

January 25, 2018

Mr. Jeffrey Lippert  
On-Scene Coordinator  
U.S. Environmental Protection Agency, Region 5  
9311 Groh Road  
Grosse Ile, Michigan 48318

**Subject: Final Removal Report  
Electro Plating Services Removal Site  
945 East 10 Mile Road  
Madison Heights, Oakland County, Michigan  
EPA Contract No.: EP-S5-13-01  
Technical Direction Document No.: S05-0001-1703-001  
Document Tracking No.: 1778A**

Dear Mr. Lippert:

Tetra Tech, Inc. (Tetra Tech) is submitting the Removal Report for the Electro Plating Services Removal Site. This report summarizes the removal action activities conducted from April 2017 through December 2017, and addresses EPA comments on the report Tetra Tech submitted on January 19, 2018. If you have any questions regarding this report, please call me at (313) 574-3176.

Sincerely,



Kelly Thomas  
Environmental Scientist

Enclosure

cc: Kevin Scott, Tetra Tech Program Manager  
TDD File

**FINAL REMOVAL REPORT  
ELECTRO PLATING SERVICES REMOVAL SITE  
945 EAST 10 MILE ROAD  
MADISON HEIGHTS, OAKLAND COUNTY, MICHIGAN**

*Prepared for*

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Prepared by



Kelly Thomas  
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Approved by



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## 1.0 INTRODUCTION

The U.S. Environmental Protection Agency (EPA) tasked Tetra Tech, Inc. (Tetra Tech) to provide oversight and technical support for the removal action activities at the Electro Plating Services Removal Site in Madison Heights, Oakland County, Michigan. This work was assigned under Superfund Technical Assessment and Response Team (START) Contract No. EP-S5-13-01, Technical Direction Document (TDD) No. S05-0001-1703-001. Specifically, EPA tasked Tetra Tech START to perform the following activities:

- Provide written and photographic documentation of the site conditions and removal activities;
- Manage site files and information;
- Develop project-specific plans, including an Air Monitoring Plan (AMP), a Sampling and Analysis Plan (SAP), and an Emergency Contingency Plan (ECP);
- Provide information needed to prepare the EPA Pollution Reports (POLREPs);
- Provide technical and administrative support to the EPA On-Scene Coordinator (OSC);
- Provide real-time air monitoring to document the levels of particulates, carbon monoxide (CO), flammable vapors (percent lower explosive limit [LEL]), volatile organic compounds (VOCs), hydrogen cyanide (HCN), and hydrochloric acid (HCl) present in the ambient air, within the site buildings, and around the site perimeter;
- Use EPA's VIPER network to instantaneously collect, transmit, record, and manage the real-time air monitoring data obtained during the removal activities;
- Perform oversight of the removal activities conducted by the Emergency and Rapid Response Services (ERRS) contractor (Environmental Restoration, LLC [ER]), which included:
  - Developing a site-specific Health and Safety Plan (HASP) and Work Plan, which were reviewed by Tetra Tech START and the EPA OSC
  - Setting up a command post, contamination reduction zone (CRZ), and exclusion zone (EZ)
  - Staging, inventorying, and sampling drums, vats, totes, and other containers
  - Conducting hazard categorization (HAZCAT) activities on the collected samples
  - Developing waste profiles and establishing waste streams for disposal
  - Consolidating and packaging hazardous waste materials
  - Draining and decontaminating chemical process lines, equipment, and building components associated with the former plating operations
  - Removing solid waste materials around and underneath the plating baths
  - Draining two basement pits and filling the pits with gravel
  - Transporting and disposing of all hazardous wastes, in accordance with EPA's Off-Site Rule;
- Track wastes leaving the site;



- Develop a report summarizing removal activities;
- Track costs related to the site activities.

These activities were performed as part of an EPA time-critical removal action at the Electro Plating Services Removal Site. The purpose of the removal was to mitigate the imminent and substantial threats to public health, welfare, and the environment posed by the presence of uncontrolled hazardous substances at the site. In addition, EPA conducted air monitoring during the removal activities to ensure the safety of on-site workers and to ensure—through engineering and site controls—that potential fugitive emissions did not migrate off-site, adversely affecting neighboring residential, industrial, and commercial areas.

This report documents removal activities that took place at the Electro Plating Services Removal Site from April 2017 through December 2017. Specifically, this report discusses the site's location, background, and history in Section 2.0; summarizes the removal action activities in Section 3.0; provides air monitoring results in Section 4.0; describes the effectiveness of the removal activities in Section 5.0; and, presents conclusions in Section 6.0. References cited in the report are listed after the text.

In addition, Appendix A provides site figures, including a site location map, a site layout map, and a soil sampling locations map; Appendix B includes data summary tables; Appendix C provides written documentation of the site activities, as shown in the START field logbook notes; Appendix D is the photographic documentation log; and Appendix E provides information on the environmentally preferred practices performed as part of this removal action and other work related to this TDD.

## **2.0 SITE BACKGROUND**

This section describes the site's location, presents a site description, and summarizes the history of the site.

### **2.1 SITE LOCATION**

The Electro Plating Services Removal Site is located at 945 East 10 Mile Road, Madison Heights, Oakland County, Michigan (Figure 1, Appendix A). The geographical coordinates are 42°28'35.4" North and 83°05'46.9" West and it is located in a densely populated residential, commercial, and industrial area. The site is bounded to the north by Heights Drive, with Interstate 696 beyond; to the east by Dura Thread Gage manufacturing company; to the south by 10 Mile Road, with commercial properties beyond; and to the west by Advanced Assembly Parts Inc. (Appendix A, Figure 2). Residences are located approximately 350 feet north and south of the site.

## **2.2 SITE DESCRIPTION**

The site covers approximately 0.5 acres and contains four buildings totaling approximately 15,000 square feet. It was occupied by Electro Plating Services, Inc. (EPS) from 1967 until 2016. The buildings were identified during the removal activities as Buildings 1, 2, 3, and 4. Building 1 is the easternmost building and contained most of the hazardous substances, including plating lines, wastewater treatment areas, vats, drums, and other miscellaneous containers. This building consists of three floors and a basement. The first floor contains a small office area and a tool shop. Additionally, wastewater treatment vats are located in the central portion of the first floor and extend into the second floor. A lab area is also located in the northern portion of the second floor, with additional container storage areas and a filter press in the central portion. The plating areas, including plating lines, vats, and other container storage areas, are located in the western portion of the second floor. The third floor contains a tool and equipment storage area. A limited number of small containers of hazardous wastes were also located on the third floor. After the containers were removed, no additional activities occurred on the third floor due to unsafe conditions including unstable flooring with large holes. The basement contained one concrete pit and one earthen pit located in the central and eastern portions of the basement, respectively.

A gravel parking area is located west of Building 1. This area previously contained a building owned by EPS, which was associated with the plating activities in Building 1. This building was demolished by the EPS owner, prior to the commencement of the removal activities; as ordered by the City of Madison Heights.

Building 2 is located directly west of the gravel parking area. It is a one-story warehouse building with a small office in the southwestern portion of the building. The remainder of the building was used as chemical storage.

Buildings 3 and 4 are located west of Building 2. Both buildings were used for equipment storage and were not a part of the removal activities.

## **2.3 SITE HISTORY**

The site was occupied by EPS from 1967 until 2016, and operations included copper, tin, bronze, cadmium, nickel, chromium, gold, silver, zinc, and lead plating. The Michigan Department of Environmental Quality (MDEQ) documented over 20 years of compliance actions at the site, associated with the treatment, storage, and disposal issues with the hazardous wastes generated by EPS.

In April 2010, MDEQ executed a Consent Order (Order #111-03-10) to resolve significant hazardous waste violations at the site, which included: not properly characterizing and storing hazardous waste; not properly storing or labeling process material; not providing proper emergency planning and employee training; and not complying with hazardous waste reporting requirements. As of 2016, EPS had not resolved the 2010 Consent Order.

### **2.3.1 Recent Site Enforcement Actions**

Throughout 2016, MDEQ and the Madison Heights Fire Department (MHFD) conducted multiple inspections of the site. On June 6, MDEQ issued a Violation Notice citing concerns regarding mismanagement of hazardous materials, hazardous wastes, other liquid and solid wastes, and unidentified chemicals.

On November 15, MDEQ and MHFD conducted a follow-up inspection after EPS did not provide a formal response to the June 6 Violation Notice. Observations from the November 15 inspection included:

- Unstable and makeshift flooring on the plating bath level;
- Numerous containers (estimated over 5,000) of liquid and solid waste and process chemicals, including some that were leaking, unlabeled, open, improperly stored, and/or corroded;
- Waste and chemicals on-site including acids, bases, metal oxides, cyanide, and chlorinated solvents;
- Unorganized waste and chemical storage without consideration for chemical type and compatibility;
- A pit excavated in the basement containing liquids which leaked from plating baths;
- Sludge excavated from the pit surrounded by a makeshift berm which was reportedly made out of hazardous waste (chromium) from the pit.

On December 2, MDEQ issued a second Violation Notice to EPS, and on December 16, the Michigan Department of Health and Human Services (MDHHS) determined that conditions at the site posed an imminent and substantial hazard to public health.

On December 21, MDEQ issued an “Order to Cease and Desist Operations” and, on December 22, formally requested assistance from EPA to conduct a time-critical removal at the site.

On December 30, 2016, EPA and Sustainment and Restoration Services, LLC (SRS) START members conducted a site assessment in Building 1. The other buildings were not accessible at the time of the site

assessment. SRS observed open, unsecured, corroded, and/or leaking containers throughout the building, including containers with cyanides, acids, oxidizers, and other chemicals located in close proximity to one another. The building was in poor condition with holes in the roof and windows, allowing for uncontrolled access to the site; damaged floors in the plating area with multiple holes, possibly from chemical corrosion; and stained, damaged concrete floors in the basement.

During the site assessment, SRS collected 17 soil, sludge, and liquid samples and submitted them for laboratory analysis. Sample analytical results were compared to the criteria in Title 40 of the *U.S. Code of Federal Regulations* (40 CFR) Part 261. Eleven samples were submitted for toxicity characteristic leaching procedure (TCLP) analysis for metals, and nine of the samples had at least one metal above the associated toxicity criteria. Chromium was detected in seven of the samples above the toxicity criterion of 5.0 mg/L, and was detected as high as 60,000 ppm. Lead was detected in six samples above the toxicity criterion of 5.0 mg/L, and was detected as high as 1,000 ppm. Cadmium was detected in five samples above the toxicity criterion of 1.0 mg/L, and was detected as high as 210 ppm. And silver was detected in three samples above the toxicity criterion of 5.0 mg/L, and was detected as high as 94 ppm. One sample also contained trichloroethylene (TCE) at 89 ppm, which exceeded the toxicity criterion of 0.5 mg/L.

Six samples had a pH less than 2.0 standard units (S.U.), with pH values ranging between 1.0 and 1.9 S.U. Additionally, one sample was analyzed for total and amenable cyanide, and cyanide was detected in the sample at 0.95 ppm (SRS 2017).

Given the analytical results of the site assessment, the potential threat of a chemical release from the site, the uncontrolled access, and the proximity to sensitive receptors (including private residences and active commercial buildings), the wastes at the site were deemed to pose a substantial threat to public health or welfare or the environment. EPA concluded that a time-critical removal action was necessary to mitigate threats to public health, welfare, and the environment (EPA 2017).

### **3.0 REMOVAL ACTION ACTIVITIES**

On-site removal activities began on April 17, 2017, and were completed on December 29, 2017. Prior to the start of the removal action, the ERRS contractor developed a site-specific HASP (ER 2017), which was reviewed by the EPA OSC and Tetra Tech START. The HASP detailed the hazards (including site-related contaminants of concern), air monitoring requirements, action levels during work activities, and health and safety protocols for each task to be performed. The HASP also described proper PPE to be used on a task-by-task basis, as well as emergency procedures related to the work.

Tetra Tech START developed a site-specific Emergency Contingency Plan (ECP) (Tetra Tech 2017a); a Sampling and Analysis Plan (SAP) (Tetra Tech 2017b); and an Air Monitoring Plan (AMP) (Tetra Tech 2017c). The ECP identified additional emergency procedures related to work activities, medical emergencies, fire, or explosion, and local contacts in case of emergency. The SAP identified general sampling procedures to be conducted by the ERRS contractor. The AMP identified contaminants of concern, air monitoring equipment, and techniques that were used by Tetra Tech START to monitor contaminant concentrations in the air during the removal action. Once approved, the plans were implemented throughout the removal, and activities were conducted under the direction of the EPA OSC and the ERRS removal manager (RM). Tetra Tech START photographed and documented activities in a logbook, in accordance with Tetra Tech Standard Operating Procedure (SOP) No. 024, “Recording Notes in Field Logbooks” (Tetra Tech 2014), and Tetra Tech’s START QAPP Revision 3 (Tetra Tech 2016).

The following sections discuss activities completed as part of this removal action.

### **3.1 INITIAL SITE SETUP**

On April 17, 2017, EPA, Tetra Tech START, and ERRS personnel mobilized to the site to initiate the removal action. On April 17 and 18, the ERRS contractor began to set up the command area in the central gravel parking area, including laying and grading additional gravel and installing perimeter fencing.

On April 19, the property owner revoked EPA’s access to the property, and the site activities were halted. During the period when the EPA access was revoked, EPS personnel removed EPS equipment from the site and transferred it to an off-site location.

Site activities resumed on May 22, 2017, after access was reinstated by the owner. The ERRS contractor then completed site setup, including demarcating the command post, EZ, CRZ, and decontamination areas; and clearing debris and equipment from the buildings to establish emergency exit routes. During the removal, EPA did not dispose of any equipment, building structures, or non-hazardous debris items owned by EPS, unless it was necessary to complete the removal action.

The EZ included all areas inside of Buildings 1 and 2 where removal activities would be conducted. The main CRZ and decontamination area was set up outside the southern entrance to Building 1 and included receptacles for PPE disposal and boot wash stations. A smaller, temporary CRZ and decontamination area was set up inside Building 2 when activities were conducted in the building.

The command post was set up in the central parking area and housed office trailers, support supplies, vehicle parking, and the EPA HAZCAT and Air trailers. The ERRS contractor set up three office trailers in the command post area: one for the EPA OSC and Tetra Tech START, and two for ERRS personnel and overnight security.

On May 22, 2017, the ERRS contractor procured a local electrician to connect the trailers to the local power company's grid.

### **3.2 WASTE MATERIAL SAMPLING**

Beginning on June 5, the ERRS crew gathered drums and other containers located throughout the buildings and staged them in the demarcated staging areas for sampling. The main staging areas were located in the southern portion of Building 1 and in the warehouse portion of Building 2. Two temporary CONEX storage containers were also mobilized to the site and were used for container staging and sampling areas. Additional containers, including large vats and tanks, could not be moved into the staging areas and were sampled in place.

ERRS crew members completed inventory logs for each container, which included a description of the physical characteristics of the container (type, size, and condition), contents (color, state, and clarity), and any additional relevant information (including labels and markings on the container). The crew assigned each container a unique identification number, which was recorded on the container, the inventory log, and the sample jar. Samples were collected by ERRS in general accordance with Tetra Tech's SAP (Tetra Tech 2017b).

All samples underwent HAZCAT to assess their hazardous characteristics and to determine their compatibility for waste consolidation. Samples underwent field categorization to classify the wastes based on flammability, water and hexane solubility, pH, and the presence of halides, oxidizers, cyanide, and sulfide in the materials. Flammability was assessed by applying fire to a cotton swab soaked in the material. A Bielstein test was conducted with the flammability test to determine the presence of halides. The Bielstein test was conducted by applying the unknown liquid or solid to a copper ring and then applying fire. A blue or green flame would indicate the presence halides. Water and hexane solubility tests were completed by mixing the unknown liquid or solid in water or hexane.

The pH test was completed by applying the material to a sheet of pH paper.

The oxidizer test was completed using potassium iodide paper. A small amount of acid (2 or 3 drops) was used to wet the paper, and then the sample was touched to the paper. A color change to black, blue, or purple indicated the material is an oxidizer.

The cyanide test was completed by adding a small amount of the material to approximately 5 milliliters (mL) of ferrous ammonium citrate solution in a test tube. Approximately 5 mL of ferrous ammonium sulfate was then added to the test tube with 3 to 5 drops of acid. A color change to blue indicated the presence of cyanide.

The sulfide test was completed by applying a drop of the unknown material to a piece of wet lead acetate paper. A color change to brown, black, or silver indicated the presence of reactive sulfide.

Due to the large number of containers, HAZCAT tests were conducted throughout the removal action as additional containers were staged and sampled.

### **3.3 WASTE CONSOLIDATION**

Based on the results of the HAZCAT tests, the ERRS chemist sorted the containers into groups of compatible materials and initiated bench-scale compatibility tests. The purpose of the bench-scale testing was to ensure that no incompatibilities existed in the waste streams before large-scale waste bulking. Bench-scale testing was completed by taking a portion of each sample in the waste group and combining it in an open bucket to observe potential reactions or other signs of incompatibilities. Based on the results from HAZCAT and bench tests, the ERRS chemist identified waste streams of compatible materials for waste consolidation.

ERRS personnel consolidated and repackaged materials into new drums, totes, cubic yard boxes, and overpack drums, as needed, based on the condition of the original containers, the results of the HAZCAT and bench-scale compatibility tests, and matrix volumes. Liquids were transferred using hand pumps and electric diaphragm pumps. Solids and sludges were transferred using a combination of shovels, an excavator, and skid steer. After the waste was consolidated, the ERRS chemist collected a sample from each waste stream; and submitted the samples to a laboratory for waste characterization analysis. Based on the analytical results, a total of 52 waste streams were identified, including: sodium hydrosulfite, chromic acid, cyanide liquid, floor sweepings, sulfamic acid, waste oil, chromium trioxide, waste hydrogen, waste morpholine, cyanide wastewater, diotyl adipate, high pH cyanide liquid, hydrochloric acid, chromium and cyanide liquids, potassium cyanide, sodium cyanide, waste butyl acetate, waste hydrochloric acid, xylene, isopropanal, hazardous solids, chromium wastewater, hydrogen peroxide, latex

paint, low pH oxidizing solids, nickel carbonate, oxidizing cyanide solids, sodium dichromate, sodium hypochlorite, Z brite, acetic acid solution, acid solids, acidic liquids with lead, acidic liquids, ammonium nitrate, cadmium nitrate, cyanide solids, delcrete Part A, delcrete Part B, high pH cyanide solids, neutral liquids, nickel chloride hexahydrate, 42 degree nitric acid, 66 degree sulfuric acid, trichloroethylene, potassium thiocyanate, flammable liquids, fluoroboric acid, havoflak, lead fluoroborate, fluorescent light bulbs, and aerosols.

Due to the limited amount of space to stage and store waste materials and the large number of containers, bench tests and waste consolidation activities were initiated before all the HAZCAT tests were completed. As additional samples were categorized, the materials were added to previously identified waste streams, or new waste streams were created.

### **3.3.1 Basement Pits**

Two pits were located in the basement of Building 1. One concrete pit was located in the eastern portion of the basement (this pit was covered with large metal plates and was not visible during the site assessment or during the previous MDEQ inspections). The pit contained cyanide liquids and sludge. The source of the waste in the pit was unknown; however, several totes containing cyanide were located in the same area. During the removal activities, ERRS crew members observed that rainwater from open holes in the building's roof caused the totes to overflow and water to drain into the pit. The ERRS crew covered and secured the totes during the removal activities until the materials were consolidated and transported off-site for disposal. The material in the pit was removed and transferred into the appropriate totes, drums, or cubic yard boxes, and the pit was triple rinsed, filled and compacted with crushed concrete and fines.

A second, earthen pit was located in the central portion of the basement. This pit was located directly beneath the vats and containers on the plating level and was reportedly dug out by the owner of EPS. The pit contained green wastewater with hazardous concentrations of chromium. The pit was pumped out, and the wastewater was transported off-site for disposal on July 24 and December 12. After the wastewater was removed, the pit was filled and compacted with crushed concrete and fines.

### **3.3.2 Plating Vats**

More than 50 metal vats, ranging in size from 100 gallons up to more than 2,000 gallons, were located in the plating area. The vats contained hazardous liquids and solids including acids, bases, and cyanides. The vats were loosely arranged into plating lines; however, vats and drums with incompatible materials were located in close proximity throughout the plating area, including strong acids and high cyanide



materials. Spent plating solutions contained in the vats were extremely dirty and not salvageable. Most of the vats containing these liquids were corroded and/or damaged. Vat liners were also mostly in very poor condition resulting in leaks of hazardous substances through the floor and ultimately into the earthen basement pit.

The ERRS crew removed the solid and liquid waste materials from the vats and transferred them into the appropriate containers, depending on the waste stream. When possible, the crew also rinsed and removed the plastic liners inside the vats. Several of the liners had fused to the vats and could not be removed. Following the removal of the waste materials and liners, the metal vats were triple-rinsed and left in place inside the building. Several of the vats (including large wastewater vats in the western portion) were cut open to gain access to remove the contents. These cut vats were also left in place inside the building.

Additionally, two makeshift wooden vats containing hazardous waste liquids were located in the northern portion of the plating area. The vats were created using wood planks and were lined with multiple plastic liners. The ERRS crew consolidated the waste materials into the appropriate waste streams and rinsed and disposed of the plastic liners and wood.

The crew did not remove or cut any process lines and vat radiators, or remove any of the severely damaged and corroded electrical boxes in the plating area.

### **3.3.3 Floor Sweepings**

After removing waste materials from containers and vats in the plating area, the ERRS crew removed solids from walkways between the vats and cleaned the rubber mats and metal grates in the walkways. The mats and grates covered large holes and corroded areas in the floors of the plating area. The crew also removed hazardous solids located underneath and around the plating vats, where possible.

Due to the poor condition of the building, including large holes in several areas of the floor, the plating vats could not be repositioned to remove the solids located underneath these vats. In these areas, the solids were left underneath the vats.

Additionally, the crew removed the solid wastes around the earthen basement pit. The material was believed to be sludge removed from the pit. The crew shoveled the material into cubic yard boxes and disposed of the material with the appropriate waste stream.

### 3.4 TRANSPORT AND DISPOSAL

Between July 5 and December 28, 2017, waste was transported off-site for disposal at various facilities. Total quantities of waste removed from the site and transported for disposal at each disposal facility are provided below, and a table listing the disposal locations, amounts, and manifest numbers is located in Appendix B.

