exiting the secondary precipitation/solid-liquids separation system equal to metals subcategory secondary precipitation current loadings (see chapter 12 for a detailed discussion of metals subcategory primary and secondary chemical precipitation current loadings).

For the portion of the O&M upgrade equation associated with energy, maintenance, and labor, EPA calculated the percentage difference between the primary precipitation current loadings and Metals option 4 (Sample Point - 03) concentrations. For facilities which currently have primary precipitation systems this difference is an increase of approximately two percent. Therefore, EPA calculated the energy, maintenance, and labor components of the O&M upgrade cost for facilities with primary chemical precipitation in-place at two percent of the O&M cost for facilities with no chemical precipitation in-place.

For the portion of the O&M upgrade equation associated with energy, maintenance, and labor, EPA calculated the percentage difference between secondary precipitation current loadings and Metals option 4 (Sample Point - 03) concentrations. For secondary precipitation systems, this difference is also an increase of approximately two percent[1]. Therefore, EPA calculated the energy, maintenance, and labor components of the O&M upgrade cost for facilities with secondary chemical precipitation in-place at two percent of the O&M cost for facilities with no chemical precipitation in-place.

For the chemical cost portion of the O&M upgrade, EPA also calculated upgrade costs depending on whether the facility had primary precipitation or secondary precipitation currently in-place. For facilities with primary precipitation, EPA calculated chemical upgrade costs based on current-to-Metals option 4 (Sample Point - 03) removals. Similarly for facilities with secondary precipitation, EPA calculated chemical upgrade costs based on secondary precipitation removals to Metals option 4 (Sample Point - 03) removals. In both cases, EPA did not include costs for pH adjustment or buffering chemicals since these chemicals should already be used in the in-place treatment system. Finally, EPA included a 10 percent excess of chemical dosage to the stoichiometric requirements of the precipitation chemicals.

EPA then combined the energy, maintenance and labor components of the O&M upgrade with the chemical portion of the O&M upgrade to develop two sets of O&M upgrade equations for the primary chemical precipitation portion of Metals option 4. Table 11-7 presents these cost equations for Metals option 4 (primary chemical precipitation O&M upgrade costs) for facilities with primary and secondary treatment in place.

[1]While pollutant concentrations resulting from secondary chemical precipitation are generally lower than those resulting from primary chemical precipitation, the percentage increase (when rounded) for primary and secondary precipitation are the same.

Table 11-7. Cost Equations for *Primary Chemical Precipitation* in Metals Option 4

| Description | Equation | Recommended Flow Rate Range (MGD) |
|---|---|---|
| Capital cost for primary precipitation and no treatment in-place | $\ln(Y1) = 14.019 + 0.481\ln(X) - 0.00307(\ln(X))^2$ | 1.0 E -6 to 5.0 |
| Capital cost for holding tank only - used for facilities with chemical precipitation currently in-place. | $\ln(Y1) = 10.671 - 0.083\ln(X) - 0.032(\ln(X))^2$ | 1.0 E -6 to 0.005 |
| O&M cost for primary precipitation and no treatment in-place | $\ln(Y2) = 15.3534 + 1.08700\ln(X) + 0.04891(\ln(X))^2$ | 1.7 E -5 to 5.0 |
| O&M *upgrade* for facilities with primary precipitation in-place | $\ln(Y2) = 11.6203 + 1.05998\ln(X) + 0.04602(\ln(X))^2$ | 2.0 E -5 to 5.0 |
| O&M *upgrade* for facilities with secondary precipitation in-place | $\ln(Y3) = 10.9500 + 0.94821\ln(X) + 0.04306(\ln(X))^2$ | 1.7 E -5 to 5.0 |
| Land requirements | $\ln(Y3) = -1.019 + 0.299\ln(X) + 0.015(\ln(X))^2$ | 6.7 E -5 to 1.0 |
| Land requirements (associated with holding tank only) | $\ln(Y3) = -2.866 - 0.023\ln(X) - 0.006(\ln(X))^2$ | 1.0 E -5 to 0.5 |

Y1 = Capital Costs (1989 $)
Y2 = Operation and Maintenance Costs (1989 $ /year)
Y3 = Land Requirement (Acres)
X = Flow Rate (million gallons per day)

### *Secondary (Sulfide) Precipitation for Metals Option 4* *11.2.1.5*

The Metals option 4 secondary sulfide precipitation system follows the primary metals precipitation/clarification step. This equipment consists of a mixed reaction tank with pumps and a treatment chemical feed system, sized for the full daily batch volume. For direct dischargers, the overflow from secondary sulfide precipitation would carry on to a clarifier and then multi-media filtration. For indirect discharges, the overflow would go immediately to the filtration unit, without clarification. Section 11.2.2.2 of this document discusses cost estimates for the clarifier. Section 11.2.5 presents cost estimates for multi-media filtration.

For costing purposes, EPA assumed that facilities either have secondary precipitation currently in-place and attributes no additional capital and O&M costs to these facilities, or EPA assumes that facilities do not have secondary sulfide precipitation in-place and, consequently, EPA developed costs for full O&M and capital costs. Therefore, EPA has not developed upgrade costs associated with secondary precipitation in Metals option 4.

#### Capital Costs

EPA developed capital cost estimates for the secondary sulfide precipitation systems in Metals option 4 from vendor's quotes. EPA estimated the other components (i.e., piping, instrumentation, and controls, etc.) of the sulfide precipitation system by applying the same methodology, factors and additional costs as outlined for the primary chemical precipitation system for Metals option 4 (see Section 11.2.1.4 above). Table 11-8 at the end of this section presents the capital cost equation for Metals option 4 secondary sulfide precipitation.

LABOR AND CHEMICAL COSTS

For facilities with no secondary precipitation systems in-place, EPA estimated the labor requirements at two hours per batch, one batch per day. EPA based this estimate on standard operation at the Metals option 4 model facility.

For secondary sulfide precipitation in Metals option 4, EPA did not base the chemical cost estimates on stoichiometric requirements. Instead, EPA estimated the chemical costs based on dosage rates for the addition of polymer and ferrous sulfide obtained during the sampling of the Metals option 4 model plant with BAT performance. Table 11-8 presents the O&M cost equation for the Metals option 4, secondary sulfide precipitation.

Table 11-8. Cost Equations for *Secondary (Sulfide) Precipitation* for Metals Option 4

| Description | Equation | Recommended Flow Rate Range (MGD) |
|---|---|---|
| Capital cost for secondary precip. and no treatment in-place | $\ln(Y1) = 13.829 + 0.544\ln(X) + 0.00000496(\ln(X))^2$ | 1.0 E -6 to 5.0 |
| O&M cost for secondary precip. and no treatment in-place | $\ln(Y2) = 12.076 + 0.63456\ln(X) + 0.03678(\ln(X))^2$ | 1.8 E -4 to 5.0 |
| Land requirements | $\ln(Y3) = -1.15 + 0.449\ln(X) + 0.027(\ln(X))^2$ | 2.5 E -4 to 1.0 |

Y1 = Capital Costs (1989 $)
Y2 = Operation and Maintenance Costs (1989 $ /year)
Y3 = Land Requirement (Acres)
X = Flow Rate (million gallons per day)

### *Plate and Frame Liquid Filtration and Clarification* *11.2.2*

Clarification systems provide continuous, low-cost separation and removal of suspended solids from water. Waste treatment facilities use clarification to remove particulates, flocculated impurities, and precipitants, often following chemical precipitation. Similarly, waste treatment facilities also use plate and frame pressure systems to remove solids from waste streams. As described in this section, these plate and frame filtration systems serve the same function as clarification and are used to remove solids following chemical precipitation from *liquid* wastestreams. The major difference between clarification systems and plate and frame liquid filtration systems is that the sludge generated by clarification generally needs to be processed further prior to landfilling, whereas, the sludge generated by plate and frame liquid filtration does not.

EPA costed facilities to include a plate and frame liquid filtration system following selective metals precipitation in Metals options 2 and 3. The components of the plate and frame liquid filtration system include: filter plates, filter cloth, hydraulic pumps, control panel, connector pipes, and a support platform. Since EPA costed all metals facilities for selective metals precipitation systems for metals options 2 and 3 (except the one facility which already utilizes this technology), EPA also costed all metals facilities for plate and frame liquid filtration systems. Consequently, EPA did not develop any upgrade costs associated with the use of plate and frame liquid filtration.

EPA also costed facilities to include a clarifier following secondary precipitation for Metals option 2 and following both secondary and tertiary precipitation for Metals option 3. For Metals option 4, EPA costed facilities to include a clarifier following primary chemical precipitation and following secondary precipitation (for direct dischargers only). EPA designed and costed a single clarification system for all options and locations in the treatment train. The components of this clarification system include a clarification unit, flocculation unit, pumps, motor, foundation, and accessories.

### *Plate and Frame Liquid Filtration Following Selective Metals Precipitation* *11.2.2.1*

CAPITAL COSTS

The plate and frame liquid filtration equipment following the selective metals precipitation step for the model technology in Metals option 2 and 3 consists of two plate and frame liquid filtration systems. EPA assumed that each system would be used to process two batches per day for a total of four batches. EPA costed the plate and frame liquid filtration systems in this manner to allow facilities to segregate their wastes into smaller batches, thereby facilitating selective metals recovery. EPA sized each of the units to process a batch consisting of 25 percent of the daily flow and assumed that the influent to the plate and frame filtration units would consist of 96 percent liquid and four percent (40,000 mg/l) solids (based on the model facility). EPA based the capital cost equation for plate and frame liquid filtration for Metals options 2 and 3 on information provided by vendors. Table 11-9 lists this capital cost equation.

CHEMICAL USAGE AND LABOR REQUIREMENTS

EPA estimated that labor requirements for plate and frame liquid filtration for Metals options 2 and 3 would be 30 minutes per batch per filter press (based on the metals options 2 and 3 model facility). There are no chemicals associated with the operation of the plate and frame filtration systems. EPA estimated the remaining components of O&M using the factors listed in Table 11-2. Table 11-9 lists the O&M equation for plate and frame liquid filtration.

Even though the metal-rich sludge generated from selective metals precipitation and plate and frame liquid filtration may be recycled and re-used, EPA additionally included costs associated with disposal of these sludges in a landfill. The discussion for filter cake disposal is presented separately in Section 11.4.2. These disposal costs are additional O&M costs which must be added to the O&M costs calculated above to obtain the total O&M costs associated with plate and frame liquid filtration for Metals options 2 and 3.

### *Clarification for Metals Options 2,3, and 4* *11.2.2.2*

CAPITAL COSTS

EPA obtained the capital cost estimate for clarification systems from vendors. EPA designed the clarification system assuming an influent total suspended solids (TSS) concentration of 40,000 mg/L (four percent solids) and an effluent TSS concentration of 200,000 mg/L (20 percent solids). In addition, EPA assumed a design overflow rate of 600 gpd/ft$^2$. EPA estimated the influent and effluent TSS concentrations and overflow rate based on the WTI Questionnaire response for Questionnaire ID 105. The capital cost equation for clarification is presented in Table 11-9 at the end of this section. As detailed earlier, the same capital cost equation is used for all of the clarification systems for all of the metals options regardless of its location in the treatment train. EPA did not develop capital cost upgrades for facilities which already have clarification systems in-place. Therefore, facilities which currently have clarifiers have no land or capital costs.

CHEMICAL USAGE AND LABOR REQUIREMENTS

EPA estimated the labor requirements for the clarification systems for Metals options 2 and 3 following secondary precipitation and Metals option 4 following primary and secondary (for direct dischargers only) precipitation at three hours per day for low-flow clarifiers and four to six hours per day for high-flow clarifiers. Based on manufacturers recommendations, EPA selected the flow cut-off between high-flow and low-flow systems to be 1000 gallons per day. For the clarifier following tertiary precipitation in Metals option 3 only, EPA estimated the labor requirement at one hour per day (based on the operation of the Metals option 3 model facility). For all clarifiers for all metals options and treatment train locations, EPA estimated a polymer dosage rate of 2.0 mg per liter of wastewater (for the flocculation step) based on the MP&M industry cost model. EPA estimated the remaining components of O&M using the factors listed in Table 11-2. Table 11-9 lists the two cost equations developed for clarification. One equation is used for the clarifier following the tertiary precipitation step of Metals option 3 and the other equation is used for all other Metals options and locations in the treatment train.

As shown in Table 11-3, sludge filtration follows clarification for the secondary precipitation step of Metals options 2 and 3 and the primary and secondary (direct dischargers only) of Metals option 4. Section 11.4.1 and 11.4.2 present the costing discussion and equations for sludge filtration and the associated filter cake disposal.

For facilities which already have clarification systems or plate and frame liquid filtration systems in-place for each option and location in the treatment train, EPA estimated clarification upgrade costs. EPA assumed that in-place clarification systems and in-place plate and frame liquid filtration systems are equivalent. Therefore, if a facility has an in-place liquid filtration system which can serve the same purpose as a clarifier, EPA costed this facility for an up-grade only and not a new clarification system.

For the clarification step following secondary precipitation in Metals options 2 and 3, in order to quantify the O&M increase necessary for the O&M upgrade, EPA compared the difference between secondary precipitation current performance concentrations and the Metals option 2 long- term averages. EPA determined facilities would need to increase their current removals by 3 percent. Therefore, for in-place clarification systems (or plate and frame liquid filtration systems) which could serve as the clarifier following secondary chemical precipitation for Metals option 2 and 3, EPA included an O&M cost upgrade of three percent of the O&M costs for a brand new system (except for taxes, insurance, and maintenance which are a function of the capital cost). Table 11-9 lists the O&M upgrade equations for clarification following secondary chemical precipitation for Metals option 2 and 3 (one for facilities which currently have a clarifier and one for facilities which currently have a plate and frame liquid filtration system).

For facilities which already have clarifiers or plate and frame liquid filtration systems in-place which could serve as the clarifier following the tertiary chemical precipitation of Metals option 3, EPA did not estimate any O&M upgrade costs. EPA assumed the in-place technologies could perform as well as (or better) than the technology costed by EPA.

For facilities which already have clarifiers or plate and frame liquid filtration systems in-place which could serve as the clarifier following the primary chemical precipitation of Metals option 4, EPA compared the difference between primary precipitation current loadings and the long-term averages for Metals option 4, Sample Point - 03 (Sample Point - 03 follows primary precipitation and clarification at the Metals option 4 model facility). EPA determined that facilities would need to increase their removals by 2%. Therefore, for in-place clarification systems (or plate and frame liquid filtration systems) which could serve as the clarifier following primary chemical precipitation for Metals option 4, EPA included an O&M cost upgrade of two percent of the O&M costs for a brand new system (except for taxes, insurance, and maintenance which are a function of the capital cost). Table 11-9 lists the O&M upgrade equations for clarification following primary chemical precipitation for Metals option 4 (one for facilities which currently have a clarifier and one for facilities which currently have a plate and frame liquid filtration system).

EPA did not calculate an O&M upgrade equation for the clarification step following secondary chemical precipitation (direct dischargers only) of Metals option 4. EPA costed all direct discharging facilities for a new clarification system following secondary chemical precipitation for Metals option 4 since none of the direct discharging metals facilities had treatment in-place for this step.

Table 11-9. Cost Equations for *Clarification* and *Plate and Frame Liquid Filtration* in Metals Option 2,3,4

| Description | Equation | Recommended Flow Rate Range (MGD) |
|---|---|---|
| Capital cost for plate and frame liquid filtration - Metals Options 2 and 3[1] | $\ln(Y1) = 14.024 + 0.859\ln(X) + 0.040(\ln(X))^2$ | 1.0 E -6 to 1.0 |
| Capital Cost for Clarification - Metals Options 2,3, and 4 | $\ln(Y1) = 11.552 + 0.409\ln(X) + 0.020(\ln(X))^2$ | 4.0 E -5 to 1.0 |
| O&M cost for plate and frame liquid filtration - Metals Options 2 and 3[1] | $\ln(Y2) = 13.056 + 0.193\ln(X) + 0.00343(\ln(X))^2$ | 1.0 E -6 to 1.0 |
| O&M cost for Clarification - Metals Options 2,3[3], and 4 | $\ln(Y2) = 10.673 + 0.238\ln(X) + 0.013(\ln(X))^2$ | 1.2 E -4 to 1.0 |
| O&M cost for clarification - Metals Option 3[4] | $\ln(Y2) = 10.294 + 0.362\ln(X) + 0.019(\ln(X))^2$ | 8.0 E -5 to 1.0 |
| O&M *upgrade* for Clarification - Metals Options 2 and 3 facilities which currently have clarification in-place[5] | $\ln(Y2) = 7.166 + 0.238\ln(X) + 0.013(\ln(X))^2$ | 7.0 E -5 to 1.0 |
| O&M *upgrade* for Clarification - Metals Options 2 and 3 facilities which currently have plate&frame liquid filtration in-place | $\ln(Y2) = 8.707 + 0.333\ln(X) + 0.012(\ln(X))^2$ | 1.0 E -6 to 1.0 |
| O&M *upgrade* for Clarification - Metals Option 4[6] | $\ln(Y2) = 6.8135 + 0.3315\ln(X) + 0.0242(\ln(X))^2$ | 1.2 E -3 to 1.0 |
| O&M *upgrade* for plate and frame liquid filtration - Metals Option 4 | $\ln(Y2) = 12.0242 + 1.17676\ln(X) + 0.05005(\ln(X))^2$ | 1.0 E-6 to 1.0 |
| Land requirements for plate and frame liquid filtration - Metals Options 2 and 3 | $\ln(Y3) = -1.658 + 0.185\ln(X) + 0.009(\ln(X))^2$ | 1.0 E -6 to 1.0 |
| Land requirements for clarification | $\ln(Y3) = -1.773 + 0.513\ln(X) + 0.046(\ln(X))^2$ | 1.0 E -2 to 1.0 |

Y1 = Capital Costs (1989 $)
Y2 = Operation and Maintenance Costs (1989 $ /year)
Y3 = Land Requirement (Acres)
X = Flow Rate (million gallons per day)

[1] Follows selective metals precipitation
[3] For metals option 3, this equation is used for clarification following secondary chemical precipitation only
[4] This equation is used for clarification following tertiary precipitation only.
[5] For Metals Option 3, this equation is used for clarification following secondary precipitation only. No O&M upgrade costs included for tertiary precipitation.
[6] This equation is used for clarification following primary precipitation only. No facilities require O&M upgrades for clarification following secondary chemical precipitation.

### *Equalization* 11.2.3

To improve treatment, facilities often need to equalize wastes by holding them in a tank. The CWT industry frequently uses equalization to minimize the variability of incoming wastes effectively.

EPA costed an equalization system which consists of a mechanical aeration basin based on responses to the WTI Questionnaire. EPA obtained the equalization cost estimates from the 1983 U.S. Army Corps of Engineers' Computer Assisted Procedure for Design and Evaluation of Wastewater Treatment Systems (CAPDET). EPA originally used this program to estimate equalization costs for the OCPSF Industry. Table11-10 lists the default design parameters that EPA used in the CAPDET program. These default design parameters are reasonable for the CWT industry since they reflect values seen in the CWT industry. For example, the default detention time (24 hours) is appropriate since this was the median equalization detention time reported by respondents to the WTI Questionnaire.

Table 11-10. Design Parameters Used for Equalization in CAPDET Program

| |
|---|
| Aerator mixing = 0.03 HP per 1,000 gallons; |
| Oxygen requirements = 15.0 mg/l per hour; |
| Dissolved oxygen in basin = 2.0 mg/l; |
| Depth of basin = 6.0 feet; and |
| Detention time = 24 hours. |

EPA did not calculate capital or O&M upgrade equations for equalization. If a CWT facility currently has an equalization tank in-place, the facility received no costs associated with equalization. EPA assumed that the equalization tanks currently in-place at CWT facilities would perform as well as (or better than) the system costed by EPA.

#### Capital Costs

The CAPDET program calculates capital costs which are "total project costs." These "total project costs" include all of the items previously listed in Table 11-1 as well as miscellaneous nonconstruction costs, 201 planning costs, technical costs, land costs, interest during construction, and laboratory costs. Therefore, to obtain capital costs for the equalization systems for this industry, EPA calculated capital costs based on total project costs minus: miscellaneous nonconstruction costs, 201 planning costs, technical costs, land costs, interest during construction, and laboratory costs. Table 11-11 at the end of this section presents the resulting capital cost equation for equalization.

#### Operation and Maintenance Costs

EPA obtained O&M costs directly from the initial year O&M costs produced by the CAPDET program. Table 11-11 presents the O&M cost equation for equalization systems.

#### Land Requirements

EPA used the CAPDET program to develop land requirements for the equalization systems. EPA scaled up the requirements to represent the total land required for the system plus peripherals (pumps, controls, access areas, etc.). The land requirement equation for equalization systems is also presented in Table 11-11.

Table 11-11. Summary of Cost Equations for *Equalization*

| Description | Equation | Recommended Flow Rate Range (MGD) |
|---|---|---|
| Capital cost for equalization | $\ln(Y1) = 12.057 + 0.433\ln(X) + 0.043(\ln(X))^2$ | 6.6 E -3 to 5.0 |
| O&M cost for equalization | $\ln(Y2) = 11.723 + 0.311\ln(X) + 0.019(\ln(X))^2$ | 3.0 E -4 to 5.0 |
| Land requirements | $\ln(Y3) = -0.912 + 1.120\ln(X) + 0.011(\ln(X))^2$ | 1.4 E -2 to 5.0 |

Y1 = Capital Costs (1989 $)
Y2 = Operation and Maintenance Costs (1989 $ /year)
Y3 = Land Requirement (Acres)
X = Flow Rate (million gallons per day)

### *Air Stripping* *11.2.4*

Air stripping is an effective wastewater treatment method for removing dissolved gases and volatile compounds from wastewater streams. The technology passes high volumes of air through an agitated gas-water mixture. This promotes volatilzation of compounds, and, preferably capture in air pollution control systems.

The air stripping system costed by EPA includes transfer pumps, control panels, blowers, and ancillary equipment. EPA also included catalytic oxidizers as part of the system for air pollution control purposes.

If a CWT facility currently has an air stripping system in-place, EPA did not assign the facility any costs associated with air stripping. EPA assumed that the air stripping systems currently in-place at CWT facilities would perform as well as (or better than) the system costed by EPA.

#### CAPITAL COSTS

EPA's air stripping system is designed to remove pollutants with medium to high volatilities. EPA used the pollutant 1,2-dichloroethane, which has a Henry's Law Constant of 9.14 E -4 atm*L/mol, as the design basis with an influent concentration of 4,000 µg/L and an effluent concentration of 68 µg/L. EPA based these concentration on information collected on the model facility's operation. EPA used the same design basis for the air stripping systems costed for the option 8v and 9v in the oils subcategory.

EPA obtained the equipment costs from vendor quotations. Table 11-13 at the end of this section presents the capital cost equation for air stripping systems.

#### OPERATION AND MAINTENANCE COSTS

For air stripping, O&M costs include electricity, maintenance, labor, catalyst replacement, and taxes and insurance. EPA obtained the O&M costs from the same vendor which provided the capital cost estimates.

EPA based the electricity usage for the air strippers on the amount of horsepower needed to operate the system and approximated the electricity usage for the catalytic oxidizers at 50 percent of the electricity used for the air strippers. EPA based both the horsepower requirements and the electricity requirements for the catalytic oxidizer on vendor's recommendations. EPA estimated the labor requirement for the air stripping system at three hours per day, which is based on the model facility's operation. EPA assumed that the catalyst beds in the catalytic oxidizer would require replacement every four years based on the rule of thumb (provided by the vendor) that precious metal catalysts have a lifetime of approximately four years. EPA divided the costs for replacing the spent catalysts by four to convert them to annual costs. As is the standard used by EPA for this industry, taxes and insurance were estimated at 2 percent of the total capital cost. Table 11-12 presents the resulting O&M cost equation for air stripping systems.

Table 11-12. Cost Equations for *Air Stripping*

| Description | Equation | Recommended Flow Rate Range(MGD) |
|---|---|---|
| Capital cost for air stripping | $\ln(Y1) = 12.899 + 0.486\ln(X) + 0.031(\ln(X))^2$ | 4.0 E -4 to 1.0 |
| O&M cost for air stripping | $\ln(Y2) = 10.865 + 0.298\ln(X) + 0.021(\ln(X))^2$ | 8.5 E -4 to 1.0 |
| Land requirements | $\ln(Y3) = -2.207 + 0.536\ln(X) + 0.042(\ln(X))^2$ | 0.1 to 1.0 |

Y1 = Capital Costs (1989 $)
Y2 = Operation and Maintenance Costs (1989 $ /year)
Y3 = Land Requirement (Acres)
X = Flow Rate (million gallons per day)

### *Multi-Media Filtration* *11.2.5*

Filtration is a proven technology for the removal of residual suspended solids from wastewater. The multimedia filtration system costed by EPA for this industry is a system which contains sand and anthracite coal, supported by gravel.

EPA based the design for the model multimedia filtration system on the TSS effluent long- term average concentration for Metals option 4 -- 15 mg/L. EPA assumed that the average influent TSS concentration to the multimedia filtration system would range from 75 to 100 mg/L. EPA based the influent concentration range on vendor's recommendations on realistic TSS concentrations resulting from wastewater treatment following chemical precipitation and clarification.

EPA did not calculate capital or O&M upgrade equations for multi-media filtration. If a CWT facility currently has a multimedia filter in-place, EPA assigned the facility no costs associated with multi-media filtration. EPA assumed that the multi-media filter currently in-place at CWT facilities would perform as well as (or better than) the system costed by EPA.

CAPITAL COSTS

EPA based the capital costs of multi-media filters on vendor's recommendations. Table 11-13 presents the resulting capital cost equation for multi-media filtration systems.

CHEMICAL USAGE AND LABOR REQUIREMENT COSTS

EPA estimated the labor requirement for the multi-media filtration system at four hours per day, which is based on manufacturer's recommendations. There are no chemicals associated with the operation of a multimedia filter. Table 11-13 presents the O&M cost equation for the multi-media filtration system.

Table 11-13. Cost Equations for *Multi-Media Filtration*

| Description | Equation | Flow Rate Range (MGD) |
|---|---|---|
| Capital cost for multi-media filtration | $\ln(Y1) = 12.0126 + 0.48025\ln(X) + 0.04623(\ln(X))^2$ | 5.7 E -3 to 1.0 |
| O&M cost for multi-media filtration | $\ln(Y2) = 11.5039 + 0.72458\ln(X) + 0.09535(\ln(X))^2$ | 2.3 E -2 to 1.0 |
| Land requirements | $\ln(Y3) = -2.6569 + 0.19371\ln(X) + 0.02496(\ln(X))^2$ | 2.4 E -2 to 1.0 |

Y1 = Capital Costs (1989 $)
Y2 = Operation and Maintenance Costs (1989 $ /year)
Y3 = Land Requirement (Acres)
X = Flow Rate (million gallons per day)

### *Cyanide Destruction* *11.2.6*

Many CWTs achieved required cyanide destruction by oxidation. These facilities primarily use chlorine (in either the elemental or hypochlorite form) as the oxidizing agent in this process. Oxidation of cyanide with chlorine is called alkaline chlorination.

The oxidation of cyanide waste using sodium hypochlorite is a two step process. In the first step, cyanide is oxidized to cyanate in the presence of hypochlorite, and sodium hydroxide is used to maintain a pH range of 9 to 11. The second step oxidizes cyanate to carbon dioxide and nitrogen at a controlled pH of 8.5. The amounts of sodium hypochlorite and sodium hydroxide needed to perform the oxidation are 8.5 parts and 8.0 parts per part of cyanide, respectively. At these levels, the total reduction occurs at a retention time of 16 to 20 hours. The application of heat can facilitate the more complete destruction of total cyanide.

The cyanide destruction system costed by EPA includes a two-stage reactor with a retention time of 16 hours, feed system and controls, pumps, piping, and foundation. The two-stage reactor includes a covered tank, mixer, and containment tank. EPA designed the system based on a total cyanide influent concentration of 4,633,710 µg/L and an effluent concentration of total cyanide of 135,661 µg/L. EPA based these influent and effluent concentrations on data collected during EPA's sampling of cyanide destruction systems.

Because the system used by the facility which forms the basis of the cyanide limitations and standards uses special operation conditions, EPA assigned full capital and O&M costs to all facilities which perform cyanide destruction.

#### CAPITAL COSTS

EPA obtained the capital costs curves for cyanide destruction systems with special operating conditions from vendor services. Table 11-14 presents the capital cost equation.

#### CHEMICAL USAGE AND LABOR REQUIREMENT COSTS

In estimating chemical usage and labor requirements, EPA assumed the systems would treat one batch per day. EPA based this assumption on responses to the WTI Questionnaire. Based on vendor's recommendations, EPA estimated the labor requirement for the cyanide destruction to be three hours per day. EPA determined the amount of sodium hypochlorite and sodium hydroxide required based on the stochiometric amounts to maintain the proper pH and chlorine concentrations to facilitate the cyanide destruction as described earlier. Table 11-14 presents the O&M cost equation for cyanide destruction.

Table 11-14. Cost Equations for *Cyanide Destruction*

| Description | Equation | Recommended Flow Rate Range (MGD) |
|---|---|---|
| Capital cost for cyanide destruction | $\ln(Y1) = 13.977 + 0.546\ln(X) + 0.0033(\ln(X))^2$ | 1.0 E -6 to 1.0 |
| O&M cost for cyanide destruction | $\ln(Y2) = 18.237 + 1.318\ln(X) + 0.04993(\ln(X))^2$ | 1.0 E -5 to 1.0 |
| Land requirements | $\ln(Y3) = -1.168 + 0.419\ln(X) + 0.021(\ln(X))^2$ | 1.0 E -4 to 1.0 |

Y1 = Capital Costs (1989 $)
Y2 = Operation and Maintenance Costs (1989 $ /year)
Y3 = Land Requirement (Acres)
X = Flow Rate (million gallons per day)

### *Secondary Gravity Separation* *11.2.7*

Primary gravity separation provides oil and grease removal from oily wastewater. During gravity separation, the wastewater is held in tanks under quiescent conditions long enough to allow the oil droplets to rise and form a layer on the surface, where it is skimmed.

Secondary gravity separation systems provide additional oil and grease removal for oily wastewater. Oily wastewater, after primary gravity separation/emulsion breaking, is pumped into a series of skimming tanks where additional oil and grease removal is obtained before the wastewater enters the dissolved air flotation unit. The secondary gravity separation equipment discussed here consists of a series of three skimming tanks in series. The ancillary equipment for each tank consists of a mix tank with pumps and skimming equipment.

In estimating capital and O&M cost associated with secondary gravity separation, EPA assumed that facilities either currently have or do not have secondary gravity separation. Therefore, EPA did not develop any secondary gravity separation upgrade costs.

#### CAPITAL COSTS

EPA obtained the capital cost estimates for the secondary gravity separation system from vendor quotes. Table 11-15 at the end of this section presents the capital cost equation for secondary gravity separation.

#### CHEMICAL USAGE AND LABOR REQUIREMENT COSTS

EPA estimated the labor requirement to operate secondary gravity separation to be 3 to 9 hours per day depending on the size of the system. EPA obtained this estimate from one of the model facilities for Oils option 9. There are no chemicals associated with the operation of the secondary gravity separation system. Table 11-15 presents the O&M Cost equation for the secondary gravity separation system.

Table 11-15. Cost Equations for *Secondary Gravity Separation*

| Description | Equation | Recommended Flow Rate Range (MGD) |
|---|---|---|
| Capital cost for secondary gravity separation | $\ln(Y1) = 14.3209 + 0.38774\ln(X) - 0.01793(\ln(X))^2$ | 5.0 E -4 to 5.0 |
| O&M cost for secondary gravity separation | $\ln(Y2) = 12.0759 + 0.4401\ln(X) + 0.01544(\ln(X))^2$ | 5.0 E -4 to 5.0 |
| Land requirements | $\ln(Y3) = -0.2869 + 0.31387\ln(X) + 0.01191(\ln(X))^2$ | 1.0 E -6 to 1.0 |

Y1 = Capital Costs (1989 $)
Y2 = Operation and Maintenance Costs (1989 $ /year)
Y3 = Land Requirement (Acres)
X = Flow Rate (million gallons per day)

### *Dissolved Air Flotation* *11.2.8*

Flotation is the process of inducing suspended particles to rise to the surface of a tank where they can be collected and removed. Dissolved Air Flotation (DAF) is one of several flotation techniques employed in the treatment of oily wastewater. DAF is commonly used to extract free and dispersed oil and grease from oily wastewater.

#### CAPITAL COSTS

EPA developed capital cost estimates for dissolved air flotation systems for the oils subcategory options 8 and 9. EPA based the capital cost estimates for the DAF units on quotations from vendors. EPA assigned facilities with DAF units currently in-place no capital costs. For facilities with no DAF treatment in-place, the DAF system consists of a feed unit, a chemical addition mix tank, and a flotation tank. EPA also included a sludge filtration/dewatering unit. EPA developed capital cost estimates for a series of flow rates ranging from 25 gpm (0.036 MGD) to 1000 gpm (1.44 MGD). EPA was unable to obtain costs estimates for units with flows below 25 gallons per minute since manufacturers do not sell systems smaller than those designed for flows below 25 gallons per minute.

The current DAF system capital cost estimates include a sludge filtration/dewatering unit. For facilities which do not have a DAF unit in-place, but have other treatment systems that produce sludge (i.e. chemical precipitation and/or biological treatment), EPA assumed that the existing sludge filtration unit could accommodate the additional sludge produced by the DAF unit. For these facilities, EPA did not include sludge filtration/dewatering costs in the capital cost estimates. EPA refers to the capital cost equation for these facilities as "modified" DAF costs. Table 11-17 at the end of this section presents the resulting total capital cost equations for the DAF and "modified" DAF treatment systems.

Because the smallest design capacity for DAF systems that EPA could obtain from vendors is 25 gpm and since more than 75 percent of the oils subcategory facilities have flow rates lower than 25 gpm, EPA assumed that only facilities with flow rates above 20 gpm would operate their DAF systems everyday (i.e. five days per week). EPA assumed that the rest of the facilities could hold their wastewater and run their DAF systems from one to four days per week depending on their flowrate. Facilities that are not operating their DAF treatment systems everyday would need to install a holding tank to hold their wastewater until treatment. Therefore, for facilities that do not currently have DAF treatment in place and have flow rates less than 20 gallons per minute, EPA additionally included costs for a holding tank. For these facilities, EPA based capital costs on a combination of DAF costs (or modified DAF costs) and holding tank costs. Table 11-16A lists the capacity of the holding tank costed for various flowrates.

Table 11-16A. Estimate Holding Tank Capacities for DAF Systems

| Flowrate (GPM) | Holding Tank Capacity (gallons) |
|---|---|
| <5 | 7,200 |
| 5-10 | 14,400 |
| 10-15 | 21,600 |
| 15-20 | 28,800 |
| >20 | none |

Table 11-17 at the end of this section presents the resulting capital cost equation for the holding tank associated with the DAF and modified DAF systems.

### CHEMICAL USAGE AND LABOR REQUIREMENT COSTS

EPA estimated the labor requirements associated with the model technology at four hours per day for the small systems to eight hours per day for the large systems, which is based on the average of the Oils options 8 and 9 model facilities. EPA used the same labor estimate for DAF and "modified" DAF systems.

As discussed in the capital cost section, EPA has assumed that facilities with flow rates below 20 gpm will not operate the DAF daily. Therefore, for these lower flow rate facilities, EPA only included labor to operate the DAF (or "modified" DAF) systems for the days the system will be operational. Table 11-16B lists the number of days per week EPA assumed these lower flow facilities would operate their DAF systems.

Table 11-16B. Estimate Labor Requirements for DAF Systems

| Flowrate (GPM) | Labor Requirements (days/week) |
|---|---|
| <5 | 1 |
| 5-10 | 2 |
| 10-15 | 3 |
| 15-20 | 4 |
| >20 | 5 |

As detailed earlier, however, EPA also assumed that facilities with flow rates below 20 gpm, would also operate a holding tank. Therefore, for facilities with flow rates below 20 gallons per minute, EPA included additional labor to operate the holding tank.

EPA calculated chemical cost estimates for DAF and "modified" DAF systems based on additions of aluminum sulfate, caustic soda, and polymer. EPA costed for facilities to add 550 mg/L alum, 335 mg/L polymer and 1680 mg/L of NaOH. EPA also included costs for perlite addition at 0.25 lbs per lb of dry solids for sludge conditioning and sludge dewatering operations (for DAF, but not "modified" DAF systems). EPA based the chemical additions on information gathered from literature, the database for the Industrial Laundries Industry guidelines and standards, and sampled facilities.

Finally, similar to the labor requirements shown in table 11-16B, EPA based chemical usage cost estimates for the DAF and modified DAF systems assuming five days per week operation for facilities with flowrates greater than 20 gpm and from one to four days per week for facilities with flowrates of 5 to 20 gpm.

Table 11-17 at the end of this section presents the four equations relating the various types of O&M costs developed for DAF treatment for facilities with no DAF treatment.

For facilities with DAF treatment in-place, EPA estimated O&M upgrade costs. These facilities would need to improve pollutant removals from their current DAF current performance concentrations to the Oils option 8 and option 9 long-term averages. As detailed in Chapter 12, EPA does not have current performance concentration data for the majority of the oils facilities with DAF treatment in-place. EPA does, however, have seven long-term sampling data sets which represent effluent concentrations from emulsion breaking/gravity separation. While the pollutant concentrations in wastewater exiting emulsion breaking/gravity separation treatment are higher (in some cases, considerably higher) than the pollutant concentrations in wastewater exiting DAF treatment, EPA has, nevertheless, used the emulsion breaking/gravity separation long-term sampling data sets to estimate DAF upgrade costs. For each of the seven emulsion breaking/gravity separation data sets, EPA calculated the percent difference between these concentrations and the option 8 and option 9 long-term averages. The median of these seven calculated percentages is 25 percent.

Therefore, EPA estimated the energy, labor, and chemical cost components of the O&M upgrade cost as 25 percent of the full O&M cost of a new system. EPA assumed that maintenance, and taxes and insurance would be zero since they are functions of the capital cost (that is, there is no capital cost for the upgrade). EPA developed two separate O&M upgrade cost equations for facilities which currently have DAF treatment in place -- one for facilities with flowrates up to 20 gpm and one for facilities with flow rates greater than 20 gpm. Table 11-17 presents the two equations representing O&M upgrade costs for facilities with DAF treatment in-place.

Table 11-17. Cost Equations for *Dissolved Air Flotation (DAF)* in Oils Options 8 and 9

| Description | Equation | Recommended Flow Rate Range (MGD) |
|---|---|---|
| Total capital cost for DAF | $\ln(Y1) = 13.9518 + 0.29445\ln(X) - 0.12049(\ln(X))^2$ | 0.036 to 1.44 |
| Total capital cost for modified DAF | $\ln(Y1) = 13.509 + 0.29445\ln(X) - 0.12049(\ln(X))^2$ | 0.036 to 1.44 |
| Holding tank capital cost for DAF and modified DAF[1] | $\ln(Y1) = 12.5122 -0.15500\ln(X) -0.5618(\ln(X))^2$ | 5.0 E -4 to 0.05 |
| O&M cost for DAF with flowrate above 20 gpm | $\ln(Y2) = 14.5532 + 0.96495\ln(X) + 0.01219(\ln(X))^2$ | 0.036 to 1.44 |
| O&M cost for modified DAF with flowrate above 20 gpm | $\ln(Y2) = 14.5396 + 0.97629\ln(X) + 0.01451(\ln(X))^2$ | 0.036 to 1.44 |
| O&M cost for DAF with flowrate up to 20 gpm | $\ln(Y2) = 21.2446 + 4.14823\ln(X) + 0.36585(\ln(X))^2$ | 7.2 E -3 to 0.029 |
| O&M cost for modified DAF with flowrate up to 20 gpm | $\ln(Y2) = 21.2005 + 4.07449\ln(X) + 0.34557(\ln(X))^2$ | 7.2 E -3 to 0.029 |
| O&M *upgrade* for DAF with flowrate below 20 gpm | $\ln(Y2) = 19.0459 + 3.5588\ln(X) + 0.25553(\ln(X))^2$ | 7.2 E -3 to 0.029 |
| O&M *upgrade* for DAF with flowrate above 20 gpm | $\ln(Y2) = 13.1281 + 0.99778\ln(X) + 0.01892(\ln(X))^2$ | 0.036 to 1.44 |
| Land required for holding tank[1] | $\ln(Y3) = -1.0661 + 0.10066\ln(X) + 0.00214(\ln(X))^2$ | 5.0 E -4 to 0.05 |
| Land required for DAF and modified DAF | $\ln(Y3) = -0.5107 + 0.51217\ln(X) - 0.01892(\ln(X))^2$ | 0.036 to 1.44 |

Y1 = Capital Costs (1989 $)
Y2 = Operation and Maintenance Costs (1989 $ /year)
Y3 = Land Requirement (Acres)
X = Flow Rate (million gallons per day)
[1]Only facilities with flow rates below 20 gpm receive holding tank costs.

### *BIOLOGICAL WASTEWATER TREATMENT TECHNOLOGY COSTS* 11.3

### *Sequencing Batch Reactors* 11.3.1

A sequencing batch reactor (SBR) is a suspended growth system in which wastewater is mixed with retained biological floc in an aeration basin. SBR's are unique in that a single tank acts as an equalization tank, an aeration tank, and a clarifier.

The SBR system costed by EPA for the model technology consists of a SBR tank, sludge handling equipment, feed system and controls, pumps, piping, blowers, and valves. The design parameters that EPA used for the SBR system were the average influent and effluent $BOD_5$, ammonia, and nitrate-nitrite concentrations. The average influent concentrations were 4800 mg/L, 995 mg/L, and 46 mg/L for $BOD_5$, ammonia, and nitrate-nitrite, respectively. The average effluent $BOD_5$, ammonia, and nitrate-nitrite concentrations used were 1,600 mg/l, 615 mg/l, and 1.0 mg/l, respectively. EPA obtained these concentrations from the sampling data at the SBR model facility. EPA assumed that all existing biological treatment systems in-place at organics subcategory facilities can meet the limitations of this rule without incurring cost. This includes facilities which utilize any form of biological treatment -- not just SBRs. Therefore, the costs presented here only apply to facilities without biological treatment in-place. EPA did not develop SBR upgrade costs for either capital or O&M.

Although biological treatment (SBR's) systems can be used throughout the United States, the design of the systems should vary due to climate conditions. Plants in colder climates should design their systems to account for lower biodegradability rates during the colder seasons. Therefore, EPA has taken these added costs into account in its costing procedures (see Section 3.1 of the Detailed Costing Document).

#### CAPITAL COSTS

EPA estimated the capital costs for the SBR systems using vendor quotes which include installation costs. Table 11-18 at the end of this section presents the SBR capital cost equation.

#### OPERATION AND MAINTENANCE COSTS

The O&M costs for the SBR system include electricity, maintenance, labor, and taxes and insurance. No chemicals are utilized in the SBR system. EPA assumed the labor requirements for the SBR system to be four hours per day and based electricity costs on horsepower requirements. EPA obtained the labor and horsepower requirements from vendors. EPA estimated maintenance, taxes, and insurance using the factors detailed in Table 11-2. Table 11-18 presents the SBR O&M cost equation.

Table 11-18. Cost Equations for *Sequencing Batch Reactors*

| Description | Equation | Recommended Flow Rate Range(MGD) |
|---|---|---|
| Capital cost for sequencing batch reactors | $\ln(Y1) = 15.707 + 0.512\ln(X) + 0.0022(\ln(X))^2$ | 1.0 E -7 to 1.0 |
| O&M cost for sequencing batch reactors | $\ln(Y2) = 14.1015 + 0.81567\ln(X) + 0.03932(\ln(X))^2$ | 3.4 E -7 to 1.0 |
| Land requirements | $\ln(Y3) = -0.531 + 0.906\ln(X) + 0.072(\ln(X))^2$ | 1.9 E -3 to 1.0 |

Y1 = Capital Costs (1989 $)
Y2 = Operation and Maintenance Costs (1989 $ /year)
Y3 = Land Requirement (Acres)
X = Flow Rate (million gallons per day)

### *SLUDGE TREATMENT AND DISPOSAL COSTS* *11.4*

#### *Plate and Frame Pressure Filtration -- Sludge Stream* *11.4.1*

Pressure filtration systems are used for the removal of solids from waste streams. This section details *sludge stream* filtration which is used to treat the solids removed by the clarifiers in the metals options.

The pressure filtration system costed by EPA for sludge stream filtration consists of a plate and frame filtration system. The components of the plate and frame filtration system include: filter plates, filter cloth, hydraulic pumps, pneumatic booster pumps, control panel, connector pipes, and a support platform. For design purposes, EPA assumed the sludge stream to consist of 80 percent liquid and 20 percent (200,000 mg/l) solids. EPA additionally assumed the sludge stream to be 20 percent of the total volume of wastewater treated. EPA based these design parameters on CWT Questionnaire 105.

In costing for sludge stream treatment, if a facility does not have sludge filtration systems in-place, EPA estimated capital costs to add a plate and frame pressure filtration system to their on-site treatment train[2]. If a facility's treatment train includes more than one clarification step in its treatment train (such as for Metals option 3), EPA only costed the facility for a single plate and frame filtration system. EPA assumed one plate and frame filtration system could be used to process the sludge from multiple clarifiers. Likewise, if a facility already had a sludge filtration system in-place, EPA assumed that the in-place system would be sufficient and did not estimate any sludge filtration capital costs for these facilities.

CAPITAL COSTS

EPA developed the capital cost equation for plate and frame sludge filtration by adding installation, engineering, and contingency costs to vendors' equipment cost estimates. EPA used the same capital cost equation for the plate and frame sludge filtration system for all of the metals options. Table 11-19 presents the plate and frame sludge filtration system capital cost equation.

OPERATION AND MAINTENANCE COSTS
*METALS OPTION 2 AND 3*

The operation and maintenance costs for metals option 2 and 3 plate and frame sludge filtration consist of labor, electricity, maintenance, and taxes and insurance. EPA approximated the labor requirements for the plate and frame sludge filtration system to be thirty minutes per batch based on the Metals option 2 and 3 model facility. Because no chemicals are used with the plate and frame sludge filtration units, EPA did not include costs for chemicals. EPA estimated electricity, maintenance, and taxes and insurance using the factors listed in Table 11-2. Table 11-19 lists the resulting plate and frame sludge filtration O&M cost equation.

For facilities which already have a sludge filtration system in-place, EPA included plate and frame filtration O&M upgrade costs. Since the sludge generated from the secondary precipitation and clarification steps in metals option 2 and 3 is the sludge which requires treatment for these options, these facilities would be required to improve pollutant removals from their secondary precipitation current performance concentrations to the long term averages for Metals options 2. Therefore, EPA calculated the

[2]If a facility only had to be costed for a plate and frame pressure filtration system to process the sludge produced during the tertiary chemical precipitation and clarifications steps of metals Option 3, EPA did not cost the facility for a plate and frame pressure filtration system. Likewise, EPA assumed no O&M costs associated with the treatment of sludge from the tertiary chemical precipitation and clarification steps in Metals Option 3. EPA assumed that the total suspended solids concentration at this point is so low that sludge stream filtration is unnecessary.

percent difference between secondary precipitation current performance and the Metals option 2 long-term averages. EPA determined this percentage to be an increase of three percent.

As such, for facilities which currently have sludge filtration systems in place, for metals option 2 and 3, EPA included an O&M upgrade cost which is three percent of the O&M costs of a new system (except for taxes and insurance, which are a function of the capital cost). Table 11.19 presents the O&M upgrade cost equation for sludge filtration in Metals option 2 and option 3.

### OPERATION AND MAINTENANCE COSTS *METALS OPTION 4*

The operation and maintenance costs for metals option 4 consists of labor, chemical usage, electricity, maintenance, taxes, and insurance, and filter cake disposal. The O&M plate and frame sludge filtration costing methodology for Metals option 4 is very similar to the one discussed previously for Metals option 2 and 3. The primary differences in the methodologies are the estimation of labor, the inclusion of filter cake disposal, and the O&M upgrade methodology.

EPA approximated the labor requirement for Metals option 4 plate and frame sludge filtration systems at 2 to 8 hours per day depending on the size of the system. As was the case for metals option 2 and 3, no chemicals are used in the plate and frame sludge filtration units for metals option 4, and EPA estimated electricity, maintenance and taxes and insurance using the factors listed in Table 11-2. EPA also included filter cake disposal costs at $0.74 per gallon of filter cake. A detailed discussion of the basis for the filter cake disposal costs is presented in Section 11.4.2. Table 11-19 presents the O&M cost equation for sludge filtration for Metals option 4.

Table 11-19. Cost Equations for *Plate and Frame Sludge Filtration* in Metals Options 2, 3 and 4

| Description | Equation | Recommended Flow Rate Range (MGD) |
|---|---|---|
| Capital costs for plate and frame sludge filtration | $\ln(Y1) = 14.827 + 1.087\ln(X) + 0.0050(\ln(X))^2$ | 2.0 E -5 to 1.0 |
| O&M costs for sludge filtration for Metals Option 2 and 3[1,3] | $\ln(Y2) = 12.239 + 0.388\ln(X) + 0.016(\ln(X))^2$ | 2.0 E -5 to 1.0 |
| O&M costs for sludge filtration for Metals Option 4[4] | $\ln(Y2) = 15.9321 + 1.177\ln(X) + 0.04697(\ln(X))^2$ | 1.0 E -5 to 1.0 |
| O&M *upgrade* costs for sludge filtration for Metals Option 2,3[1,3] | $\ln(Y2) = 8.499 + 0.331\ln(X) + 0.013(\ln(X))^2$ | 2.0 E -5 to 1.0 |
| O&M *upgrade* cost for sludge filtration for Metals Option 4[4] | $\ln(Y2) = 12.014 + 1.17846\ln(X) + 0.050(\ln(X))^2$ | 1.0 E -5 to 1.0 |
| Land requirements for sludge filtration | $\ln(Y3) = -1.971 + 0.281\ln(X) + 0.018(\ln(X))^2$ | 1.8 E -3 to 1.0 |

Y1 = Capital Costs (1989 $)
Y2 = Operation and Maintenance Costs (1989 $ /year)
Y3 = Land Requirement (Acres)
X = Flow Rate (million gallons per day)

[1]Following secondary chemical precipitation/clarification only. EPA assumed the sludge generated from tertiary precipitation/clarification would not be a significant quantity.

[3]This equation does not include filter cake disposal costs.

[4]This equation includes filter cake disposal costs.

For facilities which already have a sludge filtration system in-place, EPA included sludge stream filtration O&M upgrade costs. For Metals option 4, EPA included these O&M upgrade costs for processing the sludge generated from the primary precipitation and clarification steps[3]. These facilities would need to improve pollutant removals from their primary precipitation current performance concentrations to Metals option 4 (Sample Point - 03) concentrations. This sample point represents the effluent from the liquid-solids separation unit following primary chemical precipitation at the Metals option 4 model facility. Therefore, EPA calculated the percent difference between primary precipitation current performance concentrations and Metals option 4 (Sample Point - 03) concentrations. EPA determined that there was an increase of two percent.

As such, for facilities which currently have sludge filtration systems in place, for metals option 4, EPA included an O&M cost upgrade of two percent of the total O&M costs (except for taxes and insurance, which are a function of the capital cost). Table 11-19 presents the O&M upgrade cost equation for sludge filtration for Metals option.

### *Filter Cake Disposal 11.4.2*

The liquid stream and sludge stream pressure filtration systems presented in Sections 11.2.3 and 11.4.1, respectively, generate a filter cake residual. There is an annual O&M cost that is associated with the disposal of this residual. This cost must be added to the pressure filtration equipment O&M costs to arrive at the total O&M costs for pressure filtration operation[4].

To determine the cost of transporting and disposing filter cake to an off-site facility, EPA performed an analysis on a subset of questionnaire respondents in the WTI Questionnaire response database. This subset consists of metals subcategory facilities that are direct and/or indirect dischargers and that provided information on contract haul and disposal cost to hazardous (Subtitle C) and non-hazardous (Subtitle D) landfills. From this set of responses, EPA tabulated two sets of costs -- those reported for Subtitle C contract haul and disposal and those reported for Subtitle D contract haul and disposal. the reported costs for both the Subtitle C and Subtitle D contract haul/disposal. EPA then edited this information by excluding data that was incomplete or that was not separated by RCRA classification.

EPA used the reported costs information in this data set to determine the median cost for both the Subtitle C and Subtitle D disposal options, and then calculated the weighted average of these median costs. The average was weighted to reflect the ratio of hazardous (67 percent) to nonhazardous (33 percent) waste receipts at these Metals Subcategory facilities. The final disposal cost is $0.74 per gallon of filter cake.

EPA calculated a single disposal cost for filter cake using both hazardous and non-hazardous landfilling costs. Certain facilities will incur costs, however, that, in reality, are higher and others will incur costs that, in reality, are lower. Thus, some low revenue metals subcategory facilities that generate non-hazardous sludge may show a higher economic burden than is representative. On the other hand, some low revenue metals subcategory facilities that generate hazardous sludge may

[3] EPA did not include O&M upgrade costs for the sludge generated from the secondary precipitation and clarification step (direct dischargers only).

[4] Note that these costs have already been included in the O&M equation for plate and frame sludge filtration for Metals Option 4.

show a lower economic burden than is representative. EPA has concluded that in the end, these over- and under estimates will balance out to provide a representative cost across the industry.

Table 11-20 presents the O&M cost equation for filter cake disposal for Metals option 2 and option 3. Table 11-20 additionally presents an O&M upgrade for filter cake disposal resulting from Metals option 2 and option 3 for facilities that already generate filter cake as part of their operation.

This upgrade is 3 percent of the cost of the O&M upgrade for facilities that do not already generate filter cake as a part of their operation. EPA used 3 percent because this was the same percentage calculated for plate and frame sludge filtration for these same options.

Table 11-20. Cost Equations for *Filter Cake Disposal* for Metals Options 2 and 3[1]

| Description | Equation | Recommended Flow Rate Range (GPM) |
|---|---|---|
| O&M cost for filter cake disposal | Z = 0.109169 + 7,695,499.8(X) | 1.0 E -6 to 1.0 |
| O&M *upgrade* for filter cake disposal | Z = 0.101186 + 230,879.8(X) | 1.0 E -6 to 1.0 |

Z = Filter Cake Disposal Cost (1989 $ / year)
X = Flow Rate (million gallons per day)
[1]Filter cake disposal costs for Metals Option 4 are included in the sludge filtration equations.

## ***ADDITIONAL COSTS*** ***11.5***

### ***Retrofit Costs*** ***11.5.1***

EPA assigned costs to the CWT Industry on both an option- and facility-specific basis. The option-specific approach estimated compliance cost for a sequence of individual treatment technologies, corresponding to a particular regulatory option, for a subset of facilities defined as belonging to that regulatory subcategory. Within the costing of a specific regulatory option, EPA assigned treatment technology costs on a facility-specific basis depending upon the technologies determined to be currently in-place at the facility.

Once EPA determined that a treatment technology cost should be assigned to a particular facility, EPA considered two scenarios. The first was the installation of a new individual treatment technology as a part of a new treatment train. The full capital costs presented in Subsections 11.2 through 11.4 of this document apply to this scenario. The second scenario was the installation of a new individual treatment technology which would have to be integrated into an existing in-place treatment train. For these facilities, EPA applied retrofit costs. These retrofit costs cover such items as piping and structural modifications which would be required in an existing piece of equipment to accommodate the installation of a new piece of equipment prior to or within an existing treatment train.

For all facilities which received retrofit costs, EPA added a retrofit factor of 20 percent of the total capital cost of the newly-installed or upgraded treatment technology unit that would need to be integrated into an existing treatment train. These costs are in addition to the specific treatment technology capital costs calculated with the technology specific equations described in earlier sections.

### *Monitoring Costs* *11.5.2*

CWT facilities that discharge process wastewater directly to a receiving stream or indirectly to a POTW will have monitoring costs. EPA regulations require both direct discharge with NPDES permits and indirect dischargers subject to categorical pretreatment standards to monitor their effluent.

EPA used the following generalizations to estimate the CWT monitoring costs:

1. EPA included analytical cost for parameters at each subcategory as follows:
   - TSS, O&G, Cr+6, total CN, and full metals analyses for the metals subcategory direct dischargers, and Cr+6, total CN, and full metals analyses for the metals subcategory indirect dischargers;
   - TSS, O&G, and full metals and semi-volatiles analyses for the oils subcategory option 8 and 9 direct dischargers, and full metals, and semi-volatiles for oils subcategory options 8 and 9 indirect dischargers;
   - TSS, O&G, and full metals, volatiles and semi-volatiles analyses for the oils subcategory direct dischargers, and full metals, volatiles, and semi-volatiles for oils subcategory option 8V and 9V indirect dischargers;
   - TSS, $BOD_5$, O&G, 6 individual metals, volatiles, and semi-volatiles analyses for the organics subcategory option 3 direct dischargers, and 6 individual metals, volatiles, and semi-volatiles analyses for the organics subcategory option 3 indirect dischargers; and
   - TSS, $BOD_5$, O&G, 6 individual metals, and semi-volatiles analyses for the organics subcategory option 4 direct dischargers, and 6 individual metals and semi-volatiles analyses for the organics subcategory option 4 indirect dischargers.

   EPA notes that these analytical costs may be overstated for the oils and the organics subcategories because EPA's final list of regulated pollutants for these subcategories do not include all of the parameters included above.

2. The monitoring frequencies are listed in Table 11-21 and are as follows:

Table 11-21. Monitoring Frequency Requirements

| Parameter | Monitoring Frequency (samples/month) | | |
|---|---|---|---|
| | Metals Subcategory | Oils Subcategory | Organics Subcategory |
| Conventionals* | 20 | 20 | 20 |
| Total Cyanide and Cr+6 | 20 | - | - |
| Metals | 20 | 4 | 4 |
| Semi-Volatile Organics | - | 4 | 4 |
| Volatile Organics | - | 4** | 4** |

*Conventional monitoring for direct dischargers only.
**Volatile organics monitoring for oils option 8V and 9V and organics option 3 only.

3. For facilities in multiple subcategories, EPA applied full multiple, subcategory-specific monitoring costs.
4. EPA based the monitoring costs on the number of outfalls through which process wastewater is discharged. EPA multiplied

the cost for a single outfall by the number of outfalls to arrive at the total costs for a facility. For facilities for which this information is not available, EPA assumed a single outfall per facility.

5. EPA did not base monitoring costs on flow rate.

6. EPA did not include sample collection costs (labor and equipment) and sample shipping costs, and

7. The monitoring cost (based on frequency and analytical methods) are incremental to the monitoring currently being incurred by the CWT Industry. EPA applied credit to facilities for current monitoring-in-place (MIP). For facilities where actual monitoring frequencies are unknown, EPA estimated monitoring frequencies based on other subcategory facilities with known monitoring frequencies.

Table 11-22 shows the cost of the analyses needed to determine compliance for the CWT pollutants. EPA obtained these costs from actual quotes given by vendors and converted to 1989 dollars using the ENR's Construction Cost Index.

Table 11-22. Analytical Cost Estimates

| Analyses | Cost ($1989) |
|---|---|
| $BOD_5$ | $20 |
| TSS | $10 |
| O&G | $32 |
| Cr+6 | $20 |
| Total CN | $30 |
| Metals: | $335 |
| Total (27 Metals) | $335 |
| Per Metal[1] | $35 |
| Volatile Organics (method 1624)[2] | $285 |
| Semi-volatile Organics (method 1625)[2] | $615 |

[1]For 10 or more metals, use the full metals analysis cost of $335.

[2]There is no incremental cost per compound for methods 1624 and 1625 (although there may be a slight savings if the entire scan does not have to be reported). Use the full method cost, regardless of the actual number of constituent parameters required.

### *Land Costs* *11.5.3*

An important factor in the calculation of treatment technology costs is the value of the land needed for the installation of the technology. To determine the amount of land required for costing purposes, EPA calculated the land requirements for each treatment technology for the range of system sizes. EPA fit these land requirements to a curve and calculated land requirements, in acres, for every treatment system costed. EPA then multiplied the individual land requirements by the corresponding state land cost estimates to obtain facility-specific cost estimates.

EPA used different land cost estimates for each state rather than a single nationwide average since land costs may vary widely across the country. To estimate land costs for each state, EPA obtained average land costs for suburban sites for each state from the 1990 Guide to Industrial and Real Estate Office Markets survey. EPA based these land costs on "unimproved sites" since, according to the survey, they are the most desirable.

The survey additionally provides land costs broken down by size ranges. These are zero to 10 acres, 10 to 100 acres, and greater than 100 acres. Because CWT facilities fall into all three size ranges (based on responses to the WTI Questionnaire), EPA averaged the three size-specific land costs for each state to arrive at the final land costs for each state.

The survey did not provide land cost estimates for Alaska, Idaho, Montana, North Dakota, Rhode Island, South Dakota, Utah, Vermont or West Virginia. For these states, EPA used regional averages of land costs. EPA determined the states comprising each region also based on the aforementioned survey since the survey categorizes the states by geographical region (northeast, north central, south, and west). In estimating the regional average costs for the western region, EPA did not include Hawaii since Hawaii's land cost is high and would have skewed the regional average.

Table 11-23 lists the land cost per acre for each state. As Table 11-23 indicates, the least expensive state is Kansas with a land cost of $7,042 per acre and the most expensive state is Hawaii with a land cost of $1,089,000 per acre.

Table 11-23. State Land Costs for the CWT Industry Cost Exercise

| State | Land Cost per Acre (1989 $) | State | Land Cost per Acre (1989 $) |
|---|---|---|---|
| Alabama | 0.00 | Nebraska | 24,684 |
| Alaska* | 0.00 | Nevada | 36,300 |
| Arizona | 0.00 | New Hampshire | 52,998 |
| Arkansas | 0.00 | New Jersey | 89,443 |
| California | 0.00 | New Mexico | 26,929 |
| Colorado | 0.00 | New York | 110,013 |
| Connecticut | 0.00 | North Carolina | 33,880 |
| Delaware | 0.00 | North Dakota* | 20,488 |
| Florida | 0.00 | Ohio | 14,578 |
| Georgia | 0.00 | Oklahoma | 24,321 |
| Hawaii | 1,089,000 | Oregon | 50,820 |
| Idaho* | 81,105 | Pennsylvania | 32,307 |
| Illinois | 36,300 | Rhode Island* | 59,822 |
| Indiana | 21,078 | South Carolina | 21,296 |
| Iowa | 8,954 | South Dakota* | 20,488 |
| Kansas | 7,042 | Tennessee | 20,873 |
| Kentucky | 29,040 | Texas | 47,674 |
| Louisiana | 56,628 | Utah* | 81,105 |
| Maine | 19,602 | Vermont* | 59,822 |
| Maryland | 112,530 | Virginia | 39,930 |
| Massachusetts | 59,895 | Washington | 63,670 |
| Michigan | 13,649 | West Virginia* | 47,345 |
| Minnesota | 21,054 | Wisconsin | 17,424 |
| Mississippi | 13,068 | Wyoming* | 81,105 |
| Missouri | 39,930 | Washington DC | 174,240 |
| Montana* | 81,105 | | |

* No data available for state, used regional average.

***EXAMPLE 11-1:***

Costing exercise for direct discharging metals subcategory facility with treatment in-place.

Example Facility Information:

Current Treatment In-Place:
Primary Chemical Precipitation + Clarification + Plate and Frame Sludge Filtration

Daily Flow = 0.12196 MGD (Million Gallons/Day)
[NOTE: Daily Flow = X in costing equations]

Treatment Upgrades To Be Costed:
Primary Chemical Precipitation Upgrade + Clarifier Upgrade + Sludge Filtration Upgrade

Full Treatment Technologies To Be Costed:
Secondary Chemical Precipitation + Secondary Clarification + Multimedia Filtration

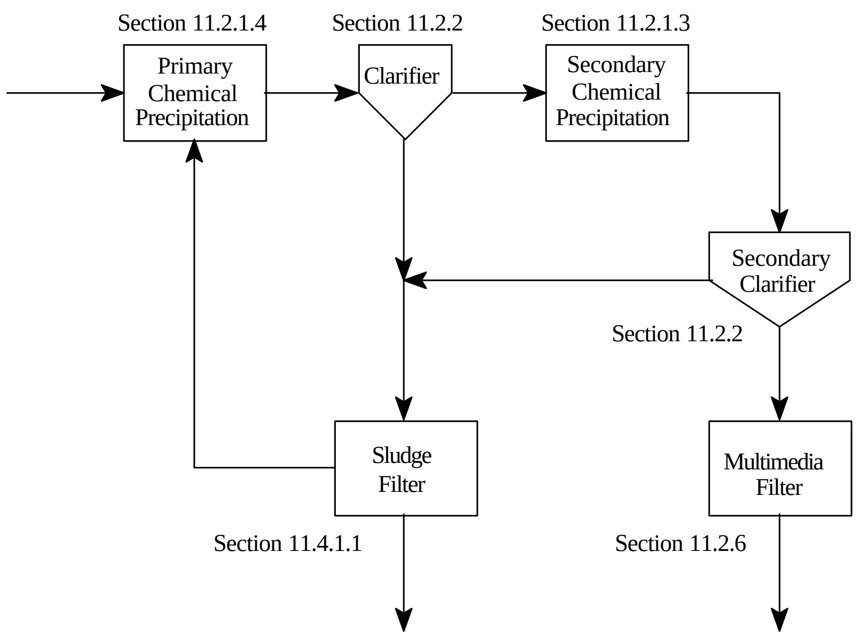


Figure 11-1. Metals Option 4 Model Facility Diagram

***EXAMPLE 11-1, CONTINUED:***

Capital Costs:

C Primary chemical precipitation *upgrade*, from Table 11-7, Section 11.2.1.4.
The maximum size holding tank to be costed for a primary chemical precip.
*upgrade* is 0.005 MGD. In addition, there is a 20% retrofit cost for the *upgrade*.

ln(Y1) = 10.671 - 0.083*ln(X) - 0.032*(ln(X))$^2$
= 10.671 - 0.083*ln(0.005) - 0.032*(ln(0.005))$^2$
= 10.212
ˆ Y1 = $27,240.25 * 1.2 = $32,688.30 –

C Clarification capital cost *upgrade*, following primary precipitation = $0.00 –

C Sludge filtration capital cost *upgrade* = $0.00 –

C Secondary chemical precipitation, full capital costs, from Table 11-8, Section 11.2.1.5

ln(Y1) = 13.829 + 0.544*ln(X) + 4.96E-6*(ln(X))$^2$
= 12.68441
ˆ Y1 = $322,678.63 –

C Clarification, following secondary chemical precipitation, from Table 11-9, Section 11.2.2.2

ln(Y1) = 11.552 + 0.409*ln(X) + 0.020*(ln(X))$^2$
= 10.77998
ˆ Y1 = $48,049.17 –

C Multi-media filtration capital costs, from Table 11-13, Section 11.2.5

ln(Y1) = 12.0126 + 0.48025*ln(X) + 0.04623*(ln(X))$^2$
= 11.20679
ˆ Y1 = $73,628.54 –

C Total capital cost (TCC)

TCC = 3 (Individual Capital Costs)
ˆ TCC = **$477,045** €

***EXAMPLE 11-1, CONTINUED:***

Operation and Maintenance Costs:

C Primary chemical precipitation O&M *upgrade*, from Table 11-7, Section 11.2.1.4

$$\begin{aligned} \ln(Y2) &= 11.6203 + 1.05998*\ln(X) + 0.04602*(\ln(X))^2 \\ &= 11.6203 + 1.05998*\ln(0.12196) + 0.04602*(\ln(0.12196))^2 \\ &= 9.59377 \end{aligned}$$

ˆ $Y2 = \$14{,}673.09$ –

C Clarification O&M *upgrade*, following primary chemical precipitation, from Table 11-9, Section 11.2.2

$$\begin{aligned} \ln(Y2) &= 6.81347 + 0.33149*\ln(X) + 0.0242*(\ln(X))^2 \\ &= 6.22313 \end{aligned}$$

ˆ $Y2 = \$504.28$ –

C Sludge filtration O&M *upgrade*, from Table 11-19, Section 11.4.1

$$\begin{aligned} \ln(Y2) &= 12.014 + 1.17846*\ln(X) + 0.05026*(\ln(X))^2 \\ &= 9.75695 \end{aligned}$$

ˆ $Y2 = \$17{,}273.90$ – (which includes filter cake disposal costs)

C Secondary chemical precipitation O&M costs, from Table 11-8, Section 11.2.1.5

$$\begin{aligned} \ln(Y2) &= 12.076 + 0.63456*\ln(X) + 0.03678*(\ln(X))^2 \\ &= 10.9037 \end{aligned}$$

ˆ $Y2 = \$54{,}375.79$ –

C Clarification O&M costs, following secondary chemical precipitation, from Table 11-9, Section 11.2.2.2

$$\begin{aligned} \ln(Y2) &= 10.673 + 0.238*\ln(X) + 0.013*(\ln(X))^2 \\ &= 10.22979 \end{aligned}$$

ˆ $Y2 = \$27{,}716.56$ –

C Multimedia Filtration O&M Costs, from Table 11-13, Section 11.2.5

$$\begin{aligned} \ln(Y2) &= 11.5039 + 0.72458*\ln(X) + 0.09535*(\ln(X))^2 \\ &= 10.40146 \end{aligned}$$

ˆ $Y2 = \$32{,}907.65$ –

C Total Operation and Maintenance Cost ($O\&M_{Tot}$)

$O\&M_{Tot}$ = 3 (Individual O& M Costs)

ˆ $O\&M_{Tot}$ = **$147,453** €

***EXAMPLE 11-1, CONTINUED:***

Land Requirements:

C Primary chemical precipitation *upgrade* land requirement associated with capital cost upgrade (Table 11-7, section 11.2.1.4). The maximum size holding tank to be costed for a primary chemical precipitation *upgrade* is 0.005 MGD.

$$\ln(Y3) = -2.866 - 0.023\ln(X) - 0.006(\ln(X))^2$$
$$= -2.866 - 0.023\ln(0.005) - 0.006(\ln(0.005))^2$$
$$= -2.913$$

ˆ Y3 = 0.054 acre –

C Clarifier, following primary chemical precipitation, land requirement = 0.0 acre –

C Sludge filtration unit land requirement = 0.0 acre –

C Secondary chemical precipitation land requirement, from Table 11-8, Section 11.2.1.5

$$\ln(Y3) = -1.15 + 0.449*\ln(X) + 0.027*(\ln(X))^2$$
$$= -1.975$$

ˆ Y3 = 0.139 acre –

C Clarification, following secondary chemical precipitation, land requirement, from Table 11-9, Section 11.2.2.2

$$\ln(Y3) = -1.773 + 0.513*\ln(X) + 0.046*(\ln(X))^2$$
$$= -2.6487$$

ˆ Y3 = 0.071 acre –

C Multimedia filtration land requirement, from Table 11-13, Section 11.2.5

$$\ln(Y3) = -2.6569 + 0.1937*\ln(X) + 0.02496*(\ln(X))^2$$
$$= -2.95396$$

ˆ Y3 = 0.0521 acre –

C Total land requirement (TLR)

TLR = 3 (Individual Land Requirement)

ˆ TLR = **0.316 acre €**

***EXAMPLE 11-2:***

Costing exercise for a direct discharging oils subcategory facility with only emulsion breaking/gravity separation in-place.

Example Facility Information:

Current Treatment In-Place:
Primary Emulsion Breaking/Gravity Separation
Daily Flow = 0.0081 MGD (Million Gallons/Day) [= 5.63 gpm]
[NOTE: Daily Flow = X in costing equations]

Treatment Upgrades To Be Costed:
None

Full Treatment Technologies To Be Costed:
Secondary Gravity Separation + Dissolved Air Flotation (DAF)

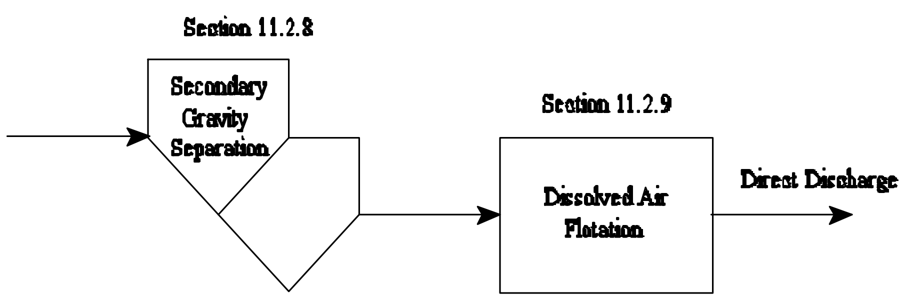


Figure 11-2. Treatment Diagram For Oils Option 9 Facility Improvements

***EXAMPLE 11-2, CONTINUED:***

Capital Costs:

C Secondary gravity separation, from Table 11-15, Section 11.2.7

ln(Y1) $= 14.3209 + 0.38774*\ln(X) - 0.01793*(\ln(X))^2$
$= 14.3209 - 0.38774*\ln(0.0081) - 0.01793*(\ln(0.0081))^2$
$= 12.0377$

ˆ Y1 = $169,014.42 –

C Dissolved air flotation costs, from Table 11-17, Section 11.2.8

ln(Y1) $= 13.9518 + 0.29445*\ln(X) - 0.12049*(\ln(X))^2$
$= 11.6415$

ˆ Y1 = $113,720.41 –

C Holding tank for dissolved air flotation (flow < 20 gpm, hence holding tank is sized), from Table 11-17, Section 11.2.8

ln(Y1) $= 12.5122 - 0.15500*\ln(X) - 0.05618*(\ln(X))^2$
$= 11.9557$

ˆ Y1 = $155,700.75 –

C Total capital cost (TCC)

TCC = 3 (Individual Capital Costs)

ˆ TCC = **$438,436** €

***EXAMPLE 11-2, CONTINUED:***

Operation and Maintenance Costs:

C Secondary gravity separation, from Table 11-15, Section 11.2.7

ln(Y2) $= 12.0759 + 0.4401*\ln(X) + 0.01594*(\ln(X))^2$
$= 12.0759 + 0.4401*\ln(0.0081) + 0.01594*(\ln(0.0081))^2$
$= 10.3261$

ˆ Y2 = $30,519.46 –

C Dissolved air flotation (flow < 20 gpm), from Table 11-17, Section 11.2.8

ln(Y2) $= 21.2446 + 4.14823*\ln(X) + 0.36585*(\ln(X))^2$
$= 9.7523$

ˆ Y2 = $17,193.12 –

C Total Operation and Maintenance Cost ($O\&M_{Tot}$)

$O\&M_{Tot}$ = 3 (Individual O& M Costs)

ˆ $O\&M_{Tot}$ = **$47,713** €

***EXAMPLE 11-2, CONTINUED:***

Land Requirements:

C Secondary gravity separation, Table 11-15, Section 11.2.7

$$\ln(Y3) = -0.2869 + 0.31387*\ln(X) + 0.01191*(\ln(X))^2$$
$$= -0.2869 + 0.31387*\ln(0.0081) + 0.01191*(\ln(0.0081))^2$$
$$= -1.5222$$

ˆ Y3 = 0.218 acre –

C Dissolved air flotation (sized at 25 gpm, the minimum available), from Table 11-17, Section 11.2.8

$$\ln(Y3) = -0.5107 + 0.51217*\ln(X) - 0.01892*(\ln(X))^2$$
$$= -2.4224$$

ˆ Y3 = 0.089 acre –

C Holding tank, from Table 11-17, Section 11.2.8

$$\ln(Y3) = -1.5772 + 0.35955*\ln(X) + 0.02013*(\ln(X))^2$$
$$= -1.5012$$

ˆ Y3 = 0.223 acre –

C Total land requirement (TLR)

TLR = 3 (Individual Land Requirement)

ˆ TLR = **0.53 acre €**

### *REFERENCES* 11.6

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### *SUMMARY OF COST OF TECHNOLOGY OPTIONS* *11.7*

This section summarizes the estimated capital and annual O&M expenditures for CWT facilities to achieve each of the effluent limitations and standards. All cost estimates in this section are expressed in terms of 1997 dollars.

#### *BPT Costs* *11.7.1*

BPT costs apply to all CWT facilities that discharge wastewater to surface waters (direct dischargers). Table 11-24 summarizes, by subcategory, the total capital expenditures and annual O&M costs for implementing BPT.

Table 11-24. Cost of Implementing BPT Regulations [in 1997 dollars]

| Subcategory | Number of Facilities[1] | Total Capital Costs | Annual O&M Costs |
|---|---|---|---|
| Metals Treatment and Recovery | 9 | 4,069,600 | 3,103,200 |
| Oils Treatment and Recovery | 5 | 1,168,100 | 432,100 |
| Organics Treatment | 4 | 80,000 | 215,800 |
| Multiple Wastestream Subcategory[2] | 3 | 1,836,200 | 3,618,300 |
| Combined Regulatory Option[3] | 14 | 5,317,700 | 3,751,100 |

[1] There are 14 direct dischargers. Because some direct dischargers include operations in more than one subcategory, the sum of the facilities with operations in any one subcategory exceeds the total number of facilities.
[2] This estimate assumes that all facilities that accept waste in multiple subcategories elect to comply with the single Subcategory limitations.
[3] This total assumes that all facilities that accept waste in multiple subcategories elect to comply with each set of limitations separately.

EPA notes that this BPT cost summary does not include the additional capital costs of the second clarifier that may be associated with the transferred TSS limitations for the metals subcategory. EPA will re-visit its BPT costs estimates for this subcategory prior to promulgation.

#### *BCT/BAT Costs* *11.7.2*

The Agency estimated that there would be no incremental cost of compliance for implementing BCT/BAT, because the technology used to develop BCT/BAT limitations is identical to BPT and the costs are included with BPT.

#### *PSES Costs* *11.7.3*

The Agency estimated the cost for implementing PSES applying the same assumptions and methodology used to estimate cost of implementing BPT. The major difference is that the PSES costs are applied to all CWT facilities that discharge wastewater to a POTW (indirect dischargers). Table 11-25 summarizes, by subcategory, the capital expenditures and annual O&M costs for implementing PSES.

Table 11-25. Cost of Implementing PSES Regulations [in 1997 dollars]

| Subcategory | Number of Facilities[1] | Total Capital Costs | Annual O&M Costs |
|---|---|---|---|
| Metals Treatment and Recovery | 44 | 11,111,100 | 10,242,100 |
| Oils Treatment and Recovery - | 127 | 23,834,000 | 12,484,400 |
| Organics Treatment | 16 | 17,709,200 | 2,766,200 |
| Mutliple Wastestream Subcategory[2] | 24 | 44,576,100 | 20,392,700 |
| Combined Regulatory Option[3] | 151 | 52,654,300 | 25,792,700 |

[1] There are 151 indirect dischargers. Because some indirect dischargers include operations in more than one subcategory, the sum of the facilities with operations in any one subcategory exceeds the total number of facilities.

[2] This estimate assumes that all facilities that accept waste in multiple subcategories elect to comply with the single Subcategory limitations.

[3] This total assumes that all facilities that accept waste in multiple subcategories elect to comply with each set of limitations separately.

Chapter

12

# POLLUTANT LOADING AND REMOVAL ESTIMATES

## *INTRODUCTION* *12.1*

This chapter presents annual pollutant loading and removal estimates for the CWT industry associated with each of the subcategories and regulatory options considered by EPA in developing the effluent limitations and pretreatment standards. EPA estimated the pollutant loadings and removals from CWT facilities to evaluate the effectiveness of different treatment technologies and to evaluate how costly these regulatory options were in terms of pollutant removals. EPA also used this information in analyzing potential benefits from the removal of pollutants discharged to surface waters directly or indirectly through publicly owned treatment works (POTWs). EPA estimated raw, current, and post-compliance pollutant loadings and pollutant removals for the industry using data collected from the industry throughout development of the rule. This assessment uses the following definitions for raw, current, and post-compliance pollutant loadings:

- Raw loadings -- For the metals and organics subcategory, raw loadings represent CWT waste receipts, that is, typically untreated wastewater as received from customers. For the oils subcategory, raw loadings represent the effluent from the initial processing of oil bearing, CWT waste receipts, that is, effluent from emulsion breaking and/or gravity separation.
- Current loadings -- These are the pollutant loadings in CWT wastewater that are currently being discharged to POTWs and surface waters. These loadings account for wastewater treatment currently in place at CWT facilities.
- Post-compliance loadings -- These are the pollutant loadings in CWT wastewater that would be discharged to POTWs and surface waters upon compliance with the rule. EPA calculated these loadings assuming that all CWT facilities would achieve treatment at least equivalent to that which may be achieved by employing the technology option selected as the basis of the limitations or standards.

The following information is presented in this chapter:

- Section 12.2 summarizes the data sources used to estimate pollutant loadings and removals;
- Section 12.3 discusses the methodology used to estimate current loadings;
- Section 12.4 discusses the methodology used to estimate post-compliance pollutant loadings;
- Section 12.5 discusses the methodology used to estimate pollutant removals;
- Section 12.6 presents the pollutant loadings and removals for each regulatory option, including current and post-compliance pollutant loadings.

## *DATA SOURCES* *12.2*

As previously explained in Chapter 2, EPA primarily relied on four data sources to estimate pollutant loadings and removals: industry responses to the 1991 Waste Treatment Industry Questionnaire, industry responses to the Detailed

Monitoring Questionnaire, wastewater sampling data collected by EPA, and data provided in comments to the proposals. Chapter 2 of this document discusses each of these data sources in detail.

### *METHODOLOGY USED TO DEVELOP CURRENT LOADINGS ESTIMATES* *12.3*

EPA calculates current loadings for a specific facility using the effluent flow rate of the facility and the concentration of pollutants in its effluent obtained from effluent monitoring data. EPA does not have data for every facility in the database to calculate current loadings. For some, EPA has no effluent monitoring data, while for others, EPA may have only limited monitoring data for a few parameters. In some cases, EPA has effluent monitoring data, but the data do not represent CWT wastewaters only. As discussed previously, most CWT facilities commingle CWT wastewaters with non-CWT wastewaters such as industrial wastestreams or stormwater prior to monitoring for compliance. Most CWT facilities with waste receipts in more than one subcategory commingle CWT wastestreams prior to monitoring for performance. Some facility supplied data, therefore, is insufficient for estimating current loadings.

When possible, EPA determined current loadings for an individual facility based on information reported by that facility. For most CWT facilities, however, EPA had to estimate current loadings. EPA's methodology differs depending on the subcategory of CWT facilities and individual facility characteristics. Factors that EPA took into account in estimating current loadings include: 1) the analytical data available for the subcategory; 2) the characteristics of the facilities in the subcategory; and 3) the facility's treatment train. For facilities in multiple subcategories, EPA estimated loadings for that portion of the wastestream in each subcategory and subsequently added them together. The sections that follow discuss the current loadings methodologies for each subcategory.

EPA refers to sample points at specific episodes throughout this chapter. However, diagrams of the sample facilities are not provided. EPA refrained from including the diagrams due to confidentiality concerns. All facility diagrams are available in the record for this rule, with those claimed confidential in the CBI portion of the record.

#### *Current Loadings Estimates for the Metals Subcategory* *12.3.1*

EPA calculated current loadings for the metals subcategory facilities by assigning pollutant concentrations based on the type of treatment currently in-place at each facility. EPA assigned in-place treatment for this subcategory in one of five classes:

1) raw, or no metals treatment;
2) primary precipitation with solids-liquid separation;
3) primary precipitation with solids-liquid separation plus secondary precipitation with solids-liquid separation;
4) primary precipitation with solids-liquid separation plus secondary precipitation with solids-liquid separation followed by multi-media filtration (EPA based the BPT/BAT/PSES/PSNS limitations and standards for this subcategory on this technology); and
5) selective metals precipitation with solids-liquid separation plus secondary precipitation with solids-liquid separation plus tertiary precipitation with solids-liquid separation (EPA based the NSPS limitations and standards on this technology).

Table 12.1 shows the current loadings estimates for each classification and the following five sections (12.3.1.1 through 12.3.1.5) detail the estimation procedure for each classification.

EPA notes that, due to differences among datasets used to calculate loading classes, "common sense" reductions of some pollutants with increasing technology are not always displayed in Table 12.1.

Table 12.1 Metals Subcategory Pollutant Concentration Profiles for Current Loadings

| Pollutant of Concern | Raw Treatment | Primary Precipitation | Secondary Precipitation | BAT Option Technology | Selective Metals Precipitation |
|---|---|---|---|---|---|
| CLASSICAL OR CONVENTIONAL PARAMETERS (mg/L) | | | | | |
| Ammonia as nitrogen | 184.34 | 347.65 | 112.71 | 15.63 | 9.12 |
| Biochem. oxygen demand | 1,326.82 | 5,043.83 | 670.17 | 159.60 | 28.33 |
| Chemical oxygen demand | 10,889.83 | 12,696.25 | 2,362.67 | 1,333.33 | 198.56 |
| Chloride | 17,570.78 | 35,966.67 | 33,966.67 | 18,000.00 | 2,243.75 |
| Fluoride | 1,416.38 | 49.72 | 82.85 | 66.27 | 2.35 |
| Hexavalent chromium | 1,364.96 | 4.02 | 0.36 | 0.80 | 0.03 |
| Nitrate/nitrite | 3,243.72 | 3,102.17 | 974.93 | 531.67 | 12.61 |
| Oil and grease | 29.67 | 75.86 | 12.11 | 34.34 | 34.34 |
| Total cyanide | 8.00 | 1.29 | 3.64 | 0.17 | N/A[1] |
| Total dissolved solids | 60,992.86 | 52,040.00 | 48,400.00 | 42,566.67 | 18,112.50 |
| Total organic carbon | 1,938.79 | 3,598.17 | 451.55 | 236.33 | 19.64 |
| Total phenols | 1.65 | 5.57 | 3.16 | N/A[1] | N/A[1] |
| Total phosphorus | 690.21 | 43.10 | 39.63 | 31.68 | 29.32 |
| Total sulfide | 58.17 | 29.21 | 17.57 | N/A[1] | 24.95 |
| Total suspended olids | 31,587.34 | 494.85 | 673.81 | 16.80 | 9.25 |
| METAL PARAMETERS (ug/L) | | | | | |
| Aluminum | 362,855 | 28,264 | 27,628 | 856 | 73 |
| Antimony | 80,937 | 4,152 | 679 | 170 | 21 |
| Arsenic | 56,873 | 181 | 246 | 84 | 11 |
| Beryllium | 39 | 3 | 8 | N/A[1] | 1 |
| Boron | 119,394 | 35,047 | 23,811 | 8,403 | 7,290 |
| Cadmium | 549,749 | 254 | 6,792 | 58 | 82 |
| Calcium | 1,132,699 | 4,163,233 | 308,935 | 20,000 | 407,167 |
| Chromium | 851,525 | 3,986 | 19,125 | 1,675 | 40 |
| Cobalt | 362,914 | 214 | 223 | 115 | 57 |
| Copper | 2,514,805 | 1,796 | 419 | 744 | 169 |
| Gallium | 5,045 | 2,473 | 2,600 | N/A[1] | N/A[1] |
| Indium | 11,839 | 3,820 | 5,250 | N/A[1] | 500 |
| Iodine | 95,940 | 15,075 | 1,000 | N/A[1] | N/A[1] |
| Iridium | 51,823 | 4,554 | 5,250 | 500 | N/A[1] |
| Iron | 1,210,265 | 16,076 | 11,533 | 5,752 | 387 |
| Lanthanum | 779 | 413 | 550 | N/A[1] | 100 |
| Lead | 167,649 | 1,909 | 281 | 177 | 55 |
| Lithium | 67,827 | 35,757 | 2,495 | 1,927 | N/A[1] |
| Magnesium | 209,520 | 6,107 | 5,035 | N/A[1] | 753 |
| Manganese | 182,587 | 1,551 | 1,360 | 49 | 12 |
| Mercury | 276 | 21 | 2 | 1 | 0 |
| Molybdenum | 51,575 | 5,833 | 3,053 | 1,747 | 528 |
| Nickel | 430,971 | 20,083 | 1,668 | 1,161 | 255 |
| Osmium | 1,917 | 440 | 550 | N/A[1] | 100 |
| Phosphorus | 347,146 | 36,543 | 1,152,950 | 27,529 | 544 |
| Potassium | 2,003,938 | 2,361,444 | 748,817 | 410,000 | 54,175 |
| Selenium | 561 | 277 | 577 | 280 | 56 |
| Silicon | 212,884 | 4,378 | 2,752 | 1,447 | 356 |
| Silver | 1,172 | 223 | 87 | 26 | 5 |
| Sodium | 21,329,820 | 16,662,444 | 18,921,667 | 15,100,000 | 5,776,250 |

| Pollutant of Concern | Raw Treatment | Primary Precipitation | Secondary Precipitation | BAT Option Technology | Selective Metals Precipitation |
|---|---|---|---|---|---|
| Strontium | 4,818 | 5,759 | 1,831 | 100 | N/A[1] |
| Sulfur | 10,754,912 | 1,802,233 | 2,203,333 | 1,214,000 | 2,820,000 |
| Tantalum | 4,924 | 2,000 | 2,750 | N/A[1] | N/A[1] |
| Tellurium | 16,939 | 4,000 | 5,500 | N/A[1] | N/A[1] |
| Thallium | 7,556 | 103 | 144 | N/A[1] | 21 |
| Tin | 903,260 | 2,397 | 434 | 90 | 28 |
| Titanium | 532,387 | 152 | 51 | 57 | 4 |
| Vanadium | 30,258 | 45 | 83 | 12 | 11 |
| Yttrium | 144 | 30 | 43 | 5 | 4 |
| Zinc | 2,007,752 | 3,625 | 2,052 | 413 | 206 |
| Zirconium | 1,256 | 1,270 | 1,330 | 1,287 | N/A[1] |
| ORGANIC PARAMETERS (ug/L) | | | | | |
| Benzoic acid | 1,939 | N/A[1] | 9,716 | 3,522 | N/A[1] |
| Benzyl alcohol | 1,648 | N/A[1] | 745 | N/A[1] | N/A[1] |
| Bis(2-ethylhexyl) phthalate | 292 | 645 | 10 | N/A[1] | N/A[1] |
| Carbon Disulfide | 187 | N/A[1] | 83 | N/A[1] | 10 |
| Chloroform | 64 | 332 | 1,418 | 149 | N/A[1] |
| Dibromochloromethane | 64 | 108 | 10 | 50 | N/A[1] |
| Hexanoic acid | 215 | N/A[1] | 23 | N/A[1] | N/A[1] |
| M-xylene | 64 | N/A[1] | 10 | N/A[1] | N/A[1] |
| Methylene chloride | 264 | 165 | 23 | N/A[1] | N/A[1] |
| N,n-dimethylformamide | 131 | N/A[1] | 76 | 68 | N/A[1] |
| Phenol | 166 | 6,869 | 45 | N/A[1] | N/A[1] |
| Pyridine | 82 | N/A[1] | 10 | 87 | N/A[1] |
| Toluene | 166 | 420 | 10 | N/A[1] | N/A[1] |
| Trichloroethene | 114 | 108 | 10 | 442 | N/A[1] |
| 1,1,1-trichloroethane | 64 | 135 | 10 | N/A[1] | N/A[1] |
| 1,1-dichloroethene | 64 | 170 | 10 | N/A[1] | N/A[1] |
| 1,4-dioxane | 64 | N/A[1] | 10 | N/A[1] | N/A[1] |
| 2-butanone | 323 | N/A[1] | 61 | 1,272 | N/A[1] |
| 2-propanone | 3,712 | N/A[1] | 246 | 13,081 | N/A[1] |
| 4-methyl-2-pentanone | 320 | N/A[1] | 50 | N/A[1] | N/A[1] |

[1]Concentration values for certain pollutants were not available for some classifications.

### *Raw Loadings for the Metals Subcategory 12.3.1.1*

EPA classified metals subcategory facilities with no chemical precipitation in the “raw” class (even if they had other treatment in place, such as activated carbon). EPA assigned the “raw” current loadings estimates to three facilities in the metals subcategory. EPA based its estimates for raw wastewaters on data from 13 sample points at six sampling episodes and one sample point from data supplied by a facility in comments to the 1999 proposal (refer to Table 12-2 for sample episode and sample point identifiers).

The data from these episodes include composite samples from continuous flow systems and grab samples from batch flow systems.

For non-detected measurements, EPA used the sample-specific detection limit except for certain analytes from the semi-quantitative screen component of Method 1620 for episode 1987. In 1990, when these analyses were performed, the laboratory’s standard convention to report non-quantitated results from semi-quantitative analysis was to populate the summary form with ‘ND’ rather than reporting sample-specific limits. This was the case for indium, iridium, lanthanum, osmium, tantalum, and tellurium. With the exception of indium and iridium, EPA used the analyte baseline value for such non-detected results (see chapter 15 for baseline values). For indium and iridium, where the largest detected value was substantially less than the baseline value, EPA used the largest detected value for the non-detected measurements at sample point 2 for episode 1987.

The data from 11 of the 13 sample points from EPA sampling episodes are from batch flow systems. During each day of sampling at these 11 facilities, EPA collected grab samples from one or more batches processed each day by the batch flow systems (for some sample points, EPA did not obtain samples on each day for various reasons such as the treatment associated with that sample point was not used that day). After averaging the values from field duplicate samples, EPA calculated a daily average for each pollutant at each facility. For example, if EPA collected grab samples of two batches during a single day, EPA averaged the two results to obtain the daily average.

Conversely, the data from the remaining two sample points at EPA sampling episodes and the industry effluent monitoring data for facility 652 were all obtained from continuous flow systems. Except for field duplicates and oil and grease/HEM, EPA obtained only one measurement for each day (considered to be the daily average) from a composite sample taken from each continuous flow system. EPA averaged values from duplicate field samples before performing any other calculations. Because oil and grease/HEM can only be obtained as grab samples, EPA typically obtained four samples each day and arithmetically averaged the results to obtain one daily value for that pollutant.

Once EPA obtained the daily averages for each of the sample points, EPA calculated the raw pollutant concentration as the average of the daily averages at the 14 sample points (13 sample points from EPA sampling episode and one sample point from industry supplied effluent monitoring data).

As an illustrative example, Table 12-2 shows the data used to obtain the raw wastewater estimation for aluminum: 362,855 ug/L. Table 12-2 shows that this estimation comes from 38 daily averages (some from continuous systems and some from batch systems) from 91 analyses. Raw wastewater estimations for other pollutants were calculated in a similar manner.

Table 12-2 Example of Metals Subcategory Influent Pollutant Concentration Calculations[1]

| Sample Point | Raw Aluminum Daily Averages (ug/L) | | | | | # of measurements |
|---|---|---|---|---|---|---|
| Episode 4378-01 | 389,338 | 189,223 | 3,128 | 8,376 | | 26 (5 are duplicate values) |
| Episode 4378-03 | 2,080,000 | 1,542,500 | 745,000 | 70,367 | 563,250 | 16 (2 are duplicate values) |
| Episode 4055-01 | 51,800 | 1,670,000 | 260,000 | | | 3 |
| Episode 1987-01 | 839,000 | 792,000 | 859,000 | | | 3 |
| Episode 1987-02 | 577,500 | 53,400 | | | | 3 ( 1 is a duplicate value) |
| Episode 4393-01 | 3,730 | 29,400 | | | | 2 (1 is a non-detect value) |
| Episode 4382-07 | 84,400 | 139,000 | 171,000 | 145,000 | 330,000 | 6 (1 duplicate value) |
| Episode 4393-05 | 72,400 | 3,765 | 6,150 | 15,900 | 11,200 | 6 (1 is a duplicate and non-detect value) |
| Episode 4803-01 | 723 | | | | | 1 |
| Episode 4803-03 | 5,040 | | | | | 1 |
| Episode 4803-05 | 97,800 | 1,545,000 | | | | 3 |
| Episode 4803-07 | 58,900 | | | | | 1 |
| Episode 4803-10 | 66,925 | 101,466 | 159,250 | 47,575 | | 20 (4 are duplicate values) |
| Facility 652-01 | | | | | | no data provided |

[1]The Raw Aluminum Concentration is 362,855 ug/L -- the average of daily values in the table.

### *Primary Precipitation with Solids-Liquid Separation Loadings 12.3.1.2*

EPA estimated pollutant concentrations resulting from primary precipitation and solids-liquid separation using data from EPA sampling episodes and industry supplied effluent monitoring data. EPA used data from three sampling episodes and effluent monitoring data submitted by two facilities. These data were used to represent the current loadings for 32 of the metals subcategory facilities. The episodes used are from the detailed monitoring questionnaire 613 (industry supplied effluent monitoring data), sample point 16; industry effluent monitoring data supplied in comments to the proposal for facility 652, sample point 2; episode 4382, sample point 8; episode 1987, sample point 3; and episode 4798, sample point 3.

For episode 4382, EPA excluded all data for organics, oil and grease, $BOD_5$, COD, TOC, nitrate/nitrite, and ammonia as nitrogen because they did not represent metals subcategory wastewater exclusively. EPA also excluded data for these analytes from this episode, but different sample points, in calculating the raw loadings (section 12.3.1.1) and the secondary precipitation with solids-liquid separation loadings (section 12.3.1.3).

For non-detected measurements, EPA used the same assumptions as for the data described in section 12.3.1.1. For indium and iridium, where the largest detected value was substantially less than the baseline value, EPA used the largest detected value for the non-detected measurements at sample point 3 for episode 1987.

The facility supplied effluent monitoring data from facility 613 was collected as grab samples from batch flow systems. The facility collected a single grab sample each day. This single value was the daily average for the facility.

Conversely, for this treatment technology, the data from the EPA sampling episodes and the industry effluent monitoring data for facility 652 were all obtained from continuous flow systems. Except for field duplicates and oil and grease/HEM, EPA obtained only one measurement for each day (considered to be the daily average) from a composite sample taken from each continuous flow system. EPA averaged values from duplicate field samples before performing any other calculations. Because oil and grease/HEM can only be obtained as grab samples, EPA typically obtained four samples each day and arithmetically averaged the results to obtain one daily value for that pollutant.

After calculating daily averages, EPA then calculated a facility average for each pollutant as the arithmetic average of the daily averages at that facility. These facility averages were then arithmetically averaged to obtain the pollutant concentration average. Table 12.1 shows these pollutant average concentrations representing primary precipitation for the relevant pollutants of concern.

### *Secondary Precipitation with Solids-Liquid Separation Loadings* *12.3.1.3*

EPA estimated current loadings for facilities with secondary chemical precipitation using data from three sampling points at three separate episodes and industry supplied effluent monitoring data from one facility. These are episode 4393, sample point 13; episode 4382, sample point 12; episode 4798, sample point 4; and industry effluent monitoring data supplied in comments to the 1995 proposal for facility 652, sample point 3.

All of the data from this treatment technology were obtained from continuous flow systems. EPA used the sample-specific detection limit for all non-detected measurements. Except for field duplicates and oil and grease/HEM, EPA obtained only one measurement for each day from composite samples taken from these continuous flow systems. EPA averaged values from duplicate field samples before performing any other calculations. Because oil and grease/HEM can only be obtained as grab samples, EPA typically obtained four samples each day and arithmetically averaged the results to obtain one daily value for that pollutant.

After obtaining one value for each day, EPA then calculated a facility average for each pollutant as the arithmetic average of the daily averages at that facility. These facility averages were then arithmetically averaged to obtain the pollutant concentration average. Table 12.1 shows these pollutant average concentrations representing secondary precipitation with solids-liquid separation for the relevant pollutants of concern.

### *Technology Basis for the Option 4 Loadings* *12.3.1.4*

EPA used the long-term averages from Metals Option 4 -- batch primary precipitation with solids-liquid separation plus secondary precipitation with solids-liquid separation followed by multi-media filtration -- to represent current loadings at three facilities in the metals subcategory (Chapter 10 describes the method for calculating these long-term averages for each pollutant). The facility sampled by EPA that employs the technology basis for the BPT/BAT/PSES Option, obviously, is assigned its current loadings. EPA modeled the loadings for two facilities that utilize tertiary precipitation with the BPT/BAT/PSES option current loadings. EPA believes that facilities utilizing tertiary precipitation will not need to alter their systems to meet the limitations. By assigning current loadings estimates based on the Option 4 technology basis to the tertiary systems, EPA may have overestimated current loadings at these two facilities. However, EPA does not estimate any post-compliance pollutant reductions at these facilities.

### *Selective Metals Precipitation (Option 3) Loadings* *12.3.1.5*

Only one facility in the metals subcategory utilizes selective metals precipitation. EPA sampled this facility during development of this rule. Therefore, the current loadings pollutant concentrations for this facility are not estimates, but measured data. Table 12.1 summarizes these pollutant concentrations (Chapter 10 describes the method for calculating the pollutant concentrations).

### *Current Loadings Estimates for the Oils Subcategory 12.3.2*

Based on questionnaire responses and site visits, EPA found that all facilities which treat oily wastewaters, for which EPA has data, currently employ emulsion breaking and/or gravity separation. If emulsions are present in the incoming waste receipts, the facility first makes use of emulsion breaking. If not, the waste receipts generally bypass emulsion breaking and the facility processes the waste through a gravity separation step for gross separation of the water and the oil phases. A facility may often follow up these pretreatment steps by other wastewater treatment technologies or substitue them for dehydration operations. Therefore, EPA believes that, at a minimum, it may characterize current loadings for oils subcategory discharges by analyzing samples obtained from the effluent of emulsion breaking/gravity separation.

At the time of the 1999 proposal, EPA used seven data sets to represent effluent from emulsion breaking/gravity separation systems. EPA collected these seven data sets during long-term EPA sampling episodes at various types of oily waste facilities. Six of these seven data sets represent facilities that treat oily wastewater and recover/process used oil. One facility, that primarily accepts bilge water, performs oily wastewater treatment only. The annual volume of treated oily wastewater discharged at these facilities ranges from 174,000 gallons/year to 35 million gallons/year. Two of the data sets represent facilities that only accept non-hazardous wastes, while the other five data sets represent facilities which are permitted by RCRA to additionally accept hazardous wastes.

For each pollutant of concern, each of the seven emulsion breaking/gravity separation long-term sampling data sets contains the mean concentration of the data collected over the sampling episode (a duration of two to five days). This mean includes measured (detected) and non-detected values. The value substituted for each non-detected measurement was either 1) the sample-specific detection limit or 2) the average of the measured (detected) values across all seven data sets. Section 12.3.2.1 discusses EPA's representation of non-detect values for this analysis. Section 12.3.2.1 further discusses EPA's representation of the one biphasic sample. For each episode and each pollutant, the table presents the mean concentration of the data collected over the sampling episode. Figure 12-1 shows the procedure EPA used to estimate the mean concentration data over the seven sampling episodes.

EPA has facility-specific information in its database for 84 oils subcategory facilities. Of these 84 facilities, EPA has long-term sampling data for seven and grab sample data for 12 others which were part of the 1998 characterization sampling of oil treatment and recovery facilities (see Chapter 2, section 3.4). For the remainder of the facilities, EPA does not have current loadings data. EPA does, however, have facility-specific information on the volume of wastewater being discharged and the treatment train currently in use. EPA evaluated several ways to associate the emulsion breaking/gravity separation data sets to each of the facilities for which EPA needed to estimate current performance. EPA, therefore, reviewed the data sets to determine if there was a relationship between the concentration of pollutants, and facility flow, but found no evidence of relationship.

Consequently, for the 1999 proposal, EPA randomly assigned one of the seven long-term sampling data sets to each of the facilities that required current loadings estimates. For facilities which only employ emulsion breaking/gravity separation, EPA estimated current loadings for each pollutant using values in the randomly assigned data set. For facilities which use additional treatment after that step, EPA further reduced the pollutant loadings for certain pollutants (or all pollutants depending on the technology) in the randomly assigned data set to account for the additional treatment-in-place at the facility.

After the 1999 proposal, EPA reevaluated its methodology of randomly assigning data sets to the oils subcategory facilities. EPA determined that it would be more appropriate to assign the same average concentration for each pollutant to all facilities. In calculating these average concentrations for a pollutant, EPA used the seven data sets plus the data from the 11 facilities in the 1998 characterization sampling effort. EPA collected, at a minimum, a single grab sample from emulsion breaking/gravity separation at each facility (for three facilities, EPA collected duplicate field samples and these values were averaged together before any other calculations).

All but one of the EPA sampling episodes were at facilities with continuous flow systems. Except for field duplicates and oil and grease/HEM, EPA obtained only one measurement for each day from composite samples taken from these continuous flow systems. EPA averaged values from duplicate field samples before performing any other calculations. Because oil and grease/HEM can only be obtained as grab samples, EPA typically obtained four samples each day and arithmetically averaged the results to obtain one daily value for that pollutant. EPA calculated the facility average as the arithmetic average of the daily values.

For the one remaining facility that had a batch system, EPA collected grab samples of different batches. EPA averaged the values from duplicate samples before performing any other calculations. EPA then calculated the facility average as the arithmetic average of the batches.

EPA calculated pollutant concentration loadings using RCRA and non-RCRA facilities separately. Each of the 18 facilities was assigned to the RCRA or non-RCRA subset except for one facility which was assigned to both categories. This facility has a RCRA permit to accept and treat RCRA waste, but treated exclusively non-RCRA waste during EPA's sampling. For each pollutant, EPA then calculated an overall pollutant concentration loading for the RCRA subset and another for the non-RCRA subset.

Because the sample sizes of the 18 facilities ranged from a single sample to 20 samples (for the facility with the batch flow system), EPA determined that a weighted average of the facility averages using weights equal to the square root of the sample size would be appropriate. As a simplified, hypothetical example for pollutant X, given two facilities and one had five samples with a facility average of 20 mg/L and the other facility had two samples with a facility average of 100 mg/L, the pollutant average (PA) would be 51 mg/L as shown in the following equation:

$$PA = \frac{\sqrt{5}(20mg / L) + \sqrt{2}(100\,mg / L)}{\sqrt{5} + \sqrt{2}} = 51mg / L$$

Table 12-7 presents the pollutant concentration loadings (labeled as long-term averages (LTA) in the table) for both the RCRA and non-RCRA subsets.

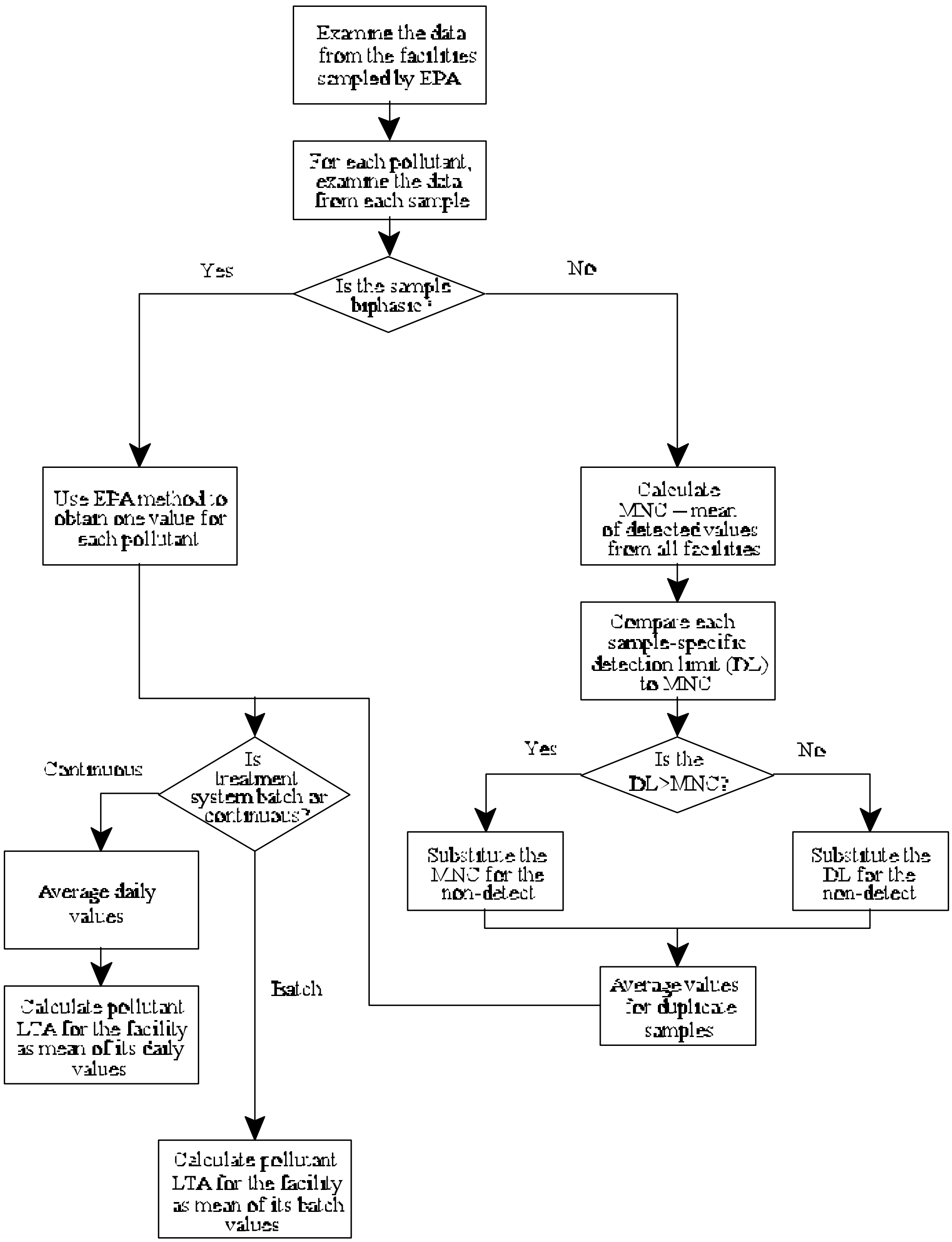


Figure 12-1 Calculation of Current Loadings for Oils Subcategory

TREATMENT-IN-PLACE

As mentioned previously, there are many configurations of treatment trains in this subcategory. While EPA does not have sampling data representing each of these treatment configurations, EPA does have sampling data representing each of the individual treatment technologies currently in place at oily waste facilities. While EPA collected all of the data at CWT facilities, EPA collected some of the data it used to develop treatment-in-place credits at facilities in other CWT subcategories. For some technologies, EPA has sampling data from a single facility, while for others, EPA has sampling data from multiple CWT facilities.

In order to estimate the current pollutant reductions due to additional treatment-in-place at oils facilities, for each technology, EPA compiled and reviewed all CWT sampling data for which EPA collected influent and effluent data. EPA subjected the influent data to a similar screening process as the one used in determining long-term averages. For each episode, EPA retained influent and effluent data for a specific pollutant only if the pollutant was detected in the influent at treatable levels (10 times the baseline value[1]) at least 50 percent of the time. For each facility, EPA then calculated an "average" percent removal for metals (averaging the percent removal for each metal), an "average" percent removal for organics, and an "average" percent removal for $BOD_5$, TSS, and oil and grease. EPA rounded the averages to the nearest 5 percent. When the "average" percent removal for more than one third of the pollutants in a compound class (i.e., metals, organics, $BOD_5$, TSS, and oil and grease) was zero or less, EPA set the "average" percent removal for the class of compounds equal to zero. EPA recognizes that treatment technologies are not equally effective in reducing all metals and/or all organics from wastewater, but believes this provides a reasonable estimate. The result is that, for some pollutants, EPA believes it may have underestimated the removals associated with the additional treatment-in-place, while for other pollutants, EPA may have overestimated the removals.

Table 12-3 shows the percent removal credited to each technology. For technologies that EPA evaluated at more than one CWT facility, the value for each class of compounds represents the lowest value at the facilities. For example, EPA sampled at two facilities that use multimedia filtration. The average percent removal of metal pollutants at facility 1 and facility 2 is 60 percent and 30 percent, respectively. Table 12-3 shows that EPA used 30 percent to estimate metals removal in multimedia filtration systems. EPA believes that using the lower percent removal of the "best" performers provides a reasonable estimate of the percent removals of these technologies for the rest of the industry and may even overstate the percent removals for some facilities that may not be operating the treatment technologies efficiently.

For some classes of compounds and some technologies, EPA does not have empirical data from the CWT industry to estimate percent removals. For these cases, EPA assumed percent removals based on engineering judgement. EPA assumed that air stripping is only effective for the removal of volatile and semi-volatile organic pollutants. EPA also assumed that chemical precipitation is ineffective for the treatment of organic pollutants. Finally, EPA assumed a 50 percent reduction in organic CWT pollutants through carbon adsorption treatment. EPA recognizes that carbon adsorption, given the correct design and operating conditions can achieve much higher pollutant removals. However, for this industry, EPA believes that the complex matrices, variability in waste receipts, and high loadings would compromise carbon adsorption

[1]Defined in chapter 15.

performance without regeneration or replacement of the carbon beds based on breakthrough of a range of organic pollutants.

In determining current loadings for facilities with additional treatment-in-place, EPA then reduced the current loadings concentrations established for the facility with gravity separation/emulsion breaking alone by the appropriate percent removal as defined above. For facilities with multiple treatment technologies in their treatment train, EPA credited each of the treatment technologies in the order that the process occurs in their treatment train.

Table 12-3 Treatment-in-Place Credit Applied to Oils Facilities

| Pollutant Group | Treatment Technology | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Chemical Precipitation | Carbon Adsorption | Air Stripping | Ultra-filtration | Biological | Multi-media/Sand Filtration | DAF | Secondary Separtion |
| $BOD_5$ | 0 | 0 | 0* | 55 | 50 | 10 | 10 | 5 |
| Oil and grease | 45 | 45 | 0* | 85 | 65 | 0 | 60 | 30 |
| TSS | 85 | 0 | 0* | 100 | 50 | 55 | 80 | 0 |
| Metals | 75 | 0 | 0* | 75 | 15 | 30 | 50 | 0 |
| Organics | 0* | 50* | 70 | 85 | 75 | 0 | 40 | 50 |

*Value is based on engineering judgement.

### *Issues Associated with Oils Current Performance Analyses 12.3.2.1*

This section describes four issues associated with estimating the current performance of the oils subcategory. The first issue is the dilution required in analyses of some highly concentrated samples representing the baseline technology (emulsion breaking/gravity separation). The second issue is the appropriate procedure for incorporating the concentrations of a biphasic sample into the estimates of current performance. The third issue is the appropriateness of various substitution methods for the non-detected measurements, especially of diluted samples.

#### DILUTION OF SAMPLES DURING LABORATORY ANALYSIS

Effluent from emulsion breaking/gravity separation operations may be highly concentrated, which may present difficulties in analyzing such effluent. Consequently, in its analysis of some samples, EPA needed to dilute the samples in order to reduce matrix difficulties (such as interference) to facilitate the detection or quantitation of certain target compounds. For some organic compounds, EPA also had to dilute samples where a highly concentrated sample could not be concentrated to the method-specified final volume.

If EPA diluted a sample for analytical purposes, EPA adjusted the particular pollutant measurement to correct for the dilution. For example, if a sample was diluted by 100 and the measurement was 7.9 ug/L, the reported value was adjusted to 790 ug/L (i.e., 7.9 ug/L*100). In general, the sample-specific detection limits (DLs) for a pollutant were equal to or greater than the baseline value described in Chapter 15.

Because wastes generated using the BAT technologies will be less concentrated than emulsion breaking/gravity separation operations, in EPA's view, effluent samples collected to demonstrate compliance with the final limitations and standards will not require dilution and therefore not result in effluent values with large sample-specific DLs. Further, a laboratory can overcome potential analytical interferences using procedures such as those suggested in the *Guidance on the Evaluation, Resolution, and Documentation of Analytical Problems Associated with Compliance Monitoring* (EPA 821-B-93-001). Thus, in demonstrating compliance, EPA would not allow dilution of a sample to a sample-specific DL greater than the limitation or standard.

### BIPHASIC SAMPLES

EPA used a number of different analytical methods to determine the pollutant levels in the effluent samples from facilities that employ chemical emulsion breaking/gravity separation for treating oily wastewater. Each method is specific to a particular analyte or to structurally similar chemical compounds such as volatile organics (analyzed by Method 1624) and semivolatile organics (analyzed by Method 1625). In developing the laboratory procedures described in Method 1625, EPA included a procedure for analyzing aqueous samples and another procedure for analyzing biphasic samples. Some effluent samples from emulsion breaking/gravity separation were biphasic. That is, each sample separated into two distinct layers, an aqueous layer and an organic one. In these instances, if the phases could not be mixed, EPA analyzed each phase (or layer) separately. Thus, each pollutant in a sample analyzed by Method 1625 had two analytical results, one for the organic phase and the other for the aqueous phase. There were three such samples in the oils subcategory. Only sample number 32823 (episode 4814B), however, represents oily wastes following emulsion breaking/gravity separation. This sample is part of one of the nineteen data sets representing emulsion breaking/gravity separation used to calculate pollutant concentration loadings for facilities without concentration data. For this biphasic sample, EPA combined the two concentration values into a single value for each pollutant analyzed using Method 1625. The discussion below describes the procedures for combining the two concentration values and Table 12-4 summarizes these procedures. Table 12-5 provides examples of these procedures. DCN[2] 23.13 lists the combined values for the samples.

If the pollutant was detected in the organic phase, EPA adjusted the analytical results to account for the percent of the sample in each phase. For sample 32823, 96 percent of the sample volume was aqueous and the remaining 4 percent was organic. Thus, EPA multiplied the aqueous value (detected value or sample-specific DL) by 0.96 and the organic value by 0.04. EPA then summed the two adjusted values to obtain the total concentration value for the pollutant in the sample.

If the pollutant was not detected in the organic phase, EPA used several different procedures depending on the pollutant and its concentration in the aqueous phase. A factor which complicated EPA's analysis was that sample-specific DLs for pollutants in the organic phase were 1000[3] times greater than the minimum levels for Method 1625. When a measurement result indicates that a pollutant is not detected, then the reported sample-specific DL is an upper bound for the actual concentration of the pollutant in the sample. When some sample-specific DLs for the organic phase (which were 1000 times the minimum level) were multiplied by 0.04, the adjusted non-detected values were greater than the measured amount in the aqueous phase. EPA concluded that substituting the sample-specific DL for the non-detected results in the organic phase in these

[2] Items identified with document control numbers (DCN) are located in the record to the final rulemaking.

[3] Because the volume of the organic phase was small, the organic phase sample required dilution (by 1000) for analysis. In contrast, the aqueous phase had sufficient amount so that it was not diluted.

circumstances might over-estimate the amount of pollutant in the sample. Thus, EPA applied one of the two alternative substitution procedures described below for the sample-specific DLs resulting from the organic phase.

First, if EPA did not detect the pollutant in either phase, EPA considered the sample to be non-detect at the sample-specific DL of the aqueous phase. This value for the aqueous phase was equal to the minimum level specified in Method 1625.

Second, if the pollutant was detected in the aqueous phase (and non-detected in the organic phase), EPA used a procedure that compared the non-detected organic values to the detected aqueous value adjusted by a partition ratio (550). EPA determined this partition ratio using the average of the ratios of the detected organic phase concentrations to the detected aqueous phase concentrations for the pollutants that had detected values in both phases. There were twenty-two pollutants that were used to calculate this value of 550. These pollutants are in four structural groupings of organic pollutants: chlorobenzenes, phenols, aromatic ethers, and polynuclear aromatic hydrocarbons. The ratios were similar in each of the structural groupings; consequently, EPA determined that a single value for the partition ratio was appropriate. EPA then multiplied the aqueous phase concentration value by this partition ratio of 550. If this value was less than the sample-specific DL of the pollutant in the organic phase, EPA substituted this value for the organic phase sample-specific DL. Otherwise, EPA used the organic phase sample-specific DL. EPA then multiplied the values for the aqueous and organic phases by the relative volume amounts (0.96 and 0.04, respectively) and summed them to obtain one value for the sample.

Table 12-4. Biphasic Sample Calculations (Summary of rules for combining aqueous/organic phase concs.)

| Censoring types (i.e., detected or non-detected) | | | Method for obtaining combined value |
|---|---|---|---|
| Aqueous phase | Organic phase | Combined result (same as aqueous) | |
| NC | NC | NC | 0.96*AQ + 0.04*ORG |
| ND | NC | ND | 0.96*AQ (use DL) + 0.04*ORG |
| ND | ND | ND | AQ (use DL) |
| NC | ND (DL>550*AQ) | NC | 0.96*AQ + 0.04*(550*AQ) |
| | ND (DL<=550*AQ) | | 0.96*AQ + 0.04*ORG (use DL) |

AQ = value for aqueous phase
ORG = value for organic phase
NC = non-censored (detected)
ND = non-detected
DL = sample-specific detection limit

Table 12-5. Examples of Combining Aqueous and Organic Phases for Sample 32823

| Pollutant | Reported Concs. (ug/L) | | Concentration for Sample (ug/L) | Calculation for Sample | Comment |
|---|---|---|---|---|---|
| | Aqueous Phase | Organic Phase | | | |
| Acenaphthene | 668.6 | 319,400 | 13,418 | (0.96*668.6 ug/L) + (0.04*319,400 ug/L) | Concentrations are weighted by relative amounts of the sample volume in each phase: 96% aqueous and 4% organic |
| 4,5-methylene phenanthrene † | ND (10) | 163,500 | ND (6,550) | (0.96*10 ug/L) + (0.04*163,500 ug/L) | |
| Aniline | ND (10)* | ND (10,000) | ND (10) | | no calculation necessary |
| 1-phenyl -naphthalene ‡ | 10.49 | ND (10,000) | 240.9 | (0.96*10.49 ug/L) +(0.04*550*10.49 ug/L) | The sample-specific DL of 10,000 ug/L for the organic phase is greater than 5570 ug/L (i.e., 550 times 10.49 ug/L) |
| Alpha-terpineol | 1,885.8 | ND (10,000) | 2,210 | (1,885.8 ug/L*0.96) + (10,000 ug/L*0.04) | The sample-specific DL of 10,000 ug/L for the organic phase is less than 1,037,190 (i.e., 550 times 1885.8 ug/L) |

* ND=non-detected measurement. The sample-specific DL is provided in the parentheses.

† None of measurements of the pollutants of concern from this sample resulted in a non-detected measurement for the aqueous phase with a detected measurement for the organic phase. This analyte is shown for demonstration purposes.

‡ None of measurements of the pollutants of concern from this sample resulted in a detected measurement for the aqueous phase with a sample-specific DL for the organic phase that was greater than 550 times the measurement from the aqueous phase. This analyte is shown for demonstration purposes.

NON-DETECT DATA IN COMPLEX SAMPLES

EPA included values for measurements reported as "non-detected" when it calculated the mean for each pollutant of concern in the emulsion breaking/gravity separation data sets. In some instances, the measurements reported as non-detected had sample-specific detection limits that were well in excess of the pollutant's baseline value (defined in section 15). The high sample-specific detection limits occurred because the samples contained many pollutants which interfered with the analytical techniques. EPA considered several approaches for handling these sample-specific non-detected measurements because, by definition, if a pollutant is 'not detected', then the pollutant is either not present at all (that is, the concentration is equal to zero) or has a concentration value somewhere between zero and the sample-specific detection limit (DL).

EPA considered the following five approaches to selecting a value to substitute for non-detected measurements in emulsion breaking/gravity separation samples:

1. Assume that the pollutant is not present in the sample and substitute zero for the non-detected measurement (that is, ND=0).
2. Assume that the pollutant is present in the sample at a concentration equal to the baseline value (BV) for analytical results as defined in chapter 15 (that is, ND=BV)).
3. Assume that the pollutant is present at a concentration equal to half the sample-specific DL (that is, ND=DL/2). (In general, the values of the sample-specific DLs are equal to or greater than the values of the baseline values used in the second approach.)
4. Assume that the pollutant is present at a concentration equal to the sample-specific DL (that is, ND=DL). This is the

substitution approach that was used in the 1995 proposal, for the influent pollutant loadings for the other two subcategories, and for the final limitations and standards for all three subcategories.

5. Assume that the pollutant is present at a concentration equal to either the sample-specific DL or the mean of the detected (or non-censored) values (MNC) of the pollutant.[4] EPA used the lower of the two values (that is, ND=minimum of DL or MNC). For each pollutant, EPA calculated two MNC values: one using the data from the RCRA facilities; the other using data from the non-RCRA facilities. EPA then compared the sample-specific detection limits to the appropriate MNC value depending on whether the facility was RCRA or non-RCRA.

EPA ultimately selected the approach described in 5. The Agency concluded that approach 5 provides the most realistic estimate of current performance from these data sets.

Table 12-6A shows how EPA applied the five substitution approaches to data for hypothetical pollutant X for seven facilities (which were the only ones used when EPA evaluated these methods. For the final rule, EPA included the additional 12 characterization facilities in these calculations and distinguished between RCRA and non-RCRA facilities). The example shows the types of calculations EPA performed in comparing the five approaches for the seven facilities. The example includes facilities that treat wastes on a batch and continuous basis. It also includes a mixture of detected and non-detected measurements as well as duplicate samples. For each facility, the table lists the analytical results reported by the laboratory for pollutant X. If the reported value is non-detected, then this analytical result is identified in the table as “ND” with the reported sample-specific DL in the parenthesis. If the value is detected, the analytical (measured) result is shown in the table and is identical in all five approaches because the substitutions apply only to non-detected values. Finally, for seven facilities, the table shows five long-term averages for pollutant X -- one for each of the five substitution approaches.

[4] For each pollutant measured by Method 1625, EPA calculated the mean (or average) of the detected (or non-censored) values (MNC) using all detected values in the eleven data sets except for the biphasic sample. The substitutions were only applied to non-detected measurements observed in aqueous samples because the non-detected measurements in the biphasic sample were evaluated separately as described in the previous section. While EPA believes that biphasic samples can result from some wastes in this subcategory after processing through emulsion breaking/gravity separation, EPA believes that it is appropriate to use only detected measurements from aqueous samples in calculating the mean that will be compared to each sample-specific DL in aqueous samples.

Table 12-6A. Example of Substitution Methods for Non-Detected Measurements of Hypothetical Pollutant X

| Facility | Sampling Day or Batch Number | Reported Values (ug/L) | **Approach 1** ND=0 | **Approach 2** ND=BV † (BV=10 ug/L) | **Approach 3** ND=DL/2 | **Approach 4** ND=DL | **Approach 5** ND= min(DL,MNC) |
|---|---|---|---|---|---|---|---|
| A** | Batch 1 | 99 | 99 | 99 | 99 | 99 | 99 |
| | Batch 1 | 95 | 95 | 95 | 95 | 95 | 95 |
| | Batch 2 | ND (300)* | 0 | 10 | 150 | 300 | 300 |
| | Batch 3 | 84 | 84 | 84 | 84 | 84 | 84 |
| | Batch 4 | 258 | 258 | 258 | 258 | 258 | 258 |
| | | **A: LTA** | **122** | **125** | **160** | **197** | **197** |
| B | Day 1 | ND (100) | 0 | 10 | 50 | 100 | 100 |
| | Day 2 | ND (1000) | 0 | 10 | 500 | 1000 | 315 |
| | | **B: LTA** | **0** | **10** | **275** | **550** | **208** |
| C | Day 1 | 57 | 57 | 57 | 57 | 57 | 57 |
| | Day 2 | 84 | 84 | 84 | 84 | 84 | 84 |
| | Day 3 | 26 | 26 | 26 | 26 | 26 | 26 |
| | | **C: LTA** | **56** | **56** | **56** | **56** | **56** |
| D | Day 1 | 73 | 73 | 73 | 73 | 73 | 73 |
| | Day 2 (duplicate) | ND (100) | 0 | 10 | 50 | 100 | 100 |
| | Day 2 (duplicate) | ND (10) | 0 | 10 | 5 | 10 | 10 |
| | Day 3 | 62 | 62 | 62 | 62 | 62 | 62 |
| | | **D: LTA** | **45** | **48** | **54** | **63** | **63** |
| E | Day 1 | 411 | 411 | 411 | 411 | 411 | 411 |
| | Day 2 | 257 | 257 | 257 | 257 | 257 | 257 |
| | Day 3 | 79 | 79 | 79 | 79 | 79 | 79 |
| | Day 4 | ND (1000) | 0 | 10 | 500 | 1000 | 315 |
| | Day 5 | ND (220) | 0 | 10 | 110 | 220 | 220 |
| | | **E: LTA** | **149** | **153** | **271** | **393** | **256** |
| F | Day 1 | ND (300) | 0 | 10 | 150 | 300 | 300 |
| | Day 2 | 320 | 320 | 320 | 320 | 320 | 320 |
| | Day 3 | 44 | 44 | 44 | 44 | 44 | 44 |
| | Day 4 | 47 | 47 | 47 | 47 | 47 | 47 |
| | Day 5 | 180 | 180 | 180 | 180 | 180 | 180 |
| | | **F: LTA** | **118** | **120** | **148** | **178** | **178** |
| G | Day 1 | 1234 | 1234 | 1234 | 1234 | 1234 | 1234 |
| | Day 2 | 855 | 855 | 855 | 855 | 855 | 855 |
| | Day 3 | 661 | 661 | 661 | 661 | 661 | 661 |
| | Day 4 | 1377 | 1377 | 1377 | 1377 | 1377 | 1377 |
| | | **G: LTA** | **1032** | **1032** | **1032** | **1032** | **1032** |
| | MNC = | 315 | (MNC = mean of detected values from all seven facilities) | | | | |

* ND=non-detected measurement. The sample-specific detection limit is provided in the parentheses.

† BV=baseline value for analytical results – see chapter 15

** The 7 data sets used in this table was expanded to include 19 total data sets for the final rule.

While Table 12-6A provides an example using the five approaches, DCN 23.8 in the record shows the results of the substitution values under the first four approaches to the actual seven concentration data sets from the seven facilities with emulsion breaking/gravity separation. DCN 23.21 shows the results of using the fifth approach. After evaluating the five approaches, EPA preferred Approach 5 because it tended to minimize the effect of sample-specific large detection levels on the long-term averages while providing reasonable estimates of the actual concentrations. Furthermore, EPA felt that Approach 5 was superior to the other four approaches. In particular, the first and second approaches (substitutions of zero or the BV, respectively, for non-detects) are poor choices because they are likely to provide unrealistically low estimates of the analyte concentrations in samples with high sample-specific detection limits, especially when all detected values are substantially greater than zero and the BV. In addition, the third and fourth approaches (substitution of the sample-specific DL or DL/2, respectively) are poor choices because the substitutions could exceed the detected values in some cases, and thus, possibly could over estimate the concentrations in non-detected measurements. EPA's analyses also show that there is little or no difference in the averages between using the sample-specific DL or half the sample-specific DL for many of the facility/analyte data sets. Thus, EPA has followed the approach outlined in 5 above because it concluded that this approach provides reasonable estimates of the actual concentrations because the substituted values are neither unrealistically low nor exceed the greatest detected value.

Table 12-7 shows the option long-term averages for each pollutant for the RCRA and non-RCRA facilities separately. For each pollutant in each subset (RCRA and non-RCRA), the table provides a long-term average without any replacements and another long-term average where sample-specific detection limits greater than the MNC value have been replaced with the MNC value. DCN XXX provides the facility long-term averages that were used to calculate these pollutant long-term averages.

Table 12-6B shows the relative effects (at the time of the 1999 proposal) of EPA's preferred approach in comparison to Approach 1 on the estimates of priority, conventional, and non-priority pollutant concentrations for baseline loadings and the total removals changes for toxic weighted pollutants. In comparison to Approach 1 (EPA's original method), EPA's preferred (or 'replaced') approach (that is, Approach 5) had little noticeable effect on the baseline loadings for the oils subcategory. In other words, the current loadings are approximately the same using either approach. There is, however, a significant decrease in toxic pound-equivalent removals with EPA's preferred approach. Hence, overall toxic pound-equivalent removal estimates using EPA's preferred approach decreased by approximately 34% from those calculated using its original approach (that is, substituting the sample-specific detection limit for all non-detected measurements). The cost effectiveness document provides more information on toxic pound-equivalent removals.

Table 12-6B. Difference in Oils Subcategory Loadings After Non-Detect Replacement Using EPA Approach*

| Priority Metals & Organics Current Loading (percent change) | Non-Priority Metals & Organics Current Loading (percent change) | Conventional Pollutant Current Loading (percent change) | Pound-Equivalent Net Removals (percent change) |
|---|---|---|---|
| - 5 | + 1 | 0 | - 34 |

* Data is from a comparison performed for 1999 proposal. Final estimates may vary slightly.

Table 12-7. Long-Term Average Concentrations For Emulsion Breaking/Gravity Separation Effluent

| Pollutant | CAS Number | LTA for RCRA Facilities | | LTA for Non-RCRA Facilities | |
|---|---|---|---|---|---|
| | | Without Replacement | With Replacement | Without Replacement | With Replacement |
| CLASSICAL OR CONVENTIONAL PARAMETERS (mg/L) | | | | | |
| Ammonia as nitrogen | 7664-41-7 | 135.37 | 135.37 | 111.02 | 111.02 |
| Biochem. oxygen demand | C-003 | 7,826.66 | 7,826.66 | 14,160.55 | 14,160.55 |
| Chemical oxygen demand | C-004 | 44,683.32 | 44,683.32 | 75,458.21 | 75,458.21 |
| Chloride | 16887-00-6 | 2,635.01 | 2,635.01 | 31.91 | 31.91 |
| Fluoride | 16984-48-8 | 69.73 | 69.73 | 26.85 | 26.85 |
| Nitrate/nitrite | C-005 | 25.69 | 25.69 | 6.90 | 6.90 |
| Oil and grease | C-007 | 18,690.42 | 18,690.42 | 6,130.09 | 6,130.09 |
| SGT-HEM | C-037 | 1,442.70 | 1,442.70 | 3,467.85 | 3,467.85 |
| Total cyanide | 57-12-5 | 0.24 | 0.24 | 0.02 | 0.02 |
| Total dissolved solids | C-010 | 16,363.93 | 16,363.93 | 11,124.49 | 11,124.49 |
| Total organic carbon | C-012 | 6,243.59 | 6,243.59 | 15,661.45 | 15,661.45 |
| Total phenols | C-020 | 14.63 | 14.63 | 40.85 | 40.85 |
| Total phosphorus | 14265-44-2 | 1,264.87 | 1,264.87 | 3,724.63 | 3,724.63 |
| Total suspended solids | C-009 | 6,531.56 | 6,531.56 | 5,167.65 | 5,167.65 |
| METAL PARAMETERS (ug/L) | | | | | |
| Aluminum | 7429-90-5 | 36,941 | 36,941 | 49,641 | 49,641 |
| Antimony | 7440-36-0 | 978 | 243 | 774 | 261 |
| Arsenic | 7440-38-2 | 1,328 | 1,328 | 102 | 80 |
| Barium | 7440-39-3 | 2,491 | 2,491 | 664 | 664 |
| Boron | 7440-42-8 | 156,850 | 156,850 | 122,998 | 122,998 |
| Cadmium | 7440-43-9 | 175 | 161 | 43 | 27 |
| Calcium | 7440-70-2 | 224,357 | 224,357 | 183,129 | 183,129 |
| Chromium | 7440-47-3 | 2,023 | 2,023 | 218 | 218 |
| Cobalt | 7440-48-4 | 6,074 | 6,074 | 2,077 | 2,077 |
| Copper | 7440-50-8 | 10,697 | 10,697 | 837 | 837 |
| Germanium | 7440-56-4 | 12,845 | 4,349 | 20,888 | 20,888 |
| Iron | 7439-89-6 | 219,497 | 219,497 | 56,564 | 56,564 |
| Lead | 7439-92-1 | 6,085 | 6,085 | 975 | 975 |
| Lutetium | 7439-94-3 | 2,385 | 589 | 4,178 | 4,178 |
| Magnesium | 7439-95-4 | 75,066 | 75,066 | 131,463 | 131,463 |
| Manganese | 7439-96-5 | 8,237 | 8,237 | 2,758 | 2,758 |
| Mercury | 7439-97-6 | 7 | 7 | 20 | 20 |
| Molybdenum | 7439-98-7 | 2,725 | 2,725 | 4,640 | 4,640 |
| Nickel | 7440-02-0 | 20,512 | 20,512 | 1,228 | 1,180 |
| Phosphorus | 7723-14-0 | 81,096 | 81,096 | 22,987 | 22,987 |
| Potassium | 7440-09-7 | 670,251 | 670,251 | 660,839 | 660,839 |
| Selenium | 7782-49-2 | 123 | 112 | 30 | 18 |
| Silicon | 7440-21-3 | 41,939 | 41,939 | 15,861 | 15,861 |
| Silver | 7440-22-4 | 563 | 503 | 52 | 8 |
| Sodium | 7440-23-5 | 2,808,044 | 2,808,044 | 2,376,236 | 2,376,236 |
| Strontium | 7440-24-6 | 3,408 | 1,654 | 4,181 | 114 |
| Sulfur | 7704-34-9 | 2,048,228 | 2,048,228 | 151,420 | 151,420 |
| Tantalum | 7440-25-7 | 12,923 | 4,349 | 20,888 | 20,888 |
| Tin | 7440-31-5 | 1,672 | 1,264 | 494 | 151 |
| Titanium | 7440-32-6 | 353 | 353 | 71 | 59 |
| Zinc | 7440-66-6 | 30,887 | 30,887 | 14,488 | 14,488 |
| ORGANIC PARAMETERS (ug/L) | | | | | |
| Acenaphthene | 83-32-9 | 2,109 | 1,364 | 325 | 83 |
| Alpha-terpineol | 98-55-5 | 1,739 | 1,031 | 476 | 304 |
| Aniline | 62-53-3 | 1,209 | 201 | 334 | 108 |

| Pollutant | CAS Number | LTA for RCRA Facilities | | LTA for Non-RCRA Facilities | |
|---|---|---|---|---|---|
| | | Without Replacement | With Replacement | Without Replacement | With Replacement |
| Anthracene | 120-12-7 | 2,348 | 1,591 | 370 | 182 |
| Benzene | 71-43-2 | 4,572 | 4,572 | 520 | 520 |
| Benzo(a)anthracene | 56-55-3 | 1,563 | 551 | 363 | 167 |
| Benzoic acid | 65-85-0 | 15,419 | 14,689 | 15,851 | 15,851 |
| Benzyl alcohol | 100-51-6 | 1,276 | 334 | 1,354 | 1,329 |
| Biphenyl | 92-52-4 | 1,788 | 889 | 1,158 | 1,158 |
| Bis(2-ethylhexyl)phthalate | 117-81-7 | 51,495 | 51,495 | 1,472 | 1,472 |
| Butyl benzyl phthalate | 85-68-7 | 4,886 | 4,886 | 2,370 | 2,370 |
| Carbazole | 86-74-8 | 2,500 | 552 | 629 | 109 |
| Carbon disulfide | 75-15-0 | 371 | 257 | 240 | 240 |
| Chlorobenzene | 108-90-7 | 283 | 126 | 10 | 10 |
| Chloroform | 67-66-3 | 558 | 482 | 10 | 10 |
| Chrysene | 218-01-9 | 1,708 | 710 | 401 | 252 |
| Dibenzofuran | 132-64-9 | 2,060 | 1,263 | 319 | 66 |
| Dibenzothiophene | 132-65-0 | 1,513 | 544 | 416 | 282 |
| Diethyl phthalate | 84-66-2 | 2,228 | 1,658 | 355 | 206 |
| Diphenyl ether | 101-84-8 | 1,205 | 122 | 1,590 | 1,590 |
| Ethylbenzene | 100-41-4 | 4,964 | 4,964 | 403 | 403 |
| Fluoranthene | 206-44-0 | 3,138 | 2,433 | 335 | 96 |
| Fluorene | 86-73-7 | 2,257 | 1,513 | 366 | 154 |
| Hexanoic acid | 142-62-1 | 5,295 | 5,254 | 54,805 | 54,805 |
| m+p xylene | 179601-23-1 | 1,043 | 1,043 | . | . |
| m-xylene | 108-38-3 | 7,008 | 7,008 | 432 | 432 |
| Methylene chloride | 75-09-2 | 2,965 | 2,965 | 133 | 133 |
| n,n-dimethylformamide | 68-12-2 | 1,229 | 407 | 343 | 104 |
| n-decane | 124-18-5 | 71,555 | 71,555 | 1,969 | 1,969 |
| n-docosane | 629-97-0 | 2,434 | 1,712 | 4,789 | 4,789 |
| n-dodecane | 112-40-3 | 58,682 | 58,682 | 11,095 | 11,095 |
| n-eicosane | 112-95-8 | 28,807 | 28,807 | 1,626 | 1,588 |
| n-hexacosane | 630-01-3 | 1,892 | 1,288 | 557 | 427 |
| n-hexadecane | 544-76-3 | 106,817 | 106,817 | 85,199 | 85,199 |
| n-octacosane | 630-02-4 | 2,036 | 1,995 | 316 | 94 |
| n-octadecane | 593-45-3 | 66,771 | 66,771 | 6,854 | 6,854 |
| n-tetracosane | 646-31-1 | 2,174 | 1,771 | 546 | 529 |
| n-tetradecane | 629-59-4 | 194,564 | 194,564 | 50,390 | 50,390 |
| Naphthalene | 91-20-3 | 11,560 | 11,560 | 3,065 | 3,065 |
| o+p xylene | 136777-61-2 | 4,660 | 4,660 | 494 | 494 |
| o-cresol | 95-48-7 | 1,695 | 1,091 | 1,357 | 1,327 |
| o-toluidine | 95-53-4 | 1,211 | 158 | 322 | 67 |
| o-xylene | 95-47-6 | 700 | 700 | . | . |
| p-cresol | 106-44-5 | 1,145 | 939 | 1,018 | 1,018 |
| p-cymene | 99-87-6 | 1,536 | 824 | 878 | 878 |
| Pentamethylbenzene | 700-12-9 | 2,303 | 1,717 | 309 | 309 |
| Phenanthrene | 85-01-8 | 5,654 | 5,241 | 937 | 937 |
| Phenol | 108-95-2 | 6,406 | 6,345 | 16,610 | 16,610 |
| Pyrene | 129-00-0 | 2,719 | 1,994 | 1,512 | 1,512 |
| Pyridine | 110-86-1 | 1,371 | 483 | 313 | 34 |
| Styrene | 100-42-5 | 1,299 | 329 | 377 | 190 |
| Tetrachloroethene | 127-18-4 | 2,238 | 2,238 | 1,779 | 1,779 |
| Toluene | 108-88-3 | 22,758 | 22,758 | 1,952 | 1,952 |
| Trichloroethene | 79-01-6 | 876 | 876 | 22 | 22 |
| Tripropyleneglycol methyl ether | 20324-33-8 | 44,553 | 43,295 | 5,008 | 4,785 |
| 1,1,1-trichloroethane | 71-55-6 | 2,078 | 2,078 | 54 | 54 |

| Pollutant | CAS Number | LTA for RCRA Facilities | | LTA for Non-RCRA Facilities | |
|---|---|---|---|---|---|
| | | Without Replacement | With Replacement | Without Replacement | With Replacement |
| 1,1-dichloroethene | 75-35-4 | 370 | 275 | 10 | 10 |
| 1,2,4-trichlorobenzene | 120-82-1 | 3,283 | 2,921 | 309 | 309 |
| 1,2-dichlorobenzene | 95-50-1 | 1,438 | 389 | 309 | 309 |
| 1,2-dichloroethane | 107-06-2 | 352 | 215 | 10 | 10 |
| 1,4-dichlorobenzene | 106-46-7 | 1,503 | 762 | 309 | 309 |
| 1,4-dioxane | 123-91-1 | 349 | 312 | 32 | 32 |
| 1-methylfluorene | 1730-37-6 | 1,529 | 553 | 370 | 220 |
| 1-methylphenanthrene | 832-69-9 | 1,557 | 666 | 597 | 561 |
| 2,3-benzofluorene | 243-17-4 | 1,218 | 1,218 | 415 | 301 |
| 2,4-dimethylphenol | 105-67-9 | 1,266 | 314 | 482 | 369 |
| 2-butanone | 78-93-3 | 17,599 | 17,599 | 1,081 | 1,081 |
| 2-isopropylnaphthalene | 2027-17-0 | 8,649 | 8,649 | 414 | 296 |
| 2-methylnaphthalene | 91-57-6 | 6,955 | 6,605 | 2,013 | 2,013 |
| 2-propanone | 67-64-1 | 158,534 | 158,534 | 8,453 | 8,453 |
| 3,6-dimethylphenanthrene | 1576-67-6 | 1,194 | 1,194 | 418 | 309 |
| 4-chloro-3-methylphenol | 59-50-7 | 12,407 | 12,407 | 1,245 | 1,245 |
| 4-methyl-2-pentanone | 108-10-1 | 6,496 | 6,496 | 642 | 642 |

### *Estimation of Emulsion Breaking/ Gravity Separation Loadings* *12.3.2.2*

For the 1999 proposal, EPA randomly assigned one of the seven emulsion breaking/gravity separation data sets to each oils facility for which EPA needed to estimate current performance; however, the SBREFA Panel raised the concern that this approach may not have resulted in a representative assignment of loadings. For the final rule, EPA has developed another procedure to obtain average concentrations using all seven data sets and the characterization sampling described in Chapter 2.

The following explains EPA's final procedure. To obtain estimates of current pollutant loadings associated with emulsion breaking/gravity separation, EPA developed estimates of the pollutant loadings at each of the 84 facilities identified as having wastestreams in the oils subcategory. To obtain estimates of pollutant loadings, EPA needed concentration and flow information for all facilities. EPA had flow information from all facilities, but had varied data on pollutant concentrations from only nineteen facilities where EPA had sampled the emulsion breaking/gravity separation operations. Section 12.3.2.1 describes these nineteen concentration data sets. For each facility in EPA's oils subcategory database, EPA assigned either the RCRA or non-RCRA long-term average to the facility depending on its RCRA status. Then, EPA estimated each facility's pollutant loadings as the product of the total oils wastewater flow at the facility and the pollutant concentrations in its assigned data set.

## ***Organics Subcategory Current Loadings*** ***12.3.3***

EPA had limited available data from the organics subcategory and very little data which represent organic subcategory CWT wastewater only. The vast majority of organic facilities commingle large quantities of non-CWT wastewater prior to the point of discharge. Therefore, EPA estimated current loadings based on the treatment technologies in place except for the two facilities for which EPA has analytical data representing organic subcategory wastewater only.

Based on a review of technologies currently used at organic subcategory facilities, EPA placed in-place treatment for this subcategory in one of five classes:

1) raw;
2) filtration only;
3) carbon adsorption;
4) biological treatment; and
5) biological treatment and multimedia filtration.

The discussion below describes the methodology EPA used to estimate current loadings for each classification. Table 12-8 lists the current performance estimates for each classification. This table does not include current loadings estimates for all pollutants of concern in the organics subcategory.

EPA used the first classification ("raw") for seven organic subcategory facilities with no reported treatment in place for the reduction of organic constituents. EPA based its current loadings estimate for "raw wastewater" on EPA sampling data at two organic facilities. These were Episode 1987, sample points 07A and 07B and Episode 4472, sample point 01. Because the data at Episode 4472 represents both organic and oils subcategory wastes, the raw loadings for metals pollutants were based upon the Episode 1987 data alone[5].

For each episode and sample point, EPA collected one composite sample for the entire day. In addition, EPA collected a few field duplicates that were also composite samples that correspond to the pollutants of concern. EPA then averaged duplicate samples before performing any other calculations so that there was only one daily average for each day for each pollutant of concern.

For each pollutant of concern and each facility, EPA calculated a long-term average as the arithmetic average of the daily averages. This mean includes measured (detected) and non-detected values. For non-detected values, EPA used the sample-specific detection limit. For two cases where the resulted were reported as non-detected, EPA used the baseline value for the pollutant (described in section 15) because the laboratory did not report the sample-specific detection limits. These two cases were for iodine and phosphorus at episode 1987.

Once EPA had calculated the long-term average for each facility and each pollutant of concern, EPA then calculated the mean (that is, arithmetic average) of the long-term averages from the two facilities for each pollutant of concern to estimate the "raw" current loadings concentrations reported in Table 12-8.

EPA classified in the second category ("filtration only") three organic subcategory facilities which only had multi-media or sand filtration as the on-site treatment technology for the organic waste stream. For these facilities, EPA adjusted the "raw wastewater" concentrations to account for 55 percent removal of TSS, 30 percent removal of metal parameters, 10 percent removal of $BOD_5$, and no removal of other classical or organic pollutants. EPA estimated the percent reductions for facilities in this group using the procedure previously described in Section 12.3.2.

EPA placed in the third category two organic subcategory facilities with carbon adsorption (usually preceded by sand or multi-media filtration). EPA adjusted the "raw wastewater" concentrations to account for 50 percent removal of organic pollutants, and no removal of all other pollutants. Again, EPA also estimated the percent removals for facilities in this category using the procedure previously described in Section 12.3.2.

EPA based the current loadings concentrations for the fourth and fifth classification on EPA sampling data collected at Episode 1987. EPA calculated the current loadings estimates for each pollutant of concern using a similar procedure to that described above

[5] EPA's data show that the concentration of metal pollutants in oils subcategory wastes are generally greater than in organics subcategory wastes.

for the "raw" organics subcategory current performance.

EPA based the percent removals for five organic subcategory facilities in the fourth classification (biological treatment) on analytical data collected at sample point 12 at episode 1987. For the classicals, conventionals, and metals pollutants, if the long-term average at sample point 12 was greater than the value at sample point 7 at episode 1987, EPA used the value of sample point 7. This is because the treatment technology was ineffective for these specific pollutants.

For the two organic subcategory facilities in the fifth classification (biological treatment and multimedia filtration) EPA based removals on analytical data collected at sample point 14 for conventionals, classicals, and metals. EPA based the removals for organics on the data collected at sample point 12 because EPA did not analyze any samples for organics from sample point 14. This is because no additional organics removals were expected between the two treatment steps.

