UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAY 12 1999

OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

Thomas A. Bonk, Division Manager
Health, Safety & Environmental
Cooper Industries, Crouse-Hinds Division
P. O. Box 4999
Syracuse, NY 13221-4999

Dear Mr. Bonk:

Thank you for your November 11, 1998 letter regarding the regulatory status of the electroplating wastewater treatment sludges generated from the gray cast iron manufacturing operations at your Amarillo, Texas and Syracuse, New York facilities. I'd like to apologize for the delay in responding to your letter.

You asked if these sludges could meet the criteria for the F006 hazardous waste listing exemption for "zinc plating (segregated basis) on carbon steel." Based on the information that you sent us, these sludges do not fit our current exemption because the plating process is not on carbon steel. The sludges may, however, be appropriate for a delisting.

F006 Listing Exemption

The F006 hazardous waste listing exemption for zinc plating (segregated basis) on carbon steel requires that the base metal be carbon steel. Since the base metal used in your electroplating operations is not carbon steel, the wastewater treatment sludges you generate do not meet the specific exclusion for zinc plating (segregated basis) on carbon steel. In your letter you state that gray cast iron is an iron alloy chemically similar to carbon steel and that your plating chemistry is essentially the same as that used for plating carbon steel. However, you also stated in your letter that the surface characteristics of gray cast iron may make certain of the plating parameters different and may result in different consumption of raw plating material. Therefore, your process may generate electroplating wastewater treatment sludges of different characteristics and chemical composition from zinc plating on carbon steel. The Agency can evaluate listed wastes from industrial processes that are non-hazardous through a delisting petition. From the information you provided in your letter, the wastes from your gray cast iron plating operations may be a good candidate for delisting.

As you noted in your letter, the Agency determined that wastewater treatment sludges from a General Motors zinc-cobalt plating operation meet the exclusion for zinc plating (segregated basis) on carbon steel. This plating operation is essentially zinc-based plating on carbon steel with a small amount of cobalt in the plating material. It is not plating on a different base metal.

Delisting of Facility Wastes

The Resource Conservation and Recovery Act provides the delisting process as a means to remove from regulation those listed wastes from industrial facilities that are non-hazardous. If you would like to pursue having your wastewater treatment sludges excluded from the F006 listing description, you can submit a delisting petition to the EPA Regional office or authorized State (authorized for delisting). Please contact Ernst Jabouin of Regions II (212-637-4104) and Michelle Peace of Region VI (214-665-7430) for assistance with the delisting process and for the status of delisting authorization for New York and Texas.

Thank you for your inquiry. If you have further questions, please contact Chichang Chen of my staff at (703) 308-0441.

Sincerely,

Michael P. Flynn

for David Bussard, Director
Hazardous Waste Identification Division
Office of Solid Waste

Cooper Industries
Crouse-Hinds Division
P.O. Box 4999
Syracuse, NY 13221-4999

Central HWID

COOPER
Crouse-Hinds

November 11, 1998

Ms. Elizabeth A. Cotsworth
Acting Director
Office of Solid Waste and Emergency Response
U.S. Environmental Protection Agency
401 M. Street Southwest
Washington, DC 20460

Re: **Listed Hazardous Waste F006-Request for Regulatory Interpretation**

Dear Ms. Cotsworth:

Cooper Industries, Crouse-Hinds Division ("Crouse-Hinds") manufactures gray cast iron electrical fittings at its facilities in Amarillo, Texas and Syracuse, New York. The fittings are electroplated with zinc for corrosion resistance. A detailed description of the plating processes and the wastewater treatment systems at these two Crouse-Hinds facilities is attached as Exhibit "A". For the reasons explained below, Crouse-Hinds requests your confirmation that the sludges from treatment of the wastewaters generated by Crouse-Hinds at its Amarillo and Syracuse facilities fall within the zinc plating exclusion from listed waste F006. [40 CFR § 261.31].

U.S. EPA listed certain electroplating waste sludges as hazardous waste on May 19, 1980 as F006. These sludges were deemed hazardous because of their content of chromium, cadmium, nickel and/or cyanide [40 CFR § 261, App. VII]. EPA promptly narrowed this listing on November 14, 1980, when, in response to comments, it concluded that specific electroplating processes, including zinc plating (segregated basis) on carbon steel, should not be deemed hazardous because these processes "would not generate a sludge which would contain significant concentration of chromium, cadmium, nickel and cyanide." Background Document for §§ 261.31 and 261.32-Listing of Hazardous Waste (Finalization of May 1980 Hazardous Waste List) (November 14, 1980).

U.S. EPA further refined the scope of waste covered by F006 on December 2, 1986, when it issued an interpretive rule confirming that chemical conversation coating, among other things, is not included within the scope of F006. In its discussion, EPA emphasized the importance of the absence of cyanide in its decision to exclude zinc-electroplating sludges:

1-9884
-1243

Wolf & 7th North Streets
Syracuse, NY 13221

Received
11/17/98 OWPE

> "Zinc plating (segregated basis) refers to non-cyanidic zinc plating processes. For example, wastewater treatment sludges from zinc plating using baths formulated from zinc oxide and/or sodium hydroxide would be excluded from the listing, while sludges from baths formulated from zinc cyanide and/or sodium cyanide would not be excluded." 51 Fed. Reg. 43351 (Note 4).

Crouse-Hinds' electroplating wastewater treatment sludge from its Amarillo and Syracuse facilities should be included within the zinc plating exemption to F006 for the following reasons:

- The plating chemistry is essentially the same as that for zinc plating on carbon steel. Crouse-Hinds' processes are cyanide-free, and none of the constituents of concern (cyanide, hexavalent chromium, cadmium, nickel) is used in the process[1]. Analyses of the sludge (Exhibit "B") reveal that none of these sludges have detectable levels of the above constituents of concern.

- The metallurgical character of the ferrous substrate has no effect on plating chemistry. As stated above, the plating chemistry used by Crouse-Hinds is essentially the same as that used for plating carbon steel. Gray cast iron is an iron alloy chemically substantially similar to carbon steel except that the carbon content of cast iron used by Crouse-Hinds is between 3.3% and 3.5% instead of between 0.02% and 1.5% for carbon steel. Crouse-Hinds has enclosed in Exhibit C average chemical analyses for gray and ductile iron manufactured at Crouse-Hinds' two foundries and "composition of standard steels" from machinery's Handbook Twentieth Edition. We believe this information demonstrates that other than the carbon content Crouse-Hinds iron castings are essentially chemically the same as carbon steel. The surface characteristics of gray cast iron may make certain of the plating parameters (time in bath, current consumption) different and may result in different consumption of raw plating material. However, none of these materials contain constituents of concern, therefore there is no impact on the sludge chemistry.