Several waste streams, including waste hydrochloric acid, waste cyanide solids, and waste acidic solids, were transported for disposal to EQ Detroit, located at 1923 Frederick Street, Detroit, Michigan. The total volume of each waste stream disposed at EQ Detroit is presented below:

Table 1: EQ Detroit Disposal Volumes

Waste Stream	Medium	Quantity	Units
Non-Hazardous Non-Regulated Waste	Liquid	1,000	Pounds
Waste Ammonium Solutions	Liquid	120	Pounds
Waste Corrosive Liquid (acidic)	Liquid	850	Pounds
Waste Corrosive Liquid (basic)	Liquid	225	Pounds
Waste Corrosive Liquids (toxic)	Liquid	25	Pounds
Waste Corrosive Solid (Acidic)	Solid	3,500	Pounds
Waste Corrosive Solids (Cyanide)	Solid	12,300	Pounds
Waste Cyanide Solids	Solid	34,800	Pounds
Waste Flammable Liquids (acetone)	Liquid	400	Pounds
Waste Flammable Liquids (corrosive)	Liquid	25	Pounds
Waste Flammable Solid	Solid	12	Pounds
Waste Glacial Acetic Acid	Liquid	90	Pounds
Waste Hydrofluoric Acid	Liquid	10	Pounds
Waste Iodine	Liquid	1	Pounds
Waste Mercury Compounds (liquid)	Liquid	2	Pounds
Waste Mercury Compounds (solid)	Liquid	20	Pounds
Waste Morpholine	Liquid	1	Pounds
Waste Nitric Acid	Liquid	90	Pounds
Waste Oxidizing Liquid (corrosive)	Liquid	50	Pounds
Waste Oxidizing Liquid (toxic)	Liquid	30	Pounds
Waste Oxidizing Solid (Acidic)	Solid	6,300	Pounds
Waste Sodium Peroxide	Liquid	1	Pounds
Waste Toxic Liquids (organic)	Liquid	100	Pounds

Table 1 Cont.: EQ Detroit Disposal Volumes

Waste Stream	Medium	Quantity	Units
Waste Toxic Solids (sodium and potassium cyanides)	Solid	1,023	Pounds
Environmentally Hazardous substances (4,4'-methylene bis (2-chloroalene))	Liquid	15	Pounds
Environmentally Hazardous substances (nickel carbonate)	Solid	1,000	Pounds
Hazardous Waste Solids	Solid	20	Cubic yards
Non DOT Regulated Material	Liquid	800	Pounds
Non-Regulated Liquid Material	Liquid	2,000	Pounds
Toxic Liquid (toluene diisocyanate)	Liquid	50	Pounds
Waste Acetates	Liquid	5	Gallons
Waste Acetic Acid Solution	Liquid	60	Pounds
Waste ammonium nitrate	Liquid	500	Pounds
Waste Calcium nitrate	Liquid	40	Pounds
Waste corrosive liquid (sulfuric acid)	Liquid	40	Pounds
Waste Hydrochloric Acid	Liquid	36,540	Pounds
Waste Hydrogen	Gas	15	Pounds
Waste Hydrogen Peroxide	Liquid	50	Pounds
Waste Hypochlorite Solutions	Liquid	400	Pounds
Waste Isopropanol	Liquid	5	Gallons
Waste Oxidizing Solid (toxic)	Solid	75	Pounds
Waste Potassium Cyanide	Solid	100	Pounds
Waste Sodium Cyanide	Solid	400	Pounds
Waste Xylenes	Liquid	5	Gallons

Several waste streams, including waste corrosive liquids and waste toxic liquids, were transported for disposal to Chemtron Corporation, located at 35850 Schneider Court, Avon, Ohio. The total volume of each waste stream disposed at Chemtron is presented below:

Table 2: Chemtron Corporation Disposal Volumes

Waste Stream	Medium	Total Quantity	Units
Waste Toxic Liquid (cyanide and chromium)	Liquid	320,700	Pounds
Waste Toxic Oxidizing Solid (Chromium trioxide)	Solid	1,000	Pounds
Waste Sodium Dithionite	Solid	80	Pounds
Non-hazardous, non-regulated material (used oil)	Liquid	2,500	Pounds
Waste corrosive liquid (chromic, nitric, hydrochloric, and sulfuric acids)	Liquid	63,785	Pounds
Sulfamic Acid	Liquid	55	Gallons
Non-Hazardous Material (Dioctyl Adipate)	Liquid	55	Gallons
Waste Corrosive Liquid (basic)	Liquid	63,500	Pounds
Hazardous Waste Solids	Solid	20,000	Pounds

Several waste streams, including waste flammable liquids, waste sulfuric acid, waste flammable aerosols, and waste florescent bulbs, were transported for disposal to Petro Chem Processing Group, located at 421 Lycaste Street, Detroit, Michigan. The total volume of each waste stream disposed at Petro Chem Processing is presented below:

Table 3: Petro Chem Processing Group Disposal Volumes

Waste Stream	Medium	Quantity	Units
Waste Flammable Liquids (Gasoline)	Liquid	385	Gallons
Toxic Solids (Nickel Chloride Hexahydrate)	Solid	100	Pounds
Waste Nitric Acid Solution	Liquid	45	Gallons
Waste Sulfuric Acid	Liquid	1400	Pounds
Waste Toxic Liquid (Lead Fluoroborate)	Liquid	200	Pounds
Waste Fluoroboric Acid	Liquid	200	Pounds
Trichloroethylene	Liquid	120	Pounds
Non DOT Regulated Solid	Solid	1000	Pounds
Non DOT Regulated Liquid	Liquid	800	Pounds
Waste Flammable Aerosols	Aerosols	100	Pounds
Waste Paint Related Materials	Liquid	500	Pounds
Environmentally Hazardous Substances (Fluorescent Tubes)	Solid	580	Pounds

Four small waste streams were transported for disposal to Ross Incineration, located at 36790 Giles Road, Grafton, Ohio. The total volume of each waste stream disposed at Ross Incineration is presented below:

Table 4: Ross Incineration Disposal Volumes

Waste Stream	Medium	Quantity	Units
Waste Sodium Dithionite	Solid	1	Pound
Waste Sodium Sulfide	Solid	1	Pound
Waste Zinc Power	Solid	3	Pounds
Waste Carbon	Solid	3	Pounds

Hazardous waste water from the basement pit and hazardous chromium liquids were transported for disposal to US Ecology, located at 6520 Georgia Street, Detroit, Michigan. The total volume of each waste stream disposed at US Ecology is presented below:

Table 5: US Ecology Disposal Volumes

Waste Stream	Medium	Quantity	Units
Hazardous Waste Water	Liquid	23,183	Gallons
Hazardous Chromium Liquid	Liquid	14,315	Gallons

One load of hazardous waste solids was transported for disposal to Michigan Disposal Waste Treatment Facility, located at 49350 North I-94 Service Drive, Belleville, Michigan.

Table 6: Michigan Disposal Waste Treatment Disposal Volumes

Waste Stream	Medium	Quantity	Units
Hazardous Waste Solids	Solid	20	Cubic Yards

Additionally, nine loads of RCRA empty containers and general debris materials totaling 270 cubic yards were transported for disposal to Sauk Trails Hills Landfill, located at 5011 South Lilley Road, Canton, Michigan.

## 4.0 AIR MONITORING

Real-time air monitoring was carried out by Tetra Tech START during all removal activities, as described in the Tetra Tech AMP (Tetra Tech 2017c). Tetra Tech START used a combination of AreaRAEs, DustTraks, and Single Point Monitor (SPM) Flex monitors to assess air quality in the exclusion zone and around the site perimeter during removal activities. Tetra Tech established three air monitoring locations around the perimeter of Building 1. An additional monitoring location was established inside of Building 1 in the main container staging and consolidation area. Two additional air monitoring stations were established associated with Building 2: one location was inside the building in the area of the removal activities, and the other was outside the southern exit of the building. These monitoring locations were only utilized when sampling or consolidation activities were conducted in the building.

Each air monitoring location initially consisted of a DustTrak particulate monitor; an AreaRAE unit monitoring for carbon monoxide (CO), flammable vapors (percent lower explosive limit [LEL]), volatile organic compounds (VOCs), and hydrogen cyanide (HCN). An SPM Flex unit was also utilized for monitoring hydrochloric acid (HCl) vapor. Beginning in July 2017, Tetra Tech START began utilizing the AreaRAE units equipped with an HCl sensor at each air monitoring station, instead of the SPM Flex units. Tetra Tech START also conducted periodic checks of the exclusion zone and site perimeter using a MultiRAE Pro monitoring for CO, LEL, VOCs, HCN, and percent oxygen (% O<sub>2</sub>). All air monitor datalogs were collected, transmitted, and downloaded directly to the EPA Emergency Response Team (ERT) VIPER network.

Concentrations of VOCs, LEL, and particulates did not exceed the site action levels identified in the Tetra Tech AMP at any point during the removal activities. Exceedances of CO, HCN, and HCl, during specific site activities are described below.

Carbon monoxide was detected several times at concentrations above the action level at the southern perimeter location of Building 1 and inside the building due to the use of gasoline powered equipment in the building including power washers, mechanical pumps, and air compressors. After each exceedance, activities were stopped to allow for proper ventilation in the building to mitigate the buildup of CO, and scrubbers were installed on equipment exhausts.

Concentrations of HCN and HCl were detected above the site action levels (4.7 and 50 ppm, respectively) in the exclusion zone several times during container sampling activities. All sampling activities were conducted in Level B PPE due to the unknown nature of the wastes at the site and no elevated readings

were detected at any of the perimeter locations. Therefore, no additional engineering controls or upgraded PPE was required.

HCN and HCl were also detected above the action levels in the exclusion zone during the waste consolidation activities. These exceedances were associated with small reactions which occurred during the consolidation of the acid and cyanide waste streams. After the initial exceedances and reactions were observed, the ERRS chemist and crew conducted additional bench tests to further identify incompatibilities in the waste streams. Through the additional bucket tests, the crew identified additional incompatible waste materials that could not be consolidated with the waste streams and removed the containers from the waste consolidation activities. Containers with incompatible materials were overpacked or transferred into new containers, and not consolidated with the waste group. No additional exceedances were observed after the additional bench testing.

## **5.0 EFFECTIVENESS OF REMOVAL ACTIVITIES**

The time-critical removal action successfully addressed the immediate hazards identified at the site and mitigated imminent and substantial threats to human health and the environment posed by the uncontrolled hazardous waste.

However, additional sources of contamination may remain and are discussed below.

### **5.1 SOIL CONTAMINATION**

At the request of the EPA OSC, Tetra Tech START conducted a limited subsurface assessment to determine the geology of the property. The information from the assessment would be used to determine the likelihood of the earthen basement pit recharging with groundwater.

On July 5, ERRS mobilized a subcontracted Geoprobe® with direct-push technology (DPT) to advance four soil borings around Building 1 to a maximum depth of 12 feet below ground surface (bgs), which was thought to be the approximate depth of the basement pit. Tetra Tech recorded visual descriptions of soil borings using the Unified Soil Classification System (USCS) and logged the borings in the field notes in 2-foot intervals. Two soil borings were advanced in the gravel parking area directly west of Building 1, and two borings were advanced directly north of the building under a concrete slab (Appendix A, Figure 3). No borings were completed east or south of the building due to the close proximity of adjacent properties and buried utilities in the area. Note: a sanitary sewer line is also located in the northern portion of the property; however, sufficient space existed to complete soil borings in this area. Soils west of Building 1 (Borehole Locations 01 and 02) generally consisted of sand and gravel fill to 7 feet bgs, wet

sandy clay to 10 feet bgs, underlain by stiff clay to 12 feet bgs.

In the area northwest of the building (Borehole 03), concrete was underlain by sand to approximately 4 feet bgs. The Geoprobe® was unable to go beyond 4 feet at the location. The bottom 0.5 foot of the soil boring contained dark purple/brown discolored sand. In the area northeast of the building (Borehole 04), concrete was underlain by tan sand to 4 feet bgs, wet sand with seams of dark purple/brown discoloration to 9 feet bgs, underlain by stiff clay to 12 feet bgs.

After consultation with the EPA OSC on the findings, Tetra Tech START collected one sample from Borehole 03 and one from Borehole 04 from the most stained portions. At Borehole 03, the sample was collected between 3.5 and 4 feet bgs, and at Borehole 04, the sample was collected between 5 and 9 feet bgs. Each sample was analyzed by an ERRS procured laboratory for metals, hexavalent chromium, flashpoint, pH, reactive cyanide, and reactive sulfide. Neither sample flashed at 200°F, nor were reactive cyanide or sulfide detected in the samples. The pH of the samples was 6.6 S.U. and 7.7 S.U. respectively.

Various metals were detected in the samples, including hexavalent chromium, which was detected at Borehole Location 03 (EPS-29\_GP\_03) at 9,500 milligrams per kilogram (mg/kg), and at Borehole Location 04 (EPS-29\_GP\_04) at 5,400 mg/kg. Both results exceed the EPA Removal Management Level (RML) for Industrial Soils of 630 mg/kg for hexavalent chromium. The result at Borehole 03 also exceeded the MDEQ Non-Residential Direct Contact Criteria of 9,500 mg/kg. No additional metals were detected above the EPA RMLs or MDEQ direct contact criteria.

## **5.2 SANITARY SEWER LINE**

On August 21, representatives of the City of Madison Heights conducted routine maintenance work on the sanitary sewer line which runs through the northern portion of the site. The representatives used a camera to scope the interior of the sanitary line. The representatives observed the appearance of heavy staining in the sewer line and on the surrounding soils and corrosion of the line in the area where Building 1 connects to the sewer.

Additionally, ERRS crew members discovered a cut drum over a pipe (uncapped sewer cleanout) connected to the sanitary sewer. The use and disposal practices associated with the drum and pipe are unknown.

## **5.3 CONTAMINATED BUILDING MATERIALS**

Additionally, the building structure and equipment may be a source of contamination, including plating equipment and process lines. Corroded and damaged concrete floors in the basement, basement footers,



and sidewalls and floors in the plating area may also be a source of contamination (not necessarily surficial).

The EPA OSC and MDEQ maintain ongoing coordination regarding further investigation at the site.

## **6.0 CONCLUSIONS**

The scope of work for this removal action was to remove, transport, and dispose potentially uncontrolled hazardous waste at EPA-approved disposal facilities in accordance with the EPA Off-site Rule (40 Code of Federal Regulations [CFR] Part 300.440). Additionally, EPA took necessary response actions to address the release or threatened release of a hazardous substance, pollutant, or contaminant that may have posed an imminent and substantial endangerment to public health or the environment.

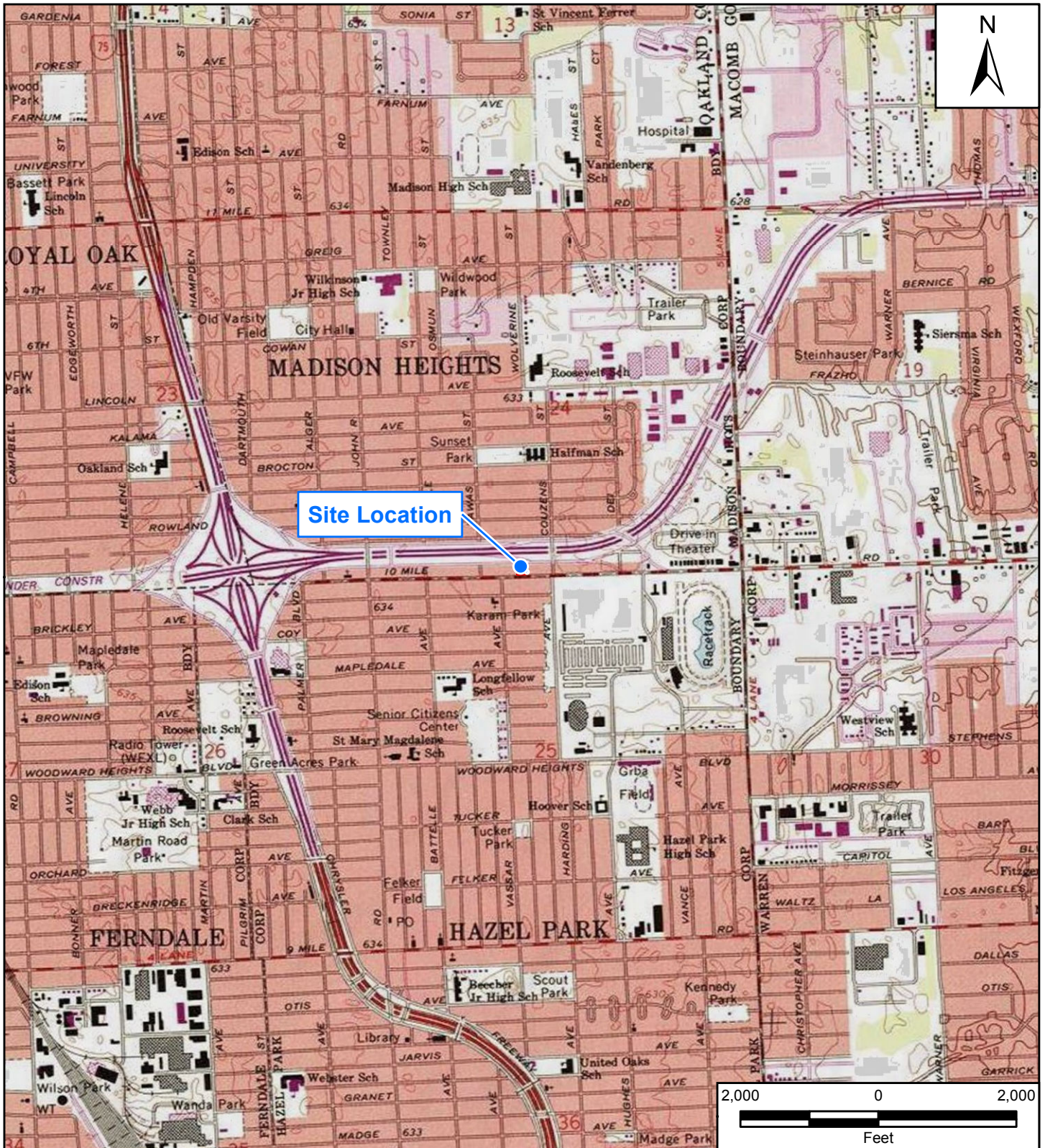
The immediate risk to public health or the environment from direct contact or exposure to potentially uncontrolled hazardous waste liquids and solids has been eliminated at this site. It was accomplished through the collection, identification, and proper disposal of wastes at the Electro Plating Services Site.

## REFERENCES

- Environmental Restoration. 2017. "Health and Safety Plan for the Electro Plating Services Removal Site." April.
- Sustainment and Restoration Services, LLC. 2017. "Removal Assessment Report – Electro Plating Services Site – RS." January.
- Tetra Tech, Inc. 2014. "Recording Notes in Field Logbooks." Standard Operating Procedure (SOP) No. 024. Revision No. 2. November.
- Tetra Tech, Inc. 2016. "Quality Assurance Project Plan (QAPP) for Superfund Technical Assessment and Response Team (START) Revision 3." June.
- Tetra Tech, Inc. 2017a. "Final Emergency Contingency Plan for Electro Plating Services Removal Site." June
- Tetra Tech, Inc. 2017b. "Sampling and Analysis Plan for Electro Plating Services Removal Site." August.
- Tetra Tech, Inc. 2017c. "Air Monitoring Plan for Electro Plating Services Removal Site." August.
- U.S. Environmental Protection Agency (EPA). 2017. Action Memorandum for Time-Critical Removal Action at the Electro Plating Services Site." February.

**APPENDIX A**  
**SITE FIGURES**





Reference Map



Electro Plating Services Site  
945 East 10 Mile Road  
Madison Heights, Oakland County, Michigan

**Figure 1**  
**Site Location Map**



Prepared For: EPA

Prepared By: Tetra Tech Inc.


Source: USGS 7.5 Minute Topographic Quadrangle Map:  
Highland Park, MI 1968

Coordinate System: GCS WGS 1984  
Datum: WGS 1984  
Units: Degree





**Legend**

 Approximate Site Boundary

Electro Plating Services Site  
945 East 10 Mile Road  
Madison Heights, Oakland County, Michigan

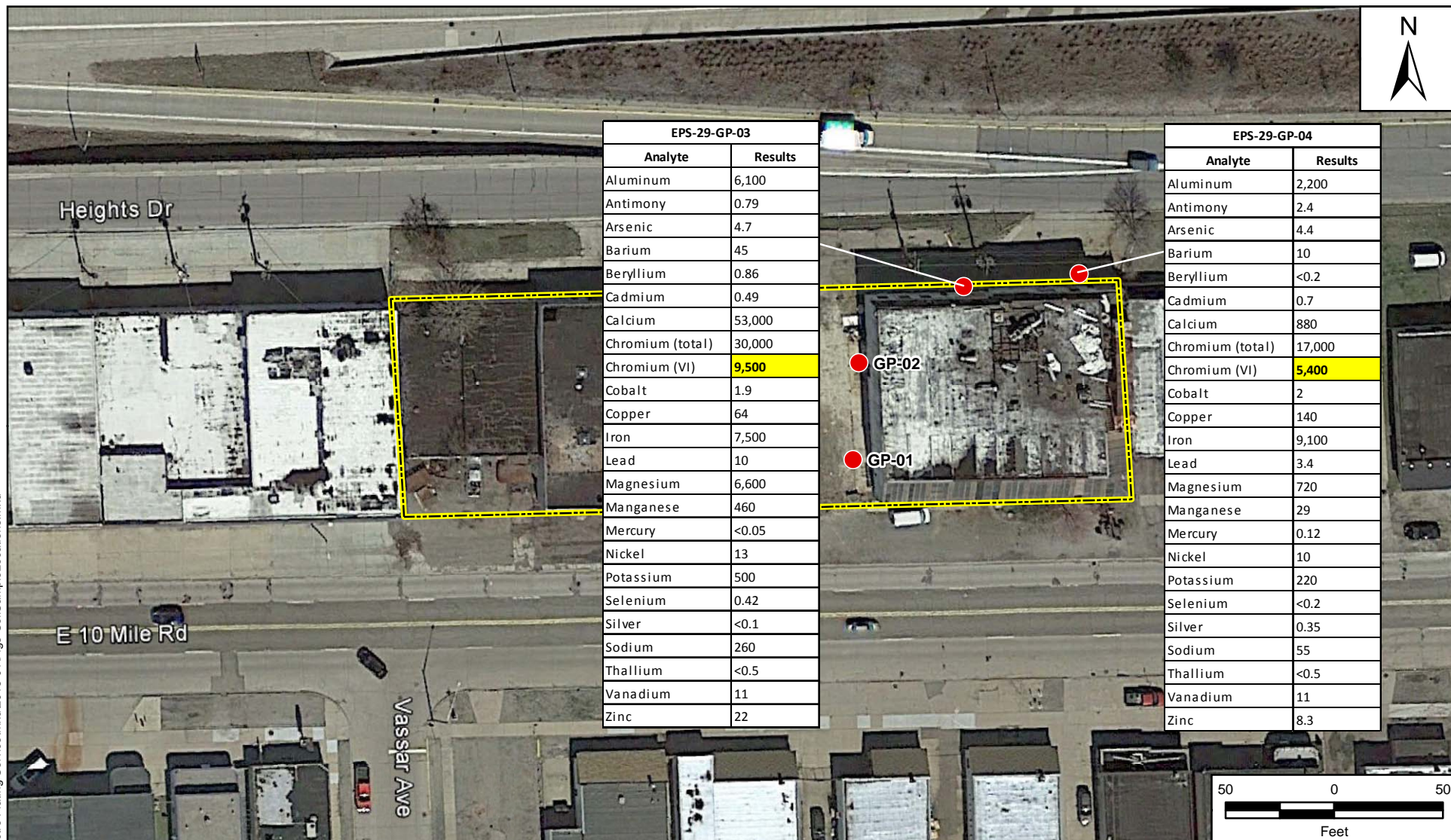
**Figure 2**  
**Site Layout Map**



Prepared For: EPA

Prepared By: Tetra Tech Inc.





### Legend

● Soil Sample Location

□ Approximate Site Boundary

9,500 Concentration exceeds the screening levels

All analytical results are in units of milligrams per kilogram (mg/kg)

Electro Plating Services Site  
945 East 10 Mile Road  
Madison Heights, Oakland County, Michigan

**Figure 3**  
**Soil Sample Locations**



Prepared For: EPA

Prepared By: Tetra Tech Inc.

