AUTHORIZATION TO DISCHARGE UNDER THE
RHODE ISLAND POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of Chapter 46-12 of the Rhode Island General Laws, as amended,

P. J. Keating Company
P.O. Box 367
Fitchburg, MA 01462

is authorized to discharge from a facility located at

P.J. Keating Cranston Facility
875 Phenix Avenue
Cranston, RI 02921

to receiving waters named

an unnamed tributary flowing into Furnace Hill Brook

in accordance with effluent limitations, monitoring requirements and other conditions set forth herein.

This permit shall become effective on July 1, 2009.

This permit and the authorization to discharge expire at midnight, five (5) years from the effective date.

This permit consists of 15 pages in Part I including effluent limitations, monitoring requirements, etc. and 10 pages in Part II including General Conditions.

Signed this 4th day of June, 2009.

Angelo S. Liberti, P.E., Chief of Surface Water Protection
Office of Water Resources
Rhode Island Department of Environmental Management
Providence, Rhode Island

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date and lasting through permit expiration, the permittee is authorized to discharge from outfall serial number(s) 001 (Outfall connecting pond #3 and quarry pump to an unnamed stream flowing into Furnace Hill Brook).

   Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations					Monitoring Requirement	
	Quantity - lbs./day		Concentration - specify units				
	Average Monthly	Maximum Daily	Average Monthly *(Minimum)	Average Weekly *(Average)	Maximum Daily *(Maximum)	Measurement Frequency	Sample Type
Flow	--- MGD	--- MGD				1/Quarter	Estimate[1]
TSS			25 mg/l		45 mg/l	1/Quarter	Grab[2]
pH			(6.5 S.U.)		(9.0 S.U.)	1/Quarter	Grab[2]
Oil and Grease			--- mg/l		15 mg/l	1/Quarter	Grab[2]
Sulfates			--- mg/l			1/Quarter	Grab[2]
Total Phosphorus			--- mg/l[3]		--- mg/l[3]	1/Quarter	Grab[2]
Nitrate + Nitrite			--- mg/l[3]		--- mg/l[3]	1/Quarter	Grab[2]

--- Signifies a parameter which must be monitored and data must be reported; no limit has been established at this time.

[1]Based on pump rates and pump run times. Average monthly flow should be reported on a quarterly basis as follows: sum the daily flows to outfall 001 and divide by the number of days in the quarter.

[2]The "Grab" value shall be obtained using a grab sample, consisting of an individual sample of at least 100 mL, collected during the first thirty (30) minutes of a discharge. Samples must be obtained from a discharge of which is the result of a representative storm event that occurs at least seventy-two (72) hours after the previously measurable storm event. A representative storm event should be within 50% of the average Rhode Island storm event, 0.7 inches in depth and 12 hours in duration, and shall be a minimum of 0.1 inches per twenty-four (24) hours in magnitude. If it is not practicable to collect the sample during the first 30 minutes, sample must be collected during the first hour of discharge and describe why a grab sample during the first 30 minutes was impracticable.

[3]See Part I.A.7 of the permit.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

3. During the period beginning on the effective date and lasting through permit expiration, the permittee is authorized to discharge from outfall serial number(s) 002 (stormwater runoff from the eastern portion of the site connecting to Furnace Hill Brook, may also include overflow from pond #4 to Furnace Hill Brook during storms with greater intensity than a 10 year, 24 hour storm):

   Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations					Monitoring Requirement	
	Quantity - lbs./day		Concentration - specify units				
	Average Monthly	Maximum Daily	Average Monthly *(Minimum)	Average Weekly *(Average)	Maximum Daily *(Maximum)	Measurement Frequency	Sample Type
Flow	--- MGD	--- MGD				1/Quarter	Estimate
Nitrate + Nitrite			--- mg/l [1]		--- mg/l[1]	1/Quarter	Grab[2]
TSS			25 mg/l		45 mg/l	1/Quarter	Grab[2]
Sulfates			--- mg/l			1/Quarter	Grab[2]
Total Phosphorus			--- mg/l[1]		--- mg/l[1]	1/Quarter	Grab[2]

[1]See Part I.A.7 of the permit.

"[2]The "Grab" value shall be obtained using a grab sample, consisting of an individual sample of at least 100 mL, collected during the first thirty (30) minutes of a discharge. Samples must be obtained from a discharge of which is the result of a representative storm event that occurs at least seventy-two (72) hours after the previously measurable storm event. A representative storm event should be within 50% of the average Rhode Island storm event, 0.7 inches in depth and 12 hours in duration, and shall be a minimum of 0.1 inches per twenty-four (24) hours in magnitude. If it is not practicable to collect the sample during the first 30 minutes, sample must be collected during the first hour of discharge and describe why a grab sample during the first 30 minutes was impracticable.

4. a. The discharge shall not cause visible discoloration of the receiving waters.

   b. The effluent shall contain neither a visible oil sheen, foam, nor floating solids at any time.

5. The permittee shall conduct instream turbidity sampling of the streams at two locations: the first location (location 1) is in the unnamed stream flowing into the Furnace Hill Brook immediately upstream of Outfall 001; the second location (location 2) is in the unnamed stream flowing into Furnace Hill Brook immediately downstream of Outfall 002. Instream sampling will consist of turbidity monitoring, at the above-mentioned locations once per quarter when effluent is being discharged. Turbidity sampling shall be undertaken by an independent laboratory hired by the permittee and the results reported in the Annual Comprehensive Site Evaluation Report (Part I.B.5.c.(10)). Turbidity shall be based upon Nephelometric Turbidity Units (NTU's).

6. All existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Director as soon as they know or have reason to believe:

   a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

      (1) One hundred micrograms per liter (100 ug/l);

      (2) Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitro-phenol; and one milligram per liter (1 mg/l) for antimony;

      (3) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 C.F.R. s122.21(g)(7); or

      (4) Any other notification level established by the Director in accordance with 40 C.F.R. s122.44(f) and Rhode Island Regulations.

   b. That any activity has occurred or will occur which would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

      (1) Five hundred micrograms per liter (500 ug/l);

      (2) One milligram per liter (1 mg/l) for antimony;

      (3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 C.F.R. s122.21(g)(7); or

      (4) Any other notification level established by the Director in accordance with 40 C.F.R. s122.44(f) and Rhode Island Regulations.

   c. That they have begun or expect to begin to use or manufacture as an

intermediate or final product or by-product any toxic pollutant which was not reported in the permit application.

7. The permittee shall compare all sampling results to the following benchmark monitoring concentrations. The following benchmark concentrations are not effluent limits. The benchmark concentrations are intended to be generic pollutant levels that, under nearly all scenarios, are protective of water quality standards and are only to be used to evaluate the overall effectiveness of the SWPPP (Storm Water Pollution Prevention Plan – see part I.B). Benchmark Monitoring concentrations may be subject to change by permit modification to be consistent with future revisions to EPA and/ or State benchmarks:

Parameter	Benchmark Concentration (mg/l)
Nitrate + Nitrite Nitrogen	0.68
Total Phosphorus	2.0

Any quarterly exceedances of the benchmark concentrations shall trigger a reevaluation of the implementation of the existing Storm Water Pollution Prevention Plan (SWPPP) and facility operations to determine if there are possible problems with non-structural BMPs or maintenance that can be corrected. The SWPPP shall be promptly revised in response to these reevaluations and in no case later than thirty (30) calendar days following the receipt of monitoring results that exceed the benchmark concentrations. A report of the permittee's comparison of monitoring results with the benchmark concentrations shall be submitted with each DMR. If the permittee exceeds any of the benchmark concentrations during the monitoring period the report shall include a detailed description of the possible causes of the exceedances or of any significant increases in parameter concentrations, the dates and scopes of inspections, a summary of monitoring results and visual inspections, and any modifications made to the SWPPP to reduce the pollutant levels.

On a yearly basis, the permittee shall calculate the annual average of all sampling data for each pollutant for the previous calendar year (January 1 – December 31). If the annual average exceeds the applicable benchmark concentration, then the permittee shall perform a detailed review of all storm water controls, BMPs, SOP's, and maintenance schedules contained in the SWPPP and shall make reasonable amendments to reduce the pollutant levels in the discharge. These amendments shall be submitted to the Department of Environmental Management - Office of Water Resources with the annual Comprehensive Site Evaluation Report required under Part I.B.5.c.(10). If the amendments will include changes to structural controls, the report must include a schedule for the implementation of the proposed structural modifications. Proposed changes to structural storm water controls must be approved by the DEM prior to implementation. Upon DEM approval of the structural changes, the permittee shall implement them in accordance with the approved schedule.

8. There shall be no direct or indirect discharge of asphalt concrete process wastewater pollutants (e.g. effluent from the asphalt baghouse) to receiving water.

9. This permit serves as the State's Water Quality Certificate for the discharges described herein.

10. The discharge of effluent from pond 3 shall be minimized as much as possible.

11. This permit does not authorize the discharge of concrete truck bottle wash water to surface waters.

12. The washing of truck engine compartments and undercarriages is prohibited.

13. The direct or indirect discharge of detergents to surface waters is prohibited.

14. The facility shall maintain a written log of the day, time, duration, and volume of all discharges from pond 3 via outfall 001 and shall submit such information for each quarter in cover letters accompanying Discharge Monitoring Reports (DMR's).

B. STORM WATER POLLUTION PREVENTION PLAN REQUIREMENTS

1. As of the effective date of this permit, P.J. Keating shall implement the Storm Water Pollution Prevention Plan (referred to herein as the "SWPPP" and "the Plan") developed by the permittee dated July 2007 and amended January 2008.

2. The Plan shall be signed by the permittee in accordance with RIPDES Rule 12 and retained on-site for at least five (5) years.

3. If the Plan is reviewed by the Director, he or she may notify the permittee at any time that the Plan does not meet one or more of the minimum requirements of this part. After such notification from the Director, the permittee shall make changes to the Plan and shall submit to the Director a written certification that the requested changes have been made. Unless otherwise provided by the Director, the permittee shall have thirty (30) days after such notification to make the necessary changes.

4. The permittee shall immediately amend the Plan whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to the waters of the State; a release of reportable quantities of hazardous substances and oil; or if the SWPPP proves to be ineffective in achieving the general objectives of controlling pollutants in storm water discharges associated with industrial activity. Changes must be noted and then submitted to this department. Amendments to the Plan may be reviewed by DEM in the same manner as Part B.3. of this permit.

5. The SWPPP shall include, at a minimum, the following items:

   a. Description of Potential Pollutant Sources. The Plan must provide a description of potential sources which may be reasonably expected to add significant amounts of pollutants to storm water discharges or which may result in the discharge of pollutants during dry weather from separate storm sewers draining the facility. It must identify all activities and significant materials, which may potentially be significant pollutant sources. The Plan shall include:

      (1) A site map indicating: a delineation of the drainage area of outfalls 001 and 002, each existing structural control measure to reduce pollutants in storm water runoff, locations where significant materials are exposed to storm water, locations where significant leaks or spills have occurred, a delineation of all impervious surfaces, all surface water bodies, all separate storm sewers, and the locations of the following activities where such areas are exposed to storm water: fueling stations, vehicle and equipment maintenance and/or cleaning areas, material handling areas,

material storage areas, process areas, and waste disposal areas;

(2) A topographic map extending one-quarter of a mile beyond the property boundaries of the facility;

(3) An estimate of the overall runoff coefficient for the site, determined by an acceptable method, such as, but not limited to, area weighting;

(4) A narrative description of significant materials that have been treated, stored, or disposed of in a manner to allow exposure to storm water between the time of three (3) years prior to the issuance of this permit to the present; method of on-site storage or disposal; materials management practices employed to minimize contact of these materials with storm water runoff between the time of three (3) years prior to the issuance of this permit and the present; materials loading and access areas; the location and description of existing structural and non-structural control measures to reduce pollutants in storm water runoff; and description of any treatment the storm water receives;

(5) A list of significant spills and significant leaks of toxic or hazardous pollutants that occurred at the facility three (3) years prior to the effective date of this permit to the present;

(6) A list of any pollutants limited in effluent guidelines to which a facility is subject under 40 CFR Subchapter N, any pollutants listed on a RIPDES permit to discharge process water, and any information required under RIPDES Rule 11.02(a)(14)(iii)-(v) or 40 CFR 122.21(g)(iii)-(v);

(7) For each area of the facility that generates storm water discharges associated with industrial activity with a reasonable potential for containing significant amounts of pollutants, a prediction of the direction of flow and an estimate of the types of pollutants, which are likely to be present in storm water associated with industrial activity;

(8) A summary of existing sampling data describing pollutants in storm water discharges from the facility; and

b. Storm Water Management Controls. The permittee must develop a description of storm water management controls appropriate for the facility and implement such controls. The appropriateness for implementing controls listed in the Plan must reflect identified potential sources of pollutants at the facility. The description of storm water management controls must address the following minimum components, including a schedule for implementing such controls:

(1) *Pollution Prevention Team.* The Plan must identify a specific individual(s) within the facility organization as members of a team that are responsible for developing the Plan and assisting the plant manager in its implementation, maintenance, and revision. The Plan must clearly identify the responsibilities of each team member. The activities and responsibilities of the team must address all aspects of facility's Plan.