- EPA has in the past agreed that *de minimis* deviations from the literal wording of listing descriptions does not necessarily mean a waste is outside the listing exclusion if the toxicity characteristics of the wastewater treatment sludge is substantially similar to that evaluated by EPA in granting the exclusion. For example, General Motors requested EPA concurrence that wastewater treatment sludges from the zinc plating process at its Inland Guide plant in Columbus, Ohio was within the zinc plating exclusion, notwithstanding the fact that General Motors used a zinc-cobalt alloy as opposed to just "zinc" [as stated in the regulation]. EPA

stated that notwithstanding a small amount of cobalt in the plating material, the process nevertheless remained "zinc plating" and found that the cobalt could have no toxic impact on the resulting wastewater treatment sludge [Exhibit "D"]. Similarly, even though Crouse-Hinds is plating on cast iron instead of carbon steel, there is no effective difference in the plating process or the resultant sludge chemistry. Therefore, Crouse-Hinds believes that EPA should agree, as it did with General Motors, that this type of *de minimis* deviation should be within the exclusion for zinc plating.

For these reasons, Crouse-Hinds requests U.S. EPA concurrence that its wastewater sludges generated by the zinc plating lines in the Amarillo and Syracuse plants, as described in Exhibit "A", fall within the zinc plating exclusion of F006.

Very truly yours,

Thomas A. Bonk
Division Manger,
Health, Safety & Environmental

TJB:cs
Enclosure
4-TJB-50

[1] The Stevens plating line at Syracuse has a trivalent chrome conversation step, which is exempt from the scope of F006 pursuant to EPA's regulatory interpretation of December 2, 1986. Moreover, as shown, no detectable hexavalent chromium is found in the Syracuse wastewater treatment sludge.

EXHIBIT "A"

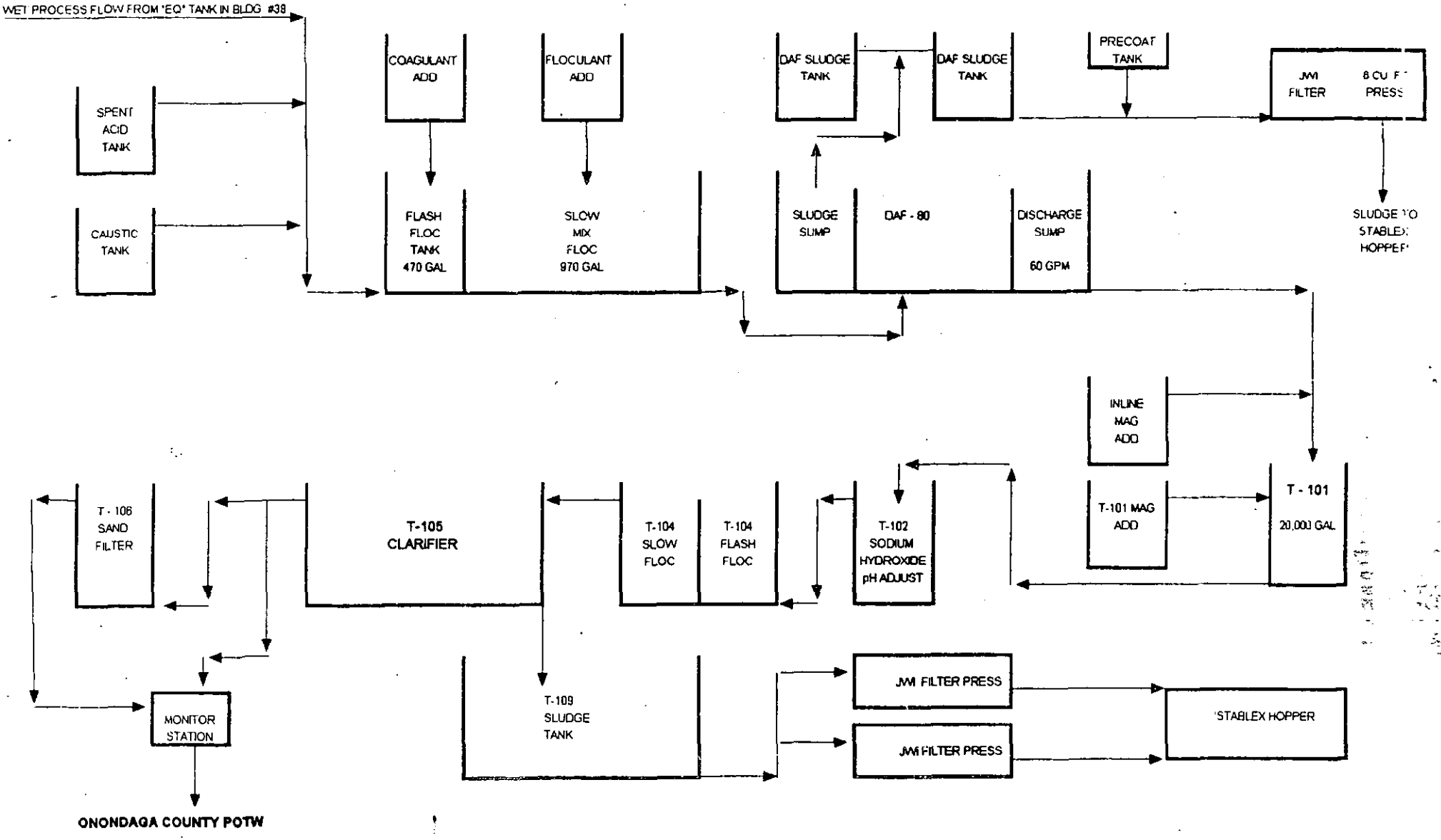
CROUSE-HINDS
SYRACUSE, NEW YORK
PLATING OPERATIONS
October, 1998

The Crouse-Hinds, Syracuse, NY facility has two plating machines. The Stevens plater is an automatic return, U-shaped, oblique barrel plater. The plating process is full potassium chloride bright acid zinc with a clear trivalent chromate conversion coating. Plating thickness requirement is .5 ml on outside surfaces. Plating capacity is 1,200 lbs. per hour of primarily steel fittings (periodically malleable) weighing less than 1/2 lb. The plater runs three shifts, 5 days per week, with one operator per shift.

The Meaker plater is a 1929 automatic rack machine. The plating process is full potassium bright acid zinc. For cosmetic appearance and additional protection, 80% of the parts are dipped in a bright light gray alkyd paint containing aluminum flakes and chromate. The remaining parts are processed as plate only and bypass the paint tank. Although the machine is capable of processing 18,000 lbs. per hour, only 11,000 lbs of fittings are plated per day. The parts are primarily cast iron (periodically malleable and ductile) and weight between 1/2 lb. and 40 lbs. The plater runs one shift, five days per week, with 10 dedicated operators.