**APPENDIX B**  
**DATA SUMMARY TABLES**

**Electro Plating Services Removal Site**  
**Madison Heights, Oakland County, Michigan**  
**Table 7: Waste Manifest Tracking Log**

Waste Stream	Medium	Quantity	Units	Manifest #	Treatment	Disposal
RCRA Empty Containers and Debris	Solid	30	Cubic yards	EP5-29-NH-01	NA	Sauk Trails Hills Landfill
Hazardous Waste Water	Liquid	9,642	Gallons	17271278	Chemical Treatment-Reduction/Oxidation	US Ecology
Hazardous Waste Water	Liquid	7,691	Gallons	17271279	Chemical Treatment-Reduction/Oxidation	US Ecology
Waste Hydrochloric Acid	Liquid	15,120	Pounds	17487583	NA	EQ Detroit
Waste Hydrochloric Acid	Liquid	15,120	Pounds	17487584	NA	EQ Detroit
Waste Hydrochloric Acid	Liquid	6,300	Pounds	17487585	NA	EQ Detroit
Waste Sodium Cyanide	Solid	400	Pounds	17487588	NA	EQ Detroit
Waste Xylenes	Liquid	5	Gallons	17487588	NA	EQ Detroit
Waste Isopropanol	Liquid	5	Gallons	17487588	NA	EQ Detroit
Waste Acetates	Liquid	5	Gallons	17487588	NA	EQ Detroit
Waste Potassium Cyanide	Solid	100	Pounds	17487585	NA	EQ Detroit
RCRA Empty Containers and Debris	Solid	30	Cubic yards	EP5-29-NH-02	NA	Sauk Trails Hills Landfill
Waste Hydrogen	Gas	15	Pounds	16776027	NA	EQ Detroit
Waste Ammonium Solutions	Liquid	120	Pounds	016776027	NA	EQ Detroit
Non-Regulated Liquid Material	Liquid	2,000	Pounds	16776027	NA	EQ Detroit



**Electro Plating Services Removal Site**  
**Madison Heights, Oakland County, Michigan**  
**Table 7: Waste Manifest Tracking Log**

<b>Waste Stream</b>	<b>Medium</b>	<b>Quantity</b>	<b>Units</b>	<b>Manifest #</b>	<b>Treatment</b>	<b>Disposal</b>
Waste Corrosive Liquid (acidic)	Liquid	450	Pounds	16776027	NA	EQ Detroit
Waste Oxidizing Liquid (corrosive)	Liquid	50	Pounds	16776027	NA	EQ Detroit
Waste Nitric Acid	Liquid	90	Pounds	16776027	NA	EQ Detroit
Waste Corrosive Liquid (basic)	Liquid	200	Pounds	16776027	NA	EQ Detroit
Waste Morpholine	Liquid	1	Pounds	16776027	NA	EQ Detroit
Waste Mercury Compounds (liquid)	Liquid	2	Pounds	16776027	NA	EQ Detroit
Waste Mercury Compounds (solid)	Liquid	20	Pounds	16776027	NA	EQ Detroit
Waste Glacial Acetic Acid	Liquid	90	Pounds	16776027	NA	EQ Detroit
Waste Flammable Liquids (corrosive)	Liquid	25	Pounds	16776027	NA	EQ Detroit
Waste Flammable Liquids (acetone)	Liquid	400	Pounds	16776027	NA	EQ Detroit
Waste Corrosive Liquids (toxic)	Liquid	25	Pounds	16776027	NA	EQ Detroit
Waste Toxic Solids (sodium and potassium cyanides)	Solid	23	Pounds	16776027	NA	EQ Detroit
Waste Corrosive Liquid (basic)	Liquid	25	Pounds	16776027	NA	EQ Detroit
Waste Iodine	Liquid	1	Pounds	16776027	NA	EQ Detroit
Waste Toxic Liquids (organic)	Liquid	100	Pounds	16776027	NA	EQ Detroit

**Electro Plating Services Removal Site**  
**Madison Heights, Oakland County, Michigan**  
**Table 7: Waste Manifest Tracking Log**

Waste Stream	Medium	Quantity	Units	Manifest #	Treatment	Disposal
Waste Hydrofluoric Acid	Liquid	10	Pounds	016776027	NA	EQ Detroit
Waste Sodium Peroxide	Liquid	1	Pounds	16776027	NA	EQ Detroit
Waste Oxidizing Liquid (toxic)	Liquid	30	Pounds	16776027	NA	EQ Detroit
Waste Oxidizing Solid (toxic)	Solid	75	Pounds	16776027	NA	EQ Detroit
Waste Flammable Solid	Solid	12	Pounds	16776027	NA	EQ Detroit
Waste Sodium Dithionite	Solid	1	Pounds	016766026	Incineration	Ross Incineration
Waste Sodium Sulfide	Solid	1	Pounds	016766026	Incineration	Ross Incineration
Waste Zinc Power	Solid	3	Pounds	016766026	Incineration	Ross Incineration
Waste Carbon	Solid	3	Pounds	016766026	Incineration	Ross Incineration
RCRA Empty Containers and Debris	Solid	30	Cubic yards	EP5-29-NH-03	NA	Sauk Trails Hills Landfill
Waste Toxic Liquid (cyanide)	Liquid	41,000	Pounds	17479424	NA	Chemtron Corporation
Waste Toxic Liquid (cyanide)	Liquid	41,000	Pounds	17479425	NA	Chemtron Corporation
RCRA Empty Containers and Debris	Solid	30	Cubic yards	EP5-29-NH-04	NA	Sauk Trails Hills Landfill
Waste Toxic Liquid (cyanide, chromium)	Liquid	3,700	Pounds	17514568	NA	Chemtron Corporation
Waste Toxic Oxidizing Solid (Chromium trioxide)	Solid	800	Pounds	17514568	NA	Chemtron Corporation

**Electro Plating Services Removal Site**  
**Madison Heights, Oakland County, Michigan**  
**Table 7: Waste Manifest Tracking Log**

Waste Stream	Medium	Quantity	Units	Manifest #	Treatment	Disposal
Waste Toxic Oxidizing Solid (Chromium trioxide)	Solid	300	Pounds	17514568	NA	Chemtron Corporation
Waste Sodium Dithionite	Solid	80	Pounds	17514568	NA	Chemtron Corporation
Non hazardous non regulated material (used oil)	Liquid	2,500	Pounds	17514568	NA	Chemtron Corporation
Waste Toxic Liquid (chromium, cyanide)	Liquid	41,000	Pounds	17514566	NA	Chemtron Corporation
Waste Toxic Liquid (chromium, cyanide)	Liquid	41,000	Pounds	17514684	NA	Chemtron Corporation
Waste Toxic Liquid (chromium, cyanide)	Liquid	41,000	Pounds	17514985	NA	Chemtron Corporation
Waste Hydrogen Peroxide	Liquid	50	Pounds	17855856	NA	EQ Detroit
Waste Acetic Acid Solution	Liquid	60	Pounds	17855856	NA	EQ Detroit
Non DOT Regulated Material	Liquid	800	Pounds	17855856	NA	EQ Detroit
Waste Hypochlorite Solutions	Liquid	400	Pounds	17855856	NA	EQ Detroit
Waste ammonium nitrate	Liquid	500	Pounds	17855856	NA	EQ Detroit
Environmentally Hazardous substances (nickel carbonate)	Solid	1,000	Pounds	17855856	NA	EQ Detroit
Toxic Liquid (toluene diisocyanate)	Liquid	50	Pounds	17855856	NA	EQ Detroit
Environmentally Hazardous substances (4,4'-methylene bis (2-chloroaline)	Liquid	15	Pounds	17855856	NA	EQ Detroit
Waste Calcium nitrate	Solid	40	Pounds	17855856	NA	EQ Detroit

**Electro Plating Services Removal Site**  
**Madison Heights, Oakland County, Michigan**  
**Table 7: Waste Manifest Tracking Log**

Waste Stream	Medium	Quantity	Units	Manifest #	Treatment	Disposal
Waste corrosive liquid (sulfuric acid)	Liquid	40	Pounds	17855856	NA	EQ Detroit
Waste Toxic Liquid (chromium, cyanide)	Liquid	41,000	Pounds	17514737	NA	Chemtron Corporation
Waste Toxic Liquid (chromium, cyanide)	Liquid	41,000	Pounds	17514738	NA	Chemtron Corporation
Waste Cyanide Solids	Solid	4,800	Pounds	17855873	NA	EQ Detroit
Waste corrosive liquid (chromic acid)	Liquid	36,000	Pounds	17514774	NA	Chemtron Corporation
Waste corrosive liquid (hydrochloric acid)	Liquid	5,000	Pounds	17514774	NA	Chemtron Corporation
RCRA Empty Containers and Debris	Solid	30	Cubic yards	EP5-29-NH-05	NA	Sauk Trails Hills Landfill
Waste Flammable Liquids (Gasoline)	Liquid	385	Gallons	16201407	NA	Petro Chem Processing
Toxic Solids (Nickle Chloride Hexahydrate)	Solid	100	Pounds	16201407	NA	Petro Chem Processing
Waste Nitric Acid Solution	Liquid	45	Gallons	16201407	NA	Petro Chem Processing
Waste Sulfuric Acid	Liquid	1400	Pounds	16201407	NA	Petro Chem Processing
Waste Toxic Liquid (Lead Fluoroborate)	Liquid	200	Pounds	16201407	NA	Petro Chem Processing
Waste Fluoroboric Acid	Liquid	200	Pounds	16201407	NA	Petro Chem Processing
Trichloroethylene	Liquid	120	Pounds	16201407	NA	Petro Chem Processing
Non DOT Regulated Solid	Solid	1000	Pounds	16201407	NA	Petro Chem Processing

**Electro Plating Services Removal Site**  
**Madison Heights, Oakland County, Michigan**  
**Table 7: Waste Manifest Tracking Log**

Waste Stream	Medium	Quantity	Units	Manifest #	Treatment	Disposal
Non DOT Regulated Liquid	Liquid	500	Pounds	16201407	NA	Petro Chem Processing
Non DOT Regulated Liquid	Liquid	300	Pounds	16201407	NA	Petro Chem Processing
Sulfamic Acid	Liquid	55	Gallons	17514924	NA	Chemtron Corporation
Non-Hazardous Material (Dioctyl Adipate)	Liquid	55	Gallons	17514924	NA	Chemtron Corporation
Waste Corrosive Liquid (nitric and sulfuric acid)	Liquid	17500	Pounds	17514924	NA	Chemtron Corporation
Waste Corrosive Liquid (nitric and sulfuric acid)	Liquid	285	Gallons	17514924	NA	Chemtron Corporation
Waste Corrosive Liquid (hydrochloric acid)	Liquid	5000	Pounds	17514924	NA	Chemtron Corporation
Waste Corrosive Liquid (basic)	Liquid	41000	Pounds	17514922	NA	Chemtron Corporation
Hazardous Chromium Liquid	Liquid	4315	Gallons	17271291	NA	US Ecology
Hazardous Chromium Liquid	Liquid	10000	Gallons	17271290	NA	US Ecology
RCRA Empty Containers and Debris	Solid	30	Cubic yards	EP5-29-NH-06	NA	Sauk Trails Hills Landfill
Waste Cyanide Solids	Solid	30000	Pounds	17857708	NA	EQ Detroit
Waste Corrosive Solids (Cyanide)	Solid	12000	Pounds	17857708	NA	EQ Detroit
Waste Toxic Solids (Cyanide)	Solid	1000	Pounds	17857708	NA	EQ Detroit
Waste Corrosive Solids (Cyanide)	Solid	300	Pounds	17857708	NA	EQ Detroit

**Electro Plating Services Removal Site**  
**Madison Heights, Oakland County, Michigan**  
**Table 7: Waste Manifest Tracking Log**

Waste Stream	Medium	Quantity	Units	Manifest #	Treatment	Disposal
Waste Corrosive Solid (Acidic)	Solid	3200	Pounds	17857713	NA	EQ Detroit
Waste Oxidizing Solid (Acidic)	Solid	6300	Pounds	17857713	NA	EQ Detroit
Waste Corrosive Liquid (Acidic)	Liquid	400	Pounds	17857713	NA	EQ Detroit
Non-Hazardous Non Regulated Waste	Liquid	400	Pounds	17857713	NA	EQ Detroit
Non Hazardous Non Regulated Waste	Liquid	600	Pounds	17857713	NA	EQ Detroit
RCRA Empty Containers and General Debris	Solid	30	Cubic yards	EP5-29-NH-07	NA	Sauk Trails Hills Landfill
Waste Toxic Liquid (Cyanide)	Liquid	30000	Pounds	17478851	NA	Chemtron Corporation
Waste Corrosive Liquid (Basic)	Liquid	5000	Pounds	17478851	NA	Chemtron Corporation
Waste Corrosive Liquid (Basic)	Liquid	17500	Pounds	17478916	NA	Chemtron Corporation
RCRA Empty Containers and General Debris	Solid	30	Cubic yards	EP5-29-NH-08	NA	Sauk Trails Hills Landfill
Hazardous Waste Water	Liquid	5000	Gallons	17854813	Chemical Treatment - Reduction/Oxidation	US Ecology
Hazardous Waste Water	Liquid	850	Gallons	16829167	Chemical Treatment - Reduction/Oxidation	US Ecology
Hazardous Waste Solids	Solid	20	Cubic yards	17854950	NA	Michigan Disposal Waste
Waste Corrosive Solid (Acidic)	Solid	300	Pounds	17857881	NA	EQ Detroit
Hazardous Waste Solids	Solid	20,000	Pounds	18376625	NA	Chemtron Corporation

**Electro Plating Services Removal Site**  
**Madison Heights, Oakland County, Michigan**  
**Table 7: Waste Manifest Tracking Log**

Waste Stream	Medium	Quantity	Units	Manifest #	Treatment	Disposal
RCRA Empty Containers and General Debris	Solid	30	Cubic yards	EP5-29-NH-09	NA	Sauk Trails Hills Landfill
Hazardous Waste Solids	Solid	20	Cubic yards	17854949	NA	EQ Detroit
Waste Flammable Aerosols	Aerosols	100	Pounds	16312944	NA	Petro Chem Processing
Waste Paint Related Materials	Liquid	500	Pounds	16312944	NA	Petro Chem Processing
Environmentally Hazardous Substances (Fluorescent Tubes)	Solid	480	Pounds	16312944	NA	Petro Chem Processing
Environmentally Hazardous Substances (Fluorescent Tubes)	Solid	100	Pounds	16312944	NA	Petro Chem Processing

Notes:

NA = Non-Applicable

## Electro Plating Services Removal Site

Table 8: Soil Analytical Summary

Analyte	EPA RML (Industrial Soil)	MDEQ Non Residential Direct Contact Criteria	EPS-29_GP_03	EPS-29_GP_04
Aluminum	3,400,000	370,000	6,100	2,200
Antimony	1,400	670	0.79	2.4
Arsenic	300	37	4.7	4.4
Barium	650,000	NC	45	10
Beryllium	6,900	1,600	0.86	<0.2
Cadmium	2,900	2,100	0.49	0.7
Calcium	NC	NC	53,000	880
Chromium (total)	NC	NC	30,000	17,000
Chromium (VI)	630	9,200	9,500	5,400
Cobalt	1,000	NC	1.9	2
Copper	140,000	73,000	64	140
Iron	2,500,000	580,000	7,500	9,100
Lead	800	900	10	3.4
Magnesium	NC	1000000	6,600	720
Manganese	77,000	90,000	460	29
Mercury	140	580	<0.05	0.12
Nickel	67,000	150,000	13	10
Potassium	NC	NC	500	220
Selenium	18,000	9,600	0.42	<0.2
Silver	18,000	9,000	<0.1	0.35
Sodium	NC	1,000,000	260	55
Thallium	35	130	<0.5	<0.5
Vanadium	17,000	5,500	11	11
Zinc	1,100,000	630,000	22	8.3

## Notes:

All results and criteria are presented in mg/kg

EPA US Environmental Protection Agency

MDEQ Michigan Department of Environmental Quality

NC No Criteria

RML Removal Management Level

Result exceeds the EPA RML



**APPENDIX C**  
**START FIELD NOTES**

S 05- 0001- 1703- 001

Electro Plating Services EV



*Rite in the Rain*

ALL-WEATHER

**FIELD**

Nº 351FX

Book # 1

3/20/17

0900: START Thomas onsite. ERES RM and Health & Safety officer on site.

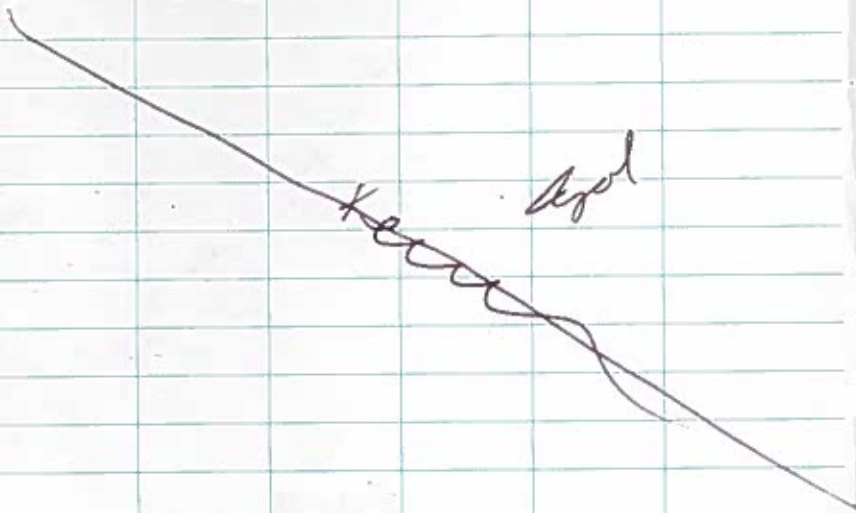
Weather: 32°F, Overcast, winds @ 8 mph SW  
Calibrated MultiRAE Pro:

H<sub>2</sub>S=10.1 CO=50 LEL=51 O<sub>2</sub>=18.1 HCN=10.0 VOCs=10.3

0915: EPA OSC L. Aert and MOEGA onsite. meeting with property owner to discuss logistics and time table for removal action.

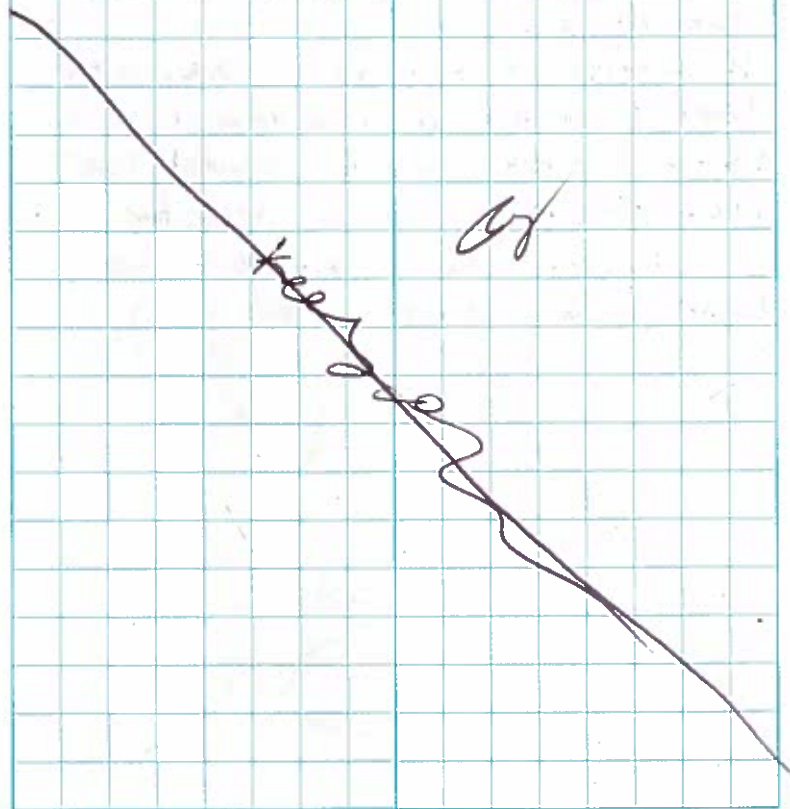
0940: Entered site building to observe conditions.

Observed various hazardous materials in poor conditioned containers, stored improperly throughout the site. The building structure was in poor conditions and various parts should be shored prior to activities beginning.  
1100: START Thomas offsite.



4/17/17

0800: START Thomas onsite. ERES RM and one crew member onsite. ERES meeting with local electrician to discuss trailer placement in the command post. ERES also measuring distances for fence placement. ERES also met with potential security overnight security personnel.  
0930: START Thomas offsite.



*Rite in the Rain*

4/18/17

0800: START Thomas onsite. ERRS RM using skid steer to level out the area where the Command post will be located.

0845: 1 Truck of rock onsite (C) delivered onsite and ERRS is spreading out in the Command post parking area.

1045: Truck #2 of rock delivered for Command post staging area.

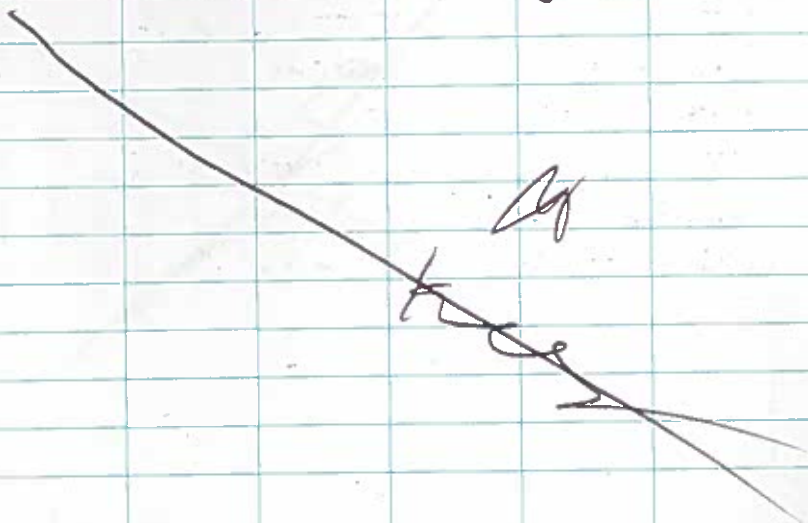
1130: Truck #3 of rock delivered

1225: Truck #4 of rock delivered.

1322: Truck #5 of rock delivered

1400 crew is grading rock for trailer staging area / Command post.

1630: START Thomas offsite

05/22/17, cool  $\approx 60^\circ\text{F}$ , cloudy

0845: START Kozel, ERRS & EPA onsite, trailers being delivered, plan to setup and have meeting with local agency.

0945 - City of Madison Heights, Oakland County Homeland Security, Oakland County Public Health, Fire Chief (Madison Heights), MDEQ onsite. OSC provides update on upcoming work & schedule.

-MDEQ, EPA & START head into main building to look around. Air monitoring all non-detected. Visual haze inside building though. -observed pit area in basement. ERRS stated water is a lot higher than previously.

1100 - MDEQ offsite.

1200 - Porta-johns delivered & storage box.

1500 - START Kozel offsite.





6 Electro Plating Services RV 5/24/17

0725- START Browning arrives on site. Weather: 56°F; overcast and cloudy; wind out of the NE at 6 mph. \_\_\_\_\_ MTB

0745- Current activities: ① designation of fence perimeter; ② setting up of the decon trailer, and ③ movement of Electro-Plating equipment, by its owner, to make way for the fence installation. \_\_\_\_\_ MTB

0805- Fencing contractor arrives on site. - MTB

1000- Fence set-up is continuing, as well as additional ERRS-related set-up activities. Also, the electrical contractor, Conti, is on site to connect power to the smaller building located to the west of the gravel parking lot. \_\_\_\_\_ MTB

1215- Activities: ① continued installation of the fence; and ② lining of two conex boxes with reinforced poly. \_\_\_\_\_ MTB  
Additionally, work is continuing on the hook-up of electricity in the west building. \_\_\_\_\_ MTB

1415- Activities: ① ongoing fence installation; ② ongoing electricity hook-up; ③ decon tent assembly. \_\_\_\_\_ MTB

7 Electro Plating Services RV 5/24/17

1540- Office trailer arrives on site. MTB

1625- START Browning leaves the site for the day. \_\_\_\_\_ MTB

Milad T. Browning  
5/24/17

gy

<sup>8</sup>ElectroPlating Services RV

5/25/17

- 0730 - START Browning arrives on site.  
Weather: 57°F; light rain; wind out of the east at 9 mph. ——— HTB
- 0735 - The only planned activity today is the delivery of one trailer. — HTB
- 0800 - START Browning confirms with OSC Lippert that Browning is not needed on site today, given the limited number of activities that will take place at the site. ——— HTB
- 0805 - START Browning leaves the site for the day. ——— HTB

~~Michael Browning  
5/25/17~~

*HTB*

ElectroPlating Services 5/30/17

9

- 0800 - START Thomas on site. Weather: 62°F, Sunny, 64% Humidity, Wind: WSW @ 5 mph. ——— (C)
- Today's activities include: continue site set up and trailer set up. ——— (C)
- 0900 - Crew putting up tent for decon area near entrance to the site building.
- 1200 - Crew breaks for lunch ———
- 1500 - Crew working to open bay door on the north side of the building.
- 1600 - Crew continued site set up activities: putting up signs in the decon area; moving air trailer along north side of the building; securing and covering electrical cords.
- 1730 - START Thomas off site.

*HTB*

*Return the Rain*



## Electro Plating Services

5/3/17

0700: START Thomas onsite. Weather:

57°F, 70% Humidity, sunny, winds: SW @ 7mph

Attended daily safety meeting: Today's activities will include: continue site set up: install lights; continue installing signs demarcating the exclusion zone, CRZ, safe zone; finish installing fencing along the north side of the property; inspect fire extinguishers in the trailers, vehicles, in the CRZ, and exclusion zone. (P)

1100: EPRS continued site set up, including adding orange temporary fencing around the exclusion zone and securing fencing around the northern portion of the building.

START also began deploying air monitoring equipment and set up potential monitoring location and connecting to VPEE network. (P)

1200 crew breaks for lunch

1230: crew returns to morning activities.

1430/1630: Crew continued site set up activities including adding signs to demarcate exclusion zone. (P)

1730: START Thomas off site

*[Signature]*

## Electro Plating Services

6/1/17

0700: START Thomas and Browning onsite.

Attended site safety meeting. Today's activities will include: Continue site set up activities: finish setting up decon areas; Make first entries into the building to clear areas around emergency exits and make exits and emergency paths; start evaluating building conditions for safety; collect water sample from basement where water is infiltrating. Safety topic: watch for slips, trips, and falls Level Cape inside the building. (P)

0755 Fresh Air Calibration:

0855 Unit 1: CO = 0, VOC = 0, HCN = 0; LEL = 0, and O<sub>2</sub> = 20.9

Unit 2: All 0 or 0.0

Unit 3: All 0 or 0.0, O<sub>2</sub> = 20.9Unit 4: All 0 or 0.0, O<sub>2</sub> = 20.9

Quad Mix:

Unit 1: CO = 51, LEL = 50, O<sub>2</sub> = 20.8Unit 2: CO = 50, LEL = 50, O<sub>2</sub> = SGEUnit 3: CO = 50, LEL = 49, O<sub>2</sub> = 20.9Unit 4: CO = 50, LEL = 49, O<sub>2</sub> = 20.9

MTB

MTB

6/1/17 cont

## VOC Calibration:

Unit 1: 100

Unit 2: 100

Unit 3: 100

Unit 4: 100

## HCN Calibration:

Unit 1: 10

Unit 2: 10

Unit 3: 10

Unit 4: 10

0900: Calibrated MultiRAE Pro: (R)

O<sub>2</sub>: 18.0 LEL: 50 CO: 50 H<sub>2</sub>S: 10.2

VOCs: 10.000 HCN: 10.0 (R)

0945: Deployed 1 Dusttrak, 1 AreaRAE, and 1 SPM Flex unit to the south facing bay door location at building 1: Loc 4

0950: Deployed 1 Dusttrak, 1 AreaRAE, and 1 SPM Flex to north facing bay door location: Loc 3 (R)

0955: Deployed 1 monitoring station to west facing door location: Location 2 (R)

1030: crew continues setup activities. Property owner requested additional time to gather non-haz items from building.

