



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

November 6, 2006

In Reply Refer To: WTR-7

Kingston Liao, Owner
Hawaii Plating
2333 Alahao Place, Suite #A-2
Honolulu, Hawaii 96819

Re: April 13, 2006 Clean Water Act Inspection

Dear Mr. Liao:

Enclosed is the November 6, 2006 report for our April 13 inspection of Hawaii Plating. Please submit a short response to the findings in Sections 2 through 5 of this report, to EPA, the City and County of Honolulu, and the Hawaii Department of Health, by **January 30, 2007**.

The main findings are summarized below:

- 1 Hawaii Plating qualifies as a metal finisher subject to the Federal metal finishing standards for new sources. City and County did not correctly apply the Federal standards.
- 2 Although Hawaii Plating provides no treatment in-place, all samples easily met Federal standards. It is possible that source controls and off-hauling practices provide a plausible explanation of compliance, as long as the overflowing rinses are exclusively used for only the alkaline cleaning and acid activation steps. Wastewater generated by drag-out from other processing steps would be expected to contain significant pollutant levels.
- 3 The sampling cannot be considered representative of the sampling day nor over the six-month reporting period. So, in addition to the minimum requirements, composite sampling for copper, nickel, zinc, and total cyanide once per month and continuous pH monitoring is necessary during the overflow rinsing cycles.

I certainly appreciate your helpfulness extended to me during this inspection. I remain available to the City and County 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

Greg V. Arthur

CWA Compliance Office

Enclosure

cc: Milton Iha, City and County of Honolulu
Mike Tsuji, Hawaii DOH



U.S. ENVIRONMENTAL PROTECTION AGENCY

REGION 9

CLEAN WATER ACT COMPLIANCE OFFICE

NPDES COMPLIANCE EVALUATION INSPECTION REPORT

Industrial User: Hawaii Plating
2333 Alahao Place, Suit #A-2, Honolulu, Hawaii 96819
40 CFR 433 – New Source Metal Finishing

Treatment Works: City and County of Honolulu
Sand Island Wastewater Treatment Plant
(NPDES Permit HI0020117)

Date of Inspection: April 13, 2006

Inspection Participants:

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

Hawaii DOH: None

C&C Honolulu: Milton Iha, Supervising Wastewater Investigator, (808) 692-5308
Glenn Hasebe, Source Control Specialist, (808) 692-5575

Hawaii Plating: Kingston Liao, Owner, (808) 847-7487
Ira Nobringa, Plater

Report Prepared By: Greg V. Arthur, Environmental Engineer
November 6, 2006



1.0 Scope and Purpose

On April 13, 2006, EPA, and the City and County of Honolulu (“City & County”) conducted a compliance evaluation inspection of Hawaii Plating in Honolulu, Hawaii. 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.

Hawaii Plating is a significant industrial user (“SIU”) within the City & County sewer service area 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 April 13.

1.1 Process Description

Hawaii Plating is a chrome and nickel plating job-shop. The operations involve alkaline cleaning, sulfuric-acid etching, bright-nickel plating, sulfamate-nickel plating, Watts-nickel plating, zincate coating, acid-copper plating, chromium-plating, hydrochloric-acid pickling, various strippants, and decommissioned cyanide-copper plating. Other services include sand blasting, paint removal, and polishing. Hawaii Plating does not own the parts that undergo metal finishing. Operations began in 1996. Hawaii Plating discharges its non-domestic wastewaters to the City & County domestic sewers through a single sewer connection designated in this report by permit number as IWD-9002. Domestic sewage discharges through separate connections downstream of the industrial wastewater connection.

1.2 Facility SIC Code

Hawaii Plating is assigned the SIC code for electroplating (SIC 3471).

1.3 Facility Wastewater Sources

The metal finishing line generates spents, rinses, and residuals. *See* Appendix 1 for a list of metal finishing and waste holding tanks and barrels.

