UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

Dec 06, 2004

In Reply Refer To: WTR-7

Tony Aguillar, Envr Health & Safety Manager
Nu-Metal Finishing
2262 Calle del Mundo
Santa Clara, California 95054

Dear Mr. Aguillar:

Enclosed is the report for EPA's August 5, 2004 compliance evaluation inspection of Nu-Metal Finishing. We request that you submit a short response to each specific finding in the numbered items 2.0 - 5.0 of this report by January 30, 2005.

The main findings are summarized below:

1 The San Jose/Santa Clara permit did not correctly apply the Federal new source pre-treatment standards for metal finishing but did correctly apply the local limits.

2 Treatment on-site for metals and toxic organics exceeds the performance of the model used in setting the Federal standards. However, the cyanide-bearing rinses are untreated for cyanide and will not consistently comply with the amenable cyanide standards.

3 At least one potential method of unauthorized bypassing of treatment or the permitted compliance sampling point was found.

4 The intermittent violation of the local limit for nickel should be determined in order to control the variability in the discharge water quality.

5 Low-TDS overflow rinses and treated wastewaters could be reclaimed.

We thank you for your cooperation during our inspection. Please send copies of any submittal to San Jose/Santa Clara as well as to us. If you have any questions, please feel free to contact me at (415) 972-3504 or by e-mail at arthur.greg@epa.gov.

Sincerely yours,

Original signed by:
Greg V. Arthur

Greg V. Arthur, Envr. Engr.
CWA Compliance Office

Enclosure

cc: Kort Jackson, San Jose/Santa Clara
Mike Chee, RWQCB

U.S. ENVIRONMENTAL PROTECTION AGENCY

REGION 9

CLEAN WATER ACT COMPLIANCE OFFICE

NPDES COMPLIANCE EVALUATION INSPECTION REPORT

Industrial User:	Nu-Metal Finishing 2262 Calle del Mundo, Santa Clara, California 95054 Metal Finishing (40 CFR 433)
Treatment Works:	San Jose/Santa Clara Water Pollution Control Plant (NPDES Permit CA0037842)
Dates of Inspection:	August 5, 2004

Inspection Participants:

US EPA:	Greg V. Arthur, CWA Compliance Office, (415) 972-3504 Meg Masquelier, CWA Compliance Office, (415) 972-3536
RWQCB:	No Representative
City of San Jose:	Kort Jackson, Industrial Waste Inspector, (408) 945-5474 Phil McGinnis, Industrial Waste Supervisor, (408) 382-8853
Nu-Metal Finishing:	Tony Aguillar, Envr Health & Safety Manager, (408) 727-1050 Bill Dunton, Envr Consultant, (408) 727-1050 Bruce Collins, Facilities Manager, (408) 727-1050

Report Prepared By:	Greg V. Arthur, Environmental Engineer October 30, 2004

Section 1

Introduction and Background

1.0 Scope and Purpose

On August 5, 2004, EPA conducted a compliance evaluation inspection of Nu-Metal Finishing in Santa Clara. The purpose was to ensure compliance with the Federal regulations covering the discharge of non-domestic wastewaters into the sewers, in particular, to ensure:

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

Nu-Metal Finishing is one of 13 significant industrial users ("SIUs") in San Jose/Santa Clara Water Pollution Control Plant service area whose compliance was assessed as part of EPA's 2004 evaluation of the San Jose/Santa Clara pretreatment program. San Jose/Santa Clara received a report prepared by Tetra Tech, the State of California's contractor. The industrial users including Nu-Metal Finishing received or will receive individual reports from EPA. The inspection participants are listed on the title page. Masquelier conducted the inspection on August 5.

1.1 Process Description

Nu-Metal Finishing is a full service job-shop metal finisher operating at 2262 Calle del Mundo in Santa Clara. Nu-Metal Finishing provides the following metal finishing steps:

- preparation – alkaline soap clean, alkaline electroclean, hydrochloric-acid etch, nitric-acid etch, sulfuric-acid etch, aluminum alkaline etch, nitric-acid/ammonium bifluoride pickle, hydrofluoric-acid etch, sulfuric-acid desmut, nitric/sulfuric-acid deoxidation, formic acid prep, cyanide-gold strip, alkaline nickel strip, citric acid strip, cyanide strip

- electroplating and electroless plating – nickel (sulfamate, strike, bright, boron, electroless), copper (strike, bright acid, cyanide), gold (cyanide), silver (cyanide), tin (acid), platinum (acid), zincate

- coating and finishing – chromium conversion coating (iridite, clear alodine, gold chemfilm), chromic-acid bright dip, sand blasting, tooling, furnace curing

Nu-Metal Finishing does not own the parts processed. Although Nu-Metal Finishing began operations in February 1982, the entire facility was rebuilt in 1994.