Table 12-8: Organics Subcategory Baseline Long-Term Averages

| Pollutant | Raw | Filtration Only | Carbon Adsorption | Biological Treatment | Biological Treatment and Multimedia Filtration |
|---|---|---|---|---|---|
| CLASSICAL OR CONVENTIONAL PARAMETERS (mg/L) | | | | | |
| Ammonia as nitrogen | 5,680 | 5,680 | 5,680 | 1,060 | 616.0 |
| Biochem. oxygen demand | 24,224 | 21,802 | 24,224 | 2,440 | 1,564.0 |
| Chemical oxygen demand | 75,730 | 75,730 | 75,730 | 3,560 | 2,940.0 |
| Fluoride | 7 | 7 | 7 | 8 | 2.3 |
| Nitrate/nitrite | 93 | 93 | 93 | 2 | 0.2 |
| Total cyanide | 3 | 3 | 3 | 2 | 2.1 |
| Total organic carbon | 31,804 | 31,804 | 31,804 | 1,006 | 968.0 |
| Total sulfide | 4 | 4 | 4 | 3 | 1.8 |
| Total suspended solids | 1,319 | 725 | 1,319 | 480 | 399.2 |
| METAL PARAMETERS (ug/L) | | | | | |
| Aluminum | 4,808 | 1,442 | 4,808 | 2,474 | 291.0 |
| Antimony | 687 | 206 | 687 | 569 | 92.0 |
| Arsenic | 74 | 22 | 74 | 74 | 80.0 |
| Barium | 28,343 | 8,503 | 28,343 | 2,766 | 1,120.0 |
| Boron | 3,490 | 1,047 | 3,490 | 3,490 | 3,090.0 |
| Calcium | 1,249,000 | 374,700 | 1,249,000 | 286,000 | 641,000.0 |
| Chromium | 109 | 33 | 109 | 109 | 54.0 |
| Cobalt | 425 | 128 | 425 | 425 | 170.0 |
| Copper | 910 | 273 | 910 | 704 | 171.0 |
| Iodine | 6,270 | 1,881 | 6,270 | 6,270 | 5,800.0 |
| Iron | 3,833 | 1,150 | 3,833 | 3,833 | 2,040.0 |
| Lead | 340 | 102 | 340 | 314 | 66.0 |
| Lithium | 9,730 | 2,919 | 9,730 | 9,730 | 9,400.0 |
| Manganese | 292 | 88 | 292 | 227 | 360.0 |
| Molybdenum | 1,765 | 529 | 1,765 | 943 | 253.0 |
| Nickel | 1,632 | 490 | 1,632 | 1,632 | 1,850.0 |
| Phosphorus | 5,740 | 1,722 | 5,740 | 5,740 | 1,700.0 |
| Potassium | 973,600 | 292,080 | 973,600 | 973,600 | 971,000.0 |
| Silicon | 2,590 | 777 | 2,590 | 2,590 | 1,600.0 |
| Sodium | 4,459,000 | 1,337,700 | 4,459,000 | 4,459,000 | 5,310,000.0 |
| Strontium | 6,870 | 2,061 | 6,870 | 2,060 | 6,000.0 |
| Sulfur | 1,283,960 | 385,188 | 1,283,960 | 1,283,960 | 563,000.0 |
| Tin | 670 | 201 | 670 | 670 | 789.0 |
| Titanium | 27 | 8 | 27 | 27 | 19.0 |
| Zinc | 781 | 234 | 781 | 382 | 127.0 |
| ORGANIC PARAMETERS (ug/L) | | | | | |
| Acetophenone | 1,481 | 1,481 | 741 | 36 | 35.9 |
| Aniline | 1,350 | 1,350 | 675 | 11 | 10.5 |
| Benzene | 2,765 | 2,765 | 1,382 | 10 | 10.0 |
| Benzoic acid | 9,914 | 9,914 | 4,957 | 320 | 320.0 |
| Bromodichloromethane | 542 | 542 | 271 | 10 | 10.0 |
| Carbon disulfide | 626 | 626 | 313 | 16 | 16.5 |
| Chlorobenzene | 535 | 535 | 267 | 10 | 10.0 |
| Chloroform | 7,039 | 7,039 | 3,519 | 73 | 72.6 |
| Dimethyl sulfone | 1,449 | 1,449 | 724 | 158 | 157.7 |
| Ethylenethiourea | 4,383 | 4,383 | 2,192 | 4,400 | 4,400.2 |
| Hexachloroethane | 1,311 | 1,311 | 656 | 11 | 10.5 |
| Hexanoic acid | 2,051 | 2,051 | 1,026 | 64 | 64.0 |
| Isophorone | 2,006 | 2,006 | 1,003 | 14 | 13.9 |

| Pollutant | Raw | Filtration Only | Carbon Adsorption | Biological Treatment | Biological Treatment and Multimedia Filtration |
|---|---|---|---|---|---|
| M-xylene | 1,197 | 1,197 | 599 | 10 | 10.0 |
| Methylene chloride | 1,958,967 | 1,958,967 | 979,483 | 204 | 204.5 |
| N,n-dimethylformamide | 34,838 | 34,838 | 17,419 | 11 | 10.5 |
| O+p xylene | 705 | 705 | 352 | 10 | 10.0 |
| O-cresol | 6,195 | 6,195 | 3,098 | 185 | 184.8 |
| P-cresol | 3,322 | 3,322 | 1,661 | 66 | 66.2 |
| Pentachlorophenol | 6,870 | 6,870 | 3,435 | 791 | 791.1 |
| Phenol | 6,616 | 6,616 | 3,308 | 362 | 362.0 |
| Pyridine | 3,853 | 3,853 | 1,927 | 116 | 116.5 |
| Tetrachloroethene | 3,955 | 3,955 | 1,978 | 112 | 112.1 |
| Tetrachloromethane | 3,087 | 3,087 | 1,544 | 14 | 14.4 |
| Toluene | 746,077 | 746,077 | 373,039 | 10 | 10.0 |
| Trans-1,2-dichloroethene | 1,597 | 1,597 | 799 | 22 | 21.5 |
| Trichloroethene | 6,439 | 6,439 | 3,220 | 69 | 69.4 |
| Vinyl chloride | 775 | 775 | 388 | 10 | 10.0 |
| 1,1,1,2-tetrachloroethane | 939 | 939 | 469 | 10 | 10.0 |
| 1,1,1-trichloroethane | 1,429 | 1,429 | 714 | 10 | 10.0 |
| 1,1,2,2-tetrachloroethane | 1,364 | 1,364 | 682 | 10 | 10.0 |
| 1,1,2-trichloroethane | 1,731 | 1,731 | 865 | 13 | 13.3 |
| 1,1-dichloroethane | 538 | 538 | 269 | 10 | 10.0 |
| 1,1-dichloroethene | 610 | 610 | 305 | 10 | 10.0 |
| 1,2,3-trichloropropane | 644 | 644 | 322 | 10 | 10.0 |
| 1,2-dibromoethane | 2,406 | 2,406 | 1,203 | 10 | 10.1 |
| 1,2-dichlorobenzene | 2,237 | 2,237 | 1,118 | 15 | 15.1 |
| 1,2-dichloroethane | 4,478 | 4,478 | 2,239 | 10 | 10.0 |
| 1,3-dichloropropane | 533 | 533 | 266 | 10 | 10.0 |
| 2,3,4,6-tetrachlorophenol | 3,728 | 3,728 | 1,864 | 629 | 629.0 |
| 2,3-dichloroaniline | 1,401 | 1,401 | 701 | 23 | 23.0 |
| 2,4,5-trichlorophenol | 1,411 | 1,411 | 706 | 97 | 96.8 |
| 2,4,6-trichlorophenol | 1,462 | 1,462 | 731 | 86 | 85.8 |
| 2,4-dimethylphenol | 1,402 | 1,402 | 701 | 11 | 10.5 |
| 2-butanone | 59,796 | 59,796 | 29,898 | 878 | 878.1 |
| 2-propanone | 6,848,786 | 6,848,786 | 3,424,393 | 2,061 | 2,061.3 |
| 3,4,5-trichlorocatechol | 10 | 10 | 5 | 1 | 0.8 |
| 3,4,6-trichloroguaiacol | 4 | 4 | 2 | 1 | 0.8 |
| 3,4-dichlorophenol | 144 | 144 | 72 | 30 | 30.4 |
| 3,5-dichlorophenol | 69 | 69 | 35 | 1 | 0.8 |
| 3,6-dichlorocatechol | 3 | 3 | 2 | 1 | 0.8 |
| 4,5,6-trichloroguaiacol | 14 | 14 | 7 | 1 | 0.8 |
| 4,5-dichloroguaiacol | 2 | 2 | 1 | 13 | 12.9 |
| 4-chloro-3-methylphenol | 1,342 | 1,342 | 671 | 64 | 64.0 |
| 4-chlorophenol | 3,770 | 3,770 | 1,885 | 243 | 242.5 |
| 4-methyl-2-pentanone | 3,312 | 3,312 | 1,656 | 146 | 146.2 |
| 5-chloroguaiacol | 598 | 598 | 299 | 1,595 | 1,595.0 |
| 6-chlorovanillin | 8 | 8 | 4 | 1 | 0.8 |

### *METHODOLOGY USED TO ESTIMATE POST-COMPLIANCE LOADINGS* 12.4

Post-compliance pollutant loadings for each regulatory option represent the total industry wastewater pollutant loadings after implementation of the rule. For each option, EPA determined an average performance level (the "long-term average") that a facility with well designed and operated model technologies (which reflect the appropriate level of control) is capable of achieving. In most cases, EPA calculated these long-term averages using data from CWT facilities operating model technologies. For a few parameters, EPA determined that CWT performance was uniformly inadequate and transferred effluent long-term averages from other sources.

To estimate post-compliance pollutant loadings for each facility for a particular option, EPA used the long-term average concentrations, the facility's annual wastewater discharge flow, and a conversation factor in the following equation:

$$\text{Postcompliance long - term average concentration (mg / L)} *$$
$$\text{Facility annual discharge flow (L / yr)} * \frac{1\text{lb}}{453{,}600\text{mg}}$$
$$= \text{Facility postcompliance annual loading (lbs / yr)}$$

EPA expects that all facilities subject to the effluent limitations and standards will design and operate their treatment systems to achieve the long-term average performance level on a consistent basis because facilities with well-designed and operated model technologies have demonstrated that this can be done. Further, EPA has accounted for potential treatment system variability in pollutant removal through the use of variability factors. The variability factors used to calculate the limitations and standards were determined from data for the same facilities employing the treatment technology forming the basis for the rule. Consequently, EPA has concluded that the standards and limitations take into account the level of treatment variation well within the capability of an individual CWT facility to control. If a facility is designed and operated to achieve the long-term average on a consistent basis, and if the facility maintains adequate control of treatment variation, the allowance for variability provided in the limitations is sufficient.

Table 12-9 presents the long-term averages for the selected option for each subcategory. The pollutants for which data is presented in Table 12-9 represent the pollutants of concern at treatable levels at the facilities which form the basis of the options. The pollutants selected for regulation are a much smaller subset.

Table 12-9. Long-Term Average Concentrations (ug/L) for All Pollutants of Concern

| Pollutant of Concern | Metals Option 3 NSPS | Metals Option 4 BPT/BAT/ PSES/PSNS | Oils Option 8 PSES | Oils Option 9 BPT/BAT/ NSPS/PSNS | Organics Option 4 ALL |
|---|---|---|---|---|---|
| Ammonia as nitrogen | 9.12 | 15.63 | 184.38 | 97.22 | 1,060.00 |
| Biochem. oxygen demand | 28.33 | 159.60 | 7,621.25 | 7,621.25 | 41.00 |
| Chemical oxygen demand | 198.56 | 1,333.33 | 17,745.83 | 20,490.00 | 3,560.00 |
| Chloride | 2,243.75 | 18,000.00 | 1,568.75 | 1,568.75 | |
| Fluoride | 2.35 | 66.27 | 36.25 | 36.25 | Failed tests |
| Hexavalent chromium | 0.03 | 0.80 | | | |
| Nitrate/nitrite | 12.61 | 531.67 | 46.21 | 20.75 | 2.28 |
| Oil and Grease | Failed tests | 34.34 | No data | 28.33 | |
| SGT-HEM | | | 142.80 | 42.53 | |
| Total cyanide | Failed tests | 0.17 | 0.11 | 0.11 | 2.18 |
| Total dissolved Solids | 18,112.50 | 42,566.67 | Failed tests | Failed tests | |
| Total organic Carbon | 19.64 | 236.33 | 3,433.75 | 5,578.88 | 1,006.00 |
| Total phenols | Failed tests | Failed tests | 17.84 | 20.16 | |
| Total phosphorus | 29.32 | 31.68 | 37.03 | 31.36 | |
| Total sulfide | 24.95 | Failed tests | | | 2.80 |
| Total suspended solids | 9.25 | 16.80 | No data | 25.50 | 45.00 |
| Aluminum | 72.50 | 856.33 | 14,072.50 | 14,072.50 | 2,474.00 |
| Antimony | 21.25 | 170.00 | 103.06 | 103.06 | 569.40 |
| Arsenic | 11.15 | Failed tests[1] | 789.33 | 789.33 | Failed tests |
| Barium | | | 220.50 | 220.50 | Failed tests |
| Beryllium | 1.00 | Failed tests | | | |
| Boron | 7,290.00 | 8,403.33 | 22,462.50 | 22,462.50 | Failed tests |
| Cadmium | 81.93 | 58.03 | 7.46 | 7.46 | |
| Calcium | 407,166.67 | 20,000.00 | 172,787.50 | 172,787.50 | 286,000.00 |
| Chromium | 39.75 | 1,674.50 | 323.40 | 183.13 | Failed tests |
| Cobalt | 57.42 | 114.50 | 7,417.04 | 7,417.04 | 437.20 |
| Copper | 169.03 | 744.16 | 256.66 | 156.75 | 703.60 |
| Gallium | Failed tests | Failed tests | | | |
| Germanium | | | Failed tests | Failed tests | |
| Indium | 500.00 | Failed tests | | | |
| Iodine | Failed tests | Failed tests | | | Failed tests |
| Iridium | Failed tests | 500.00 | | | |
| Iron | 387.21 | 5,752.34 | 53,366.67 | 53,366.67 | 3,948.00 |
| Lanthanum | 100.00 | Failed tests | | | |
| Lead | 55.11 | 176.75 | 148.70 | 98.58 | Failed tests |
| Lithium | Failed tests | 1,926.67 | | | Failed tests |
| Lutetium | | | Failed tests | Failed tests | |
| Magnesium | 752.54 | Failed tests | 62,900.00 | 62,900.00 | |
| Manganese | 11.62 | 48.70 | 5,406.46 | 5,406.46 | 227.00 |
| Mercury | 0.20 | 0.56 | 3.09 | 3.09 | |
| Molybdenum | 527.69 | 1,746.67 | 1,542.75 | 1,542.75 | 942.80 |
| Nickel | 254.84 | 1,161.49 | 1,473.92 | 1,473.92 | Failed tests |
| Osmium | 100.00 | Failed tests | | | |
| Phosphorus | 544.00 | 27,529.03 | 44,962.08 | 44,962.08 | Failed tests |
| Potassium | 54,175.00 | 410,000.00 | 411,750.00 | 411,750.00 | Failed tests |
| Selenium | 56.25 | 279.80 | 107.49 | 107.49 | |
| Silicon | 355.75 | 1,446.67 | 19,000.00 | 19,000.00 | 2,680.00 |

| Pollutant of Concern | Metals Option 3 NSPS | Metals Option 4 BPT/BAT/ PSES/PSNS | Oils Option 8 PSES | Oils Option 9 BPT/BAT/ NSPS/PSNS | Organics Option 4 ALL |
|---|---|---|---|---|---|
| Silver | 4.50 | 26.44 | Failed tests | Failed tests | |
| Sodium | 5,776,250.00 | 15,100,000 | Failed tests | Failed tests | Failed tests |
| Strontium | Failed tests | 100.00 | 774.63 | 774.63 | 2,060.00 |
| Sulfur | 2,820,000.00 | 1,214,000.00 | Failed tests | Failed tests | 1,370,000.00 |
| Tantalum | Failed tests | Failed tests | Failed tests | Failed tests | |
| Tellurium | Failed tests | Failed tests | | | |
| Thallium | 20.79 | Failed tests | | | |
| Tin | 28.25 | 89.77 | 106.97 | 106.97 | Failed tests |
| Titanium | 3.50 | 56.87 | 21.73 | 21.73 | Failed tests |
| Vanadium | 11.00 | 11.93 | | | |
| Yttrium | 3.50 | 5.00 | | | |
| Zinc | 206.22 | 413.27 | 3,448.54 | 3,138.75 | 381.80 |
| Zirconium | Failed tests | 1,286.67 | | | |
| Acenaphthene | | | 137.27 | 137.27 | |
| Acetophenone | | | | | 35.87 |
| Alpha-terpineol | | | 48.33 | 48.33 | |
| Aniline | | | Failed tests | Failed tests | 10.50 |
| Anthracene | | | 164.27 | 90.71 | |
| Benzene | | | 1,058.81 | 1,058.81 | 10.00 |
| Benzo(a)anthracene | | | 106.76 | 59.71 | |
| Benzoic acid | Failed tests | 3,521.67 | 25,581.42 | 37,349.63 | 320.00 |
| Benzyl alcohol | Failed tests | Failed tests | Failed tests | 80.65 | |
| Biphenyl | | | 76.21 | 135.71 | |
| Bis(2-ethylhexyl) phthalate | Failed tests | Failed tests | 115.74 | 62.87 | |
| Bromodichloromethane | | | | | Failed tests |
| Butyl benzyl phthalate | | | 54.98 | 54.98 | |
| Carbazole | | | 151.45 | 151.45 | |
| Carbon disulfide | 10.00 | Failed tests | 28.11 | 28.11 | Failed tests |
| Chlorobenzene | | | 87.48 | 87.48 | Failed tests |
| Chloroform | Failed tests | 148.61 | 379.09 | 379.09 | 72.62 |
| Chrysene | | | 79.43 | 48.48 | |
| Dibenzofuran | | | 135.25 | 135.25 | |
| Dibenzothiophene | | | 95.76 | 59.44 | |
| Dibromochloromethane | Failed tests | 50.45 | | | |
| Diethyl phthalate | | | 759.14 | 365.93 | |
| Dimethyl sulfone | | | | | 157.70 |
| Diphenyl ether | | | Failed tests | 981.54 | |
| Ethylbenzene | | | 971.29 | 423.30 | |
| Ethylenethiourea | | | | | 4,400.23 |
| Fluoranthene | | | 253.37 | 17.29 | |
| Fluorene | | | 243.11 | 129.60 | |
| Hexachloroethane | | | | | Failed tests |
| Hexanoic acid | Failed tests | Failed tests | 9,253.62 | 9,253.62 | 64.00 |
| Isophorone | | | | | Failed tests |
| M+p xylene | | | 422.95 | 422.95 | |
| M-xylene | Failed tests | Failed tests | 1,520.33 | 940.96 | 10.00 |
| Methylene chloride | Failed tests | Failed tests | 4,242.03 | 4,242.03 | 204.48 |
| N,n-dimethylformamide | Failed tests | 68.13 | Failed tests | Failed tests | 10.50 |
| N-decane | | | 2,369.97 | 238.16 | |

| Pollutant of Concern | Metals Option 3 NSPS | Metals Option 4 BPT/BAT/ PSES/PSNS | Oils Option 8 PSES | Oils Option 9 BPT/BAT/ NSPS/PSNS | Organics Option 4 ALL |
|---|---|---|---|---|---|
| N-docosane | | | 75.33 | 20.77 | |
| N-dodecane | | | 3,834.84 | 233.80 | |
| N-eicosane | | | 615.76 | 51.76 | |
| N-hexacosane | | | Failed tests | Failed tests | |
| N-hexadecane | | | 1,386.70 | 2,551.36 | |
| N-octacosane | | | Failed tests | Failed tests | |
| N-octadecane | | | 792.62 | 202.66 | |
| N-tetracosane | | | Failed tests | Failed tests | |
| N-tetradecane | | | 1,820.50 | 3,303.90 | |
| Naphthalene | | | 1,014.23 | 248.73 | |
| O+p xylene | | | 1,873.00 | 1,218.53 | Failed tests |
| O-cresol | | | Failed tests | 1,769.86 | 184.78 |
| O-toluidine | | | Failed tests | Failed tests | |
| O-xylene | | | 268.52 | 268.52 | |
| P-cresol | | | 630.49 | 956.84 | 66.24 |
| P-cymene | | | 55.59 | 55.59 | |
| Pentachlorophenol | | | | | 791.15 |
| Pentamethylbenzene | | | 48.33 | 48.33 | |
| Phenanthrene | | | 649.72 | 81.76 | |
| Phenol | Failed tests | Failed tests | Failed tests | 30,681.00 | 362.03 |
| Pyrene | | | 131.77 | 58.00 | |
| Pyridine | Failed tests | 86.97 | 624.78 | 624.78 | 116.46 |
| Styrene | | | 56.99 | 56.99 | |
| Tetrachloroethene | | | 475.45 | 475.45 | 112.09 |
| Tetrachloromethane | | | | | 14.44 |
| Toluene | Failed tests | Failed tests | 6,104.68 | 3,613.18 | 10.00 |
| Trans-1,2-dichloroethene | | | | | 21.51 |
| Trichloroethene | Failed tests | 441.63 | 669.61 | 669.61 | 69.42 |
| Tripropyleneglycol methyl ether | | | 478.50 | 478.50 | |
| Vinyl chloride | | | | | 10.00 |
| 1,1,1,2-tetrachloroethane | | | | | 10.00 |
| 1,1,1-trichloroethane | Failed tests | Failed tests | 162.78 | 162.78 | 10.00 |
| 1,1,2,2-tetrachloroethane | | | | | Failed tests |
| 1,1,2-trichloroethane | | | | | 13.30 |
| 1,1-dichloroethane | | | | | 10.00 |
| 1,1-dichloroethene | Failed tests | Failed tests | 219.48 | 219.48 | 10.00 |
| 1,2,3-trichloropropane | | | | | 10.00 |
| 1,2,4-trichlorobenzene | | | 117.45 | 117.45 | |
| 1,2-dibromoethane | | | | | 10.14 |
| 1,2-dichlorobenzene | | | 48.33 | 48.33 | Failed tests |
| 1,2-dichloroethane | | | 272.57 | 272.57 | 10.00 |
| 1,3-dichloropropane | | | | | Failed tests |
| 1,4-dichlorobenzene | | | 87.35 | 87.35 | |
| 1,4-dioxane | Failed tests | Failed tests | Failed tests | Failed tests | |
| 1-methylfluorene | | | 48.33 | 33.65 | |
| 1-methylphenanthrene | | | 76.32 | 54.47 | |
| 2,3,4,6-tetrachlorophenol | | | | | 628.96 |
| 2,3-benzofluorene | | | Failed tests | 54.98 | |
| 2,3-dichloroaniline | | | | | 23.04 |

| Pollutant of Concern | Metals Option 3 NSPS | Metals Option 4 BPT/BAT/ PSES/PSNS | Oils Option 8 PSES | Oils Option 9 BPT/BAT/ NSPS/PSNS | Organics Option 4 ALL |
|---|---|---|---|---|---|
| 2,4,5-trichlorophenol | | | | | 96.76 |
| 2,4,6-trichlorophenol | | | | | 85.76 |
| 2,4-dimethylphenol | | | Failed tests | Failed tests | Failed tests |
| 2-butanone | Failed tests | 1,272.48 | 11,390.45 | 11,390.45 | 878.12 |
| 2-isopropylnaphthalene | | | Failed tests | Failed tests | |
| 2-methylnaphthalene | | | 1,540.02 | 160.58 | |
| 2-propanone | Failed tests | 13,081.47 | Failed tests | Failed tests | 2,061.28 |
| 3,4,5-trichlorocatechol | | | | | 0.80 |
| 3,4,6-trichloroguaiacol | | | | | Failed tests |
| 3,4-dichlorophenol | | | | | 30.40 |
| 3,5-dichlorophenol | | | | | 0.80 |
| 3,6-dichlorocatechol | | | | | Failed tests |
| 3,6-dimethylphenanthrene | | | Failed tests | 52.33 | |
| 4,5,6-trichloroguaiacol | | | | | Failed tests |
| 4,5-dichloroguaiacol | | | | | Failed tests |
| 4-chloro-3-methylphenol | | | Failed tests | 655.39 | Failed tests |
| 4-chlorophenol | | | | | 242.50 |
| 4-methyl-2-pentanone | Failed tests | Failed tests | 7,848.00 | 6,624.87 | 146.16 |
| 5-chloroguaiacol | | | | | Failed tests |
| 6-chlorovanillin | | | | | Failed test |

[1]As explained in section 10, EPA used the long-term average from metals option 1A for arsenic even though the option 4 data failed the test.

A blank entry indicates the analyte is not a pollutant of concern for the subcategory.

### *METHODOLOGY USED TO ESTIMATE POLLUTANT REMOVALS* *12.5*

For each regulatory option, the difference between baseline loadings and post-compliance loadings represent the pollutant removals. For direct discharging CWT facilities, this represents removals of pollutants being discharged to surface waters. For indirect dischargers, this represents removals of pollutants being discharged to POTWs less the removals achieved by POTWs. EPA calculated the pollutant removals for each facility using the following equation:

$$\text{Baseline Loadings} - \text{Postcompliance Loadings}$$
$$= \text{Pollutant Removals}$$

EPA used the following methodology to estimate pollutant removals:

1) If the post-compliance loading of a pollutant was higher than the baseline loading, EPA set the removal to zero;
2) If EPA did not identify a particular pollutant in the wastewater of a facility at baseline and that pollutant was present at baseline in the wastewater of a facility used as the basis for determining limitations and standards associated with one of the regulatory options, EPA set the removal to zero.);
3) If EPA did not calculate a long-term average for a pollutant for a technology option (i.e., the post-compliance loading for the pollutant could not be calculated), EPA set the removal to zero; and
4) For indirect dischargers, EPA additionally reduced the pollutant removal estimate by the POTW removal percentage. Therefore, the pollutant removal estimates for indirect dischargers only account for pollutant removals over and above the POTW removals.

### *POLLUTANT LOADINGS AND REMOVALS* *12.6*

EPA estimated annual baseline and post-compliance loadings for each of the subcategories and the respective regulatory options using the methodology described in Sections 12.3 through 12.5 of this document. For the oils subcategory, EPA extrapolated the facility-specific loadings and removals from the 84 in-scope discharging facilities to provide estimates of an estimated total population of 141 discharging oils facilities. Facilities with no wastewater discharge (“zero dischargers”) have no pollutant loadings or removals.

Tables 12-10 through 12-13 present the total baseline and post-compliance loadings and the pollutant removals for the facilities in each subcategory.

Table 12-10. Summary of Pollutant Loadings and Reductions for the CWT Metals Subcategory[1]

| Pollutant of Concern | Current Wastewater Pollutant Loading (lb/yr) | | Post-Compliance Pollutant Loading (lb/yr) | | Post-Compliance Pollutant Reductions (lb/yr) | |
|---|---|---|---|---|---|---|
| | Direct Dischargers | Indirect Dischargers | Direct Dischargers | Indirect Dischargers | Direct Dischargers | Indirect Dischargers |
| CONVENTIONAL OR CLASSICAL PARAMETERS | | | | | | |
| Ammonia as N | 991,937 | N/A | 60,504 | N/A | 931,432 | N/A |
| $BOD_5$ | 13,300,815 | N/A | 576,413 | N/A | 12,724,402 | N/A |
| COD | 35,051,565 | N/A | 4,791,127 | N/A | 30,260,438 | N/A |
| Cyanide, total | 6,213 | 497 | 539 | 58 | 5,674 | 440 |
| HEM (oil & grease)[2] | 224,690 | N/A | 121,568 | N/A | 103,122 | N/A |
| Hexavalent chromium | 169,960 | 15,789 | 2,425 | 2,841 | 167,535 | 12,948 |
| Nitrate/nitrite | 8,966,661 | N/A | 1,867,927 | N/A | 7,098,734 | N/A |
| Phenols, total | 17,313 | 4,760 | 2,917 | 660 | 14,397 | 4,099 |
| Phosphorus, total | 242,069 | 171,842 | 129,555 | 127,905 | 112,514 | 43,937 |
| Sulfide, total (Iod.) | 111,051 | 2,690 | 111,051 | 2,690 | 0 | 0 |
| TDS | 191,398,163 | 190,280,123 | 160,479,788 | 158,109,561 | 30,918,375 | 32,170,561 |
| TOC | 9,580,389 | 3,693,856 | 839,288 | 283,579 | 8,741,101 | 3,410,277 |
| TSS | 5,533,906 | N/A | 64,680 | N/A | 5,469,226 | N/A |
| METAL OR SEMI-METAL PARAMETERS | | | | | | |
| Aluminum | 137,478 | 9,521 | 3,042 | 299 | 134,436 | 9,223 |
| Antimony | 20,399 | 4,839 | 608 | 228 | 19,791 | 4,611 |
| Arsenic | 7,330 | 297 | 507 | 194 | 6,823 | 102 |
| Beryllium | 20 | 6 | 20 | 6 | 0 | 0 |
| Boron | 127,035 | 100,693 | 34,055 | 25,900 | 92,981 | 74,793 |
| Cadmium | 71,235 | 546 | 240 | 23 | 70,995 | 523 |
| Calcium | 11,008,982 | 13,016,845 | 82,743 | 73,852 | 10,926,239 | 12,942,993 |
| Chloride | 123,304,754 | 106,487,827 | 64,350,877 | 54,743,908 | 58,953,877 | 51,743,920 |
| Chromium | 126,679 | 4,925 | 5,883 | 1,330 | 120,796 | 3,596 |
| Cobalt | 43,211 | 1,444 | 437 | 415 | 42,773 | 1,029 |
| Copper | 299,047 | 1,838 | 2,419 | 449 | 296,628 | 1,389 |
| Fluoride | 365,007 | 103,061 | 192,226 | 97,935 | 172,781 | 5,126 |
| Iridium | 22,404 | 4,731 | 2,069 | 525 | 20,336 | 4,207 |
| Iron | 192,066 | 11,439 | 20,370 | 4,183 | 171,696 | 7,256 |
| Lead | 24,634 | 1,571 | 654 | 161 | 23,980 | 1,411 |
| Lithium | 100,202 | 90,690 | 7,971 | 5,756 | 92,231 | 84,933 |
| Magnesium | 44,670 | 20,253 | 44,670 | 20,253 | 0 | 0 |
| Manganese | 26,434 | 4,068 | 178 | 127 | 26,256 | 3,941 |
| Mercury | 86 | 7 | 2 | 0.2 | 84 | 7 |
| Molybdenum | 23,596 | 17,528 | 6,447 | 5,717 | 17,148 | 11,811 |
| Nickel | 101,936 | 33,817 | 4,226 | 2,201 | 97,710 | 31,616 |
| Phosphorus | 1,166,861 | 215,032 | 96,649 | 33,988 | 1,070,211 | 181,044 |
| Potassium | 6,805,699 | 5,095,340 | 1,468,873 | 1,001,254 | 5,336,826 | 4,094,086 |
| Selenium | 1,307 | 833 | 1,008 | 736 | 300 | 98 |
| Silicon | 38,467 | 12,245 | 5,288 | 4,247 | 33,179 | 7,998 |
| Silver | 772 | 94 | 95 | 13 | 677 | 82 |
| Sodium | 64,553,546 | 66,330,106 | 56,513,563 | 59,324,636 | 8,039,983 | 7,005,470 |
| Strontium | 16,574 | 17,380 | 414 | 344 | 16,160 | 17,036 |
| Sulfur | 9,513,625 | 6,341,910 | 5,022,530 | 4,199,022 | 4,491,095 | 2,142,889 |
| Tin | 111,997 | 5,861 | 332 | 208 | 111,665 | 5,653 |
| Titanium | 62,688 | 136 | 195 | 19 | 62,493 | 117 |
| Vanadium | 3,733 | 238 | 49 | 44 | 3,684 | 194 |
| Yttrium | 131 | 97 | 20 | 16 | 112 | 81 |
| Zinc | 245,781 | 3,655 | 1,577 | 348 | 244,204 | 3,307 |
| Zirconium | 5,317 | 2,324 | 5,278 | 2,314 | 39 | 10 |
| ORGANIC PARAMETERS | | | | | | |
| Benzoic acid | 16,016 | 2,331 | 10,455 | 1,729 | 5,562 | 602 |

Table 12-10. Summary of Pollutant Loadings and Reductions for the CWT Metals Subcategory[1]

| Pollutant of Concern | Current Wastewater Pollutant Loading (lb/yr) | | Post-Compliance Pollutant Loading (lb/yr) | | Post-Compliance Pollutant Reductions (lb/yr) | |
|---|---|---|---|---|---|---|
| | Direct Dischargers | Indirect Dischargers | Direct Dischargers | Indirect Dischargers | Direct Dischargers | Indirect Dischargers |
| Butanone | 1,592 | 40 | 1,592 | 40 | 0 | 0 |
| Carbon disulfide | 561 | 132 | 561 | 132 | 0 | 0 |
| Dibromochloromethane | 316 | 69 | 172 | 34 | 144 | 36 |
| Methylene chloride | 462 | 261 | 462 | 261 | 0 | 0 |
| N,n-nitrosomorpholine | 240 | 50 | 240 | 50 | 0 | 0 |
| N,n-dimethylformamide | 453 | 75 | 282 | 42 | 171 | 33 |
| Pyridine | 278 | 14 | 278 | 14 | 0 | 0 |
| Toluene | 1,072 | 54 | 1,072 | 54 | 0 | 0 |
| Trichloroethylene | 572 | 58 | 572 | 58 | 0 | 0 |
| 1,1-dichlroethene | 438 | 143 | 438 | 143 | 0 | 0 |
| 1,1,1-trichloroethane | 352 | 44 | 352 | 44 | 0 | 0 |
| 2-Propanone | 18,231 | 2,393 | 18,231 | 2,393 | 0 | 0 |

[1]All loadings and reductions take into account the removals by POTWs for indirect dischargers.

[2]HEM - Hexane Extractable Material

Table 12-11. Summary of Pollutant Loadings and Reductions for the CWT Oils Subcategory[1]

| Pollutant of Concern | Current Wastewater Pollutant Loading (lb/yr) | | Post-Compliance Pollutant Loading (lb/yr) | | Post-Compliance Pollutant Reductions (lb/yr) | |
|---|---|---|---|---|---|---|
| | Direct Dischargers | Indirect Dischargers | Direct Dischargers | Indirect Dischargers | Direct Dischargers | Indirect Dischargers |
| CONVENTIONAL OR CLASSICAL PARAMETERS | | | | | | |
| Ammonia as Nitrogen | 11,783 | 499,382 | 11,783 | 499,382 | 0 | 0 |
| $BOD_5$ | 1,502,944 | N/A | 1,411,602 | N/A | 91,343 | N/A |
| COD | 8,008,834 | N/A | 4,032,459 | N/A | 3,976,375 | N/A |
| Cyanide, Total | 3 | 137 | 3 | 84 | 0 | 54 |
| HEM (and O&G)[2] | 206,539 | N/A | 5,574 | N/A | 200,965 | N/A |
| Nitrate/Nitrite | 732 | N/A | 732 | N/A | 0 | N/A |
| Phenols, Total | 924 | 32,528 | 924 | 22,118 | 0 | 10,410 |
| Phosphorus, Total | 547,900 | 14,017,083 | 6,171 | 309,268 | 541,729 | 13,707,815 |
| SGT-HEM | 116,841 | N/A | 8,370 | N/A | 108,472 | N/A |
| TDS | 1,180,709 | N/A | 1,180,709 | N/A | 0 | N/A |
| TOC | 1,662,244 | N/A | 1,097,930 | N/A | 564,314 | N/A |
| TSS | 428,553 | N/A | 96,593 | N/A | 331,960 | N/A |
| METAL OR SEMI-METAL PARAMETERS | | | | | | |
| Aluminum | 7,302 | 19,032 | 2,714 | 8,729 | 4,589 | 10,303 |
| Antimony | 38 | 412 | 19 | 234 | 19 | 178 |
| Arsenic | 12 | 845 | 12 | 589 | 0 | 256 |
| Barium | 98 | 2,814 | 42 | 754 | 56 | 2,061 |
| Boron | 18,093 | 499,752 | 14,479 | 372,148 | 3,615 | 127,604 |
| Cadmium | 4 | 35 | 1 | 6 | 3 | 30 |
| Chromium | 32 | 800 | 32 | 301 | 0 | 500 |
| Cobalt | 306 | 15,055 | 306 | 15,055 | 0 | 0 |
| Copper | 123 | 3,239 | 22 | 325 | 101 | 2,914 |
| Germanium | 3,073 | 37,018 | 3,073 | 37,018 | 0 | 0 |
| Iron | 8,321 | 98,443 | 4,275 | 55,072 | 4,046 | 43,371 |
| Lead | 143 | 2,989 | 19 | 280 | 124 | 2,709 |
| Magnesium | 19,339 | 468,308 | 11,369 | 342,703 | 7,970 | 125,605 |
| Manganese | 406 | 14,539 | 406 | 12,004 | 0 | 2,534 |
| Mercury | 3 | 7 | 1 | 2 | 2 | 5 |
| Molybdenum | 683 | 15,709 | 291 | 8,521 | 392 | 7,188 |
| Nickel | 174 | 18,430 | 174 | 3,785 | 0 | 14,645 |
| Phosphorus | 3,381 | 63,798 | 3,381 | 48,447 | 0 | 15,351 |
| Selenium | 3 | 161 | 3 | 157 | 0 | 4 |
| Silicon | 2,333 | 87,686 | 2,333 | 64,452 | 0 | 23,234 |
| Silver | 1 | 101 | 1 | 101 | 0 | 0 |
| Strontium | 17 | 2,658 | 17 | 1,616 | 0 | 1,042 |
| Sulfur | 22,274 | 3,338,602 | 22,274 | 3,338,602 | 0 | 0 |
| Tin | 22 | 1,486 | 19 | 397 | 3 | 1,089 |
| Titanium | 9 | 64 | 4 | 14 | 5 | 50 |
| Zinc | 2,131 | 20,399 | 399 | 5,666 | 1,732 | 14,734 |
| ORGANIC PARAMETERS | | | | | | |
| Acenapthene | 2 | 38 | 2 | 11 | 0 | 27 |
| Alpha-terpinol | 7 | 133 | 7 | 117 | 0 | 16 |
| Aniline | 2 | 40 | 2 | 40 | 0 | 0 |
| Anthracene | 4 | 126 | 4 | 43 | 0 | 83 |
| Benzene | 12 | 427 | 12 | 221 | 0 | 206 |
| Benzo(a)anthracene | 4 | 32 | 4 | 17 | 0 | 15 |
| Benzoic Acid | 358 | 13,156 | 358 | 13,156 | 0 | 0 |

Table 12-11. Summary of Pollutant Loadings and Reductions for the CWT Oils Subcategory[1]

| Pollutant of Concern | Current Wastewater Pollutant Loading (lb/yr) | | Post-Compliance Pollutant Loading (lb/yr) | | Post-Compliance Pollutant Reductions (lb/yr) | |
|---|---|---|---|---|---|---|
| | Direct Dischargers | Indirect Dischargers | Direct Dischargers | Indirect Dischargers | Direct Dischargers | Indirect Dischargers |
| Benzyl alcohol | 30 | 958 | 16 | 958 | 14 | 0 |
| Biphenyl | 26 | 173 | 26 | 24 | 1 | 150 |
| Bis(2-ethylhexyl) phthalate | 33 | 31,747 | 12 | 388 | 21 | 31,360 |
| Butyl benzyl phthalate | 54 | 793 | 11 | 26 | 43 | 767 |
| Carbazole | 2 | 425 | 2 | 260 | 0 | 165 |
| Carbon disulfide | 5 | 171 | 5 | 37 | 0 | 135 |
| Chlorobenzene | 0 | 8 | 0 | 6 | 0 | 1 |
| Chloroform | 0 | 193 | 0 | 167 | 0 | 26 |
| Chrysene | 6 | 55 | 6 | 19 | 0 | 36 |
| Di-n-butyl phthalate | 0 | 9 | 0 | 9 | 0 | 0 |
| Dibenzofuran | 1 | 45 | 1 | 13 | 0 | 32 |
| Dibenzothiopene | 6 | 247 | 6 | 105 | 0 | 141 |
| Diethyl phthalate | 5 | 1,209 | 5 | 841 | 0 | 369 |
| Diphenyl ether | 36 | 106 | 36 | 106 | 0 | 0 |
| Ehtylbenzene | 9 | 520 | 9 | 230 | 0 | 290 |
| Fluoranthene | 2 | 2,189 | 2 | 581 | 0 | 1,608 |
| Fluorene | 3 | 796 | 3 | 331 | 0 | 465 |
| Hexanoic acid | 1,239 | 26,763 | 1,239 | 8,878 | 0 | 17,885 |
| O+p-xylene | 11 | 2,835 | 11 | 1,830 | 0 | 1,005 |
| N-decane | 45 | 99,608 | 45 | 11,667 | 0 | 87,941 |
| N-docosane | 108 | 1,972 | 4 | 75 | 104 | 1,897 |
| N-dodecane | 251 | 5,811 | 46 | 1,421 | 205 | 4,390 |
| N-eicosane | 36 | 3,525 | 10 | 342 | 26 | 3,183 |
| N-hexacosane | 10 | 899 | 10 | 899 | 0 | 0 |
| N-hexadecane | 1,926 | 116,435 | 502 | 3,343 | 1,424 | 113,092 |
| N-octadecane | 155 | 33,731 | 40 | 1,894 | 115 | 31,837 |
| N-tetracosane | 12 | 1,187 | 12 | 1,187 | 0 | 0 |
| N-tetradecane | 1,139 | 123,887 | 650 | 4,393 | 489 | 119,494 |
| N,n-dimethylformamide | 2 | 116 | 2 | 116 | 0 | 0 |
| Naphthalene | 69 | 1,364 | 49 | 406 | 20 | 958 |
| O-cresol | 30 | 2,588 | 30 | 2,588 | 0 | 0 |
| M-xylene | 10 | 563 | 10 | 255 | 0 | 308 |
| P-cresol | 23 | 1,226 | 23 | 966 | 0 | 260 |
| P-cymene | 20 | 8 | 11 | 1 | 9 | 7 |
| Pentamethylbenzene | 7 | 297 | 7 | 35 | 0 | 262 |
| Phenanthrene | 21 | 528 | 16 | 209 | 5 | 319 |
| Phenol | 376 | 2,735 | 376 | 2,735 | 0 | 0 |
| Pyrene | 34 | 1,174 | 11 | 176 | 23 | 999 |
| Pyridine | 1 | 37 | 1 | 37 | 0 | 0 |
| Styrene | 4 | 65 | 4 | 27 | 0 | 39 |
| Tetrachloroethylene | 40 | 1,297 | 40 | 546 | 0 | 751 |
| Toluene | 44 | 1,477 | 44 | 787 | 0 | 690 |
| Trichloroethene | 0 | 175 | 0 | 149 | 0 | 26 |
| Tripropyleneglycol methyl ether | 108 | 36,509 | 93 | 1,888 | 16 | 34,620 |
| 1-methylfluorene | 5 | 223 | 5 | 60 | 0 | 163 |
| 1-methylphenanthrene | 13 | 402 | 11 | 95 | 2 | 307 |
| 1,1-dichloroethene | 0 | 128 | 0 | 128 | 0 | 1 |
| 1,1,1-trichloroethane | 1 | 303 | 1 | 61 | 0 | 242 |
| 1,2-dichloroethane | 0 | 37 | 0 | 17 | 0 | 21 |

Table 12-11. Summary of Pollutant Loadings and Reductions for the CWT Oils Subcategory[1]

| Pollutant of Concern | Current Wastewater Pollutant Loading (lb/yr) | | Post-Compliance Pollutant Loading (lb/yr) | | Post-Compliance Pollutant Reductions (lb/yr) | |
|---|---|---|---|---|---|---|
| | Direct Dischargers | Indirect Dischargers | Direct Dischargers | Indirect Dischargers | Direct Dischargers | Indirect Dischargers |
| 1,2,4-trichlorobenzene | 7 | 435 | 7 | 58 | 0 | 377 |
| 1,4-dichlorobenzene | 7 | 956 | 7 | 319 | 0 | 637 |
| 1,4-dioxane | 1 | 296 | 1 | 296 | 0 | 0 |
| 2,3-benzofluorene | 7 | 239 | 7 | 239 | 0 | 0 |
| 2,4-dimethylphenol | 8 | 747 | 8 | 747 | 0 | 0 |
| 2-methylnaphthalene | 46 | 11,115 | 32 | 6,500 | 14 | 4,615 |
| 2-phenylnaphthalene | 3 | 317 | 3 | 317 | 0 | 0 |
| 2-propanone | 191 | 41,345 | 191 | 41,345 | 0 | 0 |
| 3,6-dimethylphenanthrene | 7 | 407 | 7 | 407 | 0 | 0 |
| 4-chloro-3-methylphenol | 28 | 7,996 | 28 | 7,996 | 0 | 0 |
| 4-methyl-2-pentanone | 15 | 1,369 | 15 | 1,369 | 0 | 0 |

[1]All loadings and reductions take into account the removals by POTWs for indirect dischargers.

[2]HEM - Hexane Extractable Material

Table 12-12. Summary of Pollutant Loadings and Reductions for the CWT Organics Subcategory[1]

| Pollutant of Concern | Current Wastewater Pollutant Loading (lb/yr) | | Post-Compliance Pollutant Loading (lb/yr) | | Post-Compliance Pollutant Reductions (lb/yr) | |
|---|---|---|---|---|---|---|
| | Direct Dischargers | Indirect Dischargers | Direct Dischargers | Indirect Dischargers | Direct Dischargers | Indirect Dischargers |
| CONVENTIONAL OR CLASSICAL PARAMETERS | | | | | | |
| Ammonia as N | 138,389 | 1,076,771 | 138,389 | 582,889 | 0 | 493,881 |
| $BOD_5$ | 318,555 | 833,340 | 318,555 | 488,569 | 0 | 344,770 |
| COD | 464,777 | 4,396,709 | 464,777 | 2,033,935 | 0 | 2,362,774 |
| Cyanide | 285 | 308 | 285 | 278 | 0 | 31 |
| TOC | 131,339 | 2,934,599 | 131,339 | 1,332,109 | 0 | 1,602,490 |
| TSS | 62,667 | 42,088 | 62,667 | 26,739 | 0 | 15,350 |
| METAL OR SEMI-METAL PARAMETERS | | | | | | |
| Aluminum | 323 | 312 | 323 | 277 | 0 | 35 |
| Antimony | 74 | 57 | 74 | 50 | 0 | 7 |
| Calcium | 37,339 | 276,063 | 37,339 | 121,864 | 0 | 154,199 |
| Cobalt | 57 | 92 | 57 | 92 | 0 | 0 |
| Copper | 92 | 40 | 92 | 35 | 0 | 6 |
| Iron | 515 | 457 | 515 | 457 | 0 | 0 |
| Manganese | 30 | 143 | 30 | 136 | 0 | 7 |
| Molybdenum | 123 | 381 | 123 | 264 | 0 | 117 |
| Silicon | 350 | 724 | 350 | 724 | 0 | 0 |
| Strontium | 269 | 1,835 | 269 | 1,118 | 0 | 717 |
| Sulfur | 178,861 | 356,145 | 178,861 | 356,145 | 0 | 0 |
| Zinc | 50 | 50 | 50 | 35 | 0 | 15 |
| ORGANIC PARAMETERS | | | | | | |
| Acetophenone | 5 | 20 | 5 | 9 | 0 | 12 |
| Benzene | 1 | 120 | 1 | 95 | 0 | 25 |
| Chloroform | 9 | 942 | 9 | 618 | 0 | 324 |
| Hexanoic acid | 8 | 99 | 8 | 44 | 0 | 56 |
| Methylene chloride | 27 | 262,279 | 27 | 105,492 | 0 | 156,788 |
| M-xylene | 1 | 637 | 1 | 565 | 0 | 72 |
| O-cresol | 24 | 863 | 24 | 363 | 0 | 500 |
| Pentachlorophenol | 103 | 1,758 | 103 | 841 | 0 | 917 |
| Phenol | 47 | 92 | 47 | 40 | 0 | 52 |
| Pyridine | 15 | 52 | 15 | 22 | 0 | 30 |
| P-cresol | 9 | 277 | 9 | 115 | 0 | 161 |
| Tetrachloroethene | 15 | 407 | 15 | 304 | 0 | 104 |
| Tetrachloromethane | 2 | 289 | 2 | 224 | 0 | 65 |
| Toluene | 1 | 8,377 | 1 | 3,387 | 0 | 4,990 |
| Trans-1,2-dichloroethene | 3 | 570 | 3 | 490 | 0 | 80 |
| Trichloroethene | 9 | 443 | 9 | 297 | 0 | 147 |
| Vinyl chloride | 1 | 114 | 1 | 105 | 0 | 9 |
| 1,1,1,2-tetrachloroethane | 1 | 796 | 1 | 723 | 0 | 73 |
| 1,1,1-trichloro ethane | 1 | 182 | 1 | 159 | 0 | 24 |
| 1,1,2-trichloroethane | 2 | 879 | 2 | 747 | 0 | 132 |
| 1,1-dichloroethene | 1 | 412 | 1 | 386 | 0 | 26 |
| 1,2,3-trichloropropane | 1 | 1,596 | 1 | 1,490 | 0 | 105 |
| 1,2-dibromoethane | 1 | 1,821 | 1 | 1,473 | 0 | 348 |
| 1,2-dichloroethane | 1 | 307 | 1 | 221 | 0 | 86 |
| 2,3,4,6-tetrachlorophenol | 82 | 739 | 82 | 375 | 0 | 364 |
| 2,3-dichloroaniline | 3 | 252 | 3 | 109 | 0 | 143 |
| 2,4,5-trichlorophenol | 13 | 302 | 13 | 136 | 0 | 166 |
| 2-butanone | 115 | 1,011 | 115 | 661 | 0 | 351 |
| 2-propanone | 269 | 362,747 | 269 | 167,960 | 0 | 194,787 |
| 4-methyl-2-pentanone | 19 | 1,022 | 19 | 955 | 0 | 67 |

[1]All loadings and reductions take into account the removals by POTWs for indirect dischargers.

Table 12-13. Summary of Pollutant Loadings and Reductions for the Entire CWT Industry[1]

| Pollutant of Concern[2] | Current Wastewater Pollutant Loading (lb/yr) | | Post-Compliance Pollutant Loading (lb/yr) | | Post-Compliance Pollutant Reductions (lb/yr) | |
|---|---|---|---|---|---|---|
| | Direct Dischargers | Indirect Dischargers | Direct Dischargers | Indirect Dischargers | Direct Dischargers | Indirect Dischargers |
| CONVENTIONALS | 21,578,700 | N/A | 2,657,700 | N/A | 18,921,000 | N/A |
| PRIORITY METALS | 901,300 | 99,800 | 18,000 | 17,100 | 883,300 | 82,700 |
| NON-CONVENTIONAL METALS[3] | 1,018,500 | 1,565,400 | 171,900 | 992,000 | 846,500 | 573,300 |
| PRIORITY ORGANICS | 3,900 | 326,700 | 3,700 | 122,700 | 100 | 204,000 |
| NON-CONVENTIONAL ORGANICS | 44,200 | 915,100 | 35,900 | 295,200 | 8,300 | 619,900 |

[1]All loadings and reductions take into account the removals by POTWs for indirect dischargers.
[2]Note the following are not included: cyanide, total phosphorus, total phenols, TOC, COD, TDS, Ammonia as N, and other nonconventional classical parameters
[3]Does not include calcium, chloride, fluoride, phosphorus, potassium, sodium, and sulfur

# Chapter 13

# NON-WATER QUALITY IMPACTS

Sections 304(b) and 306 of the Clean Water Act provide that non-water quality environmental impacts are among the factors EPA must consider in establishing effluent limitations guidelines and standards. These impacts are the environmental consequences not directly associated with wastewater that may be associated with the regulatory options considered. For this rule, EPA evaluated the potential effect of the selected options on air emissions, solid waste generation, and energy consumption.

This section quantifies the non-water quality impacts associated with the options considered for the final rule. Cost estimates for the impacts, and the methods used to estimate these costs, are discussed in Chapter 11 of this document. In all cases, the costs associated with non-water quality impacts were included in EPA's cost estimates used in the economic evaluation of the promulgated limitations and standards.

## *AIR POLLUTION* *13.1*

CWT facilities receive and produce wastewaters that contain significant concentrations of organic compounds, some of which are listed in Title 3 of the Clean Air Act Amendments (CAAA) of 1990. These wastewaters often pass through a series of collection and treatment units. These units are open to the atmosphere and allow wastewater containing organic compounds to contact ambient air. Atmospheric exposure of the organic-containing wastewater may result in significant water-to-air transfers of volatile organic compounds (VOCs).

The primary sources of VOCs in the CWT industry are the wastes treated in the oils and the organics subcategory. In general, CWT facilities have not installed air or wastewater treatment technologies designed to control the release of VOCs to the atmosphere. Additionally, most CWT facilities do not employ best management practices designed to control VOC emissions (such as covering their treatment tanks). Therefore, as soon as these VOC-containing oil and organic subcategory wastewaters contact ambient air, volatilization will begin to occur.

Thus, volatilization of VOCs and HAPs from wastewater may begin immediately on receipt, as the wastewater enters the CWT facility, or as the wastewater is discharged from the process unit. Emissions can also occur from wastewater collection units such as process drains, manholes, trenches, sumps, junction boxes, and from wastewater treatment units such as screens, settling basins, equalization basins, biological aeration basins, dissolved air flotation systems, chemical precipitation systems, air or steam strippers lacking air emission control devices, and any other units where the wastewater is in contact with the air. In some cases, volatilization will begin at the facility and continue as the wastewaters are discharged to the local river or POTW.

As discussed in 1999 proposal, EPA considered including air stripping in the technology basis for the final limitations and standards, but rejected it because it would not have resulted in significantly different limitations. Because this rule would not allow any less stringent control of VOCs than is currently in place at most CWT facilities, EPA does not project any net increase in air emissions from volatilization of organic pollutants due to the Agency's final action. As such, no adverse air impacts are expected to occur as a result of these regulations.

Table 13-1 provides information on incremental VOC emissions resulting from implementation of the proposed rule at CWT oils and organics facilities. EPA has not provided information for the metals subcategory, but concluded these emissions would be negligible. For this analysis, EPA defined a volatile pollutant as described in Chapter 7 and calculated volatile pollutant baseline and post-compliance loadings and reductions as described in Chapter 12. EPA additionally assumed that 80% of the volatile pollutant reduction would be due to volatilization. EPA selected 80% based on an assessment of information developed during the development of OCPSF guidelines (see pages 275-285 of the October 1987 "Development Document for Effluent Limitations Guidelines and Standards for the OCPSF Point Source Category (EPA 440/1-87/009)). In EPA's view, the information presented in Table 13-1 represents a "worst-case" scenario in terms of incremental volatile air emissions, since the analysis assumes no volatilization of pollutants at baseline. As explained earlier, EPA found that the majority of these pollutants are already being volatilized in the absence of additional treatment technologies.

Table 13-1 also shows that, for this worst-case scenario, the sum of the annual VOC air emissions at CWT facilities would not exceed 400 tons of HAPs. Under the Clean Air Act, major sources of pollution by HAPs are defined as having either: (1) a total emission of 25 tons/year or higher for the total HAPs from all emission points at a facility; or (2) an emission of 10 tons/year or higher from all emission points at a facility. Based on these criteria, incremental air emissions from this worst-case scenario analysis of the final BPT/BAT/PSES organics subcategory options would cause three facilities to be classified as major sources. For the oils and metals subcategories, EPA does not project any major sources due to incremental removals. Since EPA concluded that the three organics subcategory CWT facilities classified as major sources would be classified as such in the absence of the implementation of the final rule, EPA has determined that air emission impacts from the selected options are acceptable.

Although this rule is not based on technology that uses air stripping with emissions control to abate the release of volatile pollutants, EPA encourages all facilities which accept waste containing volatile pollutants to incorporate air stripping with overhead recovery or destruction into their wastewater treatment systems. Additionally, EPA also notes that CWT sources of hazardous air pollutants are subject to maximum achievable control technology (MACT) as promulgated for off-site waste and recovery operations on July 1, 1996 (61 FR 34140) as 40 CFR Part 63.

Finally, EPA notes that the increased energy requirements discussed in Section 13.3 may result in increased emissions of combustion byproducts associated with energy production. Given the relatively small projected increases in energy use, however, EPA does not anticipate that this effect would be significant.

Table 13-1. Projected Air Emissions at CWT Facilities

| Subcategory | VOCs Emitted (tons/yr) | Priority VOCs Emitted (tons/yr) | Number of Projected MACT* Facilities | Major Constituents |
|---|---|---|---|---|
| Oils | 69 | 32 | 0 | Toluene |
| Organics | 329 | 323 | 3 | Methylene Chloride and Toluene |

* MACT requires 25 tons of volatile emissions for a facility to be a major source or 10 tons of a single pollutant at a single facility.

## *SOLID WASTE* *13.2*

Solid waste will be generated due to a number of the treatment technologies selected as the basis for this rule. These wastes include sludge from biological treatment systems, chemical precipitation and clarification systems, and gravity separation and dissolved air flotation systems. EPA estimated costs for off-site disposal in Subtitle C and D landfills of the solid wastes generated due to the implementation of the technologies selected as the basis of the final CWT limitations and standards. These costs were included in the economic evaluation of the selected technologies.

To estimate the incremental sludge generated from the selected options, EPA subtracted the volume of sludge currently being generated by the CWT facilities from the estimated volume of sludge that would be generated after implementation of the options. EPA calculated the volume of sludge currently being generated by CWT facilities for all sludge-generating technologies currently being operated at CWT facilities. EPA then calculated the volume of sludge that would be generated by CWT facilities after implementation of the final rule. Table 13-2 presents the estimated increase in volumes of filter cake generated by CWT facilities that would result from implementation of the promulgated limitations and standards.

The precipitation and subsequent separation processes selected as the technology basis for the metals subcategory will produce a metal-rich filter cake. In most instances, the resulting filter cake will require disposal in Subtitle C and D landfills. EPA estimates that the annual increase in filter cake generated by the metals subcategory facilities will be 3.7 million gallons. In evaluating the economic impact of sludge disposal, EPA assumed that all of the sludge generated would be disposed in a landfill. This assumption does not take into consideration the fact that an undetermined portion of the generated filter cake may be recovered in secondary metals manufacturing processes rather than being disposed in a landfill.

The dissolved air flotation system and additional gravity separation step selected as the technology basis for the oils subcategory will produce a metal-rich filter press cake that requires disposal. This filter cake may be either disposed in Subtitle C and D landfills or in some cases through incineration. EPA estimates that the annual increase in filter cake generated by the oils subcategory facilities will be 22.7 million gallons. These estimates are based on implementation of option 8 technology for indirect dischargers (PSES) and option 9 for direct dischargers (BPT/BAT). EPA applied a scale-up factor to include the estimated volume of filter cake generated by the NOA non-respondents. In evaluating the economic impact of sludge disposal, EPA assumed that all of the sludge generated would be disposed in a landfill.

Finally, the biological treatment selected as the technology basis for the organics subcategory will produce a filter cake that consists primarily of biosolids and requires disposal. This filter cake can be disposed by a variety of means including disposal at Subtitle C and Subtitle D landfills, incineration, composting, and land application. However, contaminants contained in the sludges may limit the use of composting and land application. EPA estimates that the annual increase in filter cake generated by the organics subcategory facilities will be 4.3 million gallons. In evaluating the economic impact of sludge disposal, EPA assumed that all of the sludge generated would be disposed in a landfill.

Table 13-3 presents the percentage of the national volume of hazardous and non-hazardous waste sent to landfills represented by the increase for each regulatory option. The information presented in this table represents the tonnage of waste accepted by landfills in 1992 and was based on information collected during the development of the proposed Landfills Point Source Category (see pages 3-32 of the January 1998 "Development Document for Proposed Effluent Limitations Guidelines and Standards for the Landfills Point Source Category" (EPA-821-R-97-022)). EPA has concluded that the disposal of these filter cakes and/or sludges will not have an adverse effect on the environment or result in the release of pollutants in the filter cake to other media. EPA made this conclusion for two reasons. First, EPA estimates that the additional solid wastes disposed in landfills as a result of this regulation will be less than 0.19% of the annual tonnage of waste currently disposed in landfills. Second, the disposal of these wastes into controlled Subtitle C and D landfills is strictly regulated by the RCRA program.

Table 13-2. Projected Incremental Filter Cake Generation at CWT Facilities

| CWT Subcategory | Option | Filter Cake Generated (million gal/yr) | | | | | |
|---|---|---|---|---|---|---|---|
| | | Hazardous | | | Non-Hazardous | | |
| | | Indirect | Direct | Total | Indirect | Direct | Total |
| Metals | 4 | 0.80 | 1.68 | 2.48 | 0.40 | 0.83 | 1.23 |
| Oils | 8 | 10.04 | - | 10.04 | 12.28 | - | 12.28 |
| | 9 | - | 0 | 0 | - | 0.36 | 0.36 |
| Organics | 4 | 2.89 | 0 | 2.89 | 1.42 | 0 | 1.42 |
| Total | - | 13.73 | 1.68 | 15.41 | 14.1 | 1.19 | 15.29 |

Table 13-3. National Volume of Hazardous and Non-hazardous Waste Sent to Landfills

| CWT Subcategory | Option | Percentage of Annual Tonnage of Waste Disposed in National Landfills | |
|---|---|---|---|
| | | Hazardous | Non-hazardous |
| Metals | 4 | 0.032 | 0.004 |
| Oils | 8 | 0.093 | 0.028 |
| | 9 | 0 | 0.001 |
| Organics | 4 | 0.024 | 0.003 |
| Total | | 0.149 | 0.036 |

### *ENERGY REQUIREMENTS* *13.3*

EPA estimates that the attainment of BPT, BCT, BAT, and PSES will increase energy consumption by a small increment over present industry use. With the exception of the oils subcategory, the projected increase in energy consumption is primarily due to the incorporation of components such as power pumps, mixers, blowers, and controls. For the metals subcategory, EPA projects an increased energy usage of 3.5 million kilowatt hours per year and, for the organics subcategory, an increased energy usage of 0.5 million-kilowatt hours per year. For the oils subcategory, however, the main energy requirement in today's rule is for the operation of dissolved air flotation units. Dissolved air flotation units require air sparging to help separate the waste stream. For the oils subcategory, EPA projects an increased energy usage of 3.4 million kilowatt hours per year. Overall, an increase of 7.5 million kilowatt-hours per year would be required for today's regulation which equates to 4210 barrels of oil per day. In 1996, the United States consumed 18.3 million barrels of oil per day.

### *LABOR REQUIREMENTS* *13.4*

The installation of new wastewater treatment equipment along with improvements in the operation of existing equipment for compliance with the proposed limitations and standards would result in increased operating labor requirements for CWT facilities. It is estimated that compliance with the CWT regulations would result in industry-wide employment gains. Table 13-5 presents the estimated increase in labor requirements for the CWT industry.

Table 13-4. Projected Energy Requirements for CWT Facilities

| CWT Subcategory | Option | Energy Usage (kwh/yr) | | |
|---|---|---|---|---|
| | | Indirect Dischargers | Direct Dischargers | Total |
| Metals | 4 | 1,805,369 | 1,551,195 | 3,356,564 |
| Cyanide Waste Pretreatment | 2 | 129,000 | 18,046 | 147,046 |
| Oils | 8 | 3,336,584 | - | 3,336,584 |
| | 9 | - | 137,061 | 137,061 |
| Organics | 4 | 505,175 | 24,069 | 529,244 |
| Total | - | 5,776,128 | 1,730,371 | 7,506,499 |

Table 13-5. Projected Labor Requirements for CWT Facilities

| CWT Subcategory | Option | Operating Labor Requirements | | | | | |
|---|---|---|---|---|---|---|---|
| | | Indirect Dischargers | | Direct Dischargers | | Total | |
| | | (Hours/yr) | (Men/yr) | (Hours/yr) | (Men/yr) | (Hours/yr) | (Men/yr) |
| Metals | 4 | 85,448 | 42.7 | 27,105 | 13.6 | 112,553 | 56.3 |
| Cyanide Waste Pretreatment | 2 | 16,425 | 8.2 | 2,190 | 1.1 | 18,615 | 9.3 |
| Oils | 8 | 57,825 | 25.9 | - | - | 57,825 | 25.9 |
| | 9 | - | - | 2,496 | 1.2 | 2,496 | 1.2 |
| Organics | 4 | 29,042 | 14.5 | 936 | 0.5 | 29,978 | 15 |
| Total | - | 188,740 | 91.3 | 32,727 | 16.4 | 221,467 | 107.7 |

# Chapter 14

# IMPLEMENTATION

Effluent limitations and pretreatment standards act as a primary mechanism to control the discharges of pollutants to waters of the United States. These limitations and standards are applied to individual facilities through NPDES permits and through POTW pretreatment programs.

Implementation of a regulation is a critical step in the regulatory process. If a regulation is not effectively implemented, the removals and environmental benefits estimated for the regulation may not be achieved. Likewise, ineffective implementation could hinder the facility's operations without achieving the estimated environmental benefits. In discussions with permit writers and control authorities, many stated that close communication with CWT facilities is important for effective implementation of discharge requirements. Permit writers and control authorities need to have a thorough understanding of a CWT facility's operations to effectively implement this rule. Likewise, CWT facilities must maintain close communication with the waste generators in order to accurately characterize and treat the incoming waste streams.

This chapter provides direction to permit writers, control authorities, and CWT facilities to aid in the implementation of this rule. Interested parties should also consult the <u>Small Entity Compliance Guide for the Final Effluent Limitations, Guidelines, Pretreatment Standards and New Source Performance Standards for the Centralized Waste Treatment Industry</u>.

Based on local site-specific factors, the permit writer or control authority may establish limitations and standards for pollutants not covered by this regulation and may require more stringent limits or standards for covered pollutants.

## *COMPLIANCE DATES* 14.1

### *Existing Direct Dischargers* 14.1.1

New and reissued Federal and State NPDES permits to direct dischargers must *immediately* include the CWT effluent limitations (BAT) if applicable.

### *Existing Indirect Dischargers* 14.1.2

Existing indirect dischargers (discharge to a POTWs) must comply with the applicable CWT pretreatment standards (PSES) no later than three years after publication of the final rule in the <u>Federal Register</u>.

### *New Direct or Indirect Dischargers* 14.1.3

New direct or indirect discharging sources must comply with applicable limitations or standards on the date the new sources begin operations. New direct dischargers must comply with NSPS while new indirect sources must comply with PSNS. New direct and indirect sources are those that began CWT construction after publication of the final rule in the <u>Federal Register</u>.

## *GENERAL APPLICABILITY* 14.2

Chapter 3 details the applicability of the CWT rule to various operations. Permit writers and control authorities should closely examine all CWT operations to determine if they should be subject to provisions of this rule.

## *APPLICABLE WASTE STREAMS* 14.3

Chapter 5 describes the sources of wastewater for the CWT industry, which include the following:

Off-site-generated wastewater:

- Waste receipts via tanker truck, trailer/roll-off bins, and drums.

On-site-generated wastewater:

- Equipment/area washdown
- Water separated from recovered/recycled materials
- Contact/wash water from recovery and treatment operations
- Transport container washdown
- Solubilization water
- Laboratory-derived wastewater
- Air pollution control wastewater
- Landfill wastewater from on-site landfills
- Contaminated stormwater.

These waste streams are classified as process wastewaters and are, thus, subject to the appropriate subcategory discharge standards. Uncontaminated stormwater should not be mixed with waste receipts prior to complete treatment of the waste receipts since this arrangement may allow discharge standards to be met by dilution rather than proper treatment. Only contaminated stormwater (i.e. stormwater which comes in direct contact with waste receipts or waste handling and treatment areas) should be classified as a process wastewater. During site visits at CWT facilities, EPA observed many circumstances in which uncontaminated stormwater was commingled with the CWT wastewaters prior to treatment or was added after treatment prior to effluent discharge monitoring. EPA believes that permit writers and control authorities should be responsible for determining which stormwater sources warrant designation as process wastewater. Additionally, permit writers and control authorities should require facilities to monitor and meet their CWT discharge requirements following wastewater treatment and prior to combining these treated CWT wastewaters with non-process wastewaters. If a permit writer or control authority allows a facility to combine treated CWT wastewaters with non-process wastewaters prior to compliance monitoring, the permit writer or control authority should ensure that the non-contaminated stormwater dilution flow is factored into the facility's discharge requirements.

EPA has also observed situations where stormwater, contaminated and uncontaminated, was recycled as process water (e.g., as solubilization water for solid wastes to render the wastes treatable). In these instances, dilution is not the major source of pollutant reductions (treatment). Rather, this leads to reduced wastewater discharges. Permit writers and control authorities should investigate opportunities for use of such alternatives and encourage such practices wherever feasible.

## *SUBCATEGORY DESCRIPTIONS* *14.4*

One of the most important aspects of implementation is the determination of which subcategory's limitations are applicable to a facility's operation(s). As detailed in Chapter 5, EPA established a subcategorization scheme based on the character of the wastes being treated and the treatment technologies utilized. The subcategories are as follows:

Subcategory A: Metals Subcategory:
Facilities which treat or recover metal from metal-bearing waste, wastewater, or used material received from offsite;

Subcategory B: Oils Subcategory:
Facilities which treat or recover oil from oily waste, wastewater, or used material received from offsite;

Subcategory C: Organics Subcategory:
Facilities which treat or recover organics from organic waste, wastewater, or used material received from offsite; and

Subcategory D: Multiple Wastestream Subcategory:

> Facilities which treat or recover some combination of metal-bearing, oily, or organic waste, wastewater, or used material received from off-site.

The subcategory determination is based primarily on the type of process generating the waste, the characteristics of the waste, and the type of treatment technologies which would be effective in treating the wastes. It is important to note that a wide range of pollutants were detected in all four subcategories. That is, organic constituents were detected in metal subcategory wastewater and vice versa. The following sections provide a summary description of the wastes in each of the four subcategories; a more detailed presentation is in Chapter 5.

### *Metals Subcategory Description 14.4.1*

Waste receipts classified in the metals subcategory include, but are not limited to the following: spent electroplating baths and sludges, spent anodizing solutions, air pollution control water and sludges, incineration wastewaters, waste liquid mercury, metal finishing rinse water and sludges, chromate wastes, cyanide-containing wastes, and waste acids and bases. The primary concern with metals subcategory waste streams is the concentration of metal constituents, and some form of chemical precipitation with solid-liquid separation is essential. These raw waste streams generally contain few organic constituents and have low oil and grease levels. The range of oil and grease levels in metal subcategory wastestreams sampled by EPA was 5 mg/L (the minimum analytical detection limit) to 143 mg/L. The average oil and grease level measured at metals facilities by EPA was 39 mg/L. As expected, metal concentrations in wastes from this subcategory were generally high in comparison to other subcategories. In general, wastes that contain significant quantities of inorganics and/or metals should be classified in the metals subcategory.

### *Oil Subcategory Description 14.4.2*

Waste receipts classified in the oils subcategory include, but are not limited to the following: lubricants, used petroleum products, used oils, oil spill clean-up, interceptor wastes, bilge water, tank cleanout, off-specification fuels, and underground storage tank remediation waste. Based on EPA's sampling data, oil and grease concentrations in these streams following emulsion breaking and/or gravity separation range from 38 mg/L to 180,000 mg/L. The facility average value is 5,976 mg/L. Based on information provided by industry, oil and grease content in these waste receipts prior to emulsion breaking and/or gravity separation varies between 0.1% and 99.6% (1,000 mg/L to 996,000 mg/L). Additionally, as measured after emulsion breaking and/or gravity separation, these oily wastewaters generally contain a broad range of organic and metal constituents. Therefore, while the primary concern is often a reduction in oil and grease levels, oils subcategory wastewaters also require treatment for metal constituents and organic constituents. In general, wastes that do not contain a recoverable quantity of oil should not be classified as being in the oils subcategory. The only exception to this would be wastes contaminated with gasoline or other hydrocarbon fuels.

### *Organics Subcategory Description 14.4.3*

Waste receipts classified in the organics subcategory include, but are not limited to, the following: landfill leachate, contaminated groundwater clean-up, solvent-bearing waste, off-specification organic product, still bottoms, wastewater from adhesives and epoxies, and wastewater from chemical product operations and paint washes. These wastes generally contain a wide variety and concentration of organic compounds, low concentrations of metal compounds (as compared to waste receipts in the metals subcategory), and low concentrations of oil and grease. The concentration of oil and grease in organic subcategory samples measured by EPA ranged from 2mg/L to 42 mg/L, with an average value of 22 mg/L. The primary concern for organic wastestreams is the reduction in organic constituents, which generally requires some form of biological treatment. In general, wastes that do not contain significant quantities of inorganics, metals, or recoverable quantities of oil or fuel should be classified as belonging to the organics subcategory.

### *Multiple Wastestream Subcategory Description* *14.4.4*

Waste receipts in the multiple wastestream subcategory can all be classified in one of the first three subcategories. This subcategory may apply to a CWT facility which accepts waste receipts from more than a single subcategory listed above. For example, a CWT multiple wastestream subcategory facility may accept electroplating baths and sludges and used oils and oily wastewater. The multiple wastestream subcategory determination can only be made after the metals, oils, and organics subcategory classifications have been completed.

## *FACILITY SUBCATEGORIZATION IDENTIFICATION* *14.5*

EPA believes that the paperwork and analyses currently performed at CWT facilities as part of their waste acceptance procedures (as outlined in Chapter 4) provide CWT facilities with sufficient information to make a subcategory determination. EPA based its recommended subcategorization determination procedure on information generally obtained during these waste acceptance and confirmation procedures. EPA discourages permit writers and control authorities from requiring additional monitoring or paperwork solely for the purpose of subcategory determinations, unless a CWT facility's waste acceptance procedures are inadequate. EPA believes that if CWT facilities follow EPA's recommendations, they should easily be able to classify their wastes. Permit writers and control authorities would only need to satisfy themselves that the facility made a good-faith effort to determine the category of wastes treated. In most cases, as detailed below, EPA believes the subcategory determination can be made on the type of waste receipt, e.g., metal-bearing sludge, waste oil, landfill leachate. Certainly, in EPA's estimation, all CWT facilities should, at a minimum, collect adequate information from the generator on the type of waste receipt since this is the minimum information required by CWT facilities to effectively treat off-site wastes.

To determine an existing facility's subcategory classification(s), the facility should review data for a period of one year on its incoming wastes (collected at the point where the shipment is received at the facility and recorded on forms similar to the template of a waste acceptance form shown as Figure 14-7 at the end of this chapter). ***For a one year period, the facility should first use Table 14-1 to classify each of its waste receipts into Subcategory A, B, or C.***

Table 14-1. Waste Receipt Classification

| | |
|---|---|
| Metals Subcategory | spent electroplating baths and/or sludges<br>metal finishing rinse water and sludges<br>chromate wastes<br>air pollution control blow down water and sludges<br>spent anodizing solutions<br>incineration wastewaters<br>waste liquid mercury<br>cyanide-containing wastes (> 136 mg/L)<br>waste acids and bases with or without metals<br>cleaning, rinsing, and surface preparation solutions from electroplating or phosphating operations<br>vibratory deburring wastewater<br>alkaline and acid solutions used to clean metal parts or equipment |
| Oils Subcategory | used oils<br>oil-water emulsions or mixtures<br>lubricants<br>coolants<br>contaminated groundwater clean-up from petroleum sources<br>used petroleum products<br>oil spill clean-up<br>bilge water<br>rinse/wash waters from petroleum sources<br>interceptor wastes<br>off-specification fuels<br>underground storage remediation waste<br>tank clean-out from petroleum or oily sources<br>non-contact used glycols<br>aqueous and oil mixtures from parts cleaning operations<br>wastewater from oil bearing paint washes |
| Organics Subcategory | landfill leachate<br>contaminated groundwater clean-up from non-petroleum sources<br>solvent-bearing wastes<br>off-specification organic product<br>still bottoms<br>byproduct waste glycol<br>wastewater from paint washes<br>wastewater from adhesives and/or epoxies formulation<br>wastewater from organic chemical product operations<br>tank clean-out from organic, non-petroleum sources |

**If the CWT facility receives the wastes listed in Table 14-1, the subcategory determination is made solely from this information.** If, however, the wastes are unknown or not listed above, EPA recommends that the facility use the following hierarchy to characterize the wastes it is treating and identify the appropriate regulatory subcategory:

1). If the waste receipt contains oil and grease at or in excess of 100 mg/L, the waste receipt should be classified in the oils subcategory;

2). If the waste receipt contains oil and grease <100 mg/L, and has any of the pollutants listed below in concentrations in excess of the values listed below, the waste receipt should be classified in the metals subcategory.

| | |
|---|---|
| cadmium | 0.2 mg/L |
| chromium | 8.9 mg/L |
| copper | 4.9 mg/L |
| nickel | 37.5 mg/L |

3). If the waste receipt contains oil and grease < 100 mg/L, and does not have concentrations of cadmium, chromium, copper, or nickel above any of the values listed above, the waste receipt should be classified in the organics subcategory.

This process is also illustrated in Figure 14-1.

Members of the CWT industry have expressed concern that wastes may be received from the generator as a "mixed waste", i.e., a single waste receipt may be classified in more than one subcategory. Based on the information collected during the development of this rule, using the subcategorization procedure recommended in this section, EPA is able to classify each waste receipt identified by the industry into the appropriate subcategory. Therefore, EPA believes that these "mixed waste receipt" concerns have been addressed in the current subcategorization procedure.

Once the facility's subcategory determination has been made based on a year of waste receipt information, EPA recommends that the facility should not be required to repeat this determination process unnecessarily. However, if a CWT facility alters its operation to accept wastes from another subcategory (or no longer accepts waste from a subcategory), the facility should notify the appropriate permit writer or control authority and the subcategory determination should be reevaluated. EPA notes that current regulations require notification to the permitting or control authority when significant changes occur. EPA also recommends that the subcategory determination be re-evaluated whenever the permit or pretreament agreement (or control mechanism) is re-issued, though this would not necessarily require complete characterization of a subsequent year's waste receipts if there is no indication that the make-up of the facility's receipts had significantly changed.

For new CWT facilities, the facility should estimate the percentage of waste receipts expected in each subcategory. Alternatively, the facility could compare the treatment technologies being installed to the selected treatment technologies for each subcategory. After the initial year of operation, the permit writer or control authority should reassess the facility's subcategory determination and follow the procedures outlined for existing facilities.

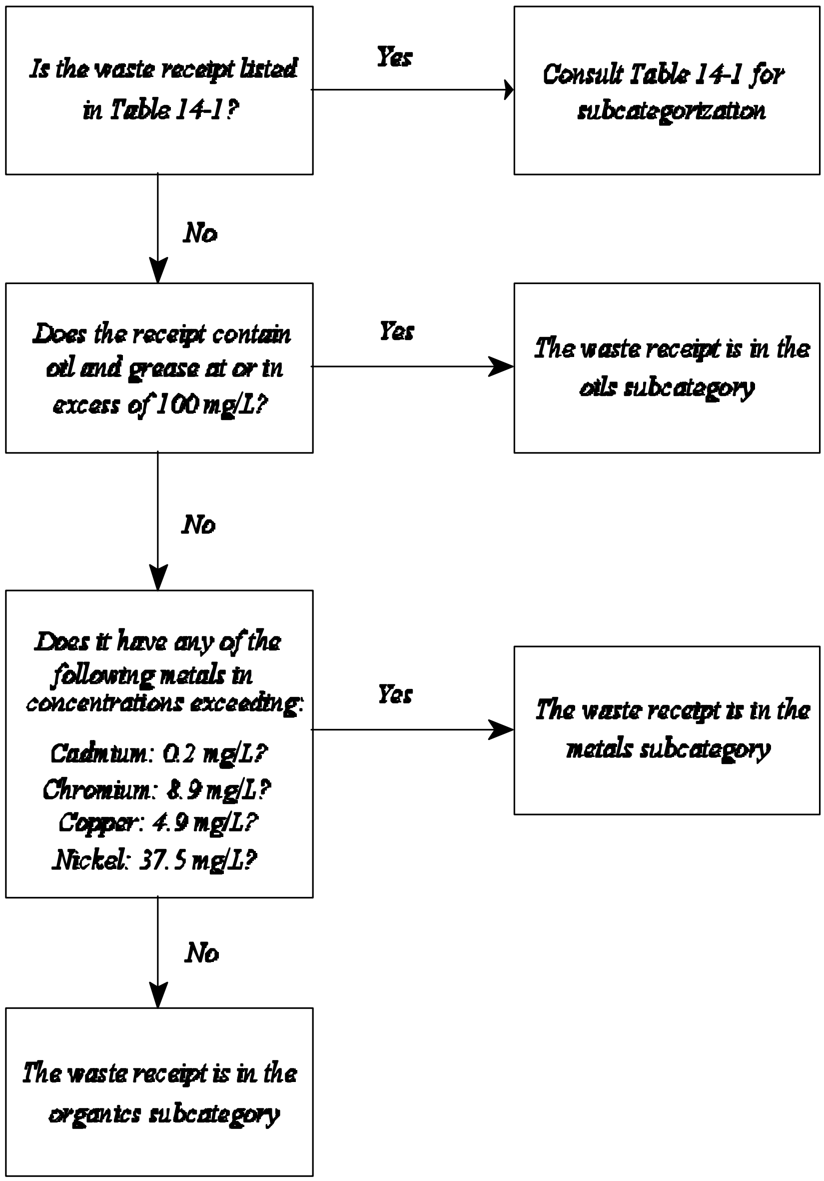


Figure 14-1. Waste Receipt Subcategory Classification Diagram

### *ON-SITE GENERATED WASTEWATER SUBCATEGORY DETERMINATION 14.6*

Section 14.5 describes the subcategory determination for off-site waste receipts. For other on-site generated wastewater sources, such as those described in Section 14.3, wastewater generated in support of, or as the result of, activities associated with each subcategory should be classified in that subcategory. For facilities that are classified in a single subcategory, the facility should generally classify on-site wastewater in that subcategory. For facilities that are classified in more than one subcategory, however, the facility should apportion the on-site generated wastewater to the appropriate subcategory. Certain waste streams may be associated with more than one subcategory, such as stormwater, equipment/area washdown, air pollution control wastewater, etc. For these wastewater sources, the volume generated should be apportioned to each associated subcategory. For example, for contaminated stormwater, the volume can be apportioned based on the proportion of the surface area associated with operations in each subcategory. Equipment/area washdown may be assigned to a subcategory based on the volume of waste treated in each subcategory. Alternatively, control authorities may assign the on-site wastestreams to a subcategory based on the appropriateness of the selected subcategory treatment technologies. **EPA notes that this is only necessary for multiple subcategory facilities which elect not to comply with Subcategory D limitations or standards.**

### *SUBCATEGORY DETERMINATION IN EPA QUESTIONNAIRE DATA BASE 14.7*

In order to estimate the quantities of wastewater being discharged and current pollutant loads, pollutant reductions, post compliance costs, and environmental benefits for each subcategory, EPA developed a methodology to classify waste streams for CWT facilities in the EPA Waste Treatment Industry Questionnaire database into each of the subcategories. Using the RCRA and Waste Form Codes listed in Table 14-2, EPA developed rules for making subcategory assignments of the waste receipts reported in the 308 Questionnaires. The rules rely primarily on Waste Form Codes (where available) plus RCRA wastes codes.

#### ***Wastes Classified in the Metals Subcategory - Questionnaire Responses 14.7.1***

The wastes that EPA classified in the metals subcategory include the following:

- All wastes reported in Section G, Metals Recovery, of the 308 Questionnaire; and
- All wastes with Waste Form Codes and RCRA codes meeting the criteria specified in Table 14-3.

#### ***Wastes Classified in The Oils Subcategory - Questionnaire Responses 14.7.2***

The wastes EPA classified in the oils subcategory include the following:

- All wastes reported in Section E, Waste Oil Recovery, of the 308 Questionnaire;
- All wastes reported in Section H, Fuel Blending Operations, of the 308 Questionnaire that generate a wastewater as a result of the fuel blending operations; and
- All wastes with Waste Form Codes and RCRA codes meeting the criteria in Table 14-4.

#### ***Wastes Classified in the Organics Subcategory - Questionnaire Responses 14.7.3***

The wastes EPA classified in the organics subcategory include the following:

- All wastes with Waste Form Codes and RCRA codes meeting the criteria specified in Table 14-5.

Table 14-2. RCRA and Waste Form Codes Reported by Facilities in 1989

| | |
|---|---|
| | **RCRA CODES** |
| D001 | Ignitable Waste |
| D002 | Corrosive Waste |
| D003 | Reactive Waste |
| D004 | Arsenic |
| D005 | Barium |
| D006 | Cadmium |
| D007 | Chromium |
| D008 | Lead |
| D009 | Mercury |
| D010 | Selenium |
| D011 | Silver |
| D012 | Endrin(1,2,3,4,10,10-hexachlorc-1,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4-endo-5,8-dimeth-ano-napthalene) |
| D017 | 2,4,5-TP Silvex (2,4,5-trichlorophenixypropionic acid) |
| D035 | Methyl ethyl ketone |
| F001 | The following spent halogenated solvents used in degreasing: tetrachloroethylene; trichloroethane; carbon tetrachloride and chlorinated fluorocarbons and all spent solvent mixtures/blends used in degreasing containing, before use, a total of 10 percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures |
| F002 | The following spent halogenated solvents: tetrachloroethylene; 1,1,1-trichloroethane; chlorobenzene; 1,1,2-trichloro-1,2,2- trifluoroethane; ortho-dichlorobenzene; trichloroethane; all spent solvent mixtures/blends containing, before use, a total of 10 percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F001, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures |
| F003 | The following spent nonhalogenated solvents: xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures/blends containing, before use, one or more of the above nonhalogenated solvents, and a total of 10 percent or more (by volume) of one or more of those solvents listed in F001, F002, F004, and F005-1 and still bottoms from the recovery of these spent solvents and spent solvent mixtures. |
| F004 | The following spent nonhalogenated solvents: cresols, cresylic acid, and nitrobenzene; and the still bottoms from the recovery of these solvents; all spent solvent mixtures/blends containing before use a total of 10 percent or more (by volume) of one or more of the above nonhalogenated solvents or those solvents listed in F001, F002, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures |
| F005 | The following spent nonhalogenated solvents: toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane; all spent solvent mixtures/blends containing, before use, a total of 10 percent or more (by volume) of one or more of the above nonhalogenated solvents or those solvents listed in F001, F002, or F004; and still bottoms from the recovery of these spent solvents and spent solvents mixtures |
| F006 | Wastewater treatment sludges from electroplating operations except from the following processes: (1) sulfuric acid anodizing of aluminum; (2) tin plating on carbon steel; (3) zinc plating (segregated basis) on carbon steel; (4) aluminum or zinc-aluminum plating on carbon steel: (5) cleaning/stripping associated with tin, zinc, and aluminum plating on carbon steel; and (6) chemical etching and milling of aluminum |
| F007 | Spent cyanide plating bath solutions from electroplating operations |

Table 14-2. RCRA and Waste Form Codes Reported by Facilities in 1989

| | |
|---|---|
| F008 | Plating bath residues from the bottom of plating baths from electroplating operations in which cyanides are used in the process |
| F009 | Spent stripping and cleaning bath solutions from electroplating operations in which cyanides are used in the process |
| F010 | Quenching bath residues from oil baths from metal heat treating operations in which cyanides are used in the process |
| F011 | Spent cyanide solutions from slat bath pot cleaning from metal heat treating operations |
| F012 | Quenching waste water treatment sludges from metal heat treating operations in which cyanides are used in the process |
| F019 | Wastewater treatment sludges from the chemical conversion coating of aluminum |
| F039 | Multi-source leachate |
| K001 | Bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol |
| K011 | Bottom stream from the wastewater stripper in the production of acrylonitrile |
| K013 | Bottom stream from the acetonitrile column in the production of acrylonitrile |
| K014 | Bottoms from the acetonitrile purification column in the production of acrylonitrile |
| K015 | Still bottoms from the distillation of benzyl chloride |
| K016 | Heavy ends or distillation residues from the production of carbon tetrachloride |
| K031 | By-product salts generated in the production of MSMA and cacodylic acid |
| K035 | Wastewater treatment sludges generated in the production of creosote |
| K044 | Wastewater treatment sludges from the manufacturing and processing of explosives |
| K045 | Spent carbon from the treatment of wastewater containing explosives K048 air flotation (DAF) float from the petroleum refining industry K049 Slop oil emulsion solids from the petroleum refining industry |
| K050 | Heat exchanger bundle cleaning sludge from the petroleum refining industry |
| K051 | API separator sludge from the petroleum refining industry |
| K052 | Tank bottoms (leaded) from the petroleum refining industry |
| K061 | Emission control dust/sludge from the primary production of steel in electric furnaces |
| K064 | Acid plant blowdown slurry/sludge resulting from the thickening of blowdown slurry from primary copper production |
| K086 | Solvent washes and sludges, caustic washes and sludges, or water washes and sludges from cleaning tubs and equipment used in the formulation of ink from pigments, driers, soaps, and stabilizers containing chromium and lead |
| K093 | Distillation light ends from the production of phthalic anhydride from ortho-xylene |
| K094 | Distillation bottoms from the production of phthalic anhydride from ortho-xylene |
| K098 | Untreated process wastewater from the production of toxaphene |
| K103 | Process residues from aniline extraction from the production of aniline K104 Combined wastewater streams generated from nitrobenzene/aniline production |
| P011 | Arsenic pentoxide (t) |
| P012 | Arsenic (III) oxide (t) Arsenic trioxide (t) |
| P013 | Barium cyanide |
| P020 | Dinoseb, Phenol,2,4-dinitro-6-(1-methylpropyl)- |
| P022 | Carbon bisulfide (t) |
| | Carbon disulfide (t) |

Table 14-2. RCRA and Waste Form Codes Reported by Facilities in 1989

| | |
|---|---|
| P028 | Benzene, (chloromethyl) |
| | -Benzyl chloride |
| P029 | Copper cyanides |
| P030 | Cyanides (soluble cyanide salts), not elsewhere specified (t) |
| P040 | 0,0-diethyl 0-pyrazinyl phosphorothioate |
| | Phosphorothioic acid, 0,0-diethyl 0-pyrazinyl ester |
| P044 | Dimethoate (t) |
| | Phosphorodithioic acid, |
| | 0,0-dimethyl S-[2-(methylamino)-2-oxoethyl]ester (t) |
| P048 | 2,4-dinitrophenol |
| | Phenol,2,4-dinitro- |
| P050 | Endosulfan |
| | 5-norbornene-2,3-dimethanol, |
| | 1,4,5,6,7,7-hexachloro,cyclic sulfite |
| P063 | Hydrocyanic acid |
| | Hydrogen cyanide |
| P064 | Methyl isocyanate |
| | Isocyanic acid, methyl ester |
| P069 | 2-methyllactonitrile |
| | Propanenitrile,2-hydroxy-2-methyl- |
| P071 | 0,0-dimethyl 0-p-nitrophenyl phosphorothioate |
| | Methyl parathion |
| P074 | Nickel (II) cyanide |
| | Nickel cyanide |
| P078 | Nitrogen (IV) oxide |
| | Nitrogen dioxide |
| P087 | Osmium tetroxide |
| | Osmium oxide |
| P089 | Parathion (t) |
| | Phosphorothiotic acid,0,0-diethyl 0-(p-nitrophenyl) ester (t) |
| P098 | Potassium cyanide |
| P104 | Silver cyanide |
| P106 | Sodium cyanide |
| P121 | Zinc cyanide |
| P123 | Toxaphene |
| | Camphene,octachloro- |
| U002 | 2-propanone (i) |
| | Acetone (i) |
| U003 | Ethanenitrile (i,t) |
| | Acetonitrile (i,t) |
| U008 | 2-propenoic acid (i) |
| | Acrylic acid (i) |

Table 14-2. RCRA and Waste Form Codes Reported by Facilities in 1989

| | |
|---|---|
| U009 | 2-propenenitrile |
| | Acrylonitrile |
| U012 | Benzenamine (i,t) |
| | Aniline (i,t) |
| U019 | Benzene (i,t) |
| U020 | Benzenesulfonyl chloride (c,r) |
| | Benzenesulfonic acid chloride (c,r) |
| U031 | 1-butanol (i) |
| | N-butyl alcohol (i) |
| U044 | Methane, trichloro- |
| | Chloroform |
| U045 | Methane,chloro-(i,t) |
| | Methyl chloride (i,t) |
| U052 | Cresylic acid |
| | Cresols |
| U057 | Cyclohexanone (i) |
| U069 | Dibutyl phthalate |
| | 1,2-benzenedicarboxylic acid, dibutyl ester |
| U080 | Methane,dichloro- |
| | Methylene chloride |
| U092 | Methanamine, N-methyl-(i) |
| | Dimethylamine (i) |
| U098 | Hydrazine, 1,1-dimethyl- |
| | 1,1-dimethylhydrazine |
| U105 | 2,4-dinotrotoluene |
| | Benzene, 1-methyl-2,4-dinitro- |
| U106 | 2,6-dinitrotoluene |
| | Benzene, 1-methyl-2,6-dinitro |
| U107 | Di-n-octyl phthalate |
| | 1-2-benzenedicarboxylic acid, di-n-octyl ester |
| U113 | 2-propenoic acid, ethyl ester (i) |
| | Ethyl acrylate (i) |
| U118 | 2-propenoic acid, 2-methyl-, ethyl ester |
| | Ethyl methacrylate |
| U122 | Formaldehyde |
| | Methylene oxide |
| U125 | Furfural (i) |
| | 2-furancarboxaldehyde (i) |
| U134 | Hydrogen fluoride (c,t) |
| | Hydrofluoric acid (c,t) |
| U135 | Sulfur hydride |
| | Hydrogen sulfide |

Table 14-2. RCRA and Waste Form Codes Reported by Facilities in 1989

| | |
|---|---|
| U139 | Ferric dextran |
| | Iron dextran |
| U140 | 1 -propanol, 2-methyl- (i,t) |
| | lsobutyl alcohol (i,t) |
| U150 | Melphalan |
| | Alanine, 3-[p-bis(2-chloroethyl)amino] phenyl-,L- |
| U151 | Mercury |
| U154 | Methanol (i) |
| | Methyl alcohol (i) |
| U159 | Methyl ethyl ketone (i,t) |
| | 2-butanone (i,t) |
| U161 | 4-methyl-2-pentanone (i) |
| | Methyl isobutyl ketone (i) |
| U162 | 2-propenoic acid,2-methyl-,methyl ester (i,t) |
| | Methyl methacrylate (i,t) |
| U188 | Phenol |
| | Benzene, hydroxy- |
| U190 | Phthalic anhydride |
| | 1,2-benzenedicarboxylic acid anhydride |
| U205 | Selenium disulfide (r,t) |
| | Sulfur selenide (r,t) |
| U210 | Tetrachloroethylene |
| | Ethene, 1,1,2,2-tetrachloro |
| U213 | Tetrahydrofuran (i) |
| | Furan, tetrahydro- (i) |
| U220 | Toluene |
| | Benzene, methyl- |
| U226 | 1,1,1-trichloroethane |
| | Methylchloroform |
| U228 | Trichloroethylene |
| | Trichloroethene |
| U239 | Xylene (i) |
| | Benzene, dimethyl- (i,t) |
| | **WASTE FORM CODES** |
| B001 | Lab packs of old chemicals only |
| B101 | Aqueous waste with low solvent |
| B102 | Aqueous waste with low other toxic organics |
| B103 | Spent acid with metals |
| B104 | Spent acid without metals |
| B105 | Acidic aqueous waste |
| B106 | Caustic solution with metals but no cyanides |
| B107 | Caustic solution with metals and cyanides |
| B108 | Caustic solution with cyanides but no metals |

Table 14-2. RCRA and Waste Form Codes Reported by Facilities in 1989

| | |
|---|---|
| B109 | Spent caustic |
| B110 | Caustic aqueous waste |
| B111 | Aqueous waste with reactive sulfides |
| B112 | Aqueous waste with other reactives (e.g., explosives) |
| B113 | Other aqueous waste with high dissolved solids |
| B114 | Other aqueous waste with low dissolved solids |
| B115 | Scrubber water |
| B116 | Leachate |
| B117 | Waste liquid mercury |
| B119 | Other inorganic liquids |
| B201 | Concentrated solvent-water solution |
| B202 | Halogenated (e.g., chlorinated) solvent |
| B203 | Nonhalogenated solvent |
| B204 | Halogenated/Nonhalogenated solvent mixture |
| B205 | Oil-water emulsion or mixture |
| B206 | Waste oil |
| B207 | Concentrated aqueous solution of other organics |
| B208 | Concentrated phenolics |
| B209 | Organic paint, ink, lacquer, or varnish |
| B210 | Adhesive or epoxies |
| B211 | Paint thinner or petroleum distillates |
| B219 | Other organic liquids |
| B305 | “Dry" lime or metal hydroxide solids chemically "fixed" |
| B306 | "Dry" lime or metal hydroxide solids not "fixed" |
| B307 | Metal scale, filings, or scrap |
| B308 | Empty or crushed metal drums or containers |
| B309 | Batteries or Battery parts, casings, cores |
| B310 | Spent solid filters or adsorbents |
| B312 | Metal-cyanides salts/chemicals |
| B313 | Reactive cyanides salts/chemicals |
| B315 | Other reactive salts/chemicals |
| B316 | Other metal salts/chemicals |
| B319 | Other waste inorganic solids |
| B501 | Lime sludge without metals |
| B502 | Lime sludge with metals/metal hydroxide sludge |
| B504 | Other wastewater treatment sludge |
| B505 | Untreated plating sludge without cyanides |
| B506 | Untreated plating sludge with cyanides |
| B507 | Other sludges with cyanides |
| B508 | Sludge with reactive sulfides |
| B510 | Degreasing sludge with metal scale or filings |
| B511 | Air pollution control device sludge (e.g., fly ash, wet scrubber sludge) |
| B513 | Sediment or lagoon dragout contaminated with inorganics only |
| B515 | Asbestos slurry or sludge |

Table 14-2. RCRA and Waste Form Codes Reported by Facilities in 1989

| | |
|---|---|
| B519 | Other inorganic sludges |
| B601 | Still bottoms of halogenated (e.g., chlorinated) solvents or other organic liquids |
| B603 | Oily sludge |
| B604 | Organic paint or ink sludge |
| B605 | Reactive or polymerized organics |
| B607 | Biological treatment sludge |
| B608 | Sewage or other untreated biological sludge |
| B609 | Other organic sludges |

Table 14-3. Waste Form Codes in the Metals Subcategory

| | | |
|---|---|---|
| All Inorganic Liquids | Waste Form Codes B101-B119 | Exceptions:* Waste Form Codes B116, and B101, B102, B119 when combined with RCRA Codes: F001-F005 and other organic F, K, P, and U Codes |
| All Inorganic Solids | Waste Form Codes B301-B319 | Exceptions:* Waste Form Code B301 when combined with RCRA Codes: F001-F005 and other organic F, K, P, and U Codes |
| All Inorganic Sludges | Waste Form Codes B501-B519 | Exceptions:* Waste Form Code B512 when combined with RCRA Codes: F001-F005 and other organic F, K, P, and U Codes |

* These exceptions were classified as belonging in the organics subcategory

Table 14-4. Waste Form Codes in the Oils Subcategory

| | | |
|---|---|---|
| Organic Liquids | Waste Form Codes B205, B206 | Exceptions: None |
| Organic Sludge | Waste Form Code B603 | Exceptions: None |

Table 14-5. Waste Form Codes in the Organics Subcategory

| | | |
|---|---|---|
| Organic Liquids | Waste Form Codes<br>B201-B204, B207-B219 | Exceptions:<br>None |
| Organic Solids | Waste Form Codes<br>B401-B409 | Exceptions:<br>None |
| Organic Sludges | Waste Form Codes<br>B601, B602, B604-B609 | Exceptions:<br>None |
| Inorganic Liquids | Waste Form Codes<br>B101, B102, B116, B119 | when combined with RCRA Codes:<br>F001-F005 and other organic F, K, P, and U Codes |
| Inorganic Solids | Waste Form Code B301 | when combined with RCRA Codes:<br>F001-F005 and other organic F, K, P, and U Codes |
| Inorganic Sludges | Waste Form Code B512 | when combined with RCRA Codes:<br>F001-F005 and other organic F, K, P, and U Codes |

For wastes that cannot be easily classified into a subcategory, such as lab-packs, the subcategory determination was based on other information provided such as RCRA codes and descriptive comments. Therefore, some judgement is required in assigning some waste receipts to a subcategory.

### *ESTABLISHING LIMITATIONS AND STANDARDS FOR FACILITY DISCHARGES 14.8*

In establishing limitations and standards for CWT facilities, the permit writer or control authority must ensure that the CWT facility has an optimal waste management program. First, the permit writer or control authority should verify that the CWT facility is identifying and segregating waste streams to the extent possible since segregation of similar waste streams is the first step in obtaining optimal mass removals of pollutants from industrial wastes. Next, the permit writer or control authority should verify that the CWT facility is employing treatment technologies designed and operated to optimally treat all off-site waste receipts. For example, biological treatment is inefficient for treating concentrated metals waste streams like those found in the metals subcategory or wastestreams with oil and grease compositions and concentrations like those found in the oils subcategory. In fact, concentrated metals streams and high levels of oil and grease compromise the ability of biological treatment systems to function. Likewise, emulsion breaking/gravity separation, and/or dissolved air flotation is typically insufficient for treating concentrated metals wastewaters or wastewaters containing organic pollutants which solubilize readily in water. Finally, chemical precipitation is insufficient for treating organic wastes and waste streams with high oil and grease concentrations.

Once the permit writer or control authority has established that the CWT facility is segregating its waste receipts and has appropriate treatment technologies in place for all off-site waste receipts, the permit writer or control authority can then establish limitations or standards which ensure that the CWT facility is operating its treatment technologies optimally. Available guidance in calculating NPDES categorical limitations for direct discharge facilities can be found in the U.S. EPA NPDES Permit Writers' Manual (December 1996, EPA-833-B-96-003). Sources of information used for calculating Federal pretreatment standards for indirect discharge facilities include 40 CFR Part 403.6, the Guidance Manual for the Use of Production-Based Pretreatment Standards and the Combined Waste Stream Formula (September 1985), and EPA's Industrial User Permitting Guidance Manual (September 1989).

The CWT limitations and standards for each subcategory are listed in Tables 1 through 8 of the Executive Summary at the beginning of this document.

### ***Implementation for Facilities in Multiple CWT Subcategories 14.8.1***

EPA estimates that many facilities in the CWT industry accept wastes in two or more subcategories (a combination of wastes in Subcategory A, B or C). This situation is different from the case in which metal-bearing waste streams may include low-level organic pollutants or that oily wastes may include low level metal pollutants due to the origin of the waste stream accepted for treatment.

For these multi-subcategory CWT facilities which combine subcategory wastes prior to discharge, guidance provided during development of this rule required that control authorities apply either the building block approach (see Section 14.8.4.1) or the combined waste stream formula (see Section 14.8.4.2) as appropriate to develop combined limitations or standards.

As promulgated, however, neither the building block approach nor the combined waste stream formula apply in developing limitations or standards for multi-subcategory CWT facilities. Rather, multiple subcategory facilities may comply with this rule in one of two ways: 1) facilities may elect to comply with the limitations or standards for each applicable subcategory directly following treatment (before commingling with different subcategory wastes); or 2) facilities may certify equivalent treatment and comply with one of the four sets of limitations or standards for the multiple wastestream subcategory (Subcategory D). Each of these options is discussed further below.

*Comply with Limitations or Standards for Subcategory A, B or C 14.8.1.1*

If a CWT facility elects to comply with each applicable subcategory's limitations or standards individually, the permit writer or control authority should establish compliance monitoring for each applicable subcategory directly following treatment of each subcategory's waste steam (and apply the appropriate limitations or standards at that point). As a further point of clarification, the permit writer or control authority should not allow CWT facilities to commingle waste streams from different subcategories prior to monitoring for compliance with each subcategory's limitations or standards. Example 14-1 illustrates this approach. EPA notes that multiple subcategory facilities which elect to comply with each applicable subcategory's limits or standards individually do not have to demonstrate equivalent treatment (see Section 14.8.1.2).

*Example 14-1*

*Facility A accepts wastes in all three CWT subcategories with separate subcategory treatment systems and has elected to comply with each set of pretreatment standards separately. This facility treats 20,000 l/day of metal-bearing wastes, 10,000 l/day of oily wastes, and 45,000, l/day of organic wastes and discharges to its local POTW.*

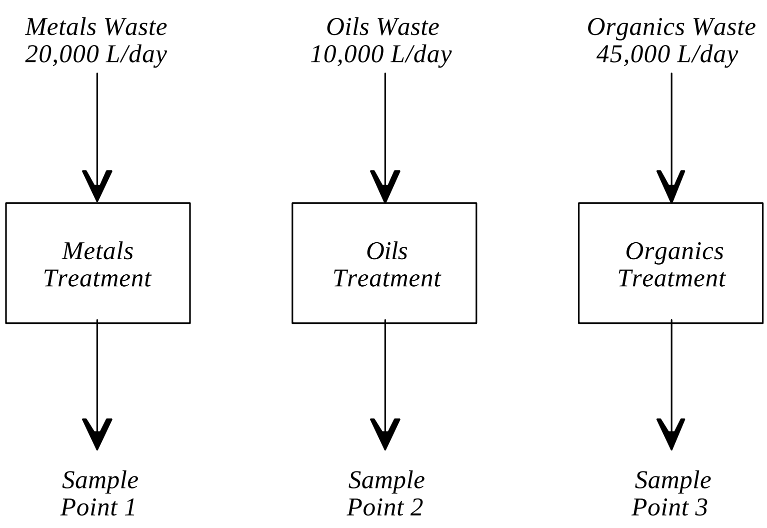


*Figure 14-2. Facility Accepting Waste in All Three Subcategories With Treatment in Eacl*

For this example, the control authority establishes monitoring points 1, 2, and 3. The control authority requires that the facility comply with the metals subcategory pretreatment standards at Sample Point 1, the oils subcategory pretreatment standards at Sample Point 2, and the organics subcategory pretreatment standards at Sample Point 3. Note that the specific analytes requiring compliance monitoring vary at each sampling point since the pollutants regulated vary among subcategories.

### *Comply with Limitations or Standards for Subcategory D 14.8.1.2*

If a multi-subcategory CWT facility elects to comply with the limitations or standards for Subcategory D, then the permit writer or control authority establishes a single monitoring point prior to discharge and applies the appropriate set of limitations or standards from Subcategory D (for example, if a CWT facility accepts wastes in both the metals and oils subcategory, the permit writer or control authority establishes limits or standards for Subcategory D facilities which commingle wastes from Subcategories A and B). Examples 14-2 and 14-3 illustrate this approach. EPA notes that under this approach, the permit writer or control authority must allow a multi-subcategory facility to commingle wastestreams prior to discharge. **Also, facilities which select this compliance method must first establish equivalent treatment as detailed in Section 14.8.1.2.1 below.**

*Example 14-2*

*Facility B accepts wastes in all three CWT subcategories with separate subcategory treatment systems and has elected to comply with Subcategory D pretreatment standards at a combined outfall. This facility treats 20,000 l/day of metal-bearing wastes, 10,000 l/day of oily wastes, and 45,000 l/day of organic wastes and discharges to its local POTW.*

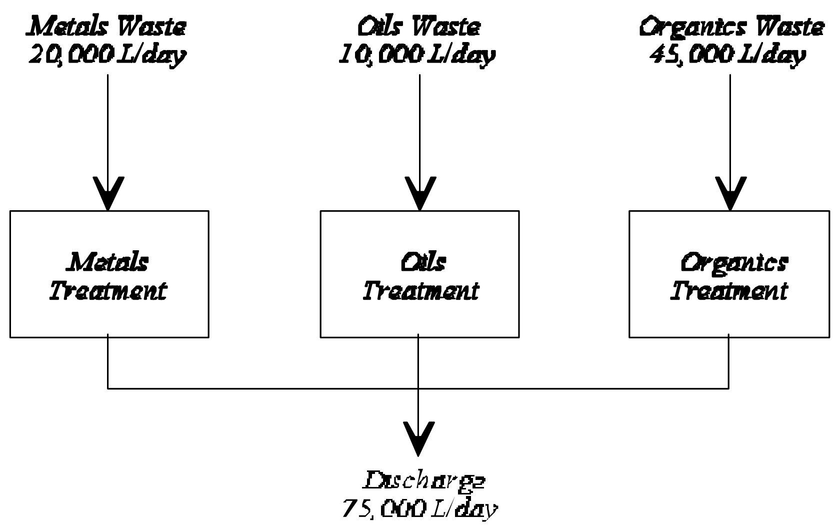


**Figure 14-3. Facility Accepting Waste in All Three Subcategories With Treatment in Eac[h] And Combined Outfall**

For this example, the control authority establishes a single monitoring point as indicated. The control authority requires the facility to comply with Subcategory D pretreatment standards for facilities which commingle wastes from Subcategory A, B, and C.

*Example 14-3: Facility Which Accepts Wastes in Multiple Subcategories and Treats the Wastewater Sequentially*

*Facility C accepts waste in the oils and metals subcategory. The total volume of wastewater discharged to the local POTW is 100,000 liters per day. The facility segregates oils and metals waste receipts and first treats the oils waste receipts using two stage emulsion breaking/gravity separation and dissolved air flotation (see Figure 14-4). The facility then commingles this wastewater with metal subcategory waste receipts and treats the combined wastestreams using primary and secondary chemical precipitation and solid/liquid separation followed by multimedia filtration.*

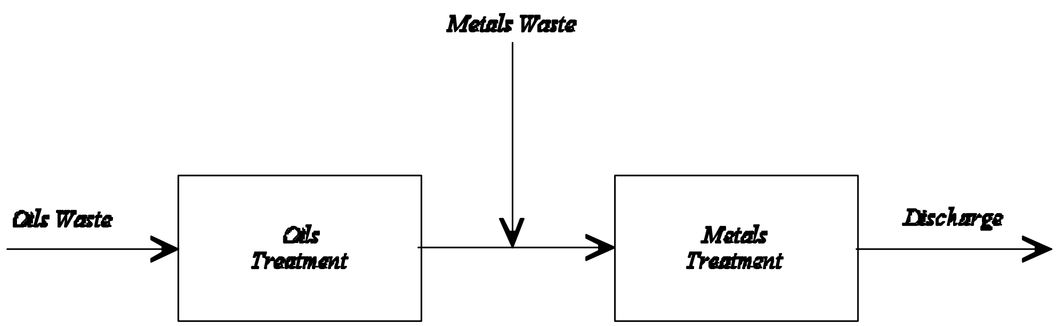


*Figure 14-4. Facility Which Accepts Wastes in Multiple Subcategories and Treats Separately*

For this example, like example 14-2, the control authority establishes a single monitoring point. This monitoring point follows the metals treatment. The control authority requires that the facility comply with Subcategory D pretreatment standards for facilities which commingle wastes from Subcategories A and B.

*EQUIVALENT TREATMENT DETERMINATION FOR SUBCATEGORY D 14.8.1.2.1*

Before a multi-subcategory CWT facility can elect to comply with limitations or standards from Subcategory D, it must first demonstrate equivalent treatment for each applicable wastestream. The CWT rule defines equivalent treatment as “a wastewater treatment system that achieves comparable pollutant removals to the applicable treatment technology selected as the basis for the limits and standards.” The following outlines the procedure for demonstrating equivalent treatment.

First, facilities which desire this option must submit an initial request to their permit writer or control authority certifying that their treatment train includes all applicable equivalent treatment systems. This initial certification would include, at a minimum, the applicable subcategories (i.e., metals, oils, organics), a listing of and descriptions of the treatment technologies and operating conditions used to treat wastes in each subcategory, and the justification for making an equivalent treatment determination. For example, a facility which accepts metals subcategory and oils subcategory wastewaters could show that its treatment train includes two-stage oil/water separation, two-stage chemical precipitation, and dissolved air flotation operated in a similar manner to the model technology costed by EPA. Since these are the treatment technologies selected as the basis for this rule, the equivalent treatment determination could be established. However, EPA is not defining "equivalent treatment" as specific treatment technologies or the technology bases, but rather as a "wastewater treatment system that is demonstrated in literature, tractability tests, or self-monitoring data to remove a similar level of the appropriate pollutants as the applicable treatment technology selected as the basis for the applicable regulations." While EPA is leaving the decision as to whether a particular treatment train is "equivalent treatment" to the permit writer or control authority's best professional judgement, the Small Entity Compliance Guide for this rule provides several examples of cases where EPA believes equivalent treatment is demonstrated. EPA notes that the requesting facility is responsible for providing the permit writer or control authority with enough information and/or data to make the equivalent treatment determination. This initial certification statement must be signed by the responsible corporate officer as defined in 40 CFR 403.12(1) or 40 CFR 122.22. If the permit writer or control authority determines that equivalent treatment is demonstrated, then the permit writer or control authority will issue discharge requirements based on one of the four subsets of limitations or standards promulgated for the mixed waste subcategory. If the facility has not demonstrated equivalent treatment, then the permit writer or control authority will not allow the CWT facility to comply with limitations or standards from Subcategory D. Rather, the permit writer or control authority will issue discharge requirements based on the appropriate limitations or standards from Subcategory A, B or C and require that these requirements be met prior to commingling (See Section 14.8.1.1).

Once the facility has established equivalent treatment, the facility shall submit an annual certification statement which indicates that the treatment technologies are being utilized in the manner set forth in its original certification or a justification to allow modification of the practices listed in its initial certification. If the information contained in the initial certification statement is still applicable, a facility shall simply state that in a letter to the permit writer or control authority, and the letter shall constitute the periodic statement. However, if the facility has modified its treatment system in any way, it shall submit the revised information in a manner similar to the initial certification. Once again, the permit writer or control authority will use BE/B.J. in reviewing any modifications.

Finally, the facility shall be required to maintain on-site compliance paperwork. The on-site compliance paperwork should include information from the initial and periodic certifications, but must also include: (1) the supporting documentation for any modifications that have been made to the treatment system; (2) a method for demonstrating that the treatment system is well operated and maintained; and (3) a discussion of the rationale for choosing the method of demonstration. Proper operation and maintenance of a system includes a qualified person to operate the system, use of correct treatment chemicals in appropriate quantities, and operation of the system within the stated design parameters. For example, a facility may operate dissolved air flotation. The method for demonstrating the dissolved air flotation system is well operated can be as simple as maintaining records on the temperature and pH, the chemicals added (including quantity), the duration of treatment, recycle ratio, and physical characteristics of the wastewater before and after dissolved air flotation. Alternatively, the facility could monitor for selected parameters for the purpose of demonstrating effective treatment. This could include any pollutant or a combination of pollutants. The implementation manual for the CWT rule provides additional examples.

Permit writers and control authorities may inspect the CWT facility at any time to confirm that the listed practices are being employed, that the treatment system is well operated and maintained, and that the necessary paperwork provides sufficient justification for any modifications.

### *Implementation for Facilities with Cyanide Subset* *14.8.2*

Whenever a CWT facility accepts a waste receipt that contains more than 136 mg/L of total cyanide, the CWT facility must monitor for cyanide when the wastewater exits the cyanide destruction process rather than after mixing with other process wastewater. Alternatively, the facility may monitor for compliance after mixing if the cyanide limitations are adjusted using the "building block approach" or "combined waste stream formula," assuming the cyanide limitations do not fall below the minimum analytical detection limit. For further information on the "building block approach" or "combined waste stream formula", see section 14.8.4.

### *CWT Facilities Also Covered By Another Point Source Category* *14.8.3*

As detailed in Chapter 3, some manufacturing facilities, which are subject to existing effluent guidelines and standards, may also be subject to provisions of this rule. In all cases, these manufacturing facilities accept waste from off-site for treatment and/or recovery which are generated from a different categorical process as the on-site generated wastes. EPA is particularly concerned that these facilities demonstrate compliance with all applicable effluent guidelines and pretreatment standards -- including this rule.

#### *Direct Discharging Facilities* *14.8.3.1*

For determination of effluent limits where there are multiple categories, the effluent guidelines are applied using a flow-weighted combination of the appropriate guideline for each category(i.e., "the building block approach"). Where a facility treats a CWT wastestream and process wastewater from other non-CWT industrial operations, the effluent guidelines would be applied by using a flow-weighted combination of the BPT/BAT limitations for the CWT and the other non-CWT industrial operations to derive the appropriate limitations. Example 14-4, on the next page, illustrates the daily maximum limitations calculations for a CWT facility which is also subject to another effluent guideline.

*Example 14-4 Categorical Manufacturing Facility Which Also Operates as a CWT Facility*

*Facility D is a manufacturing facility currently discharging wastewater to the local river under the OCPSF point source category. Facility D also performs CWT operations and accepts off-site metal-bearing wastes for treatment. Facility D commingles the on-site wastewater and the off-site wastewater together for treatment in an activated sludge system. The total volume of wastewater discharged at Facility D is 100,000 liters per day. The total volume of wastewater contributed by the off-site wastewater is 10,000 liters per day.*

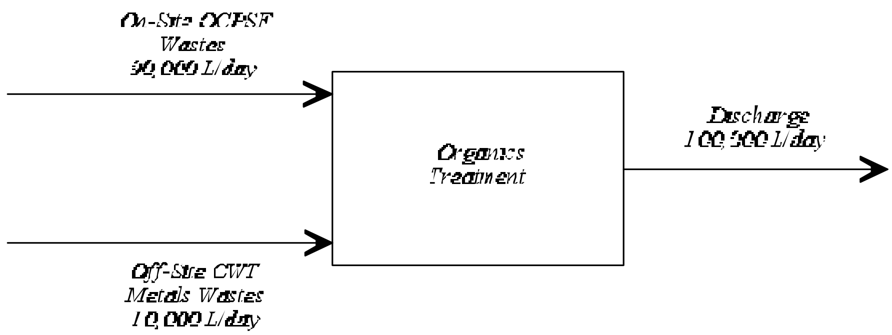


Figure 14-5. Categorical Manufacturing Facility Which Also Operates as a CWT

Facility D will be required to monitor and demonstrate that it has complied with the CWT metals BAT limitations. Since Facility D commingles the wastestreams and has no treatment in place for the metals wastestreams, Facility D will be unable to demonstrate compliance with the BAT limits through treatment rather than dilution. Therefore, Facility D can not commingle the CWT metals wastestreams and on-site OCPSF wastestreams for treatment.

If Facility D chose to install metals treatment for the off-site wastewater and wanted to commingle the effluent from the metals treatment and the biological treatment at a single discharge point (See Figure 14-6 on the next page), the permit writer would use the building block approach to determine the limitations. Using lead and chromium as examples, for the metals subcategory, EPA has promulgated BAT monthly average limits of 3.07 mg/L for chromium and 0.283 mg/L for lead. Since the OCPSF facility has no limits for chromium and lead, the contribution for the OCPSF wastewaters would be zero. Therefore, the chromium monthly average limit would be ( 0.1 x 3.07) + (0.9 x 0) = 0.307 mg/l and the lead monthly average limit would be (0.1 x 0.283) x (0.9 x 0) = 0.0283 mg/l. Since the monthly average limit for lead is below the minimum analytical detection level (.050 mg/l), the facility would be required to demonstrate compliance with the lead limit for the CWT metals subcategory prior to commingling at the outfall. The monthly average and daily maximum limitations for other pollutants would be calculated in a similar manner. Since EPA has not proposed any BAT limits for organic pollutants under the metals subcategory of the CWT point source category, the contribution for these pollutants would be zero.

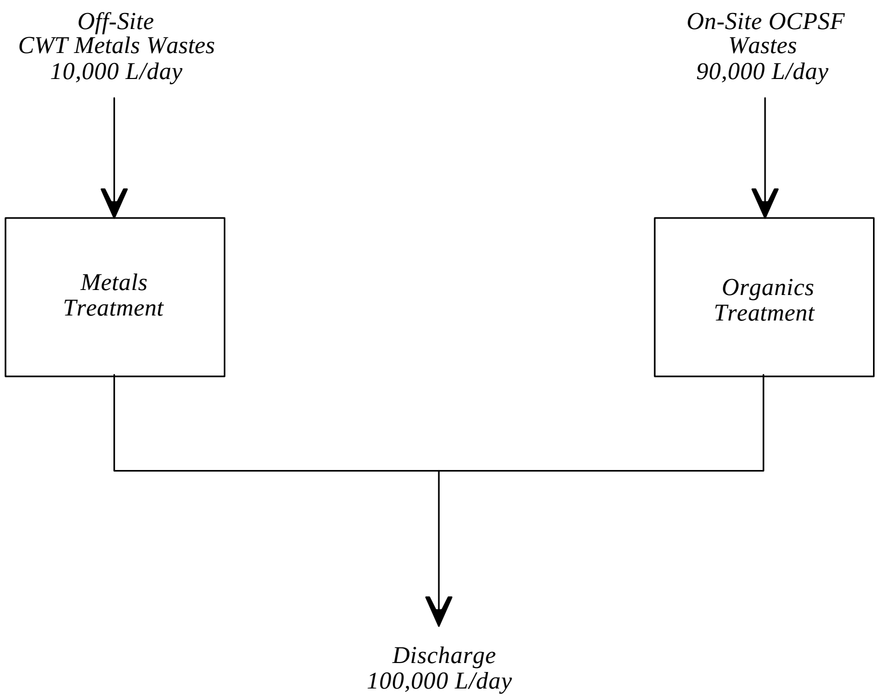


*Figure 14-6. Facility That Commingles Wastestreams After Treatment*

### *Indirect Discharging Facilities* *14.8.3.2*

For determination of pretreatment standards where there are multiple categories, the pretreatment standards are applied using the "combined waste stream formula" as defined in 40 CFR § 403.6(e). The combined wastestream formula (CWF) is based on three types of wastestreams that can exist at an industrial facility: regulated, unregulated, and dilute. As defined (40 CFR 403), a regulated wastestream is a wastestream from an industrial process that is regulated by a categorical standard for pollutant x. An unregulated wastestream is a wastestream that is not covered by categorical pretreatment standards and not classified as dilute, or one that is not regulated for the pollutant in question although it is regulated for others. A dilute wastestream is defined to include sanitary wastewater, noncontact cooling water and boiler blowdown, and wastestreams listed in Appendix D to 40 CFR 403.

Therefore, as described in 40 CFR 403, the combined waste stream formula is

$$C_T = \frac{\sum_{i=1}^{N} C_i F_i}{\sum_{i=1}^{N} F_i} \times \frac{F_T - F_D}{F_T} \quad , \qquad (14\text{-}1)$$

where
- $C_T$ = the alternate concentration limit for the combined wastestream;
- $C_i$ = the categorical pretreatment standard concentration limit for a pollutant in the regulated stream i;
- $F_i$ = the average daily flow of stream i;
- $F_d$ = the average daily flow from dilute wastestreams as defined in 40 CFR 403; and
- $F_T$ = the total daily average flow including regulated,

unregulated, and dilution wastestreams.

Using example 14-4 above, but assuming the facility discharges to the local POTW, there are no dilution flows. Therefore, the CWF equation reduces in the following manner:

$$C_T = \frac{\sum_{i=1}^{N} C_i F_i}{\sum_{i=1}^{N} F_i} \times \frac{F_T - 0}{F_T} \quad , (14\text{-}2)$$

$$C_T = \frac{\sum_{i=1}^{N} C_i F_i}{\sum_{i=1}^{N} F_i}$$

Using chromium and lead as examples again, EPA has promulgated monthly average pretreatment standards of 3.07 mg/L for chromium and 0.283 mg/L for lead. Since the OCPSF facility has no pretreatment standards for chromium and lead, these wastestreams are defined as "unregulated." Therefore, for this example, the only regulated wastestream is the oils subcategory flow and the chromium monthly average limit would be (10,000 x 3.07)/10,000 = 3.07 mg/l and the lead monthly average limit would be (10,000 x 0.283)/10,000 = 0.283 mg/l. The monthly average and daily maximum pretreatment standards for other pollutants would be calculated in a similar manner. Since EPA has not proposed any pretreatment standards for organic pollutants under the metals subcategory of the CWT point source category, for organic pollutants the CWT wastestreams would be unregulated and would not effect the allowable discharge concentration of organic pollutants as required by OCPSF. For additional information on the application of the combined waste stream formula, see the <u>Guidance Manual for the Use of Production-Based Pretreatment Standards and the Combined Waste Stream Formula</u>.

However, as discussed on pages 3-2 to 3-3 of this guidance manual, unregulated streams are presumed, for purposes of using the CWF, to contain pollutants of concern at a significant level. In effect, the CWF "gives credit" for pollutants which might be present in the unregulated wastestream. Rather than treating the unregulated flow as dilution, which would result in lowering the allowable concentration of a pollutant, the CWF allows the pollutant to be discharged in the unregulated wastestream at the same concentration as the standard for the regulated wastestream that is being discharged. This is based on the assumption that if pollutants are present in the unregulated wastestream, they will be treated to the same level as in the regulated wastestream. In some cases, unregulated wastestreams may not actually contain pollutants of concern at a significant level. Even if this is the case, they are still considered unregulated when applying the formula. However, if the control authority is concerned that an unregulated stream is actually acting as dilution, a local or state control authority can use its own legal authority to establish a limit more stringent than would be derived using the formula in the manner prescribed by the Federal regulations. Therefore, the control authority could apply its best professional judgment to derive the same chromium and lead limits as those derived in Example 14-4 for the direct discharge example. In the case of chromium the BPJ pretreatment standard could be 0.307 mg/l rather than the CWF result of 3.07 mg/l. Similarly for lead, the BPJ pretreatment standard could be 0.283 mg/l rather than the CWF result of 0.283 mg/l.

### *Exceptions to Guidance Provided for CWT Facilities Also Covered By Another Point Source Category* *14.8.3.3*

The only exceptions to the guidance provided in sections 14.8.4.1 and 14.8.4.2 are for facilities also subject to effluent guidelines and preatreatment standards for Transportation Equipment Cleaning (40 CFR 442) and effluent guidelines for Landfills (40 CFR 445). The application of the CWT rule to each of these types of facilities is discussed below.

#### *TRANSPORTATION EQUIPMENT CLEANING (TEC)* *14.8.3.3.1*

There are some facilities which are engaged in both traditional CWT activities and traditional TEC activities. If the wastewaters from the two operations are commingled, under the approach adopted for TEC, the commingled wastewater flow from the transportation equipment cleaning activities would be subject to CWT limits. Therefore, a facility performing transportation equipment cleaning as well as other CWT services that commingles these wastes is a CWT facility and all of the wastewater discharges are subject to provisions of this rule. If, however, a facility is performing both operations and the waste streams are not commingled (that is, transportation equipment cleaning process wastewater is treated in one system and CWT wastes are treated in a second, separate system), both the TEC rule and CWT rule apply to the respective wastewaters. If, however, the wastewaters from the two separate treatment systems are combined after treatment but prior to discharge monitoring, discharge requirements would be calculated by applying the "building block approach" or the "combined waste stream formula" as detailed in Sections 14.8.4.1 and 14.8.4.2.

#### *LANDFILLS* *14.8.3.3.2*

In the CWT industry, there are some facilities which are engaged both in CWT activities and in operating landfills. For the CWT final rule, EPA's approach to facilities which treat mixtures of CWT wastewater and landfill wastewater is consistent with that established for the landfill guideline. Therefore, a facility performing landfill activities, as well as other CWT services, and commingles the wastewater is a CWT facility only, and all of the wastewater discharges are subject to the provisions of this rule. If a facility is performing both operations and the waste streams are not commingled (that is, landfill wastewater is treated in one treatment system and CWT wastewater is treated in a second, separate treatment system), the provisions of the Landfill rule and CWT rule apply to its respective wastewaters. If, however, the wastewaters from the two separate treatment systems are combined after treatment, but prior to discharge monitoring, discharge requirements would be calculated by applying the "building block approach" or the "combined waste stream formula" as detailed in Sections 14.8.4.1 and 14.8.4.2.

| | | |
|---|---|---|
| **ANYFIRM**<br>**ANYTOWN, USA**<br>**(555) 555-1212** | **GENERATOR'S WASTE MATERIAL PROFILE SHEET**<br>__ **NEW**<br>__ **AMENDMENT** | **PROFILE NUMBER**<br>______________________ |

| | | | |
|---|---|---|---|
| **GENERATOR** | | **BROKER OR SALESPERSON** | |
| Name | | Name | |
| Address | | Address | |
| Technical Contact | Phone | Contact | Phone |
| Shipping Contact | Phone | **TRANSPORTER** | |
| Business Contact | Phone | Name | |
| EPA ID # | | Address | |
| | | Contact | Phone |
| | | EPA ID # | |

**WASTE DESCRIPTION**

| | | |
|---|---|---|
| **CHEMICAL & PHYSICAL STATE** | | |
| __ Liquid | __ Multilayered | Odor |
| __ Semi-liquid | __ Bilayered | TSS |
| __ Solid | __ Single Phase | Color |
| pH | | Flash Point |
| __ # 2 | __ 8-10 | % Bottoms Sediment |
| __ 2-4 | __ 10-12 | % Debris |
| __ 4-6 | __ $12 | % Ash |
| __ 6-8 | __ N/A | Specific Gravity |

**PROCESS DESCRIPTION**

(Describe process generating waste stream. Include a list of virgin materials and their Material Safety Data Sheets.)

| | | | |
|---|---|---|---|
| **CHEMICAL CONSTITUENTS** | | **METALS (PPM)** | |
| Petroleum Phase | Aqueous Phase | Arsenic | Magnesium |
| | | Cadmium | Mercury |
| | | Chromium | Nickel |
| | | Copper | Tin |
| | | Lead | Zinc |
| **OTHER CONSTITUENTS** | | **SHIPPING INFORMATION** | |
| % Oil | | RCRA Code | |
| | | Shipping Method | |
| | | Volume (gallons) | |

Figure 14-7. Template of a CWT Waste Receipt/Acceptance Form

Chapter

15

# ANALYTICAL METHODS AND BASELINE VALUES

## *INTRODUCTION* *15.1*

This chapter describes the analytical methods that EPA used to analyze the samples collected during EPA's data gathering efforts at a number of facilities (these sampling efforts are described in Chapter 2). It also discusses how EPA treated the results of its sample analysis for purposes of identifying pollutants of concern (described in Chapter 6), determining the loadings (Chapter 12), and calculating the limitations and standards (Chapter 10).

EPA contracted with various laboratories to analyze the samples. The laboratories analyzed the samples using the methods identified in Table 15.1 and provided most of the results as liquid concentrations (e.g., micrograms per liter (ug/L)). In a few instances, the results were provided as solids (e.g., milligrams per kilogram (mg/Kg)). In those instances, EPA converted the solids results into liquid concentration units by using a conversion factor based upon the percent of solids in the sample. In the rare cases that the percent solids was not available, EPA excluded the data from its analyses. None of these excluded data were for the analytes regulated by today's rule.

EPA compared each laboratory-reported (or converted) analytical result for each pollutant to a baseline value in order to determine whether to use the value as reported by the laboratory. In most cases, the baseline value was the "nominal quantitation limit"[1] stipulated for the specific method used to measure a particular pollutant. In general, the term "nominal quantitation limit" is used here to describe the smallest quantity of an analyte that can be measured reliably with a particular analytical method. In some cases, however, EPA used a value lower than the nominal quantitation limit as the baseline value because data demonstrated that reliable measurements could be obtained at a lower level. In a few instances, EPA has concluded that the nominal quantitation limit for a specified method was less than the level that laboratories could reliably achieve. For those pollutants, EPA modified the nominal quantitation limit upward and used a higher value as the baseline value. Sections 15.3 and 15.4 provide further explanation of nominal quantitation limits and baseline values. Table 15-1 sets forth the analytical methods and baseline values used for each pollutant in identifying pollutants of concern, developing the loadings, and calculating limitations and standards.

## *ANALYTICAL RESULTS* *15.2*

The laboratories expressed the result of the analysis either numerically or as "not quantitated"[2] for a pollutant in a sample. When the result is expressed numerically, then the pollutant was quantitated[3] in the sample. For example, for a hypothetical pollutant X, the

[1]In other sections in this document and in the preamble to the rulemaking, EPA sometimes uses the term "minimum analytical detection limit" when it refers to nominal quantitation limit or the baseline value.

[2]Elsewhere in this document and in the preamble to the rulemaking, EPA refers to pollutants as "not detected" or "non-detected." This chapter uses the term "not quantitated" or "non-quantitated" rather than non-detected.

[3]Elsewhere in this document and in the preamble to the rulemaking, EPA refers to pollutants as "detected." This chapter uses the term "quantitated" rather than detected.

result would be reported as "15 ug/L" when the laboratory quantitated the amount of pollutant X in the sample as being 15 ug/L. For the non-quantitated results, for each sample, the laboratories reported a "sample-specific quantitation limit."[4] For example, for the hypothetical pollutant X, the result would be reported as "<10 ug/L" when the laboratory could not quantitate the amount of pollutant X in the sample. That is, the analytical result indicated a value less than the sample-specific quantitation limit of 10 ug/L. The actual amount of pollutant X in that sample is between zero (i.e., the pollutant is not present) and 10 ug/L. The sample-specific quantitation limit for a particular pollutant is generally the smallest quantity in the calibration range that may be measured reliably in any given sample. If a pollutant is reported as not quantitated in a particular wastewater sample, this does not mean that the pollutant is not present in the wastewater, merely that analytical techniques (whether because of instrument limitations, pollutant interactions or other reasons) do not permit its measurement at levels below the sample-specific quantitation limit.

In a few instances, some of the laboratories reported numerical results for specific pollutants detected in the samples as "right-censored." Right-censored measurements are those that were reported as being greater than the highest calibration value of the analysis (e.g., >1000 ug/L).

In its calculations, EPA generally substituted the value of the reported sample-specific quantitation limit for each non-quantitated result. In a few cases when the sample-specific quantitation limit was less than the baseline value, EPA substituted the baseline value for the non-quantitated result. In a few instances when the quantitated value was below the baseline value, EPA considered these values to be non-quantitated in the statistical analyses and substituted the baseline value for the measured value. For the rare instances when the laboratory reported a measurement as right-censored, EPA used the highest calibration value in its calculations.

### *NOMINAL QUANTITATION LIMITS* 15.3

Protocols used for determination of nominal quantitation limits in a particular method depend on the definitions and conventions that EPA used at the time the method was developed. The nominal quantitation limits associated with the methods addressed in the following sections fall into three general categories. The first category includes Methods 1624, 1625, and 1664, which used the minimum level (ML) definition as the lowest level at which the entire analytical system must give a recognizable signal and an acceptable calibration point for the analyte. The second category pertains specifically to Method 1620, and is explained in detail in section 15.5.3. The third category pertains to the remainder of the methods (i.e., the National Council for Air and Stream Improvement, Inc. (NCASI) Method 85.01 and the classical wet chemistry methods), in which a variety of terms are used to describe the lowest level at which measurement results are quantitated. In some cases (especially with the classical wet chemistry analytes) the methods are older (1970s and 1980s) and different concepts of quantitation apply. These methods typically list a measurement range or lower limit of measurement. The terms differ by method and, as discussed in subsequent sections, the levels presented are not always representative of the lowest levels laboratories can achieve currently. For those methods associated with a calibration procedure, the laboratories demonstrated through a low point calibration standard that they were capable of reliable

[4] Elsewhere in this document and in the preamble to the rulemaking, EPA refers to a "sample-specific quantitation limit" as a "sample-specific detection limit" or, more simply, as a "detection limit."

quantitation at method-specified (or lower) levels. In such cases these nominal quantitation limits are operationally equivalent to the ML (though not specifically identified as such in the methods). In the case of titrimetric or gravimetric methods, the laboratory adhered to the established lower limit of the measurement range published in the methods. Details of the specific methods are presented in Section 15.5.

## *BASELINE VALUES* *15.4*

Before using the data to identify pollutants of concern, determine the loadings, and calculate the limitations and standards; EPA compared each analytical result (i.e., quantitated value or sample-specific quantitation limit for a non-quantitated value) to a baseline value for the pollutant. For example, if a facility data set had five values for oil and grease of which two were non-quantitated with sample-specific quantitation limits of 10 mg/L and the remaining three values were quantitated with measurements of 20 mg/L, 25 mg/L, and 50 mg/L, then all five values (10 mg/L, 10 mg/L, 20 mg/L, 25 mg/L, and 50 mg/L) were compared to the baseline value of 5 mg/L for oil and grease. In most cases, the detected values and sample-specific quantitation limits were equal to or greater than the baseline values.

In general, the baseline value was equal to the nominal quantitation limit identified for the method. For example, for total cyanide, the baseline value was 0.02 mg/L which is the same as the nominal quantitation limit of 0.02 mg/L for total cyanide in Method 335.2.

EPA made several exceptions to this general rule when EPA determined that the baseline value should differ from the nominal quantitation limit as specified in the method for a pollutant. For example, EPA determined that the baseline value for COD by Method 410.1 should be 5 mg/L rather than the nominal quantitation limit of 50 mg/L. (Section 15.5.6 explains this decision.) EPA made exceptions to the general rule based upon EPA's knowledge about the methods, experiences with laboratories using those methods, and the need for a single baseline value for each pollutant. For example, EPA selected a baseline value to be less than a nominal quantitation limit when the laboratories demonstrated through calibration or other quality control (QC) data that reliable measurements of the pollutant could be made at a lower level. For these pollutants, the nominal quantitation limits reported in the methods are overestimates of what laboratories can reliably achieve and, the baseline values were adjusted downwards. Another example is when EPA selected baseline values greater than the nominal quantitation limits because the nominal quantitation limits could not be reliably achieved. A third example is when EPA selected a single baseline value when the pollutant was measured by two or more methods, each with a different nominal quantitation limit.

The following section provides a brief description of the analytical methods and explains any differences between the nominal quantitation limits and the baseline values.

Table 15-1 Analytical Methods and Baseline Values

| Method | Analyte | CAS Number | Nominal Quantitation Value | Baseline Value | Unit | Assumption for Reported Values ‡ < Baseline Value |
|---|---|---|---|---|---|---|
| D4658 | Total sulfide | 18496-25-8 | 0.04 | 1.0 | mg/L | used reported value |
| 160.1 | Total dissolved solids | C-010 | 10.0 | 10.0 | mg/L | n/a |
| 160.2 | Total suspended solids | C-009 | 4.0 | 4.0 | mg/L | n/a |
| 1620 | Metals compounds | * | | | | used reported value |
| 1624 | Organic compounds | * | | | | modified |
| 1625 | Organic compounds | * | | | | modified |
| 1664 | HEM | C-036 | 5.0 | 5.0 | mg/L | modified |
| 1664 | SGT-HEM | C-037 | 5.0 | 5.0 | mg/L | modified |
| 209F | Total solids | C-008 | 10.0 | 10.0 | mg/L | n/a |
| 218.4 | Hexavalent chromium | 18540-29-9 | 0.01 | 0.01 | mg/L | used reported value |
| 325.1 | Chloride | 16887-00-6 | 1.0 | 1.0 | mg/L | n/a |
| 325.3 | Chloride | 16887-00-6 | 1.0 | 1.0 | mg/L | n/a |
| 335.2 | Total cyanide | 57-12-5 | 0.02 | 0.02 | mg/L | used reported value |
| 340.1 | Fluoride | 16984-48-8 | 0.1 | 0.1 | mg/L | n/a |
| 340.2 | Fluoride | 16984-48-8 | 0.1 | 0.1 | mg/L | n/a |
| 350.1 | Ammonia as nitrogen | 7664-41-7 | 0.01 | 0.05 | mg/L | n/a |
| 350.2 | Ammonia as nitrogen | 7664-41-7 | 0.05 | 0.05 | mg/L | n/a |
| 350.3 | Ammonia as nitrogen | 7664-41-7 | 0.03 | 0.05 | mg/L | n/a |
| 3500D | Hexavalent chromium | 18540-29-9 | 0.1 | 0.01 | mg/L | n/a |
| 353.1 | Nitrate/nitrite | C-005 | 0.01 | 0.05 | mg/L | used reported value |
| 353.2 | Nitrate/nitrite | C-005 | 0.05 | 0.05 | mg/L | used reported value |
| 353.3 | Nitrate/nitrite | C-005 | 0.01 | 0.05 | mg/L | used reported value |
| 365.2 | Total phosphorus | 14265-44-2 | 0.01 | 0.01 | mg/L | n/a |
| 365.3 | Total phosphorus | 14265-44-2 | 0.01 | 0.01 | mg/L | n/a |
| 376.1 | Total sulfide | 18496-25-8 | 1.0 | 1.0 | mg/L | used reported value |
| 405.1 | Carbonaceous $BOD_5$ | C-002 | 2.0 | 2.0 | mg/L | n/a |
| 405.1 | $BOD_5$ | C-003 | 2.0 | 2.0 | mg/L | used reported value |
| 410.1 | COD | C-004 | 50.0 | 5.0** | mg/L | n/a |
| 410.1 | D-COD | C-004D | 50.0 | 5.0** | mg/L | n/a |
| 410.2 | COD | C-004 | 5.0 | 5.0** | mg/L | n/a |
| 410.4 | COD | C-004 | 3.0† 20.0 | 5.0 | mg/L | n/a |
| 413.1 | Oil and grease | C-007 | 5.0 | 5.0 | mg/L | used reported value |
| 415.1 | Total organic carbon | C-012 | 1.0 | 1.0 | mg/L | n/a |
| 420.2 | Total phenols | C-020 | 0.01 | 0.05 | mg/L | used reported value |
| 5210 | $BOD_5$ | C-003 | 2.0 | 2.0 | mg/L | n/a |
| 85.01 | Chlorinated phenolics | * | | | | n/a |

‡ If the entry in this column indicates that EPA 'used the reported value' for a particular analyte, then EPA used either the quantitated value or the sample-specific quantitation limit reported by the laboratory. If the entry is 'n/a' then none of the data that EPA used in its analyses were reported below the baseline value.

* The method analyzed a number of pollutants. Attachment 15-1 identifies all pollutants that EPA considered (see section 2) and their baseline values. In general, the baseline values are equal to the nominal quantitation limits.

**The baseline value was adjusted to reflect the lowest nominal quantitation limit of the titrimetric procedures (i.e., 410.1 and 410.2). See Section 15.5.6 for a detailed explanation.

†Method 410.4 lists two different quanitation limits that are dependent upon whether the automated or manual protocols are followed. The automated method limit = 3 mg/L and the manual method limit = 20 mg/L.

## *ANALYTICAL METHODS* *15.5*

Table 15-1 provides a summary of the analytical methods, the associated pollutants measured by the method, the nominal quantitation levels, the baseline levels, and the assumptions for values reported below the baseline levels. Attachment 15-1 provides a more complete list of the pollutants and their baseline values. The following subsections provide additional information supporting the summary in Table 15-1.

### *Methods 1624, 1625, 1664 (Organics, HEM)* *15.5.1*

As stated earlier, Methods 1624 and 1625 for organic compounds, and Method 1664[5] for *n*-hexane extractable material (HEM) and silica gel treated *n*-hexane extractable material (SGT-HEM)[6] use the minimum level concept for quantitation of the pollutants measured by the methods. The ML is defined as the lowest level at which the entire analytical system must give a recognizable signal and an acceptable calibration point for the analyte. When an ML is published in a method, the Agency has demonstrated that the ML can be achieved in at least one well-operated laboratory, and when that laboratory or another laboratory uses that method, the laboratory is required to demonstrate, through calibration of the instrument or analytical system, that it can make measurements at the ML. For these methods, EPA used the minimum levels as the baseline values.

If a quantitated value or sample-specific quantitation limit was reported with a value less than the ML specified in a method, EPA substituted the value of the ML and assumed that the measurement was non-quantitated[7]. For example, if the ML was 10 ug/L and the laboratory reported a quantitated value of 5 ug/L, EPA assumed that the concentration was non-quantitated with a sample-specific quantitation limit of 10 ug/L.

### *Method 413.1 (Oil and Grease)* *15.5.2*

Method 413.1 was used in early sampling episodes to measure pollutant concentrations of oil and grease. Because this method requires freon, an ozone depleting solvent, to perform the analysis, EPA developed and recently promulgated Method 1664 to replace the procedures currently approved at 40 CFR 136. The same nominal quantitation limit of 5 mg/L applies to both methods for measuring oil and grease and HEM.

Of the data used to identify the pollutants of concern and calculate pollutant loadings, a few of the quantitated values from Method 413.1 were lower than the nominal quantitation limit. EPA used the values as reported in its analyses. (None of the sample-specific quantitation limits were less than the nominal quantitation limit.)

Of the data used to develop the limitations, none of the quantitated values and sample-specific quantitation limits were less than the nominal quantitation limit.

### *Method 1620* *15.5.3*

Method 1620, which measures the amounts of specific metals in samples, uses the concept of an instrument detection limit (IDL), which is defined as "the smallest signal above background

[5]See final rulemaking at 64 *Federal Register* 26315, May 14, 1999.

[6]SGT-HEM measures non-polar material (i.e., n-hexane extractable material that is not absorbed by silica gel). Method 1664 measures both oil and grease and non-polar material.

[7]For p-cresol, EPA used 10 ug/L as the ML in many of its data analyses. However, in developing the limitations and standards for the organics subcategory EPA used the correct ML of 20 ug/L.

noise that an instrument can detect reliably."[8] IDLs are determined on a quarterly basis by each analytical laboratory participating in the data gathering efforts by EPA's Engineering and Analysis Division (EAD) and are, therefore, laboratory-specific and time-specific. Data reporting practices for Method 1620 analysis follow conventional metals reporting practices used in other EPA programs, in which values are reported at or above the IDL. Though Method 1620 does contain minimum levels (MLs), these MLs pre-date EPA's recent refinement of the minimum level concept. The ML values associated with Method 1620 are based on a consensus opinion reached between EPA and laboratories during the 1980s regarding levels that could be considered reliable quantitation limits when using Method 1620. These limits do not reflect advances in technology and instrumentation since the 1980s. Consequently, the IDLs were used as the baseline for reporting purposes, with the general understanding that reliable results can be produced at or above the IDL.

The Method 1620 ML values were used as the baseline values in the data screening, with the exception of two analytes: boron and lead. Based on laboratory feedback years ago, it was determined that the boron ML of 10 ug/L specified in Table 9 of Method 1620 could not be reliably achieved. Consequently, for the purposes of EAD's data gathering under the metals contracts, the ML for boron was adjusted to 100 ug/L. In the case of lead, which has an ML of 5 ug/L associated with graphite furnace atomic absorption (GFAA) spectroscopy analysis, EAD determined that it was not necessary to measure down to such low levels, and that lead could be analyzed by inductively coupled plasma atomic emission (ICP) spectroscopy instead. Consequently, the ML requirement was adjusted to 50 ug/L.

In one sampling episode (1987), the laboratory did not provide sample-specific limits[9] for the 42-element semiquantitative screen component of Method 1620. In 1990, when these analyses were performed, the laboratory's standard convention to report non-quantitated results from semiquantitative analysis was to populate the summary form with 'ND' rather than reporting sample-specific limits. In identifying pollutants of concern and determining the loadings, EPA generally assumed that the sample-specific limits were equal to the baseline values for the pollutant (none of these pollutants were regulated in this rule).

Though the baseline values were derived from the MLs (or adjusted MLs) in Method 1620, EPA used the laboratory reported quantitated values and sample-specific quantitation limits (or substituted baseline values), which captured concentrations down to the IDLs, in identifying the pollutants of concern and calculating the pollutant loadings and limitations. If the long-term average for a pollutant was less than the baseline value, however, EPA substituted the baseline value for the long-term average and re-calculated the limitation using this revised long-term average and the variability factor.

### *Method 85.01 (Chlorinated Phenolics)* *15.5.4*

NCASI Method 85.01 was used to analyze some samples associated with the organics subcategory for chlorinated phenolics. This gas chromatography/electron capture detector (GC/ECD) method predates EPA Method 1653

[8] Keith, L.H., W. Crummett, J. Deegan, R.A. Libby, J.K. Taylor, G. Wentler (1983). "Principles of Environmental Analysis," *Analytical Chemistry*, Volume 55, Page 2217.

[9] These limits are lower threshold limits (LTLs) and are based upon signal-to-noise ratio for each element. As such, these are different than the quantitation limits as defined in this section.

for chlorinated phenolics determination, and was only used for analysis of samples under one CWT sampling episode (Episode 1987, collected in 1990). Method 1653 is an isotope dilution gas chromatography/mass spectrometry (GC/MS) method.

Some chlorinated phenolics in Episode 1987 were analyzed by both Method 85.01 and Method 1625. Thus, for a given sample, there were two results for a specific chlorinated phenolic compound. Of the pollutants of concern, these compounds were pentachlorophenol, 2,3,4,6- tetrachlorophenol, 2,4,5-trichlorophenol, and 2,4,6-trichlorophenol. Where two results were provided for the same pollutant in a sample, EPA used the analytical result from Method 1625. This decision is based on the knowledge that Method 1625 is an isotope dilution GC/MS procedure and, therefore, produces more reliable results than Method 85.01.

For the remaining chlorinated phenolics analytes that were determined by Method 85.01, EPA used the laboratory-specific quantitation limits as the baseline values. These laboratory-specific quantitation limits were established by the laboratory through its calibration procedures. The quantitation limits reported were representative of a low level calibration standard concentration, thereby complying with the minimum level definition of the lowest level at which the entire analytical system gives a recognizable signal and an acceptable calibration point.

EPA used the data from Method 85.01 to identify pollutants of concern and to determine pollutant loadings. In all cases, the quantitated values and sample-specific quantitation limits were greater than or equal to the baseline value associated with the pollutant.

EPA has not used the Method 85.01 results in calculating any limitations or standards. EPA is regulating one of the analytes measured by this method; however, the data used to calculate the limitations and standards were generated by Method 1625.

### *Methods D4658 and 376.1 (Total Sulfide)* 15.5.5

Total sulfide was analyzed by Methods 376.1 and D4658, each of which have different nominal quantitation limits. Method 376.1 has a nominal quantitation limit of 1 mg/L, while Method D4658 has a nominal quantitation limit of 0.04 mg/L. Rather than use two different baseline values for the same pollutant, EPA used the maximum of the two values (i.e., 1 mg/L) as the baseline value.

In some cases, the reported quantitated value or sample-specific quantitation limit was lower than the nominal quantitation limits identified in the method. EPA used these values as reported in identifying the pollutants of concern and calculating the pollutant loadings (EPA did not regulate total sulfide in this rule).

### *Methods 410.1, 410.2, and 410.4 (COD and D-COD)* 15.5.6

Methods 410.1, 410.2, and 410.4 were used to measure chemical oxygen demand (COD) concentrations. In addition, Method 410.1 was used to measure the dissolved chemical oxygen demand (D-COD) concentrations in Episode 1987.

Methods 410.1 and 410.2 are titrimetric procedures that follow identical analytical protocols, with the exception of the concentration level of the reagents used for the titration. Method 410.1 is designed to measure "mid-level" concentrations greater than 50 mg/L for COD and D-COD. Method 410.2 is designed to measure "low-level" concentrations of these parameters in the range of 5-50 mg/L. When one of the participating laboratories analyzes a sample, they are required to measure down to the lowest quantitation limit possible.