BUILDING 8 WASTEWATER TREATMENT PROCESS FLOW

SYRACUSE, NEW YORK



TRNSAT2.WK4

Cooper Industries
Crouse-Hinds Division
1901 Farmers Avenue
Amarillo, TX 79118
806 358-4585
Fax 806 358-3267

COOPER
Crouse-Hinds

SUMMARY DESCRIPTION OF PLATING OPERATIONS AMARILLO, TEXAS PLANT

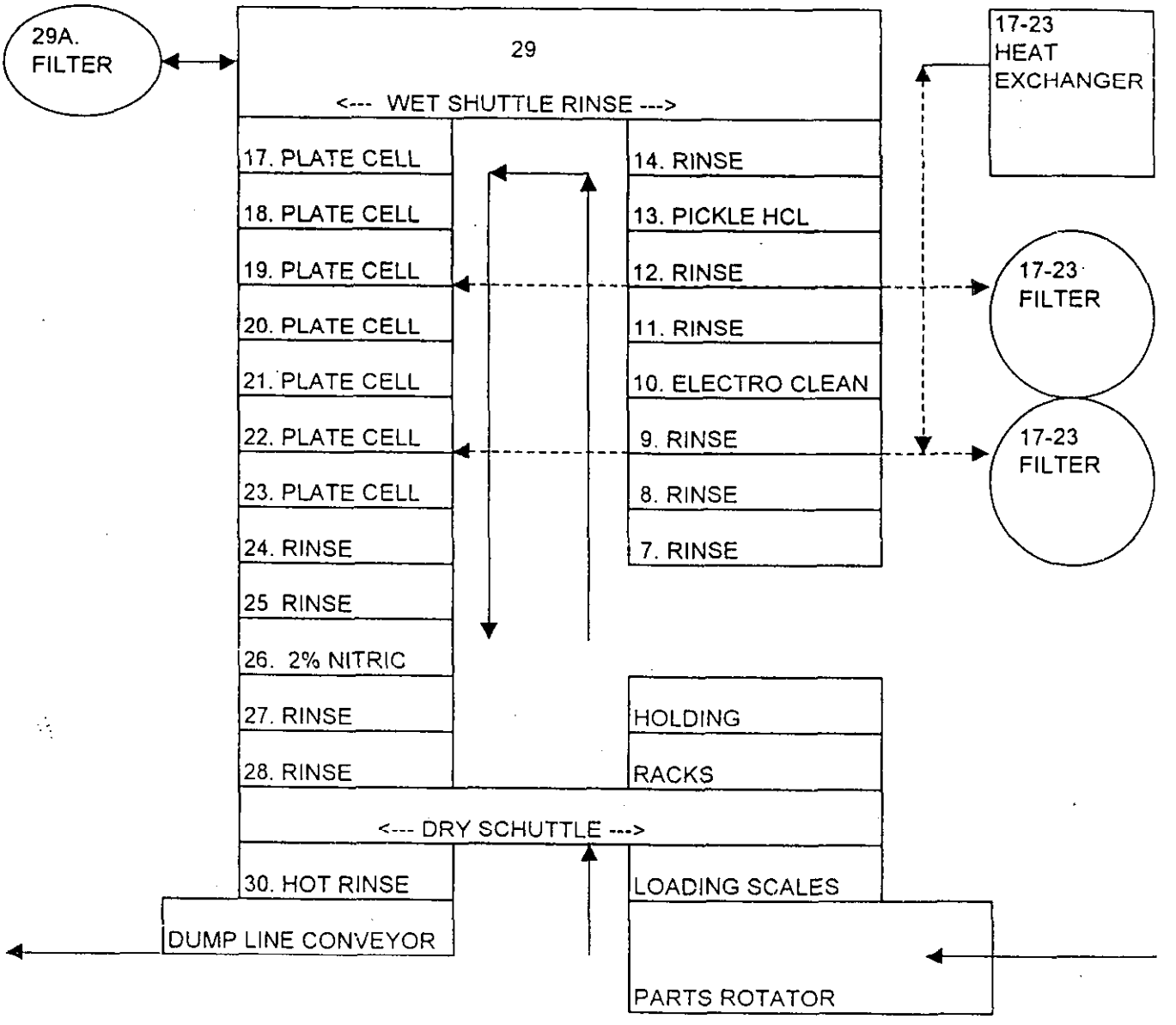
The process involves acid zinc plating of the machined gray cast iron castings. The plating system is an automatically controlled system. Barrels of raw castings are automatically transferred between solution dip tanks while suspended from an overhead, traveling bridge crane. Castings are immersed in caustic, electroplate and acid solution tanks with rinse tanks in between to clean the castings.

The parts are then electroplated by immersing the plating barrel into a zinc chloride plating solution tank. Plated castings are then rinsed in clean water. Finally, the parts are immersed in a weak solution of nitric acid and rinsed in cold water and hot water.

The plating solution is continually flowing through a filtering unit and a heat transfer unit in a closed loop system. The closed loop system is cooled by water run through an outside cooling tower. The plating solution filtering unit's filter paper is changed out routinely and currently disposed of as an F006 waste.

