



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

January 31, 2009

In Reply Refer To: WTR-7

Boris Boguslavsky, President
Dolphin Engineering
1842 East 41st Place
Los Angeles, California 90058

Re: September 10, 2008 Clean Water Act Inspection

Dear Mr. Boguslavsky:

Enclosed is the January 31, 2009 report for our September 10, 2008 inspection of Dolphin Engineering. Please submit a short response to the findings in Sections 2 through 5, to EPA, City of Los Angeles, and the Regional Water Quality Control Board, by **March 28, 2009**.

The main findings are summarized below:

- 1 Dolphin Engineering qualifies as a new source metal finisher under 40 CFR 433. The City of Los Angeles permit correctly applies standards and limits.
- 2 EPA cannot conclude that Dolphin Engineering is configured to consistently comply with permit limits. On-site treatment is not equivalent to the models used in setting the Federal standards. Instead the facility relies on source controls and the running of rinses irrespective of parts processing. Operator error resulted in a few significant violations of both the Federal standards and local limits. Built-in improvements now include the reclaim of most rinses, and satellite pH metering and shunts. Further improvements might involve a discharge surge tank and retrofitting to on-demand rinsing.
- 3 The monthly self-monitoring is representative over the sampling day and reporting period. Monitoring frequencies for some permit limited pollutants could be reduced.

I appreciate your helpfulness extended to me during this inspection. I remain available to the City of Los Angeles, and to you to assist in any way. Please do not hesitate to call me at (415) 972-3504 or e-mail at arthur.greg@epa.gov.

Sincerely,

Greg V. Arthur
CWA Compliance Office

Enclosure

cc: Bellete Yohannes, Senior Inspector, City of Los Angeles
David Hung, RWQCB-Los Angeles



U.S. ENVIRONMENTAL PROTECTION AGENCY

REGION 9

CLEAN WATER ACT COMPLIANCE OFFICE

NPDES COMPLIANCE EVALUATION INSPECTION REPORT

Industrial User: Dolphin Engineering
1842 East 41st Place, Los Angeles, California 90065
New Source Metal Finishing (40 CFR 433 Subpart A)

Treatment Works: City of Los Angeles
Hyperion Wastewater Treatment Plant
NPDES Permit CA0109991 - California WDRs R4-2005-0020)

Pretreatment Program: City of Los Angeles, Bureau of Sanitation

Date of Inspection: September 10, 2008

Inspection Participants:

US EPA: Greg V. Arthur, Region 9, CWA Compliance Office, (415) 972-3504

RWQCB-Los Angeles: None

City of Los Angeles: Bellete Yohannes, Chief Industrial Waste Inspector II, (323) 342-6046
Mike Lee, Inspector, (323) 342-6187
Hong Mai, Inspector, (323) 342-6175
Greg Lester, Inspector, (323) 342-6158

Dolphin Engineering: Boris Boguslavski, President and Owner, (323) 234-0700

Report Prepared By: Greg V. Arthur, Environmental Engineer
January 31, 2009



1.0 Scope and Purpose

On September 10, 2008, EPA and the City of Los Angeles conducted a compliance evaluation inspection of Dolphin Engineering in Los Angeles, California. The purpose was to ensure compliance with the Federal regulations covering the discharge of non-domestic wastewaters into the sewers. In particular, it was to ensure:

- Classification in the proper Federal categories;
- Application of the correct standards at the correct sampling points;
- Consistent compliance with the standards; and
- Fulfillment of Federal self-monitoring requirements.

Dolphin Engineering is a significant industrial user (“SIU”) within sewer service areas administered by the City of Los Angeles whose compliance was assessed as part of an on-going EPA evaluation of industrial users in EPA Region 9 by sector. The inspection participants are listed on the title page. Arthur conducted the inspection.

1.1 Process Description

Dolphin Engineering is a plumbing fixture manufacturer and a metal finisher of both outside lines and their own line. The fixtures are primarily made from brass and the surface finishes include copper, nickel, brass, and gold, from antique to bright. Castings are provided by outside vendors. The in-house fabrication work involves sheet metal fabrication, tube bending, machining, polishing, painting, and metal finishing. The operations began in 1986.

- Preparation and Cleaning Line A – ultrasonic alkaline soap clean (NaOH), abrasion polishing, bead blasting, buffing.
- Painting Line B – electrodeposition painting (clear coat on brass).
- Decorative Plating Line C – soap clean (NaOH), acid activation (H₂SO₄), copper strike (CuCN/KCN/K₄P₂O₇), bright nickel (NiSO₄/NiCl₃/H₃BO₃), chrome plating (CrO₃), gold plating (cyanide), black nickel (Ni/Zn-salts/thiocyanate), chemical oxidation antiquing (HCl/Se).
- Auxiliary Plating Line D – bright nickel plating (NiSO₄/NiCl₃/H₃BO₃), gold strike (cyanide), gold plating (cyanide), nickel strip (NaOH).
- Stripping Line E – alkaline nickel strip, paint strip.

Line D was not in operation on the day of this inspection but was maintained operable. *See* Figure 1 on page 15 for a schematic of the configuration and layout of wastewater handling. Also see Table 1 on page 16 for a process tank inventory. Photo documentation of this inspection follows in Section 1.7 on page 5.

1.2 Facility SIC Code

Dolphin Engineering is assigned the SIC code for electroplating, and plating (SIC 3471).



