



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

January 15, 2008

In Reply Refer To: WTR-7

Gary Patigler, Owner  
Electroforming Company  
130 Nevin Avenue  
Richmond, California 94801-2900

**Re: August 28, 2007 Clean Water Act Inspection**

Dear Mr. Patigler:

Enclosed is the January 15, 2008 report for our August 28, 2007 inspection of Electroforming in Richmond. Please submit a short response to the findings in Sections 2 through 5 of this report, to EPA, the City of Richmond, and the Regional Water Quality Control Board, by **February 28, 2008**.

The main findings are summarized below:

- 1 Electroforming qualifies as a “zero-discharging” new source metal finisher since it generates but does not discharge Federally-regulated wastewaters.
- 2 The City of Richmond should issue a permit that requires periodic “zero-discharge” self-certification. Waste manifests should accompany the self-certifications.
- 3 Electroforming achieves “zero-discharge” compliance through the effective wastewater collection and off-site disposal. Electroforming no longer has a sewer connection even for domestic wastewaters. The manifests account for the wastes expected from the operations.

I appreciate the helpfulness of your personnel extended to me during this inspection. I remain available to the City of Richmond, 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](mailto:arthur.greg@epa.gov).

Sincerely,

*Original signed by:*

Greg V. Arthur  
CWA Compliance Office

Enclosure

cc: Mary Phelps, Senior Industrial Waste Inspector, Richmond  
Mike Chee, RWQCB-San Francisco Bay



**U.S. ENVIRONMENTAL PROTECTION AGENCY**

**REGION 9**

**CLEAN WATER ACT COMPLIANCE OFFICE**

**NPDES COMPLIANCE EVALUATION INSPECTION REPORT**

Industrial User: Electroforming Company  
130 Nevin Avenue, Richmond, California 94801-2900  
40 CFR 433 – Zero-Discharging New Source Metal Finishing

Treatment Works: West County Agency  
City of Richmond Water Pollution Control Plant  
(NPDES Permit CA0038539)

Date of Inspection: August 28, 2007

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Inspection Participants:

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

RWQCB: None

City of Richmond: Mary Phelps, Senior Industrial Waste Inspector, (510) 621-1269  
Stephen Friday, Senior Industrial Waste Inspector, (510) 412-2009

Electroforming: Marion Patigler, Vice President, (510) 237-4988

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Report Prepared By: Greg V. Arthur, Environmental Engineer  
January 15, 2008



## 1.0 Scope and Purpose

On August 28, 2007, EPA, and the City of Richmond conducted a compliance evaluation inspection of Electroforming in Richmond, California. The purpose was to ensure compliance with the Federal regulations covering the discharge of non-domestic wastewaters into the sewers. In particular, it was to ensure:

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

Electroforming, located at 130 Nevin Avenue, would qualify as a categorical industrial user under the Clean Water Act within the Richmond sewer service area if it discharged process-related wastewaters to the sewers. The compliance of Electroforming was assessed through this inspection as part of an on-going EPA evaluation of industrial users in EPA Region 9 by industry sector. The inspection participants are listed on the title page. Arthur conducted the inspection.

## 1.1 Facility SIC Code

Electroforming is assigned the SIC codes for plating, polishing, anodizing, and coloring (SIC 3471) and metals coating (SIC 3479).

## 1.2 Process Description

Electroforming is a decorative metal finishing job-shop that provides chromium, nickel, bronze, brass, gold, silver and zinc plating, and zincate and antiquing coatings primarily on lighting fixtures. Electroforming does not own the parts it finishes. Operations began in 1994. The parts arrive formed and cast but not necessarily clean. The operations by processing area follow below. The processing area designations "A", "B", "C", and "D" and the tank numbering are strictly those of the facility for the purposes of this report.

Decorative Plating Area "A" - (Tanks A1-A29).

alkaline soap cleaning, sulfuric-acid activation, nitric-acid desmut, zincate coating, brass-cyanide strike, copper-cyanide strike, bronze-cyanide strike, dull nickel-sulfamate plating, bright Watts nickel-chloride plating, acid copper plating, chromium plating, zinc-chloride plating, gold-cyanide plating, and silver-cyanide plating.

Antiquing Area "B" - (Tanks B18-B9).

sulfur/lime oxidation, copper/selenium/acid chemical oxidation.

Stripping Outside Areas "C" and "D" - (Tanks C1-C3 and D1-D6)

caustic stripping, sulfuric-acid nickel/copper stripping, caustic chromium stripping.