1.2 Waste Streams

Spent Solutions - The imparted contamination from the processing of parts and the progressive drop in solution strength results in the generation of spent solutions. Each of the metals processing step at Nu-Metal Finishing generate spent solutions which are either hauled-off site either for disposal, or if precious metals-bearing, for reclaim.

Rinses – Nu-Metal Finishing primarily employs continuous-overflow rinses and, to a lessor extent, drag-out static rinses. All rinse waters are DI rinses. First-stage drag-outs follow the cyanide-related plating steps for gold, silver, and copper, cyanide-related stripping, cyanide-bearing chromate conversion coating steps, and zincate coating. First-stage overflow rinses follow the preparation steps of alkaline cleaning, acid etching, alkaline etching, acid deoxidation, and acid desmut. First- or second-stage overflow rinses also follow electroless nickel, platinum, tin, cyanide-gold plating. There is one final-stage cascading overflow rinse for the clean room. Decommissioned preparation and coating steps used to employ spray rinses. Certain rinsing practices on-site improve the operational control of wastewater treatment and handling. First, DI rinses prevent the build-up of the salts in the city water, thereby extending the useful life of the solutions. Second, drag-out rinses further extend the useful life of the solutions when the drag-out is reused as make-up. However, most drag-outs are hauled off-site for disposal. The rinsing on-site also does not involve the good practices of using only static or on-demand overflow rinses, following all steps with drag-outs, and proceeding strongly acidic or alkaline steps with deactivation rinses to reduce drag-out contamination from one step to the next, thereby further extending the useful life of the solutions.

Fume Scrubber Blowdown – Nu-Metal Finishing generates an acidic blowdown from the fume scrubbers servicing the fume hoods over acidic solution tanks.

Residuals – Nu-Metal Finishing generates spent ion exchange and activated carbon columns.

1.3 Wastewater and Waste Handling

Process wastewaters discharge into the sewers through one identified sewer inlet. Most wastewaters are treated through the industrial wastewater treatment unit (“IWT”) for disposal to the sewers through compliance sampling point IWD-1. Spent carbon and ion exchange columns are hauled off-site. See Appendix 1 for a schematic of wastewater handling.

Ion Exchange IWT – Rinsing wastewaters fill a pit which is pumped on-demand to an 800-gallon holding tank for pH adjustment and metering through three ion exchange units. Each ion exchange unit consists of an activated carbon column followed by a cationic and an anionic ion exchange column. Fume scrubber blowdown and the IWT ion exchange effluent are treated together through pH adjustment and a final holding tank prior to discharge to the sewers or reuse as rinse water make-up. The final discharge holding tank serves as the compliance sample point, designated in this report as IWD-1A. The single sewer connection located under the flooring has three inlets. The first inlet accepts a hard-plumbed line from the IWT for the treated process wastewaters. The second was capped. The third was fitted

with a flexible hose coiled under the flooring. The flexible hose can be pulled through the flooring and thus is a second sewer discharge point, designated in this report as IWD-1B.

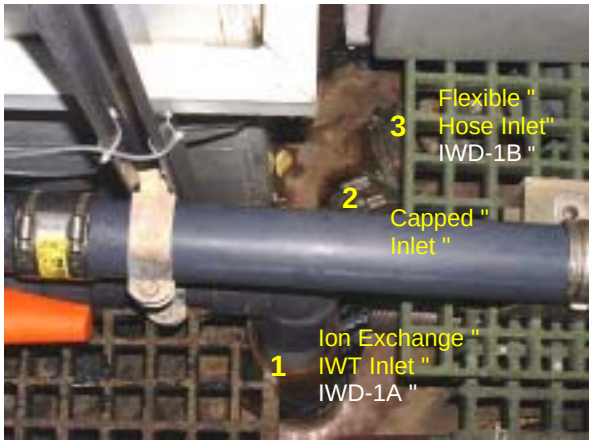


Photo No.1 – Sewer Connection Inlets

Photo No.2 – Flex Hose Connection

Delivery – Overflowing rinse waters drain by hose to a number of shallow trays underlying much of the flooring. These shallow trays are hard piped to the IWT inlet pit. Any spray rinsing is performed over the shallow trays. The purpose of the flexible hose connection to one of the inlets to the sewer connection is uncertain.