Consequently, if the laboratory analyzes a sample using Method 410.1 and obtains a non-quantitated result, it must reanalyze the sample using Method 410.2. Therefore, the quantitation limit reported for non-quantitations will be equal to 5 mg/L, unless sample dilutions were required because of matrix complexities. Method 410.4 is a colorimetric procedure with a measurement range of 3-900 mg/L for automated procedures and measurement range of 20-900 mg/L for manual procedures.

For all COD data, EPA used the baseline value of 5 mg/L that is associated with the lower quantitation limit for the titrimetric procedures because most of the data had been obtained by the titrimetric procedures (i.e., Methods 410.1 or 410.2). Regardless of the method used to analyze COD and D-COD, all quantitated values and sample-specific quantitation limits used to identify the pollutants of concern and calculate the pollutant loadings were greater than the nominal quantitation limit of 5 mg/L (EPA did not regulate COD and D-COD in this rule).

### *Method 420.2 (Total Phenols) 15.5.7*

Method 420.2 was used to analyze for total phenols. The method reports two "working ranges"; one with a lower range limit of 0.002 mg/L and the other with a lower range limit of 0.01 mg/L. In this case, EPA's experience with the laboratories has indicated that some can meet the lower limits of the method-specified range and others cannot. Consequently, EPA determined that the baseline value should be 0.05 mg/L, which reflects the quantitation limit that all participating laboratories were capable of achieving.

In some cases, the quantitated value or the sample-specific quantitation limit was lower than the baseline value of 0.05 mg/L. Because some laboratories have demonstrated that they can quantitate to lower levels, EPA used these values as reported in identifying pollutants of concern and calculating the pollutant loadings (EPA did not regulate total phenols in this rule).

### *Method 218.4 and 3500D (Hexavalent Chromium) 15.5.8*

Hexavalent chromium was determined by Methods 218.4 and 3500D. Because most of the samples were analyzed using Method 218.4, its baseline value of 0.01 mg/L was used for all hexavalent chromium results. For some samples analyzed by Method 218.4, the quantitated value or sample-specific quantitation limit was lower than the nominal quantitation limit identified in the method. (None of the data used from Method 3500D were less than the nominal quantitation limit.) EPA used these values as reported in identifying the pollutants of concern and calculating the pollutant loadings. In calculating the limitations and standards, none of the quantitated values or sample-specific quantitation limits were lower than the nominal quantitation limit identified in the method (EPA did not regulate hexavalent chromium in this rule).

### *Method 335.2 (Total Cyanide) 15.5.9*

Samples were analyzed for total cyanide using Method 335.2. The nominal quantitation limit and the baseline value were the same.

In some cases, the reported sample-specific quantitation limit was lower than the baseline value for the pollutant. (None of the quantitated values was lower than the baseline value.) Because some laboratories have demonstrated that they can quantitate to lower levels, EPA used these values as reported in identifying the pollutants of concern and calculating the pollutant loadings. None of the data used to calculate the limitations were lower than the baseline value.

### *Methods 353.1, 353.2, and 353.3 (Nitrate/Nitrite) 15.5.10*

Nitrate/nitrite was determined by three EPA methods, each of which list slightly different nominal quantitation limits, which are expressed in the methods as the lower limit of the measurement range. Methods 353.1 and 353.2 are automated colorimetric procedures with quantitation limits of 0.01 and 0.05 mg/L, respectively. Method 353.3 is a cadmium reduction, spectrophotometric procedure with a nominal quantitation limit of 0.01 mg/L. Rather than use two different baseline values for the same pollutant, EPA used the maximum of the two values (i.e., 0.05 mg/L) as the baseline.

In several instances, the reported quantitated values or sample-specific quantitation limits were below the 0.05 mg/L baseline value. Because the laboratory demonstrated that it could quantitate at lower levels, EPA used these values as reported in identifying the pollutants of concern and calculating the pollutant loadings (EPA did not regulate nitrate/nitrite in this rule).

### *Methods 350.1, 350.2, and 350.3 (Ammonia as Nitrogen) 15.5.11*

Ammonia as Nitrogen was measured by three different procedures, each of which were associated with a different nominal quantitation limit. Method 350.1 is an automated colorimetric procedure with a lower measurement range limit of 0.01 mg/L. Method 350.2 utilizes either colorimetric, titrimetric, or electrode procedures to measure ammonia, and has a lower measurement range limit of (a) 0.05 mg/L for the colorimetric and electrode procedures and (b) 0.01 mg/L for the titrimetric procedure. Method 350.3 determines ammonia potentiometrically using an ion selective ammonia electrode and a pH meter and has a lower measurement range limit of 0.03 mg/L. Rather than use different baseline values for the same pollutant, EPA used the maximum of the values (i.e., 0.05 mg/L) as the baseline.

None of the quantitated values and sample-specific quantitation limits used to identify the pollutants of concern and calculate the pollutant loadings were less than the baseline value (EPA did not regulate ammonia as nitrogen in this rule).

### *Remaining Methods 15.5.12*

The previous subsections in section 15.5 identify many of the methods used to analyze the wastewater samples. The remaining methods were: 160.1 (total dissolved solids), 160.2 (total suspended solids), 209F (total solids), 325.1 and 325.3 (chloride), 340.1 and 340.2 (fluoride), 365.2 and 365.3 (total phosphorus), 405.1 (5-day biochemical oxygen demand ($BOD_5$) and carbonaceous $BOD_5$), 5210 ($BOD_5$), and 415.1 (total organic carbon). For these methods, the nominal quantitation limits and the baseline values were equal. In addition, none of the quantitated values were reported below the nominal quantitation limits. For one sample, the sample-specific quantitation limit for $BOD_5$ was less than the nominal quantitation limit. EPA used this sample-specific quantitation limit in identifying pollutants of concern and calculating pollutant loadings for $BOD_5$.

Of the pollutants measured by these methods, EPA proposed limitations for total suspended solids (TSS) and $BOD_5$.

## *ANALYTICAL METHOD DEVELOPMENT EFFORTS 15.6*

Section 304(h) of the Clean Water Act directs EPA to promulgate guidelines establishing test procedures for the analysis of pollutants. These test procedures (methods) are used to determine the presence and concentration of pollutants in wastewater, and are used for compliance monitoring and for filing applications for the NPDES program under 40 CFR 122.21, 122.41, 122.44 and 123.25, and for the implementation of the pretreatment standards under 40 CFR 403.10 and 403.12. EPA publishes test procedures for the wastewater program at 40 CFR 136.3. Currently approved methods for metals and cyanide are included in the table of approved inorganic test procedures at 40 CFR 136.3, Table I-B. Table I-C at 40 CFR 136.3 lists approved methods for measurement of non-pesticide organic pollutants, and Table I-D lists approved methods for the toxic pesticide pollutants and for other pesticide pollutants. Dischargers must use the test methods promulgated at 40 CFR Part 136.3 or incorporated by reference in the tables to monitor pollutant discharges from the centralized waste treatment (CWT) industry, unless specified otherwise in part 437 or by the permitting authority.

The final CWT rule amends 40 CFR Part 136, Appendix A, to specify the applicability of certain methods for specific wastestreams. The amendments accomplish several objectives, which are outlined in the following paragraphs. Briefly, the amendments clarify EPA's intent regarding the applicability of Methods 625 and 1625 for some of the pollutant parameters in the final rule for Centralized Waste Treatment facilities and also for some of the pollutant parameters in 40 CFR 445 (Landfills Point Source Category).

The 1999 CWT proposal (at 64 FR 2297) stated that 11 CWT semivolatile organic pollutants and two CWT volatile organic pollutants (2-butanone and 2-propanone) were not listed in Table I-C at 40 CFR 136.3. Even though these 13 analytes were not shown in Table I-C, there were already approved test methods for six of these 13, as follows. EPA Method 1624 lists 2-butanone and 2-propanone, provides performance data for these two analytes, and is an approved method for these two analytes. EPA Method 1625 lists four of the 11 CWT semivolatile organic pollutants with relevant performance data and is an approved method for these four analytes (alpha-terpineol, carbazole, n-decane, and n-octadecane).

In the 1999 CWT proposal, EPA proposed to expand the analyte list for the already-approved methods and also to allow modified versions of Methods 625 and 1625. The Docket for the proposed rulemaking included the proposed modifications to Methods 625 and 1625 regarding expansion of the analyte list. The expanded list covered 17 pollutants in total, including all of the proposed CWT semivolatile organic pollutants. For 7 of those analytes, performance data were not available for either method and these data were not included in the Docket at proposal. EPA also noted its plans for further validation of the method modifications.

Since proposal, EPA has gathered performance data on the additional seven CWT analytes and additional analytes of interest for other industry categories. In January 2000, EPA amended Methods 625 and 1625 by adding the performance data for the additional analytes. The amendments consist of text, performance data, and quality control (QC) acceptance criteria for the additional analytes. This information will allow a laboratory to practice the methods with the additional analytes as an integral part. The QC acceptance criteria for the additional analytes were validated in single-laboratory studies. The January 2000 amendments were part of the rulemaking notice for the effluent limitations guidelines and standards for the Landfills Point Source Category (65 FR 3008, January 19, 2000). EPA's intent was to promulgate amendments to Methods 625 and 1625 that would allow the use of those methods for specific pollutants regulated in 40 CFR Part 445 (i.e., Landfills) for purposes of that rule only. Some of the pollutants had also been included in the CWT proposal. Subsequent to the Landfills promulgation, EPA received inquiries about the scope and applicability of the amendments to the test methods. In response to those inquiries, EPA published a notice of data availability (NODA) and request for comment on the data collected for the additional analytes (see 65 FR

41391, July 5, 2000).

The NODA clarified EPA's intent regarding the method amendments by explaining that the amendments published on January 19, 2000 "… are applicable only to the five regulated pollutants in the Landfills rule when found in the waste streams regulated under that rule" (65 FR 41392). The NODA also announced EPA's plans to further amend the methods in the final CWT rulemaking (i.e., this rulemaking) to specify that the revisions to Methods 625 and 1625 apply to the pollutants promulgated in the final CWT rule and only for the wastestreams regulated in the final CWT rule. In the final CWT amendments to 40 CFR Part 136, Appendix A, EPA thus clarifies its intent regarding the scope of method amendments. Specifically, the amendments include additional text to the Introduction section of the attachment at the end of Methods 625 and 1625 and footnotes to Tables in the attachment. The amendments delineate the scope of Methods 625 and 1625 regarding compliance with monitoring requirements for the wastestreams covered by 40 CFR Parts 437 and 445. In addition, EPA deleted from the attachment to the methods those analytes not covered by the Landfills and CWT final rules.

Attachment 15-1 Analytical Methods and Baseline Values

| Pollutant | CAS No. | Method | Baseline Value | Unit |
|---|---|---|---|---|
| **CLASSICALS OR CONVENTIONALS** | | | | |
| Ammonia as nitrogen | 7664-41-7 | 350.1 | 0.05 | mg/L |
| | | 350.2 | 0.05 | mg/L |
| | | 350.3 | 0.05 | mg/L |
| Biochemical oxygen demand (BOD) | C-003 | 405.1 | 2.00 | mg/L |
| | | 5210 | 2.00 | mg/L |
| BOD 5-day (carbonaceous) | C-002 | 405.1 | 2.00 | mg/L |
| Chemical oxygen demand (COD) | C-004 | 410.1 | 5.00 | mg/L |
| | | 410.2 | 5.00 | mg/L |
| | | 410.4 | 5.00 | mg/L |
| | | 410.4 | 5.00 | mg/L |
| Chloride | 16887-00-6 | 325.1 | 1.00 | mg/L |
| | | 325.3 | 1.00 | mg/L |
| D-Chemical oxygen demand | C-004D | 410.1 | 5.00 | mg/L |
| Fluoride | 16984-48-8 | 340.1 | 0.10 | mg/L |
| | | 340.2 | 0.10 | mg/L |
| Hexane extractable material (HEM) | C-036 | 1664 | 5.00 | mg/L |
| Hexavalent chromium | 18540-29-9 | 218.4 | 0.01 | mg/L |
| | | 3500 | 0.01 | mg/L |
| Nitrate/nitrite | C-005 | 353.1 | 0.05 | mg/L |
| | | 353.2 | 0.05 | mg/L |
| | | 353.3 | 0.05 | mg/L |
| SGT-HEM | C-037 | 1664 | 5.00 | mg/L |
| Total cyanide | 57-12-5 | 335.2 | 0.02 | mg/L |
| Total dissolved solids | C-010 | 160.1 | 10.00 | mg/L |
| Total organic carbon (TOC) | C-012 | 415.1 | 1.00 | mg/L |
| Total phenols | C-020 | 420.1 | 0.05 | mg/L |
| | | 420.2 | 0.05 | mg/L |
| Total phosphorus | 14265-44-2 | 365.2 | 0.01 | mg/L |
| | | 365.3 | 0.01 | mg/L |
| Total recoverable oil and grease | C-007 | 413.1 | 5.00 | mg/L |
| Total solids | C-008 | 209F | 10.00 | % |
| Total sulfide | 18496-25-8 | 376.1 | 1.00 | mg/L |
| | | D4658 | 1.00 | mg/L |
| Total suspended solids | C-009 | 160.2 | 4.00 | mg/L |
| **METALS** | | | | |
| Aluminum | 7429-90-5 | 1620 | 200.00 | ug/L |
| Antimony | 7440-36-0 | 1620 | 20.00 | ug/L |
| Arsenic | 7440-38-2 | 1620 | 10.00 | ug/L |
| Barium | 7440-39-3 | 1620 | 200.00 | ug/L |
| Beryllium | 7440-41-7 | 1620 | 5.00 | ug/L |
| Bismuth | 7440-69-9 | 1620 | 100.00 | ug/L |
| Boron | 7440-42-8 | 1620 | 100.00 | ug/L |
| Cadmium | 7440-43-9 | 1620 | 5.00 | ug/L |
| Calcium | 7440-70-2 | 1620 | 5000.00 | ug/L |
| Cerium | 7440-45-1 | 1620 | 1000.00 | ug/L |
| Chromium | 7440-47-3 | 1620 | 10.00 | ug/L |
| Cobalt | 7440-48-4 | 1620 | 50.00 | ug/L |

| Pollutant | CAS No. | Method | Baseline Value | Unit |
|---|---|---|---|---|
| Copper | 7440-50-8 | 1620 | 25.00 | ug/L |
| Dysprosium | 7429-91-6 | 1620 | 100.00 | ug/L |
| Erbium | 7440-52-0 | 1620 | 100.00 | ug/L |
| Europium | 7440-53-1 | 1620 | 100.00 | ug/L |
| Gadolinium | 7440-54-2 | 1620 | 500.00 | ug/L |
| Gallium | 7440-55-3 | 1620 | 500.00 | ug/L |
| Germanium | 7440-56-4 | 1620 | 500.00 | ug/L |
| Gold | 7440-57-5 | 1620 | 1000.00 | ug/L |
| Hafnium | 7440-58-6 | 1620 | 1000.00 | ug/L |
| Holmium | 7440-60-0 | 1620 | 500.00 | ug/L |
| Indium | 7440-74-6 | 1620 | 1000.00 | ug/L |
| Iodine | 7553-56-2 | 1620 | 1000.00 | ug/L |
| Iridium | 7439-88-5 | 1620 | 1000.00 | ug/L |
| Iron | 7439-89-6 | 1620 | 100.00 | ug/L |
| Lanthanum | 7439-91-0 | 1620 | 100.00 | ug/L |
| Lead | 7439-92-1 | 1620 | 50.00 | ug/L |
| Lithium | 7439-93-2 | 1620 | 100.00 | ug/L |
| Lutetium | 7439-94-3 | 1620 | 100.00 | ug/L |
| Magnesium | 7439-95-4 | 1620 | 5000.00 | ug/L |
| Manganese | 7439-96-5 | 1620 | 15.00 | ug/L |
| Mercury | 7439-97-6 | 1620 | 0.20 | ug/L |
| Molybdenum | 7439-98-7 | 1620 | 10.00 | ug/L |
| Neodymium | 7440-00-8 | 1620 | 500.00 | ug/L |
| Nickel | 7440-02-0 | 1620 | 40.00 | ug/L |
| Niobium | 7440-03-1 | 1620 | 1000.00 | ug/L |
| Osmium | 7440-04-2 | 1620 | 100.00 | ug/L |
| Palladium | 7440-05-3 | 1620 | 500.00 | ug/L |
| Phosphorus | 7723-14-0 | 1620 | 1000.00 | ug/L |
| Platinum | 7440-06-4 | 1620 | 1000.00 | ug/L |
| Potassium | 7440-09-7 | 1620 | 1000.00 | ug/L |
| Praseodymium | 7440-10-0 | 1620 | 1000.00 | ug/L |
| Rhenium | 7440-15-5 | 1620 | 1000.00 | ug/L |
| Rhodium | 7440-16-6 | 1620 | 1000.00 | ug/L |
| Ruthenium | 7440-18-8 | 1620 | 1000.00 | ug/L |
| Samarium | 7440-19-9 | 1620 | 500.00 | ug/L |
| Scandium | 7440-20-2 | 1620 | 100.00 | ug/L |
| Selenium | 7782-49-2 | 1620 | 5.00 | ug/L |
| Silicon | 7440-21-3 | 1620 | 100.00 | ug/L |
| Silver | 7440-22-4 | 1620 | 10.00 | ug/L |
| Sodium | 7440-23-5 | 1620 | 5000.00 | ug/L |
| Strontium | 7440-24-6 | 1620 | 100.00 | ug/L |
| Sulfur | 7704-34-9 | 1620 | 1000.00 | ug/L |
| Tantalum | 7440-25-7 | 1620 | 500.00 | ug/L |
| Tellurium | 13494-80-9 | 1620 | 1000.00 | ug/L |
| Terbium | 7440-27-9 | 1620 | 500.00 | ug/L |
| Thallium | 7440-28-0 | 1620 | 10.00 | ug/L |
| Thorium | 7440-29-1 | 1620 | 1000.00 | ug/L |
| Thulium | 7440-30-4 | 1620 | 500.00 | ug/L |
| Tin | 7440-31-5 | 1620 | 30.00 | ug/L |
| Titanium | 7440-32-6 | 1620 | 5.00 | ug/L |

| Pollutant | CAS No. | Method | Baseline Value | Unit |
|---|---|---|---|---|
| Tungsten | 7440-33-7 | 1620 | 1000.00 | ug/L |
| Uranium | 7440-61-1 | 1620 | 1000.00 | ug/L |
| Vanadium | 7440-62-2 | 1620 | 50.00 | ug/L |
| Ytterbium | 7440-64-4 | 1620 | 100.00 | ug/L |
| Yttrium | 7440-65-5 | 1620 | 5.00 | ug/L |
| Zinc | 7440-66-6 | 1620 | 20.00 | ug/L |
| Zirconium | 7440-67-7 | 1620 | 100.00 | ug/L |
| **ORGANICS** | | | | |
| Acenaphthene | 83-32-9 | 1625 | 10.00 | ug/L |
| Acenaphthylene | 208-96-8 | 1625 | 10.00 | ug/L |
| Acetophenone | 98-86-2 | 1625 | 10.00 | ug/L |
| Acrylonitrile | 107-13-1 | 1624 | 50.00 | ug/L |
| Alpha-terpineol | 98-55-5 | 1625 | 10.00 | ug/L |
| Aniline | 62-53-3 | 1625 | 10.00 | ug/L |
| Aniline, 2,4,5-trimethyl- | 137-17-7 | 1625 | 20.00 | ug/L |
| Anthracene | 120127 | 1625 | 10.00 | ug/L |
| Aramite | 140-57-8 | 1625 | 50.00 | ug/L |
| Benzanthrone | 82-05-3 | 1625 | 50.00 | ug/L |
| Benzene | 71-43-2 | 1624 | 10.00 | ug/L |
| Benzenethiol | 108-98-5 | 1625 | 10.00 | ug/L |
| Benzidine | 92-87-5 | 1625 | 50.00 | ug/L |
| Benzo(a)anthracene | 56-55-3 | 1625 | 10.00 | ug/L |
| Benzo(a)pyrene | 50-32-8 | 1625 | 10.00 | ug/L |
| Benzo(b)fluoranthene | 205-99-2 | 1625 | 10.00 | ug/L |
| Benzo(ghi)perylene | 191-24-2 | 1625 | 20.00 | ug/L |
| Benzo(k)fluoranthene | 207-08-9 | 1625 | 10.00 | ug/L |
| Benzoic acid | 65-85-0 | 1625 | 50.00 | ug/L |
| Benzonitrile, 3,5-dibromo-4-hydroxy- | 1689-84-5 | 1625 | 50.00 | ug/L |
| Benzyl alcohol | 100-51-6 | 1625 | 10.00 | ug/L |
| Beta-naphthylamine | 91-59-8 | 1625 | 50.00 | ug/L |
| Biphenyl | 92-52-4 | 1625 | 10.00 | ug/L |
| Biphenyl, 4-nitro | 92-93-3 | 1625 | 10.00 | ug/L |
| Bis(2-chloroethoxy)methane | 111-91-1 | 1625 | 10.00 | ug/L |
| Bis(2-chloroethyl) ether | 111-44-4 | 1625 | 10.00 | ug/L |
| Bis(2-chloroisopropyl) ether | 108-60-1 | 1625 | 10.00 | ug/L |
| Bis(2-ethylhexyl) phthalate | 117-81-7 | 1625 | 10.00 | ug/L |
| Bromodichloromethane | 75-27-4 | 1624 | 10.00 | ug/L |
| Bromomethane | 74-83-9 | 1624 | 50.00 | ug/L |
| Butyl benzyl phthalate | 85-68-7 | 1625 | 10.00 | ug/L |
| Carbazole | 86-74-8 | 1625 | 20.00 | ug/L |
| Carbon Disulfide | 75-15-0 | 1624 | 10.00 | ug/L |
| Chloroacetonitrile | 107-14-2 | 1624 | 10.00 | ug/L |
| Chlorobenzene | 108-90-7 | 1624 | 10.00 | ug/L |
| Chloroethane | 75-00-3 | 1624 | 50.00 | ug/L |
| Chloroform | 67-66-3 | 1624 | 10.00 | ug/L |
| Chloromethane | 74-87-3 | 1624 | 50.00 | ug/L |
| Chrysene | 218-01-9 | 1625 | 10.00 | ug/L |
| Cis-1,3-dichloropropene | 10061-01-5 | 1624 | 10.00 | ug/L |
| Crotonaldehyde | 4170-30-3 | 1624 | 50.00 | ug/L |
| Crotoxyphos | 7700-17-6 | 1625 | 99.00 | ug/L |

| Pollutant | CAS No. | Method | Baseline Value | Unit |
|---|---|---|---|---|
| Di-n-butyl phthalate | 84-74-2 | 1625 | 10.00 | ug/L |
| Di-n-octyl phthalate | 117-84-0 | 1625 | 10.00 | ug/L |
| Di-n-propylnitrosamine | 621-64-7 | 1625 | 20.00 | ug/L |
| Dibenzo(a,h)anthracene | 53-70-3 | 1625 | 20.00 | ug/L |
| Dibenzofuran | 132-64-9 | 1625 | 10.00 | ug/L |
| Dibenzothiophene | 132-65-0 | 1625 | 10.00 | ug/L |
| Dibromochloromethane | 124-48-1 | 1624 | 10.00 | ug/L |
| Dibromomethane | 74-95-3 | 1624 | 10.00 | ug/L |
| Diethyl ether | 60-29-7 | 1624 | 50.00 | ug/L |
| Diethyl phthalate | 84-66-2 | 1625 | 10.00 | ug/L |
| Dimethyl phthalate | 131-11-3 | 1625 | 10.00 | ug/L |
| Dimethyl sulfone | 67-71-0 | 1625 | 10.00 | ug/L |
| Diphenyl ether | 101-84-8 | 1625 | 10.00 | ug/L |
| Diphenylamine | 122-39-4 | 1625 | 20.00 | ug/L |
| Diphenyldisulfide | 882-33-7 | 1625 | 20.00 | ug/L |
| Ethane, pentachloro- | 76-01-7 | 1625 | 20.00 | ug/L |
| Ethyl cyanide | 107-12-0 | 1624 | 10.00 | ug/L |
| Ethyl methacrylate | 97-63-2 | 1624 | 10.00 | ug/L |
| Ethyl methanesulfonate | 62-50-0 | 1625 | 20.00 | ug/L |
| Ethylbenzene | 100-41-4 | 1624 | 10.00 | ug/L |
| Ethylenethiourea | 96-45-7 | 1625 | 20.00 | ug/L |
| Fluoranthene | 206-44-0 | 1625 | 10.00 | ug/L |
| Fluorene | 86-73-7 | 1625 | 10.00 | ug/L |
| Hexachlorobenzene | 118-74-1 | 1625 | 10.00 | ug/L |
| Hexachlorobutadiene | 87-68-3 | 1625 | 10.00 | ug/L |
| Hexachlorocyclopentadiene | 77-47-4 | 1625 | 10.00 | ug/L |
| Hexachloroethane | 67-72-1 | 1625 | 10.00 | ug/L |
| Hexachloropropene | 1888-71-7 | 1625 | 20.00 | ug/L |
| Hexanoic acid | 142-62-1 | 1625 | 10.00 | ug/L |
| Indeno(1,2,3-cd)pyrene | 193-39-5 | 1625 | 20.00 | ug/L |
| Iodomethane | 74-88-4 | 1624 | 10.00 | ug/L |
| Isobutyl alcohol | 78-83-1 | 1624 | 10.00 | ug/L |
| Isophorone | 78-59-1 | 1625 | 10.00 | ug/L |
| Isosafrole | 120-58-1 | 1625 | 10.00 | ug/L |
| Longifolene | 475-20-7 | 1625 | 50.00 | ug/L |
| m+p Xylene | 179601-23-1 | 1624 | 10.00 | ug/L |
| M-xylene | 108-38-3 | 1624 | 10.00 | ug/L |
| Malachite Green | 569-64-2 | 1625 | 10.00 | ug/L |
| Mestranol | 72-33-3 | 1625 | 20.00 | ug/L |
| Methapyrilene | 91-80-5 | 1625 | 10.00 | ug/L |
| Methyl methacrylate | 80-62-6 | 1624 | 10.00 | ug/L |
| Methyl methanesulfonate | 66-27-3 | 1625 | 20.00 | ug/L |
| Methylene chloride | 75-09-2 | 1624 | 10.00 | ug/L |
| n,n-dimethylformamide | 68-12-2 | 1625 | 10.00 | ug/L |
| n-Decane | 124-18-5 | 1625 | 10.00 | ug/L |
| n-Docosane | 629-97-0 | 1625 | 10.00 | ug/L |
| n-Dodecane | 112-40-3 | 1625 | 10.00 | ug/L |
| n-Eicosane | 112-95-8 | 1625 | 10.00 | ug/L |
| n-Hexacosane | 630-01-3 | 1625 | 10.00 | ug/L |
| n-Hexadecane | 544-76-3 | 1625 | 10.00 | ug/L |

| Pollutant | CAS No. | Method | Baseline Value | Unit |
|---|---|---|---|---|
| n-Nitrosodi-n-butylamine | 924-16-3 | 1625 | 10.00 | ug/L |
| n-Nitrosodiethylamine | 55-18-5 | 1625 | 10.00 | ug/L |
| n-Nitrosodimethylamine | 62-75-9 | 1625 | 50.00 | ug/L |
| n-Nitrosodiphenylamine | 86-30-6 | 1625 | 20.00 | ug/L |
| n-Nitrosomethylethylamine | 10595-95-6 | 1625 | 10.00 | ug/L |
| n-Nitrosomethylphenylamine | 614-00-6 | 1625 | 99.00 | ug/L |
| n-Nitrosomorpholine | 59-89-2 | 1625 | 10.00 | ug/L |
| n-Nitrosopiperidine | 100-75-4 | 1625 | 10.00 | ug/L |
| n-Octacosane | 630-02-4 | 1625 | 10.00 | ug/L |
| n-Octadecane | 593-45-3 | 1625 | 10.00 | ug/L |
| n-Tetracosane | 646-31-1 | 1625 | 10.00 | ug/L |
| n-Tetradecane | 629-59-4 | 1625 | 10.00 | ug/L |
| n-Triacontane | 638-68-6 | 1625 | 10.00 | ug/L |
| Naphthalene | 91-20-3 | 1625 | 10.00 | ug/L |
| Nitrobenzene | 98-95-3 | 1625 | 10.00 | ug/L |
| o+p Xylene | 136777-61-2 | 1624 | 10.00 | ug/L |
| o-Anisidine | 90-04-0 | 1625 | 10.00 | ug/L |
| o-Cresol | 95-48-7 | 1625 | 10.00 | ug/L |
| o-Toluidine | 95-53-4 | 1625 | 10.00 | ug/L |
| o-Toluidine, 5-chloro- | 95-79-4 | 1625 | 10.00 | ug/L |
| o-Xylene | 95-47-6 | 1624 | 10.00 | ug/L |
| p-Chloroaniline | 106-47-8 | 1625 | 10.00 | ug/L |
| p-Cresol | 106-44-5 | 1625 | 10.00 | ug/L |
| p-Cymene | 99-87-6 | 1625 | 10.00 | ug/L |
| p-Dimethylaminoazobenzene | 60-11-7 | 1625 | 20.00 | ug/L |
| p-Nitroaniline | 100-01-6 | 1625 | 50.00 | ug/L |
| Pentachlorobenzene | 608-93-5 | 1625 | 20.00 | ug/L |
| Pentachlorophenol | 87-86-5 | 1625 | 50.00 | ug/L |
| Pentachlorophenol | 87-86-5 | 85.01 | 0.80 | ug/L |
| Pentamethylbenzene | 700-12-9 | 1625 | 10.00 | ug/L |
| Perylene | 198-55-0 | 1625 | 10.00 | ug/L |
| Phenacetin | 62-44-2 | 1625 | 10.00 | ug/L |
| Phenanthrene | 85-01-8 | 1625 | 10.00 | ug/L |
| Phenol | 108-95-2 | 1625 | 10.00 | ug/L |
| Phenol, 2-methyl-4,6-dinitro- | 534-52-1 | 1625 | 20.00 | ug/L |
| Phenothiazine | 92-84-2 | 1625 | 50.00 | ug/L |
| Pronamide | 23950-58-5 | 1625 | 10.00 | ug/L |
| Pyrene | 129-00-0 | 1625 | 10.00 | ug/L |
| Pyridine | 110-86-1 | 1625 | 10.00 | ug/L |
| Resorcinol | 108-46-3 | 1625 | 50.00 | ug/L |
| Safrole | 94-59-7 | 1625 | 10.00 | ug/L |
| Squalene | 7683-64-9 | 1625 | 99.00 | ug/L |
| Styrene | 100-42-5 | 1625 | 10.00 | ug/L |
| Tetrachlorocatechol | 1198-55-6 | 85.01 | 0.80 | ug/L |
| Tetrachloroethene | 127-18-4 | 1624 | 10.00 | ug/L |
| Tetrachloroguaiacol | 2539-17-5 | 85.01 | 0.80 | ug/L |
| Tetrachloromethane | 56-23-5 | 1624 | 10.00 | ug/L |
| Thianaphthene | 95-15-8 | 1625 | 10.00 | ug/L |
| Thioacetamide | 62-55-5 | 1625 | 20.00 | ug/L |
| Thioxanthe-9-one | 492-22-8 | 1625 | 20.00 | ug/L |

| Pollutant | CAS No. | Method | Baseline Value | Unit |
|---|---|---|---|---|
| Toluene | 108-88-3 | 1624 | 10.00 | ug/L |
| Toluene, 2,4-diamino- | 95-80-7 | 1625 | 99.00 | ug/L |
| Trans-1,2-dichloroethene | 156-60-5 | 1624 | 10.00 | ug/L |
| Trans-1,3-dichloropropene | 10061-02-6 | 1624 | 10.00 | ug/L |
| Trans-1,4-dichloro-2-butene | 110-57-6 | 1624 | 50.00 | ug/L |
| Tribromomethane | 75-25-2 | 1624 | 10.00 | ug/L |
| Trichloroethene | 79-01-6 | 1624 | 10.00 | ug/L |
| Trichlorofluoromethane | 75-69-4 | 1624 | 10.00 | ug/L |
| Trichlorosyringol | 2539-26-6 | 85.01 | 0.80 | ug/L |
| Triphenylene | 217-59-4 | 1625 | 10.00 | ug/L |
| Tripropyleneglycol methyl ether | 20324-33-8 | 1625 | 99.00 | ug/L |
| Vinyl acetate | 108-05-4 | 1624 | 50.00 | ug/L |
| Vinyl chloride | 75-01-4 | 1624 | 10.00 | ug/L |
| 1,1,1,2-tetrachloroethane | 630-20-6 | 1624 | 10.00 | ug/L |
| 1,1,1-trichloroethane | 71-55-6 | 1624 | 10.00 | ug/L |
| 1,1,2,2-tetrachloroethane | 79-34-5 | 1624 | 10.00 | ug/L |
| 1,1,2-trichloroethane | 79-00-5 | 1624 | 10.00 | ug/L |
| 1,1-dichloroethane | 75-34-3 | 1624 | 10.00 | ug/L |
| 1,1-dichloroethene | 75-35-4 | 1624 | 10.00 | ug/L |
| 1,2,3-trichlorobenzene | 87-61-6 | 1625 | 10.00 | ug/L |
| 1,2,3-trichloropropane | 96-18-4 | 1624 | 10.00 | ug/L |
| 1,2,3-trimethoxybenzene | 634-36-6 | 1625 | 10.00 | ug/L |
| 1,2,4,5-tetrachlorobenzene | 95-94-3 | 1625 | 10.00 | ug/L |
| 1,2,4-trichlorobenzene | 120-82-1 | 1625 | 10.00 | ug/L |
| 1,2-dibromo-3-chloropropane | 96-12-8 | 1625 | 20.00 | ug/L |
| 1,2-dibromoethane | 106-93-4 | 1624 | 10.00 | ug/L |
| 1,2-dichlorobenzene | 95-50-1 | 1625 | 10.00 | ug/L |
| 1,2-dichloroethane | 107-06-2 | 1624 | 10.00 | ug/L |
| 1,2-dichloropropane | 78-87-5 | 1624 | 10.00 | ug/L |
| 1,2-diphenylhydrazine | 122-66-7 | 1625 | 20.00 | ug/L |
| 1,2:3,4-diepoxybutane | 1464-53-5 | 1625 | 20.00 | ug/L |
| 1,3,5-trithiane | 291-21-4 | 1625 | 50.00 | ug/L |
| 1,3-butadiene, 2-chloro | 126-99-8 | 1624 | 10.00 | ug/L |
| 1,3-dichloro-2-propanol | 96-23-1 | 1625 | 10.00 | ug/L |
| 1,3-dichlorobenzene | 541-73-1 | 1625 | 10.00 | ug/L |
| 1,3-dichloropropane | 142-28-9 | 1624 | 10.00 | ug/L |
| 1,4-dichlorobenzene | 106-46-7 | 1625 | 10.00 | ug/L |
| 1,4-dinitrobenzene | 100-25-4 | 1625 | 20.00 | ug/L |
| 1,4-dioxane | 123-91-1 | 1624 | 10.00 | ug/L |
| 1,4-naphthoquinone | 130-15-4 | 1625 | 99.00 | ug/L |
| 1,5-naphthalenediamine | 2243-62-1 | 1625 | 99.00 | ug/L |
| 1-bromo-2-chlorobenzene | 694-80-4 | 1625 | 10.00 | ug/L |
| 1-bromo-3-chlorobenzene | 108-37-2 | 1625 | 10.00 | ug/L |
| 1-chloro-3-nitrobenzene | 121-73-3 | 1625 | 50.00 | ug/L |
| 1-methylfluorene | 1730-37-6 | 1625 | 10.00 | ug/L |
| 1-methylphenanthrene | 832-69-9 | 1625 | 10.00 | ug/L |
| 1-naphthylamine | 134-32-7 | 1625 | 10.00 | ug/L |
| 1-phenylnaphthalene | 605-02-7 | 1625 | 10.00 | ug/L |

| Pollutant | CAS No. | Method | Baseline Value | Unit |
|---|---|---|---|---|
| 2,3,4,6-tetrachlorophenol | 58-90-2 | 1625 | 20.00 | ug/L |
| | | 85.01 | 0.80 | ug/L |
| 2,3,6-trichlorophenol | 933-75-5 | 1625 | 10.00 | ug/L |
| | | 85.01 | 0.80 | ug/L |
| 2,3-benzofluorene | 243-17-4 | 1625 | 10.00 | ug/L |
| 2,3-dichloroaniline | 608-27-5 | 1625 | 10.00 | ug/L |
| 2,3-dichloronitrobenzene | 3209-22-1 | 1625 | 50.00 | ug/L |
| 2,4,5-trichlorophenol | 95-95-4 | 1625 | 10.00 | ug/L |
| | | 85.01 | 0.80 | ug/L |
| 2,4,6-trichlorophenol | 88-06-2 | 1625 | 10.00 | ug/L |
| | | 85.01 | 0.80 | ug/L |
| 2,4-dichlorophenol | 120-83-2 | 1625 | 10.00 | ug/L |
| | | 85.01 | 0.80 | ug/L |
| 2,4-dimethylphenol | 105-67-9 | 1625 | 10.00 | ug/L |
| 2,4-dinitrophenol | 51-28-5 | 1625 | 50.00 | ug/L |
| 2,4-dinitrotoluene | 121-14-2 | 1625 | 10.00 | ug/L |
| 2,6-di-tert-butyl-p-benzoquinone | 719-22-2 | 1625 | 99.00 | ug/L |
| 2,6-dichloro-4-nitroaniline | 99-30-9 | 1625 | 99.00 | ug/L |
| 2,6-dichlorophenol | 87-65-0 | 1625 | 10.00 | ug/L |
| | | 85.01 | 0.80 | ug/L |
| 2,6-dinitrotoluene | 606-20-2 | 1625 | 10.00 | ug/L |
| 2-(methylthio)benzothiazole | 615-22-5 | 1625 | 10.00 | ug/L |
| 2-butanone | 78-93-3 | 1624 | 50.00 | ug/L |
| 2-chloroethylvinyl ether | 110-75-8 | 1624 | 10.00 | ug/L |
| 2-chloronaphthalene | 91-58-7 | 1625 | 10.00 | ug/L |
| 2-chlorophenol | 95-57-8 | 1625 | 10.00 | ug/L |
| 2-hexanone | 591-78-6 | 1624 | 50.00 | ug/L |
| 2-isopropylnaphthalene | 2027-17-0 | 1625 | 10.00 | ug/L |
| 2-methylbenzothioazole | 120-75-2 | 1625 | 10.00 | ug/L |
| 2-methylnaphthalene | 91-57-6 | 1625 | 10.00 | ug/L |
| 2-nitroaniline | 88-74-4 | 1625 | 10.00 | ug/L |
| 2-nitrophenol | 88-75-5 | 1625 | 20.00 | ug/L |
| 2-phenylnaphthalene | 612-94-2 | 1625 | 10.00 | ug/L |
| 2-picoline | 109-06-8 | 1625 | 50.00 | ug/L |
| 2-propanone | 67-64-1 | 1624 | 50.00 | ug/L |
| 2-propen-1-ol | 107-18-6 | 1624 | 10.00 | ug/L |
| 2-propenal | 107-02-8 | 1624 | 50.00 | ug/L |
| 2-propenenitrile, 2-methyl- | 126-98-7 | 1624 | 10.00 | ug/L |
| 2-syringaldehyde | 134-96-3 | 85.01 | 0.80 | ug/L |
| 3,3'-dichlorobenzidine | 91-94-1 | 1625 | 50.00 | ug/L |
| 3,3'-dimethoxybenzidine | 119-90-4 | 1625 | 50.00 | ug/L |
| 3,4,5-trichlorocatechol | 56961-20-7 | 85.01 | 0.80 | ug/L |
| 3,4,5-trichloroguaiacol | 57057-83-7 | 85.01 | 0.80 | ug/L |
| 3,4,6-trichloroguaiacol | 60712-44-9 | 85.01 | 0.80 | ug/L |
| 3,4-dichlorophenol | 95-77-2 | 85.01 | 0.80 | ug/L |
| 3,5-dichlorocatechol | 13673-92-2 | 85.01 | 0.80 | ug/L |
| 3,5-dichlorophenol | 591-35-5 | 85.01 | 0.80 | ug/L |
| 3,6-dichlorocatechol | 3938-16-7 | 85.01 | 0.80 | ug/L |
| 3,6-dimethylphenanthrene | 1576-67-6 | 1625 | 10.00 | ug/L |
| 3-chloropropene | 107-05-1 | 1624 | 10.00 | ug/L |

| Pollutant | CAS No. | Method | Baseline Value | Unit |
|---|---|---|---|---|
| 3-methylcholanthrene | 56-49-5 | 1625 | 10.00 | ug/L |
| 3-nitroaniline | 99-09-2 | 1625 | 20.00 | ug/L |
| 4,4'-methylenebis(2-chloroaniline) | 101-14-4 | 1625 | 20.00 | ug/L |
| 4,5,6-trichloroguaiacol | 2668-24-8 | 85.01 | 0.80 | ug/L |
| 4,5-dichlorocatechol | 3428-24-8 | 85.01 | 0.80 | ug/L |
| 4,5-dichloroguaiacol | 2460-49-3 | 85.01 | 0.80 | ug/L |
| 4,5-methylene phenanthrene | 203-64-5 | 1625 | 10.00 | ug/L |
| 4,6-dichloroguaiacol | 16766-31-7 | 85.01 | 0.80 | ug/L |
| 4-aminobiphenyl | 92-67-1 | 1625 | 10.00 | ug/L |
| 4-bromophenyl phenyl ether | 101-55-3 | 1625 | 10.00 | ug/L |
| 4-chloro-2-nitroaniline | 89-63-4 | 1625 | 20.00 | ug/L |
| 4-chloro-3-methylphenol | 59-50-7 | 1625 | 10.00 | ug/L |
| 4-chloroguaiacol | 16766-30-6 | 85.01 | 160.00 | ug/L |
| 4-chlorophenol | 106-48-9 | 85.01 | 240.00 | ug/L |
| 4-chlorophenylphenyl ether | 7005-72-3 | 1625 | 10.00 | ug/L |
| 4-methyl-2-pentanone | 108-10-1 | 1624 | 50.00 | ug/L |
| 4-nitrophenol | 100-02-7 | 1625 | 50.00 | ug/L |
| 5,6-dichlorovanillin | 18268-69-4 | 85.01 | 0.80 | ug/L |
| 5-chloroguaiacol | 3743-23-5 | 85.01 | 160.00 | ug/L |
| 5-nitro-o-toluidine | 99-55-8 | 1625 | 10.00 | ug/L |
| 6-chlorovanillin | 18268-76-3 | 85.01 | 0.80 | ug/L |
| 7,12-dimethylbenz(a)anthracene | 57-97-6 | 1625 | 10.00 | ug/L |

# LIST OF DEFINITIONS

## *A*

**Administrator** - The Administrator of the U.S. Environmental Protection Agency.

**Agency** - The U.S. Environmental Protection Agency.

**Average Monthly Discharge Limitation** - The highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during the calendar month divided by the number of "daily discharges" measured during the month.

## *B*

**BAT** - The best available technology economically achievable, applicable to effluent limitations to be achieved by July 1, 1984, for industrial discharges to surface waters, as defined by Sec. 304(b)(2)(B) of the CWA.

**BCT** - The best conventional pollutant control technology, applicable to discharges of conventional pollutants from existing industrial point sources, as defined by Sec. 304(b)(4) of the CWA.

**BPT** - The best practicable control technology currently available, applicable to effluent limitations to be achieved by July 1, 1977, for industrial discharges to surface waters, as defined by Sec. 304(b)(1) of the CWA.

## *C*

**Centralized Waste Treatment Facility** - Any facility that treats and/or recovers or recycles any hazardous or non-hazardous industrial waste, hazardous or non-hazardous industrial wastewater, and/or used material from off-site. "CWT facility" includes both a facility that treats waste received from off-site exclusively, as well as a facility that treats wastes generated on-site and waste received from off-site. For example, an organic chemical manufacturing plant may, in certain circumstances, be a CWT facility if it treats industrial wastes received from off-site as well as industrial waste generated at the organic chemical manufacturing plant. CWT facilities include re-refiners and may be owned by the federal government.

**Centralized Waste Treatment Wastewater** - Wastewater generated as a result of CWT activities. CWT wastewater sources may include, but are not limited to the following: liquid waste receipts, solubilization water, used oil emulsion-breaking wastewater, tanker truck/drum/roll-off box washes, equipment washes, air pollution control scrubber blow-down, laboratory-derived wastewater, on-site industrial waste combustor wastewaters, on-site landfill wastewaters, and contaminated storm water.

**Clean Water Act (CWA) -** The Federal Water Pollution Control Act Amendments of 1972 (33 U.S.C. Section 1251 et seq.), as amended by the Clean Water Act of 1977 (Pub. L. 95-217), and the Water Quality Act of 1987 (Pub. L. 100-4).

**Clean Water Act (CWA) Section 308 Questionnaire -** A questionnaire sent to facilities under the authority of Section 308 of the CWA, which requests information to be used in the development of national effluent guidelines and standards.

**Commercial Facility -** A CWT facility that accepts off-site generated wastes, wastewaters, or used material from other facilities not under the same ownership as this facility. Commercial operations are usually made available for a fee or other remuneration.

**Contaminated Storm Water -** Storm water which comes in direct contact with the waste or waste handling and treatment areas.

**Conventional Pollutants -** Constituents of wastewater as determined by Sec. 304(a)(4) of the CWA, including, but not limited to, pollutants classified as biochemical oxygen demand, total suspended solids, oil and grease, fecal coliform, and pH.

**CWT -** Centralized Waste Treatment.

## ***D***

**Daily Discharge -** The discharge of a pollutant measured during any calendar day or any 24-hour period that reasonably represents a calendar day.

**Detailed Monitoring Questionnaire (DMQ) -** Questionnaires sent to collect monitoring data from 20 selected CWT facilities based on responses to the Section 308 Questionnaire.

**Direct Discharger -** A facility that discharges or may discharge treated or untreated wastewaters into waters of the United States.

## ***E***

**Effluent Limitation -** Any restriction, including schedules of compliance, established by a State or the Administrator on quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources into navigable waters, the waters of the contiguous zone, or the ocean (CWA Sections 301(b) and 304(b)).

**Existing Source -** Any facility from which there is or may be a discharge of pollutants, the construction of which is commenced before the publication of the proposed regulations prescribing a standard of performance under Sec. 306 of the CWA.

## ***F***

**Facility -** All contiguous property owned, operated, leased or under the control of the same person or entity

**Fuel Blending -** The process of mixing waste, wastewater, or used material for the purpose of regenerating a fuel for re-use.

## ***H***

**Hazardous Waste -** Any waste, including wastewater, defined as hazardous under RCRA, TSCA, or any state law.

**High Temperature Metals Recovery (HTMR) -** A metals recovery process in which solid forms of metal containing materials are processed with a heat-based pyrometallurgical technology to produce a remelt alloy which can then be sold as feed material in the production of metals.

## ***I***

**In-scope -** Facilities and/or wastewaters that EPA proposes to be subject to this guideline.

**Indirect Discharger -** A facility that discharges or may discharge wastewaters into a publicly-owned treatment works.

**Instrument Detection Limit (IDL) -** The smallest signal above background noise that an instrument can detect reliably**.**

**Intercompany Transfer -** Transfer to facilities that treat and/or recycle/recover waste, wastewater, and/or used material generated by off-site facilities *not* under the same corporate ownership. These facilities are also referred to as “commercial” CWTs.

**Intracompany Transfer -** Transfer to facilities that treat and/or recycle/recover waste, wastewater, and/or used material generated by off-site facilities under the same corporate ownership. These facilities are also referred to as “non-commercial” CWTs.

## ***L***

**LTA -** Long-Term Average. For purposes of the effluent guidelines, average pollutant levels achieved over a period of time by a facility, subcategory, or technology option. LTAs were used in developing the limitations and standards in today's proposed regulation.

## *M*

**Marine-generated Waste -** Waste, wastewater, and/or used material generated as part of the normal maintenance and operation of a ship, boat, or barge operating on inland, coastal, or open waters, or while berthed.

**Metal-bearing Wastes -** Wastes and/or used materials that contain significant quantities of metal pollutants, but not significant quantities of oil and grease (generally less than 100 mg/L), from manufacturing or processing facilities or other commercial operations. These wastes include, but are not limited to, spent electroplating baths and sludges, metal finishing rinse water and sludges, chromate wastes, air pollution control blow down water and sludges, spent anodizing solutions, incineration air pollution control wastewaters, waste liquid mercury, cyanide containing wastes greater than 136 mg/L, and waste acids and bases with or, in the case of acids and bases only, without metals.

**Minimum Level -** The lowest level at which the entire analytical system must give a recognizable signals and an acceptable calibration point for the analyte.

**Mixed Commercial/Non-commercial Facility -** Facilities that treat and/or recycle/recover waste, wastewater, and/or used material generated by off-site facilities both under the same corporate ownership and different corporate ownership.

**Multiple Wastestream CWT Facility -** A CWT facility which accepts waste in more than one CWT subcategory (metals, oils, or organics) and combines any portion of these different subcategory wastes at any point prior to the compliance discharge sampling location.

## *N*

**National Pollutant Discharge Elimination System (NPDES) Permit -** A permit to discharge wastewater into waters of the United States issued under the National Pollutant Discharge Elimination system, authorized by Section 402 of the CWA.

**New Source -** Any facility from which there is or may be a discharge of pollutants, the construction of which is commenced after the proposal of regulations prescribing a standard of performance under section 306 of the Act and 403.3(k).

**Nominal Quantitation Limit -** The smallest quantity of an analyte that can be measured reliably with a particular analytical method.

**Non-commercial Facility -** Facilities that accept waste from off-site for treatment and/or recovery from generating facilities under the same corporate ownership as the CWT facility.

**Non-contaminated Stormwater -** Storm water which does not come into direct contact with the waste or waste handling and treatment areas.

**Non-conventional Pollutants -** Pollutants that are neither conventional pollutants nor priority pollutants listed at 40 CFR Section 401.

**Non-detect Value -** the analyte is below the level of detection that can be reliably measured by the analytical method. This is also known, in statistical terms, as left-censoring.

**Non-water Quality Environmental Impact -** Deleterious aspects of control and treatment technologies applicable to point source category wastes, including, but not limited to air pollution, noise, radiation, sludge and solid waste generation, and energy used.

**NSPS -** New Sources Performance Standards, applicable to industrial facilities whose construction is begun after the publication of the proposed regulations, as defined by Sec. 306 of the CWA.

## ***O***

**OCPSF -** Organic chemicals, plastics, and synthetic fibers manufacturing point source category (40 CFR Part 414).

**Off-site -** Outside the boundaries of a facility.

**Oily Absorbent Recycling -** The process of recycling oil-soaked or contaminated disposable rags, paper, or pads for the purpose of regenerating a fuel for reuse.

**Oily Wastes -** Wastes and/or used materials that contain oil and grease (generally at or in excess of 100 mg/L) from manufacturing or processing facilities or other commercial operations. These wastes include, but are not limited to, used oils, oil-water emulsions or mixtures, lubricants, coolants, contaminated groundwater clean-up from petroleum sources, used petroleum products, oil spill clean-up, bilge water, rinse/wash waters from petroleum sources, interceptor wastes, off-specification fuels, underground storage remediation waste, and tank clean out from petroleum or oily sources.

**Oligopoly -** A market structure with few competitors, in which each producer is aware of his competitors' actions and has a significant influence on market price and quantity.

**On Site -** The same or geographically contiguous property, which may be divided by a public or private right-of-way, provided the entrance and exit between the properties is at a crossroads intersection, and access is by crossing as opposed to going along the right-of-way. Non-contiguous properties owned by the same company or locality but connected by a right-of-way, which it controls, and to which the public does not have access, is also considered on-site property.

**Organic-bearing Wastes -** Wastes and/or used materials that contain organic pollutants, but not a significant quantity of oil and grease (generally less than 100 mg/L) from manufacturing or processing facilities or other commercial operations. These wastes include, but are not limited to, landfill leachate, contaminated groundwater clean-up from non-petroleum sources, solvent-bearing wastes, off-specification organic product, still bottoms, waste byproduct glycols, wastewater from paint washes, wastewater from adhesives and/or epoxies formulation, wastewater from chemical product operations, and tank clean-out from organic, non-petroleum sources.

**Outfall -** The mouth of conduit drains and other conduits from which a facility effluent discharges into receiving waters.

**Out-of-scope -** Out-of-scope facilities are facilities which only perform centralized waste treatment activities which EPA has not determined to be subject to provisions of this guideline or facilities that do not accept off-site waste for treatment.

## ***P***

**Pipeline -** "Pipeline" means an open or closed conduit used for the conveyance of material. A pipeline includes a channel, pipe, tube, trench, ditch or fixed delivery system.

**Pass Through -** A pollutant is determined to "pass through" a POTW when the average percentage removed by an efficiently operated POTW is less than the average percentage removed by the industry's direct dischargers that are using well-defined, well-operated BAT technology.

**Point Source -** Any discernable, confined, and discrete conveyance from which pollutants are or may be discharged.

**Pollutants of Concern (POCs) -** Pollutants commonly found in centralized waste treatment wastewaters. For the purposes of this guideline, a POC is a pollutant that is detected at or above a treatable level in influent wastewater samples from centralized waste treatment facilities. Additionally, a CWT POC must be present in at least ten percent of the influent wastewater samples.

**Priority Pollutant -** One hundred twenty-six compounds that are a subset of the 65 toxic pollutants and classes of pollutants outlined in Section 307 of the CWA. The priority pollutants are specified in the NRDC settlement agreement (Natural Resources Defense Council et al v. Train, 8 E.R.C. 2120 [D.D.C. 1976], modified 12 E.R.C. 1833 [D.D.C. 1979]).

**Product Stewardship -** A manufacturer's treatment or recovery of its own unused products, shipping and storage containers with product residues, off-specification products, and does not include spent or used materials from use of its products.

**PSES -** Pretreatment standards for existing sources of indirect discharges, under Sec. 307(b) of the CWA.

**PSNS -** Pretreatment standards for new sources of indirect discharges, under Sec. 307(b) of the CWA.

**Publicly Owned Treatment Works (POTW) -** Any device or system, owned by a state or municipality, used in the treatment (including recycling and reclamation) of municipal sewage or industrial wastes of a liquid nature that is owned by a state or municipality. This includes sewers, pipes, or other conveyances only if they convey wastewater to a POTW providing treatment (40 CFR 122.2).

## ***R***

**RCRA -** The Resource Conservation and Recovery Act of 1976 (RCRA) (42 U.S.C. Section 6901 et seq.), which regulates the generation, treatment, storage, disposal, or recycling of solid and hazardous wastes.

**Re-refining -** Distillation, hydrotreating, and/or other treatment employing acid, caustic, solvent, clay and/or chemicals of used oil in order to produce high quality base stock for lubricants or other petroleum products.

**Recovery -** The recycling or processing of a waste, wastewater, or used material such that the material, or a portion thereof, may be reused or converted to a raw material, intermediate, or product.

## ***S***

**SIC -** Standard Industrial Classification (SIC). A numerical categorization system used by the U.S. Department of Commerce to catalogue economic activity. SIC codes refer to the products, or group of products, produced or distributed, or to services rendered by an operating establishment. SIC codes are used to group establishments by the economic activities in which they are engaged. SIC codes often denote a facility's primary, secondary, tertiary, etc. economic activities.

**Sample-specific Quantitation Limit -** The smallest quantity in the experimental calibration range that may be measured reliably in any given sample

**Small-business -** Businesses with annual sales revenues less than $6 million. This is the Small Business Administration definition of small business for SIC code 4953, Refuse Systems (13 CFR Ch.1, § 121.601) which is being used to characterize the CWT industry.

**Solidification -** The addition of sorbents to convert liquid or semi-liquid waste to a solid by means of adsorption, absorption or both. The process is usually accompanied by stabilization.

**Solvent Recovery -** Fuel blending operations and the recycling of spent solvents through separation of solvent mixtures in distillation columns. Solvent recovery may require an additional, pretreatment step prior to distillation.

**Stabilization -** A waste process that decreases the mobility of waste constituents by means of a chemical reaction. For the purpose of this rule, chemical precipitation is not a technique for stabilization.

**Subchapter N -** Refers to Subchapter N of Chapter I of Title 40 of the Federal Regulations. This includes, but is not limited to, the industrial categorical standards included in 40 CFR Parts 405 through 471.

## ***T***

**Treatment -** Any method, technique, or process designed to change the physical, chemical or biological character or composition of any metal-bearing, oily, or organic waste so as to neutralize such wastes, to render such wastes amenable to discharge or to recover energy or recover metal, oil, or organic content from the wastes.

## ***U***

**Used Oil Filter Recycling -** The process of crushing and draining of used oil filters of entrained oil and/or shredding and separation of used oil filters.

## ***V***

**Variability Factor -** Used in calculating a limitation (or standard) to allow for reasonable variation in pollutant concentrations when processed through extensive and well designed treatment systems. Variability factors assure that normal fluctuations in a facility's treatment are accounted for in the limitations. By accounting for these reasonable excursions above the long-term average, EPA's use of variability factors results in limitations that are generally well above the actual long-term averages.

## ***W***

**Waste -** Includes aqueous, non-aqueous, and solid waste, wastewater, and/or used material.

**Waste Receipt -** Wastes, wastewater or used material received for treatment and/or recovery. Waste receipts can be liquids or solids.

## ***Z***

**Zero or Alternative Discharge -** No discharge of pollutants to waters of the United States or to a POTW. Also included in this definition are disposal of pollutants by way of evaporation, deep-well injection, off-site transfer, and land application.

# LIST OF ACRONYMS

## *A*

**AMSA:** Association of Municipal Sewage Authorities

**API:** American Petroleum Institute

## *B*

**BAT:** Best Available Technology (Economically Achievable)

**BCT:** Best Conventional (Pollutant Control) Technology

**BDAT:** Best Demonstrated Available (Treatment) Technology

**BOD:** Biological Oxygen Demand

**BPJ:** Best Professional Judgement

**BPT:** Best Practicable (Control) Technology (Currently Available)

## *C*

**CBI:** Confidential Business Information

**CERCLA:** Comprehensive Environmental Response, Compensation, and Liability Act

**CMA:** Chemical Manufacturers Association

**COD:** Chemical Oxygen Demand

**CWA:** Clean Water Act

**CWT:** Centralized Waste Treatment

## *D*

**DAF:** Dissolved Air Flotation

**DL:** Detection Limit

**DMQ:** Detailed Monitoring Questionnaire

## *E*

**EAD:** Engineering and Analysis Division

**ELG:** Effluent Limitations Guidelines

**ENR:** Engineering News Record

**EPA:** Environmental Protection Agency

## *F*

**F/M:** Food-to-microorganism (ratio)

## *G*

**GAC:** Granular Activated Carbon

**GC/ECD:** Gas Chromatography/Electron Capture Detector

**GFAA:** Graphite Furnace Atomic Absorption

## *H*

**HAP:** Hazardous Air Pollutant

**HEM:** Hexane-Extractable Material

**HSWA:** Hazardous and Solid Waste Amendments

**HTMR:** High Temperature Metals Recovery

## *I*

**ICP:** Inductively Coupled Plasma (Atomic Emission Spectroscopy)

**IDL:** Instrument Detection Limit

## *L*

**LDR:** Land Disposal Restriction

**LTA:** Long-term Average

## *M*

**MACT:** Maximum Achievable Control Technology

**MADL:** Minimum Analytical Detection Limit

**MGD:** Million Gallons per Day

**MIP:** Monitoring-in-place

**ML:** Minimum Level

**MLSS:** Mixed Liquor Suspended Solids

**MNC:** Mean Non-censored (Value)

## *N*

**ND:** Non-detected

**NOA:** Notice of (Data) Availability

**NORA:** National Oil Recyclers Association

**NPDES:** National Pollutant Discharge Elimination System

**NRDC:** Natural Resources Defense Council

**NRMRL:** National Risk Management Research Laboratory; formerly **RREL**

**NSPS:** New Source Performance Standards

**NSWMA:** National Solid Waste Management Association

## *O*

**O&M:** Operation and Maintenance

**OCPSF:** Organic Chemicals, Plastics, and Synthetic Fibers

**OMB:** Office of Management and Budget

## *P*

**PAC:** Powdered Activated Carbon

**POC:** Pollutant of Concern

**POTW:** Publicly Owned Treatment Works

**PSES:** Pretreatment Standards for Existing Sources

**PSNS:** Pretreatment Standards for New Sources

## *Q*

**QC:** Quality Control

## *R*

**RCRA:** Resource Conservation and Recovery Act

**RO:** Reverse Osmosis

**RREL:** Risk Reduction Engineering Laboratory; now known as **NRMRL**

## *S*

**SBA:** Small Business Administration

**SBR:** Sequencing Batch Reactor

**SBREFA:** Small Business Regulatory Flexibility Act

**SGT-HEM:** Silica Gel-Treated Hexane-Extractable Material

**SIC:** Standard Industrial Code

**SRT:** Sludge Retention Time

***T***

**TDS:** Total Dissolved Solids

**TEC:** Transportation Equipment Cleaning

**TOC:** Total Organic Carbon

**TSDF:** Treatment, Storage, and Disposal Facility

**TSS:** Total Suspended Solids

**TWF:** Toxic Weighting Factor

***U***

**UF:** Ultrafiltration

**UIC:** Underground Injection Control

**UTS:** Universal Treatment Standards

***V***

**VOC:** Volatile Organic Compound

***W***

**WTI:** Waste Treatment Industry

## A



## B

## L



## M

## *N*



## *O*

## *S*



## *T*

## *V*



## *Z*

# Appendix

# A

# POLLUTANT GROUPING

Definitions of Designations in each Subcategory Column:
**Load** = Data for this pollutant were used to calculate loadings described in Chapter 12.
**VF** = Data for this pollutant were used to calculate Group Variability Factors as described in Chapter 10.
If there is a **blank** entry for a pollutant, then it was not a pollutant of concern for the subcategory (see Chapter 6).

| Group | Pollutant | Chemical Abstract Service (CAS) Number | Metals Subcategory: Designation | Oils Subcategory: Designation | Organics Subcategory: Designation |
|---|---|---|---|---|---|
| Alcohols, aliphatic | Alpha-terpineol | 98-55-5 | | VF & Load | |
| Alcohols, aromatic | Benzyl alcohol | 100-51-6 | Load | Load | |
| Aliphatic carboxylic | Hexanoic acid | 142-62-1 | Load | Load | Load |
| Amides | n,n-dimethylformamide | 68-12-2 | Load | VF & Load | VF & Load |
| Amines, aliphatic | Ethylenethiourea | 96-45-7 | | | VF & Load |
| Anilines | Aniline | 62-53-3 | | VF & Load | VF & Load |
| | Carbazole | 86-74-8 | | VF & Load | |
| | o-toluidine | 95-53-4 | | VF & Load | |
| Aromatic, carboxylic | Benzoic acid | 65-85-0 | Load | VF & Load | VF & Load |
| Aromatics | Benzene | 71-43-2 | | Load | Load |
| | Ethylbenzene | 100-41-4 | | Load | |
| | m+p-xylene | 179601-23-1 | | Load | |
| | m-xylene | 108-38-3 | Load | Load | Load |
| | o+p-xylene | 136777-61-2 | | Load | Load |
| | o-xylene | 95-47-6 | | Load | |
| | p-cymene | 99-87-6 | | Load | |
| | Pentamethylbenzene | 700-12-9 | | Load | |
| | Styrene | 100-42-5 | | Load | |
| | Toluene | 108-88-3 | Load | Load | Load |
| Bromoethanes | 1,2-dibromoethane | 106-93-4 | | | Load |
| Bromomethanes | Dibromochloromethane | 124-48-1 | Load | | |
| Carbon disulfide | Carbon disulfide | 75-15-0 | Load | Load | Load |
| | Dimethyl sulfone | 67-71-0 | | | VF & Load |

| Group | Pollutant | Chemical Abstract Service (CAS) Number | Metals Subcategory: Designation | Oils Subcategory: Designation | Organics Subcategory: Designation |
|---|---|---|---|---|---|
| Chloroanilines | 2,3-dichloroaniline | 608-27-5 | | | VF & Load |
| Chlorobenzenes I | Chlorobenzene | 108-90-7 | | Load | Load |
| Chlorobenzenes II | 1,2,4-trichlorobenzene | 120-82-1 | | Load | |
| | 1,2-dichlorobenzene | 95-50-1 | | Load | Load |
| | 1,4-dichlorobenzene | 106-46-7 | | Load | |
| Chloroethanes I | 1,1-dichloroethane | 75-34-3 | | | Load |
| | 1,2-dichloroethane | 107-06-2 | | Load | Load |
| Chloroethanes II | 1,1,1,2-tetrachloroethane | 630-20-6 | | | Load |
| | 1,1,1-trichloroethane | 71-55-6 | Load | Load | Load |
| | 1,1,2,2-tetrachloroethane | 79-34-5 | | | Load |
| | 1,1,2-trichloroethane | 79-00-5 | | | Load |
| | 1,2,3-trichloropropane | 96-18-4 | | | Load |
| | 1,3-dichloropropane | 142-28-9 | | | Load |
| | Hexachloroethane | 67-72-1 | | | Load |
| Chloroethenes I | Vinyl chloride | 75-01-4 | | | Load |
| Chloroethenes II | 1,1-dichloroethene | 75-35-4 | Load | Load | Load |
| | Tetrachloroethene | 127-18-4 | | Load | Load |
| | Trans-1,2-dichloroethene | 156-60-5 | | | Load |
| | Trichloroethene | 79-01-6 | Load | Load | Load |
| Chloromethanes | Bromodichloromethane | 75-27-4 | | | Load |
| | Chloroform | 67-66-3 | Load | Load | Load |
| | Methylene chloride | 75-09-2 | Load | Load | Load |
| | Tetrachloromethane | 56-23-5 | | | Load |
| Chlorophenols | 2,3,4,6-tetrachlorophenol | 58-90-2 | | | Load |
| | 2,4,5-trichlorophenol | 95-95-4 | | | Load |
| | 2,4,6-trichlorophenol | 88-06-2 | | | VF & Load |
| | 3,4,5-trichlorocatechol | 56961-20-7 | | | Load |
| | 3,4,6-trichloroguaiacol | 60712-44-9 | | | Load |
| | 3,4-dichlorophenol | 95-77-2 | | | Load |
| | 3,5-dichlorophenol | 591-35-5 | | | Load |
| | 3,6-dichlorocatechol | 3938-16-7 | | | Load |
| | 4,5,6-trichloroguaiacol | 2668-24-8 | | | Load |
| | 4,5-dichloroguaiacol | 2460-49-3 | | | Load |
| | 4-chlorophenol | 106-48-9 | | | Load |
| | 5-chloroguaiacol | 3743-23-5 | | | Load |
| | 6-Chlorovanillin | 18268-76-3 | | | Load |

| Group | Pollutant | Chemical Abstract Service (CAS) Number | Metals Subcategory: Designation | Oils Subcategory: Designation | Organics Subcategory: Designation |
|---|---|---|---|---|---|
| Chlorophenols (cont.) | Pentachlorophenol | 87-86-5 | | | VF & Load |
| Dioxanes | 1,4-Dioxane | 123-91-1 | Load | VF & Load | |
| Ethers, aromatic | Dibenzofuran | 132-64-9 | | VF & Load | |
| | Diphenyl ether | 101-84-8 | | VF & Load | |
| Ketones, aliphatic I | 2-Butanone | 78-93-3 | Load | Load | VF & Load |
| | 2-Propanone | 67-64-1 | Load | Load | VF & Load |
| Ketones, aliphatic II | 4-Methyl-2-pentanone | 108-10-1 | Load | Load | Load |
| | Isophorone | 78-59-1 | | | Load |
| Ketones, aromatic | Acetophenone | 98-86-2 | | | VF & Load |
| Metals | Aluminum | 7429-90-5 | Load | Load | Load |
| | Barium | 7440-39-3 | | VF & Load | VF & Load |
| | Beryllium | 7440-41-7 | VF & Load | | |
| | Cadmium | 7440-43-9 | VF & Load | VF & Load | |
| | Calcium | 7440-70-2 | Load | Load | Load |
| | Chromium | 7440-47-3 | VF & Load | VF & Load | VF & Load |
| | Cobalt | 7440-48-4 | VF & Load | VF & Load | VF & Load |
| | Copper | 7440-50-8 | VF & Load | VF & Load | VF & Load |
| | Gallium | 7440-55-3 | Load | | |
| | Indium | 7440-74-6 | Load | | |
| | Iridium | 7439-88-5 | VF & Load | | |
| | Iron | 7439-89-6 | Load | Load | Load |
| | Lanthanum | 7439-91-0 | Load | | |
| | Lead | 7439-92-1 | VF & Load | VF & Load | VF & Load |
| | Lithium | 7439-93-2 | VF & Load | | VF & Load |
| | Lutetium | 7439-94-3 | | VF & Load | |
| | Magnesium | 7439-95-4 | Load | Load | |
| | Manganese | 7439-96-5 | Load | Load | Load |
| | Mercury | 7439-97-6 | VF & Load | VF & Load | |
| | Molybdenum | 7439-98-7 | VF & Load | VF & Load | VF & Load |
| | Nickel | 7440-02-0 | VF & Load | VF & Load | VF & Load |
| | Osmium | 7440-04-2 | Load | | |
| | Potassium | 7440-09-7 | Load | Load | Load |
| | Silver | 7440-22-4 | VF & Load | VF & Load | |
| | Sodium | 7440-23-5 | Load | Load | Load |
| | Strontium | 7440-24-6 | VF & Load | VF & Load | VF & Load |
| | Tantalum | 7440-25-7 | Load | Load | |

| Group | Pollutant | Chemical Abstract Service (CAS) Number | Metals Subcategory: Designation | Oils Subcategory: Designation | Organics Subcategory: Designation |
|---|---|---|---|---|---|
| Metals (cont.) | Tellurium | 13494-80-9 | Load | | |
| | Thallium | 7440-28-0 | VF & Load | | |
| | Tin | 7440-31-5 | VF & Load | VF & Load | VF & Load |
| | Titanium | 7440-32-6 | VF & Load | VF & Load | VF & Load |
| | Vanadium | 7440-62-2 | VF & Load | | |
| | Yttrium | 7440-65-5 | VF & Load | | |
| | Zinc | 7440-66-6 | VF & Load | VF & Load | VF & Load |
| | Zirconium | 7440-67-7 | VF & Load | | |
| n-Paraffins | n-Decane | 124-18-5 | | VF & Load | |
| | n-Docosane | 629-97-0 | | VF & Load | |
| | n-Dodecane | 112-40-3 | | VF & Load | |
| | n-Eicosane | 112-95-8 | | VF & Load | |
| | n-Hexacosane | 630-01-3 | | VF & Load | |
| | n-Hexadecane | 544-76-3 | | VF & Load | |
| | n-Octacosane | 630-02-4 | | VF & Load | |
| | n-Octadecane | 593-45-3 | | VF & Load | |
| | n-Tetracosane | 646-31-1 | | VF & Load | |
| | n-Tetradecane | 629-59-4 | | VF & Load | |
| Non-metals | Chloride | 16887-00-6 | Load | Load | |
| | Fluoride | 16984-48-8 | Load | Load | Load |
| | Iodine | 7553-56-2 | VF & Load | | Load |
| | Phosphorus | 7723-14-0 | Load | Load | Load |
| | Selenium | 7782-49-2 | VF & Load | VF & Load | |
| | Sulfur | 7704-34-9 | Load | Load | Load |
| None | Ammonia as nitrogen | 7664-41-7 | VF & Load | VF & Load | VF & Load |
| | Biochemical oxygen demand | C-003 | VF & Load | VF & Load | VF & Load |
| | BOD 5-day (carbonaceous) | C-002 | VF & Load | | |
| | Chemical oxygen demand | C-004 | Load | Load | Load |
| | D-chemical oxygen demand | C-004D | Load | | Load |
| | Hexavalent chromium | 18540-29-9 | VF & Load | | |
| | Nitrate/nitrite | C-005 | Load | Load | Load |
| | Oil and grease | C-007 | VF & Load | VF & Load | |
| | SGT-HEM | C-037 | | VF & Load | |
| | Total cyanide | 57-12-5 | VF & Load | VF & Load | VF & Load |
| | Total dissolved solids | C-010 | Load | Load | |
| | Total organic carbon | C-012 | Load | Load | Load |

| Group | Pollutant | Chemical Abstract Service (CAS) Number | Metals Subcategory: Designation | Oils Subcategory: Designation | Organics Subcategory: Designation |
|---|---|---|---|---|---|
| None (cont.) | Total phenols | C-020 | Load | Load | |
| | Total phosphorus | 14265-44-2 | Load | Load | |
| | Total sulfide | 18496-25-8 | Load | | Load |
| | Total suspended solids | C-009 | VF & Load | VF & Load | VF & Load |
| PAHs | 1-methylfluorene | 1730-37-6 | | Load | |
| | 1-methylphenanthrene | 832-69-9 | | Load | |
| | 2,3-benzofluorene | 243-17-4 | | Load | |
| | 2-isopropylnaphthalene | 2027-17-0 | | Load | |
| | 2-methylnaphthalene | 91-57-6 | | Load | |
| | 3,6-dimethylphenanthrene | 1576-67-6 | | Load | |
| | Acenaphthene | 83-32-9 | | VF & Load | |
| | Anthracene | 120-12-7 | | VF & Load | |
| | Benzo(a)anthracene | 56-55-3 | | VF & Load | |
| | Biphenyl | 92-52-4 | | VF & Load | |
| | Chrysene | 218-01-9 | | VF & Load | |
| | Fluoranthene | 206-44-0 | | VF & Load | |
| | Fluorene | 86-73-7 | | VF & Load | |
| | Naphthalene | 91-20-3 | | VF & Load | |
| | Phenanthrene | 85-01-8 | | VF & Load | |
| | Pyrene | 129-00-0 | | VF & Load | |
| Phenols | 2,4-dimethylphenol | 105-67-9 | | VF & Load | VF & Load |
| | 4-chloro-3-methylphenol | 59-50-7 | | VF & Load | VF & Load |
| | o-cresol | 95-48-7 | | VF & Load | VF & Load |
| | p-cresol | 106-44-5 | | VF & Load | VF & Load |
| | Phenol | 108-95-2 | VF & Load | VF & Load | VF & Load |
| Phthalates | Bis(2-ethylhexyl) phthalate | 117-81-7 | Load | VF & Load | |
| | Butyl benzyl phthalate | 85-68-7 | | VF & Load | |
| | Diethyl phthalate | 84-66-2 | | VF & Load | |
| Polyglycol Monoether | Tripropyleneglycol methyl ether | 20324-33-8 | | VF & Load | |
| Pyridines | Pyridine | 110-86-1 | Load | VF & Load | VF & Load |
| Semi-metals | Antimony | 7440-36-0 | VF & Load | VF & Load | VF & Load |
| | Arsenic | 7440-38-2 | VF & Load | VF & Load | VF & Load |
| | Boron | 7440-42-8 | Load | Load | Load |
| | Germanium | 7440-56-4 | | VF & Load | |
| | Silicon | 7440-21-3 | VF & Load | VF & Load | VF & Load |
| Sulfides, Aromatic | Dibenzothiophene | 132-65-0 | | VF & Load | |

As described in Chapter 10, the Organics Variability Factors are calculated using the Group Variability Factors from the following groups:

Alcohols, aliphatic
Amides
Amines, aliphatic
Anilines
Chloroanilines
Chlorophenols
Ketones, aromatic
n-Paraffins
PAHs
Phenols
Phthalates
Polyglycol monoethers
Pyridines
Sulfides, aromatic

# Appendix B
# DATA SELECTION

Table B-1  Facilities and Sample Points Used to Determine Pollutants of Concern for Chapter 6

| Subcategory[1] | Facility | Sample Point | Analytes[2] |
|---|---|---|---|
| Metals | 1987 | 01, 02 | All |
| | 4055 | 01, 02 | All |
| | 4378 | 01, 03 | All but total cyanide and organics |
| | | 06 | total cyanide |
| | | 08 | organics |
| | 4382 | 0, 05 | All |
| | 4393 | 01, 03, 05, 06, 08 | All |
| | 4798 | 02 | All |
| | 4803 | 01, 03, 05, 07, 10 | All but those in sample point 12 |
| | | 12 | oil & grease, SGT-HEM, total cyanide, organics |
| | 652 | 01 | All |
| Organics | 1987 | 07A, 07B | All |

[1] The identification of the oils subcategory facilities are excluded from this table to protect confidential business information.  The identification of these facilities is contained in the CBI portion of the CWT record (DCN 36.6.1).
[2] See section 10.2.3 for an explanation for EPA's selection of analytes at these particular sample points.

Table B-2 Facilities and Sample Points Used in LTA Test in section 10.4.3.1[1]

| Subcategory | Option | Facility | Influent Sample Point(s) | Analytes[3] | Process[4] |
|---|---|---|---|---|---|
| Metals | 1A | 1987 | 01,02[5] | arsenic | Batch |
| | | 4383 | 07 | arsenic | Continuous |
| | | 4798 | 02 | arsenic | Continuous |
| | 3 | 4378 | 01,03[6] | all except organics and total cyanide | Batch |
| | | | 06 | total cyanide | Continuous |
| | | | 08 | organics | Batch |
| | | 4803 | 01,03,05,07,10[7] | all except those at sample point 12 | Batch |
| | | | 12 | oil & grease, SGT-HEM, total cyanide, organics | Continuous |
| | 4 | 4798 | 02 | all | Continuous |
| Cyanide subset | 2 | 4055 | 02 | total cyanide | Batch |
| Oils | 8 | 4814A | 07 | all | Continuous |
| | | 4814B | 09 | all | Continuous |
| | 9 | 4813 | 05 | all but total cyanide | Continuous |
| | | | 06 | total cyanide | Continuous |
| | | 4814A | 07 | all | Continuous |
| | | 4814B | 09 | all | Continuous |
| | | 651[2] | 01 | | |
| Organics | 4 | 1987 | 07B | all | Continuous |

[1] These influent data also were used in the percent removals test described in section 10.4.3.2.
[2] The influent data for this facility were from EPA sampling episode 5046, sample point 01.
[3] See section 10.2.3 for an explanation for EPA's selection of analytes at these particular sample points.
[4] Section 10.3 of the development document describes the differences in data analyses for batch and continuous flow processes. ('Continuous' indicates that the data were either from continuous flow systems or the batches were composited in the field.)
[5] On day 3, the flow for sample point 01 was 2,500 gallons, and 1,290 for sample point 02. (For each of the other days, the flows were not required because EPA sampled only one of the two sample points.)
[6] On each day, the flow for sample point 01 was 5,000 gallons, and 30,000 gallons for sample point 03.
[7] The flows associated with these sample points are excluded from this appendix to protect confidential business information. The flows are provided in the CBI portion of the CWT record (DCN 36.6.2).

Table B-3  Facilities and Sample Points Used to Determine Limitations (Chapter 10)

| Subcategory | Option | Facility | Effluent Sample Point | Analytes[1] | Process[2] |
|---|---|---|---|---|---|
| Metals | 3 | 4378 | 09 | all | Continuous |
| | | 4803 | 15 | all except those at sample point 16 | Continuous |
| | | | 16 | oil & grease, SGT-HEM, total cyanide, organics | Continuous |
| | | 602 | 01 | all | Batch |
| | 4 | 4798 | 05 | all | Continuous |
| Cyanide subset | 2 | 4055 | 03 | total cyanide | Batch |
| Oils | 8 | 4814A | 09 | all | Continuous |
| | | 4814B | 10 | all | Continuous |
| | 9 | 4813 | 07 | all | Continuous |
| | | 4814A | 09 | all | Continuous |
| | | 4814B | 10 | all | Continuous |
| | | 651 | 01 | all | Continuous |
| Organics | 4 | 1987 | 12 | all | Continuous |

[1] See section 10.2.3 for an explanation for EPA's selection of analytes at these particular sample points. Specific data exclusions are described in section 10.4.1.  Also, the data must pass the tests described in section 10.4.3.

[2] Section 10.3 of the development document describes the differences in data analyses for batch and continuous flow processes.  ('Continuous' indicates that the data were either from continuous flow systems or the batches were composited in the field.)

Table B-4 Facilities and Sample Points Used to Determine Current Loadings in Chapter 12

| Subcategory[1] | Option | Facility | Sample Points | Analytes[4] | Process[6] |
|---|---|---|---|---|---|
| Metals[2] | 1C | 1987 | 01, 02 | all | Batch |
| | | 4055 | 01 | all | Batch |
| | | 4378 | 01, 03 | all except total cyanide, organics | Batch |
| | | 4382 | 07 | all[5] | Continuous |
| | | 4393 | 01 | all | Batch |
| | | 4803 | 01, 03, 05, 07, 10 | all except oil & grease, SGT-HEM, total cyanide, organics | Batch |
| | | 652 | 01 | all | Batch |
| | 1E | 1987 | 03 | all | Continuous |
| | | 4382 | 08 | all[5] | Continuous |
| | | 4798 | 03 | all | Continuous |
| | | 613 | 16 | all | Batch |
| | | 652 | 02 | all | Continuous |
| | 1F | 4382 | 12 | all | Continuous |
| | | 4393 | 13 | all | Continuous |
| | | 4798 | 04 | all | Continuous |
| | | 652 | 03 | all | Continuous |
| Organics[3] | 0 | 1987 | 07A, 07B | all | Continuous |
| | | 4472 | 01 | all except metals | Continuous |
| | 3 | 1987 | 12 | all | Continuous |
| | X | 1987 | 12 | organics | Continuous |
| | | | 14 | classicals and metals | Continuous |

[1] The identification of the oils subcategory facilities and their RCRA/non-RCRA designations are excluded from this table to protect confidential business information. The identification of these facilities is contained in the CBI portion of the CWT record (DCN 36.6.1).
[2] In Table 12-1, the column corresponding to option 1C is labeled 'raw treatment'; option 1E is 'primary precipitation'; option 1F is 'secondary precipitation'; option 4 is 'BAT Option Technology'; and option 3 is 'Selective Metals precipitation.'
[3] For Table 12-8, option 0 is the basis for the values in the columns 'Raw', 'Filtration Only,' 'Carbon Adsorption,'; option 4 is the regulatory option and corresponds to the column 'Biological Treatment'; option X corresponds to the column 'Biological Treatment and Multimedia Filtration.' Section 12.3.3 explains the derivation of the values in each column.
[4] See section 10.2.3 for an explanation for EPA's selection of analytes at these particular sample points.
[5] EPA excluded organics, oil & grease, $BOD_5$, COD, TOC, nitrate/nitrite, and ammonia as nitrogen from episode 4382 in its analyses.
[6] See Chapter 12 for assumptions made in using data from continuous and batch flow processes.

**Appendix**

# C

# LISTING OF DAILY INFLUENT AND EFFLUENT MEASUREMENTS

| Column Heading | Definition |
|---|---|
| Subcategory | The subcategories are listed in the following order:<br>‘METALS’ = metals subcategory<br>‘OILS’ = oils subcategory<br>‘ORGANICS’ = organics subcategory |
| Option | The options are listed in the following order:<br>Cyanide subset: options 1 and 2<br>Metals subcategory: options 1A (arsenic data only), 3, 4, cyanide 2(cyanide subset of the metals subcategory)<br>Oils subcategory: options 8 and 9<br>Organics subcategory: option 4 |
| Analyte Name | Pollutant (or analyte) name. |
| Cas_No | Chemical Abstract Service (CAS) registry number for the analyte. |
| Baseline value | Baseline value described in Chapter 15 and used in LTA test (see section 10.4.3.1). |
| Fac. ID | Identification number of the facility where the sample was collected. The identification numbers that start with ‘E’ indicate that the data were obtained from the EPA sampling episodes. The identification numbers that have only three digits (e.g., 602) indicate that the facility provided the data. |
| Sample Date | Date that the sample was collected. |
| Effl Samp Pt | Effluent Sample Point. |
| Effl Amount | If ‘Effl Meas type’ is ‘NC’, this value is the measured (detected) pollutant concentration at the effluent sample point. Otherwise, if ‘Effl Meas type’ is ‘ND,’ this value is the sample-specific detection limit for the non-detected measurement. |
| Effl Meas type | Identifies whether the ‘Effl Amount’ was detected (non-censored (‘NC’)) or non-detected (‘ND’). |
| Infl Samp Pt(s) | Influent Sample Point(s). The data for multiple influent points are aggregated as described in section 10.4.2.3. |
| Infl Amount | If ‘Infl Meas type’ is ‘NC’, this value is the measured (detected) pollutant concentration at the influent sample point. Otherwise, if ‘Infl Meas type’ is ‘ND’, this value is the sample-specific detection limit for the non-detected measurement, after any modifications specified in section 15.1.1. |
| Infl Meas type | Identifies whether the ‘Infl Amount’ was detected (non-censored (‘NC’)) or non-detected (‘ND’). |
| Facility Effl Mean | The effluent long-term average calculated as described in Chapter 10. |
| Facility Inf Mean | The influent long-term average calculated as described in Chapter 10. |

Appendix C: Listing of Data used for the Percent Removal Test and Long Term Averages

------------------------------------------------------------ Subcategory=Metals Option=1A ------------------------------------------------------------

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARSENIC | 7440-38-2 | 10.00 | 1987 | 16JUL90 | 03 | 20.00 | ND | 01 | 920.00 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 1987 | 17JUL90 | 03 | 121.50 | NC | 02 | 268.50 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 1987 | 18JUL90 | 03 | 144.00 | NC | 01,02 | 1,271.84 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 1987 | 19JUL90 | 03 | 114.00 | NC | 01 | 1,605.00 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 1987 | 20JUL90 | 03 | 20.00 | ND | | | | 83.90 | 1,016.33 |
| ARSENIC | 7440-38-2 | 10.00 | 4382 | 08JUN92 | 12 | 60.00 | ND | 07 | 300.00 | ND | | |
| ARSENIC | 7440-38-2 | 10.00 | 4382 | 09JUN92 | 12 | 90.00 | ND | 07 | 300.00 | ND | | |
| ARSENIC | 7440-38-2 | 10.00 | 4382 | 10JUN92 | 12 | 60.00 | ND | 07 | 300.00 | ND | | |
| ARSENIC | 7440-38-2 | 10.00 | 4382 | 11JUN92 | 12 | 60.00 | ND | 07 | 300.00 | ND | | |
| ARSENIC | 7440-38-2 | 10.00 | 4382 | 12JUN92 | 12 | 300.00 | ND | 07 | 711.00 | ND | 114.00 | 382.20 |
| ARSENIC | 7440-38-2 | 10.00 | 4798 | 23APR96 | 03 | 385.00 | NC | 02 | 84.10 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 4798 | 24APR96 | 03 | 395.00 | NC | 02 | 68.45 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 4798 | 25APR96 | 03 | 391.00 | NC | 02 | 57.20 | NC | 390.33 | 69.92 |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4378 | 11MAY92 | 09 | 14,500.00 | NC | 01,03 | 364,221.00 | NC | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4378 | 12MAY92 | 09 | 14,000.00 | NC | 01,03 | 94,735.67 | NC | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4378 | 13MAY92 | 09 | 16,100.00 | NC | 01,03 | 86,371.33 | NC | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4378 | 14MAY92 | 09 | 8,900.00 | NC | 01,03 | 50,986.67 | NC | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4378 | 15MAY92 | | | | 03 | 26,325.00 | NC | 13,375.00 | 124,527.93 |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4803 | 11JUN96 | 15 | 380.00 | NC | 01,03,07,10 | 814.84 | NC | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4803 | 12JUN96 | 15 | 510.00 | NC | 05,10 | 198,060.47 | NC | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4803 | 13JUN96 | 15 | 320.00 | NC | 05,10 | 187,550.63 | NC | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4803 | 14JUN96 | 15 | 420.00 | NC | 10 | 656.25 | NC | 407.50 | 96,770.55 |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 02JAN90 | 01 | 2,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 03JAN90 | 01 | 10,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 08JAN90 | 01 | 10,000.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 10JAN90 | 01 | 5,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 15JAN90 | 01 | 3,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 16JAN90 | 01 | 5,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 22JAN90 | 01 | 3,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 23JAN90 | 01 | 1,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 29JAN90 | 01 | 3,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 30JAN90 | 01 | 2,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 05FEB90 | 01 | 2,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 06FEB90 | 01 | 2,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 12FEB90 | 01 | 16,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 13FEB90 | 01 | 17,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 20FEB90 | 01 | 12,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 21FEB90 | 01 | 33,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 02MAR90 | 01 | 17,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 03MAR90 | 01 | 7,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 05MAR90 | 01 | 5,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 06MAR90 | 01 | 4,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 12MAR90 | 01 | 2,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 14MAR90 | 01 | 2,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 19MAR90 | 01 | 5,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 22MAR90 | 01 | 9,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 27MAR90 | 01 | 7,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 28MAR90 | 01 | 7,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 03APR90 | 01 | 5,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 04APR90 | 01 | 3,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 10APR90 | 01 | 14,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 11APR90 | 01 | 8,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 18APR90 | 01 | 6,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 20APR90 | 01 | 4,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 24APR90 | 01 | 22,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 27APR90 | 01 | 12,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 01MAY90 | 01 | 8,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 03MAY90 | 01 | 3,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 08MAY90 | 01 | 4,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 10MAY90 | 01 | 2,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 15MAY90 | 01 | 11,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 16MAY90 | 01 | 7,000.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 22MAY90 | 01 | 7,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 24MAY90 | 01 | 4,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 30MAY90 | 01 | 15,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 31MAY90 | 01 | 10,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 05JUN90 | 01 | 15,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 06JUN90 | 01 | 11,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 13JUN90 | 01 | 9,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 15JUN90 | 01 | 4,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 19JUN90 | 01 | 11,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 20JUN90 | 01 | 9,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 26JUN90 | 01 | 11,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 28JUN90 | 01 | 23,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 06JUL90 | 01 | 25,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 07JUL90 | 01 | 18,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 10JUL90 | 01 | 7,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 11JUL90 | 01 | 23,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 17JUL90 | 01 | 11,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 20JUL90 | 01 | 8,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 25JUL90 | 01 | 10,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 26JUL90 | 01 | 6,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 02AUG90 | 01 | 13,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 03AUG90 | 01 | 13,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 07AUG90 | 01 | 15,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 08AUG90 | 01 | 10,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 14AUG90 | 01 | 4,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 15AUG90 | 01 | 4,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 22AUG90 | 01 | 5,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 24AUG90 | 01 | 10,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 28AUG90 | 01 | 8,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 29AUG90 | 01 | 9,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 05SEP90 | 01 | 5,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 06SEP90 | 01 | 4,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 11SEP90 | 01 | 8,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 12SEP90 | 01 | 4,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 19SEP90 | 01 | 4,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 21SEP90 | 01 | 3,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 25SEP90 | 01 | 11,000.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 26SEP90 | 01 | 9,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 03OCT90 | 01 | 12,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 04OCT90 | 01 | 6,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 10OCT90 | 01 | 8,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 11OCT90 | 01 | 9,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 16OCT90 | 01 | 21,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 17OCT90 | 01 | 15,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 23OCT90 | 01 | 15,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 25OCT90 | 01 | 7,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 27OCT90 | 01 | 6,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 30OCT90 | 01 | 21,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 31OCT90 | 01 | 16,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 06NOV90 | 01 | 11,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 07NOV90 | 01 | 14,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 13NOV90 | 01 | 9,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 14NOV90 | 01 | 8,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 20NOV90 | 01 | 9,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 21NOV90 | 01 | 7,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 26NOV90 | 01 | 9,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 28NOV90 | 01 | 7,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 06DEC90 | 01 | 8,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 07DEC90 | 01 | 11,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 10DEC90 | 01 | 12,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 14DEC90 | 01 | 15,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 21DEC90 | 01 | 4,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 22DEC90 | 01 | 4,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 27DEC90 | 01 | 5,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 28DEC90 | 01 | 7,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 602 | 31DEC90 | 01 | 15,000.00 | NC | | | | 9,122.64 | . |
| | | | | . | | | | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4378 | 11MAY92 | 09 | 179,000.00 | NC | 01,03 | 528,375.00 | NC | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4378 | 12MAY92 | 09 | 150,000.00 | NC | 01,03 | 116,633.33 | NC | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4378 | 13MAY92 | 09 | 97,500.00 | NC | 01,03 | 48,066.67 | NC | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4378 | 14MAY92 | 09 | 68,000.00 | NC | 01,03 | 44,558.33 | NC | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4378 | 15MAY92 | | | | 03 | 38,000.00 | NC | 123,625.00 | 155,126.67 |
| | | | | . | | | | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4803 | 11JUN96 | 15 | 4,500.00 | NC | 01,03,07,10 | 556,287.21 | NC | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4803 | 12JUN96 | 15 | 5,000.00 | NC | 05,10 | 749,268.34 | NC | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4803 | 13JUN96 | 15 | 8,000.00 | NC | 05,10 | 477,957.26 | NC | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4803 | 14JUN96 | 15 | 6,000.00 | NC | 10 | 2,164,551.56 | NC | 5,875.00 | 987,016.09 |
| | | | | . | | | | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 02JAN90 | 01 | 24,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 03JAN90 | 01 | 75,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 08JAN90 | 01 | 68,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 10JAN90 | 01 | 25,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 15JAN90 | 01 | 44,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 16JAN90 | 01 | 46,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 22JAN90 | 01 | 37,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 23JAN90 | 01 | 30,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 29JAN90 | 01 | 33,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 30JAN90 | 01 | 18,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 05FEB90 | 01 | 11,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 06FEB90 | 01 | 9,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 12FEB90 | 01 | 20,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 13FEB90 | 01 | 25,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 20FEB90 | 01 | 30,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 21FEB90 | 01 | 50,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 02MAR90 | 01 | 11,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 03MAR90 | 01 | 17,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 05MAR90 | 01 | 9,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 06MAR90 | 01 | 5,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 12MAR90 | 01 | 10,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 14MAR90 | 01 | 7,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 19MAR90 | 01 | 10,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 22MAR90 | 01 | 20,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 27MAR90 | 01 | 21,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 28MAR90 | 01 | 14,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 03APR90 | 01 | 12,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 04APR90 | 01 | 10,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 10APR90 | 01 | 17,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 11APR90 | 01 | 15,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 18APR90 | 01 | 20,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 20APR90 | 01 | 18,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 24APR90 | 01 | 28,000.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 27APR90 | 01 | 24,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 01MAY90 | 01 | 14,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 03MAY90 | 01 | 15,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 08MAY90 | 01 | 13,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 10MAY90 | 01 | 7,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 15MAY90 | 01 | 23,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 16MAY90 | 01 | 18,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 22MAY90 | 01 | 16,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 24MAY90 | 01 | 7,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 30MAY90 | 01 | 30,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 31MAY90 | 01 | 37,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 05JUN90 | 01 | 48,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 06JUN90 | 01 | 44,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 13JUN90 | 01 | 41,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 15JUN90 | 01 | 12,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 19JUN90 | 01 | 53,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 20JUN90 | 01 | 36,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 26JUN90 | 01 | 12,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 28JUN90 | 01 | 13,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 06JUL90 | 01 | 2,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 07JUL90 | 01 | 2,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 10JUL90 | 01 | 5,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 11JUL90 | 01 | 3,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 17JUL90 | 01 | 28,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 20JUL90 | 01 | 9,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 25JUL90 | 01 | 5,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 26JUL90 | 01 | 5,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 02AUG90 | 01 | 48,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 03AUG90 | 01 | 31,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 07AUG90 | 01 | 15,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 08AUG90 | 01 | 14,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 14AUG90 | 01 | 18,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 15AUG90 | 01 | 17,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 22AUG90 | 01 | 23,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 24AUG90 | 01 | 32,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 28AUG90 | 01 | 23,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 29AUG90 | 01 | 15,000.00 | NC | | | | | |

---------------------------------------------------------------- Subcategory=Metals Option=3 ----------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 05SEP90 | 01 | 36,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 06SEP90 | 01 | 21,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 11SEP90 | 01 | 35,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 12SEP90 | 01 | 11,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 19SEP90 | 01 | 11,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 21SEP90 | 01 | 13,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 25SEP90 | 01 | 30,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 26SEP90 | 01 | 24,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 03OCT90 | 01 | 38,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 04OCT90 | 01 | 20,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 10OCT90 | 01 | 44,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 11OCT90 | 01 | 33,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 16OCT90 | 01 | 53,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 17OCT90 | 01 | 32,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 23OCT90 | 01 | 40,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 25OCT90 | 01 | 16,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 27OCT90 | 01 | 35,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 30OCT90 | 01 | 68,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 31OCT90 | 01 | 44,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 06NOV90 | 01 | 20,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 07NOV90 | 01 | 19,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 13NOV90 | 01 | 15,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 14NOV90 | 01 | 14,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 20NOV90 | 01 | 102,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 21NOV90 | 01 | 92,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 26NOV90 | 01 | 36,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 28NOV90 | 01 | 25,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 06DEC90 | 01 | 32,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 07DEC90 | 01 | 46,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 10DEC90 | 01 | 48,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 14DEC90 | 01 | 66,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 21DEC90 | 01 | 90,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 22DEC90 | 01 | 95,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 27DEC90 | 01 | 53,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 28DEC90 | 01 | 49,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 602 | 31DEC90 | 01 | 50,000.00 | NC | | | | 28,330.19 | . |
| | | | | . | | | | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4378 | 11MAY92 | 09 | 290,000.00 | NC | 01,03 | 5,709,075.00 | NC | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4378 | 12MAY92 | 09 | 413,000.00 | NC | 01,03 | 4,750,566.67 | NC | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4378 | 13MAY92 | 09 | 260,000.00 | NC | 01,03 | 3,370,233.33 | NC | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4378 | 14MAY92 | 09 | 210,000.00 | NC | 01,03 | 5,173,066.67 | NC | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4378 | 15MAY92 | | | | 03 | 2,313,250.00 | NC | 293,250.00 | 4,263,238.33 |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4803 | 11JUN96 | 15 | 76,500.00 | NC | 01,03,07,10 | 13,479,267.51 | NC | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4803 | 12JUN96 | 15 | 122,000.00 | NC | 05,10 | 8,374,628.56 | NC | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4803 | 13JUN96 | 15 | 109,000.00 | NC | 05,10 | 22,696,356.16 | NC | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4803 | 14JUN96 | 15 | 108,000.00 | NC | 10 | 23,036,152.95 | NC | 103,875.00 | 16,896,601.30 |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 02JAN90 | 01 | 102,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 03JAN90 | 01 | 70,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 08JAN90 | 01 | 194,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 10JAN90 | 01 | 49,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 15JAN90 | 01 | 127,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 16JAN90 | 01 | 125,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 22JAN90 | 01 | 173,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 23JAN90 | 01 | 80,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 29JAN90 | 01 | 40,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 30JAN90 | 01 | 137,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 05FEB90 | 01 | 84,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 06FEB90 | 01 | 111,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 12FEB90 | 01 | 15,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 13FEB90 | 01 | 56,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 20FEB90 | 01 | 86,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 21FEB90 | 01 | 446,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 02MAR90 | 01 | 165,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 03MAR90 | 01 | 119,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 05MAR90 | 01 | 93,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 06MAR90 | 01 | 237,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 12MAR90 | 01 | 67,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 14MAR90 | 01 | 64,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 19MAR90 | 01 | 132,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 22MAR90 | 01 | 255,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 27MAR90 | 01 | 83,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 28MAR90 | 01 | 121,000.00 | NC | | | | | |

Subcategory=Metals Option=3
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 03APR90 | 01 | 12,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 04APR90 | 01 | 10,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 10APR90 | 01 | 152,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 11APR90 | 01 | 47,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 18APR90 | 01 | 47,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 20APR90 | 01 | 7,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 24APR90 | 01 | 196,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 27APR90 | 01 | 227,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 01MAY90 | 01 | 39,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 03MAY90 | 01 | 39,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 08MAY90 | 01 | 77,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 10MAY90 | 01 | 31,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 15MAY90 | 01 | 91,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 16MAY90 | 01 | 117,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 22MAY90 | 01 | 73,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 24MAY90 | 01 | 110,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 30MAY90 | 01 | 115,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 31MAY90 | 01 | 98,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 05JUN90 | 01 | 128,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 06JUN90 | 01 | 106,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 13JUN90 | 01 | 64,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 15JUN90 | 01 | 42,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 19JUN90 | 01 | 74,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 20JUN90 | 01 | 78,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 26JUN90 | 01 | 3,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 28JUN90 | 01 | 25,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 06JUL90 | 01 | 109,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 07JUL90 | 01 | 208,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 10JUL90 | 01 | 133,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 11JUL90 | 01 | 371,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 17JUL90 | 01 | 157,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 20JUL90 | 01 | 61,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 25JUL90 | 01 | 68,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 26JUL90 | 01 | 133,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 02AUG90 | 01 | 211,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 03AUG90 | 01 | 143,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 07AUG90 | 01 | 100,000.00 | NC | | | | | |

------------------------------------------------------------- Subcategory=Metals Option=3 -------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 08AUG90 | 01 | 72,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 14AUG90 | 01 | 66,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 15AUG90 | 01 | 32,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 22AUG90 | 01 | 99,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 24AUG90 | 01 | 64,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 28AUG90 | 01 | 42,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 29AUG90 | 01 | 106,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 05SEP90 | 01 | 86,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 06SEP90 | 01 | 74,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 11SEP90 | 01 | 69,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 12SEP90 | 01 | 17,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 19SEP90 | 01 | 34,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 21SEP90 | 01 | 44,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 25SEP90 | 01 | 54,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 26SEP90 | 01 | 1,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 03OCT90 | 01 | 82,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 04OCT90 | 01 | 48,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 10OCT90 | 01 | 98,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 11OCT90 | 01 | 46,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 16OCT90 | 01 | 103,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 17OCT90 | 01 | 52,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 23OCT90 | 01 | 73,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 25OCT90 | 01 | 12,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 27OCT90 | 01 | 49,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 30OCT90 | 01 | 137,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 31OCT90 | 01 | 93,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 06NOV90 | 01 | 167,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 07NOV90 | 01 | 174,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 13NOV90 | 01 | 122,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 14NOV90 | 01 | 129,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 20NOV90 | 01 | 216,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 21NOV90 | 01 | 148,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 26NOV90 | 01 | 119,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 28NOV90 | 01 | 90,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 06DEC90 | 01 | 126,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 07DEC90 | 01 | 377,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 10DEC90 | 01 | 158,000.00 | NC | | | | | |

Subcategory=Metals Option=3
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 14DEC90 | 01 | 197,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 21DEC90 | 01 | 190,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 22DEC90 | 01 | 188,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 27DEC90 | 01 | 102,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 28DEC90 | 01 | 89,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 602 | 31DEC90 | 01 | 355,000.00 | NC | | | | 108,801.89 | . |
| | | | | . | | | | | | | | |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4378 | 11MAY92 | 09 | 2,600,000.00 | NC | | | | | |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4378 | 12MAY92 | 09 | 3,540,000.00 | NC | | | | | |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4378 | 13MAY92 | 09 | 3,490,000.00 | NC | | | | | |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4378 | 14MAY92 | 09 | 3,650,000.00 | NC | | | | 3,320,000.00 | . |
| | | | | . | | | | | | | | |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4803 | 11JUN96 | 15 | 1,955,000.00 | NC | 01,03,07,10 | 32,830,445.49 | NC | | |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4803 | 12JUN96 | 15 | 2,170,000.00 | NC | 05,10 | 5,517,939.22 | NC | | |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4803 | 13JUN96 | 15 | 2,510,000.00 | NC | 05,10 | 6,802,410.96 | NC | | |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4803 | 14JUN96 | 15 | 2,340,000.00 | NC | 10 | 18,021,923.52 | NC | 2,243,750.00 | 15,793,179.80 |
| | | | | . | | | | | | | | |
| FLUORIDE | 16984-48-8 | 100.00 | 4378 | 11MAY92 | 09 | 8,640.00 | NC | 01,03 | 13,487.25 | NC | | |
| FLUORIDE | 16984-48-8 | 100.00 | 4378 | 12MAY92 | 09 | 10,200.00 | NC | 01,03 | 6,553.67 | NC | | |
| FLUORIDE | 16984-48-8 | 100.00 | 4378 | 13MAY92 | 09 | 8,500.00 | NC | 01,03 | 3,552.00 | NC | | |
| FLUORIDE | 16984-48-8 | 100.00 | 4378 | 14MAY92 | 09 | 10,000.00 | NC | 01,03 | 17,123.17 | NC | | |
| FLUORIDE | 16984-48-8 | 100.00 | 4378 | 15MAY92 | | | | 03 | 5,147.50 | NC | 9,335.00 | 9,172.72 |
| | | | | . | | | | | | | | |
| FLUORIDE | 16984-48-8 | 100.00 | 4803 | 11JUN96 | 15 | 1,800.00 | NC | 01,03,07,10 | 33,469.66 | NC | | |
| FLUORIDE | 16984-48-8 | 100.00 | 4803 | 12JUN96 | 15 | 1,800.00 | NC | 05,10 | 632,055.97 | NC | | |
| FLUORIDE | 16984-48-8 | 100.00 | 4803 | 13JUN96 | 15 | 3,000.00 | NC | 05,10 | 1,124,151.23 | NC | | |
| FLUORIDE | 16984-48-8 | 100.00 | 4803 | 14JUN96 | 15 | 2,800.00 | NC | 10 | 10,631.69 | NC | 2,350.00 | 450,077.14 |
| | | | | . | | | | | | | | |
| HEXAVALENT CHROMIUM | 18540-29-9 | 10.00 | 4378 | 11MAY92 | 09 | 10.00 | ND | 01,03 | 10.13 | NC | | |
| HEXAVALENT CHROMIUM | 18540-29-9 | 10.00 | 4378 | 12MAY92 | 09 | 60.00 | NC | 01,03 | 4,047.40 | NC | | |
| HEXAVALENT CHROMIUM | 18540-29-9 | 10.00 | 4378 | 13MAY92 | 09 | 10.00 | ND | 01,03 | 674.00 | NC | | |
| HEXAVALENT CHROMIUM | 18540-29-9 | 10.00 | 4378 | 14MAY92 | 09 | 93.00 | NC | 01,03 | 1,717.55 | NC | | |
| HEXAVALENT CHROMIUM | 18540-29-9 | 10.00 | 4378 | 15MAY92 | | | | 03 | 125.00 | NC | 43.25 | 1,314.82 |
| | | | | . | | | | | | | | |
| HEXAVALENT CHROMIUM | 18540-29-9 | 10.00 | 4803 | 11JUN96 | 15 | 10.00 | ND | 01,03,07,10 | 17.17 | NC | | |
| HEXAVALENT CHROMIUM | 18540-29-9 | 10.00 | 4803 | 12JUN96 | 15 | 10.00 | ND | 05,10 | 25.80 | NC | | |
| HEXAVALENT CHROMIUM | 18540-29-9 | 10.00 | 4803 | 13JUN96 | 15 | 10.00 | ND | 05,10 | 797.77 | NC | | |

Subcategory=Metals Option=3
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HEXAVALENT CHROMIUM | 18540-29-9 | 10.00 | 4803 | 14JUN96 | 15 | 10.00 | ND | 10 | 44.39 | NC | 10.00 | 221.28 |
| NITRATE/NITRITE | C-005 | 50.00 | 4378 | 11MAY92 | 09 | 1,300.00 | NC | 01,03 | 87,632.75 | NC | | |
| NITRATE/NITRITE | C-005 | 50.00 | 4378 | 12MAY92 | 09 | 1,190.00 | NC | 01,03 | 558,827.67 | NC | | |
| NITRATE/NITRITE | C-005 | 50.00 | 4378 | 13MAY92 | 09 | 17,600.00 | NC | 01,03 | 51,555.67 | NC | | |
| NITRATE/NITRITE | C-005 | 50.00 | 4378 | 14MAY92 | 09 | 42,700.00 | NC | 01,03 | 230,243.33 | NC | | |
| NITRATE/NITRITE | C-005 | 50.00 | 4378 | 15MAY92 | | | | 03 | 51,400.00 | NC | 15,697.50 | 195,931.88 |
| NITRATE/NITRITE | C-005 | 50.00 | 4803 | 11JUN96 | 15 | 9,900.00 | NC | 01,03,07,10 | 1,478.14 | NC | | |
| NITRATE/NITRITE | C-005 | 50.00 | 4803 | 12JUN96 | 15 | 9,600.00 | NC | 05,10 | 404,428.69 | NC | | |
| NITRATE/NITRITE | C-005 | 50.00 | 4803 | 13JUN96 | 15 | 8,400.00 | NC | 05,10 | 229,159.45 | NC | | |
| NITRATE/NITRITE | C-005 | 50.00 | 4803 | 14JUN96 | 15 | 10,200.00 | NC | 10 | 865.27 | NC | 9,525.00 | 158,982.89 |
| OIL & GREASE | C-007 | 5,000.00 | 4378 | 11MAY92 | 09 | 5,000.00 | ND | 01,03 | 6,495.00 | NC | | |
| OIL & GREASE | C-007 | 5,000.00 | 4378 | 12MAY92 | 09 | 13,000.00 | NC | 01,03 | 23,616.67 | NC | | |
| OIL & GREASE | C-007 | 5,000.00 | 4378 | 13MAY92 | 09 | 5,000.00 | ND | 01,03 | 6,023.33 | NC | | |
| OIL & GREASE | C-007 | 5,000.00 | 4378 | 14MAY92 | 09 | 5,000.00 | ND | 01,03 | 11,379.17 | NC | | |
| OIL & GREASE | C-007 | 5,000.00 | 4378 | 15MAY92 | | | | 03 | 31,670.00 | NC | 7,000.00 | 15,836.83 |
| OIL & GREASE | C-007 | 5,000.00 | 4803 | 11JUN96 | 16 | 7,250.00 | NC | 12 | 5,000.00 | ND | | |
| OIL & GREASE | C-007 | 5,000.00 | 4803 | 12JUN96 | 16 | 5,000.00 | ND | 12 | 5,000.00 | ND | | |
| OIL & GREASE | C-007 | 5,000.00 | 4803 | 13JUN96 | 16 | 5,333.33 | NC | 12 | 5,833.33 | NC | | |
| OIL & GREASE | C-007 | 5,000.00 | 4803 | 14JUN96 | 16 | 5,000.00 | ND | 12 | 5,000.00 | ND | | |
| OIL & GREASE | C-007 | 5,000.00 | 4803 | 15JUN96 | 16 | 5,000.00 | ND | 12 | 5,000.00 | ND | 5,516.67 | 5,166.67 |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4378 | 11MAY92 | 09 | 20.00 | ND | 06 | 10.00 | ND | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4378 | 12MAY92 | 09 | 10.00 | ND | 06 | 10.00 | ND | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4378 | 13MAY92 | 09 | 10.00 | ND | 06 | 10.00 | ND | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4378 | 14MAY92 | 09 | 10.00 | ND | 06 | 10.00 | ND | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4378 | 15MAY92 | | | | 06 | 10.00 | ND | 12.50 | 10.00 |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4803 | 11JUN96 | | | | 12 | 10.00 | ND | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4803 | 12JUN96 | | | | 12 | 10.00 | ND | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4803 | 13JUN96 | | | | 12 | 10.00 | ND | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4803 | 14JUN96 | | | | 12 | 10.00 | ND | . | 10.00 |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 02JAN90 | 01 | 3.00 | NC | | | | | |

Subcategory=Metals Option=3
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 03JAN90 | 01 | 14.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 08JAN90 | 01 | 2.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 10JAN90 | 01 | 8.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 15JAN90 | 01 | 40.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 16JAN90 | 01 | 2.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 22JAN90 | 01 | 4.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 23JAN90 | 01 | 5.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 29JAN90 | 01 | 9.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 30JAN90 | 01 | 3.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 05FEB90 | 01 | 8.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 06FEB90 | 01 | 2.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 12FEB90 | 01 | 4.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 13FEB90 | 01 | 3.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 20FEB90 | 01 | 40.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 21FEB90 | 01 | 160.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 02MAR90 | 01 | 60.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 03MAR90 | 01 | 530.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 05MAR90 | 01 | 460.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 06MAR90 | 01 | 130.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 12MAR90 | 01 | 10.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 14MAR90 | 01 | 590.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 19MAR90 | 01 | 10.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 22MAR90 | 01 | 130.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 27MAR90 | 01 | 50.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 28MAR90 | 01 | 50.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 03APR90 | 01 | 30.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 04APR90 | 01 | 10.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 10APR90 | 01 | 60.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 11APR90 | 01 | 60.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 18APR90 | 01 | 30.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 20APR90 | 01 | 30.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 24APR90 | 01 | 190.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 27APR90 | 01 | 90.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 01MAY90 | 01 | 70.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 03MAY90 | 01 | 40.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 08MAY90 | 01 | 30.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 10MAY90 | 01 | 60.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 15MAY90 | 01 | 20.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 16MAY90 | 01 | 20.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 22MAY90 | 01 | 20.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 24MAY90 | 01 | 160.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 30MAY90 | 01 | 20.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 31MAY90 | 01 | 20.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 05JUN90 | 01 | 100.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 06JUN90 | 01 | 160.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 13JUN90 | 01 | 60.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 15JUN90 | 01 | 40.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 19JUN90 | 01 | 20.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 20JUN90 | 01 | 60.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 26JUN90 | 01 | 20.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 28JUN90 | 01 | 50.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 06JUL90 | 01 | 1.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 07JUL90 | 01 | 20.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 10JUL90 | 01 | 10.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 11JUL90 | 01 | 50.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 17JUL90 | 01 | 70.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 20JUL90 | 01 | 20.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 25JUL90 | 01 | 10.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 26JUL90 | 01 | 10.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 02AUG90 | 01 | 10.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 03AUG90 | 01 | 140.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 07AUG90 | 01 | 96.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 08AUG90 | 01 | 50.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 14AUG90 | 01 | 60.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 15AUG90 | 01 | 10.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 22AUG90 | 01 | 10.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 24AUG90 | 01 | 10.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 28AUG90 | 01 | 40.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 29AUG90 | 01 | 80.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 05SEP90 | 01 | 100.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 06SEP90 | 01 | 60.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 11SEP90 | 01 | 50.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 12SEP90 | 01 | 20.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 19SEP90 | 01 | 40.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 21SEP90 | 01 | 1.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 25SEP90 | 01 | 1.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 26SEP90 | 01 | 10.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 03OCT90 | 01 | 10.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 04OCT90 | 01 | 40.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 10OCT90 | 01 | 30.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 11OCT90 | 01 | 30.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 16OCT90 | 01 | 30.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 17OCT90 | 01 | 70.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 23OCT90 | 01 | 70.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 25OCT90 | 01 | 50.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 27OCT90 | 01 | 30.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 30OCT90 | 01 | 40.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 31OCT90 | 01 | 70.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 06NOV90 | 01 | 100.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 07NOV90 | 01 | 480.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 13NOV90 | 01 | 630.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 14NOV90 | 01 | 620.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 20NOV90 | 01 | 650.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 21NOV90 | 01 | 790.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 26NOV90 | 01 | 500.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 28NOV90 | 01 | 70.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 06DEC90 | 01 | 40.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 07DEC90 | 01 | 30.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 10DEC90 | 01 | 100.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 14DEC90 | 01 | 420.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 21DEC90 | 01 | 430.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 22DEC90 | 01 | 120.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 27DEC90 | 01 | 130.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 28DEC90 | 01 | 230.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 602 | 31DEC90 | 01 | 860.00 | NC | | | | 107.98 | . |
| | | | | . | | | | | | | | |
| TOTAL DISSOLVED SOLIDS | C-010 | 10,000.00 | 4803 | 11JUN96 | 15 | 17,150,000.00 | NC | 01,03,07,10 | 89,289,498.11 | NC | | |
| TOTAL DISSOLVED SOLIDS | C-010 | 10,000.00 | 4803 | 12JUN96 | 15 | 16,300,000.00 | NC | 05,10 | 33,923,164.11 | NC | | |
| TOTAL DISSOLVED SOLIDS | C-010 | 10,000.00 | 4803 | 13JUN96 | 15 | 19,200,000.00 | NC | 05,10 | 43,173,424.66 | NC | | |
| TOTAL DISSOLVED SOLIDS | C-010 | 10,000.00 | 4803 | 14JUN96 | 15 | 19,800,000.00 | NC | 10 | 134,478,505.21 | NC | 18,112,500.00 | 75,216,148.02 |
| | | | | . | | | | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4378 | 11MAY92 | 09 | 95,000.00 | NC | 01,03 | 314,067.50 | NC | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4378 | 12MAY92 | 09 | 114,000.00 | NC | 01,03 | 209,953.33 | NC | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4378 | 13MAY92 | 09 | 94,400.00 | NC | 01,03 | 77,706.67 | NC | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4378 | 14MAY92 | 09 | 158,000.00 | NC | 01,03 | 117,963.33 | NC | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4378 | 15MAY92 | | | | 03 | 175,125.00 | NC | 115,350.00 | 178,963.17 |
| | | | | . | | | | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4803 | 11JUN96 | 15 | 10,000.00 | ND | 01,03,07,10 | 409,590.38 | NC | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4803 | 12JUN96 | 15 | 10,000.00 | ND | 05,10 | 406,143.66 | NC | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4803 | 13JUN96 | 15 | 10,000.00 | ND | 05,10 | 500,701.10 | NC | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4803 | 14JUN96 | 15 | 10,000.00 | ND | 10 | 577,484.36 | NC | 10,000.00 | 473,479.87 |
| | | | | . | | | | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 02JAN90 | 01 | 15,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 03JAN90 | 01 | 72,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 08JAN90 | 01 | 56,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 10JAN90 | 01 | 28,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 15JAN90 | 01 | 29,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 16JAN90 | 01 | 36,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 22JAN90 | 01 | 32,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 23JAN90 | 01 | 28,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 29JAN90 | 01 | 30,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 30JAN90 | 01 | 34,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 05FEB90 | 01 | 22,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 06FEB90 | 01 | 22,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 12FEB90 | 01 | 18,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 13FEB90 | 01 | 20,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 20FEB90 | 01 | 40,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 21FEB90 | 01 | 50,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 02MAR90 | 01 | 11,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 03MAR90 | 01 | 7,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 05MAR90 | 01 | 6,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 06MAR90 | 01 | 7,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 12MAR90 | 01 | 13,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 14MAR90 | 01 | 8,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 19MAR90 | 01 | 14,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 22MAR90 | 01 | 29,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 27MAR90 | 01 | 20,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 28MAR90 | 01 | 20,000.00 | NC | | | | | |

------------------------------------------------------------- Subcategory=Metals Option=3 -------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 03APR90 | 01 | 7,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 04APR90 | 01 | 7,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 10APR90 | 01 | 14,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 11APR90 | 01 | 11,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 18APR90 | 01 | 9,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 20APR90 | 01 | 9,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 24APR90 | 01 | 33,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 27APR90 | 01 | 24,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 01MAY90 | 01 | 11,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 03MAY90 | 01 | 6,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 08MAY90 | 01 | 7,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 10MAY90 | 01 | 8,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 15MAY90 | 01 | 15,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 16MAY90 | 01 | 11,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 22MAY90 | 01 | 11,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 24MAY90 | 01 | 19,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 30MAY90 | 01 | 24,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 31MAY90 | 01 | 23,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 05JUN90 | 01 | 57,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 06JUN90 | 01 | 50,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 13JUN90 | 01 | 13,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 15JUN90 | 01 | 10,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 19JUN90 | 01 | 15,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 20JUN90 | 01 | 13,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 26JUN90 | 01 | 10,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 28JUN90 | 01 | 17,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 06JUL90 | 01 | 17,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 07JUL90 | 01 | 14,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 10JUL90 | 01 | 11,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 11JUL90 | 01 | 16,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 17JUL90 | 01 | 9,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 20JUL90 | 01 | 8,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 25JUL90 | 01 | 10,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 26JUL90 | 01 | 7,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 02AUG90 | 01 | 22,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 03AUG90 | 01 | 16,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 07AUG90 | 01 | 8,000.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 08AUG90 | 01 | 6,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 14AUG90 | 01 | 5,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 15AUG90 | 01 | 5,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 22AUG90 | 01 | 5,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 24AUG90 | 01 | 12,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 28AUG90 | 01 | 10,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 29AUG90 | 01 | 11,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 05SEP90 | 01 | 21,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 06SEP90 | 01 | 11,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 11SEP90 | 01 | 25,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 12SEP90 | 01 | 8,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 19SEP90 | 01 | 6,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 21SEP90 | 01 | 6,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 25SEP90 | 01 | 19,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 26SEP90 | 01 | 13,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 03OCT90 | 01 | 25,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 04OCT90 | 01 | 17,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 10OCT90 | 01 | 21,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 11OCT90 | 01 | 14,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 16OCT90 | 01 | 27,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 17OCT90 | 01 | 13,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 23OCT90 | 01 | 22,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 25OCT90 | 01 | 9,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 27OCT90 | 01 | 17,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 30OCT90 | 01 | 44,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 31OCT90 | 01 | 30,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 06NOV90 | 01 | 30,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 07NOV90 | 01 | 45,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 13NOV90 | 01 | 24,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 14NOV90 | 01 | 27,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 20NOV90 | 01 | 27,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 21NOV90 | 01 | 19,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 26NOV90 | 01 | 13,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 28NOV90 | 01 | 9,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 06DEC90 | 01 | 18,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 07DEC90 | 01 | 34,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 10DEC90 | 01 | 24,000.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 14DEC90 | 01 | 37,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 21DEC90 | 01 | 25,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 22DEC90 | 01 | 29,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 27DEC90 | 01 | 17,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 28DEC90 | 01 | 12,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 602 | 31DEC90 | 01 | 51,000.00 | NC | | | | 19,641.51 | . |
| | | | | . | | | | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 4378 | 11MAY92 | 09 | 10.00 | ND | 01,03 | 84.08 | NC | | |
| TOTAL PHENOLS | C-020 | 50.00 | 4378 | 12MAY92 | 09 | 10.00 | ND | 01,03 | 82.67 | NC | | |
| TOTAL PHENOLS | C-020 | 50.00 | 4378 | 13MAY92 | 09 | 85.00 | NC | 01,03 | 176.70 | NC | | |
| TOTAL PHENOLS | C-020 | 50.00 | 4378 | 14MAY92 | 09 | 10.00 | ND | 01,03 | 250.50 | NC | | |
| TOTAL PHENOLS | C-020 | 50.00 | 4378 | 15MAY92 | | | | 03 | 328.00 | NC | 28.75 | 184.39 |
| | | | | . | | | | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 4803 | 11JUN96 | 15 | 50.00 | ND | 01,03,07,10 | 86.21 | ND | | |
| TOTAL PHENOLS | C-020 | 50.00 | 4803 | 12JUN96 | 15 | 50.00 | ND | 05,10 | 177.75 | NC | | |
| TOTAL PHENOLS | C-020 | 50.00 | 4803 | 13JUN96 | 15 | 50.00 | ND | 05,10 | 400.73 | NC | | |
| TOTAL PHENOLS | C-020 | 50.00 | 4803 | 14JUN96 | 15 | 50.00 | ND | 10 | 146.60 | NC | 50.00 | 202.82 |
| | | | | . | | | | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 02JAN90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 03JAN90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 08JAN90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 10JAN90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 15JAN90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 16JAN90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 22JAN90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 23JAN90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 29JAN90 | 01 | 2,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 30JAN90 | 01 | 2,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 05FEB90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 06FEB90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 12FEB90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 13FEB90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 20FEB90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 21FEB90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 02MAR90 | 01 | 2,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 03MAR90 | 01 | 5,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 05MAR90 | 01 | 2,000.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 06MAR90 | 01 | 3,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 12MAR90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 14MAR90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 19MAR90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 22MAR90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 27MAR90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 28MAR90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 03APR90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 04APR90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 10APR90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 11APR90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 18APR90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 20APR90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 24APR90 | 01 | 2,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 27APR90 | 01 | 3,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 01MAY90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 03MAY90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 08MAY90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 10MAY90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 15MAY90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 16MAY90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 22MAY90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 24MAY90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 30MAY90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 31MAY90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 05JUN90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 06JUN90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 13JUN90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 15JUN90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 19JUN90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 20JUN90 | 01 | 2,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 26JUN90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 28JUN90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 06JUL90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 07JUL90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 10JUL90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 11JUL90 | 01 | 1,000.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 17JUL90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 20JUL90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 25JUL90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 26JUL90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 02AUG90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 03AUG90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 07AUG90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 08AUG90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 14AUG90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 15AUG90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 22AUG90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 24AUG90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 28AUG90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 29AUG90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 05SEP90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 06SEP90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 11SEP90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 12SEP90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 19SEP90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 21SEP90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 25SEP90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 26SEP90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 03OCT90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 04OCT90 | 01 | 4,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 10OCT90 | 01 | 3,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 11OCT90 | 01 | 2,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 16OCT90 | 01 | 3,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 17OCT90 | 01 | 4,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 23OCT90 | 01 | 3,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 25OCT90 | 01 | 5,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 27OCT90 | 01 | 5,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 30OCT90 | 01 | 5,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 31OCT90 | 01 | 5,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 06NOV90 | 01 | 4,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 07NOV90 | 01 | 4,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 13NOV90 | 01 | 5,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 14NOV90 | 01 | 4,000.00 | NC | | | | | |

Subcategory=Metals Option=3 (continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 20NOV90 | 01 | 2,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 21NOV90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 26NOV90 | 01 | 2,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 28NOV90 | 01 | 2,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 06DEC90 | 01 | 2,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 07DEC90 | 01 | 3,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 10DEC90 | 01 | 7,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 14DEC90 | 01 | 2,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 21DEC90 | 01 | 2,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 22DEC90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 27DEC90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 28DEC90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 602 | 31DEC90 | 01 | 1,000.00 | NC | | | | 1,660.38 | . |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4378 | 11MAY92 | 09 | 85,600.00 | NC | 01,03 | 185,896.25 | NC | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4378 | 12MAY92 | 09 | 77,500.00 | NC | 01,03 | 293,793.33 | NC | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4378 | 13MAY92 | 09 | 44,000.00 | NC | 01,03 | 81,251.00 | NC | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4378 | 14MAY92 | 09 | 25,800.00 | NC | 01,03 | 683,854.67 | NC | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4378 | 15MAY92 | | | | 03 | 43,825.00 | NC | 58,225.00 | 257,724.05 |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4803 | 11JUN96 | 15 | 415.00 | NC | 01,03,07,10 | 3,205.03 | NC | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4803 | 12JUN96 | 15 | 370.00 | NC | 05,10 | 2,181.87 | NC | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4803 | 13JUN96 | 15 | 380.00 | NC | 05,10 | 1,367.52 | NC | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4803 | 14JUN96 | 15 | 460.00 | NC | 10 | 467.03 | NC | 406.25 | 1,805.36 |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 4378 | 11MAY92 | 09 | 84,300.00 | NC | 01,03 | 882,816.00 | NC | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 4378 | 12MAY92 | 09 | 52,900.00 | NC | 01,03 | 349,102.00 | NC | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 4378 | 13MAY92 | 09 | 48,000.00 | NC | 01,03 | 58,346.00 | NC | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 4378 | 14MAY92 | 09 | 14,200.00 | NC | 01,03 | 93,210.00 | NC | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 4378 | 15MAY92 | | | | 03 | 83,212.50 | NC | 49,850.00 | 293,337.30 |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 4803 | 11JUN96 | 15 | 14,500.00 | NC | 01,03,07,10 | 1,000.00 | ND | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 4803 | 12JUN96 | 15 | 17,000.00 | NC | 05,10 | 1,000.00 | ND | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 4803 | 13JUN96 | 15 | 10,000.00 | NC | 05,10 | 1,000.00 | ND | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 4803 | 14JUN96 | 15 | 24,000.00 | NC | 10 | 1,000.00 | ND | 16,375.00 | 1,000.00 |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 02JAN90 | 01 | 10.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 03JAN90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 08JAN90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 10JAN90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 15JAN90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 16JAN90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 22JAN90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 23JAN90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 29JAN90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 30JAN90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 05FEB90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 06FEB90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 12FEB90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 13FEB90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 20FEB90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 21FEB90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 02MAR90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 03MAR90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 05MAR90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 06MAR90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 12MAR90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 14MAR90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 19MAR90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 22MAR90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 27MAR90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 28MAR90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 03APR90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 04APR90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 10APR90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 11APR90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 18APR90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 20APR90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 24APR90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 27APR90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 01MAY90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 03MAY90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 08MAY90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 10MAY90 | 01 | 100.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 15MAY90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 16MAY90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 22MAY90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 24MAY90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 30MAY90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 31MAY90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 05JUN90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 06JUN90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 13JUN90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 15JUN90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 19JUN90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 20JUN90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 26JUN90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 28JUN90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 06JUL90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 07JUL90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 10JUL90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 11JUL90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 17JUL90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 20JUL90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 25JUL90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 26JUL90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 02AUG90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 03AUG90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 07AUG90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 08AUG90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 14AUG90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 15AUG90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 22AUG90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 24AUG90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 28AUG90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 29AUG90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 05SEP90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 06SEP90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 11SEP90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 12SEP90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 19SEP90 | 01 | 100.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 21SEP90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 25SEP90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 26SEP90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 03OCT90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 04OCT90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 10OCT90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 11OCT90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 16OCT90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 17OCT90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 23OCT90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 25OCT90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 27OCT90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 30OCT90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 31OCT90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 06NOV90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 07NOV90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 13NOV90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 14NOV90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 20NOV90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 21NOV90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 26NOV90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 28NOV90 | 01 | 10.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 06DEC90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 07DEC90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 10DEC90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 14DEC90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 21DEC90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 22DEC90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 27DEC90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 28DEC90 | 01 | 100.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 602 | 31DEC90 | 01 | 100.00 | NC | | | | 55.85 | . |
| | | | | . | | | | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4378 | 11MAY92 | 09 | 8,000.00 | NC | 01,03 | 51,374,175.00 | NC | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4378 | 12MAY92 | 09 | 18,000.00 | NC | 01,03 | 43,300,966.67 | NC | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4378 | 13MAY92 | 09 | 28,000.00 | NC | 01,03 | 38,250,566.67 | NC | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4378 | 14MAY92 | 09 | 37,000.00 | NC | 01,03 | 46,183,150.00 | NC | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4378 | 15MAY92 | | | | 03 | 38,482,775.00 | NC | 22,750.00 | 43,518,326.67 |

Subcategory=Metals Option=3 (continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4803 | 11JUN96 | 15 | 9,000.00 | NC | 01,03,07,10 | 54,066,245.45 | NC | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4803 | 12JUN96 | 15 | 10,000.00 | NC | 05,10 | 99,438,303.48 | NC | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4803 | 13JUN96 | 15 | 7,000.00 | NC | 05,10 | 124,832,109.59 | NC | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4803 | 14JUN96 | 15 | 11,000.00 | NC | 10 | 100,962,166.86 | NC | 9,250.00 | 94,824,706.35 |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 02JAN90 | 01 | 2,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 03JAN90 | 01 | 3,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 08JAN90 | 01 | 2,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 10JAN90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 15JAN90 | 01 | 3,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 16JAN90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 22JAN90 | 01 | 4,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 23JAN90 | 01 | 2,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 29JAN90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 30JAN90 | 01 | 4,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 05FEB90 | 01 | 4,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 06FEB90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 12FEB90 | 01 | 7,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 13FEB90 | 01 | 4,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 20FEB90 | 01 | 7,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 21FEB90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 02MAR90 | 01 | 3,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 03MAR90 | 01 | 2,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 05MAR90 | 01 | 2,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 06MAR90 | 01 | 3,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 12MAR90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 14MAR90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 19MAR90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 22MAR90 | 01 | 2,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 27MAR90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 28MAR90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 03APR90 | 01 | 6,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 04APR90 | 01 | 2,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 10APR90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 11APR90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 18APR90 | 01 | 2,000.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 20APR90 | 01 | 3,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 24APR90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 27APR90 | 01 | 9,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 01MAY90 | 01 | 5,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 03MAY90 | 01 | 3,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 08MAY90 | 01 | 3,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 10MAY90 | 01 | 4,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 15MAY90 | 01 | 4,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 16MAY90 | 01 | 2,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 22MAY90 | 01 | 4,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 24MAY90 | 01 | 4,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 30MAY90 | 01 | 5,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 31MAY90 | 01 | 7,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 05JUN90 | 01 | 10,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 06JUN90 | 01 | 2,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 13JUN90 | 01 | 2,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 15JUN90 | 01 | 3,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 19JUN90 | 01 | 4,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 20JUN90 | 01 | 3,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 26JUN90 | 01 | 2,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 28JUN90 | 01 | 6,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 06JUL90 | 01 | 6,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 07JUL90 | 01 | 2,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 10JUL90 | 01 | 5,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 11JUL90 | 01 | 7,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 17JUL90 | 01 | 3,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 20JUL90 | 01 | 2,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 25JUL90 | 01 | 2,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 26JUL90 | 01 | 4,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 02AUG90 | 01 | 8,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 03AUG90 | 01 | 6,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 07AUG90 | 01 | 9,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 08AUG90 | 01 | 5,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 14AUG90 | 01 | 4,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 15AUG90 | 01 | 7,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 22AUG90 | 01 | 11,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 24AUG90 | 01 | 8,000.00 | NC | | | | | |

------------------------------------------------------------- Subcategory=Metals Option=3 -------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 28AUG90 | 01 | 11,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 29AUG90 | 01 | 6,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 05SEP90 | 01 | 12,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 06SEP90 | 01 | 9,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 11SEP90 | 01 | 6,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 12SEP90 | 01 | 2,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 19SEP90 | 01 | 2,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 21SEP90 | 01 | 7,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 25SEP90 | 01 | 7,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 26SEP90 | 01 | 5,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 03OCT90 | 01 | 10,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 04OCT90 | 01 | 13,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 10OCT90 | 01 | 2,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 11OCT90 | 01 | 6,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 16OCT90 | 01 | 3,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 17OCT90 | 01 | 5,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 23OCT90 | 01 | 9,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 25OCT90 | 01 | 9,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 27OCT90 | 01 | 7,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 30OCT90 | 01 | 9,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 31OCT90 | 01 | 3,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 06NOV90 | 01 | 9,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 07NOV90 | 01 | 9,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 13NOV90 | 01 | 7,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 14NOV90 | 01 | 4,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 20NOV90 | 01 | 4,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 21NOV90 | 01 | 5,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 26NOV90 | 01 | 6,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 28NOV90 | 01 | 4,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 06DEC90 | 01 | 2,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 07DEC90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 10DEC90 | 01 | 1,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 14DEC90 | 01 | 9,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 21DEC90 | 01 | 14,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 22DEC90 | 01 | 9,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 27DEC90 | 01 | 5,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 28DEC90 | 01 | 5,000.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 602 | 31DEC90 | 01 | 5,000.00 | NC | | | | 4,650.94 | . |
| ALUMINUM | 7429-90-5 | 200.00 | 4378 | 11MAY92 | | | | 01,03 | 1,741,867.60 | NC | | |
| ALUMINUM | 7429-90-5 | 200.00 | 4378 | 12MAY92 | 09 | 99.00 | NC | 01,03 | 1,271,844.57 | NC | | |
| ALUMINUM | 7429-90-5 | 200.00 | 4378 | 13MAY92 | 09 | 128.50 | NC | 01,03 | 596,625.60 | NC | | |
| ALUMINUM | 7429-90-5 | 200.00 | 4378 | 14MAY92 | 09 | 77.00 | NC | 01,03 | 57,968.58 | NC | | |
| ALUMINUM | 7429-90-5 | 200.00 | 4378 | 15MAY92 | | | | 03 | 563,250.00 | NC | 101.50 | 846,311.27 |
| ALUMINUM | 7429-90-5 | 200.00 | 4803 | 11JUN96 | 15 | 57.00 | ND | 01,03,07,10 | 29,011.59 | NC | | |
| ALUMINUM | 7429-90-5 | 200.00 | 4803 | 12JUN96 | 15 | 39.00 | ND | 05,10 | 98,540.88 | NC | | |
| ALUMINUM | 7429-90-5 | 200.00 | 4803 | 13JUN96 | 15 | 39.00 | ND | 05,10 | 1,252,357.81 | NC | | |
| ALUMINUM | 7429-90-5 | 200.00 | 4803 | 14JUN96 | 15 | 39.00 | ND | 10 | 48,410.78 | NC | 43.50 | 357,080.26 |
| ANTIMONY | 7440-36-0 | 20.00 | 4378 | 11MAY92 | | | | 01,03 | 1,418.29 | NC | | |
| ANTIMONY | 7440-36-0 | 20.00 | 4378 | 12MAY92 | 09 | 20.00 | ND | 01,03 | 490.84 | NC | | |
| ANTIMONY | 7440-36-0 | 20.00 | 4378 | 13MAY92 | 09 | 20.00 | ND | 01,03 | 25,850.50 | NC | | |
| ANTIMONY | 7440-36-0 | 20.00 | 4378 | 14MAY92 | 09 | 20.00 | ND | 01,03 | 4,755.55 | NC | | |
| ANTIMONY | 7440-36-0 | 20.00 | 4378 | 15MAY92 | | | | 03 | 1,475.45 | NC | 20.00 | 6,798.13 |
| ANTIMONY | 7440-36-0 | 20.00 | 4803 | 11JUN96 | 15 | 30.00 | ND | 01,03,07,10 | 981.71 | NC | | |
| ANTIMONY | 7440-36-0 | 20.00 | 4803 | 12JUN96 | 15 | 20.00 | ND | 05,10 | 6,353.75 | NC | | |
| ANTIMONY | 7440-36-0 | 20.00 | 4803 | 13JUN96 | 15 | 20.00 | ND | 05,10 | 16,743.45 | NC | | |
| ANTIMONY | 7440-36-0 | 20.00 | 4803 | 14JUN96 | 15 | 20.00 | ND | 10 | 22,312.55 | NC | 22.50 | 11,597.87 |
| ARSENIC | 7440-38-2 | 10.00 | 4378 | 11MAY92 | | | | 01,03 | 976.63 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 4378 | 12MAY92 | 09 | 10.80 | NC | 01,03 | 228.42 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 4378 | 13MAY92 | 09 | 10.00 | ND | 01,03 | 5,283.45 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 4378 | 14MAY92 | 09 | 10.00 | ND | 01,03 | 13,866.45 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 4378 | 15MAY92 | | | | 03 | 188.68 | NC | 10.27 | 4,108.73 |
| ARSENIC | 7440-38-2 | 10.00 | 4803 | 11JUN96 | 15 | 10.00 | ND | 01,03,07,10 | 388,069.09 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 4803 | 12JUN96 | 15 | 20.00 | ND | 05,10 | 63,866.76 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 4803 | 13JUN96 | 15 | 20.00 | ND | 05,10 | 77,005.15 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 4803 | 14JUN96 | 15 | 20.00 | ND | 10 | 195,078.22 | NC | 17.50 | 181,004.80 |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 02JAN90 | 01 | 1.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 03JAN90 | 01 | 1.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARSENIC | 7440-38-2 | 10.00 | 602 | 08JAN90 | 01 | 1.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 10JAN90 | 01 | 1.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 15JAN90 | 01 | 1.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 16JAN90 | 01 | 1.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 22JAN90 | 01 | 20.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 23JAN90 | 01 | 30.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 29JAN90 | 01 | 1.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 30JAN90 | 01 | 10.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 05FEB90 | 01 | 1.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 06FEB90 | 01 | 3.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 12FEB90 | 01 | 1.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 13FEB90 | 01 | 10.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 20FEB90 | 01 | 10.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 21FEB90 | 01 | 3.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 02MAR90 | 01 | 2.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 03MAR90 | 01 | 1.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 05MAR90 | 01 | 1.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 06MAR90 | 01 | 3.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 12MAR90 | 01 | 1.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 14MAR90 | 01 | 3.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 19MAR90 | 01 | 1.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 27MAR90 | 01 | 1.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 03APR90 | 01 | 2.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 10APR90 | 01 | 4.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 18APR90 | 01 | 10.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 24APR90 | 01 | 10.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 01MAY90 | 01 | 1.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 08MAY90 | 01 | 1.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 15MAY90 | 01 | 10.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 22MAY90 | 01 | 10.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 30MAY90 | 01 | 50.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 05JUN90 | 01 | 1.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 13JUN90 | 01 | 1.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 19JUN90 | 01 | 10.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 26JUN90 | 01 | 10.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 06JUL90 | 01 | 10.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 10JUL90 | 01 | 10.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARSENIC | 7440-38-2 | 10.00 | 602 | 17JUL90 | 01 | 10.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 25JUL90 | 01 | 10.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 02AUG90 | 01 | 20.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 07AUG90 | 01 | 20.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 14AUG90 | 01 | 1.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 22AUG90 | 01 | 1.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 28AUG90 | 01 | 9.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 05SEP90 | 01 | 7.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 11SEP90 | 01 | 10.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 19SEP90 | 01 | 10.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 25SEP90 | 01 | 10.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 03OCT90 | 01 | 10.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 10OCT90 | 01 | 10.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 16OCT90 | 01 | 60.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 23OCT90 | 01 | 60.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 27OCT90 | 01 | 10.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 30OCT90 | 01 | 50.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 31OCT90 | 01 | 50.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 06NOV90 | 01 | 10.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 13NOV90 | 01 | 10.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 20NOV90 | 01 | 10.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 26NOV90 | 01 | 10.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 06DEC90 | 01 | 10.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 10DEC90 | 01 | 10.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 21DEC90 | 01 | 20.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 27DEC90 | 01 | 30.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 602 | 31DEC90 | 01 | 20.00 | NC | | | | 11.15 | . |
| | | | | . | | | | | | | | |
| BERYLLIUM | 7440-41-7 | 5.00 | 4378 | 11MAY92 | | | | 01,03 | 120.97 | NC | | |
| BERYLLIUM | 7440-41-7 | 5.00 | 4378 | 12MAY92 | 09 | 1.00 | ND | 01,03 | 39.74 | NC | | |
| BERYLLIUM | 7440-41-7 | 5.00 | 4378 | 13MAY92 | 09 | 1.00 | ND | 01,03 | 80.46 | NC | | |
| BERYLLIUM | 7440-41-7 | 5.00 | 4378 | 14MAY92 | 09 | 1.00 | ND | 01,03 | 29.37 | NC | | |
| BERYLLIUM | 7440-41-7 | 5.00 | 4378 | 15MAY92 | | | | 03 | 109.25 | NC | 1.00 | 75.96 |
| | | | | . | | | | | | | | |
| BERYLLIUM | 7440-41-7 | 5.00 | 4803 | 11JUN96 | 15 | 1.00 | ND | 01,03,07,10 | 2.42 | NC | | |
| BERYLLIUM | 7440-41-7 | 5.00 | 4803 | 12JUN96 | 15 | 1.00 | ND | 05,10 | 9.23 | ND | | |
| BERYLLIUM | 7440-41-7 | 5.00 | 4803 | 13JUN96 | 15 | 1.00 | ND | 05,10 | 10.00 | ND | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BERYLLIUM | 7440-41-7 | 5.00 | 4803 | 14JUN96 | 15 | 1.00 | ND | 10 | 2.24 | NC | 1.00 | 5.97 |
| BORON | 7440-42-8 | 100.00 | 4378 | 11MAY92 | | | | 01,03 | 23,282.13 | NC | | |
| BORON | 7440-42-8 | 100.00 | 4378 | 12MAY92 | 09 | 7,580.00 | NC | 01,03 | 39,090.67 | NC | | |
| BORON | 7440-42-8 | 100.00 | 4378 | 13MAY92 | 09 | 7,180.00 | NC | 01,03 | 8,181.67 | NC | | |
| BORON | 7440-42-8 | 100.00 | 4378 | 14MAY92 | 09 | 7,110.00 | NC | 01,03 | 11,508.08 | NC | | |
| BORON | 7440-42-8 | 100.00 | 4378 | 15MAY92 | | | | 03 | 25,612.50 | NC | 7,290.00 | 21,535.01 |
| BORON | 7440-42-8 | 100.00 | 4803 | 11JUN96 | 15 | 100,450.00 | NC | 01,03,07,10 | 3,177.28 | NC | | |
| BORON | 7440-42-8 | 100.00 | 4803 | 12JUN96 | 15 | 125,000.00 | NC | 05,10 | 66,896.99 | NC | | |
| BORON | 7440-42-8 | 100.00 | 4803 | 13JUN96 | 15 | 145,000.00 | NC | 05,10 | 40,002.30 | NC | | |
| BORON | 7440-42-8 | 100.00 | 4803 | 14JUN96 | 15 | 136,000.00 | NC | 10 | 2,260.45 | NC | 126,612.50 | 28,084.26 |
| CADMIUM | 7440-43-9 | 5.00 | 4378 | 11MAY92 | | | | 01,03 | 104,898.64 | NC | | |
| CADMIUM | 7440-43-9 | 5.00 | 4378 | 12MAY92 | 09 | 221.00 | NC | 01,03 | 57,036.55 | NC | | |
| CADMIUM | 7440-43-9 | 5.00 | 4378 | 13MAY92 | 09 | 12.00 | NC | 01,03 | 125,681.78 | NC | | |
| CADMIUM | 7440-43-9 | 5.00 | 4378 | 14MAY92 | 09 | 12.80 | NC | 01,03 | 197,887.57 | NC | | |
| CADMIUM | 7440-43-9 | 5.00 | 4378 | 15MAY92 | | | | 03 | 502,925.00 | NC | 81.93 | 197,685.91 |
| CADMIUM | 7440-43-9 | 5.00 | 4803 | 11JUN96 | 15 | 40.60 | NC | 01,03,07,10 | 5,599,438.27 | NC | | |
| CADMIUM | 7440-43-9 | 5.00 | 4803 | 12JUN96 | 15 | 5.00 | ND | 05,10 | 157,754.78 | NC | | |
| CADMIUM | 7440-43-9 | 5.00 | 4803 | 13JUN96 | 15 | 5.00 | ND | 05,10 | 194,085.21 | NC | | |
| CADMIUM | 7440-43-9 | 5.00 | 4803 | 14JUN96 | 15 | 5.00 | ND | 10 | 189,349.94 | NC | 13.90 | 1,535,157.05 |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 02JAN90 | 01 | 50.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 03JAN90 | 01 | 100.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 08JAN90 | 01 | 540.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 10JAN90 | 01 | 140.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 15JAN90 | 01 | 10.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 16JAN90 | 01 | 40.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 22JAN90 | 01 | 180.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 23JAN90 | 01 | 60.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 29JAN90 | 01 | 50.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 30JAN90 | 01 | 70.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 05FEB90 | 01 | 40.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 06FEB90 | 01 | 30.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 12FEB90 | 01 | 20.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CADMIUM | 7440-43-9 | 5.00 | 602 | 13FEB90 | 01 | 20.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 20FEB90 | 01 | 900.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 21FEB90 | 01 | 1,000.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 02MAR90 | 01 | 100.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 03MAR90 | 01 | 100.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 05MAR90 | 01 | 100.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 06MAR90 | 01 | 100.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 12MAR90 | 01 | 100.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 14MAR90 | 01 | 100.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 19MAR90 | 01 | 100.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 27MAR90 | 01 | 200.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 03APR90 | 01 | 100.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 10APR90 | 01 | 100.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 18APR90 | 01 | 60.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 24APR90 | 01 | 100.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 01MAY90 | 01 | 100.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 08MAY90 | 01 | 80.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 15MAY90 | 01 | 100.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 22MAY90 | 01 | 80.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 30MAY90 | 01 | 60.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 05JUN90 | 01 | 100.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 13JUN90 | 01 | 40.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 19JUN90 | 01 | 20.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 26JUN90 | 01 | 10.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 06JUL90 | 01 | 10.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 10JUL90 | 01 | 20.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 17JUL90 | 01 | 20.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 25JUL90 | 01 | 10.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 02AUG90 | 01 | 10.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 07AUG90 | 01 | 10.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 14AUG90 | 01 | 20.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 22AUG90 | 01 | 20.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 28AUG90 | 01 | 20.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 05SEP90 | 01 | 30.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 11SEP90 | 01 | 30.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 19SEP90 | 01 | 10.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 25SEP90 | 01 | 110.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CADMIUM | 7440-43-9 | 5.00 | 602 | 03OCT90 | 01 | 80.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 10OCT90 | 01 | 140.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 16OCT90 | 01 | 230.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 23OCT90 | 01 | 180.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 27OCT90 | 01 | 140.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 30OCT90 | 01 | 100.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 31OCT90 | 01 | 70.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 06NOV90 | 01 | 80.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 13NOV90 | 01 | 90.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 20NOV90 | 01 | 170.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 26NOV90 | 01 | 230.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 06DEC90 | 01 | 280.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 10DEC90 | 01 | 410.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 21DEC90 | 01 | 270.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 27DEC90 | 01 | 130.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 602 | 31DEC90 | 01 | 230.00 | NC | | | | 125.00 | . |
| | | | | . | | | | | | | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 4378 | 11MAY92 | | | | 01,03 | 487,867.50 | NC | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 4378 | 12MAY92 | 09 | 153,000.00 | NC | 01,03 | 471,190.00 | NC | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 4378 | 13MAY92 | 09 | 221,500.00 | NC | 01,03 | 461,436.67 | NC | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 4378 | 14MAY92 | 09 | 243,000.00 | NC | 01,03 | 509,851.67 | NC | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 4378 | 15MAY92 | | | | 03 | 251,000.00 | NC | 205,833.33 | 436,269.17 |
| | | | | . | | | | | | | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 4803 | 11JUN96 | 15 | 513,000.00 | NC | 01,03,07,10 | 167,437.07 | NC | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 4803 | 12JUN96 | 15 | 701,000.00 | NC | 05,10 | 1,347,075.70 | NC | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 4803 | 13JUN96 | 15 | 629,000.00 | NC | 05,10 | 1,346,026.30 | NC | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 4803 | 14JUN96 | 15 | 591,000.00 | NC | 10 | 154,804.75 | NC | 608,500.00 | 753,835.95 |
| | | | | . | | | | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 4378 | 11MAY92 | | | | 01,03 | 143,819.28 | NC | | |
| CHROMIUM | 7440-47-3 | 10.00 | 4378 | 12MAY92 | 09 | 63.50 | NC | 01,03 | 76,228.03 | NC | | |
| CHROMIUM | 7440-47-3 | 10.00 | 4378 | 13MAY92 | 09 | 28.00 | NC | 01,03 | 1,235,186.00 | NC | | |
| CHROMIUM | 7440-47-3 | 10.00 | 4378 | 14MAY92 | 09 | 19.30 | NC | 01,03 | 725,075.33 | NC | | |
| CHROMIUM | 7440-47-3 | 10.00 | 4378 | 15MAY92 | | | | 03 | 53,075.00 | NC | 36.93 | 446,676.73 |
| | | | | . | | | | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 4803 | 11JUN96 | 15 | 44.40 | NC | 01,03,07,10 | 33,507.65 | NC | | |
| CHROMIUM | 7440-47-3 | 10.00 | 4803 | 12JUN96 | 15 | 40.60 | NC | 05,10 | 16,417.30 | NC | | |
| CHROMIUM | 7440-47-3 | 10.00 | 4803 | 13JUN96 | 15 | 35.30 | NC | 05,10 | 657,587.01 | NC | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CHROMIUM | 7440-47-3 | 10.00 | 4803 | 14JUN96 | 15 | 38.70 | NC | 10 | 1,138.48 | NC | 39.75 | 177,162.61 |
| | | | | . | | | | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 02JAN90 | 01 | 330.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 03JAN90 | 01 | 260.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 08JAN90 | 01 | 530.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 10JAN90 | 01 | 730.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 15JAN90 | 01 | 180.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 16JAN90 | 01 | 250.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 22JAN90 | 01 | 1,000.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 23JAN90 | 01 | 700.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 29JAN90 | 01 | 890.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 30JAN90 | 01 | 1,000.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 05FEB90 | 01 | 560.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 06FEB90 | 01 | 300.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 12FEB90 | 01 | 880.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 13FEB90 | 01 | 1,000.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 20FEB90 | 01 | 700.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 21FEB90 | 01 | 400.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 02MAR90 | 01 | 90.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 03MAR90 | 01 | 80.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 05MAR90 | 01 | 40.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 06MAR90 | 01 | 40.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 12MAR90 | 01 | 30.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 14MAR90 | 01 | 20.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 19MAR90 | 01 | 20.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 22MAR90 | 01 | 60.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 27MAR90 | 01 | 130.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 28MAR90 | 01 | 40.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 03APR90 | 01 | 6.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 04APR90 | 01 | 7.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 10APR90 | 01 | 40.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 11APR90 | 01 | 15.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 18APR90 | 01 | 10.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 20APR90 | 01 | 43.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 24APR90 | 01 | 190.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 27APR90 | 01 | 89.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 01MAY90 | 01 | 710.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 03MAY90 | 01 | 20.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 08MAY90 | 01 | 810.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 10MAY90 | 01 | 630.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 15MAY90 | 01 | 70.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 16MAY90 | 01 | 40.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 22MAY90 | 01 | 50.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 24MAY90 | 01 | 40.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 30MAY90 | 01 | 40.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 31MAY90 | 01 | 10.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 05JUN90 | 01 | 50.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 06JUN90 | 01 | 40.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 13JUN90 | 01 | 50.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 15JUN90 | 01 | 50.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 19JUN90 | 01 | 40.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 20JUN90 | 01 | 40.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 26JUN90 | 01 | 50.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 28JUN90 | 01 | 250.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 06JUL90 | 01 | 20.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 07JUL90 | 01 | 20.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 10JUL90 | 01 | 50.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 11JUL90 | 01 | 60.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 17JUL90 | 01 | 40.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 20JUL90 | 01 | 20.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 25JUL90 | 01 | 20.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 26JUL90 | 01 | 20.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 02AUG90 | 01 | 50.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 03AUG90 | 01 | 30.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 07AUG90 | 01 | 50.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 08AUG90 | 01 | 50.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 14AUG90 | 01 | 40.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 15AUG90 | 01 | 30.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 22AUG90 | 01 | 60.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 24AUG90 | 01 | 170.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 28AUG90 | 01 | 610.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 29AUG90 | 01 | 540.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 05SEP90 | 01 | 100.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 06SEP90 | 01 | 80.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 11SEP90 | 01 | 60.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 12SEP90 | 01 | 70.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 19SEP90 | 01 | 40.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 21SEP90 | 01 | 40.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 25SEP90 | 01 | 80.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 26SEP90 | 01 | 70.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 03OCT90 | 01 | 70.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 04OCT90 | 01 | 70.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 10OCT90 | 01 | 60.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 11OCT90 | 01 | 60.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 16OCT90 | 01 | 80.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 17OCT90 | 01 | 50.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 23OCT90 | 01 | 290.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 25OCT90 | 01 | 160.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 27OCT90 | 01 | 130.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 30OCT90 | 01 | 70.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 31OCT90 | 01 | 80.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 06NOV90 | 01 | 80.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 07NOV90 | 01 | 340.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 13NOV90 | 01 | 70.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 14NOV90 | 01 | 50.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 20NOV90 | 01 | 50.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 21NOV90 | 01 | 40.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 26NOV90 | 01 | 50.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 28NOV90 | 01 | 50.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 06DEC90 | 01 | 30.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 07DEC90 | 01 | 60.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 10DEC90 | 01 | 70.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 14DEC90 | 01 | 110.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 21DEC90 | 01 | 170.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 22DEC90 | 01 | 160.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 27DEC90 | 01 | 50.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 28DEC90 | 01 | 30.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 602 | 31DEC90 | 01 | 440.00 | NC | | | | 179.62 | . |
| | | | | . | | | | | | | | |
| COBALT | 7440-48-4 | 50.00 | 4378 | 11MAY92 | | | | 01,03 | 5,622.54 | NC | | |
| COBALT | 7440-48-4 | 50.00 | 4378 | 12MAY92 | 09 | 159.00 | NC | 01,03 | 1,518.57 | NC | | |