1.3 Facility Wastewater Sources

Spent Solutions - The imparted contamination from the processing of parts and the progressive drop in solution strength results in the generation of spents. The generation rates depend on bath usage, effectiveness of bath contamination control, and the amount of drag-out lost into the rinses or to the floor. Dolphin Engineering indicated that all of the metal finishing and painting baths are regenerated strictly through additions and thus do not generate spents. Dolphin Engineering further indicated that static drag-outs are used to provide solution make-up. Thus the only losses from these "adds-only" solution tanks therefore would be through the drag-out into subsequent rinses or onto the floor as spills. Otherwise, these solution tanks without outlets would foul through contamination or fail through use. The nickel stripping and paint stripping spents are hauled off-site for disposal.

Rinses - Dolphin Engineering is configured and operated to minimize cross contamination between processing steps thereby making it possible to reclaim and reuse on-site nearly all of its rinses. Discharge is limited to three overflows from the Decorative Plating Line C (*Tanks C2-A, C2-J, C2-M*). These rinses were observed to be operating continuously without parts processing. Lines A and B are closed-loop with no discharges beyond the spent filter cartridges and Line D was not in service on the date of this inspection.

Dolphin Engineering can reclaim most rinses through (1) the use of DI-columns to produce low-TDS make-up waters, (2) daily tank process monitoring for TDS, (3) static drag-outs following most metal finishing steps, (4) overtank sprays, (5) ultrafiltration of countercurrent cascading rinses, and (6) in-tank rinse filtering. In particular, ultrafiltration is used to remove solids and suspensions from the countercurrent cascading rinses between the first- and second-stages with the concentrate returned to either a preceding static drag-out rinse or to the solution itself. The ultrafiltration of countercurrent cascading rinses occurs following paint electrodeposition (*Tanks B24, B25*), ultrasonic soap cleaning (*Tank A23*), copper strike (*Tank C4*), and nickel plating (*Tank C6*). *See* Photos #1 and #2 in Section 1.7 of this report on page 5.

Residuals – Dolphin Engineering generates spent cartridge filters, spent DI-water preconditioning columns, bead blasting and abrasion polishing debris, metal scrap, and accumulated clarifier sludges.

1.4 Facility Process Wastewater Handling

Discharge – Dolphin Engineering discharges non-domestic wastewaters to the City of Los Angeles domestic sewers through a single connection designated in this report by permit number as IWD-461472. Domestic sewage discharges through separate connections downstream of the industrial connection. The June 1, 2008 City of Los Angeles permit identifies the final discharge point as the secured sampling facility after the three-stage clarifier. The permit lists the average discharge to the sewers to be 4,653 gallons per day (“gpd”). *See* Figure 1 on page 15 for a schematic of the configuration and lay-out of the wastewater handling.



Composition - The process-related wastewater discharges listed in section 1.3 above would be expected to contain copper, chromium, nickel, selenium, silver, zinc, acidity, paint stripping solvents, and salts, as well as surfactants, other pollutants cleaned off of parts, and the minerals entrained in the water supply.

Delivery - Wastewaters are delivered by hard-piping and flexible hosing from the sources to the ultrafiltration units or the final clarifier. The static drag-out rinses are delivered as make-up to the solution tanks through portable pump and hosing or by bucket.

Treatment – Dolphin Engineering provides ultrafiltration of the second-stage countercurrent cascading rinses following paint electrodeposition, nickel plating, copper strike, and ultrasonic soap cleaning. The pre-rinses preceding paint electrodeposition are filtered in-tank. A limited set of discharges of the rinses following alkaline soap cleaning, gold plating, and black nickel plating are treated through a three-stage clarifier prior to discharge to the sewers. The clarifier involves influent and effluent pH metering, and the application of bleach tablets as attempted insurance against the discharge of cyanide. Dolphin Engineering also measures the pH of each of the three rinsing wastewater sources comprising the discharge to the sewers through the final clarifier. *See* Photo #3 in Section 1.7 of this report on page 5.

1.5 Sampling Record

Dolphin Engineering self-monitors bi-monthly as required by the City of Los Angeles permit. The City of Los Angeles also collects its own samples quarterly.

1.6 POTW Legal Authorities

City of Los Angeles - The Bureau of Sanitation administers the pretreatment program in the City areas serviced by the regional Hyperion system. The Hyperion wastewater treatment plant operates under the requirements of the State of California, Los Angeles RWQCB's Waste Discharge Requirements, No. R4-2005-0020, issued in 2005. The WDRs, which also function as NPDES permit No. CA0109991, require the implementation of an approved pretreatment program throughout the sewer service area. Under this authority, the City issued permit No. W-461472 authorizing discharge of non-domestic wastewater to the sewers.



1.7 Photo Documentation

The three photographs taken during this inspection are depicted below and saved as *dolphin-01.jpg* through *-03.jpg*.

