



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

April 23, 2009

In Reply Refer To: WTR-7

Carlos Mario Baltazar, Manager
Gorillas Polishing and Plating Company
654 East Young Street
Santa Ana, California 92705

Re: September 11, 2008 Clean Water Act Inspection

Dear Mr. Baltazar:

Enclosed is the April 23, 2009 report for our September 11, 2008 inspection of Gorillas Polishing and Plating. Please submit a short response to the findings in Sections 2 through 5 of this report, to EPA, the Orange County Sanitation Districts, and the Regional Water Quality Control Board, by **June 30, 2009**. The main findings are summarized below:

- 1 Gorillas Polishing and Plating qualifies as a new source metal finisher regulated under the Federal regulations in 40 CFR 433.
- 2 On-site treatment is equivalent in design to the models used in setting the Federal standards. Certain aspects further improve performance, most notably hydroxide and sulfide precipitation, positive delivery, segregation by strength and treatability, and second-stage Lamella settling. As a result, Gorillas Polishing and Plating has essentially achieved consistent compliance with all Federal standards and local limits. The few violations do not reflect inadequate treatment or control but rather are likely artifacts of sampling unlikely to occur in the future with adjustments to the self-monitoring requirements.
- 3 The self-monitoring is representative over the sampling day and six-month reporting period. It should be increased for cyanide to twice in the same calendar month per quarter. It could be reduced for those pollutants always at or near their detection limits.

I appreciate your helpfulness extended to me during this inspection. I remain available to the Orange County Sanitation Districts, 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,

Original signed by:

Greg V. Arthur
CWA Compliance Office

Enclosure

cc: Roya Sohanaki, OCSD
Julio Lara, RWQCB-Santa Ana



U.S. ENVIRONMENTAL PROTECTION AGENCY

REGION 9

CLEAN WATER ACT COMPLIANCE OFFICE

NPDES COMPLIANCE EVALUATION INSPECTION REPORT

Industrial User: Gorillas Polishing and Plating
654 East Young Street, Santa Ana, California 92705
New Source Metal Finisher (40 CFR 433)

Treatment Works: Orange County Sanitation Districts
Fountain Valley Wastewater Treatment Plant No.1 and
Huntington Beach Wastewater Treatment Plant No.2
NPDES Permit CA0110604 - California WDRs R8-2004-0062

Pretreatment Program: Orange County Sanitation Districts

Date of Inspection: September 11, 2008

Inspection Participants:

US EPA: Greg V. Arthur, Region 9, CWA Compliance Office, (415) 972-3504
Howard Kahan, Region 9, Los Angeles Office, (213) 244-1819

RWQCB-Los Angeles: None

Orange County SD: Dave Yager, Source Control Inspector, (714) 719-3830
Dave Francis, Source Control Inspector, (714) 593-7479
Thomas Walker, Associate Engineer, (714) 962-2411
Martin Holl, Associate Engineer, (714) 593-7432

Gorillas: Carlos Mario Baltazar, Manager, (714) 545-3540

Report Prepared By: Greg V. Arthur, Environmental Engineer
April 23, 2009



1.0 Scope and Purpose

On September 11, 2008, EPA and the Orange County Sanitation Districts (OCSD) conducted a compliance evaluation inspection of Gorillas Polishing and Plating Company in Santa Ana, California (Gorillas Plating). 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.

Gorillas Plating is a significant industrial user (“SIU”) within sewer service areas administered by the OCSD 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 on September 11, 2008.

1.1 Process Description

Gorillas Plating is a job-shop decorative chromium metal finisher, primarily on aluminum wheels, but also on aluminum and steel automotive and motorcycle parts. The operations involve alkaline cleaning, electrocleaning, caustic etching, acid desmut, acid pre-etching, acid stripping, cyanide-zinc strike, sulfamate nickel plating, acid-copper plating, bright nickel plating, chromium plating, alkal. *See* Table 1.3.1 on page 4 of this report for tank inventory.

Gorillas Plating does not own the parts it finishes. Operations began in 2000. Gorillas Plating discharges non-domestic wastewaters to the OCSD domestic sewers through a single sewer connection designated in this report by permit number as IWD-511361. Domestic sewage discharges through separate connections downstream of the industrial wastewater connection. The operations follow below. The tank numbering is strictly by the EPA inspector for this report but in some cases it incorporates the tank number labels observed on-site.

1.2 Facility SIC Code

Gorillas Plating is assigned the SIC code for plating, polishing, anodizing, and coloring (SIC 3471) and metals coating (SIC 3479).

1.3 Facility Wastewater Sources

The plating, stripping, washing, and polishing lines generate spents, rinses, blowdown, and residuals. There is a single non-domestic connection to the sewers that receives contributions from the industrial wastewater treatment unit as its only source. The July 8, 2008 OCSD permit identifies the sewer sampling point as a sample box following final treatment in the



wastewater treatment system area. This compliance sample point is designated as IWD-511361 for the purposes of this report. *See* Photo #9 on page 7 of this report.