Subcategory=Metals Option=3
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COBALT | 7440-48-4 | 50.00 | 4378 | 13MAY92 | 09 | 97.05 | NC | 01,03 | 4,168.29 | NC | | |
| COBALT | 7440-48-4 | 50.00 | 4378 | 14MAY92 | 09 | 51.70 | NC | 01,03 | 25,427.19 | NC | | |
| COBALT | 7440-48-4 | 50.00 | 4378 | 15MAY92 | | | | 03 | 68,767.75 | NC | 102.58 | 21,100.87 |
| COBALT | 7440-48-4 | 50.00 | 4803 | 11JUN96 | 15 | 19.00 | NC | 01,03,07,10 | 4,976,459.63 | NC | | |
| COBALT | 7440-48-4 | 50.00 | 4803 | 12JUN96 | 15 | 10.00 | ND | 05,10 | 115,673.03 | NC | | |
| COBALT | 7440-48-4 | 50.00 | 4803 | 13JUN96 | 15 | 10.00 | ND | 05,10 | 148,644.05 | NC | | |
| COBALT | 7440-48-4 | 50.00 | 4803 | 14JUN96 | 15 | 10.00 | ND | 10 | 252,011.01 | NC | 12.25 | 1,373,196.93 |
| COPPER | 7440-50-8 | 25.00 | 4378 | 11MAY92 | | | | 01,03 | 7,147,763.88 | NC | | |
| COPPER | 7440-50-8 | 25.00 | 4378 | 12MAY92 | 09 | 324.00 | NC | 01,03 | 8,801,330.67 | NC | | |
| COPPER | 7440-50-8 | 25.00 | 4378 | 13MAY92 | 09 | 48.90 | NC | 01,03 | 892,986.67 | NC | | |
| COPPER | 7440-50-8 | 25.00 | 4378 | 14MAY92 | 09 | 59.30 | NC | 01,03 | 672,805.00 | NC | | |
| COPPER | 7440-50-8 | 25.00 | 4378 | 15MAY92 | | | | 03 | 4,561,500.00 | NC | 144.07 | 4,415,277.24 |
| COPPER | 7440-50-8 | 25.00 | 4803 | 11JUN96 | 15 | 202.00 | NC | 01,03,07,10 | 259,289.46 | NC | | |
| COPPER | 7440-50-8 | 25.00 | 4803 | 12JUN96 | 15 | 217.00 | NC | 05,10 | 32,532,916.40 | NC | | |
| COPPER | 7440-50-8 | 25.00 | 4803 | 13JUN96 | 15 | 176.00 | NC | 05,10 | 20,193,466.74 | NC | | |
| COPPER | 7440-50-8 | 25.00 | 4803 | 14JUN96 | 15 | 181.00 | NC | 10 | 758,434.59 | NC | 194.00 | 13,436,026.80 |
| GALLIUM | 7440-55-3 | 500.00 | 4803 | 11JUN96 | 15 | 200.00 | ND | 01,03,07,10 | 375.73 | ND | | |
| GALLIUM | 7440-55-3 | 500.00 | 4803 | 12JUN96 | 15 | 200.00 | ND | 05,10 | 1,846.38 | ND | | |
| GALLIUM | 7440-55-3 | 500.00 | 4803 | 13JUN96 | 15 | 200.00 | ND | 05,10 | 2,000.00 | ND | | |
| GALLIUM | 7440-55-3 | 500.00 | 4803 | 14JUN96 | 15 | 200.00 | ND | 10 | 259.44 | ND | 200.00 | 1,120.39 |
| INDIUM | 7440-74-6 | 1,000.00 | 4803 | 11JUN96 | 15 | 500.00 | ND | 01,03,07,10 | 35,364.75 | NC | | |
| INDIUM | 7440-74-6 | 1,000.00 | 4803 | 12JUN96 | 15 | 500.00 | ND | 05,10 | 6,158.76 | NC | | |
| INDIUM | 7440-74-6 | 1,000.00 | 4803 | 13JUN96 | 15 | 500.00 | ND | 05,10 | 7,605.34 | NC | | |
| INDIUM | 7440-74-6 | 1,000.00 | 4803 | 14JUN96 | 15 | 500.00 | ND | 10 | 3,121.03 | NC | 500.00 | 13,062.47 |
| IODINE | 7553-56-2 | 1,000.00 | 4803 | 11JUN96 | 15 | 500.00 | ND | 01,03,07,10 | 939.32 | ND | | |
| IODINE | 7553-56-2 | 1,000.00 | 4803 | 12JUN96 | 15 | 500.00 | ND | 05,10 | 4,615.94 | ND | | |
| IODINE | 7553-56-2 | 1,000.00 | 4803 | 13JUN96 | 15 | 500.00 | ND | 05,10 | 5,000.00 | ND | | |
| IODINE | 7553-56-2 | 1,000.00 | 4803 | 14JUN96 | 15 | 500.00 | ND | 10 | 648.61 | ND | 500.00 | 2,800.97 |
| IRIDIUM | 7439-88-5 | 1,000.00 | 4803 | 11JUN96 | 15 | 500.00 | ND | 01,03,07,10 | 939.32 | ND | | |
| IRIDIUM | 7439-88-5 | 1,000.00 | 4803 | 12JUN96 | 15 | 500.00 | ND | 05,10 | 4,632.57 | NC | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IRIDIUM | 7439-88-5 | 1,000.00 | 4803 | 13JUN96 | 15 | 500.00 | ND | 05,10 | 5,000.00 | ND | | |
| IRIDIUM | 7439-88-5 | 1,000.00 | 4803 | 14JUN96 | 15 | 500.00 | ND | 10 | 648.61 | ND | 500.00 | 2,805.12 |
| IRON | 7439-89-6 | 100.00 | 4378 | 11MAY92 | | | | 01,03 | 686,601.00 | NC | | |
| IRON | 7439-89-6 | 100.00 | 4378 | 12MAY92 | 09 | 351.00 | NC | 01,03 | 1,133,859.00 | NC | | |
| IRON | 7439-89-6 | 100.00 | 4378 | 13MAY92 | 09 | 427.00 | NC | 01,03 | 268,610.33 | NC | | |
| IRON | 7439-89-6 | 100.00 | 4378 | 14MAY92 | 09 | 250.00 | NC | 01,03 | 21,781.03 | NC | | |
| IRON | 7439-89-6 | 100.00 | 4378 | 15MAY92 | | | | 03 | 158,200.00 | NC | 342.67 | 453,810.27 |
| IRON | 7439-89-6 | 100.00 | 4803 | 11JUN96 | 15 | 503.00 | NC | 01,03,07,10 | 700,442.06 | NC | | |
| IRON | 7439-89-6 | 100.00 | 4803 | 12JUN96 | 15 | 341.00 | NC | 05,10 | 2,020,024.58 | NC | | |
| IRON | 7439-89-6 | 100.00 | 4803 | 13JUN96 | 15 | 428.00 | NC | 05,10 | 6,025,969.86 | NC | | |
| IRON | 7439-89-6 | 100.00 | 4803 | 14JUN96 | 15 | 455.00 | NC | 10 | 3,349,026.65 | NC | 431.75 | 3,023,865.79 |
| LANTHANUM | 7439-91-0 | 100.00 | 4803 | 11JUN96 | 15 | 100.00 | ND | 01,03,07,10 | 266.15 | NC | | |
| LANTHANUM | 7439-91-0 | 100.00 | 4803 | 12JUN96 | 15 | 100.00 | ND | 05,10 | 1,040.56 | NC | | |
| LANTHANUM | 7439-91-0 | 100.00 | 4803 | 13JUN96 | 15 | 100.00 | ND | 05,10 | 1,002.53 | NC | | |
| LANTHANUM | 7439-91-0 | 100.00 | 4803 | 14JUN96 | 15 | 100.00 | ND | 10 | 129.72 | ND | 100.00 | 609.74 |
| LEAD | 7439-92-1 | 50.00 | 4378 | 11MAY92 | | | | 01,03 | 322,441.63 | NC | | |
| LEAD | 7439-92-1 | 50.00 | 4378 | 12MAY92 | 09 | 50.00 | ND | 01,03 | 118,605.90 | NC | | |
| LEAD | 7439-92-1 | 50.00 | 4378 | 13MAY92 | 09 | 50.00 | ND | 01,03 | 248,482.03 | NC | | |
| LEAD | 7439-92-1 | 50.00 | 4378 | 14MAY92 | 09 | 50.00 | ND | 01,03 | 86,783.17 | NC | | |
| LEAD | 7439-92-1 | 50.00 | 4378 | 15MAY92 | | | | 03 | 1,119,877.50 | NC | 50.00 | 379,238.05 |
| LEAD | 7439-92-1 | 50.00 | 4803 | 11JUN96 | 15 | 1,020.00 | NC | 01,03,07,10 | 928,870.34 | NC | | |
| LEAD | 7439-92-1 | 50.00 | 4803 | 12JUN96 | 15 | 1,520.00 | NC | 05,10 | 134,640.09 | NC | | |
| LEAD | 7439-92-1 | 50.00 | 4803 | 13JUN96 | 15 | 1,310.00 | NC | 05,10 | 151,693.70 | NC | | |
| LEAD | 7439-92-1 | 50.00 | 4803 | 14JUN96 | 15 | 1,250.00 | NC | 10 | 36,679.08 | NC | 1,275.00 | 312,970.80 |
| LEAD | 7439-92-1 | 50.00 | 602 | 02JAN90 | 01 | 1.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 03JAN90 | 01 | 1.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 08JAN90 | 01 | 1.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 10JAN90 | 01 | 1.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 15JAN90 | 01 | 330.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 16JAN90 | 01 | 20.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 22JAN90 | 01 | 20.00 | NC | | | | | |

Subcategory=Metals Option=3
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LEAD | 7439-92-1 | 50.00 | 602 | 23JAN90 | 01 | 10.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 29JAN90 | 01 | 20.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 30JAN90 | 01 | 430.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 05FEB90 | 01 | 10.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 06FEB90 | 01 | 350.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 12FEB90 | 01 | 20.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 13FEB90 | 01 | 1.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 20FEB90 | 01 | 1.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 21FEB90 | 01 | 1.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 02MAR90 | 01 | 20.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 03MAR90 | 01 | 10.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 05MAR90 | 01 | 10.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 06MAR90 | 01 | 10.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 12MAR90 | 01 | 10.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 14MAR90 | 01 | 10.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 19MAR90 | 01 | 10.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 27MAR90 | 01 | 10.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 03APR90 | 01 | 10.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 10APR90 | 01 | 10.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 18APR90 | 01 | 4.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 24APR90 | 01 | 10.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 01MAY90 | 01 | 6.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 08MAY90 | 01 | 10.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 15MAY90 | 01 | 10.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 22MAY90 | 01 | 10.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 30MAY90 | 01 | 20.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 05JUN90 | 01 | 10.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 13JUN90 | 01 | 10.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 19JUN90 | 01 | 160.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 26JUN90 | 01 | 10.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 06JUL90 | 01 | 10.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 10JUL90 | 01 | 30.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 17JUL90 | 01 | 50.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 25JUL90 | 01 | 10.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 02AUG90 | 01 | 30.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 07AUG90 | 01 | 50.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 14AUG90 | 01 | 20.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LEAD | 7439-92-1 | 50.00 | 602 | 22AUG90 | 01 | 20.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 28AUG90 | 01 | 30.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 05SEP90 | 01 | 20.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 11SEP90 | 01 | 30.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 19SEP90 | 01 | 30.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 25SEP90 | 01 | 380.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 03OCT90 | 01 | 60.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 10OCT90 | 01 | 50.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 16OCT90 | 01 | 60.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 23OCT90 | 01 | 70.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 27OCT90 | 01 | 50.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 30OCT90 | 01 | 40.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 31OCT90 | 01 | 50.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 06NOV90 | 01 | 240.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 13NOV90 | 01 | 40.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 20NOV90 | 01 | 20.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 26NOV90 | 01 | 30.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 06DEC90 | 01 | 30.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 10DEC90 | 01 | 70.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 21DEC90 | 01 | 480.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 27DEC90 | 01 | 20.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 602 | 31DEC90 | 01 | 30.00 | NC | | | | 55.11 | . |
| | | | | . | | | | | | | | |
| LITHIUM | 7439-93-2 | 100.00 | 4803 | 11JUN96 | 15 | 100.00 | ND | 01,03,07,10 | 205.14 | NC | | |
| LITHIUM | 7439-93-2 | 100.00 | 4803 | 12JUN96 | 15 | 100.00 | ND | 05,10 | 925.30 | NC | | |
| LITHIUM | 7439-93-2 | 100.00 | 4803 | 13JUN96 | 15 | 100.00 | ND | 05,10 | 1,000.00 | ND | | |
| LITHIUM | 7439-93-2 | 100.00 | 4803 | 14JUN96 | 15 | 100.00 | ND | 10 | 133.45 | NC | 100.00 | 565.97 |
| | | | | . | | | | | | | | |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4378 | 11MAY92 | | | | 01,03 | 391,223.50 | NC | | |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4378 | 12MAY92 | 09 | 1,890.00 | NC | 01,03 | 606,450.00 | NC | | |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4378 | 13MAY92 | 09 | 1,110.00 | NC | 01,03 | 318,795.67 | NC | | |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4378 | 14MAY92 | 09 | 1,180.00 | NC | 01,03 | 736,375.25 | NC | | |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4378 | 15MAY92 | | | | 03 | 1,324,500.00 | NC | 1,393.33 | 675,468.88 |
| | | | | . | | | | | | | | |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4803 | 11JUN96 | 15 | 104.00 | ND | 01,03,07,10 | 28,277.07 | NC | | |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4803 | 12JUN96 | 15 | 120.00 | NC | 05,10 | 105,578.04 | NC | | |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4803 | 13JUN96 | 15 | 100.00 | ND | 05,10 | 1,121,997.81 | NC | | |

Subcategory=Metals Option=3
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4803 | 14JUN96 | 15 | 123.00 | NC | 10 | 30,384.07 | NC | 111.75 | 321,559.24 |
| MANGANESE | 7439-96-5 | 15.00 | 4378 | 11MAY92 | | | | 01,03 | 40,137.14 | NC | | |
| MANGANESE | 7439-96-5 | 15.00 | 4378 | 12MAY92 | 09 | 7.70 | NC | 01,03 | 16,075.90 | NC | | |
| MANGANESE | 7439-96-5 | 15.00 | 4378 | 13MAY92 | 09 | 18.75 | NC | 01,03 | 9,988.70 | NC | | |
| MANGANESE | 7439-96-5 | 15.00 | 4378 | 14MAY92 | 09 | 8.40 | NC | 01,03 | 90,830.38 | NC | | |
| MANGANESE | 7439-96-5 | 15.00 | 4378 | 15MAY92 | | | | 03 | 181,092.50 | NC | 11.62 | 67,624.92 |
| MANGANESE | 7439-96-5 | 15.00 | 4803 | 11JUN96 | 15 | 7.55 | NC | 01,03,07,10 | 2,916,581.40 | NC | | |
| MANGANESE | 7439-96-5 | 15.00 | 4803 | 12JUN96 | 15 | 4.00 | NC | 05,10 | 20,201.19 | NC | | |
| MANGANESE | 7439-96-5 | 15.00 | 4803 | 13JUN96 | 15 | 4.90 | NC | 05,10 | 190,869.64 | NC | | |
| MANGANESE | 7439-96-5 | 15.00 | 4803 | 14JUN96 | 15 | 5.60 | NC | 10 | 2,852.41 | NC | 5.51 | 782,626.16 |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 02JAN90 | 01 | 10.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 03JAN90 | 01 | 20.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 08JAN90 | 01 | 10.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 10JAN90 | 01 | 1.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 15JAN90 | 01 | 1.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 16JAN90 | 01 | 1.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 22JAN90 | 01 | 30.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 23JAN90 | 01 | 30.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 29JAN90 | 01 | 30.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 30JAN90 | 01 | 10.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 05FEB90 | 01 | 20.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 06FEB90 | 01 | 10.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 12FEB90 | 01 | 10.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 13FEB90 | 01 | 1.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 20FEB90 | 01 | 6.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 21FEB90 | 01 | 10.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 02MAR90 | 01 | 60.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 03MAR90 | 01 | 70.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 05MAR90 | 01 | 20.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 06MAR90 | 01 | 30.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 12MAR90 | 01 | 10.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 14MAR90 | 01 | 20.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 19MAR90 | 01 | 20.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 22MAR90 | 01 | 10.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MANGANESE | 7439-96-5 | 15.00 | 602 | 28MAR90 | 01 | 10.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 04APR90 | 01 | 20.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 11APR90 | 01 | 20.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 20APR90 | 01 | 60.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 27APR90 | 01 | 80.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 03MAY90 | 01 | 110.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 10MAY90 | 01 | 10.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 16MAY90 | 01 | 10.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 24MAY90 | 01 | 10.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 31MAY90 | 01 | 20.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 06JUN90 | 01 | 20.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 15JUN90 | 01 | 20.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 20JUN90 | 01 | 30.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 28JUN90 | 01 | 10.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 07JUL90 | 01 | 120.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 11JUL90 | 01 | 20.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 20JUL90 | 01 | 10.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 26JUL90 | 01 | 30.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 03AUG90 | 01 | 30.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 08AUG90 | 01 | 30.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 15AUG90 | 01 | 20.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 24AUG90 | 01 | 40.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 29AUG90 | 01 | 30.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 06SEP90 | 01 | 40.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 12SEP90 | 01 | 20.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 21SEP90 | 01 | 50.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 26SEP90 | 01 | 50.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 04OCT90 | 01 | 50.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 11OCT90 | 01 | 40.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 17OCT90 | 01 | 80.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 25OCT90 | 01 | 70.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 27OCT90 | 01 | 30.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 30OCT90 | 01 | 30.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 31OCT90 | 01 | 50.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 07NOV90 | 01 | 30.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 14NOV90 | 01 | 20.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 21NOV90 | 01 | 30.00 | NC | | | | | |

Subcategory=Metals Option=3
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MANGANESE | 7439-96-5 | 15.00 | 602 | 28NOV90 | 01 | 20.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 07DEC90 | 01 | 10.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 14DEC90 | 01 | 650.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 22DEC90 | 01 | 20.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 602 | 28DEC90 | 01 | 10.00 | NC | | | | 37.88 | . |
| MERCURY | 7439-97-6 | 0.20 | 4378 | 11MAY92 | | | | 01,03 | 135.64 | NC | | |
| MERCURY | 7439-97-6 | 0.20 | 4378 | 12MAY92 | 09 | 0.20 | ND | 01,03 | 15.67 | NC | | |
| MERCURY | 7439-97-6 | 0.20 | 4378 | 13MAY92 | 09 | 0.20 | ND | 01,03 | 181.36 | NC | | |
| MERCURY | 7439-97-6 | 0.20 | 4378 | 14MAY92 | 09 | 0.20 | ND | 01,03 | 123.47 | NC | | |
| MERCURY | 7439-97-6 | 0.20 | 4378 | 15MAY92 | | | | 03 | 120.28 | NC | 0.20 | 115.28 |
| MERCURY | 7439-97-6 | 0.20 | 4803 | 11JUN96 | 15 | 0.20 | ND | 01,03,07,10 | 739.92 | NC | | |
| MERCURY | 7439-97-6 | 0.20 | 4803 | 12JUN96 | 15 | 0.20 | ND | 05,10 | 223.14 | NC | | |
| MERCURY | 7439-97-6 | 0.20 | 4803 | 13JUN96 | 15 | 0.20 | ND | 05,10 | 451.73 | NC | | |
| MERCURY | 7439-97-6 | 0.20 | 4803 | 14JUN96 | 15 | 0.21 | NC | 10 | 35.34 | NC | 0.20 | 362.53 |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4378 | 11MAY92 | | | | 01,03 | 6,148.43 | NC | | |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4378 | 12MAY92 | 09 | 484.00 | NC | 01,03 | 954.93 | NC | | |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4378 | 13MAY92 | 09 | 589.00 | NC | 01,03 | 935.12 | NC | | |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4378 | 14MAY92 | 09 | 592.00 | NC | 01,03 | 226.67 | NC | | |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4378 | 15MAY92 | | | | 03 | 159.23 | NC | 555.00 | 1,684.87 |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4803 | 11JUN96 | 15 | 465.50 | NC | 01,03,07,10 | 1,471.89 | NC | | |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4803 | 12JUN96 | 15 | 504.00 | NC | 05,10 | 468.22 | NC | | |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4803 | 13JUN96 | 15 | 524.00 | NC | 05,10 | 126.43 | NC | | |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4803 | 14JUN96 | 15 | 508.00 | NC | 10 | 238.15 | NC | 500.38 | 576.17 |
| NICKEL | 7440-02-0 | 40.00 | 4378 | 11MAY92 | | | | 01,03 | 557,939.48 | NC | | |
| NICKEL | 7440-02-0 | 40.00 | 4378 | 12MAY92 | 09 | 1,940.00 | NC | 01,03 | 469,559.00 | NC | | |
| NICKEL | 7440-02-0 | 40.00 | 4378 | 13MAY92 | 09 | 1,045.00 | NC | 01,03 | 125,036.67 | NC | | |
| NICKEL | 7440-02-0 | 40.00 | 4378 | 14MAY92 | 09 | 764.00 | NC | 01,03 | 291,207.67 | NC | | |
| NICKEL | 7440-02-0 | 40.00 | 4378 | 15MAY92 | | | | 03 | 893,525.00 | NC | 1,249.67 | 467,453.56 |
| NICKEL | 7440-02-0 | 40.00 | 4803 | 11JUN96 | 15 | 76.15 | NC | 01,03,07,10 | 128,615.51 | NC | | |
| NICKEL | 7440-02-0 | 40.00 | 4803 | 12JUN96 | 15 | 55.40 | NC | 05,10 | 373,900.20 | NC | | |
| NICKEL | 7440-02-0 | 40.00 | 4803 | 13JUN96 | 15 | 64.50 | NC | 05,10 | 847,186.30 | NC | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NICKEL | 7440-02-0 | 40.00 | 4803 | 14JUN96 | 15 | 60.00 | NC | 10 | 546,418.31 | NC | 64.01 | 474,030.08 |
| NICKEL | 7440-02-0 | 40.00 | 602 | 02JAN90 | 01 | 370.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 03JAN90 | 01 | 650.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 08JAN90 | 01 | 500.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 10JAN90 | 01 | 570.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 15JAN90 | 01 | 530.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 16JAN90 | 01 | 390.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 22JAN90 | 01 | 250.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 23JAN90 | 01 | 180.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 29JAN90 | 01 | 900.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 30JAN90 | 01 | 330.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 05FEB90 | 01 | 700.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 06FEB90 | 01 | 170.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 12FEB90 | 01 | 210.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 13FEB90 | 01 | 190.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 20FEB90 | 01 | 320.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 21FEB90 | 01 | 600.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 02MAR90 | 01 | 10.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 05MAR90 | 01 | 390.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 06MAR90 | 01 | 370.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 12MAR90 | 01 | 310.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 19MAR90 | 01 | 330.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 22MAR90 | 01 | 180.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 28MAR90 | 01 | 210.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 04APR90 | 01 | 120.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 11APR90 | 01 | 210.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 20APR90 | 01 | 90.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 27APR90 | 01 | 390.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 03MAY90 | 01 | 430.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 10MAY90 | 01 | 440.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 16MAY90 | 01 | 80.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 24MAY90 | 01 | 50.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 31MAY90 | 01 | 120.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 06JUN90 | 01 | 220.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 15JUN90 | 01 | 130.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 20JUN90 | 01 | 130.00 | NC | | | | | |

Subcategory=Metals Option=3
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NICKEL | 7440-02-0 | 40.00 | 602 | 28JUN90 | 01 | 70.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 07JUL90 | 01 | 400.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 11JUL90 | 01 | 50.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 20JUL90 | 01 | 80.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 26JUL90 | 01 | 30.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 03AUG90 | 01 | 60.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 08AUG90 | 01 | 50.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 15AUG90 | 01 | 80.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 24AUG90 | 01 | 70.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 29AUG90 | 01 | 70.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 06SEP90 | 01 | 30.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 12SEP90 | 01 | 120.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 21SEP90 | 01 | 130.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 26SEP90 | 01 | 230.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 04OCT90 | 01 | 350.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 11OCT90 | 01 | 200.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 17OCT90 | 01 | 160.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 23OCT90 | 01 | 180.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 25OCT90 | 01 | 160.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 27OCT90 | 01 | 160.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 31OCT90 | 01 | 180.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 07NOV90 | 01 | 120.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 14NOV90 | 01 | 110.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 21NOV90 | 01 | 690.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 28NOV90 | 01 | 570.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 10DEC90 | 01 | 280.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 21DEC90 | 01 | 120.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 27DEC90 | 01 | 170.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 602 | 31DEC90 | 01 | 320.00 | NC | | | | 254.84 | . |
| | | | | . | | | | | | | | |
| OSMIUM | 7440-04-2 | 100.00 | 4803 | 11JUN96 | 15 | 100.00 | ND | 01,03,07,10 | 10,159.18 | NC | | |
| OSMIUM | 7440-04-2 | 100.00 | 4803 | 12JUN96 | 15 | 100.00 | ND | 05,10 | 1,069.14 | NC | | |
| OSMIUM | 7440-04-2 | 100.00 | 4803 | 13JUN96 | 15 | 100.00 | ND | 05,10 | 1,000.00 | ND | | |
| OSMIUM | 7440-04-2 | 100.00 | 4803 | 14JUN96 | 15 | 100.00 | ND | 10 | 129.72 | ND | 100.00 | 3,089.51 |
| | | | | . | | | | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 4803 | 11JUN96 | 15 | 500.00 | ND | 01,03,07,10 | 18,452.57 | NC | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 4803 | 12JUN96 | 15 | 500.00 | ND | 05,10 | 2,063,635.84 | NC | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 4803 | 13JUN96 | 15 | 534.00 | NC | 05,10 | 1,410,956.66 | NC | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 4803 | 14JUN96 | 15 | 642.00 | NC | 10 | 36,979.49 | NC | 544.00 | 882,506.14 |
| POTASSIUM | 7440-09-7 | 1,000.00 | 4803 | 11JUN96 | 15 | 42,400.00 | NC | 01,03,07,10 | 494,068.57 | NC | | |
| POTASSIUM | 7440-09-7 | 1,000.00 | 4803 | 12JUN96 | 15 | 49,700.00 | NC | 05,10 | 58,825.74 | NC | | |
| POTASSIUM | 7440-09-7 | 1,000.00 | 4803 | 13JUN96 | 15 | 68,700.00 | NC | 05,10 | 110,071.78 | NC | | |
| POTASSIUM | 7440-09-7 | 1,000.00 | 4803 | 14JUN96 | 15 | 55,900.00 | NC | 10 | 112,117.96 | NC | 54,175.00 | 193,771.01 |
| SELENIUM | 7782-49-2 | 5.00 | 4378 | 11MAY92 | | | | 01,03 | 58.48 | NC | | |
| SELENIUM | 7782-49-2 | 5.00 | 4378 | 12MAY92 | 09 | 193.00 | NC | 01,03 | 29.21 | NC | | |
| SELENIUM | 7782-49-2 | 5.00 | 4378 | 13MAY92 | 09 | 175.00 | NC | 01,03 | 62.71 | NC | | |
| SELENIUM | 7782-49-2 | 5.00 | 4378 | 14MAY92 | 09 | 261.00 | NC | 01,03 | 53.79 | NC | | |
| SELENIUM | 7782-49-2 | 5.00 | 4378 | 15MAY92 | | | | 03 | 350.00 | NC | 209.67 | 110.84 |
| SELENIUM | 7782-49-2 | 5.00 | 4803 | 11JUN96 | 15 | 20.00 | ND | 01,03,07,10 | 3,497.39 | NC | | |
| SELENIUM | 7782-49-2 | 5.00 | 4803 | 12JUN96 | 15 | 37.00 | NC | 05,10 | 55.55 | NC | | |
| SELENIUM | 7782-49-2 | 5.00 | 4803 | 13JUN96 | 15 | 77.90 | NC | 05,10 | 98.39 | NC | | |
| SELENIUM | 7782-49-2 | 5.00 | 4803 | 14JUN96 | 15 | 90.10 | NC | 10 | 316.69 | NC | 56.25 | 992.01 |
| SILICON | 7440-21-3 | 100.00 | 4803 | 11JUN96 | 15 | 100.00 | ND | 01,03,07,10 | 963.28 | NC | | |
| SILICON | 7440-21-3 | 100.00 | 4803 | 12JUN96 | 15 | 486.00 | NC | 05,10 | 219,131.21 | NC | | |
| SILICON | 7440-21-3 | 100.00 | 4803 | 13JUN96 | 15 | 406.00 | NC | 05,10 | 133,917.53 | NC | | |
| SILICON | 7440-21-3 | 100.00 | 4803 | 14JUN96 | 15 | 431.00 | NC | 10 | 99,167.32 | NC | 355.75 | 113,294.84 |
| SILVER | 7440-22-4 | 10.00 | 4378 | 11MAY92 | | | | 01,03 | 2,098.10 | NC | | |
| SILVER | 7440-22-4 | 10.00 | 4378 | 12MAY92 | 09 | 4.00 | ND | 01,03 | 312.94 | NC | | |
| SILVER | 7440-22-4 | 10.00 | 4378 | 13MAY92 | 09 | 4.00 | ND | 01,03 | 1,220.87 | NC | | |
| SILVER | 7440-22-4 | 10.00 | 4378 | 14MAY92 | 09 | 4.00 | ND | 01,03 | 775.95 | NC | | |
| SILVER | 7440-22-4 | 10.00 | 4378 | 15MAY92 | | | | 03 | 369.60 | NC | 4.00 | 955.49 |
| SILVER | 7440-22-4 | 10.00 | 4803 | 11JUN96 | 15 | 5.00 | ND | 01,03,07,10 | 682.01 | NC | | |
| SILVER | 7440-22-4 | 10.00 | 4803 | 12JUN96 | 15 | 5.00 | ND | 05,10 | 1,797.52 | NC | | |
| SILVER | 7440-22-4 | 10.00 | 4803 | 13JUN96 | 15 | 5.00 | ND | 05,10 | 3,099.64 | NC | | |
| SILVER | 7440-22-4 | 10.00 | 4803 | 14JUN96 | 15 | 5.00 | ND | 10 | 22.82 | NC | 5.00 | 1,400.50 |
| SODIUM | 7440-23-5 | 5,000.00 | 4378 | 11MAY92 | | | | 01,03 | 1,909,825.00 | NC | | |
| SODIUM | 7440-23-5 | 5,000.00 | 4378 | 12MAY92 | 09 | 6,460,000.00 | NC | 01,03 | 2,070,676.67 | NC | | |

Subcategory=Metals Option=3
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SODIUM | 7440-23-5 | 5,000.00 | 4378 | 13MAY92 | 09 | 7,225,000.00 | NC | 01,03 | 1,518,733.33 | NC | | |
| SODIUM | 7440-23-5 | 5,000.00 | 4378 | 14MAY92 | 09 | 6,780,000.00 | NC | 01,03 | 7,276,650.00 | NC | | |
| SODIUM | 7440-23-5 | 5,000.00 | 4378 | 15MAY92 | | | | 03 | 5,605,250.00 | NC | 6,821,666.67 | 3,676,227.00 |
| SODIUM | 7440-23-5 | 5,000.00 | 4803 | 11JUN96 | 15 | 5,315,000.00 | NC | 01,03,07,10 | 31,572,267.44 | NC | | |
| SODIUM | 7440-23-5 | 5,000.00 | 4803 | 12JUN96 | 15 | 5,490,000.00 | NC | 05,10 | 14,447,921.72 | NC | | |
| SODIUM | 7440-23-5 | 5,000.00 | 4803 | 13JUN96 | 15 | 6,180,000.00 | NC | 05,10 | 14,542,657.53 | NC | | |
| SODIUM | 7440-23-5 | 5,000.00 | 4803 | 14JUN96 | 15 | 6,120,000.00 | NC | 10 | 52,094,322.13 | NC | 5,776,250.00 | 28,164,292.21 |
| STRONTIUM | 7440-24-6 | 100.00 | 4803 | 11JUN96 | 15 | 759.00 | NC | 01,03,07,10 | 409.18 | NC | | |
| STRONTIUM | 7440-24-6 | 100.00 | 4803 | 12JUN96 | 15 | 1,010.00 | NC | 05,10 | 923.19 | ND | | |
| STRONTIUM | 7440-24-6 | 100.00 | 4803 | 13JUN96 | 15 | 928.00 | NC | 05,10 | 2,384.77 | NC | | |
| STRONTIUM | 7440-24-6 | 100.00 | 4803 | 14JUN96 | 15 | 852.00 | NC | 10 | 129.72 | ND | 887.25 | 961.71 |
| SULFUR | 7704-34-9 | 1,000.00 | 4803 | 11JUN96 | 15 | 2,940,000.00 | NC | 01,03,07,10 | 5,493,189.12 | NC | | |
| SULFUR | 7704-34-9 | 1,000.00 | 4803 | 12JUN96 | 15 | 2,430,000.00 | NC | 05,10 | 8,297,040.80 | NC | | |
| SULFUR | 7704-34-9 | 1,000.00 | 4803 | 13JUN96 | 15 | 2,980,000.00 | NC | 05,10 | 8,992,136.99 | NC | | |
| SULFUR | 7704-34-9 | 1,000.00 | 4803 | 14JUN96 | 15 | 2,930,000.00 | NC | 10 | 26,406,199.30 | NC | 2,820,000.00 | 12,297,141.55 |
| TANTALUM | 7440-25-7 | 500.00 | 4803 | 11JUN96 | 15 | 500.00 | ND | 01,03,07,10 | 939.32 | ND | | |
| TANTALUM | 7440-25-7 | 500.00 | 4803 | 12JUN96 | 15 | 500.00 | ND | 05,10 | 4,615.94 | ND | | |
| TANTALUM | 7440-25-7 | 500.00 | 4803 | 13JUN96 | 15 | 500.00 | ND | 05,10 | 5,000.00 | ND | | |
| TANTALUM | 7440-25-7 | 500.00 | 4803 | 14JUN96 | 15 | 500.00 | ND | 10 | 648.61 | ND | 500.00 | 2,800.97 |
| TELLURIUM | 13494-80-9 | 1,000.00 | 4803 | 11JUN96 | 15 | 1,000.00 | ND | 01,03,07,10 | 53,281.50 | NC | | |
| TELLURIUM | 13494-80-9 | 1,000.00 | 4803 | 12JUN96 | 15 | 1,000.00 | ND | 05,10 | 9,231.89 | ND | | |
| TELLURIUM | 13494-80-9 | 1,000.00 | 4803 | 13JUN96 | 15 | 1,000.00 | ND | 05,10 | 10,000.00 | ND | | |
| TELLURIUM | 13494-80-9 | 1,000.00 | 4803 | 14JUN96 | 15 | 1,000.00 | ND | 10 | 1,297.22 | ND | 1,000.00 | 18,452.65 |
| THALLIUM | 7440-28-0 | 10.00 | 4378 | 11MAY92 | | | | 01,03 | 800.12 | NC | | |
| THALLIUM | 7440-28-0 | 10.00 | 4378 | 12MAY92 | 09 | 20.00 | ND | 01,03 | 440.82 | NC | | |
| THALLIUM | 7440-28-0 | 10.00 | 4378 | 13MAY92 | 09 | 24.80 | NC | 01,03 | 297.87 | NC | | |
| THALLIUM | 7440-28-0 | 10.00 | 4378 | 14MAY92 | 09 | 20.00 | ND | 01,03 | 350.03 | NC | | |
| THALLIUM | 7440-28-0 | 10.00 | 4378 | 15MAY92 | | | | 03 | 922.50 | NC | 21.60 | 562.27 |
| THALLIUM | 7440-28-0 | 10.00 | 4803 | 11JUN96 | 15 | 5.50 | ND | 01,03,07,10 | 78,582.76 | NC | | |
| THALLIUM | 7440-28-0 | 10.00 | 4803 | 12JUN96 | 15 | 54.40 | NC | 05,10 | 297.51 | NC | | |

Subcategory=Metals Option=3
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| THALLIUM | 7440-28-0 | 10.00 | 4803 | 13JUN96 | 15 | 10.00 | ND | 05,10 | 57.05 | NC | | |
| THALLIUM | 7440-28-0 | 10.00 | 4803 | 14JUN96 | 15 | 10.00 | ND | 10 | 10.00 | ND | 19.98 | 19,736.83 |
| TIN | 7440-31-5 | 30.00 | 4378 | 11MAY92 | | | | 01,03 | 185,671.29 | NC | | |
| TIN | 7440-31-5 | 30.00 | 4378 | 12MAY92 | 09 | 28.00 | ND | 01,03 | 4,791.23 | NC | | |
| TIN | 7440-31-5 | 30.00 | 4378 | 13MAY92 | 09 | 28.00 | ND | 01,03 | 28,562.33 | NC | | |
| TIN | 7440-31-5 | 30.00 | 4378 | 14MAY92 | 09 | 28.00 | ND | 01,03 | 35,177.17 | NC | | |
| TIN | 7440-31-5 | 30.00 | 4378 | 15MAY92 | | | | 03 | 18,432.50 | NC | 28.00 | 54,526.90 |
| TIN | 7440-31-5 | 30.00 | 4803 | 11JUN96 | 15 | 30.00 | ND | 01,03,07,10 | 9,612.80 | NC | | |
| TIN | 7440-31-5 | 30.00 | 4803 | 12JUN96 | 15 | 28.00 | ND | 05,10 | 2,333.57 | NC | | |
| TIN | 7440-31-5 | 30.00 | 4803 | 13JUN96 | 15 | 28.00 | ND | 05,10 | 9,647.47 | NC | | |
| TIN | 7440-31-5 | 30.00 | 4803 | 14JUN96 | 15 | 28.00 | ND | 10 | 46,893.11 | NC | 28.50 | 17,121.74 |
| TITANIUM | 7440-32-6 | 5.00 | 4378 | 11MAY92 | | | | 01,03 | 153,253.49 | NC | | |
| TITANIUM | 7440-32-6 | 5.00 | 4378 | 12MAY92 | 09 | 3.00 | ND | 01,03 | 36,329.07 | NC | | |
| TITANIUM | 7440-32-6 | 5.00 | 4378 | 13MAY92 | 09 | 3.00 | ND | 01,03 | 9,153.17 | NC | | |
| TITANIUM | 7440-32-6 | 5.00 | 4378 | 14MAY92 | 09 | 3.00 | ND | 01,03 | 2,398.13 | NC | | |
| TITANIUM | 7440-32-6 | 5.00 | 4378 | 15MAY92 | | | | 03 | 633.50 | NC | 3.00 | 40,353.47 |
| TITANIUM | 7440-32-6 | 5.00 | 4803 | 11JUN96 | 15 | 4.00 | ND | 01,03,07,10 | 377.65 | NC | | |
| TITANIUM | 7440-32-6 | 5.00 | 4803 | 12JUN96 | 15 | 4.00 | ND | 05,10 | 224.97 | NC | | |
| TITANIUM | 7440-32-6 | 5.00 | 4803 | 13JUN96 | 15 | 4.00 | ND | 05,10 | 552.79 | NC | | |
| TITANIUM | 7440-32-6 | 5.00 | 4803 | 14JUN96 | 15 | 4.00 | ND | 10 | 2,619.27 | NC | 4.00 | 943.67 |
| VANADIUM | 7440-62-2 | 50.00 | 4378 | 11MAY92 | | | | 01,03 | 1,629.75 | NC | | |
| VANADIUM | 7440-62-2 | 50.00 | 4378 | 12MAY92 | 09 | 10.80 | NC | 01,03 | 434.48 | NC | | |
| VANADIUM | 7440-62-2 | 50.00 | 4378 | 13MAY92 | 09 | 10.00 | ND | 01,03 | 511.73 | NC | | |
| VANADIUM | 7440-62-2 | 50.00 | 4378 | 14MAY92 | 09 | 12.20 | NC | 01,03 | 106.51 | NC | | |
| VANADIUM | 7440-62-2 | 50.00 | 4378 | 15MAY92 | | | | 03 | 92.00 | NC | 11.00 | 554.89 |
| VANADIUM | 7440-62-2 | 50.00 | 4803 | 11JUN96 | 15 | 10.00 | ND | 01,03,07,10 | 194.46 | NC | | |
| VANADIUM | 7440-62-2 | 50.00 | 4803 | 12JUN96 | 15 | 10.00 | ND | 05,10 | 1,038.25 | NC | | |
| VANADIUM | 7440-62-2 | 50.00 | 4803 | 13JUN96 | 15 | 14.00 | NC | 05,10 | 35,981.02 | NC | | |
| VANADIUM | 7440-62-2 | 50.00 | 4803 | 14JUN96 | 15 | 10.00 | ND | 10 | 339.78 | NC | 11.00 | 9,388.38 |
| YTTRIUM | 7440-65-5 | 5.00 | 4378 | 11MAY92 | | | | 01,03 | 51.10 | NC | | |

------------------------------------------------------------ Subcategory=Metals Option=3 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| YTTRIUM | 7440-65-5 | 5.00 | 4378 | 12MAY92 | 09 | 2.00 | ND | 01,03 | 32.27 | NC | | |
| YTTRIUM | 7440-65-5 | 5.00 | 4378 | 13MAY92 | 09 | 2.00 | ND | 01,03 | 69.57 | NC | | |
| YTTRIUM | 7440-65-5 | 5.00 | 4378 | 14MAY92 | 09 | 2.00 | ND | 01,03 | 11.76 | NC | | |
| YTTRIUM | 7440-65-5 | 5.00 | 4378 | 15MAY92 | | | | 03 | 54.55 | NC | 2.00 | 43.85 |
| YTTRIUM | 7440-65-5 | 5.00 | 4803 | 11JUN96 | 15 | 5.00 | ND | 01,03,07,10 | 21.52 | NC | | |
| YTTRIUM | 7440-65-5 | 5.00 | 4803 | 12JUN96 | 15 | 5.00 | ND | 05,10 | 603.91 | NC | | |
| YTTRIUM | 7440-65-5 | 5.00 | 4803 | 13JUN96 | 15 | 5.00 | ND | 05,10 | 521.99 | NC | | |
| YTTRIUM | 7440-65-5 | 5.00 | 4803 | 14JUN96 | 15 | 5.00 | ND | 10 | 73.74 | NC | 5.00 | 305.29 |
| ZINC | 7440-66-6 | 20.00 | 4378 | 11MAY92 | | | | 01,03 | 6,189,432.48 | NC | | |
| ZINC | 7440-66-6 | 20.00 | 4378 | 12MAY92 | 09 | 97.60 | NC | 01,03 | 5,386,009.00 | NC | | |
| ZINC | 7440-66-6 | 20.00 | 4378 | 13MAY92 | 09 | 340.50 | NC | 01,03 | 2,232,659.98 | NC | | |
| ZINC | 7440-66-6 | 20.00 | 4378 | 14MAY92 | 09 | 85.20 | NC | 01,03 | 4,500,739.91 | NC | | |
| ZINC | 7440-66-6 | 20.00 | 4378 | 15MAY92 | | | | 03 | 10,437,000.00 | NC | 174.43 | 5,749,168.27 |
| ZINC | 7440-66-6 | 20.00 | 4803 | 11JUN96 | 15 | 175.00 | NC | 01,03,07,10 | 5,467,931.25 | NC | | |
| ZINC | 7440-66-6 | 20.00 | 4803 | 12JUN96 | 15 | 318.00 | NC | 05,10 | 2,397,287.35 | NC | | |
| ZINC | 7440-66-6 | 20.00 | 4803 | 13JUN96 | 15 | 178.00 | NC | 05,10 | 1,854,369.86 | NC | | |
| ZINC | 7440-66-6 | 20.00 | 4803 | 14JUN96 | 15 | 281.00 | NC | 10 | 1,939,333.72 | NC | 238.00 | 2,914,730.54 |
| ZIRCONIUM | 7440-67-7 | 100.00 | 4803 | 11JUN96 | 15 | 100.00 | ND | 01,03,07,10 | 188.00 | NC | | |
| ZIRCONIUM | 7440-67-7 | 100.00 | 4803 | 12JUN96 | 15 | 100.00 | ND | 05,10 | 927.41 | NC | | |
| ZIRCONIUM | 7440-67-7 | 100.00 | 4803 | 13JUN96 | 15 | 100.00 | ND | 05,10 | 1,000.00 | ND | | |
| ZIRCONIUM | 7440-67-7 | 100.00 | 4803 | 14JUN96 | 15 | 100.00 | ND | 10 | 268.03 | NC | 100.00 | 595.86 |
| BENZOIC ACID | 65-85-0 | 50.00 | 4378 | 14MAY92 | 09 | 51.83 | NC | 08 | 500.00 | ND | 51.83 | 500.00 |
| BENZOIC ACID | 65-85-0 | 50.00 | 4803 | 11JUN96 | 16 | 162.00 | NC | 12 | 222.61 | NC | | |
| BENZOIC ACID | 65-85-0 | 50.00 | 4803 | 12JUN96 | 16 | 232.39 | NC | 12 | 282.42 | NC | | |
| BENZOIC ACID | 65-85-0 | 50.00 | 4803 | 13JUN96 | 16 | 340.86 | NC | 12 | 362.50 | NC | | |
| BENZOIC ACID | 65-85-0 | 50.00 | 4803 | 14JUN96 | 16 | 115.26 | NC | 12 | 492.09 | NC | 212.63 | 339.90 |
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 4378 | 14MAY92 | 09 | 10.00 | ND | 08 | 100.00 | ND | 10.00 | 100.00 |
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 4803 | 11JUN96 | 16 | 24.16 | NC | 12 | 10.00 | ND | | |
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 4803 | 12JUN96 | 16 | 27.96 | NC | 12 | 10.00 | ND | | |

Subcategory=Metals Option=3 (continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 4803 | 13JUN96 | 16 | 29.18 | NC | 12 | 10.00 | ND | | |
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 4803 | 14JUN96 | 16 | 26.11 | NC | 12 | 10.00 | ND | 26.85 | 10.00 |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 4378 | 14MAY92 | 09 | 10.00 | ND | 08 | 100.00 | ND | 10.00 | 100.00 |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 4803 | 11JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 4803 | 12JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 4803 | 13JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 4803 | 14JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | 10.00 | 10.00 |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 4378 | 14MAY92 | 09 | 10.00 | ND | 08 | 1,664.00 | NC | 10.00 | 1,664.00 |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 4803 | 11JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 4803 | 12JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 4803 | 13JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 4803 | 14JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | 10.00 | 10.00 |
| CHLOROFORM | 67-66-3 | 10.00 | 4378 | 14MAY92 | 09 | 10.00 | ND | 08 | 10.00 | ND | 10.00 | 10.00 |
| CHLOROFORM | 67-66-3 | 10.00 | 4803 | 11JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| CHLOROFORM | 67-66-3 | 10.00 | 4803 | 12JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| CHLOROFORM | 67-66-3 | 10.00 | 4803 | 13JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| CHLOROFORM | 67-66-3 | 10.00 | 4803 | 14JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | 10.00 | 10.00 |
| DIBROMOCHLOROMETHANE | 124-48-1 | 10.00 | 4378 | 14MAY92 | 09 | 18.42 | NC | 08 | 10.00 | ND | 18.42 | 10.00 |
| DIBROMOCHLOROMETHANE | 124-48-1 | 10.00 | 4803 | 11JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| DIBROMOCHLOROMETHANE | 124-48-1 | 10.00 | 4803 | 12JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| DIBROMOCHLOROMETHANE | 124-48-1 | 10.00 | 4803 | 13JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| DIBROMOCHLOROMETHANE | 124-48-1 | 10.00 | 4803 | 14JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | 10.00 | 10.00 |
| HEXANOIC ACID | 142-62-1 | 10.00 | 4378 | 14MAY92 | 09 | 10.00 | ND | 08 | 100.00 | ND | 10.00 | 100.00 |
| HEXANOIC ACID | 142-62-1 | 10.00 | 4803 | 11JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| HEXANOIC ACID | 142-62-1 | 10.00 | 4803 | 12JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| HEXANOIC ACID | 142-62-1 | 10.00 | 4803 | 13JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| HEXANOIC ACID | 142-62-1 | 10.00 | 4803 | 14JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | 10.00 | 10.00 |

Subcategory=Metals Option=3
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M-XYLENE | 108-38-3 | 10.00 | 4378 | 14MAY92 | 09 | 10.00 | ND | 08 | 10.00 | ND | 10.00 | 10.00 |
| M-XYLENE | 108-38-3 | 10.00 | 4803 | 11JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| M-XYLENE | 108-38-3 | 10.00 | 4803 | 12JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| M-XYLENE | 108-38-3 | 10.00 | 4803 | 13JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| M-XYLENE | 108-38-3 | 10.00 | 4803 | 14JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | 10.00 | 10.00 |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 4378 | 14MAY92 | 09 | 10.00 | ND | 08 | 10.00 | ND | 10.00 | 10.00 |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 4803 | 11JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 4803 | 12JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 4803 | 13JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 4803 | 14JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | 10.00 | 10.00 |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 4378 | 14MAY92 | 09 | 199.90 | NC | 08 | 121.01 | NC | 199.90 | 121.01 |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 4803 | 11JUN96 | 16 | 10.00 | ND | 12 | 11.82 | NC | | |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 4803 | 12JUN96 | 16 | 10.00 | ND | 12 | 11.12 | NC | | |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 4803 | 13JUN96 | 16 | 10.00 | ND | 12 | 25.57 | NC | | |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 4803 | 14JUN96 | 16 | 10.00 | ND | 12 | 20.81 | NC | 10.00 | 17.33 |
| PHENOL | 108-95-2 | 10.00 | 4378 | 14MAY92 | 09 | 10.00 | ND | 08 | 100.00 | ND | 10.00 | 100.00 |
| PHENOL | 108-95-2 | 10.00 | 4803 | 11JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| PHENOL | 108-95-2 | 10.00 | 4803 | 12JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| PHENOL | 108-95-2 | 10.00 | 4803 | 13JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| PHENOL | 108-95-2 | 10.00 | 4803 | 14JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | 10.00 | 10.00 |
| PYRIDINE | 110-86-1 | 10.00 | 4378 | 14MAY92 | 09 | 10.00 | ND | 08 | 100.00 | ND | 10.00 | 100.00 |
| PYRIDINE | 110-86-1 | 10.00 | 4803 | 11JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| PYRIDINE | 110-86-1 | 10.00 | 4803 | 12JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| PYRIDINE | 110-86-1 | 10.00 | 4803 | 13JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| PYRIDINE | 110-86-1 | 10.00 | 4803 | 14JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | 10.00 | 10.00 |
| TOLUENE | 108-88-3 | 10.00 | 4378 | 14MAY92 | 09 | 10.00 | ND | 08 | 10.00 | ND | 10.00 | 10.00 |

Subcategory=Metals Option=3
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOLUENE | 108-88-3 | 10.00 | 4803 | 11JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| TOLUENE | 108-88-3 | 10.00 | 4803 | 12JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| TOLUENE | 108-88-3 | 10.00 | 4803 | 13JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| TOLUENE | 108-88-3 | 10.00 | 4803 | 14JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | 10.00 | 10.00 |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 4378 | 14MAY92 | 09 | 10.00 | ND | 08 | 10.00 | ND | 10.00 | 10.00 |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 4803 | 11JUN96 | 16 | 10.00 | ND | 12 | 15.28 | NC | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 4803 | 12JUN96 | 16 | 10.00 | ND | 12 | 15.93 | NC | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 4803 | 13JUN96 | 16 | 10.00 | ND | 12 | 12.27 | NC | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 4803 | 14JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | 10.00 | 13.37 |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 4378 | 14MAY92 | 09 | 10.00 | ND | 08 | 10.00 | ND | 10.00 | 10.00 |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 4803 | 11JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 4803 | 12JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 4803 | 13JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 4803 | 14JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | 10.00 | 10.00 |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 4378 | 14MAY92 | 09 | 10.00 | ND | 08 | 10.00 | ND | 10.00 | 10.00 |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 4803 | 11JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 4803 | 12JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 4803 | 13JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 4803 | 14JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | 10.00 | 10.00 |
| 1,4-DIOXANE | 123-91-1 | 10.00 | 4378 | 14MAY92 | 09 | 10.00 | ND | 08 | 10.00 | ND | 10.00 | 10.00 |
| 1,4-DIOXANE | 123-91-1 | 10.00 | 4803 | 11JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| 1,4-DIOXANE | 123-91-1 | 10.00 | 4803 | 12JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| 1,4-DIOXANE | 123-91-1 | 10.00 | 4803 | 13JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | | |
| 1,4-DIOXANE | 123-91-1 | 10.00 | 4803 | 14JUN96 | 16 | 10.00 | ND | 12 | 10.00 | ND | 10.00 | 10.00 |
| 2-BUTANONE | 78-93-3 | 50.00 | 4378 | 14MAY92 | 09 | 50.00 | ND | 08 | 50.00 | ND | 50.00 | 50.00 |
| 2-BUTANONE | 78-93-3 | 50.00 | 4803 | 11JUN96 | 16 | 50.00 | ND | 12 | 50.00 | ND | | |

Subcategory=Metals Option=3
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2-BUTANONE | 78-93-3 | 50.00 | 4803 | 12JUN96 | 16 | 50.00 | ND | 12 | 50.00 | ND | | |
| 2-BUTANONE | 78-93-3 | 50.00 | 4803 | 13JUN96 | 16 | 50.00 | ND | 12 | 50.00 | ND | | |
| 2-BUTANONE | 78-93-3 | 50.00 | 4803 | 14JUN96 | 16 | 50.00 | ND | 12 | 50.00 | ND | 50.00 | 50.00 |
| 2-PROPANONE | 67-64-1 | 50.00 | 4378 | 14MAY92 | 09 | 1,625.50 | NC | 08 | 50.00 | ND | 1,625.50 | 50.00 |
| 2-PROPANONE | 67-64-1 | 50.00 | 4803 | 11JUN96 | 16 | 162.61 | NC | 12 | 130.84 | NC | | |
| 2-PROPANONE | 67-64-1 | 50.00 | 4803 | 12JUN96 | 16 | 156.96 | NC | 12 | 135.19 | NC | | |
| 2-PROPANONE | 67-64-1 | 50.00 | 4803 | 13JUN96 | 16 | 123.94 | NC | 12 | 136.99 | NC | | |
| 2-PROPANONE | 67-64-1 | 50.00 | 4803 | 14JUN96 | 16 | 118.18 | NC | 12 | 92.53 | NC | 140.42 | 123.89 |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 4378 | 14MAY92 | 09 | 50.00 | ND | 08 | 50.00 | ND | 50.00 | 50.00 |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 4803 | 11JUN96 | 16 | 50.00 | ND | 12 | 50.00 | ND | | |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 4803 | 12JUN96 | 16 | 50.00 | ND | 12 | 50.00 | ND | | |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 4803 | 13JUN96 | 16 | 50.00 | ND | 12 | 50.00 | ND | | |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 4803 | 14JUN96 | 16 | 50.00 | ND | 12 | 50.00 | ND | 50.00 | 50.00 |

Subcategory=Metals Option=4

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4798 | 23APR96 | 05 | 16,900.00 | NC | 02 | 49,400.00 | NC | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4798 | 24APR96 | 05 | 20,800.00 | NC | 02 | 29,200.00 | NC | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4798 | 25APR96 | 05 | 9,190.00 | NC | 02 | 28,700.00 | NC | 15,630.00 | 35,766.67 |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4798 | 23APR96 | 05 | 120,000.00 | NC | 02 | 132,000.00 | NC | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4798 | 24APR96 | 05 | 204,000.00 | NC | 02 | 180,000.00 | NC | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4798 | 25APR96 | 05 | 174,000.00 | NC | 02 | 225,000.00 | NC | 166,000.00 | 179,000.00 |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 650 | 08JAN96 | 01 | 110,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 650 | 19DEC96 | 01 | 190,000.00 | NC | | | | 150,000.00 | . |

------------------------------------------------------------- Subcategory=Metals Option=4 -------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4798 | 23APR96 | 05 | 880,000.00 | NC | 02 | 8,200,000.00 | NC | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4798 | 24APR96 | 05 | 2,000,000.00 | NC | 02 | 4,400,000.00 | NC | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4798 | 25APR96 | 05 | 1,120,000.00 | NC | 02 | 3,200,000.00 | NC | 1,333,333.33 | 5,266,666.67 |
| | | | | . | | | | | | | | |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4798 | 23APR96 | 05 | 19,100,000.00 | NC | 02 | 39,900,000.00 | NC | | |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4798 | 24APR96 | 05 | 20,900,000.00 | NC | 02 | 38,050,000.00 | NC | | |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4798 | 25APR96 | 05 | 14,000,000.00 | NC | 02 | 32,000,000.00 | NC | 18,000,000.00 | 36,650,000.00 |
| | | | | . | | | | | | | | |
| D-CHEMICAL OXYGEN DEMAND | C-004D | 5,000.00 | 650 | 31JAN96 | 01 | 210,000.00 | NC | | | | 210,000.00 | . |
| | | | | . | | | | | | | | |
| FLUORIDE | 16984-48-8 | 100.00 | 4798 | 23APR96 | 05 | 56,500.00 | NC | 02 | 510,000.00 | NC | | |
| FLUORIDE | 16984-48-8 | 100.00 | 4798 | 24APR96 | 05 | 84,500.00 | NC | 02 | 369,000.00 | NC | | |
| FLUORIDE | 16984-48-8 | 100.00 | 4798 | 25APR96 | 05 | 57,800.00 | NC | 02 | 317,000.00 | NC | 66,266.67 | 398,666.67 |
| | | | | . | | | | | | | | |
| HEXAVALENT CHROMIUM | 18540-29-9 | 10.00 | 4798 | 23APR96 | 05 | 500.00 | ND | 02 | 24,000.00 | NC | | |
| HEXAVALENT CHROMIUM | 18540-29-9 | 10.00 | 4798 | 24APR96 | 05 | 820.00 | NC | 02 | 47,500.00 | NC | | |
| HEXAVALENT CHROMIUM | 18540-29-9 | 10.00 | 4798 | 25APR96 | 05 | 1,080.00 | NC | 02 | 49,000.00 | NC | 800.00 | 40,166.67 |
| | | | | . | | | | | | | | |
| NITRATE/NITRITE | C-005 | 50.00 | 4798 | 23APR96 | 05 | 321,000.00 | NC | 02 | 721,000.00 | NC | | |
| NITRATE/NITRITE | C-005 | 50.00 | 4798 | 24APR96 | 05 | 935,000.00 | NC | 02 | 856,000.00 | NC | | |
| NITRATE/NITRITE | C-005 | 50.00 | 4798 | 25APR96 | 05 | 339,000.00 | NC | 02 | 925,000.00 | NC | 531,666.67 | 834,000.00 |
| | | | | . | | | | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 4798 | 23APR96 | 05 | 5,125.00 | NC | 02 | 76,625.00 | NC | | |
| OIL & GREASE | C-007 | 5,000.00 | 4798 | 24APR96 | 05 | 11,886.67 | NC | 02 | 127,450.00 | NC | | |
| OIL & GREASE | C-007 | 5,000.00 | 4798 | 25APR96 | 05 | 5,182.50 | NC | 02 | 87,100.00 | NC | 7,398.06 | 97,058.33 |
| | | | | . | | | | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 09JAN96 | 01 | 5,000.00 | ND | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 12JAN96 | 01 | 5,000.00 | ND | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 12FEB96 | 01 | 23,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 13FEB96 | 01 | 77,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 14FEB96 | 01 | 18,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 15FEB96 | 01 | 19,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 19FEB96 | 01 | 8,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 07MAR96 | 01 | 12,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 20MAR96 | 01 | 5,000.00 | ND | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 11APR96 | 01 | 36,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 12APR96 | 01 | 28,000.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=4 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OIL & GREASE | C-007 | 5,000.00 | 650 | 30APR96 | 01 | 95,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 15MAY96 | 01 | 45,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 16MAY96 | 01 | 69,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 12JUN96 | 01 | 44,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 13JUN96 | 01 | 61,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 15JUL96 | 01 | 6,600.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 17JUL96 | 01 | 68,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 18JUL96 | 01 | 59,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 23JUL96 | 01 | 24,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 26JUL96 | 01 | 60,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 30JUL96 | 01 | 93,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 31JUL96 | 01 | 83,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 07AUG96 | 01 | 19,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 21AUG96 | 01 | 390,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 22AUG96 | 01 | 12,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 26AUG96 | 01 | 120,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 27AUG96 | 01 | 270,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 04SEP96 | 01 | 5,000.00 | ND | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 05SEP96 | 01 | 25,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 23SEP96 | 01 | 1,000,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 24SEP96 | 01 | 200,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 25SEP96 | 01 | 660,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 26SEP96 | 01 | 770,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 22OCT96 | 01 | 26,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 23OCT96 | 01 | 52,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 06NOV96 | 01 | 76,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 07NOV96 | 01 | 240,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 19NOV96 | 01 | 17,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 20NOV96 | 01 | 16,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 21NOV96 | 01 | 17,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 04DEC96 | 01 | 9,200.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 06DEC96 | 01 | 6,800.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 650 | 11DEC96 | 01 | 6,800.00 | NC | | | | 110,940.91 | . |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4798 | 23APR96 | 05 | 20.00 | ND | 02 | 6,120.00 | NC | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4798 | 24APR96 | 05 | 20.00 | ND | 02 | 2,575.00 | NC | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4798 | 25APR96 | 05 | 20.00 | ND | 02 | 20.00 | ND | 20.00 | 2,905.00 |

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(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 09JAN96 | 01 | 10.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 12JAN96 | 01 | 10.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 12FEB96 | 01 | 10.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 13FEB96 | 01 | 10.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 14FEB96 | 01 | 10.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 15FEB96 | 01 | 10.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 19FEB96 | 01 | 10.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 21FEB96 | 01 | 10.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 07MAR96 | 01 | 10.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 14MAR96 | 01 | 10.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 18MAR96 | 01 | 10.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 11APR96 | 01 | 10.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 12APR96 | 01 | 10.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 24APR96 | 01 | 10.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 25APR96 | 01 | 10.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 30APR96 | 01 | 510.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 14MAY96 | 01 | 10.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 15MAY96 | 01 | 10.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 12JUN96 | 01 | 10.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 13JUN96 | 01 | 10.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 15JUL96 | 01 | 10.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 17JUL96 | 01 | 400.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 18JUL96 | 01 | 320.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 23JUL96 | 01 | 290.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 26JUL96 | 01 | 10.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 30JUL96 | 01 | 910.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 31JUL96 | 01 | 430.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 04SEP96 | 01 | 210.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 05SEP96 | 01 | 10.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 23SEP96 | 01 | 10.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 24SEP96 | 01 | 10.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 25SEP96 | 01 | 10.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 26SEP96 | 01 | 10.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 22OCT96 | 01 | 440.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 23OCT96 | 01 | 440.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 24OCT96 | 01 | 880.00 | NC | | | | | |

Subcategory=Metals Option=4
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 06NOV96 | 01 | 1,300.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 07NOV96 | 01 | 10.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 19NOV96 | 01 | 400.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 20NOV96 | 01 | 10.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 21NOV96 | 01 | 10.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 04DEC96 | 01 | 10.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 06DEC96 | 01 | 10.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 650 | 11DEC96 | 01 | 10.00 | ND | | | | 155.68 | . |
| | | | | . | | | | | | | | |
| TOTAL DISSOLVED SOLIDS | C-010 | 10,000.00 | 4798 | 23APR96 | 05 | 42,700,000.00 | NC | 02 | 81,000,000.00 | NC | | |
| TOTAL DISSOLVED SOLIDS | C-010 | 10,000.00 | 4798 | 24APR96 | 05 | 51,500,000.00 | NC | 02 | 76,900,000.00 | NC | | |
| TOTAL DISSOLVED SOLIDS | C-010 | 10,000.00 | 4798 | 25APR96 | 05 | 33,500,000.00 | NC | 02 | 74,700,000.00 | NC | 42,566,666.67 | 77,533,333.33 |
| | | | | . | | | | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4798 | 23APR96 | 05 | 280,000.00 | NC | 02 | 627,000.00 | NC | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4798 | 24APR96 | 05 | 212,000.00 | NC | 02 | 1,107,500.00 | NC | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4798 | 25APR96 | 05 | 217,000.00 | NC | 02 | 1,040,000.00 | NC | 236,333.33 | 924,833.33 |
| | | | | . | | | | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 4798 | 23APR96 | 05 | 39.00 | NC | 02 | 190.00 | NC | | |
| TOTAL PHENOLS | C-020 | 50.00 | 4798 | 24APR96 | 05 | 110.00 | NC | 02 | 210.00 | NC | | |
| TOTAL PHENOLS | C-020 | 50.00 | 4798 | 25APR96 | 05 | 94.00 | NC | 02 | 220.00 | NC | 81.00 | 206.67 |
| | | | | . | | | | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 650 | 04SEP96 | 01 | 110.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 650 | 05SEP96 | 01 | 1,300.00 | NC | | | | 705.00 | . |
| | | | | . | | | | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4798 | 23APR96 | 05 | 25,000.00 | NC | 02 | 542,000.00 | NC | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4798 | 24APR96 | 05 | 33,200.00 | NC | 02 | 522,500.00 | NC | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4798 | 25APR96 | 05 | 19,100.00 | NC | 02 | 499,000.00 | NC | 25,766.67 | 521,166.67 |
| | | | | . | | | | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 31JAN96 | 01 | 77,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 13FEB96 | 01 | 30,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 14FEB96 | 01 | 30,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 16FEB96 | 01 | 29,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 20FEB96 | 01 | 10,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 21FEB96 | 01 | 16,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 22FEB96 | 01 | 23,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 07MAR96 | 01 | 49,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 08MAR96 | 01 | 340,000.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=4 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 20MAR96 | 01 | 15,400.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 25APR96 | 01 | 30,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 26APR96 | 01 | 18,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 30APR96 | 01 | 23,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 13JUN96 | 01 | 19,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 14JUN96 | 01 | 14,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 16JUL96 | 01 | 54,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 17JUL96 | 01 | 47,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 18JUL96 | 01 | 48,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 19JUL96 | 01 | 51,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 23JUL96 | 01 | 33,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 24JUL96 | 01 | 37,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 26JUL96 | 01 | 14,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 30JUL96 | 01 | 41,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 31JUL96 | 01 | 31,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 22AUG96 | 01 | 16,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 23AUG96 | 01 | 2,400.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 27AUG96 | 01 | 36,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 28AUG96 | 01 | 38,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 05SEP96 | 01 | 11,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 06SEP96 | 01 | 25,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 24SEP96 | 01 | 11,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 25SEP96 | 01 | 8,400.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 26SEP96 | 01 | 7,400.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 27SEP96 | 01 | 15,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 21OCT96 | 01 | 11,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 22OCT96 | 01 | 14,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 23OCT96 | 01 | 17,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 07NOV96 | 01 | 23,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 08NOV96 | 01 | 19,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 20NOV96 | 01 | 8,700.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 21NOV96 | 01 | 9,200.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 22NOV96 | 01 | 8,300.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 04DEC96 | 01 | 10,000.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 05DEC96 | 01 | 8,600.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 06DEC96 | 01 | 8,200.00 | NC | | | | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 650 | 11DEC96 | 01 | 8,900.00 | NC | | | | 30,336.96 | . |

------------------------------------------------------------ Subcategory=Metals Option=4 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 4798 | 23APR96 | 05 | 20,000.00 | ND | 02 | 20,000.00 | ND | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 4798 | 24APR96 | 05 | 20,000.00 | ND | 02 | 20,000.00 | ND | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 4798 | 25APR96 | 05 | 20,000.00 | ND | 02 | 20,000.00 | ND | 20,000.00 | 20,000.00 |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4798 | 23APR96 | 05 | 152,000.00 | NC | 02 | 36,000,000.00 | NC | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4798 | 24APR96 | 05 | 224,000.00 | NC | 02 | 31,250,000.00 | NC | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4798 | 25APR96 | 05 | 124,000.00 | NC | 02 | 24,200,000.00 | NC | 166,666.67 | 30,483,333.33 |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 08JAN96 | 01 | 18,400.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 11JAN96 | 01 | 4,800.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 30JAN96 | 01 | 20,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 31JAN96 | 01 | 180,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 12FEB96 | 01 | 24,400.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 13FEB96 | 01 | 29,600.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 15FEB96 | 01 | 34,400.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 19FEB96 | 01 | 156,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 20FEB96 | 01 | 48,800.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 21FEB96 | 01 | 63,600.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 06MAR96 | 01 | 22,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 07MAR96 | 01 | 42,800.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 19MAR96 | 01 | 46,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 26MAR96 | 01 | 37,200.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 11APR96 | 01 | 153,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 12APR96 | 01 | 56,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 23APR96 | 01 | 18,800.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 24APR96 | 01 | 26,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 25APR96 | 01 | 19,600.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 29APR96 | 01 | 49,600.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 13MAY96 | 01 | 18,800.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 14MAY96 | 01 | 25,200.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 12JUN96 | 01 | 11,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 13JUN96 | 01 | 12,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 15JUL96 | 01 | 38,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 17JUL96 | 01 | 70,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 18JUL96 | 01 | 81,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 19JUL96 | 01 | 64,000.00 | NC | | | | | |

------------------------------------------------------------- Subcategory=Metals Option=4 -------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 23JUL96 | 01 | 58,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 24JUL96 | 01 | 48,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 26JUL96 | 01 | 210,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 30JUL96 | 01 | 70,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 31JUL96 | 01 | 124,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 05SEP96 | 01 | 69,600.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 23SEP96 | 01 | 43,200.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 24SEP96 | 01 | 15,600.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 25SEP96 | 01 | 36,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 26SEP96 | 01 | 24,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 22OCT96 | 01 | 58,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 23OCT96 | 01 | 83,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 24OCT96 | 01 | 72,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 06NOV96 | 01 | 14,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 07NOV96 | 01 | 28,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 19NOV96 | 01 | 294,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 20NOV96 | 01 | 65,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 21NOV96 | 01 | 112,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 04DEC96 | 01 | 40,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 05DEC96 | 01 | 33,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 06DEC96 | 01 | 44,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 650 | 11DEC96 | 01 | 74,000.00 | NC | | | | 59,728.00 | . |
| | | | | . | | | | | | | | |
| ALUMINUM | 7429-90-5 | 200.00 | 4798 | 23APR96 | 05 | 568.00 | NC | 02 | 744,000.00 | NC | | |
| ALUMINUM | 7429-90-5 | 200.00 | 4798 | 24APR96 | 05 | 721.00 | NC | 02 | 462,000.00 | NC | | |
| ALUMINUM | 7429-90-5 | 200.00 | 4798 | 25APR96 | 05 | 1,280.00 | NC | 02 | 442,000.00 | NC | 856.33 | 549,333.33 |
| | | | | . | | | | | | | | |
| ANTIMONY | 7440-36-0 | 20.00 | 4798 | 23APR96 | 05 | 237.00 | NC | 02 | 3,400.00 | NC | | |
| ANTIMONY | 7440-36-0 | 20.00 | 4798 | 24APR96 | 05 | 243.00 | NC | 02 | 2,270.00 | NC | | |
| ANTIMONY | 7440-36-0 | 20.00 | 4798 | 25APR96 | 05 | 30.00 | ND | 02 | 3,270.00 | NC | 170.00 | 2,980.00 |
| | | | | . | | | | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 4798 | 23APR96 | 05 | 110.00 | NC | 02 | 84.10 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 4798 | 24APR96 | 05 | 183.00 | NC | 02 | 68.45 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 4798 | 25APR96 | 05 | 130.00 | NC | 02 | 57.20 | NC | 141.00 | 69.92 |
| | | | | . | | | | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 08JAN96 | 01 | 200.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 11JAN96 | 01 | 250.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=4 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARSENIC | 7440-38-2 | 10.00 | 650 | 30JAN96 | 01 | 70.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 31JAN96 | 01 | 300.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 12FEB96 | 01 | 10.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 13FEB96 | 01 | 280.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 15FEB96 | 01 | 500.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 19FEB96 | 01 | 200.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 20FEB96 | 01 | 10.00 | ND | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 21FEB96 | 01 | 230.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 06MAR96 | 01 | 210.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 07MAR96 | 01 | 10.00 | ND | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 18MAR96 | 01 | 30.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 19MAR96 | 01 | 210.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 26MAR96 | 01 | 20.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 11APR96 | 01 | 10.00 | ND | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 12APR96 | 01 | 120.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 23APR96 | 01 | 110.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 24APR96 | 01 | 310.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 25APR96 | 01 | 70.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 29APR96 | 01 | 260.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 13MAY96 | 01 | 10.00 | ND | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 14MAY96 | 01 | 480.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 12JUN96 | 01 | 100.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 13JUN96 | 01 | 220.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 15JUL96 | 01 | 190.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 17JUL96 | 01 | 20.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 18JUL96 | 01 | 150.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 19JUL96 | 01 | 130.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 23JUL96 | 01 | 20.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 24JUL96 | 01 | 380.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 26JUL96 | 01 | 160.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 30JUL96 | 01 | 130.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 31JUL96 | 01 | 130.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 04SEP96 | 01 | 70.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 05SEP96 | 01 | 70.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 23SEP96 | 01 | 260.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 24SEP96 | 01 | 60.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 25SEP96 | 01 | 10.00 | ND | | | | | |

------------------------------------------------------------- Subcategory=Metals Option=4 -------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARSENIC | 7440-38-2 | 10.00 | 650 | 26SEP96 | 01 | 10.00 | ND | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 22OCT96 | 01 | 360.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 23OCT96 | 01 | 440.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 24OCT96 | 01 | 40.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 06NOV96 | 01 | 150.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 07NOV96 | 01 | 10.00 | ND | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 19NOV96 | 01 | 270.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 20NOV96 | 01 | 10.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 21NOV96 | 01 | 60.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 04DEC96 | 01 | 30.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 05DEC96 | 01 | 20.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 06DEC96 | 01 | 10.00 | ND | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 650 | 11DEC96 | 01 | 20.00 | NC | | | | 142.88 | . |
| | | | | . | | | | | | | | |
| BERYLLIUM | 7440-41-7 | 5.00 | 4798 | 23APR96 | 05 | 1.00 | ND | 02 | 39.50 | NC | | |
| BERYLLIUM | 7440-41-7 | 5.00 | 4798 | 24APR96 | 05 | 1.00 | ND | 02 | 35.50 | NC | | |
| BERYLLIUM | 7440-41-7 | 5.00 | 4798 | 25APR96 | 05 | 1.00 | ND | 02 | 33.40 | NC | 1.00 | 36.13 |
| | | | | . | | | | | | | | |
| BORON | 7440-42-8 | 100.00 | 4798 | 23APR96 | 05 | 8,470.00 | NC | 02 | 20,100.00 | NC | | |
| BORON | 7440-42-8 | 100.00 | 4798 | 24APR96 | 05 | 9,900.00 | NC | 02 | 18,250.00 | NC | | |
| BORON | 7440-42-8 | 100.00 | 4798 | 25APR96 | 05 | 6,840.00 | NC | 02 | 17,300.00 | NC | 8,403.33 | 18,550.00 |
| | | | | . | | | | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 4798 | 23APR96 | 05 | 4.00 | ND | 02 | 112,000.00 | NC | | |
| CADMIUM | 7440-43-9 | 5.00 | 4798 | 24APR96 | 05 | 22.10 | NC | 02 | 80,050.00 | NC | | |
| CADMIUM | 7440-43-9 | 5.00 | 4798 | 25APR96 | 05 | 63.10 | NC | 02 | 86,000.00 | NC | 29.73 | 92,683.33 |
| | | | | . | | | | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 08JAN96 | 01 | 20.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 11JAN96 | 01 | 60.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 30JAN96 | 01 | 40.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 31JAN96 | 01 | 63.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 12FEB96 | 01 | 20.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 13FEB96 | 01 | 10.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 15FEB96 | 01 | 10.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 19FEB96 | 01 | 90.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 20FEB96 | 01 | 70.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 21FEB96 | 01 | 70.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 06MAR96 | 01 | 20.00 | ND | | | | | |

Subcategory=Metals Option=4
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CADMIUM | 7440-43-9 | 5.00 | 650 | 07MAR96 | 01 | 120.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 18MAR96 | 01 | 80.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 19MAR96 | 01 | 170.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 26MAR96 | 01 | 300.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 11APR96 | 01 | 500.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 12APR96 | 01 | 330.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 23APR96 | 01 | 20.00 | ND | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 24APR96 | 01 | 20.00 | ND | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 25APR96 | 01 | 20.00 | ND | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 29APR96 | 01 | 60.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 13MAY96 | 01 | 20.00 | ND | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 14MAY96 | 01 | 20.00 | ND | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 12JUN96 | 01 | 20.00 | ND | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 13JUN96 | 01 | 20.00 | ND | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 15JUL96 | 01 | 20.00 | ND | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 17JUL96 | 01 | 20.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 18JUL96 | 01 | 20.00 | ND | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 19JUL96 | 01 | 10.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 23JUL96 | 01 | 20.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 24JUL96 | 01 | 20.00 | ND | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 26JUL96 | 01 | 20.00 | ND | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 30JUL96 | 01 | 20.00 | ND | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 31JUL96 | 01 | 20.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 04SEP96 | 01 | 20.00 | ND | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 05SEP96 | 01 | 20.00 | ND | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 23SEP96 | 01 | 80.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 24SEP96 | 01 | 70.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 25SEP96 | 01 | 120.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 26SEP96 | 01 | 90.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 22OCT96 | 01 | 60.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 23OCT96 | 01 | 60.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 24OCT96 | 01 | 10.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 06NOV96 | 01 | 20.00 | ND | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 07NOV96 | 01 | 20.00 | ND | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 19NOV96 | 01 | 20.00 | ND | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 20NOV96 | 01 | 20.00 | ND | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 21NOV96 | 01 | 20.00 | ND | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=4 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CADMIUM | 7440-43-9 | 5.00 | 650 | 04DEC96 | 01 | 20.00 | ND | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 05DEC96 | 01 | 20.00 | ND | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 06DEC96 | 01 | 20.00 | ND | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 650 | 11DEC96 | 01 | 60.00 | NC | | | | 59.48 | . |
| | | | | . | | | | | | | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 4798 | 23APR96 | 05 | 26,200.00 | NC | 02 | 905,000.00 | NC | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 4798 | 24APR96 | 05 | 15,000.00 | NC | 02 | 526,000.00 | NC | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 4798 | 25APR96 | 05 | 18,800.00 | NC | 02 | 494,000.00 | NC | 20,000.00 | 641,666.67 |
| | | | | . | | | | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 4798 | 23APR96 | 05 | 211.00 | NC | 02 | 926,000.00 | NC | | |
| CHROMIUM | 7440-47-3 | 10.00 | 4798 | 24APR96 | 05 | 472.00 | NC | 02 | 661,500.00 | NC | | |
| CHROMIUM | 7440-47-3 | 10.00 | 4798 | 25APR96 | 05 | 1,300.00 | NC | 02 | 702,000.00 | NC | 661.00 | 763,166.67 |
| | | | | . | | | | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 08JAN96 | 01 | 1,220.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 11JAN96 | 01 | 1,290.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 30JAN96 | 01 | 2,590.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 31JAN96 | 01 | 3,700.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 12FEB96 | 01 | 1,600.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 13FEB96 | 01 | 1,110.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 15FEB96 | 01 | 2,170.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 19FEB96 | 01 | 5,710.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 20FEB96 | 01 | 4,090.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 21FEB96 | 01 | 3,330.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 06MAR96 | 01 | 1,160.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 07MAR96 | 01 | 1,540.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 18MAR96 | 01 | 730.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 19MAR96 | 01 | 1,390.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 26MAR96 | 01 | 1,680.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 11APR96 | 01 | 3,290.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 12APR96 | 01 | 1,240.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 23APR96 | 01 | 120.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 24APR96 | 01 | 330.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 25APR96 | 01 | 710.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 29APR96 | 01 | 4,120.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 13MAY96 | 01 | 120.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 14MAY96 | 01 | 110.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 12JUN96 | 01 | 640.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=4 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 13JUN96 | 01 | 2,150.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 15JUL96 | 01 | 180.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 17JUL96 | 01 | 140.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 18JUL96 | 01 | 70.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 19JUL96 | 01 | 70.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 23JUL96 | 01 | 190.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 24JUL96 | 01 | 140.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 26JUL96 | 01 | 220.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 30JUL96 | 01 | 910.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 31JUL96 | 01 | 2,710.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 04SEP96 | 01 | 70.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 05SEP96 | 01 | 320.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 23SEP96 | 01 | 2,990.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 24SEP96 | 01 | 1,020.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 25SEP96 | 01 | 2,460.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 26SEP96 | 01 | 2,110.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 22OCT96 | 01 | 240.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 23OCT96 | 01 | 630.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 24OCT96 | 01 | 320.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 06NOV96 | 01 | 230.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 07NOV96 | 01 | 1,180.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 19NOV96 | 01 | 7,980.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 20NOV96 | 01 | 1,840.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 21NOV96 | 01 | 3,400.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 04DEC96 | 01 | 2,170.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 05DEC96 | 01 | 2,150.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 06DEC96 | 01 | 2,980.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 650 | 11DEC96 | 01 | 5,190.00 | NC | | | | 1,693.27 | . |
| | | | | . | | | | | | | | |
| COBALT | 7440-48-4 | 50.00 | 4798 | 23APR96 | 05 | 86.50 | NC | 02 | 3,750.00 | NC | | |
| COBALT | 7440-48-4 | 50.00 | 4798 | 24APR96 | 05 | 122.00 | NC | 02 | 7,930.00 | NC | | |
| COBALT | 7440-48-4 | 50.00 | 4798 | 25APR96 | 05 | 135.00 | NC | 02 | 10,700.00 | NC | 114.50 | 7,460.00 |
| | | | | . | | | | | | | | |
| COPPER | 7440-50-8 | 25.00 | 4798 | 23APR96 | 05 | 458.00 | NC | 02 | 522,000.00 | NC | | |
| COPPER | 7440-50-8 | 25.00 | 4798 | 24APR96 | 05 | 306.00 | NC | 02 | 393,500.00 | NC | | |
| COPPER | 7440-50-8 | 25.00 | 4798 | 25APR96 | 05 | 477.00 | NC | 02 | 458,000.00 | NC | 413.67 | 457,833.33 |
| | | | | . | | | | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=4 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COPPER | 7440-50-8 | 25.00 | 650 | 08JAN96 | 01 | 160.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 11JAN96 | 01 | 170.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 30JAN96 | 01 | 660.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 31JAN96 | 01 | 810.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 12FEB96 | 01 | 350.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 13FEB96 | 01 | 200.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 15FEB96 | 01 | 300.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 19FEB96 | 01 | 1,280.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 20FEB96 | 01 | 840.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 21FEB96 | 01 | 460.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 06MAR96 | 01 | 130.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 07MAR96 | 01 | 270.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 18MAR96 | 01 | 410.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 19MAR96 | 01 | 640.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 26MAR96 | 01 | 770.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 11APR96 | 01 | 2,590.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 12APR96 | 01 | 2,320.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 23APR96 | 01 | 220.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 24APR96 | 01 | 240.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 25APR96 | 01 | 330.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 29APR96 | 01 | 1,280.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 13MAY96 | 01 | 110.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 14MAY96 | 01 | 100.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 12JUN96 | 01 | 240.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 13JUN96 | 01 | 210.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 15JUL96 | 01 | 830.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 17JUL96 | 01 | 1,490.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 18JUL96 | 01 | 1,770.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 19JUL96 | 01 | 1,050.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 23JUL96 | 01 | 2,270.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 24JUL96 | 01 | 1,110.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 26JUL96 | 01 | 730.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 30JUL96 | 01 | 1,930.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 31JUL96 | 01 | 2,540.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 04SEP96 | 01 | 450.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 05SEP96 | 01 | 600.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 23SEP96 | 01 | 1,660.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=4 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COPPER | 7440-50-8 | 25.00 | 650 | 24SEP96 | 01 | 570.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 25SEP96 | 01 | 1,030.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 26SEP96 | 01 | 860.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 22OCT96 | 01 | 530.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 23OCT96 | 01 | 660.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 24OCT96 | 01 | 1,470.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 06NOV96 | 01 | 20.00 | ND | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 07NOV96 | 01 | 90.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 19NOV96 | 01 | 20.00 | ND | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 20NOV96 | 01 | 20.00 | ND | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 21NOV96 | 01 | 370.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 04DEC96 | 01 | 280.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 05DEC96 | 01 | 250.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 06DEC96 | 01 | 280.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 650 | 11DEC96 | 01 | 990.00 | NC | | | | 749.23 | . |
| | | | | . | | | | | | | | |
| GALLIUM | 7440-55-3 | 500.00 | 4798 | 23APR96 | 05 | 200.00 | ND | 02 | 1,440.00 | NC | | |
| GALLIUM | 7440-55-3 | 500.00 | 4798 | 24APR96 | 05 | 200.00 | ND | 02 | 1,125.00 | NC | | |
| GALLIUM | 7440-55-3 | 500.00 | 4798 | 25APR96 | 05 | 200.00 | ND | 02 | 1,240.00 | NC | 200.00 | 1,268.33 |
| | | | | . | | | | | | | | |
| INDIUM | 7440-74-6 | 1,000.00 | 4798 | 23APR96 | 05 | 500.00 | ND | 02 | 500.00 | ND | | |
| INDIUM | 7440-74-6 | 1,000.00 | 4798 | 24APR96 | 05 | 500.00 | ND | 02 | 500.00 | ND | | |
| INDIUM | 7440-74-6 | 1,000.00 | 4798 | 25APR96 | 05 | 500.00 | ND | 02 | 500.00 | ND | 500.00 | 500.00 |
| | | | | . | | | | | | | | |
| IODINE | 7553-56-2 | 1,000.00 | 4798 | 23APR96 | 05 | 1,000.00 | ND | 02 | 1,000.00 | ND | | |
| IODINE | 7553-56-2 | 1,000.00 | 4798 | 24APR96 | 05 | 1,000.00 | ND | 02 | 1,000.00 | ND | | |
| IODINE | 7553-56-2 | 1,000.00 | 4798 | 25APR96 | 05 | 1,000.00 | ND | 02 | 1,000.00 | ND | 1,000.00 | 1,000.00 |
| | | | | . | | | | | | | | |
| IRIDIUM | 7439-88-5 | 1,000.00 | 4798 | 23APR96 | 05 | 500.00 | ND | 02 | 175,000.00 | NC | | |
| IRIDIUM | 7439-88-5 | 1,000.00 | 4798 | 24APR96 | 05 | 500.00 | ND | 02 | 143,500.00 | NC | | |
| IRIDIUM | 7439-88-5 | 1,000.00 | 4798 | 25APR96 | 05 | 500.00 | ND | 02 | 169,000.00 | NC | 500.00 | 162,500.00 |
| | | | | . | | | | | | | | |
| IRON | 7439-89-6 | 100.00 | 4798 | 23APR96 | 05 | 4,610.00 | NC | 02 | 4,970,000.00 | NC | | |
| IRON | 7439-89-6 | 100.00 | 4798 | 24APR96 | 05 | 5,760.00 | NC | 02 | 3,385,000.00 | NC | | |
| IRON | 7439-89-6 | 100.00 | 4798 | 25APR96 | 05 | 14,300.00 | NC | 02 | 3,510,000.00 | NC | 8,223.33 | 3,955,000.00 |
| | | | | . | | | | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 08JAN96 | 01 | 2,410.00 | NC | | | | | |

Subcategory=Metals Option=4
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IRON | 7439-89-6 | 100.00 | 650 | 11JAN96 | 01 | 2,630.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 30JAN96 | 01 | 8,280.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 31JAN96 | 01 | 11,000.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 12FEB96 | 01 | 5,760.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 13FEB96 | 01 | 4,250.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 15FEB96 | 01 | 13,210.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 19FEB96 | 01 | 13,740.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 20FEB96 | 01 | 11,570.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 21FEB96 | 01 | 9,110.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 06MAR96 | 01 | 2,540.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 07MAR96 | 01 | 4,780.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 18MAR96 | 01 | 4,540.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 19MAR96 | 01 | 8,380.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 26MAR96 | 01 | 10,020.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 11APR96 | 01 | 18,700.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 12APR96 | 01 | 11,910.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 23APR96 | 01 | 2,440.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 24APR96 | 01 | 4,980.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 25APR96 | 01 | 10,130.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 29APR96 | 01 | 19,840.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 13MAY96 | 01 | 2,510.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 14MAY96 | 01 | 1,360.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 12JUN96 | 01 | 3,130.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 13JUN96 | 01 | 1,760.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 15JUL96 | 01 | 2,060.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 17JUL96 | 01 | 1,920.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 18JUL96 | 01 | 1,600.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 19JUL96 | 01 | 2,080.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 23JUL96 | 01 | 6,570.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 24JUL96 | 01 | 3,450.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 26JUL96 | 01 | 2,030.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 30JUL96 | 01 | 2,480.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 31JUL96 | 01 | 6,320.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 04SEP96 | 01 | 770.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 05SEP96 | 01 | 1,800.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 23SEP96 | 01 | 1,540.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 24SEP96 | 01 | 1,220.00 | NC | | | | | |

Appendix C: Listing of Data used for the Percent Removal Test and Long Term Averages

------------------------------------------------------------ Subcategory=Metals Option=4 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IRON | 7439-89-6 | 100.00 | 650 | 25SEP96 | 01 | 1,290.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 26SEP96 | 01 | 1,660.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 22OCT96 | 01 | 2,460.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 23OCT96 | 01 | 2,890.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 24OCT96 | 01 | 2,410.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 06NOV96 | 01 | 4,190.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 07NOV96 | 01 | 7,380.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 19NOV96 | 01 | 8,190.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 20NOV96 | 01 | 6,080.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 21NOV96 | 01 | 7,710.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 04DEC96 | 01 | 2,190.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 05DEC96 | 01 | 2,020.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 06DEC96 | 01 | 3,360.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 650 | 11DEC96 | 01 | 5,240.00 | NC | | | | 5,382.50 | . |
| | | | | . | | | | | | | | |
| LANTHANUM | 7439-91-0 | 100.00 | 4798 | 23APR96 | 05 | 100.00 | ND | 02 | 100.00 | ND | | |
| LANTHANUM | 7439-91-0 | 100.00 | 4798 | 24APR96 | 05 | 100.00 | ND | 02 | 100.00 | ND | | |
| LANTHANUM | 7439-91-0 | 100.00 | 4798 | 25APR96 | 05 | 100.00 | ND | 02 | 100.00 | ND | 100.00 | 100.00 |
| | | | | . | | | | | | | | |
| LEAD | 7439-92-1 | 50.00 | 4798 | 23APR96 | 05 | 43.00 | ND | 02 | 144,000.00 | NC | | |
| LEAD | 7439-92-1 | 50.00 | 4798 | 24APR96 | 05 | 43.00 | ND | 02 | 98,600.00 | NC | | |
| LEAD | 7439-92-1 | 50.00 | 4798 | 25APR96 | 05 | 78.10 | NC | 02 | 109,000.00 | NC | 54.70 | 117,200.00 |
| | | | | . | | | | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 08JAN96 | 01 | 140.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 11JAN96 | 01 | 130.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 30JAN96 | 01 | 220.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 31JAN96 | 01 | 190.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 12FEB96 | 01 | 180.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 13FEB96 | 01 | 90.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 15FEB96 | 01 | 50.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 19FEB96 | 01 | 360.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 20FEB96 | 01 | 300.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 21FEB96 | 01 | 120.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 06MAR96 | 01 | 10.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 07MAR96 | 01 | 320.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 18MAR96 | 01 | 380.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 19MAR96 | 01 | 210.00 | NC | | | | | |

------------------------------------------------------------- Subcategory=Metals Option=4 -------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LEAD | 7439-92-1 | 50.00 | 650 | 26MAR96 | 01 | 390.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 11APR96 | 01 | 280.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 12APR96 | 01 | 430.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 23APR96 | 01 | 180.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 24APR96 | 01 | 150.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 25APR96 | 01 | 20.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 29APR96 | 01 | 280.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 13MAY96 | 01 | 190.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 14MAY96 | 01 | 40.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 12JUN96 | 01 | 70.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 13JUN96 | 01 | 250.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 15JUL96 | 01 | 10.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 17JUL96 | 01 | 80.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 18JUL96 | 01 | 150.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 19JUL96 | 01 | 10.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 23JUL96 | 01 | 10.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 24JUL96 | 01 | 40.00 | ND | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 26JUL96 | 01 | 40.00 | ND | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 30JUL96 | 01 | 90.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 31JUL96 | 01 | 250.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 04SEP96 | 01 | 30.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 05SEP96 | 01 | 10.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 23SEP96 | 01 | 150.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 24SEP96 | 01 | 220.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 25SEP96 | 01 | 270.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 26SEP96 | 01 | 220.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 22OCT96 | 01 | 250.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 23OCT96 | 01 | 250.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 24OCT96 | 01 | 190.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 06NOV96 | 01 | 100.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 07NOV96 | 01 | 40.00 | ND | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 19NOV96 | 01 | 190.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 20NOV96 | 01 | 40.00 | ND | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 21NOV96 | 01 | 330.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 04DEC96 | 01 | 170.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 05DEC96 | 01 | 280.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 650 | 06DEC96 | 01 | 320.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=4 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LEAD | 7439-92-1 | 50.00 | 650 | 11DEC96 | 01 | 580.00 | NC | | | | 178.85 | . |
| LITHIUM | 7439-93-2 | 100.00 | 4798 | 23APR96 | 05 | 2,010.00 | NC | 02 | 7,250.00 | NC | | |
| LITHIUM | 7439-93-2 | 100.00 | 4798 | 24APR96 | 05 | 2,370.00 | NC | 02 | 5,285.00 | NC | | |
| LITHIUM | 7439-93-2 | 100.00 | 4798 | 25APR96 | 05 | 1,400.00 | NC | 02 | 4,890.00 | NC | 1,926.67 | 5,808.33 |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4798 | 23APR96 | 05 | 8,210.00 | NC | 02 | 53,300.00 | NC | | |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4798 | 24APR96 | 05 | 4,000.00 | NC | 02 | 42,200.00 | NC | | |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4798 | 25APR96 | 05 | 5,050.00 | NC | 02 | 41,800.00 | NC | 5,753.33 | 45,766.67 |
| MANGANESE | 7439-96-5 | 15.00 | 4798 | 23APR96 | 05 | 49.40 | NC | 02 | 48,300.00 | NC | | |
| MANGANESE | 7439-96-5 | 15.00 | 4798 | 24APR96 | 05 | 37.50 | NC | 02 | 33,550.00 | NC | | |
| MANGANESE | 7439-96-5 | 15.00 | 4798 | 25APR96 | 05 | 59.20 | NC | 02 | 31,400.00 | NC | 48.70 | 37,750.00 |
| MERCURY | 7439-97-6 | 0.20 | 4798 | 23APR96 | 05 | 1.63 | NC | 02 | 129.00 | NC | | |
| MERCURY | 7439-97-6 | 0.20 | 4798 | 24APR96 | 05 | 1.60 | NC | 02 | 96.70 | NC | | |
| MERCURY | 7439-97-6 | 0.20 | 4798 | 25APR96 | 05 | 1.77 | NC | 02 | 82.00 | NC | 1.67 | 102.57 |
| MERCURY | 7439-97-6 | 0.20 | 650 | 08JAN96 | 01 | 0.20 | ND | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 12JAN96 | 01 | 0.20 | ND | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 31JAN96 | 01 | 0.20 | ND | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 12FEB96 | 01 | 0.20 | ND | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 13FEB96 | 01 | 0.20 | ND | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 15FEB96 | 01 | 0.20 | ND | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 19FEB96 | 01 | 0.40 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 21FEB96 | 01 | 0.20 | ND | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 22FEB96 | 01 | 0.20 | ND | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 07MAR96 | 01 | 0.20 | ND | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 08MAR96 | 01 | 0.20 | ND | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 20MAR96 | 01 | 0.60 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 12APR96 | 01 | 0.20 | ND | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 25APR96 | 01 | 0.20 | ND | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 26APR96 | 01 | 0.40 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 30APR96 | 01 | 0.20 | ND | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 15MAY96 | 01 | 0.20 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 16MAY96 | 01 | 0.20 | ND | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 17MAY96 | 01 | 0.30 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=4 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MERCURY | 7439-97-6 | 0.20 | 650 | 13JUN96 | 01 | 0.60 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 14JUN96 | 01 | 0.60 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 16JUL96 | 01 | 0.50 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 17JUL96 | 01 | 0.80 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 18JUL96 | 01 | 0.60 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 19JUL96 | 01 | 0.60 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 23JUL96 | 01 | 0.60 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 24JUL96 | 01 | 0.80 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 26JUL96 | 01 | 0.80 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 30JUL96 | 01 | 0.60 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 31JUL96 | 01 | 0.50 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 01AUG96 | 01 | 0.50 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 22AUG96 | 01 | 0.30 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 23AUG96 | 01 | 0.20 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 27AUG96 | 01 | 0.20 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 28AUG96 | 01 | 0.20 | ND | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 05SEP96 | 01 | 0.60 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 06SEP96 | 01 | 0.60 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 24SEP96 | 01 | 0.80 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 25SEP96 | 01 | 0.60 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 26SEP96 | 01 | 0.60 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 27SEP96 | 01 | 0.80 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 21OCT96 | 01 | 0.30 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 22OCT96 | 01 | 0.20 | ND | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 23OCT96 | 01 | 0.50 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 07NOV96 | 01 | 0.70 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 08NOV96 | 01 | 0.60 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 20NOV96 | 01 | 0.20 | ND | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 21NOV96 | 01 | 0.20 | ND | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 22NOV96 | 01 | 0.20 | ND | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 04DEC96 | 01 | 2.50 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 05DEC96 | 01 | 2.20 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 06DEC96 | 01 | 1.50 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 650 | 11DEC96 | 01 | 0.70 | NC | | | | 0.51 | . |
| | | | | . | | | | | | | | |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4798 | 23APR96 | 05 | 1,910.00 | NC | 02 | 3,120.00 | NC | | |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4798 | 24APR96 | 05 | 2,040.00 | NC | 02 | 2,040.00 | NC | | |

------------------------------------------------------------ Subcategory=Metals Option=4 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MOLYBDENUM | 7439-98-7 | 10.00 | 4798 | 25APR96 | 05 | 1,290.00 | NC | 02 | 1,960.00 | NC | 1,746.67 | 2,373.33 |
| NICKEL | 7440-02-0 | 40.00 | 4798 | 23APR96 | 05 | 1,130.00 | NC | 02 | 317,000.00 | NC | | |
| NICKEL | 7440-02-0 | 40.00 | 4798 | 24APR96 | 05 | 1,150.00 | NC | 02 | 208,000.00 | NC | | |
| NICKEL | 7440-02-0 | 40.00 | 4798 | 25APR96 | 05 | 760.00 | NC | 02 | 218,000.00 | NC | 1,013.33 | 247,666.67 |
| NICKEL | 7440-02-0 | 40.00 | 650 | 08JAN96 | 01 | 3,300.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 11JAN96 | 01 | 1,630.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 30JAN96 | 01 | 1,770.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 31JAN96 | 01 | 1,200.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 12FEB96 | 01 | 1,830.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 13FEB96 | 01 | 1,780.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 15FEB96 | 01 | 1,500.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 19FEB96 | 01 | 860.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 20FEB96 | 01 | 1,070.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 21FEB96 | 01 | 3,140.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 06MAR96 | 01 | 350.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 07MAR96 | 01 | 2,320.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 18MAR96 | 01 | 530.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 19MAR96 | 01 | 550.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 26MAR96 | 01 | 1,210.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 11APR96 | 01 | 3,030.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 12APR96 | 01 | 2,660.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 23APR96 | 01 | 860.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 24APR96 | 01 | 980.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 25APR96 | 01 | 740.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 29APR96 | 01 | 670.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 13MAY96 | 01 | 2,200.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 14MAY96 | 01 | 1,240.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 12JUN96 | 01 | 850.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 13JUN96 | 01 | 780.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 15JUL96 | 01 | 630.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 17JUL96 | 01 | 610.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 18JUL96 | 01 | 670.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 19JUL96 | 01 | 590.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 23JUL96 | 01 | 550.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 24JUL96 | 01 | 680.00 | NC | | | | | |

Subcategory=Metals Option=4 (continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NICKEL | 7440-02-0 | 40.00 | 650 | 26JUL96 | 01 | 340.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 30JUL96 | 01 | 760.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 31JUL96 | 01 | 590.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 04SEP96 | 01 | 580.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 05SEP96 | 01 | 710.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 23SEP96 | 01 | 640.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 24SEP96 | 01 | 800.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 25SEP96 | 01 | 1,060.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 26SEP96 | 01 | 1,030.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 22OCT96 | 01 | 1,520.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 23OCT96 | 01 | 800.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 24OCT96 | 01 | 2,460.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 06NOV96 | 01 | 1,340.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 07NOV96 | 01 | 720.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 19NOV96 | 01 | 690.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 20NOV96 | 01 | 650.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 21NOV96 | 01 | 920.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 04DEC96 | 01 | 440.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 05DEC96 | 01 | 370.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 06DEC96 | 01 | 520.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 650 | 11DEC96 | 01 | 890.00 | NC | | | | 1,127.12 | . |
| OSMIUM | 7440-04-2 | 100.00 | 4798 | 23APR96 | 05 | 100.00 | ND | 02 | 149.00 | NC | | |
| OSMIUM | 7440-04-2 | 100.00 | 4798 | 24APR96 | 05 | 100.00 | ND | 02 | 181.00 | NC | | |
| OSMIUM | 7440-04-2 | 100.00 | 4798 | 25APR96 | 05 | 100.00 | ND | 02 | 239.00 | NC | 100.00 | 189.67 |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 4798 | 23APR96 | 05 | 25,800.00 | NC | 02 | 822,000.00 | NC | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 4798 | 24APR96 | 05 | 28,600.00 | NC | 02 | 596,000.00 | NC | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 4798 | 25APR96 | 05 | 18,200.00 | NC | 02 | 659,000.00 | NC | 24,200.00 | 692,333.33 |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 12APR96 | 01 | 170,000.00 | NC | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 15MAY96 | 01 | 21,000.00 | NC | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 16MAY96 | 01 | 15,000.00 | NC | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 17MAY96 | 01 | 20,000.00 | NC | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 13JUN96 | 01 | 19,000.00 | NC | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 14JUN96 | 01 | 14,000.00 | NC | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 15JUL96 | 01 | 50,080.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=4 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 17JUL96 | 01 | 54,030.00 | NC | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 18JUL96 | 01 | 61,230.00 | NC | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 19JUL96 | 01 | 56,590.00 | NC | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 23JUL96 | 01 | 28,130.00 | NC | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 24JUL96 | 01 | 32,560.00 | NC | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 26JUL96 | 01 | 14,320.00 | NC | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 30JUL96 | 01 | 38,470.00 | NC | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 31JUL96 | 01 | 30,750.00 | NC | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 04SEP96 | 01 | 8,550.00 | NC | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 05SEP96 | 01 | 20,660.00 | NC | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 23SEP96 | 01 | 9,580.00 | NC | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 24SEP96 | 01 | 7,480.00 | NC | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 25SEP96 | 01 | 7,500.00 | NC | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 26SEP96 | 01 | 14,640.00 | NC | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 22OCT96 | 01 | 7,530.00 | NC | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 23OCT96 | 01 | 11,580.00 | NC | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 24OCT96 | 01 | 12,450.00 | NC | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 06NOV96 | 01 | 19,280.00 | NC | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 07NOV96 | 01 | 16,300.00 | NC | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 19NOV96 | 01 | 16,240.00 | NC | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 20NOV96 | 01 | 8,780.00 | NC | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 21NOV96 | 01 | 11,150.00 | NC | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 04DEC96 | 01 | 9,750.00 | NC | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 05DEC96 | 01 | 8,700.00 | NC | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 06DEC96 | 01 | 8,870.00 | NC | | | | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 650 | 11DEC96 | 01 | 12,100.00 | NC | | | | 25,342.42 | . |
| POTASSIUM | 7440-09-7 | 1,000.00 | 4798 | 23APR96 | 05 | 415,000.00 | NC | 02 | 876,000.00 | NC | | |
| POTASSIUM | 7440-09-7 | 1,000.00 | 4798 | 24APR96 | 05 | 505,000.00 | NC | 02 | 736,500.00 | NC | | |
| POTASSIUM | 7440-09-7 | 1,000.00 | 4798 | 25APR96 | 05 | 310,000.00 | NC | 02 | 695,000.00 | NC | 410,000.00 | 769,166.67 |
| SELENIUM | 7782-49-2 | 5.00 | 4798 | 23APR96 | 05 | 40.00 | ND | 02 | 297.00 | NC | | |
| SELENIUM | 7782-49-2 | 5.00 | 4798 | 24APR96 | 05 | 285.00 | NC | 02 | 155.50 | NC | | |
| SELENIUM | 7782-49-2 | 5.00 | 4798 | 25APR96 | 05 | 20.00 | ND | 02 | 360.00 | NC | 115.00 | 270.83 |
| SELENIUM | 7782-49-2 | 5.00 | 650 | 15JUL96 | 01 | 280.00 | NC | | | | | |
| SELENIUM | 7782-49-2 | 5.00 | 650 | 17JUL96 | 01 | 100.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=4 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SELENIUM | 7782-49-2 | 5.00 | 650 | 18JUL96 | 01 | 380.00 | NC | | | | | |
| SELENIUM | 7782-49-2 | 5.00 | 650 | 19JUL96 | 01 | 370.00 | NC | | | | | |
| SELENIUM | 7782-49-2 | 5.00 | 650 | 23JUL96 | 01 | 170.00 | NC | | | | | |
| SELENIUM | 7782-49-2 | 5.00 | 650 | 24JUL96 | 01 | 200.00 | NC | | | | | |
| SELENIUM | 7782-49-2 | 5.00 | 650 | 26JUL96 | 01 | 10.00 | ND | | | | | |
| SELENIUM | 7782-49-2 | 5.00 | 650 | 30JUL96 | 01 | 50.00 | NC | | | | | |
| SELENIUM | 7782-49-2 | 5.00 | 650 | 31JUL96 | 01 | 110.00 | NC | | | | | |
| SELENIUM | 7782-49-2 | 5.00 | 650 | 04SEP96 | 01 | 50.00 | NC | | | | | |
| SELENIUM | 7782-49-2 | 5.00 | 650 | 05SEP96 | 01 | 190.00 | NC | | | | | |
| SELENIUM | 7782-49-2 | 5.00 | 650 | 23SEP96 | 01 | 2,480.00 | NC | | | | | |
| SELENIUM | 7782-49-2 | 5.00 | 650 | 24SEP96 | 01 | 1,840.00 | NC | | | | | |
| SELENIUM | 7782-49-2 | 5.00 | 650 | 25SEP96 | 01 | 2,570.00 | NC | | | | | |
| SELENIUM | 7782-49-2 | 5.00 | 650 | 26SEP96 | 01 | 1,980.00 | NC | | | | | |
| SELENIUM | 7782-49-2 | 5.00 | 650 | 22OCT96 | 01 | 1,650.00 | NC | | | | | |
| SELENIUM | 7782-49-2 | 5.00 | 650 | 23OCT96 | 01 | 280.00 | NC | | | | | |
| SELENIUM | 7782-49-2 | 5.00 | 650 | 24OCT96 | 01 | 500.00 | NC | | | | | |
| SELENIUM | 7782-49-2 | 5.00 | 650 | 06NOV96 | 01 | 720.00 | NC | | | | | |
| SELENIUM | 7782-49-2 | 5.00 | 650 | 07NOV96 | 01 | 130.00 | NC | | | | | |
| SELENIUM | 7782-49-2 | 5.00 | 650 | 19NOV96 | 01 | 10.00 | ND | | | | | |
| SELENIUM | 7782-49-2 | 5.00 | 650 | 20NOV96 | 01 | 210.00 | NC | | | | | |
| SELENIUM | 7782-49-2 | 5.00 | 650 | 21NOV96 | 01 | 530.00 | NC | | | | | |
| SELENIUM | 7782-49-2 | 5.00 | 650 | 04DEC96 | 01 | 160.00 | NC | | | | | |
| SELENIUM | 7782-49-2 | 5.00 | 650 | 05DEC96 | 01 | 170.00 | NC | | | | | |
| SELENIUM | 7782-49-2 | 5.00 | 650 | 06DEC96 | 01 | 60.00 | NC | | | | | |
| SELENIUM | 7782-49-2 | 5.00 | 650 | 11DEC96 | 01 | 450.00 | NC | | | | 579.63 | . |
| | | | | . | | | | | | | | |
| SILICON | 7440-21-3 | 100.00 | 4798 | 23APR96 | 05 | 1,290.00 | NC | 02 | 134,000.00 | NC | | |
| SILICON | 7440-21-3 | 100.00 | 4798 | 24APR96 | 05 | 1,480.00 | NC | 02 | 81,600.00 | NC | | |
| SILICON | 7440-21-3 | 100.00 | 4798 | 25APR96 | 05 | 1,570.00 | NC | 02 | 89,700.00 | NC | 1,446.67 | 101,766.67 |
| | | | | . | | | | | | | | |
| SILVER | 7440-22-4 | 10.00 | 4798 | 23APR96 | 05 | 5.00 | ND | 02 | 5,760.00 | NC | | |
| SILVER | 7440-22-4 | 10.00 | 4798 | 24APR96 | 05 | 12.70 | NC | 02 | 4,490.00 | NC | | |
| SILVER | 7440-22-4 | 10.00 | 4798 | 25APR96 | 05 | 38.10 | NC | 02 | 4,370.00 | NC | 18.60 | 4,873.33 |
| | | | | . | | | | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 08JAN96 | 01 | 30.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 11JAN96 | 01 | 50.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 30JAN96 | 01 | 20.00 | NC | | | | | |

Subcategory=Metals Option=4
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SILVER | 7440-22-4 | 10.00 | 650 | 31JAN96 | 01 | 30.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 12FEB96 | 01 | 20.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 13FEB96 | 01 | 10.00 | ND | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 15FEB96 | 01 | 10.00 | ND | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 19FEB96 | 01 | 20.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 20FEB96 | 01 | 10.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 21FEB96 | 01 | 10.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 06MAR96 | 01 | 10.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 07MAR96 | 01 | 10.00 | ND | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 18MAR96 | 01 | 10.00 | ND | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 19MAR96 | 01 | 20.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 26MAR96 | 01 | 50.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 11APR96 | 01 | 10.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 12APR96 | 01 | 10.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 23APR96 | 01 | 10.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 24APR96 | 01 | 10.00 | ND | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 25APR96 | 01 | 30.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 29APR96 | 01 | 100.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 13MAY96 | 01 | 100.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 14MAY96 | 01 | 10.00 | ND | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 12JUN96 | 01 | 60.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 13JUN96 | 01 | 50.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 15JUL96 | 01 | 20.00 | ND | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 17JUL96 | 01 | 10.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 18JUL96 | 01 | 20.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 19JUL96 | 01 | 20.00 | ND | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 23JUL96 | 01 | 20.00 | ND | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 24JUL96 | 01 | 20.00 | ND | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 26JUL96 | 01 | 20.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 30JUL96 | 01 | 10.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 31JUL96 | 01 | 10.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 04SEP96 | 01 | 20.00 | ND | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 05SEP96 | 01 | 20.00 | ND | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 23SEP96 | 01 | 20.00 | ND | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 24SEP96 | 01 | 20.00 | ND | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 25SEP96 | 01 | 20.00 | ND | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 26SEP96 | 01 | 20.00 | ND | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=4 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SILVER | 7440-22-4 | 10.00 | 650 | 22OCT96 | 01 | 20.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 23OCT96 | 01 | 10.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 24OCT96 | 01 | 20.00 | ND | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 06NOV96 | 01 | 20.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 07NOV96 | 01 | 20.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 19NOV96 | 01 | 20.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 20NOV96 | 01 | 70.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 21NOV96 | 01 | 50.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 04DEC96 | 01 | 20.00 | ND | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 05DEC96 | 01 | 20.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 06DEC96 | 01 | 40.00 | NC | | | | | |
| SILVER | 7440-22-4 | 10.00 | 650 | 11DEC96 | 01 | 60.00 | NC | | | | 25.77 | . |
| | | | | . | | | | | | | | |
| SODIUM | 7440-23-5 | 5,000.00 | 4798 | 23APR96 | 05 | 15,000,000.00 | NC | 02 | 30,600,000.00 | NC | | |
| SODIUM | 7440-23-5 | 5,000.00 | 4798 | 24APR96 | 05 | 18,400,000.00 | NC | 02 | 30,700,000.00 | NC | | |
| SODIUM | 7440-23-5 | 5,000.00 | 4798 | 25APR96 | 05 | 11,900,000.00 | NC | 02 | 28,100,000.00 | NC | 15,100,000.00 | 29,800,000.00 |
| | | | | . | | | | | | | | |
| STRONTIUM | 7440-24-6 | 100.00 | 4798 | 23APR96 | 05 | 100.00 | ND | 02 | 2,200.00 | NC | | |
| STRONTIUM | 7440-24-6 | 100.00 | 4798 | 24APR96 | 05 | 100.00 | ND | 02 | 2,305.00 | NC | | |
| STRONTIUM | 7440-24-6 | 100.00 | 4798 | 25APR96 | 05 | 100.00 | ND | 02 | 2,800.00 | NC | 100.00 | 2,435.00 |
| | | | | . | | | | | | | | |
| SULFUR | 7704-34-9 | 1,000.00 | 4798 | 23APR96 | 05 | 1,310,000.00 | NC | 02 | 1,880,000.00 | NC | | |
| SULFUR | 7704-34-9 | 1,000.00 | 4798 | 24APR96 | 05 | 1,450,000.00 | NC | 02 | 1,720,000.00 | NC | | |
| SULFUR | 7704-34-9 | 1,000.00 | 4798 | 25APR96 | 05 | 882,000.00 | NC | 02 | 1,720,000.00 | NC | 1,214,000.00 | 1,773,333.33 |
| | | | | . | | | | | | | | |
| TANTALUM | 7440-25-7 | 500.00 | 4798 | 23APR96 | 05 | 500.00 | ND | 02 | 1,600.00 | NC | | |
| TANTALUM | 7440-25-7 | 500.00 | 4798 | 24APR96 | 05 | 500.00 | ND | 02 | 1,270.00 | NC | | |
| TANTALUM | 7440-25-7 | 500.00 | 4798 | 25APR96 | 05 | 500.00 | ND | 02 | 1,370.00 | NC | 500.00 | 1,413.33 |
| | | | | . | | | | | | | | |
| TELLURIUM | 13494-80-9 | 1,000.00 | 4798 | 23APR96 | 05 | 1,000.00 | ND | 02 | 1,000.00 | ND | | |
| TELLURIUM | 13494-80-9 | 1,000.00 | 4798 | 24APR96 | 05 | 1,000.00 | ND | 02 | 1,000.00 | ND | | |
| TELLURIUM | 13494-80-9 | 1,000.00 | 4798 | 25APR96 | 05 | 1,000.00 | ND | 02 | 1,000.00 | ND | 1,000.00 | 1,000.00 |
| | | | | . | | | | | | | | |
| THALLIUM | 7440-28-0 | 10.00 | 4798 | 23APR96 | 05 | 10.00 | ND | 02 | 20.00 | ND | | |
| THALLIUM | 7440-28-0 | 10.00 | 4798 | 24APR96 | 05 | 20.00 | ND | 02 | 20.00 | ND | | |
| THALLIUM | 7440-28-0 | 10.00 | 4798 | 25APR96 | 05 | 10.00 | ND | 02 | 20.00 | ND | 13.33 | 20.00 |
| | | | | . | | | | | | | | |

Subcategory=Metals Option=4
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIN | 7440-31-5 | 30.00 | 4798 | 23APR96 | 05 | 34.50 | NC | 02 | 171,000.00 | NC | | |
| TIN | 7440-31-5 | 30.00 | 4798 | 24APR96 | 05 | 69.80 | NC | 02 | 114,400.00 | NC | | |
| TIN | 7440-31-5 | 30.00 | 4798 | 25APR96 | 05 | 165.00 | NC | 02 | 146,000.00 | NC | 89.77 | 143,800.00 |
| TITANIUM | 7440-32-6 | 5.00 | 4798 | 23APR96 | 05 | 55.50 | NC | 02 | 46,800.00 | NC | | |
| TITANIUM | 7440-32-6 | 5.00 | 4798 | 24APR96 | 05 | 44.50 | NC | 02 | 30,650.00 | NC | | |
| TITANIUM | 7440-32-6 | 5.00 | 4798 | 25APR96 | 05 | 70.60 | NC | 02 | 28,600.00 | NC | 56.87 | 35,350.00 |
| VANADIUM | 7440-62-2 | 50.00 | 4798 | 23APR96 | 05 | 17.80 | NC | 02 | 3,020.00 | NC | | |
| VANADIUM | 7440-62-2 | 50.00 | 4798 | 24APR96 | 05 | 9.00 | ND | 02 | 1,825.00 | NC | | |
| VANADIUM | 7440-62-2 | 50.00 | 4798 | 25APR96 | 05 | 9.00 | ND | 02 | 1,800.00 | NC | 11.93 | 2,215.00 |
| YTTRIUM | 7440-65-5 | 5.00 | 4798 | 23APR96 | 05 | 5.00 | ND | 02 | 148.00 | NC | | |
| YTTRIUM | 7440-65-5 | 5.00 | 4798 | 24APR96 | 05 | 5.00 | ND | 02 | 88.00 | NC | | |
| YTTRIUM | 7440-65-5 | 5.00 | 4798 | 25APR96 | 05 | 5.00 | ND | 02 | 89.20 | NC | 5.00 | 108.40 |
| ZINC | 7440-66-6 | 20.00 | 4798 | 23APR96 | 05 | 122.00 | NC | 02 | 680,000.00 | NC | | |
| ZINC | 7440-66-6 | 20.00 | 4798 | 24APR96 | 05 | 215.00 | NC | 02 | 575,500.00 | NC | | |
| ZINC | 7440-66-6 | 20.00 | 4798 | 25APR96 | 05 | 1,050.00 | NC | 02 | 670,000.00 | NC | 462.33 | 641,833.33 |
| ZINC | 7440-66-6 | 20.00 | 650 | 08JAN96 | 01 | 120.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 11JAN96 | 01 | 100.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 30JAN96 | 01 | 230.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 31JAN96 | 01 | 280.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 12FEB96 | 01 | 220.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 13FEB96 | 01 | 140.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 15FEB96 | 01 | 230.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 19FEB96 | 01 | 1,390.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 20FEB96 | 01 | 980.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 21FEB96 | 01 | 640.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 06MAR96 | 01 | 290.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 07MAR96 | 01 | 210.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 18MAR96 | 01 | 270.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 19MAR96 | 01 | 500.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 26MAR96 | 01 | 1,150.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 11APR96 | 01 | 2,950.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 12APR96 | 01 | 1,290.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=4 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ZINC | 7440-66-6 | 20.00 | 650 | 23APR96 | 01 | 50.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 24APR96 | 01 | 120.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 25APR96 | 01 | 350.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 29APR96 | 01 | 700.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 13MAY96 | 01 | 50.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 14MAY96 | 01 | 20.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 12JUN96 | 01 | 60.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 13JUN96 | 01 | 60.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 15JUL96 | 01 | 120.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 17JUL96 | 01 | 190.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 18JUL96 | 01 | 120.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 19JUL96 | 01 | 130.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 23JUL96 | 01 | 310.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 24JUL96 | 01 | 210.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 26JUL96 | 01 | 140.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 30JUL96 | 01 | 320.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 31JUL96 | 01 | 650.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 04SEP96 | 01 | 20.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 05SEP96 | 01 | 150.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 23SEP96 | 01 | 280.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 24SEP96 | 01 | 150.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 25SEP96 | 01 | 230.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 26SEP96 | 01 | 160.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 22OCT96 | 01 | 240.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 23OCT96 | 01 | 330.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 24OCT96 | 01 | 140.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 06NOV96 | 01 | 10.00 | ND | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 07NOV96 | 01 | 10.00 | ND | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 19NOV96 | 01 | 370.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 20NOV96 | 01 | 10.00 | ND | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 21NOV96 | 01 | 930.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 04DEC96 | 01 | 420.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 05DEC96 | 01 | 360.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 06DEC96 | 01 | 420.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 650 | 11DEC96 | 01 | 1,000.00 | NC | | | | 381.15 | . |
| | | | | . | | | | | | | | |
| ZIRCONIUM | 7440-67-7 | 100.00 | 4798 | 23APR96 | 05 | 1,340.00 | NC | 02 | 4,860.00 | NC | | |

Subcategory=Metals Option=4
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ZIRCONIUM | 7440-67-7 | 100.00 | 4798 | 24APR96 | 05 | 1,550.00 | NC | 02 | 1,122.00 | NC | | |
| ZIRCONIUM | 7440-67-7 | 100.00 | 4798 | 25APR96 | 05 | 970.00 | NC | 02 | 688.00 | NC | 1,286.67 | 2,223.33 |
| | | | | . | | | | | | | | |
| BENZOIC ACID | 65-85-0 | 50.00 | 4798 | 23APR96 | 05 | 451.56 | NC | 02 | 23,362.20 | NC | | |
| BENZOIC ACID | 65-85-0 | 50.00 | 4798 | 24APR96 | 05 | 104.34 | NC | 02 | 18,454.45 | NC | | |
| BENZOIC ACID | 65-85-0 | 50.00 | 4798 | 25APR96 | 05 | 10,009.10 | NC | 02 | 20,299.10 | NC | 3,521.67 | 20,705.25 |
| | | | | . | | | | | | | | |
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 4798 | 23APR96 | 05 | 10.00 | ND | 02 | 10.00 | ND | | |
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 4798 | 24APR96 | 05 | 10.00 | ND | 02 | 13.33 | NC | | |
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 4798 | 25APR96 | 05 | 10.00 | ND | 02 | 10.00 | ND | 10.00 | 11.11 |
| | | | | . | | | | | | | | |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 4798 | 23APR96 | 05 | 10.00 | ND | 02 | 17.58 | NC | | |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 4798 | 24APR96 | 05 | 10.00 | ND | 02 | 10.00 | ND | | |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 4798 | 25APR96 | 05 | 10.00 | ND | 02 | 10.00 | ND | 10.00 | 12.53 |
| | | | | . | | | | | | | | |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 4798 | 23APR96 | 05 | 10.00 | ND | 02 | 10.00 | ND | | |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 4798 | 24APR96 | 05 | 10.00 | ND | 02 | 10.00 | ND | | |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 4798 | 25APR96 | 05 | 10.00 | ND | 02 | 10.00 | ND | 10.00 | 10.00 |
| | | | | . | | | | | | | | |
| CHLOROFORM | 67-66-3 | 10.00 | 4798 | 23APR96 | 05 | 181.26 | NC | 02 | 330.50 | NC | | |
| CHLOROFORM | 67-66-3 | 10.00 | 4798 | 24APR96 | 05 | 201.30 | NC | 02 | 599.90 | NC | | |
| CHLOROFORM | 67-66-3 | 10.00 | 4798 | 25APR96 | 05 | 263.50 | NC | 02 | 730.60 | NC | 215.35 | 553.67 |
| | | | | . | | | | | | | | |
| CHLOROFORM | 67-66-3 | 10.00 | 650 | 09JAN96 | 01 | 390.00 | NC | | | | | |
| CHLOROFORM | 67-66-3 | 10.00 | 650 | 11APR96 | 01 | 79.00 | NC | | | | | |
| CHLOROFORM | 67-66-3 | 10.00 | 650 | 12APR96 | 01 | 130.00 | NC | | | | | |
| CHLOROFORM | 67-66-3 | 10.00 | 650 | 13JUN96 | 01 | 32.00 | NC | | | | | |
| CHLOROFORM | 67-66-3 | 10.00 | 650 | 14JUN96 | 01 | 16.00 | NC | | | | | |
| CHLOROFORM | 67-66-3 | 10.00 | 650 | 04SEP96 | 01 | 63.00 | NC | | | | | |
| CHLOROFORM | 67-66-3 | 10.00 | 650 | 05SEP96 | 01 | 130.00 | NC | | | | 120.00 | . |
| | | | | . | | | | | | | | |
| DIBROMOCHLOROMETHANE | 124-48-1 | 10.00 | 4798 | 23APR96 | 05 | 22.92 | NC | 02 | 104.69 | NC | | |
| DIBROMOCHLOROMETHANE | 124-48-1 | 10.00 | 4798 | 24APR96 | 05 | 72.64 | NC | 02 | 565.30 | NC | | |
| DIBROMOCHLOROMETHANE | 124-48-1 | 10.00 | 4798 | 25APR96 | 05 | 210.60 | NC | 02 | 722.70 | NC | 102.05 | 464.23 |
| | | | | . | | | | | | | | |
| DIBROMOCHLOROMETHANE | 124-48-1 | 10.00 | 650 | 11APR96 | 01 | 10.00 | ND | | | | | |
| DIBROMOCHLOROMETHANE | 124-48-1 | 10.00 | 650 | 12APR96 | 01 | 25.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Metals Option=4 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIBROMOCHLOROMETHANE | 124-48-1 | 10.00 | 650 | 13JUN96 | 01 | 9.00 | NC | | | | | |
| DIBROMOCHLOROMETHANE | 124-48-1 | 10.00 | 650 | 14JUN96 | 01 | 3.00 | NC | | | | 11.75 | . |
| HEXANOIC ACID | 142-62-1 | 10.00 | 4798 | 23APR96 | 05 | 10.00 | ND | 02 | 10.00 | ND | | |
| HEXANOIC ACID | 142-62-1 | 10.00 | 4798 | 24APR96 | 05 | 10.00 | ND | 02 | 10.00 | ND | | |
| HEXANOIC ACID | 142-62-1 | 10.00 | 4798 | 25APR96 | 05 | 59.74 | NC | 02 | 98.91 | NC | 26.58 | 39.64 |
| M-XYLENE | 108-38-3 | 10.00 | 4798 | 23APR96 | 05 | 10.00 | ND | 02 | 32.43 | NC | | |
| M-XYLENE | 108-38-3 | 10.00 | 4798 | 24APR96 | 05 | 12.68 | NC | 02 | 28.89 | NC | | |
| M-XYLENE | 108-38-3 | 10.00 | 4798 | 25APR96 | 05 | 10.00 | ND | 02 | 24.60 | NC | 10.89 | 28.64 |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 4798 | 23APR96 | 05 | 10.00 | ND | 02 | 10.98 | NC | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 4798 | 24APR96 | 05 | 10.00 | ND | 02 | 14.98 | NC | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 4798 | 25APR96 | 05 | 10.00 | ND | 02 | 13.69 | NC | 10.00 | 13.22 |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 650 | 09JAN96 | 01 | 5.00 | ND | | | | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 650 | 11APR96 | 01 | 10.00 | ND | | | | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 650 | 12APR96 | 01 | 10.00 | ND | | | | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 650 | 13JUN96 | 01 | 1.00 | ND | | | | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 650 | 14JUN96 | 01 | 1.00 | ND | | | | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 650 | 04SEP96 | 01 | 1.00 | ND | | | | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 650 | 05SEP96 | 01 | 1.00 | ND | | | | 4.14 | . |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 4798 | 23APR96 | 05 | 99.34 | NC | 02 | 142.70 | NC | | |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 4798 | 24APR96 | 05 | 47.42 | NC | 02 | 183.76 | NC | | |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 4798 | 25APR96 | 05 | 57.64 | NC | 02 | 125.84 | NC | 68.13 | 150.77 |
| PHENOL | 108-95-2 | 10.00 | 4798 | 23APR96 | 05 | 12.40 | NC | 02 | 65.02 | NC | | |
| PHENOL | 108-95-2 | 10.00 | 4798 | 24APR96 | 05 | 10.00 | ND | 02 | 10.00 | ND | | |
| PHENOL | 108-95-2 | 10.00 | 4798 | 25APR96 | 05 | 10.00 | ND | 02 | 10.00 | ND | 10.80 | 28.34 |
| PYRIDINE | 110-86-1 | 10.00 | 4798 | 23APR96 | 05 | 117.44 | NC | 02 | 175.43 | NC | | |
| PYRIDINE | 110-86-1 | 10.00 | 4798 | 24APR96 | 05 | 78.40 | NC | 02 | 191.56 | NC | | |
| PYRIDINE | 110-86-1 | 10.00 | 4798 | 25APR96 | 05 | 65.07 | NC | 02 | 139.53 | NC | 86.97 | 168.84 |
| TOLUENE | 108-88-3 | 10.00 | 4798 | 23APR96 | 05 | 12.77 | NC | 02 | 50.21 | NC | | |
| TOLUENE | 108-88-3 | 10.00 | 4798 | 24APR96 | 05 | 26.11 | NC | 02 | 80.33 | NC | | |

------------------------------------------------------------ Subcategory=Metals Option=4 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOLUENE | 108-88-3 | 10.00 | 4798 | 25APR96 | 05 | 16.27 | NC | 02 | 60.00 | NC | 18.38 | 63.51 |
| | | | | . | | | | | | | | |
| TOLUENE | 108-88-3 | 10.00 | 650 | 09JAN96 | 01 | 1.00 | ND | | | | | |
| TOLUENE | 108-88-3 | 10.00 | 650 | 11APR96 | 01 | 32.00 | NC | | | | | |
| TOLUENE | 108-88-3 | 10.00 | 650 | 12APR96 | 01 | 26.00 | NC | | | | | |
| TOLUENE | 108-88-3 | 10.00 | 650 | 13JUN96 | 01 | 14.00 | NC | | | | | |
| TOLUENE | 108-88-3 | 10.00 | 650 | 14JUN96 | 01 | 10.00 | NC | | | | | |
| TOLUENE | 108-88-3 | 10.00 | 650 | 04SEP96 | 01 | 120.00 | NC | | | | | |
| TOLUENE | 108-88-3 | 10.00 | 650 | 05SEP96 | 01 | 540.00 | NC | | | | 106.14 | . |
| | | | | . | | | | | | | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 4798 | 23APR96 | 05 | 118.60 | NC | 02 | 359.90 | NC | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 4798 | 24APR96 | 05 | 130.71 | NC | 02 | 122.20 | NC | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 4798 | 25APR96 | 05 | 53.96 | NC | 02 | 185.80 | NC | 101.09 | 222.63 |
| | | | | . | | | | | | | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 650 | 09JAN96 | 01 | 1.00 | ND | | | | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 650 | 11APR96 | 01 | 10.00 | ND | | | | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 650 | 12APR96 | 01 | 10.00 | ND | | | | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 650 | 13JUN96 | 01 | 2.00 | NC | | | | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 650 | 14JUN96 | 01 | 2.00 | NC | | | | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 650 | 04SEP96 | 01 | 988.00 | NC | | | | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 650 | 05SEP96 | 01 | 3,100.00 | NC | | | | 587.57 | . |
| | | | | . | | | | | | | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 4798 | 23APR96 | 05 | 10.00 | ND | 02 | 10.00 | ND | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 4798 | 24APR96 | 05 | 10.00 | ND | 02 | 10.00 | ND | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 4798 | 25APR96 | 05 | 10.00 | ND | 02 | 10.00 | ND | 10.00 | 10.00 |
| | | | | . | | | | | | | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 650 | 09JAN96 | 01 | 1.00 | ND | | | | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 650 | 11APR96 | 01 | 10.00 | ND | | | | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 650 | 12APR96 | 01 | 10.00 | ND | | | | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 650 | 13JUN96 | 01 | 1.00 | ND | | | | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 650 | 14JUN96 | 01 | 1.00 | ND | | | | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 650 | 04SEP96 | 01 | 3.00 | NC | | | | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 650 | 05SEP96 | 01 | 10.00 | NC | | | | 5.14 | . |
| | | | | . | | | | | | | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 4798 | 23APR96 | 05 | 10.00 | ND | 02 | 10.00 | ND | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 4798 | 24APR96 | 05 | 10.00 | ND | 02 | 10.00 | ND | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 4798 | 25APR96 | 05 | 10.00 | ND | 02 | 10.00 | ND | 10.00 | 10.00 |

------------------------------------------------------------ Subcategory=Metals Option=4 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 650 | 09JAN96 | 01 | 1.00 | ND | | | | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 650 | 11APR96 | 01 | 10.00 | ND | | | | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 650 | 12APR96 | 01 | 10.00 | ND | | | | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 650 | 13JUN96 | 01 | 1.00 | ND | | | | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 650 | 14JUN96 | 01 | 1.00 | ND | | | | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 650 | 04SEP96 | 01 | 1.00 | ND | | | | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 650 | 05SEP96 | 01 | 1.00 | ND | | | | 3.57 | . |
| 1,4-DIOXANE | 123-91-1 | 10.00 | 4798 | 23APR96 | 05 | 10.00 | ND | 02 | 10.00 | ND | | |
| 1,4-DIOXANE | 123-91-1 | 10.00 | 4798 | 24APR96 | 05 | 10.00 | ND | 02 | 10.00 | ND | | |
| 1,4-DIOXANE | 123-91-1 | 10.00 | 4798 | 25APR96 | 05 | 10.00 | ND | 02 | 10.00 | ND | 10.00 | 10.00 |
| 2-BUTANONE | 78-93-3 | 50.00 | 4798 | 23APR96 | 05 | 57.93 | NC | 02 | 1,620.40 | NC | | |
| 2-BUTANONE | 78-93-3 | 50.00 | 4798 | 24APR96 | 05 | 1,918.70 | NC | 02 | 7,826.30 | NC | | |
| 2-BUTANONE | 78-93-3 | 50.00 | 4798 | 25APR96 | 05 | 1,840.80 | NC | 02 | 5,654.40 | NC | 1,272.48 | 5,033.70 |
| 2-PROPANONE | 67-64-1 | 50.00 | 4798 | 23APR96 | 05 | 1,721.40 | NC | 02 | 23,489.00 | NC | | |
| 2-PROPANONE | 67-64-1 | 50.00 | 4798 | 24APR96 | 05 | 20,248.00 | NC | 02 | 54,082.50 | NC | | |
| 2-PROPANONE | 67-64-1 | 50.00 | 4798 | 25APR96 | 05 | 17,275.00 | NC | 02 | 36,585.00 | NC | 13,081.47 | 38,052.17 |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 4798 | 23APR96 | 05 | 50.00 | ND | 02 | 78.99 | NC | | |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 4798 | 24APR96 | 05 | 50.00 | ND | 02 | 73.47 | NC | | |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 4798 | 25APR96 | 05 | 50.00 | ND | 02 | 50.00 | ND | 50.00 | 67.49 |

------------------------------------------------------------ Subcategory=Metals Option=cyanide 2 ------------------------------------------------------------

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4055 | 10JUN91 | | | | 02 | 2,143,000.00 | NC | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4055 | 11JUN91 | 03 | 136,833.33 | NC | 02 | 7,965,000.00 | NC | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4055 | 12JUN91 | | | | 02 | 8,400,000.00 | NC | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4055 | 13JUN91 | 03 | 150.00 | ND | 02 | 1,940,000.00 | NC | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4055 | 14JUN91 | 03 | 270,000.00 | NC | 02 | 1,880,000.00 | NC | 135,661.11 | 4,465,600.00 |

Subcategory=Oils Option=8

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4814A | 16SEP96 | 09 | 52,000.00 | NC | 07 | 45,000.00 | NC | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4814A | 17SEP96 | | | | 07 | 44,000.00 | NC | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4814A | 18SEP96 | 09 | 107,000.00 | NC | 07 | 128,000.00 | NC | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4814A | 19SEP96 | 09 | 87,000.00 | NC | 07 | 188,000.00 | NC | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4814A | 20SEP96 | 09 | 65,000.00 | NC | 07 | 88,000.00 | NC | 77,750.00 | 98,600.00 |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4814B | 16SEP96 | 10 | 57,000.00 | NC | 08 | 20,000.00 | NC | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4814B | 17SEP96 | | | | 08 | 23,500.00 | NC | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4814B | 18SEP96 | 10 | 660,000.00 | NC | 08 | 1,310,000.00 | NC | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4814B | 19SEP96 | 10 | 156,000.00 | NC | 08 | 175,000.00 | NC | 291,000.00 | 382,125.00 |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4814A | 16SEP96 | 09 | 4,940,000.00 | NC | 07 | 7,920,000.00 | NC | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4814A | 17SEP96 | | | | 07 | 5,400,000.00 | NC | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4814A | 18SEP96 | 09 | 6,020,000.00 | NC | 07 | 9,330,000.00 | NC | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4814A | 19SEP96 | 09 | 4,630,000.00 | NC | 07 | 8,230,000.00 | NC | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4814A | 20SEP96 | 09 | 8,200,000.00 | NC | 07 | 3,820,000.00 | NC | 5,947,500.00 | 6,940,000.00 |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4814B | 16SEP96 | 10 | 5,670,000.00 | NC | 08 | 6,500,000.00 | NC | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4814B | 17SEP96 | | | | 08 | 3,570,000.00 | NC | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4814B | 18SEP96 | 10 | 9,915,000.00 | NC | 08 | 13,200,000.00 | NC | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4814B | 19SEP96 | 10 | 12,300,000.00 | NC | 08 | 20,100,000.00 | NC | 9,295,000.00 | 10,842,500.00 |

Subcategory=Oils Option=8
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4814A | 16SEP96 | 09 | 10,900,000.00 | NC | 07 | 26,000,000.00 | NC | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4814A | 17SEP96 | | | | 07 | 25,550,000.00 | NC | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4814A | 18SEP96 | 09 | 11,700,000.00 | NC | 07 | 38,200,000.00 | NC | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4814A | 19SEP96 | 09 | 13,400,000.00 | NC | 07 | 42,800,000.00 | NC | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4814A | 20SEP96 | 09 | 10,900,000.00 | NC | 07 | 31,200,000.00 | NC | 11,725,000.00 | 32,750,000.00 |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4814B | 16SEP96 | 10 | 15,800,000.00 | NC | 08 | 31,300,000.00 | NC | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4814B | 17SEP96 | | | | 08 | 32,100,000.00 | NC | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4814B | 18SEP96 | 10 | 20,200,000.00 | NC | 08 | 29,600,000.00 | NC | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4814B | 19SEP96 | 10 | 35,300,000.00 | NC | 08 | 81,500,000.00 | NC | 23,766,666.67 | 43,625,000.00 |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4814A | 16SEP96 | 09 | 1,780,000.00 | NC | 07 | 2,250,000.00 | NC | | |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4814A | 17SEP96 | | | | 07 | 1,965,000.00 | NC | | |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4814A | 18SEP96 | 09 | 1,325,000.00 | NC | 07 | 965,000.00 | NC | | |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4814A | 19SEP96 | 09 | 1,440,000.00 | NC | 07 | 2,030,000.00 | NC | | |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4814A | 20SEP96 | 09 | 1,730,000.00 | NC | 07 | 2,270,000.00 | NC | 1,568,750.00 | 1,896,000.00 |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4814B | 16SEP96 | 10 | 3,600,000.00 | NC | 08 | 3,120,000.00 | NC | | |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4814B | 17SEP96 | | | | 08 | 2,315,000.00 | NC | | |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4814B | 18SEP96 | 10 | 5,740,000.00 | NC | 08 | 6,180,000.00 | NC | | |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4814B | 19SEP96 | 10 | 3,110,000.00 | NC | 08 | 2,230,000.00 | NC | 4,150,000.00 | 3,461,250.00 |
| FLUORIDE | 16984-48-8 | 100.00 | 4814A | 16SEP96 | 09 | 23,000.00 | NC | 07 | 264,000.00 | NC | | |
| FLUORIDE | 16984-48-8 | 100.00 | 4814A | 17SEP96 | | | | 07 | 96,500.00 | NC | | |
| FLUORIDE | 16984-48-8 | 100.00 | 4814A | 18SEP96 | 09 | 60,000.00 | NC | 07 | 117,000.00 | NC | | |
| FLUORIDE | 16984-48-8 | 100.00 | 4814A | 19SEP96 | 09 | 20,000.00 | NC | 07 | 81,000.00 | NC | | |
| FLUORIDE | 16984-48-8 | 100.00 | 4814A | 20SEP96 | 09 | 42,000.00 | NC | 07 | 87,000.00 | NC | 36,250.00 | 129,100.00 |

Subcategory=Oils Option=8
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLUORIDE | 16984-48-8 | 100.00 | 4814B | 16SEP96 | 10 | 21,000.00 | NC | 08 | 84,000.00 | NC | | |
| FLUORIDE | 16984-48-8 | 100.00 | 4814B | 17SEP96 | | | | 08 | 17,500.00 | NC | | |
| FLUORIDE | 16984-48-8 | 100.00 | 4814B | 18SEP96 | 10 | 390,000.00 | NC | 08 | 330,000.00 | NC | | |
| FLUORIDE | 16984-48-8 | 100.00 | 4814B | 19SEP96 | 10 | 33,000.00 | NC | 08 | 66,000.00 | NC | 148,000.00 | 124,375.00 |
| NITRATE/NITRITE | C-005 | 50.00 | 4814A | 16SEP96 | 09 | 13,000.00 | NC | 07 | 21,000.00 | NC | | |
| NITRATE/NITRITE | C-005 | 50.00 | 4814A | 17SEP96 | | | | 07 | 29,500.00 | NC | | |
| NITRATE/NITRITE | C-005 | 50.00 | 4814A | 18SEP96 | 09 | 30,000.00 | NC | 07 | 58,000.00 | NC | | |
| NITRATE/NITRITE | C-005 | 50.00 | 4814A | 19SEP96 | 09 | 20,000.00 | NC | 07 | 48,000.00 | NC | | |
| NITRATE/NITRITE | C-005 | 50.00 | 4814A | 20SEP96 | 09 | 20,000.00 | NC | 07 | 25,000.00 | NC | 20,750.00 | 36,300.00 |
| NITRATE/NITRITE | C-005 | 50.00 | 4814B | 16SEP96 | 10 | 99,000.00 | NC | 08 | 103,000.00 | NC | | |
| NITRATE/NITRITE | C-005 | 50.00 | 4814B | 17SEP96 | | | | 08 | 51,500.00 | NC | | |
| NITRATE/NITRITE | C-005 | 50.00 | 4814B | 18SEP96 | 10 | 41,000.00 | NC | 08 | 103,000.00 | NC | | |
| NITRATE/NITRITE | C-005 | 50.00 | 4814B | 19SEP96 | 10 | 75,000.00 | NC | 08 | 58,000.00 | NC | 71,666.67 | 78,875.00 |
| OIL & GREASE | C-007 | 5,000.00 | 4814A | 16SEP96 | 09 | 190,000.00 | NC | 07 | 3,364,000.00 | NC | | |
| OIL & GREASE | C-007 | 5,000.00 | 4814A | 17SEP96 | | | | 07 | 2,182,500.00 | NC | | |
| OIL & GREASE | C-007 | 5,000.00 | 4814A | 18SEP96 | 09 | 147,916.67 | NC | 07 | 2,652,333.33 | NC | | |
| OIL & GREASE | C-007 | 5,000.00 | 4814A | 19SEP96 | 09 | 306,200.00 | NC | 07 | 9,274,400.00 | NC | | |
| OIL & GREASE | C-007 | 5,000.00 | 4814A | 20SEP96 | 09 | 263,200.00 | NC | 07 | 12,168,000.00 | NC | 226,829.17 | 5,928,246.67 |
| OIL & GREASE | C-007 | 5,000.00 | 4814B | 16SEP96 | 10 | 946,000.00 | NC | 08 | 3,080,000.00 | NC | | |
| OIL & GREASE | C-007 | 5,000.00 | 4814B | 17SEP96 | | | | 08 | 2,062,500.00 | NC | | |
| OIL & GREASE | C-007 | 5,000.00 | 4814B | 18SEP96 | 10 | 494,000.00 | NC | 08 | 2,650,000.00 | NC | | |
| OIL & GREASE | C-007 | 5,000.00 | 4814B | 19SEP96 | 10 | 1,027,000.00 | NC | 08 | 4,025,000.00 | NC | 822,333.33 | 2,954,375.00 |
| SGT-HEM | C-037 | 5,000.00 | 4814A | 16SEP96 | 09 | 18,400.00 | NC | 07 | 1,070,600.00 | NC | | |
| SGT-HEM | C-037 | 5,000.00 | 4814A | 17SEP96 | | | | 07 | 921,500.00 | NC | | |
| SGT-HEM | C-037 | 5,000.00 | 4814A | 18SEP96 | 09 | 61,166.67 | NC | 07 | 1,175,833.33 | NC | | |
| SGT-HEM | C-037 | 5,000.00 | 4814A | 19SEP96 | 09 | 41,400.00 | NC | 07 | 3,723,000.00 | NC | | |
| SGT-HEM | C-037 | 5,000.00 | 4814A | 20SEP96 | 09 | 47,000.00 | NC | 07 | 1,264,000.00 | NC | 41,991.67 | 1,630,986.67 |
| SGT-HEM | C-037 | 5,000.00 | 4814B | 16SEP96 | 10 | 196,600.00 | NC | 08 | 1,075,000.00 | NC | | |
| SGT-HEM | C-037 | 5,000.00 | 4814B | 17SEP96 | | | | 08 | 882,750.00 | NC | | |
| SGT-HEM | C-037 | 5,000.00 | 4814B | 18SEP96 | 10 | 218,000.00 | NC | 08 | 1,818,000.00 | NC | | |
| SGT-HEM | C-037 | 5,000.00 | 4814B | 19SEP96 | 10 | 316,250.00 | NC | 08 | 1,153,000.00 | NC | 243,616.67 | 1,232,187.50 |