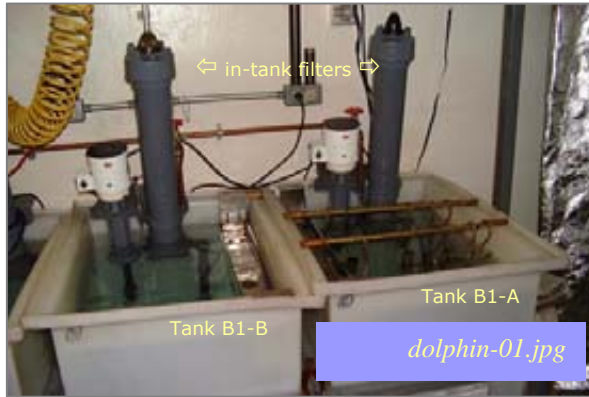


Photo #1: Line B Rinses with In-Tank Filters
Taken By: Greg V. Arthur
Date: 09/10/08

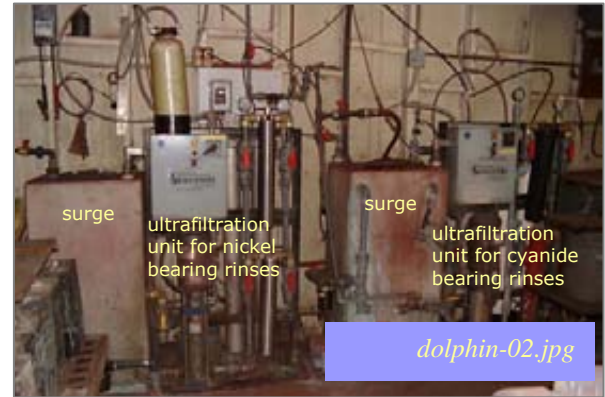


Photo #2: Ultrafiltration Units for Line C Rinses
Taken By: Greg V. Arthur
Date: 09/10/08



Photo #3: Satellite pH Meter for Tank C2-A Overflows
Taken By: Greg V. Arthur
Date: 09/10/08



2.0 Sewer Discharge Standards and Limits

Federal categorical pretreatment standards (where they exist), national prohibitions, State groundwater, and the local limits (where they exist) must be applied to the sewered discharges from industrial users. (40 CFR 403.5 and 403.6).

Summary

The Federal standards in 40 CFR 433 for new source metal finishers apply to all process wastewater discharges from Dolphin Engineering through IWD-461472. The City of Los Angeles permit correctly advances the application of the Federal standards and local limits. The application of Federal standards, national prohibitions, and local limits was determined through visual inspection. *See* Table 2 on page 17 of this report for the permit limits.

Requirements

- None.

Recommendations

- None.

2.1 Classification by Federal Point Source Category

Dolphin Engineering qualifies as a metal finisher subject to the Federal metal finishing standards for new sources in 40 CFR 433.

New or Existing Sources – Dolphin Engineering is subject to Federal standards for new sources. Under the definitions in 40 CFR 403.3(k), a process constructed at an existing source job-shop metal finisher after August 31, 1982 is a new source (1) if it entirely replaces a process which caused a discharge from an existing source or (2) if it is substantially independent of the existing sources on-site. This means that after the 1982 deadline, the new source standards apply to the original installation of metal finishing lines, rebuilt or moved lines, or existing lines converted to do new operations. The preamble to the final 1988 Federal rule states that the new source standards apply when “an existing source undertakes major construction that legitimately provides it with the opportunity to install the best and most efficient production process and wastewater treatment technologies” (*Fed Register, Vol.53, No.200, October 17, 1988, p.40601*). Dolphin Engineering qualifies as a new source because operations began in 1986.

2.2 Local Limits and National Prohibitions

Local limits and the national prohibitions are meant to express the limitations on non-domestic discharges necessary to protect the sewers, treatment plants and their receiving



waters from adverse impacts. In particular, they prohibit discharges that can cause the pass-through of pollutants into the receiving waters or into reuse, the operational interference of the sewage treatment works, the contamination of the sewage sludge, sewer worker health and safety risks, fire or explosive risks, and corrosive damage to the sewers. The national prohibitions apply nationwide to all non-domestic sewer discharges. The City of Los Angeles local limits apply to non-domestic discharges in the Hyperion service area.

**2.3 Federal Categorical Pretreatment Standards
 New Source Metal Finishing - 40 CFR 433.17**

40 CFR 433.17	Cd	Cr	Cu	Pb	Ni	Ag	Zn	CNt	Can	TTO
daily-maximum (mg/l)	0.11	2.77	3.38	0.69	3.98	0.43	2.61	1.20	0.86	2.13
month-average (mg/l)	0.07	1.71	2.07	0.43	2.38	0.24	1.48	0.65	0.32	-

Applicability - Under 40 CFR 433.10(a), the metal finishing standards apply to the process wastewaters from Dolphin Engineering because the facility’s operations involve electroplating, and etching. The metal finishing standards "... apply to plants that perform ..." the core operations of electroplating, electroless plating, etching, anodizing, chemical coating, or printed circuit board manufacturing and they extend to other on-site operations associated with metal finishing and specifically listed in 40 CFR 433.10(a), such as cleaning, and painting. If any of the core operations are performed, the new source metal finishing standards apply to discharges from any of the core and associated operations. As a result, the metal finishing standards apply to all process wastewater discharges from Dolphin Engineering to IWD-461472.

Basis of the Standards - The new source metal finishing standards were based on a model pretreatment unit that comprises metals precipitation, settling, sludge removal, source control of toxic organics, no discharge of cadmium-bearing wastewaters, and if necessary, cyanide destruction and chromium reduction. The best-available-technology standards were set where metal finishers with model treatment operated at a long-term average and variability that achieved a compliance rate of 99% (1 in 100 chance of violation).