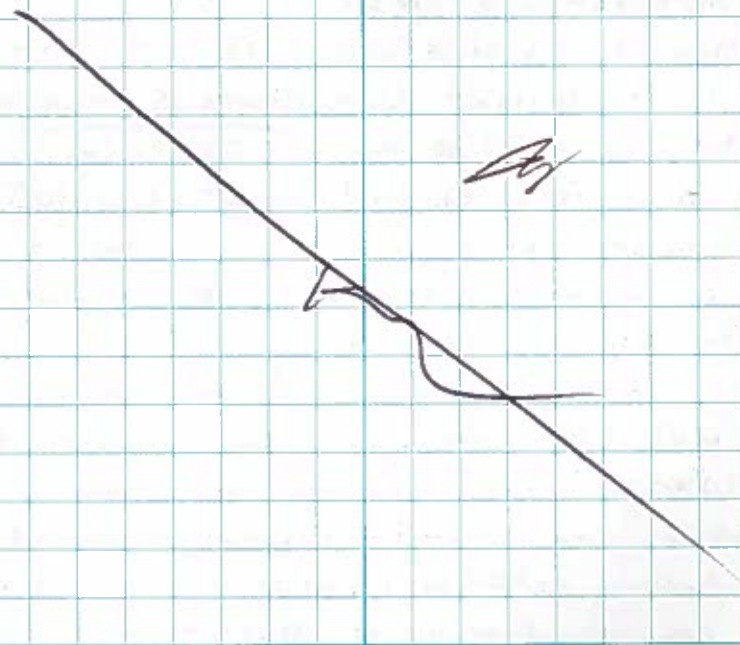
6/1/17 Cont.

1200: crew greets for lunch.

1305: crew enters building 1 to begin clearing debris from in front of emergency exits. START Browning accompanied crew. Crew also gathered fire extinguishers from throughout the building and deployed new working extinguishers.

1630: crew exits exclusion zone. Cleanup for the day. (R)

1730: START Thomas and Browning offsite.





## Electroplating Services

6/2/17

0700: Attended <sup>(18)</sup> START Thomas and Browning on site. Attended site safety meeting. Today's activities include: continue clearing debris from emergency exits; continue evaluating building hazards; start sorting trash, empty containers and staging in the building; deploy fire extinguishers in the building; retrieve and line dumpster and start disposing non-haz trash materials.

0730: Zeroed DustTraks and calibrated multiRAEs and Area RAEs. Calibration sheets located in file box. <sup>(19)</sup>

0800: Deployed air monitoring stations and started viper runs. <sup>(16)</sup>

0815: EPES entered work zone. START Thomas accompanied crew. Activities included:

marking emergency exits and routes, marking potential building hazards; staging non hazardous materials. No elevated readings detected with multiRAE. <sup>(17)</sup>

1000: Crew exits work zone for break.

1030: Crew reenters work zone to continue morning activities. Continue sorting and moving non-hazardous waste items. <sup>(21)</sup>

6/2/17. cont.

1200: Crew breaks for lunch. <sup>(22)</sup>

1300: Crew reenters work zone to continue <sup>(23)</sup> non-hazardous waste activities. Moving non-haz materials and marking physical hazards inside the building. No elevated air monitoring readings detected.

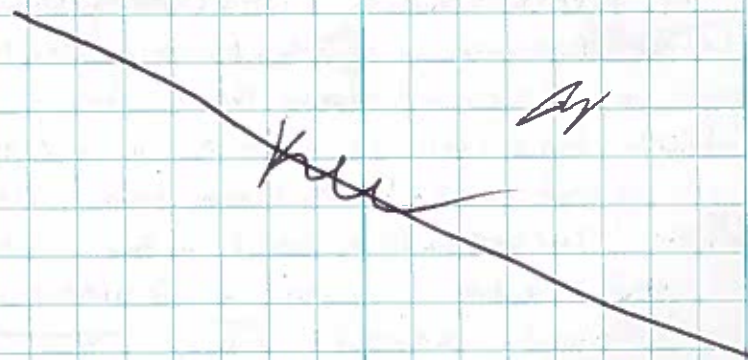
1500: crew breaks <sup>(24)</sup>

1520: Roll off dumpster for non-haz debris delivered to site. <sup>(25)</sup>

1545: crew reenters work zone to continue morning activities. <sup>(26)</sup>

1650: Stopped viper runs and collected equipment. EPES exited work zone.

1730: START Thomas and Browning off site.



## Electro Plating Services

6/5/17

0700 - START Browning and Thomas are on site. Weather: 58°F; overcast and cloudy. MTB

0703 - Daily H and S meeting takes place. Topics:

0721 ① proper lifting techniques (use of drum dolly; deteriorated drums; lift with legs; work in teams; no more than 50 pounds or odd shapes); and ② chemical hazards routes of exposure; and ③ splash hazard; and ④ physical hazards (use of power tools and extension cords); and ⑤ proper PPE; and ⑥ spill containment.

0730 - START zeroed DustTraks and set up SPM. Filter units. START also calibrated AreaRAEs and multiRAEs (see calibration sheets).

0750 - Deployed air monitors to fixed monitoring stations around the building perimeter.

0800 - EPRS crew is lining roll-away dumpster and conex boxes with poly sheeting.

0900 - crew discussing where to begin activities and creating a Plan for beginning container storage. MTB

1030 - EPRS crew enters the building #1 in Level C prep to begin drum

6/5/17 cont.

and trash relocation. START Browning ~~1000~~ accompanied EPRS crew 1050 - EPRS crew is moving items throughout the building to get access to containers prior to moving to conex box. MTB

1200 - crew breaks for lunch. MTB

1245 - crew returns to hot zone to continue morning activities. Crew is moving containers out of the area adjacent to the lab on the second floor to the conex box. Crew will remove debris and containers from this location to free up space for staging small containers. No elevated air monitoring readings detected w. the multiRAE.

~~1500~~ - crew 1445 - crew breaks. MTB

1530 - crew returned to work zone. START used a Lumex RA-15 unit to conduct a rad survey throughout the building.

Background readings: 5-6  $\mu\text{R/hr}$ .

Basement readings: 4-8  $\mu\text{R/hr}$ .

1st Level: 6-15  $\mu\text{R/hr}$ .

Plating Bath Level: 3-6  $\mu\text{R/hr}$ .

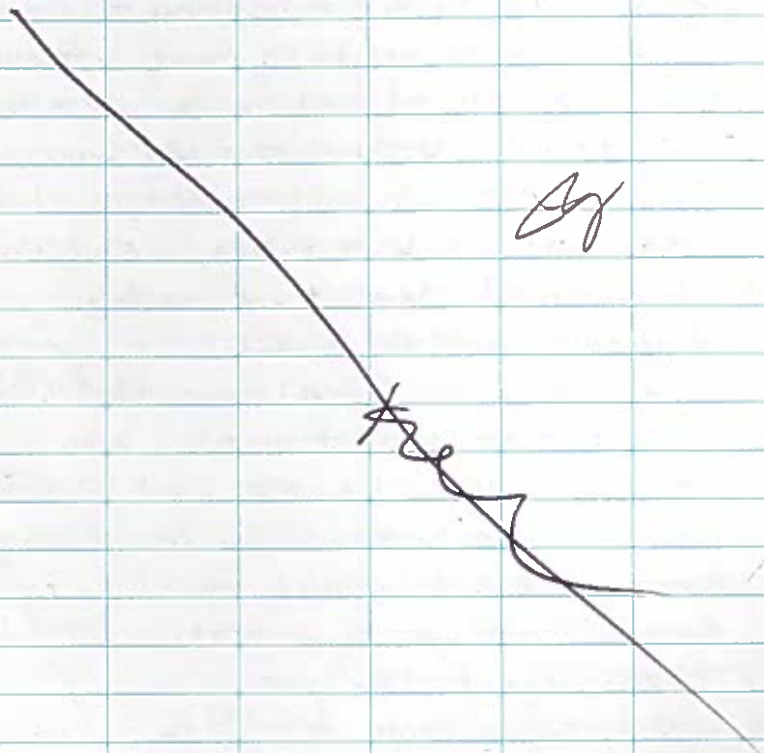
Lab Area: 4-12  $\mu\text{R/hr}$ . MTB



6/5/17 cont.

Top floor: 3-4 AR/hr (16)1630: Crew continued gathering small (less than 30 gallons) containers and staging in the coner box. (16)1650: Stopped AreaRAE and DustTrak runs and collected units. (16)

1730: Start Thomas and Browning off site.



Electro Plating Services 6/6/17

0700: Start Thomas and Browning onsite. Attended site safety meeting. Weather: 55°F Wind: NW @ 8MPH, 84% Humidity, Partly cloudy. (16)Today's activities will include: continue moving containers to the coner boxes, sorting trash/empty containers; clear areas of debris; H&S moment: pay attention for sharp objects in debris and pinch points. Crew will wear cut resistant gloves. (16)0730: Zeroed DustTraks and deployed DustTraks and SPM Flex units. Moved AM-1 from inside the building to western door location. Moved AM-2 to interior building location. (16)

0815: Calibrated AreaRAEs and MultiRAE Pro and deployed to monitoring locations.

0900: (16) Started UIPER run. (16)0900: Crew entered work zone to begin clearing trash and debris and staging containers in the coner boxes. (16)0930: Calibrated AreaRAEs and MultiRAE and deployed to monitoring locations. Started UIPER runs. (16)

Rite in the Rain

## Electro Plating Services

6/6/17

1000: Crew breaks. ————— (K)

1030: Crew reenters work zone to continue morning activities. START Thomas accompanied crew. Crew continued to gather containers in the northern machine shop area. Crew also gathering containers in the room adjacent to the lab area and staging drums on pallets.

No elevated air monitoring readings detected.

1130: MDEG representative onsite meeting with OSC Lippert and Kone to discuss clean up progress

1215.. crew breaks for lunch.

Backnote: HCl readings at AM 2 (inside Building #1) range ~ 0.5 - 0.8 ppm.

1250: crew prepares to re enter work zone.

EPA HazMat - ID onsite for use by ERCS Chemist.

1330: Crew centers work zone to continue morning activities. STAFF Browning accompanies crew.

HC<sub>4</sub> at AM -  $\delta$ : 0.000-0.023 ppm — (M)

Crew ~~control~~<sup>cab</sup> is staging containers in the first floor near the plating baths. No elevated air monitoring readings observed.

1530: Crew breaks. \_\_\_\_\_ (P)

6/6/17

1545: Crew reenters work zone to continue activities. Crew continues to gather and stage ~~at~~<sup>the</sup> containers on the first floor near the platting baths.

1645. Stopped guns and collected equipment.

1730: START Thomas and Browning offsite.

Ch

# Rite in the Rain



## Electro Plating Services

6/7/17

0700: START Thomas and Browning on site.

Attended site safety meeting. Weather: 53°F,  
Wind: 9 mph NNE Sunny, 78% HumidityToday's activities will include: Evaluate and repair  
floors and other building hazards; Continue sorting  
lab chemicals, staging containers, clearing trash  
to make room for additional staging. Safety  
considerations: ~~Some~~ Some poor containers do  
not allow moving0730: Zeroed DustTraks and deployed DustTraks  
and SPM Flex units. ~~START~~ Started VIPER run.0830: Calibrated AeraRAEs and MultiRAE Pro unit.  
Deployed AeraRAEs and started run.Crew entered the work zone to continue clearing  
trash to stage additional containers. Chemist  
enters work zone to determine if any shock  
sensitive or water reactive chemicals are in the  
lab area.

No elevated air monitoring readings detected.

1023: Alarm from VIPER indicating VOCs

75ppm. Alarm due to START bump test.

1030 crew breaks.

1100: Crew re-enters work zone to continue sorting  
trash and stage containers.

6/7/17

Crew staging drums and buckets on the  
playing level. ~~PER~~ Chemist continues to  
segregate lab chemicals based on labels.  
No elevated air monitoring readings.1200: Crew breaks for lunch. START and  
VIPER run for DustTraks to attempt to  
connect SPM Flex units to survey  
controller.1300: Crew returns to work zone to  
continue morning activities. Crew loading  
and staging containers in the plating bath  
area. No elevated air monitoring readings.

1500: Crew breaks.

1600: Crew returns to work area to continue  
activities.1625: VIPER alarm with VOCs = 2.6ppm at  
AM-1. Elevated reading was not sustained  
for over 1 minute. No obvious source for  
elevated reading. Readings less than 0.5ppm  
immediately before and after elevated reading.  
Since elevated reading was not sustained, no  
additional measures taken.

1645: Calibrated air monitoring equipment.

1730: START Thomas and Browning off site.

Rite in the Rain

## Electro Plating Services

6/8/17

0700 - START Browning arrives on site. Weather: 53°F; sunny; wind is calm. — MTB  
START Kelly is also on site. — MTB

0701 - Daily H and S meeting takes place. Topics:

- 0721 ① marking off slip, trip, and fall hazards with paint and banner tape; ② working around / near heavy equipment (constant communication and eye contact); ③ fact sheet for sodium azide (a chemical that is located in the building); ④ physical hazards when lifting objects; ⑤ use of GFCIs for electrical equipment; ⑥ drum handling and proper PPE; ⑦ watch for unknown personnel on site

0730: Zeroed Dust Traks and deployed with ~~SANIT~~ SPM Fick units to air monitoring locations. — (1)

0800: Calibrated AreaRAEs and deployed to air monitoring locations. — (1)

0830: Started VIPER runs.

0851: VIPER alarm at AM-3: PM  $10 > 2.5$   
 $\sim 3589 \text{ mg/m}^3$ . Exceedance was observed for a very short period  $\sim 3$  seconds, and  
TN A = 0  $038 \text{ mg/m}^3$ . Exceedance was likely

## Electro Plating Services 6/8/17 Cont.

a data dump error. No visible dust observed at the location. — (1)

Crew continued to stage drums and containers inside the building and segregate based on labels. Crew also hung lights in the basement and cleared debris in the basement to continue gathering and segregating/staging drums.

0950: VIPER Alarm PM  $10 \sim 7500 \text{ mg/m}^3$  at AM-3. Likely data error. Not sustained. 1000: crew breaks. — (1)

1030: Crew preparing to reenter work zone. START Thomas accompanied crew. Crew continued to stage containers and powder bags on the first level. Crew also segregating containers based on labels. No elevated air monitoring readings detected. — (1)

1200: Crew breaks for lunch. — (1)

1300: Crew preparing to reenter work zone to continue morning activities. — (1)

1407: VIPER alarm at AM-1. LEL  $> 5.0$ . START checked data log and instrument appeared to be drifting for several hours. Checked location using multiRAE, and

*Rite in the Rain*



## Electro Plating Services

6/18/17

LEL = 0.0. START Fresh air calibrated AreaRAE-1 and LEL = 0 ~~followed~~ at AMT following fresh air calibration.

1500: crew breaks. ERS identified & cut poly drum with a ~~help~~ <sup>help</sup>. The hole contained a pipe going through a metal grate in the ground. The discharge of the grate is unknown. — (A)

1545: Crew reenters the work zone to continue activities. — (A)

1630: crew continues collecting and staging containers. Crew is using the northern Con ex box to stage containers from the basement. — (A)

1645: stepped UPEE runs and collected air monitoring equipment. — (A)

1730: START Thomas and Browning offsite.

at

full

## Electro Plating Services

6/19/17

0700- STARTs Browning and Hartwell arrive on site. Weather: 60°F; mostly cloudy; wind out of the west at 5 mph. HTB

0702- Daily activity and Sand H meeting

0718 takes place. Topics: ① Pay attention to the labels on the containers before moving the containers; ② No need to work quickly; ③ respirator use and maintenance (check valves, etc.); ④ chemical hazards present on-site; ⑤ physical hazards present on-site; ⑥ wearing proper PPE (i.e. DardC)

0730- Activities: ① cutting up of poly drums; 1010 ② continuing to consolidating the chemicals in the lab. — HTB

1140- Activities: ① continuing consolidation of chemicals in the lab ② ~~cont~~ <sup>cont</sup> Staging drums from manufacturers who may take back their drums ③ Cutting up poly drums/containers/vats.

1245 Crew breaks for lunch. — BH

1345- Crew moves chemicals in the west building 1410 to one area to help property owner move shelving units out over the weekend.

1430- Crew continued consolidating containers in the 1600 shop lab, and cutting poly drums and containers. *note in the rain.*

6/9/17 (Cont.) Electro Plating Services

- 1650 START collects air monitoring equipment.  
 1730 START, ERRS offsite. ——— BJH

B. J. H.  
 6/9/17

Electro Plating Services 6/12/17

- 0700 STARTs Browning + Hartwell on site, met ERRS for morning safety + scope meeting. Topics discussed: ① Today will setup exclusion zone @ west building ② Staging west building drums for sampling ③ Start drum inventory @ west building. ④ Heat Stress precautions: stay hydrated, symptoms, breaking schedule frequency based on Temp. ⑤ Continuing consolidating containers in shop lab (East build) and inventory of such containers. ——— BJH
- 0800 START deploys air monitoring equipment based on active work areas (after call):  
 Station AM1: West side of East Building  
 AM2: Open area, south of shop lab (East Bld.)  
 AM3: West Building - Inside work zone  
 AM4: West Building - Outside, south of door
- 0900 ERRS begins staging drums/containers inside west building. ERRS begins working on sorting containers @ shop lab in East Bld.
- 1220 Crew breaks for lunch. ——— BJH
- 1330 ERRS continues same morning activities
- 1500 ERRS completes staging drums (largely HCl) in west building. ——— BJH
- 1630 ERRS chemists done w/ lab inventory for the day. ——— BJH  
*Rite in the rain*



6/12/17 (Cont.) Electro Plating Services  
 1645 START begins collecting air monitoring equipment. Data saved for the day from 3 Dust Traks if needed. — BHH  
 1730 START's Browning + Hartwell off site.

B. H. H.  
 6/12/17

6/13/17

0700: START Thomas and Browning on site. Attended Daily safety meeting. Weather: Heat advisory 74°F, partly cloudy, Wind: 5 mph N, 70% Humidity. Today's activities will include: continue inventorying (K) inventorying drums and containers in Building 2; fill out entire drum log for EPA CED; hot and humid conditions discussed; stay hydrated; Safety topic: proper drum handling. Continue inventorying lab containers in Building 1. ERES will have a count of the number of small containers in the lab by the end of day. — (K)

0730: START zeroed DustTraks and started SPM Flex units and deployed. AM-1 deployed at <sup>west</sup> east entrance of east Building 1. AM-2 deployed inside Building 1. AM-3 deployed inside Building 2. AM-4 deployed at south entrance of Building 2. — (K)

0800: calibrated AreaRAES and deployed. Started VIPER runs w/ AreaRAES and DustTraks. — (K)

~~0830~~ Crews entered work zone to begin daily activities. Team #1 entered Building 1

*Rite in the Rain*

6/13/17 cont.

to continue segregating lab chemicals based on the labeling. Team 2 entered Building 2 to continue labeling drums and begin filling out drum logs with information from drum labels. START Thomas accompanied crew. Observed several bottles of HF in the lab area. Chemist thought it was perhaps used to strengthen HCl acid character. No elevated air monitoring readings. — (20)

0930: crew breaks — (21)

1045: Crews enter work zone to continue activities in Buildings 1 to 2. No elevated air monitoring readings detected. — (22)

1200: crew breaks for lunch — (23)

1250: Crew reenters work zones to continue morning activities. Team #1 continued in Building 1 to continue segregating lab chemicals. Team #2 continued labeling and filling out drum logs in Building 2. 2 VIPER exceedances at AM-4 (near South entrance of Building 2). PM 10 ~ 10  $\mu\text{g}/\text{m}^3$ . Exceedances were due to equipment (Skid steer) used directly adjacent to the location. Exceedance lasts only a few seconds. No corrective actions taken — (24)

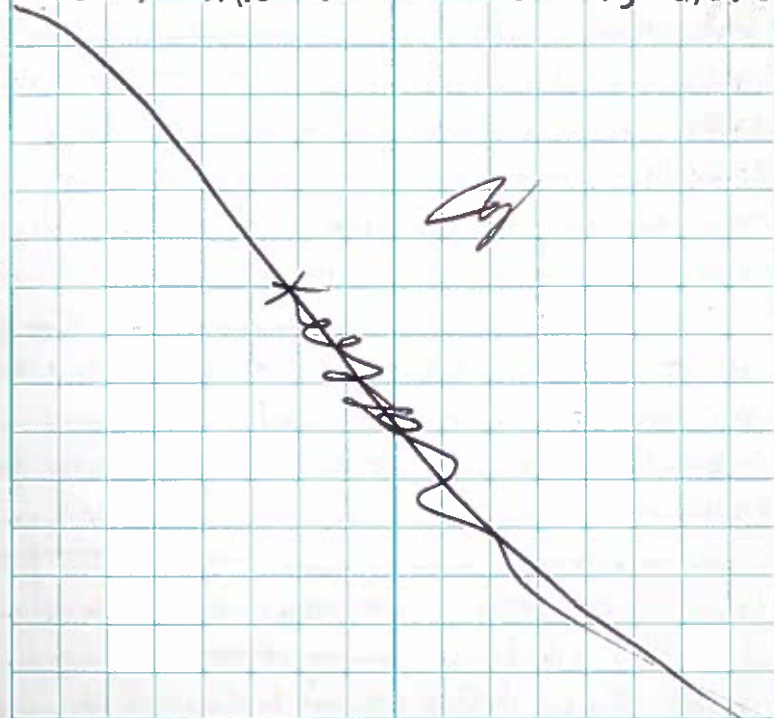
1450: crew breaks. — (25)

6/13/17 cont.

1530: Team 2 finished in Building 2 for the day. Team 2 will perform maintenance on the EPA Air Trailer and prepare Level C PPE for later making entries later this week. Team #1 reentered building 1 to continue activities. No elevated air monitoring readings.

1650: ST<sup>(20)</sup> Collected air monitoring equipment and stopped VIPER runs. — (26)

1730: START Thomas and Browning off site



Rite in the Rain



## Electro Plating Services

6/14/17

0700: START Thomas and Browning on site.

Weather: 69°F 74% humidity, winds East @ 8 mph mostly cloudy. Cooler and less humid than previous days. (21)

Attended site safety meeting. Today's activities include: continue segregating lab containers in Building 1; continue drum logs in Building 2; Safety topic: forklift safety; continue maintenance of air trailer.

0730: Zeroed DustTraks, calibrated AreaRAE, and started SPM Flexes. (21)

0815: Started VIPER runs. (21)

0820: Crews entered work zones to begin daily activities. Team #1 entered Building 1 to begin segregating lab chemicals. Team #2 entered Building 2 to continue labeling containers and filling out drum logs. (21)

START Browning accompanied crew. No elevated air monitoring readings observed. (21)

0930: SPM Flex unit at AM-1 faulted due to spark filter. START changed filter in unit and re-deployed. (21)

1000: Crew breaks. (21)

1050: Crews reenter work zones to continue activities in Building 1 and 2. (21)

1110: VOCs > 5.0 at AM 6. Area RAE appeared

6/14/17 cont.

to be drifting. START used MultiRAE Pro to check location. VOCs = 0.0 with MultiRAE. START recalibrated and zeroed AreaRAE and re-deployed at AM-6. (21) (21)

1140: CO > 50 ppm at AM-6 due to PRP using forklift directly adjacent to tanks. (21)

1215: START moved AM-1 and AM-6 just inside the buildings due to rain. (21)

1230: ~~START~~ Crew breaks for lunch. (21)

1330: Crews reenter work zones to continue morning activities. Team #1 had an alarm on personal HCN sensor but the sensor read 0.0 ppm. Team #1 was opening 1 liter acid containers and alarm was likely due to HNO<sub>3</sub> fumes. START and OSC requested that EPLS be in level 3 APE if opening containers. (21)

Crew is using pH paper to do further segregate unknown 1 liter containers. (21)

Team #2 continued completing drum logs in Building #2. (21)

1500: Crew breaks. (21)

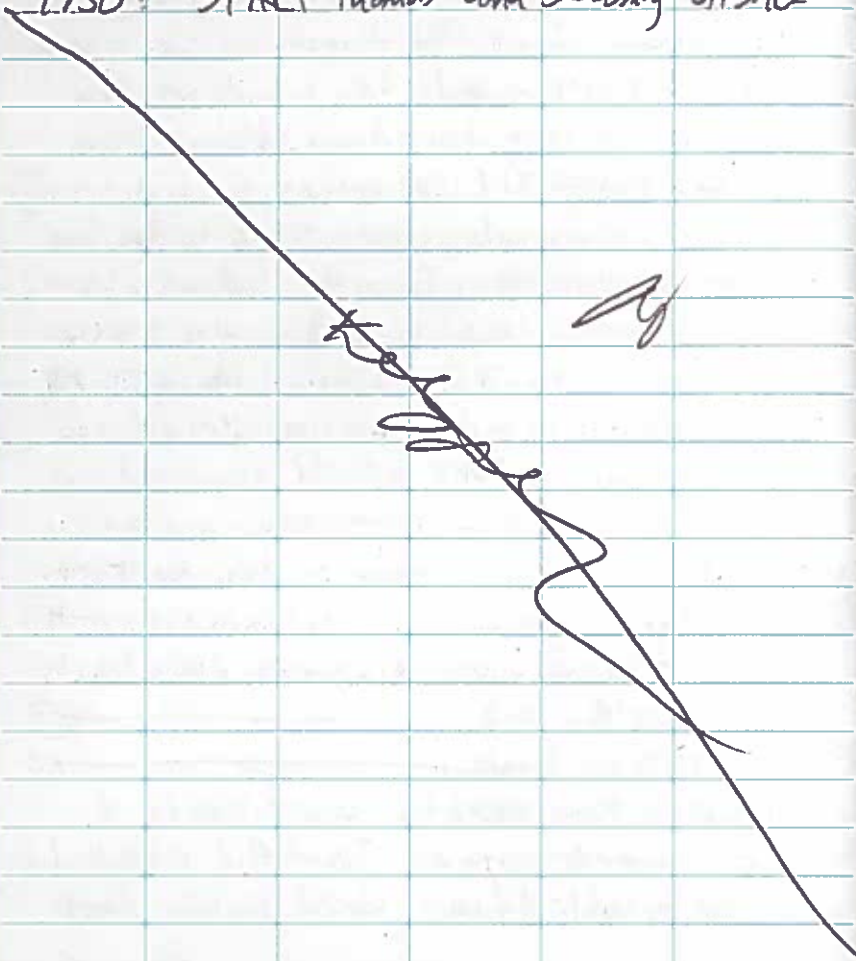
1600: Crews reenter work zones to continue activities. Team #1 installed a portable fume hood on the first

6/14/17 cont

floor to use when doing limited hazcatting on lab containers.

