



Weston Solutions, Inc.
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October 31, 2011

Ms. Shelly Lam
On-Scene Coordinator
Emergency Response Branch
U.S. Environmental Protection Agency, Region 5
2525 North Shadeland Avenue, Suite 100,
Indianapolis, IN 46219

Subject: Final Letter Report
Advance Plating Works Site – Emergency Response
Indianapolis, Marion County, Indiana
Technical Direction Document No. S05-0001-1109-019
Document Control No. 1613-2A-ARZG
Contract No.: EP-S5-06-04

Dear Ms. Lam:

The Weston Solutions, Inc. (WESTON®), Superfund Technical Assessment and Response Team (START) prepared this letter report in accordance with the tasks outlined in the Technical Direction Document (TDD) No. S05-0001-1109-019, which the U.S. Environmental Protection Agency (U.S. EPA) assigned to WESTON START. Under this TDD, WESTON START supported U.S. EPA's emergency response (ER) actions at the Advance Plating Works Site in Indianapolis, Marion County, Indiana (the Site).

The scope of the TDD included the following activities:

- Prepare a site-specific health and safety plan (HASP) and a field sampling plan
- Document waste relocation and security actions performed by the Emergency and Rapid Response Services (ERRS) contractor, Environmental Restoration (EnR)
- Collect six investigative liquid waste and two investigative solid waste samples
- Submit the eight investigative samples for laboratory analysis
- Provide a summary of analytical results
- Prepare photographic documentation of Site conditions and ER activities
- Prepare and submit a final letter report documenting the ER



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U.S. EPA, Region 5

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Advance Plating Works Site
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This letter report discusses the Site location, Site history, ER activities, sampling activities, analytical results for the liquid and solid waste samples, and conclusions. **Attachment A** of this report provides Site figures. **Attachment B** provides photographic documentation of Site conditions and activities during the ER. **Attachment C** provides the tables for this report. **Attachment D** provides the analytical data report for samples collected during the ER.

SITE LOCATION

The Site is located at 1005 East Sumner Avenue in Indianapolis, Marion County, Indiana (**Figure 1** in **Attachment A**). Site coordinates are 39° 42' 54.72" North latitude and 86° 8' 30.12" West longitude. The Site is located in a primarily industrial area on the south side of Indianapolis. However, a residential property borders the Site to the east and additional residential properties are located within a few hundred feet of the Site to the northeast. The Site is bordered by a railroad track to the west and East Sumner Avenue to the north. The Site encompasses 3 acres and contains two buildings, one formerly used for plating operations and office space and the other formerly used as a warehouse. **Figure 2** in **Attachment A** shows the Site layout.

SITE HISTORY

The Site is the former location of Advance Plating Works, a family-owned business that operated from 1912 to 2009. Former operations at the Site included nickel, chrome, zinc, cadmium, and copper plating. On September 20, 2011, the Marion County Public Health Department (MCPHD) responded to the Site based on abandoned building and trespassing complaints from the Indianapolis Metropolitan Police Department (IMPD). Upon arriving at the Site, MCPHD personnel observed 25 to 30 drums in poor condition stored outside the buildings. Additionally, MCPHD observed that building doors were open and a section of fence had been removed to allow trespassing. MCPHD immediately requested assistance from the Indiana Department of Environmental Management (IDEM) and U.S. EPA.

EMERGENCY RESPONSE ACTIVITIES

U.S. EPA On-Scene Coordinator (OSC) Shelly Lam, WESTON START member Keith Hughes, and ERRS contactor EnR responded to the ER on the afternoon of September 20, 2011, and met with MCPHD representatives and the property owners. On September 21 and 22, 2011, EnR segregated and staged waste at the Site according to hazard category. ER activities included relocating drums located outside into one of the Site buildings, securing both Site buildings, and over-packing drums in poor condition. ER activities were completed on September 23, 2011. **Attachment B** provides photographic documentation of Site conditions and activities during the ER. The site reconnaissance and WESTON START sampling activities are discussed below.

Site Reconnaissance

A preliminary reconnaissance and air monitoring were conducted around the perimeter of the



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Site using a MultiRAE multi-gas monitoring instrument that included carbon monoxide, photoionization detector (PID), lower explosive limit, hydrogen sulfide, and oxygen sensors. No air monitoring readings exceeded background conditions during the preliminary reconnaissance or perimeter air monitoring activities.

During the site reconnaissance, WESTON START observed and documented the presence of 42 totes and drums of 30 gallons or less, 124 55-gallon drums, and 9 275-gallon totes. The totes and drums contained materials that included sodium hydroxide, hydrogen peroxide, potassium cyanide, sodium cyanide, sulfuric acid, and hydrocyanic acid. **Table 1 in Attachment C** provides a complete drum and container inventory. In addition to drums, WESTON START observed five pits with estimated capacities ranging from 31 to 2,000 gallons and five vats with estimated capacities ranging from 1,800 to 5,400 gallons. Many drums were unlabeled, in poor condition, or leaking. Labeled drums indicated that the contents were toxic, corrosive, oxidizing, and flammable materials. Evidence of trespassers cutting metal process piping above the plating vats was observed.

WESTON START Sampling Activities

To evaluate if the Site posed a threat to the public health or welfare of the United States or the environment, WESTON START collected two solid waste samples, D-001 and D-001D, and six liquid waste samples, PT-001, D-126, D-124, D-113, D-056, and D-090, from various drums and containers at the Site. **Table 2 in Attachment C** summarizes the type, location, and analytical parameter for each investigative sample collected.