Adjustments – First, under 40 CFR 433.12(c), the cyanide standards as applied to metal finishing wastewater discharges must be adjusted to account for dilution from non-cyanide bearing waste streams (Federally-regulated and unregulated). For Dolphin Engineering, the City permit has an estimate that ~500 gpd of cyanide-bearing wastewater is generated from the discharging rinse following gold plating (*Tank C2-J*). As a result, the cyanide standards as applied to the final discharges through IWD-495146 must be adjusted proportionally downward to account for dilution from the non-cyanide bearing waste streams. The dilution at IWD-461472 calculated to be slightly less than 10:1 based on the estimated flow averages, which results in adjusted standards of 0.129 and 0.070 mg/l total cyanide and 0.092 and 0.034 mg/l amenable cyanide. It might be more in keeping with the intent of the Federal standards to apply the total cyanide standards without adjustment to the cyanide-bearing rinse (*Tank C2-J*) before it commingles with any other flows, especially since adding chlorine tablets without alkaline conditions will not chemically oxidize free cyanide.



Second, under 40 CFR 403.6(d,e), the Federal categorical pretreatment standards at IWD-461472 do not have to be adjusted to account for dilution from non-contact cooling waters, cooling tower bleed, and boiler blowdown, since none of these flows are present in the discharge.

Third, the Federal standards in 40 CFR 433.12 allow facilities with an approved toxic organics management plan to certify instead of sample for toxic organics. The City of Los Angeles approved the toxic organics management plan for Dolphin Engineering that exempts it from self-monitoring for all toxic organics except chloroform (Permit Part 5.A).

Compliance Deadline - New sources were required to comply on the first day of discharge.

2.4 Federal Prohibitions

The Federal standards in 40 CFR 403.6(d) and 403.17(d) prohibit dilution as a substitute for treatment, and the bypassing of any on-site treatment necessary to comply with standards, respectively. The City of Los Angeles permit establishes these prohibitions through incorporation of provisions against the dilution as a substitute for treatment (Permit Part 6.B.8) and bypassing treatment necessary to comply (Permit Part 6.C.4).

2.5 Point(s) of Compliance

The permit designates the final clarifier outside the facility as the location of the secured sampling point (designated in this report as IWD-461472).

Federal Standards - Federal categorical pretreatment standards apply end-of-process-after-treatment to all Federally-regulated discharges to the sewers. The sample point IWD-461472 is a suitable end-of-process-after-treatment sample point representative of the day-to-day discharge of Federally-regulated wastewaters from Dolphin Engineering for all parameters.

Local Limits - Local limits and the national prohibitions apply end-of-pipe to non-domestic flows. The sample point designated as IWD-461472 is a suitable end-of-pipe sample point representative of the day-to-day non-domestic wastewater discharges from Dolphin Engineering.

2.6 Compliance Sampling

The national prohibitions are instantaneous-maximums and are comparable to samples of any length including single grab samples. Federal categorical pretreatment standards are daily-maximums comparable to 24-hour composite samples. The 24-hour composite samples can be replaced with single grabs or manually-composited grabs that are representative of the sampling day's discharge. The City of Los Angeles permit establishes these sampling protocols by specifying the type of sampling required by parameter (Permit Part 3.A.1). *See* Section 5.0 of this report on page 14 and Table 2 on page 17.



3.0 Compliance with Federal Categorical Standards

Industrial users must comply with the Federal categorical pretreatment standards that apply to their process wastewater discharges. 40 CFR 403.6(b).

Categorical industrial users must comply with the prohibition against dilution of the Federally-regulated waste streams as a substitute for treatment. 40 CFR 403.6(d).

Industrial users must comply with the provision restricting the bypass of treatment necessary to comply with any pretreatment standard or requirement. 40 CFR 403.17(d).

Dolphin Engineering does not employ best-available-technology (“BAT”) model treatment or its equivalent. Instead the facility relies on source controls. As a result, on at least two recent occasions, operator error resulted in the misdirection of untreated wastewaters into the sewer discharge. Satellite pH metering and shunts have since been installed in order to automatically capture and contain off-spec wastewaters prior to discharge. Most rinses are effectively reclaimed through good cross contamination controls and the use of ultrafiltration. However, the discharging rinses were observed to operate irrespective of whether there are parts undergoing processing. As a result, EPA cannot conclude that Dolphin Engineering is configured to achieve and maintain consistent compliance with the Federal standards.

Requirements

- The discharging overflowing rinses must be retrofitted to operate on-demand.

Recommendations

- A discharge surge tank should be installed to provide 24-hours of equalization preferably just upstream of the final clarifier.
- An on-demand retrofit of the discharging rinses could incorporate either conductivity probe controls or worker activated switches or timers.

3.1 Sampling Results

The two year 2006-2008 sample record for Dolphin Engineering collected from the secured sampling point consists of bimonthly self-monitoring and quarterly sampling collected by the City of Los Angeles. All metals samples were 24-hour composites. The others were grabs. *See* Table 3 on page 18 of this report for a summary of the compliance sampling.

