



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

May 8, 2006

In Reply Refer To: WTR-7

Martin Biro
Biro and Sons, Incorporated
1160 Folsom Street
San Francisco, California 94103-3927

Re: March 31, 2006 Clean Water Act Inspection

Dear Mr. Biro:

Enclosed is the May 8, 2006 report for our March 31 inspection of Biro and Sons. Please submit a short response to the findings in Sections 2 through 5 of this report, to EPA, the City of San Francisco, and the Regional Water Quality Control Board, by **June 30, 2006**.

The main findings are summarized below:

- 1 The San Francisco permit applied the correct Federal standards. However, samples must be collected not only of the final running rinse but also of the alkaline cleaner spents. Monitoring frequencies can be significantly reduced and still be representative.
- 2 All samples in the 2004-2005 sample record met limits. However, sampling does not substantiate a finding that treatment is unnecessary because the samples were compromised by dilution from excess rinsing and did not account for spent alkaline discharges.
- 3 Rinses that do not discharge on-demand from a metal finishing line without treatment qualify as dilution as a substitute for treatment, a practice prohibited by the Federal rule. Either treatment or on-demand rinsing must be installed, or all sources of cadmium, lead, and cyanide must be eliminated.

I certainly appreciate your helpfulness extended to me during this inspection. I remain available to San Francisco 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: Bruce Seale, San Francisco
Michael Chee, RWQCB-Oakland



U.S. ENVIRONMENTAL PROTECTION AGENCY

REGION 9

CLEAN WATER ACT COMPLIANCE OFFICE

NPDES COMPLIANCE EVALUATION INSPECTION REPORT

Industrial User: Biro and Sons, Incorporated
1160 Folsom Street, San Francisco, California 94103-3927
40 CFR 413 Subparts A and B – Job-Shop Electroplating

Treatment Works: City and County of San Francisco
Southeast Water Pollution Control Plant
Oceanside Treatment Plant
(NPDES Permits CA0037664 and CA0037681)

Date of Inspection: March 31, 2006

Inspection Participants:

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

RWQCB-Oakland: None

San Francisco: Bruce Seale, Senior Wastewater Control Inspector, (415) 695-7369

Biro and Sons: Martin Biro, Owner and Environmental Manager, (415) 431-3480

Report Prepared By: Greg V. Arthur, Environmental Engineer
May 8, 2006

1.0 Scope and Purpose

On March 31, 2006, EPA, and the City and County of San Francisco ("San Francisco") conducted a compliance evaluation inspection of Biro and Sons, Inc. in San Francisco, California ("Biro & Sons"). 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.

Biro & Sons is a significant industrial user ("SIU") within the San Francisco 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 March 31.

1.1 Process Description

Biro & Sons is a silversmith job-shop restorer of antiques and captive-shop manufacturer of silvered trophies and hotel silverware. The job-shop silversmith restoration work involves cleaning, silversmithing, polishing and re-silvering. The captive-shop silverware manufacturing involves the grinding, bending, peening, welding, polishing, soldering, and metal finishing of fabrications made out of purchased stampings, castings, bar stock, and sheet metal. The base materials of the antiques and new silverware are generally copper, brass, bronze, and pewter. The metal finishing involves a copper processing line consisting of alkaline cleaning, cyanide-copper strike plating, cyanide-silver strike plating, cyanide-silver plating, cyanide-gold plating, nickel strike plating, and decorative bright nickel plating, as well as cyanide-silver stripping, trisodium phosphate delacquering, alkaline chrome stripping, and acid nickel stripping. Biro & Sons does not perform acid etching or pickling of steel.

Biro & Sons does not own the antiques restored on-site but does own the trophies and silverware manufactured to order for sale. Biro & Sons estimates that antique restoration accounts for 70% of the parts undergoing metal finishing. Biro & Sons moved to the current building in 1981. No changes have been made to the metal finishing line since then. Biro & Sons discharges its non-domestic wastewaters to the San Francisco domestic sewers through a single sewer connection designated in this report by permit number as IWD-040606. Domestic sewage discharges through separate connections downstream of the industrial wastewater connection.

1.2 Facility SIC Code

Biro & Sons is assigned the SIC codes for silverware, plated ware, and stainless steel (SIC 3914), and for electroplating (SIC 3471).