(2) *Risk Identification and Assessment/Material Inventory.* The Plan must assess the potential of various sources which contribute pollutants to storm water discharge associated with the industrial activity. The Plan must include an inventory of the types of materials handled. Each of the following must be evaluated for the reasonable potential for contributing pollutants to runoff: loading and unloading operations, outdoor manufacturing or processing activities, significant dust or particulate generating processes, and on-site waste disposal practices. Factors to consider include the toxicity of chemicals; quantity of chemicals used, produced, or discharged; the likelihood of contact with storm water, and the history of significant leaks or spills of toxic or hazardous pollutants.

(3) *Preventative Maintenance.* A preventative maintenance program must involve inspection and maintenance of storm water management devices (i.e., oil/water separators, catch basins) as well as inspecting and testing plant equipment and systems to uncover conditions that could cause breakdown or failures resulting in discharges of pollutants to surface waters.

(4) *Good Housekeeping.* Good housekeeping requires the maintenance of a clean, orderly facility. The permittee must keep all exposed areas of the facility in a clean, orderly manner where such exposed areas could contribute pollutants to storm water discharges. Common problem areas include: around trash containers, storage areas and loading docks. Measures must also include: a schedule for regular pickup and disposal of garbage and waste materials; routine inspections for leaks and conditions of drums, tanks and containers.

(5) *Spill Prevention and Response Procedure.* Areas where potential spills can occur, and their accompanying drainage points, must be identified clearly in the SWPPP. The potential for spills to enter the storm water drainage system must be eliminated wherever feasible. Where appropriate, specific material handling procedures, storage requirements, and procedures for cleaning up spills must be identified in the Plan and made available to the appropriate personnel. The necessary equipment to implement a clean up must also be made available to personnel. The permittee shall immediately notify the office of releases in excess of reportable quantities.

(6) *Storm Water Management.* The Plan must contain a narrative consideration of the appropriateness of traditional storm water management practices. Based on an assessment of the potential of various sources at the plant to contribute pollutants to storm water discharges associated with industrial activity (see Part C.5.b.2 of this permit), the Plan must provide that measures, determined to be reasonable and appropriate, must be implemented and maintained.

(7) *Sediment and Erosion Prevention.* The Plan must identify areas which; due to topography, activities, or other factors; have a high potential for significant soil erosion and identify measures to limit erosion.

(8) *Structural Practices.* A description of structural BMPs to divert flows from exposed soils, filter runoff, store flows, or otherwise limit runoff from coming into contact with exposed, unvegetated areas of the site and to prevent sediments and/or other pollutants from leaving the site. Such practices may include: staked hay bales, silt fence, earthen dikes, drainage swales, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rip-rap outlet protection, sediment traps and sediment basins.

(9) *Employee Training.* Employee training programs must inform personnel responsible for implementing activities identified in the Plan, or otherwise responsible for storm water management at all levels, of the components and goals of the Plan. Training should address topics such as spill response, good housekeeping, and material management practices. The Plan must identify periodic dates for such training.

(10) *Visual Inspections.* Qualified plant personnel must be identified to inspect designated equipment and plant areas. Material handling areas must be inspected for evidence of, or the potential for, pollutants entering the drainage system. A tracking or follow up procedure must be used to ensure that the appropriate action has been taken in response to the inspection. Records of inspections must be maintained on site for at least five (5) years.

(11) *Recordkeeping and Internal Reporting Procedures.* Incidents such as spills, or other discharges, along with other information describing the quality and quantity of storm water discharges must be included in the records. All inspections and maintenance activities must be documented and maintained on site for at least five (5) years.

(12) *Minimizing Exposure:* Where practicable, industrial materials and activities should be protected by a storm resistant shelter to prevent exposure to rain, snow, snowmelt, or runoff.

(13) *Other Controls:* Off-site Vehicle Tracking of Sediments. Each site shall have graveled access entrance and exit drives and parking areas to reduce the tracking of sediment onto public or private roads.

c. Site Inspection.

(1) Visual inspections of sediment basins (i.e. ponds 1-4) monitoring of sediment basin turbidity must be conducted immediately (within 24 hours) after all rainstorms which produce more than 1" of rainfall, or a minimum of weekly. During periods of continuous rain and/or melting, erosion control measures shall be inspected daily.

(2) The following inspection must be conducted on at least a semi-annual basis: sediment accumulation in all silt ponds must be measured every six (6) months and/or whenever there is a failure of sediment controls. Sediment accumulation must be removed when the sediment depth in the basin reaches 2/3 of the available storage area.

(3) An annual site inspection must be conducted by appropriate personnel named in the SWPPP to verify that the description of potential pollutant sources required under Part B.5.a is accurate, that the drainage map has been updated or otherwise modified to reflect current conditions, and controls to reduce pollutants in storm water discharges associated with industrial activity identified in the Plan are being implemented and are adequate. A tracking or follow up procedure must be used to ensure that the appropriate action has been taken in response to the inspection. Records documenting significant observations made during the site inspection must be retained as part of the SWPPP for a minimum of five (5) years.

(4) Inspect any straw/hay bale barriers weekly to ensure that the integrity of the barriers have not been breached and to check sediment accumulation. Sediment must be removed from behind the barriers when its accumulation reaches 1/2 the height of the barriers.

(5) Inspect riprap after each major storm event, for the first year after the placement of the riprap, to ensure that stone has not been dislodged and that scouring of the support material has not occurred. If the first year inspections verify the integrity of the riprap placement, inspection frequency can be reduced to annually.

(6) Inspect earthen berms and sediment traps weekly to ensure that the structural integrity of the berms/traps has not been damaged.

(7) Inspect stockpiles of topsoil and earthen materials weekly to ensure that the slopes are no greater than thirty percent (30%), are seeded and stabilized, and are completely encircled by staked hay bales or silt fence.

(8) Inspect outfalls and discharge locations weekly for evidence of a release of sediment or other pollutants to ensure that their structural integrity has not been breached.

(9) Inspect locations where vehicles entrance and exit the site weekly for sediment that has been tracked off site. If there is evidence that sediment has been tracked off site, the permittee shall sweep the paved surfaces and determine if the controls require improvement.

(10) Comprehensive site evaluation: An annual comprehensive site evaluation report must be prepared which summarizes the results of the site inspections, required under Part I.B.5.c, and the turbidity monitoring, required under Part I.A.7. This report must include the names of the personnel who conducted the inspections, any major or recurring observations noted in the inspections, any maintenance preformed on the erosion and sedimentation control measures, a summary of the results of all sediment soundings, and a tabulated summary of all turbidity monitoring. The Annual Comprehensive Site Evaluation report must be submitted to the Department of Environmental Management by January 15 of the following year. The first report is due January 15, 2010.

d. Consistency with Other Plans. Storm water management controls may reflect requirements for Spill Prevention Control and Counter-measure (SPCC) plans under Section 311 of the CWA or Best Management Practices (BMP) Programs otherwise required by a RIPDES permit and may incorporate any part of such plans into the SWPPP by reference.

D. DETECTION LIMITS

The permittee shall assure that all wastewater testing required by this permit, is performed in conformance with the method detection limits listed below (the EPA method is noted for reference, other EPA approved methods found in 40 CFR Part 136 may be utilized). All sludge testing required by this permit shall be in conformance with the method detection limits found in 40 CFR 503.8. In accordance with 40 CFR Part 136, EPA approved analysis techniques, quality assurance procedures and quality control procedures shall be followed for all reports required to be submitted under the RIPDES program. These procedures are described in "Methods for the Determination of Metals in Environmental Samples" (EPA/600/4-91/010) and "Methods for Chemical Analysis of Water and Wastes" (EPA/600/4-79/020).

The report entitled "Methods for the Determination of Metals in Environmental Samples" includes a test which must be performed in order to determine if matrix interferences are present, and a series of tests to enable reporting of sample results when interferences are identified. Each step of the series of tests becomes increasingly complex, concluding with the complete Method of Standard Additions analysis. The analysis need not continue once a result which meets the applicable quality control requirements has been obtained. Documentation of all steps conducted to identify and account for matrix interferences shall be submitted along with the monitoring reports.

If, after conducting the complete Method of Standard Additions analysis, the laboratory is unable to determine a valid result, the laboratory shall report "could not be analyzed". Documentation supporting this claim shall be submitted along with the monitoring report. If valid analytical results are repeatedly unobtainable, DEM may require that the permittee determine a method detection limit (MDL) for their effluent or sludge as outlined in 40 CFR Part 136, Appendix B.

Therefore, all sample results shall be reported as: an actual value, "could not be analyzed", less than the reagent water MDL, or less than an effluent or sludge specific MDL. The effluent or sludge specific MDL must be calculated using the methods outlined in 40 CFR Part 136, Appendix B.
Samples which have been diluted to ensure that the sample concentration will be within the linear dynamic range shall not be diluted to the extent that the analyte is not detected. If this should occur the analysis shall be repeated using a lower degree of dilution.

When calculating sample averages for reporting on discharge monitoring reports (DMRs):

1. "could not be analyzed" data shall be excluded, and shall not be considered as failure to comply with the permit sampling requirements;

2. results reported as less than the MDL shall be included as values equal to the MDL, and the average shall be reported as "less than" the calculated value.

For compliance purposes, DEM will replace all data reported as less than the MDL with zeroes, provided that DEM determines that all appropriate EPA approved methods were followed. If the re-calculated average exceeds the permit limitation it will be considered a violation.

LIST OF TOXIC POLLUTANTS

The following list of toxic pollutants has been designated pursuant to Section 307(a)(1) of the Clean Water Act. The Method Detection Limits (MDLs) represent the required Rhode Island MDLs.

Volatiles - EPA Method 624		MDL ug/l (ppb)
1V	acrolein	10.0
2V	acrylonitrile	5.0
3V	benzene	1.0
5V	bromoform	1.0
6V	carbon tetrachloride	1.0
7V	chlorobenzene	1.0
8V	chlorodibromomethane	1.0
9V	chloroethane	1.0
10V	2-chloroethylvinyl ether	5.0
11V	chloroform	1.0
12V	dichlorobromomethane	1.0
14V	1,1-dichloroethane	1.0
15V	1,2-dichloroethane	1.0
16V	1,1-dichloroethylene	1.0
17V	1,2-dichloropropane	1.0
18V	1,3-dichloropropylene	1.0
19V	ethylbenzene	1.0
20V	methyl bromide	1.0
21V	methyl chloride	1.0
22V	methylene chloride	1.0
23V	1,1,2,2-tetrachloroethane	1.0
24V	tetrachloroethylene	1.0
25V	toluene	1.0
26V	1,2-trans-dichloroethylene	1.0
27V	1,1,1-trichloroethane	1.0
28V	1,1,2-trichloroethane	1.0
29V	trichloroethylene	1.0
31V	vinyl chloride	1.0

Acid Compounds - EPA Method 625		MDL ug/l (ppb)
1A	2-chlorophenol	1.0
2A	2,4-dichlorophenol	1.0
3A	2,4-dimethylphenol	1.0
4A	4,6-dinitro-o-cresol	1.0
5A	2,4-dinitrophenol	2.0
6A	2-nitrophenol	1.0
7A	4-nitrophenol	1.0
8A	p-chloro-m-cresol	2.0
9A	pentachlorophenol	1.0
10A	phenol	1.0
11A	2,4,6-trichlorophenol	1.0

Pesticides - EPA Method 608		MDL ug/l (ppb)
1P	aldrin	0.059
2P	alpha-BHC	0.058
3P	beta-BHC	0.043
4P	gamma-BHC	0.048
5P	delta-BHC	0.034
6P	chlordane	0.211
7P	4,4'-DDT	0.251
8P	4,4'-DDE	0.049
9P	4,4'-DDD	0.139
10P	dieldrin	0.082
11P	alpha-endosulfan	0.031
12P	beta-endosulfan	0.036
13P	endosulfan sulfate	0.109
14P	endrin	0.050
15P	endrin aldehyde	0.062
16P	heptachlor	0.029
17P	heptachlor epoxide	0.040