1645. Collected air monitoring equipment and stopped VIPEE runs.

1730: START Thomas and Browning offsite



Electro Plating Services

6/15/17

0700- START Browning arrives on site.

Weather: 67°F. Light but steady rain; wind out of the SW at 7 mph. START

Kelly also on site at 0700. — HTB

0701- Daily activity and H and S meeting takes place. Topics: ① hazcat chemicals one at a time; ② during drum sampling: check bungs prior to opening, wearing proper PPE (level B); ③ signs of exposure to HCl; ④ work slowly, not too quickly. — (14)

0730: Zeroed Dust Traks, started SAM Flex units, and calibrated AreaRAES

0800: Deployed air monitors to AM 1, 2, 5, and 6 and started VIPEE runs.

0830: Crews enter work zones to begin daily activities. Team #1 entered Building 1 to continue limited haz-cat activities <sup>at</sup> OF lab containers in the <sup>mobile</sup> portable fumehood. Team 2 in Level C PPE opening 1 container at a time and fumehood exhausts <sup>to</sup> out of building. Team 2 in Building 2 completing drum LOS sheets and setting up sampling supplies. — (15)

*Rite in the Rain*



6/15/17

6/16/17

1000: crew breaks. ————— (KT)

1045: Team 1 reenters building 1 to continue activities. Team 2 reenters Building 2 to label and set out sample containers and supplies. No elevated air monitoring readings detected. (KT)

1230: crew breaks for lunch ————— (AT)

1310: Crews reenter work zones to continue morning activities. Team 1 in Building 1 continuing limited haz cutting of lab chemicals. Team 2 continued to set up for sampling activities tomorrow. ————— (KT)

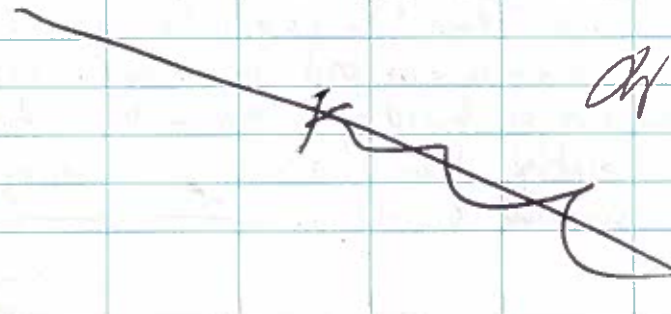
No elevated air monitoring readings detected.

1500: crew breaks.

1545: Team 1 reenters Building #1 to continue activities. Team 2 setting up air trailer and lines to prepare to collect samples from Building #2 tomorrow. ————— (KT)

~~1645:~~ 1645: Stopped runs and collected air monitors. EDS cleaning up for the day. ————— (KT)

1730: START Thomas offsite.



## Electro Plating Service

6/16/17

0700 - STARTs Browning and Kelly arrive on site. Weather: 87°F; sunny; wind out of west at 3 mph. ————— MTB

0702: Daily activity and H and S meeting takes place. Topics: ① chemical hazards that are present at the site; ② physical hazards located at the site; ③ fuming acids; ④ cross-sensitivity of HCH markers; ⑤ splash hazards while sampling; ⑥ levels of PPE, depending on work zone or task.

0730: Calibrated ARAAEs, Zeroed Dust Traks and started SPM Flexes. ————— (KT)

0800: Deployed air monitoring equipment to AM-1, AM-2, AM-5, and AM-6 and started VIPEE runs. ————— (KT)

0830: Crew #1 entered Building 1 to continue segregating and haz cutting lab containers. Team #2 entered Building #2 to begin collecting samples in Level B ppe. Team #2 collected ~50 samples. START observed vapors coming from each drum when opened, but no vapors escaped the building. No elevated readings outside the exclusion zone. ————— (KT)

1030: crew breaks. ————— (KT)

1130: Team #2 reenters Building #2 to

Rite in the Rain

Electro Plating Services 6/16/17

Continue collecting samples from drums in Level B PPE.

1330: Crew breaks for lunch. START Thomas and Browning reenter Building 2 to photo drums sampled thus far. Crew completed samples from 0001 thru 0015 before lunch. (KJ)

1430: Crew reenters work zones to continue morning activities. (KJ)

1515: HCl alarm at position 5 inside Building #2. ~~HCl~~ HCl ~ 6 ppm and above D→C action level. No exterior action levels exceeded and crew already in Level B PPE. No additional actions taken. (KJ)

1610: Crew exits exclusion zones in both buildings and begin clean up activities for the day. (KJ)

1630: Stopped VICE runs and collected monitoring equipment. (KJ)

1730 START Thomas and Browning off site.

KJ af

S05-0001 - 1703-001

Electro Plating Services RV



*Rite in the Rain*

ALL-WEATHER

**FIELD**

Nº 351FX

Book #2



## Electro Plating Services 6/19/17

0700: START Thomas and Browning onsite. Weather: 63°F, 80% humidity, clear skies, winds: wsw @ 6 mph. Today (K) Attended site safety meeting.

Today's activities will include: Continue collecting samples in Building 2; begin inventorying containers and filling out drum logs in the corner boxes;

Begin collecting (K) haz-cathory Building 2 samples; Safety (K) topic: personal hygiene, changing wet clothes to eliminate chance of heat rash; Pay close attention to drum conditions (bulging, cracks) prior to opening drums for sampling.

0730: Calibrated AreaRAEs and MultiRAE Pro, (K) zeroed DustTeks, started SPM Flex units and deployed to AM-1, AM-2, AM-5, and AM-6

0830: started VIPER runs. Crews begin set up for Level B activities in Building 2. Chemists also begin haz-cathory samples from Building 2. (K)

0900: Team 1 entered corner box south of Building 1 to begin filling out drum log sheets for containers. Team 2 entered Building 2 to continue sample collection. Team 2 collected ~167 samples last week. (K)

1045: Crew breaks. (K)

1130: crew reenters Building 2 to continue collecting samples from containers in the building. (K) No elevated air monitor results detected.

6/19/17

1330: crew breaks for lunch. (K)

1400: Crew returns to work zone. Team #1 entered northern corner box to continue drum logs of containers. Team #2 reenters Building 2 to continue sampling activities. Eels chemist continued hazard categorization of samples from Building #2. (K)

1530: Heavy rain started. START collected exterior SPM Flex units and Links. START covered the AreaRAEs in plastic bags and redeployed. Rain is expected to continue off and on for the rest of the day. (K) START will not redeploy SPM Flexes. Flex at AM-5 still running due to inter-location and continued activities with HCl drums. (K)

~~1630~~ (K) 1600: crew breaks

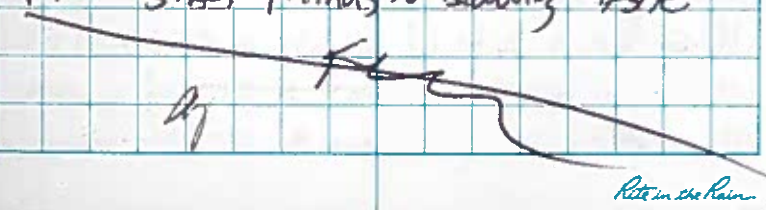
1630: Crew cleaning up equipment for the day.

1645: Stopped VIPER runs and collected air monitoring equipment. Eels reported they finished collecting samples from all drums in Building 2. Will begin sampling bucket station. 1730 START Thomas & Browning offsite.



4 ElectroPlating Services RW 6/20/17  
0700: START Thomas and Browning onsite. Weather:  
58°F, sunny 81% humidity Winds: SW @  
7 mph; cooler than previous days. Attended  
daily safety meeting. Today's activities will  
include: Continue drum logs and sampling in  
Building 2 (~30 buckets remaining); Begin  
sampling in southern conex box; continue  
haz-cating samples; continue inventorying containers  
in Building 1. Daily safety topic: hearing  
protection, crew should move 4 containers in Building  
2 w/ highly flammable materials. ~~\_\_\_\_\_~~ (K)  
0730: Calibrated MultiRAE, AreaRAEs, Zeroed  
dust Traks, and started SPM Flex units.  
0815: Deployed Air Monitors at AM-1, AM-2,  
AM-5, and AM-6 and started VIPER runs.  
0830: Crews enter work zone to begin activities.  
Team #1 entered Building 1 to continue staging  
and inventorying containers. Team #2 entered  
Building 2 to finish collecting samples. A total  
of 6 containers with highly flammable materials  
in Building 2 were not sampled. ERES will attempt  
to dispose based on SDS for the materials.  
1000: Crew breaks. Team #2 finished sampling  
in Building 2. ~~\_\_\_\_\_~~  
START deployed 1 solar panel to ~~(K)~~ with

5 ElectroPlating Services 6/20/17  
The Line connected to SPM Flex #9.  
1100: Team #1 reentered Building #1 to continue  
labeling containers. Team #2 setting up to begin  
sampling activities in the southern conex box.  
1200: Crew breaks for lunch. ~~\_\_\_\_\_~~ (K)  
1240: Pallets for drums delivered to site.  
1345: Teams preparing to reenter work zones.  
Team #2 will enter southern conex box in  
Level B app to collect samples. ERES chemist  
continued hazard categorization activities.  
Backnote: At 1100 START moved air monitors  
from AM 5 → AM 3 and AM 6 → AM 4 app  
to afternoon operations locations. ~~\_\_\_\_\_~~ (K)  
1600: Crew breaks. Team #2 finished sampling  
B039 thru B065 in conex box 1.  
Today's totals:  
Samples collected: B001 thru B065  
Samples Haz-catted: ~~50~~ 032 thru 066  
1630: Light rain starts. START collected  
air monitor 5. Team 1 still in the building  
finishing drum logs. Team 2 cleaning up for the day.  
1730: START Thomas & Browning off site



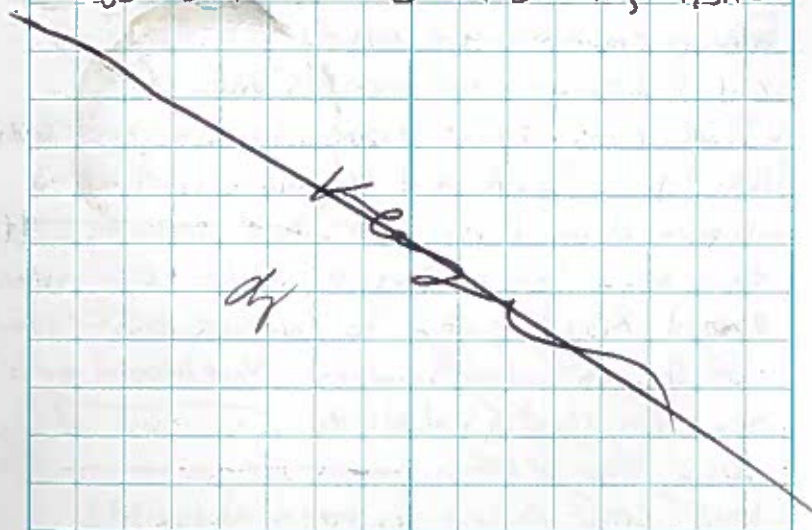


6/21/2017

- 0700: START Thomas and Browning onsite. Weather: 56°F, Clear skies, 89% Humidity, winds NW @ 3mph. Attended site safety meeting. Today's activities will include: ~~Complete~~ continue collecting samples from 2 Conex boxes; continue inventorying and filling out drum logs for staged containers in Building 1; continue haz-calling samples from Building 2; Chemist will create a composite sample for waste disposal ~ Friday. (K)
- 0730: Started SPM Flex units, zeroed dust probes, and calibrated ARAULICS. START replaced Chem cassettes in SPM-1 and 3 which had run out.
- 0815: Deployed one manitras to AM 1, 2, 3, 4
- 0850: Crew preparing to enter work zones. Team 1 entered Building 1 to continue labeling and filling out drum logs for staged containers. Team 2 continued sampling containers in Conex box 1 (South of building). Chemist continued haz-calling samples from Building 2. (K)
- 0915: VIPER alarm at AM 4  $O_2 = 23.5$ . Likely error. START fresh air calibrated unit at AM-4 and redeployed. (K)
- 1030: Crews continued activities in Buildings 1 & 2
- 1140: crew breaks. Team #2 finished sampling all containers in Conex box #1. (K)

6/21/17

- 1240: Crew returns from lunch. Team #2 transferring level B equipment to Conex box #2 north of the building. Team #2 will begin collecting samples from the containers in Conex box #2. Team #1 reentered Building 1 to continue with labeling containers and filling out drum logs. (K)
- 1430: Team #2 entered northern Conex box to collect samples from staged containers.
- 1630: Team #2 finished collecting samples from all containers in Conex box #2.
- 1645: Ended VIPER runs and collected air manitras. (K)
- 1730: START Thomas and Browning offsite.



## Electro Plating Services EV 6/22/17

0700: START Thomas &amp; Browning on site.

Weather: 65°F, partly sunny, humidity:

74% Winds: S @ 5 mph. Rain expected (K)

~0800. Heavy/severe storms expected throughout the day. Today's activities will include:

begin sampling activities in Building 1; continue monitoring containers in Building #1; continue haz-cutting samples from Building 2; (chemical &amp; physical hazards discussed) 2 teams in Building 1 doing separate tasks (K)

0730. START calibrated AreaRAEs and (K) zeroed DustTrak, and started SP in Flex. Due to expected rain throughout the day, start data at only AreaRAEs at AM-1, 3, &amp; 4, and all air monitors at AM-2. (K)

0830: Deployed air monitors and started VIPER runs. Crew preparing to enter work zones. Team #1 in Building 1 continuing to label and fill out drum logs. Team #2 preparing field equipment for sampling activities. 1 crew member entered Building #2 to combine and (K) remainder of the hazcutted samples. No elevated air monitoring readings detected. (K)

1000: crew breaks. (K)

1045: crew returns to morning activities.

## Electro Plating Services EV 6/22/17

1230: crew breaks for lunch. (K)

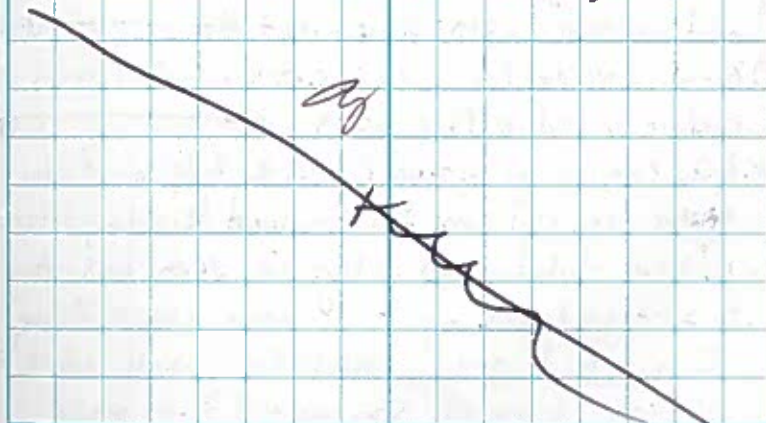
1330: crew preparing to reenter work zone. Team #1 continues in Building 1 labeling and filling out drum logs. Team #2 entered Building 1 to also fill out additional information on drum logs. Team #1 one crew member also entered Building #2 to continue disposing of hazcutted samples. (K)

1500: crew breaks. (K)

1545: Teams reenter work zone to continue activities. No elevated air monitoring readings detected. (K)

1645: START collected air monitors and stopped VIPER runs. (K)

1730: START Thomas &amp; Browning off site.



Rite in the Rain



## Electro Plating Services 6/23/17

0700: STACT Teams to Browning on-site. Weather:  
72°F, cloudy, rain expected throughout the day.

88% Humidity. Winds: SSW @ 8 mph. Attended  
daily safety meeting. Today's activities will  
include: continue drum logs in Building 1;  
continue hazard categorization activities;  
begin getting HCL drums in Building 2  
ready for shipment. 3 drums labeled HCL  
in Building 2 are not the same material as other  
drums; Prepare Building 1 to begin sampling activities.  
Safety Considerations: drum sampling, open study,  
look for damaged, bulging drums — (12)

0730: ~~Little~~ due to rain expected throughout  
the day, STACT will not deploy DustTraks  
or SPM Flexes except for units at AM-2.  
STACT calibrated AreaRAE, zeroed DustTrak #2,  
and started SPM Flex unit #2. — (12)

0800: Deployed air monitors at AM1, 2, 3, 4,  
and started VIPER runs. — (12)

0830: Crews enter work areas to begin daily  
activities. Team #1 entered Building 1 to  
continue labeling and filling out drum logs. Team  
#2 entered Building 2 to begin consolidating  
some acid drums that are actually filled.  
STACT deployed SPM Unit #3 to ensure

## Electro Plating Services 6/23/17

Upgrading to Level 5 is not necessary.

HCL ~~and~~ max ~ 3 ppm, — (12)

0900: VOCs 5.0 at AM1. Likely due  
to humidity causing drift issues. Confirmed  
only background VOCs present using  
MultiRAE. ~~Zero~~ Fresh air calibrated unit and  
re-deployed. — (12)

1000: crew breaks — (12)

1030: crew returns to work areas to  
continue morning activities. Team #2  
completed consolidating acid drums and  
started cleaning drums in Building 2 to prepare  
for off-site transport. — (12)

1230: crew breaks for lunch. — (12)

~~After~~ Prior to lunch break, crew began  
moving some items out of the lab area (rusty  
scales, bottle ware, trash items) to make room  
for activities.

1500: Crew is setting up fuel areas in the Summit  
Zone. All activities inside the buildings complete.

1600: Collected air monitors and stopped VIPER runs.

1730: STACT Teams off-site.

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Kes

6/26/17

0700: START Thomas and Browning onsite. Attended daily safety meeting. Today's tasks will include: sampling containers in Building 1; continue hazmatting; continue container cleanup in Building 2. Weather: 56°F, sunny, 79% Humidity, Wind: W @ 8 mph.

0730: START calibrated Area RAEs, Zeroed

DUST Traks, and started SPM Elctes. (2)

0815: Deployed air monitors to 4M-1, 2, 5, 6 and started VIPER runs. (2)

0830: Crew prepares to enter work zones. Team #1 entered Building 1 to begin setting up air lines for sampling activities. Team 2 entered Building 2 to continue cleaning off drums and making sure containers are shippable. (2)

0915: Team #1 entered Building 1 in Level B pre and began sampling activities. No elevated air monitoring results detected. (2)

1000: (2) MDEQ representative onsite meeting with OSC to discuss activities and progress.

1100: Crew breaks.

1130: Crew returns to morning activities. Team #1 continued collecting samples in Building 1 on the plating bath level. Team 2 re-entered Building 2 to continue cleaning drums for shipping. (2)

1230: Crew breaks for lunch.

1445: Crew re-enters work zone to continue activities. Chemist continues haz-cutting samples from coner boxes.

1600: crew breaking down equipment and cleaning up for the day. Securing doors.

1630: Start collected air monitors and stopped VIPER runs. (2)

1730: START Thomas & Browning off site



0700- STARTS Browning and Thomas are on site. Weather: 54°F; mostly sunny; wind out of NW at 6 mph. HTB

0703- Daily activity and Hand S takes place.

0719 Topics: ① respirator and respirator maintenance, regardless of age; ② chemical hazards; ③ physical hazards; ④ back strains while sampling; ⑤ haz-cathing work; ⑥ splash hazards; ⑦ operating the EPA air trailer; ⑧ PPE use

0730: Calibrated AreaRAES by MultiRAE, zeroed DustTraks & started PM Flex and deployed at AM-1, 2, 5, & 6. (E)

0800: started VIPER runs. Team #1 preparing to enter Building 1 to continue collecting samples.

On 6/26, the crew identified a drum with Sodium hydrosulfite. The drum was originally located on the second floor near the lab area. NO sample was collected and the drum was not opened. The crew will set up disposal based on an SDS.

The container appeared to be unopened from the manufacturer.

0900: Team #2 entered Building 2 to continue cleaning drums for shipment and moving drums to new pallets. No elevated air monitoring readings.

1030: crew breaks.

1100: Crews prep to re-enter work zones to continue activities. Team #1 placed a ~15 gallon metal drum of sodium hydrosulfite into our pack. No elevated air monitoring levels detected. (E)

1300: Crew breaks for lunch. (E)

1400: Team #2 re-enter Building 2 to continue morning activities. Team #1 cleaning and setting up areas in the support zone.

~~1630: collected~~ (E) 1600: START entered Building #2 to photograph drums to containers that have been sampled so far. (E)

1645: Started VIPER runs to collect air monitoring equipment. (E)

1730: START Thomas & Browning off site.

Cy

0700- START Browning is on site. Weather:  
53°F; mostly sunny; wind: SSW out of 4mph.  
START Thomas also on site. — MTB

0702- Daily activity and Hand S meeting takes

0719 place. Topics: ① fire safety and fire extinguisher use and classes / types of extinguishers and locations; ② chemical hazards; ③ physical hazards; ④ levels of PPE, based on activities; ⑤ adherence to exclusion zone. — MTB

0730: Calibrated Area RAEs, Zeroed DustTraks, and started PM Flexes. Deployed to

AM-1, 2, S, & 6 — (K)

0810: started VIPER runs. Crew is completing monthly equipment maintenance. — (K)

0900: Crews enter work zones to begin daily activities. Team #1 entered Building 1 to begin collecting samples from staged drums in the building. Team #2 entered Building #2 to continue cleaning off drums and placing drums on new pallets.

1015: Crew breaks. — (K)

1100: Crew returns to morning activities. Team #1 returns to Building 1 to collect samples. Team #2 returns to Building 2 to move pallets and continue cleaning off drums & containers. — (K)

1315: Crew breaks for lunch. — (K)

1400: Teams return to morning activities.

1430: START, FEEs, and EPA identified 6 potential geoprobe locations (2 along the south side of the building, 2 along the north side, 2 along the west side).

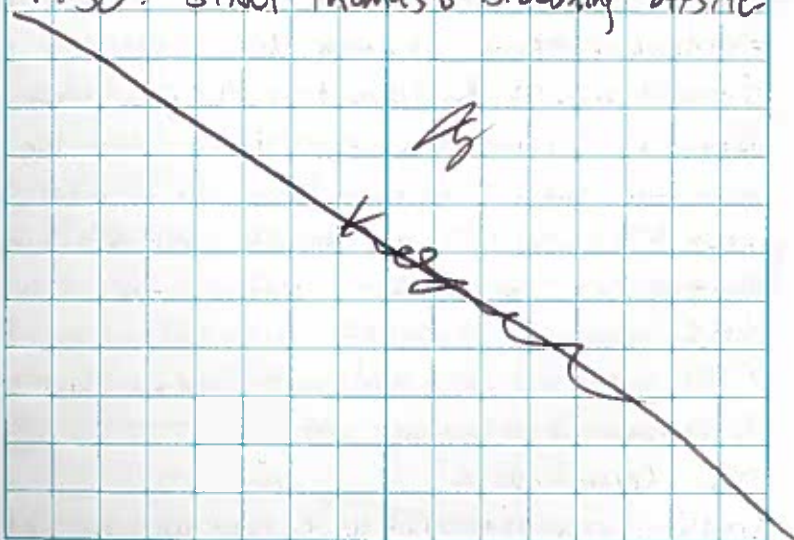
Geoprobe scheduled for 7/5/17 — (K)

1600: Crew breaks. — (K)

1630: Crew begins cleaning up for the day, locking entrances, and filling bottles on the EPA Air Trailer. — (K)

1645: Collected ~~AM~~ air monitors to stop VIPER runs. — (K)

1730: START Thomas & Browning off site.





0700: START Thomas & Browning onsite. Attended daily safety meeting. Weather: 70°F, 60% humidity, winds: SSW @ 12 mph, overcast after rain/storms possible. Today's activities will include: Continue collecting sampling in Building 1, continue hazcatting samples from containers in Conex boxes and Building 1. Begin segregating drums in Building 2 based on haz-cat results. Safety topic: watch for trips, slips & falls. ————— (18)

0730: calibrated AreaRAEs, zeroed DustTracs, and started SPM Flexes. Deployed to AM-1, -2, S, & 6. ————— (19)

0815: Started VIPER runs. Crews preparing to enter work zones to begin daily activities. Team #1 entering Building 1 to begin sampling activities. Team #2 entered Building 2 to begin segregating containers based on haz-cat results. 0855: VIPER alarm at AM-6, VOCs > 5.0 ppm. AreaRAE unit appeared to be drifting. START checked the location with MultiRAE, VOCs = 0 w/ MultiRAE. START fresh air calibrated unit. VOCs = 0 after fresh air calibration. ————— (20)

1000: crew breaks.