The sampling activities were conducted in Level B personal protective equipment (PPE) with self-containing breathing apparatuses in accordance with the approved Site-specific HASP. Investigative liquid waste samples were collected using dedicated coliwassas to pour the waste directly into the sample container. Investigative solid waste samples were collected using disposable plastic scoops. All sample containers were labeled with the sample identification number, sampling date, and sampling time. All sampling information was recorded in the Site logbook, and all samples were recorded on the chain-of-custody form. All samples were labeled and immediately placed on ice after collection.

On September 22, 2011, the ERRS contractor submitted all samples under chain of custody to Microbac Laboratories, Inc., in Indianapolis, Indiana. Investigative liquid waste sample PT-001 was analyzed for flashpoint using U.S. EPA SW-846 Method 1010. Investigative soil waste samples D-001 and D-001D were analyzed for total and reactive cyanide using U.S. EPA SW-846 Methods 9012B and 9014, respectively. Investigative liquid waste samples D-126, D-124, D-113, D-056, and D-090 were analyzed for pH using U.S. EPA SW-846 Method 9045C. Analytical results are discussed below.

ANALYTICAL RESULTS – LIQUID AND SOLID WASTE SAMPLES

Analytical results for ignitability (flashpoint), reactivity (total and reactive cyanide), and



corrosivity (pH) were compared to the hazardous waste criteria outlined in Title 40 of the *Code of Federal Regulations* (CFR), Part 261 (Subpart C), to determine if the samples represent hazardous waste. **Table 3** in **Attachment C** provides an analytical results summary. **Attachment D** provides the analytical data report for the samples. Laboratory analytical results for the liquid and solid waste samples are summarized below.

- **Ignitability – Flashpoint:** The flashpoint result for investigative liquid waste sample PT-001 was 110 degrees Fahrenheit (°F). This result is less than 140 °F. Therefore, according to 40 CFR 261.21, the liquid waste sample represents material that meets the definition of hazardous waste by virtue of the characteristic of ignitability.
- **Reactivity – Total and Reactive Cyanide:** Investigative solid waste samples D-001 and D-001D contained total cyanide at concentrations of 15,000 and 8,900 milligrams per kilogram (mg/kg), respectively. Investigative solid waste samples D-001 and D-001D contained reactive cyanide at concentrations of 1,300 and 1,400 mg/kg, respectively. The two investigative solid samples are cyanide-bearing waste samples. Therefore, according to 40 CFR 261.23, these solid waste samples represent materials that meet the definition of hazardous waste by virtue of the characteristic of reactivity.
- **Corrosivity - pH:** Investigative liquid waste samples D-126, D-124, D-113, and D-056 had pH values of less than 2 standard units (SU). Investigative liquid waste sample D-090 had a pH value exceeding 13.5 SUs. These pH results are less than 2 SUs or greater than 13.5 SUs. Therefore, according to 40 CFR 261.22, these liquid waste samples represent materials that meet the definition of hazardous waste by virtue of the characteristic of corrosivity.

CONCLUSIONS

WESTON START documented the ER and sampling activities taken by U.S. EPA and the ERRS contractor from September 20 to 23, 2011. At the Site, WESTON START observed and documented 42 totes and drums of 30 gallons or less, 124 55-gallon drums, 9 275-gallon totes, 5 pits, and 5 vats. The totes and drums contained materials that included sodium hydroxide, hydrogen peroxide, potassium cyanide, sodium cyanide, sulfuric acid, and hydrocyanic acid.

Based on analytical results for investigative liquid and solid waste samples collected during the ER, the 55-gallon drums and containers at the Site contained hazardous wastes with the following characteristics:

- Ignitability (flammable liquid [D001])
- Reactivity (cyanide solid [D003])
- Corrosivity (acid and caustic liquid [D002])

All containerized waste was staged and secured at the Site by the ERRS contractor.



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U.S. EPA, Region 5

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Advance Plating Works Site
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This letter report serves as the final deliverable for this TDD. WESTON START anticipates no further activities under this TDD. If you have any questions or comments about the report or need additional copies, please contact me at (937) 602-3089.

Sincerely,
WESTON SOLUTIONS, INC.

A handwritten signature in cursive script that reads "Randy Kirkland".