------------------------------------------------------------ Subcategory=Oils Option=8 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 74.00 | NC | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4814A | 17SEP96 | | | | 07 | 467.00 | NC | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4814A | 18SEP96 | 09 | 209.00 | NC | 07 | 380.00 | NC | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4814A | 19SEP96 | 09 | 96.00 | NC | 07 | 258.00 | NC | 105.00 | 294.75 |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4814B | 16SEP96 | 10 | 288.00 | NC | 08 | 474.00 | NC | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4814B | 17SEP96 | | | | 08 | 10.00 | ND | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4814B | 18SEP96 | 10 | 245.00 | NC | 08 | 980.00 | NC | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4814B | 19SEP96 | 10 | 620.00 | NC | 08 | 41.00 | NC | 384.33 | 376.25 |
| TOTAL DISSOLVED SOLIDS | C-010 | 10,000.00 | 4814A | 16SEP96 | 09 | 19,800,000.00 | NC | 07 | 19,000,000.00 | NC | | |
| TOTAL DISSOLVED SOLIDS | C-010 | 10,000.00 | 4814A | 17SEP96 | | | | 07 | 8,950,000.00 | NC | | |
| TOTAL DISSOLVED SOLIDS | C-010 | 10,000.00 | 4814A | 18SEP96 | 09 | 12,650,000.00 | NC | 07 | 12,100,000.00 | NC | | |
| TOTAL DISSOLVED SOLIDS | C-010 | 10,000.00 | 4814A | 19SEP96 | 09 | 11,500,000.00 | NC | 07 | 13,300,000.00 | NC | | |
| TOTAL DISSOLVED SOLIDS | C-010 | 10,000.00 | 4814A | 20SEP96 | 09 | 12,400,000.00 | NC | 07 | 12,600,000.00 | NC | 14,087,500.00 | 13,190,000.00 |
| TOTAL DISSOLVED SOLIDS | C-010 | 10,000.00 | 4814B | 16SEP96 | 10 | 18,700,000.00 | NC | 08 | 19,200,000.00 | NC | | |
| TOTAL DISSOLVED SOLIDS | C-010 | 10,000.00 | 4814B | 17SEP96 | | | | 08 | 12,450,000.00 | NC | | |
| TOTAL DISSOLVED SOLIDS | C-010 | 10,000.00 | 4814B | 18SEP96 | 10 | 23,450,000.00 | NC | 08 | 32,700,000.00 | NC | | |
| TOTAL DISSOLVED SOLIDS | C-010 | 10,000.00 | 4814B | 19SEP96 | 10 | 69,000,000.00 | NC | 08 | 15,300,000.00 | NC | 37,050,000.00 | 19,912,500.00 |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4814A | 16SEP96 | 09 | 3,030,000.00 | NC | 07 | 4,030,000.00 | NC | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4814A | 17SEP96 | | | | 07 | 3,400,000.00 | NC | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4814A | 18SEP96 | 09 | 3,885,000.00 | NC | 07 | 4,960,000.00 | NC | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4814A | 19SEP96 | 09 | 3,850,000.00 | NC | 07 | 4,790,000.00 | NC | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4814A | 20SEP96 | 09 | 2,970,000.00 | NC | 07 | 3,910,000.00 | NC | 3,433,750.00 | 4,218,000.00 |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4814B | 16SEP96 | 10 | 3,720,000.00 | NC | 08 | 3,690,000.00 | NC | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4814B | 17SEP96 | | | | 08 | 3,285,000.00 | NC | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4814B | 18SEP96 | 10 | 5,060,000.00 | NC | 08 | 6,580,000.00 | NC | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4814B | 19SEP96 | 10 | 9,260,000.00 | NC | 08 | 3,130,000.00 | NC | 6,013,333.33 | 4,171,250.00 |
| TOTAL PHENOLS | C-020 | 50.00 | 4814A | 16SEP96 | 09 | 15,000.00 | NC | 07 | 18,700.00 | NC | | |
| TOTAL PHENOLS | C-020 | 50.00 | 4814A | 17SEP96 | | | | 07 | 13,900.00 | NC | | |
| TOTAL PHENOLS | C-020 | 50.00 | 4814A | 18SEP96 | 09 | 11,190.00 | NC | 07 | 18,600.00 | NC | | |
| TOTAL PHENOLS | C-020 | 50.00 | 4814A | 19SEP96 | 09 | 17,300.00 | NC | 07 | 20,500.00 | NC | | |
| TOTAL PHENOLS | C-020 | 50.00 | 4814A | 20SEP96 | 09 | 18,600.00 | NC | 07 | 71,700.00 | NC | 15,522.50 | 28,680.00 |

Subcategory=Oils Option=8 (continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL PHENOLS | C-020 | 50.00 | 4814B | 16SEP96 | 10 | 13,600.00 | NC | 08 | 15,000.00 | NC | | |
| TOTAL PHENOLS | C-020 | 50.00 | 4814B | 17SEP96 | | | | 08 | 18,750.00 | NC | | |
| TOTAL PHENOLS | C-020 | 50.00 | 4814B | 18SEP96 | 10 | 4,380.00 | NC | 08 | 8,200.00 | NC | | |
| TOTAL PHENOLS | C-020 | 50.00 | 4814B | 19SEP96 | 10 | 42,500.00 | NC | 08 | 89,500.00 | NC | 20,160.00 | 32,862.50 |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4814A | 16SEP96 | 09 | 350.00 | NC | 07 | 650.00 | NC | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4814A | 17SEP96 | | | | 07 | 8,000.00 | NC | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4814A | 18SEP96 | 09 | 45.00 | NC | 07 | 13,000.00 | NC | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4814A | 19SEP96 | 09 | 400.00 | NC | 07 | 6,700.00 | NC | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4814A | 20SEP96 | 09 | 170,000.00 | NC | 07 | 350,000.00 | NC | 42,698.75 | 75,670.00 |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4814B | 16SEP96 | 10 | 70.00 | NC | 08 | 8,100.00 | NC | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4814B | 17SEP96 | | | | 08 | 13,500.00 | NC | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4814B | 18SEP96 | 10 | 89,500.00 | NC | 08 | 250,000.00 | NC | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4814B | 19SEP96 | 10 | 4,500.00 | NC | 08 | 3,000.00 | NC | 31,356.67 | 68,650.00 |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4814A | 16SEP96 | 09 | 765,000.00 | NC | 07 | 5,210,000.00 | NC | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4814A | 17SEP96 | | | | 07 | 3,470,000.00 | NC | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4814A | 18SEP96 | 09 | 527,500.00 | NC | 07 | 5,660,000.00 | NC | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4814A | 19SEP96 | 09 | 195,000.00 | NC | 07 | 8,480,000.00 | NC | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4814A | 20SEP96 | 09 | 710,000.00 | NC | 07 | 7,700,000.00 | NC | 549,375.00 | 6,104,000.00 |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4814B | 16SEP96 | 10 | 756,000.00 | NC | 08 | 5,420,000.00 | NC | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4814B | 17SEP96 | | | | 08 | 8,310,000.00 | NC | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4814B | 18SEP96 | 10 | 695,000.00 | NC | 08 | 1,250,000.00 | NC | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4814B | 19SEP96 | 10 | 375,000.00 | NC | 08 | 3,060,000.00 | NC | 608,666.67 | 4,510,000.00 |
| ALUMINUM | 7429-90-5 | 200.00 | 4814A | 16SEP96 | 09 | 21,000.00 | NC | 07 | 29,200.00 | NC | | |
| ALUMINUM | 7429-90-5 | 200.00 | 4814A | 17SEP96 | | | | 07 | 20,550.00 | NC | | |
| ALUMINUM | 7429-90-5 | 200.00 | 4814A | 18SEP96 | 09 | 18,000.00 | NC | 07 | 66,200.00 | NC | | |
| ALUMINUM | 7429-90-5 | 200.00 | 4814A | 19SEP96 | 09 | 9,770.00 | NC | 07 | 45,200.00 | NC | | |
| ALUMINUM | 7429-90-5 | 200.00 | 4814A | 20SEP96 | 09 | 7,520.00 | NC | 07 | 44,400.00 | NC | 14,072.50 | 41,110.00 |
| ALUMINUM | 7429-90-5 | 200.00 | 4814B | 16SEP96 | 10 | 20,600.00 | NC | 08 | 12,500.00 | NC | | |
| ALUMINUM | 7429-90-5 | 200.00 | 4814B | 17SEP96 | | | | 08 | 26,200.00 | NC | | |
| ALUMINUM | 7429-90-5 | 200.00 | 4814B | 18SEP96 | 10 | 41,000.00 | NC | 08 | 11,500.00 | NC | | |

Subcategory=Oils Option=8
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ALUMINUM | 7429-90-5 | 200.00 | 4814B | 19SEP96 | 10 | 17,700.00 | NC | 08 | 22,600.00 | NC | 26,433.33 | 18,200.00 |
| ANTIMONY | 7440-36-0 | 20.00 | 4814A | 16SEP96 | 09 | 62.60 | NC | 07 | 223.00 | NC | | |
| ANTIMONY | 7440-36-0 | 20.00 | 4814A | 17SEP96 | | | | 07 | 1,522.00 | NC | | |
| ANTIMONY | 7440-36-0 | 20.00 | 4814A | 18SEP96 | 09 | 94.85 | NC | 07 | 1,670.00 | NC | | |
| ANTIMONY | 7440-36-0 | 20.00 | 4814A | 19SEP96 | 09 | 162.00 | NC | 07 | 857.00 | NC | | |
| ANTIMONY | 7440-36-0 | 20.00 | 4814A | 20SEP96 | 09 | 92.80 | NC | 07 | 20.00 | ND | 103.06 | 858.40 |
| ANTIMONY | 7440-36-0 | 20.00 | 4814B | 16SEP96 | 10 | 32.10 | NC | 08 | 83.00 | NC | | |
| ANTIMONY | 7440-36-0 | 20.00 | 4814B | 17SEP96 | | | | 08 | 68.75 | NC | | |
| ANTIMONY | 7440-36-0 | 20.00 | 4814B | 18SEP96 | 10 | 39.65 | NC | 08 | 20.00 | ND | | |
| ANTIMONY | 7440-36-0 | 20.00 | 4814B | 19SEP96 | 10 | 152.00 | NC | 08 | 240.00 | NC | 74.58 | 102.94 |
| ARSENIC | 7440-38-2 | 10.00 | 4814A | 16SEP96 | 09 | 2,590.00 | NC | 07 | 8,830.00 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 4814A | 17SEP96 | | | | 07 | 8,550.00 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 4814A | 18SEP96 | 09 | 1,465.00 | NC | 07 | 9,170.00 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 4814A | 19SEP96 | 09 | 572.00 | NC | 07 | 1,930.00 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 4814A | 20SEP96 | 09 | 737.00 | NC | 07 | 1,230.00 | NC | 1,341.00 | 5,942.00 |
| ARSENIC | 7440-38-2 | 10.00 | 4814B | 16SEP96 | 10 | 402.00 | NC | 08 | 649.00 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 4814B | 17SEP96 | | | | 08 | 469.50 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 4814B | 18SEP96 | 10 | 198.00 | NC | 08 | 248.00 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 4814B | 19SEP96 | 10 | 113.00 | NC | 08 | 163.00 | NC | 237.67 | 382.38 |
| BARIUM | 7440393 | 200.00 | 4814A | 16SEP96 | 09 | 136.00 | NC | 07 | 1,720.00 | NC | | |
| BARIUM | 7440393 | 200.00 | 4814A | 17SEP96 | | | | 07 | 1,350.00 | NC | | |
| BARIUM | 7440393 | 200.00 | 4814A | 18SEP96 | 09 | 234.00 | NC | 07 | 3,620.00 | NC | | |
| BARIUM | 7440393 | 200.00 | 4814A | 19SEP96 | 09 | 253.00 | NC | 07 | 4,310.00 | NC | | |
| BARIUM | 7440393 | 200.00 | 4814A | 20SEP96 | 09 | 259.00 | NC | 07 | 2,630.00 | NC | 220.50 | 2,726.00 |
| BARIUM | 7440393 | 200.00 | 4814B | 16SEP96 | 10 | 316.00 | NC | 08 | 1,270.00 | NC | | |
| BARIUM | 7440393 | 200.00 | 4814B | 17SEP96 | | | | 08 | 1,180.00 | NC | | |
| BARIUM | 7440393 | 200.00 | 4814B | 18SEP96 | 10 | 198.00 | NC | 08 | 474.00 | NC | | |
| BARIUM | 7440393 | 200.00 | 4814B | 19SEP96 | 10 | 580.00 | NC | 08 | 4,990.00 | NC | 364.67 | 1,978.50 |
| BORON | 7440-42-8 | 100.00 | 4814A | 16SEP96 | 09 | 20,100.00 | NC | 07 | 26,800.00 | NC | | |
| BORON | 7440-42-8 | 100.00 | 4814A | 17SEP96 | | | | 07 | 39,550.00 | NC | | |

------------------------------------------------------------ Subcategory=Oils Option=8 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BORON | 7440-42-8 | 100.00 | 4814A | 18SEP96 | 09 | 29,550.00 | NC | 07 | 49,100.00 | NC | | |
| BORON | 7440-42-8 | 100.00 | 4814A | 19SEP96 | 09 | 22,200.00 | NC | 07 | 27,300.00 | NC | | |
| BORON | 7440-42-8 | 100.00 | 4814A | 20SEP96 | 09 | 18,000.00 | NC | 07 | 24,900.00 | NC | 22,462.50 | 33,530.00 |
| BORON | 7440-42-8 | 100.00 | 4814B | 16SEP96 | 10 | 95,000.00 | NC | 08 | 86,500.00 | NC | | |
| BORON | 7440-42-8 | 100.00 | 4814B | 17SEP96 | | | | 08 | 24,100.00 | NC | | |
| BORON | 7440-42-8 | 100.00 | 4814B | 18SEP96 | 10 | 7,415.00 | NC | 08 | 9,670.00 | NC | | |
| BORON | 7440-42-8 | 100.00 | 4814B | 19SEP96 | 10 | 39,400.00 | NC | 08 | 34,600.00 | NC | 47,271.67 | 38,717.50 |
| CADMIUM | 7440-43-9 | 5.00 | 4814A | 16SEP96 | 09 | 9.77 | NC | 07 | 68.20 | NC | | |
| CADMIUM | 7440-43-9 | 5.00 | 4814A | 17SEP96 | | | | 07 | 53.05 | NC | | |
| CADMIUM | 7440-43-9 | 5.00 | 4814A | 18SEP96 | 09 | 9.40 | NC | 07 | 121.00 | NC | | |
| CADMIUM | 7440-43-9 | 5.00 | 4814A | 19SEP96 | 09 | 5.00 | ND | 07 | 96.50 | NC | | |
| CADMIUM | 7440-43-9 | 5.00 | 4814A | 20SEP96 | 09 | 5.15 | NC | 07 | 57.70 | NC | 7.33 | 79.29 |
| CADMIUM | 7440-43-9 | 5.00 | 4814B | 16SEP96 | 10 | 8.90 | NC | 08 | 52.60 | NC | | |
| CADMIUM | 7440-43-9 | 5.00 | 4814B | 17SEP96 | | | | 08 | 71.75 | NC | | |
| CADMIUM | 7440-43-9 | 5.00 | 4814B | 18SEP96 | 10 | 8.87 | NC | 08 | 25.50 | NC | | |
| CADMIUM | 7440-43-9 | 5.00 | 4814B | 19SEP96 | 10 | 5.00 | ND | 08 | 57.90 | NC | 7.59 | 51.94 |
| CALCIUM | 7440-70-2 | 5,000.00 | 4814A | 16SEP96 | 09 | 204,000.00 | NC | 07 | 406,000.00 | NC | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 4814A | 17SEP96 | | | | 07 | 290,500.00 | NC | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 4814A | 18SEP96 | 09 | 168,500.00 | NC | 07 | 242,000.00 | NC | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 4814A | 19SEP96 | 09 | 194,000.00 | NC | 07 | 276,000.00 | NC | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 4814A | 20SEP96 | 09 | 127,000.00 | NC | 07 | 346,000.00 | NC | 173,375.00 | 312,100.00 |
| CALCIUM | 7440-70-2 | 5,000.00 | 4814B | 16SEP96 | 10 | 110,000.00 | NC | 08 | 162,000.00 | NC | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 4814B | 17SEP96 | | | | 08 | 126,500.00 | NC | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 4814B | 18SEP96 | 10 | 71,600.00 | NC | 08 | 95,900.00 | NC | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 4814B | 19SEP96 | 10 | 335,000.00 | NC | 08 | 409,000.00 | NC | 172,200.00 | 198,350.00 |
| CHROMIUM | 7440-47-3 | 10.00 | 4814A | 16SEP96 | 09 | 252.00 | NC | 07 | 3,000.00 | NC | | |
| CHROMIUM | 7440-47-3 | 10.00 | 4814A | 17SEP96 | | | | 07 | 1,615.00 | NC | | |
| CHROMIUM | 7440-47-3 | 10.00 | 4814A | 18SEP96 | 09 | 232.50 | NC | 07 | 3,610.00 | NC | | |
| CHROMIUM | 7440-47-3 | 10.00 | 4814A | 19SEP96 | 09 | 128.00 | NC | 07 | 2,740.00 | NC | | |
| CHROMIUM | 7440-47-3 | 10.00 | 4814A | 20SEP96 | 09 | 120.00 | NC | 07 | 1,570.00 | NC | 183.13 | 2,507.00 |

Subcategory=Oils Option=8
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CHROMIUM | 7440-47-3 | 10.00 | 4814B | 16SEP96 | 10 | 791.00 | NC | 08 | 2,280.00 | NC | | |
| CHROMIUM | 7440-47-3 | 10.00 | 4814B | 17SEP96 | | | | 08 | 1,295.00 | NC | | |
| CHROMIUM | 7440-47-3 | 10.00 | 4814B | 18SEP96 | 10 | 375.00 | NC | 08 | 913.00 | NC | | |
| CHROMIUM | 7440-47-3 | 10.00 | 4814B | 19SEP96 | 10 | 225.00 | NC | 08 | 1,380.00 | NC | 463.67 | 1,467.00 |
| COBALT | 7440-48-4 | 50.00 | 4814A | 16SEP96 | 09 | 1,040.00 | NC | 07 | 3,240.00 | NC | | |
| COBALT | 7440-48-4 | 50.00 | 4814A | 17SEP96 | | | | 07 | 1,825.00 | NC | | |
| COBALT | 7440-48-4 | 50.00 | 4814A | 18SEP96 | 09 | 1,330.00 | NC | 07 | 2,880.00 | NC | | |
| COBALT | 7440-48-4 | 50.00 | 4814A | 19SEP96 | 09 | 1,350.00 | NC | 07 | 1,450.00 | NC | | |
| COBALT | 7440-48-4 | 50.00 | 4814A | 20SEP96 | 09 | 643.00 | NC | 07 | 1,270.00 | NC | 1,090.75 | 2,133.00 |
| COBALT | 7440-48-4 | 50.00 | 4814B | 16SEP96 | 10 | 2,520.00 | NC | 08 | 4,030.00 | NC | | |
| COBALT | 7440-48-4 | 50.00 | 4814B | 17SEP96 | | | | 08 | 1,845.00 | NC | | |
| COBALT | 7440-48-4 | 50.00 | 4814B | 18SEP96 | 10 | 1,210.00 | NC | 08 | 1,740.00 | NC | | |
| COBALT | 7440-48-4 | 50.00 | 4814B | 19SEP96 | 10 | 37,500.00 | NC | 08 | 116,000.00 | NC | 13,743.33 | 30,903.75 |
| COPPER | 7440-50-8 | 25.00 | 4814A | 16SEP96 | 09 | 68.60 | NC | 07 | 1,940.00 | NC | | |
| COPPER | 7440-50-8 | 25.00 | 4814A | 17SEP96 | | | | 07 | 2,240.00 | NC | | |
| COPPER | 7440-50-8 | 25.00 | 4814A | 18SEP96 | 09 | 99.55 | NC | 07 | 3,830.00 | NC | | |
| COPPER | 7440-50-8 | 25.00 | 4814A | 19SEP96 | 09 | 52.40 | NC | 07 | 4,780.00 | NC | | |
| COPPER | 7440-50-8 | 25.00 | 4814A | 20SEP96 | 09 | 54.10 | NC | 07 | 3,050.00 | NC | 68.66 | 3,168.00 |
| COPPER | 7440-50-8 | 25.00 | 4814B | 16SEP96 | 10 | 466.00 | NC | 08 | 2,770.00 | NC | | |
| COPPER | 7440-50-8 | 25.00 | 4814B | 17SEP96 | | | | 08 | 2,655.00 | NC | | |
| COPPER | 7440-50-8 | 25.00 | 4814B | 18SEP96 | 10 | 396.00 | NC | 08 | 1,600.00 | NC | | |
| COPPER | 7440-50-8 | 25.00 | 4814B | 19SEP96 | 10 | 472.00 | NC | 08 | 4,340.00 | NC | 444.67 | 2,841.25 |
| GERMANIUM | 7440-56-4 | 500.00 | 4814A | 16SEP96 | 09 | 500.00 | ND | 07 | 500.00 | ND | | |
| GERMANIUM | 7440-56-4 | 500.00 | 4814A | 17SEP96 | | | | 07 | 500.00 | ND | | |
| GERMANIUM | 7440-56-4 | 500.00 | 4814A | 18SEP96 | 09 | 500.00 | ND | 07 | 500.00 | ND | | |
| GERMANIUM | 7440-56-4 | 500.00 | 4814A | 19SEP96 | 09 | 500.00 | ND | 07 | 500.00 | ND | | |
| GERMANIUM | 7440-56-4 | 500.00 | 4814A | 20SEP96 | 09 | 500.00 | ND | 07 | 500.00 | ND | 500.00 | 500.00 |
| GERMANIUM | 7440-56-4 | 500.00 | 4814B | 16SEP96 | 10 | 500.00 | ND | 08 | 500.00 | ND | | |
| GERMANIUM | 7440-56-4 | 500.00 | 4814B | 17SEP96 | | | | 08 | 500.00 | ND | | |
| GERMANIUM | 7440-56-4 | 500.00 | 4814B | 18SEP96 | 10 | 500.00 | ND | 08 | 500.00 | ND | | |
| GERMANIUM | 7440-56-4 | 500.00 | 4814B | 19SEP96 | 10 | 500.00 | ND | 08 | 500.00 | ND | 500.00 | 500.00 |

Subcategory=Oils Option=8
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IRON | 7439-89-6 | 100.00 | 4814A | 16SEP96 | 09 | 122,000.00 | NC | 07 | 630,000.00 | NC | | |
| IRON | 7439-89-6 | 100.00 | 4814A | 17SEP96 | | | | 07 | 256,500.00 | NC | | |
| IRON | 7439-89-6 | 100.00 | 4814A | 18SEP96 | 09 | 123,000.00 | NC | 07 | 53,400.00 | NC | | |
| IRON | 7439-89-6 | 100.00 | 4814A | 19SEP96 | 09 | 49,700.00 | NC | 07 | 249,000.00 | NC | | |
| IRON | 7439-89-6 | 100.00 | 4814A | 20SEP96 | 09 | 39,100.00 | NC | 07 | 564,000.00 | NC | 83,450.00 | 350,580.00 |
| IRON | 7439-89-6 | 100.00 | 4814B | 16SEP96 | 10 | 53,900.00 | NC | 08 | 97,100.00 | NC | | |
| IRON | 7439-89-6 | 100.00 | 4814B | 17SEP96 | | | | 08 | 91,700.00 | NC | | |
| IRON | 7439-89-6 | 100.00 | 4814B | 18SEP96 | 10 | 4,750.00 | NC | 08 | 23,700.00 | NC | | |
| IRON | 7439-89-6 | 100.00 | 4814B | 19SEP96 | 10 | 11,200.00 | NC | 08 | 96,300.00 | NC | 23,283.33 | 77,200.00 |
| LEAD | 7439-92-1 | 50.00 | 4814A | 16SEP96 | 09 | 53.80 | NC | 07 | 1,790.00 | NC | | |
| LEAD | 7439-92-1 | 50.00 | 4814A | 17SEP96 | | | | 07 | 2,270.00 | NC | | |
| LEAD | 7439-92-1 | 50.00 | 4814A | 18SEP96 | 09 | 46.80 | NC | 07 | 2,720.00 | NC | | |
| LEAD | 7439-92-1 | 50.00 | 4814A | 19SEP96 | 09 | 63.90 | NC | 07 | 2,710.00 | NC | | |
| LEAD | 7439-92-1 | 50.00 | 4814A | 20SEP96 | 09 | 74.40 | NC | 07 | 1,680.00 | NC | 59.73 | 2,234.00 |
| LEAD | 7439-92-1 | 50.00 | 4814B | 16SEP96 | 10 | 279.00 | NC | 08 | 1,350.00 | NC | | |
| LEAD | 7439-92-1 | 50.00 | 4814B | 17SEP96 | | | | 08 | 2,180.00 | NC | | |
| LEAD | 7439-92-1 | 50.00 | 4814B | 18SEP96 | 10 | 206.00 | NC | 08 | 737.00 | NC | | |
| LEAD | 7439-92-1 | 50.00 | 4814B | 19SEP96 | 10 | 228.00 | NC | 08 | 3,630.00 | NC | 237.67 | 1,974.25 |
| LUTETIUM | 7439-94-3 | 100.00 | 4814A | 16SEP96 | 09 | 100.00 | ND | 07 | 100.00 | ND | | |
| LUTETIUM | 7439-94-3 | 100.00 | 4814A | 17SEP96 | | | | 07 | 100.00 | ND | | |
| LUTETIUM | 7439-94-3 | 100.00 | 4814A | 18SEP96 | 09 | 100.00 | ND | 07 | 100.00 | ND | | |
| LUTETIUM | 7439-94-3 | 100.00 | 4814A | 19SEP96 | 09 | 100.00 | ND | 07 | 100.00 | ND | | |
| LUTETIUM | 7439-94-3 | 100.00 | 4814A | 20SEP96 | 09 | 100.00 | ND | 07 | 100.00 | ND | 100.00 | 100.00 |
| LUTETIUM | 7439-94-3 | 100.00 | 4814B | 16SEP96 | 10 | 100.00 | ND | 08 | 100.00 | ND | | |
| LUTETIUM | 7439-94-3 | 100.00 | 4814B | 17SEP96 | | | | 08 | 100.00 | ND | | |
| LUTETIUM | 7439-94-3 | 100.00 | 4814B | 18SEP96 | 10 | 100.00 | ND | 08 | 100.00 | ND | | |
| LUTETIUM | 7439-94-3 | 100.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 100.00 | ND | 100.00 | 100.00 |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4814A | 16SEP96 | 09 | 51,500.00 | NC | 07 | 110,000.00 | NC | | |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4814A | 17SEP96 | | | | 07 | 109,000.00 | NC | | |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4814A | 18SEP96 | 09 | 67,500.00 | NC | 07 | 78,800.00 | NC | | |

------------------------------------------------------------- Subcategory=Oils Option=8 -------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4814A | 19SEP96 | 09 | 76,400.00 | NC | 07 | 96,600.00 | NC | | |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4814A | 20SEP96 | 09 | 56,200.00 | NC | 07 | 118,000.00 | NC | 62,900.00 | 102,480.00 |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4814B | 16SEP96 | 10 | 53,500.00 | NC | 08 | 59,300.00 | NC | | |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4814B | 17SEP96 | | | | 08 | 26,150.00 | NC | | |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4814B | 18SEP96 | 10 | 19,550.00 | NC | 08 | 22,100.00 | NC | | |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4814B | 19SEP96 | 10 | 142,000.00 | NC | 08 | 131,000.00 | NC | 71,683.33 | 59,637.50 |
| MANGANESE | 7439-96-5 | 15.00 | 4814A | 16SEP96 | 09 | 5,120.00 | NC | 07 | 13,800.00 | NC | | |
| MANGANESE | 7439-96-5 | 15.00 | 4814A | 17SEP96 | | | | 07 | 6,690.00 | NC | | |
| MANGANESE | 7439-96-5 | 15.00 | 4814A | 18SEP96 | 09 | 4,345.00 | NC | 07 | 10,100.00 | NC | | |
| MANGANESE | 7439-96-5 | 15.00 | 4814A | 19SEP96 | 09 | 3,400.00 | NC | 07 | 6,140.00 | NC | | |
| MANGANESE | 7439-96-5 | 15.00 | 4814A | 20SEP96 | 09 | 2,380.00 | NC | 07 | 9,970.00 | NC | 3,811.25 | 9,340.00 |
| MANGANESE | 7439-96-5 | 15.00 | 4814B | 16SEP96 | 10 | 2,930.00 | NC | 08 | 3,220.00 | NC | | |
| MANGANESE | 7439-96-5 | 15.00 | 4814B | 17SEP96 | | | | 08 | 1,790.00 | NC | | |
| MANGANESE | 7439-96-5 | 15.00 | 4814B | 18SEP96 | 10 | 1,375.00 | NC | 08 | 2,380.00 | NC | | |
| MANGANESE | 7439-96-5 | 15.00 | 4814B | 19SEP96 | 10 | 16,700.00 | NC | 08 | 44,500.00 | NC | 7,001.67 | 12,972.50 |
| MERCURY | 7439-97-6 | 0.20 | 4814A | 16SEP96 | 09 | 0.20 | ND | 07 | 0.39 | NC | | |
| MERCURY | 7439-97-6 | 0.20 | 4814A | 17SEP96 | | | | 07 | 0.53 | NC | | |
| MERCURY | 7439-97-6 | 0.20 | 4814A | 18SEP96 | 09 | 4.00 | ND | 07 | 28.60 | NC | | |
| MERCURY | 7439-97-6 | 0.20 | 4814A | 19SEP96 | 09 | 4.00 | ND | 07 | 10.00 | NC | | |
| MERCURY | 7439-97-6 | 0.20 | 4814A | 20SEP96 | 09 | 4.00 | ND | 07 | 12.40 | NC | 3.05 | 10.38 |
| MERCURY | 7439-97-6 | 0.20 | 4814B | 16SEP96 | 10 | 0.97 | NC | 08 | 6.60 | NC | | |
| MERCURY | 7439-97-6 | 0.20 | 4814B | 17SEP96 | | | | 08 | 2.64 | NC | | |
| MERCURY | 7439-97-6 | 0.20 | 4814B | 18SEP96 | 10 | 4.00 | ND | 08 | 14.40 | NC | | |
| MERCURY | 7439-97-6 | 0.20 | 4814B | 19SEP96 | 10 | 4.40 | NC | 08 | 55.60 | NC | 3.12 | 19.81 |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4814A | 16SEP96 | 09 | 2,200.00 | NC | 07 | 3,680.00 | NC | | |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4814A | 17SEP96 | | | | 07 | 3,920.00 | NC | | |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4814A | 18SEP96 | 09 | 1,695.00 | NC | 07 | 4,570.00 | NC | | |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4814A | 19SEP96 | 09 | 1,390.00 | NC | 07 | 2,470.00 | NC | | |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4814A | 20SEP96 | 09 | 886.00 | NC | 07 | 2,030.00 | NC | 1,542.75 | 3,334.00 |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4814B | 16SEP96 | 10 | 645.00 | NC | 08 | 1,200.00 | NC | | |

------------------------------------------------------------ Subcategory=Oils Option=8 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MOLYBDENUM | 7439-98-7 | 10.00 | 4814B | 17SEP96 | | | | 08 | 617.50 | NC | | |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4814B | 18SEP96 | 10 | 277.00 | NC | 08 | 436.00 | NC | | |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4814B | 19SEP96 | 10 | 3,970.00 | NC | 08 | 3,370.00 | NC | 1,630.67 | 1,405.88 |
| NICKEL | 7440-02-0 | 40.00 | 4814A | 16SEP96 | 09 | 1,170.00 | NC | 07 | 2,510.00 | NC | | |
| NICKEL | 7440-02-0 | 40.00 | 4814A | 17SEP96 | | | | 07 | 1,825.00 | NC | | |
| NICKEL | 7440-02-0 | 40.00 | 4814A | 18SEP96 | 09 | 2,025.00 | NC | 07 | 2,590.00 | NC | | |
| NICKEL | 7440-02-0 | 40.00 | 4814A | 19SEP96 | 09 | 1,150.00 | NC | 07 | 1,790.00 | NC | | |
| NICKEL | 7440-02-0 | 40.00 | 4814A | 20SEP96 | 09 | 621.00 | NC | 07 | 1,560.00 | NC | 1,241.50 | 2,055.00 |
| NICKEL | 7440-02-0 | 40.00 | 4814B | 16SEP96 | 10 | 711.00 | NC | 08 | 1,090.00 | NC | | |
| NICKEL | 7440-02-0 | 40.00 | 4814B | 17SEP96 | | | | 08 | 740.00 | NC | | |
| NICKEL | 7440-02-0 | 40.00 | 4814B | 18SEP96 | 10 | 518.00 | NC | 08 | 851.00 | NC | | |
| NICKEL | 7440-02-0 | 40.00 | 4814B | 19SEP96 | 10 | 3,890.00 | NC | 08 | 9,270.00 | NC | 1,706.33 | 2,987.75 |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 4814A | 16SEP96 | 09 | 4,780.00 | NC | 07 | 40,000.00 | NC | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 4814A | 17SEP96 | | | | 07 | 35,350.00 | NC | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 4814A | 18SEP96 | 09 | 6,450.00 | NC | 07 | 63,800.00 | NC | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 4814A | 19SEP96 | 09 | 6,400.00 | NC | 07 | 40,700.00 | NC | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 4814A | 20SEP96 | 09 | 105,000.00 | NC | 07 | 239,000.00 | NC | 30,657.50 | 83,770.00 |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 4814B | 16SEP96 | 10 | 13,700.00 | NC | 08 | 32,900.00 | NC | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 4814B | 17SEP96 | | | | 08 | 18,800.00 | NC | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 4814B | 18SEP96 | 10 | 79,400.00 | NC | 08 | 179,000.00 | NC | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 4814B | 19SEP96 | 10 | 84,700.00 | NC | 08 | 45,400.00 | NC | 59,266.67 | 69,025.00 |
| POTASSIUM | 7440-09-7 | 1,000.00 | 4814A | 16SEP96 | 09 | 316,000.00 | NC | 07 | 562,000.00 | NC | | |
| POTASSIUM | 7440-09-7 | 1,000.00 | 4814A | 17SEP96 | | | | 07 | 612,500.00 | NC | | |
| POTASSIUM | 7440-09-7 | 1,000.00 | 4814A | 18SEP96 | 09 | 475,000.00 | NC | 07 | 939,000.00 | NC | | |
| POTASSIUM | 7440-09-7 | 1,000.00 | 4814A | 19SEP96 | 09 | 287,000.00 | NC | 07 | 379,000.00 | NC | | |
| POTASSIUM | 7440-09-7 | 1,000.00 | 4814A | 20SEP96 | 09 | 866,000.00 | NC | 07 | 962,000.00 | NC | 486,000.00 | 690,900.00 |
| POTASSIUM | 7440-09-7 | 1,000.00 | 4814B | 16SEP96 | 10 | 167,000.00 | NC | 08 | 140,000.00 | NC | | |
| POTASSIUM | 7440-09-7 | 1,000.00 | 4814B | 17SEP96 | | | | 08 | 128,500.00 | NC | | |
| POTASSIUM | 7440-09-7 | 1,000.00 | 4814B | 18SEP96 | 10 | 275,500.00 | NC | 08 | 452,000.00 | NC | | |
| POTASSIUM | 7440-09-7 | 1,000.00 | 4814B | 19SEP96 | 10 | 570,000.00 | NC | 08 | 806,000.00 | NC | 337,500.00 | 381,625.00 |

------------------------------------------------------------- Subcategory=Oils Option=8 -------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SELENIUM | 7782-49-2 | 5.00 | 4814A | 16SEP96 | 09 | 241.00 | NC | 07 | 460.00 | NC | | |
| SELENIUM | 7782-49-2 | 5.00 | 4814A | 17SEP96 | | | | 07 | 208.50 | NC | | |
| SELENIUM | 7782-49-2 | 5.00 | 4814A | 18SEP96 | 09 | 104.65 | NC | 07 | 81.20 | NC | | |
| SELENIUM | 7782-49-2 | 5.00 | 4814A | 19SEP96 | 09 | 30.30 | NC | 07 | 66.70 | NC | | |
| SELENIUM | 7782-49-2 | 5.00 | 4814A | 20SEP96 | 09 | 54.00 | NC | 07 | 35.90 | NC | 107.49 | 170.46 |
| SELENIUM | 7782-49-2 | 5.00 | 4814B | 16SEP96 | 10 | 255.00 | NC | 08 | 245.00 | NC | | |
| SELENIUM | 7782-49-2 | 5.00 | 4814B | 17SEP96 | | | | 08 | 66.60 | NC | | |
| SELENIUM | 7782-49-2 | 5.00 | 4814B | 18SEP96 | 10 | 927.00 | NC | 08 | 1,000.00 | NC | | |
| SELENIUM | 7782-49-2 | 5.00 | 4814B | 19SEP96 | 10 | 58.10 | NC | 08 | 73.50 | NC | 413.37 | 346.28 |
| SILICON | 7440-21-3 | 100.00 | 4814A | 16SEP96 | 09 | 18,800.00 | NC | 07 | 63,700.00 | NC | | |
| SILICON | 7440-21-3 | 100.00 | 4814A | 17SEP96 | | | | 07 | 51,150.00 | NC | | |
| SILICON | 7440-21-3 | 100.00 | 4814A | 18SEP96 | 09 | 23,500.00 | NC | 07 | 78,900.00 | NC | | |
| SILICON | 7440-21-3 | 100.00 | 4814A | 19SEP96 | 09 | 22,500.00 | NC | 07 | 41,000.00 | NC | | |
| SILICON | 7440-21-3 | 100.00 | 4814A | 20SEP96 | 09 | 19,800.00 | NC | 07 | 78,600.00 | NC | 21,150.00 | 62,670.00 |
| SILICON | 7440-21-3 | 100.00 | 4814B | 16SEP96 | 10 | 13,600.00 | NC | 08 | 28,200.00 | NC | | |
| SILICON | 7440-21-3 | 100.00 | 4814B | 17SEP96 | | | | 08 | 14,650.00 | NC | | |
| SILICON | 7440-21-3 | 100.00 | 4814B | 18SEP96 | 10 | 25,250.00 | NC | 08 | 56,800.00 | NC | | |
| SILICON | 7440-21-3 | 100.00 | 4814B | 19SEP96 | 10 | 11,700.00 | NC | 08 | 16,700.00 | NC | 16,850.00 | 29,087.50 |
| SILVER | 7440-22-4 | 10.00 | 4814A | 16SEP96 | 09 | 5.00 | ND | 07 | 17.90 | NC | | |
| SILVER | 7440-22-4 | 10.00 | 4814A | 17SEP96 | | | | 07 | 10.60 | NC | | |
| SILVER | 7440-22-4 | 10.00 | 4814A | 18SEP96 | 09 | 5.00 | ND | 07 | 31.50 | NC | | |
| SILVER | 7440-22-4 | 10.00 | 4814A | 19SEP96 | 09 | 5.00 | ND | 07 | 25.20 | NC | | |
| SILVER | 7440-22-4 | 10.00 | 4814A | 20SEP96 | 09 | 5.00 | ND | 07 | 11.50 | NC | 5.00 | 19.34 |
| SILVER | 7440-22-4 | 10.00 | 4814B | 16SEP96 | 10 | 5.48 | NC | 08 | 7.75 | NC | | |
| SILVER | 7440-22-4 | 10.00 | 4814B | 17SEP96 | | | | 08 | 20.10 | NC | | |
| SILVER | 7440-22-4 | 10.00 | 4814B | 18SEP96 | 10 | 5.30 | NC | 08 | 8.85 | NC | | |
| SILVER | 7440-22-4 | 10.00 | 4814B | 19SEP96 | 10 | 5.00 | ND | 08 | 15.60 | NC | 5.26 | 13.08 |
| SODIUM | 7440-23-5 | 5,000.00 | 4814A | 16SEP96 | 09 | 3,700,000.00 | NC | 07 | 4,330,000.00 | NC | | |
| SODIUM | 7440-23-5 | 5,000.00 | 4814A | 17SEP96 | | | | 07 | 2,245,000.00 | NC | | |
| SODIUM | 7440-23-5 | 5,000.00 | 4814A | 18SEP96 | 09 | 3,295,000.00 | NC | 07 | 2,270,000.00 | NC | | |
| SODIUM | 7440-23-5 | 5,000.00 | 4814A | 19SEP96 | 09 | 2,820,000.00 | NC | 07 | 3,150,000.00 | NC | | |

Subcategory=Oils Option=8
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SODIUM | 7440-23-5 | 5,000.00 | 4814A | 20SEP96 | 09 | 2,980,000.00 | NC | 07 | 2,960,000.00 | NC | 3,198,750.00 | 2,991,000.00 |
| SODIUM | 7440-23-5 | 5,000.00 | 4814B | 16SEP96 | 10 | 5,280,000.00 | NC | 08 | 5,160,000.00 | NC | | |
| SODIUM | 7440-23-5 | 5,000.00 | 4814B | 17SEP96 | | | | 08 | 4,410,000.00 | NC | | |
| SODIUM | 7440-23-5 | 5,000.00 | 4814B | 18SEP96 | 10 | 9,980,000.00 | NC | 08 | 11,100,000.00 | NC | | |
| SODIUM | 7440-23-5 | 5,000.00 | 4814B | 19SEP96 | 10 | 4,700,000.00 | NC | 08 | 3,330,000.00 | NC | 6,653,333.33 | 6,000,000.00 |
| STRONTIUM | 7440-24-6 | 100.00 | 4814A | 16SEP96 | 09 | 1,150.00 | NC | 07 | 2,450.00 | NC | | |
| STRONTIUM | 7440-24-6 | 100.00 | 4814A | 17SEP96 | | | | 07 | 1,405.00 | NC | | |
| STRONTIUM | 7440-24-6 | 100.00 | 4814A | 18SEP96 | 09 | 672.00 | NC | 07 | 1,360.00 | NC | | |
| STRONTIUM | 7440-24-6 | 100.00 | 4814A | 19SEP96 | 09 | 853.00 | NC | 07 | 1,580.00 | NC | | |
| STRONTIUM | 7440-24-6 | 100.00 | 4814A | 20SEP96 | 09 | 574.00 | NC | 07 | 1,750.00 | NC | 812.25 | 1,709.00 |
| STRONTIUM | 7440-24-6 | 100.00 | 4814B | 16SEP96 | 10 | 585.00 | NC | 08 | 996.00 | NC | | |
| STRONTIUM | 7440-24-6 | 100.00 | 4814B | 17SEP96 | | | | 08 | 755.50 | NC | | |
| STRONTIUM | 7440-24-6 | 100.00 | 4814B | 18SEP96 | 10 | 306.00 | NC | 08 | 546.00 | NC | | |
| STRONTIUM | 7440-24-6 | 100.00 | 4814B | 19SEP96 | 10 | 1,320.00 | NC | 08 | 3,470.00 | NC | 737.00 | 1,441.88 |
| SULFUR | 7704-34-9 | 1,000.00 | 4814A | 16SEP96 | 09 | 1,840,000.00 | NC | 07 | 2,260,000.00 | NC | | |
| SULFUR | 7704-34-9 | 1,000.00 | 4814A | 17SEP96 | | | | 07 | 1,150,000.00 | NC | | |
| SULFUR | 7704-34-9 | 1,000.00 | 4814A | 18SEP96 | 09 | 1,765,000.00 | NC | 07 | 1,510,000.00 | NC | | |
| SULFUR | 7704-34-9 | 1,000.00 | 4814A | 19SEP96 | 09 | 1,940,000.00 | NC | 07 | 1,950,000.00 | NC | | |
| SULFUR | 7704-34-9 | 1,000.00 | 4814A | 20SEP96 | 09 | 1,720,000.00 | NC | 07 | 2,140,000.00 | NC | 1,816,250.00 | 1,802,000.00 |
| SULFUR | 7704-34-9 | 1,000.00 | 4814B | 16SEP96 | 10 | 1,770,000.00 | NC | 08 | 2,180,000.00 | NC | | |
| SULFUR | 7704-34-9 | 1,000.00 | 4814B | 17SEP96 | | | | 08 | 1,775,000.00 | NC | | |
| SULFUR | 7704-34-9 | 1,000.00 | 4814B | 18SEP96 | 10 | 3,450,000.00 | NC | 08 | 3,620,000.00 | NC | | |
| SULFUR | 7704-34-9 | 1,000.00 | 4814B | 19SEP96 | 10 | 2,760,000.00 | NC | 08 | 2,050,000.00 | NC | 2,660,000.00 | 2,406,250.00 |
| TANTALUM | 7440-25-7 | 500.00 | 4814A | 16SEP96 | 09 | 500.00 | ND | 07 | 500.00 | ND | | |
| TANTALUM | 7440-25-7 | 500.00 | 4814A | 17SEP96 | | | | 07 | 500.00 | ND | | |
| TANTALUM | 7440-25-7 | 500.00 | 4814A | 18SEP96 | 09 | 500.00 | ND | 07 | 500.00 | ND | | |
| TANTALUM | 7440-25-7 | 500.00 | 4814A | 19SEP96 | 09 | 500.00 | ND | 07 | 500.00 | ND | | |
| TANTALUM | 7440-25-7 | 500.00 | 4814A | 20SEP96 | 09 | 500.00 | ND | 07 | 500.00 | ND | 500.00 | 500.00 |
| TANTALUM | 7440-25-7 | 500.00 | 4814B | 16SEP96 | 10 | 500.00 | ND | 08 | 500.00 | ND | | |
| TANTALUM | 7440-25-7 | 500.00 | 4814B | 17SEP96 | | | | 08 | 500.00 | ND | | |

Subcategory=Oils Option=8
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TANTALUM | 7440-25-7 | 500.00 | 4814B | 18SEP96 | 10 | 500.00 | ND | 08 | 500.00 | ND | | |
| TANTALUM | 7440-25-7 | 500.00 | 4814B | 19SEP96 | 10 | 500.00 | ND | 08 | 500.00 | ND | 500.00 | 500.00 |
| TIN | 7440-31-5 | 30.00 | 4814A | 16SEP96 | 09 | 29.00 | ND | 07 | 898.00 | NC | | |
| TIN | 7440-31-5 | 30.00 | 4814A | 17SEP96 | | | | 07 | 874.50 | NC | | |
| TIN | 7440-31-5 | 30.00 | 4814A | 18SEP96 | 09 | 36.10 | NC | 07 | 2,160.00 | NC | | |
| TIN | 7440-31-5 | 30.00 | 4814A | 19SEP96 | 09 | 29.00 | ND | 07 | 2,100.00 | NC | | |
| TIN | 7440-31-5 | 30.00 | 4814A | 20SEP96 | 09 | 29.00 | ND | 07 | 712.00 | NC | 30.78 | 1,348.90 |
| TIN | 7440-31-5 | 30.00 | 4814B | 16SEP96 | 10 | 29.00 | ND | 08 | 29.00 | ND | | |
| TIN | 7440-31-5 | 30.00 | 4814B | 17SEP96 | | | | 08 | 912.00 | NC | | |
| TIN | 7440-31-5 | 30.00 | 4814B | 18SEP96 | 10 | 491.50 | NC | 08 | 2,680.00 | NC | | |
| TIN | 7440-31-5 | 30.00 | 4814B | 19SEP96 | 10 | 29.00 | ND | 08 | 910.00 | NC | 183.17 | 1,132.75 |
| TITANIUM | 7440-32-6 | 5.00 | 4814A | 16SEP96 | 09 | 14.70 | NC | 07 | 166.00 | NC | | |
| TITANIUM | 7440-32-6 | 5.00 | 4814A | 17SEP96 | | | | 07 | 138.00 | NC | | |
| TITANIUM | 7440-32-6 | 5.00 | 4814A | 18SEP96 | 09 | 20.05 | NC | 07 | 771.00 | NC | | |
| TITANIUM | 7440-32-6 | 5.00 | 4814A | 19SEP96 | 09 | 8.51 | NC | 07 | 745.00 | NC | | |
| TITANIUM | 7440-32-6 | 5.00 | 4814A | 20SEP96 | 09 | 11.30 | NC | 07 | 315.00 | NC | 13.64 | 427.00 |
| TITANIUM | 7440-32-6 | 5.00 | 4814B | 16SEP96 | 10 | 23.60 | NC | 08 | 143.00 | NC | | |
| TITANIUM | 7440-32-6 | 5.00 | 4814B | 17SEP96 | | | | 08 | 136.50 | NC | | |
| TITANIUM | 7440-32-6 | 5.00 | 4814B | 18SEP96 | 10 | 45.75 | NC | 08 | 158.00 | NC | | |
| TITANIUM | 7440-32-6 | 5.00 | 4814B | 19SEP96 | 10 | 20.10 | NC | 08 | 271.00 | NC | 29.82 | 177.13 |
| ZINC | 7440-66-6 | 20.00 | 4814A | 16SEP96 | 09 | 3,240.00 | NC | 07 | 33,300.00 | NC | | |
| ZINC | 7440-66-6 | 20.00 | 4814A | 17SEP96 | | | | 07 | 22,800.00 | NC | | |
| ZINC | 7440-66-6 | 20.00 | 4814A | 18SEP96 | 09 | 4,535.00 | NC | 07 | 6,020.00 | NC | | |
| ZINC | 7440-66-6 | 20.00 | 4814A | 19SEP96 | 09 | 2,530.00 | NC | 07 | 28,600.00 | NC | | |
| ZINC | 7440-66-6 | 20.00 | 4814A | 20SEP96 | 09 | 2,250.00 | NC | 07 | 36,400.00 | NC | 3,138.75 | 25,424.00 |
| ZINC | 7440-66-6 | 20.00 | 4814B | 16SEP96 | 10 | 2,460.00 | NC | 08 | 12,900.00 | NC | | |
| ZINC | 7440-66-6 | 20.00 | 4814B | 17SEP96 | | | | 08 | 14,900.00 | NC | | |
| ZINC | 7440-66-6 | 20.00 | 4814B | 18SEP96 | 10 | 4,495.00 | NC | 08 | 11,100.00 | NC | | |
| ZINC | 7440-66-6 | 20.00 | 4814B | 19SEP96 | 10 | 4,320.00 | NC | 08 | 16,800.00 | NC | 3,758.33 | 13,925.00 |
| ACENAPHTHENE | 83-32-9 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 20.00 | ND | | |

Subcategory=Oils Option=8
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ACENAPHTHENE | 83-32-9 | 10.00 | 4814A | 17SEP96 | | | | 07 | 104.90 | NC | | |
| ACENAPHTHENE | 83-32-9 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| ACENAPHTHENE | 83-32-9 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| ACENAPHTHENE | 83-32-9 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 1,640.13 | NC | 16.25 | 593.01 |
| ACENAPHTHENE | 83-32-9 | 10.00 | 4814B | 16SEP96 | 10 | 192.10 | NC | 08 | 13,417.86 | NC | | |
| ACENAPHTHENE | 83-32-9 | 10.00 | 4814B | 17SEP96 | | | | 08 | 279.50 | NC | | |
| ACENAPHTHENE | 83-32-9 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 731.95 | NC | | |
| ACENAPHTHENE | 83-32-9 | 10.00 | 4814B | 19SEP96 | 10 | 184.70 | NC | 08 | 2,472.36 | NC | 137.27 | 4,225.42 |
| ALPHA-TERPINEOL | 98-55-5 | 10.00 | 4814A | 16SEP96 | 09 | 213.60 | NC | 07 | 20.00 | ND | | |
| ALPHA-TERPINEOL | 98-55-5 | 10.00 | 4814A | 17SEP96 | | | | 07 | 842.95 | NC | | |
| ALPHA-TERPINEOL | 98-55-5 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| ALPHA-TERPINEOL | 98-55-5 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| ALPHA-TERPINEOL | 98-55-5 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 67.15 | 472.59 |
| ALPHA-TERPINEOL | 98-55-5 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 2,210.37 | NC | | |
| ALPHA-TERPINEOL | 98-55-5 | 10.00 | 4814B | 17SEP96 | | | | 08 | 983.50 | NC | | |
| ALPHA-TERPINEOL | 98-55-5 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| ALPHA-TERPINEOL | 98-55-5 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 48.33 | 923.47 |
| ANILINE | 62-53-3 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 20.00 | ND | | |
| ANILINE | 62-53-3 | 10.00 | 4814A | 17SEP96 | | | | 07 | 70.00 | ND | | |
| ANILINE | 62-53-3 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| ANILINE | 62-53-3 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| ANILINE | 62-53-3 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 318.00 |
| ANILINE | 62-53-3 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |
| ANILINE | 62-53-3 | 10.00 | 4814B | 17SEP96 | | | | 08 | 306.30 | NC | | |
| ANILINE | 62-53-3 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| ANILINE | 62-53-3 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 48.33 | 204.08 |
| ANTHRACENE | 120-12-7 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 20.00 | ND | | |
| ANTHRACENE | 120-12-7 | 10.00 | 4814A | 17SEP96 | | | | 07 | 83.20 | NC | | |
| ANTHRACENE | 120-12-7 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| ANTHRACENE | 120-12-7 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,288.00 | NC | | |
| ANTHRACENE | 120-12-7 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 378.24 |

------------------------------------------------------------ Subcategory=Oils Option=8 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ANTHRACENE | 120-12-7 | 10.00 | 4814B | 16SEP96 | 10 | 170.40 | NC | 08 | 18,950.59 | NC | | |
| ANTHRACENE | 120-12-7 | 10.00 | 4814B | 17SEP96 | | | | 08 | 266.95 | NC | | |
| ANTHRACENE | 120-12-7 | 10.00 | 4814B | 18SEP96 | 10 | 139.70 | NC | 08 | 731.37 | NC | | |
| ANTHRACENE | 120-12-7 | 10.00 | 4814B | 19SEP96 | 10 | 182.72 | NC | 08 | 2,505.60 | NC | 164.27 | 5,613.63 |
| BENZENE | 71-43-2 | 10.00 | 4814A | 16SEP96 | 09 | 480.90 | NC | 07 | 957.90 | NC | | |
| BENZENE | 71-43-2 | 10.00 | 4814A | 17SEP96 | | | | 07 | 1,525.10 | NC | | |
| BENZENE | 71-43-2 | 10.00 | 4814A | 18SEP96 | 09 | 690.78 | NC | 07 | 1,400.83 | NC | | |
| BENZENE | 71-43-2 | 10.00 | 4814A | 19SEP96 | 09 | 401.63 | NC | 07 | 603.67 | NC | | |
| BENZENE | 71-43-2 | 10.00 | 4814A | 20SEP96 | 09 | 472.27 | NC | 07 | 778.35 | NC | 511.39 | 1,053.17 |
| BENZENE | 71-43-2 | 10.00 | 4814B | 16SEP96 | 10 | 1,889.00 | NC | 08 | 2,349.00 | NC | | |
| BENZENE | 71-43-2 | 10.00 | 4814B | 17SEP96 | | | | 08 | 1,840.30 | NC | | |
| BENZENE | 71-43-2 | 10.00 | 4814B | 18SEP96 | 10 | 1,292.53 | NC | 08 | 1,581.12 | NC | | |
| BENZENE | 71-43-2 | 10.00 | 4814B | 19SEP96 | 10 | 1,637.16 | NC | 08 | 3,478.20 | NC | 1,606.23 | 2,312.16 |
| BENZO(A)ANTHRACENE | 56-55-3 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 33.64 | NC | | |
| BENZO(A)ANTHRACENE | 56-55-3 | 10.00 | 4814A | 17SEP96 | | | | 07 | 88.60 | NC | | |
| BENZO(A)ANTHRACENE | 56-55-3 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| BENZO(A)ANTHRACENE | 56-55-3 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| BENZO(A)ANTHRACENE | 56-55-3 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 324.45 |
| BENZO(A)ANTHRACENE | 56-55-3 | 10.00 | 4814B | 16SEP96 | 10 | 179.99 | NC | 08 | 6,303.36 | NC | | |
| BENZO(A)ANTHRACENE | 56-55-3 | 10.00 | 4814B | 17SEP96 | | | | 08 | 137.05 | NC | | |
| BENZO(A)ANTHRACENE | 56-55-3 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 249.09 | NC | | |
| BENZO(A)ANTHRACENE | 56-55-3 | 10.00 | 4814B | 19SEP96 | 10 | 105.30 | NC | 08 | 909.04 | NC | 106.76 | 1,899.64 |
| BENZOIC ACID | 65-85-0 | 50.00 | 4814A | 16SEP96 | 09 | 13,316.00 | NC | 07 | 10,075.50 | NC | | |
| BENZOIC ACID | 65-85-0 | 50.00 | 4814A | 17SEP96 | | | | 07 | 11,490.35 | NC | | |
| BENZOIC ACID | 65-85-0 | 50.00 | 4814A | 18SEP96 | 09 | 14,704.88 | NC | 07 | 20,474.22 | NC | | |
| BENZOIC ACID | 65-85-0 | 50.00 | 4814A | 19SEP96 | 09 | 54,280.90 | NC | 07 | 81,574.40 | NC | | |
| BENZOIC ACID | 65-85-0 | 50.00 | 4814A | 20SEP96 | 09 | 20,023.91 | NC | 07 | 13,249.30 | NC | 25,581.42 | 27,372.75 |
| BENZOIC ACID | 65-85-0 | 50.00 | 4814B | 16SEP96 | 10 | 6,732.30 | NC | 08 | 10,150.88 | NC | | |
| BENZOIC ACID | 65-85-0 | 50.00 | 4814B | 17SEP96 | | | | 08 | 3,514.25 | NC | | |
| BENZOIC ACID | 65-85-0 | 50.00 | 4814B | 18SEP96 | 10 | 9,414.46 | NC | 08 | 5,860.34 | NC | | |

Subcategory=Oils Option=8
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BENZOIC ACID | 65-85-0 | 50.00 | 4814B | 19SEP96 | 10 | 22,759.32 | NC | 08 | 6,151.52 | NC | 12,968.69 | 6,419.25 |
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 20.00 | ND | | |
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 4814A | 17SEP96 | | | | 07 | 502.20 | NC | | |
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 4814A | 18SEP96 | 09 | 734.62 | NC | 07 | 200.00 | ND | | |
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 4814A | 20SEP96 | 09 | 470.82 | NC | 07 | 300.00 | ND | 308.86 | 404.44 |
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 782.66 | NC | | |
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 4814B | 17SEP96 | | | | 08 | 20.00 | ND | | |
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 4814B | 19SEP96 | 10 | 2,850.25 | NC | 08 | 400.00 | ND | 965.08 | 325.66 |
| BIPHENYL | 92-52-4 | 10.00 | 4814A | 16SEP96 | 09 | 11.84 | NC | 07 | 240.10 | NC | | |
| BIPHENYL | 92-52-4 | 10.00 | 4814A | 17SEP96 | | | | 07 | 292.85 | NC | | |
| BIPHENYL | 92-52-4 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 298.12 | NC | | |
| BIPHENYL | 92-52-4 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,486.40 | NC | | |
| BIPHENYL | 92-52-4 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.71 | 523.49 |
| BIPHENYL | 92-52-4 | 10.00 | 4814B | 16SEP96 | 10 | 149.80 | NC | 08 | 10,171.33 | NC | | |
| BIPHENYL | 92-52-4 | 10.00 | 4814B | 17SEP96 | | | | 08 | 349.05 | NC | | |
| BIPHENYL | 92-52-4 | 10.00 | 4814B | 18SEP96 | 10 | 157.34 | NC | 08 | 100.00 | ND | | |
| BIPHENYL | 92-52-4 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 135.71 | 2,755.09 |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 4814A | 16SEP96 | 09 | 17.30 | NC | 07 | 388.90 | NC | | |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 4814A | 17SEP96 | | | | 07 | 561.20 | NC | | |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 18.08 | 490.02 |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 4814B | 16SEP96 | 10 | 212.21 | NC | 08 | 6,004.61 | NC | | |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 4814B | 17SEP96 | | | | 08 | 325.00 | NC | | |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 115.74 | 1,707.40 |
| BUTYL BENZYL PHTHALATE | 85-68-7 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 117.60 | NC | | |
| BUTYL BENZYL PHTHALATE | 85-68-7 | 10.00 | 4814A | 17SEP96 | | | | 07 | 183.15 | NC | | |

---------------------------------------------------------------- Subcategory=Oils Option=8 ----------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BUTYL BENZYL PHTHALATE | 85-68-7 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| BUTYL BENZYL PHTHALATE | 85-68-7 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| BUTYL BENZYL PHTHALATE | 85-68-7 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 360.15 |
| | | | | . | | | | | | | | |
| BUTYL BENZYL PHTHALATE | 85-68-7 | 10.00 | 4814B | 16SEP96 | 10 | 29.93 | NC | 08 | 2,123.75 | NC | | |
| BUTYL BENZYL PHTHALATE | 85-68-7 | 10.00 | 4814B | 17SEP96 | | | | 08 | 192.50 | NC | | |
| BUTYL BENZYL PHTHALATE | 85-68-7 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| BUTYL BENZYL PHTHALATE | 85-68-7 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 54.98 | 704.06 |
| | | | | . | | | | | | | | |
| CARBAZOLE | 86-74-8 | 20.00 | 4814A | 16SEP96 | 09 | 20.00 | ND | 07 | 40.00 | ND | | |
| CARBAZOLE | 86-74-8 | 20.00 | 4814A | 17SEP96 | | | | 07 | 140.00 | ND | | |
| CARBAZOLE | 86-74-8 | 20.00 | 4814A | 18SEP96 | 09 | 30.00 | ND | 07 | 400.00 | ND | | |
| CARBAZOLE | 86-74-8 | 20.00 | 4814A | 19SEP96 | 09 | 40.00 | ND | 07 | 2,000.00 | ND | | |
| CARBAZOLE | 86-74-8 | 20.00 | 4814A | 20SEP96 | 09 | 40.00 | ND | 07 | 600.00 | ND | 32.50 | 636.00 |
| | | | | . | | | | | | | | |
| CARBAZOLE | 86-74-8 | 20.00 | 4814B | 16SEP96 | 10 | 184.34 | NC | 08 | 1,458.66 | NC | | |
| CARBAZOLE | 86-74-8 | 20.00 | 4814B | 17SEP96 | | | | 08 | 378.60 | NC | | |
| CARBAZOLE | 86-74-8 | 20.00 | 4814B | 18SEP96 | 10 | 70.00 | ND | 08 | 200.00 | ND | | |
| CARBAZOLE | 86-74-8 | 20.00 | 4814B | 19SEP96 | 10 | 200.00 | ND | 08 | 1,165.52 | NC | 151.45 | 800.69 |
| | | | | . | | | | | | | | |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 4814A | 16SEP96 | 09 | 82.44 | NC | 07 | 137.16 | NC | | |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 4814A | 17SEP96 | | | | 07 | 143.99 | NC | | |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 4814A | 18SEP96 | 09 | 10.00 | ND | 07 | 10.00 | ND | | |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 4814A | 19SEP96 | 09 | 10.00 | ND | 07 | 10.00 | ND | | |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 4814A | 20SEP96 | 09 | 10.00 | ND | 07 | 2,335.20 | NC | 28.11 | 527.27 |
| | | | | . | | | | | | | | |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 4814B | 16SEP96 | 10 | 30.02 | NC | 08 | 22.30 | NC | | |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 4814B | 17SEP96 | | | | 08 | 66.64 | NC | | |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 4814B | 18SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 4814B | 19SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | 16.67 | 27.24 |
| | | | | . | | | | | | | | |
| CHLOROBENZENE | 108-90-7 | 10.00 | 4814A | 16SEP96 | 09 | 51.10 | NC | 07 | 89.11 | NC | | |
| CHLOROBENZENE | 108-90-7 | 10.00 | 4814A | 17SEP96 | | | | 07 | 237.85 | NC | | |
| CHLOROBENZENE | 108-90-7 | 10.00 | 4814A | 18SEP96 | 09 | 60.00 | NC | 07 | 254.68 | NC | | |
| CHLOROBENZENE | 108-90-7 | 10.00 | 4814A | 19SEP96 | 09 | 43.96 | NC | 07 | 91.32 | NC | | |
| CHLOROBENZENE | 108-90-7 | 10.00 | 4814A | 20SEP96 | 09 | 54.17 | NC | 07 | 97.57 | NC | 52.31 | 154.11 |
| | | | | . | | | | | | | | |

Subcategory=Oils Option=8
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CHLOROBENZENE | 108-90-7 | 10.00 | 4814B | 16SEP96 | 10 | 240.20 | NC | 08 | 191.22 | NC | | |
| CHLOROBENZENE | 108-90-7 | 10.00 | 4814B | 17SEP96 | | | | 08 | 326.30 | NC | | |
| CHLOROBENZENE | 108-90-7 | 10.00 | 4814B | 18SEP96 | 10 | 61.20 | NC | 08 | 76.80 | NC | | |
| CHLOROBENZENE | 108-90-7 | 10.00 | 4814B | 19SEP96 | 10 | 66.57 | NC | 08 | 200.00 | NC | 122.66 | 198.58 |
| CHLOROFORM | 67-66-3 | 10.00 | 4814A | 16SEP96 | 09 | 186.00 | NC | 07 | 305.80 | NC | | |
| CHLOROFORM | 67-66-3 | 10.00 | 4814A | 17SEP96 | | | | 07 | 692.40 | NC | | |
| CHLOROFORM | 67-66-3 | 10.00 | 4814A | 18SEP96 | 09 | 305.49 | NC | 07 | 592.56 | NC | | |
| CHLOROFORM | 67-66-3 | 10.00 | 4814A | 19SEP96 | 09 | 140.80 | NC | 07 | 181.46 | NC | | |
| CHLOROFORM | 67-66-3 | 10.00 | 4814A | 20SEP96 | 09 | 233.08 | NC | 07 | 336.18 | NC | 216.34 | 421.68 |
| CHLOROFORM | 67-66-3 | 10.00 | 4814B | 16SEP96 | 10 | 432.40 | NC | 08 | 522.10 | NC | | |
| CHLOROFORM | 67-66-3 | 10.00 | 4814B | 17SEP96 | | | | 08 | 1,027.45 | NC | | |
| CHLOROFORM | 67-66-3 | 10.00 | 4814B | 18SEP96 | 10 | 556.64 | NC | 08 | 653.68 | NC | | |
| CHLOROFORM | 67-66-3 | 10.00 | 4814B | 19SEP96 | 10 | 636.49 | NC | 08 | 1,827.80 | NC | 541.84 | 1,007.76 |
| CHRYSENE | 218-01-9 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 43.76 | NC | | |
| CHRYSENE | 218-01-9 | 10.00 | 4814A | 17SEP96 | | | | 07 | 107.56 | NC | | |
| CHRYSENE | 218-01-9 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| CHRYSENE | 218-01-9 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| CHRYSENE | 218-01-9 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 330.26 |
| CHRYSENE | 218-01-9 | 10.00 | 4814B | 16SEP96 | 10 | 103.30 | NC | 08 | 8,879.30 | NC | | |
| CHRYSENE | 218-01-9 | 10.00 | 4814B | 17SEP96 | | | | 08 | 123.65 | NC | | |
| CHRYSENE | 218-01-9 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 402.74 | NC | | |
| CHRYSENE | 218-01-9 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 938.68 | NC | 79.43 | 2,586.09 |
| DIBENZOFURAN | 132-64-9 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 20.00 | ND | | |
| DIBENZOFURAN | 132-64-9 | 10.00 | 4814A | 17SEP96 | | | | 07 | 117.30 | NC | | |
| DIBENZOFURAN | 132-64-9 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| DIBENZOFURAN | 132-64-9 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| DIBENZOFURAN | 132-64-9 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 327.46 |
| DIBENZOFURAN | 132-64-9 | 10.00 | 4814B | 16SEP96 | 10 | 191.70 | NC | 08 | 13,786.46 | NC | | |
| DIBENZOFURAN | 132-64-9 | 10.00 | 4814B | 17SEP96 | | | | 08 | 286.70 | NC | | |
| DIBENZOFURAN | 132-64-9 | 10.00 | 4814B | 18SEP96 | 10 | 114.06 | NC | 08 | 715.45 | NC | | |
| DIBENZOFURAN | 132-64-9 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 2,355.40 | NC | 135.25 | 4,286.00 |

Subcategory=Oils Option=8
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIBENZOTHIOPHENE | 132-65-0 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 20.00 | ND | | |
| DIBENZOTHIOPHENE | 132-65-0 | 10.00 | 4814A | 17SEP96 | | | | 07 | 70.00 | ND | | |
| DIBENZOTHIOPHENE | 132-65-0 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| DIBENZOTHIOPHENE | 132-65-0 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| DIBENZOTHIOPHENE | 132-65-0 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 318.00 |
| DIBENZOTHIOPHENE | 132-65-0 | 10.00 | 4814B | 16SEP96 | 10 | 152.29 | NC | 08 | 5,447.62 | NC | | |
| DIBENZOTHIOPHENE | 132-65-0 | 10.00 | 4814B | 17SEP96 | | | | 08 | 127.90 | NC | | |
| DIBENZOTHIOPHENE | 132-65-0 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 262.10 | NC | | |
| DIBENZOTHIOPHENE | 132-65-0 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 811.88 | NC | 95.76 | 1,662.37 |
| DIETHYL PHTHALATE | 84-66-2 | 10.00 | 4814A | 16SEP96 | 09 | 873.90 | NC | 07 | 3,162.00 | NC | | |
| DIETHYL PHTHALATE | 84-66-2 | 10.00 | 4814A | 17SEP96 | | | | 07 | 3,534.00 | NC | | |
| DIETHYL PHTHALATE | 84-66-2 | 10.00 | 4814A | 18SEP96 | 09 | 2,250.46 | NC | 07 | 9,309.20 | NC | | |
| DIETHYL PHTHALATE | 84-66-2 | 10.00 | 4814A | 19SEP96 | 09 | 1,320.87 | NC | 07 | 1,000.00 | ND | | |
| DIETHYL PHTHALATE | 84-66-2 | 10.00 | 4814A | 20SEP96 | 09 | 1,198.65 | NC | 07 | 2,577.93 | NC | 1,410.97 | 3,916.63 |
| DIETHYL PHTHALATE | 84-66-2 | 10.00 | 4814B | 16SEP96 | 10 | 186.90 | NC | 08 | 3,565.66 | NC | | |
| DIETHYL PHTHALATE | 84-66-2 | 10.00 | 4814B | 17SEP96 | | | | 08 | 145.25 | NC | | |
| DIETHYL PHTHALATE | 84-66-2 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 204.32 | NC | | |
| DIETHYL PHTHALATE | 84-66-2 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 107.30 | 1,078.81 |
| DIPHENYL ETHER | 101-84-8 | 10.00 | 4814A | 16SEP96 | 09 | 31.60 | NC | 07 | 20.00 | ND | | |
| DIPHENYL ETHER | 101-84-8 | 10.00 | 4814A | 17SEP96 | | | | 07 | 149.30 | NC | | |
| DIPHENYL ETHER | 101-84-8 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| DIPHENYL ETHER | 101-84-8 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| DIPHENYL ETHER | 101-84-8 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 21.65 | 333.86 |
| DIPHENYL ETHER | 101-84-8 | 10.00 | 4814B | 16SEP96 | 10 | 82.76 | NC | 08 | 10.00 | ND | | |
| DIPHENYL ETHER | 101-84-8 | 10.00 | 4814B | 17SEP96 | | | | 08 | 151.80 | NC | | |
| DIPHENYL ETHER | 101-84-8 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| DIPHENYL ETHER | 101-84-8 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 72.59 | 165.45 |
| ETHYLBENZENE | 100-41-4 | 10.00 | 4814A | 16SEP96 | 09 | 253.00 | NC | 07 | 2,573.00 | NC | | |
| ETHYLBENZENE | 100-41-4 | 10.00 | 4814A | 17SEP96 | | | | 07 | 1,557.70 | NC | | |
| ETHYLBENZENE | 100-41-4 | 10.00 | 4814A | 18SEP96 | 09 | 367.63 | NC | 07 | 1,889.70 | NC | | |

Subcategory=Oils Option=8
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ETHYLBENZENE | 100-41-4 | 10.00 | 4814A | 19SEP96 | 09 | 216.34 | NC | 07 | 1,327.98 | NC | | |
| ETHYLBENZENE | 100-41-4 | 10.00 | 4814A | 20SEP96 | 09 | 258.13 | NC | 07 | 577.23 | NC | 273.78 | 1,585.12 |
| ETHYLBENZENE | 100-41-4 | 10.00 | 4814B | 16SEP96 | 10 | 2,193.00 | NC | 08 | 4,979.00 | NC | | |
| ETHYLBENZENE | 100-41-4 | 10.00 | 4814B | 17SEP96 | | | | 08 | 3,947.00 | NC | | |
| ETHYLBENZENE | 100-41-4 | 10.00 | 4814B | 18SEP96 | 10 | 956.42 | NC | 08 | 1,443.35 | NC | | |
| ETHYLBENZENE | 100-41-4 | 10.00 | 4814B | 19SEP96 | 10 | 1,857.01 | NC | 08 | 18,015.10 | NC | 1,668.81 | 7,096.11 |
| FLUORANTHENE | 206-44-0 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 142.04 | NC | | |
| FLUORANTHENE | 206-44-0 | 10.00 | 4814A | 17SEP96 | | | | 07 | 111.65 | NC | | |
| FLUORANTHENE | 206-44-0 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| FLUORANTHENE | 206-44-0 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 2,179.70 | NC | | |
| FLUORANTHENE | 206-44-0 | 10.00 | 4814A | 20SEP96 | 09 | 24.14 | NC | 07 | 1,689.09 | NC | 17.29 | 864.50 |
| FLUORANTHENE | 206-44-0 | 10.00 | 4814B | 16SEP96 | 10 | 293.30 | NC | 08 | 28,872.67 | NC | | |
| FLUORANTHENE | 206-44-0 | 10.00 | 4814B | 17SEP96 | | | | 08 | 514.65 | NC | | |
| FLUORANTHENE | 206-44-0 | 10.00 | 4814B | 18SEP96 | 10 | 350.50 | NC | 08 | 1,678.15 | NC | | |
| FLUORANTHENE | 206-44-0 | 10.00 | 4814B | 19SEP96 | 10 | 824.56 | NC | 08 | 4,403.84 | NC | 489.45 | 8,867.33 |
| FLUORENE | 86-73-7 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 118.30 | NC | | |
| FLUORENE | 86-73-7 | 10.00 | 4814A | 17SEP96 | | | | 07 | 165.05 | NC | | |
| FLUORENE | 86-73-7 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| FLUORENE | 86-73-7 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| FLUORENE | 86-73-7 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 356.67 |
| FLUORENE | 86-73-7 | 10.00 | 4814B | 16SEP96 | 10 | 269.40 | NC | 08 | 15,755.94 | NC | | |
| FLUORENE | 86-73-7 | 10.00 | 4814B | 17SEP96 | | | | 08 | 457.30 | NC | | |
| FLUORENE | 86-73-7 | 10.00 | 4814B | 18SEP96 | 10 | 175.95 | NC | 08 | 808.15 | NC | | |
| FLUORENE | 86-73-7 | 10.00 | 4814B | 19SEP96 | 10 | 283.99 | NC | 08 | 3,777.40 | NC | 243.11 | 5,199.70 |
| HEXANOIC ACID | 142-62-1 | 10.00 | 4814A | 16SEP96 | 09 | 7,069.50 | NC | 07 | 7,784.10 | NC | | |
| HEXANOIC ACID | 142-62-1 | 10.00 | 4814A | 17SEP96 | | | | 07 | 6,586.80 | NC | | |
| HEXANOIC ACID | 142-62-1 | 10.00 | 4814A | 18SEP96 | 09 | 7,405.62 | NC | 07 | 8,402.72 | NC | | |
| HEXANOIC ACID | 142-62-1 | 10.00 | 4814A | 19SEP96 | 09 | 13,425.82 | NC | 07 | 23,524.60 | NC | | |
| HEXANOIC ACID | 142-62-1 | 10.00 | 4814A | 20SEP96 | 09 | 9,113.55 | NC | 07 | 8,646.20 | NC | 9,253.62 | 10,988.88 |
| HEXANOIC ACID | 142-62-1 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |

Subcategory=Oils Option=8
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HEXANOIC ACID | 142-62-1 | 10.00 | 4814B | 17SEP96 | | | | 08 | 10.00 | ND | | |
| HEXANOIC ACID | 142-62-1 | 10.00 | 4814B | 18SEP96 | 10 | 10,801.52 | NC | 08 | 1,640.37 | NC | | |
| HEXANOIC ACID | 142-62-1 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 100.00 | ND | 3,637.17 | 440.09 |
| M+P XYLENE | 179601-23-1 | 10.00 | 4814A | 18SEP96 | 09 | 419.10 | NC | 07 | 1,659.58 | NC | | |
| M+P XYLENE | 179601-23-1 | 10.00 | 4814A | 19SEP96 | 09 | 298.36 | NC | 07 | 938.14 | NC | | |
| M+P XYLENE | 179601-23-1 | 10.00 | 4814A | 20SEP96 | 09 | 551.38 | NC | 07 | 928.96 | NC | 422.95 | 1,175.56 |
| M+P XYLENE | 179601-23-1 | 10.00 | 4814B | 18SEP96 | 10 | 890.14 | NC | 08 | 838.43 | NC | | |
| M+P XYLENE | 179601-23-1 | 10.00 | 4814B | 19SEP96 | 10 | 1,092.16 | NC | 08 | 922.50 | NC | 991.15 | 880.46 |
| M-XYLENE | 108-38-3 | 10.00 | 4814A | 16SEP96 | 09 | 1,086.00 | NC | 07 | 6,353.00 | NC | | |
| M-XYLENE | 108-38-3 | 10.00 | 4814A | 17SEP96 | | | | 07 | 3,472.00 | NC | | |
| M-XYLENE | 108-38-3 | 10.00 | 4814A | 18SEP96 | 09 | 10.00 | ND | 07 | 10.00 | ND | | |
| M-XYLENE | 108-38-3 | 10.00 | 4814A | 19SEP96 | 09 | 10.00 | ND | 07 | 10.00 | ND | | |
| M-XYLENE | 108-38-3 | 10.00 | 4814A | 20SEP96 | 09 | 10.00 | ND | 07 | 10.00 | ND | 279.00 | 1,971.00 |
| M-XYLENE | 108-38-3 | 10.00 | 4814B | 16SEP96 | 10 | 4,541.00 | NC | 08 | 13,342.00 | NC | | |
| M-XYLENE | 108-38-3 | 10.00 | 4814B | 17SEP96 | | | | 08 | 8,218.50 | NC | | |
| M-XYLENE | 108-38-3 | 10.00 | 4814B | 18SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |
| M-XYLENE | 108-38-3 | 10.00 | 4814B | 19SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | 1,520.33 | 5,395.13 |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 4814A | 16SEP96 | 09 | 3,343.00 | NC | 07 | 10.00 | ND | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 4814A | 17SEP96 | | | | 07 | 4,600.50 | NC | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 4814A | 18SEP96 | 09 | 4,808.40 | NC | 07 | 10,524.10 | NC | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 4814A | 19SEP96 | 09 | 1,802.75 | NC | 07 | 3,492.90 | NC | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 4814A | 20SEP96 | 09 | 3,055.80 | NC | 07 | 3,875.60 | NC | 3,252.49 | 4,500.62 |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 4814B | 16SEP96 | 10 | 4,575.00 | NC | 08 | 4,665.00 | NC | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 4814B | 17SEP96 | | | | 08 | 5,317.50 | NC | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 4814B | 18SEP96 | 10 | 6,169.60 | NC | 08 | 7,576.60 | NC | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 4814B | 19SEP96 | 10 | 4,950.10 | NC | 08 | 5,594.00 | NC | 5,231.57 | 5,788.28 |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 4814A | 16SEP96 | 09 | 1,214.50 | NC | 07 | 20.00 | ND | | |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 4814A | 17SEP96 | | | | 07 | 802.75 | NC | | |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |

Subcategory=Oils Option=8 (continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 317.38 | 464.55 |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 4814B | 17SEP96 | | | | 08 | 20.00 | ND | | |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 48.33 | 132.50 |
| N-DECANE | 124-18-5 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 3,203.00 | NC | | |
| N-DECANE | 124-18-5 | 10.00 | 4814A | 17SEP96 | | | | 07 | 4,473.00 | NC | | |
| N-DECANE | 124-18-5 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 4,762.20 | NC | | |
| N-DECANE | 124-18-5 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 18,048.60 | NC | | |
| N-DECANE | 124-18-5 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 6,157.36 |
| N-DECANE | 124-18-5 | 10.00 | 4814B | 16SEP96 | 10 | 3,191.00 | NC | 08 | 223,466.88 | NC | | |
| N-DECANE | 124-18-5 | 10.00 | 4814B | 17SEP96 | | | | 08 | 8,556.00 | NC | | |
| N-DECANE | 124-18-5 | 10.00 | 4814B | 18SEP96 | 10 | 3,834.95 | NC | 08 | 6,610.80 | NC | | |
| N-DECANE | 124-18-5 | 10.00 | 4814B | 19SEP96 | 10 | 7,145.10 | NC | 08 | 137,756.00 | NC | 4,723.68 | 94,097.42 |
| N-DOCOSANE | 629-97-0 | 10.00 | 4814A | 16SEP96 | 09 | 28.08 | NC | 07 | 639.20 | NC | | |
| N-DOCOSANE | 629-97-0 | 10.00 | 4814A | 17SEP96 | | | | 07 | 500.15 | NC | | |
| N-DOCOSANE | 629-97-0 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 1,924.00 | NC | | |
| N-DOCOSANE | 629-97-0 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| N-DOCOSANE | 629-97-0 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 20.77 | 872.67 |
| N-DOCOSANE | 629-97-0 | 10.00 | 4814B | 16SEP96 | 10 | 40.25 | NC | 08 | 15,353.74 | NC | | |
| N-DOCOSANE | 629-97-0 | 10.00 | 4814B | 17SEP96 | | | | 08 | 761.55 | NC | | |
| N-DOCOSANE | 629-97-0 | 10.00 | 4814B | 18SEP96 | 10 | 249.40 | NC | 08 | 100.00 | ND | | |
| N-DOCOSANE | 629-97-0 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 129.88 | 4,153.82 |
| N-DODECANE | 112-40-3 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 20,000.00 | NC | | |
| N-DODECANE | 112-40-3 | 10.00 | 4814A | 17SEP96 | | | | 07 | 5,023.00 | NC | | |
| N-DODECANE | 112-40-3 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 11,167.60 | NC | | |
| N-DODECANE | 112-40-3 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 45,621.00 | NC | | |
| N-DODECANE | 112-40-3 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 36,016.20 | NC | 16.25 | 23,565.56 |
| N-DODECANE | 112-40-3 | 10.00 | 4814B | 16SEP96 | 10 | 1,731.00 | NC | 08 | 148,971.52 | NC | | |
| N-DODECANE | 112-40-3 | 10.00 | 4814B | 17SEP96 | | | | 08 | 5,308.50 | NC | | |

Subcategory=Oils Option=8
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N-DODECANE | 112-40-3 | 10.00 | 4814B | 18SEP96 | 10 | 1,229.30 | NC | 08 | 100.00 | ND | | |
| N-DODECANE | 112-40-3 | 10.00 | 4814B | 19SEP96 | 10 | 20,000.00 | NC | 08 | 108,578.00 | NC | 7,653.43 | 65,739.51 |
| N-EICOSANE | 112-95-8 | 10.00 | 4814A | 16SEP96 | 09 | 89.72 | NC | 07 | 1,870.60 | NC | | |
| N-EICOSANE | 112-95-8 | 10.00 | 4814A | 17SEP96 | | | | 07 | 1,557.60 | NC | | |
| N-EICOSANE | 112-95-8 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 3,275.00 | NC | | |
| N-EICOSANE | 112-95-8 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 16,667.00 | NC | | |
| N-EICOSANE | 112-95-8 | 10.00 | 4814A | 20SEP96 | 09 | 82.32 | NC | 07 | 300.00 | ND | 51.76 | 4,734.04 |
| N-EICOSANE | 112-95-8 | 10.00 | 4814B | 16SEP96 | 10 | 558.10 | NC | 08 | 36,688.64 | NC | | |
| N-EICOSANE | 112-95-8 | 10.00 | 4814B | 17SEP96 | | | | 08 | 1,914.80 | NC | | |
| N-EICOSANE | 112-95-8 | 10.00 | 4814B | 18SEP96 | 10 | 1,226.17 | NC | 08 | 1,608.50 | NC | | |
| N-EICOSANE | 112-95-8 | 10.00 | 4814B | 19SEP96 | 10 | 1,755.00 | NC | 08 | 25,822.00 | NC | 1,179.76 | 16,508.49 |
| N-HEXACOSANE | 630-01-3 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 20.00 | ND | | |
| N-HEXACOSANE | 630-01-3 | 10.00 | 4814A | 17SEP96 | | | | 07 | 70.00 | ND | | |
| N-HEXACOSANE | 630-01-3 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| N-HEXACOSANE | 630-01-3 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 9,561.00 | NC | | |
| N-HEXACOSANE | 630-01-3 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 2,030.20 |
| N-HEXACOSANE | 630-01-3 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |
| N-HEXACOSANE | 630-01-3 | 10.00 | 4814B | 17SEP96 | | | | 08 | 20.00 | ND | | |
| N-HEXACOSANE | 630-01-3 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| N-HEXACOSANE | 630-01-3 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 48.33 | 132.50 |
| N-HEXADECANE | 544-76-3 | 10.00 | 4814A | 16SEP96 | 09 | 200.56 | NC | 07 | 3,619.00 | NC | | |
| N-HEXADECANE | 544-76-3 | 10.00 | 4814A | 17SEP96 | | | | 07 | 3,448.00 | NC | | |
| N-HEXADECANE | 544-76-3 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 6,456.60 | NC | | |
| N-HEXADECANE | 544-76-3 | 10.00 | 4814A | 19SEP96 | 09 | 176.56 | NC | 07 | 31,304.00 | NC | | |
| N-HEXADECANE | 544-76-3 | 10.00 | 4814A | 20SEP96 | 09 | 150.81 | NC | 07 | 10,355.10 | NC | 135.73 | 11,036.54 |
| N-HEXADECANE | 544-76-3 | 10.00 | 4814B | 16SEP96 | 10 | 1,830.80 | NC | 08 | 168,587.84 | NC | | |
| N-HEXADECANE | 544-76-3 | 10.00 | 4814B | 17SEP96 | | | | 08 | 3,902.50 | NC | | |
| N-HEXADECANE | 544-76-3 | 10.00 | 4814B | 18SEP96 | 10 | 2,464.40 | NC | 08 | 4,428.60 | NC | | |
| N-HEXADECANE | 544-76-3 | 10.00 | 4814B | 19SEP96 | 10 | 3,617.80 | NC | 08 | 85,787.00 | NC | 2,637.67 | 65,676.49 |
| N-OCTACOSANE | 630-02-4 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 20.00 | ND | | |

Subcategory=Oils Option=8 (continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N-OCTACOSANE | 630-02-4 | 10.00 | 4814A | 17SEP96 | | | | 07 | 70.00 | ND | | |
| N-OCTACOSANE | 630-02-4 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 1,863.80 | NC | | |
| N-OCTACOSANE | 630-02-4 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| N-OCTACOSANE | 630-02-4 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 650.76 |
| N-OCTACOSANE | 630-02-4 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |
| N-OCTACOSANE | 630-02-4 | 10.00 | 4814B | 17SEP96 | | | | 08 | 20.00 | ND | | |
| N-OCTACOSANE | 630-02-4 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| N-OCTACOSANE | 630-02-4 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 48.33 | 132.50 |
| N-OCTADECANE | 593-45-3 | 10.00 | 4814A | 16SEP96 | 09 | 88.93 | NC | 07 | 2,351.00 | NC | | |
| N-OCTADECANE | 593-45-3 | 10.00 | 4814A | 17SEP96 | | | | 07 | 1,889.70 | NC | | |
| N-OCTADECANE | 593-45-3 | 10.00 | 4814A | 18SEP96 | 09 | 96.70 | NC | 07 | 4,220.40 | NC | | |
| N-OCTADECANE | 593-45-3 | 10.00 | 4814A | 19SEP96 | 09 | 118.51 | NC | 07 | 16,544.00 | NC | | |
| N-OCTADECANE | 593-45-3 | 10.00 | 4814A | 20SEP96 | 09 | 151.41 | NC | 07 | 9,528.30 | NC | 113.89 | 6,906.68 |
| N-OCTADECANE | 593-45-3 | 10.00 | 4814B | 16SEP96 | 10 | 1,586.00 | NC | 08 | 100,760.32 | NC | | |
| N-OCTADECANE | 593-45-3 | 10.00 | 4814B | 17SEP96 | | | | 08 | 2,838.50 | NC | | |
| N-OCTADECANE | 593-45-3 | 10.00 | 4814B | 18SEP96 | 10 | 1,235.31 | NC | 08 | 3,033.20 | NC | | |
| N-OCTADECANE | 593-45-3 | 10.00 | 4814B | 19SEP96 | 10 | 1,592.76 | NC | 08 | 51,797.00 | NC | 1,471.36 | 39,607.26 |
| N-TETRACOSANE | 646-31-1 | 10.00 | 4814A | 16SEP96 | 09 | 31.64 | NC | 07 | 20.00 | ND | | |
| N-TETRACOSANE | 646-31-1 | 10.00 | 4814A | 17SEP96 | | | | 07 | 70.00 | ND | | |
| N-TETRACOSANE | 646-31-1 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| N-TETRACOSANE | 646-31-1 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| N-TETRACOSANE | 646-31-1 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 21.66 | 318.00 |
| N-TETRACOSANE | 646-31-1 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 6,359.14 | NC | | |
| N-TETRACOSANE | 646-31-1 | 10.00 | 4814B | 17SEP96 | | | | 08 | 20.00 | ND | | |
| N-TETRACOSANE | 646-31-1 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| N-TETRACOSANE | 646-31-1 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 48.33 | 1,719.78 |
| N-TETRADECANE | 629-59-4 | 10.00 | 4814A | 16SEP96 | 09 | 186.42 | NC | 07 | 6,660.00 | NC | | |
| N-TETRADECANE | 629-59-4 | 10.00 | 4814A | 17SEP96 | | | | 07 | 7,125.00 | NC | | |
| N-TETRADECANE | 629-59-4 | 10.00 | 4814A | 18SEP96 | 09 | 202.07 | NC | 07 | 15,584.00 | NC | | |
| N-TETRADECANE | 629-59-4 | 10.00 | 4814A | 19SEP96 | 09 | 379.62 | NC | 07 | 70,206.00 | NC | | |
| N-TETRADECANE | 629-59-4 | 10.00 | 4814A | 20SEP96 | 09 | 580.27 | NC | 07 | 3,542.60 | NC | 337.09 | 20,623.52 |

Subcategory=Oils Option=8
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N-TETRADECANE | 629-59-4 | 10.00 | 4814B | 16SEP96 | 10 | 1,694.00 | NC | 08 | 208,249.60 | NC | | |
| N-TETRADECANE | 629-59-4 | 10.00 | 4814B | 17SEP96 | | | | 08 | 5,247.00 | NC | | |
| N-TETRADECANE | 629-59-4 | 10.00 | 4814B | 18SEP96 | 10 | 3,243.10 | NC | 08 | 5,423.50 | NC | | |
| N-TETRADECANE | 629-59-4 | 10.00 | 4814B | 19SEP96 | 10 | 4,974.60 | NC | 08 | 124,678.00 | NC | 3,303.90 | 85,899.53 |
| NAPHTHALENE | 91-20-3 | 10.00 | 4814A | 16SEP96 | 09 | 205.50 | NC | 07 | 1,495.00 | NC | | |
| NAPHTHALENE | 91-20-3 | 10.00 | 4814A | 17SEP96 | | | | 07 | 1,658.00 | NC | | |
| NAPHTHALENE | 91-20-3 | 10.00 | 4814A | 18SEP96 | 09 | 85.28 | NC | 07 | 2,180.84 | NC | | |
| NAPHTHALENE | 91-20-3 | 10.00 | 4814A | 19SEP96 | 09 | 74.06 | NC | 07 | 9,636.50 | NC | | |
| NAPHTHALENE | 91-20-3 | 10.00 | 4814A | 20SEP96 | 09 | 437.76 | NC | 07 | 18,090.30 | NC | 200.65 | 6,612.13 |
| NAPHTHALENE | 91-20-3 | 10.00 | 4814B | 16SEP96 | 10 | 1,945.00 | NC | 08 | 49,077.12 | NC | | |
| NAPHTHALENE | 91-20-3 | 10.00 | 4814B | 17SEP96 | | | | 08 | 3,094.50 | NC | | |
| NAPHTHALENE | 91-20-3 | 10.00 | 4814B | 18SEP96 | 10 | 1,658.76 | NC | 08 | 2,433.80 | NC | | |
| NAPHTHALENE | 91-20-3 | 10.00 | 4814B | 19SEP96 | 10 | 1,879.70 | NC | 08 | 47,308.00 | NC | 1,827.82 | 25,478.36 |
| O+P XYLENE | 136777-61-2 | 10.00 | 4814A | 16SEP96 | 09 | 2,524.00 | NC | 07 | 11,470.00 | NC | | |
| O+P XYLENE | 136777-61-2 | 10.00 | 4814A | 17SEP96 | | | | 07 | 4,768.50 | NC | | |
| O+P XYLENE | 136777-61-2 | 10.00 | 4814A | 18SEP96 | 09 | 10.00 | ND | 07 | 10.00 | ND | | |
| O+P XYLENE | 136777-61-2 | 10.00 | 4814A | 19SEP96 | 09 | 10.00 | ND | 07 | 10.00 | ND | | |
| O+P XYLENE | 136777-61-2 | 10.00 | 4814A | 20SEP96 | 09 | 10.00 | ND | 07 | 10.00 | ND | 638.50 | 3,253.70 |
| O+P XYLENE | 136777-61-2 | 10.00 | 4814B | 16SEP96 | 10 | 5,599.00 | NC | 08 | 16,584.00 | NC | | |
| O+P XYLENE | 136777-61-2 | 10.00 | 4814B | 17SEP96 | | | | 08 | 10,662.00 | NC | | |
| O+P XYLENE | 136777-61-2 | 10.00 | 4814B | 18SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |
| O+P XYLENE | 136777-61-2 | 10.00 | 4814B | 19SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | 1,873.00 | 6,816.50 |
| O-CRESOL | 95-48-7 | 10.00 | 4814A | 16SEP96 | 09 | 362.50 | NC | 07 | 281.22 | NC | | |
| O-CRESOL | 95-48-7 | 10.00 | 4814A | 17SEP96 | | | | 07 | 70.00 | ND | | |
| O-CRESOL | 95-48-7 | 10.00 | 4814A | 18SEP96 | 09 | 189.66 | NC | 07 | 200.00 | ND | | |
| O-CRESOL | 95-48-7 | 10.00 | 4814A | 19SEP96 | 09 | 367.73 | NC | 07 | 1,000.00 | ND | | |
| O-CRESOL | 95-48-7 | 10.00 | 4814A | 20SEP96 | 09 | 692.54 | NC | 07 | 300.00 | ND | 403.11 | 370.24 |
| O-CRESOL | 95-48-7 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |
| O-CRESOL | 95-48-7 | 10.00 | 4814B | 17SEP96 | | | | 08 | 20.00 | ND | | |
| O-CRESOL | 95-48-7 | 10.00 | 4814B | 18SEP96 | 10 | 535.29 | NC | 08 | 854.41 | NC | | |

------------------------------------------------------------- Subcategory=Oils Option=8 -------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| O-CRESOL | 95-48-7 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 215.10 | 321.10 |
| O-TOLUIDINE | 95-53-4 | 10.00 | 4814A | 16SEP96 | 09 | 311.10 | NC | 07 | 20.00 | ND | | |
| O-TOLUIDINE | 95-53-4 | 10.00 | 4814A | 17SEP96 | | | | 07 | 247.80 | NC | | |
| O-TOLUIDINE | 95-53-4 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| O-TOLUIDINE | 95-53-4 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| O-TOLUIDINE | 95-53-4 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 91.53 | 353.56 |
| O-TOLUIDINE | 95-53-4 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |
| O-TOLUIDINE | 95-53-4 | 10.00 | 4814B | 17SEP96 | | | | 08 | 173.25 | NC | | |
| O-TOLUIDINE | 95-53-4 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| O-TOLUIDINE | 95-53-4 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 48.33 | 170.81 |
| O-XYLENE | 95-47-6 | 10.00 | 4814A | 18SEP96 | 09 | 272.49 | NC | 07 | 1,140.55 | NC | | |
| O-XYLENE | 95-47-6 | 10.00 | 4814A | 19SEP96 | 09 | 185.67 | NC | 07 | 561.31 | NC | | |
| O-XYLENE | 95-47-6 | 10.00 | 4814A | 20SEP96 | 09 | 347.40 | NC | 07 | 573.07 | NC | 268.52 | 758.31 |
| O-XYLENE | 95-47-6 | 10.00 | 4814B | 18SEP96 | 10 | 632.94 | NC | 08 | 602.89 | NC | | |
| O-XYLENE | 95-47-6 | 10.00 | 4814B | 19SEP96 | 10 | 696.38 | NC | 08 | 654.46 | NC | 664.66 | 628.67 |
| P-CRESOL | 106-44-5 | 10.00 | 4814A | 16SEP96 | 09 | 246.00 | NC | 07 | 221.28 | NC | | |
| P-CRESOL | 106-44-5 | 10.00 | 4814A | 17SEP96 | | | | 07 | 220.45 | NC | | |
| P-CRESOL | 106-44-5 | 10.00 | 4814A | 18SEP96 | 09 | 839.76 | NC | 07 | 100.00 | ND | | |
| P-CRESOL | 106-44-5 | 10.00 | 4814A | 19SEP96 | 09 | 885.79 | NC | 07 | 1,000.00 | ND | | |
| P-CRESOL | 106-44-5 | 10.00 | 4814A | 20SEP96 | 09 | 1,871.27 | NC | 07 | 2,382.40 | NC | 960.71 | 784.83 |
| P-CRESOL | 106-44-5 | 10.00 | 4814B | 16SEP96 | 10 | 399.40 | NC | 08 | 2,119.84 | NC | | |
| P-CRESOL | 106-44-5 | 10.00 | 4814B | 17SEP96 | | | | 08 | 1,838.00 | NC | | |
| P-CRESOL | 106-44-5 | 10.00 | 4814B | 18SEP96 | 10 | 1,392.06 | NC | 08 | 1,386.46 | NC | | |
| P-CRESOL | 106-44-5 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 100.00 | ND | 630.49 | 1,361.08 |
| P-CYMENE | 99-87-6 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 231.70 | NC | | |
| P-CYMENE | 99-87-6 | 10.00 | 4814A | 17SEP96 | | | | 07 | 265.60 | NC | | |
| P-CYMENE | 99-87-6 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| P-CYMENE | 99-87-6 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,903.90 | NC | | |
| P-CYMENE | 99-87-6 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 580.24 |

------------------------------------------------------------- Subcategory=Oils Option=8 -------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P-CYMENE | 99-87-6 | 10.00 | 4814B | 16SEP96 | 10 | 149.80 | NC | 08 | 939.23 | NC | | |
| P-CYMENE | 99-87-6 | 10.00 | 4814B | 17SEP96 | | | | 08 | 427.25 | NC | | |
| P-CYMENE | 99-87-6 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| P-CYMENE | 99-87-6 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 4,452.12 | NC | 94.93 | 1,479.65 |
| PENTAMETHYLBENZENE | 700-12-9 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 115.70 | NC | | |
| PENTAMETHYLBENZENE | 700-12-9 | 10.00 | 4814A | 17SEP96 | | | | 07 | 136.65 | NC | | |
| PENTAMETHYLBENZENE | 700-12-9 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| PENTAMETHYLBENZENE | 700-12-9 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| PENTAMETHYLBENZENE | 700-12-9 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 350.47 |
| PENTAMETHYLBENZENE | 700-12-9 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 6,320.77 | NC | | |
| PENTAMETHYLBENZENE | 700-12-9 | 10.00 | 4814B | 17SEP96 | | | | 08 | 237.95 | NC | | |
| PENTAMETHYLBENZENE | 700-12-9 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 920.58 | NC | | |
| PENTAMETHYLBENZENE | 700-12-9 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 5,126.04 | NC | 48.33 | 3,151.33 |
| PHENANTHRENE | 85-01-8 | 10.00 | 4814A | 16SEP96 | 09 | 20.79 | NC | 07 | 338.70 | NC | | |
| PHENANTHRENE | 85-01-8 | 10.00 | 4814A | 17SEP96 | | | | 07 | 405.75 | NC | | |
| PHENANTHRENE | 85-01-8 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 430.82 | NC | | |
| PHENANTHRENE | 85-01-8 | 10.00 | 4814A | 19SEP96 | 09 | 26.22 | NC | 07 | 5,213.30 | NC | | |
| PHENANTHRENE | 85-01-8 | 10.00 | 4814A | 20SEP96 | 09 | 167.56 | NC | 07 | 9,107.10 | NC | 57.39 | 3,099.13 |
| PHENANTHRENE | 85-01-8 | 10.00 | 4814B | 16SEP96 | 10 | 799.90 | NC | 08 | 49,015.68 | NC | | |
| PHENANTHRENE | 85-01-8 | 10.00 | 4814B | 17SEP96 | | | | 08 | 1,509.45 | NC | | |
| PHENANTHRENE | 85-01-8 | 10.00 | 4814B | 18SEP96 | 10 | 1,086.42 | NC | 08 | 1,234.10 | NC | | |
| PHENANTHRENE | 85-01-8 | 10.00 | 4814B | 19SEP96 | 10 | 1,839.82 | NC | 08 | 22,114.00 | NC | 1,242.05 | 18,468.31 |
| PHENOL | 108-95-2 | 10.00 | 4814A | 16SEP96 | 09 | 2,613.00 | NC | 07 | 2,641.00 | NC | | |
| PHENOL | 108-95-2 | 10.00 | 4814A | 17SEP96 | | | | 07 | 3,700.50 | NC | | |
| PHENOL | 108-95-2 | 10.00 | 4814A | 18SEP96 | 09 | 6,382.90 | NC | 07 | 6,535.40 | NC | | |
| PHENOL | 108-95-2 | 10.00 | 4814A | 19SEP96 | 09 | 16,329.90 | NC | 07 | 20,000.00 | NC | | |
| PHENOL | 108-95-2 | 10.00 | 4814A | 20SEP96 | 09 | 18,717.70 | NC | 07 | 20,000.00 | NC | 11,010.88 | 10,575.38 |
| PHENOL | 108-95-2 | 10.00 | 4814B | 16SEP96 | 10 | 2,483.00 | NC | 08 | 3,184.00 | NC | | |
| PHENOL | 108-95-2 | 10.00 | 4814B | 17SEP96 | | | | 08 | 4,583.00 | NC | | |
| PHENOL | 108-95-2 | 10.00 | 4814B | 18SEP96 | 10 | 5,149.90 | NC | 08 | 11,806.60 | NC | | |
| PHENOL | 108-95-2 | 10.00 | 4814B | 19SEP96 | 10 | 42,594.00 | NC | 08 | 7,694.40 | NC | 16,742.30 | 6,817.00 |

Subcategory=Oils Option=8 (continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PYRENE | 129-00-0 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 158.65 | NC | | |
| PYRENE | 129-00-0 | 10.00 | 4814A | 17SEP96 | | | | 07 | 113.35 | NC | | |
| PYRENE | 129-00-0 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| PYRENE | 129-00-0 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| PYRENE | 129-00-0 | 10.00 | 4814A | 20SEP96 | 09 | 27.12 | NC | 07 | 2,522.70 | NC | 18.03 | 798.94 |
| PYRENE | 129-00-0 | 10.00 | 4814B | 16SEP96 | 10 | 228.10 | NC | 08 | 22,763.39 | NC | | |
| PYRENE | 129-00-0 | 10.00 | 4814B | 17SEP96 | | | | 08 | 437.10 | NC | | |
| PYRENE | 129-00-0 | 10.00 | 4814B | 18SEP96 | 10 | 238.50 | NC | 08 | 1,137.25 | NC | | |
| PYRENE | 129-00-0 | 10.00 | 4814B | 19SEP96 | 10 | 269.94 | NC | 08 | 3,368.60 | NC | 245.51 | 6,926.59 |
| PYRIDINE | 110-86-1 | 10.00 | 4814A | 16SEP96 | 09 | 1,408.50 | NC | 07 | 838.20 | NC | | |
| PYRIDINE | 110-86-1 | 10.00 | 4814A | 17SEP96 | | | | 07 | 558.50 | NC | | |
| PYRIDINE | 110-86-1 | 10.00 | 4814A | 18SEP96 | 09 | 760.99 | NC | 07 | 1,280.12 | NC | | |
| PYRIDINE | 110-86-1 | 10.00 | 4814A | 19SEP96 | 09 | 309.61 | NC | 07 | 1,000.00 | ND | | |
| PYRIDINE | 110-86-1 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 624.78 | 795.36 |
| PYRIDINE | 110-86-1 | 10.00 | 4814B | 16SEP96 | 10 | 1,531.60 | NC | 08 | 953.92 | NC | | |
| PYRIDINE | 110-86-1 | 10.00 | 4814B | 17SEP96 | | | | 08 | 248.65 | NC | | |
| PYRIDINE | 110-86-1 | 10.00 | 4814B | 18SEP96 | 10 | 653.81 | NC | 08 | 100.00 | ND | | |
| PYRIDINE | 110-86-1 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 761.80 | 425.64 |
| STYRENE | 100-42-5 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 288.50 | NC | | |
| STYRENE | 100-42-5 | 10.00 | 4814A | 17SEP96 | | | | 07 | 552.20 | NC | | |
| STYRENE | 100-42-5 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 314.54 | NC | | |
| STYRENE | 100-42-5 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| STYRENE | 100-42-5 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 491.05 |
| STYRENE | 100-42-5 | 10.00 | 4814B | 16SEP96 | 10 | 158.20 | NC | 08 | 842.56 | NC | | |
| STYRENE | 100-42-5 | 10.00 | 4814B | 17SEP96 | | | | 08 | 432.20 | NC | | |
| STYRENE | 100-42-5 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| STYRENE | 100-42-5 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 97.73 | 443.69 |
| TETRACHLOROETHENE | 127-18-4 | 10.00 | 4814A | 16SEP96 | 09 | 140.16 | NC | 07 | 1,783.70 | NC | | |
| TETRACHLOROETHENE | 127-18-4 | 10.00 | 4814A | 17SEP96 | | | | 07 | 773.50 | NC | | |
| TETRACHLOROETHENE | 127-18-4 | 10.00 | 4814A | 18SEP96 | 09 | 717.57 | NC | 07 | 1,750.76 | NC | | |

------------------------------------------------------------ Subcategory=Oils Option=8 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TETRACHLOROETHENE | 127-18-4 | 10.00 | 4814A | 19SEP96 | 09 | 108.54 | NC | 07 | 1,119.53 | NC | | |
| TETRACHLOROETHENE | 127-18-4 | 10.00 | 4814A | 20SEP96 | 09 | 155.10 | NC | 07 | 687.62 | NC | 280.34 | 1,223.02 |
| | | | | . | | | | | | | | |
| TETRACHLOROETHENE | 127-18-4 | 10.00 | 4814B | 16SEP96 | 10 | 1,037.60 | NC | 08 | 2,747.00 | NC | | |
| TETRACHLOROETHENE | 127-18-4 | 10.00 | 4814B | 17SEP96 | | | | 08 | 2,810.50 | NC | | |
| TETRACHLOROETHENE | 127-18-4 | 10.00 | 4814B | 18SEP96 | 10 | 486.42 | NC | 08 | 764.33 | NC | | |
| TETRACHLOROETHENE | 127-18-4 | 10.00 | 4814B | 19SEP96 | 10 | 487.68 | NC | 08 | 4,140.00 | NC | 670.57 | 2,615.46 |
| | | | | . | | | | | | | | |
| TOLUENE | 108-88-3 | 10.00 | 4814A | 16SEP96 | 09 | 3,111.00 | NC | 07 | 9,633.00 | NC | | |
| TOLUENE | 108-88-3 | 10.00 | 4814A | 17SEP96 | | | | 07 | 8,192.00 | NC | | |
| TOLUENE | 108-88-3 | 10.00 | 4814A | 18SEP96 | 09 | 4,961.20 | NC | 07 | 14,831.00 | NC | | |
| TOLUENE | 108-88-3 | 10.00 | 4814A | 19SEP96 | 09 | 2,622.60 | NC | 07 | 4,367.60 | NC | | |
| TOLUENE | 108-88-3 | 10.00 | 4814A | 20SEP96 | 09 | 3,757.90 | NC | 07 | 10,013.50 | NC | 3,613.18 | 9,407.42 |
| | | | | . | | | | | | | | |
| TOLUENE | 108-88-3 | 10.00 | 4814B | 16SEP96 | 10 | 9,432.00 | NC | 08 | 17,007.00 | NC | | |
| TOLUENE | 108-88-3 | 10.00 | 4814B | 17SEP96 | | | | 08 | 18,412.50 | NC | | |
| TOLUENE | 108-88-3 | 10.00 | 4814B | 18SEP96 | 10 | 8,245.15 | NC | 08 | 13,071.10 | NC | | |
| TOLUENE | 108-88-3 | 10.00 | 4814B | 19SEP96 | 10 | 8,111.40 | NC | 08 | 41,507.00 | NC | 8,596.18 | 22,499.40 |
| | | | | . | | | | | | | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 4814A | 16SEP96 | 09 | 145.35 | NC | 07 | 428.20 | NC | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 4814A | 17SEP96 | | | | 07 | 511.90 | NC | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 4814A | 18SEP96 | 09 | 270.79 | NC | 07 | 968.14 | NC | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 4814A | 19SEP96 | 09 | 170.96 | NC | 07 | 490.89 | NC | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 4814A | 20SEP96 | 09 | 191.29 | NC | 07 | 396.29 | NC | 194.60 | 559.08 |
| | | | | . | | | | | | | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 4814B | 16SEP96 | 10 | 454.90 | NC | 08 | 983.00 | NC | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 4814B | 17SEP96 | | | | 08 | 784.40 | NC | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 4814B | 18SEP96 | 10 | 1,103.17 | NC | 08 | 1,533.16 | NC | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 4814B | 19SEP96 | 10 | 1,875.83 | NC | 08 | 7,125.30 | NC | 1,144.63 | 2,606.47 |
| | | | | . | | | | | | | | |
| TRIPROPYLENEGLYCOL METHYL ET | 20324-33-8 | 99.00 | 4814A | 16SEP96 | 09 | 8,054.90 | NC | 07 | 2,301.04 | NC | | |
| TRIPROPYLENEGLYCOL METHYL ET | 20324-33-8 | 99.00 | 4814A | 17SEP96 | | | | 07 | 6,382.55 | NC | | |
| TRIPROPYLENEGLYCOL METHYL ET | 20324-33-8 | 99.00 | 4814A | 18SEP96 | 09 | 148.50 | ND | 07 | 1,980.00 | ND | | |
| TRIPROPYLENEGLYCOL METHYL ET | 20324-33-8 | 99.00 | 4814A | 19SEP96 | 09 | 198.00 | ND | 07 | 9,900.00 | ND | | |
| TRIPROPYLENEGLYCOL METHYL ET | 20324-33-8 | 99.00 | 4814A | 20SEP96 | 09 | 198.00 | ND | 07 | 2,970.00 | ND | 2,149.85 | 4,706.72 |
| | | | | . | | | | | | | | |
| TRIPROPYLENEGLYCOL METHYL ET | 20324-33-8 | 99.00 | 4814B | 16SEP96 | 10 | 99.00 | ND | 08 | 5,187.26 | NC | | |

Subcategory=Oils Option=8 (continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TRIPROPYLENEGLYCOL METHYL ET | 20324-33-8 | 99.00 | 4814B | 17SEP96 | | | | 08 | 1,495.25 | NC | | |
| TRIPROPYLENEGLYCOL METHYL ET | 20324-33-8 | 99.00 | 4814B | 18SEP96 | 10 | 346.50 | ND | 08 | 990.00 | ND | | |
| TRIPROPYLENEGLYCOL METHYL ET | 20324-33-8 | 99.00 | 4814B | 19SEP96 | 10 | 990.00 | ND | 08 | 3,960.00 | ND | 478.50 | 2,908.13 |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 4814A | 16SEP96 | 09 | 105.69 | NC | 07 | 324.20 | NC | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 4814A | 17SEP96 | | | | 07 | 444.80 | NC | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 4814A | 18SEP96 | 09 | 136.41 | NC | 07 | 544.84 | NC | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 4814A | 19SEP96 | 09 | 73.82 | NC | 07 | 146.84 | NC | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 4814A | 20SEP96 | 09 | 113.26 | NC | 07 | 194.20 | NC | 107.30 | 330.98 |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 4814B | 16SEP96 | 10 | 192.50 | NC | 08 | 320.40 | NC | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 4814B | 17SEP96 | | | | 08 | 592.70 | NC | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 4814B | 18SEP96 | 10 | 263.14 | NC | 08 | 356.34 | NC | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 4814B | 19SEP96 | 10 | 199.17 | NC | 08 | 200.00 | NC | 218.27 | 367.36 |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 10.00 | ND | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 4814A | 17SEP96 | | | | 07 | 10.00 | ND | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 4814A | 18SEP96 | 09 | 73.58 | NC | 07 | 274.96 | NC | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 4814A | 19SEP96 | 09 | 54.94 | NC | 07 | 101.34 | NC | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 4814A | 20SEP96 | 09 | 98.13 | NC | 07 | 163.73 | NC | 59.16 | 112.01 |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 4814B | 17SEP96 | | | | 08 | 10.57 | NC | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 4814B | 18SEP96 | 10 | 484.76 | NC | 08 | 754.45 | NC | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 4814B | 19SEP96 | 10 | 644.65 | NC | 08 | 1,967.90 | NC | 379.80 | 685.73 |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 10.00 | 4814A | 16SEP96 | 09 | 187.09 | NC | 07 | 2,119.00 | NC | | |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 10.00 | 4814A | 17SEP96 | | | | 07 | 4,834.50 | NC | | |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 10.00 | 4814A | 18SEP96 | 09 | 105.31 | NC | 07 | 8,155.60 | NC | | |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 18,899.10 | NC | | |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 10.00 | 4814A | 20SEP96 | 09 | 207.90 | NC | 07 | 4,736.61 | NC | 130.07 | 7,748.96 |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 10.00 | 4814B | 16SEP96 | 10 | 179.50 | NC | 08 | 6,272.32 | NC | | |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 10.00 | 4814B | 17SEP96 | | | | 08 | 359.15 | NC | | |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 440.26 | NC | | |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 104.83 | 1,867.93 |

------------------------------------------------------------ Subcategory=Oils Option=8 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,2-DICHLOROBENZENE | 95-50-1 | 10.00 | 4814A | 16SEP96 | 09 | 29.58 | NC | 07 | 180.70 | NC | | |
| 1,2-DICHLOROBENZENE | 95-50-1 | 10.00 | 4814A | 17SEP96 | | | | 07 | 301.75 | NC | | |
| 1,2-DICHLOROBENZENE | 95-50-1 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| 1,2-DICHLOROBENZENE | 95-50-1 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| 1,2-DICHLOROBENZENE | 95-50-1 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 21.15 | 396.49 |
| 1,2-DICHLOROBENZENE | 95-50-1 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 4,185.62 | NC | | |
| 1,2-DICHLOROBENZENE | 95-50-1 | 10.00 | 4814B | 17SEP96 | | | | 08 | 170.96 | NC | | |
| 1,2-DICHLOROBENZENE | 95-50-1 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| 1,2-DICHLOROBENZENE | 95-50-1 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 48.33 | 1,214.14 |
| 1,2-DICHLOROETHANE | 107-06-2 | 10.00 | 4814A | 16SEP96 | 09 | 161.60 | NC | 07 | 223.30 | NC | | |
| 1,2-DICHLOROETHANE | 107-06-2 | 10.00 | 4814A | 17SEP96 | | | | 07 | 376.71 | NC | | |
| 1,2-DICHLOROETHANE | 107-06-2 | 10.00 | 4814A | 18SEP96 | 09 | 233.15 | NC | 07 | 349.54 | NC | | |
| 1,2-DICHLOROETHANE | 107-06-2 | 10.00 | 4814A | 19SEP96 | 09 | 165.42 | NC | 07 | 147.33 | NC | | |
| 1,2-DICHLOROETHANE | 107-06-2 | 10.00 | 4814A | 20SEP96 | 09 | 182.51 | NC | 07 | 279.70 | NC | 185.67 | 275.31 |
| 1,2-DICHLOROETHANE | 107-06-2 | 10.00 | 4814B | 16SEP96 | 10 | 165.16 | NC | 08 | 137.04 | NC | | |
| 1,2-DICHLOROETHANE | 107-06-2 | 10.00 | 4814B | 17SEP96 | | | | 08 | 569.35 | NC | | |
| 1,2-DICHLOROETHANE | 107-06-2 | 10.00 | 4814B | 18SEP96 | 10 | 566.13 | NC | 08 | 713.39 | NC | | |
| 1,2-DICHLOROETHANE | 107-06-2 | 10.00 | 4814B | 19SEP96 | 10 | 347.10 | NC | 08 | 200.00 | NC | 359.46 | 404.95 |
| 1,4-DICHLOROBENZENE | 106-46-7 | 10.00 | 4814A | 16SEP96 | 09 | 83.63 | NC | 07 | 622.70 | NC | | |
| 1,4-DICHLOROBENZENE | 106-46-7 | 10.00 | 4814A | 17SEP96 | | | | 07 | 949.90 | NC | | |
| 1,4-DICHLOROBENZENE | 106-46-7 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| 1,4-DICHLOROBENZENE | 106-46-7 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 2,333.60 | NC | | |
| 1,4-DICHLOROBENZENE | 106-46-7 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 1,472.82 | NC | 34.66 | 1,115.80 |
| 1,4-DICHLOROBENZENE | 106-46-7 | 10.00 | 4814B | 16SEP96 | 10 | 285.10 | NC | 08 | 1,261.98 | NC | | |
| 1,4-DICHLOROBENZENE | 106-46-7 | 10.00 | 4814B | 17SEP96 | | | | 08 | 454.35 | NC | | |
| 1,4-DICHLOROBENZENE | 106-46-7 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 786.40 | NC | | |
| 1,4-DICHLOROBENZENE | 106-46-7 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 140.03 | 725.68 |
| 1,4-DIOXANE | 123-91-1 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 10.00 | ND | | |
| 1,4-DIOXANE | 123-91-1 | 10.00 | 4814A | 17SEP96 | | | | 07 | 10.00 | ND | | |
| 1,4-DIOXANE | 123-91-1 | 10.00 | 4814A | 18SEP96 | 09 | 10.00 | ND | 07 | 10.00 | ND | | |
| 1,4-DIOXANE | 123-91-1 | 10.00 | 4814A | 19SEP96 | 09 | 10.00 | ND | 07 | 10.00 | ND | | |

Subcategory=Oils Option=8
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,4-DIOXANE | 123-91-1 | 10.00 | 4814A | 20SEP96 | 09 | 10.00 | ND | 07 | 10.00 | ND | 10.00 | 10.00 |
| 1,4-DIOXANE | 123-91-1 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |
| 1,4-DIOXANE | 123-91-1 | 10.00 | 4814B | 17SEP96 | | | | 08 | 10.00 | ND | | |
| 1,4-DIOXANE | 123-91-1 | 10.00 | 4814B | 18SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |
| 1,4-DIOXANE | 123-91-1 | 10.00 | 4814B | 19SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | 10.00 | 10.00 |
| 1-METHYLFLUORENE | 1730-37-6 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 20.00 | ND | | |
| 1-METHYLFLUORENE | 1730-37-6 | 10.00 | 4814A | 17SEP96 | | | | 07 | 111.35 | NC | | |
| 1-METHYLFLUORENE | 1730-37-6 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| 1-METHYLFLUORENE | 1730-37-6 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| 1-METHYLFLUORENE | 1730-37-6 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 326.27 |
| 1-METHYLFLUORENE | 1730-37-6 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 5,802.82 | NC | | |
| 1-METHYLFLUORENE | 1730-37-6 | 10.00 | 4814B | 17SEP96 | | | | 08 | 152.35 | NC | | |
| 1-METHYLFLUORENE | 1730-37-6 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| 1-METHYLFLUORENE | 1730-37-6 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 877.72 | NC | 48.33 | 1,733.22 |
| 1-METHYLPHENANTHRENE | 832-69-9 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 91.72 | NC | | |
| 1-METHYLPHENANTHRENE | 832-69-9 | 10.00 | 4814A | 17SEP96 | | | | 07 | 70.00 | ND | | |
| 1-METHYLPHENANTHRENE | 832-69-9 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| 1-METHYLPHENANTHRENE | 832-69-9 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| 1-METHYLPHENANTHRENE | 832-69-9 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 332.34 |
| 1-METHYLPHENANTHRENE | 832-69-9 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 5,063.10 | NC | | |
| 1-METHYLPHENANTHRENE | 832-69-9 | 10.00 | 4814B | 17SEP96 | | | | 08 | 132.35 | NC | | |
| 1-METHYLPHENANTHRENE | 832-69-9 | 10.00 | 4814B | 18SEP96 | 10 | 118.97 | NC | 08 | 454.15 | NC | | |
| 1-METHYLPHENANTHRENE | 832-69-9 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 1,783.32 | NC | 76.32 | 1,858.23 |
| 2,3-BENZOFLUORENE | 243-17-4 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 20.00 | ND | | |
| 2,3-BENZOFLUORENE | 243-17-4 | 10.00 | 4814A | 17SEP96 | | | | 07 | 70.00 | ND | | |
| 2,3-BENZOFLUORENE | 243-17-4 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| 2,3-BENZOFLUORENE | 243-17-4 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| 2,3-BENZOFLUORENE | 243-17-4 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 318.00 |
| 2,3-BENZOFLUORENE | 243-17-4 | 10.00 | 4814B | 16SEP96 | 10 | 25.41 | NC | 08 | 461.22 | NC | | |
| 2,3-BENZOFLUORENE | 243-17-4 | 10.00 | 4814B | 17SEP96 | | | | 08 | 20.00 | ND | | |

Subcategory=Oils Option=8
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2,3-BENZOFLUORENE | 243-17-4 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| 2,3-BENZOFLUORENE | 243-17-4 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 53.47 | 245.30 |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 10.00 | 4814A | 16SEP96 | 09 | 195.07 | NC | 07 | 20.00 | ND | | |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 10.00 | 4814A | 17SEP96 | | | | 07 | 76.15 | NC | | |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 62.52 | 319.23 |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 10.00 | 4814B | 16SEP96 | 10 | 165.10 | NC | 08 | 565.63 | NC | | |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 10.00 | 4814B | 17SEP96 | | | | 08 | 20.00 | ND | | |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 100.03 | 271.41 |
| 2-BUTANONE | 78-93-3 | 50.00 | 4814A | 16SEP96 | 09 | 12,517.00 | NC | 07 | 9,409.50 | NC | | |
| 2-BUTANONE | 78-93-3 | 50.00 | 4814A | 17SEP96 | | | | 07 | 10,014.75 | NC | | |
| 2-BUTANONE | 78-93-3 | 50.00 | 4814A | 18SEP96 | 09 | 14,239.75 | NC | 07 | 24,073.10 | NC | | |
| 2-BUTANONE | 78-93-3 | 50.00 | 4814A | 19SEP96 | 09 | 10,974.10 | NC | 07 | 7,922.42 | NC | | |
| 2-BUTANONE | 78-93-3 | 50.00 | 4814A | 20SEP96 | 09 | 7,830.93 | NC | 07 | 15,908.50 | NC | 11,390.45 | 13,465.65 |
| 2-BUTANONE | 78-93-3 | 50.00 | 4814B | 16SEP96 | 10 | 18,821.00 | NC | 08 | 16,941.00 | NC | | |
| 2-BUTANONE | 78-93-3 | 50.00 | 4814B | 17SEP96 | | | | 08 | 8,489.45 | NC | | |
| 2-BUTANONE | 78-93-3 | 50.00 | 4814B | 18SEP96 | 10 | 22,391.35 | NC | 08 | 29,965.20 | NC | | |
| 2-BUTANONE | 78-93-3 | 50.00 | 4814B | 19SEP96 | 10 | 32,832.90 | NC | 08 | 41,713.20 | NC | 24,681.75 | 24,277.21 |
| 2-ISOPROPYLNAPHTHALENE | 2027-17-0 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 20.00 | ND | | |
| 2-ISOPROPYLNAPHTHALENE | 2027-17-0 | 10.00 | 4814A | 17SEP96 | | | | 07 | 70.00 | ND | | |
| 2-ISOPROPYLNAPHTHALENE | 2027-17-0 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| 2-ISOPROPYLNAPHTHALENE | 2027-17-0 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| 2-ISOPROPYLNAPHTHALENE | 2027-17-0 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 318.00 |
| 2-ISOPROPYLNAPHTHALENE | 2027-17-0 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |
| 2-ISOPROPYLNAPHTHALENE | 2027-17-0 | 10.00 | 4814B | 17SEP96 | | | | 08 | 20.00 | ND | | |
| 2-ISOPROPYLNAPHTHALENE | 2027-17-0 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| 2-ISOPROPYLNAPHTHALENE | 2027-17-0 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 48.33 | 132.50 |
| 2-METHYLNAPHTHALENE | 91-57-6 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 245.78 | NC | | |

------------------------------------------------------------ Subcategory=Oils Option=8 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2-METHYLNAPHTHALENE | 91-57-6 | 10.00 | 4814A | 17SEP96 | | | | 07 | 1,517.95 | NC | | |
| 2-METHYLNAPHTHALENE | 91-57-6 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 3,262.32 | NC | | |
| 2-METHYLNAPHTHALENE | 91-57-6 | 10.00 | 4814A | 19SEP96 | 09 | 242.06 | NC | 07 | 11,672.10 | NC | | |
| 2-METHYLNAPHTHALENE | 91-57-6 | 10.00 | 4814A | 20SEP96 | 09 | 375.25 | NC | 07 | 10,554.18 | NC | 160.58 | 5,450.47 |
| 2-METHYLNAPHTHALENE | 91-57-6 | 10.00 | 4814B | 16SEP96 | 10 | 565.10 | NC | 08 | 46,108.35 | NC | | |
| 2-METHYLNAPHTHALENE | 91-57-6 | 10.00 | 4814B | 17SEP96 | | | | 08 | 2,236.10 | NC | | |
| 2-METHYLNAPHTHALENE | 91-57-6 | 10.00 | 4814B | 18SEP96 | 10 | 6,044.74 | NC | 08 | 3,768.78 | NC | | |
| 2-METHYLNAPHTHALENE | 91-57-6 | 10.00 | 4814B | 19SEP96 | 10 | 2,148.52 | NC | 08 | 17,493.24 | NC | 2,919.45 | 17,401.62 |
| 2-PROPANONE | 67-64-1 | 50.00 | 4814A | 16SEP96 | 09 | 78,550.00 | NC | 07 | 50.00 | ND | | |
| 2-PROPANONE | 67-64-1 | 50.00 | 4814A | 17SEP96 | | | | 07 | 54,524.00 | NC | | |
| 2-PROPANONE | 67-64-1 | 50.00 | 4814A | 18SEP96 | 09 | 98,102.45 | NC | 07 | 128,750.00 | NC | | |
| 2-PROPANONE | 67-64-1 | 50.00 | 4814A | 19SEP96 | 09 | 91,761.70 | NC | 07 | 98,965.40 | NC | | |
| 2-PROPANONE | 67-64-1 | 50.00 | 4814A | 20SEP96 | 09 | 77,859.20 | NC | 07 | 100,000.00 | NC | 86,568.34 | 76,457.88 |
| 2-PROPANONE | 67-64-1 | 50.00 | 4814B | 16SEP96 | 10 | 129,610.00 | NC | 08 | 69,310.00 | NC | | |
| 2-PROPANONE | 67-64-1 | 50.00 | 4814B | 17SEP96 | | | | 08 | 50,852.00 | NC | | |
| 2-PROPANONE | 67-64-1 | 50.00 | 4814B | 18SEP96 | 10 | 235,806.00 | NC | 08 | 292,399.00 | NC | | |
| 2-PROPANONE | 67-64-1 | 50.00 | 4814B | 19SEP96 | 10 | 303,963.00 | NC | 08 | 306,491.00 | NC | 223,126.33 | 179,763.00 |
| 3,6-DIMETHYLPHENANTHRENE | 1576-67-6 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 20.00 | ND | | |
| 3,6-DIMETHYLPHENANTHRENE | 1576-67-6 | 10.00 | 4814A | 17SEP96 | | | | 07 | 70.00 | ND | | |
| 3,6-DIMETHYLPHENANTHRENE | 1576-67-6 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| 3,6-DIMETHYLPHENANTHRENE | 1576-67-6 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| 3,6-DIMETHYLPHENANTHRENE | 1576-67-6 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 318.00 |
| 3,6-DIMETHYLPHENANTHRENE | 1576-67-6 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |
| 3,6-DIMETHYLPHENANTHRENE | 1576-67-6 | 10.00 | 4814B | 17SEP96 | | | | 08 | 20.00 | ND | | |
| 3,6-DIMETHYLPHENANTHRENE | 1576-67-6 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| 3,6-DIMETHYLPHENANTHRENE | 1576-67-6 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 48.33 | 132.50 |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 10.00 | 4814A | 16SEP96 | 09 | 863.50 | NC | 07 | 1,128.90 | NC | | |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 10.00 | 4814A | 17SEP96 | | | | 07 | 1,030.05 | NC | | |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 10.00 | 4814A | 18SEP96 | 09 | 541.22 | NC | 07 | 100.00 | ND | | |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 10.00 | 4814A | 19SEP96 | 09 | 684.84 | NC | 07 | 1,000.00 | ND | | |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 10.00 | 4814A | 20SEP96 | 09 | 100.00 | ND | 07 | 1,000.00 | ND | 547.39 | 851.79 |

------------------------------------------------------------- Subcategory=Oils Option=8 -------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 10.00 | 4814B | 17SEP96 | | | | 08 | 10.00 | ND | | |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 10.00 | 4814B | 18SEP96 | 10 | 55.00 | ND | 08 | 10.00 | ND | | |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 100.00 | ND | 55.00 | 32.50 |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 4814A | 16SEP96 | 09 | 8,828.00 | NC | 07 | 20,489.00 | NC | | |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 4814A | 17SEP96 | | | | 07 | 17,153.00 | NC | | |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 4814A | 18SEP96 | 09 | 5,262.31 | NC | 07 | 10,142.92 | NC | | |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 4814A | 19SEP96 | 09 | 7,026.06 | NC | 07 | 11,121.62 | NC | | |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 4814A | 20SEP96 | 09 | 15,168.14 | NC | 07 | 18,383.03 | NC | 9,071.13 | 15,457.91 |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 4814B | 16SEP96 | 10 | 8,258.00 | NC | 08 | 9,404.60 | NC | | |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 4814B | 17SEP96 | | | | 08 | 15,807.50 | NC | | |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 4814B | 18SEP96 | 10 | 6,316.73 | NC | 08 | 5,965.35 | NC | | |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 4814B | 19SEP96 | 10 | 5,299.88 | NC | 08 | 3,821.82 | NC | 6,624.87 | 8,749.82 |

------------------------------------------------------------- Subcategory=Oils Option=9 -------------------------------------------------------------

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4813 | 04AUG96 | 07 | 133,000.00 | NC | 05 | 105,500.00 | NC | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4813 | 05AUG96 | 07 | 4,210.00 | NC | 05 | 112,000.00 | NC | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4813 | 06AUG96 | 07 | 111,000.00 | NC | 05 | 110,000.00 | NC | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4813 | 07AUG96 | 07 | 85,900.00 | NC | 05 | 39,300.00 | NC | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4813 | 08AUG96 | 07 | 152,000.00 | NC | 05 | 152,000.00 | NC | 97,222.00 | 103,760.00 |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4814A | 16SEP96 | 09 | 52,000.00 | NC | 07 | 45,000.00 | NC | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4814A | 17SEP96 | | | | 07 | 44,000.00 | NC | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4814A | 18SEP96 | 09 | 107,000.00 | NC | 07 | 128,000.00 | NC | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4814A | 19SEP96 | 09 | 87,000.00 | NC | 07 | 188,000.00 | NC | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4814A | 20SEP96 | 09 | 65,000.00 | NC | 07 | 88,000.00 | NC | 77,750.00 | 98,600.00 |

------------------------------------------------------------ Subcategory=Oils Option=9 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4814B | 16SEP96 | 10 | 57,000.00 | NC | 08 | 20,000.00 | NC | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4814B | 17SEP96 | | | | 08 | 23,500.00 | NC | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4814B | 18SEP96 | 10 | 660,000.00 | NC | 08 | 1,310,000.00 | NC | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 4814B | 19SEP96 | 10 | 156,000.00 | NC | 08 | 175,000.00 | NC | 291,000.00 | 382,125.00 |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4813 | 04AUG96 | 07 | 13,500,000.00 | NC | 05 | 18,250,000.00 | NC | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4813 | 05AUG96 | 07 | 18,500,000.00 | NC | 05 | 21,300,000.00 | NC | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4813 | 06AUG96 | 07 | 22,700,000.00 | NC | 05 | 14,500,000.00 | NC | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4813 | 07AUG96 | 07 | 10,200,000.00 | NC | 05 | 25,800,000.00 | NC | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4813 | 08AUG96 | 07 | 8,640,000.00 | NC | 05 | 9,980,000.00 | NC | 14,708,000.00 | 17,966,000.00 |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4814A | 16SEP96 | 09 | 4,940,000.00 | NC | 07 | 7,920,000.00 | NC | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4814A | 17SEP96 | | | | 07 | 5,400,000.00 | NC | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4814A | 18SEP96 | 09 | 6,020,000.00 | NC | 07 | 9,330,000.00 | NC | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4814A | 19SEP96 | 09 | 4,630,000.00 | NC | 07 | 8,230,000.00 | NC | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4814A | 20SEP96 | 09 | 8,200,000.00 | NC | 07 | 3,820,000.00 | NC | 5,947,500.00 | 6,940,000.00 |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4814B | 16SEP96 | 10 | 5,670,000.00 | NC | 08 | 6,500,000.00 | NC | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4814B | 17SEP96 | | | | 08 | 3,570,000.00 | NC | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4814B | 18SEP96 | 10 | 9,915,000.00 | NC | 08 | 13,200,000.00 | NC | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 4814B | 19SEP96 | 10 | 12,300,000.00 | NC | 08 | 20,100,000.00 | NC | 9,295,000.00 | 10,842,500.00 |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 651 | 09JUL97 | 01 | 5,500,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 651 | 03MAR98 | | | | 01 | 11,950,000.00 | NC | 5,500,000.00 | 11,950,000.00 |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4813 | 04AUG96 | 07 | 16,100,000.00 | NC | 05 | 23,150,000.00 | NC | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4813 | 05AUG96 | 07 | 25,850,000.00 | NC | 05 | 29,200,000.00 | NC | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4813 | 06AUG96 | 07 | 22,300,000.00 | NC | 05 | 27,000,000.00 | NC | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4813 | 07AUG96 | 07 | 19,100,000.00 | NC | 05 | 32,100,000.00 | NC | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4813 | 08AUG96 | 07 | 19,100,000.00 | NC | 05 | 27,200,000.00 | NC | 20,490,000.00 | 27,730,000.00 |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4814A | 16SEP96 | 09 | 10,900,000.00 | NC | 07 | 26,000,000.00 | NC | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4814A | 17SEP96 | | | | 07 | 25,550,000.00 | NC | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4814A | 18SEP96 | 09 | 11,700,000.00 | NC | 07 | 38,200,000.00 | NC | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4814A | 19SEP96 | 09 | 13,400,000.00 | NC | 07 | 42,800,000.00 | NC | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4814A | 20SEP96 | 09 | 10,900,000.00 | NC | 07 | 31,200,000.00 | NC | 11,725,000.00 | 32,750,000.00 |

Appendix C: Listing of Data used for the Percent Removal Test and Long Term Averages

Subcategory=Oils Option=9
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4814B | 16SEP96 | 10 | 15,800,000.00 | NC | 08 | 31,300,000.00 | NC | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4814B | 17SEP96 | | | | 08 | 32,100,000.00 | NC | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4814B | 18SEP96 | 10 | 20,200,000.00 | NC | 08 | 29,600,000.00 | NC | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 4814B | 19SEP96 | 10 | 35,300,000.00 | NC | 08 | 81,500,000.00 | NC | 23,766,666.67 | 43,625,000.00 |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 651 | 03MAR98 | | | | 01 | 63,600,000.00 | NC | . | 63,600,000.00 |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4813 | 04AUG96 | 07 | 52,600.00 | NC | 05 | 27,050.00 | NC | | |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4813 | 05AUG96 | 07 | 69,150.00 | NC | 05 | 31,600.00 | NC | | |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4813 | 06AUG96 | 07 | 60,200.00 | NC | 05 | 19,400.00 | NC | | |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4813 | 07AUG96 | 07 | 55,500.00 | NC | 05 | 47,500.00 | NC | | |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4813 | 08AUG96 | 07 | 98,500.00 | NC | 05 | 34,000.00 | NC | 67,190.00 | 31,910.00 |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4814A | 16SEP96 | 09 | 1,780,000.00 | NC | 07 | 2,250,000.00 | NC | | |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4814A | 17SEP96 | | | | 07 | 1,965,000.00 | NC | | |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4814A | 18SEP96 | 09 | 1,325,000.00 | NC | 07 | 965,000.00 | NC | | |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4814A | 19SEP96 | 09 | 1,440,000.00 | NC | 07 | 2,030,000.00 | NC | | |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4814A | 20SEP96 | 09 | 1,730,000.00 | NC | 07 | 2,270,000.00 | NC | 1,568,750.00 | 1,896,000.00 |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4814B | 16SEP96 | 10 | 3,600,000.00 | NC | 08 | 3,120,000.00 | NC | | |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4814B | 17SEP96 | | | | 08 | 2,315,000.00 | NC | | |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4814B | 18SEP96 | 10 | 5,740,000.00 | NC | 08 | 6,180,000.00 | NC | | |
| CHLORIDE | 16887-00-6 | 1,000.00 | 4814B | 19SEP96 | 10 | 3,110,000.00 | NC | 08 | 2,230,000.00 | NC | 4,150,000.00 | 3,461,250.00 |
| FLUORIDE | 16984-48-8 | 100.00 | 4813 | 04AUG96 | 07 | 100.00 | ND | 05 | 115.00 | NC | | |
| FLUORIDE | 16984-48-8 | 100.00 | 4813 | 05AUG96 | 07 | 305.00 | NC | 05 | 100.00 | ND | | |
| FLUORIDE | 16984-48-8 | 100.00 | 4813 | 06AUG96 | 07 | 100.00 | ND | 05 | 500.00 | NC | | |
| FLUORIDE | 16984-48-8 | 100.00 | 4813 | 07AUG96 | 07 | 450.00 | NC | 05 | 240.00 | NC | | |
| FLUORIDE | 16984-48-8 | 100.00 | 4813 | 08AUG96 | 07 | 340.00 | NC | 05 | 170.00 | NC | 259.00 | 225.00 |
| FLUORIDE | 16984-48-8 | 100.00 | 4814A | 16SEP96 | 09 | 23,000.00 | NC | 07 | 264,000.00 | NC | | |
| FLUORIDE | 16984-48-8 | 100.00 | 4814A | 17SEP96 | | | | 07 | 96,500.00 | NC | | |
| FLUORIDE | 16984-48-8 | 100.00 | 4814A | 18SEP96 | 09 | 60,000.00 | NC | 07 | 117,000.00 | NC | | |
| FLUORIDE | 16984-48-8 | 100.00 | 4814A | 19SEP96 | 09 | 20,000.00 | NC | 07 | 81,000.00 | NC | | |
| FLUORIDE | 16984-48-8 | 100.00 | 4814A | 20SEP96 | 09 | 42,000.00 | NC | 07 | 87,000.00 | NC | 36,250.00 | 129,100.00 |
| FLUORIDE | 16984-48-8 | 100.00 | 4814B | 16SEP96 | 10 | 21,000.00 | NC | 08 | 84,000.00 | NC | | |

Subcategory=Oils Option=9
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLUORIDE | 16984-48-8 | 100.00 | 4814B | 17SEP96 | | | | 08 | 17,500.00 | NC | | |
| FLUORIDE | 16984-48-8 | 100.00 | 4814B | 18SEP96 | 10 | 390,000.00 | NC | 08 | 330,000.00 | NC | | |
| FLUORIDE | 16984-48-8 | 100.00 | 4814B | 19SEP96 | 10 | 33,000.00 | NC | 08 | 66,000.00 | NC | 148,000.00 | 124,375.00 |
| NITRATE/NITRITE | C-005 | 50.00 | 4813 | 04AUG96 | 07 | 690.00 | NC | 05 | 730.00 | NC | | |
| NITRATE/NITRITE | C-005 | 50.00 | 4813 | 05AUG96 | 07 | 555.00 | NC | 05 | 2,420.00 | NC | | |
| NITRATE/NITRITE | C-005 | 50.00 | 4813 | 06AUG96 | 07 | 1,000.00 | NC | 05 | 1,370.00 | NC | | |
| NITRATE/NITRITE | C-005 | 50.00 | 4813 | 07AUG96 | 07 | 590.00 | NC | 05 | 1,620.00 | NC | | |
| NITRATE/NITRITE | C-005 | 50.00 | 4813 | 08AUG96 | 07 | 680.00 | NC | 05 | 2,270.00 | NC | 703.00 | 1,682.00 |
| NITRATE/NITRITE | C-005 | 50.00 | 4814A | 16SEP96 | 09 | 13,000.00 | NC | 07 | 21,000.00 | NC | | |
| NITRATE/NITRITE | C-005 | 50.00 | 4814A | 17SEP96 | | | | 07 | 29,500.00 | NC | | |
| NITRATE/NITRITE | C-005 | 50.00 | 4814A | 18SEP96 | 09 | 30,000.00 | NC | 07 | 58,000.00 | NC | | |
| NITRATE/NITRITE | C-005 | 50.00 | 4814A | 19SEP96 | 09 | 20,000.00 | NC | 07 | 48,000.00 | NC | | |
| NITRATE/NITRITE | C-005 | 50.00 | 4814A | 20SEP96 | 09 | 20,000.00 | NC | 07 | 25,000.00 | NC | 20,750.00 | 36,300.00 |
| NITRATE/NITRITE | C-005 | 50.00 | 4814B | 16SEP96 | 10 | 99,000.00 | NC | 08 | 103,000.00 | NC | | |
| NITRATE/NITRITE | C-005 | 50.00 | 4814B | 17SEP96 | | | | 08 | 51,500.00 | NC | | |
| NITRATE/NITRITE | C-005 | 50.00 | 4814B | 18SEP96 | 10 | 41,000.00 | NC | 08 | 103,000.00 | NC | | |
| NITRATE/NITRITE | C-005 | 50.00 | 4814B | 19SEP96 | 10 | 75,000.00 | NC | 08 | 58,000.00 | NC | 71,666.67 | 78,875.00 |
| OIL & GREASE | C-007 | 5,000.00 | 4813 | 04AUG96 | 07 | 222,450.00 | NC | 05 | 867,916.67 | NC | | |
| OIL & GREASE | C-007 | 5,000.00 | 4813 | 05AUG96 | 07 | 93,583.33 | NC | 05 | 679,000.00 | NC | | |
| OIL & GREASE | C-007 | 5,000.00 | 4813 | 06AUG96 | 07 | 71,883.33 | NC | 05 | 1,070,000.00 | NC | | |
| OIL & GREASE | C-007 | 5,000.00 | 4813 | 07AUG96 | 07 | 71,066.67 | NC | 05 | 3,902,166.67 | NC | | |
| OIL & GREASE | C-007 | 5,000.00 | 4813 | 08AUG96 | 07 | 213,000.00 | NC | 05 | 2,210,333.33 | NC | 134,396.67 | 1,745,883.33 |
| OIL & GREASE | C-007 | 5,000.00 | 4814A | 16SEP96 | 09 | 190,000.00 | NC | 07 | 3,364,000.00 | NC | | |
| OIL & GREASE | C-007 | 5,000.00 | 4814A | 17SEP96 | | | | 07 | 2,182,500.00 | NC | | |
| OIL & GREASE | C-007 | 5,000.00 | 4814A | 18SEP96 | 09 | 147,916.67 | NC | 07 | 2,652,333.33 | NC | | |
| OIL & GREASE | C-007 | 5,000.00 | 4814A | 19SEP96 | 09 | 306,200.00 | NC | 07 | 9,274,400.00 | NC | | |
| OIL & GREASE | C-007 | 5,000.00 | 4814A | 20SEP96 | 09 | 263,200.00 | NC | 07 | 12,168,000.00 | NC | 226,829.17 | 5,928,246.67 |
| OIL & GREASE | C-007 | 5,000.00 | 4814B | 16SEP96 | 10 | 946,000.00 | NC | 08 | 3,080,000.00 | NC | | |
| OIL & GREASE | C-007 | 5,000.00 | 4814B | 17SEP96 | | | | 08 | 2,062,500.00 | NC | | |
| OIL & GREASE | C-007 | 5,000.00 | 4814B | 18SEP96 | 10 | 494,000.00 | NC | 08 | 2,650,000.00 | NC | | |
| OIL & GREASE | C-007 | 5,000.00 | 4814B | 19SEP96 | 10 | 1,027,000.00 | NC | 08 | 4,025,000.00 | NC | 822,333.33 | 2,954,375.00 |

Subcategory=Oils Option=9
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OIL & GREASE | C-007 | 5,000.00 | 651 | 01JUL97 | 01 | 52,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 651 | 10JUL97 | 01 | 74,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 651 | 11JUL97 | 01 | 5,000.00 | ND | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 651 | 01AUG97 | 01 | 9,900.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 651 | 01SEP97 | 01 | 74,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 651 | 01OCT97 | 01 | 5,000.00 | ND | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 651 | 01NOV97 | 01 | 12,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 651 | 01DEC97 | 01 | 19,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 651 | 02JAN98 | 01 | 28,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 651 | 01FEB98 | 01 | 22,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 651 | 01MAR98 | 01 | 19,000.00 | NC | | | | | |
| OIL & GREASE | C-007 | 5,000.00 | 651 | 03MAR98 | | | | 01 | 1,375,000.00 | NC | | |
| OIL & GREASE | C-007 | 5,000.00 | 651 | 01APR98 | 01 | 20,000.00 | NC | | | | 28,325.00 | 1,375,000.00 |
| SGT-HEM | C-037 | 5,000.00 | 4813 | 04AUG96 | 07 | 74,400.00 | NC | 05 | 525,275.00 | NC | | |
| SGT-HEM | C-037 | 5,000.00 | 4813 | 05AUG96 | 07 | 27,858.33 | NC | 05 | 354,066.67 | NC | | |
| SGT-HEM | C-037 | 5,000.00 | 4813 | 06AUG96 | 07 | 28,100.00 | NC | 05 | 362,000.00 | NC | | |
| SGT-HEM | C-037 | 5,000.00 | 4813 | 07AUG96 | 07 | 7,633.33 | NC | 05 | 1,662,166.67 | NC | | |
| SGT-HEM | C-037 | 5,000.00 | 4813 | 08AUG96 | 07 | 74,650.00 | NC | 05 | 1,341,666.67 | NC | 42,528.33 | 849,035.00 |
| SGT-HEM | C-037 | 5,000.00 | 4814A | 16SEP96 | 09 | 18,400.00 | NC | 07 | 1,070,600.00 | NC | | |
| SGT-HEM | C-037 | 5,000.00 | 4814A | 17SEP96 | | | | 07 | 921,500.00 | NC | | |
| SGT-HEM | C-037 | 5,000.00 | 4814A | 18SEP96 | 09 | 61,166.67 | NC | 07 | 1,175,833.33 | NC | | |
| SGT-HEM | C-037 | 5,000.00 | 4814A | 19SEP96 | 09 | 41,400.00 | NC | 07 | 3,723,000.00 | NC | | |
| SGT-HEM | C-037 | 5,000.00 | 4814A | 20SEP96 | 09 | 47,000.00 | NC | 07 | 1,264,000.00 | NC | 41,991.67 | 1,630,986.67 |
| SGT-HEM | C-037 | 5,000.00 | 4814B | 16SEP96 | 10 | 196,600.00 | NC | 08 | 1,075,000.00 | NC | | |
| SGT-HEM | C-037 | 5,000.00 | 4814B | 17SEP96 | | | | 08 | 882,750.00 | NC | | |
| SGT-HEM | C-037 | 5,000.00 | 4814B | 18SEP96 | 10 | 218,000.00 | NC | 08 | 1,818,000.00 | NC | | |
| SGT-HEM | C-037 | 5,000.00 | 4814B | 19SEP96 | 10 | 316,250.00 | NC | 08 | 1,153,000.00 | NC | 243,616.67 | 1,232,187.50 |
| SGT-HEM | C-037 | 5,000.00 | 651 | 03MAR98 | | | | 01 | 215,000.00 | NC | . | 215,000.00 |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4813 | 04AUG96 | 07 | 20.00 | ND | 06 | 20.00 | ND | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4813 | 05AUG96 | 07 | 20.00 | ND | 06 | 20.00 | ND | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4813 | 06AUG96 | 07 | 20.00 | ND | 06 | 20.00 | ND | | |