Spent Solutions – The imparted contamination from the processing of parts and the progressive drop in solution strength results in the generation of spent solutions. The generation rate depends on plating bath usage, effectiveness of bath contamination control, and the amount of drag-out lost into the rinses or to the floor. Gorillas Plating delivers caustic preparatory spents by portable pump and hose to on-site batch treatment, and bleeds the acidic preparatory spents by hard pipe to continuous treatment. Spent strippants and the bottom sludges from alkaline cleaning are delivered by portable pump and hose to drums for off-site disposal. Plating spents are regenerated solely by additions with the bright nickel, dull nickel, and electrostrip solutions continuously circulated through cartridge filters. The only other losses from these "adds-only" solution tanks therefore would be through the drag-out of solutions into the rinses. Otherwise, these solution tanks without outlets foul through contamination or fail through use. *See* Table 1.3.2 on page 4 of this report for a list of solutions.

Rinses – Gorillas Plating primarily employs (1) first-stage drag-out static rinses for the plating and initial alkaline cleaning steps for reclaim into solution make-up, and (2) following static and spray rinses. *See* Table 1.3.3 on page 4 of this report for a list of rinses.

Fume Scrubber Blowdown – Wet fume scrubber blowdown is delivered by portable pump and hosing to the batch treatment tank.

Residuals - The wastewater treatment unit generates floc drawn from the settling and Lamella clarifier steps. These sludges are screened through a filter press with the filter cake disposed off-site as hazardous. The only other residuals are spent in-tank cartridge filters for bright nickel, and spent strippants.

1.4 Facility Process Wastewater Handling

Discharge - Treated process wastewaters discharge to the sewers through a single connection located in the industrial wastewater area within the facility designated in this report after the OCSD permit number as IWD-511361. The permit lists the average discharge flow as less than 5,000 gallons per day. Effluent metering averaged 2.829 gpd over the past four fiscal years. *See* Figure 1.4 on the next page and the photos in Section 1.7 on page 6.

Composition - The process-related wastewaters listed in section 1.3 above would be expected to contain copper, chromium, lead, nickel, zinc, cyanide, and acidity, as well as oil & grease, salts, surfactants, paint grime, and other pollutants in the surface grime cleaned off of parts, and the minerals entrained in the water supply.

Delivery – Most spray and static tanks discharge by gravity through segregated hard-piping to sumps segregated by type (cyanide, chromium, general) for delivery into the industrial wastewater treatment plant for separate treatment. The delivery of spents and captured rinses is by portable pump and hosing to the batch treatment tank. Everything arrives by pump or hard pipe into the industrial wastewater treatment unit. *See* Photos #5 and #6 on page 7.



Table 1.3.1					
Gorillas Plating Tank Inventory (<i>rinses in italics</i>)					
?	T1	alkaline cleaning	?	T18	anti tarnish deox
?	T2A	<i>1°static drag-out for T1</i>	?	T19	alkaline cleaning
?	T2B	<i>1°static drag-out for T1</i>	?	T20	<i>1°static for T19</i>
?	T3	NaOH aluminum etch	?	T21	alkaline activation
?	T4	tri-acid salt cleaning	?	T22	<i>1°static for T21-23</i>
?	T5	<i>1°static for T4</i>	?	T23	HCl-acid pre-etch
?	T6	<i>2°spray for T4</i>	?	T24	bright nickel plating
?	T7	H ₂ SO ₄ -acid desmut	?	T25	bright nickel plating
?	T8	<i>2°spray for T7-13A-14A</i>	?	T26	<i>1°spray for T24-25</i>
?	T9 ①	cyanide-zinc strike	?	T27	acid activation
?	T10 ①	<i>1°spray for T9</i>	?	T28 ②	chromium plating
?	T11	H ₂ SO ₄ -acid strip	?	T29 ②	<i>1°drag-out for T28</i>
?	T12 ①	<i>2°static dwell for T9</i>	?	T30 ②	<i>2°static for T28</i>
?	T13	sulfamate dull nickel plate	?	T31 ②	<i>3°static for T28</i>
?	T13A	<i>1°static drag-out for T13</i>	?	T32	NaOH electrostrip
?	T14	acid-copper sulfate plating	?	T33	<i>1°static for T32</i>
?	T15	acid-copper sulfate plating	?	T34	HNO ₃ -acid Ni/Cr strip
?	T16	acid-copper sulfate plating	?	T35	<i>1°static for T34</i>
?	T14A	<i>1°drag-out for T14-15-16</i>	① cyanide-bearing		
?	T17	<i>2°static for T14-15-16</i>	② chromium-bearing		