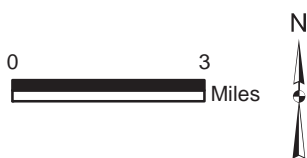
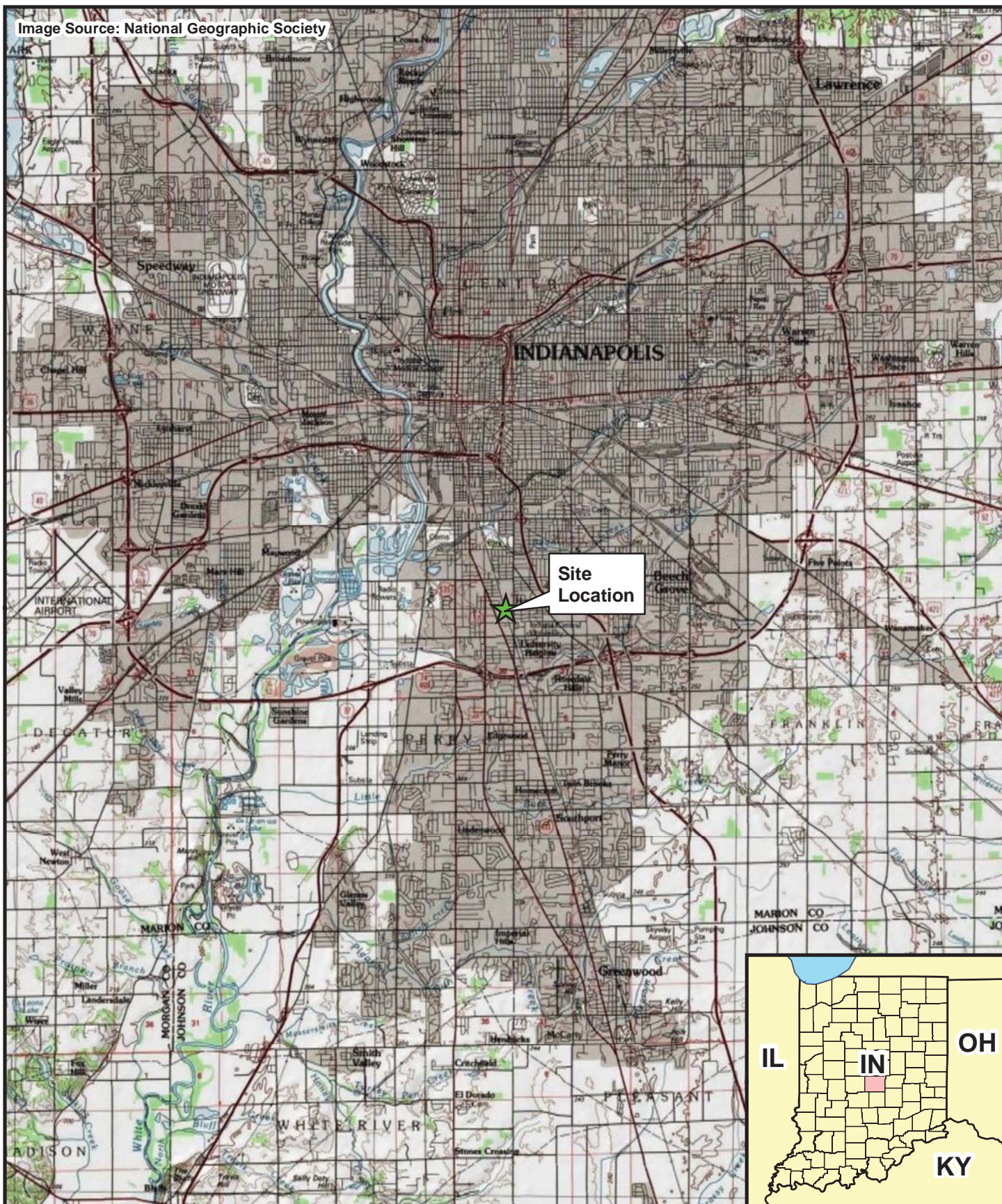
Randy Kirkland
WESTON START Project Manager

Attachments:

- A – Figures
- B – Photographic Documentation
- C – Tables
- D – Analytical Data Report

cc: WESTON START DCN File

ATTACHMENT A
FIGURES



Prepared for:
U.S. EPA REGION V

Contract No.: EP-S5-06-04
TDD: S05-0001-1109-019
DCN: 1613-2A-ARZG



Prepared By:
WESTON SOLUTIONS, INC

4710-A Interstate Drive
Cincinnati, Ohio 45246



Figure 1
Site Location Map
Advance Plating Works
Indianapolis, Marion County, Indiana

Image Source: BING

E Sumner Ave

Legend

 Site Boundary

0 70
Feet



Prepared for:
U.S. EPA Region V

Contract No.: EP-S5-06-04
TDD: S05-0001-1109-019
DCN: 1613-2A-ARZG



Prepared By:
**WESTON
SOLUTIONS, INC**

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Cincinnati, Ohio 45246

Figure 2
Site Layout Map
Advance Plating Works
Indianapolis, Marion County, Indiana

ATTACHMENT B
PHOTOGRAPHIC DOCUMENTATION



Site: Advance Plating Works Site

Photograph No.: 1

Direction: Northeast

Subject: Plating building

Date: 9/20/11

Photographer: Keith Hughes



Site: Advance Plating Works Site

Photograph No.: 2

Direction: Northwest

Subject: Abandoned 55- gallon drums outside plating building

Date: 9/20/11

Photographer: Keith Hughes



Site: Advance Plating Works Site

Photograph No.: 3

Direction: Down

Subject: Plating vat containing plating waste

Date: 9/20/11

Photographer: Keith Hughes



Site: Advance Plating Works Site

Photograph No.: 4

Direction: Down

Subject: 55-gallon metal drum labeled "Potassium Cyanide"

Date: 9/20/11

Photographer: Keith Hughes



Site: Advance Plating Works Site

Photograph No.: 5

Date: 9/21/11

Direction: Down

Photographer: Keith Hughes

Subject: 55-gallon polyethylene drums containing “hydrochloric acid” and “caustic soda” sitting next to each other inside warehouse



Site: Advance Plating Works Site

Photograph No.: 6

Date: 9/20/11

Direction: Northwest

Photographer: Keith Hughes

Subject: ERRS contractor transporting 55-gallon drums from outside plating building to a staging area inside the building



Site: Advance Plating Works Site

Photograph No.: 7

Direction: South

Subject: 55-gallon drums staged in plating building

Date: 9/22/11

Photographer: Keith Hughes



Site: Advance Plating Works Site

Photograph No.: 8

Direction: South

Subject: ERRS contractor sampling liquid from 55-gallon polyethylene drum using coliwasa