3.2 Best-Available-Technology Treatment

Dolphin Engineering does not employ best-available-technology (“BAT”) model treatment or its equivalent but rather relies on source controls to achieve compliance with the Federal



standards. As a result, over the two year sample period on at least two occasions, wastewaters, contaminated with high levels of copper, nickel, and zinc, were misdirected through operator error to discharge to the sewers. The samples for these discharges far exceeded the Federal standards, and resulted in calculated average and 99th% peak concentrations of 0.988 and 9.005 mg/l copper, 0.688 and 6.740 mg/l nickel, and 1.034 and 10.032 mg/l zinc. The samples for the other pollutants met the Federal standards with average and calculated 99th% peak concentrations of 0.005 and 0.015 mg/l cadmium, 0.066 and 0.342 mg/l chromium, 0.045 and 0.213 mg/l lead, <0.004 mg/l total cyanide, and 0.074 and 0.190 mg/l total toxic organics.

These sampling results indicate that the statistical probability of violating the Federal standards in the future could be as high as 33% per sampling event and 40% per sampling month, although the probabilities are skewed upward by the high strength of the violations. Nevertheless, the statistical probability of violating the Federal standards still far exceeds the 1% used in setting the Federal standards based on the design and operation of model treatment. The chance of a future violation by a discharger reliant on source controls is really the probability of an operator error. After the violations in 2007, Dolphin Engineering installed limited built-in controls to lower the probability of violation, but the potential remains that would not exist with the installation of BAT model treatment. The improvements (+) and observed deficiencies (-) are listed below.

- **Reliance on source controls in order to discharge without BAT model treatment.**
- + Satellite pH meters and automatic shunts on the rinsewater contributions to the discharge.
- + Good use of ultrafiltration involving the reclaim of the concentrates.
- + Good cross contamination controls through DI-water make-up, countercurrent rinsing, daily tank TDS monitoring, and closed-loop no discharge lines.
- + Good quarterly leak inspection program of secondary containment.
- Neutral conditions (not alkaline) for cyanide destruction in the clarifier.
- Rinsing found operating without parts.
- No equalization of the discharge to the sewer.

3.3 Dilution as a Substitute for Treatment

The Federal standards in 40 CFR 403.6(d) prohibit "dilution as a substitute for treatment" in order to prevent compromising BAT model treatment with dilute waste streams. This prohibition applies when sample results for a diluted waste stream are below the Federal standards and the apparent compliance is used to justify untreated discharge. Two conditions need to be established in order to make a determination of non-compliance. First, some or all of the Federally-regulated wastewaters must discharge without undergoing BAT model treatment or its equivalent. Second, there must be excess water usage within the regulated process.

Dolphin Engineering meets both conditions of non-compliance since all Federally-regulated waters discharge untreated and the rinses overflow irrespective of whether there are parts undergoing processing. It cannot be determined whether model treatment is necessary to achieve and maintain consistent compliance with the Federal standards until the overflowing rinses are retrofitted to operate and discharge on-demand. Typical on-demand controls



include make-up water valves opened through conductivity-controlled probes or kick or knee plate switches.

3.4 Bypass Provision

The Federal standards in 40 CFR 403.17 prohibit the bypassing of any on-site treatment necessary to comply with standards unless the bypass was unavoidable to prevent the loss of life, injury, or property damage, and there were no feasible alternatives. This provision explicitly prohibits bypasses that are the result of a short-sighted lack of back-up equipment for normal downtimes or preventive maintenance. It also explicitly prohibits bypasses that could be prevented through wastewater retention or the procurement of auxiliary equipment. It specifically allows bypasses that do not result in violations of the standards as long as there is prior notice and approval from the sewerage agency or State.

There can be no bypassing violating the Federal bypass provision at Dolphin Engineering because there is no on-site treatment necessary to comply with standards. However, the source controls involve the containment of numerous wastewaters. Wastewater delivery involving portable pumps and long flexible hosing makes possible an inadvertent bypass of the source controls to the sewers.



4.0 Compliance with Local Limits and National Prohibitions

All non-domestic wastewater discharges to the sewers must comply with local limits and the national prohibitions. 40 CFR 403.5(a,b,d).

Industrial users must comply with the provision restricting the bypass of treatment necessary to comply with any pretreatment standard or requirement. 40 CFR 403.17(d).

The sample record indicates that Dolphin Engineering has nearly always complied with all of its local limits for metals, cyanide, organics, pH, and sulfides, and would be expected to comply with the national prohibitions for flammability. The off-spec discharges in violation of Federal standards also resulted in single violations of the local limits for copper and nickel. Improving performance in order to establish consistent compliance with the Federal standards would be expected to also result in consistent compliance with the local limits. *See* Table 3 on page 18 of this report.

Requirements

- None.

Recommendations

- See the recommendations in Section 3.0 on page 9 of this report.

4.1 National Objectives

The general pretreatment regulations were promulgated in order to fulfill the national objectives to prevent the introduction of pollutants that:

- (1) cause operational interference with sewage treatment or sludge disposal,
- (2) pass-through sewage treatment into the receiving waters or sludge,
- (3) are in any way incompatible with the sewerage works, or
- (4) do not improve the opportunities to recycle municipal wastewaters and sludge.

This inspection did not include an evaluation of whether achievement of the national objectives in 40 CFR 403.2 have been demonstrated by the Hyperion wastewater treatment plant through consistent compliance with its sludge and discharge limits.

4.2 Local Limits for Oxygen Demanding Pollutants and The National Prohibition Against Interference

High-Strength Organics - The process-related wastewaters discharged to the sewers are not expected to be high enough in organics strength to pose a risk of interference, with the organics strength significantly less than domestic sewage.