AMERICAN BARREL PLATER PROCESS FLOW

CROUSE-HINDS, AMARILLO, TX



FILTERS DISCHARGE SLUDGE TO TUBS FOR STORAGE

CROUSE-HINDS AMARILLO WASTEWATER TREATMENT PROCESS FLOW

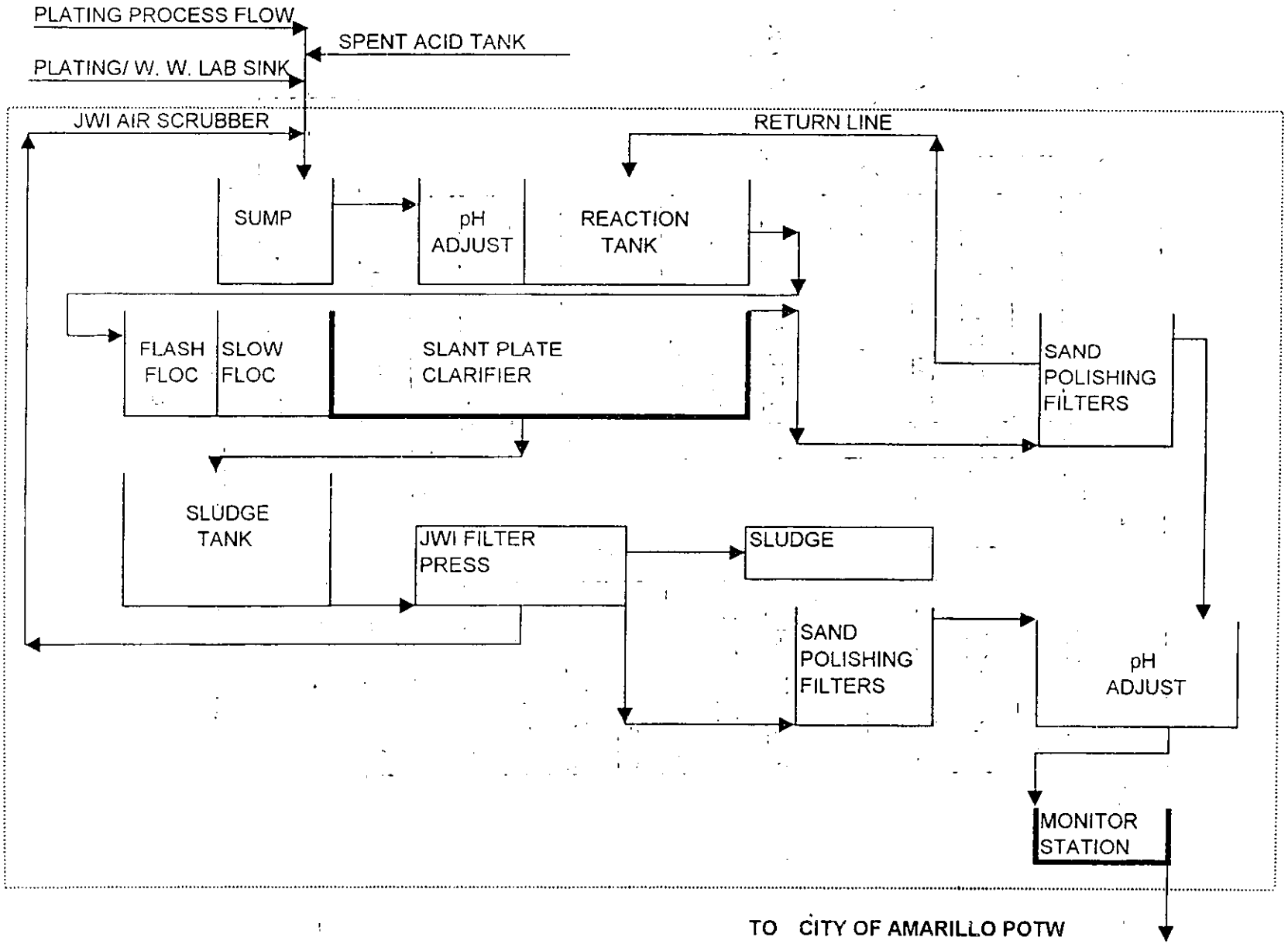


EXHIBIT "B"

"SYRACUSE, NY"

ATE: 02/09/98

Upstate Laboratories, Inc.
Analysis Results
Report Number: 02398146
Client I.D.: CROUSE-HINDS ECM
Sampled by: ULI

APPROVAL:
QC:
Lab I.D.: 10170

WASTE STREAM TESTING
WWTP SLUDGE IN ROLLOFF 1525H 01/23/98 G

ULI I.D.: 02398146 Matrix: Solid

	PARAMETERS	RESULTS	DET. LIMITS	KEY	FILE#
	Corrosivity				
	pH	9.2SU	--		WC0438
	Flash Point	>60degC	--		WC0381
	RCRA Reactivity				
	Reactive Sulfide	ND	50mg/kg		WC0355
	Reactive Cyanide	ND	1.0mg/kg		WC0351
TCLP	Arsenic	ND	0.5mg/l		MA9447
TCLP	Barium	0.9mg/l	--		MA9447
TCLP	Cadmium	0.006mg/l	--		MA9447
TCLP	Chromium	ND	0.05mg/l		MA9447
TCLP	Lead	ND	0.1mg/l		MA9447
TCLP	Mercury	ND	0.0004mg/l		MA9458
TCLP	Selenium	ND	0.5mg/l		MA9447
TCLP	Silver	ND	0.05mg/l		MA9447
	TCLP Volatile Organic Compounds by 8240				
TCLP	Benzene	ND	0.03mg/l		VM1759
TCLP	Carbon Tetrachloride	ND	0.03mg/l		VM1759
TCLP	Chlorobenzene	ND	0.03mg/l		VM1759
TCLP	Chloroform	ND	0.03mg/l		VM1759
TCLP	1,4-Dichlorobenzene	ND	0.03mg/l		VM1759
TCLP	1,2-Dichloroethane	ND	0.03mg/l		VM1759
TCLP	1,1-Dichloroethene	ND	0.03mg/l		VM1759
TCLP	Methyl Ethyl Ketone	ND	0.1mg/l		VM1759
TCLP	Tetrachloroethene	ND	0.03mg/l		VM1759
TCLP	Trichloroethene	ND	0.03mg/l		VM1759
TCLP	Vinyl Chloride	ND	0.02mg/l		VM1759
	TCLP Semivolatile Compounds by 8270				
TCLP	Cresol, Total	ND	0.1mg/l		SA1484
TCLP	2,4-Dinitrotoluene	ND	0.05mg/l		SA1484
TCLP	Hexachlorobenzene	ND	0.05mg/l		SA1484
TCLP	Hexachlorobutadiene	ND	0.05mg/l		SA1484
TCLP	Hexachloroethane	ND	0.05mg/l		SA1484
TCLP	Nitrobenzene	ND	0.05mg/l		SA1484
TCLP	Pentachlorophenol	ND	0.1mg/l		SA1484
TCLP	Pyridine	ND	0.05mg/l		SA1484
TCLP	2,4,5-Trichlorophenol	ND	0.05mg/l		SA1484

= Dry weight

ATE: 02/09/98

Upstate Laboratories, Inc.
Analysis Results
Report Number: 02398146
Client I.D.: CROUSE-HINDS ECM
Sampled by: ULI

APPROVAL
QC:
Lab I.D.: 10170

WASTE STREAM TESTING
WWTP SLUDGE IN ROLLOFF 1525H 01/23/98 G

ULI I.D.: 02398146 Matrix: Solid

PARAMETERS	RESULTS	DET. LIMITS	KEY	FILE#
TCLP 2,4,6-Trichlorophenol	ND	0.05mg/l		SA1484