1045: crew prepares to reenter work zones to

Continue activities. Light rain begins. START collected SPM Flexes and LINGS located outside and stopped VIPER run until rain stops. ————— (21)

1200: START and USC Edwards entered Building 1 to observe activities and view building conditions. ————— (22)

1230: START redeployed 2 AreaRAEs to restarted SPM Flex runs. ————— (23)

1235: Alarm at AM-1 VOCs > 5.0 ppm. START had just restarted the unit. Exceedance was likely due to restart. Fresh air calibrated unit and VOCs = 0.0 ppm. ————— (24)

1300: crew breaks for lunch. Team #1 finished collecting samples from all staged containers in Building 1. Through 0408 and 5. ————— (25)

1500: 1400: Team #2 returned to Building 2 to continue activities. Team #1 cleaning up for the day. ————— (26)

1645: Start collected air monitors and stopped VIPER runs.

1730: START Thomas & Browning offsite. ————— (27)

Oh ~~\_\_\_\_\_~~  
Rite in the rain



Electroplating Services 6/30/17

0700: START Thomas to Grounding ans. + e. Attended Site Safety Meeting. Today's activities will include: continue hazard categorization; gather collected samples inside the building and store inside the building; continue segregating haz-cat'd containers; stage and cut/crush ECR & empty drums; start prepping the site and secure for holiday break. Safety Topic: stay focused on tasks prior to break. Weather: 68°F, Overcast, 92% Humidity, winds: SW @ 5 mph. Crew reported finding several very strong acids (nitric to sulfuric) during sample collection. (10)

0730: Calibrated Area RAEs, Zeroed Dust Traps, and started SPM fixers. Deployed at AM -1, 2, 5, & 6. (10)

0815: started VIPER runs. Crew entered buildings to begin daily activities. Team #1 entered Building 1 to continue boxing samples and spring inside the building. Team 2 entered Building 2 to continue segregating containers based on haz-cat results. (10)

1000: Crew breaks.

1045: Team #1 reenters Building 1 to begin cutting empty poly drums. Crew using floor

6/30/17

dry and/or caustic material (in empty acid drums) to soak any residuals prior to cutting drums. Crew then cuts drums and loading into plastic bags and loading in to the roll-away dumpster. (10)

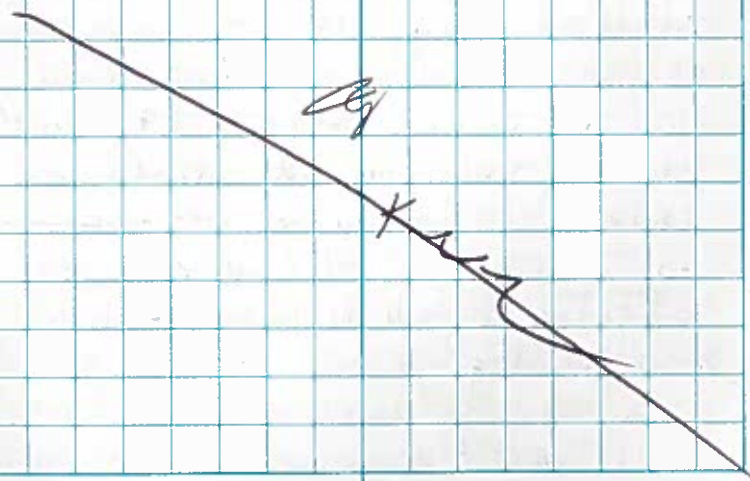
Team #2 entered Building 2 to continue segregating drums. (10)

1245: Crew breaks for lunch. (10)

1330: Crew is finished inside the buildings for the day. There have START collected air monitors and stopped VIPER runs.

1400: Crew cleaning up and securing the building for the weekend. (10)

1530: START to ERS to OSC church. off, etc.





Electro Plating Services RV 07/05/17

0700: START Thomas & Browning onsite. Attended site safety meeting. Today's activities will include: cutting and crushing RCRA empty drums from building 1; open doors and hays after the long weekend; uncover and prepare roll-away dumpster for off site disposal; move 9 drums of haz-eated HCl drums from Building 1 into Building 2 with other HCl drums; Geoprobe will be onsite to drill holes in ~~the~~ <sup>the</sup> to determine site geology. Weather: 63°F, mostly sunny, 73°F <sup>(10)</sup> 73% humidity, Wind: 1 mph west.

0800: Geoprobe onsite. At location 1, west of the building, sand and gravel to ~1 foot bgs, clay 1-3, sand fill 3-4' bgs.

Second section: 4-7' bgs fill sand, 7-8' sand and sandy clay, wet, appears to be clean with no visual or olfactory signs of contamination.

Section 3: sand and sandy clay 8-9, wet, 9-10.5: sandy clay. No visual or olfactory evidence of contamination.

0933: Location 2 at NW corner of the building outside the footprint of the former building. Section 1: Gravel and fill 0-2, whitish-blue/gray fill ~1-2 bgs, likely concrete or cement fill, 2-4' bgs

7/05/17

Sand and silt.

Section 2: Sand and gravel to ~5 feet bgs, wet sand to 7 feet, sandy clay to 8 feet. No visual or olfactory evidence of contamination. 8-9.5 wet saturated sand; no visual or olfactory evidence of contamination.

9.5-12, hard clay.

Location 3 north of the building 0-8 inches concrete, 1 foot to 3.5' sand appeared native. 3.5 to 4' brown/black sand, slight odor.

At 4', geoprobe reached refusal.

Location 4: north east corner of the building. Section 1: ~5 inches concrete. 6" to 1' gravel 1' to 4' sand with periodic locations of dark brown/burgundy sandy material. 4-5' wet/saturated sand.

Section 2: 5-8' sand mixed with black/brown material. 8-9' saturated sand. 9-10' clay layer.

115: Geoprobe off site. Backnote: START completed calibration of AreaRAEs, zeroed dustTraks, and started SPM Flex units. Crew began entry into



Building #1 to cut empty drums — (C)

1215: Crew breaks for lunch — (C)

1330: Crews preparing to reenter work zone.

to continue cutting empty drums in Building 1.

Back note: START collected a sample at — (C)

background locations 3 & 4 for lab analysis.

Samples will be submitted by FRES for analysis for pH, CN<sup>-</sup>, hexavalent Cr, and total metals.

1530: crew breaks. — (C)

1550: crew reenters work zone to continue cutting and crushing empty drums and loading into the roll-off dumpster. — (C)

1710: crews cleaning up for the day.

1730: START Thomas off site.

all

0700: START Thomas to Browning inside. Attended Daily Safety Meeting. Today's activities will include: Preparing roll-off dumpster for off-site transport and receive new/empty roll-off dumpster; finish cutting empty poly drums and dispose in roll-off; Continue segregating waste streams / moving hazardous drums from Building 1 into Building 2 that are the same material; Shrink wrap and prep hazardous materials in Building 2; Weather: 64°F, 78% Humidity, partly cloudy, calm winds; hot and humid throughout the day.

0730 START calibrated AreaAIs, zeroed DustTrak & PAF, and started SPM Fluctuants

0800: Deployed air monitors to AM-152, 5, & 6. Used PDR at AM-1. Started VIPER runs. — (C)

0830: crew prepares to enter Building 1 to continue cutting empty drums, and begin staging HCL containers to wrap and move into Building 2.

1000: crew breaks. — (C)

1045: crew entered Building #2 to begin staging and shrink wrapping drums on pallets. Crew moved 32 containers of ACL from



7/6/17

Building 1 into Building 2.

1200: Crew breaks for lunch.

1320: Truck on site to deliver empty roll-off dumpster and pickup full dumpster.

1330: Truck off site with full roll-off dumpster with non-haz debris/trash for disposal.

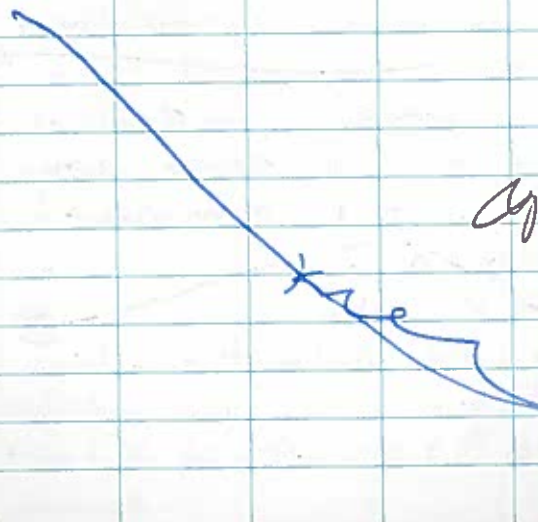
1400: Crew returns for morning activities; wrapping HCl drums on pallets in Building 2 and rest tagging and segregating drums in the building.

1530: VIPER alarm at AM-5. PM. 10 to 2.5.

Crew knocked over air mon. hrs onto the ground. Exceedance likely due to this event.

1645: Stopped VIPER runs and collected air monitors.

1730: START Thomas & Browning off site.



7/7/17

0700: START Thomas & Browning on site. Weather 65°F, rain & thunderstorms expected throughout the day. Today's activities will include: continue segregating waste streams in Building 2; begin inventorying vats for samples in Building 1; set up hose for pumping haematite water; determine which containers in Building 2 will need to be repackaged. Crew encountered a potassium cyanide drum in Building 2 in a poor container. Crew will evaluate condition of the drum prior to moving.

0730: START calibrated area RAEs to started SPM Flexes. Will not deploy DustTraks due to rain expected throughout the day.

0800: Deployed air monitors to AM 1, 2, 5 & 6.

0815: Crews prepare to enter work zones. Team #1 prepares to enter Building 1 to begin labeling vats. Team #1 enters Building 2 to continue segregating waste streams based on HAZ-cat results.

0820: VIPER alarm at AREA RAE #3 at AM-5. Crew ~~opened~~ drove the hi-low directly next to the unit. Likely caused the exceedance.

0900: Team #2 working to make corrections to ~~set~~ continue segregating centering in Building #2.

Rite in the Rain



7/17/17 7/17/17

1030: crew breaks

1100: Team #1 reenters Building 1 to continue inventorying vats and filling out drum logs. Team #2 cleaning up CRZ and other areas of the

Site

1240 Crew breaks for lunch.

1330: crew reenters work zone to continue morning activities. Team #1 entered Building 1 to continue inventorying vats and contents. No elevated air monitoring readings detected while crew was inside the building.

1530: crew breaks.

1640: Stopped VIPER runs and collected air monitors. Crew cleaning up for the day and gathering equipment.

1730: START Thomas &amp; Browning off site

dy

Xes

7/10/17

0700: START Thomas &amp; Browning on site.

Weather: 68°F; mostly cloudy, rain expected early afternoon; 76% humidity winds: SSW

@ Simon Attended Daily Safety Meeting:

Today's activities will include: Continue vat inventory in Building 1; begin sampling vats in Building 1 (reported that eastern drums vats are cyanide solutions); begin setting up hose for pumping basement pit; begin staging and inventorying tubes in basement; move basement vats into back Conex box using forklift as needed to increase room inside the building.

0730: Calibrated AreaRAEs &amp; started SAM Flex units. START will not deploy. PostTrak and will deploy only interior SAM Flex. due to heavy rains expected throughout the day.

0800: Deployed air monitors to AM-1, 2, 3, 4 and started VIPER runs.

0830: Crew prepares to enter work zone to begin sampling vats in Building #1. Crew in Level C are to sample vats. Observed one firing drum in the vat area. Cilicely acid, drum is loosely covered. No elevated air monitoring results detected.

1020: crew breaks. VIPER alarm near AM-1

Rite in the Rain



7/10/17

- VOCs > 5.0. Likely due to instrument drift. 0.0 reading at the location with MultiRAE. START Fresh air calibrated the unit and redeployed.
- 1100: Crew reentered Building 1 to continue collecting Vats samples. Additional VIPER exceedances at AM-1 with VOCs > 5.0. Re-calibrated AreaRAE at the location and redeployed.
- 1245: Crew breaks for lunch. Crew completed collecting samples through V040. Crew does not plan on moving tanks or drums from the basement until rain stops possibly tomorrow.
- 1350: VIPER alarm at AM-1. VOCs > 0.0. Issues are likely due to humid/rainy conditions. START ended run for AR-1 and will monitor location with MultiRAE periodically to eliminate false positive hits.
- 1400: Crew reentered Building 1 to continue collecting samples from Vats and tanks in the basement. No elevated air monitoring readings in the AZ. Several Vats had HCN ~ 2.0 inside the Vats.
- 1600: Crew breaks.
- 1645: Stopped VIPER runs and collected monitoring equipment. Crews cleaning up for the day.
- 1730: START Thomas & Browning off site.

7/11/17 31

- 0700: START Browning arrives on site, along with START Thomas. Weather: 70°F overcast; wind: NE at 3 mph.
- 0704: Daily activity and H and S meeting.
- 0723 takes place. Topics: ① stay hydrated; ② SDSs (location and information); ③ physical hazards of sampling; ④ stand clear of moving equipment; ⑤ pinch points. HTB
- 0730: Calibrated AreaRAE units, zeroed DustTraks and started SPM Fick units.
- 0815: Deployed Air monitors at AM-1, 2, 3, 4 and started VIPER runs. Note: POR deployed at AM-1 while DustTrak is at TSI for calibration and service.
- 0830: Crew entered work zone to continue collecting samples from Vats & tanks associated with water treatment system on second floor. No elevated air monitoring readings detected.
- 0945: Crew breaks.
- 1030: Crew reenters Building 1 to begin staging containers in the caner box outside.
- 1100: Crew moved a drum that appeared to be empty but was not. HCN = ~15 ppm.

Rite in the Rain



7/11/17

Crew covered the drum, moved to a new location, and exited the area. HCN = 0.0-0.5 ppm following initial ~~hit~~ <sup>10</sup> instantaneous exceedance.

1200: crew breaks for lunch. ————— (4)

1300: Crew prepares for center work zone to  
unhinge staging drums in the containers in the  
north corner box

330. START Battle on site for site walk through and introduction.

1400. Crew is moving 5-gallon containers from the plating area to the northern corner box.

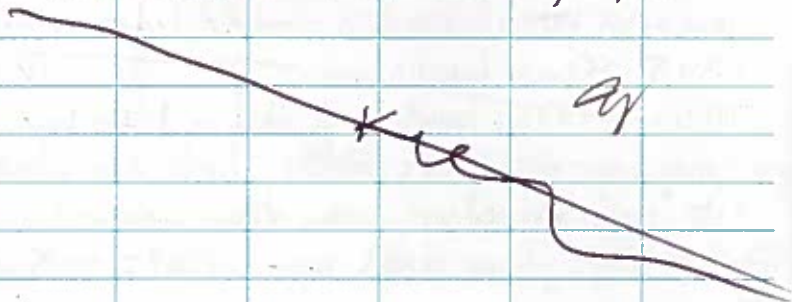
No elevated air monitoring results detected

1500: START Berthles off site and crewbrates

1600: Thunder and light rain begin. Collected  
exterior dust traps to SPm Flex units. Stopped  
VIPER runs.

1645, collected the remaining air monitors & stopped VIPER runs. ————— (1)

1736: START thanks to Browning offsite.



0700- START Browning and Kelly arrive on site. Weather: 73°F; overcast; winds: SW at 7 mph. \_\_\_\_\_ HTB

0704- Daily activity and H and S meeting takes place. Topics: ① staying hydrated; ② near misses (definition and examples); ③ physical hazards associated with sampling (wear HCN monitors); ④ slips, trips, and falls (use step ladder); ⑤ cross contamination

0800: Calibrated Areal AEs, zeroed Out Ints  
and started SPM Flux units. — (14)

0830 Deployed our monitors at AM1, 2, 3, 4  
and started VIPER runs

0845. Crew entered work zone to collect sample containers and continue staging containers in north corner box. Crew also remarked emergency exits using spray paint.

0900. VIPER alarms at Am-1 to 263  
VOCs > 5.0 due to use of spray paint in  
the area of the AREA 1E units. Crew also  
inventoried valves and tanks to fill out drum  
logs.

1000 crew breaks.

1100: create center's Building #1 to collect



7/12/17

samples from containers on the second floor that could not be staged downstairs. Crew also moved containers from the basement into the northern Conex box. ————— (15)

1210. Thunder and lightning storm began. Collected Dust Traps and exterior SPM Flex units from AM 4 and 3. Left AreaRAES at locations.

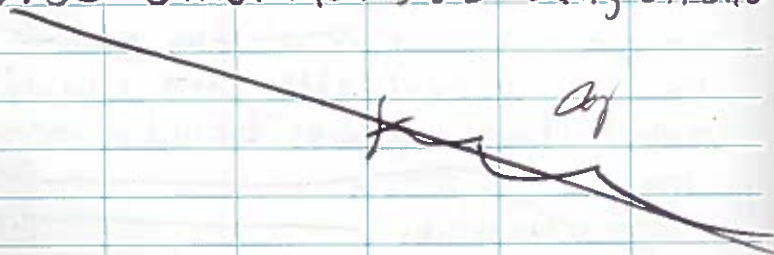
1230. Crew breaks for lunch. Heavy rain begins. Strong storm crew takes cover until passed.

1330. Crew preparing to ~~re-enter~~ (16) re-enter Building #1 to continue staging & inventorying Containers in the northern Conex box. ————— (17)

1335. VIPER alarm at AM-1 VOCs > 50 likely due to instrument drift and not an exceedance. ————— (18)

1400. Crew continued collecting drum samples  
1645. Stopped VIPER runs to collect air monitoring equipment. ————— (19)

1730. START Thomas & Browning, offsite



0700- STARTs Browning and Kelly are onsite. Weather: 70s; overcast with light and steady rain. ————— HTB

0703- Daily activity and H and S meeting takes place. Topics: (1) stay hydrated with a

50/50 mix of water to gatorade; (2) slip, trips, and falls; (3) Keep emergency aisles clear; (4) using care while working near/around the vats; (5) lifting heavy objects (use legs and assistance); (6) fusing acids and unknown chemicals; (7) working near/around heavy equipment; (8) continue wearing HCN meters while sampling; (9) use step ladder while sampling the totes; (10) PPE. ————— HTB

0745. Calibrated AreaRAES to started sam Flex units. On 7/12/17 start replaced CO Sensors in AR 1 & 2 with HCl. START will only deploy SPM Flex units at AM 3 & 4.

0830: Deployed air monitors at AM 1, 2, 3 & 4 and started VIPER runs. ————— (20)

0837: VIPER exceedance at AM-1. Due to instrument drift and high humidity. Attempted to re-zero unit. Turned sensor off to stop erroneous high hits. ————— (21)



11/13/17

0840: Crew enters work zone to <sup>begin</sup> ~~begin~~ <sup>(K)</sup> continue staging and inventorying containers in the north cone box.

1100: crew is moving roll-away dumpster in preparation to receive over pack drums & containers. Crew is also preparing to install hose for pump basement water. Fills chemist completed waste samples of neutral liquids to submit to lab for waste disposal. <sup>(K)</sup>

1215: crew breaks for lunch. <sup>(K)</sup>

1305: crew reenters work zone to collect samples from open totes & tanks in the basement. Crew on level C pre. No containers were opened by crew.

1600: crew breaks. <sup>(K)</sup>

1630: crew preparing level B air lines & other equipment for closed container sampling tomorrow. <sup>(K)</sup>

1645: Stopped VIER runs & collected air monitors. <sup>(K)</sup>

1730: START them as to Browning off site.

0700- STARTS Browning and Kelly arrive on site. Weather: 69°F, mostly sunny, wind: out of west at 6 mph. <sup>(K)</sup>

0705- Daily activity and Hand S meeting takes place. Topics: ① stay hydrated with a Gatorade and water mix; ② the fire triangle (description and examples); ③ electrical hazards; ④ fire extinguisher expiration dates at the site; ⑤ HCN monitors; ⑥ near misses. <sup>(K)</sup>

0730: Calibrated Area RABs, zeroed Asthres and PDR, and started SPM Flow units.

0800: Deployed air monitors to AM-1, 2, 3, 4 and started VIER runs. <sup>(K)</sup>

0830: crew moved to enter Building 1 to clear aisles of debris and trash, and inventory drums & containers in the basement and cone box. No elevated air monitoring readings.

0945: crew breaks.

1030: Crew returning to Building 1 to continue activities. Team #1 cutting empty containers and loading into the roll off box. Team #2 collecting samples from open containers in northern cone box.



11/13/17

0840: Crew enters work zone to begin staging and inventorying containers in the north conex box. (K)

1100: crew is moving roll-away dumpster in preparation to receive over pack drums & containers. Crew is also preparing to install hose for pump basement water. Fills chemist computer with samples of neutral liquids to submit to lab for waste disposal. (K)

1215: crew breaks for lunch. (K)

1305: crew reenters work zone to collect samples from open totes & tanks in the basement. Crew a level CPE. No containers were opened by crew. (K)

1600: crew breaks. (K)

1630: crew preparing level B air lines & other equipment for closed container sampling tomorrow. (K)

1645: Stopped VIER runs & collected air monitors. (K)

1730: START then as to Browning off site.

0700- STARTs Browning and Kelly arrive on site. Weather: 69°F; mostly sunny; wind: out of west at 6 mph. (KTB)

0705- Daily activity and Hand S meeting takes place. Topics: ① stay hydrated with a Gatorade and water mix; ② the fire triangle (description and examples); ③ electrical hazards; ④ fire extinguisher expiration dates at the site; ⑤ HCN monitors; ⑥ near misses. (K)

0730: Calibrated Area PAFs, zeroed DistTraks and PDR, and started SPM Fico units.

0800: Deployed air monitors to AM-1, 2, 3, 4 and started VIER runs. (K)

0830: crew moved to enter Building 1 to clear aisles of debris and trash, and inventory drums & containers in the basement and conex box. No elevated air monitoring readings.

0945: crew breaks.

1030: crew returning to Building 1 to continue activities. Team #1 cutting empty containers and loading into the roll off box. Team #2 collecting samples from open containers in northern conex box.



7/14/17

1130: Michigan DNR representative onsite discussing site activities with OSC Churchill.  
 1200 Crew breaks. Drums & overpacks delivered to site, staged next to roll-off dumpster and decon trailer.

1230. crew breaks for lunch

1400- START Kelly leaves for the day. ERS

1515 crew is continuing its activities related to: ① sorting containers and inventorying these containers; and ② sampling open containers located in the basement; ③ consolidating and removing trash and debris; and ④ cutting apart of some containers. HVB

1530- Activities: ① cleaning the site for the

1730 weekend; and ② prepared for next week's activities by staging new vats in building 2. HVB

1730- START Browning leaves for the day.

*Michael Browning*  
 7/14/17

*Ad*

07/17/17

0700: START Thomas and Browning onsite. Attended daily safety meeting. Weather: 80°F, partly cloudy, winds: NNW @ 7 mph, 80% humidity. Today's activities will include: continue inventory of totes & vats in Building 1, continue sampling containers; continue debris sorting to find additional containers, and clear emergency exits; transfer damaged containers into new containers; hazard categorization.

0730: Calibrated Area AEs, zeroed dust Traks/PDR, and started SPM Flex units.

0805: Deployed air monitors at AM-1, 2, 3, 4 and started VSPR runs. (17)

0830: Crew prepared to enter work zones. Team #1 entered northern corner box to begin collecting samples in level B per. Team #2 entered Building 1 to continue debris sorting activities. (17)

0930: Team #2 collecting and staging drums/containers and inventorying the containers.  
 1000: Crew breaks. (17)

1100: Crew reenters work zones to continue activities. Team #2 continued staging and inventorying containers in Building 1. No elevated air monitoring readings.

*Rite in the Rain*



7/17/17

1235: crew breaks for lunch.

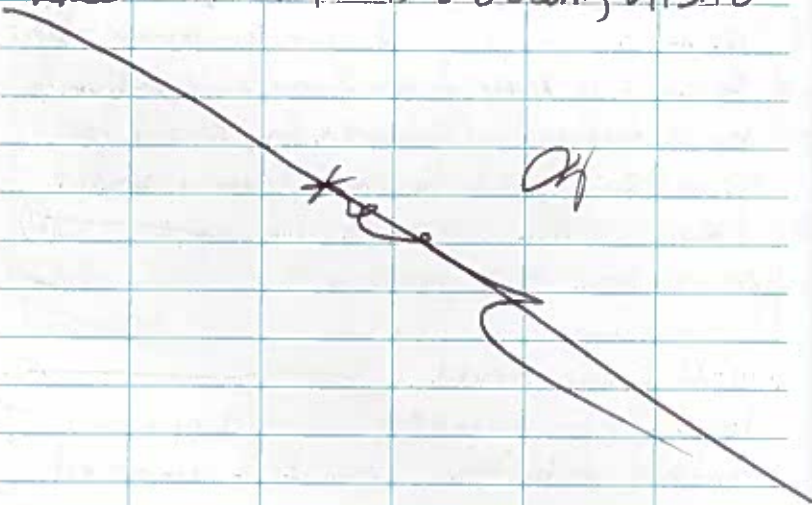
1330: Crew reenters work zones to continue morning activities. Team #1 reenters north Conex box to finish collecting samples. Team #2 reenters Building #1 to continue inventorying & staging containers.