Spent Solutions – The imparted contamination from the processing of parts and the progressive drop in solution strength results in the generation of spent solutions. Hawaii Plating stated that it batch evaporates spent solutions for alkaline cleaning, sulfuric-acid activation, sulfuric-acid etching, and sulfuric-acid nickel stripping for the off-hauled disposal of the sludges. Hawaii Plating also stated that the other solutions are regenerated through additions



only with some of them filtered through a portable circulating cartridge filtration unit. The list of spent solutions follows on the next page.

Batch Evaporation	Portable Filt / Adds Only	Additions Only
T1 - alk cleaning T5 - acid activation B11 - acid etching T20 - acid-nickel stripping	T7 - bright-Ni plating T8 - sulfamate-Ni plating T9 - Watts-Ni plating T10 - bright-Ni plating T23 - acid-Cu plating	T11 - chrome plating T17 - cyanide-Cu strip T19 - acid pickling T21 - alk-Cr strip
Off-site Hauling of Sludges	Off-site Haul of Residuals	No Release

Rinses – Hawaii Plating generally employs on-demand spray rinsing over the solution tanks and first-stage static rinses. The only overflowing rinses are two countercurrent rinses for sulfuric-acid activation and alkaline cleaning, operated for two hours per day, and linked in series to provide acidic surface deactivation following alkaline cleaning. First-stage static rinses follow the processing steps of sulfuric-acid etching, zincate coating, hydrochloric-acid pickling, sulfuric-acid nickel stripping, and cyanide-copper stripping. Spent static rinses are batch evaporated for off-site disposal. The overflowing rinses discharge to the sewers. The list of rinses follows below.

Overtank Spray Rinsing	Static Rinses	Overflow Countercurrent
T1 - alk clean 1°spray T7 - bright-Ni plate 1°spray T8 - sulf-Ni plate 1°spray T9 - Watts-Ni plate 1°spray T10 - bright-Ni plate 1°spray T22 - Cr plate 1°spray T23 - acid-Cu plate 1°spray T21 - alkCr strip 1°spray	B12 - acid etch 1°static B14 - zincate 1°static B15 - zincate 2°static T18 - CNCu strip / Ni strip / acid pickle 1°static	T2 - alk clean 2°overflow T4 - acid activate 1°ovrflow
No Release	Off-site Hauling Disposal	Discharge to IWD-9002

Residuals – Hawaii Plating contracts with Aztec to haul for off-site disposal its spent solution sludges, spent static rinses, and portable filtration residuals.

1.4 Facility Process Wastewater Composition

The process wastewater discharges from the overflow rinses in series to the sewers listed in section 1.3 above would be expected to contain acidity, oil and grease, salts, and surfactants. The overflow rinses might also be expected to also contain small concentrations of iron, aluminum, zinc, copper, and nickel removed from the basis material alloys, and salts, lead, chromium, suspended solids, and other pollutants entrained from the surface grime and old coatings cleaned-off of parts.



However, the wastewater composition would be very different if the overflow rinses are used for processing steps other than the preparatory steps of alkaline cleaning and acid activation. In fact, the potential exists to introduce wastes and wastewaters from all processes at the facility to the open sewer connection through the overflow rinse tanks and the sample box. This means that the pollutants of concern for Hawaii Plating are the those contained in the processing solutions (acidity, salts, surfactants, nickel, chromium, cyanide, copper, lead, zinc), and removed from parts through surface cleaning or etching (oil and grease, iron, aluminum, suspended solids, methylene chloride paint remover).

1.5 Facility Process Wastewater Treatment

Hawaii Plating provides no on-site treatment beyond in-tank evaporation of spents and in-tank solution filtration through a portable circulating filter. The only permitted discharge is from the overflow rinses in series through a single connection designated in this report after the City & County permit number as IWD-9002. The 2004-2006 sampling data indicates that Hawaii Plating discharges an average of ~120 gallons per day (“gpd”) to the sewers. *See* Appendix 1.