Off-hauling – Spent solutions are hauled off-site for disposal or reclaim. Spent carbon and ion exchange columns are serviced for regeneration off-site.

1.4 Wastewater Discharge Permitting

San Jose issued permit No. SC-064B to Nu-Metal Finishing authorizing the discharge of process wastewaters to the sewers through one sewer connection. The sample point is the final discharge holding tank referred to in this report as IWD-1A. The permit sets limits and self-monitoring requirements for IWD-1A. The permit also specifies sampling protocols and includes the general provisions of the Santa Clara City Code (§23-1 et seq.) that apply to all non-domestic discharges to the Santa Clara sewers.

Sewer Discharge Standards and Limits

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

2.0 Summary

The Federal metal finishing standards apply to the discharges through IWD-1A. The Federal job-shop electroplating standards do not apply because the facility qualifies as a new source. The local limits also apply to IWD-1A. The San Jose permit misapplied the Federal standards but correctly applied the local limits. See Appendix 2 for the discharge requirements.

Requirements

- The permit must apply the Federal standards for metal finishing.

Recommendations

- Baseline self-monitoring should include arsenic, mercury, molybdenum, and selenium.

2.1 Classification by Federal Point Source Category

Nu-Metal Finishing qualifies as a metal finisher subject to the Federal standards in 40 CFR 433. The facility no longer qualifies as a job-shop electroplater subject to the Federal standards in 40 CFR 413 because the entire facility was rebuilt after promulgation of the metal finishing rule. Federal standards are self-implementing which means they apply to regulated waste streams whether or not they are implemented in a local permit. The Federal rules in 40 CFR 403.6 define domestic sewage and non-contact wastewaters to be dilution waters.

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 San Jose/San Clara local limits apply to non-domestic discharges in the Santa Clara service area.

2.3 Federal Categorical Pretreatment Standards
Metal Finishing - 40 CFR 433

Applicability - Under 40 CFR 433.10(a), the metal finishing standards apply to the process wastewaters from all of the metal finishing operations because they involve electroplating (nickel, gold, silver, copper, platinum, tin), electroless plating (nickel), chemical coating (zincate, chrome conversion), and etching (alkaline etch, acid etch, deoxidation, pickle, strip, desmut). 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, such as cleaning (alkaline soap, electroclean), machining (tooling), and sand blasting, associated with metal finishing and specifically listed in 40 CFR 433.10(a). If any of the core operations are performed, the standards apply to discharges from any of the core or associated operations. As a result, the metal finishing standards apply to all process wastewaters discharges to IWD-1A.

The Federal job-shop electroplating standards in 40 CFR 413 do not apply. They apply only to existing source job-shops that own less than 50% of the parts processed and were in operation in their present configuration before the August 1982 promulgation date of the proposed Federal rule for metal finishing. Nu-Metal Finishing owns less than 50% of the parts processed. However, under the definitions in 40 CFR 403.3(k), a new process constructed at an existing source after August 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 definition essentially means the new source metal finishing standards apply to new lines, rebuilt lines, or existing lines converted to do new operations. At Nu-Metal Finishing, all of the metal finishing lines were completely rebuilt in 1994.

Standards - The standards for new sources in 40 CFR 433.17 for the metal finishing wastewater discharges at Nu-Metal Finishing to the sewers follow below.

New Source Standards from 40 CFR 433.17

(in mg/l)	Cd	Cr	Cu	Pb	Ni	Ag	Zn	CN(t)	CN(a)	TTO
Daily-Max	0.11	2.77	3.38	0.69	3.98	0.43	2.61	1.20	0.86	2.13
Month-Avg	0.07	1.71	2.07	0.43	2.38	0.24	1.48	0.65	0.32	-

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 – Most of the Federal standards at IWD-1A do not have to be adjusted to account for dilution or multiple Federal categories because all of the wastewaters through this compliance sampling point qualify as Federally-regulated under the metal finishing rule. However, under 40 CFR 433.12(c), the cyanide standards must be adjusted to account for dilution from non-cyanide bearing waste streams (Federally-regulated and unregulated). At Nu-Metal Finishing, cyanide-bearing wastewaters are generated by the gold-, silver-, and copper-cyanide plating, cyanide stripping, and chromate conversion coating. As a result, the cyanide standards as applied to IWD-1A must be adjusted proportionally downward to account for dilution from the other waste streams. EPA estimates the dilution ratio to be ~3:1 based on the number of overflowing rinse tanks for cyanide-bearing and non-cyanide-bearing discharges. Amenable cyanide standards may apply because chromium conversion often has ferro-cyanide which is not amenable to destruction by alkaline chlorination.