dw = Dry weight

KEY PAGE

1 MATRIX INTERFERENCE PRECLUDES LOWER DETECTION LIMITS
2 MATRIX INTERFERENCE
3 PRESENT IN BLANK
4 ANALYSIS NOT PERFORMED BECAUSE OF INSUFFICIENT SAMPLE
5 THE PRESENCE OF OTHER TARGET ANALYTE(S) PRECLUDES LOWER DETECTION LIMITS
6 BLANK CORRECTED
7 HEAD SPACE PRESENT IN SAMPLE
8 QUANTITATION LIMIT IS GREATER THAN THE CALCULATED REGULATORY LEVEL. THE QUANTITATION LIMIT THEREFORE BECOMES THE REGULATORY LEVEL.
9 THE OIL WAS TREATED AS A SOLID AND LEACHED WITH EXTRACTION FLUID
10 ADL(AVERAGE DETECTION LIMITS)
11 PQL(PRACTICAL QUANTITATION LIMITS)
12 SAMPLE ANALYZED OVER HOLDING TIME
13 DISSOLVED VALUE MAY BE HIGHER THAN TOTAL DUE TO CONTAMINATION FROM THE FILTERING PROCEDURE
14 SAMPLED BY ULI
15 DISSOLVED VALUE MAY BE HIGHER THAN TOTAL; HOWEVER, THE VALUES ARE WITHIN EXPERIMENTAL ERROR
16 AN INHIBITORY FACTOR WAS OBSERVED IN THIS ANALYSIS
17 PARAMETER NOT ANALYZED WITHIN 15 MINUTES OF SAMPLING
18 THE SERIAL DILUTION OF THIS SAMPLE SUGGESTS A POSSIBLE PHYSICAL AND/OR CHEMICAL INTERFERENT IN THIS DETERMINATION. THE DATA MAY BE BIASED EITHER HIGH OR LOW.
19 CALCULATION BASED ON DRY WEIGHT
20 INDICATES AN ESTIMATED VALUE, DETECTED BUT BELOW THE PRACTICAL QUANTITATION LIMITS
21 UG/KG AS REC.D / UG/KG DRY WT
22 MG/KG AS REC.D / MG/KG DRY WT
23 INSUFFICIENT SAMPLE PRECLUDES LOWER DETECTION LIMITS
24 SAMPLE DILUTED/BLANK CORRECTED
25 ND(NON-DETECTED)
26 MATRIX INTERFERENCE PRECLUDES LOWER DETECTION LIMITS/BLANK CORRECTED
27 SPIKE RECOVERY ABNORMALLY HIGH/LOW DUE TO MATRIX INTERFERENCE
28 POST-DIGESTION SPIKE FOR FURNACE AA ANALYSIS IS OUTSIDE OF THE CONTROL LIMITS (85-115%); HOWEVER, THE SAMPLE CONCENTRATION IS BELOW THE PQL
29 ANALYZED BY METHOD OF STANDARD ADDITIONS
30 METHOD PERFORMANCE STUDY HAS NOT BEEN COMPLETED/ND(NON-DETECTED)
31 FIELD MEASURED PARAMETER TAKEN BY CLIENT
32 TARGET ANALYTE IS BIODEGRADED AND/OR ENVIRONMENTALLY WEATHERED
33 NON-POTABLE WATER SOURCE
34 THE QUALITY CONTROL RESULTS FOR THIS ANALYSIS INDICATE A POSITIVE BIAS OF 1-5 MG/L. THE POSITIVE BIAS FALLS BELOW THE PUBLISHED EPA REGULATORY DETECTION LIMIT OF 5 MG/L BUT ABOVE 1 MG/L.
35 THE HYDROCARBONS DETECTED IN THE SAMPLE DID NOT CROSS-MATCH WITH COMMON PETROLEUM DISTILLATES
36 MATRIX INTERFERENCE CAUSING SPIKES TO RESULT IN LESS THAN 50.0% RECOVERY
37 MILLIGRAMS PER LITER (MG/L) / POUNDS (LBS) PER DAY
38 MILLIGRAMS PER LITER (MG/L) OF RESIDUAL CHLORINE (CL2) / POUNDS (LBS) PER DAY OF CL2
39 MICROGRAMS PER LITER (UG/L) / POUNDS (LBS) PER DAY
40 MILLIGRAMS PER LITER (MG/L) LINEAR ALKYL SULFONATE (LAS) / POUNDS (LBS) PER DAY LAS
41 RESULTS ARE REPORTED ON AN AS REC.D BASIS
42 THE SAMPLE WAS ANALYZED ON A TOTAL BASIS; THE TEST RESULT CAN BE COMPARED TO THE TCLP REGULATORY CRITERIA BY DIVIDING THE TEST RESULT BY 20, CREATING A THEORETICAL TCLP VALUE
43 METAL BY CONCENTRATION PROCEDURE
44 POSSIBLE CONTAMINATION FROM FIELD/LABORATORY

...15) 437 0255 Fax 437 1209

2/6

Client:		Client Project # / Project Name	No. of Containers	Special Turnaround Time______ (Lab Notification required)
CROUSE-HINDS		WASTE STREAM TESTING		
Client Contact:	Phone #	Site Location (city/state)		
DAVE SENSINGER	477-5258	SYRACUSE, NY		

Sample Location:	Date	Time	Matrix	Grab or Comp.	ULI Internal Use Only	No. of Containers	1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	Remarks
WWTP SLUDGE IN ROLLOFF	1/23/98	3^25 p	Solid	Grab	02398146	3	X	X	X								
HOPPER	↓	3^45 p	↓	↓	147	4	X	X	X	X		(X)					
THERMOSET PLASTIC	↓	3^35 p	Solid	Grab	148	1					X	(X)					
ULI TRIP BLANK	1/23/98		H2O		149	1				X							

Parameter and method	sample bottle: type	size	pres.
REACTIVE S=	GLASS	4oz	NONE
TCLP VOLS	GLASS	4oz	NONE
CORROSIVITY, REACTIVE CN, FLASHPOINT, TCLP METALS, TCLP SEMI-VOLS	GLASS	32oz	NONE
EPA 8020	GLASS	4oz	NONE
STYRENE BY 8240	GLASS	4oz	NONE
% SOLIDS (CC)			

Note: The numbered columns above cross-reference with the numbered columns in the upper right-hand corner.

Sampled by: (Please Print) Keith Williams

Company: ULI

ULI Internal Use Only
Delivery (check one):
☒ ULI Sampled
☐ Pickup ☐ Dropoff
☐ CC ______

Relinquished by: (Signature)	Date	Time	Received by: (Signature)

Relinquished by: (Signature)	Date	Time	Rec'd for Lab by: (Signature)
[signature]	1/23/98	4^05 p	CKinney

TraceAnalysis, Inc.

6701 Aberdeen Avenue, Ste. 9 Lubbock, Texas 79424
Tel (806) 794 1296 Fax (806) 794 1298
1 (800) 378 1296

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

LAB Order ID #: 373

mpany Name: Crouse-Hinds
Phone #: 806-354-7036

dress: 1901 FARMERS AVE
Fax #: 806-358-3267

ntact Person: ROD ELLIOTT

oice to:
different from above)

oject #: FOOG PLATING SLUDGE
Project Name:

oject Location: "
Sampler Signature: Rod Elliott

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE		PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE		SAMPLING: DATE	TIME	MTBE 8020/602	BTEX 8020/602	TPH	PAH 8270	Total Metals Ag As Ba Cd Cr Pb Hg Se, Ni, Zn	TCLP Metals Ag As Ba Cd Cr Pb Hg Se, Ni, Zn	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC/MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 8080/608	BOD, TSS, PH	pH			Turn Around Time if different from standard	Hold
07812	FOOG PLATING SLUDGE	1	3 yds		/		X					X		9/21/98	2:30					X	X									X				

(1)

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Rod Elliott	9-21-98	3:25pm	Willie Halligan	9/21/98	3:25 pm

Relinquished by:	Date:	Time:	Received at Laboratory by:	Date:	Time:
Halligan	9/21/98	5:30pm	Vicki Windham	9-22-98	9:45 AM

mittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

LAB USE ONLY
Intact (Y) / N
Headspace Y / N
Temp 4
Log-in Review [illegible]

REMARKS:
TOTAL METALS FOR Zn report in 90 day
10/26

Carrier # Bus 154 691 721 8

TRACE ANALYSIS, INC.
6701 Aberdeen Avenue Lubbock, Texas 79424 806•794•1296 FAX 806•794•1298

REC'D NOV 0 2 1998

October 23, 1998
Receiving Date: 09/22/98
Sample Type: Soil
Project No: F006 Plating Sludge
Project Location: F006 Plating Sludge
PO# 43710