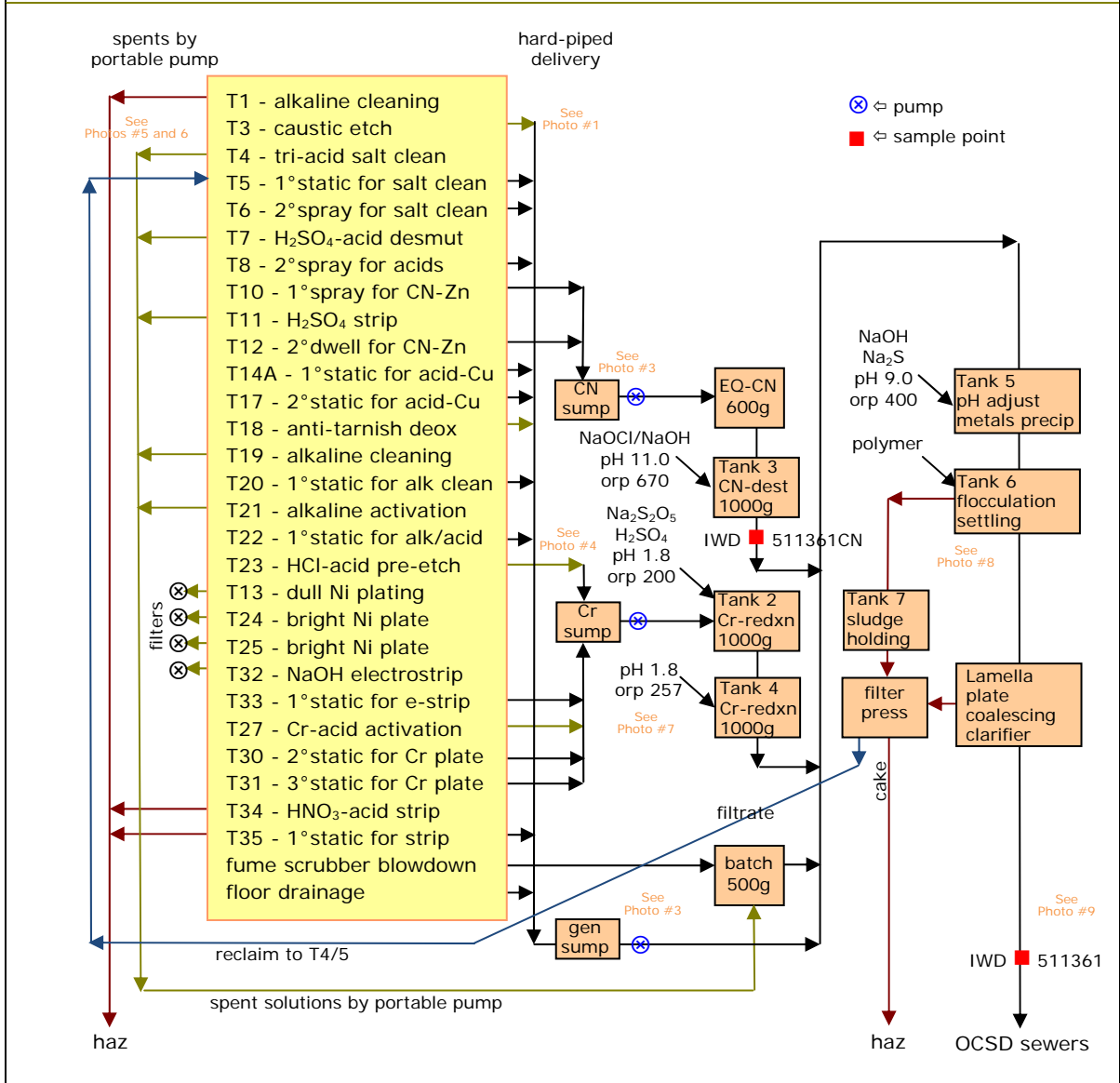
Table 1.3.2 - Gorillas Plating - Solution Baths		
Spents to Treatment	Regenerated by Additions	Spents Off-Hauled as Haz
T3 - NaOH etch	T9 - cyanide-zinc strike	T1 - alkaline cleaning ③
T4 - tri-acid salt clean ①	T13 - dull nickel plate ②	T34 - HNO ₃ -acid Ni/Cr strip
T7 - H ₂ SO ₄ -acid desmut ①	T14 - acid-copper plating	
T11 - H ₂ SO ₄ -acid strip ①	T15 - acid-copper plating	
T18 - anti tarnish deox	T16 - acid-copper plating	
T19 - alkaline cleaning ①	T24 - bright nickel plating ②	
T21 - alkaline activation ①	T25 - bright nickel plating ②	① by portable pump and hose
T23 - HCl-acid pre-etch	T28 - chromium plating	② recirc through filter cartridges
T27 - acid activation	T32 - NaOH electrostrip ②	③ sludges to off-site haz disposal

Table 1.3.3 - Gorillas Plating – Rinses		
Drag-outs to Bath Reclaim	Rinses Drained or Pumped to On-site Treatment	
T2A - 1°static for alk clean	T5 - 1°static for salt clean	T22 - 1°static for alk-acid
T2B - 1°static for alk clean	T6 - 2°spray for salt clean	T30 - 2°static for Cr-plate ①
T13A - 1°static for dull-Ni	T8 - 2°spray for acids	T31 - 3°static for Cr-plate ①
T14A - 1°static acid-Cu	T10 - 1°spray for CN-Zn	T33 - 1°static for e-strip ①
T26 - 1°spray for bright-Ni	T12 - 2°dwell for CN-Zn	T35 - 1°static for strip ②
T29 - 1°spray for Cr-plate	T17 - 2°static for acid-Cu	① by portable pump and hose
	T20 - 1°static for alk clean	② pumped to off-site haz disposal