------------------------------------------------------------- Subcategory=Oils Option=9 -------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4813 | 07AUG96 | 07 | 20.00 | ND | 06 | 20.00 | ND | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4813 | 08AUG96 | 07 | 20.00 | ND | 06 | 20.00 | ND | 20.00 | 20.00 |
| | | | | . | | | | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 74.00 | NC | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4814A | 17SEP96 | | | | 07 | 467.00 | NC | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4814A | 18SEP96 | 09 | 209.00 | NC | 07 | 380.00 | NC | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4814A | 19SEP96 | 09 | 96.00 | NC | 07 | 258.00 | NC | 105.00 | 294.75 |
| | | | | . | | | | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4814B | 16SEP96 | 10 | 288.00 | NC | 08 | 474.00 | NC | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4814B | 17SEP96 | | | | 08 | 10.00 | ND | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4814B | 18SEP96 | 10 | 245.00 | NC | 08 | 980.00 | NC | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 4814B | 19SEP96 | 10 | 620.00 | NC | 08 | 41.00 | NC | 384.33 | 376.25 |
| | | | | . | | | | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 651 | 01JUL97 | 01 | 50.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 651 | 10JUL97 | 01 | 5.00 | ND | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 651 | 11JUL97 | 01 | 10.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 651 | 01AUG97 | 01 | 50.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 651 | 01SEP97 | 01 | 180.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 651 | 01OCT97 | 01 | 50.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 651 | 01NOV97 | 01 | 50.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 651 | 01DEC97 | 01 | 210.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 651 | 02JAN98 | 01 | 140.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 651 | 01FEB98 | 01 | 170.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 651 | 01MAR98 | 01 | 50.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 651 | 01APR98 | 01 | 100.00 | NC | | | | 88.75 | . |
| | | | | . | | | | | | | | |
| TOTAL DISSOLVED SOLIDS | C-010 | 10,000.00 | 4813 | 04AUG96 | 07 | 3,290,000.00 | NC | 05 | 1,765,000.00 | NC | | |
| TOTAL DISSOLVED SOLIDS | C-010 | 10,000.00 | 4813 | 05AUG96 | 07 | 3,120,000.00 | NC | 05 | 2,150,000.00 | NC | | |
| TOTAL DISSOLVED SOLIDS | C-010 | 10,000.00 | 4813 | 06AUG96 | 07 | 3,280,000.00 | NC | 05 | 1,270,000.00 | NC | | |
| TOTAL DISSOLVED SOLIDS | C-010 | 10,000.00 | 4813 | 07AUG96 | 07 | 3,840,000.00 | NC | 05 | 2,020,000.00 | NC | | |
| TOTAL DISSOLVED SOLIDS | C-010 | 10,000.00 | 4813 | 08AUG96 | 07 | 3,850,000.00 | NC | 05 | 1,680,000.00 | NC | 3,476,000.00 | 1,777,000.00 |
| | | | | . | | | | | | | | |
| TOTAL DISSOLVED SOLIDS | C-010 | 10,000.00 | 4814A | 16SEP96 | 09 | 19,800,000.00 | NC | 07 | 19,000,000.00 | NC | | |
| TOTAL DISSOLVED SOLIDS | C-010 | 10,000.00 | 4814A | 17SEP96 | | | | 07 | 8,950,000.00 | NC | | |
| TOTAL DISSOLVED SOLIDS | C-010 | 10,000.00 | 4814A | 18SEP96 | 09 | 12,650,000.00 | NC | 07 | 12,100,000.00 | NC | | |
| TOTAL DISSOLVED SOLIDS | C-010 | 10,000.00 | 4814A | 19SEP96 | 09 | 11,500,000.00 | NC | 07 | 13,300,000.00 | NC | | |
| TOTAL DISSOLVED SOLIDS | C-010 | 10,000.00 | 4814A | 20SEP96 | 09 | 12,400,000.00 | NC | 07 | 12,600,000.00 | NC | 14,087,500.00 | 13,190,000.00 |

Subcategory=Oils Option=9
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL DISSOLVED SOLIDS | C-010 | 10,000.00 | 4814B | 16SEP96 | 10 | 18,700,000.00 | NC | 08 | 19,200,000.00 | NC | | |
| TOTAL DISSOLVED SOLIDS | C-010 | 10,000.00 | 4814B | 17SEP96 | | | | 08 | 12,450,000.00 | NC | | |
| TOTAL DISSOLVED SOLIDS | C-010 | 10,000.00 | 4814B | 18SEP96 | 10 | 23,450,000.00 | NC | 08 | 32,700,000.00 | NC | | |
| TOTAL DISSOLVED SOLIDS | C-010 | 10,000.00 | 4814B | 19SEP96 | 10 | 69,000,000.00 | NC | 08 | 15,300,000.00 | NC | 37,050,000.00 | 19,912,500.00 |
| TOTAL DISSOLVED SOLIDS | C-010 | 10,000.00 | 651 | 03MAR98 | | | | 01 | 4,590,000.00 | NC | . | 4,590,000.00 |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4813 | 04AUG96 | 07 | 5,650,000.00 | NC | 05 | 7,755,000.00 | NC | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4813 | 05AUG96 | 07 | 9,970,000.00 | NC | 05 | 10,600,000.00 | NC | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4813 | 06AUG96 | 07 | 7,430,000.00 | NC | 05 | 7,450,000.00 | NC | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4813 | 07AUG96 | 07 | 4,770,000.00 | NC | 05 | 157,000,000.00 | NC | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4813 | 08AUG96 | 07 | 10,800,000.00 | NC | 05 | 7,470,000.00 | NC | 7,724,000.00 | 38,055,000.00 |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4814A | 16SEP96 | 09 | 3,030,000.00 | NC | 07 | 4,030,000.00 | NC | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4814A | 17SEP96 | | | | 07 | 3,400,000.00 | NC | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4814A | 18SEP96 | 09 | 3,885,000.00 | NC | 07 | 4,960,000.00 | NC | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4814A | 19SEP96 | 09 | 3,850,000.00 | NC | 07 | 4,790,000.00 | NC | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4814A | 20SEP96 | 09 | 2,970,000.00 | NC | 07 | 3,910,000.00 | NC | 3,433,750.00 | 4,218,000.00 |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4814B | 16SEP96 | 10 | 3,720,000.00 | NC | 08 | 3,690,000.00 | NC | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4814B | 17SEP96 | | | | 08 | 3,285,000.00 | NC | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4814B | 18SEP96 | 10 | 5,060,000.00 | NC | 08 | 6,580,000.00 | NC | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 4814B | 19SEP96 | 10 | 9,260,000.00 | NC | 08 | 3,130,000.00 | NC | 6,013,333.33 | 4,171,250.00 |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 651 | 03MAR98 | | | | 01 | 6,705,000.00 | NC | . | 6,705,000.00 |
| TOTAL PHENOLS | C-020 | 50.00 | 4813 | 04AUG96 | 07 | 27,500.00 | NC | 05 | 22,300.00 | NC | | |
| TOTAL PHENOLS | C-020 | 50.00 | 4813 | 05AUG96 | 07 | 47,500.00 | NC | 05 | 10,300.00 | NC | | |
| TOTAL PHENOLS | C-020 | 50.00 | 4813 | 06AUG96 | 07 | 102,000.00 | NC | 05 | 185,000.00 | NC | | |
| TOTAL PHENOLS | C-020 | 50.00 | 4813 | 07AUG96 | 07 | 1,780.00 | NC | 05 | 49,400.00 | NC | | |
| TOTAL PHENOLS | C-020 | 50.00 | 4813 | 08AUG96 | 07 | 21,600.00 | NC | 05 | 27,300.00 | NC | 40,076.00 | 58,860.00 |
| TOTAL PHENOLS | C-020 | 50.00 | 4814A | 16SEP96 | 09 | 15,000.00 | NC | 07 | 18,700.00 | NC | | |
| TOTAL PHENOLS | C-020 | 50.00 | 4814A | 17SEP96 | | | | 07 | 13,900.00 | NC | | |
| TOTAL PHENOLS | C-020 | 50.00 | 4814A | 18SEP96 | 09 | 11,190.00 | NC | 07 | 18,600.00 | NC | | |
| TOTAL PHENOLS | C-020 | 50.00 | 4814A | 19SEP96 | 09 | 17,300.00 | NC | 07 | 20,500.00 | NC | | |

Subcategory=Oils Option=9
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL PHENOLS | C-020 | 50.00 | 4814A | 20SEP96 | 09 | 18,600.00 | NC | 07 | 71,700.00 | NC | 15,522.50 | 28,680.00 |
| TOTAL PHENOLS | C-020 | 50.00 | 4814B | 16SEP96 | 10 | 13,600.00 | NC | 08 | 15,000.00 | NC | | |
| TOTAL PHENOLS | C-020 | 50.00 | 4814B | 17SEP96 | | | | 08 | 18,750.00 | NC | | |
| TOTAL PHENOLS | C-020 | 50.00 | 4814B | 18SEP96 | 10 | 4,380.00 | NC | 08 | 8,200.00 | NC | | |
| TOTAL PHENOLS | C-020 | 50.00 | 4814B | 19SEP96 | 10 | 42,500.00 | NC | 08 | 89,500.00 | NC | 20,160.00 | 32,862.50 |
| TOTAL PHENOLS | C-020 | 50.00 | 651 | 01JUL97 | 01 | 3,200.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 651 | 08JUL97 | 01 | 6,800.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 651 | 09JUL97 | 01 | 6,000.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 651 | 01AUG97 | 01 | 800.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 651 | 01SEP97 | 01 | 3,900.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 651 | 01OCT97 | 01 | 110.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 651 | 01NOV97 | 01 | 2,800.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 651 | 01DEC97 | 01 | 2,200.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 651 | 02JAN98 | 01 | 1,900.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 651 | 01FEB98 | 01 | 3,500.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 651 | 01MAR98 | 01 | 7,200.00 | NC | | | | | |
| TOTAL PHENOLS | C-020 | 50.00 | 651 | 01APR98 | 01 | 6,600.00 | NC | | | | 3,750.83 | . |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4813 | 04AUG96 | 07 | 5,970.00 | NC | 05 | 6,015.00 | NC | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4813 | 05AUG96 | 07 | 2,405.00 | NC | 05 | 2,660.00 | NC | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4813 | 06AUG96 | 07 | 2,400.00 | NC | 05 | 11,800.00 | NC | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4813 | 07AUG96 | 07 | 1,870.00 | NC | 05 | 18,000.00 | NC | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4813 | 08AUG96 | 07 | 4,140.00 | NC | 05 | 17,800.00 | NC | 3,357.00 | 11,255.00 |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4814A | 16SEP96 | 09 | 350.00 | NC | 07 | 650.00 | NC | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4814A | 17SEP96 | | | | 07 | 8,000.00 | NC | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4814A | 18SEP96 | 09 | 45.00 | NC | 07 | 13,000.00 | NC | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4814A | 19SEP96 | 09 | 400.00 | NC | 07 | 6,700.00 | NC | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4814A | 20SEP96 | 09 | 170,000.00 | NC | 07 | 350,000.00 | NC | 42,698.75 | 75,670.00 |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4814B | 16SEP96 | 10 | 70.00 | NC | 08 | 8,100.00 | NC | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4814B | 17SEP96 | | | | 08 | 13,500.00 | NC | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4814B | 18SEP96 | 10 | 89,500.00 | NC | 08 | 250,000.00 | NC | | |
| TOTAL PHOSPHORUS | 14265-44-2 | 10.00 | 4814B | 19SEP96 | 10 | 4,500.00 | NC | 08 | 3,000.00 | NC | 31,356.67 | 68,650.00 |

------------------------------------------------------------ Subcategory=Oils Option=9 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4813 | 04AUG96 | 07 | 350,000.00 | NC | 05 | 636,000.00 | NC | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4813 | 05AUG96 | 07 | 163,000.00 | NC | 05 | 172,000.00 | NC | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4813 | 06AUG96 | 07 | 240,000.00 | NC | 05 | 493,000.00 | NC | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4813 | 07AUG96 | 07 | 150,000.00 | NC | 05 | 1,820,000.00 | NC | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4813 | 08AUG96 | 07 | 5,230,000.00 | NC | 05 | 1,360,000.00 | NC | 1,226,600.00 | 896,200.00 |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4814A | 16SEP96 | 09 | 765,000.00 | NC | 07 | 5,210,000.00 | NC | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4814A | 17SEP96 | | | | 07 | 3,470,000.00 | NC | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4814A | 18SEP96 | 09 | 527,500.00 | NC | 07 | 5,660,000.00 | NC | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4814A | 19SEP96 | 09 | 195,000.00 | NC | 07 | 8,480,000.00 | NC | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4814A | 20SEP96 | 09 | 710,000.00 | NC | 07 | 7,700,000.00 | NC | 549,375.00 | 6,104,000.00 |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4814B | 16SEP96 | 10 | 756,000.00 | NC | 08 | 5,420,000.00 | NC | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4814B | 17SEP96 | | | | 08 | 8,310,000.00 | NC | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4814B | 18SEP96 | 10 | 695,000.00 | NC | 08 | 1,250,000.00 | NC | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 4814B | 19SEP96 | 10 | 375,000.00 | NC | 08 | 3,060,000.00 | NC | 608,666.67 | 4,510,000.00 |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 651 | 08JUL97 | 01 | 41,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 651 | 09JUL97 | 01 | 10,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 651 | 03MAR98 | | | | 01 | 1,515,000.00 | NC | 25,500.00 | 1,515,000.00 |
| ALUMINUM | 7429-90-5 | 200.00 | 4813 | 04AUG96 | 07 | 44,300.00 | NC | 05 | 25,000.00 | NC | | |
| ALUMINUM | 7429-90-5 | 200.00 | 4813 | 05AUG96 | 07 | 18,700.00 | NC | 05 | 5,250.00 | NC | | |
| ALUMINUM | 7429-90-5 | 200.00 | 4813 | 06AUG96 | 07 | 42,900.00 | NC | 05 | 11,500.00 | NC | | |
| ALUMINUM | 7429-90-5 | 200.00 | 4813 | 07AUG96 | 07 | 23,400.00 | NC | 05 | 13,900.00 | NC | | |
| ALUMINUM | 7429-90-5 | 200.00 | 4813 | 08AUG96 | 07 | 154,000.00 | NC | 05 | 15,000.00 | NC | 56,660.00 | 14,130.00 |
| ALUMINUM | 7429-90-5 | 200.00 | 4814A | 16SEP96 | 09 | 21,000.00 | NC | 07 | 29,200.00 | NC | | |
| ALUMINUM | 7429-90-5 | 200.00 | 4814A | 17SEP96 | | | | 07 | 20,550.00 | NC | | |
| ALUMINUM | 7429-90-5 | 200.00 | 4814A | 18SEP96 | 09 | 18,000.00 | NC | 07 | 66,200.00 | NC | | |
| ALUMINUM | 7429-90-5 | 200.00 | 4814A | 19SEP96 | 09 | 9,770.00 | NC | 07 | 45,200.00 | NC | | |
| ALUMINUM | 7429-90-5 | 200.00 | 4814A | 20SEP96 | 09 | 7,520.00 | NC | 07 | 44,400.00 | NC | 14,072.50 | 41,110.00 |
| ALUMINUM | 7429-90-5 | 200.00 | 4814B | 16SEP96 | 10 | 20,600.00 | NC | 08 | 12,500.00 | NC | | |
| ALUMINUM | 7429-90-5 | 200.00 | 4814B | 17SEP96 | | | | 08 | 26,200.00 | NC | | |
| ALUMINUM | 7429-90-5 | 200.00 | 4814B | 18SEP96 | 10 | 41,000.00 | NC | 08 | 11,500.00 | NC | | |
| ALUMINUM | 7429-90-5 | 200.00 | 4814B | 19SEP96 | 10 | 17,700.00 | NC | 08 | 22,600.00 | NC | 26,433.33 | 18,200.00 |

------------------------------------------------------------- Subcategory=Oils Option=9 -------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ALUMINUM | 7429-90-5 | 200.00 | 651 | 03MAR98 | | | | 01 | 9,400.00 | NC | . | 9,400.00 |
| ANTIMONY | 7440-36-0 | 20.00 | 4813 | 04AUG96 | 07 | 56.80 | NC | 05 | 28.80 | NC | | |
| ANTIMONY | 7440-36-0 | 20.00 | 4813 | 05AUG96 | 07 | 139.00 | NC | 05 | 206.00 | NC | | |
| ANTIMONY | 7440-36-0 | 20.00 | 4813 | 06AUG96 | 07 | 223.00 | NC | 05 | 64.10 | NC | | |
| ANTIMONY | 7440-36-0 | 20.00 | 4813 | 07AUG96 | 07 | 100.00 | NC | 05 | 94.50 | NC | | |
| ANTIMONY | 7440-36-0 | 20.00 | 4813 | 08AUG96 | 07 | 78.20 | NC | 05 | 185.00 | NC | 119.40 | 115.68 |
| ANTIMONY | 7440-36-0 | 20.00 | 4814A | 16SEP96 | 09 | 62.60 | NC | 07 | 223.00 | NC | | |
| ANTIMONY | 7440-36-0 | 20.00 | 4814A | 17SEP96 | | | | 07 | 1,522.00 | NC | | |
| ANTIMONY | 7440-36-0 | 20.00 | 4814A | 18SEP96 | 09 | 94.85 | NC | 07 | 1,670.00 | NC | | |
| ANTIMONY | 7440-36-0 | 20.00 | 4814A | 19SEP96 | 09 | 162.00 | NC | 07 | 857.00 | NC | | |
| ANTIMONY | 7440-36-0 | 20.00 | 4814A | 20SEP96 | 09 | 92.80 | NC | 07 | 20.00 | ND | 103.06 | 858.40 |
| ANTIMONY | 7440-36-0 | 20.00 | 4814B | 16SEP96 | 10 | 32.10 | NC | 08 | 83.00 | NC | | |
| ANTIMONY | 7440-36-0 | 20.00 | 4814B | 17SEP96 | | | | 08 | 68.75 | NC | | |
| ANTIMONY | 7440-36-0 | 20.00 | 4814B | 18SEP96 | 10 | 39.65 | NC | 08 | 20.00 | ND | | |
| ANTIMONY | 7440-36-0 | 20.00 | 4814B | 19SEP96 | 10 | 152.00 | NC | 08 | 240.00 | NC | 74.58 | 102.94 |
| ANTIMONY | 7440-36-0 | 20.00 | 651 | 03MAR98 | | | | 01 | 46.95 | NC | . | 46.95 |
| ARSENIC | 7440-38-2 | 10.00 | 4813 | 04AUG96 | 07 | 20.00 | ND | 05 | 46.00 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 4813 | 05AUG96 | 07 | 20.00 | ND | 05 | 69.10 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 4813 | 06AUG96 | 07 | 2.00 | ND | 05 | 58.60 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 4813 | 07AUG96 | 07 | 2.00 | ND | 05 | 50.10 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 4813 | 08AUG96 | 07 | 20.00 | ND | 05 | 2.00 | ND | 12.80 | 45.16 |
| ARSENIC | 7440-38-2 | 10.00 | 4814A | 16SEP96 | 09 | 2,590.00 | NC | 07 | 8,830.00 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 4814A | 17SEP96 | | | | 07 | 8,550.00 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 4814A | 18SEP96 | 09 | 1,465.00 | NC | 07 | 9,170.00 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 4814A | 19SEP96 | 09 | 572.00 | NC | 07 | 1,930.00 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 4814A | 20SEP96 | 09 | 737.00 | NC | 07 | 1,230.00 | NC | 1,341.00 | 5,942.00 |
| ARSENIC | 7440-38-2 | 10.00 | 4814B | 16SEP96 | 10 | 402.00 | NC | 08 | 649.00 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 4814B | 17SEP96 | | | | 08 | 469.50 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 4814B | 18SEP96 | 10 | 198.00 | NC | 08 | 248.00 | NC | | |

---------- Subcategory=Oils Option=9 ----------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARSENIC | 7440-38-2 | 10.00 | 4814B | 19SEP96 | 10 | 113.00 | NC | 08 | 163.00 | NC | 237.67 | 382.38 |
| ARSENIC | 7440-38-2 | 10.00 | 651 | 03MAR98 | | | | 01 | 83.80 | NC | . | 83.80 |
| BARIUM | 7440-39-3 | 200.00 | 4813 | 04AUG96 | 07 | 27.50 | NC | 05 | 103.00 | NC | | |
| BARIUM | 7440-39-3 | 200.00 | 4813 | 05AUG96 | 07 | 42.95 | NC | 05 | 67.10 | NC | | |
| BARIUM | 7440-39-3 | 200.00 | 4813 | 06AUG96 | 07 | 35.00 | NC | 05 | 127.00 | NC | | |
| BARIUM | 7440-39-3 | 200.00 | 4813 | 07AUG96 | 07 | 12.90 | NC | 05 | 122.00 | NC | | |
| BARIUM | 7440-39-3 | 200.00 | 4813 | 08AUG96 | 07 | 37.90 | NC | 05 | 158.00 | NC | 31.25 | 115.42 |
| BARIUM | 7440-39-3 | 200.00 | 4814A | 16SEP96 | 09 | 136.00 | NC | 07 | 1,720.00 | NC | | |
| BARIUM | 7440-39-3 | 200.00 | 4814A | 17SEP96 | | | | 07 | 1,350.00 | NC | | |
| BARIUM | 7440-39-3 | 200.00 | 4814A | 18SEP96 | 09 | 234.00 | NC | 07 | 3,620.00 | NC | | |
| BARIUM | 7440-39-3 | 200.00 | 4814A | 19SEP96 | 09 | 253.00 | NC | 07 | 4,310.00 | NC | | |
| BARIUM | 7440-39-3 | 200.00 | 4814A | 20SEP96 | 09 | 259.00 | NC | 07 | 2,630.00 | NC | 220.50 | 2,726.00 |
| BARIUM | 7440-39-3 | 200.00 | 4814B | 16SEP96 | 10 | 316.00 | NC | 08 | 1,270.00 | NC | | |
| BARIUM | 7440-39-3 | 200.00 | 4814B | 17SEP96 | | | | 08 | 1,180.00 | NC | | |
| BARIUM | 7440-39-3 | 200.00 | 4814B | 18SEP96 | 10 | 198.00 | NC | 08 | 474.00 | NC | | |
| BARIUM | 7440-39-3 | 200.00 | 4814B | 19SEP96 | 10 | 580.00 | NC | 08 | 4,990.00 | NC | 364.67 | 1,978.50 |
| BARIUM | 7440-39-3 | 200.00 | 651 | 03MAR98 | | | | 01 | 470.50 | NC | . | 470.50 |
| BORON | 7440-42-8 | 100.00 | 4813 | 04AUG96 | 07 | 9,200.00 | NC | 05 | 6,040.00 | NC | | |
| BORON | 7440-42-8 | 100.00 | 4813 | 05AUG96 | 07 | 9,260.00 | NC | 05 | 9,790.00 | NC | | |
| BORON | 7440-42-8 | 100.00 | 4813 | 06AUG96 | 07 | 9,050.00 | NC | 05 | 9,130.00 | NC | | |
| BORON | 7440-42-8 | 100.00 | 4813 | 07AUG96 | 07 | 12,200.00 | NC | 05 | 9,710.00 | NC | | |
| BORON | 7440-42-8 | 100.00 | 4813 | 08AUG96 | 07 | 10,800.00 | NC | 05 | 9,670.00 | NC | 10,102.00 | 8,868.00 |
| BORON | 7440-42-8 | 100.00 | 4814A | 16SEP96 | 09 | 20,100.00 | NC | 07 | 26,800.00 | NC | | |
| BORON | 7440-42-8 | 100.00 | 4814A | 17SEP96 | | | | 07 | 39,550.00 | NC | | |
| BORON | 7440-42-8 | 100.00 | 4814A | 18SEP96 | 09 | 29,550.00 | NC | 07 | 49,100.00 | NC | | |
| BORON | 7440-42-8 | 100.00 | 4814A | 19SEP96 | 09 | 22,200.00 | NC | 07 | 27,300.00 | NC | | |
| BORON | 7440-42-8 | 100.00 | 4814A | 20SEP96 | 09 | 18,000.00 | NC | 07 | 24,900.00 | NC | 22,462.50 | 33,530.00 |
| BORON | 7440-42-8 | 100.00 | 4814B | 16SEP96 | 10 | 95,000.00 | NC | 08 | 86,500.00 | NC | | |
| BORON | 7440-42-8 | 100.00 | 4814B | 17SEP96 | | | | 08 | 24,100.00 | NC | | |

Subcategory=Oils Option=9
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BORON | 7440-42-8 | 100.00 | 4814B | 18SEP96 | 10 | 7,415.00 | NC | 08 | 9,670.00 | NC | | |
| BORON | 7440-42-8 | 100.00 | 4814B | 19SEP96 | 10 | 39,400.00 | NC | 08 | 34,600.00 | NC | 47,271.67 | 38,717.50 |
| | | | | . | | | | | | | | |
| BORON | 7440-42-8 | 100.00 | 651 | 03MAR98 | | | | 01 | 21,450.00 | NC | . | 21,450.00 |
| | | | | . | | | | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 4813 | 04AUG96 | 07 | 5.00 | ND | 05 | 5.00 | ND | | |
| CADMIUM | 7440-43-9 | 5.00 | 4813 | 05AUG96 | 07 | 5.00 | ND | 05 | 5.00 | ND | | |
| CADMIUM | 7440-43-9 | 5.00 | 4813 | 06AUG96 | 07 | 5.00 | ND | 05 | 5.00 | ND | | |
| CADMIUM | 7440-43-9 | 5.00 | 4813 | 07AUG96 | 07 | 5.00 | ND | 05 | 5.00 | ND | | |
| CADMIUM | 7440-43-9 | 5.00 | 4813 | 08AUG96 | 07 | 5.00 | ND | 05 | 8.60 | NC | 5.00 | 5.72 |
| | | | | . | | | | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 4814A | 16SEP96 | 09 | 9.77 | NC | 07 | 68.20 | NC | | |
| CADMIUM | 7440-43-9 | 5.00 | 4814A | 17SEP96 | | | | 07 | 53.05 | NC | | |
| CADMIUM | 7440-43-9 | 5.00 | 4814A | 18SEP96 | 09 | 9.40 | NC | 07 | 121.00 | NC | | |
| CADMIUM | 7440-43-9 | 5.00 | 4814A | 19SEP96 | 09 | 5.00 | ND | 07 | 96.50 | NC | | |
| CADMIUM | 7440-43-9 | 5.00 | 4814A | 20SEP96 | 09 | 5.15 | NC | 07 | 57.70 | NC | 7.33 | 79.29 |
| | | | | . | | | | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 4814B | 16SEP96 | 10 | 8.90 | NC | 08 | 52.60 | NC | | |
| CADMIUM | 7440-43-9 | 5.00 | 4814B | 17SEP96 | | | | 08 | 71.75 | NC | | |
| CADMIUM | 7440-43-9 | 5.00 | 4814B | 18SEP96 | 10 | 8.87 | NC | 08 | 25.50 | NC | | |
| CADMIUM | 7440-43-9 | 5.00 | 4814B | 19SEP96 | 10 | 5.00 | ND | 08 | 57.90 | NC | 7.59 | 51.94 |
| | | | | . | | | | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 651 | 01JUL97 | 01 | 4.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 651 | 08JUL97 | 01 | 1.00 | ND | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 651 | 09JUL97 | 01 | 1.00 | ND | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 651 | 01AUG97 | 01 | 4.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 651 | 01SEP97 | 01 | 4.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 651 | 01OCT97 | 01 | 7.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 651 | 01NOV97 | 01 | 4.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 651 | 01DEC97 | 01 | 4.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 651 | 02JAN98 | 01 | 4.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 651 | 01FEB98 | 01 | 4.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 651 | 01MAR98 | 01 | 4.00 | NC | | | | | |
| CADMIUM | 7440-43-9 | 5.00 | 651 | 03MAR98 | | | | 01 | 20.80 | NC | | |
| CADMIUM | 7440-43-9 | 5.00 | 651 | 01APR98 | 01 | 4.00 | NC | | | | 3.75 | 20.80 |
| | | | | . | | | | | | | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 4813 | 04AUG96 | 07 | 19,600.00 | NC | 05 | 27,700.00 | NC | | |

---------------------------------------------------------------- Subcategory=Oils Option=9 ----------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CALCIUM | 7440-70-2 | 5,000.00 | 4813 | 05AUG96 | 07 | 30,100.00 | NC | 05 | 33,900.00 | NC | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 4813 | 06AUG96 | 07 | 35,900.00 | NC | 05 | 32,500.00 | NC | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 4813 | 07AUG96 | 07 | 20,500.00 | NC | 05 | 29,500.00 | NC | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 4813 | 08AUG96 | 07 | 17,900.00 | NC | 05 | 41,400.00 | NC | 24,800.00 | 33,000.00 |
| CALCIUM | 7440-70-2 | 5,000.00 | 4814A | 16SEP96 | 09 | 204,000.00 | NC | 07 | 406,000.00 | NC | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 4814A | 17SEP96 | | | | 07 | 290,500.00 | NC | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 4814A | 18SEP96 | 09 | 168,500.00 | NC | 07 | 242,000.00 | NC | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 4814A | 19SEP96 | 09 | 194,000.00 | NC | 07 | 276,000.00 | NC | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 4814A | 20SEP96 | 09 | 127,000.00 | NC | 07 | 346,000.00 | NC | 173,375.00 | 312,100.00 |
| CALCIUM | 7440-70-2 | 5,000.00 | 4814B | 16SEP96 | 10 | 110,000.00 | NC | 08 | 162,000.00 | NC | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 4814B | 17SEP96 | | | | 08 | 126,500.00 | NC | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 4814B | 18SEP96 | 10 | 71,600.00 | NC | 08 | 95,900.00 | NC | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 4814B | 19SEP96 | 10 | 335,000.00 | NC | 08 | 409,000.00 | NC | 172,200.00 | 198,350.00 |
| CALCIUM | 7440-70-2 | 5,000.00 | 651 | 03MAR98 | | | | 01 | 185,500.00 | NC | . | 185,500.00 |
| CHROMIUM | 7440-47-3 | 10.00 | 4813 | 04AUG96 | 07 | 8.70 | NC | 05 | 23.80 | NC | | |
| CHROMIUM | 7440-47-3 | 10.00 | 4813 | 05AUG96 | 07 | 8.00 | ND | 05 | 9.20 | NC | | |
| CHROMIUM | 7440-47-3 | 10.00 | 4813 | 06AUG96 | 07 | 8.00 | ND | 05 | 90.00 | NC | | |
| CHROMIUM | 7440-47-3 | 10.00 | 4813 | 07AUG96 | 07 | 8.00 | ND | 05 | 59.50 | NC | | |
| CHROMIUM | 7440-47-3 | 10.00 | 4813 | 08AUG96 | 07 | 8.00 | ND | 05 | 41.70 | NC | 8.14 | 44.84 |
| CHROMIUM | 7440-47-3 | 10.00 | 4814A | 16SEP96 | 09 | 252.00 | NC | 07 | 3,000.00 | NC | | |
| CHROMIUM | 7440-47-3 | 10.00 | 4814A | 17SEP96 | | | | 07 | 1,615.00 | NC | | |
| CHROMIUM | 7440-47-3 | 10.00 | 4814A | 18SEP96 | 09 | 232.50 | NC | 07 | 3,610.00 | NC | | |
| CHROMIUM | 7440-47-3 | 10.00 | 4814A | 19SEP96 | 09 | 128.00 | NC | 07 | 2,740.00 | NC | | |
| CHROMIUM | 7440-47-3 | 10.00 | 4814A | 20SEP96 | 09 | 120.00 | NC | 07 | 1,570.00 | NC | 183.13 | 2,507.00 |
| CHROMIUM | 7440-47-3 | 10.00 | 4814B | 16SEP96 | 10 | 791.00 | NC | 08 | 2,280.00 | NC | | |
| CHROMIUM | 7440-47-3 | 10.00 | 4814B | 17SEP96 | | | | 08 | 1,295.00 | NC | | |
| CHROMIUM | 7440-47-3 | 10.00 | 4814B | 18SEP96 | 10 | 375.00 | NC | 08 | 913.00 | NC | | |
| CHROMIUM | 7440-47-3 | 10.00 | 4814B | 19SEP96 | 10 | 225.00 | NC | 08 | 1,380.00 | NC | 463.67 | 1,467.00 |
| CHROMIUM | 7440-47-3 | 10.00 | 651 | 01JUL97 | 01 | 34.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 651 | 08JUL97 | 01 | 7.00 | NC | | | | | |

------------------------------------------------------------ Subcategory=Oils Option=9 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CHROMIUM | 7440-47-3 | 10.00 | 651 | 09JUL97 | 01 | 20.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 651 | 01AUG97 | 01 | 26.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 651 | 01SEP97 | 01 | 5.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 651 | 01OCT97 | 01 | 45.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 651 | 01NOV97 | 01 | 5.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 651 | 01DEC97 | 01 | 65.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 651 | 02JAN98 | 01 | 5.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 651 | 01FEB98 | 01 | 5.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 651 | 01MAR98 | 01 | 5.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 651 | 03MAR98 | | | | 01 | 137.50 | NC | | |
| CHROMIUM | 7440-47-3 | 10.00 | 651 | 01APR98 | 01 | 5.00 | NC | | | | 18.92 | 137.50 |
| | | | | . | | | | | | | | |
| COBALT | 7440-48-4 | 50.00 | 4813 | 04AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| COBALT | 7440-48-4 | 50.00 | 4813 | 05AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| COBALT | 7440-48-4 | 50.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| COBALT | 7440-48-4 | 50.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| COBALT | 7440-48-4 | 50.00 | 4813 | 08AUG96 | 07 | 10.00 | ND | 05 | 53.80 | NC | 10.00 | 18.76 |
| | | | | . | | | | | | | | |
| COBALT | 7440-48-4 | 50.00 | 4814A | 16SEP96 | 09 | 1,040.00 | NC | 07 | 3,240.00 | NC | | |
| COBALT | 7440-48-4 | 50.00 | 4814A | 17SEP96 | | | | 07 | 1,825.00 | NC | | |
| COBALT | 7440-48-4 | 50.00 | 4814A | 18SEP96 | 09 | 1,330.00 | NC | 07 | 2,880.00 | NC | | |
| COBALT | 7440-48-4 | 50.00 | 4814A | 19SEP96 | 09 | 1,350.00 | NC | 07 | 1,450.00 | NC | | |
| COBALT | 7440-48-4 | 50.00 | 4814A | 20SEP96 | 09 | 643.00 | NC | 07 | 1,270.00 | NC | 1,090.75 | 2,133.00 |
| | | | | . | | | | | | | | |
| COBALT | 7440-48-4 | 50.00 | 4814B | 16SEP96 | 10 | 2,520.00 | NC | 08 | 4,030.00 | NC | | |
| COBALT | 7440-48-4 | 50.00 | 4814B | 17SEP96 | | | | 08 | 1,845.00 | NC | | |
| COBALT | 7440-48-4 | 50.00 | 4814B | 18SEP96 | 10 | 1,210.00 | NC | 08 | 1,740.00 | NC | | |
| COBALT | 7440-48-4 | 50.00 | 4814B | 19SEP96 | 10 | 37,500.00 | NC | 08 | 116,000.00 | NC | 13,743.33 | 30,903.75 |
| | | | | . | | | | | | | | |
| COBALT | 7440-48-4 | 50.00 | 651 | 03MAR98 | | | | 01 | 48.55 | NC | . | 48.55 |
| | | | | . | | | | | | | | |
| COPPER | 7440-50-8 | 25.00 | 4813 | 04AUG96 | 07 | 9.50 | NC | 05 | 107.50 | NC | | |
| COPPER | 7440-50-8 | 25.00 | 4813 | 05AUG96 | 07 | 9.35 | NC | 05 | 70.70 | NC | | |
| COPPER | 7440-50-8 | 25.00 | 4813 | 06AUG96 | 07 | 8.50 | NC | 05 | 112.00 | NC | | |
| COPPER | 7440-50-8 | 25.00 | 4813 | 07AUG96 | 07 | 26.30 | NC | 05 | 1,750.00 | NC | | |
| COPPER | 7440-50-8 | 25.00 | 4813 | 08AUG96 | 07 | 57.60 | NC | 05 | 2,740.00 | NC | 22.25 | 956.04 |
| | | | | . | | | | | | | | |

Subcategory=Oils Option=9
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COPPER | 7440-50-8 | 25.00 | 4814A | 16SEP96 | 09 | 68.60 | NC | 07 | 1,940.00 | NC | | |
| COPPER | 7440-50-8 | 25.00 | 4814A | 17SEP96 | | | | 07 | 2,240.00 | NC | | |
| COPPER | 7440-50-8 | 25.00 | 4814A | 18SEP96 | 09 | 99.55 | NC | 07 | 3,830.00 | NC | | |
| COPPER | 7440-50-8 | 25.00 | 4814A | 19SEP96 | 09 | 52.40 | NC | 07 | 4,780.00 | NC | | |
| COPPER | 7440-50-8 | 25.00 | 4814A | 20SEP96 | 09 | 54.10 | NC | 07 | 3,050.00 | NC | 68.66 | 3,168.00 |
| | | | | . | | | | | | | | |
| COPPER | 7440-50-8 | 25.00 | 4814B | 16SEP96 | 10 | 466.00 | NC | 08 | 2,770.00 | NC | | |
| COPPER | 7440-50-8 | 25.00 | 4814B | 17SEP96 | | | | 08 | 2,655.00 | NC | | |
| COPPER | 7440-50-8 | 25.00 | 4814B | 18SEP96 | 10 | 396.00 | NC | 08 | 1,600.00 | NC | | |
| COPPER | 7440-50-8 | 25.00 | 4814B | 19SEP96 | 10 | 472.00 | NC | 08 | 4,340.00 | NC | 444.67 | 2,841.25 |
| | | | | . | | | | | | | | |
| COPPER | 7440-50-8 | 25.00 | 651 | 01JUL97 | 01 | 96.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 651 | 08JUL97 | 01 | 70.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 651 | 09JUL97 | 01 | 80.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 651 | 01AUG97 | 01 | 70.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 651 | 01SEP97 | 01 | 130.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 651 | 01OCT97 | 01 | 220.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 651 | 01NOV97 | 01 | 170.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 651 | 01DEC97 | 01 | 25.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 651 | 02JAN98 | 01 | 20.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 651 | 01FEB98 | 01 | 520.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 651 | 01MAR98 | 01 | 440.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 651 | 03MAR98 | | | | 01 | 1,570.00 | NC | | |
| COPPER | 7440-50-8 | 25.00 | 651 | 01APR98 | 01 | 40.00 | NC | | | | 156.75 | 1,570.00 |
| | | | | . | | | | | | | | |
| GERMANIUM | 7440-56-4 | 500.00 | 4813 | 04AUG96 | 07 | 500.00 | ND | 05 | 500.00 | ND | | |
| GERMANIUM | 7440-56-4 | 500.00 | 4813 | 05AUG96 | 07 | 500.00 | ND | 05 | 500.00 | ND | | |
| GERMANIUM | 7440-56-4 | 500.00 | 4813 | 06AUG96 | 07 | 500.00 | ND | 05 | 500.00 | ND | | |
| GERMANIUM | 7440-56-4 | 500.00 | 4813 | 07AUG96 | 07 | 500.00 | ND | 05 | 500.00 | ND | | |
| GERMANIUM | 7440-56-4 | 500.00 | 4813 | 08AUG96 | 07 | 500.00 | ND | 05 | 500.00 | ND | 500.00 | 500.00 |
| | | | | . | | | | | | | | |
| GERMANIUM | 7440-56-4 | 500.00 | 4814A | 16SEP96 | 09 | 500.00 | ND | 07 | 500.00 | ND | | |
| GERMANIUM | 7440-56-4 | 500.00 | 4814A | 17SEP96 | | | | 07 | 500.00 | ND | | |
| GERMANIUM | 7440-56-4 | 500.00 | 4814A | 18SEP96 | 09 | 500.00 | ND | 07 | 500.00 | ND | | |
| GERMANIUM | 7440-56-4 | 500.00 | 4814A | 19SEP96 | 09 | 500.00 | ND | 07 | 500.00 | ND | | |
| GERMANIUM | 7440-56-4 | 500.00 | 4814A | 20SEP96 | 09 | 500.00 | ND | 07 | 500.00 | ND | 500.00 | 500.00 |
| | | | | . | | | | | | | | |

------------------------------------------------------------ Subcategory=Oils Option=9 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GERMANIUM | 7440-56-4 | 500.00 | 4814B | 16SEP96 | 10 | 500.00 | ND | 08 | 500.00 | ND | | |
| GERMANIUM | 7440-56-4 | 500.00 | 4814B | 17SEP96 | | | | 08 | 500.00 | ND | | |
| GERMANIUM | 7440-56-4 | 500.00 | 4814B | 18SEP96 | 10 | 500.00 | ND | 08 | 500.00 | ND | | |
| GERMANIUM | 7440-56-4 | 500.00 | 4814B | 19SEP96 | 10 | 500.00 | ND | 08 | 500.00 | ND | 500.00 | 500.00 |
| IRON | 7439-89-6 | 100.00 | 4813 | 04AUG96 | 07 | 1,950.00 | NC | 05 | 5,425.00 | NC | | |
| IRON | 7439-89-6 | 100.00 | 4813 | 05AUG96 | 07 | 1,640.00 | NC | 05 | 3,750.00 | NC | | |
| IRON | 7439-89-6 | 100.00 | 4813 | 06AUG96 | 07 | 1,890.00 | NC | 05 | 10,500.00 | NC | | |
| IRON | 7439-89-6 | 100.00 | 4813 | 07AUG96 | 07 | 1,620.00 | NC | 05 | 11,200.00 | NC | | |
| IRON | 7439-89-6 | 100.00 | 4813 | 08AUG96 | 07 | 6,950.00 | NC | 05 | 12,000.00 | NC | 2,810.00 | 8,575.00 |
| IRON | 7439-89-6 | 100.00 | 4814A | 16SEP96 | 09 | 122,000.00 | NC | 07 | 630,000.00 | NC | | |
| IRON | 7439-89-6 | 100.00 | 4814A | 17SEP96 | | | | 07 | 256,500.00 | NC | | |
| IRON | 7439-89-6 | 100.00 | 4814A | 18SEP96 | 09 | 123,000.00 | NC | 07 | 53,400.00 | NC | | |
| IRON | 7439-89-6 | 100.00 | 4814A | 19SEP96 | 09 | 49,700.00 | NC | 07 | 249,000.00 | NC | | |
| IRON | 7439-89-6 | 100.00 | 4814A | 20SEP96 | 09 | 39,100.00 | NC | 07 | 564,000.00 | NC | 83,450.00 | 350,580.00 |
| IRON | 7439-89-6 | 100.00 | 4814B | 16SEP96 | 10 | 53,900.00 | NC | 08 | 97,100.00 | NC | | |
| IRON | 7439-89-6 | 100.00 | 4814B | 17SEP96 | | | | 08 | 91,700.00 | NC | | |
| IRON | 7439-89-6 | 100.00 | 4814B | 18SEP96 | 10 | 4,750.00 | NC | 08 | 23,700.00 | NC | | |
| IRON | 7439-89-6 | 100.00 | 4814B | 19SEP96 | 10 | 11,200.00 | NC | 08 | 96,300.00 | NC | 23,283.33 | 77,200.00 |
| IRON | 7439-89-6 | 100.00 | 651 | 03MAR98 | | | | 01 | 138,000.00 | NC | . | 138,000.00 |
| LEAD | 7439-92-1 | 50.00 | 4813 | 04AUG96 | 07 | 44.00 | ND | 05 | 142.00 | NC | | |
| LEAD | 7439-92-1 | 50.00 | 4813 | 05AUG96 | 07 | 302.00 | NC | 05 | 223.00 | NC | | |
| LEAD | 7439-92-1 | 50.00 | 4813 | 06AUG96 | 07 | 64.40 | NC | 05 | 154.00 | NC | | |
| LEAD | 7439-92-1 | 50.00 | 4813 | 07AUG96 | 07 | 44.00 | ND | 05 | 136.00 | NC | | |
| LEAD | 7439-92-1 | 50.00 | 4813 | 08AUG96 | 07 | 221.00 | NC | 05 | 233.00 | NC | 135.08 | 177.60 |
| LEAD | 7439-92-1 | 50.00 | 4814A | 16SEP96 | 09 | 53.80 | NC | 07 | 1,790.00 | NC | | |
| LEAD | 7439-92-1 | 50.00 | 4814A | 17SEP96 | | | | 07 | 2,270.00 | NC | | |
| LEAD | 7439-92-1 | 50.00 | 4814A | 18SEP96 | 09 | 46.80 | NC | 07 | 2,720.00 | NC | | |
| LEAD | 7439-92-1 | 50.00 | 4814A | 19SEP96 | 09 | 63.90 | NC | 07 | 2,710.00 | NC | | |
| LEAD | 7439-92-1 | 50.00 | 4814A | 20SEP96 | 09 | 74.40 | NC | 07 | 1,680.00 | NC | 59.73 | 2,234.00 |
| LEAD | 7439-92-1 | 50.00 | 4814B | 16SEP96 | 10 | 279.00 | NC | 08 | 1,350.00 | NC | | |

Subcategory=Oils Option=9
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LEAD | 7439-92-1 | 50.00 | 4814B | 17SEP96 | | | | 08 | 2,180.00 | NC | | |
| LEAD | 7439-92-1 | 50.00 | 4814B | 18SEP96 | 10 | 206.00 | NC | 08 | 737.00 | NC | | |
| LEAD | 7439-92-1 | 50.00 | 4814B | 19SEP96 | 10 | 228.00 | NC | 08 | 3,630.00 | NC | 237.67 | 1,974.25 |
| LEAD | 7439-92-1 | 50.00 | 651 | 01JUL97 | 01 | 270.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 651 | 08JUL97 | 01 | 15.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 651 | 09JUL97 | 01 | 50.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 651 | 01AUG97 | 01 | 18.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 651 | 01SEP97 | 01 | 98.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 651 | 01OCT97 | 01 | 35.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 651 | 01NOV97 | 01 | 20.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 651 | 01DEC97 | 01 | 320.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 651 | 02JAN98 | 01 | 97.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 651 | 01FEB98 | 01 | 10.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 651 | 01MAR98 | 01 | 200.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 651 | 03MAR98 | | | | 01 | 839.50 | NC | | |
| LEAD | 7439-92-1 | 50.00 | 651 | 01APR98 | 01 | 50.00 | NC | | | | 98.58 | 839.50 |
| LUTETIUM | 7439-94-3 | 100.00 | 4813 | 04AUG96 | 07 | 100.00 | ND | 05 | 100.00 | ND | | |
| LUTETIUM | 7439-94-3 | 100.00 | 4813 | 05AUG96 | 07 | 100.00 | ND | 05 | 100.00 | ND | | |
| LUTETIUM | 7439-94-3 | 100.00 | 4813 | 06AUG96 | 07 | 100.00 | ND | 05 | 100.00 | ND | | |
| LUTETIUM | 7439-94-3 | 100.00 | 4813 | 07AUG96 | 07 | 100.00 | ND | 05 | 100.00 | ND | | |
| LUTETIUM | 7439-94-3 | 100.00 | 4813 | 08AUG96 | 07 | 100.00 | ND | 05 | 100.00 | ND | 100.00 | 100.00 |
| LUTETIUM | 7439-94-3 | 100.00 | 4814A | 16SEP96 | 09 | 100.00 | ND | 07 | 100.00 | ND | | |
| LUTETIUM | 7439-94-3 | 100.00 | 4814A | 17SEP96 | | | | 07 | 100.00 | ND | | |
| LUTETIUM | 7439-94-3 | 100.00 | 4814A | 18SEP96 | 09 | 100.00 | ND | 07 | 100.00 | ND | | |
| LUTETIUM | 7439-94-3 | 100.00 | 4814A | 19SEP96 | 09 | 100.00 | ND | 07 | 100.00 | ND | | |
| LUTETIUM | 7439-94-3 | 100.00 | 4814A | 20SEP96 | 09 | 100.00 | ND | 07 | 100.00 | ND | 100.00 | 100.00 |
| LUTETIUM | 7439-94-3 | 100.00 | 4814B | 16SEP96 | 10 | 100.00 | ND | 08 | 100.00 | ND | | |
| LUTETIUM | 7439-94-3 | 100.00 | 4814B | 17SEP96 | | | | 08 | 100.00 | ND | | |
| LUTETIUM | 7439-94-3 | 100.00 | 4814B | 18SEP96 | 10 | 100.00 | ND | 08 | 100.00 | ND | | |
| LUTETIUM | 7439-94-3 | 100.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 100.00 | ND | 100.00 | 100.00 |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4813 | 04AUG96 | 07 | 5,050.00 | NC | 05 | 6,075.00 | NC | | |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4813 | 05AUG96 | 07 | 5,055.00 | NC | 05 | 4,910.00 | NC | | |

Subcategory=Oils Option=9
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4813 | 06AUG96 | 07 | 4,400.00 | NC | 05 | 6,310.00 | NC | | |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4813 | 07AUG96 | 07 | 1,790.00 | NC | 05 | 6,890.00 | NC | | |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4813 | 08AUG96 | 07 | 4,870.00 | NC | 05 | 7,460.00 | NC | 4,233.00 | 6,329.00 |
| | | | | . | | | | | | | | |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4814A | 16SEP96 | 09 | 51,500.00 | NC | 07 | 110,000.00 | NC | | |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4814A | 17SEP96 | | | | 07 | 109,000.00 | NC | | |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4814A | 18SEP96 | 09 | 67,500.00 | NC | 07 | 78,800.00 | NC | | |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4814A | 19SEP96 | 09 | 76,400.00 | NC | 07 | 96,600.00 | NC | | |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4814A | 20SEP96 | 09 | 56,200.00 | NC | 07 | 118,000.00 | NC | 62,900.00 | 102,480.00 |
| | | | | . | | | | | | | | |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4814B | 16SEP96 | 10 | 53,500.00 | NC | 08 | 59,300.00 | NC | | |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4814B | 17SEP96 | | | | 08 | 26,150.00 | NC | | |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4814B | 18SEP96 | 10 | 19,550.00 | NC | 08 | 22,100.00 | NC | | |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 4814B | 19SEP96 | 10 | 142,000.00 | NC | 08 | 131,000.00 | NC | 71,683.33 | 59,637.50 |
| | | | | . | | | | | | | | |
| MAGNESIUM | 7439-95-4 | 5,000.00 | 651 | 03MAR98 | | | | 01 | 55,450.00 | NC | . | 55,450.00 |
| | | | | . | | | | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 4813 | 04AUG96 | 07 | 650.00 | NC | 05 | 628.00 | NC | | |
| MANGANESE | 7439-96-5 | 15.00 | 4813 | 05AUG96 | 07 | 787.50 | NC | 05 | 535.00 | NC | | |
| MANGANESE | 7439-96-5 | 15.00 | 4813 | 06AUG96 | 07 | 547.00 | NC | 05 | 641.00 | NC | | |
| MANGANESE | 7439-96-5 | 15.00 | 4813 | 07AUG96 | 07 | 284.00 | NC | 05 | 673.00 | NC | | |
| MANGANESE | 7439-96-5 | 15.00 | 4813 | 08AUG96 | 07 | 1,020.00 | NC | 05 | 1,270.00 | NC | 657.70 | 749.40 |
| | | | | . | | | | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 4814A | 16SEP96 | 09 | 5,120.00 | NC | 07 | 13,800.00 | NC | | |
| MANGANESE | 7439-96-5 | 15.00 | 4814A | 17SEP96 | | | | 07 | 6,690.00 | NC | | |
| MANGANESE | 7439-96-5 | 15.00 | 4814A | 18SEP96 | 09 | 4,345.00 | NC | 07 | 10,100.00 | NC | | |
| MANGANESE | 7439-96-5 | 15.00 | 4814A | 19SEP96 | 09 | 3,400.00 | NC | 07 | 6,140.00 | NC | | |
| MANGANESE | 7439-96-5 | 15.00 | 4814A | 20SEP96 | 09 | 2,380.00 | NC | 07 | 9,970.00 | NC | 3,811.25 | 9,340.00 |
| | | | | . | | | | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 4814B | 16SEP96 | 10 | 2,930.00 | NC | 08 | 3,220.00 | NC | | |
| MANGANESE | 7439-96-5 | 15.00 | 4814B | 17SEP96 | | | | 08 | 1,790.00 | NC | | |
| MANGANESE | 7439-96-5 | 15.00 | 4814B | 18SEP96 | 10 | 1,375.00 | NC | 08 | 2,380.00 | NC | | |
| MANGANESE | 7439-96-5 | 15.00 | 4814B | 19SEP96 | 10 | 16,700.00 | NC | 08 | 44,500.00 | NC | 7,001.67 | 12,972.50 |
| | | | | . | | | | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 651 | 03MAR98 | | | | 01 | 5,560.00 | NC | . | 5,560.00 |
| | | | | . | | | | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 4813 | 04AUG96 | 07 | 0.20 | ND | 05 | 0.20 | ND | | |

Subcategory=Oils Option=9
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MERCURY | 7439-97-6 | 0.20 | 4813 | 05AUG96 | 07 | 0.20 | ND | 05 | 0.20 | ND | | |
| MERCURY | 7439-97-6 | 0.20 | 4813 | 06AUG96 | 07 | 0.20 | ND | 05 | 0.20 | ND | | |
| MERCURY | 7439-97-6 | 0.20 | 4813 | 07AUG96 | 07 | 0.20 | ND | 05 | 0.34 | NC | | |
| MERCURY | 7439-97-6 | 0.20 | 4813 | 08AUG96 | 07 | 0.20 | ND | 05 | 0.33 | NC | 0.20 | 0.25 |
| MERCURY | 7439-97-6 | 0.20 | 4814A | 16SEP96 | 09 | 0.20 | ND | 07 | 0.39 | NC | | |
| MERCURY | 7439-97-6 | 0.20 | 4814A | 17SEP96 | | | | 07 | 0.53 | NC | | |
| MERCURY | 7439-97-6 | 0.20 | 4814A | 18SEP96 | 09 | 4.00 | ND | 07 | 28.60 | NC | | |
| MERCURY | 7439-97-6 | 0.20 | 4814A | 19SEP96 | 09 | 4.00 | ND | 07 | 10.00 | NC | | |
| MERCURY | 7439-97-6 | 0.20 | 4814A | 20SEP96 | 09 | 4.00 | ND | 07 | 12.40 | NC | 3.05 | 10.38 |
| MERCURY | 7439-97-6 | 0.20 | 4814B | 16SEP96 | 10 | 0.97 | NC | 08 | 6.60 | NC | | |
| MERCURY | 7439-97-6 | 0.20 | 4814B | 17SEP96 | | | | 08 | 2.64 | NC | | |
| MERCURY | 7439-97-6 | 0.20 | 4814B | 18SEP96 | 10 | 4.00 | ND | 08 | 14.40 | NC | | |
| MERCURY | 7439-97-6 | 0.20 | 4814B | 19SEP96 | 10 | 4.40 | NC | 08 | 55.60 | NC | 3.12 | 19.81 |
| MERCURY | 7439-97-6 | 0.20 | 651 | 01JUL97 | 01 | 0.50 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 651 | 08JUL97 | 01 | 0.50 | ND | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 651 | 09JUL97 | 01 | 0.50 | ND | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 651 | 01AUG97 | 01 | 0.50 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 651 | 01SEP97 | 01 | 0.50 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 651 | 01OCT97 | 01 | 0.50 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 651 | 01NOV97 | 01 | 0.50 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 651 | 01DEC97 | 01 | 0.50 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 651 | 02JAN98 | 01 | 0.50 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 651 | 01FEB98 | 01 | 0.50 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 651 | 01MAR98 | 01 | 0.50 | NC | | | | | |
| MERCURY | 7439-97-6 | 0.20 | 651 | 03MAR98 | | | | 01 | 0.73 | NC | | |
| MERCURY | 7439-97-6 | 0.20 | 651 | 01APR98 | 01 | 0.50 | NC | | | | 0.50 | 0.73 |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4813 | 04AUG96 | 07 | 951.00 | NC | 05 | 454.00 | NC | | |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4813 | 05AUG96 | 07 | 495.50 | NC | 05 | 806.00 | NC | | |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4813 | 06AUG96 | 07 | 735.00 | NC | 05 | 598.00 | NC | | |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4813 | 07AUG96 | 07 | 563.00 | NC | 05 | 504.00 | NC | | |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4813 | 08AUG96 | 07 | 825.00 | NC | 05 | 775.00 | NC | 713.90 | 627.40 |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4814A | 16SEP96 | 09 | 2,200.00 | NC | 07 | 3,680.00 | NC | | |

------------------------------------------------------------- Subcategory=Oils Option=9 -------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MOLYBDENUM | 7439-98-7 | 10.00 | 4814A | 17SEP96 | | | | 07 | 3,920.00 | NC | | |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4814A | 18SEP96 | 09 | 1,695.00 | NC | 07 | 4,570.00 | NC | | |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4814A | 19SEP96 | 09 | 1,390.00 | NC | 07 | 2,470.00 | NC | | |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4814A | 20SEP96 | 09 | 886.00 | NC | 07 | 2,030.00 | NC | 1,542.75 | 3,334.00 |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4814B | 16SEP96 | 10 | 645.00 | NC | 08 | 1,200.00 | NC | | |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4814B | 17SEP96 | | | | 08 | 617.50 | NC | | |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4814B | 18SEP96 | 10 | 277.00 | NC | 08 | 436.00 | NC | | |
| MOLYBDENUM | 7439-98-7 | 10.00 | 4814B | 19SEP96 | 10 | 3,970.00 | NC | 08 | 3,370.00 | NC | 1,630.67 | 1,405.88 |
| MOLYBDENUM | 7439-98-7 | 10.00 | 651 | 03MAR98 | | | | 01 | 902.50 | NC | . | 902.50 |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 4813 | 04AUG96 | 07 | 3,550.00 | NC | 05 | 4,033.00 | NC | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 4813 | 05AUG96 | 07 | 3,470.00 | NC | 05 | 10,200.00 | NC | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 4813 | 06AUG96 | 07 | 4,290.00 | NC | 05 | 29,100.00 | NC | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 4813 | 07AUG96 | 07 | 3,030.00 | NC | 05 | 31,900.00 | NC | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 4813 | 08AUG96 | 07 | 13,500.00 | NC | 05 | 39,700.00 | NC | 5,568.00 | 22,986.60 |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 4814A | 16SEP96 | 09 | 4,780.00 | NC | 07 | 40,000.00 | NC | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 4814A | 17SEP96 | | | | 07 | 35,350.00 | NC | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 4814A | 18SEP96 | 09 | 6,450.00 | NC | 07 | 63,800.00 | NC | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 4814A | 19SEP96 | 09 | 6,400.00 | NC | 07 | 40,700.00 | NC | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 4814A | 20SEP96 | 09 | 105,000.00 | NC | 07 | 239,000.00 | NC | 30,657.50 | 83,770.00 |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 4814B | 16SEP96 | 10 | 13,700.00 | NC | 08 | 32,900.00 | NC | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 4814B | 17SEP96 | | | | 08 | 18,800.00 | NC | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 4814B | 18SEP96 | 10 | 79,400.00 | NC | 08 | 179,000.00 | NC | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 4814B | 19SEP96 | 10 | 84,700.00 | NC | 08 | 45,400.00 | NC | 59,266.67 | 69,025.00 |
| POTASSIUM | 7440-09-7 | 1,000.00 | 4813 | 04AUG96 | 07 | 39,000.00 | NC | 05 | 23,550.00 | NC | | |
| POTASSIUM | 7440-09-7 | 1,000.00 | 4813 | 05AUG96 | 07 | 41,000.00 | NC | 05 | 38,000.00 | NC | | |
| POTASSIUM | 7440-09-7 | 1,000.00 | 4813 | 06AUG96 | 07 | 44,200.00 | NC | 05 | 36,500.00 | NC | | |
| POTASSIUM | 7440-09-7 | 1,000.00 | 4813 | 07AUG96 | 07 | 33,200.00 | NC | 05 | 29,700.00 | NC | | |
| POTASSIUM | 7440-09-7 | 1,000.00 | 4813 | 08AUG96 | 07 | 55,600.00 | NC | 05 | 43,700.00 | NC | 42,600.00 | 34,290.00 |
| POTASSIUM | 7440-09-7 | 1,000.00 | 4814A | 16SEP96 | 09 | 316,000.00 | NC | 07 | 562,000.00 | NC | | |
| POTASSIUM | 7440-09-7 | 1,000.00 | 4814A | 17SEP96 | | | | 07 | 612,500.00 | NC | | |

------------------------------------------------------------- Subcategory=Oils Option=9 -------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| POTASSIUM | 7440-09-7 | 1,000.00 | 4814A | 18SEP96 | 09 | 475,000.00 | NC | 07 | 939,000.00 | NC | | |
| POTASSIUM | 7440-09-7 | 1,000.00 | 4814A | 19SEP96 | 09 | 287,000.00 | NC | 07 | 379,000.00 | NC | | |
| POTASSIUM | 7440-09-7 | 1,000.00 | 4814A | 20SEP96 | 09 | 866,000.00 | NC | 07 | 962,000.00 | NC | 486,000.00 | 690,900.00 |
| | | | | . | | | | | | | | |
| POTASSIUM | 7440-09-7 | 1,000.00 | 4814B | 16SEP96 | 10 | 167,000.00 | NC | 08 | 140,000.00 | NC | | |
| POTASSIUM | 7440-09-7 | 1,000.00 | 4814B | 17SEP96 | | | | 08 | 128,500.00 | NC | | |
| POTASSIUM | 7440-09-7 | 1,000.00 | 4814B | 18SEP96 | 10 | 275,500.00 | NC | 08 | 452,000.00 | NC | | |
| POTASSIUM | 7440-09-7 | 1,000.00 | 4814B | 19SEP96 | 10 | 570,000.00 | NC | 08 | 806,000.00 | NC | 337,500.00 | 381,625.00 |
| | | | | . | | | | | | | | |
| SELENIUM | 7782-49-2 | 5.00 | 4813 | 04AUG96 | 07 | 20.00 | ND | 05 | 20.00 | ND | | |
| SELENIUM | 7782-49-2 | 5.00 | 4813 | 05AUG96 | 07 | 20.00 | ND | 05 | 20.00 | ND | | |
| SELENIUM | 7782-49-2 | 5.00 | 4813 | 06AUG96 | 07 | 20.00 | ND | 05 | 20.00 | ND | | |
| SELENIUM | 7782-49-2 | 5.00 | 4813 | 07AUG96 | 07 | 20.00 | ND | 05 | 20.00 | ND | | |
| SELENIUM | 7782-49-2 | 5.00 | 4813 | 08AUG96 | 07 | 20.00 | ND | 05 | 20.00 | ND | 20.00 | 20.00 |
| | | | | . | | | | | | | | |
| SELENIUM | 7782-49-2 | 5.00 | 4814A | 16SEP96 | 09 | 241.00 | NC | 07 | 460.00 | NC | | |
| SELENIUM | 7782-49-2 | 5.00 | 4814A | 17SEP96 | | | | 07 | 208.50 | NC | | |
| SELENIUM | 7782-49-2 | 5.00 | 4814A | 18SEP96 | 09 | 104.65 | NC | 07 | 81.20 | NC | | |
| SELENIUM | 7782-49-2 | 5.00 | 4814A | 19SEP96 | 09 | 30.30 | NC | 07 | 66.70 | NC | | |
| SELENIUM | 7782-49-2 | 5.00 | 4814A | 20SEP96 | 09 | 54.00 | NC | 07 | 35.90 | NC | 107.49 | 170.46 |
| | | | | . | | | | | | | | |
| SELENIUM | 7782-49-2 | 5.00 | 4814B | 16SEP96 | 10 | 255.00 | NC | 08 | 245.00 | NC | | |
| SELENIUM | 7782-49-2 | 5.00 | 4814B | 17SEP96 | | | | 08 | 66.60 | NC | | |
| SELENIUM | 7782-49-2 | 5.00 | 4814B | 18SEP96 | 10 | 927.00 | NC | 08 | 1,000.00 | NC | | |
| SELENIUM | 7782-49-2 | 5.00 | 4814B | 19SEP96 | 10 | 58.10 | NC | 08 | 73.50 | NC | 413.37 | 346.28 |
| | | | | . | | | | | | | | |
| SELENIUM | 7782-49-2 | 5.00 | 651 | 03MAR98 | | | | 01 | 21.70 | NC | . | 21.70 |
| | | | | . | | | | | | | | |
| SILICON | 7440-21-3 | 100.00 | 4813 | 04AUG96 | 07 | 3,060.00 | NC | 05 | 4,355.00 | NC | | |
| SILICON | 7440-21-3 | 100.00 | 4813 | 05AUG96 | 07 | 2,950.00 | NC | 05 | 4,860.00 | NC | | |
| SILICON | 7440-21-3 | 100.00 | 4813 | 06AUG96 | 07 | 4,810.00 | NC | 05 | 6,730.00 | NC | | |
| SILICON | 7440-21-3 | 100.00 | 4813 | 07AUG96 | 07 | 2,700.00 | NC | 05 | 7,250.00 | NC | | |
| SILICON | 7440-21-3 | 100.00 | 4813 | 08AUG96 | 07 | 5,900.00 | NC | 05 | 7,130.00 | NC | 3,884.00 | 6,065.00 |
| | | | | . | | | | | | | | |
| SILICON | 7440-21-3 | 100.00 | 4814A | 16SEP96 | 09 | 18,800.00 | NC | 07 | 63,700.00 | NC | | |
| SILICON | 7440-21-3 | 100.00 | 4814A | 17SEP96 | | | | 07 | 51,150.00 | NC | | |
| SILICON | 7440-21-3 | 100.00 | 4814A | 18SEP96 | 09 | 23,500.00 | NC | 07 | 78,900.00 | NC | | |

Subcategory=Oils Option=9
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SILICON | 7440-21-3 | 100.00 | 4814A | 19SEP96 | 09 | 22,500.00 | NC | 07 | 41,000.00 | NC | | |
| SILICON | 7440-21-3 | 100.00 | 4814A | 20SEP96 | 09 | 19,800.00 | NC | 07 | 78,600.00 | NC | 21,150.00 | 62,670.00 |
| | | | | . | | | | | | | | |
| SILICON | 7440-21-3 | 100.00 | 4814B | 16SEP96 | 10 | 13,600.00 | NC | 08 | 28,200.00 | NC | | |
| SILICON | 7440-21-3 | 100.00 | 4814B | 17SEP96 | | | | 08 | 14,650.00 | NC | | |
| SILICON | 7440-21-3 | 100.00 | 4814B | 18SEP96 | 10 | 25,250.00 | NC | 08 | 56,800.00 | NC | | |
| SILICON | 7440-21-3 | 100.00 | 4814B | 19SEP96 | 10 | 11,700.00 | NC | 08 | 16,700.00 | NC | 16,850.00 | 29,087.50 |
| | | | | . | | | | | | | | |
| SILVER | 7440-22-4 | 10.00 | 4813 | 04AUG96 | 07 | 5.00 | ND | 05 | 5.00 | ND | | |
| SILVER | 7440-22-4 | 10.00 | 4813 | 05AUG96 | 07 | 5.00 | ND | 05 | 5.00 | ND | | |
| SILVER | 7440-22-4 | 10.00 | 4813 | 06AUG96 | 07 | 5.00 | ND | 05 | 5.00 | ND | | |
| SILVER | 7440-22-4 | 10.00 | 4813 | 07AUG96 | 07 | 5.00 | ND | 05 | 5.00 | ND | | |
| SILVER | 7440-22-4 | 10.00 | 4813 | 08AUG96 | 07 | 5.00 | ND | 05 | 5.00 | ND | 5.00 | 5.00 |
| | | | | . | | | | | | | | |
| SILVER | 7440-22-4 | 10.00 | 4814A | 16SEP96 | 09 | 5.00 | ND | 07 | 17.90 | NC | | |
| SILVER | 7440-22-4 | 10.00 | 4814A | 17SEP96 | | | | 07 | 10.60 | NC | | |
| SILVER | 7440-22-4 | 10.00 | 4814A | 18SEP96 | 09 | 5.00 | ND | 07 | 31.50 | NC | | |
| SILVER | 7440-22-4 | 10.00 | 4814A | 19SEP96 | 09 | 5.00 | ND | 07 | 25.20 | NC | | |
| SILVER | 7440-22-4 | 10.00 | 4814A | 20SEP96 | 09 | 5.00 | ND | 07 | 11.50 | NC | 5.00 | 19.34 |
| | | | | . | | | | | | | | |
| SILVER | 7440-22-4 | 10.00 | 4814B | 16SEP96 | 10 | 5.48 | NC | 08 | 7.75 | NC | | |
| SILVER | 7440-22-4 | 10.00 | 4814B | 17SEP96 | | | | 08 | 20.10 | NC | | |
| SILVER | 7440-22-4 | 10.00 | 4814B | 18SEP96 | 10 | 5.30 | NC | 08 | 8.85 | NC | | |
| SILVER | 7440-22-4 | 10.00 | 4814B | 19SEP96 | 10 | 5.00 | ND | 08 | 15.60 | NC | 5.26 | 13.08 |
| | | | | . | | | | | | | | |
| SILVER | 7440-22-4 | 10.00 | 651 | 03MAR98 | | | | 01 | 8.00 | ND | . | 8.00 |
| | | | | . | | | | | | | | |
| SODIUM | 7440-23-5 | 5,000.00 | 4813 | 04AUG96 | 07 | 971,000.00 | NC | 05 | 448,500.00 | NC | | |
| SODIUM | 7440-23-5 | 5,000.00 | 4813 | 05AUG96 | 07 | 980,500.00 | NC | 05 | 533,000.00 | NC | | |
| SODIUM | 7440-23-5 | 5,000.00 | 4813 | 06AUG96 | 07 | 885,000.00 | NC | 05 | 253,000.00 | NC | | |
| SODIUM | 7440-23-5 | 5,000.00 | 4813 | 07AUG96 | 07 | 853,000.00 | NC | 05 | 265,000.00 | NC | | |
| SODIUM | 7440-23-5 | 5,000.00 | 4813 | 08AUG96 | 07 | 1,100,000.00 | NC | 05 | 219,000.00 | NC | 957,900.00 | 343,700.00 |
| | | | | . | | | | | | | | |
| SODIUM | 7440-23-5 | 5,000.00 | 4814A | 16SEP96 | 09 | 3,700,000.00 | NC | 07 | 4,330,000.00 | NC | | |
| SODIUM | 7440-23-5 | 5,000.00 | 4814A | 17SEP96 | | | | 07 | 2,245,000.00 | NC | | |
| SODIUM | 7440-23-5 | 5,000.00 | 4814A | 18SEP96 | 09 | 3,295,000.00 | NC | 07 | 2,270,000.00 | NC | | |
| SODIUM | 7440-23-5 | 5,000.00 | 4814A | 19SEP96 | 09 | 2,820,000.00 | NC | 07 | 3,150,000.00 | NC | | |

Subcategory=Oils Option=9 (continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SODIUM | 7440-23-5 | 5,000.00 | 4814A | 20SEP96 | 09 | 2,980,000.00 | NC | 07 | 2,960,000.00 | NC | 3,198,750.00 | 2,991,000.00 |
| SODIUM | 7440-23-5 | 5,000.00 | 4814B | 16SEP96 | 10 | 5,280,000.00 | NC | 08 | 5,160,000.00 | NC | | |
| SODIUM | 7440-23-5 | 5,000.00 | 4814B | 17SEP96 | | | | 08 | 4,410,000.00 | NC | | |
| SODIUM | 7440-23-5 | 5,000.00 | 4814B | 18SEP96 | 10 | 9,980,000.00 | NC | 08 | 11,100,000.00 | NC | | |
| SODIUM | 7440-23-5 | 5,000.00 | 4814B | 19SEP96 | 10 | 4,700,000.00 | NC | 08 | 3,330,000.00 | NC | 6,653,333.33 | 6,000,000.00 |
| SODIUM | 7440-23-5 | 5,000.00 | 651 | 03MAR98 | | | | 01 | 555,500.00 | NC | . | 555,500.00 |
| STRONTIUM | 7440-24-6 | 100.00 | 4813 | 04AUG96 | 07 | 100.00 | ND | 05 | 100.00 | ND | | |
| STRONTIUM | 7440-24-6 | 100.00 | 4813 | 05AUG96 | 07 | 100.00 | ND | 05 | 100.00 | ND | | |
| STRONTIUM | 7440-24-6 | 100.00 | 4813 | 06AUG96 | 07 | 100.00 | ND | 05 | 100.00 | ND | | |
| STRONTIUM | 7440-24-6 | 100.00 | 4813 | 07AUG96 | 07 | 100.00 | ND | 05 | 100.00 | ND | | |
| STRONTIUM | 7440-24-6 | 100.00 | 4813 | 08AUG96 | 07 | 100.00 | ND | 05 | 128.00 | NC | 100.00 | 105.60 |
| STRONTIUM | 7440-24-6 | 100.00 | 4814A | 16SEP96 | 09 | 1,150.00 | NC | 07 | 2,450.00 | NC | | |
| STRONTIUM | 7440-24-6 | 100.00 | 4814A | 17SEP96 | | | | 07 | 1,405.00 | NC | | |
| STRONTIUM | 7440-24-6 | 100.00 | 4814A | 18SEP96 | 09 | 672.00 | NC | 07 | 1,360.00 | NC | | |
| STRONTIUM | 7440-24-6 | 100.00 | 4814A | 19SEP96 | 09 | 853.00 | NC | 07 | 1,580.00 | NC | | |
| STRONTIUM | 7440-24-6 | 100.00 | 4814A | 20SEP96 | 09 | 574.00 | NC | 07 | 1,750.00 | NC | 812.25 | 1,709.00 |
| STRONTIUM | 7440-24-6 | 100.00 | 4814B | 16SEP96 | 10 | 585.00 | NC | 08 | 996.00 | NC | | |
| STRONTIUM | 7440-24-6 | 100.00 | 4814B | 17SEP96 | | | | 08 | 755.50 | NC | | |
| STRONTIUM | 7440-24-6 | 100.00 | 4814B | 18SEP96 | 10 | 306.00 | NC | 08 | 546.00 | NC | | |
| STRONTIUM | 7440-24-6 | 100.00 | 4814B | 19SEP96 | 10 | 1,320.00 | NC | 08 | 3,470.00 | NC | 737.00 | 1,441.88 |
| SULFUR | 7704-34-9 | 1,000.00 | 4813 | 04AUG96 | 07 | 550,000.00 | NC | 05 | 226,500.00 | NC | | |
| SULFUR | 7704-34-9 | 1,000.00 | 4813 | 05AUG96 | 07 | 368,000.00 | NC | 05 | 193,000.00 | NC | | |
| SULFUR | 7704-34-9 | 1,000.00 | 4813 | 06AUG96 | 07 | 381,000.00 | NC | 05 | 120,000.00 | NC | | |
| SULFUR | 7704-34-9 | 1,000.00 | 4813 | 07AUG96 | 07 | 336,000.00 | NC | 05 | 127,000.00 | NC | | |
| SULFUR | 7704-34-9 | 1,000.00 | 4813 | 08AUG96 | 07 | 558,000.00 | NC | 05 | 90,600.00 | NC | 438,600.00 | 151,420.00 |
| SULFUR | 7704-34-9 | 1,000.00 | 4814A | 16SEP96 | 09 | 1,840,000.00 | NC | 07 | 2,260,000.00 | NC | | |
| SULFUR | 7704-34-9 | 1,000.00 | 4814A | 17SEP96 | | | | 07 | 1,150,000.00 | NC | | |
| SULFUR | 7704-34-9 | 1,000.00 | 4814A | 18SEP96 | 09 | 1,765,000.00 | NC | 07 | 1,510,000.00 | NC | | |
| SULFUR | 7704-34-9 | 1,000.00 | 4814A | 19SEP96 | 09 | 1,940,000.00 | NC | 07 | 1,950,000.00 | NC | | |
| SULFUR | 7704-34-9 | 1,000.00 | 4814A | 20SEP96 | 09 | 1,720,000.00 | NC | 07 | 2,140,000.00 | NC | 1,816,250.00 | 1,802,000.00 |

Subcategory=Oils Option=9
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SULFUR | 7704-34-9 | 1,000.00 | 4814B | 16SEP96 | 10 | 1,770,000.00 | NC | 08 | 2,180,000.00 | NC | | |
| SULFUR | 7704-34-9 | 1,000.00 | 4814B | 17SEP96 | | | | 08 | 1,775,000.00 | NC | | |
| SULFUR | 7704-34-9 | 1,000.00 | 4814B | 18SEP96 | 10 | 3,450,000.00 | NC | 08 | 3,620,000.00 | NC | | |
| SULFUR | 7704-34-9 | 1,000.00 | 4814B | 19SEP96 | 10 | 2,760,000.00 | NC | 08 | 2,050,000.00 | NC | 2,660,000.00 | 2,406,250.00 |
| TANTALUM | 7440-25-7 | 500.00 | 4813 | 04AUG96 | 07 | 500.00 | ND | 05 | 500.00 | ND | | |
| TANTALUM | 7440-25-7 | 500.00 | 4813 | 05AUG96 | 07 | 500.00 | ND | 05 | 500.00 | ND | | |
| TANTALUM | 7440-25-7 | 500.00 | 4813 | 06AUG96 | 07 | 500.00 | ND | 05 | 500.00 | ND | | |
| TANTALUM | 7440-25-7 | 500.00 | 4813 | 07AUG96 | 07 | 500.00 | ND | 05 | 500.00 | ND | | |
| TANTALUM | 7440-25-7 | 500.00 | 4813 | 08AUG96 | 07 | 500.00 | ND | 05 | 500.00 | ND | 500.00 | 500.00 |
| TANTALUM | 7440-25-7 | 500.00 | 4814A | 16SEP96 | 09 | 500.00 | ND | 07 | 500.00 | ND | | |
| TANTALUM | 7440-25-7 | 500.00 | 4814A | 17SEP96 | | | | 07 | 500.00 | ND | | |
| TANTALUM | 7440-25-7 | 500.00 | 4814A | 18SEP96 | 09 | 500.00 | ND | 07 | 500.00 | ND | | |
| TANTALUM | 7440-25-7 | 500.00 | 4814A | 19SEP96 | 09 | 500.00 | ND | 07 | 500.00 | ND | | |
| TANTALUM | 7440-25-7 | 500.00 | 4814A | 20SEP96 | 09 | 500.00 | ND | 07 | 500.00 | ND | 500.00 | 500.00 |
| TANTALUM | 7440-25-7 | 500.00 | 4814B | 16SEP96 | 10 | 500.00 | ND | 08 | 500.00 | ND | | |
| TANTALUM | 7440-25-7 | 500.00 | 4814B | 17SEP96 | | | | 08 | 500.00 | ND | | |
| TANTALUM | 7440-25-7 | 500.00 | 4814B | 18SEP96 | 10 | 500.00 | ND | 08 | 500.00 | ND | | |
| TANTALUM | 7440-25-7 | 500.00 | 4814B | 19SEP96 | 10 | 500.00 | ND | 08 | 500.00 | ND | 500.00 | 500.00 |
| TIN | 7440-31-5 | 30.00 | 4813 | 04AUG96 | 07 | 28.00 | ND | 05 | 28.00 | ND | | |
| TIN | 7440-31-5 | 30.00 | 4813 | 05AUG96 | 07 | 28.00 | ND | 05 | 28.00 | ND | | |
| TIN | 7440-31-5 | 30.00 | 4813 | 06AUG96 | 07 | 28.00 | ND | 05 | 28.00 | ND | | |
| TIN | 7440-31-5 | 30.00 | 4813 | 07AUG96 | 07 | 28.00 | ND | 05 | 28.00 | ND | | |
| TIN | 7440-31-5 | 30.00 | 4813 | 08AUG96 | 07 | 28.00 | ND | 05 | 28.00 | ND | 28.00 | 28.00 |
| TIN | 7440-31-5 | 30.00 | 4814A | 16SEP96 | 09 | 29.00 | ND | 07 | 898.00 | NC | | |
| TIN | 7440-31-5 | 30.00 | 4814A | 17SEP96 | | | | 07 | 874.50 | NC | | |
| TIN | 7440-31-5 | 30.00 | 4814A | 18SEP96 | 09 | 36.10 | NC | 07 | 2,160.00 | NC | | |
| TIN | 7440-31-5 | 30.00 | 4814A | 19SEP96 | 09 | 29.00 | ND | 07 | 2,100.00 | NC | | |
| TIN | 7440-31-5 | 30.00 | 4814A | 20SEP96 | 09 | 29.00 | ND | 07 | 712.00 | NC | 30.78 | 1,348.90 |
| TIN | 7440-31-5 | 30.00 | 4814B | 16SEP96 | 10 | 29.00 | ND | 08 | 29.00 | ND | | |
| TIN | 7440-31-5 | 30.00 | 4814B | 17SEP96 | | | | 08 | 912.00 | NC | | |

------------------------------------------------------------- Subcategory=Oils Option=9 -------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIN | 7440-31-5 | 30.00 | 4814B | 18SEP96 | 10 | 491.50 | NC | 08 | 2,680.00 | NC | | |
| TIN | 7440-31-5 | 30.00 | 4814B | 19SEP96 | 10 | 29.00 | ND | 08 | 910.00 | NC | 183.17 | 1,132.75 |
| | | | | . | | | | | | | | |
| TIN | 7440-31-5 | 30.00 | 651 | 03MAR98 | | | | 01 | 128.00 | NC | . | 128.00 |
| | | | | . | | | | | | | | |
| TITANIUM | 7440-32-6 | 5.00 | 4813 | 04AUG96 | 07 | 4.00 | ND | 05 | 4.00 | ND | | |
| TITANIUM | 7440-32-6 | 5.00 | 4813 | 05AUG96 | 07 | 4.00 | ND | 05 | 4.00 | ND | | |
| TITANIUM | 7440-32-6 | 5.00 | 4813 | 06AUG96 | 07 | 4.00 | ND | 05 | 4.00 | ND | | |
| TITANIUM | 7440-32-6 | 5.00 | 4813 | 07AUG96 | 07 | 4.00 | ND | 05 | 4.00 | ND | | |
| TITANIUM | 7440-32-6 | 5.00 | 4813 | 08AUG96 | 07 | 4.00 | ND | 05 | 28.80 | NC | 4.00 | 8.96 |
| | | | | . | | | | | | | | |
| TITANIUM | 7440-32-6 | 5.00 | 4814A | 16SEP96 | 09 | 14.70 | NC | 07 | 166.00 | NC | | |
| TITANIUM | 7440-32-6 | 5.00 | 4814A | 17SEP96 | | | | 07 | 138.00 | NC | | |
| TITANIUM | 7440-32-6 | 5.00 | 4814A | 18SEP96 | 09 | 20.05 | NC | 07 | 771.00 | NC | | |
| TITANIUM | 7440-32-6 | 5.00 | 4814A | 19SEP96 | 09 | 8.51 | NC | 07 | 745.00 | NC | | |
| TITANIUM | 7440-32-6 | 5.00 | 4814A | 20SEP96 | 09 | 11.30 | NC | 07 | 315.00 | NC | 13.64 | 427.00 |
| | | | | . | | | | | | | | |
| TITANIUM | 7440-32-6 | 5.00 | 4814B | 16SEP96 | 10 | 23.60 | NC | 08 | 143.00 | NC | | |
| TITANIUM | 7440-32-6 | 5.00 | 4814B | 17SEP96 | | | | 08 | 136.50 | NC | | |
| TITANIUM | 7440-32-6 | 5.00 | 4814B | 18SEP96 | 10 | 45.75 | NC | 08 | 158.00 | NC | | |
| TITANIUM | 7440-32-6 | 5.00 | 4814B | 19SEP96 | 10 | 20.10 | NC | 08 | 271.00 | NC | 29.82 | 177.13 |
| | | | | . | | | | | | | | |
| TITANIUM | 7440-32-6 | 5.00 | 651 | 03MAR98 | | | | 01 | 133.00 | NC | . | 133.00 |
| | | | | . | | | | | | | | |
| ZINC | 7440-66-6 | 20.00 | 4813 | 04AUG96 | 07 | 319.00 | NC | 05 | 623.00 | NC | | |
| ZINC | 7440-66-6 | 20.00 | 4813 | 05AUG96 | 07 | 528.50 | NC | 05 | 591.00 | NC | | |
| ZINC | 7440-66-6 | 20.00 | 4813 | 06AUG96 | 07 | 325.00 | NC | 05 | 653.00 | NC | | |
| ZINC | 7440-66-6 | 20.00 | 4813 | 07AUG96 | 07 | 159.00 | NC | 05 | 967.00 | NC | | |
| ZINC | 7440-66-6 | 20.00 | 4813 | 08AUG96 | 07 | 694.00 | NC | 05 | 1,850.00 | NC | 405.10 | 936.80 |
| | | | | . | | | | | | | | |
| ZINC | 7440-66-6 | 20.00 | 4814A | 16SEP96 | 09 | 3,240.00 | NC | 07 | 33,300.00 | NC | | |
| ZINC | 7440-66-6 | 20.00 | 4814A | 17SEP96 | | | | 07 | 22,800.00 | NC | | |
| ZINC | 7440-66-6 | 20.00 | 4814A | 18SEP96 | 09 | 4,535.00 | NC | 07 | 6,020.00 | NC | | |
| ZINC | 7440-66-6 | 20.00 | 4814A | 19SEP96 | 09 | 2,530.00 | NC | 07 | 28,600.00 | NC | | |
| ZINC | 7440-66-6 | 20.00 | 4814A | 20SEP96 | 09 | 2,250.00 | NC | 07 | 36,400.00 | NC | 3,138.75 | 25,424.00 |
| | | | | . | | | | | | | | |
| ZINC | 7440-66-6 | 20.00 | 4814B | 16SEP96 | 10 | 2,460.00 | NC | 08 | 12,900.00 | NC | | |

------------------------------------------------------------ Subcategory=Oils Option=9 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ZINC | 7440-66-6 | 20.00 | 4814B | 17SEP96 | | | | 08 | 14,900.00 | NC | | |
| ZINC | 7440-66-6 | 20.00 | 4814B | 18SEP96 | 10 | 4,495.00 | NC | 08 | 11,100.00 | NC | | |
| ZINC | 7440-66-6 | 20.00 | 4814B | 19SEP96 | 10 | 4,320.00 | NC | 08 | 16,800.00 | NC | 3,758.33 | 13,925.00 |
| ZINC | 7440-66-6 | 20.00 | 651 | 01JUL97 | 01 | 290.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 651 | 08JUL97 | 01 | 440.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 651 | 09JUL97 | 01 | 1,100.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 651 | 01AUG97 | 01 | 560.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 651 | 01SEP97 | 01 | 1,000.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 651 | 01OCT97 | 01 | 2,800.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 651 | 01NOV97 | 01 | 450.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 651 | 01DEC97 | 01 | 2,200.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 651 | 02JAN98 | 01 | 450.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 651 | 01FEB98 | 01 | 540.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 651 | 01MAR98 | 01 | 630.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 651 | 03MAR98 | | | | 01 | 5,575.00 | NC | | |
| ZINC | 7440-66-6 | 20.00 | 651 | 01APR98 | 01 | 590.00 | NC | | | | 920.83 | 5,575.00 |
| ACENAPHTHENE | 83-32-9 | 10.00 | 4813 | 04AUG96 | 07 | 10.00 | ND | 05 | 20.00 | ND | | |
| ACENAPHTHENE | 83-32-9 | 10.00 | 4813 | 05AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| ACENAPHTHENE | 83-32-9 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 20.00 | ND | | |
| ACENAPHTHENE | 83-32-9 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | | |
| ACENAPHTHENE | 83-32-9 | 10.00 | 4813 | 08AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | 10.00 | 26.00 |
| ACENAPHTHENE | 83-32-9 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 20.00 | ND | | |
| ACENAPHTHENE | 83-32-9 | 10.00 | 4814A | 17SEP96 | | | | 07 | 104.90 | NC | | |
| ACENAPHTHENE | 83-32-9 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| ACENAPHTHENE | 83-32-9 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| ACENAPHTHENE | 83-32-9 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 1,640.13 | NC | 16.25 | 593.01 |
| ACENAPHTHENE | 83-32-9 | 10.00 | 4814B | 16SEP96 | 10 | 192.10 | NC | 08 | 13,417.86 | NC | | |
| ACENAPHTHENE | 83-32-9 | 10.00 | 4814B | 17SEP96 | | | | 08 | 279.50 | NC | | |
| ACENAPHTHENE | 83-32-9 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 731.95 | NC | | |
| ACENAPHTHENE | 83-32-9 | 10.00 | 4814B | 19SEP96 | 10 | 184.70 | NC | 08 | 2,472.36 | NC | 137.27 | 4,225.42 |
| ACENAPHTHENE | 83-32-9 | 10.00 | 651 | 03MAR98 | | | | 01 | 237.90 | NC | . | 237.90 |

---------------------------------------------------------------- Subcategory=Oils Option=9 ----------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ALPHA-TERPINEOL | 98-55-5 | 10.00 | 4813 | 04AUG96 | 07 | 10.00 | ND | 05 | 20.00 | ND | | |
| ALPHA-TERPINEOL | 98-55-5 | 10.00 | 4813 | 05AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| ALPHA-TERPINEOL | 98-55-5 | 10.00 | 4813 | 06AUG96 | 07 | 135.80 | NC | 05 | 20.00 | ND | | |
| ALPHA-TERPINEOL | 98-55-5 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | | |
| ALPHA-TERPINEOL | 98-55-5 | 10.00 | 4813 | 08AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | 35.16 | 26.00 |
| | | | | . | | | | | | | | |
| ALPHA-TERPINEOL | 98-55-5 | 10.00 | 4814A | 16SEP96 | 09 | 213.60 | NC | 07 | 20.00 | ND | | |
| ALPHA-TERPINEOL | 98-55-5 | 10.00 | 4814A | 17SEP96 | | | | 07 | 842.95 | NC | | |
| ALPHA-TERPINEOL | 98-55-5 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| ALPHA-TERPINEOL | 98-55-5 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| ALPHA-TERPINEOL | 98-55-5 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 67.15 | 472.59 |
| | | | | . | | | | | | | | |
| ALPHA-TERPINEOL | 98-55-5 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 2,210.37 | NC | | |
| ALPHA-TERPINEOL | 98-55-5 | 10.00 | 4814B | 17SEP96 | | | | 08 | 983.50 | NC | | |
| ALPHA-TERPINEOL | 98-55-5 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| ALPHA-TERPINEOL | 98-55-5 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 48.33 | 923.47 |
| | | | | . | | | | | | | | |
| ALPHA-TERPINEOL | 98-55-5 | 10.00 | 651 | 03MAR98 | | | | 01 | 855.90 | NC | . | 855.90 |
| | | | | . | | | | | | | | |
| ANILINE | 62-53-3 | 10.00 | 4813 | 04AUG96 | 07 | 137.03 | NC | 05 | 20.00 | ND | | |
| ANILINE | 62-53-3 | 10.00 | 4813 | 05AUG96 | 07 | 96.05 | NC | 05 | 10.00 | ND | | |
| ANILINE | 62-53-3 | 10.00 | 4813 | 06AUG96 | 07 | 179.40 | NC | 05 | 20.00 | ND | | |
| ANILINE | 62-53-3 | 10.00 | 4813 | 07AUG96 | 07 | 594.60 | NC | 05 | 40.00 | ND | | |
| ANILINE | 62-53-3 | 10.00 | 4813 | 08AUG96 | 07 | 209.90 | NC | 05 | 40.00 | ND | 243.40 | 26.00 |
| | | | | . | | | | | | | | |
| ANILINE | 62-53-3 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 20.00 | ND | | |
| ANILINE | 62-53-3 | 10.00 | 4814A | 17SEP96 | | | | 07 | 70.00 | ND | | |
| ANILINE | 62-53-3 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| ANILINE | 62-53-3 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| ANILINE | 62-53-3 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 318.00 |
| | | | | . | | | | | | | | |
| ANILINE | 62-53-3 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |
| ANILINE | 62-53-3 | 10.00 | 4814B | 17SEP96 | | | | 08 | 306.30 | NC | | |
| ANILINE | 62-53-3 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| ANILINE | 62-53-3 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 48.33 | 204.08 |
| | | | | . | | | | | | | | |
| ANILINE | 62-53-3 | 10.00 | 651 | 03MAR98 | | | | 01 | 20.00 | ND | . | 20.00 |

Subcategory=Oils Option=9
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ANTHRACENE | 120-12-7 | 10.00 | 4813 | 04AUG96 | 07 | 36.49 | NC | 05 | 400.50 | NC | | |
| ANTHRACENE | 120-12-7 | 10.00 | 4813 | 05AUG96 | 07 | 10.00 | ND | 05 | 109.73 | NC | | |
| ANTHRACENE | 120-12-7 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 1,444.80 | NC | | |
| ANTHRACENE | 120-12-7 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | | |
| ANTHRACENE | 120-12-7 | 10.00 | 4813 | 08AUG96 | 07 | 19.26 | NC | 05 | 302.30 | NC | 17.15 | 459.47 |
| ANTHRACENE | 120-12-7 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 20.00 | ND | | |
| ANTHRACENE | 120-12-7 | 10.00 | 4814A | 17SEP96 | | | | 07 | 83.20 | NC | | |
| ANTHRACENE | 120-12-7 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| ANTHRACENE | 120-12-7 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,288.00 | NC | | |
| ANTHRACENE | 120-12-7 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 378.24 |
| ANTHRACENE | 120-12-7 | 10.00 | 4814B | 16SEP96 | 10 | 170.40 | NC | 08 | 18,950.59 | NC | | |
| ANTHRACENE | 120-12-7 | 10.00 | 4814B | 17SEP96 | | | | 08 | 266.95 | NC | | |
| ANTHRACENE | 120-12-7 | 10.00 | 4814B | 18SEP96 | 10 | 139.70 | NC | 08 | 731.37 | NC | | |
| ANTHRACENE | 120-12-7 | 10.00 | 4814B | 19SEP96 | 10 | 182.72 | NC | 08 | 2,505.60 | NC | 164.27 | 5,613.63 |
| ANTHRACENE | 120-12-7 | 10.00 | 651 | 03MAR98 | | | | 01 | 64.70 | NC | . | 64.70 |
| BENZENE | 71-43-2 | 10.00 | 4813 | 04AUG96 | 07 | 789.80 | NC | 05 | 522.90 | NC | | |
| BENZENE | 71-43-2 | 10.00 | 4813 | 05AUG96 | 07 | 1,722.90 | NC | 05 | 914.00 | NC | | |
| BENZENE | 71-43-2 | 10.00 | 4813 | 06AUG96 | 07 | 1,425.10 | NC | 05 | 426.50 | NC | | |
| BENZENE | 71-43-2 | 10.00 | 4813 | 07AUG96 | 07 | 1,445.50 | NC | 05 | 597.80 | NC | | |
| BENZENE | 71-43-2 | 10.00 | 4813 | 08AUG96 | 07 | 1,389.10 | NC | 05 | 1,945.20 | NC | 1,354.48 | 881.28 |
| BENZENE | 71-43-2 | 10.00 | 4814A | 16SEP96 | 09 | 480.90 | NC | 07 | 957.90 | NC | | |
| BENZENE | 71-43-2 | 10.00 | 4814A | 17SEP96 | | | | 07 | 1,525.10 | NC | | |
| BENZENE | 71-43-2 | 10.00 | 4814A | 18SEP96 | 09 | 690.78 | NC | 07 | 1,400.83 | NC | | |
| BENZENE | 71-43-2 | 10.00 | 4814A | 19SEP96 | 09 | 401.63 | NC | 07 | 603.67 | NC | | |
| BENZENE | 71-43-2 | 10.00 | 4814A | 20SEP96 | 09 | 472.27 | NC | 07 | 778.35 | NC | 511.39 | 1,053.17 |
| BENZENE | 71-43-2 | 10.00 | 4814B | 16SEP96 | 10 | 1,889.00 | NC | 08 | 2,349.00 | NC | | |
| BENZENE | 71-43-2 | 10.00 | 4814B | 17SEP96 | | | | 08 | 1,840.30 | NC | | |
| BENZENE | 71-43-2 | 10.00 | 4814B | 18SEP96 | 10 | 1,292.53 | NC | 08 | 1,581.12 | NC | | |
| BENZENE | 71-43-2 | 10.00 | 4814B | 19SEP96 | 10 | 1,637.16 | NC | 08 | 3,478.20 | NC | 1,606.23 | 2,312.16 |

Subcategory=Oils Option=9
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BENZENE | 71-43-2 | 10.00 | 651 | 10JUL97 | 01 | 200.00 | NC | | | | 200.00 | . |
| BENZO(A)ANTHRACENE | 56-55-3 | 10.00 | 4813 | 04AUG96 | 07 | 20.80 | NC | 05 | 220.75 | NC | | |
| BENZO(A)ANTHRACENE | 56-55-3 | 10.00 | 4813 | 05AUG96 | 07 | 10.00 | ND | 05 | 92.90 | NC | | |
| BENZO(A)ANTHRACENE | 56-55-3 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 793.50 | NC | | |
| BENZO(A)ANTHRACENE | 56-55-3 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 565.10 | NC | | |
| BENZO(A)ANTHRACENE | 56-55-3 | 10.00 | 4813 | 08AUG96 | 07 | 12.50 | NC | 05 | 443.70 | NC | 12.66 | 423.19 |
| BENZO(A)ANTHRACENE | 56-55-3 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 33.64 | NC | | |
| BENZO(A)ANTHRACENE | 56-55-3 | 10.00 | 4814A | 17SEP96 | | | | 07 | 88.60 | NC | | |
| BENZO(A)ANTHRACENE | 56-55-3 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| BENZO(A)ANTHRACENE | 56-55-3 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| BENZO(A)ANTHRACENE | 56-55-3 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 324.45 |
| BENZO(A)ANTHRACENE | 56-55-3 | 10.00 | 4814B | 16SEP96 | 10 | 179.99 | NC | 08 | 6,303.36 | NC | | |
| BENZO(A)ANTHRACENE | 56-55-3 | 10.00 | 4814B | 17SEP96 | | | | 08 | 137.05 | NC | | |
| BENZO(A)ANTHRACENE | 56-55-3 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 249.09 | NC | | |
| BENZO(A)ANTHRACENE | 56-55-3 | 10.00 | 4814B | 19SEP96 | 10 | 105.30 | NC | 08 | 909.04 | NC | 106.76 | 1,899.64 |
| BENZO(A)ANTHRACENE | 56-55-3 | 10.00 | 651 | 03MAR98 | | | | 01 | 24.70 | NC | . | 24.70 |
| BENZOIC ACID | 65-85-0 | 50.00 | 4813 | 04AUG96 | 07 | 224.16 | NC | 05 | 7,491.00 | NC | | |
| BENZOIC ACID | 65-85-0 | 50.00 | 4813 | 05AUG96 | 07 | 3,546.00 | NC | 05 | 15,902.00 | NC | | |
| BENZOIC ACID | 65-85-0 | 50.00 | 4813 | 06AUG96 | 07 | 15,427.00 | NC | 05 | 98,398.00 | NC | | |
| BENZOIC ACID | 65-85-0 | 50.00 | 4813 | 07AUG96 | 07 | 115,952.00 | NC | 05 | 76,798.00 | NC | | |
| BENZOIC ACID | 65-85-0 | 50.00 | 4813 | 08AUG96 | 07 | 110,440.00 | NC | 05 | 163,050.00 | NC | 49,117.83 | 72,327.80 |
| BENZOIC ACID | 65-85-0 | 50.00 | 4814A | 16SEP96 | 09 | 13,316.00 | NC | 07 | 10,075.50 | NC | | |
| BENZOIC ACID | 65-85-0 | 50.00 | 4814A | 17SEP96 | | | | 07 | 11,490.35 | NC | | |
| BENZOIC ACID | 65-85-0 | 50.00 | 4814A | 18SEP96 | 09 | 14,704.88 | NC | 07 | 20,474.22 | NC | | |
| BENZOIC ACID | 65-85-0 | 50.00 | 4814A | 19SEP96 | 09 | 54,280.90 | NC | 07 | 81,574.40 | NC | | |
| BENZOIC ACID | 65-85-0 | 50.00 | 4814A | 20SEP96 | 09 | 20,023.91 | NC | 07 | 13,249.30 | NC | 25,581.42 | 27,372.75 |
| BENZOIC ACID | 65-85-0 | 50.00 | 4814B | 16SEP96 | 10 | 6,732.30 | NC | 08 | 10,150.88 | NC | | |
| BENZOIC ACID | 65-85-0 | 50.00 | 4814B | 17SEP96 | | | | 08 | 3,514.25 | NC | | |
| BENZOIC ACID | 65-85-0 | 50.00 | 4814B | 18SEP96 | 10 | 9,414.46 | NC | 08 | 5,860.34 | NC | | |
| BENZOIC ACID | 65-85-0 | 50.00 | 4814B | 19SEP96 | 10 | 22,759.32 | NC | 08 | 6,151.52 | NC | 12,968.69 | 6,419.25 |

------------------------------------------------------------ Subcategory=Oils Option=9 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BENZOIC ACID | 65-85-0 | 50.00 | 651 | 03MAR98 | | | | 01 | 100.00 | ND | . | 100.00 |
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 4813 | 04AUG96 | 07 | 10.00 | ND | 05 | 528.00 | NC | | |
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 4813 | 05AUG96 | 07 | 126.65 | NC | 05 | 540.00 | NC | | |
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 4813 | 06AUG96 | 07 | 246.60 | NC | 05 | 558.00 | NC | | |
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | | |
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 4813 | 08AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | 80.65 | 341.20 |
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 20.00 | ND | | |
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 4814A | 17SEP96 | | | | 07 | 502.20 | NC | | |
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 4814A | 18SEP96 | 09 | 734.62 | NC | 07 | 200.00 | ND | | |
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 4814A | 20SEP96 | 09 | 470.82 | NC | 07 | 300.00 | ND | 308.86 | 404.44 |
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 782.66 | NC | | |
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 4814B | 17SEP96 | | | | 08 | 20.00 | ND | | |
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 4814B | 19SEP96 | 10 | 2,850.25 | NC | 08 | 400.00 | ND | 965.08 | 325.66 |
| BENZYL ALCOHOL | 100-51-6 | 10.00 | 651 | 03MAR98 | | | | 01 | 1,137.20 | NC | . | 1,137.20 |
| BIPHENYL | 92-52-4 | 10.00 | 4813 | 04AUG96 | 07 | 584.20 | NC | 05 | 5,604.50 | NC | | |
| BIPHENYL | 92-52-4 | 10.00 | 4813 | 05AUG96 | 07 | 576.95 | NC | 05 | 1,686.00 | NC | | |
| BIPHENYL | 92-52-4 | 10.00 | 4813 | 06AUG96 | 07 | 234.20 | NC | 05 | 2,299.00 | NC | | |
| BIPHENYL | 92-52-4 | 10.00 | 4813 | 07AUG96 | 07 | 112.70 | NC | 05 | 2,934.00 | NC | | |
| BIPHENYL | 92-52-4 | 10.00 | 4813 | 08AUG96 | 07 | 361.90 | NC | 05 | 1,586.10 | NC | 373.99 | 2,821.92 |
| BIPHENYL | 92-52-4 | 10.00 | 4814A | 16SEP96 | 09 | 11.84 | NC | 07 | 240.10 | NC | | |
| BIPHENYL | 92-52-4 | 10.00 | 4814A | 17SEP96 | | | | 07 | 292.85 | NC | | |
| BIPHENYL | 92-52-4 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 298.12 | NC | | |
| BIPHENYL | 92-52-4 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,486.40 | NC | | |
| BIPHENYL | 92-52-4 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.71 | 523.49 |
| BIPHENYL | 92-52-4 | 10.00 | 4814B | 16SEP96 | 10 | 149.80 | NC | 08 | 10,171.33 | NC | | |
| BIPHENYL | 92-52-4 | 10.00 | 4814B | 17SEP96 | | | | 08 | 349.05 | NC | | |
| BIPHENYL | 92-52-4 | 10.00 | 4814B | 18SEP96 | 10 | 157.34 | NC | 08 | 100.00 | ND | | |

Subcategory=Oils Option=9 (continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BIPHENYL | 92-52-4 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 135.71 | 2,755.09 |
| BIPHENYL | 92-52-4 | 10.00 | 651 | 03MAR98 | | | | 01 | 889.70 | NC | . | 889.70 |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 4813 | 04AUG96 | 07 | 10.00 | ND | 05 | 75.06 | NC | | |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 4813 | 05AUG96 | 07 | 10.00 | ND | 05 | 32.51 | NC | | |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 69.91 | NC | | |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 403.50 | NC | | |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 4813 | 08AUG96 | 07 | 10.00 | ND | 05 | 265.10 | NC | 10.00 | 169.22 |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 4814A | 16SEP96 | 09 | 17.30 | NC | 07 | 388.90 | NC | | |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 4814A | 17SEP96 | | | | 07 | 561.20 | NC | | |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 18.08 | 490.02 |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 4814B | 16SEP96 | 10 | 212.21 | NC | 08 | 6,004.61 | NC | | |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 4814B | 17SEP96 | | | | 08 | 325.00 | NC | | |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 115.74 | 1,707.40 |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 10.00 | 651 | 03MAR98 | | | | 01 | 494.55 | NC | . | 494.55 |
| BUTYL BENZYL PHTHALATE | 85-68-7 | 10.00 | 4813 | 04AUG96 | 07 | 10.00 | ND | 05 | 20.00 | ND | | |
| BUTYL BENZYL PHTHALATE | 85-68-7 | 10.00 | 4813 | 05AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| BUTYL BENZYL PHTHALATE | 85-68-7 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 20.00 | ND | | |
| BUTYL BENZYL PHTHALATE | 85-68-7 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | | |
| BUTYL BENZYL PHTHALATE | 85-68-7 | 10.00 | 4813 | 08AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | 10.00 | 26.00 |
| BUTYL BENZYL PHTHALATE | 85-68-7 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 117.60 | NC | | |
| BUTYL BENZYL PHTHALATE | 85-68-7 | 10.00 | 4814A | 17SEP96 | | | | 07 | 183.15 | NC | | |
| BUTYL BENZYL PHTHALATE | 85-68-7 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| BUTYL BENZYL PHTHALATE | 85-68-7 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| BUTYL BENZYL PHTHALATE | 85-68-7 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 360.15 |
| BUTYL BENZYL PHTHALATE | 85-68-7 | 10.00 | 4814B | 16SEP96 | 10 | 29.93 | NC | 08 | 2,123.75 | NC | | |
| BUTYL BENZYL PHTHALATE | 85-68-7 | 10.00 | 4814B | 17SEP96 | | | | 08 | 192.50 | NC | | |

Subcategory=Oils Option=9
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BUTYL BENZYL PHTHALATE | 85-68-7 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| BUTYL BENZYL PHTHALATE | 85-68-7 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 54.98 | 704.06 |
| BUTYL BENZYL PHTHALATE | 85-68-7 | 10.00 | 651 | 03MAR98 | | | | 01 | 63.79 | NC | . | 63.79 |
| CARBAZOLE | 86-74-8 | 20.00 | 4813 | 04AUG96 | 07 | 64.50 | NC | 05 | 136.65 | NC | | |
| CARBAZOLE | 86-74-8 | 20.00 | 4813 | 05AUG96 | 07 | 34.30 | NC | 05 | 81.43 | NC | | |
| CARBAZOLE | 86-74-8 | 20.00 | 4813 | 06AUG96 | 07 | 47.51 | NC | 05 | 289.60 | NC | | |
| CARBAZOLE | 86-74-8 | 20.00 | 4813 | 07AUG96 | 07 | 40.77 | NC | 05 | 80.00 | ND | | |
| CARBAZOLE | 86-74-8 | 20.00 | 4813 | 08AUG96 | 07 | 44.56 | NC | 05 | 80.00 | ND | 46.33 | 133.54 |
| CARBAZOLE | 86-74-8 | 20.00 | 4814A | 16SEP96 | 09 | 20.00 | ND | 07 | 40.00 | ND | | |
| CARBAZOLE | 86-74-8 | 20.00 | 4814A | 17SEP96 | | | | 07 | 140.00 | ND | | |
| CARBAZOLE | 86-74-8 | 20.00 | 4814A | 18SEP96 | 09 | 30.00 | ND | 07 | 400.00 | ND | | |
| CARBAZOLE | 86-74-8 | 20.00 | 4814A | 19SEP96 | 09 | 40.00 | ND | 07 | 2,000.00 | ND | | |
| CARBAZOLE | 86-74-8 | 20.00 | 4814A | 20SEP96 | 09 | 40.00 | ND | 07 | 600.00 | ND | 32.50 | 636.00 |
| CARBAZOLE | 86-74-8 | 20.00 | 4814B | 16SEP96 | 10 | 184.34 | NC | 08 | 1,458.66 | NC | | |
| CARBAZOLE | 86-74-8 | 20.00 | 4814B | 17SEP96 | | | | 08 | 378.60 | NC | | |
| CARBAZOLE | 86-74-8 | 20.00 | 4814B | 18SEP96 | 10 | 70.00 | ND | 08 | 200.00 | ND | | |
| CARBAZOLE | 86-74-8 | 20.00 | 4814B | 19SEP96 | 10 | 200.00 | ND | 08 | 1,165.52 | NC | 151.45 | 800.69 |
| CARBAZOLE | 86-74-8 | 20.00 | 651 | 03MAR98 | | | | 01 | 40.00 | ND | . | 40.00 |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 4813 | 04AUG96 | 07 | 10.00 | ND | 05 | 10.46 | NC | | |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 4813 | 05AUG96 | 07 | 10.00 | ND | 05 | 15.49 | NC | | |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 21.12 | NC | | |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 4813 | 08AUG96 | 07 | 10.00 | ND | 05 | 20.29 | NC | 10.00 | 15.47 |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 4814A | 16SEP96 | 09 | 82.44 | NC | 07 | 137.16 | NC | | |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 4814A | 17SEP96 | | | | 07 | 143.99 | NC | | |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 4814A | 18SEP96 | 09 | 10.00 | ND | 07 | 10.00 | ND | | |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 4814A | 19SEP96 | 09 | 10.00 | ND | 07 | 10.00 | ND | | |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 4814A | 20SEP96 | 09 | 10.00 | ND | 07 | 2,335.20 | NC | 28.11 | 527.27 |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 4814B | 16SEP96 | 10 | 30.02 | NC | 08 | 22.30 | NC | | |

Subcategory=Oils Option=9
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CARBON DISULFIDE | 75-15-0 | 10.00 | 4814B | 17SEP96 | | | | 08 | 66.64 | NC | | |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 4814B | 18SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 4814B | 19SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | 16.67 | 27.24 |
| CHLOROBENZENE | 108-90-7 | 10.00 | 4813 | 04AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| CHLOROBENZENE | 108-90-7 | 10.00 | 4813 | 05AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| CHLOROBENZENE | 108-90-7 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| CHLOROBENZENE | 108-90-7 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| CHLOROBENZENE | 108-90-7 | 10.00 | 4813 | 08AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | 10.00 | 10.00 |
| CHLOROBENZENE | 108-90-7 | 10.00 | 4814A | 16SEP96 | 09 | 51.10 | NC | 07 | 89.11 | NC | | |
| CHLOROBENZENE | 108-90-7 | 10.00 | 4814A | 17SEP96 | | | | 07 | 237.85 | NC | | |
| CHLOROBENZENE | 108-90-7 | 10.00 | 4814A | 18SEP96 | 09 | 60.00 | NC | 07 | 254.68 | NC | | |
| CHLOROBENZENE | 108-90-7 | 10.00 | 4814A | 19SEP96 | 09 | 43.96 | NC | 07 | 91.32 | NC | | |
| CHLOROBENZENE | 108-90-7 | 10.00 | 4814A | 20SEP96 | 09 | 54.17 | NC | 07 | 97.57 | NC | 52.31 | 154.11 |
| CHLOROBENZENE | 108-90-7 | 10.00 | 4814B | 16SEP96 | 10 | 240.20 | NC | 08 | 191.22 | NC | | |
| CHLOROBENZENE | 108-90-7 | 10.00 | 4814B | 17SEP96 | | | | 08 | 326.30 | NC | | |
| CHLOROBENZENE | 108-90-7 | 10.00 | 4814B | 18SEP96 | 10 | 61.20 | NC | 08 | 76.80 | NC | | |
| CHLOROBENZENE | 108-90-7 | 10.00 | 4814B | 19SEP96 | 10 | 66.57 | NC | 08 | 200.00 | NC | 122.66 | 198.58 |
| CHLOROFORM | 67-66-3 | 10.00 | 4813 | 04AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| CHLOROFORM | 67-66-3 | 10.00 | 4813 | 05AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| CHLOROFORM | 67-66-3 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| CHLOROFORM | 67-66-3 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| CHLOROFORM | 67-66-3 | 10.00 | 4813 | 08AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | 10.00 | 10.00 |
| CHLOROFORM | 67-66-3 | 10.00 | 4814A | 16SEP96 | 09 | 186.00 | NC | 07 | 305.80 | NC | | |
| CHLOROFORM | 67-66-3 | 10.00 | 4814A | 17SEP96 | | | | 07 | 692.40 | NC | | |
| CHLOROFORM | 67-66-3 | 10.00 | 4814A | 18SEP96 | 09 | 305.49 | NC | 07 | 592.56 | NC | | |
| CHLOROFORM | 67-66-3 | 10.00 | 4814A | 19SEP96 | 09 | 140.80 | NC | 07 | 181.46 | NC | | |
| CHLOROFORM | 67-66-3 | 10.00 | 4814A | 20SEP96 | 09 | 233.08 | NC | 07 | 336.18 | NC | 216.34 | 421.68 |
| CHLOROFORM | 67-66-3 | 10.00 | 4814B | 16SEP96 | 10 | 432.40 | NC | 08 | 522.10 | NC | | |
| CHLOROFORM | 67-66-3 | 10.00 | 4814B | 17SEP96 | | | | 08 | 1,027.45 | NC | | |
| CHLOROFORM | 67-66-3 | 10.00 | 4814B | 18SEP96 | 10 | 556.64 | NC | 08 | 653.68 | NC | | |
| CHLOROFORM | 67-66-3 | 10.00 | 4814B | 19SEP96 | 10 | 636.49 | NC | 08 | 1,827.80 | NC | 541.84 | 1,007.76 |

Subcategory=Oils Option=9 (continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CHRYSENE | 218-01-9 | 10.00 | 4813 | 04AUG96 | 07 | 38.92 | NC | 05 | 431.80 | NC | | |
| CHRYSENE | 218-01-9 | 10.00 | 4813 | 05AUG96 | 07 | 10.00 | ND | 05 | 176.34 | NC | | |
| CHRYSENE | 218-01-9 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 1,634.50 | NC | | |
| CHRYSENE | 218-01-9 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 837.60 | NC | | |
| CHRYSENE | 218-01-9 | 10.00 | 4813 | 08AUG96 | 07 | 18.67 | NC | 05 | 425.70 | NC | 17.52 | 701.19 |
| CHRYSENE | 218-01-9 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 43.76 | NC | | |
| CHRYSENE | 218-01-9 | 10.00 | 4814A | 17SEP96 | | | | 07 | 107.56 | NC | | |
| CHRYSENE | 218-01-9 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| CHRYSENE | 218-01-9 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| CHRYSENE | 218-01-9 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 330.26 |
| CHRYSENE | 218-01-9 | 10.00 | 4814B | 16SEP96 | 10 | 103.30 | NC | 08 | 8,879.30 | NC | | |
| CHRYSENE | 218-01-9 | 10.00 | 4814B | 17SEP96 | | | | 08 | 123.65 | NC | | |
| CHRYSENE | 218-01-9 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 402.74 | NC | | |
| CHRYSENE | 218-01-9 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 938.68 | NC | 79.43 | 2,586.09 |
| CHRYSENE | 218-01-9 | 10.00 | 651 | 03MAR98 | | | | 01 | 38.73 | NC | . | 38.73 |
| DIBENZOFURAN | 132-64-9 | 10.00 | 4813 | 04AUG96 | 07 | 10.00 | ND | 05 | 20.00 | ND | | |
| DIBENZOFURAN | 132-64-9 | 10.00 | 4813 | 05AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| DIBENZOFURAN | 132-64-9 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 20.00 | ND | | |
| DIBENZOFURAN | 132-64-9 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | | |
| DIBENZOFURAN | 132-64-9 | 10.00 | 4813 | 08AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | 10.00 | 26.00 |
| DIBENZOFURAN | 132-64-9 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 20.00 | ND | | |
| DIBENZOFURAN | 132-64-9 | 10.00 | 4814A | 17SEP96 | | | | 07 | 117.30 | NC | | |
| DIBENZOFURAN | 132-64-9 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| DIBENZOFURAN | 132-64-9 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| DIBENZOFURAN | 132-64-9 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 327.46 |
| DIBENZOFURAN | 132-64-9 | 10.00 | 4814B | 16SEP96 | 10 | 191.70 | NC | 08 | 13,786.46 | NC | | |
| DIBENZOFURAN | 132-64-9 | 10.00 | 4814B | 17SEP96 | | | | 08 | 286.70 | NC | | |
| DIBENZOFURAN | 132-64-9 | 10.00 | 4814B | 18SEP96 | 10 | 114.06 | NC | 08 | 715.45 | NC | | |
| DIBENZOFURAN | 132-64-9 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 2,355.40 | NC | 135.25 | 4,286.00 |

------------------------------------------------------------- Subcategory=Oils Option=9 -------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIBENZOFURAN | 132-64-9 | 10.00 | 651 | 03MAR98 | | | | 01 | 171.70 | NC | . | 171.70 |
| DIBENZOTHIOPHENE | 132-65-0 | 10.00 | 4813 | 04AUG96 | 07 | 55.16 | NC | 05 | 638.75 | NC | | |
| DIBENZOTHIOPHENE | 132-65-0 | 10.00 | 4813 | 05AUG96 | 07 | 10.00 | ND | 05 | 213.10 | NC | | |
| DIBENZOTHIOPHENE | 132-65-0 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 1,752.50 | NC | | |
| DIBENZOTHIOPHENE | 132-65-0 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 811.90 | NC | | |
| DIBENZOTHIOPHENE | 132-65-0 | 10.00 | 4813 | 08AUG96 | 07 | 30.39 | NC | 05 | 660.50 | NC | 23.11 | 815.35 |
| DIBENZOTHIOPHENE | 132-65-0 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 20.00 | ND | | |
| DIBENZOTHIOPHENE | 132-65-0 | 10.00 | 4814A | 17SEP96 | | | | 07 | 70.00 | ND | | |
| DIBENZOTHIOPHENE | 132-65-0 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| DIBENZOTHIOPHENE | 132-65-0 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| DIBENZOTHIOPHENE | 132-65-0 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 318.00 |
| DIBENZOTHIOPHENE | 132-65-0 | 10.00 | 4814B | 16SEP96 | 10 | 152.29 | NC | 08 | 5,447.62 | NC | | |
| DIBENZOTHIOPHENE | 132-65-0 | 10.00 | 4814B | 17SEP96 | | | | 08 | 127.90 | NC | | |
| DIBENZOTHIOPHENE | 132-65-0 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 262.10 | NC | | |
| DIBENZOTHIOPHENE | 132-65-0 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 811.88 | NC | 95.76 | 1,662.37 |
| DIBENZOTHIOPHENE | 132-65-0 | 10.00 | 651 | 03MAR98 | | | | 01 | 38.35 | NC | . | 38.35 |
| DIETHYL PHTHALATE | 84-66-2 | 10.00 | 4813 | 04AUG96 | 07 | 638.80 | NC | 05 | 575.75 | NC | | |
| DIETHYL PHTHALATE | 84-66-2 | 10.00 | 4813 | 05AUG96 | 07 | 562.95 | NC | 05 | 10.00 | ND | | |
| DIETHYL PHTHALATE | 84-66-2 | 10.00 | 4813 | 06AUG96 | 07 | 145.40 | NC | 05 | 746.00 | NC | | |
| DIETHYL PHTHALATE | 84-66-2 | 10.00 | 4813 | 07AUG96 | 07 | 366.00 | NC | 05 | 40.00 | ND | | |
| DIETHYL PHTHALATE | 84-66-2 | 10.00 | 4813 | 08AUG96 | 07 | 116.50 | NC | 05 | 459.60 | NC | 365.93 | 366.27 |
| DIETHYL PHTHALATE | 84-66-2 | 10.00 | 4814A | 16SEP96 | 09 | 873.90 | NC | 07 | 3,162.00 | NC | | |
| DIETHYL PHTHALATE | 84-66-2 | 10.00 | 4814A | 17SEP96 | | | | 07 | 3,534.00 | NC | | |
| DIETHYL PHTHALATE | 84-66-2 | 10.00 | 4814A | 18SEP96 | 09 | 2,250.46 | NC | 07 | 9,309.20 | NC | | |
| DIETHYL PHTHALATE | 84-66-2 | 10.00 | 4814A | 19SEP96 | 09 | 1,320.87 | NC | 07 | 1,000.00 | ND | | |
| DIETHYL PHTHALATE | 84-66-2 | 10.00 | 4814A | 20SEP96 | 09 | 1,198.65 | NC | 07 | 2,577.93 | NC | 1,410.97 | 3,916.63 |
| DIETHYL PHTHALATE | 84-66-2 | 10.00 | 4814B | 16SEP96 | 10 | 186.90 | NC | 08 | 3,565.66 | NC | | |
| DIETHYL PHTHALATE | 84-66-2 | 10.00 | 4814B | 17SEP96 | | | | 08 | 145.25 | NC | | |
| DIETHYL PHTHALATE | 84-66-2 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 204.32 | NC | | |
| DIETHYL PHTHALATE | 84-66-2 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 107.30 | 1,078.81 |

Subcategory=Oils Option=9
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIETHYL PHTHALATE | 84-66-2 | 10.00 | 651 | 03MAR98 | | | | 01 | 20.00 | ND | . | 20.00 |
| DIPHENYL ETHER | 101-84-8 | 10.00 | 4813 | 04AUG96 | 07 | 1,217.50 | NC | 05 | 13,750.50 | NC | | |
| DIPHENYL ETHER | 101-84-8 | 10.00 | 4813 | 05AUG96 | 07 | 1,675.60 | NC | 05 | 4,768.00 | NC | | |
| DIPHENYL ETHER | 101-84-8 | 10.00 | 4813 | 06AUG96 | 07 | 671.70 | NC | 05 | 7,478.00 | NC | | |
| DIPHENYL ETHER | 101-84-8 | 10.00 | 4813 | 07AUG96 | 07 | 424.20 | NC | 05 | 9,481.00 | NC | | |
| DIPHENYL ETHER | 101-84-8 | 10.00 | 4813 | 08AUG96 | 07 | 918.70 | NC | 05 | 10,671.00 | NC | 981.54 | 9,229.70 |
| DIPHENYL ETHER | 101-84-8 | 10.00 | 4814A | 16SEP96 | 09 | 31.60 | NC | 07 | 20.00 | ND | | |
| DIPHENYL ETHER | 101-84-8 | 10.00 | 4814A | 17SEP96 | | | | 07 | 149.30 | NC | | |
| DIPHENYL ETHER | 101-84-8 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| DIPHENYL ETHER | 101-84-8 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| DIPHENYL ETHER | 101-84-8 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 21.65 | 333.86 |
| DIPHENYL ETHER | 101-84-8 | 10.00 | 4814B | 16SEP96 | 10 | 82.76 | NC | 08 | 10.00 | ND | | |
| DIPHENYL ETHER | 101-84-8 | 10.00 | 4814B | 17SEP96 | | | | 08 | 151.80 | NC | | |
| DIPHENYL ETHER | 101-84-8 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| DIPHENYL ETHER | 101-84-8 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 72.59 | 165.45 |
| DIPHENYL ETHER | 101-84-8 | 10.00 | 651 | 03MAR98 | | | | 01 | 20.00 | ND | . | 20.00 |
| ETHYLBENZENE | 100-41-4 | 10.00 | 4813 | 04AUG96 | 07 | 450.10 | NC | 05 | 453.90 | NC | | |
| ETHYLBENZENE | 100-41-4 | 10.00 | 4813 | 05AUG96 | 07 | 539.80 | NC | 05 | 1,131.70 | NC | | |
| ETHYLBENZENE | 100-41-4 | 10.00 | 4813 | 06AUG96 | 07 | 433.10 | NC | 05 | 658.60 | NC | | |
| ETHYLBENZENE | 100-41-4 | 10.00 | 4813 | 07AUG96 | 07 | 296.30 | NC | 05 | 701.70 | NC | | |
| ETHYLBENZENE | 100-41-4 | 10.00 | 4813 | 08AUG96 | 07 | 397.20 | NC | 05 | 1,024.80 | NC | 423.30 | 794.14 |
| ETHYLBENZENE | 100-41-4 | 10.00 | 4814A | 16SEP96 | 09 | 253.00 | NC | 07 | 2,573.00 | NC | | |
| ETHYLBENZENE | 100-41-4 | 10.00 | 4814A | 17SEP96 | | | | 07 | 1,557.70 | NC | | |
| ETHYLBENZENE | 100-41-4 | 10.00 | 4814A | 18SEP96 | 09 | 367.63 | NC | 07 | 1,889.70 | NC | | |
| ETHYLBENZENE | 100-41-4 | 10.00 | 4814A | 19SEP96 | 09 | 216.34 | NC | 07 | 1,327.98 | NC | | |
| ETHYLBENZENE | 100-41-4 | 10.00 | 4814A | 20SEP96 | 09 | 258.13 | NC | 07 | 577.23 | NC | 273.78 | 1,585.12 |
| ETHYLBENZENE | 100-41-4 | 10.00 | 4814B | 16SEP96 | 10 | 2,193.00 | NC | 08 | 4,979.00 | NC | | |
| ETHYLBENZENE | 100-41-4 | 10.00 | 4814B | 17SEP96 | | | | 08 | 3,947.00 | NC | | |
| ETHYLBENZENE | 100-41-4 | 10.00 | 4814B | 18SEP96 | 10 | 956.42 | NC | 08 | 1,443.35 | NC | | |

------------------------------------------------------------- Subcategory=Oils Option=9 -------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ETHYLBENZENE | 100-41-4 | 10.00 | 4814B | 19SEP96 | 10 | 1,857.01 | NC | 08 | 18,015.10 | NC | 1,668.81 | 7,096.11 |
| ETHYLBENZENE | 100-41-4 | 10.00 | 651 | 10JUL97 | 01 | 120.00 | NC | | | | 120.00 | . |
| FLUORANTHENE | 206-44-0 | 10.00 | 4813 | 04AUG96 | 07 | 10.00 | ND | 05 | 166.42 | NC | | |
| FLUORANTHENE | 206-44-0 | 10.00 | 4813 | 05AUG96 | 07 | 10.00 | ND | 05 | 46.87 | NC | | |
| FLUORANTHENE | 206-44-0 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 436.90 | NC | | |
| FLUORANTHENE | 206-44-0 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 330.00 | NC | | |
| FLUORANTHENE | 206-44-0 | 10.00 | 4813 | 08AUG96 | 07 | 10.00 | ND | 05 | 63.01 | NC | 10.00 | 208.64 |
| FLUORANTHENE | 206-44-0 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 142.04 | NC | | |
| FLUORANTHENE | 206-44-0 | 10.00 | 4814A | 17SEP96 | | | | 07 | 111.65 | NC | | |
| FLUORANTHENE | 206-44-0 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| FLUORANTHENE | 206-44-0 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 2,179.70 | NC | | |
| FLUORANTHENE | 206-44-0 | 10.00 | 4814A | 20SEP96 | 09 | 24.14 | NC | 07 | 1,689.09 | NC | 17.29 | 864.50 |
| FLUORANTHENE | 206-44-0 | 10.00 | 4814B | 16SEP96 | 10 | 293.30 | NC | 08 | 28,872.67 | NC | | |
| FLUORANTHENE | 206-44-0 | 10.00 | 4814B | 17SEP96 | | | | 08 | 514.65 | NC | | |
| FLUORANTHENE | 206-44-0 | 10.00 | 4814B | 18SEP96 | 10 | 350.50 | NC | 08 | 1,678.15 | NC | | |
| FLUORANTHENE | 206-44-0 | 10.00 | 4814B | 19SEP96 | 10 | 824.56 | NC | 08 | 4,403.84 | NC | 489.45 | 8,867.33 |
| FLUORANTHENE | 206-44-0 | 10.00 | 651 | 03MAR98 | | | | 01 | 40.95 | NC | . | 40.95 |
| FLUORENE | 86-73-7 | 10.00 | 4813 | 04AUG96 | 07 | 31.30 | NC | 05 | 263.80 | NC | | |
| FLUORENE | 86-73-7 | 10.00 | 4813 | 05AUG96 | 07 | 11.95 | NC | 05 | 72.68 | NC | | |
| FLUORENE | 86-73-7 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 421.90 | NC | | |
| FLUORENE | 86-73-7 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | | |
| FLUORENE | 86-73-7 | 10.00 | 4813 | 08AUG96 | 07 | 17.20 | NC | 05 | 40.00 | ND | 16.09 | 167.68 |
| FLUORENE | 86-73-7 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 118.30 | NC | | |
| FLUORENE | 86-73-7 | 10.00 | 4814A | 17SEP96 | | | | 07 | 165.05 | NC | | |
| FLUORENE | 86-73-7 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| FLUORENE | 86-73-7 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| FLUORENE | 86-73-7 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 356.67 |
| FLUORENE | 86-73-7 | 10.00 | 4814B | 16SEP96 | 10 | 269.40 | NC | 08 | 15,755.94 | NC | | |
| FLUORENE | 86-73-7 | 10.00 | 4814B | 17SEP96 | | | | 08 | 457.30 | NC | | |

------------------------------------------------------------- Subcategory=Oils Option=9 -------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLUORENE | 86-73-7 | 10.00 | 4814B | 18SEP96 | 10 | 175.95 | NC | 08 | 808.15 | NC | | |
| FLUORENE | 86-73-7 | 10.00 | 4814B | 19SEP96 | 10 | 283.99 | NC | 08 | 3,777.40 | NC | 243.11 | 5,199.70 |
| | | | | . | | | | | | | | |
| FLUORENE | 86-73-7 | 10.00 | 651 | 03MAR98 | | | | 01 | 487.20 | NC | . | 487.20 |
| | | | | . | | | | | | | | |
| HEXANOIC ACID | 142-62-1 | 10.00 | 4813 | 04AUG96 | 07 | 18,430.00 | NC | 05 | 13,952.50 | NC | | |
| HEXANOIC ACID | 142-62-1 | 10.00 | 4813 | 05AUG96 | 07 | 16,998.00 | NC | 05 | 15,211.00 | NC | | |
| HEXANOIC ACID | 142-62-1 | 10.00 | 4813 | 06AUG96 | 07 | 22,825.20 | NC | 05 | 71,609.00 | NC | | |
| HEXANOIC ACID | 142-62-1 | 10.00 | 4813 | 07AUG96 | 07 | 71,993.00 | NC | 05 | 16,950.30 | NC | | |
| HEXANOIC ACID | 142-62-1 | 10.00 | 4813 | 08AUG96 | 07 | 83,050.00 | NC | 05 | 90,080.00 | NC | 42,659.24 | 41,560.56 |
| | | | | . | | | | | | | | |
| HEXANOIC ACID | 142-62-1 | 10.00 | 4814A | 16SEP96 | 09 | 7,069.50 | NC | 07 | 7,784.10 | NC | | |
| HEXANOIC ACID | 142-62-1 | 10.00 | 4814A | 17SEP96 | | | | 07 | 6,586.80 | NC | | |
| HEXANOIC ACID | 142-62-1 | 10.00 | 4814A | 18SEP96 | 09 | 7,405.62 | NC | 07 | 8,402.72 | NC | | |
| HEXANOIC ACID | 142-62-1 | 10.00 | 4814A | 19SEP96 | 09 | 13,425.82 | NC | 07 | 23,524.60 | NC | | |
| HEXANOIC ACID | 142-62-1 | 10.00 | 4814A | 20SEP96 | 09 | 9,113.55 | NC | 07 | 8,646.20 | NC | 9,253.62 | 10,988.88 |
| | | | | . | | | | | | | | |
| HEXANOIC ACID | 142-62-1 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |
| HEXANOIC ACID | 142-62-1 | 10.00 | 4814B | 17SEP96 | | | | 08 | 10.00 | ND | | |
| HEXANOIC ACID | 142-62-1 | 10.00 | 4814B | 18SEP96 | 10 | 10,801.52 | NC | 08 | 1,640.37 | NC | | |
| HEXANOIC ACID | 142-62-1 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 100.00 | ND | 3,637.17 | 440.09 |
| | | | | . | | | | | | | | |
| HEXANOIC ACID | 142-62-1 | 10.00 | 651 | 03MAR98 | | | | 01 | 33,215.05 | NC | . | 33,215.05 |
| | | | | . | | | | | | | | |
| M+P XYLENE | 179601-23-1 | 10.00 | 4814A | 18SEP96 | 09 | 419.10 | NC | 07 | 1,659.58 | NC | | |
| M+P XYLENE | 179601-23-1 | 10.00 | 4814A | 19SEP96 | 09 | 298.36 | NC | 07 | 938.14 | NC | | |
| M+P XYLENE | 179601-23-1 | 10.00 | 4814A | 20SEP96 | 09 | 551.38 | NC | 07 | 928.96 | NC | 422.95 | 1,175.56 |
| | | | | . | | | | | | | | |
| M+P XYLENE | 179601-23-1 | 10.00 | 4814B | 18SEP96 | 10 | 890.14 | NC | 08 | 838.43 | NC | | |
| M+P XYLENE | 179601-23-1 | 10.00 | 4814B | 19SEP96 | 10 | 1,092.16 | NC | 08 | 922.50 | NC | 991.15 | 880.46 |
| | | | | . | | | | | | | | |
| M-XYLENE | 108-38-3 | 10.00 | 4813 | 04AUG96 | 07 | 275.20 | NC | 05 | 275.26 | NC | | |
| M-XYLENE | 108-38-3 | 10.00 | 4813 | 05AUG96 | 07 | 532.34 | NC | 05 | 1,107.80 | NC | | |
| M-XYLENE | 108-38-3 | 10.00 | 4813 | 06AUG96 | 07 | 284.53 | NC | 05 | 477.36 | NC | | |
| M-XYLENE | 108-38-3 | 10.00 | 4813 | 07AUG96 | 07 | 235.32 | NC | 05 | 828.01 | NC | | |
| M-XYLENE | 108-38-3 | 10.00 | 4813 | 08AUG96 | 07 | 480.50 | NC | 05 | 1,266.60 | NC | 361.58 | 791.01 |
| | | | | . | | | | | | | | |

------------------------------------------------------------- Subcategory=Oils Option=9 -------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M-XYLENE | 108-38-3 | 10.00 | 4814A | 16SEP96 | 09 | 1,086.00 | NC | 07 | 6,353.00 | NC | | |
| M-XYLENE | 108-38-3 | 10.00 | 4814A | 17SEP96 | | | | 07 | 3,472.00 | NC | | |
| M-XYLENE | 108-38-3 | 10.00 | 4814A | 18SEP96 | 09 | 10.00 | ND | 07 | 10.00 | ND | | |
| M-XYLENE | 108-38-3 | 10.00 | 4814A | 19SEP96 | 09 | 10.00 | ND | 07 | 10.00 | ND | | |
| M-XYLENE | 108-38-3 | 10.00 | 4814A | 20SEP96 | 09 | 10.00 | ND | 07 | 10.00 | ND | 279.00 | 1,971.00 |
| M-XYLENE | 108-38-3 | 10.00 | 4814B | 16SEP96 | 10 | 4,541.00 | NC | 08 | 13,342.00 | NC | | |
| M-XYLENE | 108-38-3 | 10.00 | 4814B | 17SEP96 | | | | 08 | 8,218.50 | NC | | |
| M-XYLENE | 108-38-3 | 10.00 | 4814B | 18SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |
| M-XYLENE | 108-38-3 | 10.00 | 4814B | 19SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | 1,520.33 | 5,395.13 |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 4813 | 04AUG96 | 07 | 97.97 | NC | 05 | 54.59 | NC | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 4813 | 05AUG96 | 07 | 100.02 | NC | 05 | 71.22 | NC | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 4813 | 06AUG96 | 07 | 78.47 | NC | 05 | 48.55 | NC | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 4813 | 07AUG96 | 07 | 58.52 | NC | 05 | 21.72 | NC | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 4813 | 08AUG96 | 07 | 71.14 | NC | 05 | 89.33 | NC | 81.22 | 57.08 |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 4814A | 16SEP96 | 09 | 3,343.00 | NC | 07 | 10.00 | ND | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 4814A | 17SEP96 | | | | 07 | 4,600.50 | NC | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 4814A | 18SEP96 | 09 | 4,808.40 | NC | 07 | 10,524.10 | NC | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 4814A | 19SEP96 | 09 | 1,802.75 | NC | 07 | 3,492.90 | NC | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 4814A | 20SEP96 | 09 | 3,055.80 | NC | 07 | 3,875.60 | NC | 3,252.49 | 4,500.62 |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 4814B | 16SEP96 | 10 | 4,575.00 | NC | 08 | 4,665.00 | NC | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 4814B | 17SEP96 | | | | 08 | 5,317.50 | NC | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 4814B | 18SEP96 | 10 | 6,169.60 | NC | 08 | 7,576.60 | NC | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 4814B | 19SEP96 | 10 | 4,950.10 | NC | 08 | 5,594.00 | NC | 5,231.57 | 5,788.28 |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 4813 | 04AUG96 | 07 | 10.00 | ND | 05 | 20.00 | ND | | |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 4813 | 05AUG96 | 07 | 29.28 | NC | 05 | 10.00 | ND | | |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 20.00 | ND | | |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | | |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 4813 | 08AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | 13.86 | 26.00 |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 4814A | 16SEP96 | 09 | 1,214.50 | NC | 07 | 20.00 | ND | | |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 4814A | 17SEP96 | | | | 07 | 802.75 | NC | | |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |

------------------------------------------------------------- Subcategory=Oils Option=9 -------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 317.38 | 464.55 |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 4814B | 17SEP96 | | | | 08 | 20.00 | ND | | |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 48.33 | 132.50 |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 651 | 03MAR98 | | | | 01 | 283.78 | NC | . | 283.78 |
| N-DECANE | 124-18-5 | 10.00 | 4813 | 04AUG96 | 07 | 767.90 | NC | 05 | 4,118.50 | NC | | |
| N-DECANE | 124-18-5 | 10.00 | 4813 | 05AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| N-DECANE | 124-18-5 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 2,158.00 | NC | | |
| N-DECANE | 124-18-5 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 2,571.00 | NC | | |
| N-DECANE | 124-18-5 | 10.00 | 4813 | 08AUG96 | 07 | 392.90 | NC | 05 | 7,901.00 | NC | 238.16 | 3,351.70 |
| N-DECANE | 124-18-5 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 3,203.00 | NC | | |
| N-DECANE | 124-18-5 | 10.00 | 4814A | 17SEP96 | | | | 07 | 4,473.00 | NC | | |
| N-DECANE | 124-18-5 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 4,762.20 | NC | | |
| N-DECANE | 124-18-5 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 18,048.60 | NC | | |
| N-DECANE | 124-18-5 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 6,157.36 |
| N-DECANE | 124-18-5 | 10.00 | 4814B | 16SEP96 | 10 | 3,191.00 | NC | 08 | 223,466.88 | NC | | |
| N-DECANE | 124-18-5 | 10.00 | 4814B | 17SEP96 | | | | 08 | 8,556.00 | NC | | |
| N-DECANE | 124-18-5 | 10.00 | 4814B | 18SEP96 | 10 | 3,834.95 | NC | 08 | 6,610.80 | NC | | |
| N-DECANE | 124-18-5 | 10.00 | 4814B | 19SEP96 | 10 | 7,145.10 | NC | 08 | 137,756.00 | NC | 4,723.68 | 94,097.42 |
| N-DECANE | 124-18-5 | 10.00 | 651 | 03MAR98 | | | | 01 | 4,325.00 | NC | . | 4,325.00 |
| N-DOCOSANE | 629-97-0 | 10.00 | 4813 | 04AUG96 | 07 | 40.32 | NC | 05 | 140.09 | NC | | |
| N-DOCOSANE | 629-97-0 | 10.00 | 4813 | 05AUG96 | 07 | 28.90 | NC | 05 | 103.05 | NC | | |
| N-DOCOSANE | 629-97-0 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 20.00 | ND | | |
| N-DOCOSANE | 629-97-0 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 1,950.00 | NC | | |
| N-DOCOSANE | 629-97-0 | 10.00 | 4813 | 08AUG96 | 07 | 10.00 | ND | 05 | 179.30 | NC | 19.84 | 478.49 |
| N-DOCOSANE | 629-97-0 | 10.00 | 4814A | 16SEP96 | 09 | 28.08 | NC | 07 | 639.20 | NC | | |
| N-DOCOSANE | 629-97-0 | 10.00 | 4814A | 17SEP96 | | | | 07 | 500.15 | NC | | |

------------------------------------------------------------ Subcategory=Oils Option=9 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N-DOCOSANE | 629-97-0 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 1,924.00 | NC | | |
| N-DOCOSANE | 629-97-0 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| N-DOCOSANE | 629-97-0 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 20.77 | 872.67 |
| | | | | . | | | | | | | | |
| N-DOCOSANE | 629-97-0 | 10.00 | 4814B | 16SEP96 | 10 | 40.25 | NC | 08 | 15,353.74 | NC | | |
| N-DOCOSANE | 629-97-0 | 10.00 | 4814B | 17SEP96 | | | | 08 | 761.55 | NC | | |
| N-DOCOSANE | 629-97-0 | 10.00 | 4814B | 18SEP96 | 10 | 249.40 | NC | 08 | 100.00 | ND | | |
| N-DOCOSANE | 629-97-0 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 129.88 | 4,153.82 |
| | | | | . | | | | | | | | |
| N-DOCOSANE | 629-97-0 | 10.00 | 651 | 03MAR98 | | | | 01 | 6,686.50 | NC | . | 6,686.50 |
| | | | | . | | | | | | | | |
| N-DODECANE | 112-40-3 | 10.00 | 4813 | 04AUG96 | 07 | 10.00 | ND | 05 | 13,430.00 | NC | | |
| N-DODECANE | 112-40-3 | 10.00 | 4813 | 05AUG96 | 07 | 10.00 | ND | 05 | 4,450.00 | NC | | |
| N-DODECANE | 112-40-3 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 5,397.00 | NC | | |
| N-DODECANE | 112-40-3 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | | |
| N-DODECANE | 112-40-3 | 10.00 | 4813 | 08AUG96 | 07 | 1,129.00 | NC | 05 | 10,064.00 | NC | 233.80 | 6,676.20 |
| | | | | . | | | | | | | | |
| N-DODECANE | 112-40-3 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 20,000.00 | NC | | |
| N-DODECANE | 112-40-3 | 10.00 | 4814A | 17SEP96 | | | | 07 | 5,023.00 | NC | | |
| N-DODECANE | 112-40-3 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 11,167.60 | NC | | |
| N-DODECANE | 112-40-3 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 45,621.00 | NC | | |
| N-DODECANE | 112-40-3 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 36,016.20 | NC | 16.25 | 23,565.56 |
| | | | | . | | | | | | | | |
| N-DODECANE | 112-40-3 | 10.00 | 4814B | 16SEP96 | 10 | 1,731.00 | NC | 08 | 148,971.52 | NC | | |
| N-DODECANE | 112-40-3 | 10.00 | 4814B | 17SEP96 | | | | 08 | 5,308.50 | NC | | |
| N-DODECANE | 112-40-3 | 10.00 | 4814B | 18SEP96 | 10 | 1,229.30 | NC | 08 | 100.00 | ND | | |
| N-DODECANE | 112-40-3 | 10.00 | 4814B | 19SEP96 | 10 | 20,000.00 | NC | 08 | 108,578.00 | NC | 7,653.43 | 65,739.51 |
| | | | | . | | | | | | | | |
| N-DODECANE | 112-40-3 | 10.00 | 651 | 03MAR98 | | | | 01 | 18,194.00 | NC | . | 18,194.00 |
| | | | | . | | | | | | | | |
| N-EICOSANE | 112-95-8 | 10.00 | 4813 | 04AUG96 | 07 | 82.97 | NC | 05 | 792.85 | NC | | |
| N-EICOSANE | 112-95-8 | 10.00 | 4813 | 05AUG96 | 07 | 28.98 | NC | 05 | 1,064.90 | NC | | |
| N-EICOSANE | 112-95-8 | 10.00 | 4813 | 06AUG96 | 07 | 20.79 | NC | 05 | 1,656.70 | NC | | |
| N-EICOSANE | 112-95-8 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | | |
| N-EICOSANE | 112-95-8 | 10.00 | 4813 | 08AUG96 | 07 | 83.46 | NC | 05 | 1,515.10 | NC | 45.24 | 1,013.91 |
| | | | | . | | | | | | | | |
| N-EICOSANE | 112-95-8 | 10.00 | 4814A | 16SEP96 | 09 | 89.72 | NC | 07 | 1,870.60 | NC | | |

------------------------------------------------------------ Subcategory=Oils Option=9 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N-EICOSANE | 112-95-8 | 10.00 | 4814A | 17SEP96 | | | | 07 | 1,557.60 | NC | | |
| N-EICOSANE | 112-95-8 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 3,275.00 | NC | | |
| N-EICOSANE | 112-95-8 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 16,667.00 | NC | | |
| N-EICOSANE | 112-95-8 | 10.00 | 4814A | 20SEP96 | 09 | 82.32 | NC | 07 | 300.00 | ND | 51.76 | 4,734.04 |
| N-EICOSANE | 112-95-8 | 10.00 | 4814B | 16SEP96 | 10 | 558.10 | NC | 08 | 36,688.64 | NC | | |
| N-EICOSANE | 112-95-8 | 10.00 | 4814B | 17SEP96 | | | | 08 | 1,914.80 | NC | | |
| N-EICOSANE | 112-95-8 | 10.00 | 4814B | 18SEP96 | 10 | 1,226.17 | NC | 08 | 1,608.50 | NC | | |
| N-EICOSANE | 112-95-8 | 10.00 | 4814B | 19SEP96 | 10 | 1,755.00 | NC | 08 | 25,822.00 | NC | 1,179.76 | 16,508.49 |
| N-EICOSANE | 112-95-8 | 10.00 | 651 | 03MAR98 | | | | 01 | 10,159.00 | NC | . | 10,159.00 |
| N-HEXACOSANE | 630-01-3 | 10.00 | 4813 | 04AUG96 | 07 | 10.00 | ND | 05 | 30.92 | NC | | |
| N-HEXACOSANE | 630-01-3 | 10.00 | 4813 | 05AUG96 | 07 | 28.22 | NC | 05 | 10.00 | ND | | |
| N-HEXACOSANE | 630-01-3 | 10.00 | 4813 | 06AUG96 | 07 | 22.93 | NC | 05 | 20.00 | ND | | |
| N-HEXACOSANE | 630-01-3 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | | |
| N-HEXACOSANE | 630-01-3 | 10.00 | 4813 | 08AUG96 | 07 | 23.24 | NC | 05 | 40.00 | ND | 18.88 | 28.18 |
| N-HEXACOSANE | 630-01-3 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 20.00 | ND | | |
| N-HEXACOSANE | 630-01-3 | 10.00 | 4814A | 17SEP96 | | | | 07 | 70.00 | ND | | |
| N-HEXACOSANE | 630-01-3 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| N-HEXACOSANE | 630-01-3 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 9,561.00 | NC | | |
| N-HEXACOSANE | 630-01-3 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 2,030.20 |
| N-HEXACOSANE | 630-01-3 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |
| N-HEXACOSANE | 630-01-3 | 10.00 | 4814B | 17SEP96 | | | | 08 | 20.00 | ND | | |
| N-HEXACOSANE | 630-01-3 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| N-HEXACOSANE | 630-01-3 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 48.33 | 132.50 |
| N-HEXACOSANE | 630-01-3 | 10.00 | 651 | 03MAR98 | | | | 01 | 68.83 | NC | . | 68.83 |
| N-HEXADECANE | 544-76-3 | 10.00 | 4813 | 04AUG96 | 07 | 4,422.00 | NC | 05 | 18,360.00 | NC | | |
| N-HEXADECANE | 544-76-3 | 10.00 | 4813 | 05AUG96 | 07 | 1,156.30 | NC | 05 | 38,260.00 | NC | | |
| N-HEXADECANE | 544-76-3 | 10.00 | 4813 | 06AUG96 | 07 | 1,928.50 | NC | 05 | 111,340.00 | NC | | |
| N-HEXADECANE | 544-76-3 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | | |
| N-HEXADECANE | 544-76-3 | 10.00 | 4813 | 08AUG96 | 07 | 5,240.00 | NC | 05 | 200,000.00 | NC | 2,551.36 | 73,600.00 |

------------------------------------------------------------- Subcategory=Oils Option=9 -------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N-HEXADECANE | 544-76-3 | 10.00 | 4814A | 16SEP96 | 09 | 200.56 | NC | 07 | 3,619.00 | NC | | |
| N-HEXADECANE | 544-76-3 | 10.00 | 4814A | 17SEP96 | | | | 07 | 3,448.00 | NC | | |
| N-HEXADECANE | 544-76-3 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 6,456.60 | NC | | |
| N-HEXADECANE | 544-76-3 | 10.00 | 4814A | 19SEP96 | 09 | 176.56 | NC | 07 | 31,304.00 | NC | | |
| N-HEXADECANE | 544-76-3 | 10.00 | 4814A | 20SEP96 | 09 | 150.81 | NC | 07 | 10,355.10 | NC | 135.73 | 11,036.54 |
| N-HEXADECANE | 544-76-3 | 10.00 | 4814B | 16SEP96 | 10 | 1,830.80 | NC | 08 | 168,587.84 | NC | | |
| N-HEXADECANE | 544-76-3 | 10.00 | 4814B | 17SEP96 | | | | 08 | 3,902.50 | NC | | |
| N-HEXADECANE | 544-76-3 | 10.00 | 4814B | 18SEP96 | 10 | 2,464.40 | NC | 08 | 4,428.60 | NC | | |
| N-HEXADECANE | 544-76-3 | 10.00 | 4814B | 19SEP96 | 10 | 3,617.80 | NC | 08 | 85,787.00 | NC | 2,637.67 | 65,676.49 |
| N-HEXADECANE | 544-76-3 | 10.00 | 651 | 03MAR98 | | | | 01 | 32,335.00 | NC | . | 32,335.00 |
| N-OCTACOSANE | 630-02-4 | 10.00 | 4813 | 04AUG96 | 07 | 10.00 | ND | 05 | 20.00 | ND | | |
| N-OCTACOSANE | 630-02-4 | 10.00 | 4813 | 05AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| N-OCTACOSANE | 630-02-4 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 20.00 | ND | | |
| N-OCTACOSANE | 630-02-4 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | | |
| N-OCTACOSANE | 630-02-4 | 10.00 | 4813 | 08AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | 10.00 | 26.00 |
| N-OCTACOSANE | 630-02-4 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 20.00 | ND | | |
| N-OCTACOSANE | 630-02-4 | 10.00 | 4814A | 17SEP96 | | | | 07 | 70.00 | ND | | |
| N-OCTACOSANE | 630-02-4 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 1,863.80 | NC | | |
| N-OCTACOSANE | 630-02-4 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| N-OCTACOSANE | 630-02-4 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 650.76 |
| N-OCTACOSANE | 630-02-4 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |
| N-OCTACOSANE | 630-02-4 | 10.00 | 4814B | 17SEP96 | | | | 08 | 20.00 | ND | | |
| N-OCTACOSANE | 630-02-4 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| N-OCTACOSANE | 630-02-4 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 48.33 | 132.50 |
| N-OCTACOSANE | 630-02-4 | 10.00 | 651 | 03MAR98 | | | | 01 | 20.00 | ND | . | 20.00 |
| N-OCTADECANE | 593-45-3 | 10.00 | 4813 | 04AUG96 | 07 | 481.70 | NC | 05 | 160.85 | NC | | |
| N-OCTADECANE | 593-45-3 | 10.00 | 4813 | 05AUG96 | 07 | 102.42 | NC | 05 | 1,593.90 | NC | | |
| N-OCTADECANE | 593-45-3 | 10.00 | 4813 | 06AUG96 | 07 | 91.86 | NC | 05 | 5,440.00 | NC | | |
| N-OCTADECANE | 593-45-3 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 14,707.00 | NC | | |
| N-OCTADECANE | 593-45-3 | 10.00 | 4813 | 08AUG96 | 07 | 327.30 | NC | 05 | 14,275.00 | NC | 202.66 | 7,235.35 |