Pesticides - EPA Method 608		MDL ug/l (ppb)
18P	PCB-1242	0.289
19P	PCB-1254	0.298
20P	PCB-1221	0.723
21P	PCB-1232	0.387
22P	PCB-1248	0.283
23P	PCB-1260	0.222
24P	PCB-1016	0.494
25P	toxaphene	1.670

Base/Neutral - EPA Method 625		MDL ug/l (ppb)
1B	acenaphthene *	1.0
2B	acenaphthylene *	1.0
3B	anthracene *	1.0
4B	benzidine	4.0
5B	benzo(a)anthracene *	2.0
6B	benzo(a)pyrene *	2.0
7B	3,4-benzofluoranthene *	1.0
8B	benzo(ghi)perylene *	2.0
9B	benzo(k)fluoranthene *	2.0
10B	bis(2-chloroethoxy)methane	2.0
11B	bis(2-chloroethyl)ether	1.0
12B	bis(2-chloroisopropyl)ether	1.0
13B	bis(2-ethylhexyl)phthalate	1.0
14B	4-bromophenyl phenyl ether	1.0
15B	butylbenzyl phthalate	1.0
16B	2-chloronaphthalene	1.0
17B	4-chlorophenyl phenyl ether	1.0
18B	chrysene *	1.0
19B	dibenzo (a,h)anthracene *	2.0
20B	1,2-dichlorobenzene	1.0
21B	1,3-dichlorobenzene	1.0
22B	1,4-dichlorobenzene	1.0
23B	3,3'-dichlorobenzidine	2.0
24B	diethyl phthalate	1.0
25B	dimethyl phthalate	1.0
26B	di-n-butyl phthalate	1.0
27B	2,4-dinitrotoluene	2.0
28B	2,6-dinitrotoluene	2.0
29B	di-n-octyl phthalate	1.0
30B	1,2-diphenylhydrazine (as azobenzene)	1.0
31B	fluoranthene *	1.0
32B	fluorene *	1.0
33B	hexachlorobenzene	1.0
34B	hexachlorobutadiene	1.0
35B	hexachlorocyclopentadiene	2.0
36B	hexachloroethane	1.0
37B	indeno(1,2,3-cd)pyrene *	2.0
38B	isophorone	1.0
39B	naphthalene *	1.0
40B	nitrobenzene	1.0
41B	N-nitrosodimethylamine	1.0
42B	N-nitrosodi-n-propylamine	1.0
43B	N-nitrosodiphenylamine	1.0
44B	phenanthrene *	1.0
45B	pyrene *	1.0
46B	1,2,4-trichlorobenzene	1.0

OTHER TOXIC POLLUTANTS

	MDL ug/l (ppb)
Antimony, Total	3.0 - EPA Method 204.2[1]
Arsenic, Total	1.0 - EPA Method 206.2[1]
Beryllium, Total	0.2 - EPA Method 210.2[1]
Cadmium, Total	0.1 - EPA Method 213.2[1]
Chromium, Total	1.0 - EPA Method 218.2[1]
Chromium, Hexavalent***	20.0 - Standard Methods 16th Ed., 312.B
Copper, Total	1.0 - EPA Method 220.2[1]
Lead, Total	1.0 - EPA Method 239.2[1]
Mercury, Total	0.2 - EPA Method 245.1[1]
Nickel, Total	1.0 - EPA Method 249.2[1]
Selenium, Total	2.0 - EPA Method 270.2[1]
Silver, Total	0.5 - EPA Method 200.9[1]
Thallium, Total	1.0 - EPA Method 279.2[1]
Zinc, Total	5.0 - EPA Method 289.1[1]
Asbestos	**
Cyanide, Total	10.0 - EPA Method 335.3
Phenols, Total***	50.0 - EPA Method 420.2
TCDD	**
MTBE (Methyl Tert Butyl Ether)	1.0 - EPA Method 524.2

* Polynuclear Aromatic Hydrocarbons
** No Rhode Island Department of Environmental Management (RIDEM) MDL
*** Not a priority pollutant as designated in the 1997 Water Quality Regulations (Table 5)

NOTE:

All MDLs have been established in accordance with the definition of "Detection Limits" in the RIDEM Water Quality Regulations for Water Pollution Control. Unless otherwise noted the MDLs have been determined in reagent water by the Rhode Island Department of Health, Division of Laboratories. The MDL for a given analyte may vary with the type of sample. MDLs which are determined in reagent water may be lower than those determined in wastewater due to fewer matrix interferences. Wastewater is variable in composition and may therefore contain substances (interferents) that could affect MDLs for some analytes of interest. Variability in instrument performance can also lead to inconsistencies in determinations of MDLs.

[1]Method detection limits for these metals analyses were determined by the USEPA. They are not contrived values and should be obtainable with any satisfactory atomic absorption spectrophotometer. To insure valid data the analyst must analyze for matrix interference effects and if detected treat accordingly using either successive dilution matrix modification or method of Standard Additions (Methods for Chemical Analysis of Water and Wastes EPA-600/4-79/020).

To help verify the absence of matrix or chemical interference the analyst is required to complete specific quality control procedures. For the metals analyses listed above the analyst must withdraw from the sample two equal aliquots; to one aliquot add a known amount of analyte, and then dilute both to the same volume and analyze. The unspiked aliquot multiplied by the dilution factor should be compared to the original. Agreement of the results within 10% indicates the absence of interference. Comparison of the actual signal from the spiked aliquot to the expected response from the analyte in an aqueous standard should help confirm the finding from the dilution analysis. (Methods for Chemical Analysis of Water and Wastes EPA-600/4-79/020).

For Methods 624 and 625 the laboratory must on an ongoing basis, spike at least 5% of the samples from each sample site being monitored. For laboratories analyzing 1 to 20 samples per month, at least one spiked sample per month is required. The spike should be at the discharge permit limit or 1 to 5 times higher than the background concentration determined in Section 8.3.2, whichever concentration would be larger. (40 CFR Part 136 Appendix B Method 624 and 625 subparts 8.3.1 and 8.3.11).

E. MONITORING AND REPORTING

1. Monitoring

All monitoring required by this permit shall be done in accordance with sampling and analytical testing procedures specified in Federal Regulations (40 CFR Part 136).

2. Reporting

Monitoring results obtained during the previous calendar quarter shall be summarized and reported on Discharge Monitoring Report (DMR) Forms, postmarked no later than the 15th day of the month following the completed reporting period. Quarterly reporting shall be as follows:

Quarter Testing to be Performed	Report Due No Later Than
January 1 – March 31	April 15
April 1 – June 30	July 15
July 1 – September 30	October 15
October 1 - December 31	January 15

A copy of the analytical laboratory reports (i.e.: Certificate on Analysis), specifying analytical methods used, shall be included with each report submission. The first report is due on October 15, 2009.

Signed copies of these, and all other reports required herein, shall be submitted to:

Annie McFarland
Computer Operator
RIPDES Program
Rhode Island Department of Environmental Management
235 Promenade Street
Providence, Rhode Island 02908

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
235 PROMENADE STREET
PROVIDENCE, RHODE ISLAND 02908-5767

STATEMENT OF BASIS

RHODE ISLAND POLLUTANT DISCHARGE ELIMINATION SYSTEM (RIPDES) PERMIT TO DISCHARGE TO WATERS OF THE STATE

RIPDES PERMIT NO.: **RI0023761**

NAME AND ADDRESS OF APPLICANT:

P. J. Keating Company
P.O. Box 367
Fitchburg, MA 01462

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

P.J. Keating Cranston Facility
875 Phenix Avenue
Cranston, RI 02921

RECEIVING WATER: an unnamed tributary flowing into Furnace Hill Brook

CLASSIFICATION: B

I. Proposed Action, Type of Facility, and Discharge Location

The above named applicant has applied to the Rhode Island Department of Environmental Management (DEM) for issuance of a RIPDES Permit to discharge into the designated receiving water. The facility is engaged in the mining of stone from an on-site quarry, the production of crushed stone, gravel, and sand, concrete, and asphalt. At the time the RIPDES permit application was made in March of 2006, the discharge from the facility consisted of discharge streams from stone washing, quarry dewatering, truck washing, dust control for on-site roads, asphalt concrete production (in the form of effluent from the baghouse), and stormwater. The asphalt plant baghouse discharge has since been disconnected.

II. Limitations and Conditions

The effluent limitations and the monitoring requirements may be found in Part I of the permit.

III. Permit Basis and Explanation of Effluent Limitation Derivation

RIPDES Permit History

P.J. Keating Company of Fitchburg, MA discharges stormwater, which for one of the two outfalls is commingled with process effluent, from the above-described processes at their facility located at 875 Phenix Avenue in Cranston, Rhode Island. In 2002 the DEM notified Tilcon Capaldi, the former owner of the site, that they were discharging without a permit and that they were in violation of the RIPDES Regulations. In 2003 Tilcon Capaldi indicated that the site no longer had

a discharge and did not require a RIPDES permit. Subsequent to this, it was determined that the facility does have a discharge and requires a RIPDES permit. On February 28, 2006 the DEM issued a Notice of Intent to Enforce that required P.J. Keating to submit a RIPDES application. ENSR Environmental Services (ENSR) filed a RIPDES application on behalf of the P.J. Keating Company on March 14, 2006. On June 20, 2006, DEM issued a deficiency letter for the RIPDES application. This deficiency letter required additional information to be submitted. On June 30, 2006 P.J. Keating submitted the additional information. DEM developed a 14-day draft permit which it mailed to P.J Keating on June 7, 2007. The June 7, 2007 draft led to a meeting between DEM, P.J. Keating, and ENSR at DEM's Offices on July 12, 2007 which in turn led DEM to require the submission of additional information by ENSR on behalf of P.J. Keating. DEM received the additional information from ENSR on February 4, 2008 and this modified permit has been developed in response to the February 4, 2008 submission of information.

Facility Description

The site, which is owned by the P.J. Keating Company, is located on roughly 130 acres just west of Phenix Avenue and south of Interstate 295 in the city of Cranston. The facility supplies crushed stone, ready-mix concrete, bituminous concrete, and construction sand and gravel. A process diagram for the facility is shown in Appendix A. There are two outfalls, outfall 001 and outfall 002. The following is a description of the discharges from the outfalls:

Outfall 001

There are five (5) ponds at the facility, numbered 1A , 1B, 2, 3, and 4. Water is pumped from pond #3 to the stone wash plant, the stone processing plant, the asphalt plant, and to the concrete plant truck wash water tank. The effluent stream from the stone wash rack flows into ponds 1A and 1B which overflow to pond 2, which then overflows back into pond 3. Concrete Plant wastewater flows into catch basins that empty into Pond 4, which is pumped during large storm events into Pond 3. (During smaller storm events, Pond 4 infiltrates and does not have a discharge). Pond 3 also receives overland stormwater flow from the site. Quarry dewatering water can be directed into pond 3 to maintain the water level or directed to outfall 001. Excess water from Pond 3 is discharged to outfall 001 by the use of a pumping station. Based on modeling performed by P.J. Keating, pond 3 will not overflow during a 10 year, 24 hour storm event. Therefore, based on the 10-year, 24-hour storm, outfall 001 will only contain stormwater from the quarry. Outfall 001 flows into an unnamed stream that eventually flows into Furnace Hill Brook. The waste stream of asphalt plant baghouse effluent has been eliminated under this permit, as explained later in the statement of basis.

Outfall 002

Outfall 002 receives stormwater runoff and dust control runoff from the site, including stormwater runoff from the vehicle maintenance / fuel area which flows into catch basins which discharge into a swale that flows to outfall 002.

Receiving Water and Dilution

Outfalls 001 and 002 discharge to an unnamed stream flowing into Furnace Hill Brook. During the permit development process, RIDEM evaluated the need for water quality-based permit limits. Streamflow data for the Furnace Hill Brook was gathered from the United States Geological Survey (USGS) for the years 1965 through 1974, which were the only years for which streamflow data was available. Daily streamflow data was analyzed using the DFLOW software package to yield the following streamflow parameters: 7Q10, seasonal 7Q10, 30Q5, and harmonic flow. The 7Q10 flow is the lowest 7-day average flow that occurs (on average) once every 10 years. Seasonal 7Q10 flows represent the 7Q10 flows for the months of June through October and for the months of November through April. The 30Q5 flow is the lowest 30-day average flow that occurs (on average) once every 5 years. Harmonic flow is used to evaluate human health impacts. The following streamflow values were found using DFLOW:

- 7Q10 flow: 0 CFS (cubic feet per second)

- Summer 7Q10 flow (May-October): 0 CFS
- Winter 7Q10 flow (November-April): 0 CFS
- 30Q5 flow: 0.070 CFS
- Harmonic flow: 0.520 CFS

These dilution factors are used to generate water quality-based permit limits. Given that the 7Q10 streamflow values are 0, dilution factors calculated as a result of 7Q10 values are 1.