Treatment – Gorillas Plating provides both batch treatment of high-strength spents and rinses and continuous treatment of low-strength rinses for discharge to the sewers. The continuous treatment involves (chrome reduction, cyanide destruction, sulfide and hydroxide metals precipitation, settling, plate-coalescing clarification, and sludge filter pressing. The chemical reaction steps are controlled through metering for pH and ORP. Gorillas Plating also provides filtration of the nickel plating baths through in-tank circulation through cartridges.

Figure 1.4
 Gorillas Polishing and Plating - Configuration and Layout



1.5 POTW Legal Authorities

Orange County Sanitation Districts - OCSD administers the pretreatment program in sewer districts serviced by the OCSD Fountain Valley wastewater treatment plant. This facility



operates under the requirements of the State of California, Santa Ana RWQCB's Waste Discharge Requirements, R8-2004-0062, issued in 2004. The WDRs, which also function as NPDES permit No. CA0110604, require the implementation of an approved pretreatment program throughout the sewer service area. Under this authority, OCSD issued permit No.51-1-370 authorizing the discharge of non-domestic wastewater the sewers.

1.6 Sampling Record

Gorillas Plating self-monitors metals quarterly, and cyanide and toxic organics semi-annually as required by the OCSD permit. OCSD also collects its own samples twice per year.

1.7 Photo Documentation

Nine of the eleven photographs taken during this inspection are depicted below and saved as *gorillas-1.jpg through -11.jpg*.

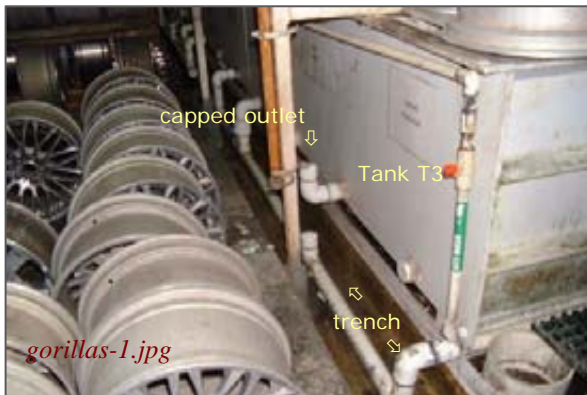


Photo #1: Hard-piping in pipe trenches
Taken By: Greg V. Arthur
Date: 09/11/08

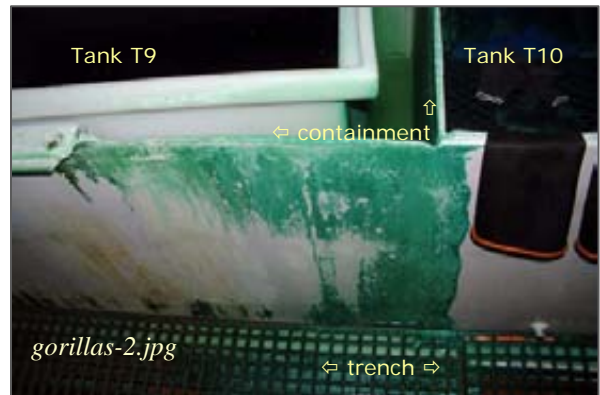


Photo #2: Secondary containment for T9 CN-zinc
Taken By: Greg V. Arthur
Date: 09/11/08

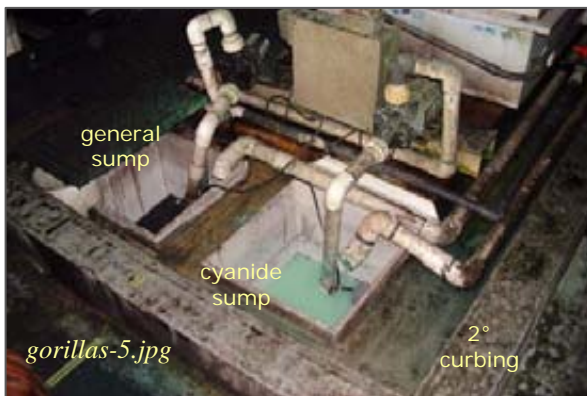


Photo #3: Inlet sumps for cyanide and general flows
Taken By: Greg V. Arthur
Date: 09/11/08