Tank Inventory and Volume ( <i>rinses in italics</i> )					
Decorative Plating Area "A"			Antiquing Area "B"		
gals			gals		
700	A20	caustic soap cleaning	200	B1	sulfur/lime chem oxidation
300	A19	<i>1 °static for A20/21</i>	200	B2	<i>1 °static for B1</i>
300	A15	<i>2 °static for A1/2/3/10/14/20/21</i>	200	B3	<i>2 °static for B1</i>
300	A21	H <sub>2</sub> SO <sub>4</sub> -acid activation	250	B4	<i>3 °static for B1</i>
50	A14	HNO <sub>3</sub> -acid activation	50	B5	<i>1 °static for B9</i>
50	A11	<i>1 °static for A14</i>	150	B6	<i>3 °static hot water for B9</i>
50	A10	zincate coating	150	B7	<i>2 °static for B9</i>
850	A2	brass-cyanide strike	150	B8	<i>1 °static for B9</i>
600	A3	copper-cyanide strike	150	B9	chem oxidation antiquing HNO <sub>3</sub> /HCl/CuSO <sub>4</sub> /SeO <sub>2</sub>
800	A1	bronze-cyanide strike			
500	A6	<i>1 °static for A1/2/3</i>	Stripping Areas "C" and "D"		
800	A7	dull nickel plating	gals		
900	A12	bright nickel plating	300	D1	caustic strip
300	A16	<i>1 °static for A7/12</i>	800	D4	<i>1 °static for D1/5/6</i>
300	A18	<i>2 °static for A7/12</i>	150	D2	<i>1 °static for D1/5/6</i>
550	A17	acid copper plating	50	C1	<i>2 °static for D1/5/6</i>
300	A22	<i>1 °static for A17</i>	50	C2	<i>2 °static for D1/5/6</i>
700	A24	chromium plating	50	C3	<i>2 °static for D1/5/6</i>
500	A25	<i>1 °static for A24</i>	80	D5	H <sub>2</sub> SO <sub>4</sub> -acid Ni/Cu strip
50	A26	<i>2 °static for A24</i>	100	D6	caustic Cr strip
100	A27	<i>3 °static for A24</i>			
70	A28	zinc chloride plating			
70	A29	<i>1 °static for A28</i>			
50	A4	gold-cyanide plating			
50	A5	silver-cyanide plating			

### 1.3 Facility Wastewater Sources

There were no observed process-related wastewater discharges from Electroforming to the Richmond domestic sewers and in fact no possibility exists for an inadvertently entry into the sewers. There no longer is a sewer connection on-site. All domestic wastes are handled strictly through portable toilets.

The City of Richmond has issued a sewer and storm water permit which specifies the conditions of discharge including compliance with local limits and the Federal new source metal finishing standards, and the implementation of a storm water pollution prevention plan. This permit is not a “zero-discharge” sewer permit authorizing only the discharge of storm water. As a result, the permit does not require Electroforming to submit reports certifying to no generation and disposal of liquid wastes, sludges, or hazardous wastes into the sewers.

Spent Solutions – The imparted contamination from the processing of parts and the progressive drop in solution strength generates spent solutions. The generation rate of spents depends on plating bath usage, effectiveness of bath contamination control, and the amount



of drag-out lost into the rinses. According to Electroforming most solution tanks are regenerated strictly through additions, with the remaining few others off-hauled as hazardous. The list of baths follows below.

Baths Regenerated by Additions	Bath Vol	Baths Generating Spents	Spent Volume
A1 - bronze-cyanide strike	800 gal	A2 - brass-cyanide strike	850 gal / -
A3 - copper-cyanide strike	600 gal	A10 - zincate coating	50 gal / -
A4 - gold-cyanide plating	50 gal	A14 - HNO <sub>3</sub> -acid desmut	50 gal / -
A5 - silver-cyanide plating	50 gal	A21 - H <sub>2</sub> SO <sub>4</sub> -acid activate	300 gal / -
A7 - dull nickel plating	800 gal		
A12 - bright nickel plating ①	900 gal		
A17 - acid copper plating	550 gal		
A20 - caustic soap cleaning	700 gal		
A24 - chromium plating	700 gal		
A28 - zinc chloride plating	70 gal		
B1 - sulfur/lime oxidation	200 gal		
B9 - chem oxidation antiquing	150 gal		
D1 - caustic stripping	300 gal	① circulation through activated carbon and filter cartridges	
D5 - H <sub>2</sub> SO <sub>4</sub> -acid Ni/Cu strip	80 gal		
D6 - caustic Cr stripping	100 gal		
No Off-site Disposal		Hauled Off-site as Hazardous	

Rinses - Electroforming employs static rinses for either solution bath make-up or off-hauling as hazardous. There are no overflow rinses. The list of rinses follows below.