Metals and Cyanide – There were single violations of the local limits for copper, and nickel, but no violations of the local limits for arsenic, cadmium, chromium, lead, silver, zinc, and total cyanide. The single violations did not result in or contribute to any interference in the operations of the Los Angeles sewer system and the Hyperion wastewater treatment plant.

4.3 Local Limits for Toxic Metals, Cyanide, and Other Pollutants and The National Prohibition Against Pass-Through

Metals and Cyanide – There were single violations of the local limits for copper, and nickel, but no violations of the local limits for arsenic, cadmium, chromium, lead, silver, zinc, and total cyanide. The single violations did not result in or contribute to any pass-through of pollutants from the Los Angeles Hyperion wastewater treatment plant into the Pacific ocean or into the treatment plant sludge in violation of its NPDES permit.

Toxic Organics – There are no local limits for toxic organics.

Oil and Grease – There were no violations of the local limits for oil and grease and none are expected in the future.

4.4 Local Limits for pH and Sulfides, and The National Prohibitions Against Safety Hazards and Corrosive Structural Damage

Corrosion - Sewer collection system interferences related to the formation of hydrogen sulfide and the resulting acidic disintegration of the sewers are possible but not expected. The wastewaters discharged to the sewers are not high-strength in biodegradable organics nor acidic in nature. However, the wastewaters feeding into the final clarifier comprise both acidic and alkaline waste streams and can vary in pH. As a result, compliance with the pH limits depends on the successful source controls. For this reason, it remains appropriate to require the continuous self-monitoring and reporting of pH.

Flammability - Flammability would not be expected because sampling shows that the discharges to the sewer entrain negligible amounts of volatile organics.



5.0 Compliance with Federal Monitoring Requirements

Significant industrial users must self-monitor for all regulated parameters at least twice per year unless the sewerage agency monitors in place of self-monitoring. 40 CFR 403.12(e) & 403.12(g).

Each sample must be representative of the sampling day's operations. Sampling must be representative of the conditions occurring during the reporting period. 40 CFR 403.12(g) and 403.12(h).

Permit Requirements – Dolphin Engineering Works has successfully fulfilled the self-monitoring requirements set forth in the city permit. Over the past two years, the sample record shows that Dolphin Engineer (1) submitted bimonthly sample results for all permit listed parameters, (2) collected all samples from the designated compliance sampling point, (3) correctly obtained 24-hour composites for metals and grabs for the other pollutants, and (4) followed appropriate chain-of-custody procedures.

Representativeness - The sample record also appears representative of the discharge to the sewers over the sampling day and the six-month reporting period. Retrofitting the discharging rinses to on-demand and the installation of a final surge equalization tank would further ensure that sampling is representative over both the sampling day and six-month reporting period. Some pollutants present at concentrations well below the Federal standards and local limits do not need to be sampled as frequently as currently required by the permit. However, the self-monitoring for pH should remain continuous given the variable and uncontrolled nature of the wastewaters entering the final clarifier.

Requirements

- *See* Table 2 on page 17 for the self-monitoring and city monitoring requirements for IWD-461472 that would be considered to be representative of the discharge.

Recommendations

- Self-certification statements should include copies of the hazardous waste manifests documenting the off-hauling of spents, spent static rinses, and residuals.