Delivery – Spent solutions, evaporation residuals, and portable filter residuals are delivered by hand to a waste holding tank or to a series of waste holding barrels for off-hauling. The overflow rinses are hard-plumbed to a small sample box discharging to the sewer. Otherwise all tanks and barrels are stand-alone with no connections in or out. City make-up water is delivered by hose.

Evaporation – Hawaii Plating states that batch evaporation occurs in-tank or after transfer to a waste holding tank.

Portable Filtration – Hawaii Plating also states that a portable filtration unit involving cartridge paper filters is periodically assembled next to a number of solution tanks in order to circulate the tank contents through the filter. The filter residuals are delivered to the waste holding barrels for off-site hauling.

Operational Controls – Since nearly every tank is installed stand-alone without connections, the entire facility must depend on operational controls to prevent the build-up of salts or the cross contamination with incompatible pollutants in the solution tanks. Of particular concern are the processing steps without built-in bleeds or drag-out into rinses because they will eventually foul and require disposal (*bright-nickel, sulfamate-nickel, watts-nickel, chrome plate, alkaline chrome strip*). For these steps, the practice of overtank spray rinsing is effective in the control of cross contamination, however, no other operational controls were identified that could mitigate salts build-up, such as DI-water rinses and the periodic disposal of static drag-out rinses. The other processing steps have effective operational controls either through the changing-out of spents (*alkaline clean, acid activation, acid etch, acid strip*), or the disposal of spent drag-out rinses (*cyanide-copper strip, acid-pickling, zincate*).

Sewer Discharge – The sample box connection to the sewer is designated as the permitted compliance sampling point, IWD-9002.



1.6 POTW Legal Authorities

City and County of Honolulu – The City & County operates an EPA-approved pretreatment program that encompasses the Island of Oahu as required by NPDES Permit No. HI0020117. As part of this, The City & County has established sewer use ordinances that apply to all industrial users on Oahu. Under this authority, the City & County issued industrial user permit No. 20059002 to Hawaii Plating covering the sewer discharge from IWD-9002.

1.7 Photo Documentation

No photos were taken during this inspection.

1.8 Sampling Record

All compliance samples are collected by the City & County or Hawaii Plating from the sampling box inside the facility located adjacent to the sewer connection, designated after the permit number as IWD-9002. *See* Appendix 3 for a summary of the 2004-2006 sampling.



2.0 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 sewer 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 Hawaii Plating through IWD-9002. The Honolulu permit incorrectly applied the Federal standards but correctly applied the local limits. The application of Federal standards, national prohibitions, and local limits was determined through visual inspection. *See* Appendix 2.

Requirements

- The permit must prohibit the bypassing of any treatment necessary to comply with either Federal standards or local limits.
- The permit must correctly apply the Federal standards. *See* Appendix 2.

Recommendations

- None.

2.1 Classification by Federal Point Source Category

Hawaii Plating qualifies as a metal finisher subject to the Federal metal finishing standards for new sources in 40 CFR 433.17. The City & County correctly classified Hawaii Plating although the permit did not apply the standards correctly. 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.

New or Existing Sources – Hawaii Plating is subject solely to the Federal standards for new sources. Under the definitions in 40 CFR 403.3(k), a new facility constructed after August 31, 1982 is a new source. In addition, a new process constructed at an existing source after August 31, 1982 is also 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 the new source metal finishing standards apply to the original installation of metal finishing lines, rebuilt or moved lines, or existing lines converted to do new operations. This also means that the new source standards generally do not apply to the piecemeal replacement of tanks for maintenance in otherwise intact metal finishing lines, nor do they apply to treatment upgrades without altering production. 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*). The facility now doing business as Hawaii Plating began operation in 1996.

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 & County local limits apply to non-domestic discharges in the Sand Island Wastewater Treatment Plant service area of Honolulu.

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	CNa	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 the new source metal finishing lines because the facility’s operations involve electroplating, electroless plating, anodizing, chemical coating, 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, such as cleaning, associated with metal finishing and specifically listed in 40 CFR 433.10(a). If any of the core operations are performed, the new source metal finishing standards apply to discharges from any of the new source core or associated operations. As a result, the metal finishing standards apply to the process wastewater discharges through IWD-9002.