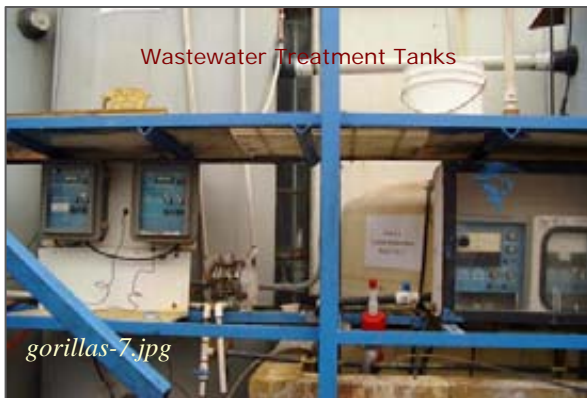
Photo #4: Inlet sump for chrome-bearing flows
Taken By: Greg V. Arthur
Date: 09/11/08



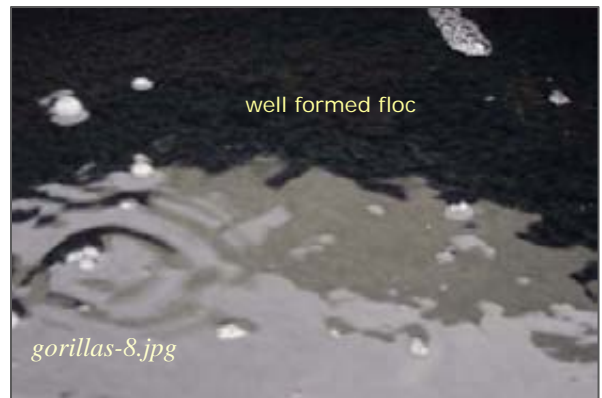
gorillas-10.jpg
Photo #5: Portable pumps on standby
Taken By: Greg V. Arthur
Date: 09/11/08



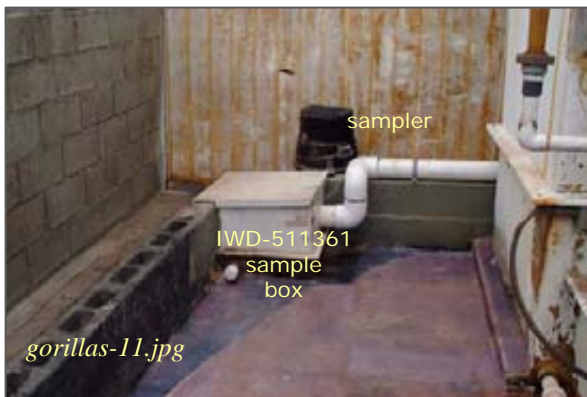
gorillas-9.jpg
Photo #6: Flexible hosing for portable pumps
Taken By: Greg V. Arthur
Date: 09/11/08



gorillas-7.jpg
Photo #7: ORP and pH meters for treatment steps
Taken By: Greg V. Arthur
Date: 09/11/08



gorillas-8.jpg
Photo #8: OH⁻/S⁼ floc in the T6 settling tank
Taken By: Greg V. Arthur
Date: 09/11/08



gorillas-11.jpg
Photo #9: Final discharge sample point
Taken By: Greg V. Arthur
Date: 09/11/08



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 Gorillas Plating through IWD-511361. For the most part, the OCSD 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* Appendix 1 on page 17 of this report for the permit limits.

Requirements

- None.

Recommendations

- The OCSD permit should specifically identify the cyanide compliance sampling point.
- The alternate Federal standards for amenable cyanide should replace the Federal standards for total cyanide in the OCSD permit.
- The OCSD permit should refer to an approved toxic organics management plan in order to exempt or partially exempt Gorillas Plating from self-monitoring for toxic organics.

2.1 Classification by Federal Point Source Category

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

New or Existing Sources – Gorillas Plating is subject to Federal standards for new sources. Under the definitions in 40 CFR 403.3(k), a process 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*). Gorillas Plating qualifies as a new source because operations began in 2000.



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 OCS&D local limits apply to non-domestic discharges in its 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 Gorillas Plating because the operations involve electroplating, chemical coating, and etching. The metal finishing standards "... apply to plants that perform ..." the core operations of electroplating, electroless plating, etching, chemical coating, anodizing, 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. If any of the core operations are performed, the new source metal finishing standards apply to discharges from the core and associated operations. As a result, the metal finishing standards apply to all process wastewater discharges through IWD-511361.

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. The OCS&D permit established a separate upstream compliance sampling point for cyanide after batch treatment unit and the filter press, referred to as IWD-511370CN for the purposes of this inspection. *See* Table 1.3.1 on page 4 for the list of cyanide-bearing sources and Figure 1.4 on page 5 for the location of the cyanide compliance sampling point.

Second, under 40 CFR 403.6(d,e), the Federal categorical pretreatment standards 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. The OCS&D permit requires self-monitoring for EPA 624 volatile organics but not for all of the toxic organics listed in 40 CFR 433.11(e). The permit does not refer to an approved toxic organics management plan that exempts self-monitoring for all toxic organics.

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 OCS&D permit prohibits bypassing (Permit Part 2.II.A.2), and references a provision against dilution as a substitute for treatment (Permit Part 3.I.B).

2.5 Point(s) of Compliance

The permit identifies the sample box within the pretreatment area as the location of the secured sampling point, designated in this report as IWD-511370. The permit does not specifically identify the location of the cyanide compliance sampling point, IWD-511361CN.