1.3 Facility Wastewater Sources

The copper-alloyed processing line generates spents, rinses, and residual scrap, silver plate-out, and tank sludges. The 2004 San Francisco permit provides a detailed list of the solution and rinse tanks on-site identified by tank number. See Appendix 1.

Spent Solutions – The imparted contamination from the processing of parts and the progressive drop in solution strength results in the generation of spent solutions. Biro & Sons hauls off-site for disposal the nickel plating solutions and discharges spent alkaline cleaners to the sewers. Biro & Sons regenerates everything else through additions.

| Discharge to Sewers | Hauled Off-site to Haz | Regenerated By Additions |
|-------------------------|---|---|
| T1 - alkaline cleaning | T6 - bright nickel plating T4 - acid-nickel strike | T7 - cyanide-copper strike T9 - cyanide-silver strike T10 - cyanide-silver plating T15 - cyanide-silver strip T16 - TSP delaquering T17 - alkaline-chrome strip T18 - acid-nickel strip T19 - cyanide-gold plate |
| Discharge to IWD-040606 | Philip Services Corp – NV | No Release |

Rinses – Biro & Sons follows selected metal finishing steps with first-stage static rinses. The business also employs a common second-stage countercurrent running rinse that discharges to the sewer. The second-stage running rinse follows each of the first-stage static rinses.

| Running Rinses | Overtank Spray Rinsing | Static Rinses |
|--|------------------------|---|
| T3 – 2°overflow for T2 – 2°overflow for T8 – 2°overflow for T11/12 | T3 – 2°overtank for T2 | T2 – 1°static for T1 T8 – 1°static for T7 T11/12 – 1°static for T10 |
| Discharged to IWD-040606 | No Release | No Release |

Blowdowns and Residuals – Biro & Sons extends the useful life of some solutions through the circulation of the tank contents through canister cloth filters. The cyanide-silver plating solution circulates through a dedicated filter while the others are filtered through a portable filtering unit. Biro & Sons collects the filtered tank sludges, plate-out, and scrap.

| Tank Sludges to Haz | Recirc Filt Spents to Haz | Silver Scrap to Recycler |
|--|----------------------------|----------------------------------|
| T7 – cyanide-copper strike T15 – cyanide-silver strip T16 – TSP delaquering T17 – alk chrome strip T18 – acid nickel strip | T10 – cyanide-silver plate | silver scrap silver plate-out |
| Philip Services Corp - NV | Philip Services Corp – NV | Refinity Corp – MA |

1.4 Facility Process Wastewater Composition

The process wastewaters listed in section 1.3 above would be expected to contain copper, chromium, nickel, silver, zinc, amenable cyanide, acidity, salts, and surfactants, as well as iron, aluminum, free oils, suspended solids, and other pollutants in the surface grime cleaned off of parts.

1.5 Facility Process Wastewater Treatment

Biro & Sons provides no treatment of the two wastewaters that discharge to the sewers. Both the spent alkaline cleaners from Tank 1 and the running rinse from Tank 3 discharge to the sewers without treatment. The 2004-1005 sampling data indicates that Biro & Sons discharges an average of ~5,500 gallons per day (“gpd”) to the sewers. See Appendix 1.

Delivery – The final running rinse drains by overflow pipe to a floor drain, which houses the only non-domestic connection to the sewer and is designated as the compliance sampling point IWD-040606. A work sink and the alkaline cleaning tank also drain intermittently to the floor drain. See Photo 1 in section 1.7 of this report.

Treatment – Biro & Sons provides no treatment of its wastewater discharges to the sewers. The plating area is confined within a small berm to provide secondary containment. The berming also isolates the floor drain from accidental spills.

Residuals Handling – Nickel-bearing spents have been hauled off-site on just one occasion for disposal as hazardous Solids. Spent filtration cartridges and tank sludges removed from the stripping tanks and from the copper strike tank are periodically hauled as hazardous to Philip Services Corporation in Nevada. Metals scrap, polishing dust, and silver plate-out from the plating tanks are also periodically hauled for recycling to Refinity Corporation, formerly known as Eastern Smelting, in Massachusetts.

Operational Controls – Biro & Sons caps the connection with the floor drain to the sewers each night in order to protect against accidental escape of plating solutions.