------------------------------------------------------------ Subcategory=Oils Option=9 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N-OCTADECANE | 593-45-3 | 10.00 | 4814A | 16SEP96 | 09 | 88.93 | NC | 07 | 2,351.00 | NC | | |
| N-OCTADECANE | 593-45-3 | 10.00 | 4814A | 17SEP96 | | | | 07 | 1,889.70 | NC | | |
| N-OCTADECANE | 593-45-3 | 10.00 | 4814A | 18SEP96 | 09 | 96.70 | NC | 07 | 4,220.40 | NC | | |
| N-OCTADECANE | 593-45-3 | 10.00 | 4814A | 19SEP96 | 09 | 118.51 | NC | 07 | 16,544.00 | NC | | |
| N-OCTADECANE | 593-45-3 | 10.00 | 4814A | 20SEP96 | 09 | 151.41 | NC | 07 | 9,528.30 | NC | 113.89 | 6,906.68 |
| N-OCTADECANE | 593-45-3 | 10.00 | 4814B | 16SEP96 | 10 | 1,586.00 | NC | 08 | 100,760.32 | NC | | |
| N-OCTADECANE | 593-45-3 | 10.00 | 4814B | 17SEP96 | | | | 08 | 2,838.50 | NC | | |
| N-OCTADECANE | 593-45-3 | 10.00 | 4814B | 18SEP96 | 10 | 1,235.31 | NC | 08 | 3,033.20 | NC | | |
| N-OCTADECANE | 593-45-3 | 10.00 | 4814B | 19SEP96 | 10 | 1,592.76 | NC | 08 | 51,797.00 | NC | 1,471.36 | 39,607.26 |
| N-OCTADECANE | 593-45-3 | 10.00 | 651 | 03MAR98 | | | | 01 | 24,408.50 | NC | . | 24,408.50 |
| N-TETRACOSANE | 646-31-1 | 10.00 | 4813 | 04AUG96 | 07 | 18.49 | NC | 05 | 154.85 | NC | | |
| N-TETRACOSANE | 646-31-1 | 10.00 | 4813 | 05AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| N-TETRACOSANE | 646-31-1 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 20.00 | ND | | |
| N-TETRACOSANE | 646-31-1 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | | |
| N-TETRACOSANE | 646-31-1 | 10.00 | 4813 | 08AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | 11.70 | 52.97 |
| N-TETRACOSANE | 646-31-1 | 10.00 | 4814A | 16SEP96 | 09 | 31.64 | NC | 07 | 20.00 | ND | | |
| N-TETRACOSANE | 646-31-1 | 10.00 | 4814A | 17SEP96 | | | | 07 | 70.00 | ND | | |
| N-TETRACOSANE | 646-31-1 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| N-TETRACOSANE | 646-31-1 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| N-TETRACOSANE | 646-31-1 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 21.66 | 318.00 |
| N-TETRACOSANE | 646-31-1 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 6,359.14 | NC | | |
| N-TETRACOSANE | 646-31-1 | 10.00 | 4814B | 17SEP96 | | | | 08 | 20.00 | ND | | |
| N-TETRACOSANE | 646-31-1 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| N-TETRACOSANE | 646-31-1 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 48.33 | 1,719.78 |
| N-TETRACOSANE | 646-31-1 | 10.00 | 651 | 03MAR98 | | | | 01 | 1,523.05 | NC | . | 1,523.05 |
| N-TETRADECANE | 629-59-4 | 10.00 | 4813 | 04AUG96 | 07 | 6,977.00 | NC | 05 | 57,590.00 | NC | | |
| N-TETRADECANE | 629-59-4 | 10.00 | 4813 | 05AUG96 | 07 | 1,477.60 | NC | 05 | 48,030.00 | NC | | |
| N-TETRADECANE | 629-59-4 | 10.00 | 4813 | 06AUG96 | 07 | 3,459.00 | NC | 05 | 122,910.00 | NC | | |
| N-TETRADECANE | 629-59-4 | 10.00 | 4813 | 07AUG96 | 07 | 162.60 | NC | 05 | 178,690.00 | NC | | |

Subcategory=Oils Option=9
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N-TETRADECANE | 629-59-4 | 10.00 | 4813 | 08AUG96 | 07 | 6,846.00 | NC | 05 | 193,130.00 | NC | 3,784.44 | 120,070.00 |
| N-TETRADECANE | 629-59-4 | 10.00 | 4814A | 16SEP96 | 09 | 186.42 | NC | 07 | 6,660.00 | NC | | |
| N-TETRADECANE | 629-59-4 | 10.00 | 4814A | 17SEP96 | | | | 07 | 7,125.00 | NC | | |
| N-TETRADECANE | 629-59-4 | 10.00 | 4814A | 18SEP96 | 09 | 202.07 | NC | 07 | 15,584.00 | NC | | |
| N-TETRADECANE | 629-59-4 | 10.00 | 4814A | 19SEP96 | 09 | 379.62 | NC | 07 | 70,206.00 | NC | | |
| N-TETRADECANE | 629-59-4 | 10.00 | 4814A | 20SEP96 | 09 | 580.27 | NC | 07 | 3,542.60 | NC | 337.09 | 20,623.52 |
| N-TETRADECANE | 629-59-4 | 10.00 | 4814B | 16SEP96 | 10 | 1,694.00 | NC | 08 | 208,249.60 | NC | | |
| N-TETRADECANE | 629-59-4 | 10.00 | 4814B | 17SEP96 | | | | 08 | 5,247.00 | NC | | |
| N-TETRADECANE | 629-59-4 | 10.00 | 4814B | 18SEP96 | 10 | 3,243.10 | NC | 08 | 5,423.50 | NC | | |
| N-TETRADECANE | 629-59-4 | 10.00 | 4814B | 19SEP96 | 10 | 4,974.60 | NC | 08 | 124,678.00 | NC | 3,303.90 | 85,899.53 |
| N-TETRADECANE | 629-59-4 | 10.00 | 651 | 03MAR98 | | | | 01 | 63,235.00 | NC | . | 63,235.00 |
| NAPHTHALENE | 91-20-3 | 10.00 | 4813 | 04AUG96 | 07 | 194.60 | NC | 05 | 1,304.90 | NC | | |
| NAPHTHALENE | 91-20-3 | 10.00 | 4813 | 05AUG96 | 07 | 328.85 | NC | 05 | 302.80 | NC | | |
| NAPHTHALENE | 91-20-3 | 10.00 | 4813 | 06AUG96 | 07 | 232.00 | NC | 05 | 1,150.40 | NC | | |
| NAPHTHALENE | 91-20-3 | 10.00 | 4813 | 07AUG96 | 07 | 200.40 | NC | 05 | 2,481.00 | NC | | |
| NAPHTHALENE | 91-20-3 | 10.00 | 4813 | 08AUG96 | 07 | 287.80 | NC | 05 | 4,019.00 | NC | 248.73 | 1,851.62 |
| NAPHTHALENE | 91-20-3 | 10.00 | 4814A | 16SEP96 | 09 | 205.50 | NC | 07 | 1,495.00 | NC | | |
| NAPHTHALENE | 91-20-3 | 10.00 | 4814A | 17SEP96 | | | | 07 | 1,658.00 | NC | | |
| NAPHTHALENE | 91-20-3 | 10.00 | 4814A | 18SEP96 | 09 | 85.28 | NC | 07 | 2,180.84 | NC | | |
| NAPHTHALENE | 91-20-3 | 10.00 | 4814A | 19SEP96 | 09 | 74.06 | NC | 07 | 9,636.50 | NC | | |
| NAPHTHALENE | 91-20-3 | 10.00 | 4814A | 20SEP96 | 09 | 437.76 | NC | 07 | 18,090.30 | NC | 200.65 | 6,612.13 |
| NAPHTHALENE | 91-20-3 | 10.00 | 4814B | 16SEP96 | 10 | 1,945.00 | NC | 08 | 49,077.12 | NC | | |
| NAPHTHALENE | 91-20-3 | 10.00 | 4814B | 17SEP96 | | | | 08 | 3,094.50 | NC | | |
| NAPHTHALENE | 91-20-3 | 10.00 | 4814B | 18SEP96 | 10 | 1,658.76 | NC | 08 | 2,433.80 | NC | | |
| NAPHTHALENE | 91-20-3 | 10.00 | 4814B | 19SEP96 | 10 | 1,879.70 | NC | 08 | 47,308.00 | NC | 1,827.82 | 25,478.36 |
| NAPHTHALENE | 91-20-3 | 10.00 | 651 | 03MAR98 | | | | 01 | 4,638.00 | NC | . | 4,638.00 |
| O+P XYLENE | 136777-61-2 | 10.00 | 4813 | 04AUG96 | 07 | 430.90 | NC | 05 | 437.18 | NC | | |
| O+P XYLENE | 136777-61-2 | 10.00 | 4813 | 05AUG96 | 07 | 816.05 | NC | 05 | 1,540.10 | NC | | |
| O+P XYLENE | 136777-61-2 | 10.00 | 4813 | 06AUG96 | 07 | 451.92 | NC | 05 | 699.60 | NC | | |

------------------------------------------------------------ Subcategory=Oils Option=9 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| O+P XYLENE | 136777-61-2 | 10.00 | 4813 | 07AUG96 | 07 | 377.48 | NC | 05 | 899.98 | NC | | |
| O+P XYLENE | 136777-61-2 | 10.00 | 4813 | 08AUG96 | 07 | 743.96 | NC | 05 | 1,862.40 | NC | 564.06 | 1,087.85 |
| O+P XYLENE | 136777-61-2 | 10.00 | 4814A | 16SEP96 | 09 | 2,524.00 | NC | 07 | 11,470.00 | NC | | |
| O+P XYLENE | 136777-61-2 | 10.00 | 4814A | 17SEP96 | | | | 07 | 4,768.50 | NC | | |
| O+P XYLENE | 136777-61-2 | 10.00 | 4814A | 18SEP96 | 09 | 10.00 | ND | 07 | 10.00 | ND | | |
| O+P XYLENE | 136777-61-2 | 10.00 | 4814A | 19SEP96 | 09 | 10.00 | ND | 07 | 10.00 | ND | | |
| O+P XYLENE | 136777-61-2 | 10.00 | 4814A | 20SEP96 | 09 | 10.00 | ND | 07 | 10.00 | ND | 638.50 | 3,253.70 |
| O+P XYLENE | 136777-61-2 | 10.00 | 4814B | 16SEP96 | 10 | 5,599.00 | NC | 08 | 16,584.00 | NC | | |
| O+P XYLENE | 136777-61-2 | 10.00 | 4814B | 17SEP96 | | | | 08 | 10,662.00 | NC | | |
| O+P XYLENE | 136777-61-2 | 10.00 | 4814B | 18SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |
| O+P XYLENE | 136777-61-2 | 10.00 | 4814B | 19SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | 1,873.00 | 6,816.50 |
| O-CRESOL | 95-48-7 | 10.00 | 4813 | 04AUG96 | 07 | 225.79 | NC | 05 | 696.00 | NC | | |
| O-CRESOL | 95-48-7 | 10.00 | 4813 | 05AUG96 | 07 | 358.91 | NC | 05 | 144.83 | NC | | |
| O-CRESOL | 95-48-7 | 10.00 | 4813 | 06AUG96 | 07 | 1,250.90 | NC | 05 | 8,273.00 | NC | | |
| O-CRESOL | 95-48-7 | 10.00 | 4813 | 07AUG96 | 07 | 5,341.00 | NC | 05 | 2,059.00 | NC | | |
| O-CRESOL | 95-48-7 | 10.00 | 4813 | 08AUG96 | 07 | 1,672.70 | NC | 05 | 40.00 | ND | 1,769.86 | 2,242.57 |
| O-CRESOL | 95-48-7 | 10.00 | 4814A | 16SEP96 | 09 | 362.50 | NC | 07 | 281.22 | NC | | |
| O-CRESOL | 95-48-7 | 10.00 | 4814A | 17SEP96 | | | | 07 | 70.00 | ND | | |
| O-CRESOL | 95-48-7 | 10.00 | 4814A | 18SEP96 | 09 | 189.66 | NC | 07 | 200.00 | ND | | |
| O-CRESOL | 95-48-7 | 10.00 | 4814A | 19SEP96 | 09 | 367.73 | NC | 07 | 1,000.00 | ND | | |
| O-CRESOL | 95-48-7 | 10.00 | 4814A | 20SEP96 | 09 | 692.54 | NC | 07 | 300.00 | ND | 403.11 | 370.24 |
| O-CRESOL | 95-48-7 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |
| O-CRESOL | 95-48-7 | 10.00 | 4814B | 17SEP96 | | | | 08 | 20.00 | ND | | |
| O-CRESOL | 95-48-7 | 10.00 | 4814B | 18SEP96 | 10 | 535.29 | NC | 08 | 854.41 | NC | | |
| O-CRESOL | 95-48-7 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 215.10 | 321.10 |
| O-CRESOL | 95-48-7 | 10.00 | 651 | 03MAR98 | | | | 01 | 727.45 | NC | . | 727.45 |
| O-TOLUIDINE | 95-53-4 | 10.00 | 4813 | 04AUG96 | 07 | 10.00 | ND | 05 | 20.00 | ND | | |
| O-TOLUIDINE | 95-53-4 | 10.00 | 4813 | 05AUG96 | 07 | 84.85 | NC | 05 | 10.00 | ND | | |
| O-TOLUIDINE | 95-53-4 | 10.00 | 4813 | 06AUG96 | 07 | 116.60 | NC | 05 | 20.00 | ND | | |
| O-TOLUIDINE | 95-53-4 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | | |

------------------------------------------------------------ Subcategory=Oils Option=9 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| O-TOLUIDINE | 95-53-4 | 10.00 | 4813 | 08AUG96 | 07 | 126.10 | NC | 05 | 40.00 | ND | 69.51 | 26.00 |
| O-TOLUIDINE | 95-53-4 | 10.00 | 4814A | 16SEP96 | 09 | 311.10 | NC | 07 | 20.00 | ND | | |
| O-TOLUIDINE | 95-53-4 | 10.00 | 4814A | 17SEP96 | | | | 07 | 247.80 | NC | | |
| O-TOLUIDINE | 95-53-4 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| O-TOLUIDINE | 95-53-4 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| O-TOLUIDINE | 95-53-4 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 91.53 | 353.56 |
| O-TOLUIDINE | 95-53-4 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |
| O-TOLUIDINE | 95-53-4 | 10.00 | 4814B | 17SEP96 | | | | 08 | 173.25 | NC | | |
| O-TOLUIDINE | 95-53-4 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| O-TOLUIDINE | 95-53-4 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 48.33 | 170.81 |
| O-TOLUIDINE | 95-53-4 | 10.00 | 651 | 03MAR98 | | | | 01 | 20.00 | ND | . | 20.00 |
| O-XYLENE | 95-47-6 | 10.00 | 4814A | 18SEP96 | 09 | 272.49 | NC | 07 | 1,140.55 | NC | | |
| O-XYLENE | 95-47-6 | 10.00 | 4814A | 19SEP96 | 09 | 185.67 | NC | 07 | 561.31 | NC | | |
| O-XYLENE | 95-47-6 | 10.00 | 4814A | 20SEP96 | 09 | 347.40 | NC | 07 | 573.07 | NC | 268.52 | 758.31 |
| O-XYLENE | 95-47-6 | 10.00 | 4814B | 18SEP96 | 10 | 632.94 | NC | 08 | 602.89 | NC | | |
| O-XYLENE | 95-47-6 | 10.00 | 4814B | 19SEP96 | 10 | 696.38 | NC | 08 | 654.46 | NC | 664.66 | 628.67 |
| P-CRESOL | 106-44-5 | 10.00 | 4813 | 04AUG96 | 07 | 10.00 | ND | 05 | 1,076.60 | NC | | |
| P-CRESOL | 106-44-5 | 10.00 | 4813 | 05AUG96 | 07 | 1,874.45 | NC | 05 | 1,296.00 | NC | | |
| P-CRESOL | 106-44-5 | 10.00 | 4813 | 06AUG96 | 07 | 1,831.80 | NC | 05 | 1,276.00 | NC | | |
| P-CRESOL | 106-44-5 | 10.00 | 4813 | 07AUG96 | 07 | 1,506.30 | NC | 05 | 1,662.80 | NC | | |
| P-CRESOL | 106-44-5 | 10.00 | 4813 | 08AUG96 | 07 | 1,193.40 | NC | 05 | 2,334.10 | NC | 1,283.19 | 1,529.10 |
| P-CRESOL | 106-44-5 | 10.00 | 4814A | 16SEP96 | 09 | 246.00 | NC | 07 | 221.28 | NC | | |
| P-CRESOL | 106-44-5 | 10.00 | 4814A | 17SEP96 | | | | 07 | 220.45 | NC | | |
| P-CRESOL | 106-44-5 | 10.00 | 4814A | 18SEP96 | 09 | 839.76 | NC | 07 | 100.00 | ND | | |
| P-CRESOL | 106-44-5 | 10.00 | 4814A | 19SEP96 | 09 | 885.79 | NC | 07 | 1,000.00 | ND | | |
| P-CRESOL | 106-44-5 | 10.00 | 4814A | 20SEP96 | 09 | 1,871.27 | NC | 07 | 2,382.40 | NC | 960.71 | 784.83 |
| P-CRESOL | 106-44-5 | 10.00 | 4814B | 16SEP96 | 10 | 399.40 | NC | 08 | 2,119.84 | NC | | |
| P-CRESOL | 106-44-5 | 10.00 | 4814B | 17SEP96 | | | | 08 | 1,838.00 | NC | | |
| P-CRESOL | 106-44-5 | 10.00 | 4814B | 18SEP96 | 10 | 1,392.06 | NC | 08 | 1,386.46 | NC | | |

------------------------------------------------------------ Subcategory=Oils Option=9 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P-CRESOL | 106-44-5 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 100.00 | ND | 630.49 | 1,361.08 |
| P-CRESOL | 106-44-5 | 10.00 | 651 | 03MAR98 | | | | 01 | 1,588.37 | NC | . | 1,588.37 |
| P-CYMENE | 99-87-6 | 10.00 | 4813 | 04AUG96 | 07 | 10.00 | ND | 05 | 20.00 | ND | | |
| P-CYMENE | 99-87-6 | 10.00 | 4813 | 05AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| P-CYMENE | 99-87-6 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 20.00 | ND | | |
| P-CYMENE | 99-87-6 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | | |
| P-CYMENE | 99-87-6 | 10.00 | 4813 | 08AUG96 | 07 | 12.85 | NC | 05 | 40.00 | ND | 10.57 | 26.00 |
| P-CYMENE | 99-87-6 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 231.70 | NC | | |
| P-CYMENE | 99-87-6 | 10.00 | 4814A | 17SEP96 | | | | 07 | 265.60 | NC | | |
| P-CYMENE | 99-87-6 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| P-CYMENE | 99-87-6 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,903.90 | NC | | |
| P-CYMENE | 99-87-6 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 580.24 |
| P-CYMENE | 99-87-6 | 10.00 | 4814B | 16SEP96 | 10 | 149.80 | NC | 08 | 939.23 | NC | | |
| P-CYMENE | 99-87-6 | 10.00 | 4814B | 17SEP96 | | | | 08 | 427.25 | NC | | |
| P-CYMENE | 99-87-6 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| P-CYMENE | 99-87-6 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 4,452.12 | NC | 94.93 | 1,479.65 |
| P-CYMENE | 99-87-6 | 10.00 | 651 | 03MAR98 | | | | 01 | 1,268.75 | NC | . | 1,268.75 |
| PENTAMETHYLBENZENE | 700-12-9 | 10.00 | 4813 | 04AUG96 | 07 | 10.00 | ND | 05 | 20.00 | ND | | |
| PENTAMETHYLBENZENE | 700-12-9 | 10.00 | 4813 | 05AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| PENTAMETHYLBENZENE | 700-12-9 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 20.00 | ND | | |
| PENTAMETHYLBENZENE | 700-12-9 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | | |
| PENTAMETHYLBENZENE | 700-12-9 | 10.00 | 4813 | 08AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | 10.00 | 26.00 |
| PENTAMETHYLBENZENE | 700-12-9 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 115.70 | NC | | |
| PENTAMETHYLBENZENE | 700-12-9 | 10.00 | 4814A | 17SEP96 | | | | 07 | 136.65 | NC | | |
| PENTAMETHYLBENZENE | 700-12-9 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| PENTAMETHYLBENZENE | 700-12-9 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| PENTAMETHYLBENZENE | 700-12-9 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 350.47 |
| PENTAMETHYLBENZENE | 700-12-9 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 6,320.77 | NC | | |
| PENTAMETHYLBENZENE | 700-12-9 | 10.00 | 4814B | 17SEP96 | | | | 08 | 237.95 | NC | | |

Subcategory=Oils Option=9 (continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PENTAMETHYLBENZENE | 700-12-9 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 920.58 | NC | | |
| PENTAMETHYLBENZENE | 700-12-9 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 5,126.04 | NC | 48.33 | 3,151.33 |
| PENTAMETHYLBENZENE | 700-12-9 | 10.00 | 651 | 03MAR98 | | | | 01 | 20.00 | ND | . | 20.00 |
| PHENANTHRENE | 85-01-8 | 10.00 | 4813 | 04AUG96 | 07 | 175.49 | NC | 05 | 2,704.00 | NC | | |
| PHENANTHRENE | 85-01-8 | 10.00 | 4813 | 05AUG96 | 07 | 62.96 | NC | 05 | 841.60 | NC | | |
| PHENANTHRENE | 85-01-8 | 10.00 | 4813 | 06AUG96 | 07 | 52.93 | NC | 05 | 6,704.00 | NC | | |
| PHENANTHRENE | 85-01-8 | 10.00 | 4813 | 07AUG96 | 07 | 13.52 | NC | 05 | 4,699.00 | NC | | |
| PHENANTHRENE | 85-01-8 | 10.00 | 4813 | 08AUG96 | 07 | 103.90 | NC | 05 | 3,828.00 | NC | 81.76 | 3,755.32 |
| PHENANTHRENE | 85-01-8 | 10.00 | 4814A | 16SEP96 | 09 | 20.79 | NC | 07 | 338.70 | NC | | |
| PHENANTHRENE | 85-01-8 | 10.00 | 4814A | 17SEP96 | | | | 07 | 405.75 | NC | | |
| PHENANTHRENE | 85-01-8 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 430.82 | NC | | |
| PHENANTHRENE | 85-01-8 | 10.00 | 4814A | 19SEP96 | 09 | 26.22 | NC | 07 | 5,213.30 | NC | | |
| PHENANTHRENE | 85-01-8 | 10.00 | 4814A | 20SEP96 | 09 | 167.56 | NC | 07 | 9,107.10 | NC | 57.39 | 3,099.13 |
| PHENANTHRENE | 85-01-8 | 10.00 | 4814B | 16SEP96 | 10 | 799.90 | NC | 08 | 49,015.68 | NC | | |
| PHENANTHRENE | 85-01-8 | 10.00 | 4814B | 17SEP96 | | | | 08 | 1,509.45 | NC | | |
| PHENANTHRENE | 85-01-8 | 10.00 | 4814B | 18SEP96 | 10 | 1,086.42 | NC | 08 | 1,234.10 | NC | | |
| PHENANTHRENE | 85-01-8 | 10.00 | 4814B | 19SEP96 | 10 | 1,839.82 | NC | 08 | 22,114.00 | NC | 1,242.05 | 18,468.31 |
| PHENANTHRENE | 85-01-8 | 10.00 | 651 | 03MAR98 | | | | 01 | 1,324.85 | NC | . | 1,324.85 |
| PHENOL | 108-95-2 | 10.00 | 4813 | 04AUG96 | 07 | 30,170.00 | NC | 05 | 19,410.00 | NC | | |
| PHENOL | 108-95-2 | 10.00 | 4813 | 05AUG96 | 07 | 27,405.00 | NC | 05 | 41,850.00 | NC | | |
| PHENOL | 108-95-2 | 10.00 | 4813 | 06AUG96 | 07 | 32,270.00 | NC | 05 | 34,150.00 | NC | | |
| PHENOL | 108-95-2 | 10.00 | 4813 | 07AUG96 | 07 | 36,790.00 | NC | 05 | 36,180.00 | NC | | |
| PHENOL | 108-95-2 | 10.00 | 4813 | 08AUG96 | 07 | 26,770.00 | NC | 05 | 48,640.00 | NC | 30,681.00 | 36,046.00 |
| PHENOL | 108-95-2 | 10.00 | 4814A | 16SEP96 | 09 | 2,613.00 | NC | 07 | 2,641.00 | NC | | |
| PHENOL | 108-95-2 | 10.00 | 4814A | 17SEP96 | | | | 07 | 3,700.50 | NC | | |
| PHENOL | 108-95-2 | 10.00 | 4814A | 18SEP96 | 09 | 6,382.90 | NC | 07 | 6,535.40 | NC | | |
| PHENOL | 108-95-2 | 10.00 | 4814A | 19SEP96 | 09 | 16,329.90 | NC | 07 | 20,000.00 | NC | | |
| PHENOL | 108-95-2 | 10.00 | 4814A | 20SEP96 | 09 | 18,717.70 | NC | 07 | 20,000.00 | NC | 11,010.88 | 10,575.38 |
| PHENOL | 108-95-2 | 10.00 | 4814B | 16SEP96 | 10 | 2,483.00 | NC | 08 | 3,184.00 | NC | | |

------------------------------------------------------------- Subcategory=Oils Option=9 -------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PHENOL | 108-95-2 | 10.00 | 4814B | 17SEP96 | | | | 08 | 4,583.00 | NC | | |
| PHENOL | 108-95-2 | 10.00 | 4814B | 18SEP96 | 10 | 5,149.90 | NC | 08 | 11,806.60 | NC | | |
| PHENOL | 108-95-2 | 10.00 | 4814B | 19SEP96 | 10 | 42,594.00 | NC | 08 | 7,694.40 | NC | 16,742.30 | 6,817.00 |
| | | | | . | | | | | | | | |
| PHENOL | 108-95-2 | 10.00 | 651 | 03MAR98 | | | | 01 | 30,195.00 | NC | . | 30,195.00 |
| | | | | . | | | | | | | | |
| PYRENE | 129-00-0 | 10.00 | 4813 | 04AUG96 | 07 | 107.81 | NC | 05 | 1,312.85 | NC | | |
| PYRENE | 129-00-0 | 10.00 | 4813 | 05AUG96 | 07 | 68.95 | NC | 05 | 642.40 | NC | | |
| PYRENE | 129-00-0 | 10.00 | 4813 | 06AUG96 | 07 | 28.89 | NC | 05 | 4,275.00 | NC | | |
| PYRENE | 129-00-0 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 3,299.00 | NC | | |
| PYRENE | 129-00-0 | 10.00 | 4813 | 08AUG96 | 07 | 74.37 | NC | 05 | 2,711.00 | NC | 58.00 | 2,448.05 |
| | | | | . | | | | | | | | |
| PYRENE | 129-00-0 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 158.65 | NC | | |
| PYRENE | 129-00-0 | 10.00 | 4814A | 17SEP96 | | | | 07 | 113.35 | NC | | |
| PYRENE | 129-00-0 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| PYRENE | 129-00-0 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| PYRENE | 129-00-0 | 10.00 | 4814A | 20SEP96 | 09 | 27.12 | NC | 07 | 2,522.70 | NC | 18.03 | 798.94 |
| | | | | . | | | | | | | | |
| PYRENE | 129-00-0 | 10.00 | 4814B | 16SEP96 | 10 | 228.10 | NC | 08 | 22,763.39 | NC | | |
| PYRENE | 129-00-0 | 10.00 | 4814B | 17SEP96 | | | | 08 | 437.10 | NC | | |
| PYRENE | 129-00-0 | 10.00 | 4814B | 18SEP96 | 10 | 238.50 | NC | 08 | 1,137.25 | NC | | |
| PYRENE | 129-00-0 | 10.00 | 4814B | 19SEP96 | 10 | 269.94 | NC | 08 | 3,368.60 | NC | 245.51 | 6,926.59 |
| | | | | . | | | | | | | | |
| PYRENE | 129-00-0 | 10.00 | 651 | 03MAR98 | | | | 01 | 129.24 | NC | . | 129.24 |
| | | | | . | | | | | | | | |
| PYRIDINE | 110-86-1 | 10.00 | 4813 | 04AUG96 | 07 | 28.58 | NC | 05 | 77.45 | NC | | |
| PYRIDINE | 110-86-1 | 10.00 | 4813 | 05AUG96 | 07 | 98.62 | NC | 05 | 13.59 | NC | | |
| PYRIDINE | 110-86-1 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 20.00 | ND | | |
| PYRIDINE | 110-86-1 | 10.00 | 4813 | 07AUG96 | 07 | 248.80 | NC | 05 | 40.00 | ND | | |
| PYRIDINE | 110-86-1 | 10.00 | 4813 | 08AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | 79.20 | 38.21 |
| | | | | . | | | | | | | | |
| PYRIDINE | 110-86-1 | 10.00 | 4814A | 16SEP96 | 09 | 1,408.50 | NC | 07 | 838.20 | NC | | |
| PYRIDINE | 110-86-1 | 10.00 | 4814A | 17SEP96 | | | | 07 | 558.50 | NC | | |
| PYRIDINE | 110-86-1 | 10.00 | 4814A | 18SEP96 | 09 | 760.99 | NC | 07 | 1,280.12 | NC | | |
| PYRIDINE | 110-86-1 | 10.00 | 4814A | 19SEP96 | 09 | 309.61 | NC | 07 | 1,000.00 | ND | | |
| PYRIDINE | 110-86-1 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 624.78 | 795.36 |
| | | | | . | | | | | | | | |

------------------------------------------------------------ Subcategory=Oils Option=9 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PYRIDINE | 110-86-1 | 10.00 | 4814B | 16SEP96 | 10 | 1,531.60 | NC | 08 | 953.92 | NC | | |
| PYRIDINE | 110-86-1 | 10.00 | 4814B | 17SEP96 | | | | 08 | 248.65 | NC | | |
| PYRIDINE | 110-86-1 | 10.00 | 4814B | 18SEP96 | 10 | 653.81 | NC | 08 | 100.00 | ND | | |
| PYRIDINE | 110-86-1 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 761.80 | 425.64 |
| PYRIDINE | 110-86-1 | 10.00 | 651 | 03MAR98 | | | | 01 | 52.17 | NC | . | 52.17 |
| STYRENE | 100-42-5 | 10.00 | 4813 | 04AUG96 | 07 | 93.34 | NC | 05 | 20.00 | ND | | |
| STYRENE | 100-42-5 | 10.00 | 4813 | 05AUG96 | 07 | 93.06 | NC | 05 | 10.00 | ND | | |
| STYRENE | 100-42-5 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 20.00 | ND | | |
| STYRENE | 100-42-5 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | | |
| STYRENE | 100-42-5 | 10.00 | 4813 | 08AUG96 | 07 | 94.81 | NC | 05 | 40.00 | ND | 60.24 | 26.00 |
| STYRENE | 100-42-5 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 288.50 | NC | | |
| STYRENE | 100-42-5 | 10.00 | 4814A | 17SEP96 | | | | 07 | 552.20 | NC | | |
| STYRENE | 100-42-5 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 314.54 | NC | | |
| STYRENE | 100-42-5 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| STYRENE | 100-42-5 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 491.05 |
| STYRENE | 100-42-5 | 10.00 | 4814B | 16SEP96 | 10 | 158.20 | NC | 08 | 842.56 | NC | | |
| STYRENE | 100-42-5 | 10.00 | 4814B | 17SEP96 | | | | 08 | 432.20 | NC | | |
| STYRENE | 100-42-5 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| STYRENE | 100-42-5 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 97.73 | 443.69 |
| STYRENE | 100-42-5 | 10.00 | 651 | 03MAR98 | | | | 01 | 140.70 | NC | . | 140.70 |
| TETRACHLOROETHENE | 127-18-4 | 10.00 | 4813 | 04AUG96 | 07 | 22.09 | NC | 05 | 23.54 | NC | | |
| TETRACHLOROETHENE | 127-18-4 | 10.00 | 4813 | 05AUG96 | 07 | 15.52 | NC | 05 | 117.71 | NC | | |
| TETRACHLOROETHENE | 127-18-4 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| TETRACHLOROETHENE | 127-18-4 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| TETRACHLOROETHENE | 127-18-4 | 10.00 | 4813 | 08AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | 13.52 | 34.25 |
| TETRACHLOROETHENE | 127-18-4 | 10.00 | 4814A | 16SEP96 | 09 | 140.16 | NC | 07 | 1,783.70 | NC | | |
| TETRACHLOROETHENE | 127-18-4 | 10.00 | 4814A | 17SEP96 | | | | 07 | 773.50 | NC | | |
| TETRACHLOROETHENE | 127-18-4 | 10.00 | 4814A | 18SEP96 | 09 | 717.57 | NC | 07 | 1,750.76 | NC | | |
| TETRACHLOROETHENE | 127-18-4 | 10.00 | 4814A | 19SEP96 | 09 | 108.54 | NC | 07 | 1,119.53 | NC | | |
| TETRACHLOROETHENE | 127-18-4 | 10.00 | 4814A | 20SEP96 | 09 | 155.10 | NC | 07 | 687.62 | NC | 280.34 | 1,223.02 |

Subcategory=Oils Option=9
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TETRACHLOROETHENE | 127-18-4 | 10.00 | 4814B | 16SEP96 | 10 | 1,037.60 | NC | 08 | 2,747.00 | NC | | |
| TETRACHLOROETHENE | 127-18-4 | 10.00 | 4814B | 17SEP96 | | | | 08 | 2,810.50 | NC | | |
| TETRACHLOROETHENE | 127-18-4 | 10.00 | 4814B | 18SEP96 | 10 | 486.42 | NC | 08 | 764.33 | NC | | |
| TETRACHLOROETHENE | 127-18-4 | 10.00 | 4814B | 19SEP96 | 10 | 487.68 | NC | 08 | 4,140.00 | NC | 670.57 | 2,615.46 |
| TOLUENE | 108-88-3 | 10.00 | 4813 | 04AUG96 | 07 | 2,018.00 | NC | 05 | 1,410.15 | NC | | |
| TOLUENE | 108-88-3 | 10.00 | 4813 | 05AUG96 | 07 | 4,348.00 | NC | 05 | 3,802.00 | NC | | |
| TOLUENE | 108-88-3 | 10.00 | 4813 | 06AUG96 | 07 | 3,500.00 | NC | 05 | 1,927.20 | NC | | |
| TOLUENE | 108-88-3 | 10.00 | 4813 | 07AUG96 | 07 | 2,950.00 | NC | 05 | 3,624.00 | NC | | |
| TOLUENE | 108-88-3 | 10.00 | 4813 | 08AUG96 | 07 | 3,383.00 | NC | 05 | 9,391.00 | NC | 3,239.80 | 4,030.87 |
| TOLUENE | 108-88-3 | 10.00 | 4814A | 16SEP96 | 09 | 3,111.00 | NC | 07 | 9,633.00 | NC | | |
| TOLUENE | 108-88-3 | 10.00 | 4814A | 17SEP96 | | | | 07 | 8,192.00 | NC | | |
| TOLUENE | 108-88-3 | 10.00 | 4814A | 18SEP96 | 09 | 4,961.20 | NC | 07 | 14,831.00 | NC | | |
| TOLUENE | 108-88-3 | 10.00 | 4814A | 19SEP96 | 09 | 2,622.60 | NC | 07 | 4,367.60 | NC | | |
| TOLUENE | 108-88-3 | 10.00 | 4814A | 20SEP96 | 09 | 3,757.90 | NC | 07 | 10,013.50 | NC | 3,613.18 | 9,407.42 |
| TOLUENE | 108-88-3 | 10.00 | 4814B | 16SEP96 | 10 | 9,432.00 | NC | 08 | 17,007.00 | NC | | |
| TOLUENE | 108-88-3 | 10.00 | 4814B | 17SEP96 | | | | 08 | 18,412.50 | NC | | |
| TOLUENE | 108-88-3 | 10.00 | 4814B | 18SEP96 | 10 | 8,245.15 | NC | 08 | 13,071.10 | NC | | |
| TOLUENE | 108-88-3 | 10.00 | 4814B | 19SEP96 | 10 | 8,111.40 | NC | 08 | 41,507.00 | NC | 8,596.18 | 22,499.40 |
| TOLUENE | 108-88-3 | 10.00 | 651 | 10JUL97 | 01 | 1,500.00 | NC | | | | 1,500.00 | . |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 4813 | 04AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 4813 | 05AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 4813 | 08AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | 10.00 | 10.00 |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 4814A | 16SEP96 | 09 | 145.35 | NC | 07 | 428.20 | NC | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 4814A | 17SEP96 | | | | 07 | 511.90 | NC | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 4814A | 18SEP96 | 09 | 270.79 | NC | 07 | 968.14 | NC | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 4814A | 19SEP96 | 09 | 170.96 | NC | 07 | 490.89 | NC | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 4814A | 20SEP96 | 09 | 191.29 | NC | 07 | 396.29 | NC | 194.60 | 559.08 |

Subcategory=Oils Option=9
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TRICHLOROETHENE | 79-01-6 | 10.00 | 4814B | 16SEP96 | 10 | 454.90 | NC | 08 | 983.00 | NC | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 4814B | 17SEP96 | | | | 08 | 784.40 | NC | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 4814B | 18SEP96 | 10 | 1,103.17 | NC | 08 | 1,533.16 | NC | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 4814B | 19SEP96 | 10 | 1,875.83 | NC | 08 | 7,125.30 | NC | 1,144.63 | 2,606.47 |
| TRIPROPYLENEGLYCOL METHYL ET | 20324-33-8 | 99.00 | 4813 | 04AUG96 | 07 | 99.00 | ND | 05 | 198.00 | ND | | |
| TRIPROPYLENEGLYCOL METHYL ET | 20324-33-8 | 99.00 | 4813 | 05AUG96 | 07 | 5,499.50 | NC | 05 | 99.00 | ND | | |
| TRIPROPYLENEGLYCOL METHYL ET | 20324-33-8 | 99.00 | 4813 | 06AUG96 | 07 | 11,663.00 | NC | 05 | 198.00 | ND | | |
| TRIPROPYLENEGLYCOL METHYL ET | 20324-33-8 | 99.00 | 4813 | 07AUG96 | 07 | 35,270.00 | NC | 05 | 396.00 | ND | | |
| TRIPROPYLENEGLYCOL METHYL ET | 20324-33-8 | 99.00 | 4813 | 08AUG96 | 07 | 103,984.00 | NC | 05 | 47,535.00 | NC | 31,303.10 | 9,685.20 |
| TRIPROPYLENEGLYCOL METHYL ET | 20324-33-8 | 99.00 | 4814A | 16SEP96 | 09 | 8,054.90 | NC | 07 | 2,301.04 | NC | | |
| TRIPROPYLENEGLYCOL METHYL ET | 20324-33-8 | 99.00 | 4814A | 17SEP96 | | | | 07 | 6,382.55 | NC | | |
| TRIPROPYLENEGLYCOL METHYL ET | 20324-33-8 | 99.00 | 4814A | 18SEP96 | 09 | 148.50 | ND | 07 | 1,980.00 | ND | | |
| TRIPROPYLENEGLYCOL METHYL ET | 20324-33-8 | 99.00 | 4814A | 19SEP96 | 09 | 198.00 | ND | 07 | 9,900.00 | ND | | |
| TRIPROPYLENEGLYCOL METHYL ET | 20324-33-8 | 99.00 | 4814A | 20SEP96 | 09 | 198.00 | ND | 07 | 2,970.00 | ND | 2,149.85 | 4,706.72 |
| TRIPROPYLENEGLYCOL METHYL ET | 20324-33-8 | 99.00 | 4814B | 16SEP96 | 10 | 99.00 | ND | 08 | 5,187.26 | NC | | |
| TRIPROPYLENEGLYCOL METHYL ET | 20324-33-8 | 99.00 | 4814B | 17SEP96 | | | | 08 | 1,495.25 | NC | | |
| TRIPROPYLENEGLYCOL METHYL ET | 20324-33-8 | 99.00 | 4814B | 18SEP96 | 10 | 346.50 | ND | 08 | 990.00 | ND | | |
| TRIPROPYLENEGLYCOL METHYL ET | 20324-33-8 | 99.00 | 4814B | 19SEP96 | 10 | 990.00 | ND | 08 | 3,960.00 | ND | 478.50 | 2,908.13 |
| TRIPROPYLENEGLYCOL METHYL ET | 20324-33-8 | 99.00 | 651 | 03MAR98 | | | | 01 | 6,428.70 | NC | . | 6,428.70 |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 4813 | 04AUG96 | 07 | 33.76 | NC | 05 | 10.23 | NC | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 4813 | 05AUG96 | 07 | 24.78 | NC | 05 | 10.00 | ND | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 4813 | 06AUG96 | 07 | 19.03 | NC | 05 | 10.41 | NC | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 4813 | 08AUG96 | 07 | 15.72 | NC | 05 | 10.00 | ND | 20.66 | 10.13 |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 4814A | 16SEP96 | 09 | 105.69 | NC | 07 | 324.20 | NC | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 4814A | 17SEP96 | | | | 07 | 444.80 | NC | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 4814A | 18SEP96 | 09 | 136.41 | NC | 07 | 544.84 | NC | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 4814A | 19SEP96 | 09 | 73.82 | NC | 07 | 146.84 | NC | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 4814A | 20SEP96 | 09 | 113.26 | NC | 07 | 194.20 | NC | 107.30 | 330.98 |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 4814B | 16SEP96 | 10 | 192.50 | NC | 08 | 320.40 | NC | | |

------------------------------------------------------------ Subcategory=Oils Option=9 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 4814B | 17SEP96 | | | | 08 | 592.70 | NC | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 4814B | 18SEP96 | 10 | 263.14 | NC | 08 | 356.34 | NC | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 4814B | 19SEP96 | 10 | 199.17 | NC | 08 | 200.00 | NC | 218.27 | 367.36 |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 4813 | 04AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 4813 | 05AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 4813 | 08AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | 10.00 | 10.00 |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 10.00 | ND | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 4814A | 17SEP96 | | | | 07 | 10.00 | ND | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 4814A | 18SEP96 | 09 | 73.58 | NC | 07 | 274.96 | NC | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 4814A | 19SEP96 | 09 | 54.94 | NC | 07 | 101.34 | NC | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 4814A | 20SEP96 | 09 | 98.13 | NC | 07 | 163.73 | NC | 59.16 | 112.01 |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 4814B | 17SEP96 | | | | 08 | 10.57 | NC | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 4814B | 18SEP96 | 10 | 484.76 | NC | 08 | 754.45 | NC | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 4814B | 19SEP96 | 10 | 644.65 | NC | 08 | 1,967.90 | NC | 379.80 | 685.73 |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 10.00 | 4813 | 04AUG96 | 07 | 10.00 | ND | 05 | 20.00 | ND | | |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 10.00 | 4813 | 05AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 20.00 | ND | | |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | | |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 10.00 | 4813 | 08AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | 10.00 | 26.00 |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 10.00 | 4814A | 16SEP96 | 09 | 187.09 | NC | 07 | 2,119.00 | NC | | |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 10.00 | 4814A | 17SEP96 | | | | 07 | 4,834.50 | NC | | |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 10.00 | 4814A | 18SEP96 | 09 | 105.31 | NC | 07 | 8,155.60 | NC | | |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 18,899.10 | NC | | |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 10.00 | 4814A | 20SEP96 | 09 | 207.90 | NC | 07 | 4,736.61 | NC | 130.07 | 7,748.96 |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 10.00 | 4814B | 16SEP96 | 10 | 179.50 | NC | 08 | 6,272.32 | NC | | |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 10.00 | 4814B | 17SEP96 | | | | 08 | 359.15 | NC | | |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 440.26 | NC | | |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 104.83 | 1,867.93 |

Subcategory=Oils Option=9 (continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 10.00 | 651 | 03MAR98 | | | | 01 | 20.00 | ND | . | 20.00 |
| 1,2-DICHLOROBENZENE | 95-50-1 | 10.00 | 4813 | 04AUG96 | 07 | 10.00 | ND | 05 | 20.00 | ND | | |
| 1,2-DICHLOROBENZENE | 95-50-1 | 10.00 | 4813 | 05AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| 1,2-DICHLOROBENZENE | 95-50-1 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 20.00 | ND | | |
| 1,2-DICHLOROBENZENE | 95-50-1 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | | |
| 1,2-DICHLOROBENZENE | 95-50-1 | 10.00 | 4813 | 08AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | 10.00 | 26.00 |
| 1,2-DICHLOROBENZENE | 95-50-1 | 10.00 | 4814A | 16SEP96 | 09 | 29.58 | NC | 07 | 180.70 | NC | | |
| 1,2-DICHLOROBENZENE | 95-50-1 | 10.00 | 4814A | 17SEP96 | | | | 07 | 301.75 | NC | | |
| 1,2-DICHLOROBENZENE | 95-50-1 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| 1,2-DICHLOROBENZENE | 95-50-1 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| 1,2-DICHLOROBENZENE | 95-50-1 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 21.15 | 396.49 |
| 1,2-DICHLOROBENZENE | 95-50-1 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 4,185.62 | NC | | |
| 1,2-DICHLOROBENZENE | 95-50-1 | 10.00 | 4814B | 17SEP96 | | | | 08 | 170.96 | NC | | |
| 1,2-DICHLOROBENZENE | 95-50-1 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| 1,2-DICHLOROBENZENE | 95-50-1 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 48.33 | 1,214.14 |
| 1,2-DICHLOROBENZENE | 95-50-1 | 10.00 | 651 | 03MAR98 | | | | 01 | 20.00 | ND | . | 20.00 |
| 1,2-DICHLOROETHANE | 107-06-2 | 10.00 | 4813 | 04AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| 1,2-DICHLOROETHANE | 107-06-2 | 10.00 | 4813 | 05AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| 1,2-DICHLOROETHANE | 107-06-2 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| 1,2-DICHLOROETHANE | 107-06-2 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| 1,2-DICHLOROETHANE | 107-06-2 | 10.00 | 4813 | 08AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | 10.00 | 10.00 |
| 1,2-DICHLOROETHANE | 107-06-2 | 10.00 | 4814A | 16SEP96 | 09 | 161.60 | NC | 07 | 223.30 | NC | | |
| 1,2-DICHLOROETHANE | 107-06-2 | 10.00 | 4814A | 17SEP96 | | | | 07 | 376.71 | NC | | |
| 1,2-DICHLOROETHANE | 107-06-2 | 10.00 | 4814A | 18SEP96 | 09 | 233.15 | NC | 07 | 349.54 | NC | | |
| 1,2-DICHLOROETHANE | 107-06-2 | 10.00 | 4814A | 19SEP96 | 09 | 165.42 | NC | 07 | 147.33 | NC | | |
| 1,2-DICHLOROETHANE | 107-06-2 | 10.00 | 4814A | 20SEP96 | 09 | 182.51 | NC | 07 | 279.70 | NC | 185.67 | 275.31 |
| 1,2-DICHLOROETHANE | 107-06-2 | 10.00 | 4814B | 16SEP96 | 10 | 165.16 | NC | 08 | 137.04 | NC | | |
| 1,2-DICHLOROETHANE | 107-06-2 | 10.00 | 4814B | 17SEP96 | | | | 08 | 569.35 | NC | | |
| 1,2-DICHLOROETHANE | 107-06-2 | 10.00 | 4814B | 18SEP96 | 10 | 566.13 | NC | 08 | 713.39 | NC | | |

------------------------------------------------------------ Subcategory=Oils Option=9 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,2-DICHLOROETHANE | 107-06-2 | 10.00 | 4814B | 19SEP96 | 10 | 347.10 | NC | 08 | 200.00 | NC | 359.46 | 404.95 |
| 1,4-DICHLOROBENZENE | 106-46-7 | 10.00 | 4813 | 04AUG96 | 07 | 10.00 | ND | 05 | 20.00 | ND | | |
| 1,4-DICHLOROBENZENE | 106-46-7 | 10.00 | 4813 | 05AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| 1,4-DICHLOROBENZENE | 106-46-7 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 20.00 | ND | | |
| 1,4-DICHLOROBENZENE | 106-46-7 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | | |
| 1,4-DICHLOROBENZENE | 106-46-7 | 10.00 | 4813 | 08AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | 10.00 | 26.00 |
| 1,4-DICHLOROBENZENE | 106-46-7 | 10.00 | 4814A | 16SEP96 | 09 | 83.63 | NC | 07 | 622.70 | NC | | |
| 1,4-DICHLOROBENZENE | 106-46-7 | 10.00 | 4814A | 17SEP96 | | | | 07 | 949.90 | NC | | |
| 1,4-DICHLOROBENZENE | 106-46-7 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| 1,4-DICHLOROBENZENE | 106-46-7 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 2,333.60 | NC | | |
| 1,4-DICHLOROBENZENE | 106-46-7 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 1,472.82 | NC | 34.66 | 1,115.80 |
| 1,4-DICHLOROBENZENE | 106-46-7 | 10.00 | 4814B | 16SEP96 | 10 | 285.10 | NC | 08 | 1,261.98 | NC | | |
| 1,4-DICHLOROBENZENE | 106-46-7 | 10.00 | 4814B | 17SEP96 | | | | 08 | 454.35 | NC | | |
| 1,4-DICHLOROBENZENE | 106-46-7 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 786.40 | NC | | |
| 1,4-DICHLOROBENZENE | 106-46-7 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 140.03 | 725.68 |
| 1,4-DICHLOROBENZENE | 106-46-7 | 10.00 | 651 | 03MAR98 | | | | 01 | 20.00 | ND | . | 20.00 |
| 1,4-DIOXANE | 123-91-1 | 10.00 | 4813 | 04AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| 1,4-DIOXANE | 123-91-1 | 10.00 | 4813 | 05AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| 1,4-DIOXANE | 123-91-1 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| 1,4-DIOXANE | 123-91-1 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| 1,4-DIOXANE | 123-91-1 | 10.00 | 4813 | 08AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | 10.00 | 10.00 |
| 1,4-DIOXANE | 123-91-1 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 10.00 | ND | | |
| 1,4-DIOXANE | 123-91-1 | 10.00 | 4814A | 17SEP96 | | | | 07 | 10.00 | ND | | |
| 1,4-DIOXANE | 123-91-1 | 10.00 | 4814A | 18SEP96 | 09 | 10.00 | ND | 07 | 10.00 | ND | | |
| 1,4-DIOXANE | 123-91-1 | 10.00 | 4814A | 19SEP96 | 09 | 10.00 | ND | 07 | 10.00 | ND | | |
| 1,4-DIOXANE | 123-91-1 | 10.00 | 4814A | 20SEP96 | 09 | 10.00 | ND | 07 | 10.00 | ND | 10.00 | 10.00 |
| 1,4-DIOXANE | 123-91-1 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |
| 1,4-DIOXANE | 123-91-1 | 10.00 | 4814B | 17SEP96 | | | | 08 | 10.00 | ND | | |
| 1,4-DIOXANE | 123-91-1 | 10.00 | 4814B | 18SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |
| 1,4-DIOXANE | 123-91-1 | 10.00 | 4814B | 19SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | 10.00 | 10.00 |

Subcategory=Oils Option=9 (continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-METHYLFLUORENE | 1730-37-6 | 10.00 | 4813 | 04AUG96 | 07 | 54.83 | NC | 05 | 136.41 | NC | | |
| 1-METHYLFLUORENE | 1730-37-6 | 10.00 | 4813 | 05AUG96 | 07 | 10.00 | ND | 05 | 42.06 | NC | | |
| 1-METHYLFLUORENE | 1730-37-6 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 1,066.00 | NC | | |
| 1-METHYLFLUORENE | 1730-37-6 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 1,103.00 | NC | | |
| 1-METHYLFLUORENE | 1730-37-6 | 10.00 | 4813 | 08AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | 18.97 | 477.49 |
| 1-METHYLFLUORENE | 1730-37-6 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 20.00 | ND | | |
| 1-METHYLFLUORENE | 1730-37-6 | 10.00 | 4814A | 17SEP96 | | | | 07 | 111.35 | NC | | |
| 1-METHYLFLUORENE | 1730-37-6 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| 1-METHYLFLUORENE | 1730-37-6 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| 1-METHYLFLUORENE | 1730-37-6 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 326.27 |
| 1-METHYLFLUORENE | 1730-37-6 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 5,802.82 | NC | | |
| 1-METHYLFLUORENE | 1730-37-6 | 10.00 | 4814B | 17SEP96 | | | | 08 | 152.35 | NC | | |
| 1-METHYLFLUORENE | 1730-37-6 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| 1-METHYLFLUORENE | 1730-37-6 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 877.72 | NC | 48.33 | 1,733.22 |
| 1-METHYLFLUORENE | 1730-37-6 | 10.00 | 651 | 03MAR98 | | | | 01 | 20.00 | ND | . | 20.00 |
| 1-METHYLPHENANTHRENE | 832-69-9 | 10.00 | 4813 | 04AUG96 | 07 | 123.11 | NC | 05 | 230.97 | NC | | |
| 1-METHYLPHENANTHRENE | 832-69-9 | 10.00 | 4813 | 05AUG96 | 07 | 10.00 | ND | 05 | 95.91 | NC | | |
| 1-METHYLPHENANTHRENE | 832-69-9 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 7,111.00 | NC | | |
| 1-METHYLPHENANTHRENE | 832-69-9 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 1,247.00 | NC | | |
| 1-METHYLPHENANTHRENE | 832-69-9 | 10.00 | 4813 | 08AUG96 | 07 | 10.00 | ND | 05 | 1,805.10 | NC | 32.62 | 2,098.00 |
| 1-METHYLPHENANTHRENE | 832-69-9 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 91.72 | NC | | |
| 1-METHYLPHENANTHRENE | 832-69-9 | 10.00 | 4814A | 17SEP96 | | | | 07 | 70.00 | ND | | |
| 1-METHYLPHENANTHRENE | 832-69-9 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| 1-METHYLPHENANTHRENE | 832-69-9 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| 1-METHYLPHENANTHRENE | 832-69-9 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 332.34 |
| 1-METHYLPHENANTHRENE | 832-69-9 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 5,063.10 | NC | | |
| 1-METHYLPHENANTHRENE | 832-69-9 | 10.00 | 4814B | 17SEP96 | | | | 08 | 132.35 | NC | | |
| 1-METHYLPHENANTHRENE | 832-69-9 | 10.00 | 4814B | 18SEP96 | 10 | 118.97 | NC | 08 | 454.15 | NC | | |
| 1-METHYLPHENANTHRENE | 832-69-9 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 1,783.32 | NC | 76.32 | 1,858.23 |

Subcategory=Oils Option=9
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-METHYLPHENANTHRENE | 832-69-9 | 10.00 | 651 | 03MAR98 | | | | 01 | 186.72 | NC | . | 186.72 |
| 2,3-BENZOFLUORENE | 243-17-4 | 10.00 | 4813 | 04AUG96 | 07 | 227.76 | NC | 05 | 367.00 | NC | | |
| 2,3-BENZOFLUORENE | 243-17-4 | 10.00 | 4813 | 05AUG96 | 07 | 17.13 | NC | 05 | 164.17 | NC | | |
| 2,3-BENZOFLUORENE | 243-17-4 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 608.00 | NC | | |
| 2,3-BENZOFLUORENE | 243-17-4 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 2,755.00 | NC | | |
| 2,3-BENZOFLUORENE | 243-17-4 | 10.00 | 4813 | 08AUG96 | 07 | 10.00 | ND | 05 | 161.80 | NC | 54.98 | 811.19 |
| 2,3-BENZOFLUORENE | 243-17-4 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 20.00 | ND | | |
| 2,3-BENZOFLUORENE | 243-17-4 | 10.00 | 4814A | 17SEP96 | | | | 07 | 70.00 | ND | | |
| 2,3-BENZOFLUORENE | 243-17-4 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| 2,3-BENZOFLUORENE | 243-17-4 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| 2,3-BENZOFLUORENE | 243-17-4 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 318.00 |
| 2,3-BENZOFLUORENE | 243-17-4 | 10.00 | 4814B | 16SEP96 | 10 | 25.41 | NC | 08 | 461.22 | NC | | |
| 2,3-BENZOFLUORENE | 243-17-4 | 10.00 | 4814B | 17SEP96 | | | | 08 | 20.00 | ND | | |
| 2,3-BENZOFLUORENE | 243-17-4 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| 2,3-BENZOFLUORENE | 243-17-4 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 53.47 | 245.30 |
| 2,3-BENZOFLUORENE | 243-17-4 | 10.00 | 651 | 03MAR98 | | | | 01 | 20.00 | ND | . | 20.00 |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 10.00 | 4813 | 04AUG96 | 07 | 1,031.70 | NC | 05 | 1,310.95 | NC | | |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 10.00 | 4813 | 05AUG96 | 07 | 1,392.80 | NC | 05 | 807.50 | NC | | |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 10.00 | 4813 | 06AUG96 | 07 | 920.90 | NC | 05 | 2,171.00 | NC | | |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 10.00 | 4813 | 07AUG96 | 07 | 1,810.40 | NC | 05 | 1,415.00 | NC | | |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 10.00 | 4813 | 08AUG96 | 07 | 1,509.00 | NC | 05 | 40.00 | ND | 1,332.96 | 1,148.89 |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 10.00 | 4814A | 16SEP96 | 09 | 195.07 | NC | 07 | 20.00 | ND | | |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 10.00 | 4814A | 17SEP96 | | | | 07 | 76.15 | NC | | |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 62.52 | 319.23 |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 10.00 | 4814B | 16SEP96 | 10 | 165.10 | NC | 08 | 565.63 | NC | | |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 10.00 | 4814B | 17SEP96 | | | | 08 | 20.00 | ND | | |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 100.03 | 271.41 |

Subcategory=Oils Option=9
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2,4-DIMETHYLPHENOL | 105-67-9 | 10.00 | 651 | 03MAR98 | | | | 01 | 20.00 | ND | . | 20.00 |
| 2-BUTANONE | 78-93-3 | 50.00 | 4813 | 04AUG96 | 07 | 1,971.00 | NC | 05 | 1,677.50 | NC | | |
| 2-BUTANONE | 78-93-3 | 50.00 | 4813 | 05AUG96 | 07 | 2,495.00 | NC | 05 | 2,045.50 | NC | | |
| 2-BUTANONE | 78-93-3 | 50.00 | 4813 | 06AUG96 | 07 | 2,536.80 | NC | 05 | 1,958.90 | NC | | |
| 2-BUTANONE | 78-93-3 | 50.00 | 4813 | 07AUG96 | 07 | 1,291.20 | NC | 05 | 568.00 | NC | | |
| 2-BUTANONE | 78-93-3 | 50.00 | 4813 | 08AUG96 | 07 | 922.20 | NC | 05 | 752.11 | NC | 1,843.24 | 1,400.40 |
| 2-BUTANONE | 78-93-3 | 50.00 | 4814A | 16SEP96 | 09 | 12,517.00 | NC | 07 | 9,409.50 | NC | | |
| 2-BUTANONE | 78-93-3 | 50.00 | 4814A | 17SEP96 | | | | 07 | 10,014.75 | NC | | |
| 2-BUTANONE | 78-93-3 | 50.00 | 4814A | 18SEP96 | 09 | 14,239.75 | NC | 07 | 24,073.10 | NC | | |
| 2-BUTANONE | 78-93-3 | 50.00 | 4814A | 19SEP96 | 09 | 10,974.10 | NC | 07 | 7,922.42 | NC | | |
| 2-BUTANONE | 78-93-3 | 50.00 | 4814A | 20SEP96 | 09 | 7,830.93 | NC | 07 | 15,908.50 | NC | 11,390.45 | 13,465.65 |
| 2-BUTANONE | 78-93-3 | 50.00 | 4814B | 16SEP96 | 10 | 18,821.00 | NC | 08 | 16,941.00 | NC | | |
| 2-BUTANONE | 78-93-3 | 50.00 | 4814B | 17SEP96 | | | | 08 | 8,489.45 | NC | | |
| 2-BUTANONE | 78-93-3 | 50.00 | 4814B | 18SEP96 | 10 | 22,391.35 | NC | 08 | 29,965.20 | NC | | |
| 2-BUTANONE | 78-93-3 | 50.00 | 4814B | 19SEP96 | 10 | 32,832.90 | NC | 08 | 41,713.20 | NC | 24,681.75 | 24,277.21 |
| 2-ISOPROPYLNAPHTHALENE | 2027-17-0 | 10.00 | 4813 | 04AUG96 | 07 | 10.00 | ND | 05 | 20.00 | ND | | |
| 2-ISOPROPYLNAPHTHALENE | 2027-17-0 | 10.00 | 4813 | 05AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | | |
| 2-ISOPROPYLNAPHTHALENE | 2027-17-0 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 20.00 | ND | | |
| 2-ISOPROPYLNAPHTHALENE | 2027-17-0 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | | |
| 2-ISOPROPYLNAPHTHALENE | 2027-17-0 | 10.00 | 4813 | 08AUG96 | 07 | 10.00 | ND | 05 | 40.00 | ND | 10.00 | 26.00 |
| 2-ISOPROPYLNAPHTHALENE | 2027-17-0 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 20.00 | ND | | |
| 2-ISOPROPYLNAPHTHALENE | 2027-17-0 | 10.00 | 4814A | 17SEP96 | | | | 07 | 70.00 | ND | | |
| 2-ISOPROPYLNAPHTHALENE | 2027-17-0 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| 2-ISOPROPYLNAPHTHALENE | 2027-17-0 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| 2-ISOPROPYLNAPHTHALENE | 2027-17-0 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 318.00 |
| 2-ISOPROPYLNAPHTHALENE | 2027-17-0 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |
| 2-ISOPROPYLNAPHTHALENE | 2027-17-0 | 10.00 | 4814B | 17SEP96 | | | | 08 | 20.00 | ND | | |
| 2-ISOPROPYLNAPHTHALENE | 2027-17-0 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| 2-ISOPROPYLNAPHTHALENE | 2027-17-0 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 48.33 | 132.50 |

------------------------------------------------------------ Subcategory=Oils Option=9 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2-ISOPROPYLNAPHTHALENE | 2027-17-0 | 10.00 | 651 | 03MAR98 | | | | 01 | 20.00 | ND | . | 20.00 |
| 2-METHYLNAPHTHALENE | 91-57-6 | 10.00 | 4813 | 04AUG96 | 07 | 204.82 | NC | 05 | 486.92 | NC | | |
| 2-METHYLNAPHTHALENE | 91-57-6 | 10.00 | 4813 | 05AUG96 | 07 | 127.04 | NC | 05 | 147.66 | NC | | |
| 2-METHYLNAPHTHALENE | 91-57-6 | 10.00 | 4813 | 06AUG96 | 07 | 129.70 | NC | 05 | 1,309.60 | NC | | |
| 2-METHYLNAPHTHALENE | 91-57-6 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 3,912.00 | NC | | |
| 2-METHYLNAPHTHALENE | 91-57-6 | 10.00 | 4813 | 08AUG96 | 07 | 286.60 | NC | 05 | 1,997.80 | NC | 151.63 | 1,570.80 |
| 2-METHYLNAPHTHALENE | 91-57-6 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 245.78 | NC | | |
| 2-METHYLNAPHTHALENE | 91-57-6 | 10.00 | 4814A | 17SEP96 | | | | 07 | 1,517.95 | NC | | |
| 2-METHYLNAPHTHALENE | 91-57-6 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 3,262.32 | NC | | |
| 2-METHYLNAPHTHALENE | 91-57-6 | 10.00 | 4814A | 19SEP96 | 09 | 242.06 | NC | 07 | 11,672.10 | NC | | |
| 2-METHYLNAPHTHALENE | 91-57-6 | 10.00 | 4814A | 20SEP96 | 09 | 375.25 | NC | 07 | 10,554.18 | NC | 160.58 | 5,450.47 |
| 2-METHYLNAPHTHALENE | 91-57-6 | 10.00 | 4814B | 16SEP96 | 10 | 565.10 | NC | 08 | 46,108.35 | NC | | |
| 2-METHYLNAPHTHALENE | 91-57-6 | 10.00 | 4814B | 17SEP96 | | | | 08 | 2,236.10 | NC | | |
| 2-METHYLNAPHTHALENE | 91-57-6 | 10.00 | 4814B | 18SEP96 | 10 | 6,044.74 | NC | 08 | 3,768.78 | NC | | |
| 2-METHYLNAPHTHALENE | 91-57-6 | 10.00 | 4814B | 19SEP96 | 10 | 2,148.52 | NC | 08 | 17,493.24 | NC | 2,919.45 | 17,401.62 |
| 2-METHYLNAPHTHALENE | 91-57-6 | 10.00 | 651 | 03MAR98 | | | | 01 | 3,259.30 | NC | . | 3,259.30 |
| 2-PROPANONE | 67-64-1 | 50.00 | 4813 | 04AUG96 | 07 | 16,850.00 | NC | 05 | 9,921.90 | NC | | |
| 2-PROPANONE | 67-64-1 | 50.00 | 4813 | 05AUG96 | 07 | 19,953.00 | NC | 05 | 19,677.00 | NC | | |
| 2-PROPANONE | 67-64-1 | 50.00 | 4813 | 06AUG96 | 07 | 26,234.00 | NC | 05 | 22,446.00 | NC | | |
| 2-PROPANONE | 67-64-1 | 50.00 | 4813 | 07AUG96 | 07 | 21,557.00 | NC | 05 | 17,384.00 | NC | | |
| 2-PROPANONE | 67-64-1 | 50.00 | 4813 | 08AUG96 | 07 | 14,801.00 | NC | 05 | 8,999.70 | NC | 19,879.00 | 15,685.72 |
| 2-PROPANONE | 67-64-1 | 50.00 | 4814A | 16SEP96 | 09 | 78,550.00 | NC | 07 | 50.00 | ND | | |
| 2-PROPANONE | 67-64-1 | 50.00 | 4814A | 17SEP96 | | | | 07 | 54,524.00 | NC | | |
| 2-PROPANONE | 67-64-1 | 50.00 | 4814A | 18SEP96 | 09 | 98,102.45 | NC | 07 | 128,750.00 | NC | | |
| 2-PROPANONE | 67-64-1 | 50.00 | 4814A | 19SEP96 | 09 | 91,761.70 | NC | 07 | 98,965.40 | NC | | |
| 2-PROPANONE | 67-64-1 | 50.00 | 4814A | 20SEP96 | 09 | 77,859.20 | NC | 07 | 100,000.00 | NC | 86,568.34 | 76,457.88 |
| 2-PROPANONE | 67-64-1 | 50.00 | 4814B | 16SEP96 | 10 | 129,610.00 | NC | 08 | 69,310.00 | NC | | |
| 2-PROPANONE | 67-64-1 | 50.00 | 4814B | 17SEP96 | | | | 08 | 50,852.00 | NC | | |
| 2-PROPANONE | 67-64-1 | 50.00 | 4814B | 18SEP96 | 10 | 235,806.00 | NC | 08 | 292,399.00 | NC | | |
| 2-PROPANONE | 67-64-1 | 50.00 | 4814B | 19SEP96 | 10 | 303,963.00 | NC | 08 | 306,491.00 | NC | 223,126.33 | 179,763.00 |

Subcategory=Oils Option=9
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3,6-DIMETHYLPHENANTHRENE | 1576-67-6 | 10.00 | 4813 | 04AUG96 | 07 | 215.49 | NC | 05 | 375.71 | NC | | |
| 3,6-DIMETHYLPHENANTHRENE | 1576-67-6 | 10.00 | 4813 | 05AUG96 | 07 | 16.16 | NC | 05 | 114.04 | NC | | |
| 3,6-DIMETHYLPHENANTHRENE | 1576-67-6 | 10.00 | 4813 | 06AUG96 | 07 | 10.00 | ND | 05 | 506.00 | NC | | |
| 3,6-DIMETHYLPHENANTHRENE | 1576-67-6 | 10.00 | 4813 | 07AUG96 | 07 | 10.00 | ND | 05 | 2,762.00 | NC | | |
| 3,6-DIMETHYLPHENANTHRENE | 1576-67-6 | 10.00 | 4813 | 08AUG96 | 07 | 10.00 | ND | 05 | 428.30 | NC | 52.33 | 837.21 |
| 3,6-DIMETHYLPHENANTHRENE | 1576-67-6 | 10.00 | 4814A | 16SEP96 | 09 | 10.00 | ND | 07 | 20.00 | ND | | |
| 3,6-DIMETHYLPHENANTHRENE | 1576-67-6 | 10.00 | 4814A | 17SEP96 | | | | 07 | 70.00 | ND | | |
| 3,6-DIMETHYLPHENANTHRENE | 1576-67-6 | 10.00 | 4814A | 18SEP96 | 09 | 15.00 | ND | 07 | 200.00 | ND | | |
| 3,6-DIMETHYLPHENANTHRENE | 1576-67-6 | 10.00 | 4814A | 19SEP96 | 09 | 20.00 | ND | 07 | 1,000.00 | ND | | |
| 3,6-DIMETHYLPHENANTHRENE | 1576-67-6 | 10.00 | 4814A | 20SEP96 | 09 | 20.00 | ND | 07 | 300.00 | ND | 16.25 | 318.00 |
| 3,6-DIMETHYLPHENANTHRENE | 1576-67-6 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |
| 3,6-DIMETHYLPHENANTHRENE | 1576-67-6 | 10.00 | 4814B | 17SEP96 | | | | 08 | 20.00 | ND | | |
| 3,6-DIMETHYLPHENANTHRENE | 1576-67-6 | 10.00 | 4814B | 18SEP96 | 10 | 35.00 | ND | 08 | 100.00 | ND | | |
| 3,6-DIMETHYLPHENANTHRENE | 1576-67-6 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 400.00 | ND | 48.33 | 132.50 |
| 3,6-DIMETHYLPHENANTHRENE | 1576-67-6 | 10.00 | 651 | 03MAR98 | | | | 01 | 20.00 | ND | . | 20.00 |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 10.00 | 4813 | 04AUG96 | 07 | 596.90 | NC | 05 | 1,221.05 | NC | | |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 10.00 | 4813 | 05AUG96 | 07 | 1,029.65 | NC | 05 | 1,257.80 | NC | | |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 10.00 | 4813 | 06AUG96 | 07 | 1,308.40 | NC | 05 | 1,570.10 | NC | | |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 10.00 | 4813 | 07AUG96 | 07 | 332.00 | NC | 05 | 460.00 | NC | | |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 10.00 | 4813 | 08AUG96 | 07 | 10.00 | ND | 05 | 10.00 | ND | 655.39 | 903.79 |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 10.00 | 4814A | 16SEP96 | 09 | 863.50 | NC | 07 | 1,128.90 | NC | | |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 10.00 | 4814A | 17SEP96 | | | | 07 | 1,030.05 | NC | | |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 10.00 | 4814A | 18SEP96 | 09 | 541.22 | NC | 07 | 100.00 | ND | | |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 10.00 | 4814A | 19SEP96 | 09 | 684.84 | NC | 07 | 1,000.00 | ND | | |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 10.00 | 4814A | 20SEP96 | 09 | 100.00 | ND | 07 | 1,000.00 | ND | 547.39 | 851.79 |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 10.00 | 4814B | 16SEP96 | 10 | 10.00 | ND | 08 | 10.00 | ND | | |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 10.00 | 4814B | 17SEP96 | | | | 08 | 10.00 | ND | | |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 10.00 | 4814B | 18SEP96 | 10 | 55.00 | ND | 08 | 10.00 | ND | | |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 10.00 | 4814B | 19SEP96 | 10 | 100.00 | ND | 08 | 100.00 | ND | 55.00 | 32.50 |

---------- Subcategory=Oils Option=9 ----------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 10.00 | 651 | 03MAR98 | | | | 01 | 443.90 | NC | . | 443.90 |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 4813 | 04AUG96 | 07 | 586.08 | NC | 05 | 664.41 | NC | | |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 4813 | 05AUG96 | 07 | 1,507.73 | NC | 05 | 1,228.42 | NC | | |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 4813 | 06AUG96 | 07 | 889.57 | NC | 05 | 627.18 | NC | | |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 4813 | 07AUG96 | 07 | 611.44 | NC | 05 | 430.83 | NC | | |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 4813 | 08AUG96 | 07 | 1,181.47 | NC | 05 | 2,238.88 | NC | 955.26 | 1,037.94 |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 4814A | 16SEP96 | 09 | 8,828.00 | NC | 07 | 20,489.00 | NC | | |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 4814A | 17SEP96 | | | | 07 | 17,153.00 | NC | | |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 4814A | 18SEP96 | 09 | 5,262.31 | NC | 07 | 10,142.92 | NC | | |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 4814A | 19SEP96 | 09 | 7,026.06 | NC | 07 | 11,121.62 | NC | | |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 4814A | 20SEP96 | 09 | 15,168.14 | NC | 07 | 18,383.03 | NC | 9,071.13 | 15,457.91 |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 4814B | 16SEP96 | 10 | 8,258.00 | NC | 08 | 9,404.60 | NC | | |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 4814B | 17SEP96 | | | | 08 | 15,807.50 | NC | | |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 4814B | 18SEP96 | 10 | 6,316.73 | NC | 08 | 5,965.35 | NC | | |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 4814B | 19SEP96 | 10 | 5,299.88 | NC | 08 | 3,821.82 | NC | 6,624.87 | 8,749.82 |

---------- Subcategory=Organics Option=4 ----------

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 1987 | 16JUL90 | 12 | 1,100,000.00 | NC | 07B | 1,900,000.00 | NC | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 1987 | 17JUL90 | 12 | 1,100,000.00 | NC | | | | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 1987 | 18JUL90 | 12 | 1,100,000.00 | NC | 07B | 2,400,000.00 | NC | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 1987 | 19JUL90 | 12 | 1,000,000.00 | NC | 07B | 880,000.00 | NC | | |
| AMMONIA AS NITROGEN | 7664-41-7 | 50.00 | 1987 | 20JUL90 | 12 | 1,000,000.00 | NC | 07B | 1,400,000.00 | NC | 1,060,000.00 | 1,645,000.00 |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 1987 | 16JUL90 | 12 | 5,200,000.00 | NC | 07B | 5,800,000.00 | NC | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 1987 | 17JUL90 | 12 | 400,000.00 | NC | | | | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 1987 | 18JUL90 | 12 | 4,000,000.00 | NC | 07B | 7,550,000.00 | NC | | |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 1987 | 19JUL90 | 12 | 1,100,000.00 | NC | 07B | 4,100,000.00 | NC | | |

------------------------------------------------------------ Subcategory=Organics Option=4 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 2,000.00 | 1987 | 20JUL90 | 12 | 1,500,000.00 | NC | 07B | 6,000,000.00 | NC | 2,440,000.00 | 5,862,500.00 |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 1987 | 16JUL90 | 12 | 3,700,000.00 | NC | 07B | 11,000,000.00 | NC | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 1987 | 17JUL90 | 12 | 3,400,000.00 | NC | | | | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 1987 | 18JUL90 | 12 | 3,300,000.00 | NC | 07B | 10,500,000.00 | NC | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 1987 | 19JUL90 | 12 | 3,200,000.00 | NC | 07B | 6,500,000.00 | NC | | |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 5,000.00 | 1987 | 20JUL90 | 12 | 4,200,000.00 | NC | 07B | 7,900,000.00 | NC | 3,560,000.00 | 8,975,000.00 |
| D-CHEMICAL OXYGEN DEMAND | C-004D | 5,000.00 | 1987 | 16JUL90 | 12 | 2,600,000.00 | NC | 07B | 9,900,000.00 | NC | | |
| D-CHEMICAL OXYGEN DEMAND | C-004D | 5,000.00 | 1987 | 17JUL90 | 12 | 2,300,000.00 | NC | | | | | |
| D-CHEMICAL OXYGEN DEMAND | C-004D | 5,000.00 | 1987 | 18JUL90 | 12 | 2,700,000.00 | NC | 07B | 9,050,000.00 | NC | | |
| D-CHEMICAL OXYGEN DEMAND | C-004D | 5,000.00 | 1987 | 19JUL90 | 12 | 2,900,000.00 | NC | 07B | 6,100,000.00 | NC | | |
| D-CHEMICAL OXYGEN DEMAND | C-004D | 5,000.00 | 1987 | 20JUL90 | 12 | 3,500,000.00 | NC | 07B | 7,900,000.00 | NC | 2,800,000.00 | 8,237,500.00 |
| FLUORIDE | 16984-48-8 | 100.00 | 1987 | 16JUL90 | 12 | 5,300.00 | NC | 07B | 740.00 | NC | | |
| FLUORIDE | 16984-48-8 | 100.00 | 1987 | 17JUL90 | 12 | 4,700.00 | NC | | | | | |
| FLUORIDE | 16984-48-8 | 100.00 | 1987 | 18JUL90 | 12 | 4,300.00 | NC | 07B | 1,950.00 | NC | | |
| FLUORIDE | 16984-48-8 | 100.00 | 1987 | 19JUL90 | 12 | 4,000.00 | NC | 07B | 600.00 | NC | | |
| FLUORIDE | 16984-48-8 | 100.00 | 1987 | 20JUL90 | 12 | 21,000.00 | NC | 07B | 1,600.00 | NC | 7,860.00 | 1,222.50 |
| NITRATE/NITRITE | C-005 | 50.00 | 1987 | 16JUL90 | 12 | 5,500.00 | NC | 07B | 100,000.00 | NC | | |
| NITRATE/NITRITE | C-005 | 50.00 | 1987 | 17JUL90 | 12 | 5,300.00 | NC | | | | | |
| NITRATE/NITRITE | C-005 | 50.00 | 1987 | 18JUL90 | 12 | 200.00 | ND | 07B | 340,000.00 | NC | | |
| NITRATE/NITRITE | C-005 | 50.00 | 1987 | 19JUL90 | 12 | 200.00 | ND | 07B | 160,000.00 | NC | | |
| NITRATE/NITRITE | C-005 | 50.00 | 1987 | 20JUL90 | 12 | 200.00 | ND | 07B | 320,000.00 | NC | 2,280.00 | 230,000.00 |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 1987 | 16JUL90 | 12 | 980.00 | NC | 07B | 800.00 | NC | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 1987 | 17JUL90 | 12 | 890.00 | NC | | | | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 1987 | 18JUL90 | 12 | 4,300.00 | NC | 07B | 3,600.00 | NC | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 1987 | 19JUL90 | 12 | 3,800.00 | NC | 07B | 7,800.00 | NC | | |
| TOTAL CYANIDE | 57-12-5 | 20.00 | 1987 | 20JUL90 | 12 | 910.00 | NC | 07B | 880.00 | NC | 2,176.00 | 3,270.00 |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 1987 | 16JUL90 | 12 | 840,000.00 | NC | 07B | 3,300,000.00 | NC | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 1987 | 17JUL90 | 12 | 750,000.00 | NC | | | | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 1987 | 18JUL90 | 12 | 940,000.00 | NC | 07B | 3,750,000.00 | NC | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 1987 | 19JUL90 | 12 | 1,200,000.00 | NC | 07B | 2,100,000.00 | NC | | |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1,000.00 | 1987 | 20JUL90 | 12 | 1,300,000.00 | NC | 07B | 2,800,000.00 | NC | 1,006,000.00 | 2,987,500.00 |

Subcategory=Organics Option=4 (continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 1987 | 16JUL90 | 12 | 2,000.00 | NC | 07B | 4,000.00 | NC | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 1987 | 17JUL90 | 12 | 2,000.00 | NC | | | | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 1987 | 18JUL90 | 12 | 1,000.00 | ND | 07B | 12,000.00 | NC | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 1987 | 19JUL90 | 12 | 4,000.00 | NC | 07B | 1,000.00 | ND | | |
| TOTAL SULFIDE | 18496-25-8 | 1,000.00 | 1987 | 20JUL90 | 12 | 5,000.00 | NC | 07B | 24,000.00 | NC | 2,800.00 | 10,250.00 |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 1987 | 16JUL90 | 12 | 480,000.00 | NC | 07B | 3,700,000.00 | NC | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 1987 | 17JUL90 | 12 | 400,000.00 | NC | | | | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 1987 | 18JUL90 | 12 | 700,000.00 | NC | 07B | 680,000.00 | NC | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 1987 | 19JUL90 | 12 | 480,000.00 | NC | 07B | 580,000.00 | NC | | |
| TOTAL SUSPENDED SOLIDS | C-009 | 4,000.00 | 1987 | 20JUL90 | 12 | 340,000.00 | NC | 07B | 780,000.00 | NC | 480,000.00 | 1,435,000.00 |
| ALUMINUM | 7429-90-5 | 200.00 | 1987 | 16JUL90 | 12 | 1,700.00 | NC | 07B | 7,660.00 | NC | | |
| ALUMINUM | 7429-90-5 | 200.00 | 1987 | 17JUL90 | 12 | 2,060.00 | NC | | | | | |
| ALUMINUM | 7429-90-5 | 200.00 | 1987 | 18JUL90 | 12 | 2,550.00 | NC | 07B | 7,310.00 | NC | | |
| ALUMINUM | 7429-90-5 | 200.00 | 1987 | 19JUL90 | 12 | 2,720.00 | NC | 07B | 6,440.00 | NC | | |
| ALUMINUM | 7429-90-5 | 200.00 | 1987 | 20JUL90 | 12 | 3,340.00 | NC | 07B | 2,480.00 | NC | 2,474.00 | 5,972.50 |
| ANTIMONY | 7440-36-0 | 20.00 | 1987 | 16JUL90 | 12 | 550.00 | NC | 07B | 337.00 | NC | | |
| ANTIMONY | 7440-36-0 | 20.00 | 1987 | 17JUL90 | 12 | 537.00 | NC | | | | | |
| ANTIMONY | 7440-36-0 | 20.00 | 1987 | 18JUL90 | 12 | 811.00 | NC | 07B | 1,540.00 | NC | | |
| ANTIMONY | 7440-36-0 | 20.00 | 1987 | 19JUL90 | 12 | 475.00 | NC | 07B | 146.00 | NC | | |
| ANTIMONY | 7440-36-0 | 20.00 | 1987 | 20JUL90 | 12 | 474.00 | NC | 07B | 1,390.00 | NC | 569.40 | 853.25 |
| ARSENIC | 7440-38-2 | 10.00 | 1987 | 16JUL90 | 12 | 166.00 | NC | 07B | 47.00 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 1987 | 17JUL90 | 12 | 167.00 | NC | | | | | |
| ARSENIC | 7440-38-2 | 10.00 | 1987 | 18JUL90 | 12 | 153.00 | NC | 07B | 85.00 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 1987 | 19JUL90 | 12 | 187.90 | NC | 07B | 77.20 | NC | | |
| ARSENIC | 7440-38-2 | 10.00 | 1987 | 20JUL90 | 12 | 151.40 | NC | 07B | 151.80 | NC | 165.06 | 90.25 |
| BARIUM | 7440-39-3 | 200.00 | 1987 | 16JUL90 | 12 | 2,370.00 | NC | 07B | 2,190.00 | NC | | |
| BARIUM | 7440-39-3 | 200.00 | 1987 | 17JUL90 | 12 | 2,150.00 | NC | | | | | |
| BARIUM | 7440-39-3 | 200.00 | 1987 | 18JUL90 | 12 | 2,510.00 | NC | 07B | 1,335.00 | NC | | |
| BARIUM | 7440-39-3 | 200.00 | 1987 | 19JUL90 | 12 | 3,130.00 | NC | 07B | 1,160.00 | NC | | |
| BARIUM | 7440-39-3 | 200.00 | 1987 | 20JUL90 | 12 | 3,670.00 | NC | 07B | 1,030.00 | NC | 2,766.00 | 1,428.75 |

Subcategory=Organics Option=4
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BORON | 7440-42-8 | 100.00 | 1987 | 16JUL90 | 12 | 3,500.00 | NC | 07B | 4,010.00 | NC | | |
| BORON | 7440-42-8 | 100.00 | 1987 | 17JUL90 | 12 | 3,990.00 | NC | | | | | |
| BORON | 7440-42-8 | 100.00 | 1987 | 18JUL90 | 12 | 3,630.00 | NC | 07B | 3,100.00 | NC | | |
| BORON | 7440-42-8 | 100.00 | 1987 | 19JUL90 | 12 | 3,690.00 | NC | 07B | 3,070.00 | NC | | |
| BORON | 7440-42-8 | 100.00 | 1987 | 20JUL90 | 12 | 3,890.00 | NC | 07B | 4,320.00 | NC | 3,740.00 | 3,625.00 |
| CALCIUM | 7440-70-2 | 5,000.00 | 1987 | 16JUL90 | 12 | 136,000.00 | NC | 07B | 1,200,000.00 | NC | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 1987 | 17JUL90 | 12 | 160,000.00 | NC | | | | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 1987 | 18JUL90 | 12 | 270,000.00 | NC | 07B | 1,025,000.00 | NC | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 1987 | 19JUL90 | 12 | 367,000.00 | NC | 07B | 1,220,000.00 | NC | | |
| CALCIUM | 7440-70-2 | 5,000.00 | 1987 | 20JUL90 | 12 | 497,000.00 | NC | 07B | 1,390,000.00 | NC | 286,000.00 | 1,208,750.00 |
| CHROMIUM | 7440-47-3 | 10.00 | 1987 | 16JUL90 | 12 | 172.00 | NC | 07B | 274.00 | NC | | |
| CHROMIUM | 7440-47-3 | 10.00 | 1987 | 17JUL90 | 12 | 183.00 | NC | | | | | |
| CHROMIUM | 7440-47-3 | 10.00 | 1987 | 18JUL90 | 12 | 173.00 | NC | 07B | 102.50 | NC | | |
| CHROMIUM | 7440-47-3 | 10.00 | 1987 | 19JUL90 | 12 | 172.00 | NC | 07B | 63.00 | NC | | |
| CHROMIUM | 7440-47-3 | 10.00 | 1987 | 20JUL90 | 12 | 192.00 | NC | 07B | 95.00 | NC | 178.40 | 133.63 |
| COBALT | 7440-48-4 | 50.00 | 1987 | 16JUL90 | 12 | 461.00 | NC | 07B | 593.00 | NC | | |
| COBALT | 7440-48-4 | 50.00 | 1987 | 17JUL90 | 12 | 464.00 | NC | | | | | |
| COBALT | 7440-48-4 | 50.00 | 1987 | 18JUL90 | 12 | 415.00 | NC | 07B | 731.00 | NC | | |
| COBALT | 7440-48-4 | 50.00 | 1987 | 19JUL90 | 12 | 412.00 | NC | 07B | 253.00 | NC | | |
| COBALT | 7440-48-4 | 50.00 | 1987 | 20JUL90 | 12 | 434.00 | NC | 07B | 538.00 | NC | 437.20 | 528.75 |
| COPPER | 7440-50-8 | 25.00 | 1987 | 16JUL90 | 12 | 731.00 | NC | 07B | 2,690.00 | NC | | |
| COPPER | 7440-50-8 | 25.00 | 1987 | 17JUL90 | 12 | 795.00 | NC | | | | | |
| COPPER | 7440-50-8 | 25.00 | 1987 | 18JUL90 | 12 | 683.00 | NC | 07B | 438.00 | NC | | |
| COPPER | 7440-50-8 | 25.00 | 1987 | 19JUL90 | 12 | 622.00 | NC | 07B | 537.00 | NC | | |
| COPPER | 7440-50-8 | 25.00 | 1987 | 20JUL90 | 12 | 687.00 | NC | 07B | 877.00 | NC | 703.60 | 1,135.50 |
| IODINE | 7553-56-2 | 1,000.00 | 1987 | 16JUL90 | 12 | 15,500.00 | NC | 07B | 6,600.00 | NC | | |
| IODINE | 7553-56-2 | 1,000.00 | 1987 | 17JUL90 | 12 | 12,400.00 | NC | | | | | |
| IODINE | 7553-56-2 | 1,000.00 | 1987 | 18JUL90 | 12 | 15,700.00 | NC | 07B | 4,850.00 | NC | | |
| IODINE | 7553-56-2 | 1,000.00 | 1987 | 19JUL90 | 12 | 8,300.00 | NC | 07B | 3,800.00 | NC | | |
| IODINE | 7553-56-2 | 1,000.00 | 1987 | 20JUL90 | 12 | 8,700.00 | NC | 07B | 15,100.00 | NC | 12,120.00 | 7,587.50 |
| IRON | 7439-89-6 | 100.00 | 1987 | 16JUL90 | 12 | 3,790.00 | NC | 07B | 6,430.00 | NC | | |

---------------------------------------------------------- Subcategory=Organics Option=4 ----------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IRON | 7439-89-6 | 100.00 | 1987 | 17JUL90 | 12 | 4,100.00 | NC | | | | | |
| IRON | 7439-89-6 | 100.00 | 1987 | 18JUL90 | 12 | 3,860.00 | NC | 07B | 3,405.00 | NC | | |
| IRON | 7439-89-6 | 100.00 | 1987 | 19JUL90 | 12 | 3,840.00 | NC | 07B | 2,360.00 | NC | | |
| IRON | 7439-89-6 | 100.00 | 1987 | 20JUL90 | 12 | 4,150.00 | NC | 07B | 3,770.00 | NC | 3,948.00 | 3,991.25 |
| LEAD | 7439-92-1 | 50.00 | 1987 | 16JUL90 | 12 | 152.00 | NC | 07B | 687.00 | NC | | |
| LEAD | 7439-92-1 | 50.00 | 1987 | 17JUL90 | 12 | 219.00 | NC | | | | | |
| LEAD | 7439-92-1 | 50.00 | 1987 | 18JUL90 | 12 | 404.00 | NC | 07B | 108.50 | NC | | |
| LEAD | 7439-92-1 | 50.00 | 1987 | 19JUL90 | 12 | 350.00 | NC | 07B | 461.00 | NC | | |
| LEAD | 7439-92-1 | 50.00 | 1987 | 20JUL90 | 12 | 444.00 | NC | 07B | 392.00 | NC | 313.80 | 412.13 |
| LITHIUM | 7439-93-2 | 100.00 | 1987 | 16JUL90 | 12 | 25,000.00 | NC | 07B | 4,700.00 | NC | | |
| LITHIUM | 7439-93-2 | 100.00 | 1987 | 17JUL90 | 12 | 23,800.00 | NC | | | | | |
| LITHIUM | 7439-93-2 | 100.00 | 1987 | 18JUL90 | 12 | 19,500.00 | NC | 07B | 18,750.00 | NC | | |
| LITHIUM | 7439-93-2 | 100.00 | 1987 | 19JUL90 | 12 | 26,900.00 | NC | 07B | 10,500.00 | NC | | |
| LITHIUM | 7439-93-2 | 100.00 | 1987 | 20JUL90 | 12 | 25,000.00 | NC | 07B | 13,600.00 | NC | 24,040.00 | 11,887.50 |
| MANGANESE | 7439-96-5 | 15.00 | 1987 | 16JUL90 | 12 | 242.00 | NC | 07B | 226.00 | NC | | |
| MANGANESE | 7439-96-5 | 15.00 | 1987 | 17JUL90 | 12 | 245.00 | NC | | | | | |
| MANGANESE | 7439-96-5 | 15.00 | 1987 | 18JUL90 | 12 | 218.00 | NC | 07B | 190.00 | NC | | |
| MANGANESE | 7439-96-5 | 15.00 | 1987 | 19JUL90 | 12 | 205.00 | NC | 07B | 179.00 | NC | | |
| MANGANESE | 7439-96-5 | 15.00 | 1987 | 20JUL90 | 12 | 225.00 | NC | 07B | 353.00 | NC | 227.00 | 237.00 |
| MOLYBDENUM | 7439-98-7 | 10.00 | 1987 | 16JUL90 | 12 | 931.00 | NC | 07B | 562.00 | NC | | |
| MOLYBDENUM | 7439-98-7 | 10.00 | 1987 | 17JUL90 | 12 | 989.00 | NC | | | | | |
| MOLYBDENUM | 7439-98-7 | 10.00 | 1987 | 18JUL90 | 12 | 938.00 | NC | 07B | 752.50 | NC | | |
| MOLYBDENUM | 7439-98-7 | 10.00 | 1987 | 19JUL90 | 12 | 916.00 | NC | 07B | 527.00 | NC | | |
| MOLYBDENUM | 7439-98-7 | 10.00 | 1987 | 20JUL90 | 12 | 940.00 | NC | 07B | 6,950.00 | NC | 942.80 | 2,197.88 |
| NICKEL | 7440-02-0 | 40.00 | 1987 | 16JUL90 | 12 | 5,980.00 | NC | 07B | 2,460.00 | NC | | |
| NICKEL | 7440-02-0 | 40.00 | 1987 | 17JUL90 | 12 | 6,350.00 | NC | | | | | |
| NICKEL | 7440-02-0 | 40.00 | 1987 | 18JUL90 | 12 | 5,820.00 | NC | 07B | 1,565.00 | NC | | |
| NICKEL | 7440-02-0 | 40.00 | 1987 | 19JUL90 | 12 | 5,390.00 | NC | 07B | 1,470.00 | NC | | |
| NICKEL | 7440-02-0 | 40.00 | 1987 | 20JUL90 | 12 | 5,470.00 | NC | 07B | 2,610.00 | NC | 5,802.00 | 2,026.25 |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 1987 | 16JUL90 | 12 | 6,100.00 | NC | 07B | 5,700.00 | NC | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 1987 | 17JUL90 | 12 | 6,200.00 | NC | | | | | |

Appendix C: Listing of Data used for the Percent Removal Test and Long Term Averages

Subcategory=Organics Option=4
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 1987 | 18JUL90 | 12 | 6,000.00 | NC | 07B | 3,000.00 | NC | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 1987 | 19JUL90 | 12 | 7,000.00 | NC | 07B | 3,100.00 | NC | | |
| PHOSPHORUS | 7723-14-0 | 1,000.00 | 1987 | 20JUL90 | 12 | 6,900.00 | NC | 07B | 15,900.00 | NC | 6,440.00 | 6,925.00 |
| POTASSIUM | 7440-09-7 | 1,000.00 | 1987 | 16JUL90 | 12 | 1,760,000.00 | NC | 07B | 1,180,000.00 | NC | | |
| POTASSIUM | 7440-09-7 | 1,000.00 | 1987 | 17JUL90 | 12 | 1,730,000.00 | NC | | | | | |
| POTASSIUM | 7440-09-7 | 1,000.00 | 1987 | 18JUL90 | 12 | 1,530,000.00 | NC | 07B | 1,055,000.00 | NC | | |
| POTASSIUM | 7440-09-7 | 1,000.00 | 1987 | 19JUL90 | 12 | 1,740,000.00 | NC | 07B | 1,010,000.00 | NC | | |
| POTASSIUM | 7440-09-7 | 1,000.00 | 1987 | 20JUL90 | 12 | 1,730,000.00 | NC | 07B | 1,240,000.00 | NC | 1,698,000.00 | 1,121,250.00 |
| SILICON | 7440-21-3 | 100.00 | 1987 | 16JUL90 | 12 | 2,300.00 | NC | 07B | 3,000.00 | NC | | |
| SILICON | 7440-21-3 | 100.00 | 1987 | 17JUL90 | 12 | 2,600.00 | NC | | | | | |
| SILICON | 7440-21-3 | 100.00 | 1987 | 18JUL90 | 12 | 1,800.00 | NC | 07B | 1,550.00 | NC | | |
| SILICON | 7440-21-3 | 100.00 | 1987 | 19JUL90 | 12 | 3,300.00 | NC | 07B | 3,100.00 | NC | | |
| SILICON | 7440-21-3 | 100.00 | 1987 | 20JUL90 | 12 | 3,400.00 | NC | 07B | 3,600.00 | NC | 2,680.00 | 2,812.50 |
| SODIUM | 7440-23-5 | 5,000.00 | 1987 | 16JUL90 | 12 | 6,120,000.00 | NC | 07B | 6,390,000.00 | NC | | |
| SODIUM | 7440-23-5 | 5,000.00 | 1987 | 17JUL90 | 12 | 6,130,000.00 | NC | | | | | |
| SODIUM | 7440-23-5 | 5,000.00 | 1987 | 18JUL90 | 12 | 5,570,000.00 | NC | 07B | 5,855,000.00 | NC | | |
| SODIUM | 7440-23-5 | 5,000.00 | 1987 | 19JUL90 | 12 | 5,360,000.00 | NC | 07B | 3,500,000.00 | NC | | |
| SODIUM | 7440-23-5 | 5,000.00 | 1987 | 20JUL90 | 12 | 5,060,000.00 | NC | 07B | 4,080,000.00 | NC | 5,648,000.00 | 4,956,250.00 |
| STRONTIUM | 7440-24-6 | 100.00 | 1987 | 16JUL90 | 12 | 1,600.00 | NC | 07B | 3,900.00 | NC | | |
| STRONTIUM | 7440-24-6 | 100.00 | 1987 | 17JUL90 | 12 | 1,500.00 | NC | | | | | |
| STRONTIUM | 7440-24-6 | 100.00 | 1987 | 18JUL90 | 12 | 1,800.00 | NC | 07B | 4,350.00 | NC | | |
| STRONTIUM | 7440-24-6 | 100.00 | 1987 | 19JUL90 | 12 | 2,600.00 | NC | 07B | 5,700.00 | NC | | |
| STRONTIUM | 7440-24-6 | 100.00 | 1987 | 20JUL90 | 12 | 2,800.00 | NC | 07B | 6,400.00 | NC | 2,060.00 | 5,087.50 |
| SULFUR | 7704-34-9 | 1,000.00 | 1987 | 16JUL90 | 12 | 1,420,000.00 | NC | 07B | 1,990,000.00 | NC | | |
| SULFUR | 7704-34-9 | 1,000.00 | 1987 | 17JUL90 | 12 | 1,440,000.00 | NC | | | | | |
| SULFUR | 7704-34-9 | 1,000.00 | 1987 | 18JUL90 | 12 | 1,190,000.00 | NC | 07B | 1,715,000.00 | NC | | |
| SULFUR | 7704-34-9 | 1,000.00 | 1987 | 19JUL90 | 12 | 1,440,000.00 | NC | 07B | 972,000.00 | NC | | |
| SULFUR | 7704-34-9 | 1,000.00 | 1987 | 20JUL90 | 12 | 1,360,000.00 | NC | 07B | 1,730,000.00 | NC | 1,370,000.00 | 1,601,750.00 |
| TIN | 7440-31-5 | 30.00 | 1987 | 16JUL90 | 12 | 2,150.00 | NC | 07B | 2,530.00 | NC | | |
| TIN | 7440-31-5 | 30.00 | 1987 | 17JUL90 | 12 | 1,900.00 | NC | | | | | |
| TIN | 7440-31-5 | 30.00 | 1987 | 18JUL90 | 12 | 1,710.00 | NC | 07B | 381.00 | NC | | |

Subcategory=Organics Option=4
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIN | 7440-31-5 | 30.00 | 1987 | 19JUL90 | 12 | 1,570.00 | NC | 07B | 209.00 | NC | | |
| TIN | 7440-31-5 | 30.00 | 1987 | 20JUL90 | 12 | 1,460.00 | NC | 07B | 200.00 | NC | 1,758.00 | 830.00 |
| TITANIUM | 7440-32-6 | 5.00 | 1987 | 16JUL90 | 12 | 62.00 | NC | 07B | 64.00 | NC | | |
| TITANIUM | 7440-32-6 | 5.00 | 1987 | 17JUL90 | 12 | 44.00 | NC | | | | | |
| TITANIUM | 7440-32-6 | 5.00 | 1987 | 18JUL90 | 12 | 39.00 | NC | 07B | 19.50 | NC | | |
| TITANIUM | 7440-32-6 | 5.00 | 1987 | 19JUL90 | 12 | 47.00 | NC | 07B | 20.00 | NC | | |
| TITANIUM | 7440-32-6 | 5.00 | 1987 | 20JUL90 | 12 | 34.00 | NC | 07B | 22.00 | NC | 45.20 | 31.38 |
| ZINC | 7440-66-6 | 20.00 | 1987 | 16JUL90 | 12 | 334.00 | NC | 07B | 516.00 | NC | | |
| ZINC | 7440-66-6 | 20.00 | 1987 | 17JUL90 | 12 | 367.00 | NC | | | | | |
| ZINC | 7440-66-6 | 20.00 | 1987 | 18JUL90 | 12 | 359.00 | NC | 07B | 1,170.00 | NC | | |
| ZINC | 7440-66-6 | 20.00 | 1987 | 19JUL90 | 12 | 395.00 | NC | 07B | 971.00 | NC | | |
| ZINC | 7440-66-6 | 20.00 | 1987 | 20JUL90 | 12 | 454.00 | NC | 07B | 1,210.00 | NC | 381.80 | 966.75 |
| ACETOPHENONE | 98-86-2 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 336.24 | NC | | |
| ACETOPHENONE | 98-86-2 | 10.00 | 1987 | 17JUL90 | 12 | 10.00 | ND | | | | | |
| ACETOPHENONE | 98-86-2 | 10.00 | 1987 | 18JUL90 | 12 | 12.50 | ND | 07B | 738.57 | NC | | |
| ACETOPHENONE | 98-86-2 | 10.00 | 1987 | 19JUL90 | 12 | 10.00 | ND | 07B | 466.68 | NC | | |
| ACETOPHENONE | 98-86-2 | 10.00 | 1987 | 20JUL90 | 12 | 136.86 | NC | 07B | 357.47 | NC | 35.87 | 474.74 |
| ANILINE | 62-53-3 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 391.78 | NC | | |
| ANILINE | 62-53-3 | 10.00 | 1987 | 17JUL90 | 12 | 10.00 | ND | | | | | |
| ANILINE | 62-53-3 | 10.00 | 1987 | 18JUL90 | 12 | 12.50 | ND | 07B | 177.73 | NC | | |
| ANILINE | 62-53-3 | 10.00 | 1987 | 19JUL90 | 12 | 10.00 | ND | 07B | 10.00 | ND | | |
| ANILINE | 62-53-3 | 10.00 | 1987 | 20JUL90 | 12 | 10.00 | ND | 07B | 10.00 | ND | 10.50 | 147.38 |
| BENZENE | 71-43-2 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 178.73 | NC | | |
| BENZENE | 71-43-2 | 10.00 | 1987 | 17JUL90 | 12 | 10.00 | ND | | | | | |
| BENZENE | 71-43-2 | 10.00 | 1987 | 18JUL90 | 12 | 10.00 | ND | 07B | 132.67 | NC | | |
| BENZENE | 71-43-2 | 10.00 | 1987 | 19JUL90 | 12 | 10.00 | ND | 07B | 143.18 | NC | | |
| BENZENE | 71-43-2 | 10.00 | 1987 | 20JUL90 | 12 | 10.00 | ND | 07B | 96.64 | NC | 10.00 | 137.80 |
| BENZOIC ACID | 65-85-0 | 50.00 | 1987 | 16JUL90 | 12 | 50.00 | ND | 07B | 15,759.52 | NC | | |
| BENZOIC ACID | 65-85-0 | 50.00 | 1987 | 17JUL90 | 12 | 500.00 | ND | | | | | |
| BENZOIC ACID | 65-85-0 | 50.00 | 1987 | 18JUL90 | 12 | 500.00 | ND | 07B | 5,648.98 | NC | | |
| BENZOIC ACID | 65-85-0 | 50.00 | 1987 | 19JUL90 | 12 | 50.00 | ND | 07B | 500.00 | ND | | |

Subcategory=Organics Option=4
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BENZOIC ACID | 65-85-0 | 50.00 | 1987 | 20JUL90 | 12 | 500.00 | ND | 07B | 500.00 | ND | 320.00 | 5,602.13 |
| BROMODICHLOROMETHANE | 75-27-4 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 26.43 | NC | | |
| BROMODICHLOROMETHANE | 75-27-4 | 10.00 | 1987 | 17JUL90 | 12 | 10.00 | ND | | | | | |
| BROMODICHLOROMETHANE | 75-27-4 | 10.00 | 1987 | 18JUL90 | 12 | 10.00 | ND | 07B | 72.85 | NC | | |
| BROMODICHLOROMETHANE | 75-27-4 | 10.00 | 1987 | 19JUL90 | 12 | 10.00 | ND | 07B | 75.35 | NC | | |
| BROMODICHLOROMETHANE | 75-27-4 | 10.00 | 1987 | 20JUL90 | 12 | 10.00 | ND | 07B | 51.18 | NC | 10.00 | 56.45 |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 1987 | 16JUL90 | 12 | 21.28 | NC | 07B | 10.00 | ND | | |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 1987 | 17JUL90 | 12 | 10.00 | ND | | | | | |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 1987 | 18JUL90 | 12 | 10.00 | ND | 07B | 56.33 | NC | | |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 1987 | 19JUL90 | 12 | 23.50 | NC | 07B | 36.03 | NC | | |
| CARBON DISULFIDE | 75-15-0 | 10.00 | 1987 | 20JUL90 | 12 | 17.62 | NC | 07B | 13.91 | NC | 16.48 | 29.07 |
| CHLOROBENZENE | 108-90-7 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 101.18 | NC | | |
| CHLOROBENZENE | 108-90-7 | 10.00 | 1987 | 17JUL90 | 12 | 10.00 | ND | | | | | |
| CHLOROBENZENE | 108-90-7 | 10.00 | 1987 | 18JUL90 | 12 | 10.00 | ND | 07B | 70.39 | NC | | |
| CHLOROBENZENE | 108-90-7 | 10.00 | 1987 | 19JUL90 | 12 | 10.00 | ND | 07B | 71.09 | NC | | |
| CHLOROBENZENE | 108-90-7 | 10.00 | 1987 | 20JUL90 | 12 | 10.00 | ND | 07B | 94.63 | NC | 10.00 | 84.32 |
| CHLOROFORM | 67-66-3 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 5,224.40 | NC | | |
| CHLOROFORM | 67-66-3 | 10.00 | 1987 | 17JUL90 | 12 | 31.23 | NC | | | | | |
| CHLOROFORM | 67-66-3 | 10.00 | 1987 | 18JUL90 | 12 | 90.48 | NC | 07B | 10,621.05 | NC | | |
| CHLOROFORM | 67-66-3 | 10.00 | 1987 | 19JUL90 | 12 | 114.83 | NC | 07B | 9,751.60 | NC | | |
| CHLOROFORM | 67-66-3 | 10.00 | 1987 | 20JUL90 | 12 | 116.57 | NC | 07B | 10.00 | ND | 72.62 | 6,401.76 |
| DIMETHYL SULFONE | 67-71-0 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 10.00 | ND | | |
| DIMETHYL SULFONE | 67-71-0 | 10.00 | 1987 | 17JUL90 | 12 | 10.00 | ND | | | | | |
| DIMETHYL SULFONE | 67-71-0 | 10.00 | 1987 | 18JUL90 | 12 | 217.11 | NC | 07B | 314.82 | NC | | |
| DIMETHYL SULFONE | 67-71-0 | 10.00 | 1987 | 19JUL90 | 12 | 393.84 | NC | 07B | 355.76 | NC | | |
| DIMETHYL SULFONE | 67-71-0 | 10.00 | 1987 | 20JUL90 | 12 | 157.55 | NC | 07B | 891.53 | NC | 157.70 | 393.03 |
| ETHYLENETHIOUREA | 96-45-7 | 20.00 | 1987 | 16JUL90 | 12 | 20.00 | ND | 07B | 20.00 | ND | | |
| ETHYLENETHIOUREA | 96-45-7 | 20.00 | 1987 | 17JUL90 | 12 | 21,916.17 | NC | | | | | |
| ETHYLENETHIOUREA | 96-45-7 | 20.00 | 1987 | 18JUL90 | 12 | 25.00 | ND | 07B | 9,654.59 | NC | | |
| ETHYLENETHIOUREA | 96-45-7 | 20.00 | 1987 | 19JUL90 | 12 | 20.00 | ND | 07B | 8,306.27 | NC | | |
| ETHYLENETHIOUREA | 96-45-7 | 20.00 | 1987 | 20JUL90 | 12 | 20.00 | ND | 07B | 20.00 | ND | 4,400.23 | 4,500.21 |

Subcategory=Organics Option=4
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HEXACHLOROETHANE | 67-72-1 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 101.30 | NC | | |
| HEXACHLOROETHANE | 67-72-1 | 10.00 | 1987 | 17JUL90 | 12 | 10.00 | ND | | | | | |
| HEXACHLOROETHANE | 67-72-1 | 10.00 | 1987 | 18JUL90 | 12 | 12.50 | ND | 07B | 74.56 | NC | | |
| HEXACHLOROETHANE | 67-72-1 | 10.00 | 1987 | 19JUL90 | 12 | 10.00 | ND | 07B | 10.00 | ND | | |
| HEXACHLOROETHANE | 67-72-1 | 10.00 | 1987 | 20JUL90 | 12 | 10.00 | ND | 07B | 10.00 | ND | 10.50 | 48.96 |
| HEXANOIC ACID | 142-62-1 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 1,111.19 | NC | | |
| HEXANOIC ACID | 142-62-1 | 10.00 | 1987 | 17JUL90 | 12 | 100.00 | ND | | | | | |
| HEXANOIC ACID | 142-62-1 | 10.00 | 1987 | 18JUL90 | 12 | 100.00 | ND | 07B | 100.00 | ND | | |
| HEXANOIC ACID | 142-62-1 | 10.00 | 1987 | 19JUL90 | 12 | 10.00 | ND | 07B | 1,422.19 | NC | | |
| HEXANOIC ACID | 142-62-1 | 10.00 | 1987 | 20JUL90 | 12 | 100.00 | ND | 07B | 4,962.98 | NC | 64.00 | 1,899.09 |
| ISOPHORONE | 78-59-1 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 60.36 | NC | | |
| ISOPHORONE | 78-59-1 | 10.00 | 1987 | 17JUL90 | 12 | 10.00 | ND | | | | | |
| ISOPHORONE | 78-59-1 | 10.00 | 1987 | 18JUL90 | 12 | 12.50 | ND | 07B | 11.25 | ND | | |
| ISOPHORONE | 78-59-1 | 10.00 | 1987 | 19JUL90 | 12 | 26.93 | NC | 07B | 10.00 | ND | | |
| ISOPHORONE | 78-59-1 | 10.00 | 1987 | 20JUL90 | 12 | 10.00 | ND | 07B | 141.09 | NC | 13.89 | 55.67 |
| M-XYLENE | 108-38-3 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 58.41 | NC | | |
| M-XYLENE | 108-38-3 | 10.00 | 1987 | 17JUL90 | 12 | 10.00 | ND | | | | | |
| M-XYLENE | 108-38-3 | 10.00 | 1987 | 18JUL90 | 12 | 10.00 | ND | 07B | 55.58 | NC | | |
| M-XYLENE | 108-38-3 | 10.00 | 1987 | 19JUL90 | 12 | 10.00 | ND | 07B | 92.88 | NC | | |
| M-XYLENE | 108-38-3 | 10.00 | 1987 | 20JUL90 | 12 | 10.00 | ND | 07B | 309.54 | NC | 10.00 | 129.10 |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 1987 | 16JUL90 | 12 | 46.15 | NC | 07B | 33,112.60 | NC | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 1987 | 17JUL90 | 12 | 73.34 | NC | | | | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 1987 | 18JUL90 | 12 | 198.43 | NC | 07B | 87,256.00 | NC | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 1987 | 19JUL90 | 12 | 313.14 | NC | 07B | 40,324.20 | NC | | |
| METHYLENE CHLORIDE | 75-09-2 | 10.00 | 1987 | 20JUL90 | 12 | 391.33 | NC | 07B | 10.00 | ND | 204.48 | 40,175.70 |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 10.00 | ND | | |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 1987 | 17JUL90 | 12 | 10.00 | ND | | | | | |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 1987 | 18JUL90 | 12 | 12.50 | ND | 07B | 23.35 | NC | | |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 1987 | 19JUL90 | 12 | 10.00 | ND | 07B | 132.45 | NC | | |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 10.00 | 1987 | 20JUL90 | 12 | 10.00 | ND | 07B | 225.19 | NC | 10.50 | 97.75 |

Subcategory=Organics Option=4 (continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| O+P XYLENE | 136777-61-2 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 13.08 | NC | | |
| O+P XYLENE | 136777-61-2 | 10.00 | 1987 | 17JUL90 | 12 | 10.00 | ND | | | | | |
| O+P XYLENE | 136777-61-2 | 10.00 | 1987 | 18JUL90 | 12 | 10.00 | ND | 07B | 24.09 | NC | | |
| O+P XYLENE | 136777-61-2 | 10.00 | 1987 | 19JUL90 | 12 | 10.00 | ND | 07B | 35.68 | NC | | |
| O+P XYLENE | 136777-61-2 | 10.00 | 1987 | 20JUL90 | 12 | 10.00 | ND | 07B | 112.83 | NC | 10.00 | 46.42 |
| O-CRESOL | 95-48-7 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 10,515.96 | NC | | |
| O-CRESOL | 95-48-7 | 10.00 | 1987 | 17JUL90 | 12 | 10.00 | ND | | | | | |
| O-CRESOL | 95-48-7 | 10.00 | 1987 | 18JUL90 | 12 | 177.07 | NC | 07B | 7,161.95 | NC | | |
| O-CRESOL | 95-48-7 | 10.00 | 1987 | 19JUL90 | 12 | 10.00 | ND | 07B | 13,788.60 | NC | | |
| O-CRESOL | 95-48-7 | 10.00 | 1987 | 20JUL90 | 12 | 716.84 | NC | 07B | 14,313.17 | NC | 184.78 | 11,444.92 |
| P-CRESOL | 106-44-5 | 10.00 | 1987 | 16JUL90 | 12 | 21.21 | NC | 07B | 406.33 | NC | | |
| P-CRESOL | 106-44-5 | 10.00 | 1987 | 17JUL90 | 12 | 100.00 | ND | | | | | |
| P-CRESOL | 106-44-5 | 10.00 | 1987 | 18JUL90 | 12 | 100.00 | ND | 07B | 275.01 | NC | | |
| P-CRESOL | 106-44-5 | 10.00 | 1987 | 19JUL90 | 12 | 10.00 | ND | 07B | 219.72 | NC | | |
| P-CRESOL | 106-44-5 | 10.00 | 1987 | 20JUL90 | 12 | 100.00 | ND | 07B | 910.98 | NC | 66.24 | 453.01 |
| PENTACHLOROPHENOL | 87-86-5 | 50.00 | 1987 | 16JUL90 | 12 | 699.63 | NC | 07B | 657.11 | NC | | |
| PENTACHLOROPHENOL | 87-86-5 | 50.00 | 1987 | 17JUL90 | 12 | 966.67 | NC | | | | | |
| PENTACHLOROPHENOL | 87-86-5 | 50.00 | 1987 | 18JUL90 | 12 | 597.42 | NC | 07B | 1,205.07 | NC | | |
| PENTACHLOROPHENOL | 87-86-5 | 50.00 | 1987 | 19JUL90 | 12 | 611.06 | NC | 07B | 1,353.90 | NC | | |
| PENTACHLOROPHENOL | 87-86-5 | 50.00 | 1987 | 20JUL90 | 12 | 1,080.97 | NC | 07B | 904.18 | NC | 791.15 | 1,030.06 |
| PHENOL | 108-95-2 | 10.00 | 1987 | 16JUL90 | 12 | 369.91 | NC | 07B | 1,156.50 | NC | | |
| PHENOL | 108-95-2 | 10.00 | 1987 | 17JUL90 | 12 | 10.00 | ND | | | | | |
| PHENOL | 108-95-2 | 10.00 | 1987 | 18JUL90 | 12 | 1,410.24 | NC | 07B | 552.95 | NC | | |
| PHENOL | 108-95-2 | 10.00 | 1987 | 19JUL90 | 12 | 10.00 | ND | 07B | 10.00 | ND | | |
| PHENOL | 108-95-2 | 10.00 | 1987 | 20JUL90 | 12 | 10.00 | ND | 07B | 9,491.00 | NC | 362.03 | 2,802.61 |
| PYRIDINE | 110-86-1 | 10.00 | 1987 | 16JUL90 | 12 | 40.35 | NC | 07B | 444.39 | NC | | |
| PYRIDINE | 110-86-1 | 10.00 | 1987 | 17JUL90 | 12 | 151.52 | NC | | | | | |
| PYRIDINE | 110-86-1 | 10.00 | 1987 | 18JUL90 | 12 | 118.39 | NC | 07B | 131.74 | NC | | |
| PYRIDINE | 110-86-1 | 10.00 | 1987 | 19JUL90 | 12 | 166.93 | NC | 07B | 276.73 | NC | | |
| PYRIDINE | 110-86-1 | 10.00 | 1987 | 20JUL90 | 12 | 105.13 | NC | 07B | 363.21 | NC | 116.46 | 304.02 |
| TETRACHLOROETHENE | 127-18-4 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 2,234.50 | NC | | |

------------------------------------------------------------ Subcategory=Organics Option=4 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TETRACHLOROETHENE | 127-18-4 | 10.00 | 1987 | 17JUL90 | 12 | 18.44 | NC | | | | | |
| TETRACHLOROETHENE | 127-18-4 | 10.00 | 1987 | 18JUL90 | 12 | 55.19 | NC | 07B | 6,808.45 | NC | | |
| TETRACHLOROETHENE | 127-18-4 | 10.00 | 1987 | 19JUL90 | 12 | 342.45 | NC | 07B | 6,001.50 | NC | | |
| TETRACHLOROETHENE | 127-18-4 | 10.00 | 1987 | 20JUL90 | 12 | 134.37 | NC | 07B | 10.00 | ND | 112.09 | 3,763.61 |
| TETRACHLOROMETHANE | 56-23-5 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 1,917.34 | NC | | |
| TETRACHLOROMETHANE | 56-23-5 | 10.00 | 1987 | 17JUL90 | 12 | 10.00 | ND | | | | | |
| TETRACHLOROMETHANE | 56-23-5 | 10.00 | 1987 | 18JUL90 | 12 | 10.00 | ND | 07B | 2,258.65 | NC | | |
| TETRACHLOROMETHANE | 56-23-5 | 10.00 | 1987 | 19JUL90 | 12 | 32.18 | NC | 07B | 3,222.10 | NC | | |
| TETRACHLOROMETHANE | 56-23-5 | 10.00 | 1987 | 20JUL90 | 12 | 10.00 | ND | 07B | 1,861.57 | NC | 14.44 | 2,314.91 |
| TOLUENE | 108-88-3 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 147.65 | NC | | |
| TOLUENE | 108-88-3 | 10.00 | 1987 | 17JUL90 | 12 | 10.00 | ND | | | | | |
| TOLUENE | 108-88-3 | 10.00 | 1987 | 18JUL90 | 12 | 10.00 | ND | 07B | 181.83 | NC | | |
| TOLUENE | 108-88-3 | 10.00 | 1987 | 19JUL90 | 12 | 10.00 | ND | 07B | 186.40 | NC | | |
| TOLUENE | 108-88-3 | 10.00 | 1987 | 20JUL90 | 12 | 10.00 | ND | 07B | 2,053.04 | NC | 10.00 | 642.23 |
| TRANS-1,2-DICHLOROETHENE | 156605 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 1,216.77 | NC | | |
| TRANS-1,2-DICHLOROETHENE | 156605 | 10.00 | 1987 | 17JUL90 | 12 | 10.46 | NC | | | | | |
| TRANS-1,2-DICHLOROETHENE | 156605 | 10.00 | 1987 | 18JUL90 | 12 | 27.61 | NC | 07B | 1,818.02 | NC | | |
| TRANS-1,2-DICHLOROETHENE | 156605 | 10.00 | 1987 | 19JUL90 | 12 | 28.95 | NC | 07B | 1,621.02 | NC | | |
| TRANS-1,2-DICHLOROETHENE | 156605 | 10.00 | 1987 | 20JUL90 | 12 | 30.56 | NC | 07B | 1,170.94 | NC | 21.51 | 1,456.69 |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 3,551.30 | NC | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 1987 | 17JUL90 | 12 | 24.12 | NC | | | | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 1987 | 18JUL90 | 12 | 72.53 | NC | 07B | 9,896.60 | NC | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 1987 | 19JUL90 | 12 | 132.85 | NC | 07B | 9,374.40 | NC | | |
| TRICHLOROETHENE | 79-01-6 | 10.00 | 1987 | 20JUL90 | 12 | 107.61 | NC | 07B | 10.00 | ND | 69.42 | 5,708.07 |
| VINYL CHLORIDE | 75-01-4 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 289.78 | NC | | |
| VINYL CHLORIDE | 75-01-4 | 10.00 | 1987 | 17JUL90 | 12 | 10.00 | ND | | | | | |
| VINYL CHLORIDE | 75-01-4 | 10.00 | 1987 | 18JUL90 | 12 | 10.00 | ND | 07B | 485.16 | NC | | |
| VINYL CHLORIDE | 75-01-4 | 10.00 | 1987 | 19JUL90 | 12 | 10.00 | ND | 07B | 439.54 | NC | | |
| VINYL CHLORIDE | 75-01-4 | 10.00 | 1987 | 20JUL90 | 12 | 10.00 | ND | 07B | 309.70 | NC | 10.00 | 381.05 |
| 1,1,1,2-TETRACHLOROETHANE | 630-20-6 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 249.38 | NC | | |
| 1,1,1,2-TETRACHLOROETHANE | 630-20-6 | 10.00 | 1987 | 17JUL90 | 12 | 10.00 | ND | | | | | |

------------------------------------------------------------ Subcategory=Organics Option=4 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-TETRACHLOROETHANE | 630-20-6 | 10.00 | 1987 | 18JUL90 | 12 | 10.00 | ND | 07B | 644.17 | NC | | |
| 1,1,1,2-TETRACHLOROETHANE | 630-20-6 | 10.00 | 1987 | 19JUL90 | 12 | 10.00 | ND | 07B | 577.17 | NC | | |
| 1,1,1,2-TETRACHLOROETHANE | 630-20-6 | 10.00 | 1987 | 20JUL90 | 12 | 10.00 | ND | 07B | 345.53 | NC | 10.00 | 454.06 |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 320.26 | NC | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 1987 | 17JUL90 | 12 | 10.00 | ND | | | | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 1987 | 18JUL90 | 12 | 10.00 | ND | 07B | 191.22 | NC | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 1987 | 19JUL90 | 12 | 10.00 | ND | 07B | 199.24 | NC | | |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 10.00 | 1987 | 20JUL90 | 12 | 10.00 | ND | 07B | 181.20 | NC | 10.00 | 222.98 |
| 1,1,2,2-TETRACHLOROETHANE | 79-34-5 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 10.00 | ND | | |
| 1,1,2,2-TETRACHLOROETHANE | 79-34-5 | 10.00 | 1987 | 17JUL90 | 12 | 10.00 | ND | | | | | |
| 1,1,2,2-TETRACHLOROETHANE | 79-34-5 | 10.00 | 1987 | 18JUL90 | 12 | 10.00 | ND | 07B | 10.00 | ND | | |
| 1,1,2,2-TETRACHLOROETHANE | 79-34-5 | 10.00 | 1987 | 19JUL90 | 12 | 10.00 | ND | 07B | 10.00 | ND | | |
| 1,1,2,2-TETRACHLOROETHANE | 79-34-5 | 10.00 | 1987 | 20JUL90 | 12 | 10.00 | ND | 07B | 10.00 | ND | 10.00 | 10.00 |
| 1,1,2-TRICHLOROETHANE | 79-00-5 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 776.18 | NC | | |
| 1,1,2-TRICHLOROETHANE | 79-00-5 | 10.00 | 1987 | 17JUL90 | 12 | 10.00 | ND | | | | | |
| 1,1,2-TRICHLOROETHANE | 79-00-5 | 10.00 | 1987 | 18JUL90 | 12 | 12.03 | NC | 07B | 1,858.74 | NC | | |
| 1,1,2-TRICHLOROETHANE | 79-00-5 | 10.00 | 1987 | 19JUL90 | 12 | 17.64 | NC | 07B | 1,747.42 | NC | | |
| 1,1,2-TRICHLOROETHANE | 79-00-5 | 10.00 | 1987 | 20JUL90 | 12 | 16.80 | NC | 07B | 1,143.33 | NC | 13.30 | 1,381.42 |
| 1,1-DICHLOROETHANE | 75-34-3 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 105.50 | NC | | |
| 1,1-DICHLOROETHANE | 75-34-3 | 10.00 | 1987 | 17JUL90 | 12 | 10.00 | ND | | | | | |
| 1,1-DICHLOROETHANE | 75-34-3 | 10.00 | 1987 | 18JUL90 | 12 | 10.00 | ND | 07B | 69.97 | NC | | |
| 1,1-DICHLOROETHANE | 75-34-3 | 10.00 | 1987 | 19JUL90 | 12 | 10.00 | ND | 07B | 72.58 | NC | | |
| 1,1-DICHLOROETHANE | 75-34-3 | 10.00 | 1987 | 20JUL90 | 12 | 10.00 | ND | 07B | 108.22 | NC | 10.00 | 89.07 |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 188.11 | NC | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 1987 | 17JUL90 | 12 | 10.00 | ND | | | | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 1987 | 18JUL90 | 12 | 10.00 | ND | 07B | 177.86 | NC | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 1987 | 19JUL90 | 12 | 10.00 | ND | 07B | 156.58 | NC | | |
| 1,1-DICHLOROETHENE | 75-35-4 | 10.00 | 1987 | 20JUL90 | 12 | 10.00 | ND | 07B | 111.98 | NC | 10.00 | 158.63 |
| 1,2,3-TRICHLOROPROPANE | 96-18-4 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 99.54 | NC | | |
| 1,2,3-TRICHLOROPROPANE | 96-18-4 | 10.00 | 1987 | 17JUL90 | 12 | 10.00 | ND | | | | | |
| 1,2,3-TRICHLOROPROPANE | 96-18-4 | 10.00 | 1987 | 18JUL90 | 12 | 10.00 | ND | 07B | 139.61 | NC | | |

------------------------------------------------------------ Subcategory=Organics Option=4 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,2,3-TRICHLOROPROPANE | 96-18-4 | 10.00 | 1987 | 19JUL90 | 12 | 10.00 | ND | 07B | 220.08 | NC | | |
| 1,2,3-TRICHLOROPROPANE | 96-18-4 | 10.00 | 1987 | 20JUL90 | 12 | 10.00 | ND | 07B | 144.24 | NC | 10.00 | 150.86 |
| 1,2-DIBROMOETHANE | 106-93-4 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 3,081.42 | NC | | |
| 1,2-DIBROMOETHANE | 106-93-4 | 10.00 | 1987 | 17JUL90 | 12 | 10.00 | ND | | | | | |
| 1,2-DIBROMOETHANE | 106-93-4 | 10.00 | 1987 | 18JUL90 | 12 | 10.00 | ND | 07B | 6,094.49 | NC | | |
| 1,2-DIBROMOETHANE | 106-93-4 | 10.00 | 1987 | 19JUL90 | 12 | 10.71 | NC | 07B | 5,007.42 | NC | | |
| 1,2-DIBROMOETHANE | 106-93-4 | 10.00 | 1987 | 20JUL90 | 12 | 10.00 | ND | 07B | 4,575.48 | NC | 10.14 | 4,689.70 |
| 1,2-DICHLOROBENZENE | 95-50-1 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 10.00 | ND | | |
| 1,2-DICHLOROBENZENE | 95-50-1 | 10.00 | 1987 | 17JUL90 | 12 | 10.00 | ND | | | | | |
| 1,2-DICHLOROBENZENE | 95-50-1 | 10.00 | 1987 | 18JUL90 | 12 | 13.40 | NC | 07B | 11.25 | ND | | |
| 1,2-DICHLOROBENZENE | 95-50-1 | 10.00 | 1987 | 19JUL90 | 12 | 10.00 | ND | 07B | 10.00 | ND | | |
| 1,2-DICHLOROBENZENE | 95-50-1 | 10.00 | 1987 | 20JUL90 | 12 | 31.87 | NC | 07B | 478.69 | NC | 15.05 | 127.48 |
| 1,2-DICHLOROETHANE | 107-06-2 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 1,393.91 | NC | | |
| 1,2-DICHLOROETHANE | 107-06-2 | 10.00 | 1987 | 17JUL90 | 12 | 10.00 | ND | | | | | |
| 1,2-DICHLOROETHANE | 107-06-2 | 10.00 | 1987 | 18JUL90 | 12 | 10.00 | ND | 07B | 5,748.00 | NC | | |
| 1,2-DICHLOROETHANE | 107-06-2 | 10.00 | 1987 | 19JUL90 | 12 | 10.00 | ND | 07B | 5,690.00 | NC | | |
| 1,2-DICHLOROETHANE | 107-06-2 | 10.00 | 1987 | 20JUL90 | 12 | 10.00 | ND | 07B | 10.00 | ND | 10.00 | 3,210.48 |
| 1,3-DICHLOROPROPANE | 142-28-9 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 10.00 | ND | | |
| 1,3-DICHLOROPROPANE | 142-28-9 | 10.00 | 1987 | 17JUL90 | 12 | 10.00 | ND | | | | | |
| 1,3-DICHLOROPROPANE | 142-28-9 | 10.00 | 1987 | 18JUL90 | 12 | 10.00 | ND | 07B | 10.00 | ND | | |
| 1,3-DICHLOROPROPANE | 142-28-9 | 10.00 | 1987 | 19JUL90 | 12 | 10.00 | ND | 07B | 10.00 | ND | | |
| 1,3-DICHLOROPROPANE | 142-28-9 | 10.00 | 1987 | 20JUL90 | 12 | 10.00 | ND | 07B | 10.00 | ND | 10.00 | 10.00 |
| 2,3,4,6-TETRACHLOROPHENOL | 58-90-2 | 20.00 | 1987 | 16JUL90 | 12 | 492.70 | NC | 07B | 1,188.50 | NC | | |
| 2,3,4,6-TETRACHLOROPHENOL | 58-90-2 | 20.00 | 1987 | 17JUL90 | 12 | 566.19 | NC | | | | | |
| 2,3,4,6-TETRACHLOROPHENOL | 58-90-2 | 20.00 | 1987 | 18JUL90 | 12 | 523.07 | NC | 07B | 1,638.70 | NC | | |
| 2,3,4,6-TETRACHLOROPHENOL | 58-90-2 | 20.00 | 1987 | 19JUL90 | 12 | 306.00 | NC | 07B | 1,734.32 | NC | | |
| 2,3,4,6-TETRACHLOROPHENOL | 58-90-2 | 20.00 | 1987 | 20JUL90 | 12 | 1,256.83 | NC | 07B | 1,512.36 | NC | 628.96 | 1,518.47 |
| 2,3-DICHLOROANILINE | 608-27-5 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 10.00 | ND | | |
| 2,3-DICHLOROANILINE | 608-27-5 | 10.00 | 1987 | 17JUL90 | 12 | 10.00 | ND | | | | | |
| 2,3-DICHLOROANILINE | 608-27-5 | 10.00 | 1987 | 18JUL90 | 12 | 12.50 | ND | 07B | 342.54 | NC | | |
| 2,3-DICHLOROANILINE | 608-27-5 | 10.00 | 1987 | 19JUL90 | 12 | 10.00 | ND | 07B | 10.00 | ND | | |

Subcategory=Organics Option=4 (continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2,3-DICHLOROANILINE | 608-27-5 | 10.00 | 1987 | 20JUL90 | 12 | 72.68 | NC | 07B | 108.83 | NC | 23.04 | 117.84 |
| 2,4,5-TRICHLOROPHENOL | 95-95-4 | 10.00 | 1987 | 16JUL90 | 12 | 83.47 | NC | 07B | 100.00 | ND | | |
| 2,4,5-TRICHLOROPHENOL | 95-95-4 | 10.00 | 1987 | 17JUL90 | 12 | 126.70 | NC | | | | | |
| 2,4,5-TRICHLOROPHENOL | 95-95-4 | 10.00 | 1987 | 18JUL90 | 12 | 100.00 | ND | 07B | 125.93 | NC | | |
| 2,4,5-TRICHLOROPHENOL | 95-95-4 | 10.00 | 1987 | 19JUL90 | 12 | 73.63 | NC | 07B | 133.00 | NC | | |
| 2,4,5-TRICHLOROPHENOL | 95-95-4 | 10.00 | 1987 | 20JUL90 | 12 | 100.00 | ND | 07B | 113.94 | NC | 96.76 | 118.22 |
| 2,4,6-TRICHLOROPHENOL | 88-06-2 | 10.00 | 1987 | 16JUL90 | 12 | 59.54 | NC | 07B | 100.00 | ND | | |
| 2,4,6-TRICHLOROPHENOL | 88-06-2 | 10.00 | 1987 | 17JUL90 | 12 | 100.00 | ND | | | | | |
| 2,4,6-TRICHLOROPHENOL | 88-06-2 | 10.00 | 1987 | 18JUL90 | 12 | 100.00 | ND | 07B | 174.62 | NC | | |
| 2,4,6-TRICHLOROPHENOL | 88-06-2 | 10.00 | 1987 | 19JUL90 | 12 | 69.27 | NC | 07B | 202.99 | NC | | |
| 2,4,6-TRICHLOROPHENOL | 88-06-2 | 10.00 | 1987 | 20JUL90 | 12 | 100.00 | ND | 07B | 147.98 | NC | 85.76 | 156.40 |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 10.00 | ND | | |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 10.00 | 1987 | 17JUL90 | 12 | 10.00 | ND | | | | | |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 10.00 | 1987 | 18JUL90 | 12 | 12.50 | ND | 07B | 11.25 | ND | | |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 10.00 | 1987 | 19JUL90 | 12 | 10.00 | ND | 07B | 10.00 | ND | | |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 10.00 | 1987 | 20JUL90 | 12 | 10.00 | ND | 07B | 682.85 | NC | 10.50 | 178.52 |
| 2-BUTANONE | 78-93-3 | 50.00 | 1987 | 16JUL90 | 12 | 50.00 | ND | 07B | 2,775.60 | NC | | |
| 2-BUTANONE | 78-93-3 | 50.00 | 1987 | 17JUL90 | 12 | 280.45 | NC | | | | | |
| 2-BUTANONE | 78-93-3 | 50.00 | 1987 | 18JUL90 | 12 | 940.05 | NC | 07B | 1,730.75 | NC | | |
| 2-BUTANONE | 78-93-3 | 50.00 | 1987 | 19JUL90 | 12 | 1,478.24 | NC | 07B | 1,834.52 | NC | | |
| 2-BUTANONE | 78-93-3 | 50.00 | 1987 | 20JUL90 | 12 | 1,641.86 | NC | 07B | 5,062.50 | NC | 878.12 | 2,850.84 |
| 2-PROPANONE | 67-64-1 | 50.00 | 1987 | 16JUL90 | 12 | 74.22 | NC | 07B | 7,800.40 | NC | | |
| 2-PROPANONE | 67-64-1 | 50.00 | 1987 | 17JUL90 | 12 | 1,211.03 | NC | | | | | |
| 2-PROPANONE | 67-64-1 | 50.00 | 1987 | 18JUL90 | 12 | 2,999.27 | NC | 07B | 3,017.32 | NC | | |
| 2-PROPANONE | 67-64-1 | 50.00 | 1987 | 19JUL90 | 12 | 50.00 | ND | 07B | 2,977.26 | NC | | |
| 2-PROPANONE | 67-64-1 | 50.00 | 1987 | 20JUL90 | 12 | 5,971.90 | NC | 07B | 12,435.40 | NC | 2,061.28 | 6,557.60 |
| 3,4,5-TRICHLOROCATECHOL | 56961-20-7 | 0.80 | 1987 | 16JUL90 | 12 | 0.80 | ND | 07B | 0.80 | ND | | |
| 3,4,5-TRICHLOROCATECHOL | 56961-20-7 | 0.80 | 1987 | 17JUL90 | 12 | 0.80 | ND | | | | | |
| 3,4,5-TRICHLOROCATECHOL | 56961-20-7 | 0.80 | 1987 | 18JUL90 | | | | 07B | 1.75 | NC | | |
| 3,4,5-TRICHLOROCATECHOL | 56961-20-7 | 0.80 | 1987 | 19JUL90 | 12 | 0.80 | ND | 07B | 0.80 | ND | | |
| 3,4,5-TRICHLOROCATECHOL | 56961-20-7 | 0.80 | 1987 | 20JUL90 | 12 | 0.80 | ND | 07B | 46.00 | NC | 0.80 | 12.34 |

------------------------------------------------------------ Subcategory=Organics Option=4 ------------------------------------------------------------
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3,4,6-TRICHLOROGUAIACOL | 60712-44-9 | 0.80 | 1987 | 16JUL90 | 12 | 0.80 | ND | 07B | 6.70 | NC | | |
| 3,4,6-TRICHLOROGUAIACOL | 60712-44-9 | 0.80 | 1987 | 17JUL90 | 12 | 0.80 | ND | | | | | |
| 3,4,6-TRICHLOROGUAIACOL | 60712-44-9 | 0.80 | 1987 | 18JUL90 | | | | 07B | 11.90 | NC | | |
| 3,4,6-TRICHLOROGUAIACOL | 60712-44-9 | 0.80 | 1987 | 19JUL90 | 12 | 0.80 | ND | 07B | 0.80 | ND | | |
| 3,4,6-TRICHLOROGUAIACOL | 60712-44-9 | 0.80 | 1987 | 20JUL90 | 12 | 0.80 | ND | 07B | 0.80 | ND | 0.80 | 5.05 |
| 3,4-DICHLOROPHENOL | 95-77-2 | 0.80 | 1987 | 16JUL90 | 12 | 0.80 | ND | 07B | 0.80 | ND | | |
| 3,4-DICHLOROPHENOL | 95-77-2 | 0.80 | 1987 | 17JUL90 | 12 | 0.80 | ND | | | | | |
| 3,4-DICHLOROPHENOL | 95-77-2 | 0.80 | 1987 | 18JUL90 | | | | 07B | 81.00 | NC | | |
| 3,4-DICHLOROPHENOL | 95-77-2 | 0.80 | 1987 | 19JUL90 | 12 | 73.00 | NC | 07B | 96.00 | NC | | |
| 3,4-DICHLOROPHENOL | 95-77-2 | 0.80 | 1987 | 20JUL90 | 12 | 47.00 | NC | 07B | 71.00 | NC | 30.40 | 62.20 |
| 3,5-DICHLOROPHENOL | 591-35-5 | 0.80 | 1987 | 16JUL90 | 12 | 0.80 | ND | 07B | 170.00 | NC | | |
| 3,5-DICHLOROPHENOL | 591-35-5 | 0.80 | 1987 | 17JUL90 | 12 | 0.80 | ND | | | | | |
| 3,5-DICHLOROPHENOL | 591-35-5 | 0.80 | 1987 | 18JUL90 | | | | 07B | 135.40 | NC | | |
| 3,5-DICHLOROPHENOL | 591-35-5 | 0.80 | 1987 | 19JUL90 | 12 | 0.80 | ND | 07B | 0.80 | ND | | |
| 3,5-DICHLOROPHENOL | 591-35-5 | 0.80 | 1987 | 20JUL90 | 12 | 0.80 | ND | 07B | 0.80 | ND | 0.80 | 76.75 |
| 3,6-DICHLOROCATECHOL | 3938-16-7 | 0.80 | 1987 | 16JUL90 | 12 | 0.80 | ND | 07B | 0.80 | ND | | |
| 3,6-DICHLOROCATECHOL | 3938-16-7 | 0.80 | 1987 | 17JUL90 | 12 | 0.80 | ND | | | | | |
| 3,6-DICHLOROCATECHOL | 3938-16-7 | 0.80 | 1987 | 18JUL90 | | | | 07B | 12.40 | NC | | |
| 3,6-DICHLOROCATECHOL | 3938-16-7 | 0.80 | 1987 | 19JUL90 | 12 | 0.80 | ND | 07B | 0.80 | ND | | |
| 3,6-DICHLOROCATECHOL | 3938-16-7 | 0.80 | 1987 | 20JUL90 | 12 | 0.80 | ND | 07B | 0.80 | ND | 0.80 | 3.70 |
| 4,5,6-TRICHLOROGUAIACOL | 2668-24-8 | 0.80 | 1987 | 16JUL90 | 12 | 0.80 | ND | 07B | 0.80 | ND | | |
| 4,5,6-TRICHLOROGUAIACOL | 2668-24-8 | 0.80 | 1987 | 17JUL90 | 12 | 0.80 | ND | | | | | |
| 4,5,6-TRICHLOROGUAIACOL | 2668-24-8 | 0.80 | 1987 | 18JUL90 | | | | 07B | 0.80 | ND | | |
| 4,5,6-TRICHLOROGUAIACOL | 2668-24-8 | 0.80 | 1987 | 19JUL90 | 12 | 0.80 | ND | 07B | 0.80 | ND | | |
| 4,5,6-TRICHLOROGUAIACOL | 2668-24-8 | 0.80 | 1987 | 20JUL90 | 12 | 0.80 | ND | 07B | 62.00 | NC | 0.80 | 16.10 |
| 4,5-DICHLOROGUAIACOL | 2460-49-3 | 0.80 | 1987 | 16JUL90 | 12 | 0.80 | ND | 07B | 0.80 | ND | | |
| 4,5-DICHLOROGUAIACOL | 2460-49-3 | 0.80 | 1987 | 17JUL90 | 12 | 49.00 | NC | | | | | |
| 4,5-DICHLOROGUAIACOL | 2460-49-3 | 0.80 | 1987 | 18JUL90 | | | | 07B | 9.05 | NC | | |
| 4,5-DICHLOROGUAIACOL | 2460-49-3 | 0.80 | 1987 | 19JUL90 | 12 | 0.80 | ND | 07B | 0.80 | ND | | |
| 4,5-DICHLOROGUAIACOL | 2460-49-3 | 0.80 | 1987 | 20JUL90 | 12 | 0.80 | ND | 07B | 0.80 | ND | 12.85 | 2.86 |

Subcategory=Organics Option=4
(continued)

| Analyte Name | Cas_No | Baseline Value (ug/l) | Fac. ID | Sample Date | Effl Samp Pt | Effl Amount (ug/l) | Effl Meas Type | Infl Samp Pt(s) | Infl Amount (ug/l) | Infl Meas Type | Facility Effl Mean | Facility Infl Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 10.00 | 1987 | 16JUL90 | 12 | 10.00 | ND | 07B | 100.00 | ND | | |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 10.00 | 1987 | 17JUL90 | 12 | 100.00 | ND | | | | | |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 10.00 | 1987 | 18JUL90 | 12 | 100.00 | ND | 07B | 100.00 | ND | | |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 10.00 | 1987 | 19JUL90 | 12 | 10.00 | ND | 07B | 204.10 | NC | | |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 10.00 | 1987 | 20JUL90 | 12 | 100.00 | ND | 07B | 100.00 | ND | 64.00 | 126.02 |
| 4-CHLOROPHENOL | 106-48-9 | 240.00 | 1987 | 16JUL90 | 12 | 240.00 | ND | 07B | 1,460.00 | NC | | |
| 4-CHLOROPHENOL | 106-48-9 | 240.00 | 1987 | 17JUL90 | 12 | 240.00 | ND | | | | | |
| 4-CHLOROPHENOL | 106-48-9 | 240.00 | 1987 | 18JUL90 | | | | 07B | 1,450.00 | NC | | |
| 4-CHLOROPHENOL | 106-48-9 | 240.00 | 1987 | 19JUL90 | 12 | 240.00 | ND | 07B | 7,940.00 | NC | | |
| 4-CHLOROPHENOL | 106-48-9 | 240.00 | 1987 | 20JUL90 | 12 | 250.00 | NC | 07B | 7,760.00 | NC | 242.50 | 4,652.50 |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 1987 | 16JUL90 | 12 | 50.00 | ND | 07B | 1,599.69 | NC | | |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 1987 | 17JUL90 | 12 | 72.51 | NC | | | | | |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 1987 | 18JUL90 | 12 | 178.34 | NC | 07B | 893.00 | NC | | |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 1987 | 19JUL90 | 12 | 191.90 | NC | 07B | 1,299.98 | NC | | |
| 4-METHYL-2-PENTANONE | 108-10-1 | 50.00 | 1987 | 20JUL90 | 12 | 238.06 | NC | 07B | 4,038.21 | NC | 146.16 | 1,957.72 |
| 5-CHLOROGUAIACOL | 3743-23-5 | 160.00 | 1987 | 16JUL90 | 12 | 160.00 | ND | 07B | 160.00 | ND | | |
| 5-CHLOROGUAIACOL | 3743-23-5 | 160.00 | 1987 | 17JUL90 | 12 | 5,900.00 | NC | | | | | |
| 5-CHLOROGUAIACOL | 3743-23-5 | 160.00 | 1987 | 18JUL90 | | | | 07B | 160.00 | ND | | |
| 5-CHLOROGUAIACOL | 3743-23-5 | 160.00 | 1987 | 19JUL90 | 12 | 160.00 | ND | 07B | 160.00 | ND | | |
| 5-CHLOROGUAIACOL | 3743-23-5 | 160.00 | 1987 | 20JUL90 | 12 | 160.00 | ND | 07B | 160.00 | ND | 1,595.00 | 160.00 |
| 6-CHLOROVANILLIN | 18268-76-3 | 0.80 | 1987 | 16JUL90 | 12 | 0.80 | ND | 07B | 0.80 | ND | | |
| 6-CHLOROVANILLIN | 18268-76-3 | 0.80 | 1987 | 17JUL90 | 12 | 0.80 | ND | | | | | |
| 6-CHLOROVANILLIN | 18268-76-3 | 0.80 | 1987 | 18JUL90 | | | | 07B | 0.80 | ND | | |
| 6-CHLOROVANILLIN | 18268-76-3 | 0.80 | 1987 | 19JUL90 | 12 | 0.80 | ND | 07B | 0.80 | ND | | |
| 6-CHLOROVANILLIN | 18268-76-3 | 0.80 | 1987 | 20JUL90 | 12 | 0.80 | ND | 07B | 0.80 | ND | 0.80 | 0.80 |

# Appendix D
# ATTACHMENTS TO CHAPTER 10

This appendix presents Attachment 10-1 through 10-5 which supplement Chapter 10 – Data Conventions and Calculation of Limitations and Standards. Attachment 10-1 presents the results of data editing criteria. Attachment 10-2 provides facility-specific long-term averages and variability factors. Attachment 10-3 lists pollutant-specific long-term averages and variability factors. Attachment 10-4 presents the group variability factors, while Attachment 10-5 presents the final limitations.