Figure 1
 Dolphin Engineering - Configuration and Layout

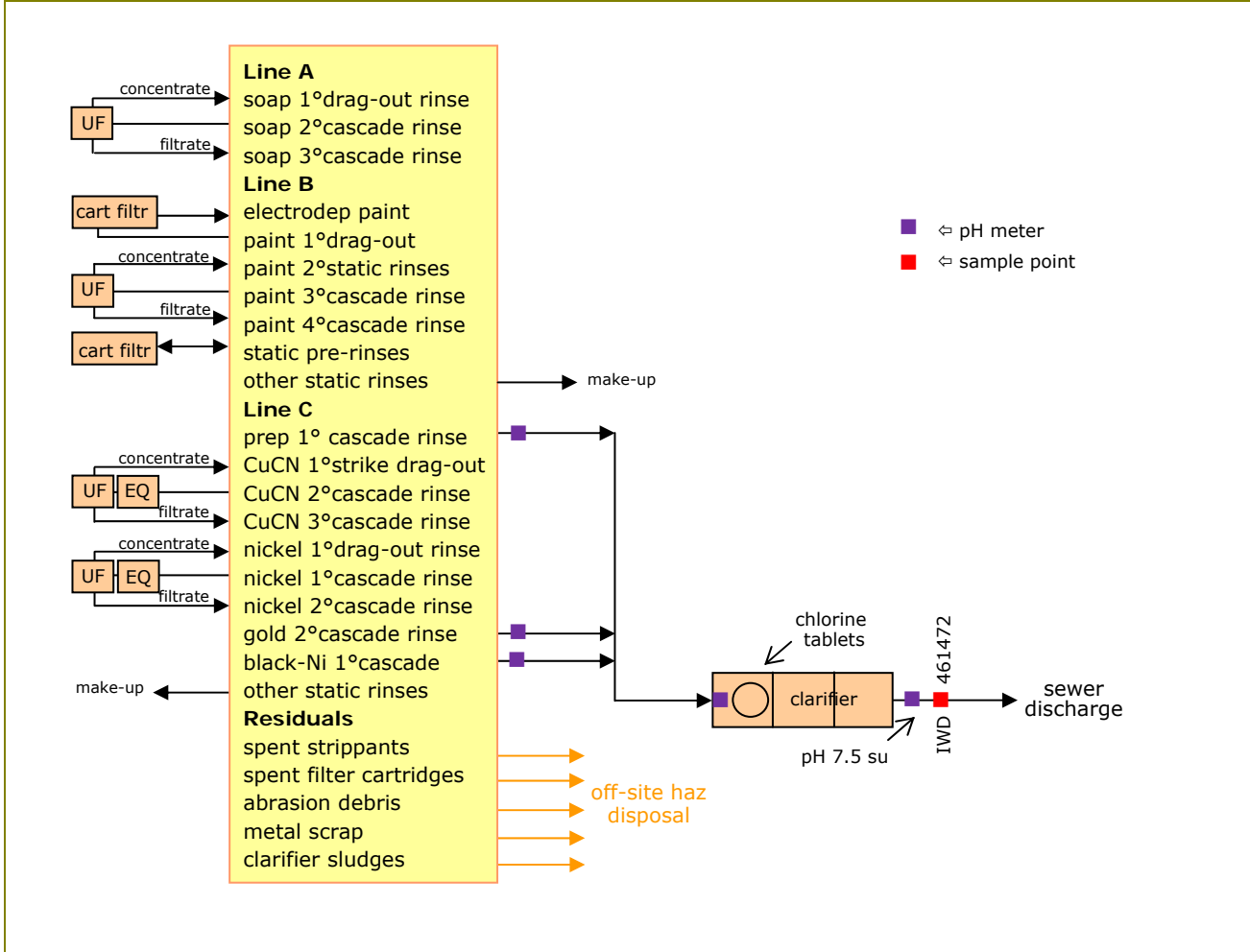




Table 1					
Dolphin Engineering - Tank Inventory, Tank Number, and Volume					
gals	Ultrasonic Cleaning Line A		gals	Decorative Plating Line C	
50	A23	ultrasonic soap cleaning	200	C1	alkaline soap clean
50	A23-A	1° static rinse for A23	90	C2-A	1° countercurrent C1
50	A23-B	2° countercurrent for A23	90	C2-B	2° countercurrent for C1
50	A23-C	3° countercurrent for A23	90	C3	H ₂ SO ₄ -acid activation
gals	Electrodeposition Painting Line B		90	C2-C	3° countercurrent for C1/3
90	B1-A	1° static pre-rinse	220	C4	copper cyanide strike
90	B1-B	1° static pre-rinse	90	C5	1° static rinse for C4
90	B1-C	1° static pre-rinse	90	C2-D	2° countercurrent for C4
90	B1-D	1° static pre-rinse	90	C2-E	3° cntrcrnt + overspray for C4
200	B24	paint electrodepositon	600	C6	bright nickel plating
200	B24-A	1° static drag-out for B24	90	C7	1° static + overspray for C6
90	B24-B	2° static rinse for B24	90	C2-F	2° countercurrent for C6
90	B24-C	3° countercurrent for B24	90	C2-G	3° countercurrent for C6
90	B24-D	4° countercurrent for B24	250	C8	decorative chrome plating
90	B25	paint electrodeposition	90	C9	1° static drag-out for C8
90	B25-A	1° static drag-out for B25	90	C2-H	2° static rinse for C8
90	B25-B	2° static rinse for B25	90	C2-I	3° static rinse for C8
90	B25-C	3° static rinse for B25	50	C11	gold cyanide plating
gals	Auxiliary Plating Line D		90	C12	1° drag-out+ovrspry for C11
200	D19	bright nickel plating	90	C2-J	2° countercurrent for C11
90	D20	1° static drag-out D19	90	C2-L	3° countercurrent for C11
90	D2-P	2° static rinse for D19	200	C13	black nickel plating
90	D2-Q	3° static rinse for D19	90	C14	black antiquing
90	D15	brown antiquing	90	C2-M	1° countercurrent for C13/14
200	D22	acid copper plating	90	C2-N	2° countercurrent for C13/14
90	D21	1° static drag-out for D22	gals	Stripping Line E	
90	D2-U	2° static rinse for D22	90	E35	alkaline nickel strip
90	D2-T	3° static rinse for D22	250	E36	paint stripping
90	D16	silver cyanide strike	250	E37	paint stripping
90	D17	1° static drag-out for D16	Black Tank Designations from City Permit Blue Tank Designations by EPA for this Report Tank Volumes From Permit and by Visual Estimate		
90	D2-S	2° static rinse for D16			
90	D2-R	3° static rinse for D16			
90	D18	final static rinse			



Table 2
 Sewer Discharge Standards and Limits for Dolphin Engineering @ IWD-461472