Date: 9/22/11

Photographer: Keith Hughes



Site: Advance Plating Works Site

Photograph No.: 9

Date: 9/23/11

Direction: South

Photographer: Keith Hughes

Subject: Door to plating building secured with locks and U.S. EPA signage

ATTACHMENT C
TABLES

TABLE 1
DRUM AND CONTAINER INVENTORY
ADVANCE PLATING WORKS SITE
INDIANAPOLIS, MARION COUNTY, INDIANA

Field ID	Code	Type	Size (gallons)	Percent Full	Markings and Observations
1	T	Poly	30	Empty	No label
2	D	Poly	55	100%	Corrosive alkaline (NaOH)
3	D	Steel	55	75%	Potassium cyanide (KCN)
4	D	Steel	55	Empty	Empty
5	D	Poly	55	100%	No label
6	D	Poly	55	Empty	Empty
7	T	Poly	275	Empty	No label
8	D	Poly	55	Empty	Empty
9	T	Poly	275	Empty	No label
10	D	Steel	30	Empty	Empty
11	T	Poly	275	Empty	No label
12	D	Poly	55	Empty	Empty
13	T	Poly	275	Empty	No label
14	T	Poly	275	10%	Corrosive
15	D	Poly	55	25%	Caustic soda
16	T	Poly	275	10%	Corrosive
17	D	Poly	55	25%	HCl
18	T	Poly	275	10%	Corrosive
19	D	Poly	55	10%	Caustic soda
20	T	Poly	275	Empty	Hazardous waste filter cake
21	D	Poly	30	100%	Zinc chloride
22	D	Poly	55	Empty	Caustic soda
23	T	Poly	275	75%	Used oil
24	D	Poly	20	Empty	Hydrogen peroxide
25	D	Steel	30	Empty	Opaque lid
26	D	Poly	55	75%	No label
27	D	Poly	55	10%	Caustic soda
28	D	Poly	55	75%	HCl
29	D	Steel	55	Empty	Sulfuric acid
30	D	Poly	55	100%	Caustic soda
31	D	Steel	55	100%	Spill pad taped on side of drum
32	D	Steel	30	Empty	Cyanide
33	D	Poly	20	Empty	No label
34	D	Steel	10	10%	Chromic acid flake
35	D	Steel	10	Empty	Rusted
36	D	Steel	10	25%	Electrolytic nickel
37	D	Poly	5	25%	No label
38	D	Poly	55	Empty	No label
39	D	Poly	55	Empty	Hazardous waste
40	D	Steel	55	Empty	No label
41	D	Steel	30	Empty	Marine pollutant, cyanide
42	D	Steel	55	75%	No label
43	D	Steel	30	20%	Spill response
44	D	Poly	55	Empty	Caustic soda
45	D	Poly	55	10%	Caustic soda
46	D	Steel	55	100%	Unknown
47	D	Steel	55	Empty	Unknown
48	D	Steel	55	Empty	No label
49	D	Steel	55	Empty	No label
50	D	Steel	55	100%	Used oil
51	D	Steel	55	Empty	Unknown

TABLE 1
DRUM AND CONTAINER INVENTORY
ADVANCE PLATING WORKS SITE
INDIANAPOLIS, MARION COUNTY, INDIANA

Field ID	Code	Type	Size (gallons)	Percent Full	Markings and Observations
52	D	Poly	55	100%	Bleach
53	D	Steel	30	10%	Unknown
54	D	Steel	30	10%	Rusted
55	D	Steel	55	Empty	Unreadable
56	D	Steel	30	Empty	Spill recovery
57	D	Steel	55	Empty	Unreadable
58	D	Steel	55	Empty	No label
59	D	Steel	55	Empty	No label
60	D	Steel	55	Empty	No label
61	D	Steel	10	50%	Chromic acid (unreadable)
62	D	Poly	55	50%	No label
63	D	Poly	55	10%	Anti rust
64	D	Poly	30	100%	Zinc chloride (chlorides)
65	D	Poly	55	75%	HCl
66	D	Steel	10	10%	Coloring compound
67	D	Fiber	55	50%	Aluminum zincate (caustic) base
68	D	Poly	55	100%	HCl
69	D	Poly	30	25%	Corrosive acid
70	D	Poly	55	10%	Caustic soda
71	D	Poly	55	10%	Caustic soda; crystallized
72	D	Steel	10	Empty	Chromic acid
73	D	Poly	10	50%	Unknown
74	D	Steel	30	100%	In CN room
75	D	Steel	10	100%	In CN room
76	D	Steel	30	75%	Sodium cyanide (NaCN); contained trash
77	D	Steel	10	100%	CN
78	D	Steel	55	Empty	Buffing comp
79	D	Steel	10	Empty	No label; trash
80	D	Poly	55	Empty	Criterion Maxime
81	D	Poly	55	Empty	No label
82	D	Poly	55	50%	No label; trash
83	D	Poly	55	Empty	Sulfuric acid
84	D	Poly	55	50%	No label
85	D	Poly	55	25%	Pure steam distilled
86	D	Steel	55	Empty	No label; corroded drum
87	D	Poly	55	50%	Alkaline material
88	D	Poly	55	10%	K-Zinc
89	D	Poly	55	100%	No label
90	D	Poly	55	10%	No label
91	D	Poly	55	75%	No label
92	D	Steel	30	Empty	NaCN
93	D	Poly	55	Empty	No label
94	D	Steel	30	10%	Hydrocyanic acid
95	D	Poly	55	Empty	K-Zinc
96	D	Poly	55	75%	Caustic solid
97	D	Poly	55	Empty	No label
98	D	Steel	10	Empty	No label
99	D	Steel	30	Empty	No label
100	D	Poly	10	Empty	No label
101	D	Steel	55	75%	No label
102	D	Poly	55	100%	Black oxide
103	D	Poly	55	50%	Saran wrap
104	D	Poly	55	100%	Black oxide
105	D	Poly	55	100%	No label