ANALYTICAL RESULTS FOR
CROUSE-HINDS
Attention: Rod Elliott
1901 Farmers Avenue
Amarillo, TX 79118

Sampling Date: 09/21/98
Sample Condition: Intact & Cool
Sample Received by: VW
Project Name: NA

TOTAL METALS

TA#	FIELD CODE	As (mg/kg)	Se (mg/kg)	Cd (mg/kg)	Cr (mg/kg)	Pb (mg/kg)	Ag (mg/kg)	Ba (mg/kg)	Zn (mg/kg)	Ni (mg/kg)	Hg (mg/kg)
T107812	F006 Plating Sludge	<5.0	<5.0	2.4	63	<5.0	<2.0	5.4	85,000	43	<0.25
ICV		0.96	1.0	0.97	1.0	1.0	0.97	0.96	1.0	0.96	5.1
CCV		0.93	0.98	0.96	0.97	0.97	0.96	0.96	1.0	0.98	5.0
REPORTING LIMIT		5.0	5.0	2.0	2.0	5.0	2.0	5.0	5.0	5.0	5.0
RPD		2*	1*	2*	1*	1*	6*	1*	6*	1*	4**
% Extraction Accuracy		83*	76*	83*	90*	82*	107*	89*	85*	83*	106**
% Instrument Accuracy		95	99	96	98	98	96	96	100	97	102
PREP DATE		09/23/98	09/23/98	09/23/98	09/23/98	09/23/98	09/23/98	09/23/98	09/23/98	09/23/98	09/23/98
ANALYSIS DATE		09/23/98	09/23/98	09/23/98	09/23/98	09/23/98	09/23/98	09/23/98	09/23/98	09/23/98	09/24/98

***NOTE: Used LCS for Extraction Accuracy and RPD due to matrix problems.**
****NOTE: LCS and LCSD used for Extraction Accuracy and RPD purposes because of high Hg concentration in the sample which was spiked.**

METHODS: EPA SW 846-3015, 6010B, 7471.
CHEMIST: As, Se, Cd, Cr, Pb, Ag, Ba: RR Hg: MS
TOTAL METALS SPIKE: 200 mg/kg As, Se, Cd, Cr, Pb, Ba, Zn, Ni; 100 mg/kg Ag; 2.5 mg/kg Hg.
TOTAL METALS CV: 1.0 mg/L As, Se, Cd, Cr, Pb, Ba, Zn, Ni, Ag; 5.0 mg/L Hg.

Director, Dr. Blair Leftwich

10-23-98
Date

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

ANALYTICAL RESULTS FOR
CROUSE-HINDS
Attention: Rod Elliott
1901 Farmers Avenue
Amarillo, TX 79118

October 23, 1998
Receiving Date: 09/22/98
Sample Type: Soil
Project No: F006 Plating Sludge
Project Location: F006 Plating Sludge
PO# 43710

REC'D NOV 0 2 1998

Prep Date: 09/23/98
Analysis Date: 09/23/98
Sampling Date: 09/21/98
Sample Condition: Intact & Cool
Sample Received by: VW
Project Name: NA

TA#	FIELD CODE	pH (s.u.)
T107812	F006 Plating Sludge	6.7
ICV		7.0
CCV		7.0
RPD		0
% Instrument Accuracy		100

METHODS: EPA 150.1
CHEMIST: SA

Director, Dr. Blair Leftwich

10-23-98
DATE

TRACE ANALYSIS, INC.
6701 Aberdeen Avenue Lubbock, Texas 79424 806•794•1296 FAX 806•794•1298

REC'D NOV 0 2 1998

October 23, 1998
Receiving Date: 09/22/98
Sample Type: Soil
Project No: F006 Plating Sludge
Project Location: F006 Plating Sludge
PO# 43710

ANALYTICAL RESULTS FOR
CROUSE-HINDS
Attention: Rod Elliott
1901 Farmers Avenue
Amarillo, TX 79118

Sampling Date: 09/21/98
Sample Condition: Intact & Cool
Sample Received by: VW
Project Name: NA

TCLP METALS

TA#	FIELD CODE	As (mg/L)	Se (mg/L)	Cd (mg/L)	Cr (mg/L)	Pb (mg/L)	Ag (mg/L)	Ba (mg/L)	Zn (mg/L)	Ni (mg/L)	Hg (mg/L)
	EPA LIMIT =	5.0	1.0	1.0	5.0	5.0	5.0	100.0	---	---	0.20
T107812	F006 Plating Sludge	<0.10	<0.10	<0.02	<0.05	<0.10	<0.05	0.37	1,100	0.40	<0.010
ICV		0.99	1.0	1.0	1.0	1.0	0.98	0.97	0.99	1.0	0.050
CCV		1.0	1.0	1.0	1.0	1.0	0.99	0.99	1.0	1.0	0.059
REPORTING LIMIT		0.10	0.10	0.02	0.05	0.10	0.05	0.10	0.10	0.10	0.010
RPD		0	10	0	0	0	11	0	5*	0	11**
% Extraction Accuracy		100	80	95	100	90	116	90	100*	95	110**
% Instrument Accuracy		99	100	100	100	100	98	98	99	100	110
EXTRACTION DATE		09/23/98	09/23/98	09/23/98	09/23/98	09/23/98	09/23/98	09/23/98	09/23/98	09/23/98	09/24/98
ANALYSIS DATE		09/28/98	09/28/98	09/28/98	09/28/98	09/28/98	09/28/98	09/28/98	09/28/98	09/28/98	10/22/98

***NOTE: Used LCS for Extraction Accuracy and RPD for Zn due to high concentration in sample.**
****NOTE: LCS and LCSD used for Extraction Accuracy and RPD purposes because of high Hg concentration in the sample which was spiked.**
METHODS: EPA SW 846-1311, 6010B, 7470.
CHEMIST: As, Se, Cd, Cr, Pb, Ag, Ba, Ni, Zn: RR Hg: MS
TCLP METALS SPIKE: 2.0 mg/L As, Se, Cd, Cr, Pb, Ba, Ni, Zn; 0.25 mg/L Ag; 0.050 mg/L Hg.
TCLP METALS CV: 1.0 mg/L As, Se, Cd, Cr, Pb, Ba, Ni, Zn, Ag; 0.050 mg/L Hg.

BL 10-23-98

Director, Dr. Blair Leftwich Date

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

ANALYTICAL RESULTS FOR
CROUSE-HINDS
Attention: Rod Elliott
1901 Farmers Avenue
Amarillo, Texas 79118

REC'D NOV 0 2 1998

October 23, 1998
Receiving Date: 09/22/98
Sample Type: Soil
Project No: F006 Plating Sludge
PO# 43710

Sampling Date: 09/21/98
Sample Condition: I & C
Sample Received by: VW
Project Name: NA

TA#	FIELD CODE	TOTAL Zn (mg/kg)	TOTAL Zn %
T107812	F006 Plating Sludge	85,000	8.50

METHODS: EPA 200.7
CHEMIST: RR

Director, Dr. Blair Leftwich

10-23-98
Date

EXHIBIT "C"

P.O. Box 4999
Syracuse, NY 13221-4999

Wolf & 7th North Streets
Syracuse, NY 13221
315 477-7000
Fax 315 477-5717

Interoffice Memo

COOPER Crouse-Hinds

Date: September 16, 1998

To: Rick Uber

From: Tom Bonk TJBL

Subject: **Gray and Ductile Iron "Elements"**

The following is an update to my September 14th memo regarding the breakdown of elements for the Gray and Ductile Iron produced at Crouse-Hinds, Syracuse.