Federal Standards - Federal categorical pretreatment standards for metals and toxic organics apply end-of-process-after-treatment to all Federally-regulated discharges to the sewers. The sample point IWD-511361 is a suitable end-of-process-after-treatment sample point representative of the day-to-day discharge of Federally-regulated wastewaters from Gorillas Plating 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-511361 is a suitable end-of-pipe sample point representative of the day-to-day non-domestic wastewater discharges from Gorillas Plating.

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 OCS&D permit establishes these sampling protocols by specifying the type of sampling required by parameter (Permit Attachment A). *See* Section 5.0 of this report on page 16 and Appendix 1 on page 17.



3.0 Compliance with Federal 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).

Gorillas Plating employs best-available-technology (“BAT”) model treatment and as a result has achieved consistent compliance with all Federal standards. The configuration, delivery controls, segregation by strength and treatability, and operational controls are all excellent and contribute to a record of compliance. Although there were violations over the past four fiscal years, they do not reflect a lack of adequate treatment or control. The few monthly-average cyanide violations are an artifact of sampling unlikely to occur in the future if (1) alternate amenable standards apply and (2) the months with cyanide sampling involve two or more samples. Also the last 100+ samples for metals were in compliance. *See* Appendices 2 and 3 on pages 18 and 19 for summaries of the sampling record and permit violations.

Requirements

- None.

Recommendations

- Hard-piping and permanent standpipe stations should be established for the delivery of spents to treatment in order to eliminate the use of long flexible hosing.
- See Sections 2.0 and 5.0 on pages 8 and 16 for adjustments in cyanide self-monitoring.

3.1 Sampling Results

The 2005-2009 sample record for Gorillas Plating collected from the secured sampling points consists of self-monitoring weekly for chromium, copper, nickel, and zinc, quarterly for cadmium, lead, and silver, and semi-annually for cyanide and toxic organics, as well as sampling collected by OCSD quarterly for metals and cyanide. All metals samples were 24-hour composites. The cyanide and toxic organics samples were grabs. *See* Appendix 2 on page 18 for a summary of the compliance sampling.

3.2 Best-Available-Technology Treatment

Gorillas Plating employs best-available-technology (“BAT”) model treatment for the removal of metals and the destruction of cyanide. As a result, over the past four fiscal years



beginning in July 2005, Gorillas Plating has achieved or nearly achieved consistent compliance with all of the the Federal standards. The samples on occasion slightly exceeded the Federal standards for cyanide, chromium, and silver, resulting in calculated average and 99th% peak concentrations of 0.276 and 1.109 mg/l total cyanide, 0.708 and 2.522 mg/l chromium, and 0.018 and 0.262 mg/l silver. Samples for the other pollutants always met the Federal standards with average and calculated 99th% peak concentrations of <0.007 mg/l cadmium, 0.480 and 1.476 mg/l copper, 0.005 and 0.030 mg/l lead, 1.311 and 3.271 mg/l nickel, 0.071 and 0.335 mg/l zinc, and 0.168 mg/l and 0.459 mg/l total toxic organics.

- Cyanide – The statistical probability of violating Federal cyanide standards was 15% per sampling month but essentially 0% per sampling event. Both standards were based on sample records for the same model treatment but they reflect differing statistics, with daily-maximums reflecting the expected statistical performance of a single sample, and monthly-averages reflecting that of at least four samples averaged together. As a result, large discrepancies like this, at a facility with BAT model treatment, is the likely result of comparing averages comprising single samples against monthly-average standards. An increase even to just two cyanide samples per sampling month would greatly close the probability gap and make it unlikely that the monthly-average standards would be violated in the future. *See* Section 5.0 on page 16.
- Metals – The statistical probability of violating the Federal standards for metals falls between 2 and 4% per sampling event and sampling month. Over the past four fiscal years, all three samples in the record that resulted in the four violations occurred before February 2007. Since then there been over 100 straight samples for metals in compliance with both the daily-maximum and monthly-average standards. As a result, these sampling results indicate consistent compliance with the Federal standards for metals.
- Toxic Organics – The statistical probability of violating the Federal standards for toxic organics is essentially 0% per sample.

Therefore, it is likely the violations in the sample record are artifacts of sampling. Even though violation rates over 1% often point to deficiencies in the design or operation of treatment, the model treatment in-place at Gorillas Plating and multiple enhanced controls greatly improve the performance to the point that consistent compliance with all Federal standards can continue to be achieved. The improvements (+) and deficiencies (-) are listed below.

- + Excellent floc formation of both metals sulfide and hydroxide precipitates.
See Section 1.7 - Photo #8 on page 7.
- + Segregated sewer delivery and treatment by treatability and strength.
- + Batch treatment of alkaline spents and fume scrubber blowdown.
- + Positive hard-piped or pumped delivery of all wastewaters sources to treatment.
- + Good reaction end-point process unit controls through the use of ORP and pH metering.
- + Good solids removal using both chemical-aided setting and plate coalescing clarification.
- + Good secondary containment of tanks, hard-piping, delivery sumps, and treatment.
See Section 1.7 - Photos #1, #2, #3, #4, and #9 on pages 6 and 7.
- Batch feed of plate coalescing clarification is not as efficient as even metering.
- Spent solutions are delivered by portable pump and hosing to treatment.