1530: crew breaks

1615: crew moving level B equipment to Building #1 for tomorrow's sampling event. Cleaning up for the day.

1650: Stopped VIPER runs & collected air monitoring equipment.

1730: START Thomas &amp; Browning offsite



7/18/17

0700- START Browning is on site. Weather: 64°F; sunny; wind is calm. MTB

0704- Daily activity and H and S meeting takes place. Topics: ① wind direction and muster point; ② electrical safety; ③ review inventory sheet before opening a drum or bucket; ④ use of HCN meters; ⑤ near-miss concerning the air pack and plumber's tape. — MTB

0730: Calibrated AREAARs, Zeroed DustTraks to pDR, and Started SPM Flex units.

0800: Deployed air monitors to AM1, 2, 3, 4 including pDR to AM1 and SPM Flexes to AM 3 & 4.

0815: STARTED VIPER runs. Crew prepares to enter work zones. Team #1 to enter Building 1 to collect samples from staged containers. Team #2 entered Building 1 to transfer contents of damaged drums to containers to new containers and/or over packs.

0930: Team #2 using hand pumps to transfer acid in damaged drums to new poly drums. HCl  $\approx$  1-2.5 ppm during this time. EPRS RM reported smelling slight acidic smell at the command post. HCl  $\approx$  1.5 at AM 1.

7/18/17

1000: Crew breaks.

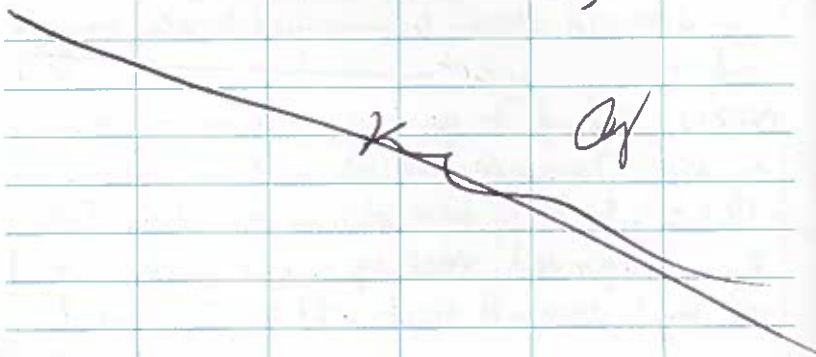
~~1045~~ 1045 Crew preparing to reenter work zones to continue activities. Crew #1 continued to collect samples from staged containers in Building 1. Team #2 continued repackaged damaged drums into new drums and over packs.

1200: Crew breaks for lunch.

1300: Crew reentered Building 1 to continue morning activities. HEI ~ 1.0-1.5 throughout the building. Team #1 finished collecting samples from staged drums/containers in ~~the~~ Building #1 and also finished collecting samples from totes in the basement.

1500: Crew breaks.

1600: Crew cleaning up level B equipment and collecting sample containers from Building 1. Stopped VIPER runs to collect air monitors. 1700: START Thomas & Browning offsite.



7/19/17

0700: START Thomas &amp; Browning onsite.

Attended daily safety meeting. Today's activities will include: Sorting containers in building 1 to find additional containers; Labeling containers that will be shipped out from Building 2. Weather: 71°F, 89% Humidity, partly sunny, wind WSW @ 3mph.

0730: Calibrated area RAEs, zeroed Austrom and started SEM Flex units. START switched AR-1 to AR-1 to Gamma steel units due to HCl sensor incompatibility. START will use AR Gamma steel units going forward.

0800: Deployed air monitors to AM-1, 2, 5, 6 and started VIPER runs.

0830: Crew preparing to enter work zones. Team #1 entered Building 1 to close containers and identify new containers for staging to sampling. Team #2 entered Building 2 to begin consolidation of neutral solid waste streams.

0930: Crew breaks.

1015: Crews return to morning activities. Team #1 cutting empty containers in Building 1. Team #2 in Building 2 repackaging and consolidating drums in Building 2. No elevated air monitoring readings detected.

Rite in the Rain



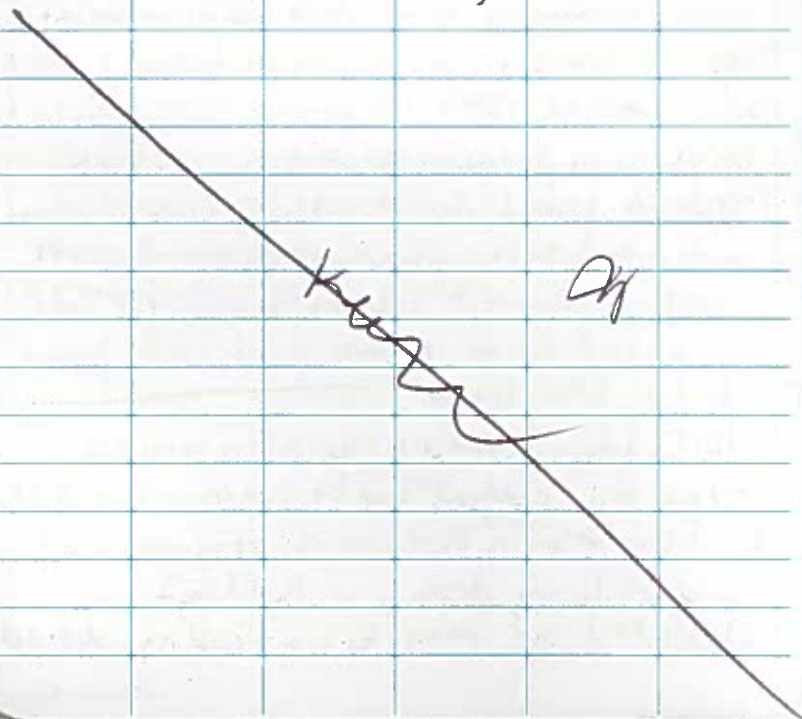
7/19/17

1200: Crew breaks for lunch. (H)

1300: Crew prepares to reenter work zone. Crew moved a cyanide drum from Building 2 into Building 1. The chemist reported that the cyanide drum is the only one reported in Building 2. Crew moved the drum to separate it from acid drums in Building 2. (H)

1500: Due to high heat and humidity, crew will end work at 1530. START collected air monitors and started VIPER runs. (H)

1530: START Thomas & Browning off site. (H)



7/20/17

0700: START Thomas & Browning on site. Weather: 74°F, 90% Humidity, mostly cloudy wind: S @ 5 mph; expected to be hot and humid w/ heat index near 100°F. Attended daily safety meeting: Today's activities will include: container staging to inventory in Building 1; move containers from upper floors to lower levels to prepare for sampling. Pay attention for Signs of heat stress; take frequent breaks. (H)

0730: Calibrated Area 2 PEs, Zeroed dust Traks, and started 5M Flex units. Deployed air monitors to Am-1, 2, 3, & 4. (H)

0800: Started VIPER runs

0815: Crew Prepared to enter work zone. Crew will move containers inside Building 1 to create additional space to stage and sample containers. START entered Building 1 to oversee activities and photo document sampled containers in Building 1. no elevated air monitoring readings detected. (H)

1000: Crew breaks

1100: Crew reentered Building 1 to move containers from upper floors to lower levels. Crew will only work 8 hours

Rite in the Rain

7/20/17

Delay due to high heat, humidity, and high heat index. ———— (P)

1130: Crew moved open oil buckets from 2nd floor and (P) to plating level. And moved drums to containers mixed in with plating baths to the staging areas on the plating level. ———— (P)

1200: Crew breaks for lunch. ———— (P)

1330: Crew reenters Building 1 to continue moving containers from the second floor to the staging area. ———— (P)

1430: Crew breaks. Due to high heat, humidity, and heat index, crew will break for the day after 8 hours. EPRS chemist will remain on site to continue Hazard categorization activities.

1445: Stopped VIPER runs to collect air monitors.

1530: START Thomas & Browning offsite.

~~\_\_\_\_\_~~  
\*  
Og

7/21/17

0700: START Thomas & Browning on site.

Weather: 72°F, 92% Humidity, partially cloudy, winds: NNW @ 3 mph. Heat index above 100°F expected. Attended daily safety meeting. Today's activities will include: continue inventorying containers in Building 1; continue moving/staging containers from upper levels and staging on the plating level; continue removing trash/debris items; haz-acting activities.

0730: Calibrated Area AEs, zeroed DustTraks, and started SPM files. ———— (P)

0800: Deployed air monitors to AM-1, 2, 3, 4; and started VIPER runs. ———— (P)

0830: Crew prepares to enter work zone in Building 1. Team #1 entered building to begin cutting and disposing empty drums. Team #2 inventorying containers. 1 EPRS member will also identify containers throughout the building that still need to be inventoried and sampled. ———— (P)

~250 additional containers identified.

0945: Crew breaks. No elevated air monitoring results observed. ———— (P)

1100: Crew reenters work zone to continue morning activities. ———— (P)



7/21/17

Crew continued inventorying containers and cutting empty drums to disposing in the roll-off dumpster. — (21)

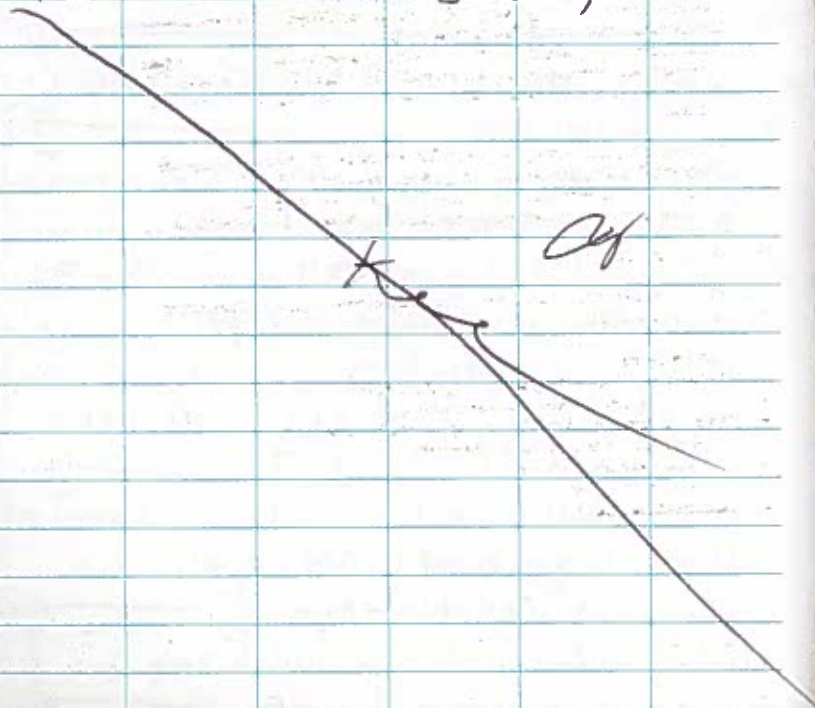
1200 Crew breaks for lunch. — (21)

1320: Crew returns to morning work activities inventorying and staging containers. — (21)

1445: Crew breaks for the day. Stopped VIPER runs and collected air monitors.

1500: Crew cleaning up for the day.

1530: START Thomas to Browning offsite





S 05-0001 - 1703-001

Electro Plating Services  
RV



*Rite in the Rain*

ALL-WEATHER

FIELD

NOTES

Book #3

7/24/17

0700: START Thomas & Browning onsite. Attended daily safety meeting. Today's activities will include: Continue inventorying staged containers in Building 1; continue removing trash/debris removal; tanker truck onsite to remove 1st load of water from basement pit; Tanker can load ~9,500 gallons per load; begin sampling staged containers in Building 1; continue haz eating samples; Weather: 72°F, cooler, less humid; overcast; wind: 5 mph WSW

0730: Calibrated Area RAEs, Started SPM PPMs, and zeroed Dust Traks. (14)

0800: Deployed air monitors to AM-1, 2, 3, 4 and started VIPER runs. (14)

0830: Crew preparing for vacuum truck. Team #1 entered work zone to continue inventorying containers inside building #1. (14)

0915: Vacuum truck #1 on site. Pumping water from basement tank. EHS RM reported some residue inside truck tank, and faint odor. No air monitoring readings taken. (14)

1050: Vacuum truck full. ~9,648 gallons from basement pit pumped to vacuum truck.

1110: Vacuum Truck #1 offsite and crew breaks. (14)

7/24/17

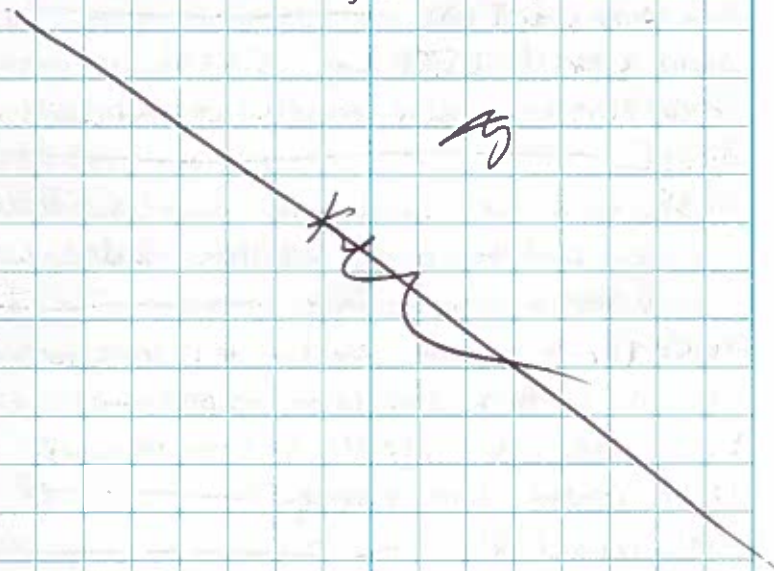
1245: Crew preparing to re-enter work zone. Crew will continue inventorying containers & filling out drum logs. (14)

1440: Truck #2 onsite for pumping pit water. Crew reentered Building to continue inventorying containers to drums. (14)

1520: Truck #2 stopped pumping with 7691 (14) gallons. (14)

1535: Stopped VIPER runs & collected air monitors. (14)

1535: Truck #2 offsite and START Thomas & Browning offsite.





7/25/17

- 0700 - START Browning arrives on site. Weather: 60°F; sunny; cooler temperatures. NTB
- 0703 - Daily activity and H and S meeting takes place. Topics: ① emergency planning (toolbox meetings, etc.); ② HCl loading; ③ levels of PPE
- 0730: Calibrated AREA RAES, zeroed Astetrics and started SPM Flex units. Today's activities will include loading & transport and disposal of HCl drums in Building #2 therefore START will deploy air monitors at AM-1, 2, 5, & 6
- 0830: Truck #1 on site and crew begins loading HCl drums for T&D.
- 0900: started VIPER runs, START Thomas on site crew continues loading pallets of HCl drums onto truck.
- 0935: Crew finished loading drums and Truck off site. A total of 12 pallets loaded with 108 drums total off site.
- 0945: Team #2 inside Building #1 trying to remove sections of the hose used to pump basement water. Hose needs to be shorter to keep vacuum on truck constant during pumping.
- 1000: crew breaks.
- 1110: Truck #2 on site. Crew loading additional

7/25/17 cont. 5

- pallets w/ HCl drums for trans port to disposal. Team #2 entered Building #1 to continue staging containers & inventorying in preparation for sampling activities. Crew also cutting empty drums to containers and disposing spare hoses and cut drums in to the roll-off dumpster.
- 1130: Crew finished loading drums onto truck and truck #2 off site. 12 pallets loaded with a total of 108 drums off site.
- 1230: crew breaks for lunch.
- 1330: crew returns to Building 1 to continue morning activities. Crew is cutting empty containers to hose from the basement to make room for a wire duct for the hose pump water from the basement pit.
- 1530: crew breaks.
- 1615: Crew cleaning up, organizing, and completing other tasks in the Support zone.
- 1645: Stopped VIPER runs to collect air monitors.
- 1730: START Thomas off site.



7/26/17

0700: START Thomas & Browning onsite. Weather: 65°F, mostly sunny, Winds: 5 mph SW. Attended daily safety meeting. Today's activities will include: Continue container inventory; load remaining HCl drums from Building 1 and CN drums and flammable liquid drums for transport to disposal; sample open drums; begin consolidation of neutral liquids and solids in Building 2; continue haz-catting. Safety topics: drum handling; make sure truck drivers adhere to safety protocols.

0730: Calibrated AreaRAES, started SPM Flex, and zeroed DustTraks. Deployed air monitors at AM 1, 2, 5 & 6. ———— (ET)

0815: Started VIPER runs ———— (ET)

0830: Truck #1 onsite and crew loading remaining HCl drums for T&D. ———— (ET)

Team #2 entered Building #1 to continue container inventory and begin collecting samples from open containers. ———— (ET)

0845: Crew finished loading 5 pallets with 45 HCl drums for T&D and Truck offsite for Transport to Disposal. ———— (ET)

0945: crew breaks ———— (ET)

1005 Truck #2 onsite and crew loading 1 pallet with 4 Cyanide drums & 3 5-gallon

7/26/17

buckets with flammable liquids ———— (ET)

1020: Truck offsite for transport to disposal.

1045: Crew entered Building 1 to continue inventory of containers & drums.

1215: Crew breaks for lunch (ET)

1315: Crew preparing to reenter work zones.

Crew entering Building 1 to continue staging ~~to~~ containers. Crew also investigated

basement pit to determine contents & size.

Pit reportedly contains cyanide sludge and

solids. START observed a sump area in

the basement pit that appeared to be hand

dug with earthen bottoms ———— (ET)

1530: Crew breaks. ———— (ET)

1600: Crew entered work zone to

collect samples from open containers. Crew

collected sample from large tank used

for water treatment process. ———— (ET)

1645: Crew cleaning up for the day. Stopped

VIPER runs & collected air monitors.

1730: START Thomas & Browning offsite. (ET)



7/27/17

0700: START Thomas & Browning on site. Weather: 70°F, mostly cloudy, 91% Humidity, Calm winds; attended daily safety meeting. Today's activities will include: continue drum and container inventory; collect samples from open containers in Level CPE; consolidate oil drums in Building 2; continue haz-cathing samples; Safety topic: fire extinguishers. Crew will also conduct bucket bulking tests to confirm material compatibility prior to consolidation. (11)

0730: Calibrated AccuRAE, started SPN flux units, and zeroed dustTrak. Deployed air monitors to AM-1, 2, 5, 6.

0815: Started UTPER runs. Crew prepares to enter work zones. Team #1 entered Building 1 to collect samples from open containers. Team #2 entered Building #2 to consolidate oil drums in poly tote. Prior to consolidating crew placed poly sheeting on the floors of the building and completed transfer activities on top of poly sheeting. (11)

0945: Crew breaks. (11)

1030: crew returns to work zones to continue activities. Team #1 continued collecting samples

7/27/17

from open containers in Building 1. Team #2 continued consolidating oil in Building 2. No elevated air monitoring readings detected. (11)

1200: Crew breaks for lunch. (11)

1200: Crew returns to work areas to continue morning activities. (11)

1550 Activities from 1300-1500: (1) sampling open containers in Building 1 and consolidation of oils in Building 2. HTB

1700 Activities are the same as those that took place between 1300-1500.

1730-START Browning leaves for the day.

*Michael Browning*  
7/27/17

*CB*



7/28/17

- 0700 - START Browning arrives on site. Weather: 64°F, overcast, winds N 7 mph. — HTB
- 0703 - Daily activity and H and S meeting takes place. Topics: ① housekeeping and keeping cords out of walkways and loose objects on shelves and off the floor; ② physical hazards of heavy equipment; ③ haz-calling hazards; ④ levels of PPE, depending on activities; ⑤ boot wash in Building 2; ⑥ high temperatures.
- 0745 - Activities: ① calibration and deployment of air monitoring equipment; ② continued sampling and inventorying of ~~drums~~ opened drums and containers in Building 1, and ③ bulking of materials into a poly vat in Building 2. HTB
- 0945 - Total # of drums transferred today = 5. Materials transferred is neutral liquids.
- 1040 - Activities: ① continued to bulk the neutral liquids in Building 2; ② continued sampling of buckets in Building 1. — HTB
- 1230 - Total # of bulked drums = 17 — HTB
- 1330 - Activities: ① sampling of open drums in Building 1 (total = 80); ② bulking
- 1530

of neutral liquids in Building 2 and ③ sweeping of the floors in Building 2. — HTB

1730 - START leaves for the day. — HTB

Michael Browning  
7/28/17



11/3/17

0700: START Thomas on-site. Attended site safety meeting. Today's activities will include: continue inventorying containers inside Building 1; begin marking vats based on haz-cut results; sample closed containers in Level B area; continue bucket tests and consolidation in Building 2 based on Haz-cut results; crew will make sure that consolidated/transferred materials are marked with correct numbers and waste category. Weather: 64°F, 77% Humid., winds: calm, mostly sunny. Discussed heart stress/~~cramps~~ cramps; exhaustion/stroke. — (P)

0730: Calibrated AreaRAEs, started SPM Flexes, and zeroed DustTraks. Deployed air monitors at AM-1, 2, 5, 6, 6. — (P)

0830: started VIPER runs. Crews prepare to enter work zones. Team #1 entered Building #1 to begin setting up for and sampling closed containers; Team #2 entered Building #2 to consolidate ~~(P)~~ materials inside the building. — (P)

1000: Team #2 conducted bucket bucketing tests with neutral solids. Crew will begin transferring full acid containers to new shippable containers. — (P)

7/3/17 13

1100: crew members work zones to continue activities. Team #2 transferring acids to shippable containers. Crew is not mixing any acids, just transferring full containers to new containers. — (P)

1150: VIAER alarm PM<sub>10</sub> > 2.5 due to moving skid steer inside Building #1.

1245: crew breaks for lunch. Team #1 finished sampling containers inside the building. Team #2 transferred 2 drums to new containers in Building #2. — (P)

1400: crew returns to morning activities

1500: attended warrant meeting at MDEQ - Warren office. discussed CIO activities over the next few days.

1630: Returned to site. Crews cleaning up for the day. Stopped VIPER runs and collected air monitors. — (P)

1730: START Thomas off-site



8/11/17

0700: START Thomas on site. Attended site safety meeting. Today's activities will include: EPA CID will be on site; Crew will begin color coding vats; continue consolidating wastes in Building #2; cut & crush empty containers; clear aisle ways, mark hazards; securing protection due to bud equipment on site (EPA air trailer, air compressor). Weather: 67°F, 74% Humidity, mostly sunny; winds W @ 2 mph. (14)

0730: Calibrated AreaPES, zeroed DustTrak, and started spm Flexes. (14)

0800: Deployed air monitors at Am-1, 2, 5, 6. (14)

0830: Started VIPER runs. EPA CID on site priority to enter work Building 1 to do site clearance, site documentation and begin collecting samples. (14)

0900: Crews entered work zone in Building #1 to mark vats based on color coding scheme. EPA CID entered Building #1 to begin sampling tanks & to test drums. (14)

1100: crew breaks. (14)

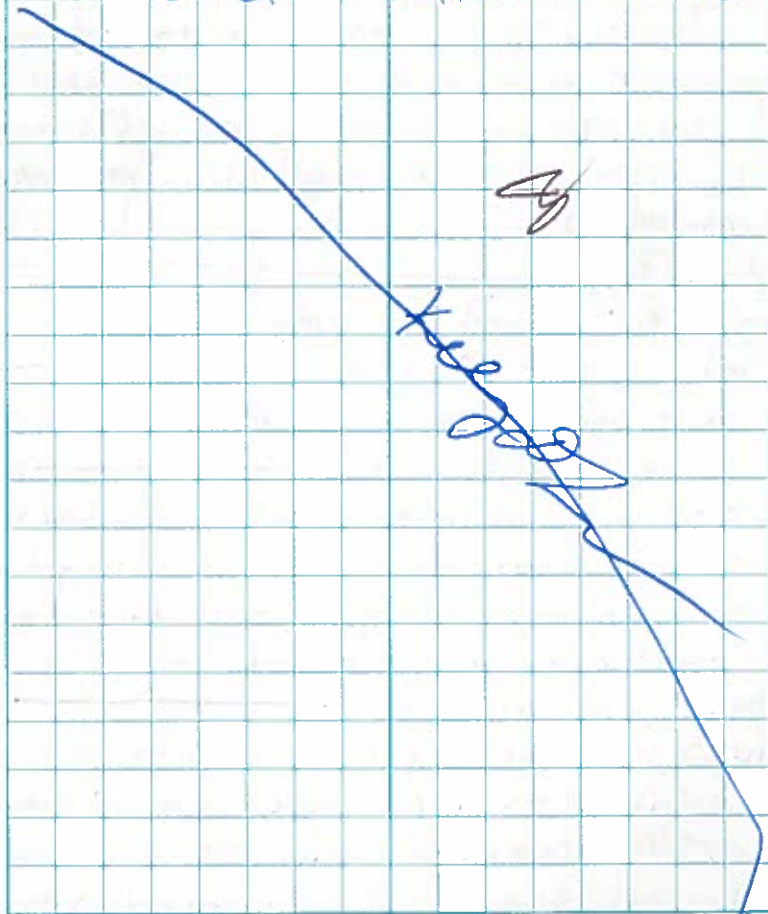
1200: crew re-enters work zone to assist CID with sample collection activities. Crew also delivered additional drums & overpacks from ER warehouse. (14)

8/11/17

1500: Crew entered Building 1 to segregate buckets based on waste category. (14)

1645: Crew cleaning up for the day. Stopped VIPER runs and collected air monitors. (14)

1730: START Thomas off site. (14)



8/2/17

0700: START Thomas onsite. Weather: 68°F, 82% Humidity, mostly sunny, winds W @ 3mph. Attended daily safety meeting. Today's activities will include: Continue color coding containers based on haz-cat results and segregating containers; continue consolidating containers in Building #2; cut and crush empty containers; continue haz catting samples; CID activities will include sample collection. Activities should be completed today. Safety topic: Heat Index expected > 90°; crew will take frequent breaks & drink fluids. (H)

0730: Calibrated Area RAES, Zeroed Dust Traps, and started SPM Fluxes. (H)

0800: Deployed air monitors to AM-1, 2, 5, & 6 and started VIPER runs. (H)

0830: Crew preparing to enter work zones. Team #1 entered Building 1 to identify buckets based on waste categories and segregating.