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 – 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). At Hawaii Plating, the only cyanide-bearing process that could generate a wastewater is the copper-cyanide stripping step. The



operating plan for Hawaii Plating does not involve the discharge of cyanide-stripping wastewaters. As a result, if it is true that there are no cyanide-bearing wastewaters then the cyanide standards as applied to the discharges through IWD-9002 default to the unadjusted standards in 40 CFR 433, with an understanding that any cyanide found over the detection limit is an indication of improper disposal.

Under 40 CFR 403.6(d) and (e), the Federal standards as applied to IWD-9002 do not need to be adjusted to account for the application of multiple Federal categories or for dilution from non-contact wastewaters such as cooling tower blowdown, water preconditioning brines, or domestic sewage.

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 & County permit advances a provision prohibiting dilution as a substitute for treatment (Discharge Limits No.6). The permit does not include a provision against the bypassing treatment necessary to comply.

2.5 Point(s) of Compliance

The permit designates the 35-gallon sample box adjacent to Tank #2 upstream of the facility domestic contributions, as the compliance point (designated in this report as IWD-9002).

Local Limits - Local limits and the national prohibitions apply end-of-pipe to all non-domestic flows from Hawaii Plating. The sample point designated in this report as IWD-9002 is a suitable end-of-pipe sample point representative of the day-to-day non-domestic wastewater discharges.

Federal Standards - Federal categorical pretreatment standards apply end-of-process-after-treatment to all Federally-regulated discharges to the sewers. The sample point IWD-9002 is also a suitable end-of-process-after-treatment sample point representative of the day-to-day discharge of Federally-regulated wastewaters.

2.6 Compliance Sampling

The national prohibitions are instantaneous-maximums and are comparable to samples of any length including single grab samples. However, the local limits are daily maximums comparable to grab samples or 24-hour composites. 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. *See* Section 5.0 of this report.



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).

Summary

Hawaii Plating provides no wastewater treatment. Past sampling may have demonstrated consistent compliance with the Federal standards, as long as the overflowing rinses were used for only alkaline cleaning and acid activation, since neither step should generate significant pollutant levels. However, sampling would be suspect if the overflowing rinses are used for parts processing through other steps. The sample results seem to indicate some use of the overflowing rinses for other processing steps because there were unexpected elevated levels of copper, nickel, zinc, and total cyanide. *See* Appendix 3 and Section 5.0 of this report.

Requirements

- None.

Recommendations

- Written SOPs for each processing tank or barrel should specify: (1) the types of parts processed, (2) rinsing practices, (3) spents handling, (4) and how quality is maintained.
- A statement should be submitted with each self-monitoring report certifying that the overflowing rinses were the only discharges to the sewer during the reporting period.

3.1 Sampling Results

The 2004-2005 sample records for Hawaii Plating for the sample box adjacent to Tank #2 consist of semi-annual self-monitoring and semi-annual City & County monitoring. All samples were grabs. All sample results are provisionally usable for determining compliance with the Federal standards. However, to be usable they must be representative over the sampling day and over the sampling period, conditions which may be met if the overflowing rinses are exclusively used for only the alkaline cleaning and acid activation steps. However, the sample results themselves, for nickel, zinc, cyanide, and copper, indicate some level of use of the overflow rinses for other functions. In that case, the sampling is not representative of either the sampling day or the sampling period. *See* Section 5.0 of this report.



3.2 Best-Available-Technology Treatment

Hawaii Plating provides no treatment in-place. And yet, all samples easily met Federal standards, in particular for the likely pollutants, with average and calculated 99th% peak concentrations of 0.008 and 0.017 mg/l chromium, 0.383 and 1.463 mg/l copper, 0.642 and 2.121 mg/l nickel, 0.265 and 0.910 mg/l zinc, and 0.026 and 0.145 mg/l total cyanide. As a result, the compliance as demonstrated through sampling, with Federal standards which are based on the statistical performance of best-available-treatment (BAT) technology models, either must be the result of source controls, or of compromised compliance sampling.