TABLE 1
DRUM AND CONTAINER INVENTORY
ADVANCE PLATING WORKS SITE
INDIANAPOLIS, MARION COUNTY, INDIANA

Field ID	Code	Type	Size (gallons)	Percent Full	Markings and Observations
106	D	Poly	55	100%	No label
107	D	Poly	55	100%	Used coolant
108	D	Poly	55	Empty	No label
109	D	Poly	55	50%	No label
110	D	Poly	55	50%	No label
111	D	Poly	55	25%	No label
112	D	Poly	55	100%	Hazardous waste
113	D	Poly	55	100%	Toxic copper solution
114	D	Poly	55	100%	No label
115	D	Poly	55	100%	No label
116	D	Poly	55	50%	Zinc sludge
117	D	Poly	55	50%	No label
118	D	Poly	55	50%	Zinc sludge
119	D	Poly	55	50%	Zinc sludge
120	D	Overpack	55	100%	No label
121	D	Poly	55	75%	No label
122	D	Poly	55	75%	No label
123	D	Poly	55	100%	Copper solution
124	D	Poly	55	75%	Zinc sludge
125	D	Poly	55	100%	No label
126	D	Poly	55	50%	Hazardous waste corrosive
127	D	Poly	55	100%	Strip aid
128	D	Poly	55	100%	No label
129	D	Poly	55	100%	Used oil
130	D	Poly	55	100%	Used oil
131	D	Steel	55	100%	No label
132	D	Poly	55	100%	No label
133	D	Poly	55	100%	No label
134	D	Poly	55	100%	No label
135	D	Poly	55	25%	Unreadable
136	D	Poly	55	100%	Unreadable
137	D	Poly	55	25%	No label
138	D	Poly	55	100%	No label
139	D	Poly	30	Empty	No label
140	D	Poly	55	100%	Spent acid
141	D	Poly	55	100%	Spent acid
142	D	Poly	55	100%	Stripper
143	D	Poly	55	100%	Flammable
144	D	Poly	30	75%	Zinc chloride
145	D	Poly	30	75%	No label
146	D	Steel	30	75%	No label
147	D	Poly	55	50%	Zinc sludge
148	D	Poly	30	25%	Zinc chloride
149	D	Poly	30	Empty	Zinc chloride
150	D	Fiber	55	50%	Unreadable
151	D	Steel	55	10%	White oil
152	D	Steel	55	100%	Unknown
153	D	Steel	55	100%	Ultamate
154	D	Steel	55	100%	Nickel
155	D	Steel	55	100%	No label
156	D	Poly	55	100%	No label
157	D	Poly	10	100%	Hydrogen peroxide
158	D	Poly	55	50%	No label
159	D	Poly	55	75%	No label
160	D	Steel	55	100%	Used oil
161	D	Steel	55	100%	Used oil
162	D	Poly	55	20%	Liquid nickel sulfate

TABLE 1
DRUM AND CONTAINER INVENTORY
ADVANCE PLATING WORKS SITE
INDIANAPOLIS, MARION COUNTY, INDIANA

Field ID	Code	Type	Size (gallons)	Percent Full	Markings and Observations
163	D	Overpack	55	100%	Used oil
164	D	Poly	55	100%	Used oil
165	D	Poly	55	50%	No label
166	D	Steel	30	25%	No label
167	D	Poly	55	100%	Bleach
168	D	Poly	55	100%	Bleach
169	D	Fiber	55	2%	No label
170	D	Poly	55	2%	No label
171	D	Poly	55	2%	No label
172	D	Fiber	55	Empty	No label
173	D	Poly	30	Empty	No label
174	D	Poly	30	Empty	No label
175	D	Fiber	55	Empty	No label; dead raccoon inside

Notes:

D = Drum

T = Tote

ID = Identification

CN = Cyanide

HCl = Hydrochloric acid

NaOH = Sodium hydroxide

Poly = Polyethylene

TABLE 2
WASTE SAMPLING SUMMARY
ADVANCE PLATING WORKS SITE
INDIANAPOLIS, MARION COUNTY, INDIANA

Field Sample ID No.	Sampling Date	Sample Matrix/Type	Sampling Location	Analytical Parameter(s)
PT-001	9/22/2011	Grab/Liquid	From 1-gallon container labeled "Flammable Liquid"	Flashpoint
D-001	9/22/2011	Grab/Solid Waste	From 55-gallon metal drum labeled "Potassium Cyanide"	Total cyanide and reactive cyanide
D-001D	9/22/2011	Grab/Solid Waste	Duplicate of D-001	Total cyanide and reactive cyanide
D-126	9/22/2011	Grab/Liquid	From container labeled "acidic"	pH
D-124	9/22/2011	Grab/Liquid	From container labeled "acidic"	pH
D-113	9/22/2011	Grab/Liquid	From container labeled "acidic"	pH
D-056	9/22/2011	Grab/Liquid	From container labeled "acidic"	pH
D-090	9/22/2011	Grab/Liquid	From container labeled "basic"	pH

Note:

ID = Identification

TABLE 3
ANALYTICAL RESULTS SUMMARY
ADVANCE PLATING WORKS SITE
INDIANAPOLIS, MARION COUNTY, INDIANA

Analysis	Hazardous Waste Criterion	Unit	Field Sample ID No.							
			PT-001	D-001	D-001D	D-126	D-124	D-113	D-056	D-090
			Liquid Waste	Solid Waste	Solid Waste	Liquid Waste	Liquid Waste	Liquid Waste	Liquid Waste	Liquid Waste
Flashpoint	< 140 ¹	°F	110	NA	NA	NA	NA	NA	NA	NA
pH	<2 or >12 ²	SU	NA	NA	NA	< 2	< 2	< 2	< 2	>13.5
Total Cyanide	NA	mg/kg	NA	15,000	8,900	NA	NA	NA	NA	NA
Reactive Cyanide	NA	mg/kg	NA	1,300	1,400	NA	NA	NA	NA	NA

Notes:

Bold shaded results exceed hazardous waste criterion.