Pollutants of concern (mg/l)	Federal standards (d-max)	Federal standards (4d-avg)	national prohibition (instant)	local limits (instant)	monitoring frequency for IWD-461472 ⑤	
					discharger	city
flow (gpd)	-	-	-	-	1/day	-
cadmium	0.11	0.07	-	15.0	1/six-mos	1/year
chromium	2.77	1.71	-	10.0	bimonthly	quarterly
copper	3.38	2.07	-	15.0	bimonthly	quarterly
lead	0.69	0.43	-	5.0	bimonthly	quarterly
nickel	3.98	2.38	-	12.0	bimonthly	quarterly
silver	0.43	0.24	-	5.0	bimonthly	quarterly
zinc	2.61	1.48	-	25.0	bimonthly	quarterly
cyanide – total	0.129 ④	0.070 ④	-	10.0	bimonthly	quarterly
cyanide - amenable	0.092 ④	0.034 ④	-	2.0	③	1/year
total toxic organics	2.13	-	-	-	1/six-mos	1/year
oil and grease - total	-	-	-	600	③	1/year
pH (s.u.)	-	-	<5.0	5.5-11.0	continuous	1/quarter
arsenic	-	-	-	3.0	③	1/year
chloride	-	-	-	-	③	1/year
dissolved sulfides	-	-	-	0.10	③	1/year
iron	-	-	-	-	③	1/year
molybdenum	-	-	-	-	③	1/year
explosivity	-	-	<140°F ①	②	③	③

① Closed-cup flashpoint

② Narrative prohibition against the introduction of flammable or explosive substances

③ As part of periodic priority pollutant scans in order to identify changes in discharge quality

④ As adjusted to account for ~10:1 dilution from non cyanide-bearing wastewaters.

⑤ Recommended **reductions in green**. Recommended **increases in red**.



Table 3
April 2006 – May 2006 Sample Record for Dolphin Engineering @ IWD-461472

pollutants (µg/l)	effluent sampling results				violation rate ②			sample count
	mean	99th%	min	max	d-max	mo-avg	instant	
arsenic	3.9	6.9	<2.5	6.0	-	-	0/24	33
cadmium	4.5	14.9	<0.3	17.4	0/24	0/18	0/24	33
chromium	65.7	341.6	2.8	410.	0/24	0/18	0/24	33
copper	987.6	9005.	68.	20500.	2/24	2/19	1/24	34
iron	414.3	2302.	60.	2670.	-	-	-	10
lead	44.7	212.9	2.4	270.	0/24	0/18	0/24	32
molybdenum	85.9	323.2	30.2	223.	-	-	-	10
nickel	687.3	6740.	49.	14900.	1/24	1/19	1/24	34
silver	10.1	78.1	0.1	98.	0/24	0/18	0/24	33
zinc	1033.6	10032.	<10.0	22800.	2/24	2/19	0/24	34
total cyanide	<4.0	<4.0	<4.0	<20.0	0/23	0/18	0/23	30
amenable cyanide	<4.0	<4.0	<4.0	<20.0	0/23	0/18	0/23	30
total toxic organics	74.2	190.1	<20.0	225.9	0/21	-	0/21	21
dissolved sulfides	<30.0	<30.0	<30.0	<40.0	-	-	0/25	25
chloride (mg/l)	67.1	103.4	30.1	89.0	-	-	-	19
oil+grease - petro (mg/l)	1.8	6.6	<1.6	10.0	-	-	0/23	23
flow (gpd)	3888.	5530.	-	5952.	-	-	-	761
pH (s.u.)	7.0 ①	-	6.0	10.5	-	-	0/18	18

① pH median ② Split sampling resulted in sample counts exceeding the number of sampling days.

sample dates	type	sampler	Fed standards / local limits	violations	Days
09/11/07	24-hour	POTW + IU	Fed d-max - copper 3.38 mg/l	19.10	1
Sep 2007	24-hour	POTW + IU	Fed mo-avg - copper 2.07 mg/l	9.78	30
09/11/07	24-hour	POTW + IU	Fed d-max - nickel 3.98 mg/l	14.85	1
Sep 2007	24-hour	POTW + IU	Fed mo-avg - nickel 2.38 mg/l	7.50	30
09/11/07	24-hour	POTW + IU	Fed d-max - zinc 2.61 mg/l	21.90	1
Sep 2007	24-hour	POTW + IU	Fed mo-avg - zinc 1.48 mg/l	11.15	30
05/14/07	24-hour	POTW + IU	Fed d-max - copper 3.38 mg/l	4.82	1
May 2007	24-hour	POTW + IU	Fed mo-avg - copper 2.07 mg/l	2.47	30
05/14/07	24-hour	POTW + IU	Fed d-max - zinc 2.61 mg/l	3.76	1
May 2007	24-hour	POTW + IU	Fed mo-avg - zinc 1.48 mg/l	2.02	30
09/11/07	24-hour	POTW + IU	Local instant - copper 15.0 mg/l	19.30	1
09/11/07	24-hour	POTW + IU	Local instant - nickel 12.0 mg/l	14.85	1

violation probability	mean (µg/l)	std dev (µg/l)	statistical probability	Percent
Fed d-max - copper	µ = 987.6	σ _{n-1} = 3440.9	α(3380) = 0.2435	~25%
Fed mo-avg - copper	µ = 878.6	σ _{n-1} = 2217.9	α(2070) = 0.2956	~30%
Fed d-max - nickel	µ = 687.3	σ _{n-1} = 2597.6	α(3980) = 0.1026	~10%
Fed mo-avg - nickel	µ = 621.6	σ _{n-1} = 1683.3	α(2380) = 0.1481	~15%
Fed d-max - zinc	µ = 1033.6	σ _{n-1} = 3861.9	α(2610) = 0.3443	~33%
Fed mo-avg - zinc	µ = 944.3	σ _{n-1} = 2510.2	α(1480) = 0.4155	~40%