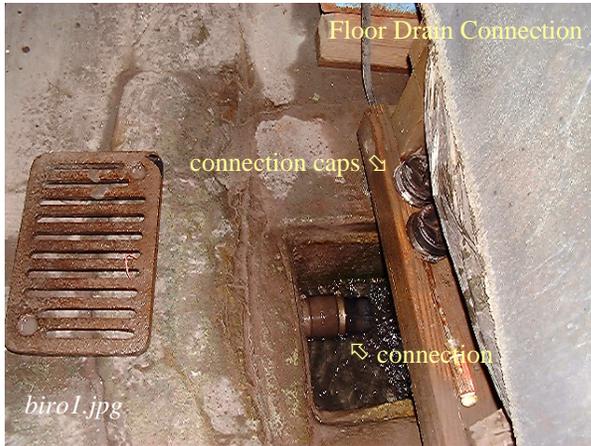
Sewer Discharge – The floor drain connection to the sewer is designated as the permitted compliance sampling point, IWD-040606.

1.6 POTW Legal Authorities

San Francisco – The City and County of San Francisco operates an EPA-approved pretreatment program as required by the State of California in the San Francisco RWQCB's Waste Discharge Requirements, No. R2-2003-0073, reissued to San Francisco in 2003 and serving as NPDES Permit No. CA0037681. As part of this, San Francisco has established a sewer use ordinance that applies to all industrial users of its sewer system. Under this authority, San Francisco issued an industrial user permit to Biro & Sons, No. 04-0606 covering the sewer discharge from IWD-040606.

1.7 Photo Documentation

Arthur took two digital photographs during this inspection. The file names are *biro1.jpg*, and *biro2.jpg*. One of the photographs is depicted below. The other is a duplicate.



Left shows the floor drain connection to the sewer (*biro1.jpg*). The connection cap and curbing around the drain are also shown.

Photo Taken by: Greg V. Arthur
Date: March 31, 2006

1.8 Sampling Record

All compliance samples are collected by the City and County of San Francisco from the final countercurrent rinse Tank 3 which overflows to the floor drain connection. See Appendix 3 for a summary of the 2004-2005 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).

The Federal standards in 40 CFR 413 for existing source job-shop metal finishers discharging less than 10,000 gallons per day apply to all process wastewater discharges from Biro & Sons through IWD-040606. The San Francisco permit correctly applied the Federal standards and 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 dilution as a substitute for treatment necessary to comply with Federal standards.

Recommendations

- None.

2.1 *Classification by Federal Point Source Category*

Biro & Sons qualifies as a job-shop metal finisher subject to the Federal job-shop electroplating standards for existing sources in 40 CFR 413 (<10,000 gallons per day). San Francisco correctly classified Biro & Sons. 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 – Biro & Sons continues to be subject solely to the Federal standards for existing sources. Under the definitions in 40 CFR 403.3(k), a process constructed at an existing source job-shop metal finisher after August 31, 1982 is a new source (1) if it entirely replaces a process which caused a discharge from an existing source or (2) if it is substantially independent of the existing sources on-site. This means the new source standards apply to the original installation of the 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 the upgrading of treatment without altering production lines. 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*). Biro & Sons does not qualify as a new source because the configuration changes since start-up in 1981 did not involve either the new installation or the removal and

reinstallation of the metal finishing lines that would also provide an opportunity to upgrade the production lines. Biro & Sons simply constructed curbs to provide secondary containment without the removal of the tanks, installation of a liner, and reinstallation of the tanks.

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 Francisco local limits apply to non-domestic discharges in the San Francisco service area.

**2.3 Federal Categorical Pretreatment Standards
 Existing Source Job-Shop Electroplating <10,000 gpd - 40 CFR 413**

| 40 CFR 413 <10kgpd | Cd | Cr | Cu | Pb | Ni | Ag | Zn | CNa | TTO | TM |
|----------------------------|-----|----|----|-----|----|----|----|-----|------|----|
| daily-maximum (mg/l) | 1.2 | - | - | 0.6 | - | - | - | 5.0 | 4.57 | - |
| four-day average (mg/l) | 0.7 | - | - | 0.4 | - | - | - | 2.7 | - | - |
| stat conversion to mo-avgs | 0.5 | - | - | 0.3 | - | - | - | 1.5 | - | - |

Applicability - The Federal job-shop electroplating standards apply to job-shop metal finishers that do not own more than 50% of the parts processed and were in operation in their present configuration before the August 31, 1982 proposal date of the Federal metal finishing rule. This means the job-shop electroplating standards in 40 CFR 413.14(b)(f), and 413.24(b)(f) for dischargers of less than 10,000 gallons per day apply to all of the process wastewater discharges at Biro & Sons to the sewers through IWD-040606.