< = Less than

> = Greater than

°F = Degree Fahrenheit

CFR = *Code of Federal Regulations*

mg/kg = Milligram per kilogram

NA = Not analyzed or not applicable

SU = Standard unit

¹ Criterion based on 40 CFR Part 261, Subpart C, 261.21 (a)(1)

² Criterion based on 40 CFR Part 261, Subpart C, 261.22 (a)(1)

ATTACHMENT D
ANALYTICAL DATA REPORT



Revised
10/4/2011

October 4, 2011

Environmental Restoration
16660 South Canal Street
South Holland, IL 60437-

Work Order No.: 1111050

Re: Advanced Plating/Indianapolis, IN

Dear Richie Byrd:

Microbac Laboratories, Inc. - Chicagoland Division received 10 sample(s) on 9/23/2011 2:00:00PM for the analyses presented in the following report as Work Order 1111050.

The enclosed results were obtained from and are applicable to the sample(s) as received at the laboratory. All sample results are reported on an "as received" basis unless otherwise noted.

All data included in this report have been reviewed and meet the applicable project specific and certification specific requirements, unless otherwise noted. A qualifications page is included in this report and lists the programs under which Microbac maintains certification.

This report has been paginated in its entirety and shall not be reproduced except in full, without the written approval of Microbac Laboratories.

We appreciate the opportunity to service your analytical needs. If you have any questions, please contact your project manager. For any feedback, please contact Jeff Loewe, Division Manager at jeff.loewe@microbac.com. You may also contact Sean Hyde, Chief Operating Officer at sean.hyde@microbac.com or James Nokes, President at james.nokes@microbac.com.

Sincerely,

A handwritten signature in black ink, appearing to read "Kevin Falvey", is written over a light blue horizontal line.

Kevin Falvey
Account Manager



Revised
10/4/2011

WORK ORDER SAMPLE SUMMARY

Date: Tuesday, October 4, 2011

Client: Environmental Restoration
Project: Advanced Plating/Indianapolis, IN
Lab Order: 1111050

Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
1111050-01	PT-001		09/22/2011 14:20	9/23/2011 2:00:00PM
1111050-02	D-001-Total		09/22/2011 14:23	9/23/2011 2:00:00PM
1111050-03	D-001		09/22/2011 14:23	9/23/2011 2:00:00PM
1111050-04	D-001D-Total		09/22/2011 14:25	9/23/2011 2:00:00PM
1111050-05	D-001D		09/22/2011 14:23	9/23/2011 2:00:00PM
1111050-06	D-126		09/22/2011 14:30	9/23/2011 2:00:00PM
1111050-07	D-124		09/22/2011 14:35	9/23/2011 2:00:00PM
1111050-08	D-113		09/22/2011 14:40	9/23/2011 2:00:00PM
1111050-09	D-056		09/22/2011 14:45	9/23/2011 2:00:00PM
1111050-10	D-090		09/22/2011 14:50	9/23/2011 2:00:00PM



Revised
10/4/2011

CASE NARRATIVE

Date: *Tuesday, October 4, 2011*

Client: Environmental Restoration
Project: Advanced Plating/Indianapolis, IN
Lab Order: 1111050

This report was Revised on October 4, 2011 to correct the value of the cyanide sample analysis. A correction was made to the initial report limit.

The Laboratory Control Sample associated with the D-001 and D-001D samples failed the precision criteria for Cyanide.



Revised
10/4/2011

Analytical Results

Date: Tuesday, October 4, 2011

Client:	Environmental Restoration	Work Order/ID:	1111050-01
Client Project:	Advanced Plating/Indianapolis, IN	Sampled:	09/22/2011 14:20
Client Sample ID:	PT-001	Received:	09/23/2011 14:00
Sample Description:			
Matrix:	Oil		

Analyses	AT	Result	RL	Qual	Units	DF	Analyzed
Method: SW-846 1010			Analyst: TMG				
Ignitability (Closed Cup)			Prep Date/Time: 09/27/2011 15:29				
Ignitability	A	110	30		°F	1	09/27/2011 15:29



Revised
10/4/2011

Analytical Results

Date: Tuesday, October 4, 2011

Client: Environmental Restoration
Client Project: Advanced Plating/Indianapolis, IN
Client Sample ID: D-001-Total
Sample Description:
Matrix: Solid

Work Order/ID: 1111050-02
Sampled: 09/22/2011 14:23
Received: 09/23/2011 14:00

Analyses	AT	Result	RL	Qual	Units	DF	Analyzed
		Method: SW-846 9012B				Analyst: EINI K	
Total Cyanide		Prep Method: Solid CN Distillation				Prep Date/Time: 09/27/2011 10:40	
Cyanide, Total	A	15000	190		mg/Kg	200	09/28/2011 13:39



Revised
10/4/2011

Analytical Results

Date: Tuesday, October 4, 2011

Client: Environmental Restoration
Client Project: Advanced Plating/Indianapolis, IN
Client Sample ID: D-001
Sample Description:
Matrix: Solid