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.

There is no evidence of dilution as a substitute for treatment since Gorillas Plating does not meet both conditions of non-compliance. The first condition is not met since all Federal regulated waters discharge through BAT model treatment. Therefore, it is irrelevant whether the second condition is met or not. However, there were no rinses observed discharging irrespective to parts processing since all rinses were either on-demand sprays or statics.

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 were no observed methods of bypassing at Gorillas Plating. In particular, the delivery of all waste streams was observed to lead to treatment and discharge through the permitted sample point. However, the delivery of most spents involves portable pumps and long flexible hosing which makes an inadvertent bypassing of treatment possible.



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 Gorillas Plating has almost always complied with its local limits for metals, cyanide, and organics. There were no sample results reported for pH, and oil and grease, although the presence of treatment to remove metals would be expected to also result in consistent compliance. Over the past four fiscal years, there were just four samples out of 157 that exceeded local limits, all for chromium. The statistical chance of another is ~5% unless there is a change in configuration or operation. For chromium, the Federal standards are less stringent than the local limits. As a result, improving performance in order to establish consistent compliance with the local limits would further ensure consistent compliance with the Federal standards. *See* Appendices 2 and 3 on pages 18 and 19 for summaries of the sample record and permit violations.

Requirements

- None.

Recommendations

- Even meter the feed into the Lamella clarifier to increase precipitate removals.
- Convert to chromium batch treatment involving chromium reduction, metals hydroxide precipitation, filter pressing, and testing prior to release into the continuous treatment.

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 OCS&D wastewater treatment plants through consistent compliance with their 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 infrequent violations of the local limit for chromium, but no violations of any other local limit. These violations did not result in or contribute to any interference in the operations of the OCSD sewer system and wastewater treatment plants. Batch treatment for chromium, and even metering of the feed into the Lamella clarifier would increase the removal of chromium.

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

Metals and Cyanide – There were infrequent violations of the local limit for chromium, but no violations of any other local limits. These violations did not result in or contribute to any pass-through of pollutants from the OCSD wastewater treatment plants into the Pacific ocean or into the treatment plant sludge in violation of its NPDES permit.

Toxic Organics – There were no violations of the local limits for toxic organics.

Oil and Grease – There were no sample results reported for oil and grease. The low levels of oil and grease expected and the presence of both metals treatment and the dual final clarifier steps would be expected to result in consistent compliance with oil and grease limits.

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 clarifiers comprise both acidic and alkaline waste streams and can vary in pH. As a result, compliance with the pH limits depends on the successful treatment. 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 – Gorillas Plating has successfully fulfilled the self-monitoring requirements set forth in the OCSD permit. Over the past four fiscal years, the sample record shows that Gorillas Plating (1) submitted sample results for all permit listed parameters at the required frequency, (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. The frequent weekly sampling for the common metals properly ensures that the sample record accounts for the intermittent contributions from the numerous static and spray rinses, as well as the intermittent contributions from batch treatment. Some pollutants always 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 be continuous given the variable and nature of the wastewaters entering the final clarifier.

Requirements

- *See* Appendix 1 on page 17 for the self-monitoring and OCSD monitoring requirements for IWD-511361 and IWD-511361CN 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.
- Cyanide should be self-monitored at least twice per quarter with both self-monitoring samples and the OCSD quarterly sample all taken in the same calendar month.



Appendix 1
Sewer Discharge Standards and Limits for Gorillas Plating @ IWD-511361

FEDERAL CATEGORICAL STANDARDS AND OCSD LOCAL LIMITS						
pollutants of concern (mg/l)	Fed stds d-max	Fed stds mo-avg	loc limits instant	loc limits d-max ④	monitoring frequency ⑤	
					discharger	district
flow (gpd)	-	-	-	-	1/day	-
arsenic	-	-	2.00	0.083	-	③
cadmium	0.11	0.07	1.00	0.005	1/six-mos	quarterly
chromium	2.77	1.71	2.00	0.083	weekly	quarterly
copper	3.38	2.07	3.00	0.125	weekly	quarterly
lead	0.69	0.43	2.00	0.029	1/six-mos	quarterly
mercury	-	-	0.030	0.001	-	③
nickel	3.98	2.38	10.00	0.166	weekly	quarterly
silver	0.43	0.24	5.00	0.018	quarterly	quarterly
zinc	2.61	1.48	10.00	0.109	weekly	quarterly
cyanide – total	1.20 ①	0.65 ①	5.00	0.050	-	1/year
cyanide - amenable	0.86 ①	0.32 ①	1.00	0.042	2/quarter ⑥	quarterly
total toxic organics	2.13	-	0.58	-	1/six-mos	1/year
oil+grease - mineral	-	-	100	-	-	1/year
pH (s.u.)	-	-	6.0-12.0	-	continuous	quarterly
biochem oxy demand	-	-	-	15000	-	③
total sulfides	-	-	5.00	-	-	1/year
dissolved sulfides	-	-	0.50	-	-	1/year
PCBs	-	-	0.010	-	-	③
pesticides	-	-	0.010	-	-	③
explosivity	-	-	②	-	-	③

- ① Unadjusted at IWD-511361CN since there is no dilution from non cyanide-bearing flows.
- 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 Loading limits in lbs/day, based on baseline minimum flow rate of 5,000 gpd.
- ⑤ Recommended **reductions in green**. Recommended **increases in red**.
- ⑥ At least two sampling days in the same calendar month per quarter.