Basis of the Standards – The job-shop electroplating standards were based on a model pretreatment unit that comprises metals precipitation, settling, sludge removal, source control of toxic organics, and if necessary, cyanide destruction and chromium reduction. For dischargers of less than 10,000 gallons per day, the model pretreatment unit was applied only to process wastewaters bearing cadmium, lead, amenable cyanide, or total toxic organics. The best-available-technology standards were set where printed circuit board manufacturers and other job-shop 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 – The Federal categorical pretreatment standards at IWD-040606 do not need to be adjusted to account for dilution or for dual Federal categories because all wastewaters through this compliance sampling point qualify as Federally-regulated under 40 CFR 413.

Compliance Deadline - Existing source job-shop metal finishers were required to comply with all Federal job-shop electroplating standards by the final compliance deadline of July 31, 1986.

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.

2.5 Point(s) of Compliance

The permit designates the floor drain connection to the sewers as the sample point, IWD-040606. However, San Francisco does not sample from the floor drain but rather from the final countercurrent running rinse Tank 3.

Local Limits - Local limits and the national prohibitions apply end-of-pipe to all non-domestic flows from Biro & Sons. The sample point designated in this report as IWD-040606 is a suitable end-of-pipe sample point representative of the day-to-day non-domestic wastewater discharges as long as the sampling also accounts for the discharge of the alkaline cleaners spents. Tank 3 by itself is not a suitable end-of-pipe sample point.

Federal Standards - Federal categorical pretreatment standards apply end-of-process-after-treatment to all Federally-regulated discharges to the sewers. The sample point IWD-040606 is also a suitable end-of-process-after-treatment sample point representative of the day-to-day discharge of Federally-regulated wastewaters. Tank 3 by itself is not a suitable end-of-process-after-treatment sample point.

2.6 Compliance Sampling

Local limits and 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 supplanted with single grabs or manually-composited grabs that are representative of the sampling day's discharge.

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).

Biro & Sons does not employ wastewater treatment equivalent to the model best-available-technology treatment used in originally setting the Federal standards. Nevertheless, Biro & Sons may be able to achieve the consistent compliance expected of small job-shop metal finishers because the limited production through the metal finishing line produces small pollutant loadings, possibly making treatment unnecessary. However, the sampling results are not useable for determining compliance because they are not representative of all discharges over the reporting period and because the uncontrolled discharge of the final rinse dilutes the samples. See Appendix 3.

Requirements

- Biro & Sons must retrofit the final overflowing rinse to operate on-demand.

Recommendations

- The final overflowing rinse should be retrofitted to operate on-demand, either through conductivity probe controls or worker activated switches or timers.
- The sampling must account for times when the discharge to the sewers includes the spent alkaline cleaners.

3.1 *Sampling Results*

The 2004-2005 sample records for Biro & Sons collected from Tank 3 consists of quarterly sampling collected by San Francisco. All samples were 24-hour composites. However, the sample results are not usable for determining compliance with the Federal standards because they do not account for the discharges of alkaline cleaning spents and they are diluted by the continuous discharge of rinse waters. See items 3.3 and 5.0 of this report

3.2 *Best-Available-Technology Treatment*

The sampling results indicate that Biro & Sons, as currently designed and operated without treatment, nevertheless may be able to comply with its Federal standards for cadmium, lead, amenable cyanide, and toxic organics. All samples easily met all Federal standards at IWD-

040606, with average and calculated 99th% peak concentrations of 0.028 and 0.228 mg/l cadmium, <0.022 and 0.073 mg/l lead, 0.008 and 0.062 amenable cyanide, and 0.032 and 0.080 mg/l total toxic organics. However, these concentrations indicate levels well above the detection limits especially for cadmium and lead. These concentrations also would be expected to rise once dilution from excess rinsing is eliminated through the incorporation of on-demand rinsing practices. It cannot be determined whether an increase in concentrations would be enough to necessitate treatment until on-demand rinsing is instituted. Based on the sampling record, a retrofit to on-demand rinsing would have to reduce discharges by more than 80% to result in a measurable chance of violating any of the Federal standards.

In addition, the sample record does not indicate whether discharges of the alkaline cleaning spents would comply with the Federal standards, although violations would not be expected. Alkaline cleaning spents would be expected to entrain almost no cadmium and cyanide and only trace amounts of lead and toxic organics removed with the surface grime on parts.