Work Order/ID: 1111050-03
Sampled: 09/22/2011 14:23
Received: 09/23/2011 14:00

Analyses	AT	Result	RL	Qual	Units	DF	Analyzed
		Method: Chapter 7/9014				Analyst: EINI	
Reactive Cyanide		Prep Method: Solid Reactive CN Distillation				Prep Date/Time: 09/30/2011 08:50	
Reactive Cyanide	A	1300	390		mg/Kg	200	09/30/2011 13:43



Revised
10/4/2011

Analytical Results

Date: Tuesday, October 4, 2011

Client: Environmental Restoration
Client Project: Advanced Plating/Indianapolis, IN
Client Sample ID: D-001D-Total
Sample Description:
Matrix: Solid

Work Order/ID: 1111050-04
Sampled: 09/22/2011 14:25
Received: 09/23/2011 14:00

Analyses	AT	Result	RL	Qual	Units	DF	Analyzed
		Method: SW-846 9012B				Analyst: EINIK	
Total Cyanide		Prep Method: Solid CN Distillation				Prep Date/Time: 09/27/2011 10:40	
Cyanide, Total	A	8900	190		mg/Kg	200	09/28/2011 13:40



Revised
10/4/2011

Analytical Results

Date: Tuesday, October 4, 2011

Client: Environmental Restoration
Client Project: Advanced Plating/Indianapolis, IN
Client Sample ID: D-001D
Sample Description:
Matrix: Solid

Work Order/ID: 1111050-05
Sampled: 09/22/2011 14:23
Received: 09/23/2011 14:00

Analyses	AT	Result	RL	Qual	Units	DF	Analyzed
		Method: Chapter 7/9014				Analyst: EINI	
Reactive Cyanide		Prep Method: Solid Reactive CN Distillation				Prep Date/Time: 09/30/2011 08:50	
Reactive Cyanide	A	1400	400		mg/Kg	200	10/03/2011 13:52



Revised
10/4/2011

Analytical Results

Date: Tuesday, October 4, 2011

Client: Environmental Restoration
Client Project: Advanced Plating/Indianapolis, IN
Client Sample ID: D-126
Sample Description:
Matrix: Oil

Work Order/ID: 1111050-06
Sampled: 09/22/2011 14:30
Received: 09/23/2011 14:00

Analyses	AT	Result	RL	Qual	Units	DF	Analyzed
Method: SW-846 9045C			Analyst: ABG				
pH			Prep Date/Time: 09/28/2011 14:45				
pH	A	< 2.00	2.00		pH Units	1	09/28/2011 15:06



Revised
10/4/2011

Analytical Results

Date: Tuesday, October 4, 2011

Client: Environmental Restoration
Client Project: Advanced Plating/Indianapolis, IN
Client Sample ID: D-124
Sample Description:
Matrix: Oil

Work Order/ID: 1111050-07
Sampled: 09/22/2011 14:35
Received: 09/23/2011 14:00

Analyses	AT	Result	RL	Qual	Units	DF	Analyzed
Method: SW-846 9045C			Analyst: ABG				
pH			Prep Date/Time: 09/28/2011 14:45				
pH	A	< 2.00	2.00		pH Units	1	09/28/2011 15:06



Revised
10/4/2011

Analytical Results

Date: Tuesday, October 4, 2011

Client: Environmental Restoration
Client Project: Advanced Plating/Indianapolis, IN
Client Sample ID: D-113
Sample Description:
Matrix: Oil

Work Order/ID: 1111050-08
Sampled: 09/22/2011 14:40
Received: 09/23/2011 14:00

Analyses	AT	Result	RL	Qual	Units	DF	Analyzed
Method: SW-846 9045C			Analyst: ABG				
pH			Prep Date/Time: 09/28/2011 14:45				
pH	A	< 2.00	2.00		pH Units	1	09/28/2011 15:06



Revised
10/4/2011

Analytical Results

Date: Tuesday, October 4, 2011

Client: Environmental Restoration
Client Project: Advanced Plating/Indianapolis, IN
Client Sample ID: D-056
Sample Description:
Matrix: Oil

Work Order/ID: 1111050-09
Sampled: 09/22/2011 14:45
Received: 09/23/2011 14:00

Analyses	AT	Result	RL	Qual	Units	DF	Analyzed
Method: SW-846 9045C			Analyst: ABG				
pH			Prep Date/Time: 09/28/2011 14:45				
pH	A	< 2.00	2.00		pH Units	1	09/28/2011 15:06



Revised
10/4/2011

Analytical Results

Date: Tuesday, October 4, 2011

Client: Environmental Restoration
Client Project: Advanced Plating/Indianapolis, IN
Client Sample ID: D-090
Sample Description:
Matrix: Oil

Work Order/ID: 1111050-10
Sampled: 09/22/2011 14:50
Received: 09/23/2011 14:00

Analyses	AT	Result	RL	Qual	Units	DF	Analyzed
Method: SW-846 9045C				Analyst: ABG			
pH				Prep Date/Time: 09/28/2011 14:45			
pH	A	13.5	2.00		pH Units	1	09/28/2011 15:06



Revised
10/4/2011

FLAGS, FOOTNOTES AND ABBREVIATIONS (as needed)

NA	=	Not Analyzed
mg/L	=	Milligrams per Liter (ppm)
mg/Kg	=	Milligrams per Kilogram (ppm)
U	=	Undetected
J	=	Analyte concentration detected between RL and MDL (Metals / Organics)
B	=	Detected in the associated method Blank at a concentration above the routine PQL/RL
D	=	Dilution performed on sample
ND	=	Not Detected at the Reporting Limit (or the Method Detection Limit, if used)
E	=	Value above quantitation range
H	=	Analyte was prepared and/or analyzed outside of the analytical method holding time
I	=	Matrix Interference
R	=	RPD outside accepted recovery limits
S	=	Spike recovery outside recovery limits
Surr	=	Surrogate
DF	=	Dilution Factor
RL	=	Reporting Limit
MDL	=	Method Detection Limit
NR	=	Not Recovered