MAJOR ELEMENTS

	Gray Iron	Ductile Iron
Iron	>90%	>90%
Carbon (C)	3.45-3.60%	3.45-3.65%
Silicon (Si)	2.4-2.65%	2.45-2.75%
Manganese (Mn)	.45-.75%	.15-35%

MINOR ELEMENTS

S, P, Cr, Al, Sn, Cu, Ni, Mo, Mg *(all less then one/tenth of a percent)*	< .1%	<.1%

If you need additional information, call me!

TJB:bb
K-TJB-21

Cooper Industries
Crouse-Hinds Division
1901 Farmers Avenue
Amarillo, TX 79118
806 358-4585
Fax 806 358-3267

Inter-Office Correspondence

COOPER
Crouse-Hinds

Date: September 21, 1998

To: Rick Uber

From: Rod Elliott

Subject: Gray Iron Elements

CC: Tom Bonk
Ron Riley

The following is a breakdown of the elements for gray iron produced at Crouse-Hinds, Amarillo, Texas. Analytical was performed by an outside metallurgical laboratory, Grinnell Corporation in Statesboro, Georgia.

MAJOR ELEMENTS

	Gray Iron
Iron	>90%
Carbon (C)	3.29-3.36%
Silicon (Si)	2.52-2.57%
Manganese (Mn)	0.62-0.64%

MINOR ELEMENTS

S, P, Cr, Al, Sn, Cu, Ni, Mo, Mg <0.1%
(all less than one/tenth of a percent)

If any additional information is required, call me at (806) 354-7036.

RLE

Table 1. Composition of Standard Steels

These compositions are applicable either to open-hearth or electric furnace steels. For the latter, the maximum phosphorus and sulphur content is 0.025 per cent. The carbon and manganese contents shown differ slightly from those for structural shapes.

SAE Number	AISI Number*	Carbon C	Manganese Mn	Phosphorus P (Max.)	Sulphur S (Max.)
		CARBON STEELS			
1006	C1006	0.08 max.	0.25–0.40	0.040	0.050
1008	C1008	0.10 max.	0.25–0.50	0.040	0.050
1010	C1010	0.08–0.13	0.30–0.60	0.040	0.050
1015	C1015	0.13–0.18	0.30–0.60	0.040	0.050
1016	C1016	0.13–0.18	0.60–0.90	0.040	0.050
1017	C1017	0.15–0.20	0.30–0.60	0.040	0.050
1018	C1018	0.15–0.20	0.60–0.90	0.040	0.050
1019	C1019	0.15–0.20	0.70–1.00	0.040	0.050
1020	C1020	0.18–0.23	0.30–0.60	0.040	0.050
1021	C1021	0.18–0.23	0.60–0.90	0.040	0.050
1022	C1022	0.18–0.23	0.70–1.00	0.040	0.050
1024	C1024	0.19–0.25	1.35–1.65	0.040	0.050
1025	C1025	0.22–0.28	0.30–0.60	0.040	0.050
1026	C1026	0.22–0.28	0.60–0.90	0.040	0.050
1027	C1027	0.22–0.29	1.20–1.50	0.040	0.050
1030	C1030	0.28–0.34	0.60–0.90	0.040	0.050
1033	C1033	0.30–0.36	0.70–1.00	0.040	0.050
1034	C1034	0.32–0.38	0.50–0.80	0.040	0.050
1035	C1035	0.32–0.38	0.60–0.90	0.040	0.050
1036	C1036	0.30–0.37	1.20–1.50	0.040	0.050
1038	C1038	0.35–0.42	0.60–0.90	0.040	0.050
1039	C1039	0.37–0.44	0.70–1.00	0.040	0.050
1040	C1040	0.37–0.44	0.60–0.90	0.040	0.050
1041	C1041	0.36–0.44	1.35–1.65	0.040	0.050
1042	C1042	0.40–0.47	0.60–0.90	0.040	0.050
1043	C1043	0.40–0.47	0.70–1.00	0.040	0.050
1045	C1045	0.43–0.50	0.60–0.90	0.040	0.050
1046	C1046	0.43–0.50	0.70–1.00	0.040	0.050
1049	C1049	0.46–0.53	0.60–0.90	0.040	0.050
1050	C1050	0.48–0.55	0.60–0.90	0.040	0.050
1052	C1052	0.47–0.55	1.20–1.50	0.040	0.050
1055	C1055	0.50–0.60	0.60–0.90	0.040	0.050
1060	C1060	0.55–0.65	0.60–0.90	0.040	0.050
1062	C1062	0.54–0.65	0.85–1.15	0.040	0.050
1064	C1064	0.60–0.70	0.50–0.80	0.040	0.050
1065	C1065	0.60–0.70	0.60–0.90	0.040	0.050
1066	C1066	0.60–0.71	0.85–1.15	0.040	0.050
1070	C1070	0.65–0.75	0.60–0.90	0.040	0.050
1074	C1074	0.70–0.80	0.50–0.80	0.040	0.050
1078	C1078	0.72–0.85	0.30–0.60	0.040	0.050
1080	C1080	0.75–0.88	0.60–0.90	0.040	0.050
1085	C1085	0.80–0.93	0.70–1.00	0.040	0.050
1086	C1086	0.82–0.95	0.30–0.50	0.040	0.050
1090	C1090	0.85–0.98	0.60–0.90	0.040	0.050
1095	C1095	0.90–1.03	0.30–0.50	0.040	0.050

* American Iron and Steel Institute.

Quality Variations of Carbon and Alloy Steels. — Carbon steels may be produced with chemical composition (carbon, manganese, phosphorus, sulfur, and silicon) within the specified limits of a given grade and still have characteristics that are dissimilar. Each grade and quality variation thereof has a proper and useful place, depending upon the end products to be made and the methods of fabrication.