Water Quality Standards and Designated Uses

Furnace Hill Brook has been classified as Class B under the Rhode Island Water Quality Regulations. Furnace Hill Brook is not listed on the 2006 Rhode Island 303(d) list of impaired waters.

Permit Basis and Explanation of Limits

DEM's primary authority over this permit comes from the Environmental Protection Agency's (EPA's) delegation of the RIPDES Program, in September 1984, under the Federal Clean Water Act. The requirements set forth in this permit are from the State's Water Quality Regulations and the State's Regulations for the Rhode Island Pollutant Discharge Elimination System, both filed pursuant to Chapter 46-12 of the Rhode Island General Laws, as amended. Chapter 46-12 of the General Laws of Rhode Island, as amended, prohibits the discharge of pollutants to waters of the State of Rhode Island without a RIPDES permit. The RIPDES permit is the mechanism used to implement technology and water quality-based effluent limitations and other requirements including monitoring and reporting.

RIDEM is required to consider (a) technology-based requirements, (b) water quality-based requirements, and (c) best professional judgment (BPJ). These requirements are described in the following two sections of the statement of basis.

Stormwater and Process Water Separation

The RIPDES Program typically gives facilities which discharge into Waters of the State coverage under an individual RIPDES permit or coverage under the RIPDES Multi-Sector General Permit (MSGP) for Stormwater. Individual permits are generally developed by developing dilution factors relating process water flows to streamflow and generating water quality-based limits for toxic pollutants based on the Rhode Island Water Quality Regulations in addition to implementing technology based limits based on federal effluent limitation guidelines (ELG's) and permit limitations based on BPJ. Permittees given coverage under the MSGP for stormwater are held to benchmarks. The exceedance of benchmark parameters would mandate that a permittee revisit their stormwater pollution prevention plan (SWPPP).

The P.J. Keating facility has both stormwater and intermittent discharges of process water effluent so an individual permit was developed which incorporated both limitations and benchmarks for certain parameters. The permit development process, which involved several revisions, consisted primarily of an effort to realize the following four goals:

1. eliminate the discharge of process water discharges
2. separate stormwater flow and process water flow as much as possible
3. minimize the impact of stormwater discharges through the development and implementation of a SWPPP
4. minimize the magnitude and impact of the discharge of effluent containing process water

During the permit development process, P.J. Keating took the following steps to address the above four goals:

1. *Eliminate the discharge of process water discharges:* P.J. Keating's initial submission of a permit application in March of 2006 included documentation of the discharge of a process water stream from an on-site asphalt baghouse. DEM determined that this discharge is prohibited under federal effluent guidelines, and communicated that

prohibition to P.J. Keating. P.J. Keating has since eliminated the asphalt baghouse discharge so that the permitting process could proceed.

2. *Separate stormwater flow and process water flow as much as possible:* P.J. Keating's March 2006 permit application described how truck wash water from PRM concrete, a tenant at the facility, would flow into the quarry, where it could eventually be discharged off the site. DEM required P.J. Keating to work with PRM to eliminate this discharge to the quarry. In addition, a June 2006 site inspection by DEM to the facility revealed that pond 4 would sometimes overflow to outfall 002. So P.J. Keating installed a pump that is capable of pumping water from pond 4 to pond 3 such that, according to P.J. Keating's consultant, ENSR, pond 4 does not overflow to outfall 002.
3. *Minimize the impact of stormwater discharges through the development and implementation of a SWPPP:* The prior draft of the permit, which was mailed to P.J. Keating in June of 2007 contained detailed SWPPP requirements. In response to these requirements, P.J. Keating's consultant, ENSR, developed a SWPPP. The SWPPP contains documentation of practices that P.J. Keating must abide by to minimize the impact of stormwater leaving the site, one of the most important of which is the implementation of stone check dams at key locations to slow down stormwater.
4. *Minimize the magnitude and impact of the discharge of effluent containing process water:* ENSR developed a model of the stormwater at the site which calculated that the facility would not need to discharge effluent containing process water during a 10 year 24 hour storm. ENSR developed standard operating procedures (SOP's) and best management practices (BMP's) for pond 3's discharge which aim to minimize pollution from pond 3 when pond 3 discharges. SOP's included the field testing of pond 3 water for pH, Oil and Grease, and turbidity prior to discharge, with prohibitions for the discharge of effluent when limitations for parameters are exceeded, and with testing results being recorded in the SWPPP. DEM required P.J. Keating to implement the following two BMP's on a permanent basis:
    a. the installation of a silt curtain prior to the pump house in pond 3
    b. the installation of a silt curtain in pond 4 prior to discharge of pond 4 water to pond 3

It should also be noted that the area to the west of pond 4 was regraded so as to redirect process water flowing by sheet flow into pond 4. This internal waste stream flows through a coarse stone check dam.

P.J. Keating has modified its facility such that its discharge only consists of stormwater in storms less than or equal in severity to a 10 year 24 hour storm. Process water may be discharged from outfall 001, but ENSR's model predicts that this will only occur during storms greater than the 10 year 24 hour storm, so it is anticipated that discharges of process water from pond 3 will be infrequent, and those that take place will be done in accordance with the established pond 3 SOP's.

Given that P.J. Keating has taken the above steps, the DEM has developed an individual permit which integrates features of individual permit coverage and MSGP permit coverage, based on the assumption that stormwater and process water discharges have been separated as much as possible. Essentially, outfall 002 is treated as a stormwater-only outfall, whereas outfall 001 is treated as a combined stormwater/process water outfall, with the stormwater component of the outfall 001 discharge consisting mostly of stormwater that is pumped from the quarry. The following four sections of the statement of basis discuss the consideration of limitations based on technology, water quality, and best professional judgment followed by a section which discussed the consideration of limitations and benchmarks based on MSGP benchmarks.

Technology-Based Requirements

pH:

The Effluent Guidelines for the Mineral Mining and Processing Point Source Category located at

40 CFR Part 436 establish limitations for pH for effluent discharged in conjunction with mine dewatering associated with sand and gravel production as 6.0-9.0 standard units. However, Rhode Island water quality criteria are more stringent, so limitations for outfall 001 are based on the Rhode Island water quality criteria (6.5-9.0).

The effluent guidelines for the asphalt concrete subcategory located at 40 CFR Part 443.25 prohibit the discharge of asphalt concrete process water. Therefore, this permit does not authorize the discharge of asphalt plant baghouse wastewater since it meets the definition of "process wastewater" and is a prohibited discharge under 40 CFR Part 443.25. This prohibition is made in Part I.A.8. of the permit.

Water Quality-Based Requirements

During the permitting process, P.J. Keating performed several rounds of water quality sampling from both outfalls.

Based on the above dilution factors and the freshwater aquatic life and non-class A human health criteria from the Rhode Island Water Quality Regulations, allowable discharge concentrations were established using 80% allocation when no background data was available and 90% allocation when background data was available. 100% allocation of total residual chlorine (TRC) was used due to the fact that Chlorine is not expected to be found in ambient water and it is a non-conservative pollutant. Background data for Cadmium, Copper, Lead, Mercury, and Ammonia was obtained from DEM's water quality database using data from the Random Sampling Design Project taken in the Furnace Hill Brook and tributaries on August 10, 2000.

In accordance with 40 CFR Part 122.4(d)(1)(iii), it is only necessary to establish limitations for those pollutants in the discharge which have the reasonable potential to cause or contribute to the exceedance of the in-stream criteria. In order to evaluate the need for permit limitations, prospective permit limits were compared to water quality data taken from outfalls 001 and 002 in conjunction with the June 30, 2006 permit reapplication, and from the samples taken on April 30, 2007 and January 24, 2008. The latest available sample value for each parameter was compared to potential permit limits for that parameter generated from the water quality calculations described above. The latest available sampling indicated that the only detectible contaminant for which water-quality based limitations could be considered is Ammonia.

For toxicity-based ammonia limitations, the 2006 Water Quality Regulations include revised Ammonia criteria, which are dependent on both pH and temperature. In the absence of site-specific data on the receiving water, the DEM evaluated USGS data for all freshwater rivers in the state for the 1999 water year to determine an appropriate assumption for the temperature and pH of the receiving water. This evaluation resulted in the conservative assumptions of 7.5 S.U. for pH and winter and summer water temperatures of 15°C and 26°C, respectively. Early life stages of brook trout, a salmonid, are present in the Furnace Hill Brook. Therefore, Ammonia criteria for early life stages present were used to evaluate potential permit limits for Ammonia. The pH and summer temperature were used to determine the acute, with salmonids present, and chronic criteria for Total Ammonia Nitrogen of 19.9 mg N/L and 2.08 mg N/L, respectively. The pH and winter temperature were used to determine the acute and chronic criteria for Total Ammonia Nitrogen of 19.9 mgN/L and 4.165 mgN/L, respectively.

A comparison of the amount of Ammonia detected against the potential permit limitations for Ammonia indicated that there was no reasonable potential for the exceedances of potential Ammonia limits, therefore permit limitations were not established for Ammonia. The June 30, 2006 permit reapplication indicated that Arsenic, Napthalene, Benzene, and Toluene were believed present in the effluent. However, water quality samples taken on April 30, 2007 and on January 24, 2008 indicated that these parameters were below detection. RIDEM attributes the absence of these parameters in the effluent to the elimination of the asphalt baghouse waste stream, as described above.

Water quality calculations used to develop this permit and an identification of reasonable potential can be found in Appendix B.

pH:

As previously mentioned, Water Quality-based limitations for pH were taken from the Rhode Island Water Quality Regulations. These pH limitations, which require the pH of the receiving water to be between 6.5 S.U. and 9.0 S.U. Therefore, the water quality-based pH limits were established as the final pH limits in the permit for outfall 001.

Best Professional Judgment

Flow:

No limitations were placed on average monthly flow or maximum daily flow for either outfall, in order to permit stormwater flow, which is variable. Flow monitoring is called for for both outfalls.

Sulfates:

Sulfates are found in both effluent streams, so monitoring of Sulfates is called for in the permit, as it is inherent in Ready-mix product formulations. Since there are no technology based guidelines listed in either the Mineral Mining or Cement Manufacturing Point Source Category, the proposed monthly average Total Sulfate monitoring requirements for Outfalls 001 and 002 is based on BPJ.

Oil and Grease:

The Rhode Island Water Quality Regulations prohibit the discharge of visible oil and grease into receiving water. Oil and Grease effluent limitations are based on Best Professional Judgment (BPJ). The 15 mg/l daily maximum Oil and Grease limit is equivalent to the new source performance standard that the Environmental Protection Agency (EPA) has established for most industrial groups. This standard represents the level of control achievable by the best available demonstrated control technology, process, operating method, or other alternative for the removal of oil and grease. This limit is also consistent with the American Petroleum Institute (API) oil/water separator guidelines and is consistent with the limits that DEM typically assigns to discharges of storm water and is treated through an oil/water separator. This limit has been assigned to Outfall 001 since it has the potential to receive process wastewater and stormwater from the asphalt area.

Phosphorus:

The Rhode Island Water Quality Regulations only contain total phosphorus numeric water quality criteria for lakes, ponds, kettle holes, reservoirs, and any tributaries at the point where they enter such bodies of water but do not contain total phosphorus numerical criteria for flowing water bodies. The freshwater narrative criteria for nutrients is found in Table 1.8.D(2), which states that nutrients shall not be present "in such concentration that would impair any usages specifically assigned to said Class, or cause undesirable or nuisance aquatic species associated with cultural eutrophication". The Water Quality Standards also require that "Phosphates shall be removed from existing discharges to the extent that such removal is or may become technically and reasonably feasible." However, EPA has produced several guidance documents, which contain recommended total phosphorus criteria for flowing water bodies. The 1986 Quality Criteria of Water ("the Gold Book") recommends in-stream phosphorus concentrations of 0.1 mg/l for any stream not discharging directly to lakes or impoundments.

The Pawtuxet River, which receives flow from Furnace Hill Brook via Meshanticut Brook, is on the DEM's 2006 3(d) list of impaired waters for nutrients and low dissolved oxygen and it is well documented that reaches along the Pawtuxet River suffer from eutrophication, a condition primarily caused by excessive nutrients entering and accumulating in the river. The DEM is in the process of implementing revised permit limits for the Wastewater Treatment Facilities that discharge into the Pawtuxet River and it is expected that these limits will result in significant decreases in the nutrient levels in the Pawtuxet River.