Compliance Deadline - New sources were required to comply on the first day of discharge. All discharges were from new sources after 1994.

2.5 Point(s) of Compliance

See section 1.4 for the description of IWD-1A. Federal categorical standards apply end-of-process-after-treatment to all Federally-regulated flows at IWD-1A. National prohibitions and local limits apply end-of-pipe to all non-domestic flows at IWD-1A. The flexible hose, designated in this report as IWD-1B, would not be considered a compliance point since there is no viable sample point.

2.6 Compliance Sampling

Federal standards are daily-maximums and are comparable to 24-hour composite samples collected either manually or automatically to be representative of the sampling day's operations. At IWD-1A, since the Federally-regulated wastewaters discharge continuously, the Federal standards are comparable to 24-hour composite samples. Local limits and the national prohibitions are instantaneous-maximums and are comparable to samples of any length including single grab samples.

2.7 Pollutants of Concern

The permit appropriately advances local limits and self-monitoring requirements for cadmium, chromium, copper, lead, nickel, silver, zinc, toxic organics, and total cyanide, since the discharges include these pollutants and San Jose/Santa Clara is regulated for them by its NPDES permit and the Federal sludge standards. The permit also appropriately advances local limits for pH since the discharges include alkaline, and acidic wastewaters. The permit advances local limits without self-monitoring for antimony, arsenic, beryllium, manganese, mercury, molybdenum, oil & grease, phenol & derivatives, selenium, and xylene. Arsenic, mercury, molybdenum, and selenium could be present in the discharge.

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).

3.0 Summary

On-site treatment for metals and toxic organics exceeds the performance of the best-available-technology model used in setting the Federal standards. As a result, for metals and toxic organics, Nu-Metal Finishing consistently complied with the Federal standards in the permit and is expected to continue to consistently comply with the more stringent standards that now apply. However, the cyanide-bearing rinses are unsegregated and untreated and would not be expected to consistently comply with the adjusted Federal standards that now apply. Any use of sewer inlets other than the permitted IWD-1A constitutes bypassing of treatment necessary to comply. See Appendix 3 for a sampling summary for IWD-1A.

Requirements

- The cyanide-bearing wastestreams must consistently comply with the Federal metal finishing standards for total or amenable cyanide.
- Untreated overflow and static cyanide-bearing rinses must be operated on-demand.

Recommendations

- The amenable cyanide standards should be applied if the cyanide-bearing rinses are

and (2) installing an alkaline chlorination step to treat only cyanide-bearing flows.

3.1 Sampling Records

The 2002-2004 sample record for Nu-Metal Finishing consists of representative sampling from IWD-1A for all of the Federally-regulated pollutants. Self-monitoring is monthly for copper and nickel, quarterly for the other metals and cyanide, and twice per year for toxic organics. San Jose/Santa Clara monitors for all of these pollutants quarterly. All samples from IWD-1A appear to be usable for determining compliance with the Federal standards. See sections 2.5, 2.6 and 5.0 regarding the use of sample results for IWD-1A.

3.2 Compliance at IWD-1A

Metals – Consistent compliance with the Federal standards for the regulated metals at IWD-1A would be expected because ion exchange for rinses exceeds in design the best-available-technology ("BAT") model used in setting the Federal standards for both job-shop electro-plating and metal finishing. Sampling confirms this finding. The averages and calculated 99th% peaks for the Federally-regulated metals are all low enough to result in a negligible <1% chance of exceeding the more stringent Federal metal finishing standards.

Toxic Organics – Consistent compliance with the Federal metal finishing standard for toxic organics would be expected because source controls followed by activated carbon filtration exceeds the performance of the models used in setting the Federal standard. From past sampling, the average and calculated 99th% peak for total toxic organics are low enough to result in a negligible <1% chance of exceeding the Federal standard.