ANALYTE TYPES: (AT)

A,B	=	Target Analyte
I	=	Internal Standard
M	=	Summation Analyte
S	=	Surrogate
T	=	Tentatively Identified Compound (TIC, concentration estimated)

QC SAMPLE IDENTIFICATIONS

MBLK	=	Method Blank	ICSA	=	Interference Check Standard "A"
DUP	=	Method Duplicate	ICSAB	=	Interference Check Standard "AB"
LCS	=	Laboratory Control Sample	LCSD	=	Laboratory Control Sample Duplicate
BS	=	Method Blank Spike	BSD	=	Method Blank Spike Duplicate
MS	=	Matrix Spike	MSD	=	Matrix Spike Duplicate
ICB	=	Initial Calibration Blank	CCB	=	Continuing Calibration Blank
ICV	=	Initial Calibration Verification	CCV	=	Continuing Calibration Verification
PDS	=	Post Digestion Spike	SD	=	Serial Dilution
OPR	=	Ongoing Precision and Recovery Standard			

CERTIFICATIONS

Below is a list of certifications maintained by the Microbac Merrillville Laboratory. All data included in this report has been reviewed for and meets all project specific and quality control requirements of the applicable accreditation, unless otherwise noted. Complete lists of individual analytes pursuant to each certification below are available upon request.

The American Association for Laboratory Accreditation [A2LA] for Biological Testing, ISO/IEC 17025 (Certificate# 3045.01)

The American Association for Laboratory Accreditation [A2LA] for Environmental Department of Defense Testing, ISO/IEC 17025 (Certificate# 3045.02)

Illinois EPA for the analysis wastewater and solid waste in accordance with the requirements of the National Environmental Laboratory Accreditation Program [NELAP] (accreditation #200064)

Illinois Department of Public Health for the microbiological analysis of drinking water (registry #1755266)

Indiana DEM approved support laboratory for solid waste and wastewater analyses

Indiana SDH for the chemical analysis of drinking water (lab #C-45-03)

Indiana SDH for the microbiological analysis of drinking water (lab #M-45-8)

Kansas Department of Health and Environment for the analysis of drinking water, wastewater, and solid hazardous waste in accordance with the requirements of the National Environmental Laboratory Accreditation Program [NELAP] (Certificate No. E-10397)

Kentucky EPPC for the analysis of samples applicable to the Underground Storage Tank program (lab #75)

North Carolina DENR for the environmental analysis for NPDES effluent, surface water, groundwater, and pretreatment regulations(certificate #597)

Pennsylvania Department of Environmental Protection (Registration No.: 68-04863)

Wisconsin DNR for the chemical analysis of wastewater and solid waste (lab #998036710)



Revised
10/4/2011

COOLER INSPECTION

Client Name: Environmental Restoration

Date: Tuesday, October 4, 2011
Date/Time Received: 09/23/2011 14:00

Work Order Number: 1111050

Received by: Dave Bryant

Checklist completed by: 9/23/2011 6:37:00PM Dave Bryant

Reviewed by: 9/27/2011 KGF

Carrier Name: Microbac

Cooler ID: Default Cooler

Container/Temp Blank Temperature: 17.00°C

After-Hour Arrival?	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>	
Shipping container/cooler in good condition?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample containers?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
COC present?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
COC included sufficient client identification?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
COC included sufficient sample collector information?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
COC included a sample description?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
COC agrees with sample labels?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
COC identified the appropriate matrix?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
COC included date of collection?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
COC included time of collection?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
COC identified the appropriate number of containers?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
Samples in proper container/bottle?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
Sample containers intact?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
All samples received within holding time?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
If the samples are preserved, are the preservatives identified?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	

If No, adjusted by: _____

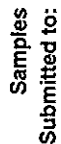
COC included the requested analyses?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
COC signed when relinquished and received?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
Samples received on ice?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
Samples properly preserved?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
Voa vials for aqueous samples have zero headspace?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>

Cooler Comments: _____

ANY "NO" EVALUATION (excluding After-Hour Receipt) REQUIRES CLIENT NOTIFICATION.

Sample ID	Client Sample ID	Comments
1111050-01	PT-001	use extreme caution when handle sample
1111050-02	D-001-Total	SEE TROY BEFORE BEGIN ANY PREP/ANALYSIS
1111050-03	D-001	SEE TROY BEFORE BEGIN ANY PREP/ANALYSIS
1111050-04	D-001D-Total	SEE TROY BEFORE BEGIN ANY PREP/ANALYSIS
1111050-05	D-001D	SEE TROY BEFORE BEGIN ANY PREP/ANALYSIS
1111050-06	D-126	use extreme caution when handle sample
1111050-07	D-124	use extreme caution when handle sample
1111050-08	D-113	use extreme caution when handle sample
1111050-09	D-056	use extreme caution when handle sample
1111050-10	D-090	use extreme caution when handle sample

250 West 84th Drive, Merrillville, IN 46410 TEL 800.336.8379 TEL 219.769.8378 FAX 219.769.1664



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Fax: 219-769-1664**

**[[5713 West 85th Street
Indianapolis, IN 46278
Tel: 317-872-1375
Fax: 317-872-1379**

Chain of Custody Record

Number 104269

Instructions on back

1111050 Kevin Falvey
ER - South Holland
Electrical Chemical Lebanon IN

1111050

Kevin Falvey

09/23/2011

rev. 11/04/04

[illegible]