It is possible that the source control and off-hauling practices described by Hawaii Plating provides a plausible explanation of compliance with the Federal standards, as long as the overflowing rinses are exclusively used only for the preparatory processing steps of alkaline cleaning and acid activation. However, any wastewater generated by drag-out from other processing steps would be expected to contain significant levels metals and even cyanide. If that is the case, compliance with Federal standards without treatment would be an artifact of the sampling methods or a result of 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 BAT model treatment with dilute waste streams. In particular, this prohibition applies when sample results for a diluted waste stream are below the Federal standards and the apparent compliance is used to justify discharge without treatment. There are two conditions that need to be established in order to make a determination of non-compliance with this prohibition. 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.

Hawaii Plating would not meet the first condition if the overflowing rinses are exclusively used only for the preparatory processing steps of alkaline cleaning and acid activation since those wastewaters would not be expected to require BAT treatment to meet limits.

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 cannot be bypassing at Hawaii Plating since there is no treatment in-place.



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).

Summary

Hawaii Plating would comply with local limits if it is in consistent compliance with Federal standards. The permit advances local limits that are essentially the Federal monthly-average standards re-applied as daily-maximums. The permit also advances local limits for oil and grease, arsenic, selenium, mercury, and phenolics, all of which would not be expected and were not found in significant concentrations above their detection limits in the discharges from Hawaii Plating. *See* Appendix 3. Also *see* Sections 3.0 and 5.0 of this report.

Requirements

- None.

Recommendations

- Hawaii Plating should install continuous final pH metering.

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 City & County Sand Island wastewater treatment plant through consistent compliance with their sludge and discharge limits.

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

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 wastewater strengths significantly less than domestic sewage.



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

There were no violations of the local limits for arsenic, cadmium, chromium, copper, lead, mercury, nickel, oil and grease, phenolics, selenium, silver, zinc, and cyanide. Continued compliance with the local limits is expected as long as Hawaii Plating is in consistent compliance with Federal standards.

4.4 Flammability

Flammability would not be expected because the discharges to the sewer are expected to entrain only negligible amounts of volatile organics.

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

Sewer collection system interferences related to the formation of hydrogen sulfide and the resulting acidic disintegration of the sewers are not expected because the wastewaters discharged to the sewers are not high-strength in biodegradable organics. However, continuous final pH metering should be installed because the discharges are initially composed of highly acidic and alkaline process wastewaters which do not undergo final pH adjustment.



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).

Summary

The self-monitoring and City & County monitoring of Hawaii Plating cannot be considered representative of the sampling day nor over the reporting period. In fact, one grab sample cannot account for the expected variability in discharge quality over the sampling day of just one overflow rinsing cycle. At least four grab samples need to be collected and composited together during an overflow rinsing cycle -- at the start, at the end, and at equal intervals between -- because the water quality of each will be substantially different. In addition, the sporadic presence of pollutants at levels not expected for the alkaline cleaning and acid activation rinses means that one sample is not representative over the current permit-defined six-month reporting period. More frequent sampling of the unexpected pollutants (*copper, nickel, zinc, and total cyanide*) would better account for the operational variabilities over a six-month reporting period. Finally, continuous pH monitoring is necessary during discharge because the sources are highly acidic or highly alkaline and uncontrolled, and the potential exists for an inadvertent discharge of other wastewaters. *See* Appendix 2 for the resulting self-monitoring and monitoring schedules for Hawaii Plating.