Total Cyanide – The Federal metal finishing standards that now apply are significantly more stringent than the job-shop electroplating standards that used to apply, mainly because the new standards apply BAT performance to just cyanide-bearing waste streams. This causes the Federal cyanide standards to adjust downward to account for dilution from non-cyanide-bearing flows. As a result, the unsegregated and untreated cyanide-bearing rinses would not be expected to consistently comply with the adjusted Federal standards at IWD-1A. From past sampling, the average and calculated 99th% peak are 0.064 and 0.264 mg/l total cyanide, which results in a 9% statistical chance of violating the adjusted monthly-average Federal standards. Nine percent is a likely underestimate for two reasons. First, the actual adjust-ment of the standards depends on the proportion of the total discharge from cyanide-bearing sources. The EPA calculations were based solely on proportions of rinsing tank volumes and not on actual flow measurements. Second, the prohibition against dilution as a substitute for treatment means the untreated cyanide-bearing flows must be operated on-demand. Both factors would be expected to further adjust the standards downward. See Sections 2.0 and 2.4 regarding adjustment of the standards. See Section 3.3 regarding dilution as a substitute for 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 the BAT model treatment with dilute waste streams. In particular, this prohibition applies when samples of a diluted waste stream are found to be below the Federal standards and the apparent compliance is used to justify a discharge without treatment. There are two conditions that need to be established in order to make a determination of non-compliance with the prohibition against dilution as a substitute for treatment. First, some or all of the Federally-regulated wastewaters must discharge without undergoing BAT model treatment or its equivalent. Second, there must be some form of excess water usage within a Federally-regulated process. Regarding cyanide, Nu-Metal Finishing meets the first condition since the cyanide-bearing rinses are unsegregated and untreated for cyanide. Nu-Metal Finishing also meets the second condition since the cyanide-bearing rinses are not generated on-demand. "On-demand" means that the overflow rinses discharge irrespective of whether there are parts undergoing processing and that static rinses are discharged on a schedule irrespective of their quality.

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.

The discharge of process wastewaters through any open sewer inlet other than the one that accepts treated wastewaters from the IWT would constitute bypassing of treatment necessary to comply. Furthermore, the only sampled discharge is from the IWT discharge holding tank through IWD-1A. In particular, EPA could not determine a legitimate function for the sewer inlet with an attached flexible hose located under the floor grating. See Photo Nos. 1 and 2 in Section 1.3 of this report.

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).

4.0 Summary

The discharges nearly always comply with the local limits. The exceptions were isolated daily-maximum violations in 2003 and a resulting yearly average violation for nickel. Consistent operation of the on-site treatment of all generated wastewaters should result in consistent compliance. See Appendix 3 for a sampling summary for IWD-1A.

Requirements

- None.

Recommendations

- The cause of the intermittent nickel violations should be determined in order to control the variability in the discharge water quality from the IWT.

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 evaluation did not include an evaluation of whether achievement of the national objectives in 40 CFR 403.2 have been demonstrated by consistent compliance with the sludge and discharge limits at the San Jose/Santa Clara wastewater treatment plant.

4.2 Local Limits for Toxic Metals, and Toxic Organics

Nickel – Twenty-five of 28 samples (89%) complied with the local limits for nickel. The remaining three samples exceeded the daily-maximum limit of 1.1 mg/l nickel and resulted in a violation of the yearly-average limit of 0.5 mg/l nickel in 2003. The average for nickel was 0.426 mg/l, however the median was 0.205 mg/l, and the average without the three violations was 0.255 mg/l. This indicates that the ion exchange units, dedicated to only rinse waters, should be expected to produce averages below the yearly-average local limit for nickel. EPA could not determine the cause of the intermittent violations, although, as with any treatment system, they are likely related to operator error, influent strength (from the electroless nickel steps) or some other source of variability and instability in the treatment system.

There are many advantages to redirecting low-TDS overflow rinse waters and IWT ion exchange effluent to the water supply deionization unit as make-up water. Both low-TDS overflow rinses and IWT ion exchange effluent would be expected to be less mineralized and more consistent in quality than the City water supply. As a result, their reuse would not only reduce demand on the water supply ion deionization unit and the IWT ion exchangers but also proportionally reduce the flow rate and pollutant loadings to the sewers. A smaller discharge would allow the installation of either an influent or effluent equalization tank to effectively reduce variabilities in the discharge water quality through or from the IWT.

Other Pollutants – All samples (100%) complied with the local limits for total cyanide, cadmium, chromium, copper, lead, silver, zinc, and total toxic organics. There were no sample results for arsenic, mercury, selenium, or molybdenum. See Section 2.7 of this report.

4.4 Local Limits for Solvents and
The National Prohibition Against Flammability

Flammability is not expected to be a risk because of the lack of organic solvents in the waste streams.

4.5 Local Limits for pH and
The National Prohibition Against Corrosive Structural Damage

All pH measurements complied with the minimum and maximum local limits for pH. The pH measurements ranged from 7.7 su. to 11.1 su. Protection of the IWT ion exchangers and off-site ion exchange regeneration improves the reliability of the final pH adjustment step. As a result, the discharges are not expected to pose a risk of causing corrosive structural damage to the San Jose/Santa Clara sewers.