During the permit reissuance process for the Wastewater Treatment Facilities located on the Pawtuxet River, the DEM evaluated the nutrient levels in the Meshanticut Brook. This evaluation did not identify the Meshanticut Brook as being a significant source of Phosphorus to the Pawtuxet River, nor did the Meshanticut Brook show evidence of excessive algal growth. Therefore, the DEM has decided to implement a benchmark for Total Phosphorus for outfalls 001 and 002 rather than a water quality-based limit, for the following reasons: The frequency of a discharge of pond 3 water from outfall 001 will take place less frequently than the 10 year 24 hour storm, so the episodic discharges of process water from outfall 001 are said to be minimal; water quality sampling of both outfalls performed by the facility in June of 2006 and January of 2008 indicated that Phosphorus levels were below detection limits; and the unnamed stream is not a major contributor to the Pawtuxet River. For these reasons, the DEM has decided to set a benchmark of 2.0 mg/l for Total Phosphorus (taken from the Multi-Sector Stormwater General Permit).

Total Suspended Solids:

The Rhode Island Multi-Sector Stormwater General Permit established effluent limitations for average monthly total suspended solids of 25 mg/L and for maximum daily suspended solids of 45 mg/L for Mine Dewatering Discharges. Therefore, these limitations were written into the permit for outfall 001 and 002. Although no turbidity limits were given for either outfall, turbidity monitoring for outfall 001 was written into the permit in section I.A.5 of the permit.

Benchmarks

Benchmarks for Nitrate + Nitrite Nitrogen of 0.68 mg/l are incorporated into monitoring for outfalls 001 and 002 based on the MSGP which calls out such benchmarks for the Sand and Gravel Mining Activities. These pollutants are believed present due to the presence of Nitrogen-containing compounds as a result of rock blasting performed at that facility. As mentioned above, a benchmark for Phosphorus of 2.0 mg/l was incorporated into the monitoring for outfalls 001 and 002 based on the MSGP which calls out that benchmark for Phosphorus for stormwater.

These benchmark limits are not directly correlated to water quality standards, rather the benchmark limit is a generic pollutant level that has been developed to be protective of water quality under nearly all scenarios. Exceedances of the benchmark values shall trigger a review of the facility's SWPPP by the permittee and reasonable modification as necessary. A report of the permittee's ability to comply with the benchmark concentrations shall be submitted to the DEM annually with the Comprehensive Site Evaluation Report required under Part I.B.5.c.(10) of the permit. Additional information about benchmarks can be found in section I.A.7 of this permit.

Antidegredation/Antibacksliding:

Since all of the limitations and conditions in the permit reduce the quantity of pollutants discharged, when compared to historic levels, the DEM has determined that the permit is consistent with the State's antidegredation and antibacksliding requirements.

IV. **DEM Contact**

Additional information concerning the permit may be obtained between the hours of 8:30 a.m. and 4:00 p.m., Monday through Friday, excluding holidays, from:

Samuel Kaplan, P.E.
Engineer
RIPDES Program
Office of Water Resources
Department of Environmental Management
235 Promenade Street
Providence, Rhode Island 02908
Telephone: (401) 222-6820, ext: 7046

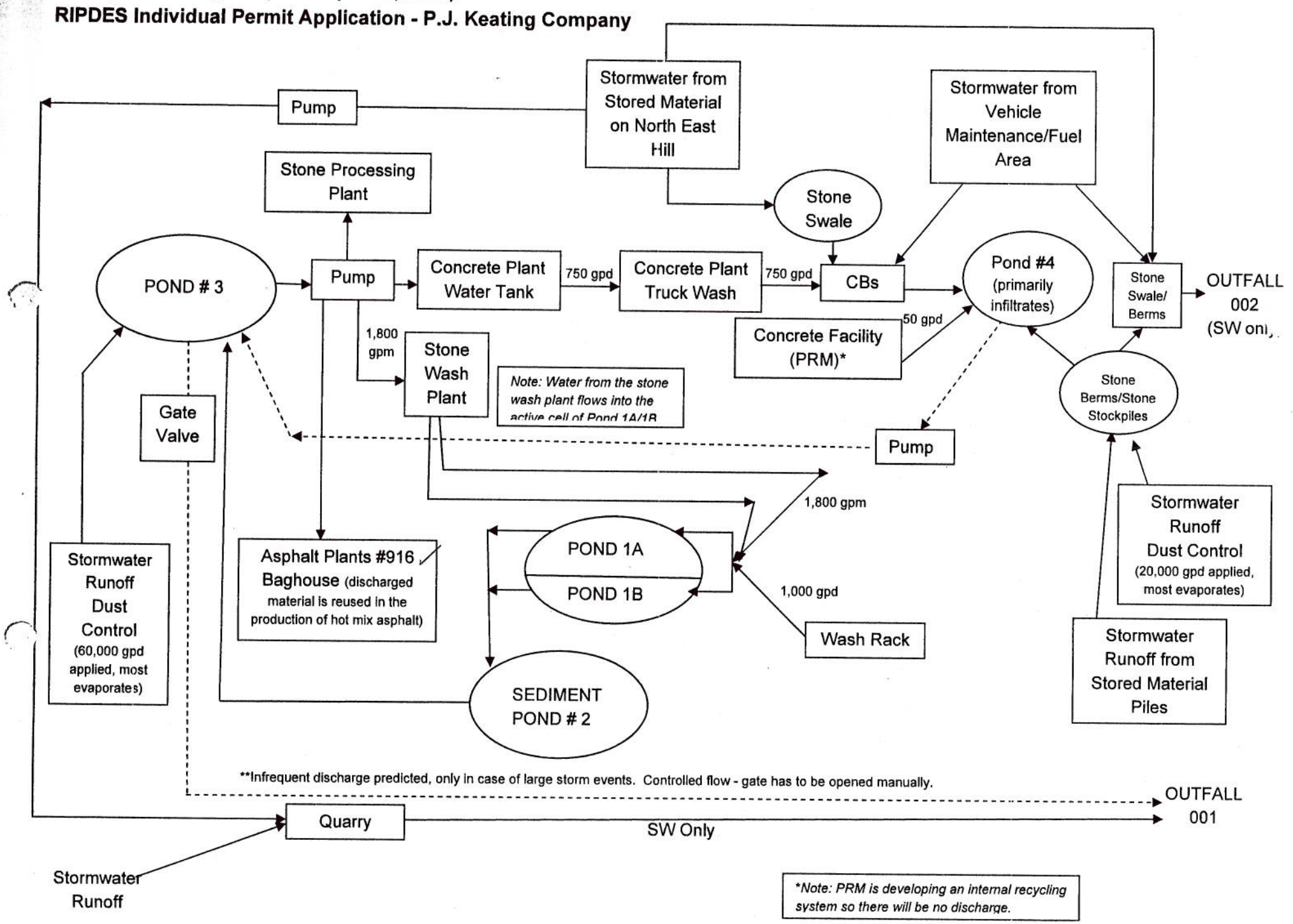
3/4/2009
Date

Eric A. Beck, P.E.
Supervising Sanitary Engineer
RIPDES Permitting Section
Office of Water Resources
Department of Environmental Management

Appendix A: Facility Process Diagram

See next page

Facility Flow Diagram (as of April 30, 2008)
RIPDES Individual Permit Application - P.J. Keating Company



Appendix B: Water Quality Calculations

See next page

CALCULATION OF WATER QUALITY BASED NON-CLASS AA FRESHWATER DISCHARGE LIMITS

FACILITY SPECIFIC DATA INPUT SHEET

NOTE: LIMITS BASED ON RI WATER QUALITY CRITERIA DATED JULY 2006

FACILITY NAME: **P. J. Keating**

RIPDES PERMIT #: **RI0023761**

	DISSOLVED BACKGROUND DATA (ug/L)	ACUTE METAL TRANSLATOR	CHRONIC METAL TRANSLATOR
ALUMINUM	**NA**	**NA**	**NA**
ARSENIC	**NA**	**1**	**1**
CADMIUM	**0.5**	**0.968110181**	**0.933110181**
CHROMIUM III	**NA**	**0.316**	**0.86**
CHROMIUM VI	**NA**	**0.982**	**0.962**
COPPER	**1.4**	**0.96**	**0.96**
LEAD	**0.5**	**0.874968482**	**0.874968482**
MERCURY	**0**	**0.85**	**0.85**
NICKEL	**NA**	**0.998**	**0.997**
SELENIUM	**NA**	**NA**	**NA**
SILVER	**NA**	**0.85**	**NA**
ZINC	**NA**	**0.978**	**0.986**
AMMONIA (as N)	**70**		

USE NA WHEN NO DATA IS AVAILABLE

NOTE 1: METAL TRANSLATORS FROM RI WATER QUALITY REGS.

pH =	**6.3** S.U.
HARDNESS =	**56.2** (mg/L as CaCO3)

FLOW DATA	
DESIGN FLOW =	**2.673** MGD
=	4.136 CFS
7Q10 FLOW =	**0.000** CFS
7Q10 (JUNE-OCT) =	**0.000** CFS
7Q10 (NOV-MAY) =	**0.000** CFS
30Q5 FLOW =	**0.070** CFS
HARMONIC FLOW =	**0.520** CFS

DILUTION FACTORS	
ACUTE =	**1.000**
CHRONIC =	**1.000**
(MAY-OCT) =	**1.000**
(NOV-APR) =	**1.000**
30Q5 FLOW =	**1.017**
HARMONIC FLOW =	**1.126**

CALCULATION OF WATER QUALITY BASED NON-CLASS AA FRESHWATER DISCHARGE LIMITS

FACILITY NAME: P. J. Keating RIPDES PERMIT #: RI0023761

Month	Upper 90th% pH	Acute Criteria* ug/L as N	Chronic Criteria* ug/L as N
May	**7.5**	**19.9**	**2.08**
Jun	**7.5**	**19.9**	**2.08**
Jul	**7.5**	**19.9**	**2.08**
Aug	**7.5**	**19.9**	**2.08**
Sep	**7.5**	**19.9**	**2.08**
Oct	**7.5**	**19.9**	**2.08**
Nov	**7.5**	**19.9**	**4.165**
Dec	**7.5**	**19.9**	**4.165**
Jan	**7.5**	**19.9**	**4.165**
Feb	**7.5**	**19.9**	**4.165**
Mar	**7.5**	**19.9**	**4.165**
Apr	**7.5**	**19.9**	**4.165**

**NOTE: Criteria from Appendix B of the RI Water Quality Regs., July 2006.*

CALCULATION OF WATER QUALITY BASED NON-CLASS AA FRESHWATER DISCHARGE LIMITS

FACILITY NAME: P. J. Keating RIPDES PERMIT #: RI0023761

NOTE: METALS CRITERIA ARE EXPRESSED AS DISSOLVED, METALS LIMITS ARE EXPRESSED AS TOTAL

CHEMICAL NAME	CAS #	BACKGROUND CONCENTRATION (ug/L)	FRESHWATER CRITERIA ACUTE (ug/L)	DAILY MAX LIMIT (ug/L)	FRESHWATER CRITERIA CHRONIC (ug/L)	HUMAN HEALTH NON-CLASS A CRITERIA (ug/L)	MONTHLY AVE LIMIT (ug/L)
PRIORITY POLLUTANTS:							
TOXIC METALS AND CYANIDE							
ANTIMONY	7440360		450	360	10	640	8
ARSENIC (limits are total recoverable)	7440382	NA	340	272	150	1.4	1.260811378
ASBESTOS	1332214			No Criteria			No Criteria
BERYLLIUM	7440417		7.5	6	0.17		0.136
CADMIUM (limits are total recoverable)	7440439	0.5	1.149569357	1.068692843	0.16476953		0.158922
CHROMIUM III (limits are total recoverable)	16065831	NA	355.4091846	899.7700877	46.23143297		43.00598416
CHROMIUM VI (limits are total recoverable)	18540299	NA	16	13.03462322	11		9.147609148
COPPER (limits are total recoverable)	7440508	1.4	7.808581911	7.320545541	5.473330919		5.131247737
CYANIDE	57125		22	17.6	5.2	140	4.16
LEAD (limits are total recoverable)	7439921	0.5	34.30337059	35.28473788	1.336753104		1.374995579
MERCURY (limits are total recoverable)	7439976	0	1.4	1.482352941	0.77	0.15	0.161511529
NICKEL (limits are total recoverable)	7440020	NA	287.5686383	230.5159425	31.93999759	4600	25.62888473
SELENIUM (limits are total recoverable)	7782492	NA	20	16	5	4200	4
SILVER (limits are total recoverable)	7440224	NA	1.280458084	1.205137021	NA		No Criteria
THALLIUM	7440280		46	36.8	1	0.47	0.382363591
ZINC (limits are total recoverable)	7440666	NA	71.91289243	58.82445188	72.50113695	26000	58.82445188
VOLATILE ORGANIC COMPOUNDS							
ACROLEIN	107028		2.9	2.32	0.06	290	0.048
ACRYLONITRILE	107131		378	302.4	8.4	2.5	2.251448889
BENZENE	71432		265	212	5.9	510	4.72
BROMOFORM	75252		1465	1172	33	1400	26.4
CARBON TETRACHLORIDE	56235		1365	1092	30	16	14.40927289
CHLOROBENZENE	108907		795	636	18	1600	14.4
CHLORODIBROMOMETHANE	124481			No Criteria		130	117.0753422
CHLOROFORM	67663		1445	1156	32	4700	25.6
DICHLOROBROMOMETHANE	75274			No Criteria		170	153.0985244
1,2DICHLOROETHANE	107062		5900	4720	131	370	104.8
1,1DICHLOROETHYLENE	75354		580	464	13	7100	10.4
1,2DICHLOROPROPANE	78875		2625	2100	58	150	46.4
1,3DICHLOROPROPYLENE	542756			No Criteria		21	17.08433067
ETHYLBENZENE	100414		1600	1280	36	2100	28.8
BROMOMETHANE (methyl bromide)	74839			No Criteria		1500	1220.309333
CHLOROMETHANE (methyl chloride)	74873			No Criteria			No Criteria
METHYLENE CHLORIDE	75092		9650	7720	214	5900	171.2