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.

Biro & Sons meets both conditions of non-compliance since all Federally-regulated waters discharge through model treatment and the final overflowing rinse discharges continuously irrespective of whether there are parts undergoing processing. It cannot be determined whether model treatment is necessary to consistently comply with the Federal standards without retrofitting the final overflowing rinse to operate and discharge on-demand. Typical on-demand controls include make-up water valves opened through conductivity-controlled probes or kick or knee plate switches.

3.4 *Bypass Provision*

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

There cannot be bypassing at Biro & Sons since the Federally-regulated wastewater do not undergo treatment that exceeds or is equivalent to the BAT model treatment.

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 Biro & Sons, without pollutant controls, complies with all of its local limits for metals, cyanide, organics, flammability, and pH. Future compliance is not certain because concentrations are expected rise in response to the implementation of on-demand rinsing and the capture of samples representative of the alkaline cleaner spents. In particular, the alkaline cleaner spents on their own would be expected to exceed the upper local limits for pH. See Appendix 3. Also see Sections 3.0 and 5.0 of this report.

Requirements

- None.

Recommendations

- The alkaline cleaner spents should pH adjusted in-tank prior to discharge to the sewers.
- The alkaline cleaner spents should be not be drained, but rather metered slowly to the final discharge.
- All parts should be spray rinsed over the static and solution tanks prior to final rinsing.

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 San Francisco 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*

The wastewaters discharged to the sewers are not high enough in organics strength to pose a risk of interference, with strength significantly less than domestic sewage.

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

Metals and Cyanide – There were no violations of the local limits for cadmium, chromium, copper, lead, nickel, silver, zinc, and cyanide. However, the concentrations of these pollutants would be expected to rise once dilution from excess rinsing is eliminated through the incorporation of on-demand rinsing practices. Based on the sampling record, retrofitting to on-demand rinsing would have to reduce discharges by 45% to result in a measurable chance of violating any of the local limits, most notably silver and cadmium. In addition, the capture of the alkaline cleaner spents is likely to increase the pollutant concentrations of some metals, copper and lead in particular.

Toxic Organics – There were no violations of the local limits for toxic organics or phenolics and none are expected in the future even with the expected reductions in discharge flow. The sample maximums for toxic organics and phenolics are above detection but orders of magnitude below the local limits at 80 µg/l and 110 µg/l, respectively.

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

4.4 *Flammability*

Flammability would not be expected because sampling shows that the discharges to the sewer entrain almost no toxic or 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, the

uncontrolled alkaline discharges of alkaline cleaner spents can result in safety hazards related to the release of toxic fumes, and worker exposure risks. The discharge to the sewers does not undergo final pH adjustment to ensure neutral conditions in the sewers.

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).

The sample record for Biro & Sons is representative of the final running rinse continuous discharge to the sewers over the sampling day as well as over the six-month reporting period. However, the sampling does not capture the intermittent batch discharge of untreated alkaline cleaner spents. As a result, separate sampling requirements must be extended to both the running rinse and the alkaline cleaner spents. Finally, most of the pollutants do not need to be sampled as frequently or at all because past sampling shows that they are not present.

Requirements

- The untreated alkaline cleaner spents must be sampled upon discharge from Tank1 independently of the running rinse sampling from Tank 3(c).
- See Appendix 2 for the expected self-monitoring requirements for IWD-040606 as defined for both Tank 1 and Tank3(c).

Recommendations

- Biro & Sons should consider the installation of a final equalization tank in order to allow the combined discharge and consolidated sampling of both the running rinse and metered alkaline spents.

Appendix 1
Biro & Sons, Incorporated
Schematic of the Wastewater Collection and Treatment