Rinses Returned as Make-Up	Rinse Vol	Rinses Disposed	Spent Volume
A11 - 1°static for A10	50 gal	A6 - 1°static for A1/2/3	500 gal / -
A25 - 1°static for A24	250 gal	A15 - 2°static A1/2/3/10/14/20/21	300 gal / -
A26 - 2°static for A24	50 gal	A16 - 1°static for A7/12	300 gal / -
A27 - 3°static hot for A24	100 gal	A18 - 2°static for A7/12	300 gal / -
A29 - 1°static for A28	70 gal	A19 - 1°static for A21/21	100 gal / -
		B2/3/4 - 1/2/3°statics for B1	600 gal / -
		B5/7/8 - 1/2°statics for B9	350 gal / -
		D2/4 - 1°statics for D1/5/6	950 gal / -
		C1/2/3 - 2°statics for D1/5/6	150 gal / -
No Off-site Disposal		Hauled Off-site as Hazardous	

Residuals - Electroforming employs a number of static drag-out rinses for return as solution tank make-up, nickel tank filtration, an acid activation steps to neutralize the surface chemistry of the previous step. These practices extend the useful life of the metal finishing solutions which reduces the generation of residuals to be hauled off-site as hazardous. In-tank filtration generates spent filters and the solution tanks themselves accumulate bottom sludges for off-hauling. No other residuals are expected because Electroforming provides no chemical treatment or preconditioning of any spent solutions, spent static rinses, or rinses.



## 1.4 Facility Process Wastewater Handling

Electroforming operates without discharging any process-related wastewaters to the sewers and as a result does not provide any wastewater treatment. Electroforming does not have a domestic sewer connection.

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

Delivery - Electroforming uses portable pumps and hoses to deliver spents to tote containers for hazardous waste pick-up. No floor drains were found. The underflooring was observed to be dry. The former sanitary sewer connection was observed locked and sealed. *See* the photos in Section 1.7 of this report.

Hazardous Waste Handling - Electroforming delivers spent solutions, spent static rinses, spent tank filters, and tank bottom sludges to 375 gallon tote containers for off-site delivery as hazardous waste. The shop floors have secondary containment berms with separate partitions under the cyanide tanks, the acid tanks, and the chromium tanks. The hazardous waste manifest for 2006 listed the hauling off-site as hazardous the following wastes to 21st Century EMI in Fernley, Nevada.

Spents/Rinses/Residuals to Disposal as Hazardous in 2006			
spent zincate / rinses	1125 gal	spent nickel strippant / rinses	1125 gal
spent H <sub>2</sub> SO <sub>4</sub> -acid	2250 gal	spent HCl-acid	1125 gal
spent HNO <sub>3</sub> -acid / chrome	3000 gal	spent caustic	1125 gal

## 1.5 POTW Legal Authorities

The City of Richmond - The City of Richmond, operates the Richmond Water Pollution Control Plant, which discharges through a joint outfall owned by the West County Agency to the San Francisco Bay. The wastewater treatment plant operates under the requirements of the State of California in the San Francisco Bay RWQCB's Waste Discharge Requirements, No. R2-01-144, issued to the West County Agency in 2001, which also serves as NPDES Permit CA0038539. The WDRs require the City of Richmond to implement an approved pretreatment program. As part of the pretreatment program, the City of Richmond has adopted sewer use ordinance in Chapter 12 of the Richmond municipal code with narrative and numerical limits for incompatible pollutants. The City of Richmond issued an industrial discharge permit to Electroforming under the authority of the City's sewer use ordinance.

## 1.6 Sampling Record

There are no compliance samples since Electroforming does not have the physical ability to discharge to the Richmond sewers.





## 1.7 Photo Documentation

Four of the fifteen photographs taken during this inspection are depicted below and saved as *electroforming-6.jpg*, *-7.jpg*, *-8.jpg*, and *-14.jpg*.