Appendix 2
Wastewater Discharge Quality for Gorillas Plating from July 2005 - March 2009

SAMPLE RECORD SUMMARY							
pollutants (µg/l)	effluent sampling results				violation rate		sample count
	mean	99th%	min	max	sample	period ③	
cadmium	<7	<7	<7	<7	0/49	0/34	49
chromium	707.7	2522.3	<2	5850	4/157	1/39	157
copper	479.8	1475.8	<2	2480	0/157	0/39	157
lead	4.6	30.4	<2	55	0/49	0/34	49
nickel	1311.3	3270.7	<2	3920	0/157	0/39	157
silver	18.1	262.1	<2	620	1/49	1/34	49
zinc	70.9	335.3	<2	1030	0/157	0/39	157
total cyanide	275.7	1108.5	<2	930	0/16	5/16	16
amenable cyanide	-	-	-	-	②	②	0
total toxic organics	168.3	458.5	13.7	359.8	0/14	-	14
oil+grease – min (mg/l)	-	-	-	-	②	-	0
flow (gpd)	2829	4689	900	8200	-	-	①
pH (s.u.)	④	-	-	-	②	-	0

- ① Continuous flow self-monitoring results reported for the day of sampling
- ② No sample results for these pollutants of concern - pH, amenable cyanide, oil and grease.
- ③ Monthly averages calculated by calendar month of both self-monitoring and OCSD sampling
- ④ pH median

STATISTICAL PROBABILITY OF FUTURE VIOLATIONS					
violation probability by parameter	mean (µg/l)	std dev (µg/l)	statistical probability	=	percent
Fed d-max – chromium	µ = 707.7	σ = 778.8	a(2770)	=	0.0041 ~0%
Fed mo-av – chromium	µ = 657.6	σ = 488.1	a(1710)	=	0.0158 ~2%
local d-max – chromium	µ = 707.7	σ = 778.8	a(2000)	=	0.0486 ~5%
Fed d-max – total cyanide	µ = 275.7	σ = 357.4	a(1200)	=	0.0049 ~0%
Fed mo-av – total cyanide	µ = 275.7	σ = 357.4	a(650)	=	0.1475 ~15%
Fed d-max – silver	µ = 18.1	σ = 104.7	a(430)	=	0.0000 ~0%
Fed mo-av – silver	µ = 26.7	σ = 106.1	a(240)	=	0.0222 ~2%



Appendix 3
Gorillas Plating Violations from July 2005 – March 2009

FEDERAL STANDARD VIOLATIONS FOR METALS						
sample dates	type	sampler	Fed standards / local limits ①	violations	days	
11/14/06	24-hr	POTW	Fed d-max - chromium 2.71 mg/l	5.85	1	
Nov 2006	24-hr	IU + POTW	Fed mo-avg - chromium 1.77 mg/l	1.92	30	
01/18/07	24-hr	IU	Fed d-max - silver 0.43 mg/l	0.62	1	
Jan 2007	24-hr	IU	Fed mo-avg - silver 0.24 mg/l	0.62	30	

FEDERAL STANDARD VIOLATIONS FOR CYANIDE						
sample dates	type	sampler	Fed standards / local limits ①	violations	days	
Jul 2005	grab	IU	Fed mo-avg – CN(total) 0.65 mg/l	0.68	31	
Mar 2006	grab	IU	Fed mo-avg – CN(total) 0.65 mg/l	0.82	31	
Jul 2006	grab	IU	Fed mo-avg – CN(total) 0.65 mg/l	0.93	31	
Jun 2007	grab	POTW	Fed mo-avg – CN(total) 0.65 mg/l	0.695	30	
Oct 2008	grab	POTW	Fed mo-avg – CN(total) 0.65 mg/l	0.745	31	

LOCAL LIMIT VIOLATIONS						
sample dates	type	sampler	Fed standards / local limits	violations	days	
11/14/06	24-hour	POTW	local instant - chrome 2.0 mg/l	5.85	1	
03/06/07	24-hour	POTW	local instant - chrome 2.0 mg/l	2.95	1	
01/09/08	24-hour	POTW	local instant - chrome 2.0 mg/l	3.76	1	
01/15/08	24-hour	POTW	local instant - chrome 2.0 mg/l	2.67	1	

① Monthly averages calculated by calendar month of all self-monitoring and OCSD sampling.