Section 5

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) & 403.12(h).

5.0 Summary

The sample record for IWD-1A satisfies the Federal minimum requirement for Nu-Metal Finishing to self-monitor twice per year. The sample record also satisfies the requirement for sampling to representative over the reporting period since there were no intermittent operations not captured by the sampling on any particular day. The only pollutants of concern not evident in the sample record are arsenic, mercury, selenium, and molybdenum.

The Federal standards allow self-certifications twice per year instead of self-monitoring at IWD-1A for total toxic organics with the submittal of a toxic organics management plan ("TOMP") under 40 CFR 433.12. The TOMP would have to state that there is no opportunity for toxic organics to be discharged because they are not used on-site, or are physically separated from the sewer system. The TOMP could apply to most but not all of the Federally-regulated toxic organics, thereby limiting the twice-per-year self-monitoring requirement to just those toxic organics present. See Appendix 4 for a list of the Federally-regulated toxic organics.

Requirements

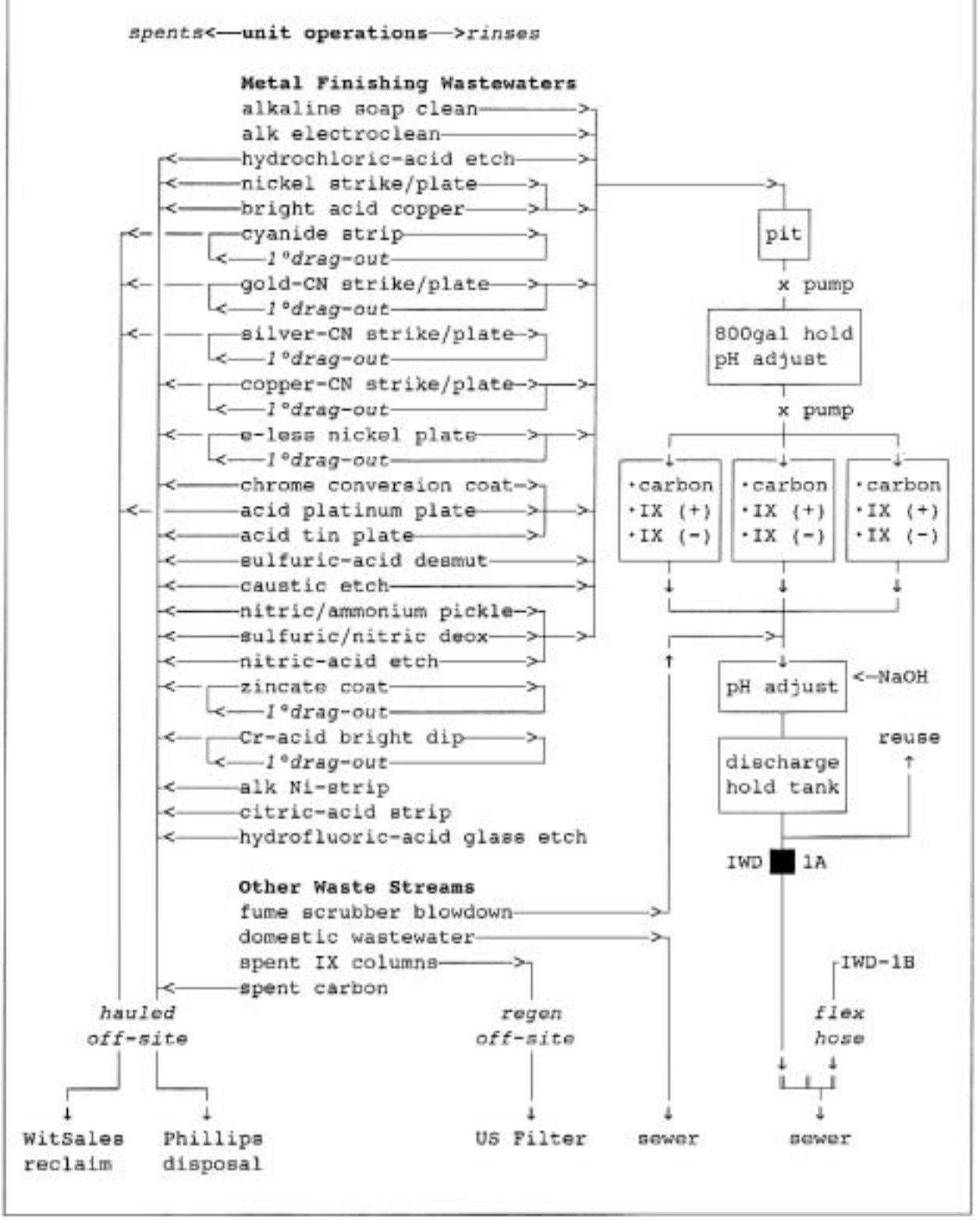
- None

Recommendations

- Nu-Metal Finishing should re-submit a toxic organics management plan for the discharge through IWD-1A under the requirements of 40 CFR 433.12.

Appendix 1

Nu-Metal Finishing, Santa Clara, California
Schematic of the Wastewater Collection and Treatment



Appendix 2

Clean Water Act Requirements - Nu-Metal Finishing, Santa Clara
Final Discharge Holding Tank @ IWD-1A

Specific Numeric Limits (mg/l)	Fed Cat Stds d-max	Fed Cat Stds mo-av	Nat'l Prohib inst	a/ Local Limits inst	Local Limits d-max	Local Limits yr-av
antimony	-	-	-	5.0	-	-
arsenic	-	-	-	1.0	-	-
beryllium	-	-	-	0.75	-	-
cadmium	0.11	0.07	-	0.7	-	-
chromium	2.77	1.71	-	1.0	-	-
copper	3.38	2.07	-	2.7	1.0	0.4
lead	0.69	0.43	-	0.4	-	-
manganese	-	-	-	35.0	-	-
mercury	-	-	-	0.010	-	-
molybdenum	-	-	-	d/	-	-
nickel	3.98	2.38	-	2.6	1.1	0.5