CALCULATION OF WATER QUALITY BASED NON-CLASS AA FRESHWATER DISCHARGE LIMITS

FACILITY NAME: P. J. Keating RIPDES PERMIT #: RI0023761

NOTE: METALS CRITERIA ARE EXPRESSED AS DISSOLVED, METALS LIMITS ARE EXPRESSED AS TOTAL

CHEMICAL NAME	CAS #	BACKGROUND CONCENTRATION (ug/L)	FRESHWATER CRITERIA ACUTE (ug/L)	DAILY MAX LIMIT (ug/L)	FRESHWATER CRITERIA CHRONIC (ug/L)	HUMAN HEALTH NON-CLASS A CRITERIA (ug/L)	MONTHLY AVE LIMIT (ug/L)
1,1,2,2TETRACHLOROETHANE	79345		466	372.8	10	40	8
TETRACHLOROETHYLENE	127184		240	192	5.3	33	4.24
TOLUENE	108883		635	508	14	15000	11.2
1,2TRANSDICHLOROETHYLENE	156605			No Criteria		10000	8135.395556
1,1,1TRICHLOROETHANE	71556			No Criteria			No Criteria
1,1,2TRICHLOROETHANE	79005		900	720	20	160	16
TRICHLOROETHYLENE	79016		1950	1560	43	300	34.4
VINYL CHLORIDE	75014			No Criteria		2.4	2.161390933
ACID ORGANIC COMPOUNDS							
2CHLOROPHENOL	95578		129	103.2	2.9	150	2.32
2,4DICHLOROPHENOL	120832		101	80.8	2.2	290	1.76
2,4DIMETHYLPHENOL	105679		106	84.8	2.4	850	1.92
4,6DINITRO2METHYL PHENOL	534521			No Criteria		280	227.7910756
2,4DINITROPHENOL	51285		31	24.8	0.69	5300	0.552
4NITROPHENOL	88755			No Criteria			No Criteria
PENTACHLOROPHENOL	87865		0.048915858	0.039132686	0.037528537	30	0.03002283
PHENOL	108952		251	200.8	5.6	1700000	4.48
2,4,6TRICHLOROPHENOL	88062		16	12.8	0.36	24	0.288
BASE NEUTRAL COMPUNDS							
ACENAPHTHENE	83329		85	68	1.9	990	1.52
ANTHRACENE	120127			No Criteria		40000	32541.58222
BENZIDINE	92875			No Criteria		0.002	0.001801159
POLYCYCLIC AROMATIC HYDROCARBONS				No Criteria		0.18	0.162104
BIS(2CHLOROETHYL)ETHER	111444			No Criteria		5.3	4.773071644
BIS(2CHLOROISOPROPYL)ETHER	108601			No Criteria		65000	52880.07111
BIS(2ETHYLHEXYL)PHTHALATE	117817		555	444	12	22	9.6
BUTYL BENZYL PHTHALATE	85687		85	68	1.9	1900	1.52
2CHLORONAPHTHALENE	91587			No Criteria		1600	1301.663289
1,2DICHLOROBENZENE	95501		79	63.2	1.8	1300	1.44
1,3DICHLOROBENZENE	541731		390	312	8.7	960	6.96
1,4DICHLOROBENZENE	106467		56	44.8	1.2	190	0.96
3,3DICHLOROBENZIDENE	91941			No Criteria		0.28	0.252162276
DIETHYL PHTHALATE	84662		2605	2084	58	44000	46.4
DIMETHYL PHTHALATE	131113		1650	1320	37	1100000	29.6
DI-n-BUTYL PHTHALATE	84742			No Criteria		4500	3660.928
2,4DINITROTOLUENE	121142		1550	1240	34	34	27.2

CALCULATION OF WATER QUALITY BASED NON-CLASS AA FRESHWATER DISCHARGE LIMITS

FACILITY NAME: P. J. Keating RIPDES PERMIT #: RI0023761

NOTE: METALS CRITERIA ARE EXPRESSED AS DISSOLVED, METALS LIMITS ARE EXPRESSED AS TOTAL

CHEMICAL NAME	CAS #	BACKGROUND CONCENTRATION (ug/L)	FRESHWATER CRITERIA ACUTE (ug/L)	DAILY MAX LIMIT (ug/L)	FRESHWATER CRITERIA CHRONIC (ug/L)	HUMAN HEALTH NON-CLASS A CRITERIA (ug/L)	MONTHLY AVE LIMIT (ug/L)
1,2DIPHENYLHYDRAZINE	122667		14	11.2	0.31	2	0.248
FLUORANTHENE	206440		199	159.2	4.4	140	3.52
FLUORENE	86737			No Criteria		5300	4311.759644
HEXACHLOROBENZENE	118741			No Criteria		0.0029	0.002611681
HEXACHLOROBUTADIENE	87683			No Criteria		180	162.10432
HEXACHLOROCYCLOPENTADIENE	77474		0.35	0.28	0.008	1100	0.0064
HEXACHLOROETHANE	67721		49	39.2	1.1	33	0.88
ISOPHORONE	78591		5850	4680	130	9600	104
NAPHTHALENE	91203		115	92	2.6		2.08
NITROBENZENE	98953		1350	1080	30	690	24
N-NITROSODIMETHYLAMINE	62759			No Criteria		30	27.01738667
N-NITROSODI-N-PROPYLAMINE	621647			No Criteria		5.1	4.592955733
N-NITROSODIPHENYLAMINE	86306		293	234.4	6.5	60	5.2
PYRENE	129000			No Criteria		4000	3254.158222
1,2,4trichlorobenzene	120821		75	60	1.7	70	1.36
PESTICIDES/PCBs							
ALDRIN	309002		3	2.4		0.0005	0.00045029
Alpha BHC	319846			No Criteria		0.049	0.044128398
Beta BHC	319857			No Criteria		0.17	0.153098524
Gamma BHC (Lindane)	58899		0.95	0.76		1.8	1.6210432
CHLORDANE	57749		2.4	1.92	0.0043	0.0081	0.00344
4,4DDT	50293		1.1	0.88	0.001	0.0022	0.0008
4,4DDE	72559			No Criteria		0.0022	0.001981
4,4DDD	72548			No Criteria		0.0031	0.002791797
DIELDRIN	60571		0.24	0.192	0.056	0.00054	0.000486313
ENDOSULFAN (alpha)	959988		0.22	0.176	0.056	89	0.0448
ENDOSULFAN (beta)	33213659		0.22	0.176	0.056	89	0.0448
ENDOSULFAN (sulfate)	1031078			No Criteria		89	72.40502044
ENDRIN	72208		0.086	0.0688	0.036	0.06	0.0288
ENDRIN ALDEHYDE	7421934			No Criteria		0.3	0.244061867
HEPTACHLOR	76448		0.52	0.416	0.0038	0.00079	0.000711458
HEPTACHLOR EPOXIDE	1024573		0.52	0.416	0.0038	0.00039	0.000351226
POLYCHLORINATED BIPHENYLS3	1336363			No Criteria	0.014	0.00064	0.000576371
2,3,7,8TCDD (Dioxin)	1746016			No Criteria		0.000000051	4.59296E-08
TOXAPHENE	8001352		0.73	0.584	0.0002	0.0028	0.00016
TRIBUTYLTIN			0.46	0.368	0.072		0.0576

CALCULATION OF WATER QUALITY BASED NON-CLASS AA FRESHWATER DISCHARGE LIMITS

FACILITY NAME: P. J. Keating RIPDES PERMIT #: RI0023761

NOTE: METALS CRITERIA ARE EXPRESSED AS DISSOLVED, METALS LIMITS ARE EXPRESSED AS TOTAL

CHEMICAL NAME	CAS #	BACKGROUND CONCENTRATION (ug/L)	FRESHWATER CRITERIA ACUTE (ug/L)	DAILY MAX LIMIT (ug/L)	FRESHWATER CRITERIA CHRONIC (ug/L)	HUMAN HEALTH NON-CLASS A CRITERIA (ug/L)	MONTHLY AVE LIMIT (ug/L)
NON PRIORITY POLLUTANTS:							
OTHER SUBSTANCES							
ALUMINUM (limits are total recoverable)	7429905	NA	750	600	87		69.6
AMMONIA as N(winter/summer)	7664417		19.9 | 19.9	17910 | 17910	4.165 | 2.08		3748.5 | 1872
4BROMOPHENYL PHENYL ETHER			18	14.4	0.4		0.32
CHLORIDE	16887006		860000	688000	230000		
CHLORINE	7782505		19	19	11		11
4CHLORO2METHYLPHENOL			15	12	0.32		0.256
1CHLORONAPHTHALENE			80	64	1.8		1.44
4CHLOROPHENOL	106489		192	153.6	4.3		3.44
2,4DICHLORO6METHYLPHENOL			22	17.6	0.48		0.384
1,1DICHLOROPROPANE			1150	920	26		20.8
1,3DICHLOROPROPANE	142289		303	242.4	6.7		5.36
2,3DINITROTOLUENE			17	13.6	0.37		0.296
2,4DINITRO6METHYL PHENOL			12	9.6	0.26		0.208
IRON	7439896			No Criteria	1000		
pentachlorobenzene	608935		13	10.4	0.28		0.224
PENTACHLOROETHANE			362	289.6	8		6.4
1,2,3,5tetrachlorobenzene			321	256.8	7.1		5.68
1,1,1,2TETRACHLOROETHANE	630206		980	784	22		17.6
2,3,4,6TETRACHLOROPHENOL	58902		7	5.6	0.16		0.128
2,3,5,6TETRACHLOROPHENOL			8.5	6.8	0.19		0.152
2,4,5TRICHLOROPHENOL	95954		23	18.4	0.51		0.408
2,4,6TRINITROPHENOL	88062		4235	3388	94		75.2
XYLENE	1330207		133	106.4	3		