| pollutants of concern (mg/l) | Federal stds (d-max) | Federal stds (4d-avg) | nat'l prohibitions (instant) | local limits (d-max) | monitoring frequency | |
|------------------------------|----------------------|-----------------------|------------------------------|----------------------|----------------------|------------|
| | | | | | EQ Tank Tank 3(c) | Tank 1 |
| arsenic | - | - | - | 4.0 | ③ | ③ |
| cadmium | 1.2 | 0.7 | - | 0.5 | 4/six-mos | 1/six-mos |
| chromium | - | - | - | 5.0 | 1/quarter | 1/six-mos |
| copper | - | - | - | 4.0 | 1/quarter | 1/six-mos |
| lead | 0.6 | 0.4 | - | 1.5 | 4/six-mos | 1/six-mos |
| mercury | - | - | - | 0.05 | ③ | ③ |
| nickel | - | - | - | 2.0 | 1/quarter | 1/six-mos |
| silver | - | - | - | 0.6 | 1/quarter | 1/six-mos |
| zinc | - | - | - | 7.0 | 1/quarter | 1/six-mos |
| total cyanide | - | - | - | 1.0 | 1/quarter | 1/six-mos |
| amenable cyanide | 5.0 | 2.7 | - | - | 4/six-mos | 1/six-mos |
| total toxic organics | 4.57 | - | - | - | 1/six-mos | 1/six-mos |
| phenolics | - | - | - | 23.0 | ③ | ③ |
| oil and grease - petroleum | - | - | - | 100 | 1/quarter | 1/six-mos |
| flow (gpd) | - | - | - | - | 1/quarter | each batch |
| pH (s.u.) | - | - | <5.0 | 6.0 to 9.5 | 1/quarter | each batch |
| explosivity | - | - | <140°F ① | ② | ③ | ③ |
| dissolved sulfides | - | - | - | 0.5 | ③ | ③ |

- ① Closed-cup flashpoint
 ② Narrative prohibition against the introduction of flammable or explosive substances
 ③ As part of periodic priority pollutant scans in order to identify changes in discharge quality

Appendix 3

Biro & Sons Wastewater Discharge Quality @ IWD-040606
January 2004 – December 2005

| pollutants ② (µg/l) | effluent sampling results | | | violation rate ① | | sample count | loading (lbs/yr) |
|---------------------|---------------------------|-------|-----|------------------|----------|--------------|------------------|
| | mean | 99th% | max | sample | Period ③ | | |

| | | | | | | | |
|----------------------------|------|-------|-------|------|---------------------------------|----|--------|
| arsenic | <24 | 15.3 | 28 | 0/23 | - | 23 | 0.005 |
| cadmium | 27.5 | 161.1 | 228 | 0/23 | 0/5 ³ / ₄ | 23 | 0.063 |
| chromium | 15.0 | 84.1 | 112 | 0/23 | - | 23 | 0.034 |
| copper | 98.8 | 441.2 | 725 | 0/23 | - | 23 | 0.225 |
| lead | <22 | 39.1 | 73 | 0/23 | 0/5 ³ / ₄ | 23 | 0.009 |
| mercury | 0.24 | 0.62 | 06 | 0/23 | - | 23 | 0.0005 |
| nickel | 85.9 | 324.2 | 421 | 0/23 | - | 23 | 0.196 |
| silver | 43.0 | 212.6 | 344 | 0/23 | - | 23 | 0.098 |
| zinc | 84.1 | 530.3 | 953 | 0/23 | - | 23 | 0.192 |
| total cyanide | 12.1 | 68.4 | 86 | 0/21 | - | 21 | 0.028 |
| amenable cyanide | 8.0 | 46.5 | 62 | 0/21 | 0/5 ¹ / ₄ | 21 | 0.018 |
| total toxic organics | 31.8 | 80.7 | 80 | 0/17 | - | 17 | 0.072 |
| phenolics | <70 | 109.2 | 110 | 0/24 | - | 24 | 0.133 |
| oil and grease - petroleum | 6900 | 21500 | 31000 | 0/25 | - | 25 | 15.7 |
| flow (gpd) | 5472 | 8686 | 8445 | - | - | 26 | - |
| pH (s.u.) | - | - | - | 0/25 | - | 25 | - |
| explosivity | - | - | - | - | - | - | - |

- ① There were no violations during this period.
- ② No sample results for the following pollutants of concern: explosivity
- ③ Four day-averages calculated by the rolling averaging of four consecutive samples

| Violation Probability | mean (µg/l) | std dev (µg/l) | statistical probability | percent |
|--------------------------|-------------|----------------|-------------------------|---------|
| local d-max - cadmium | µ = 27.5 | σ = 161.1 | α(500) = 0.0017 | ~0% |
| local d-max - silver | µ = 43.0 | σ = 212.6 | α(600) = 0.0045 | ~0% |
| local d-max - all others | µ = | σ = | α(std) = 0.0000 | ~0% |
| Fed d-max – all others | µ = | σ = | α(std) = 0.0000 | ~0% |
| Fed mo-avg – all others | µ = | σ = | α(std) = 0.0000 | ~0% |