selenium	-	-	-	2.0	-	-
silver	0.43	0.24	-	0.7	-	-
zinc	2.61	1.48	-	2.6	-	-
cyanide-total	0.35 b/	0.19 b/	-	1.0	-	-
cyanide-amenable	0.25 b/	0.09 b/	-	0.5	-	-
oil+grease	-	-	-	150.	-	-
phenol & derivatives	-	-	-	30.0	-	-
xylene	-	-	-	1.5	-	-
total toxic organics	2.13 c/		-	2.13	-	-
pH min (s.u.)	-	-	5.0	6.0	-	-
pH max (s.u.)	-	-	-	12.5	-	-
closed cup flashpoint	-	-	≥140°F	-	-	-
Regulation	40 CFR 433.17		40 CFR 403.5	Santa Clara City Code Chapter 23-1 et.seq.		

a/ National prohibitions and Santa Clara local limits also include narrative prohibitions against pass-through, interference, obstruction, sludge contamination, toxic gases/fumes, fire/explosion hazard, or causing heat >104°F at the municipal wastewater treatment plant

b/ Estimated adjustments to account for dilution from non-CN bearing flows based on the number of CN-bearing versus total overflow rinses.

$\#Tanks_{cyanide} = 5 \qquad \#Tanks_{total} = 17$

$Q_{cyanide} = 0.29\ Q_{total}$

c/ See Appendix 4 for the list of toxic organic from 40 CFR 433.11(e).

d/ Molybdenum, along with arsenic, cadmium, copper, lead, mercury, zinc, nickel, and selenium is regulated at the WWTP by the Fed sludge stds.

Appendix 3

Discharge Quality at IWD-1A
Nu-Metal Finishing, Santa Clara

Pollutants (µg/l)	Jul-2002 to Jun-2004 Mean	99th%	Max	Fed Viols a/ DMax	MoAv	Local Viols Inst	DMax	YrAv	Sample Count
arsenic			-			0/0			0
cadmium	<2	<2	<2	0/19	0/17	0/19			19
chromium	18	57	73	0/19	0/17	0/19			19
copper	220	823	890	0/22	0/20	0/22	0/22	0/3	22
cyanide	64	265	350	0/20	2/18	0/20			20
lead	<10	<10	<10	0/19	0/17	0/19			19
mercury			-			0/0			0
molybdenum			-			0/0			0
nickel	426	1797	2430	0/28	0/22	0/28	3/28	1/3	28
selenium			-			0/0			0
silver	9	72	120	0/19	0/17	0/19			19
tox organics	5	17	16	0/9		0/9			9
zinc	120	478	555	0/19	0/17	0/19			19
(mg/l)	Mean	99th%	Max	DMax	MoAv	Inst	DMax	YrAv	Count
oil & grease			-			0/0			0
TDS			-			0/0			0
pH (s.u.)	9.5-median		7.7-11.1			0/19			19

a/ Violations @ Nu-Metal Finishing (Jul-2002 to Jun-2004)
Averages based on all results over the period even if only one result