CALCULATION OF WATER QUALITY BASED NON-CLASS AA FRESHWATER DISCHARGE LIMITS

FACILITY NAME: TEST WWTF RIPDES PERMIT #: RI8675309

CHEMICAL NAME	CAS#	DAILY MAX LIMIT (ug/L)	MONTHLY AVE LIMIT (ug/L)
PRIORITY POLLUTANTS:			
TOXIC METALS AND CYANIDE			
ANTIMONY	7440360	360.00	8.00
ARSENIC, TOTAL	7440382	272.00	1.26
ASBESTOS	1332214	No Criteria	0.00
BERYLLIUM	7440417	6.00	0.14
CADMIUM, TOTAL	7440439	1.07	0.16
CHROMIUM III, TOTAL	16065831	899.77	43.01
CHROMIUM VI, TOTAL	18540299	13.03	9.15
COPPER, TOTAL	7440508	7.32	5.13
CYANIDE	57125	17.60	4.16
LEAD, TOTAL	7439921	35.28	1.37
MERCURY, TOTAL	7439976	1.48	0.16
NICKEL, TOTAL	7440020	230.52	25.63
SELENIUM, TOTAL	7782492	16.00	4.00
SILVER, TOTAL	7440224	1.21	1.21
THALLIUM	7440280	36.80	0.38
ZINC, TOTAL	7440666	58.82	58.82
VOLATILE ORGANIC COMPOUNDS			
ACROLEIN	107028	2.32	0.05
ACRYLONITRILE	107131	302.40	2.25
BENZENE	71432	212.00	4.72
BROMOFORM	75252	1172.00	26.40
CARBON TETRACHLORIDE	56235	1092.00	14.41
CHLOROBENZENE	108907	636.00	14.40
CHLORODIBROMOMETHANE	124481	No Criteria	117.08
CHLOROFORM	67663	1156.00	25.60
DICHLOROBROMOMETHANE	75274	No Criteria	153.10
1,2DICHLOROETHANE	107062	4720.00	104.80
1,1DICHLOROETHYLENE	75354	464.00	10.40
1,2DICHLOROPROPANE	78875	2100.00	46.40
1,3DICHLOROPROPYLENE	542756	No Criteria	17.08
ETHYLBENZENE	100414	1280.00	28.80
BROMOMETHANE (methyl bromide)	74839	No Criteria	1220.31
CHLOROMETHANE (methyl chloride)	74873	No Criteria	0.00
METHYLENE CHLORIDE	75092	7720.00	171.20
1,1,2,2TETRACHLOROETHANE	79345	372.80	8.00
TETRACHLOROETHYLENE	127184	192.00	4.24
TOLUENE	108883	508.00	11.20
1,2TRANSDICHLOROETHYLENE	156605	No Criteria	8135.40
1,1,1TRICHLOROETHANE	71556	No Criteria	0.00
1,1,2TRICHLOROETHANE	79005	720.00	16.00
TRICHLOROETHYLENE	79016	1560.00	34.40
VINYL CHLORIDE	75014	No Criteria	2.16
ACID ORGANIC COMPOUNDS			
2CHLOROPHENOL	95578	103.20	2.32
2,4DICHLOROPHENOL	120832	80.80	1.76
2,4DIMETHYLPHENOL	105679	84.80	1.92
4,6DINITRO2METHYL PHENOL	534521	No Criteria	227.79
2,4DINITROPHENOL	51285	24.80	0.55
4NITROPHENOL	88755	No Criteria	0.00
PENTACHLOROPHENOL	87865	0.04	0.03
PHENOL	108952	200.80	4.48
2,4,6TRICHLOROPHENOL	88062	12.80	0.29
BASE NEUTRAL COMPUNDS			
ACENAPHTHENE	83329	68.00	1.52
ANTHRACENE	120127	No Criteria	32541.58
BENZIDINE	92875	No Criteria	0.00
PAHs		No Criteria	0.16
BIS(2CHLOROETHYL)ETHER	111444	No Criteria	4.77
BIS(2CHLOROISOPROPYL)ETHER	108601	No Criteria	52880.07
BIS(2ETHYLHEXYL)PHTHALATE	117817	444.00	9.60
BUTYL BENZYL PHTHALATE	85687	68.00	1.52
2CHLORONAPHTHALENE	91587	No Criteria	1301.66
1,2DICHLOROBENZENE	95501	63.20	1.44
1,3DICHLOROBENZENE	541731	312.00	6.96
1,4DICHLOROBENZENE	106467	44.80	0.96
3,3DICHLOROBENZIDENE	91941	No Criteria	0.25
DIETHYL PHTHALATE	84662	2084.00	46.40
DIMETHYL PHTHALATE	131113	1320.00	29.60
DI-n-BUTYL PHTHALATE	84742	No Criteria	3660.93
2,4DINITROTOLUENE	121142	1240.00	27.20
1,2DIPHENYLHYDRAZINE	122667	11.20	0.25
FLUORANTHENE	206440	159.20	3.52

CALCULATION OF WATER QUALITY BASED NON-CLASS AA FRESHWATER DISCHARGE LIMITS

FACILITY NAME: TEST WWTF RIPDES PERMIT #: RI8675309

CHEMICAL NAME	CAS#	DAILY MAX LIMIT (ug/L)	MONTHLY AVE LIMIT (ug/L)
FLUORENE	86737	No Criteria	4311.76
HEXACHLOROBENZENE	118741	No Criteria	0.00
HEXACHLOROBUTADIENE	87683	No Criteria	162.10
HEXACHLOROCYCLOPENTADIENE	77474	0.28	0.01
HEXACHLOROETHANE	67721	39.20	0.88
ISOPHORONE	78591	4680.00	104.00
NAPHTHALENE	91203	92.00	2.08
NITROBENZENE	98953	1080.00	24.00
N-NITROSODIMETHYLAMINE	62759	No Criteria	27.02
N-NITROSODI-N-PROPYLAMINE	621647	No Criteria	4.59
N-NITROSODIPHENYLAMINE	86306	234.40	5.20
PYRENE	129000	No Criteria	3254.16
1,2,4trichlorobenzene	120821	60.00	1.36
PESTICIDES/PCBs			
ALDRIN	309002	2.40	0.00
Alpha BHC	319846	No Criteria	0.04
Beta BHC	319857	No Criteria	0.15
Gamma BHC (Lindane)	58899	0.76	0.76
CHLORDANE	57749	1.92	0.00
4,4DDT	50293	0.88	0.00
4,4DDE	72559	No Criteria	0.00
4,4DDD	72548	No Criteria	0.00
DIELDRIN	60571	0.19	0.00
ENDOSULFAN (alpha)	959988	0.18	0.04
ENDOSULFAN (beta)	33213659	0.18	0.04
ENDOSULFAN (sulfate)	1031078	No Criteria	72.41
ENDRIN	72208	0.07	0.03
ENDRIN ALDEHYDE	7421934	No Criteria	0.24
HEPTACHLOR	76448	0.42	0.00
HEPTACHLOR EPOXIDE	1024573	0.42	0.00
POLYCHLORINATED BIPHENYLS3	1336363	No Criteria	0.00
2,3,7,8TCDD (Dioxin)	1746016	No Criteria	0.00
TOXAPHENE	8001352	0.58	0.00
TRIBUTYLTIN		0.37	0.06

CHEMICAL NAME	CAS#	DAILY MAX LIMIT (ug/L)	MONTHLY AVE LIMIT (ug/L)
NON PRIORITY POLLUTANTS:			
OTHER SUBSTANCES			
ALUMINUM, TOTAL	7429905	600.00	69.60
AMMONIA (as N), WINTER (NOV-AP	7664417	17910.00	3748.50
AMMONIA (as N), SUMMER (MAY-O	7664417	17910.00	1872.00
4BROMOPHENYL PHENYL ETHER		14.40	0.32
CHLORIDE	16887006	688000.00	688000.00
CHLORINE	7782505	19.00	11.00
4CHLORO2METHYLPHENOL		12.00	0.26
1CHLORONAPHTHALENE		64.00	1.44
4CHLOROPHENOL	106489	153.60	3.44
2,4DICHLORO6METHYLPHENOL		17.60	0.38
1,1DICHLOROPROPANE		920.00	20.80
1,3DICHLOROPROPANE	142289	242.40	5.36
2,3DINITROTOLUENE		13.60	0.30
2,4DINITRO6METHYL PHENOL		9.60	0.21
IRON	7439896	No Criteria	0.00
pentachlorobenzene	608935	10.40	0.22
PENTACHLOROETHANE		289.60	6.40
1,2,3,5tetrachlorobenzene		256.80	5.68
1,1,1,2TETRACHLOROETHANE	630206	784.00	17.60
2,3,4,6TETRACHLOROPHENOL	58902	5.60	0.13
2,3,5,6TETRACHLOROPHENOL		6.80	0.15
2,4,5TRICHLOROPHENOL	95954	18.40	0.41
2,4,6TRINITROPHENOL	88062	3388.00	75.20
XYLENE	1330207	106.40	106.40

Facility Name: *PJ Keating Co.*

RIPDES Permit #: *RI0023761*

Outfall #: *001 and 002*

NOTE: METALS LIMITS ARE TOTAL METALS

Parameter	CAS #	Concentration Limits (ug/L) Based on WQ Criteria		Permit Application Data		Parameter	Potential Permit Limits (ug/L)		Reasonable Potential?
		Daily Max	Monthly Ave	Daily Max	Monthly Ave		Daily Max	Monthly Ave	Y/N
PRIORITY POLLUTANTS						PRIORITY POLLUTANTS			N
TOXIC METALS AND CYANIDE						TOXIC METALS AND CYANIDE			N
ANTIMONY	7440360	360.00	8.00	---	---	ANTIMONY	360	8	N
ARSENIC (limits are total recoverable)	7440382	272.00	1.26	---	---	ARSENIC (limits are total recoverable)	272	1.260811378	N
ASBESTOS	1332214	No Criteria	0.00	---	---	ASBESTOS	---	0	
BERYLLIUM	7440417	6.00	0.14	---	---	BERYLLIUM	6	0.136	
CADMIUM (limits are total recoverable)	7440439	1.07	0.16	---	---	CADMIUM (limits are total recoverable)	1.068692843	0.158922902	N
CHROMIUM III (limits are total recoverable)	16065831	899.77	43.01	---	---	CHROMIUM III (limits are total recoverable)	899.7700877	43.00598416	N
CHROMIUM VI (limits are total recoverable)	18540299	13.03	9.15	---	---	CHROMIUM VI (limits are total recoverable)	13.03462322	9.147609148	N
COPPER (limits are total recoverable)	7440508	7.32	5.13	---	---	COPPER (limits are total recoverable)	7.320545541	5.131247737	N
CYANIDE	57125	17.60	4.16	---	---	CYANIDE	17.6	4.16	N
LEAD (limits are total recoverable)	7439921	35.28	1.37	---	---	LEAD (limits are total recoverable)	35.28473788	1.374995579	N
MERCURY (limits are total recoverable)	7439976	1.48	0.16	---	---	MERCURY (limits are total recoverable)	1.482352941	0.161511529	N
NICKEL (limits are total recoverable)	7440020	230.52	25.63	---	---	NICKEL (limits are total recoverable)	230.5159425	25.62888473	N
SELENIUM (limits are total recoverable)	7782492	16.00	4.00	---	---	SELENIUM (limits are total recoverable)	16	4	N
SILVER (limits are total recoverable)	7440224	1.21	1.21	---	---	SILVER (limits are total recoverable)	1.205137021	1.205137021	N
THALLIUM	7440280	36.80	0.38	---	---	THALLIUM	36.8	0.382363591	N
ZINC (limits are total recoverable)	7440666	58.82	58.82	---	---	ZINC (limits are total recoverable)	58.82445188	58.82445188	N
VOLATILE ORGANIC COMPOUNDS						VOLATILE ORGANIC COMPOUNDS			N
ACROLEIN	107028	2.32	0.05	---	---	ACROLEIN	2.32	0.048	N
ACRYLONITRILE	107131	302.40	2.25	---	---	ACRYLONITRILE	302.4	2.251448889	
BENZENE	71432	212.00	4.72	---	---	BENZENE	212	4.72	
BROMOFORM	75252	1172.00	26.40	---	---	BROMOFORM	1172	26.4	N
CARBON TETRACHLORIDE	56235	1092.00	14.41	---	---	CARBON TETRACHLORIDE	1092	14.40927289	N
CHLOROBENZENE	108907	636.00	14.40	---	---	CHLOROBENZENE	636	14.4	N
CHLORODIBROMOMETHANE	124481	No Criteria	117.08	---	---	CHLORODIBROMOMETHANE	---	117.0753422	N
CHLOROFORM	67663	1156.00	25.60	---	---	CHLOROFORM	1156	25.6	N
DICHLOROBROMOMETHANE	75274	No Criteria	153.10	---	---	DICHLOROBROMOMETHANE	---	153.0985244	N
1,2DICHLOROETHANE	107062	4720.00	104.80	---	---	1,2DICHLOROETHANE	4720	104.8	N
1,1DICHLOROETHYLENE	75354	464.00	10.40	---	---	1,1DICHLOROETHYLENE	464	10.4	N
1,2DICHLOROPROPANE	78875	2100.00	46.40	---	---	1,2DICHLOROPROPANE	2100	46.4	N
1,3DICHLOROPROPYLENE	542756	No Criteria	17.08	---	---	1,3DICHLOROPROPYLENE	---	17.08433067	N
ETHYLBENZENE	100414	1280.00	28.80	---	---	ETHYLBENZENE	1280	28.8	N
BROMOMETHANE (methyl bromide)	74839	No Criteria	1220.31	---	---	BROMOMETHANE (methyl bromide)	---	1220.309333	N