Attachment 10-1: Results (ug/L) of Data Editing Criteria

------------------------------------------------------------ Subcategory=Metals OPTION=1A ------------------------------------------------------------

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| ARSENIC | 7440-38-2 | 1987 | 03 | 83.90 |
| ARSENIC | 7440-38-2 | 4382 | 12 | Failed Tests |
| ARSENIC | 7440-38-2 | 4798 | 03 | Failed Tests |

------------------------------------------------------------ Subcategory=Metals OPTION=3 ------------------------------------------------------------

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| AMMONIA AS NITROGEN | 7664-41-7 | 4378 | 09 | 13,375.00 |
| AMMONIA AS NITROGEN | 7664-41-7 | 4803 | 15 | 407.50 |
| AMMONIA AS NITROGEN | 7664-41-7 | 602 | 01 | 9,122.64 |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 4378 | 09 | 123,625.00 |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 4803 | 15 | 5,875.00 |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 602 | 01 | 28,330.19 |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 4378 | 09 | 293,250.00 |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 4803 | 15 | 103,875.00 |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 602 | 01 | 108,801.39 |
| CHLORIDE | 16887-00-6 | 4803 | 15 | 2,243,750.00 |
| FLUORIDE | 16984-48-8 | 4378 | 09 | Failed Tests |
| FLUORIDE | 16984-48-8 | 4803 | 15 | 2,350.00 |
| HEXAVALENT CHROMIUM | 18540-29-9 | 4378 | 09 | 43.25 |
| HEXAVALENT CHROMIUM | 18540-29-9 | 4803 | 15 | 10.00 |
| NITRATE/NITRITE | C-005 | 4378 | 09 | 15,697.50 |
| NITRATE/NITRITE | C-005 | 4803 | 15 | 9,525.00 |
| OIL & GREASE | C-007 | 4378 | 09 | Failed Tests |
| OIL & GREASE | C-007 | 4803 | 16 | Failed Tests |
| TOTAL CYANIDE | 57-12-5 | 4378 | 09 | Failed Tests |
| TOTAL CYANIDE | 57-12-5 | 602 | 01 | Failed Tests |
| TOTAL DISSOLVED SOLIDS | C-010 | 4803 | 15 | 18,112,500.00 |

Attachment 10-1: Results (ug/L) of Data Editing Criteria

------------------------------------------------------------ Subcategory=Metals OPTION=3 ------------------------------------------------------------
(continued)

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| TOTAL ORGANIC CARBON (TOC) | C-012 | 4378 | 09 | 115,350.00 |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 4803 | 15 | 10,000.00 |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 602 | 01 | 19,641.51 |
| TOTAL PHENOLS | C-020 | 4378 | 09 | Failed Tests |
| TOTAL PHENOLS | C-020 | 4803 | 15 | Failed Tests |
| TOTAL PHENOLS | C-020 | 602 | 01 | Failed Tests |
| TOTAL PHOSPHORUS | 14265-44-2 | 4378 | 09 | 58,225.00 |
| TOTAL PHOSPHORUS | 14265-44-2 | 4803 | 15 | 406.25 |
| TOTAL SULFIDE | 18496-25-8 | 4378 | 09 | 49,850.00 |
| TOTAL SULFIDE | 18496-25-8 | 4803 | 15 | Failed Tests |
| TOTAL SULFIDE | 18496-25-8 | 602 | 01 | 55.85 |
| TOTAL SUSPENDED SOLIDS | C-009 | 4378 | 09 | 22,750.00 |
| TOTAL SUSPENDED SOLIDS | C-009 | 4803 | 15 | 9,250.00 |
| TOTAL SUSPENDED SOLIDS | C-009 | 602 | 01 | 4,650.94 |
| ALUMINUM | 7429-90-5 | 4378 | 09 | 101.50 |
| ALUMINUM | 7429-90-5 | 4803 | 15 | 43.50 |
| ANTIMONY | 7440-36-0 | 4378 | 09 | 20.00 |
| ANTIMONY | 7440-36-0 | 4803 | 15 | 22.50 |
| ARSENIC | 7440-38-2 | 4378 | 09 | 10.27 |
| ARSENIC | 7440-38-2 | 4803 | 15 | 17.50 |
| ARSENIC | 7440-38-2 | 602 | 01 | 11.15 |
| BERYLLIUM | 7440-41-7 | 4378 | 09 | 1.00 |
| BERYLLIUM | 7440-41-7 | 4803 | 15 | Failed Tests |
| BORON | 7440-42-8 | 4378 | 09 | 7,290.00 |
| BORON | 7440-42-8 | 4803 | 15 | Failed Tests |
| CADMIUM | 7440-43-9 | 4378 | 09 | 81.93 |
| CADMIUM | 7440-43-9 | 4803 | 15 | 13.90 |
| CADMIUM | 7440-43-9 | 602 | 01 | 125.00 |
| CALCIUM | 7440-70-2 | 4378 | 09 | 205,833.33 |
| CALCIUM | 7440-70-2 | 4803 | 15 | 608,500.00 |
| CHROMIUM | 7440-47-3 | 4378 | 09 | 36.93 |
| CHROMIUM | 7440-47-3 | 4803 | 15 | 39.75 |
| CHROMIUM | 7440-47-3 | 602 | 01 | 179.62 |

Attachment 10-1: Results (ug/L) of Data Editing Criteria

------------------------------------------------------------ Subcategory=Metals OPTION=3 ------------------------------------------------------------
(continued)

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| COBALT | 7440-48-4 | 4378 | 09 | 102.58 |
| COBALT | 7440-48-4 | 4803 | 15 | 12.25 |
| COPPER | 7440-50-8 | 4378 | 09 | 144.07 |
| COPPER | 7440-50-8 | 4803 | 15 | 194.00 |
| GALLIUM | 7440-55-3 | 4803 | 15 | Failed Tests |
| INDIUM | 7440-74-6 | 4803 | 15 | 500.00 |
| IODINE | 7553-56-2 | 4803 | 15 | Failed Tests |
| IRIDIUM | 7439-88-5 | 4803 | 15 | Failed Tests |
| IRON | 7439-89-6 | 4378 | 09 | 342.67 |
| IRON | 7439-89-6 | 4803 | 15 | 431.75 |
| LANTHANUM | 7439-91-0 | 4803 | 15 | 100.00 |
| LEAD | 7439-92-1 | 4378 | 09 | 50.00 |
| LEAD | 7439-92-1 | 4803 | 15 | 1,275.00 |
| LEAD | 7439-92-1 | 602 | 01 | 55.11 |
| LITHIUM | 7439-93-2 | 4803 | 15 | Failed Tests |
| MAGNESIUM | 7439-95-4 | 4378 | 09 | 1,393.33 |
| MAGNESIUM | 7439-95-4 | 4803 | 15 | 111.75 |
| MANGANESE | 7439-96-5 | 4378 | 09 | 11.62 |
| MANGANESE | 7439-96-5 | 4803 | 15 | 5.51 |
| MANGANESE | 7439-96-5 | 602 | 01 | 37.88 |
| MERCURY | 7439-97-6 | 4378 | 09 | 0.20 |
| MERCURY | 7439-97-6 | 4803 | 15 | 0.20 |
| MOLYBDENUM | 7439-98-7 | 4378 | 09 | 555.00 |
| MOLYBDENUM | 7439-98-7 | 4803 | 15 | 500.38 |
| NICKEL | 7440-02-0 | 4378 | 09 | 1,249.67 |
| NICKEL | 7440-02-0 | 4803 | 15 | 64.01 |
| NICKEL | 7440-02-0 | 602 | 01 | 254.84 |
| OSMIUM | 7440-04-2 | 4803 | 15 | 100.00 |
| PHOSPHORUS | 7723-14-0 | 4803 | 15 | 544.00 |
| POTASSIUM | 7440-09-7 | 4803 | 15 | 54,175.00 |
| SELENIUM | 7782-49-2 | 4378 | 09 | Failed Tests |
| SELENIUM | 7782-49-2 | 4803 | 15 | 56.25 |
| SILICON | 7440-21-3 | 4803 | 15 | 355.75 |

Attachment 10-1: Results (ug/L) of Data Editing Criteria

------------------------------------------------------------ Subcategory=Metals OPTION=3 ------------------------------------------------------------
(continued)

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| SILVER | 7440-22-4 | 4378 | 09 | 4.00 |
| SILVER | 7440-22-4 | 4803 | 15 | 5.00 |
| SODIUM | 7440-23-5 | 4378 | 09 | Failed Tests |
| SODIUM | 7440-23-5 | 4803 | 15 | 5,776,250.00 |
| STRONTIUM | 7440-24-6 | 4803 | 15 | Failed Tests |
| SULFUR | 7704-34-9 | 4803 | 15 | 2,820,000.00 |
| TANTALUM | 7440-25-7 | 4803 | 15 | Failed Tests |
| TELLURIUM | 13494-80-9 | 4803 | 15 | Failed Tests |
| THALLIUM | 7440-28-0 | 4378 | 09 | 21.60 |
| THALLIUM | 7440-28-0 | 4803 | 15 | 19.98 |
| TIN | 7440-31-5 | 4378 | 09 | 28.00 |
| TIN | 7440-31-5 | 4803 | 15 | 28.50 |
| TITANIUM | 7440-32-6 | 4378 | 09 | 3.00 |
| TITANIUM | 7440-32-6 | 4803 | 15 | 4.00 |
| VANADIUM | 7440-62-2 | 4378 | 09 | 11.00 |
| VANADIUM | 7440-62-2 | 4803 | 15 | 11.00 |
| YTTRIUM | 7440-65-5 | 4378 | 09 | 2.00 |
| YTTRIUM | 7440-65-5 | 4803 | 15 | 5.00 |
| ZINC | 7440-66-6 | 4378 | 09 | 174.43 |
| ZINC | 7440-66-6 | 4803 | 15 | 238.00 |
| ZIRCONIUM | 7440-67-7 | 4803 | 15 | Failed Tests |
| BENZOIC ACID | 65-85-0 | 4378 | 09 | Failed Tests |
| BENZOIC ACID | 65-85-0 | 4803 | 16 | Failed Tests |
| BENZYL ALCOHOL | 100-51-6 | 4378 | 09 | Failed Tests |
| BENZYL ALCOHOL | 100-51-6 | 4803 | 16 | Failed Tests |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 4378 | 09 | Failed Tests |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 4803 | 16 | Failed Tests |
| CARBON DISULFIDE | 75-15-0 | 4378 | 09 | 10.00 |
| CARBON DISULFIDE | 75-15-0 | 4803 | 16 | Failed Tests |
| CHLOROFORM | 67-66-3 | 4378 | 09 | Failed Tests |
| CHLOROFORM | 67-66-3 | 4803 | 16 | Failed Tests |
| DIBROMOCHLOROMETHANE | 124-48-1 | 4378 | 09 | Failed Tests |

Attachment 10-1: Results (ug/L) of Data Editing Criteria

-------------------- Subcategory=Metals OPTION=3 --------------------
(continued)

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| DIBROMOCHLOROMETHANE | 124-48-1 | 4803 | 16 | Failed Tests |
| HEXANOIC ACID | 142-62-1 | 4378 | 09 | Failed Tests |
| HEXANOIC ACID | 142-62-1 | 4803 | 16 | Failed Tests |
| M-XYLENE | 108-38-3 | 4378 | 09 | Failed Tests |
| M-XYLENE | 108-38-3 | 4803 | 16 | Failed Tests |
| METHYLENE CHLORIDE | 75-09-2 | 4378 | 09 | Failed Tests |
| METHYLENE CHLORIDE | 75-09-2 | 4803 | 16 | Failed Tests |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 4378 | 09 | Failed Tests |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 4803 | 16 | Failed Tests |
| PHENOL | 108-95-2 | 4378 | 09 | Failed Tests |
| PHENOL | 108-95-2 | 4803 | 16 | Failed Tests |
| PYRIDINE | 110-86-1 | 4378 | 09 | Failed Tests |
| PYRIDINE | 110-86-1 | 4803 | 16 | Failed Tests |
| TOLUENE | 108-88-3 | 4378 | 09 | Failed Tests |
| TOLUENE | 108-88-3 | 4803 | 16 | Failed Tests |
| TRICHLOROETHENE | 79-01-6 | 4378 | 09 | Failed Tests |
| TRICHLOROETHENE | 79-01-6 | 4803 | 16 | Failed Tests |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 4378 | 09 | Failed Tests |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 4803 | 16 | Failed Tests |
| 1,1-DICHLOROETHENE | 75-35-4 | 4378 | 09 | Failed Tests |
| 1,1-DICHLOROETHENE | 75-35-4 | 4803 | 16 | Failed Tests |
| 1,4-DIOXANE | 123-91-1 | 4378 | 09 | Failed Tests |
| 1,4-DIOXANE | 123-91-1 | 4803 | 16 | Failed Tests |
| 2-BUTANONE | 78-93-3 | 4378 | 09 | Failed Tests |
| 2-BUTANONE | 78-93-3 | 4803 | 16 | Failed Tests |
| 2-PROPANONE | 67-64-1 | 4378 | 09 | Failed Tests |
| 2-PROPANONE | 67-64-1 | 4803 | 16 | Failed Tests |
| 4-METHYL-2-PENTANONE | 108-10-1 | 4378 | 09 | Failed Tests |
| 4-METHYL-2-PENTANONE | 108-10-1 | 4803 | 16 | Failed Tests |

Attachment 10-1: Results (ug/L) of Data Editing Criteria

------------------------------------------------------------ Subcategory=Metals OPTION=4 ------------------------------------------------------------

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| AMMONIA AS NITROGEN | 7664-41-7 | 4798 | 05 | 15,630.00 |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 4798 | 05 | 166,000.00 |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 4798 | 05 | 1,333,333.33 |
| CHLORIDE | 16887-00-6 | 4798 | 05 | 18,000,000.00 |
| FLUORIDE | 16984-48-8 | 4798 | 05 | 66,266.67 |
| HEXAVALENT CHROMIUM | 18540-29-9 | 4798 | 05 | 800.00 |
| NITRATE/NITRITE | C-005 | 4798 | 05 | 531,666.67 |
| OIL & GREASE | C-007 | 4798 | 05 | 7,398.06 |
| TOTAL CYANIDE | 57-12-5 | 4798 | 05 | 20.00 |
| TOTAL DISSOLVED SOLIDS | C-010 | 4798 | 05 | 42,566,666.67 |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 4798 | 05 | 236,333.33 |
| TOTAL PHENOLS | C-020 | 4798 | 05 | Failed Tests |
| TOTAL PHOSPHORUS | 14265-44-2 | 4798 | 05 | 25,766.67 |
| TOTAL SULFIDE | 18496-25-8 | 4798 | 05 | Failed Tests |
| TOTAL SUSPENDED SOLIDS | C-009 | 4798 | 05 | 166,666.67 |
| ALUMINUM | 7429-90-5 | 4798 | 05 | 856.33 |
| ANTIMONY | 7440-36-0 | 4798 | 05 | 170.00 |
| ARSENIC | 7440-38-2 | 4798 | 05 | Failed Tests |
| BERYLLIUM | 7440-41-7 | 4798 | 05 | Failed Tests |
| BORON | 7440-42-8 | 4798 | 05 | 8,403.33 |
| CADMIUM | 7440-43-9 | 4798 | 05 | 29.73 |
| CALCIUM | 7440-70-2 | 4798 | 05 | 20,000.00 |
| CHROMIUM | 7440-47-3 | 4798 | 05 | 661.00 |
| COBALT | 7440-48-4 | 4798 | 05 | 114.50 |
| COPPER | 7440-50-8 | 4798 | 05 | 413.67 |
| GALLIUM | 7440-55-3 | 4798 | 05 | Failed Tests |
| INDIUM | 7440-74-6 | 4798 | 05 | Failed Tests |
| IODINE | 7553-56-2 | 4798 | 05 | Failed Tests |
| IRIDIUM | 7439-88-5 | 4798 | 05 | 500.00 |
| IRON | 7439-89-6 | 4798 | 05 | 8,223.33 |

Attachment 10-1: Results (ug/L) of Data Editing Criteria

------------------------------------------------------------- Subcategory=Metals OPTION=4 -------------------------------------------------------------
(continued)

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| LANTHANUM | 7439-91-0 | 4798 | 05 | Failed Tests |
| LEAD | 7439-92-1 | 4798 | 05 | 54.70 |
| LITHIUM | 7439-93-2 | 4798 | 05 | 1,926.67 |
| MAGNESIUM | 7439-95-4 | 4798 | 05 | Failed Tests |
| MANGANESE | 7439-96-5 | 4798 | 05 | 48.70 |
| MERCURY | 7439-97-6 | 4798 | 05 | 1.67 |
| MOLYBDENUM | 7439-98-7 | 4798 | 05 | 1,746.67 |
| NICKEL | 7440-02-0 | 4798 | 05 | 1,013.33 |
| OSMIUM | 7440-04-2 | 4798 | 05 | Failed Tests |
| PHOSPHORUS | 7723-14-0 | 4798 | 05 | 24,200.00 |
| POTASSIUM | 7440-09-7 | 4798 | 05 | 410,000.00 |
| SELENIUM | 7782-49-2 | 4798 | 05 | 115.00 |
| SILICON | 7440-21-3 | 4798 | 05 | 1,446.67 |
| SILVER | 7440-22-4 | 4798 | 05 | 18.60 |
| SODIUM | 7440-23-5 | 4798 | 05 | 15,100,000.00 |
| STRONTIUM | 7440-24-6 | 4798 | 05 | 100.00 |
| SULFUR | 7704-34-9 | 4798 | 05 | 1,214,000.00 |
| TANTALUM | 7440-25-7 | 4798 | 05 | Failed Tests |
| TELLURIUM | 13494-80-9 | 4798 | 05 | Failed Tests |
| THALLIUM | 7440-28-0 | 4798 | 05 | Failed Tests |
| TIN | 7440-31-5 | 4798 | 05 | 89.77 |
| TITANIUM | 7440-32-6 | 4798 | 05 | 56.87 |
| VANADIUM | 7440-62-2 | 4798 | 05 | 11.93 |
| YTTRIUM | 7440-65-5 | 4798 | 05 | 5.00 |
| ZINC | 7440-66-6 | 4798 | 05 | 462.33 |
| ZIRCONIUM | 7440-67-7 | 4798 | 05 | 1,286.67 |
| BENZOIC ACID | 65-85-0 | 4798 | 05 | 3,521.67 |
| BENZYL ALCOHOL | 100-51-6 | 4798 | 05 | Failed Tests |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 4798 | 05 | Failed Tests |
| CARBON DISULFIDE | 75-15-0 | 4798 | 05 | Failed Tests |
| CHLOROFORM | 67-66-3 | 4798 | 05 | 215.35 |

Attachment 10-1: Results (ug/L) of Data Editing Criteria

Subcategory=Metals OPTION=4
(continued)

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| DIBROMOCHLOROMETHANE | 124-48-1 | 4798 | 05 | 102.05 |
| HEXANOIC ACID | 142-62-1 | 4798 | 05 | Failed Tests |
| M-XYLENE | 108-38-3 | 4798 | 05 | Failed Tests |
| METHYLENE CHLORIDE | 75-09-2 | 4798 | 05 | Failed Tests |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 4798 | 05 | 68.13 |
| PHENOL | 108-95-2 | 4798 | 05 | Failed Tests |
| PYRIDINE | 110-86-1 | 4798 | 05 | 86.97 |
| TOLUENE | 108-88-3 | 4798 | 05 | Failed Tests |
| TRICHLOROETHENE | 79-01-6 | 4798 | 05 | 101.09 |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 4798 | 05 | Failed Tests |
| 1,1-DICHLOROETHENE | 75-35-4 | 4798 | 05 | Failed Tests |
| 1,4-DIOXANE | 123-91-1 | 4798 | 05 | Failed Tests |
| 2-BUTANONE | 78-93-3 | 4798 | 05 | 1,272.48 |
| 2-PROPANONE | 67-64-1 | 4798 | 05 | 13,081.47 |
| 4-METHYL-2-PENTANONE | 108-10-1 | 4798 | 05 | Failed Tests |

Subcategory=Metals OPTION=cyanide 2

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| TOTAL CYANIDE | 57-12-5 | 4055 | 03 | 135,661.11 |

Attachment 10-1: Results (ug/L) of Data Editing Criteria

------------------------------------------------------------ Subcategory=Oils OPTION=8 ------------------------------------------------------------

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| AMMONIA AS NITROGEN | 7664-41-7 | 4814A | 09 | 77,750.00 |
| AMMONIA AS NITROGEN | 7664-41-7 | 4814B | 10 | 291,000.00 |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 4814A | 09 | 5,947,500.00 |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 4814B | 10 | 9,295,000.00 |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 4814A | 09 | 11,725,000.00 |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 4814B | 10 | 23,766,666.67 |
| CHLORIDE | 16887-00-6 | 4814A | 09 | 1,568,750.00 |
| CHLORIDE | 16887-00-6 | 4814B | 10 | Failed Tests |
| FLUORIDE | 16984-48-8 | 4814A | 09 | 36,250.00 |
| FLUORIDE | 16984-48-8 | 4814B | 10 | Failed Tests |
| NITRATE/NITRITE | C-005 | 4814A | 09 | 20,750.00 |
| NITRATE/NITRITE | C-005 | 4814B | 10 | 71,666.67 |
| OIL & GREASE | C-007 | 4814A | 09 | 226,829.17 |
| OIL & GREASE | C-007 | 4814B | 10 | 822,333.33 |
| SGT-HEM | C-037 | 4814A | 09 | 41,991.67 |
| SGT-HEM | C-037 | 4814B | 10 | 243,616.67 |
| TOTAL CYANIDE | 57-12-5 | 4814A | 09 | 105.00 |
| TOTAL CYANIDE | 57-12-5 | 4814B | 10 | Failed Tests |
| TOTAL DISSOLVED SOLIDS | C-010 | 4814A | 09 | Failed Tests |
| TOTAL DISSOLVED SOLIDS | C-010 | 4814B | 10 | Failed Tests |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 4814A | 09 | 3,433,750.00 |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 4814B | 10 | Failed Tests |
| TOTAL PHENOLS | C-020 | 4814A | 09 | 15,522.50 |
| TOTAL PHENOLS | C-020 | 4814B | 10 | 20,160.00 |
| TOTAL PHOSPHORUS | 14265-44-2 | 4814A | 09 | 42,698.75 |
| TOTAL PHOSPHORUS | 14265-44-2 | 4814B | 10 | 31,356.67 |
| TOTAL SUSPENDED SOLIDS | C-009 | 4814A | 09 | 549,375.00 |
| TOTAL SUSPENDED SOLIDS | C-009 | 4814B | 10 | 608,666.67 |

Attachment 10-1: Results (ug/L) of Data Editing Criteria

------------------------------------------------------------ Subcategory=Oils OPTION=8 ------------------------------------------------------------
(continued)

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| ALUMINUM | 7429-90-5 | 4814A | 09 | 14,072.50 |
| ALUMINUM | 7429-90-5 | 4814B | 10 | Failed Tests |
| ANTIMONY | 7440-36-0 | 4814A | 09 | 103.06 |
| ANTIMONY | 7440-36-0 | 4814B | 10 | Failed Tests |
| ARSENIC | 7440-38-2 | 4814A | 09 | 1,341.00 |
| ARSENIC | 7440-38-2 | 4814B | 10 | 237.67 |
| BARIUM | 7440-39-3 | 4814A | 09 | 220.50 |
| BARIUM | 7440-39-3 | 4814B | 10 | Failed Tests |
| BORON | 7440-42-8 | 4814A | 09 | 22,462.50 |
| BORON | 7440-42-8 | 4814B | 10 | Failed Tests |
| CADMIUM | 7440-43-9 | 4814A | 09 | 7.33 |
| CADMIUM | 7440-43-9 | 4814B | 10 | 7.59 |
| CALCIUM | 7440-70-2 | 4814A | 09 | 173,375.00 |
| CALCIUM | 7440-70-2 | 4814B | 10 | 172,200.00 |
| CHROMIUM | 7440-47-3 | 4814A | 09 | 183.13 |
| CHROMIUM | 7440-47-3 | 4814B | 10 | 463.67 |
| COBALT | 7440-48-4 | 4814A | 09 | 1,090.75 |
| COBALT | 7440-48-4 | 4814B | 10 | 13,743.33 |
| COPPER | 7440-50-8 | 4814A | 09 | 68.66 |
| COPPER | 7440-50-8 | 4814B | 10 | 444.67 |
| GERMANIUM | 7440-56-4 | 4814A | 09 | Failed Tests |
| GERMANIUM | 7440-56-4 | 4814B | 10 | Failed Tests |
| IRON | 7439-89-6 | 4814A | 09 | 83,450.00 |
| IRON | 7439-89-6 | 4814B | 10 | 23,283.33 |
| LEAD | 7439-92-1 | 4814A | 09 | 59.73 |
| LEAD | 7439-92-1 | 4814B | 10 | 237.67 |
| LUTETIUM | 7439-94-3 | 4814A | 09 | Failed Tests |
| LUTETIUM | 7439-94-3 | 4814B | 10 | Failed Tests |
| MAGNESIUM | 7439-95-4 | 4814A | 09 | 62,900.00 |
| MAGNESIUM | 7439-95-4 | 4814B | 10 | Failed Tests |
| MANGANESE | 7439-96-5 | 4814A | 09 | 3,811.25 |
| MANGANESE | 7439-96-5 | 4814B | 10 | 7,001.67 |

Attachment 10-1: Results (ug/L) of Data Editing Criteria

---------------------------------------------------------- Subcategory=Oils OPTION=8 ----------------------------------------------------------
(continued)

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| MERCURY | 7439-97-6 | 4814A | 09 | 3.05 |
| MERCURY | 7439-97-6 | 4814B | 10 | 3.12 |
| MOLYBDENUM | 7439-98-7 | 4814A | 09 | 1,542.75 |
| MOLYBDENUM | 7439-98-7 | 4814B | 10 | Failed Tests |
| NICKEL | 7440-02-0 | 4814A | 09 | 1,241.50 |
| NICKEL | 7440-02-0 | 4814B | 10 | 1,706.33 |
| PHOSPHORUS | 7723-14-0 | 4814A | 09 | 30,657.50 |
| PHOSPHORUS | 7723-14-0 | 4814B | 10 | 59,266.67 |
| POTASSIUM | 7440-09-7 | 4814A | 09 | 486,000.00 |
| POTASSIUM | 7440-09-7 | 4814B | 10 | 337,500.00 |
| SELENIUM | 7782-49-2 | 4814A | 09 | 107.49 |
| SELENIUM | 7782-49-2 | 4814B | 10 | Failed Tests |
| SILICON | 7440-21-3 | 4814A | 09 | 21,150.00 |
| SILICON | 7440-21-3 | 4814B | 10 | 16,850.00 |
| SILVER | 7440-22-4 | 4814A | 09 | Failed Tests |
| SILVER | 7440-22-4 | 4814B | 10 | Failed Tests |
| SODIUM | 7440-23-5 | 4814A | 09 | Failed Tests |
| SODIUM | 7440-23-5 | 4814B | 10 | Failed Tests |
| STRONTIUM | 7440-24-6 | 4814A | 09 | 812.25 |
| STRONTIUM | 7440-24-6 | 4814B | 10 | 737.00 |
| SULFUR | 7704-34-9 | 4814A | 09 | Failed Tests |
| SULFUR | 7704-34-9 | 4814B | 10 | Failed Tests |
| TANTALUM | 7440-25-7 | 4814A | 09 | Failed Tests |
| TANTALUM | 7440-25-7 | 4814B | 10 | Failed Tests |
| TIN | 7440-31-5 | 4814A | 09 | 30.78 |
| TIN | 7440-31-5 | 4814B | 10 | 183.17 |
| TITANIUM | 7440-32-6 | 4814A | 09 | 13.64 |
| TITANIUM | 7440-32-6 | 4814B | 10 | 29.82 |
| ZINC | 7440-66-6 | 4814A | 09 | 3,138.75 |
| ZINC | 7440-66-6 | 4814B | 10 | 3,758.33 |

Attachment 10-1: Results (ug/L) of Data Editing Criteria

------------------------------------------------------------ Subcategory=Oils OPTION=8 ------------------------------------------------------------
(continued)

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| ACENAPHTHENE | 83-32-9 | 4814A | 09 | Failed Tests |
| ACENAPHTHENE | 83-32-9 | 4814B | 10 | 137.27 |
| ALPHA-TERPINEOL | 98-55-5 | 4814A | 09 | Failed Tests |
| ALPHA-TERPINEOL | 98-55-5 | 4814B | 10 | 48.33 |
| ANILINE | 62-53-3 | 4814A | 09 | Failed Tests |
| ANILINE | 62-53-3 | 4814B | 10 | Failed Tests |
| ANTHRACENE | 120-12-7 | 4814A | 09 | Failed Tests |
| ANTHRACENE | 120-12-7 | 4814B | 10 | 164.27 |
| BENZENE | 71-43-2 | 4814A | 09 | 511.39 |
| BENZENE | 71-43-2 | 4814B | 10 | 1,606.23 |
| BENZO(A)ANTHRACENE | 56-55-3 | 4814A | 09 | Failed Tests |
| BENZO(A)ANTHRACENE | 56-55-3 | 4814B | 10 | 106.76 |
| BENZOIC ACID | 65-85-0 | 4814A | 09 | 25,581.42 |
| BENZOIC ACID | 65-85-0 | 4814B | 10 | Failed Tests |
| BENZYL ALCOHOL | 100-51-6 | 4814A | 09 | Failed Tests |
| BENZYL ALCOHOL | 100-51-6 | 4814B | 10 | Failed Tests |
| BIPHENYL | 92-52-4 | 4814A | 09 | 16.71 |
| BIPHENYL | 92-52-4 | 4814B | 10 | 135.71 |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 4814A | 09 | Failed Tests |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 4814B | 10 | 115.74 |
| BUTYL BENZYL PHTHALATE | 85-68-7 | 4814A | 09 | Failed Tests |
| BUTYL BENZYL PHTHALATE | 85-68-7 | 4814B | 10 | 54.98 |
| CARBAZOLE | 86-74-8 | 4814A | 09 | Failed Tests |
| CARBAZOLE | 86-74-8 | 4814B | 10 | 151.45 |
| CARBON DISULFIDE | 75-15-0 | 4814A | 09 | 28.11 |
| CARBON DISULFIDE | 75-15-0 | 4814B | 10 | Failed Tests |
| CHLOROBENZENE | 108-90-7 | 4814A | 09 | 52.31 |
| CHLOROBENZENE | 108-90-7 | 4814B | 10 | 122.66 |
| CHLOROFORM | 67-66-3 | 4814A | 09 | 216.34 |
| CHLOROFORM | 67-66-3 | 4814B | 10 | 541.84 |

Attachment 10-1: Results (ug/L) of Data Editing Criteria

------------------------------------------------------------ Subcategory=Oils OPTION=8 ------------------------------------------------------------
(continued)

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| CHRYSENE | 218-01-9 | 4814A | 09 | Failed Tests |
| CHRYSENE | 218-01-9 | 4814B | 10 | 79.43 |
| DIBENZOFURAN | 132-64-9 | 4814A | 09 | Failed Tests |
| DIBENZOFURAN | 132-64-9 | 4814B | 10 | 135.25 |
| DIBENZOTHIOPHENE | 132-65-0 | 4814A | 09 | Failed Tests |
| DIBENZOTHIOPHENE | 132-65-0 | 4814B | 10 | 95.76 |
| DIETHYL PHTHALATE | 84-66-2 | 4814A | 09 | 1,410.97 |
| DIETHYL PHTHALATE | 84-66-2 | 4814B | 10 | 107.30 |
| DIPHENYL ETHER | 101-84-8 | 4814A | 09 | Failed Tests |
| DIPHENYL ETHER | 101-84-8 | 4814B | 10 | Failed Tests |
| ETHYLBENZENE | 100-41-4 | 4814A | 09 | 273.78 |
| ETHYLBENZENE | 100-41-4 | 4814B | 10 | 1,668.81 |
| FLUORANTHENE | 206-44-0 | 4814A | 09 | 17.29 |
| FLUORANTHENE | 206-44-0 | 4814B | 10 | 489.45 |
| FLUORENE | 86-73-7 | 4814A | 09 | Failed Tests |
| FLUORENE | 86-73-7 | 4814B | 10 | 243.11 |
| HEXANOIC ACID | 142-62-1 | 4814A | 09 | 9,253.62 |
| HEXANOIC ACID | 142-62-1 | 4814B | 10 | Failed Tests |
| M+P XYLENE | 179601-23-1 | 4814A | 09 | 422.95 |
| M+P XYLENE | 179601-23-1 | 4814B | 10 | Failed Tests |
| M-XYLENE | 108-38-3 | 4814A | 09 | Failed Tests |
| M-XYLENE | 108-38-3 | 4814B | 10 | 1,520.33 |
| METHYLENE CHLORIDE | 75-09-2 | 4814A | 09 | 3,252.49 |
| METHYLENE CHLORIDE | 75-09-2 | 4814B | 10 | 5,231.57 |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 4814A | 09 | Failed Tests |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 4814B | 10 | Failed Tests |
| N-DECANE | 124-18-5 | 4814A | 09 | 16.25 |
| N-DECANE | 124-18-5 | 4814B | 10 | 4,723.68 |
| N-DOCOSANE | 629-97-0 | 4814A | 09 | 20.77 |
| N-DOCOSANE | 629-97-0 | 4814B | 10 | 129.88 |
| N-DODECANE | 112-40-3 | 4814A | 09 | 16.25 |
| N-DODECANE | 112-40-3 | 4814B | 10 | 7,653.43 |

Attachment 10-1: Results (ug/L) of Data Editing Criteria

------------------------------------------------------------ Subcategory=Oils OPTION=8 ------------------------------------------------------------
(continued)

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| N-EICOSANE | 112-95-8 | 4814A | 09 | 51.76 |
| N-EICOSANE | 112-95-8 | 4814B | 10 | 1,179.76 |
| N-HEXACOSANE | 630-01-3 | 4814A | 09 | Failed Tests |
| N-HEXACOSANE | 630-01-3 | 4814B | 10 | Failed Tests |
| N-HEXADECANE | 544-76-3 | 4814A | 09 | 135.73 |
| N-HEXADECANE | 544-76-3 | 4814B | 10 | 2,637.67 |
| N-OCTACOSANE | 630-02-4 | 4814A | 09 | Failed Tests |
| N-OCTACOSANE | 630-02-4 | 4814B | 10 | Failed Tests |
| N-OCTADECANE | 593-45-3 | 4814A | 09 | 113.89 |
| N-OCTADECANE | 593-45-3 | 4814B | 10 | 1,471.36 |
| N-TETRACOSANE | 646-31-1 | 4814A | 09 | Failed Tests |
| N-TETRACOSANE | 646-31-1 | 4814B | 10 | Failed Tests |
| N-TETRADECANE | 629-59-4 | 4814A | 09 | 337.09 |
| N-TETRADECANE | 629-59-4 | 4814B | 10 | 3,303.90 |
| NAPHTHALENE | 91-20-3 | 4814A | 09 | 200.65 |
| NAPHTHALENE | 91-20-3 | 4814B | 10 | 1,827.82 |
| O+P XYLENE | 136777-61-2 | 4814A | 09 | Failed Tests |
| O+P XYLENE | 136777-61-2 | 4814B | 10 | 1,873.00 |
| O-CRESOL | 95-48-7 | 4814A | 09 | Failed Tests |
| O-CRESOL | 95-48-7 | 4814B | 10 | Failed Tests |
| O-TOLUIDINE | 95-53-4 | 4814A | 09 | Failed Tests |
| O-TOLUIDINE | 95-53-4 | 4814B | 10 | Failed Tests |
| O-XYLENE | 95-47-6 | 4814A | 09 | 268.52 |
| O-XYLENE | 95-47-6 | 4814B | 10 | Failed Tests |
| P-CRESOL | 106-44-5 | 4814A | 09 | Failed Tests |
| P-CRESOL | 106-44-5 | 4814B | 10 | 630.49 |
| P-CYMENE | 99-87-6 | 4814A | 09 | 16.25 |
| P-CYMENE | 99-87-6 | 4814B | 10 | 94.93 |
| PENTAMETHYLBENZENE | 700-12-9 | 4814A | 09 | Failed Tests |
| PENTAMETHYLBENZENE | 700-12-9 | 4814B | 10 | 48.33 |
| PHENANTHRENE | 85-01-8 | 4814A | 09 | 57.39 |
| PHENANTHRENE | 85-01-8 | 4814B | 10 | 1,242.05 |

Attachment 10-1: Results (ug/L) of Data Editing Criteria

---------------------------------------------------------------- Subcategory=Oils OPTION=8 ----------------------------------------------------------------
(continued)

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| PHENOL | 108-95-2 | 4814A | 09 | Failed Tests |
| PHENOL | 108-95-2 | 4814B | 10 | Failed Tests |
| PYRENE | 129-00-0 | 4814A | 09 | 18.03 |
| PYRENE | 129-00-0 | 4814B | 10 | 245.51 |
| PYRIDINE | 110-86-1 | 4814A | 09 | 624.78 |
| PYRIDINE | 110-86-1 | 4814B | 10 | Failed Tests |
| STYRENE | 100-42-5 | 4814A | 09 | 16.25 |
| STYRENE | 100-42-5 | 4814B | 10 | 97.73 |
| TETRACHLOROETHENE | 127-18-4 | 4814A | 09 | 280.34 |
| TETRACHLOROETHENE | 127-18-4 | 4814B | 10 | 670.57 |
| TOLUENE | 108-88-3 | 4814A | 09 | 3,613.18 |
| TOLUENE | 108-88-3 | 4814B | 10 | 8,596.18 |
| TRICHLOROETHENE | 79-01-6 | 4814A | 09 | 194.60 |
| TRICHLOROETHENE | 79-01-6 | 4814B | 10 | 1,144.63 |
| TRIPROPYLENEGLYCOL METHYL ETHER | 20324-33-8 | 4814A | 09 | Failed Tests |
| TRIPROPYLENEGLYCOL METHYL ETHER | 20324-33-8 | 4814B | 10 | 478.50 |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 4814A | 09 | 107.30 |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 4814B | 10 | 218.27 |
| 1,1-DICHLOROETHENE | 75-35-4 | 4814A | 09 | 59.16 |
| 1,1-DICHLOROETHENE | 75-35-4 | 4814B | 10 | 379.80 |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 4814A | 09 | 130.07 |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 4814B | 10 | 104.83 |
| 1,2-DICHLOROBENZENE | 95-50-1 | 4814A | 09 | Failed Tests |
| 1,2-DICHLOROBENZENE | 95-50-1 | 4814B | 10 | 48.33 |
| 1,2-DICHLOROETHANE | 107-06-2 | 4814A | 09 | 185.67 |
| 1,2-DICHLOROETHANE | 107-06-2 | 4814B | 10 | 359.46 |
| 1,4-DICHLOROBENZENE | 106-46-7 | 4814A | 09 | 34.66 |
| 1,4-DICHLOROBENZENE | 106-46-7 | 4814B | 10 | 140.03 |
| 1,4-DIOXANE | 123-91-1 | 4814A | 09 | Failed Tests |
| 1,4-DIOXANE | 123-91-1 | 4814B | 10 | Failed Tests |
| 1-METHYLFLUORENE | 1730-37-6 | 4814A | 09 | Failed Tests |
| 1-METHYLFLUORENE | 1730-37-6 | 4814B | 10 | 48.33 |

Attachment 10-1: Results (ug/L) of Data Editing Criteria

------------------------------------------------------------ Subcategory=Oils OPTION=8 ------------------------------------------------------------
(continued)

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| 1-METHYLPHENANTHRENE | 832-69-9 | 4814A | 09 | Failed Tests |
| 1-METHYLPHENANTHRENE | 832-69-9 | 4814B | 10 | 76.32 |
| 2,3-BENZOFLUORENE | 243-17-4 | 4814A | 09 | Failed Tests |
| 2,3-BENZOFLUORENE | 243-17-4 | 4814B | 10 | Failed Tests |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 4814A | 09 | Failed Tests |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 4814B | 10 | Failed Tests |
| 2-BUTANONE | 78-93-3 | 4814A | 09 | 11,390.45 |
| 2-BUTANONE | 78-93-3 | 4814B | 10 | Failed Tests |
| 2-ISOPROPYLNAPHTHALENE | 2027-17-0 | 4814A | 09 | Failed Tests |
| 2-ISOPROPYLNAPHTHALENE | 2027-17-0 | 4814B | 10 | Failed Tests |
| 2-METHYLNAPHTHALENE | 91-57-6 | 4814A | 09 | 160.58 |
| 2-METHYLNAPHTHALENE | 91-57-6 | 4814B | 10 | 2,919.45 |
| 2-PROPANONE | 67-64-1 | 4814A | 09 | Failed Tests |
| 2-PROPANONE | 67-64-1 | 4814B | 10 | Failed Tests |
| 3,6-DIMETHYLPHENANTHRENE | 1576-67-6 | 4814A | 09 | Failed Tests |
| 3,6-DIMETHYLPHENANTHRENE | 1576-67-6 | 4814B | 10 | Failed Tests |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 4814A | 09 | Failed Tests |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 4814B | 10 | Failed Tests |
| 4-METHYL-2-PENTANONE | 108-10-1 | 4814A | 09 | 9,071.13 |
| 4-METHYL-2-PENTANONE | 108-10-1 | 4814B | 10 | 6,624.87 |

Attachment 10-1: Results (ug/L) of Data Editing Criteria

----------------------------------------------------------- Subcategory=Oils OPTION=9[1] ------------------------------------------------------------

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| AMMONIA AS NITROGEN | 7664-41-7 | 4813 | 07 | 97,222.00 |
| AMMONIA AS NITROGEN | 7664-41-7 | 4814A | 09 | 77,750.00 |
| AMMONIA AS NITROGEN | 7664-41-7 | 4814B | 10 | 291,000.00 |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 4813 | 07 | 14,708,000.00 |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 4814A | 09 | 5,947,500.00 |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 4814B | 10 | 9,295,000.00 |
| BIOCHEMICAL OXYGEN DEMAND | C-003 | 651 | 01 | 5,500,000.00 |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 4813 | 07 | 20,490,000.00 |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 4814A | 09 | 11,725,000.00 |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 4814B | 10 | 23,766,666.67 |
| CHLORIDE | 16887-00-6 | 4813 | 07 | Failed Tests |
| CHLORIDE | 16887-00-6 | 4814A | 09 | 1,568,750.00 |
| CHLORIDE | 16887-00-6 | 4814B | 10 | Failed Tests |
| FLUORIDE | 16984-48-8 | 4813 | 07 | Failed Tests |
| FLUORIDE | 16984-48-8 | 4814A | 09 | 36,250.00 |
| FLUORIDE | 16984-48-8 | 4814B | 10 | Failed Tests |
| NITRATE/NITRITE | C-005 | 4813 | 07 | 703.00 |
| NITRATE/NITRITE | C-005 | 4814A | 09 | 20,750.00 |
| NITRATE/NITRITE | C-005 | 4814B | 10 | 71,666.67 |
| OIL & GREASE | C-007 | 651 | 01 | 28,325.00 |
| SGT-HEM | C-037 | 4813 | 07 | 42,528.33 |
| SGT-HEM | C-037 | 4814A | 09 | 41,991.67 |
| SGT-HEM | C-037 | 4814B | 10 | 243,616.67 |
| TOTAL CYANIDE | 57-12-5 | 4813 | 07 | Failed Tests |
| TOTAL CYANIDE | 57-12-5 | 4814A | 09 | 105.00 |
| TOTAL CYANIDE | 57-12-5 | 4814B | 10 | Failed Tests |
| TOTAL CYANIDE | 57-12-5 | 651 | 01 | No Influent Data |
| TOTAL DISSOLVED SOLIDS | C-010 | 4813 | 07 | Failed Tests |
| TOTAL DISSOLVED SOLIDS | C-010 | 4814A | 09 | Failed Tests |
| TOTAL DISSOLVED SOLIDS | C-010 | 4814B | 10 | Failed Tests |

[1] See Appendix C for pollutants for which facility 651 had influent measurements, but no effluent measurements.

Attachment 10-1: Results (ug/L) of Data Editing Criteria

Subcategory=Oils OPTION=9
(continued)

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| TOTAL ORGANIC CARBON (TOC) | C-012 | 4813 | 07 | 7,724,000.00 |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 4814A | 09 | 3,433,750.00 |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 4814B | 10 | Failed Tests |
| TOTAL PHENOLS | C-020 | 4813 | 07 | 40,076.00 |
| TOTAL PHENOLS | C-020 | 4814A | 09 | 15,522.50 |
| TOTAL PHENOLS | C-020 | 4814B | 10 | 20,160.00 |
| TOTAL PHENOLS | C-020 | 651 | 01 | No Influent Data |
| TOTAL PHOSPHORUS | 14265-44-2 | 4813 | 07 | 3,357.00 |
| TOTAL PHOSPHORUS | 14265-44-2 | 4814A | 09 | 42,698.75 |
| TOTAL PHOSPHORUS | 14265-44-2 | 4814B | 10 | 31,356.67 |
| TOTAL SUSPENDED SOLIDS | C-009 | 4813 | 07 | Failed Tests |
| TOTAL SUSPENDED SOLIDS | C-009 | 4814A | 09 | 549,375.00 |
| TOTAL SUSPENDED SOLIDS | C-009 | 4814B | 10 | 608,666.67 |
| TOTAL SUSPENDED SOLIDS | C-009 | 651 | 01 | 25,500.00 |
| ALUMINUM | 7429-90-5 | 4814A | 09 | 14,072.50 |
| ALUMINUM | 7429-90-5 | 4814B | 10 | Failed Tests |
| ANTIMONY | 7440-36-0 | 4814A | 09 | 103.06 |
| ANTIMONY | 7440-36-0 | 4814B | 10 | Failed Tests |
| ARSENIC | 7440-38-2 | 4814A | 09 | 1,341.00 |
| ARSENIC | 7440-38-2 | 4814B | 10 | 237.67 |
| BARIUM | 7440-39-3 | 4814A | 09 | 220.50 |
| BARIUM | 7440-39-3 | 4814B | 10 | Failed Tests |
| BORON | 7440-42-8 | 4814A | 09 | 22,462.50 |
| BORON | 7440-42-8 | 4814B | 10 | Failed Tests |
| CADMIUM | 7440-43-9 | 4814A | 09 | 7.33 |
| CADMIUM | 7440-43-9 | 4814B | 10 | 7.59 |
| CADMIUM | 7440-43-9 | 651 | 01 | Failed Tests |
| CALCIUM | 7440-70-2 | 4814A | 09 | 173,375.00 |
| CALCIUM | 7440-70-2 | 4814B | 10 | 172,200.00 |
| CHROMIUM | 7440-47-3 | 4814A | 09 | 183.13 |
| CHROMIUM | 7440-47-3 | 4814B | 10 | 463.67 |
| CHROMIUM | 7440-47-3 | 651 | 01 | 18.92 |

Attachment 10-1: Results (ug/L) of Data Editing Criteria

------------------------------------------------------------- Subcategory=Oils OPTION=9 -------------------------------------------------------------
(continued)

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| COBALT | 7440-48-4 | 4814A | 09 | 1,090.75 |
| COBALT | 7440-48-4 | 4814B | 10 | 13,743.33 |
| COPPER | 7440-50-8 | 4814A | 09 | 68.66 |
| COPPER | 7440-50-8 | 4814B | 10 | 444.67 |
| COPPER | 7440-50-8 | 651 | 01 | 156.75 |
| GERMANIUM | 7440-56-4 | 4814A | 09 | Failed Tests |
| GERMANIUM | 7440-56-4 | 4814B | 10 | Failed Tests |
| IRON | 7439-89-6 | 4814A | 09 | 83,450.00 |
| IRON | 7439-89-6 | 4814B | 10 | 23,283.33 |
| LEAD | 7439-92-1 | 4814A | 09 | 59.73 |
| LEAD | 7439-92-1 | 4814B | 10 | 237.67 |
| LEAD | 7439-92-1 | 651 | 01 | 98.58 |
| LUTETIUM | 7439-94-3 | 4814A | 09 | Failed Tests |
| LUTETIUM | 7439-94-3 | 4814B | 10 | Failed Tests |
| MAGNESIUM | 7439-95-4 | 4814A | 09 | 62,900.00 |
| MAGNESIUM | 7439-95-4 | 4814B | 10 | Failed Tests |
| MANGANESE | 7439-96-5 | 4814A | 09 | 3,811.25 |
| MANGANESE | 7439-96-5 | 4814B | 10 | 7,001.67 |
| MERCURY | 7439-97-6 | 4814A | 09 | 3.05 |
| MERCURY | 7439-97-6 | 4814B | 10 | 3.12 |
| MERCURY | 7439-97-6 | 651 | 01 | Failed Tests |
| MOLYBDENUM | 7439-98-7 | 4814A | 09 | 1,542.75 |
| MOLYBDENUM | 7439-98-7 | 4814B | 10 | Failed Tests |
| NICKEL | 7440-02-0 | 4814A | 09 | 1,241.50 |
| NICKEL | 7440-02-0 | 4814B | 10 | 1,706.33 |
| PHOSPHORUS | 7723-14-0 | 4814A | 09 | 30,657.50 |
| PHOSPHORUS | 7723-14-0 | 4814B | 10 | 59,266.67 |
| POTASSIUM | 7440-09-7 | 4814A | 09 | 486,000.00 |
| POTASSIUM | 7440-09-7 | 4814B | 10 | 337,500.00 |
| SELENIUM | 7782-49-2 | 4814A | 09 | 107.49 |
| SELENIUM | 7782-49-2 | 4814B | 10 | Failed Tests |
| SILICON | 7440-21-3 | 4814A | 09 | 21,150.00 |
| SILICON | 7440-21-3 | 4814B | 10 | 16,850.00 |

------------------------------------------------------------ Subcategory=Oils OPTION=9 ------------------------------------------------------------
(continued)

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| SILVER | 7440-22-4 | 4814A | 09 | Failed Tests |
| SILVER | 7440-22-4 | 4814B | 10 | Failed Tests |
| SODIUM | 7440-23-5 | 4814A | 09 | Failed Tests |
| SODIUM | 7440-23-5 | 4814B | 10 | Failed Tests |
| STRONTIUM | 7440-24-6 | 4814A | 09 | 812.25 |
| STRONTIUM | 7440-24-6 | 4814B | 10 | 737.00 |
| SULFUR | 7704-34-9 | 4814A | 09 | Failed Tests |
| SULFUR | 7704-34-9 | 4814B | 10 | Failed Tests |
| TANTALUM | 7440-25-7 | 4814A | 09 | Failed Tests |
| TANTALUM | 7440-25-7 | 4814B | 10 | Failed Tests |
| TIN | 7440-31-5 | 4814A | 09 | 30.78 |
| TIN | 7440-31-5 | 4814B | 10 | 183.17 |
| TITANIUM | 7440-32-6 | 4814A | 09 | 13.64 |
| TITANIUM | 7440-32-6 | 4814B | 10 | 29.82 |
| ZINC | 7440-66-6 | 4814A | 09 | 3,138.75 |
| ZINC | 7440-66-6 | 4814B | 10 | 3,758.33 |
| ZINC | 7440-66-6 | 651 | 01 | 920.83 |
| ACENAPHTHENE | 83-32-9 | 4813 | 07 | Failed Tests |
| ACENAPHTHENE | 83-32-9 | 4814A | 09 | Failed Tests |
| ACENAPHTHENE | 83-32-9 | 4814B | 10 | 137.27 |
| ALPHA-TERPINEOL | 98-55-5 | 4813 | 07 | Failed Tests |
| ALPHA-TERPINEOL | 98-55-5 | 4814A | 09 | Failed Tests |
| ALPHA-TERPINEOL | 98-55-5 | 4814B | 10 | 48.33 |
| ANILINE | 62-53-3 | 4813 | 07 | Failed Tests |
| ANILINE | 62-53-3 | 4814A | 09 | Failed Tests |
| ANILINE | 62-53-3 | 4814B | 10 | Failed Tests |
| ANTHRACENE | 120-12-7 | 4813 | 07 | 17.15 |
| ANTHRACENE | 120-12-7 | 4814A | 09 | Failed Tests |
| ANTHRACENE | 120-12-7 | 4814B | 10 | 164.27 |
| BENZENE | 71-43-2 | 4813 | 07 | Failed Tests |
| BENZENE | 71-43-2 | 4814A | 09 | 511.39 |
| BENZENE | 71-43-2 | 4814B | 10 | 1,606.23 |
| BENZENE | 71-43-2 | 651 | 01 | No Influent Data |

Attachment 10-1: Results (ug/L) of Data Editing Criteria

------------------------------------------------------------ Subcategory=Oils OPTION=9 ------------------------------------------------------------
(continued)

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| BENZO(A)ANTHRACENE | 56-55-3 | 4813 | 07 | 12.66 |
| BENZO(A)ANTHRACENE | 56-55-3 | 4814A | 09 | Failed Tests |
| BENZO(A)ANTHRACENE | 56-55-3 | 4814B | 10 | 106.76 |
| BENZOIC ACID | 65-85-0 | 4813 | 07 | 49,117.83 |
| BENZOIC ACID | 65-85-0 | 4814A | 09 | 25,581.42 |
| BENZOIC ACID | 65-85-0 | 4814B | 10 | Failed Tests |
| BENZYL ALCOHOL | 100-51-6 | 4813 | 07 | 80.65 |
| BENZYL ALCOHOL | 100-51-6 | 4814A | 09 | Failed Tests |
| BENZYL ALCOHOL | 100-51-6 | 4814B | 10 | Failed Tests |
| BIPHENYL | 92-52-4 | 4813 | 07 | 373.99 |
| BIPHENYL | 92-52-4 | 4814A | 09 | 16.71 |
| BIPHENYL | 92-52-4 | 4814B | 10 | 135.71 |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 4813 | 07 | 10.00 |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 4814A | 09 | Failed Tests |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 4814B | 10 | 115.74 |
| BUTYL BENZYL PHTHALATE | 85-68-7 | 4813 | 07 | Failed Tests |
| BUTYL BENZYL PHTHALATE | 85-68-7 | 4814A | 09 | Failed Tests |
| BUTYL BENZYL PHTHALATE | 85-68-7 | 4814B | 10 | 54.98 |
| CARBAZOLE | 86-74-8 | 4813 | 07 | Failed Tests |
| CARBAZOLE | 86-74-8 | 4814A | 09 | Failed Tests |
| CARBAZOLE | 86-74-8 | 4814B | 10 | 151.45 |
| CARBON DISULFIDE | 75-15-0 | 4813 | 07 | Failed Tests |
| CARBON DISULFIDE | 75-15-0 | 4814A | 09 | 28.11 |
| CARBON DISULFIDE | 75-15-0 | 4814B | 10 | Failed Tests |
| CHLOROBENZENE | 108-90-7 | 4813 | 07 | Failed Tests |
| CHLOROBENZENE | 108-90-7 | 4814A | 09 | 52.31 |
| CHLOROBENZENE | 108-90-7 | 4814B | 10 | 122.66 |
| CHLOROFORM | 67-66-3 | 4813 | 07 | Failed Tests |
| CHLOROFORM | 67-66-3 | 4814A | 09 | 216.34 |
| CHLOROFORM | 67-66-3 | 4814B | 10 | 541.84 |
| CHRYSENE | 218-01-9 | 4813 | 07 | 17.52 |
| CHRYSENE | 218-01-9 | 4814A | 09 | Failed Tests |
| CHRYSENE | 218-01-9 | 4814B | 10 | 79.43 |

Attachment 10-1: Results (ug/L) of Data Editing Criteria

Subcategory=Oils OPTION=9
(continued)

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| DIBENZOFURAN | 132-64-9 | 4813 | 07 | Failed Tests |
| DIBENZOFURAN | 132-64-9 | 4814A | 09 | Failed Tests |
| DIBENZOFURAN | 132-64-9 | 4814B | 10 | 135.25 |
| DIBENZOTHIOPHENE | 132-65-0 | 4813 | 07 | 23.11 |
| DIBENZOTHIOPHENE | 132-65-0 | 4814A | 09 | Failed Tests |
| DIBENZOTHIOPHENE | 132-65-0 | 4814B | 10 | 95.76 |
| DIETHYL PHTHALATE | 84-66-2 | 4813 | 07 | 365.93 |
| DIETHYL PHTHALATE | 84-66-2 | 4814A | 09 | 1,410.97 |
| DIETHYL PHTHALATE | 84-66-2 | 4814B | 10 | 107.30 |
| DIPHENYL ETHER | 101-84-8 | 4813 | 07 | 981.54 |
| DIPHENYL ETHER | 101-84-8 | 4814A | 09 | Failed Tests |
| DIPHENYL ETHER | 101-84-8 | 4814B | 10 | Failed Tests |
| ETHYLBENZENE | 100-41-4 | 4813 | 07 | 423.30 |
| ETHYLBENZENE | 100-41-4 | 4814A | 09 | 273.78 |
| ETHYLBENZENE | 100-41-4 | 4814B | 10 | 1,668.81 |
| ETHYLBENZENE | 100-41-4 | 651 | 01 | No Influent Data |
| FLUORANTHENE | 206-44-0 | 4813 | 07 | 10.00 |
| FLUORANTHENE | 206-44-0 | 4814A | 09 | 17.29 |
| FLUORANTHENE | 206-44-0 | 4814B | 10 | 489.45 |
| FLUORENE | 86-73-7 | 4813 | 07 | 16.09 |
| FLUORENE | 86-73-7 | 4814A | 09 | Failed Tests |
| FLUORENE | 86-73-7 | 4814B | 10 | 243.11 |
| HEXANOIC ACID | 142-62-1 | 4813 | 07 | Failed Tests |
| HEXANOIC ACID | 142-62-1 | 4814A | 09 | 9,253.62 |
| HEXANOIC ACID | 142-62-1 | 4814B | 10 | Failed Tests |
| M+P XYLENE | 179601-23-1 | 4814A | 09 | 422.95 |
| M+P XYLENE | 179601-23-1 | 4814B | 10 | Failed Tests |
| M-XYLENE | 108-38-3 | 4813 | 07 | 361.58 |
| M-XYLENE | 108-38-3 | 4814A | 09 | Failed Tests |
| M-XYLENE | 108-38-3 | 4814B | 10 | 1,520.33 |
| METHYLENE CHLORIDE | 75-09-2 | 4813 | 07 | Failed Tests |
| METHYLENE CHLORIDE | 75-09-2 | 4814A | 09 | 3,252.49 |
| METHYLENE CHLORIDE | 75-09-2 | 4814B | 10 | 5,231.57 |

Attachment 10-1: Results (ug/L) of Data Editing Criteria

------------------------------------------------------------ Subcategory=Oils OPTION=9 ------------------------------------------------------------
(continued)

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 4813 | 07 | Failed Tests |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 4814A | 09 | Failed Tests |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 4814B | 10 | Failed Tests |
| N-DECANE | 124-18-5 | 4813 | 07 | 238.16 |
| N-DECANE | 124-18-5 | 4814A | 09 | 16.25 |
| N-DECANE | 124-18-5 | 4814B | 10 | 4,723.68 |
| N-DOCOSANE | 629-97-0 | 4813 | 07 | 19.84 |
| N-DOCOSANE | 629-97-0 | 4814A | 09 | 20.77 |
| N-DOCOSANE | 629-97-0 | 4814B | 10 | 129.88 |
| N-DODECANE | 112-40-3 | 4813 | 07 | 233.80 |
| N-DODECANE | 112-40-3 | 4814A | 09 | 16.25 |
| N-DODECANE | 112-40-3 | 4814B | 10 | 7,653.43 |
| N-EICOSANE | 112-95-8 | 4813 | 07 | 45.24 |
| N-EICOSANE | 112-95-8 | 4814A | 09 | 51.76 |
| N-EICOSANE | 112-95-8 | 4814B | 10 | 1,179.76 |
| N-HEXACOSANE | 630-01-3 | 4813 | 07 | Failed Tests |
| N-HEXACOSANE | 630-01-3 | 4814A | 09 | Failed Tests |
| N-HEXACOSANE | 630-01-3 | 4814B | 10 | Failed Tests |
| N-HEXADECANE | 544-76-3 | 4813 | 07 | 2,551.36 |
| N-HEXADECANE | 544-76-3 | 4814A | 09 | 135.73 |
| N-HEXADECANE | 544-76-3 | 4814B | 10 | 2,637.67 |
| N-OCTACOSANE | 630-02-4 | 4813 | 07 | Failed Tests |
| N-OCTACOSANE | 630-02-4 | 4814A | 09 | Failed Tests |
| N-OCTACOSANE | 630-02-4 | 4814B | 10 | Failed Tests |
| N-OCTADECANE | 593-45-3 | 4813 | 07 | 202.66 |
| N-OCTADECANE | 593-45-3 | 4814A | 09 | 113.89 |
| N-OCTADECANE | 593-45-3 | 4814B | 10 | 1,471.36 |
| N-TETRACOSANE | 646-31-1 | 4813 | 07 | Failed Tests |
| N-TETRACOSANE | 646-31-1 | 4814A | 09 | Failed Tests |
| N-TETRACOSANE | 646-31-1 | 4814B | 10 | Failed Tests |
| N-TETRADECANE | 629-59-4 | 4813 | 07 | 3,784.44 |
| N-TETRADECANE | 629-59-4 | 4814A | 09 | 337.09 |
| N-TETRADECANE | 629-59-4 | 4814B | 10 | 3,303.90 |

------------------------------------------------------------ Subcategory=Oils OPTION=9 ------------------------------------------------------------
(continued)

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| NAPHTHALENE | 91-20-3 | 4813 | 07 | 248.73 |
| NAPHTHALENE | 91-20-3 | 4814A | 09 | 200.65 |
| NAPHTHALENE | 91-20-3 | 4814B | 10 | 1,827.82 |
| O+P XYLENE | 136777-61-2 | 4813 | 07 | 564.06 |
| O+P XYLENE | 136777-61-2 | 4814A | 09 | Failed Tests |
| O+P XYLENE | 136777-61-2 | 4814B | 10 | 1,873.00 |
| O-CRESOL | 95-48-7 | 4813 | 07 | 1,769.86 |
| O-CRESOL | 95-48-7 | 4814A | 09 | Failed Tests |
| O-CRESOL | 95-48-7 | 4814B | 10 | Failed Tests |
| O-TOLUIDINE | 95-53-4 | 4813 | 07 | Failed Tests |
| O-TOLUIDINE | 95-53-4 | 4814A | 09 | Failed Tests |
| O-TOLUIDINE | 95-53-4 | 4814B | 10 | Failed Tests |
| O-XYLENE | 95-47-6 | 4814A | 09 | 268.52 |
| O-XYLENE | 95-47-6 | 4814B | 10 | Failed Tests |
| P-CRESOL | 106-44-5 | 4813 | 07 | 1,283.19 |
| P-CRESOL | 106-44-5 | 4814A | 09 | Failed Tests |
| P-CRESOL | 106-44-5 | 4814B | 10 | 630.49 |
| P-CYMENE | 99-87-6 | 4813 | 07 | Failed Tests |
| P-CYMENE | 99-87-6 | 4814A | 09 | 16.25 |
| P-CYMENE | 99-87-6 | 4814B | 10 | 94.93 |
| PENTAMETHYLBENZENE | 700-12-9 | 4813 | 07 | Failed Tests |
| PENTAMETHYLBENZENE | 700-12-9 | 4814A | 09 | Failed Tests |
| PENTAMETHYLBENZENE | 700-12-9 | 4814B | 10 | 48.33 |
| PHENANTHRENE | 85-01-8 | 4813 | 07 | 81.76 |
| PHENANTHRENE | 85-01-8 | 4814A | 09 | 57.39 |
| PHENANTHRENE | 85-01-8 | 4814B | 10 | 1,242.05 |
| PHENOL | 108-95-2 | 4813 | 07 | 30,681.00 |
| PHENOL | 108-95-2 | 4814A | 09 | Failed Tests |
| PHENOL | 108-95-2 | 4814B | 10 | Failed Tests |
| PYRENE | 129-00-0 | 4813 | 07 | 58.00 |
| PYRENE | 129-00-0 | 4814A | 09 | 18.03 |
| PYRENE | 129-00-0 | 4814B | 10 | 245.51 |

Attachment 10-1: Results (ug/L) of Data Editing Criteria

Subcategory=Oils OPTION=9
(continued)

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| PYRIDINE | 110-86-1 | 4813 | 07 | Failed Tests |
| PYRIDINE | 110-86-1 | 4814A | 09 | 624.78 |
| PYRIDINE | 110-86-1 | 4814B | 10 | Failed Tests |
| STYRENE | 100-42-5 | 4813 | 07 | Failed Tests |
| STYRENE | 100-42-5 | 4814A | 09 | 16.25 |
| STYRENE | 100-42-5 | 4814B | 10 | 97.73 |
| TETRACHLOROETHENE | 127-18-4 | 4813 | 07 | Failed Tests |
| TETRACHLOROETHENE | 127-18-4 | 4814A | 09 | 280.34 |
| TETRACHLOROETHENE | 127-18-4 | 4814B | 10 | 670.57 |
| TOLUENE | 108-88-3 | 4813 | 07 | 3,239.80 |
| TOLUENE | 108-88-3 | 4814A | 09 | 3,613.18 |
| TOLUENE | 108-88-3 | 4814B | 10 | 8,596.18 |
| TOLUENE | 108-88-3 | 651 | 01 | No Influent Data |
| TRICHLOROETHENE | 79-01-6 | 4813 | 07 | Failed Tests |
| TRICHLOROETHENE | 79-01-6 | 4814A | 09 | 194.60 |
| TRICHLOROETHENE | 790-1-6 | 4814B | 10 | 1,144.63 |
| TRIPROPYLENEGLYCOL METHYL ETHER | 20324-33-8 | 4813 | 07 | Failed Tests |
| TRIPROPYLENEGLYCOL METHYL ETHER | 20324-33-8 | 4814A | 09 | Failed Tests |
| TRIPROPYLENEGLYCOL METHYL ETHER | 20324-33-8 | 4814B | 10 | 478.50 |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 4813 | 07 | Failed Tests |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 4814A | 09 | 107.30 |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 4814B | 10 | 218.27 |
| 1,1-DICHLOROETHENE | 75-35-4 | 4813 | 07 | Failed Tests |
| 1,1-DICHLOROETHENE | 75-35-4 | 4814A | 09 | 59.16 |
| 1,1-DICHLOROETHENE | 75-35-4 | 4814B | 10 | 379.80 |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 4813 | 07 | Failed Tests |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 4814A | 09 | 130.07 |
| 1,2,4-TRICHLOROBENZENE | 120-82-1 | 4814B | 10 | 104.83 |
| 1,2-DICHLOROBENZENE | 95-50-1 | 4813 | 07 | Failed Tests |
| 1,2-DICHLOROBENZENE | 95-50-1 | 4814A | 09 | Failed Tests |
| 1,2-DICHLOROBENZENE | 95-50-1 | 4814B | 10 | 48.33 |

Attachment 10-1: Results (ug/L) of Data Editing Criteria

------------------------------------------------------------- Subcategory=Oils OPTION=9 -------------------------------------------------------------
(continued)

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| 1,2-DICHLOROETHANE | 107-06-2 | 4813 | 07 | Failed Tests |
| 1,2-DICHLOROETHANE | 107-06-2 | 4814A | 09 | 185.67 |
| 1,2-DICHLOROETHANE | 107-06-2 | 4814B | 10 | 359.46 |
| 1,4-DICHLOROBENZENE | 106-46-7 | 4813 | 07 | Failed Tests |
| 1,4-DICHLOROBENZENE | 106-46-7 | 4814A | 09 | 34.66 |
| 1,4-DICHLOROBENZENE | 106-46-7 | 4814B | 10 | 140.03 |
| 1,4-DIOXANE | 123-91-1 | 4813 | 07 | Failed Tests |
| 1,4-DIOXANE | 123-91-1 | 4814A | 09 | Failed Tests |
| 1,4-DIOXANE | 123-91-1 | 4814B | 10 | Failed Tests |
| 1-METHYLFLUORENE | 1730-37-6 | 4813 | 07 | 18.97 |
| 1-METHYLFLUORENE | 1730-37-6 | 4814A | 09 | Failed Tests |
| 1-METHYLFLUORENE | 1730-37-6 | 4814B | 10 | 48.33 |
| 1-METHYLPHENANTHRENE | 832-69-9 | 4813 | 07 | 32.62 |
| 1-METHYLPHENANTHRENE | 832-69-9 | 4814A | 09 | Failed Tests |
| 1-METHYLPHENANTHRENE | 832-69-9 | 4814B | 10 | 76.32 |
| 2,3-BENZOFLUORENE | 243-17-4 | 4813 | 07 | 54.98 |
| 2,3-BENZOFLUORENE | 243-17-4 | 4814A | 09 | Failed Tests |
| 2,3-BENZOFLUORENE | 243-17-4 | 4814B | 10 | Failed Tests |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 4813 | 07 | Failed Tests |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 4814A | 09 | Failed Tests |
| 2,4-DIMETHYLPHENOL | 105-67-9 | 4814B | 10 | Failed Tests |
| 2-BUTANONE | 78-93-3 | 4813 | 07 | Failed Tests |
| 2-BUTANONE | 78-93-3 | 4814A | 09 | 11,390.45 |
| 2-BUTANONE | 78-93-3 | 4814B | 10 | Failed Tests |
| 2-ISOPROPYLNAPHTHALENE | 2027-17-0 | 4813 | 07 | Failed Tests |
| 2-ISOPROPYLNAPHTHALENE | 2027-17-0 | 4814A | 09 | Failed Tests |
| 2-ISOPROPYLNAPHTHALENE | 2027-17-0 | 4814B | 10 | Failed Tests |
| 2-METHYLNAPHTHALENE | 91-57-6 | 4813 | 07 | 151.63 |
| 2-METHYLNAPHTHALENE | 91-57-6 | 4814A | 09 | 160.58 |
| 2-METHYLNAPHTHALENE | 91-57-6 | 4814B | 10 | 2,919.45 |
| 2-PROPANONE | 67-64-1 | 4813 | 07 | Failed Tests |
| 2-PROPANONE | 67-64-1 | 4814A | 09 | Failed Tests |
| 2-PROPANONE | 67-64-1 | 4814B | 10 | Failed Tests |

Attachment 10-1: Results (ug/L) of Data Editing Criteria

Subcategory=Oils OPTION=9
(continued)

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| 3,6-DIMETHYLPHENANTHRENE | 1576-67-6 | 4813 | 07 | 52.33 |
| 3,6-DIMETHYLPHENANTHRENE | 1576-67-6 | 4814A | 09 | Failed Tests |
| 3,6-DIMETHYLPHENANTHRENE | 1576-67-6 | 4814B | 10 | Failed Tests |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 4813 | 07 | 655.39 |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 4814A | 09 | Failed Tests |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 4814B | 10 | Failed Tests |
| 4-METHYL-2-PENTANONE | 108-10-1 | 4813 | 07 | 955.26 |
| 4-METHYL-2-PENTANONE | 108-10-1 | 4814A | 09 | 9,071.13 |
| 4-METHYL-2-PENTANONE | 108-10-1 | 4814B | 10 | 6,624.87 |

Subcategory=Organics OPTION=4

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| AMMONIA AS NITROGEN | 7664-41-7 | 1987 | 12 | 1,060,000.00 |
| CHEMICAL OXYGEN DEMAND (COD) | C-004 | 1987 | 12 | 3,560,000.00 |
| D-CHEMICAL OXYGEN DEMAND (COD) | C-004D | 1987 | 12 | 2,800,000.00 |
| FLUORIDE | 16984-48-8 | 1987 | 12 | Failed Tests |
| NITRATE/NITRITE | C-005 | 1987 | 12 | 2,280.00 |
| TOTAL CYANIDE | 57-12-5 | 1987 | 12 | 2,176.00 |
| TOTAL ORGANIC CARBON (TOC) | C-012 | 1987 | 12 | 1,006,000.00 |
| TOTAL SULFIDE | 18496-25-8 | 1987 | 12 | 2,800.00 |
| ALUMINUM | 7429-90-5 | 1987 | 12 | 2,474.00 |
| ANTIMONY | 7440-36-0 | 1987 | 12 | 569.40 |
| ARSENIC | 7440-38-2 | 1987 | 12 | Failed Tests |
| BARIUM | 7440-39-3 | 1987 | 12 | Failed Tests |

Attachment 10-1: Results (ug/L) of Data Editing Criteria

------------------------------------------------------------ Subcategory=Organics OPTION=4 ------------------------------------------------------------
(continued)

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| BORON | 7440-42-8 | 1987 | 12 | Failed Tests |
| CALCIUM | 7440-70-2 | 1987 | 12 | 286,000.00 |
| CHROMIUM | 7440-47-3 | 1987 | 12 | Failed Tests |
| COBALT | 7440-48-4 | 1987 | 12 | 437.20 |
| COPPER | 7440-50-8 | 1987 | 12 | 703.60 |
| IODINE | 7553-56-2 | 1987 | 12 | Failed Tests |
| IRON | 7439-89-6 | 1987 | 12 | 3,948.00 |
| LEAD | 7439-92-1 | 1987 | 12 | Failed Tests |
| LITHIUM | 7439-93-2 | 1987 | 12 | Failed Tests |
| MANGANESE | 7439-96-5 | 1987 | 12 | 227.00 |
| MOLYBDENUM | 7439-98-7 | 1987 | 12 | 942.80 |
| NICKEL | 7440-02-0 | 1987 | 12 | Failed Tests |
| PHOSPHORUS | 7723-14-0 | 1987 | 12 | Failed Tests |
| POTASSIUM | 7440-09-7 | 1987 | 12 | Failed Tests |
| SILICON | 7440-21-3 | 1987 | 12 | 2,680.00 |
| SODIUM | 7440-23-5 | 1987 | 12 | Failed Tests |
| STRONTIUM | 7440-24-6 | 1987 | 12 | 2,060.00 |
| SULFUR | 7704-34-9 | 1987 | 12 | 1,370,000.00 |
| TIN | 7440-31-5 | 1987 | 12 | Failed Tests |
| TITANIUM | 7440-32-6 | 1987 | 12 | Failed Tests |
| ZINC | 7440-66-6 | 1987 | 12 | 381.80 |
| ACETOPHENONE | 98-86-2 | 1987 | 12 | 35.87 |
| ANILINE | 62-53-3 | 1987 | 12 | 10.50 |
| BENZENE | 71-43-2 | 1987 | 12 | 10.00 |
| BENZOIC ACID | 65-85-0 | 1987 | 12 | 320.00 |
| BROMODICHLOROMETHANE | 75-27-4 | 1987 | 12 | Failed Tests |
| CARBON DISULFIDE | 75-15-0 | 1987 | 12 | Failed Tests |
| CHLOROBENZENE | 108-90-7 | 1987 | 12 | Failed Tests |
| CHLOROFORM | 67-66-3 | 1987 | 12 | 72.62 |
| DIMETHYL SULFONE | 67-71-0 | 1987 | 12 | 157.70 |
| ETHYLENETHIOUREA | 96-45-7 | 1987 | 12 | 4,400.23 |

Attachment 10-1: Results (ug/L) of Data Editing Criteria

------------------------------------------------------------ Subcategory=Organics OPTION=4 ------------------------------------------------------------
(continued)

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| HEXACHLOROETHANE | 67-72-1 | 1987 | 12 | Failed Tests |
| HEXANOIC ACID | 142-62-1 | 1987 | 12 | 64.00 |
| ISOPHORONE | 78-59-1 | 1987 | 12 | Failed Tests |
| M-XYLENE | 108-38-3 | 1987 | 12 | 10.00 |
| METHYLENE CHLORIDE | 75-09-2 | 1987 | 12 | 204.48 |
| N,N-DIMETHYLFORMAMIDE | 68-12-2 | 1987 | 12 | 10.50 |
| O+P XYLENE | 136777-61-2 | 1987 | 12 | Failed Tests |
| O-CRESOL | 95-48-7 | 1987 | 12 | 184.78 |
| P-CRESOL | 106-44-5 | 1987 | 12 | 66.24 |
| PENTACHLOROPHENOL | 87-86-5 | 1987 | 12 | 791.15 |
| PHENOL | 108-95-2 | 1987 | 12 | 362.03 |
| PYRIDINE | 110-86-1 | 1987 | 12 | 116.46 |
| TETRACHLOROETHENE | 127-18-4 | 1987 | 12 | 112.09 |
| TETRACHLOROMETHANE | 56-23-5 | 1987 | 12 | 14.44 |
| TOLUENE | 108-88-3 | 1987 | 12 | 10.00 |
| TRANS-1,2-DICHLOROETHENE | 156-60-5 | 1987 | 12 | 21.51 |
| TRICHLOROETHENE | 79-01-6 | 1987 | 12 | 69.42 |
| VINYL CHLORIDE | 75-01-4 | 1987 | 12 | 10.00 |
| 1,1,1,2-TETRACHLOROETHANE | 630-20-6 | 1987 | 12 | 10.00 |
| 1,1,1-TRICHLOROETHANE | 71-55-6 | 1987 | 12 | 10.00 |
| 1,1,2,2-TETRACHLOROETHANE | 79-34-5 | 1987 | 12 | Failed Tests |
| 1,1,2-TRICHLOROETHANE | 79-00-5 | 1987 | 12 | 13.30 |
| 1,1-DICHLOROETHANE | 75-34-3 | 1987 | 12 | 10.00 |
| 1,1-DICHLOROETHENE | 75-35-4 | 1987 | 12 | 10.00 |
| 1,2,3-TRICHLOROPROPANE | 96-18-4 | 1987 | 12 | 10.00 |
| 1,2-DIBROMOETHANE | 106-93-4 | 1987 | 12 | 10.14 |
| 1,2-DICHLOROBENZENE | 95-50-1 | 1987 | 12 | Failed Tests |
| 1,2-DICHLOROETHANE | 107-06-2 | 1987 | 12 | 10.00 |
| 1,3-DICHLOROPROPANE | 142-28-9 | 1987 | 12 | Failed Tests |
| 2,3,4,6-TETRACHLOROPHENOL | 58-90-2 | 1987 | 12 | 628.96 |
| 2,3-DICHLOROANILINE | 608-27-5 | 1987 | 12 | 23.04 |
| 2,4,5-TRICHLOROPHENOL | 95-95-4 | 1987 | 12 | 96.76 |
| 2,4,6-TRICHLOROPHENOL | 88-06-2 | 1987 | 12 | 85.76 |

Attachment 10-1: Results (ug/L) of Data Editing Criteria

------------------------------------------------------------ Subcategory=Organics OPTION=4 ------------------------------------------------------------
(continued)

| Pollutant Name | CAS Number | Facility ID | Effluent Sample Point | Facility LTA |
|---|---|---|---|---|
| 2,4-DIMETHYLPHENOL | 105-67-9 | 1987 | 12 | Failed Tests |
| 2-BUTANONE | 78-93-3 | 1987 | 12 | 878.12 |
| 2-PROPANONE | 67-64-1 | 1987 | 12 | 2,061.28 |
| 3,4,5-TRICHLOROCATECHOL | 56961-20-7 | 1987 | 12 | 0.80 |
| 3,4,6-TRICHLOROGUAIACOL | 60712-44-9 | 1987 | 12 | Failed Tests |
| 3,4-DICHLOROPHENOL | 95-77-2 | 1987 | 12 | 30.40 |
| 3,5-DICHLOROPHENOL | 591-35-5 | 1987 | 12 | 0.80 |
| 3,6-DICHLOROCATECHOL | 3938-16-7 | 1987 | 12 | Failed Tests |
| 4,5,6-TRICHLOROGUAIACOL | 2668-24-8 | 1987 | 12 | Failed Tests |
| 4,5-DICHLOROGUAIACOL | 2460-49-3 | 1987 | 12 | Failed Tests |
| 4-CHLORO-3-METHYLPHENOL | 59-50-7 | 1987 | 12 | Failed Tests |
| 4-CHLOROPHENOL | 106-48-9 | 1987 | 12 | 242.50 |
| 4-METHYL-2-PENTANONE | 108-10-1 | 1987 | 12 | 146.16 |
| 5-CHLOROGUAIACOL | 3743-23-5 | 1987 | 12 | Failed Tests |
| 6-CHLOROVANILLIN | 18268-76-3 | 1987 | 12 | Failed Tests |

Attachment 10-2: Facility-Specific Long-Term Averages (ug/L) and Variability Factors
If the facility data set met the criteria[1], the long-term average (ug/L) is listed

------------------------------------------------------- Subcategory=Metals Option=1A -------------------------------------------------------

| Pollutant | CAS Number | Facility ID | Sample Point(s) | No. of Obs. | No. of NDs | All ND | Facility LTA (ug/L) | 1 Day VF | 4 Day VF | 20 Day VF |
|---|---|---|---|---|---|---|---|---|---|---|
| ARSENIC | 7440-38-2 | 1987 | 03 | 5 | 2 | No | 83.90 | 1.936 | . | 1.235 |

------------------------------------------------------- Subcategory=Metals Option=3 -------------------------------------------------------

| Pollutant | CAS Number | Facility ID | Sample Point(s) | No. of Obs. | No. of NDs | All ND | Facility LTA (ug/L) | 1 Day VF | 4 Day VF | 20 Day VF |
|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL SUSPENDED SOLIDS | C-009 | 4378 | 09 | 4 | 0 | No | 22,750.00 | 3.788 | . | 1.276 |
| TOTAL SUSPENDED SOLIDS | C-009 | 4803 | 15 | 4 | 0 | No | 9,250.00 | 1.544 | . | 1.072 |
| TOTAL SUSPENDED SOLIDS | C-009 | 602 | 01 | 106 | 0 | No | 4,650.94 | 4.278 | . | 1.316 |
| ANTIMONY | 7440-36-0 | 4378 | 09 | 3 | 3 | Yes | 20.00 | . | . | . |
| ANTIMONY | 7440-36-0 | 4803 | 15 | 4 | 4 | Yes | 22.50 | . | . | . |
| ARSENIC | 7440-38-2 | 4378 | 09 | 3 | 2 | No | 10.27 | . | . | . |
| ARSENIC | 7440-38-2 | 4803 | 15 | 4 | 4 | Yes | 17.50 | . | . | . |
| ARSENIC | 7440-38-2 | 602 | 01 | 66 | 0 | No | 11.15 | 8.904 | . | 1.782 |
| CADMIUM | 7440-43-9 | 4378 | 09 | 3 | 0 | No | 81.93 | 12.018 | . | 2.421 |
| CADMIUM | 7440-43-9 | 4803 | 15 | 4 | 3 | No | 13.90 | . | . | . |
| CADMIUM | 7440-43-9 | 602 | 01 | 66 | 0 | No | 125.00 | 7.082 | . | 1.567 |
| CHROMIUM | 7440-47-3 | 4378 | 09 | 3 | 0 | No | 36.93 | 3.427 | . | 1.247 |
| CHROMIUM | 7440-47-3 | 4803 | 15 | 4 | 0 | No | 39.75 | 1.244 | . | 1.035 |
| CHROMIUM | 7440-47-3 | 602 | 01 | 106 | 0 | No | 179.62 | 7.945 | . | 1.661 |
| COBALT | 7440-48-4 | 4378 | 09 | 3 | 0 | No | 102.58 | 3.163 | . | 1.225 |
| COBALT | 7440-48-4 | 4803 | 15 | 4 | 3 | No | 12.25 | . | . | . |
| COPPER | 7440-50-8 | 4378 | 09 | 3 | 0 | No | 144.07 | 6.549 | . | 1.514 |
| COPPER | 7440-50-8 | 4803 | 15 | 4 | 0 | No | 194.00 | 1.248 | . | 1.036 |
| LEAD | 7439-92-1 | 4378 | 09 | 3 | 3 | Yes | 50.00 | . | . | . |
| LEAD | 7439-92-1 | 4803 | 15 | 4 | 0 | No | 1,275.00 | 1.447 | . | 1.061 |
| LEAD | 7439-92-1 | 602 | 01 | 66 | 0 | No | 55.11 | 10.489 | . | 2.041 |
| MERCURY | 7439-97-6 | 4378 | 09 | 3 | 3 | Yes | 0.20 | . | . | . |
| MERCURY | 7439-97-6 | 4803 | 15 | 4 | 3 | No | 0.20 | . | . | . |

[1] And EPA promulgated limitations and/or standards for the pollutant.

Attachment 10-2: Facility-Specific Long-Term Averages (ug/L) and Variability Factors
If the facility data set met the criteria, the long-term average (ug/L) is listed

Subcategory=Metals Option=3
(continued)

| Pollutant | CAS Number | Facility ID | Sample Point(s) | No. of Obs. | No. of NDs | All ND | Facility LTA (ug/L) | 1 Day VF | 4 Day VF | 20 Day VF |
|---|---|---|---|---|---|---|---|---|---|---|
| NICKEL | 7440-02-0 | 4378 | 09 | 3 | 0 | No | 1,249.67 | 2.693 | . | 1.185 |
| NICKEL | 7440-02-0 | 4803 | 15 | 4 | 0 | No | 64.01 | 1.358 | . | 1.050 |
| NICKEL | 7440-02-0 | 602 | 01 | 64 | 0 | No | 254.84 | 5.293 | . | 1.401 |
| SELENIUM | 7782-49-2 | 4803 | 15 | 4 | 1 | No | 56.25 | 3.135 | . | 1.241 |
| SILVER | 7440-22-4 | 4378 | 09 | 3 | 3 | Yes | 4.00 | . | . | . |
| SILVER | 7440-22-4 | 4803 | 15 | 4 | 4 | Yes | 5.00 | . | . | . |
| TIN | 7440-31-5 | 4378 | 09 | 3 | 3 | Yes | 28.00 | . | . | . |
| TIN | 7440-31-5 | 4803 | 15 | 4 | 4 | Yes | 28.50 | . | . | . |
| TITANIUM | 7440-32-6 | 4378 | 09 | 3 | 3 | Yes | 3.00 | . | . | . |
| TITANIUM | 7440-32-6 | 4803 | 15 | 4 | 4 | Yes | 4.00 | . | . | . |
| VANADIUM | 7440-62-2 | 4378 | 09 | 3 | 1 | No | 11.00 | 1.257 | . | 1.036 |
| VANADIUM | 7440-62-2 | 4803 | 15 | 4 | 3 | No | 11.00 | . | . | . |
| ZINC | 7440-66-6 | 4378 | 09 | 3 | 0 | No | 174.43 | 4.415 | . | 1.327 |
| ZINC | 7440-66-6 | 4803 | 15 | 4 | 0 | No | 238.00 | 1.954 | . | 1.116 |

Subcategory=Metals Option=4

| Pollutant | CAS Number | Facility ID | Sample Point(s) | No. of Obs. | No. of NDs | All ND | Facility LTA (ug/L) | 1 Day VF | 4 Day VF | 20 Day VF |
|---|---|---|---|---|---|---|---|---|---|---|
| OIL & GREASE | C-007 | 699 | 05 | 40 | 4 | No | 34,339.85 | 5.979 | . | 1.462 |
| ANTIMONY | 7440-36-0 | 699 | 05 | 3 | 1 | No | 170.00 | 1.467 | . | 1.214 |
| CADMIUM | 7440-43-9 | 699 | 05 | 47 | 20 | No | 58.03 | 8.171 | . | 1.657 |
| CHROMIUM | 7440-47-3 | 699 | 05 | 47 | 0 | No | 1,674.50 | 9.258 | . | 1.832 |
| COBALT | 7440-48-4 | 699 | 05 | 3 | 0 | No | 114.50 | 1.675 | . | 1.087 |
| COPPER | 7440-50-8 | 699 | 05 | 47 | 3 | No | 744.16 | 5.566 | . | 1.428 |
| LEAD | 7439-92-1 | 699 | 05 | 47 | 3 | No | 176.75 | 7.454 | . | 1.603 |
| MERCURY | 7439-97-6 | 699 | 05 | 50 | 18 | No | 0.56 | 4.173 | . | 1.320 |
| NICKEL | 7440-02-0 | 699 | 05 | 47 | 0 | No | 1,161.49 | 3.402 | . | 1.245 |
| SELENIUM | 7782-49-2 | 699 | 05 | 25 | 4 | No | 279.80 | 5.868 | . | 1.457 |
| SILVER | 7440-22-4 | 699 | 05 | 47 | 13 | No | 26.44 | 4.527 | . | 1.327 |

Attachment 10-2: Facility-Specific Long-Term Averages (ug/L) and Variability Factors
If the facility data set met the criteria, the long-term average (ug/L) is listed

Subcategory=Metals Option=4
(continued)

| Pollutant | CAS Number | Facility ID | Sample Point(s) | No. of Obs. | No. of NDs | All ND | Facility LTA (ug/L) | 1 Day VF | 4 Day VF | 20 Day VF |
|---|---|---|---|---|---|---|---|---|---|---|
| TIN | 7440-31-5 | 699 | 05 | 3 | 0 | No | 89.77 | 4.555 | . | 1.339 |
| TITANIUM | 7440-32-6 | 699 | 05 | 3 | 0 | No | 56.87 | 1.666 | . | 1.086 |
| VANADIUM | 7440-62-2 | 699 | 05 | 3 | 2 | No | 11.93 | . | . | . |
| ZINC | 7440-66-6 | 699 | 05 | 47 | 2 | No | 413.27 | 6.940 | . | 1.552 |

Subcategory=Metals Option=cyanide 2

| Pollutant | CAS Number | Facility ID | Sample Point(s) | No. of Obs. | No. of NDs | All ND | Facility LTA (ug/L) | 1 Day VF | 4 Day VF | 20 Day VF |
|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL CYANIDE | 57-12-5 | 4055 | 03 | 5 | 1 | No | 136,130.00 | 3.674 | . | 1.305 |

Subcategory=Oils Option=8

| Pollutant | CAS Number | Facility ID | Sample Point(s) | No. of Obs. | No. of NDs | All ND | Facility LTA (ug/L) | 1 Day VF | 4 Day VF | 20 Day VF |
|---|---|---|---|---|---|---|---|---|---|---|
| ANTIMONY | 7440-36-0 | 4814A | 09 | 4 | 0 | No | 103.06 | 2.298 | 1.364 | . |
| BARIUM | 7440-39-3 | 4814A | 09 | 4 | 0 | No | 220.50 | 1.938 | 1.275 | . |
| CHROMIUM | 7440-47-3 | 4814A | 09 | 4 | 0 | No | 183.13 | 2.291 | 1.362 | . |
| CHROMIUM | 7440-47-3 | 4814B | 10 | 3 | 0 | No | 463.67 | 3.564 | 1.652 | . |
| COBALT | 7440-48-4 | 4814A | 09 | 4 | 0 | No | 1,090.75 | 2.107 | 1.317 | . |
| COBALT | 7440-48-4 | 4814B | 10 | 3 | 0 | No | 13,743.33 | 13.089 | 3.764 | . |
| COPPER | 7440-50-8 | 4814A | 09 | 4 | 0 | No | 68.66 | 1.906 | 1.266 | . |
| COPPER | 7440-50-8 | 4814B | 10 | 3 | 0 | No | 444.67 | 1.250 | 1.083 | . |
| LEAD | 7439-92-1 | 4814A | 09 | 4 | 0 | No | 59.73 | 1.567 | 1.176 | . |
| LEAD | 7439-92-1 | 4814B | 10 | 3 | 0 | No | 237.67 | 1.415 | 1.133 | . |
| MOLYBDENUM | 7439-98-7 | 4814A | 09 | 4 | 0 | No | 1,542.75 | 2.269 | 1.357 | . |
| TIN | 7440-31-5 | 4814A | 09 | 4 | 3 | No | 30.78 | . | . | . |
| TIN | 7440-31-5 | 4814B | 10 | 3 | 2 | No | 183.17 | . | . | . |

Attachment 10-2: Facility-Specific Long-Term Averages (ug/L) and Variability Factors
If the facility data set met the criteria, the long-term average (ug/L) is listed

------------------------------------------------------- Subcategory=Oils Option=8 -------------------------------------------------------
(continued)

| Pollutant | CAS Number | Facility ID | Sample Point(s) | No. of Obs. | No. of NDs | All ND | Facility LTA (ug/L) | 1 Day VF | 4 Day VF | 20 Day VF |
|---|---|---|---|---|---|---|---|---|---|---|
| ZINC | 7440-66-6 | 4814A | 09 | 4 | 0 | No | 3,138.75 | 1.960 | 1.280 | . |
| ZINC | 7440-66-6 | 4814B | 10 | 3 | 0 | No | 3,758.33 | 2.070 | 1.308 | . |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 4814B | 10 | 3 | 2 | No | 115.74 | . | . | . |
| CARBAZOLE | 86-74-8 | 4814B | 10 | 3 | 2 | No | 151.45 | . | . | . |
| FLUORANTHENE | 206-44-0 | 4814A | 09 | 4 | 3 | No | 17.29 | . | . | . |
| FLUORANTHENE | 206-44-0 | 4814B | 10 | 3 | 0 | No | 489.45 | 3.104 | 1.550 | . |
| N-DECANE | 124-18-5 | 4814A | 09 | 4 | 4 | Yes | 16.25 | . | . | . |
| N-DECANE | 124-18-5 | 4814B | 10 | 3 | 0 | No | 4,723.68 | 2.444 | 1.398 | . |
| N-OCTADECANE | 593-45-3 | 4814A | 09 | 4 | 0 | No | 113.89 | 1.688 | 1.209 | . |
| N-OCTADECANE | 593-45-3 | 4814B | 10 | 3 | 0 | No | 1,471.36 | 1.388 | 1.125 | . |

------------------------------------------------------- Subcategory=Oils Option=9 -------------------------------------------------------

| Pollutant | CAS Number | Facility ID | Sample Point(s) | No. of Obs. | No. of NDs | All ND | Facility LTA (ug/L) | 1 Day VF | 4 Day VF | 20 Day VF |
|---|---|---|---|---|---|---|---|---|---|---|
| OIL & GREASE | C-007 | 651 | 01 | 12 | 2 | No | 28,325.00 | 4.476 | . | 1.343 |
| TOTAL SUSPENDED SOLIDS | C-009 | 4814A | 09 | 4 | 0 | No | . | 3.550 | . | 1.257 |
| TOTAL SUSPENDED SOLIDS | C-009 | 4814B | 10 | 3 | 0 | No | . | 2.264 | . | 1.146 |
| TOTAL SUSPENDED SOLIDS | C-009 | 651 | 01 | 2 | 0 | No | 25,500.00 | . | . | . |
| ANTIMONY | 7440-36-0 | 4814A | 09 | 4 | 0 | No | 103.06 | 2.298 | 1.364 | . |
| ARSENIC | 7440-38-2 | 4814A | 09 | 4 | 0 | No | 1,341.00 | 3.882 | 1.722 | . |
| ARSENIC | 7440-38-2 | 4814B | 10 | 3 | 0 | No | 237.67 | 3.587 | 1.657 | . |
| BARIUM | 7440-39-3 | 4814A | 09 | 4 | 0 | No | 220.50 | 1.938 | 1.275 | . |
| CADMIUM | 7440-43-9 | 4814A | 09 | 4 | 1 | No | 7.33 | 2.308 | 1.362 | . |
| CADMIUM | 7440-43-9 | 4814B | 10 | 3 | 1 | No | 7.59 | . | . | . |
| CHROMIUM | 7440-47-3 | 4814A | 09 | 4 | 0 | No | 183.13 | 2.291 | 1.362 | . |
| CHROMIUM | 7440-47-3 | 4814B | 10 | 3 | 0 | No | 463.67 | 3.564 | 1.652 | . |
| CHROMIUM | 7440-47-3 | 651 | 01 | 12 | 0 | No | 18.92 | 6.367 | 2.271 | . |
| COBALT | 7440-48-4 | 4814A | 09 | 4 | 0 | No | 1,090.75 | 2.107 | 1.317 | . |
| COBALT | 7440-48-4 | 4814B | 10 | 3 | 0 | No | 13,743.33 | 13.089 | 3.764 | . |

Attachment 10-2: Facility-Specific Long-Term Averages (ug/L) and Variability Factors
If the facility data set met the criteria, the long-term average (ug/L) is listed

------------------------------------------------------- Subcategory=Oils Option=9 -------------------------------------------------------
(continued)

| Pollutant | CAS Number | Facility ID | Sample Point(s) | No. of Obs. | No. of NDs | All ND | Facility LTA (ug/L) | 1 Day VF | 4 Day VF | 20 Day VF |
|---|---|---|---|---|---|---|---|---|---|---|
| COPPER | 7440-50-8 | 4814A | 09 | 4 | 0 | No | 68.66 | 1.906 | 1.266 | . |
| COPPER | 7440-50-8 | 4814B | 10 | 3 | 0 | No | 444.67 | 1.250 | 1.083 | . |
| COPPER | 7440-50-8 | 651 | 01 | 12 | 0 | No | 156.75 | 6.412 | 2.281 | . |
| LEAD | 7439-92-1 | 4814A | 09 | 4 | 0 | No | 59.73 | 1.567 | 1.176 | . |
| LEAD | 7439-92-1 | 4814B | 10 | 3 | 0 | No | 237.67 | 1.415 | 1.133 | . |
| LEAD | 7439-92-1 | 651 | 01 | 12 | 0 | No | 98.58 | 7.665 | 2.571 | . |
| MERCURY | 7439-97-6 | 4814A | 09 | 4 | 4 | Yes | 3.05 | . | . | . |
| MERCURY | 7439-97-6 | 4814B | 10 | 3 | 1 | No | 3.12 | 5.574 | 2.095 | . |
| MOLYBDENUM | 7439-98-7 | 4814A | 09 | 4 | 0 | No | 1,542.75 | 2.269 | 1.357 | . |
| TIN | 7440-31-5 | 4814A | 09 | 4 | 3 | No | 30.78 | . | . | . |
| TIN | 7440-31-5 | 4814B | 10 | 3 | 2 | No | 183.17 | . | . | . |
| TITANIUM | 7440-32-6 | 4814A | 09 | 4 | 0 | No | 13.64 | 2.191 | 1.338 | . |
| TITANIUM | 7440-32-6 | 4814B | 10 | 3 | 0 | No | 29.82 | 2.507 | 1.413 | . |
| ZINC | 7440-66-6 | 4814A | 09 | 4 | 0 | No | 3,138.75 | 1.960 | 1.280 | . |
| ZINC | 7440-66-6 | 4814B | 10 | 3 | 0 | No | 3,758.33 | 2.070 | 1.308 | . |
| ZINC | 7440-66-6 | 651 | 01 | 12 | 0 | No | 920.83 | 3.864 | 1.718 | . |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 4813 | 07 | 5 | 5 | Yes | 10.00 | . | . | . |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 4814B | 10 | 3 | 2 | No | 115.74 | . | . | . |
| BUTYL BENZYL PHTHALATE | 85-68-7 | 4814B | 10 | 3 | 2 | No | 54.98 | . | . | . |
| CARBAZOLE | 86-74-8 | 4814B | 10 | 3 | 2 | No | 151.45 | . | . | . |
| FLUORANTHENE | 206-44-0 | 4813 | 07 | 5 | 5 | Yes | 10.00 | . | . | . |
| FLUORANTHENE | 206-44-0 | 4814A | 09 | 4 | 3 | No | 17.29 | . | . | . |
| FLUORANTHENE | 206-44-0 | 4814B | 10 | 3 | 0 | No | 489.45 | 3.104 | 1.550 | . |
| N-DECANE | 124-18-5 | 4813 | 07 | 5 | 3 | No | 238.16 | 5.521 | 2.275 | . |
| N-DECANE | 124-18-5 | 4814A | 09 | 4 | 4 | Yes | 16.25 | . | . | . |
| N-DECANE | 124-18-5 | 4814B | 10 | 3 | 0 | No | 4,723.68 | 2.444 | 1.398 | . |
| N-OCTADECANE | 593-45-3 | 4813 | 07 | 5 | 1 | No | 202.66 | 5.642 | 2.136 | . |
| N-OCTADECANE | 593-45-3 | 4814A | 09 | 4 | 0 | No | 113.89 | 1.688 | 1.209 | . |
| N-OCTADECANE | 593-45-3 | 4814B | 10 | 3 | 0 | No | 1,471.36 | 1.388 | 1.125 | . |

Attachment 10-2: Facility-Specific Long-Term Averages (ug/L) and Variability Factors
If the facility data set met the criteria, the long-term average (ug/L) is listed

----------------------------------------------------- Subcategory=Organics Option=4 -----------------------------------------------------

| Pollutant | CAS Number | Facility ID | Sample Point(s) | No. of Obs. | No. of NDs | All ND | Facility LTA (ug/L) | 1 Day VF | 4 Day VF | 20 Day VF |
|---|---|---|---|---|---|---|---|---|---|---|
| ANTIMONY | 7440-36-0 | 1987 | 12 | 5 | 0 | No | 569.40 | 1.629 | 1.193 | . |
| COPPER | 7440-50-8 | 1987 | 12 | 5 | 0 | No | 703.60 | 1.230 | 1.077 | . |
| MOLYBDENUM | 7439-98-7 | 1987 | 12 | 5 | 0 | No | 942.80 | 1.069 | 1.024 | . |
| ZINC | 7440-66-6 | 1987 | 12 | 5 | 0 | No | 381.80 | 1.302 | 1.099 | . |
| ACETOPHENONE | 98-86-2 | 1987 | 12 | 5 | 4 | No | 35.87 | . | . | . |
| ANILINE | 62-53-3 | 1987 | 12 | 5 | 5 | Yes | 10.50 | . | . | . |
| O-CRESOL | 95-48-7 | 1987 | 12 | 5 | 3 | No | 184.78 | 10.380 | 3.034 | . |
| P-CRESOL | 106-44-5 | 1987 | 12 | 5 | 4 | No | 68.24 | . | . | . |
| PHENOL | 108-95-2 | 1987 | 12 | 5 | 3 | No | 362.03 | 10.075 | 2.984 | . |
| PYRIDINE | 110-86-1 | 1987 | 12 | 5 | 0 | No | 116.46 | 3.175 | 1.566 | . |
| 2,3-DICHLOROANILINE | 608-27-5 | 1987 | 12 | 5 | 4 | No | 23.04 | . | . | . |
| 2,4,6-TRICHLOROPHENOL | 88-06-2 | 1987 | 12 | 5 | 3 | No | 85.76 | . | . | . |
| 2-BUTANONE | 78-93-3 | 1987 | 12 | 5 | 1 | No | 878.12 | 5.478 | 2.103 | . |
| 2-PROPANONE | 67-64-1 | 1987 | 12 | 5 | 1 | No | 2,061.28 | 14.644 | 3.868 | . |

ATTACHMENT 10-3: Pollutant Specific Long-Term Averages and Variability Factors[1]

------------------------------------------------------- Subcategory=Metals Option=3 -------------------------------------------------------

| Pollutant | Group | CAS Number | Pollutant LTA (ug/L) | Pollutant 1-day VF | Pollutant 4-day VF | Pollutant 20-day VF |
|---|---|---|---|---|---|---|
| OIL & GREASE | NONE | C-007 | 34,339.85 | 5.9791 | . | 1.46202 |
| TOTAL SUSPENDED SOLIDS | NONE | C-009 | 9,250.00 | 3.2032 | . | 1.22150 |
| ANTIMONY | SEMI-METALS | 7440-36-0 | 21.25 | 5.2081 | . | 1.46947 |
| ARSENIC | SEMI-METALS | 7440-38-2 | 11.15 | 8.9037 | . | 1.78196 |
| CADMIUM | METALS | 7440-43-9 | 81.93 | 9.5500 | . | 1.99384 |
| CHROMIUM | METALS | 7440-47-3 | 39.75 | 4.2054 | . | 1.31427 |
| COBALT | METALS | 7440-48-4 | 57.42 | 3.1627 | . | 1.22466 |
| COPPER | METALS | 7440-50-8 | 169.03 | 3.8986 | . | 1.27493 |
| LEAD | METALS | 7439-92-1 | 176.75 | 7.4539 | . | 1.60304 |
| MERCURY | METALS | 7439-97-6 | 0.20 | 3.1845 | . | 1.22466 |
| NICKEL | METALS | 7440-02-0 | 254.84 | 3.1148 | . | 1.21179 |
| SELENIUM | NON-METALS | 7782-49-2 | 56.25 | 3.1352 | . | 1.24126 |
| SILVER | METALS | 7440-22-4 | 10.00 | 3.1845 | . | 1.22466 |
| TIN | METALS | 7440-31-5 | 30.00 | 3.1845 | . | 1.22466 |
| TITANIUM | METALS | 7440-32-6 | 5.00 | 3.1845 | . | 1.22466 |
| VANADIUM | METALS | 7440-62-2 | 50.00 | 1.2565 | . | 1.03618 |
| ZINC | METALS | 7440-66-6 | 206.22 | 3.1845 | . | 1.22174 |

------------------------------------------------------- Subcategory=Metals Option=4 -------------------------------------------------------

| Pollutant | Group | CAS Number | Pollutant LTA (ug/L) | Pollutant 1-day VF | Pollutant 4-day VF | Pollutant 20-day VF |
|---|---|---|---|---|---|---|
| OIL & GREASE | NONE | C-007 | 34,339.85 | 5.9791 | . | 1.46202 |
| TOTAL SUSPENDED SOLIDS | NONE | C-009 | 16,800.00 | 3.5900 | . | 1.85000 |
| ANTIMONY | SEMI-METALS | 7440-36-0 | 170.00 | 1.4668 | . | 1.21431 |
| ARSENIC | SEMI-METALS | 7440-38-2 | 83.90 | 1.9358 | . | 1.23472 |
| CADMIUM | METALS | 7440-43-9 | 58.03 | 8.1705 | . | 1.65724 |
| CHROMIUM | METALS | 7440-47-3 | 1,674.50 | 9.2583 | . | 1.83247 |
| COBALT | METALS | 7440-48-4 | 114.50 | 1.6746 | . | 1.08700 |

[1] Some pollutant-specific long-term averages have been replaced by the baseline value (see Section 10.5.3 and Table 10-4).
Some pollutant-specific variability factors have been transferred as described in Section 10.6.7 and Table 10-5.
See Section 10.8 for transfers of limitations (the corresponding LTAs and VFs are listed in this Attachment).

ATTACHMENT 10-3: Pollutant Specific Long-Term Averages and Variability Factors

Subcategory=Metals Option=4
(continued)

| Pollutant | Group | CAS Number | Pollutant LTA (ug/L) | Pollutant 1-day VF | Pollutant 4-day VF | Pollutant 20-day VF |
|---|---|---|---|---|---|---|
| COPPER | METALS | 7440-50-8 | 744.16 | 5.5659 | . | 1.42750 |
| LEAD | METALS | 7439-92-1 | 176.75 | 7.4539 | . | 1.60304 |
| MERCURY | METALS | 7439-97-6 | 0.56 | 4.1728 | . | 1.31969 |
| NICKEL | METALS | 7440-02-0 | 1,161.49 | 3.4021 | . | 1.24451 |
| SELENIUM | NON-METALS | 7782-49-2 | 279.80 | 5.8681 | . | 1.45659 |
| SILVER | METALS | 7440-22-4 | 26.44 | 4.5273 | . | 1.32684 |
| TIN | METALS | 7440-31-5 | 89.77 | 4.5548 | . | 1.33877 |
| TITANIUM | METALS | 7440-32-6 | 56.87 | 1.6659 | . | 1.08605 |
| VANADIUM | METALS | 7440-62-2 | 50.00 | 4.3501 | . | 1.32327 |
| ZINC | METALS | 7440-66-6 | 413.27 | 6.9399 | . | 1.55174 |

Subcategory=Metals Option=cyanide 2

| Pollutant | Group | CAS Number | Pollutant LTA (ug/L) | Pollutant 1-day VF | Pollutant 4-day VF | Pollutant 20-day VF |
|---|---|---|---|---|---|---|
| TOTAL CYANIDE | NONE | 57-12-5 | 136,130.00 | 3.6737 | . | 1.30491 |

Subcategory=Oils Option=8

| Pollutant | Group | CAS Number | Pollutant LTA (ug/L) | Pollutant 1-day VF | Pollutant 4-day VF | Pollutant 20-day VF |
|---|---|---|---|---|---|---|
| ANTIMONY | SEMI-METALS | 7440-36-0 | 103.06 | 2.2980 | 1.36370 | . |
| BARIUM | METALS | 7440-39-3 | 220.50 | 1.9382 | 1.27470 | . |
| CHROMIUM | METALS | 7440-47-3 | 323.40 | 2.9275 | 1.50697 | . |
| COBALT | METALS | 7440-48-4 | 7,417.04 | 7.5981 | 2.54060 | . |
| COPPER | METALS | 7440-50-8 | 256.66 | 1.5779 | 1.17459 | . |
| LEAD | METALS | 7439-92-1 | 148.70 | 1.4912 | 1.15434 | . |
| MOLYBDENUM | METALS | 7439-98-7 | 1,542.75 | 2.2693 | 1.35678 | . |
| TIN | METALS | 7440-31-5 | 106.97 | 2.3285 | 1.36900 | . |
| ZINC | METALS | 7440-66-6 | 3,448.54 | 2.0150 | 1.29409 | . |

ATTACHMENT 10-3: Pollutant Specific Long-Term Averages and Variability Factors

Subcategory=Oils Option=8 (continued)

| Pollutant | Group | CAS Number | Pollutant LTA (ug/L) | Pollutant 1-day VF | Pollutant 4-day VF | Pollutant 20-day VF |
|---|---|---|---|---|---|---|
| BIS(2-ETHYLHEXYL) PHTHALATE | PHTHALATES | 117-81-7 | 115.74 | 2.3105 | 1.36669 | . |
| CARBAZOLE | ANILINES | 86-74-8 | 151.45 | 2.5862 | 1.53568 | . |
| FLUORANTHENE | PAHS | 206-44-0 | 253.37 | 3.1044 | 1.54997 | . |
| N-DECANE | N-PARAFFINS | 124-18-5 | 2,369.97 | 2.4438 | 1.39844 | . |
| N-OCTADECANE | N-PARAFFINS | 593-45-3 | 792.62 | 1.5381 | 1.16693 | . |

Subcategory=Oils Option=9

| Pollutant | Group | CAS Number | Pollutant LTA (ug/L) | Pollutant 1-day VF | Pollutant 4-day VF | Pollutant 20-day VF |
|---|---|---|---|---|---|---|
| OIL & GREASE | NONE | C-007 | 28,325.00 | 4.4758 | . | 1.34310 |
| TOTAL SUSPENDED SOLIDS | NONE | C-009 | 25,500.00 | 2.9071 | . | 1.20139 |
| ANTIMONY | SEMI-METALS | 7440-36-0 | 103.06 | 2.2980 | 1.36370 | . |
| ARSENIC | SEMI-METALS | 7440-38-2 | 789.33 | 3.7346 | 1.68936 | . |
| BARIUM | METALS | 7440-39-3 | 220.50 | 1.9382 | 1.27470 | . |
| CADMIUM | METALS | 7440-43-9 | 7.46 | 2.3077 | 1.36237 | . |
| CHROMIUM | METALS | 7440-47-3 | 183.13 | 4.0739 | 1.76166 | . |
| COBALT | METALS | 7440-48-4 | 7,417.04 | 7.5981 | 2.54060 | . |
| COPPER | METALS | 7440-50-8 | 156.75 | 3.1894 | 1.54354 | . |
| LEAD | METALS | 7439-92-1 | 98.58 | 3.5492 | 1.62648 | . |
| MERCURY | METALS | 7439-97-6 | 3.09 | 5.5737 | 2.09502 | . |
| MOLYBDENUM | METALS | 7439-98-7 | 1,542.75 | 2.2693 | 1.35678 | . |
| TIN | METALS | 7440-31-5 | 106.97 | 3.1283 | 1.53796 | . |
| TITANIUM | METALS | 7440-32-6 | 21.73 | 2.3493 | 1.37563 | . |
| ZINC | METALS | 7440-66-6 | 3,138.75 | 2.6312 | 1.43528 | . |
| BIS(2-ETHYLHEXYL) PHTHALATE | PHTHALATES | 117-81-7 | 62.87 | 3.4144 | 1.61369 | . |
| BUTYL BENZYL PHTHALATE | PHTHALATES | 85-68-7 | 54.98 | 3.4144 | 1.61369 | . |
| CARBAZOLE | ANILINES | 86-74-8 | 151.45 | 3.9482 | 1.81970 | . |
| FLUORANTHENE | PAHS | 206-44-0 | 17.29 | 3.1044 | 1.54997 | . |
| N-DECANE | N-PARAFFINS | 124-18-5 | 238.16 | 3.9825 | 1.83663 | . |
| N-OCTADECANE | N-PARAFFINS | 593-45-3 | 202.66 | 2.9060 | 1.49004 | . |

ATTACHMENT 10-3: Pollutant Specific Long-Term Averages and Variability Factors

------------------------------------------------------ Subcategory=Organics Option=4 ------------------------------------------------------

| Pollutant | Group | CAS Number | Pollutant LTA (ug/L) | Pollutant 1-day VF | Pollutant 4-day VF | Pollutant 20-day VF |
|---|---|---|---|---|---|---|
| BIOCHEMICAL OXYGEN DEMAND | NONE | C-003 | 41,000.00 | 3.9700 | . | 1.29 |
| TOTAL SUSPENDED SOLIDS | NONE | C-009 | 45,000.00 | 4.7900 | . | 1.36 |
| ANTIMONY | SEMI-METALS | 7440-36-0 | 569.40 | 1.6293 | 1.19317 | . |
| COPPER | METALS | 7440-50-8 | 703.60 | 1.2301 | 1.07654 | . |
| MOLYBDENUM | METALS | 7439-98-7 | 942.80 | 1.0688 | 1.02385 | . |
| ZINC | METALS | 7440-66-6 | 381.80 | 1.3023 | 1.09891 | . |
| ACETOPHENONE | KETONES, AROMATIC | 98-86-2 | 35.87 | 3.1750 | 1.56576 | . |
| ANILINE | ANILINES | 62-53-3 | 10.50 | 3.1750 | 1.56576 | . |
| O-CRESOL | PHENOLS | 95-48-7 | 184.78 | 10.3802 | 3.03447 | . |
| P-CRESOL | PHENOLS | 106-44-5 | 68.24 | 10.2277 | 3.00900 | . |
| PHENOL | PHENOLS | 108-95-2 | 362.03 | 10.0752 | 2.98353 | . |
| PYRIDINE | PYRIDINES | 110-86-1 | 116.46 | 3.1750 | 1.56576 | . |
| 2,3-DICHLOROANILINE | CHLOROANILINES | 60-827-5 | 23.04 | 3.1750 | 1.56576 | . |
| 2,4,6-TRICHLOROPHENOL | CHLOROPHENOLS | 88-06-2 | 85.76 | 1.8108 | 1.24178 | . |
| 2-BUTANONE | KETONES, ALIPHATIC I | 78-93-3 | 878.12 | 5.4784 | 2.10346 | . |
| 2-PROPANONE | KETONES, ALIPHATIC I | 67-64-1 | 2,061.28 | 14.6440 | 3.86753 | . |

## Attachment 10-4 Calculation of Group and Organics Variability Factors

This attachment to Chapter 10 identifies the groups and interim calculations for the group variability factors that EPA used for the final limitations and standards. The interim calculations identify the facility-specific and pollutant-specific variability factors that were used to calculate the group-level variability factors and the organics variability factors (see Section 10.6.7).

If this attachment does not list a particular pollutant for an option, then the facility-specific variability factors could not be calculated due to data restrictions (see section 10.6.5) or the pollutant was not a pollutant of concern for the subcategory (see Appendix A).

In calculating the organics variability factors, EPA used the group variability factors from the following groups: alcohols, aliphatic; amides; amines, aliphatic; anilines; chloroanilines; chlorophenols; ketones, aromatic; n-paraffins; PAHs; phenols; phthalates; polyglycol monoethers; pyridines; and sulfides, aromatic. This attachment provides the facility-specific, pollutant-specific, and group-level variability factors that were used to calculate the organics variability factors for the oils and organics subcategories.

Tables in Attachment 10-4:

Attachment 10-4

Metals Subcategory, Option 3

Table 10-4-1  Metals Option 3:  Metals Group Variability Factors

| Pollutant (Metals Group) | Facility | Variability Factors | | | |
|---|---|---|---|---|---|
| | | Facility-Specific | | Pollutant-Specific | |
| | | Daily | Monthly | Daily | Monthly |
| Cadmium | 4378 | 12.018 | 2.421 | 9.550 | 1.994 |
| Cadmium | 602 | 7.082 | 1.567 | | |
| Chromium | 4378 | 3.427 | 1.247 | 4.205 | 1.314 |
| Chromium | 4803 | 1.244 | 1.035 | | |
| Chromium | 602 | 7.945 | 1.661 | | |
| Cobalt | 4378 | 3.163 | 1.225 | 3.163 | 1.225 |
| Copper | 4378 | 6.549 | 1.514 | 3.899 | 1.275 |
| Copper | 4803 | 1.248 | 1.036 | | |
| Lead | 4803 | 1.447 | 1.061 | 5.968 | 1.551 |
| Lead | 602 | 10.489 | 2.041 | | |
| Molybdenum | 4378 | 1.298 | 1.042 | 1.210 | 1.031 |
| Molybdenum | 4803 | 1.12 | 1.02 | | |
| Nickel | 4378 | 2.693 | 1.185 | 3.115 | 1.212 |
| Nickel | 4803 | 1.358 | 1.050 | | |
| Nickel | 602 | 5.293 | 1.401 | | |
| Vanadium | 4378 | 1.257 | 1.036 | 1.257 | 1.036 |
| Zinc | 4378 | 4.415 | 1.327 | 3.185 | 1.222 |
| Zinc | 4803 | 1.954 | 1.116 | | |
| | | | Metals Group Variability Factors: | 3.185 | 1.225 |

Attachment 10-4

Metals Subcategory, Option 4

Table 10-4-2 Metals Option 4: Metals Group Variability Factors[1]

| Pollutant (Metals Group) | Pollutant-Specific Variability Factors | |
|---|---|---|
| | Daily | Monthly |
| Cadmium | 8.171 | 1.657 |
| Chromium | 9.258 | 1.832 |
| Cobalt | 1.675 | 1.087 |
| Copper | 5.566 | 1.428 |
| Lead | 7.454 | 1.603 |
| Lithium | 1.804 | 1.101 |
| Mercury | 4.173 | 1.320 |
| Molybdenum | 1.726 | 1.09 |
| Nickel | 3.402 | 1.245 |
| Silver | 4.527 | 1.327 |
| Tin | 4.555 | 1.339 |
| Titanium | 1.666 | 1.086 |
| Zinc | 6.940 | 1.552 |
| Zirconium | 1.700 | 1.09 |
| Metals Group Variability Factors: | 4.350 | 1.323 |

[1] For this option, the facility-specific and pollutant-specific variability factors are the same as they are both derived from facility 699.

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Oils Subcategory, Option 8

Table 10-4-3 Oils Option 8: Metals Group Variability Factors

| Pollutant (Metals Group) | Facility | Variability Factors | | | |
|---|---|---|---|---|---|
| | | Facility-Specific | | Pollutant-Specific | |
| | | Daily | Monthly | Daily | Monthly |
| Barium | 4814A | 1.938 | 1.275 | 1.938 | 1.275 |
| Cadmium | 4814A | 2.308 | 1.362 | 2.308 | 1.362 |
| Cadmium | 4814B | deleted (see Section 10.6.5.4) | | | |
| Chromium | 4814A | 2.291 | 1.362 | 2.928 | 1.507 |
| Chromium | 4814B | 3.564 | 1.652 | | |
| Cobalt | 4814A | 2.107 | 1.317 | 7.598 | 2.541 |
| Cobalt | 4814B | 13.089 | 3.764 | | |
| Copper | 4814A | 1.906 | 1.266 | 1.578 | 1.175 |
| Copper | 4814B | 1.250 | 1.083 | | |
| Lead | 4814A | 1.567 | 1.176 | 1.491 | 1.155 |
| Lead | 4814B | 1.415 | 1.133 | | |
| Mercury | 4814B | 5.574 | 2.10 | 5.574 | 2.095 |
| Molybdenum | 4814A | 2.269 | 1.357 | 2.269 | 1.357 |
| Nickel | 4814A | 2.737 | 1.467 | 4.829 | 1.933 |
| Nickel | 4814B | 6.921 | 2.398 | | |
| Strontium | 4814A | 1.932 | 1.273 | 3.068 | 1.533 |
| Strontium | 4814B | 4.203 | 1.792 | | |
| Titanium | 4814A | 2.191 | 1.338 | 2.349 | 1.376 |
| Titanium | 4814B | 2.507 | 1.413 | | |
| Zinc | 4814A | 1.960 | 1.280 | 2.015 | 1.294 |
| Zinc | 4814B | 2.070 | 1.308 | | |
| | | Metals Group Variability Factors: | | 2.329 | 1.369 |

Attachment 10-4

Table 10-4-4 Oils Option 8: Phthalates Group Variability Factors

| Pollutant (Phthalates Group) | Facility | Variability Factors | | | |
|---|---|---|---|---|---|
| | | Facility-Specific | | Pollutant-Specific | |
| | | Daily | Monthly | Daily | Monthly |
| Diethyl phthalate | 4814A | 2.310 | 1.367 | 2.310 | 1.367 |
| | | Phthalates Group Variability Factors: | | 2.310 | 1.367 |

Table 10-4-5 Oils Option 8: Organics Variability Factors

| Group | Pollutant | Facility | Variability Factors | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Facility-Specific | | Pollutant-Specific | | Group-Level | |
| | | | Daily | Monthly | Daily | Monthly | Daily | Monthly |
| n-paraffins | n-decane | 4814B | 2.444 | 1.398 | 2.444 | 1.398 | 2.586 | 1.536 |
| n-paraffins | n-docosane | 4814B | 8.811 | 2.852 | 8.811 | 2.852 | | |
| n-paraffins | n-dodecane | 4814B | 10.825 | 3.316 | 10.825 | 3.316 | | |
| n-paraffins | n-eicosane | 4814A | 1.880 | 1.573 | 2.586 | 1.583 | | |
| n-paraffins | n-eicosane | 4814B | 3.292 | 1.592 | | | | |
| n-paraffins | n-hexadecane | 4814A | 1.761 | 1.484 | 1.925 | 1.398 | | |
| n-paraffins | n-hexadecane | 4814B | 2.088 | 1.312 | | | | |
| n-paraffins | n-octadecane | 4814A | 1.688 | 1.209 | 1.538 | 1.167 | | |
| n-paraffins | n-octadecane | 4814B | 1.388 | 1.125 | | | | |
| n-paraffins | n-tetradecane | 4814A | 3.033 | 1.534 | 3.041 | 1.536 | | |
| n-paraffins | n-tetradecane | 4814B | 3.049 | 1.537 | | | | |

| Group | Pollutant | Facility | Variability Factors | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Facility-Specific | | Pollutant-Specific | | Group-Level | |
| | | | Daily | Monthly | Daily | Monthly | Daily | Monthly |
| PAHS | Anthracene | 4814B | 1.369 | 1.119 | 1.369 | 1.119 | 2.311 | 1.369 |
| PAHS | Benzo(a)anthracene | 4814B | 2.842 | 1.590 | 2.842 | 1.590 | | |
| PAHS | Biphenyl | 4814B | 1.219 | 1.158 | 1.219 | 1.158 | | |
| PAHS | Fluoranthene | 4814B | 3.104 | 1.550 | 3.104 | 1.550 | | |
| PAHS | Fluorene | 4814B | 1.779 | 1.233 | 1.779 | 1.233 | | |
| PAHS | Naphthalene | 4814A | 4.876 | 1.939 | 3.044 | 1.505 | | |
| PAHS | Naphthalene | 4814B | 1.211 | 1.071 | | | | |
| PAHS | Phenanthrene | 4814A | 8.269 | 2.676 | 5.354 | 2.037 | | |
| PAHS | Phenanthrene | 4814B | 2.438 | 1.397 | | | | |
| PAHS | Pyrene | 4814B | 1.220 | 1.073 | 1.220 | 1.073 | | |
| Phenols | p-cresol | 4814B | 6.601 | 2.326 | 6.601 | 2.326 | 6.601 | 2.326 |
| Phthalates | Diethyl phthalate | 4814A | 2.310 | 1.367 | 2.310 | 1.367 | 2.310 | 1.367 |
| Pyridines | Pyridine | 4814A | 5.360 | 2.097 | 5.360 | 2.097 | 5.360 | 2.097 |
| | | | | | Organics Variability Factors: | | 2.586 | 1.536 |

Attachment 10-4

Oils Subcategory, Option 9

Table 10-4-6 Oils Option 9: Metals Group Variability Factors

| Pollutant (Metals Group) | Facility | Variability Factors | | | |
|---|---|---|---|---|---|
| | | Facility-Specific | | Pollutant-Specific | |
| | | Daily | Monthly | Daily | Monthly |
| Barium | 4814A | 1.938 | 1.275 | 1.938 | 1.275 |
| Cadmium | 4814A | 2.308 | 1.362 | 2.308 | 1.362 |
| Cadmium | 4814B | deleted (see Section 10.6.5.4) | | | |
| Chromium | 4814A | 2.291 | 1.362 | 4.074 | 1.762 |
| Chromium | 4814B | 3.564 | 1.652 | | |
| Chromium | 651 | 6.367 | 2.271 | | |
| Cobalt | 4814A | 2.107 | 1.317 | 7.598 | 2.541 |
| Cobalt | 4814B | 13.089 | 3.764 | | |
| Copper | 4814A | 1.906 | 1.266 | 3.189 | 1.543 |
| Copper | 4814B | 1.250 | 1.083 | | |
| Copper | 651 | 6.412 | 2.281 | | |
| Lead | 4814A | 1.567 | 1.176 | 3.549 | 1.627 |
| Lead | 4814B | 1.415 | 1.133 | | |
| Lead | 651 | 7.665 | 2.571 | | |
| Mercury | 4814B | 5.574 | 2.095 | 5.574 | 2.095 |
| Molybdenum | 4814A | 2.269 | 1.357 | 2.269 | 1.357 |
| Nickel | 4814A | 2.737 | 1.467 | 4.829 | 1.933 |
| Nickel | 4814B | 6.921 | 2.398 | | |
| Strontium | 4814A | 1.932 | 1.273 | 3.068 | 1.533 |
| Strontium | 4814B | 4.203 | 1.792 | | |

| Pollutant (Metals Group) | Facility | Variability Factors | | | |
|---|---|---|---|---|---|
| | | Facility-Specific | | Pollutant-Specific | |
| | | Daily | Monthly | Daily | Monthly |
| Titanium | 4814A | 2.191 | 1.338 | 2.349 | 1.376 |
| Titanium | 4814B | 2.507 | 1.413 | | |
| Zinc | 4814A | 1.960 | 1.280 | 2.631 | 1.435 |
| Zinc | 4814B | 2.070 | 1.308 | | |
| Zinc | 651 | 3.864 | 1.718 | | |
| | | Metals Group Variability Factors: | | 3.128 | 1.538 |

Table 10-4-7 Oils Option 9: Phthalates Group Variability Factors

| Pollutant (Phthalates Group) | Facility | Variability Factors | | | |
|---|---|---|---|---|---|
| | | Facility-Specific | | Pollutant-Specific | |
| | | Daily | Monthly | Daily | Monthly |
| Diethyl phthalate | 4813 | 4.518 | 1.861 | 3.414 | 1.614 |
| Diethyl phthalate | 4814A | 2.310 | 1.367 | | |
| | | Phthalates Group Variability Factors: | | 3.414 | 1.614 |

Attachment 10-4

Table 10-4-8 Oils Option 9: Organics Variability Factors

| Group | Pollutant | Facility | Variability Factors | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Facility-Specific | | Pollutant-Specific | | Group-Level | |
| | | | Daily | Monthly | Daily | Monthly | Daily | Monthly |
| n-paraffins | n-decane | 4813 | 5.521 | 2.275 | 3.983 | 1.837 | 3.983 | 1.837 |
| n-paraffins | n-decane | 4814B | 2.444 | 1.398 | | | | |
| n-paraffins | n-docosane | 4813 | 2.703 | 1.580 | 5.757 | 2.216 | | |
| n-paraffins | n-docosane | 4814B | 8.811 | 2.852 | | | | |
| n-paraffins | n-dodecane | 4814B | 10.825 | 3.316 | 10.825 | 3.316 | | |
| n-paraffins | n-eicosane | 4813 | 4.630 | 1.912 | 3.267 | 1.692 | | |
| n-paraffins | n-eicosane | 4814A | 1.880 | 1.573 | | | | |
| n-paraffins | n-eicosane | 4814B | 3.292 | 1.592 | | | | |
| n-paraffins | n-hexadecane | 4813 | 4.772 | 1.976 | 2.874 | 1.591 | | |
| n-paraffins | n-hexadecane | 4814A | 1.761 | 1.484 | | | | |
| n-paraffins | n-hexadecane | 4814B | 2.088 | 1.312 | | | | |
| n-paraffins | n-octadecane | 4813 | 5.642 | 2.136 | 2.906 | 1.490 | | |
| n-paraffins | n-octadecane | 4814A | 1.688 | 1.209 | | | | |
| n-paraffins | n-octadecane | 4814B | 1.388 | 1.125 | | | | |
| n-paraffins | n-tetradecane | 4813 | 11.174 | 3.394 | 5.752 | 2.155 | | |
| n-paraffins | n-tetradecane | 4814A | 3.033 | 1.534 | | | | |
| n-paraffins | n-tetradecane | 4814B | 3.049 | 1.537 | | | | |
| PAHS | Anthracene | 4813 | 3.622 | 1.672 | 2.496 | 1.396 | 2.582 | 1.445 |
| PAHS | Anthracene | 4814B | 1.369 | 1.119 | | | | |
| PAHS | Benzo(a)anthracene | 4813 | 2.535 | 1.379 | 2.688 | 1.484 | | |
| PAHS | Benzo(a)anthracene | 4814B | 2.842 | 1.590 | | | | |
| PAHS | Biphenyl | 4813 | 3.932 | 1.733 | 2.576 | 1.445 | | |
| PAHS | Biphenyl | 4814B | 1.219 | 1.158 | | | | |
| PAHS | Chrysene | 4813 | 4.068 | 1.758 | 4.068 | 1.758 | | |
| PAHS | Fluoranthene | 4814B | 3.104 | 1.550 | 3.104 | 1.550 | | |
| PAHS | Fluorene | 4813 | 3.162 | 1.551 | 2.471 | 1.392 | | |

| Group | Pollutant | Facility | Variability Factors | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Facility-Specific | | Pollutant-Specific | | Group-Level | |
| | | | Daily | Monthly | Daily | Monthly | Daily | Monthly |
| PAHS | Fluorene | 4814B | 1.779 | 1.233 | | | | |
| PAHS | Naphthalene | 4813 | 1.658 | 1.201 | 2.582 | 1.404 | | |
| PAHS | Naphthalene | 4814A | 4.876 | 1.939 | | | | |
| PAHS | Naphthalene | 4814B | 1.211 | 1.071 | | | | |
| PAHS | Phenanthrene | 4813 | 5.891 | 2.164 | 5.533 | 2.079 | | |
| PAHS | Phenanthrene | 4814A | 8.269 | 2.676 | | | | |
| PAHS | Phenanthrene | 4814B | 2.438 | 1.397 | | | | |
| PAHS | Pyrene | 4813 | 3.611 | 1.724 | 2.416 | 1.399 | | |
| PAHS | Pyrene | 4814B | 1.220 | 1.073 | | | | |
| Phenols | 4-chloro-3-methylphenol | 4813 | 4.066 | 1.843 | 4.066 | 1.843 | 4.172 | 1.878 |
| Phenols | o-cresol | 4813 | 8.508 | 2.770 | 8.508 | 2.770 | | |
| Phenols | p-cresol | 4813 | 1.954 | 1.499 | 4.278 | 1.913 | | |
| Phenols | p-cresol | 4814B | 6.601 | 2.326 | | | | |
| Phenols | Phenol | 4813 | 1.340 | 1.110 | 1.340 | 1.110 | | |
| Phthalates | Diethyl phthalate | 4813 | 4.518 | 1.861 | 3.414 | 1.614 | 3.414 | 1.614 |
| Phthalates | Diethyl phthalate | 4814A | 2.310 | 1.367 | | | | |
| Pyridines | Pyridine | 4814A | 5.360 | 2.097 | 5.360 | 2.097 | 5.360 | 2.097 |
| Sulfides, aromatic | Dibenzothiophene | 4813 | 3.914 | 1.803 | 3.914 | 1.803 | 3.914 | 1.803 |
| | | | | | Organics Variability Factors: | | 3.948 | 1.820 |

Attachment 10-4

Organics Subcategory, Option 4 (for this option, the facility-specific and pollutant-specific variability factors are the same as they are both derived from facility 1987)

Table 10-4-9 Organics Option 4: Phenols Group Variability Factors

| Pollutant (Phenols Group) | Pollutant-Specific Variability Factors Daily | Monthly |
|---|---|---|
| o-cresol | 10.380 | 3.034 |
| phenol | 10.075 | 2.984 |
| Phenols Group Variability Factors: | 10.228 | 3.009 |

Table 10-4-10 Organics Option 4: Chlorophenols Group Variability Factors

| Pollutant (Chlorophenols Group) | Pollutant-Specific Variability Factors Daily | Monthly |
|---|---|---|
| 2,4,6-trichlorophenol | deleted (see Section 10.6.5.4) | |
| pentachlorophenol | 1.811 | 1.242 |
| Chlorophenols Group Variability Factors: | 1.811 | 1.242 |

Table 10-4-11 Organics Option 4: Organics Variability Factors

| Group | Pollutant | Variability Factors | | | |
|---|---|---|---|---|---|
| | | Pollutant-Specific | | Group-Level | |
| | | Daily | Monthly | Daily | Monthly |
| Chlorophenols | pentachlorophenol | 1.811 | 1.242 | 1.811 | 1.242 |
| Phenols | o-cresol | 10.380 | 3.034 | 10.228 | 3.009 |
| Phenols | phenol | 10.075 | 2.984 | | |
| Pyridines | pyridine | 3.175 | 1.566 | 3.175 | 1.566 |
| | | | Organics Variability Factors: | 3.175 | 1.566 |

Attachment 10-5 Limitations (ug/L)

Subcategory=Metals Option=3

| Pollutant | CAS_NO | No. of Fac. in LTA | Group | Pollutant LTA | 1-Day Limit | Monthly limit |
|---|---|---|---|---|---|---|
| OIL & GREASE | C-007 | 1 | NONE | 34,300. | 205,000. | 50,200. |
| TOTAL SUSPENDED SOLIDS | C-009 | 3 | NONE | 9,250. | 29,600. | 11,300. |
| ANTIMONY | 7440-36-0 | 2 | SEMI-METALS | 21.3 | 111. | 31.2 |
| ARSENIC | 7440-38-2 | 3 | SEMI-METALS | 11.2 | 99.3 | 19.9 |
| CADMIUM | 7440-43-9 | 3 | METALS | 81.9 | 782. | 163. |
| CHROMIUM | 7440-47-3 | 3 | METALS | 39.8 | 167. | 52.2 |
| COBALT | 7440-48-4 | 2 | METALS | 57.4 | 182. | 70.3 |
| COPPER | 7440-50-8 | 2 | METALS | 169. | 659. | 216. |
| LEAD | 7439-92-1 | 1 | METALS | 177. | 1,320. | 283. |
| MERCURY | 7439-97-6 | 2 | METALS | 0.201 | 0.641 | 0.246 |
| NICKEL | 7440-02-0 | 3 | METALS | 255. | 794. | 309. |
| SELENIUM | 7782-49-2 | 1 | NON-METALS | 56.3 | 176. | 69.8 |
| SILVER | 7440-22-4 | 2 | METALS | 10.0 | 31.8 | 12.2 |
| TIN | 7440-31-5 | 2 | METALS | 30.0 | 95.5 | 36.7 |
| TITANIUM | 7440-32-6 | 2 | METALS | 5.00 | 15.9 | 6.12 |
| VANADIUM | 7440-62-2 | 2 | METALS | 50.0 | 62.8 | 51.8 |
| ZINC | 7440-66-6 | 2 | METALS | 206. | 657. | 252. |

Subcategory=Metals Option=4

| Pollutant | CAS_NO | No. of Fac. in LTA | Group | Pollutant LTA | 1-Day Limit | Monthly limit |
|---|---|---|---|---|---|---|
| OIL & GREASE | C-007 | 1 | NONE | 34,300. | 205,000. | 50,200. |
| TOTAL SUSPENDED SOLIDS | C-009 | . | NONE | 16,800. | 60,000. | 31,000. |
| ANTIMONY | 7440-36-0 | 1 | SEMI-METALS | 170. | 249. | 206. |
| ARSENIC | 7440-38-2 | 1 | SEMI-METALS | 83.9 | 162. | 104. |
| CADMIUM | 7440-43-9 | 1 | METALS | 58.0 | 474. | 96.2 |
| CHROMIUM | 7440-47-3 | 1 | METALS | 1,670. | 15,500. | 3,070. |
| COBALT | 7440-48-4 | 1 | METALS | 115. | 192. | 124. |
| COPPER | 7440-50-8 | 1 | METALS | 744. | 4,140. | 1,060. |
| LEAD | 7439-92-1 | 1 | METALS | 177. | 1,320. | 283. |

Attachment 10-5 Limitations (ug/L)

Subcategory=Metals Option=4 (continued)

| Pollutant | CAS_NO | No. of Fac. in LTA | Group | Pollutant LTA | 1-Day Limit | Monthly limit |
|---|---|---|---|---|---|---|
| MERCURY | 7439-97-6 | 1 | METALS | 0.560 | 2.34 | 0.739 |
| NICKEL | 7440-02-0 | 1 | METALS | 1,160. | 3,950. | 1,450. |
| SELENIUM | 7782-49-2 | 1 | NON-METALS | 280. | 1,640. | 408. |
| SILVER | 7440-22-4 | 1 | METALS | 26.4 | 120. | 35.1 |
| TIN | 7440-31-5 | 1 | METALS | 89.8 | 409. | 120. |
| TITANIUM | 7440-32-6 | 1 | METALS | 56.9 | 94.7 | 61.8 |
| VANADIUM | 7440-62-2 | 1 | METALS | 50.0 | 218. | 66.2 |
| ZINC | 7440-66-6 | 1 | METALS | 413. | 2,870. | 641. |

Subcategory=Metals Option=cyanide 2

| Pollutant | CAS_NO | No. of Fac. in LTA | Group | Pollutant LTA | 1-Day Limit | Monthly limit |
|---|---|---|---|---|---|---|
| TOTAL CYANIDE | 57-12-5 | 1 | NONE | 136,000. | 500,000. | 178,000. |

Subcategory=Oils Option=8

| Pollutant | CAS_NO | No. of Fac. in LTA | Group | Pollutant LTA | 1-Day Limit | Monthly limit |
|---|---|---|---|---|---|---|
| ANTIMONY | 7440-36-0 | 1 | SEMI-METALS | 103. | 237. | 141. |
| BARIUM | 7440-39-3 | 1 | METALS | 221. | 427. | 281. |
| CHROMIUM | 7440-47-3 | 2 | METALS | 323. | 947. | 487. |
| COBALT | 7440-48-4 | 2 | METALS | 7,420. | 56,400. | 18,800. |
| COPPER | 7440-50-8 | 2 | METALS | 257. | 405. | 301. |
| LEAD | 7439-92-1 | 2 | METALS | 149. | 222. | 172. |
| MOLYBDENUM | 7439-98-7 | 1 | METALS | 1,540. | 3,500. | 2,090. |
| TIN | 7440-31-5 | 2 | METALS | 107. | 249. | 146. |

Attachment 10-5 Limitations (ug/L)

Subcategory=Oils Option=8 (continued)

| Pollutant | CAS_NO | No. of Fac. in LTA | Group | Pollutant LTA | 1-Day Limit | Monthly limit |
|---|---|---|---|---|---|---|
| ZINC | 7440-66-6 | 2 | METALS | 3,450. | 6,950. | 4,460. |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 1 | PHTHALATES | 116. | 267. | 158. |
| CARBAZOLE | 86-74-8 | 1 | ANILINES | 151. | 392. | 233. |
| FLUORANTHENE | 206-44-0 | 2 | PAHS | 253. | 787. | 393. |
| N-DECANE | 124-18-5 | 2 | N-PARAFFINS | 2,370. | 5,790. | 3,310. |
| N-OCTADECANE | 593-45-3 | 2 | N-PARAFFINS | 793. | 1,220. | 925. |

Subcategory=Oils Option=9

| Pollutant | CAS_NO | No. of Fac. in LTA | Group | Pollutant LTA | 1-Day Limit | Monthly limit |
|---|---|---|---|---|---|---|
| OIL & GREASE | C-007 | 1 | NONE | 28,300. | 127,000. | 38,000. |
| TOTAL SUSPENDED SOLIDS | C-009 | 1 | NONE | 25,500. | 74,100. | 30,600. |
| ANTIMONY | 7440-36-0 | 1 | SEMI-METALS | 103. | 237. | 141. |
| ARSENIC | 7440-38-2 | 2 | SEMI-METALS | 789. | 2,950. | 1,330. |
| BARIUM | 7440-39-3 | 1 | METALS | 221. | 427. | 281. |
| CADMIUM | 7440-43-9 | 2 | METALS | 7.46 | 17.2 | 10.2 |
| CHROMIUM | 7440-47-3 | 3 | METALS | 183. | 746. | 323. |
| COBALT | 7440-48-4 | 2 | METALS | 7,420. | 56,400. | 18,800. |
| COPPER | 7440-50-8 | 3 | METALS | 157. | 500. | 242. |
| LEAD | 7439-92-1 | 3 | METALS | 98.6 | 350. | 160. |
| MERCURY | 7439-97-6 | 2 | METALS | 3.09 | 17.2 | 6.47 |
| MOLYBDENUM | 7439-98-7 | 1 | METALS | 1,540. | 3,500. | 2,090. |
| TIN | 7440-31-5 | 2 | METALS | 107. | 335. | 165. |
| TITANIUM | 7440-32-6 | 2 | METALS | 21.7 | 51.0 | 29.9 |
| ZINC | 7440-66-6 | 3 | METALS | 3,140. | 8,260. | 4,500. |
| BIS(2-ETHYLHEXYL) PHTHALATE | 117-81-7 | 2 | PHTHALATES | 62.9 | 215. | 101. |
| BUTYL BENZYL PHTHALATE | 85-68-7 | 1 | PHTHALATES | 55.0 | 188. | 88.7 |

Attachment 10-5 Limitations (ug/L)

Subcategory=Oils Option=9
(continued)

| Pollutant | CAS_NO | No. of Fac. in LTA | Group | Pollutant LTA | 1-Day Limit | Monthly limit |
|---|---|---|---|---|---|---|
| CARBAZOLE | 86-74-8 | 1 | ANILINES | 151. | 598. | 276. |
| FLUORANTHENE | 206-44-0 | 3 | PAHS | 17.3 | 53.7 | 26.8 |
| N-DECANE | 124-18-5 | 3 | N-PARAFFINS | 238. | 948. | 437. |
| N-OCTADECANE | 593-45-3 | 3 | N-PARAFFINS | 203. | 589. | 302. |

Subcategory=Organics Option=4

| Pollutant | CAS_NO | No. of Fac. in LTA | Group | Pollutant LTA | 1-Day Limit | Monthly limit |
|---|---|---|---|---|---|---|
| BIOCHEMICAL OXYGEN DEMAND | C-003 | . | NONE | 41,000. | 163,000. | 53,000. |
| TOTAL SUSPENDED SOLIDS | C-009 | . | NONE | 45,000. | 216,000. | 61,300. |
| ANTIMONY | 7440-36-0 | 1 | SEMI-METALS | 569. | 928. | 679. |
| COPPER | 7440-50-8 | 1 | METALS | 704. | 865. | 757. |
| MOLYBDENUM | 7439-98-7 | 1 | METALS | 943. | 1,010. | 965. |
| ZINC | 7440-66-6 | 1 | METALS | 382. | 497. | 420. |
| ACETOPHENONE | 98-86-2 | 1 | KETONES, AROMATIC | 35.9 | 114. | 56.2 |
| ANILINE | 62-53-3 | 1 | ANILINES | 10.5 | 33.3 | 16.4 |
| O-CRESOL | 95-48-7 | 1 | PHENOLS | 185. | 1,920. | 561. |
| P-CRESOL | 106-44-5 | 1 | PHENOLS | 68.2 | 698. | 205. |
| PHENOL | 108-95-2 | 1 | PHENOLS | 362. | 3,650. | 1,080. |
| PYRIDINE | 110-86-1 | 1 | PYRIDINES | 116. | 370. | 182. |
| 2,3-DICHLOROANILINE | 608-27-5 | 1 | CHLOROANILINES | 23.0 | 73.1 | 36.1 |
| 2,4,6-TRICHLOROPHENOL | 88-06-2 | 1 | CHLOROPHENOLS | 85.8 | 155. | 106. |
| 2-BUTANONE | 78-93-3 | 1 | KETONES, ALIPHATIC I | 878. | 4,810. | 1,850. |
| 2-PROPANONE | 67-64-1 | 1 | KETONES, ALIPHATIC I | 2,060. | 30,200. | 7,970. |

Appendix

# E

# LISTING OF POLLUTANTS OF CONCERN AND CAS NUMBERS

This listing provides the pollutant name associated with each Chemical Abstract Service (CAS) number. In other appendices and attachments to this document and in the record for the final rulemaking, the complete CAS number is provided with a truncated pollutant name. This listing can be used to identify the untruncated pollutant name.

| Chemical Abstract Service (CAS) Registry Number | Pollutant |
|---|---|
| 100-41-4 | Ethylbenzene |
| 100-42-5 | Styrene |
| 100-51-6 | Benzyl alcohol |
| 101-84-8 | Diphenyl ether |
| 105-67-9 | 2,4-dimethylphenol |
| 106-44-5 | p-cresol |
| 106-46-7 | 1,4-dichlorobenzene |
| 106-48-9 | 4-chlorophenol |
| 106-93-4 | 1,2-dibromoethane |
| 107-06-2 | 1,2-dichloroethane |
| 108-10-1 | 4-methyl-2-pentanone |
| 108-38-3 | m-xylene |
| 108-88-3 | Toluene |
| 108-90-7 | Chlorobenzene |
| 108-95-2 | Phenol |
| 110-86-1 | Pyridine |
| 112-40-3 | n-dodecane |
| 112-95-8 | n-eicosane |
| 117-81-7 | Bis(2-ethylhexyl) phthalate |
| 120-12-7 | Anthracene |
| 120-82-1 | 1,2,4-trichlorobenzene |
| 123-91-1 | 1,4-dioxane |
| 124-18-5 | n-decane |
| 124-48-1 | Dibromochloromethane |
| 127-18-4 | Tetrachloroethene |
| 129-00-0 | Pyrene |
| 132-64-9 | Dibenzofuran |
| 132-65-0 | Dibenzothiophene |
| 13494-80-9 | Tellurium |
| 136777-61-2 | o+p-xylene |
| 142-28-9 | 1,3-dichloropropane |
| 142-62-1 | Hexanoic acid |
| 14265-44-2 | Total phosphorus |

| Chemical Abstract Service (CAS) Registry Number | Pollutant |
|---|---|
| 156-60-5 | Trans-1,2-dichloroethene |
| 1576-67-6 | 3,6-dimethylphenanthrene |
| 16887-00-6 | Chloride |
| 16984-48-8 | Fluoride |
| 1730-37-6 | 1-methylfluorene |
| 179601-23-1 | m+p-xylene |
| 18268-76-3 | 6-chlorovanillin |
| 18496-25-8 | Total sulfide |
| 18540-29-9 | Hexavalent chromium |
| 2027-17-0 | 2-isopropylnaphthalene |
| 20324-33-8 | Tripropyleneglycol methyl ether |
| 206-44-0 | Fluoranthene |
| 218-01-9 | Chrysene |
| 243-17-4 | 2,3-benzofluorene |
| 2460-49-3 | 4,5-dichloroguaiacol |
| 2668-24-8 | 4,5,6-trichloroguaiacol |
| 3743-23-5 | 5-chloroguaiacol |
| 3938-16-7 | 3,6-dichlorocatechol |
| 544-76-3 | n-hexadecane |
| 56-23-5 | Tetrachloromethane |
| 56-55-3 | Benzo(a)anthracene |
| 56961-20-7 | 3,4,5-trichlorocatechol |
| 57-12-5 | Total cyanide |
| 58-90-2 | 2,3,4,6-tetrachlorophenol |
| 591-35-5 | 3,5-dichlorophenol |
| 593-45-3 | n-octadecane |
| 59-50-7 | 4-chloro-3-methylphenol |
| 60712-44-9 | 3,4,6-trichloroguaiacol |
| 608-27-5 | 2,3-dichloroaniline |
| 62-53-3 | Aniline |
| 629-59-4 | n-tetradecane |
| 629-97-0 | n-docosane |
| 630-01-3 | n-hexacosane |
| 630-02-4 | n-octacosane |
| 630-20-6 | 1,1,1,2-tetrachloroethane |
| 646-31-1 | n-tetracosane |
| 65-85-0 | Benzoic acid |
| 67-64-1 | 2-propanone |
| 67-66-3 | Chloroform |
| 67-71-0 | Dimethyl sulfone |
| 67-72-1 | Hexachloroethane |
| 68-12-2 | N,n-dimethylformamide |
| 700-12-9 | Pentamethylbenzene |
| 71-43-2 | Benzene |
| 71-55-6 | 1,1,1-trichloroethane |
| 7429-90-5 | Aluminum |
| 7439-88-5 | Iridium |

| Chemical Abstract Service (CAS) Registry Number | Pollutant |
|---|---|
| 7439-89-6 | Iron |
| 7439-91-0 | Lanthanum |
| 7439-92-1 | Lead |
| 7439-93-2 | Lithium |
| 7439-94-3 | Lutetium |
| 7439-95-4 | Magnesium |
| 7439-96-5 | Manganese |
| 7439-97-6 | Mercury |
| 7439-98-7 | Molybdenum |
| 7440-02-0 | Nickel |
| 7440-04-2 | Osmium |
| 7440-09-7 | Potassium |
| 7440-21-3 | Silicon |
| 7440-22-4 | Silver |
| 7440-23-5 | Sodium |
| 7440-24-6 | Strontium |
| 7440-25-7 | Tantalum |
| 7440-28-0 | Thallium |
| 7440-31-5 | Tin |
| 7440-32-6 | Titanium |
| 7440-36-0 | Antimony |
| 7440-38-2 | Arsenic |
| 7440-39-3 | Barium |
| 7440-41-7 | Beryllium |
| 7440-42-8 | Boron |
| 7440-43-9 | Cadmium |
| 7440-47-3 | Chromium |
| 7440-48-4 | Cobalt |
| 7440-50-8 | Copper |
| 7440-55-3 | Gallium |
| 7440-56-4 | Germanium |
| 7440-62-2 | Vanadium |
| 7440-65-5 | Yttrium |
| 7440-66-6 | Zinc |
| 7440-67-7 | Zirconium |
| 7440-70-2 | Calcium |
| 7440-74-6 | Indium |
| 75-01-4 | Vinyl chloride |
| 75-09-2 | Methylene chloride |
| 75-15-0 | Carbon disulfide |
| 75-27-4 | Bromodichloromethane |
| 75-34-3 | 1,1-dichloroethane |
| 75-35-4 | 1,1-dichloroethene |
| 7553-56-2 | Iodine |
| 7664-41-7 | Ammonia as nitrogen |
| 7704-34-9 | Sulfur |
| 7723-14-0 | Phosphorus |

| Chemical Abstract Service (CAS) Registry Number | Pollutant |
|---|---|
| 7782-49-2 | Selenium |
| 78-59-1 | Isophorone |
| 78-93-3 | 2-butanone |
| 79-00-5 | 1,1,2-trichloroethane |
| 79-01-6 | Trichloroethene |
| 79-34-5 | 1,1,2,2-tetrachloroethane |
| 832-69-9 | 1-methylphenanthrene |
| 83-32-9 | Acenaphthene |
| 84-66-2 | Diethyl phthalate |
| 85-01-8 | Phenanthrene |
| 85-68-7 | Butyl benzyl phthalate |
| 86-73-7 | Fluorene |
| 86-74-8 | Carbazole |
| 87-86-5 | Pentachlorophenol |
| 88-06-2 | 2,4,6-trichlorophenol |
| 91-20-3 | Naphthalene |
| 91-57-6 | 2-methylnaphthalene |
| 92-52-4 | Biphenyl |
| 95-47-6 | o-xylene |
| 95-48-7 | o-cresol |
| 95-50-1 | 1,2-dichlorobenzene |
| 95-53-4 | o-toluidine |
| 95-77-2 | 3,4-dichlorophenol |
| 95-95-4 | 2,4,5-trichlorophenol |
| 96-18-4 | 1,2,3-trichloropropane |
| 96-45-7 | Ethylenethiourea |
| 98-55-5 | Alpha-terpineol |
| 98-86-2 | Acetophenone |
| 99-87-6 | p-cymene |
| C-002 | BOD 5-day (carbonaceous) |
| C-003 | Biochemical oxygen demand |
| C-004 | Chemical oxygen demand |
| C-004D | D-chemical oxygen demand |
| C-005 | Nitrate/nitrite |
| C-007 | Total recoverable oil and grease |
| C-009 | Total suspended solids |
| C-010 | Total dissolved solids |
| C-012 | Total organic carbon |
| C-020 | Total phenols |
| C-037 | SGT-HEM |