Date	Sampler	Type	Fed Standards (mg/l)		Violation	Days
May 2003	Nu-Metal	grab	CN mo-avg	0.19	0.22	31
Apr 2003	Nu-Metal	grab	CN mo-avg	0.19	0.35	30

Date	Sampler	Type	Local Limits (mg/l)		Violation	Days
Yr-2003	both	24-h	Ni yr-avg	0.5	0.639	365
12/12/03	City	24-h	Ni d-max	1.1	2.43	1
09/17/03	City	24-h	Ni d-max	1.1	1.90	1
04/10/03	Nu-Metal	24-h	Ni d-max	1.1	1.20	1

Computed Statistical Probability of Violation

limits	mean	std dev	probability		percent
Fed-CN mo-avg	μ = 66.7	σ = 90.1	α(190)	= 0.0855	9%
Fed-CN d-max	μ = 64.4	σ = 86.0	α(350)	= 0.0006	<1%
Loc-Ni yr-avg	μ = 333.7	σ = 265.1	α(500)	= 0.2652	27%
Loc-Ni d-max	μ = 426.0	σ = 588.5	α(1100)	= 0.1281	13%

Appendix 4

Definition of Total Toxic Organics - 40 CFR 433.11(e)

Total toxic organics is the summation of all quantifiable values greater than 0.010 mg/l for the following toxic organics:

acenaphthene	4-chlorophenyl phenyl ether	chrysene
acrolein	4-bromophenyl phenyl ether	acenaphthylene
acrylonitrile	bis(2-chloroisopropyl) ether	anthracene
benzene	bis(2-chloroethoxy) methane	1,12-benzoperylene
benzidine	methylene chloride	fluorene
carbon tetrachloride	methyl chloride	phenanthrene
chlorobenzene	methyl bromide	1,2,5,6-dibenzanthracene
1,2,4-trichlorobenzene	bromoform	indeno(1,2,3-cd)pyrene
hexachlorobenzene	dichlorobromomethane	pyrene
1,2-dichloroethane	chlorodibromomethane	tetrachloroethylene
1,1,1-trichloroethane	hexachlorobutadiene	toluene
hexachloroethane	hexachlorocyclopentadiene	trichloroethylene
1,1-dichloroethane	isophorone	vinyl chloride
1,1,2-trichloroethane	naphthalene	aldrin
1,1,2,2-tetrachloroethane	nitrobenzene	dieldrin
chloroethane	2-nitrophenol	chlordane
bis(2-chloroethyl)ether	4-nitrophenol	4,4-DDT
2-chloroethyl vinyl ether	2,4-dinitrophenol	4,4-DDE
2-chloronaphthalene	4,6-dinitro-o-cresol	4,4-DDD
2,4,6-trichlorophenol	n-nitrosodimethylamine	alpha-endosulfan
parachlorometa cresol	n-nitrosodiphenylamine	beta-endosulfan
chloroform	n-nitrosodi-n-propylamine	endosulfan sulfate
2-chlorophenol	pentachlorophenol	endrin
1,2-dichlorobenzene	phenol	endrin aldehyde
1,3-dichlorobenzene	bis(2-ethylhexyl) phthalate	heptachlor
1,4-dichlorobenzene	butyl benzyl phthalate	heptachlor epoxide
3,3-dichlorobenzidine	di-n-butyl phthalate	alpha-BHC a/
1,1-dichloroethylene	di-n-octyl phthalate	beta-BHC
1,2-trans-dichloroethylene	diethyl phthalate	gamma-BHC
2,4-dichlorophenol	dimethyl phthalate	delta-BHC
1,2-dichloropropane	1,2-benzanthracene	PCB-1242 b/
1,3-dichloropropylene	benzo(a)pyrene	PCB-1254
2,4-dimethylphenol	3,4-benzofluoranthene	PCB-1221
2,4-dinitrotoluene	11,12-benzofluoranthene	PCB-1232
2,6-dinitrotoluene		PCB-1248
1,2-diphenylhydrazine		PCB-1260
ethylbenzene		PCB-1016
fluoranthene		Toxaphene
		2,3,7,8-tetrachlorodibenzo-p-dioxin

a/ hexachlorocyclohexane b/ polychlorinated biphenyls