CHLOROMETHANE (methyl chloride)	74873	No Criteria	0.00	---	---	CHLOROMETHANE (methyl chloride)	---	0	N
METHYLENE CHLORIDE	75092	7720.00	171.20	---	---	METHYLENE CHLORIDE	7720	171.2	N
1,1,2,2TETRACHLOROETHANE	79345	372.80	8.00	---	---	1,1,2,2TETRACHLOROETHANE	372.8	8	N
TETRACHLOROETHYLENE	127184	192.00	4.24	---	---	TETRACHLOROETHYLENE	192	4.24	N
TOLUENE	108883	508.00	11.20	---	---	TOLUENE	508	11.2	N
1,2TRANSDICHLOROETHYLENE	156605	No Criteria	8135.40	---	---	1,2TRANSDICHLOROETHYLENE	---	8135.395556	N
1,1,1TRICHLOROETHANE	71556	No Criteria	0.00	---	---	1,1,1TRICHLOROETHANE	---	0	N
1,1,2TRICHLOROETHANE	79005	720.00	16.00	---	---	1,1,2TRICHLOROETHANE	720	16	N
TRICHLOROETHYLENE	79016	1560.00	34.40	---	---	TRICHLOROETHYLENE	1560	34.4	N
VINYL CHLORIDE	75014	No Criteria	2.16	---	---	VINYL CHLORIDE	---	2.161390933	N
ACID ORGANIC COMPOUNDS						ACID ORGANIC COMPOUNDS			N
2CHLOROPHENOL	95578	103.20	2.32	---	---	2CHLOROPHENOL	103.2	2.32	N
2,4DICHLOROPHENOL	120832	80.80	1.76	---	---	2,4DICHLOROPHENOL	80.8	1.76	N
2,4DIMETHYLPHENOL	105679	84.80	1.92	---	---	2,4DIMETHYLPHENOL	84.8	1.92	
4,6DINITRO2METHYL PHENOL	534521	No Criteria	227.79	---	---	4,6DINITRO2METHYL PHENOL	---	227.7910756	.
2,4DINITROPHENOL	51285	24.80	0.55	---	---	2,4DINITROPHENOL	24.8	0.552	N
4NITROPHENOL	88755	No Criteria	0.00	---	---	4NITROPHENOL	---	0	N
PENTACHLOROPHENOL	87865	0.04	0.03	---	---	PENTACHLOROPHENOL	0.039132686	0.03002283	N
PHENOL	108952	200.80	4.48	---	---	PHENOL	200.8	4.48	N
2,4,6TRICHLOROPHENOL	88062	12.80	0.29	---	---	2,4,6TRICHLOROPHENOL	12.8	0.288	N
BASE NEUTRAL COMPOUNDS						BASE NEUTRAL COMPOUNDS			N
ACENAPHTHENE	83329	68.00	1.52	---	---	ACENAPHTHENE	68	1.52	N
ANTHRACENE	120127	No Criteria	32541.58	---	---	ANTHRACENE	---	32541.58222	N
BENZIDINE	92875	No Criteria	0.00	---	---	BENZIDINE	---	0.001801159	N
POLYCYCLIC AROMATIC HYDROCARBONS		No Criteria	0.16	---	---	POLYCYCLIC AROMATIC HYDROCARBON	---	0.16210432	N
BIS(2CHLOROETHYL)ETHER	111444	No Criteria	4.77	---	---	BIS(2CHLOROETHYL)ETHER	---	4.773071644	N
BIS(2CHLOROISOPROPYL)ETHER	108601	No Criteria	52880.07	---	---	BIS(2CHLOROISOPROPYL)ETHER	---	52880.07111	N
BIS(2ETHYLHEXYL)PHTHALATE	117817	444.00	9.60	---	---	BIS(2ETHYLHEXYL)PHTHALATE	444	9.6	N
BUTYL BENZYL PHTHALATE	85687	68.00	1.52	---	---	BUTYL BENZYL PHTHALATE	68	1.52	N
2CHLORONAPHTHALENE	91587	No Criteria	1301.66	---	---	2CHLORONAPHTHALENE	---	1301.663289	
1,2DICHLOROBENZENE	95501	63.20	1.44	---	---	1,2DICHLOROBENZENE	63.2	1.44	
1,3DICHLOROBENZENE	541731	312.00	6.96	---	---	1,3DICHLOROBENZENE	312	6.96	N
1,4DICHLOROBENZENE	106467	44.80	0.96	---	---	1,4DICHLOROBENZENE	44.8	0.96	N
3,3DICHLOROBENZIDENE	91941	No Criteria	0.25	---	---	3,3DICHLOROBENZIDENE	---	0.252162276	N
DIETHYL PHTHALATE	84662	2084.00	46.40	---	---	DIETHYL PHTHALATE	2084	46.4	N
DIMETHYL PHTHALATE	131113	1320.00	29.60	---	---	DIMETHYL PHTHALATE	1320	29.6	N
DInBUTYL PHTHALATE	84742	No Criteria	3660.93	---	---	DInBUTYL PHTHALATE	---	3660.928	N
2,4DINITROTOLUENE	121142	1240.00	27.20	---	---	2,4DINITROTOLUENE	1240	27.2	N
1,2DIPHENYLHYDRAZINE	122667	11.20	0.25	---	---	1,2DIPHENYLHYDRAZINE	11.2	0.248	N
FLUORANTHENE	206440	159.20	3.52	---	---	FLUORANTHENE	159.2	3.52	N
FLUORENE	86737	No Criteria	4311.76	---	---	FLUORENE	---	4311.759644	N
HEXACHLOROBENZENE	118741	No Criteria	0.00	---	---	HEXACHLOROBENZENE	---	0.002611681	N
HEXACHLOROBUTADIENE	87683	No Criteria	162.10	---	---	HEXACHLOROBUTADIENE	---	162.10432	N

HEXACHLOROCYCLOPENTADIENE	77474	0.28	0.01	---	---	HEXACHLOROCYCLOPENTADIENE	0.28	0.0064	N
HEXACHLOROETHANE	67721	39.20	0.88	---	---	HEXACHLOROETHANE	39.2	0.88	N
ISOPHORONE	78591	4680.00	104.00	---	---	ISOPHORONE	4680	104	N
NAPHTHALENE	91203	92.00	2.08	---	---	NAPHTHALENE	92	2.08	N
NITROBENZENE	98953	1080.00	24.00	---	---	NITROBENZENE	1080	24	N
NNITROSODIMETHYLAMINE	62759	No Criteria	27.02	---	---	NNITROSODIMETHYLAMINE	---	27.01738667	N
NNITROSODINPROPYLAMINE	621647	No Criteria	4.59	---	---	NNITROSODINPROPYLAMINE	---	4.592955733	N
NNITROSODIPHENYLAMINE	86306	234.40	5.20	---	---	NNITROSODIPHENYLAMINE	234.4	5.2	N
PYRENE	129000	No Criteria	3254.16	---	---	PYRENE	---	3254.158222	N
1,2,4trichlorobenzene	120821	60.00	1.36	---	---	1,2,4trichlorobenzene	60	1.36	N
PESTICIDES/PCBs		0.00				PESTICIDES/PCBs			N
ALDRIN	309002	2.40	0.00	---	---	ALDRIN	2.4	0.00045029	N
Alpha BHC	319846	No Criteria	0.04	---	---	Alpha BHC	---	0.044128398	N
Beta BHC	319857	No Criteria	0.15	---	---	Beta BHC	---	0.153098524	
Gamma BHC (Lindane)	58899	0.76	0.76	---	---	Gamma BHC (Lindane)	0.76	0.76	
CHLORDANE	57749	1.92	0.00	---	---	CHLORDANE	1.92	0.00344	N
4,4DDT	50293	0.88	0.00	---	---	4,4DDT	0.88	0.0008	N
4,4DDE	72559	No Criteria	0.00	---	---	4,4DDE	---	0.001981275	N
4,4DDD	72548	No Criteria	0.00	---	---	4,4DDD	---	0.002791797	N
DIELDRIN	60571	0.19	0.00	---	---	DIELDRIN	0.192	0.000486313	N
ENDOSULFAN (alpha)	959988	0.18	0.04	---	---	ENDOSULFAN (alpha)	0.176	0.0448	N
ENDOSULFAN (beta)	33213659	0.18	0.04	---	---	ENDOSULFAN (beta)	0.176	0.0448	N
ENDOSULFAN (sulfate)	1031078	No Criteria	72.41	---	---	ENDOSULFAN (sulfate)	---	72.40502044	N
ENDRIN	72208	0.07	0.03	---	---	ENDRIN	0.0688	0.0288	N
ENDRIN ALDEHYDE	7421934	No Criteria	0.24	---	---	ENDRIN ALDEHYDE	---	0.244061867	N
HEPTACHLOR	76448	0.42	0.00	---	---	HEPTACHLOR	0.416	0.000711458	N
HEPTACHLOR EPOXIDE	1024573	0.42	0.00	---	---	HEPTACHLOR EPOXIDE	0.416	0.000351226	N
POLYCHLORINATED BIPHENYLS3	1336363	No Criteria	0.00	---	---	POLYCHLORINATED BIPHENYLS3	---	0.000576371	N
2,3,7,8TCDD (Dioxin)	1746016	No Criteria	0.00	---	---	2,3,7,8TCDD (Dioxin)	---	4.59296E-08	N
TOXAPHENE	8001352	0.58	0.00	---	---	TOXAPHENE	0.584	0.00016	
TRIBUTYLTIN		0.37	0.06			TRIBUTYLTIN	0.368	0.0576	
NON PRIORITY POLLUTANTS:						NON PRIORITY POLLUTANTS:			N
OTHER SUBSTANCES						OTHER SUBSTANCES			N
ALUMINUM (limits are total recoverable)	7429905	600.00	69.60	---	---	ALUMINUM (limits are total recoverable)	600	69.6	N
AMMONIA (winter)	7664417	17910.00	3748.50	564	---	AMMONIA (winter)	17910	3748.5	N
AMMONIA (summer)		17910.00	1872.00	564	---	AMMONIA (summer)	17910	1872	N
4BROMOPHENYL PHENYL ETHER	16887006	14.40	0.32	---	---	4BROMOPHENYL PHENYL ETHER	14.4	0.32	N
CHLORIDE	7782505	688000.00	688000.00			CHLORIDE	688000	688000	N
CHLORINE		19.00	11.00	---	---	CHLORINE	19	11	N
4CHLORO2METHYLPHENOL		12.00	0.26	---	---	4CHLORO2METHYLPHENOL	12	0.256	N
1CHLORONAPHTHALENE	106489	64.00	1.44	---	---	1CHLORONAPHTHALENE	64	1.44	N
4CHLOROPHENOL		153.60	3.44	---	---	4CHLOROPHENOL	153.6	3.44	N
2,4DICHLORO6METHYLPHENOL		17.60	0.38	---	---	2,4DICHLORO6METHYLPHENOL	17.6	0.384	N

1,1DICHLOROPROPANE	142289	920.00	20.80	---	---	1,1DICHLOROPROPANE	920	20.8	N
1,3DICHLOROPROPANE		242.40	5.36	---	---	1,3DICHLOROPROPANE	242.4	5.36	N
2,3DINITROTOLUENE		13.60	0.30	---	---	2,3DINITROTOLUENE	13.6	0.296	N
2,4DINITRO6METHYL PHENOL	7439896	9.60	0.21	---	---	2,4DINITRO6METHYL PHENOL	9.6	0.208	N
IRON	608935	No Criteria	0.00			IRON	---	0	N
pentachlorobenzene		10.40	0.22	---	---	pentachlorobenzene	10.4	0.224	N
PENTACHLOROETHANE		289.60	6.40	---	---	PENTACHLOROETHANE	289.6	6.4	N
1,2,3,5tetrachlorobenzene	630206	256.80	5.68	---	---	1,2,3,5tetrachlorobenzene	256.8	5.68	N
1,1,1,2TETRACHLOROETHANE	58902	784.00	17.60	---	---	1,1,1,2TETRACHLOROETHANE	784	17.6	N
2,3,4,6TETRACHLOROPHENOL		5.60	0.13	---	---	2,3,4,6TETRACHLOROPHENOL	5.6	0.128	N
2,3,5,6TETRACHLOROPHENOL	95954	6.80	0.15	---	---	2,3,5,6TETRACHLOROPHENOL	6.8	0.152	N
2,4,5TRICHLOROPHENOL	88062	18.40	0.41	---	---	2,4,5TRICHLOROPHENOL	18.4	0.408	N
2,4,6TRINITROPHENOL	1330207	3388.00	75.20	---	---	2,4,6TRINITROPHENOL	3388	75.2	N
XYLENE		106.40	106.40			XYLENE	106.4	106.4	