Requirements

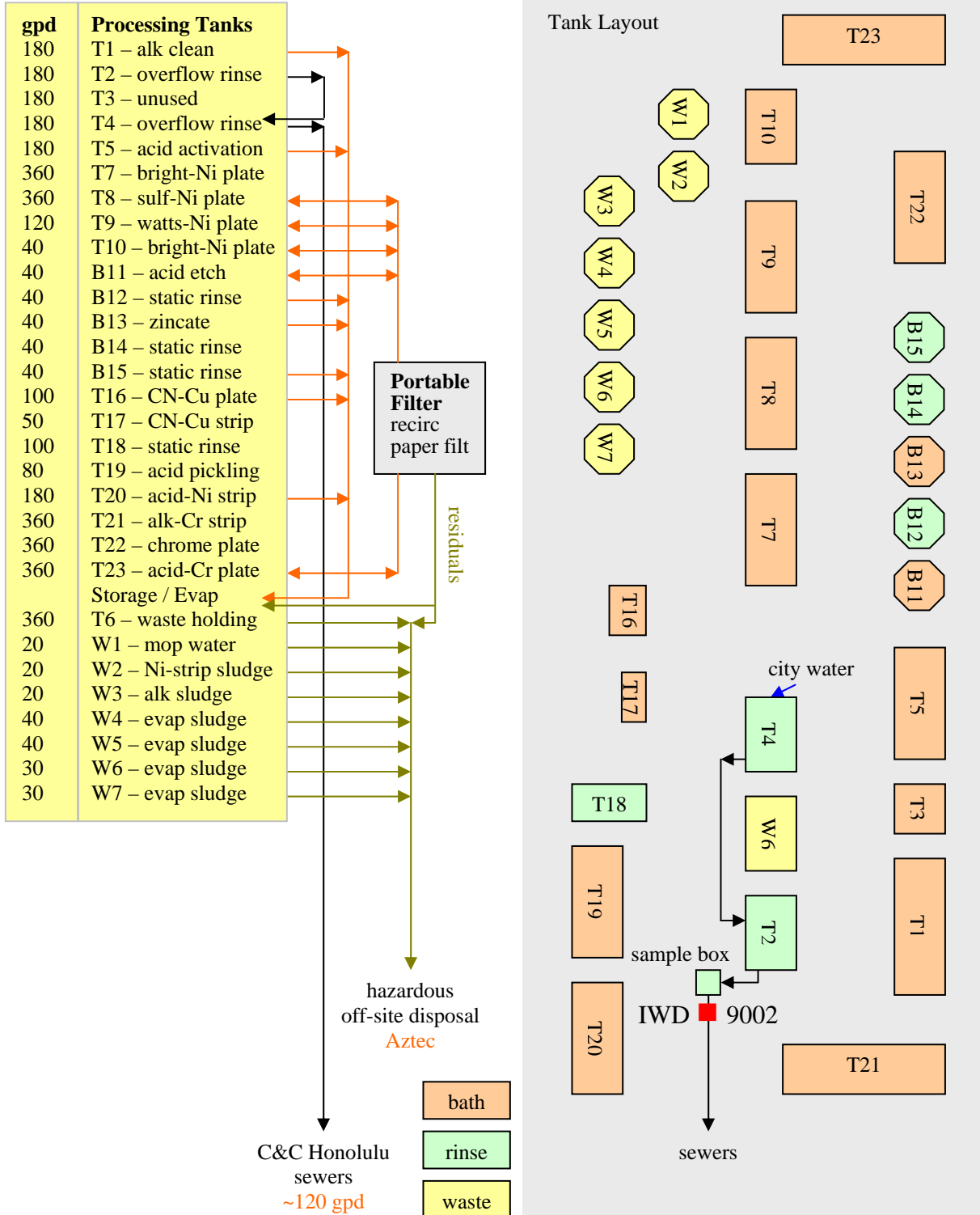
- All samples must be 24-hour composite samples instead of grabs.
- Self-monitoring for copper, nickel, zinc, and total cyanide must be conducted monthly.
- Self-monitoring for pH must be continuous and recorded on strip charts.

Recommendations

- Manual composites of at least four grab samples during one overflow rinsing cycle may be substituted for 24-hour composite samples.
- Instantaneous pH measurements recorded every 15 minutes during each overflow rinsing cycle may be substituted for continuous pH monitoring.
- Approval of a toxics organics management plan should be obtained from the City & County that certifies either "no presence on-site" or "no physical connection to the sewers" of any and all Federally-regulated toxic organics listed in 40 CFR 433.