(*Continued on page 2092.*)

Table 2. Compositions of Free-Cutting Steels*

SAE Number	AISI Number	C	Mn	P	S
1111[b]	B1111[c] C1211	0.13 max	0.60–0.90	0.07–0.12	0.08–0.15
1112[b]	B1112[c] C1212	0.13 max	0.70–1.00	0.07–0.12	0.16–0.23
1113[b]	B1113[c] C1213	0.13 max	0.70–1.00	0.07–0.12	0.24–0.33
12L14[d]	—	0.15 max	0.80–1.20	0.04–0.09	0.28–0.35
Open Hearth				Max	
1108	C1108	0.08–0.13	0.50–0.80	0.040	0.08–0.13
1109	C1109	0.08–0.13	0.60–0.90	0.040	0.08–0.13
1114	C1114	0.10–0.16	1.00–1.30	0.040	0.08–0.13
1115	C1115	0.13–0.18	0.60–0.90	0.040	0.08–0.13
1117	C1117	0.14–0.20	1.00–1.30	0.040	0.08–0.13
1118	C1118	0.14–0.20	1.30–1.60	0.040	0.08–0.13
1119	C1119	0.14–0.20	1.00–1.30	0.040	0.24–0.33
1120	C1120	0.18–0.23	0.70–1.00	0.040	0.08–0.13
1126	C1126	0.23–0.29	0.70–1.00	0.040	0.08–0.13
1132	C1132	0.27–0.34	1.35–1.65	0.040	0.08–0.13
1137	C1137	0.32–0.39	1.35–1.65	0.040	0.08–0.13
1138	C1138	0.34–0.40	0.70–1.00	0.040	0.08–0.13
1139	C1139	0.35–0.43	1.35–1.65	0.040	0.12–0.20
1140	C1140	0.37–0.44	0.70–1.00	0.040	0.08–0.13
1141	C1141	0.37–0.45	1.35–1.65	0.040	0.08–0.13
1144	C1144	0.40–0.48	1.35–1.65	0.040	0.24–0.33
1145	C1145	0.42–0.49	0.70–1.00	0.040	0.04–0.07
1146	C1146	0.42–0.49	0.70–1.00	0.040	0.08–0.13
1151	C1151	0.48–0.55	0.70–1.00	0.040	0.08–0.13

* When silicon is required, the following limits and ranges are commonly used for basic open hearth steel grades: for steel designations up to but excluding SAE 1114, 0.10% max; for SAE 1114 and over, 0.10% max or the ranges of 0.10 to 0.20% or 0.15 to 0.30%; except that limits for SAE 1139 are 0.15 to 0.30%.

[b] These steels may be produced by the Bessemer basic open hearth or basic electric steel-making practices.

[c] Because of the technological nature of the process, acid Bessemer steels are not furnished with specified silicon content.

[d] Lead 0.15 to 0.35%.

Table 3. Compositions of Alloy Steels*

SAE No.	AISI No.	C	Mn	P	S	Si	Ni	Cr
1330	1330	0.28–0.33	1.60–1.90	(a)	(a)	(d)	—	—
1335	1335	0.33–0.38	1.60–1.90	(a)	(a)	(d)	—	—
1340	1340	0.38–0.43	1.60–1.90	(a)	(a)	(d)	—	—
1345	1345	0.43–0.48	1.60–1.90	(a)	(a)	(d)	—	—
2517[d]	E2517	0.15–0.20	0.45–0.60	(b)	(b)	(d)	4.75–5.25	—
3135	3135	0.33–0.38	0.60–0.80	(a)	(a)	(d)	1.10–1.40	0.55–0.75
3140	3140	0.38–0.43	0.70–0.90	(a)	(a)	(d)	1.10–1.40	0.55–0.75
3310[d]	E3310	0.08–0.13	0.45–0.60	(b)	(b)	(d)	3.25–3.75	1.40–1.75

* See footnotes at end of table.

EXHIBIT "D"

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

FILE COPY

AUG - 2 1994

OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

Ms. Michelle T. Fisher
Attorney
General Motors Corporation
New Center One Building
3031 West Grand Boulevard
P.O. Box 33122
Detroit, Michigan 48232

Reference: Classification of Wastewater Treatment Sludge from the Revised "Zinc-Cobalt Alloy Plating on Carbon Steel" Process

Dear Ms. Fisher:

This letter is in response to your April 12, 1994, letter requesting a regulatory interpretation as to whether or not the F006 hazardous waste listing exemption for "zinc plating on carbon steel" includes the zinc-cobalt alloy plating used in one of your plants. Since this request is site-specific, the Hazardous Waste Management Division of EPA Region V has been provided with a copy of your letter and has deferred the interpretation to our office.

Your request is based on a proposed change in the electroless plating process at your Inland Fisher Guide plant in Columbus, OH, from the current zinc-based operation to one using a zinc-cobalt alloy process. According to your letter, this zinc alloy process will combine a very small amount of cobalt (60 ppm) with the conventional zinc in the plating bath. Hence, the rinse water from the rinse water tanks which follow the plating bath will contain a small amount of cobalt, which will eventually precipitate out into the wastewater treatment sludge.

Based on a previous regulatory interpretation request, the Agency concurred, in a letter dated June 30, 1987, that the sludge from the current zinc plating operation is not a listed hazardous waste. The interpretation was based on the Interpretative Rule on F006 which was published in the Federal Register on December 2, 1986 (51 FR 43350). Your current request for interpretation pertains to whether or not the exemption for "zinc plating on carbon steel on a segregated basis" would apply to zinc alloy plating, which would result in the new sludge being considered nonhazardous. You recommend that the sludge resulting from your proposed zinc alloy process should be included within the exemption for zinc plating for the following reasons:

1. The process remains basically "zinc plating." Cobalt is added at 60 ppm to the bath to enhance the performance characteristics of the plated product.

2. There are currently no land disposal regulations regarding cobalt. Cobalt is not listed under toxicity characteristic parameters per 40 CFR 261.24.

3. Given that cobalt is not subject to land disposal regulations or currently listed in TCLP standards, the addition of cobalt to an already nonhazardous sludge should not cause that sludge to become hazardous."

Our interpretation based on current RCRA regulations is that wastes from your proposed zinc-cobalt alloy plating process would not be included in the F006 hazardous waste listing. The basis for our interpretation is as follows:

- The revised plating process is still considered to be "zinc plating on carbon steel." The small amount of cobalt (60 ppm) used in the process does not alt this interpretation.

- Cobalt is not included in the list of toxic metals in the original F006 listing (chromium, cadmium, and nickel). See the November 14, 1980 RCRA Background Document, Subtitle C - Identification and Listing of Hazardous Waste, Sections 261.31 and 261.32 - Listing of Hazardous Wastes (Finalization of May 19, 1980 Hazardous Waste List), page 106.

- Cobalt is not included in the list of contaminants for the toxicity characteristic (40 CFR 261.24) and is not included in the list of hazardous constituents of Appendix VIII, 40 CFR 261.

Hence, the resulting wastewater treatment sludges would not be hazardous provided they do not exhibit any of the characteristics for a hazardous waste as specified at 40 CFR Part 261 Subpart C.

Please note that the above is an interpretation of the current F006 hazardous waste code. This interpretation in no way limits the Agency's authority to take regulatory action to list alloy-metal plating in the future.

Please be aware that under Section 3006 of RCRA (42 U.S.C. Section 6926) individual States can be authorized to administer and enforce their own hazardous waste programs in lieu of the Federal program. When States are not authorized to administer their own program, the appropriate EPA Regional office administers the program and is the appropriate contact for any case-specific determinations. Please also note that under Section