*Photo: Sewer Connection - Sealed and Locked  
Taken By: Anna Yen  
Date: 08/28/07*



*Photo: Totes for Hazardous Waste Disposal  
Taken By: Anna Yen  
Date: 08/28/07*



*Photo: Stripping Area "D" with 2° Containment  
Taken By: Anna Yen  
Date: 08/28/07*



*Photo: Portable Pump and Hose for Delivery  
Taken By: Anna Yen  
Date: 08/28/07*



## 2.0 Sewer Discharge Standards and Limits

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

### **Summary**

No Federal categorical pretreatment standards, national prohibitions, or local limits apply because there are no process-related wastewater discharges to the sewers. Electroforming does generate wastewaters that would be regulated if they were discharged. The application of Federal standards, national prohibitions, and local limits was determined through visual inspection.

### **Requirements**

- None.

### **Recommendations**

- The City of Richmond should issue a zero-discharge permit specifically prohibiting any discharge to the sewers.
- The City of Richmond should require, as part of any permit, semi-annual certifications by Electroforming of “no discharge”.

## 2.1 Classification by Federal Point Source Category

Electroforming would qualify as a new source metal finisher subject to the Federal standards in 40 CFR 433 if its process-related wastewaters were discharged to the sewers. Electroforming would not qualify as an existing source job-shop metal finisher subject to the Federal standards in 40 CFR 413 because operations began after the August 31, 1982 promulgation date of the metal finishing rule for new sources. Any discharge from Electroforming also would not qualify under any other Federal rule in 40 CFR 407-471.

## 2.2 Local Limits and National Prohibitions

Local limits and national prohibitions would apply to any discharge of the process-related wastewaters generated on-site. Local limits and national prohibitions are meant to express the limitations on non-domestic discharges necessary to protect the sewers, treatment plants, treatment plant sludges, and their receiving waters from adverse impacts. Specifically, the numeric and narrative local limits in Chapter 12 of the sewer use ordinance would apply to any discharge from Electroforming. A "zero discharge" requirement in a permit would be the expression of the local limits and national prohibitions.





**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	CNa	CNt	TTO
daily-maximum (mg/l)	0.11	2.77	3.38	0.69	3.98	0.43	2.61	0.86	1.20	2.13
monthly-average (mg/l)	0.07	1.71	2.07	0.43	2.38	0.24	1.48	0.32	0.65	-

Applicability - Under 40 CFR 433.10(a), the metal finishing standards apply to the process wastewaters from electroplating (*nickel, chromium, copper, bronze, brass, silver, gold*), chemical coating (*zincate, antiquing*), and etching (*acid activation, acid stripping, caustic 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, polishing, sand blasting, bead blasting, solvent degreasing, paint stripping, and assembly 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 core or associated operations.

As a result, the Federal metal finishing standards would apply to all process wastewaters from the metal finishing areas, parts preparation, and parts coatings, as well as from shop spills.

**2.4 Compliance Sampling**

There are no identified process wastewater discharges to the sewers. As a result, there are no sampling points for the non-domestic wastewaters.

**2.5 Pollutants of Concern**

There are no pollutants of concern as long as Electroforming does not discharge any process-related wastewaters. However, the pollutants of concern for sewer system reconnaissance could comprise some of those regulated by the Federal new source metal finishing standards (*copper, chromium, nickel, lead, zinc, cyanide*), and the national prohibitions (*pH*).



### **3.0 Compliance with Federal Standards, National Prohibitions, and Local Limits**

*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).*

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

#### ***Summary***

Electroforming achieves compliance with the Federal standards, national prohibitions, and local limits by not discharging to the sewers. Compliance is achieved through the collection and off-site hauling of generated wastewaters. In fact, Electroforming no longer has a sewer connection and thus cannot discharge wastewaters (non-domestic and domestic) to the sewers. Portable pumps and hoses cannot be misused to deliver wastewaters to the sewers by accident. There is no possibility to violate the prohibition against dilution as a substitute for treatment or the bypass prohibition. The waste manifests for 2006 confirm “zero-discharge” compliance. Secondary containment is correctly separated into partitions by tank chemistry.

#### ***Requirements***

- None.

#### ***Recommendations***

- None.

### **3.1 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 Richmond wastewater treatment plant through consistent compliance with their sludge and discharge limits.



#### **4.0 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***

Electroforming does not qualify as a significant industrial user since it cannot discharge its Federally-regulated wastewaters to the sewers. As a result, it is not necessary for the City of Richmond to issue a permit with self-monitoring requirements. Since compliance is achieved through zero-discharge practices, it is appropriate for Richmond to issue a permit that substitutes a written certification of no discharge in lieu of semi-annual self-monitoring.

##### ***Requirements***

- None.

##### ***Recommendations***

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