Appendix 1
 Hawaii Plating
 Schematic of the Wastewater Collection and Treatment





Appendix 2 Sewer Discharge Standards and Limits Hawaii Plating @ IWD-9002						
pollutants of concern (mg/l)	Federal standards		local limits / nat'l proh		recommended monitoring	
	(d-max)	(mo-avg)	(instant)	(d-max)	(self-mon)	(C&CHono)
arsenic	-	-	-	0.50	-	③
cadmium	0.11	0.07	-	0.11	twice/year	annual
chromium	2.77	1.71	-	1.71	twice/year	annual
copper	3.38	2.07	-	2.07	monthly	annual
lead	0.69	0.43	-	0.43	twice/year	annual
mercury	-	-	-	-	-	③
nickel	3.98	2.38	-	2.38	monthly	annual
silver	0.43	0.24	-	0.24	twice/year	annual
zinc	2.61	1.48	-	1.48	monthly	annual
phenolics	-	-	-	2.0	-	③
amenable cyanide	0.86	0.32	-	-	-	-
total cyanide	1.20	0.65	-	0.65	monthly ⑤	annual
oil and grease	-	-	-	100	-	③
selenium	-	-	-	2.0	-	③
toxic organics	2.13	-	-	2.13	④	annual
flow (gpd)	-	-	-	-	daily	-
pH (s.u.)	-	-	5.5-11.0	-	continuous	annual
explosivity	-	-	① ②	-	-	③
temperature (°F)	-	-	140°F	-	-	③

① National prohibitions - Closed-cup flash point <140°F and pH <5.0 su.
 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 Twice per year solvent management plan self-certifications in lieu of self-monitoring
 ⑤ Submit an explanation for the results if over the detection limit (0.02 mg/l).



Appendix 3
 Hawaii Plating @ IWD-9002
 January 2004 – December 2005

(mg/l)		pH _(s.u.)	O&G	As	Cd	Cr	Cu	Pb	Ni	Ag	Zn	Se	CNt	TTO ¹
05/19/04	CC	6.9	3.9	<0.002	<0.01	<0.20	0.360	<0.20	0.670	<0.002	0.10	<0.002	<0.05	<0.02
05/20/04	HP	7.5-7.9	<5.0	<0.02	<0.02	0.010	0.170	0.006	0.559	<0.02	0.733	<0.02	<0.05	<0.02
11/18/04	CC	7.1	2.8	<0.002	<0.01	<0.20	0.020	<0.20	0.690	<0.002	0.069	<0.002	<0.05	<0.02
11/29/04	HP	7.6	<5.0	<0.02	<0.02	0.008	0.175	0.041	0.093	<0.02	<0.02	<0.02	<0.05	<0.02
Jan-Jun05	CC	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr
05/24/05	HP	7.6	<5.0	<0.02	<0.02	0.006	0.275	0.001	0.041	<0.02	0.451	<0.02	<0.05	<0.02
12/13/05	CC	7.0	-	<0.002	<0.01	<0.20	1.30	<0.20	1.80	<0.002	0.220	<0.002	0.130	<0.02
Jul-Dec05	HP	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr
stat mean (μ)		7.4 ²	2.54	<0.020	<0.020	0.008	0.383	0.016	0.642	0.013	0.265	<0.02	0.026	<0.02
stat 99th% (α=2.33)		6.9-7.9	4.49	<0.020	<0.020	0.017	1.463	0.067	2.121	0.066	0.910	<0.02	0.145	<0.02
(n)		6	5	6	6	6	6	6	6	6	6	6	6	6
¹	No total toxic organics samples, these sample results are strictly for phenolics													
²	Statistical median													
nr	No report or sample													
CC	Sampled by City and County of Honolulu													
HP	Self-monitored by Hawaii Plating													