Team #2 setting up for cutting activities.

0945: crew breaks. (H)

1030: Crew reentered Building 2 to consolidate neutral solids to cut empty drums to containers.

1200: crew breaks for lunch. EPA CID team finishing sampling and documentation activities

8/2/17

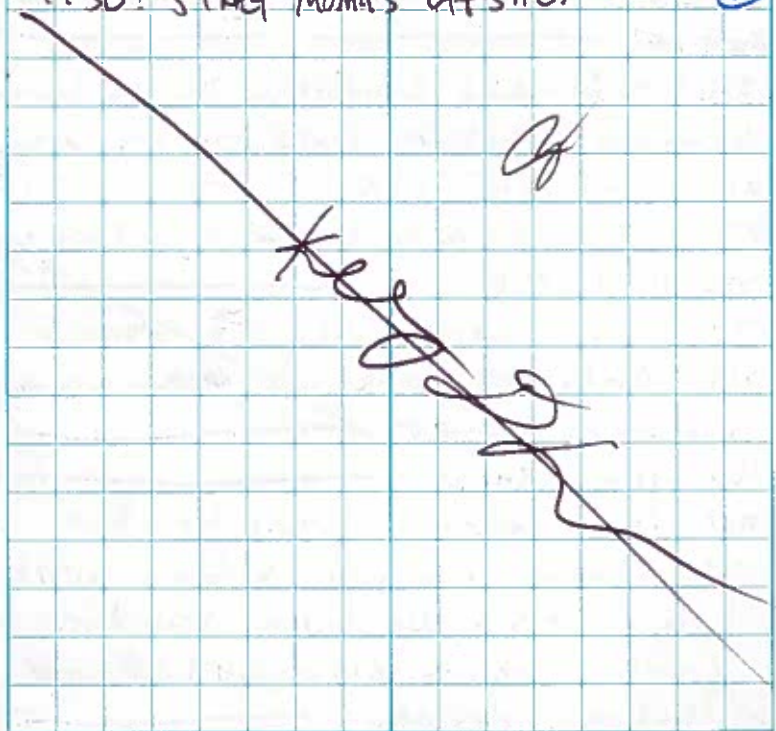
in both Buildings. (H)

1300: crew cleaning up; loading PPE bags and empty drums into the roll off dumpster; moving CID equipment materials, i.e. chairs, tables, tents, back to storage areas.

1500: crew breaks. Cleaning up equipment and preparing the site for the weekend.

1600: START collected air monitors to start VIPER runs. (H) Heavy storms began.

1730: START Thomas offsite. (H)





8/7/17

0700: START Thomas on site. Weather: 61°F, overcast; 92% humidity, calm winds, chance of afternoon rain. Attended site safety meeting. Today's activities will include: continue color coding vats, pits, tanks in Building 1; start segregating waste streams in Building 1; begin bucket testing with Building 1 materials; continue transferring caustic liquids and neutral solids; continue haz-catching samples; cutting empty drums to ~~can~~ containers. Safety topic: working around heavy equipment. (18)

0730: Calibrated AreaRAES, Zeroed DustToks & started SPM flickers. Only SPM-4 working. Will not deploy SPM-3. (18)

0830 Deployed air markers at AM-1, 2, 3, & 4 and started VIPER runs. (18)

0900: Crews entered Building 1 to segregate small containers, mark vats, tanks & pits, and cut empty containers. (18)

1000: crew breaks. (18)

1100: crew reenters work zone to continue segregating containers & begin bucket bulking tests of neutral liquids & caustic liquids. No elevated air monitoring readings detected. (18)

8/7/17

1230: crew breaks for lunch. (18)  
1345: crew reenters work zone to continue morning activities. Crew reported that ~~basement~~ basement pit has risen ~ 1.5 feet since being pumped out several weeks ago. No significant increase has been seen since 8/4 when significant rainfall occurred. (18)

1530: crew breaks. (18)

1645: crew reenters work zone to continue bulking tests and segregating containers  
1650: Stopped VIPER runs to collect air monitoring. Crew cleaning up & securing the site. (18)

1730: START Thomas off site. (18)

24

25



8/8/17

0700: START Thomas on site. Weather: 57°F, clear skies; 93% Humidity, winds SSW @ 1 mph; clear and cooler expected today. Attended site safety meeting. Today's activities will include: continue color coding waste, containers, pits; segregating containers based on haz-cat data; cut/crush empty containers; continue haz-cathing; bucket testing neutral liquids. Safety topic: fire and safety watch. Additional personnel onsite to bid out lab packs of smaller lab containers; roll-off dumpster will be transferred for disposal tomorrow and a new dumpster will be delivered.

0730: Calibrated AreaRAEs, started SAM Flex and zeroed DustTraks.

0815: Deployed air monitors to AM-1, 2, 3, & 4 and started VIPER runs.

0845: Crew preparing to enter work zone in Building 1 to conduct bucket bulking tests of neutral liquids. ~12-15 neutral liquids detected when mixed & will not be combined with the others in this waste group.

1000: crew breaks.

1100: Calibrated MultiRAE Pro. Crew reenters work zone to continue bucket tests crew

8/8/17

completed bucket tests on caustic liquids ~5 samples reacted when mixed in bucket test and will not be combined at large volume. 1200: crew breaks for lunch. START, FDS RM + Chemist accompanied 4 vendors on site visit to view lab chemicals for 6 day lab pack. No elevated air monitoring readings detected during site walk. 1310: crew reenters work zone to conduct bucket tests with acidic liquids.

Crew reported HCN on personal HCN monitors ~15.0 ppm when combining acids. Likely due to cross sensitivity with HNO<sub>3</sub>. No HCN or HCl readings detected on other air monitors.

1500: crew breaks.

1600: crew reenters work zone to conduct bucket bulking tests with caustic solids. No reactions detected (no gas evolved). No readings on air monitors.

1645: crew cleaning up for the day. Stopped VIPER runs to collect air monitors.

1730: START Thomas off site.



8/9/17

0700: START Thomas onsite. Weather: 63°F, clear skies, 79% humidity, Wind: WSW @ 2 mph. Attended site safety meeting. Today's activities will include: continue haz-cating samples, continue segregating waste containers; continue bucket bulking tests; begin consolidating neutral liquids to caustic liquids; continue repackaging containers to clearing out Building #2 for staging consolidated drums; collect samples from waste water treatment tanks for CN analysis. Discussed lock out/tag out procedures.

0730: calibrated AREAARTEs, zeroed dust traps, and started PM flux.

0815: Deployed air monitors to Am-1, 2, 5, 6 and started VIPER runs.

0845: Crew preparing to enter Building #2 to consolidate neutral liquids in a tote. Crew finished consolidating neutral liquids to moved the tote to Building #1. Crew also consolidating solids from neutral liquids drums.

1015: crew breaks

1100: Crew enters Building #2 to continue consolidating caustic liquids and neutral liquids into totes.

1230: crew breaks for lunch.

1315: Crew returns to work zone to continue consolidation activities of neutral liquids to caustic liquids. No visible incompatibilities (gas evolution, heat generated, other reactions) observed.

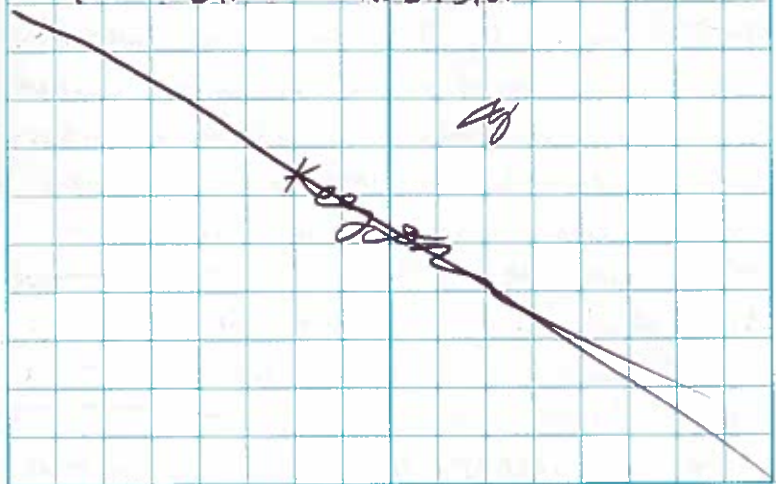
Backnote: Roll off dumpster offsite for disposal at 1200.

1540: crew breaks

1630: crew completing activities on the support zone. i.e. moving new roll-off dumpster into place; loading cut drums into dumpster; staging and checking equipment.

1645: Stopped VIPER runs to collect air monitors.

1730: START Thomas off site.





8/10/17

0700 START Thomas on site. Attended site safety meeting. Today's activities will include: continue haz-cathing samples; continue bucket testing of caustic/acidic/neutral liquids; collect samples from waste water treatment containers; inventory bags; continue consolidating acidic/neutral liquids. Safety topic: Slips/trips and falls. Weather: 67°F, clear, sunny skies; 78% Humidity. Winds: NE @ 1 mph — (P)  
 0730: Started SPM Flex, calibrated ARAEs, and zeroed Data Dust Traks.

0815: Deployed air monitors out AM-1, 2, 3, 4 and started VIPER runs — (P)

0830: Crew preparing to enter work zone and begin work. Consolidating neutral liquids & acidic/caustic liquid groups. Strong odor/mist coming from the building out of the southern bay door. No elevated air monitoring readings.  
 1030: Crew breaks. Crew continued consolidating buckets with neutral liquids. Crew will cut empty containers after lunch. — (P)

1100: Crew returns to work zone to continue consolidating neutral liquids. — (P)

1230: Crew breaks for lunch. — (P)

1330: Crew reenters work zone to continue

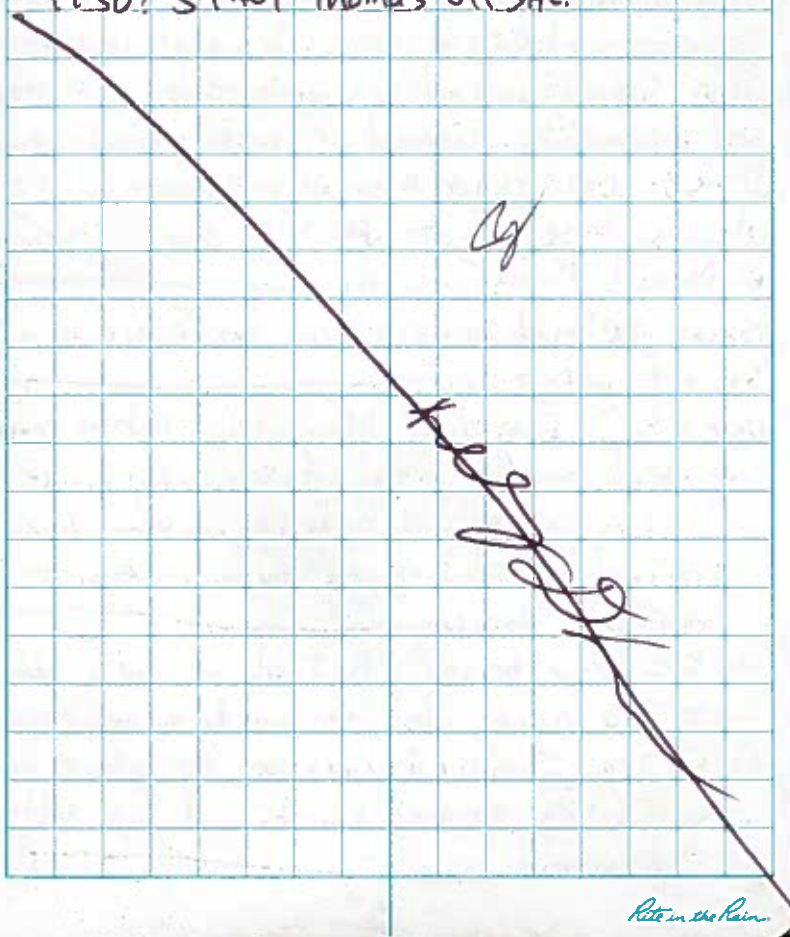
8/10/17

morning activities. No reactions observed while crew consolidated neutral liquids.

1600: Crew entered Building 2 to conduct bucket tests with neutral solids.

~~1630~~ 1645: Stopped VIPER runs to collect air monitors.

1730: START Thomas off site.



8/11/17

0700: START Thomas onsite. Weather: 70°F, rain; 71% Humidity, wind: SW @ 8 mph. Continue hot-catching samples, continue segregating containers in Building 1; continue consolidating neutral liquids; complete bucket tests of neutral liquids in drums to add contents to consolidator waste; cut to crush RCRA empty containers. Safety topic: Sharp edges and power tool safety when cutting empty containers. Delivery of empty totes expected for waste consolidation. 0730: Calibrated AreaRAES. START will not deploy DustTrak to SRA Flex due to rain expected throughout the day. (RT)

0800: Deployed AreaRAES to AM-1, 2, 3, 6, 4 and started VIPER run (RT)

0830: crew entered Building 1 to continue consolidating neutral liquids. Crew also conducting bucket bulking tests with neutral liquids from drums. Crew cutting and disposing empty containers in the roll-off dumpster. (RT)

1030: crew breaks. Delivery of totes, drums, and over packs for consolidating waste groups.

1115: crew reentered work zone to continue consolidating neutral liquids and cut empty containers. (RT)

8/11/17

1240: crew breaks for lunch.

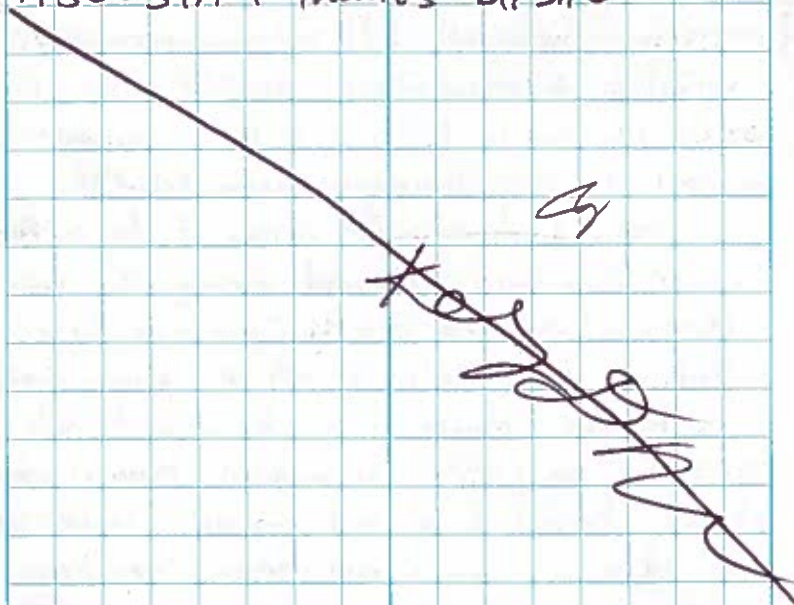
1340: crew reentered Building #1 to continue morning activities: consolidating neutral liquids and completing bucket bulking tests. (RT)

1545: crew breaks. (RT)

1630: crew cleaning up for the day. Securing the building for the weekend. (RT)

1640: Stopped VIPER run (RT) and collected air monitors. (RT)

1730: START Thomas off site.





8/14/17

0700: START Thomas onsite. Attended site safety meeting. ~~Cont~~ Today's activities will include: Continue haz-cathing samples; Continue consolidating containers in building 2; continue segregating waste; cut/crush empty drums to dispose in the roll-off dumpster. Safety topic: Lead awareness. Personal air sampling during lead/cr activities. Weather: 63°F, 85% Humidity; calm winds, mostly sunny. ~~\_\_\_\_\_~~ (K)

0730: Calibrated AreaRAEs, zeroed Dust-Trak and started SPM Elk. ~~\_\_\_\_\_~~ (K)

0800: Deployed ~~4~~ (K) air monitors to AM-1, 2, 3, & 4 and started VIPER runs

0830: crew entered Building 1 to consolidate neutral liquids from buckets. crew also observed ~~1 drum~~ (K) drums in the northern Conex box that corroded through the metal drums and spilled into the Conex box. The material had eaten through the plastic sheeting in the box. Material is Chromium trioxide Oxidizer, toxic, corrosive material. Material appears to have turned from solid → liquid/paste when exposed to air which ate through the plastic sheeting. ~~\_\_\_\_\_~~ (K)

1045: crew breaks

8/14/17

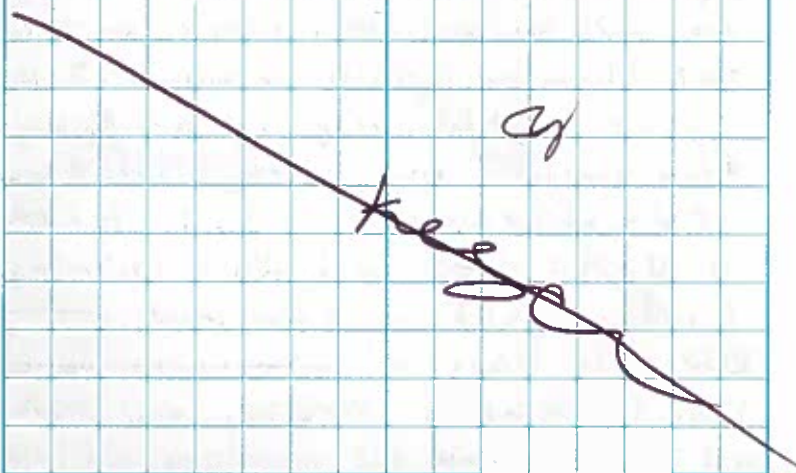
1145: crew cleaning northern conex box, moved all containers out of the conex box; removed poly sheeting and scrubbed areas where spill occurred with degreasing cleaner. ~~\_\_\_\_\_~~ (K)

1330: crew breaks for lunch.

~~1430~~ (K) 1430: crew returned to work zone to continue cleaning northern conex box and repackaged corroded drums. crew identified ~~26~~ additional containers with the same material inside the building. crew will over pack these materials as well and prepare for off-site disposal. ~~\_\_\_\_\_~~ (K)

1645: Stopped VIPER runs to collect air monitors.

1730: START Thomas offsite.





8/15/17

0700: START Thomas on site. Attended Site safety meeting. Today's activities will include: continue consolidating neutral ~~containers~~ liquid containers; begin consolidating acidic liquids; cut/crush empty drums; continue haz-tagging containers; load bags of non-haz waste items into the roll-off; Safety topic: heat stress prevention. Weather: 67°F; overcast, rain expected throughout the morning; 91% Humidity, Wind: NW @ 2 mph

0730: Calibrated Area RAEs. START will not deploy. DustTraks due to rain will not deploy. SPIN Flex bc the location is very close to Am-3. Deployed air monitors to Am-1, 2, 3 & 4 — (4)

0800: started VIPEE run. Crew preparing to enter work zone to continue over packing high-haz Chromium trioxide containers and to continue consolidating neutral liquids in Building 1. Crew completed consolidating neutral liquids and moved items to Building #2. 1 VIPEE exceeding HCN > 9.7. ~~due to~~ likely due to Cr Tri Ox drums. Exceedance lasted only a few seconds. — (4)

1030: Crew breaks. — (4)

1115: Crew reentered work zone. Crew consolidating acid liquids in totes and neutralizing and cutting

8/15/17

empty drums. Crew disposing cut empty drums in the roll-off dumpster.

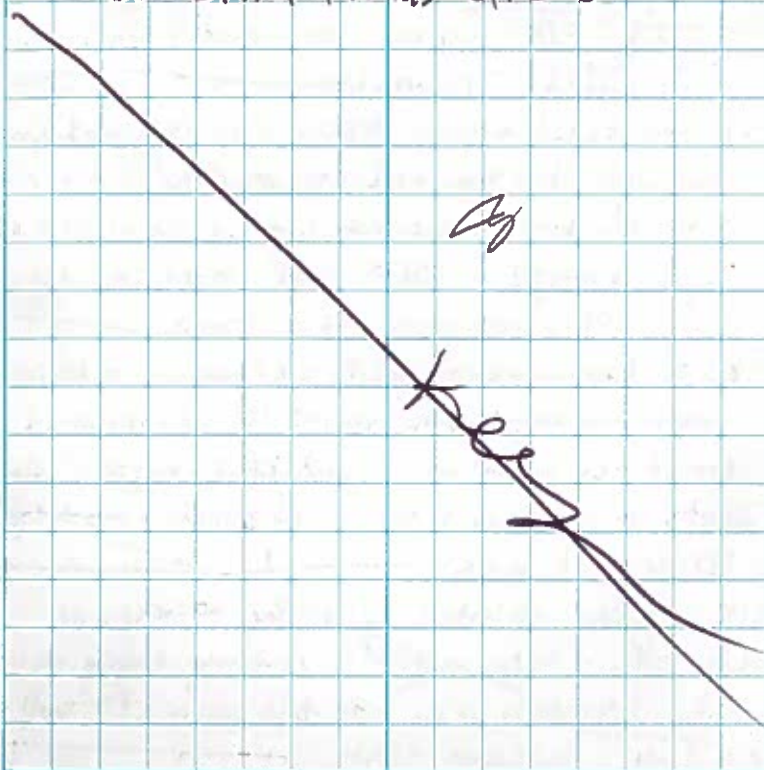
No exceedances detected.

1245: crew breaks for lunch.

1330: crew reenters working to continue morning activities.

1445: Collected air monitors and stopped VIPEE runs.

1730: START Thomas off site.



8/16/17

0700: START Thomas onsite. Attended Daily Safety meeting. Today's activities will include Haz-cutting samples; consolidation of acid liquids in Building 1; continue cut/crushing empty containers; continue consolidating segregating waste containers; bucket testing waste classes. Safety topic: recognizing signs & symptoms of heat cramps; heat stroke; and heat exhaustion. Weather: 67°F, partly cloudy, 51% humidity, wind E@ 6mph. High heat indexes anticipated today.

0730: Calibrated AreaRAEs, Zeroed Dust Traks, and Started SPM Flex.

0815: Deployed air monitors at AM-1, 2, 3, 6, and started VIPER runs. Deployed 1 SPM Flex at AM-4.

0830: crew entered work zone to cut and dispose empty drums in the roll-off dumpster. 1 crew member also conducting bucket bulking tests with oxidizing acid group.

1030: crew breaks

1115: crew reenters work zone to continue activities. Crew continued cutting empty drums and disposing in the roll-off dumpster and conducting bucket tests.

8/16/17

1255: crew breaks.

1350: crew reenters work zone to continue morning activities.

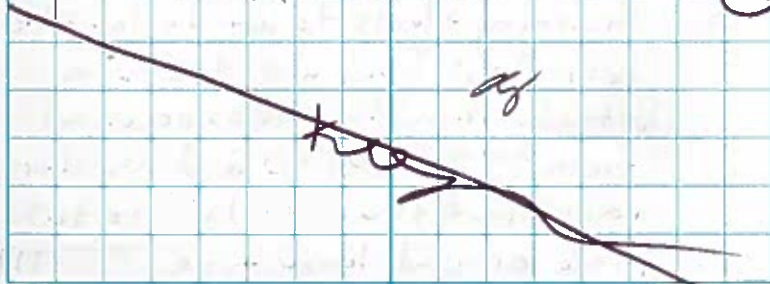
Crew also loaded caustic soda bags/bags (sodium hydroxide solid) into the roll-off dumpster for disposal as non-hazardous waste material. Bags that appeared to be open or broken were placed in poly bags/drum liners prior to placing in the dumpster.

1600: crew breaks.

1630: crew reenters work zone to finish loading bags into the roll off dumpster. Crew loaded ~20 bags of sodium metabisulfite into the dumpster to dispose as non-hazardous waste.

1700: Stopped VIPER runs to collect air monitors.

1730: START Thomas off site.





8/17/17

- 0700- START Browning arrives on site. MTB  
Weather: 73°F. mostly cloudy; wind is  
out of the SE at 8 mph. — MTB
- 0702- Daily activity and H and S meeting takes  
place. Topics: ① slips, trips, and falls;  
② Keep the emergency access paths  
open; ③ Keep work areas orderly, in-  
cluding decon areas. ④ physical hazards  
are pinch points and movement of any  
heavy equipment and movement of con-  
tainers; ⑤ wear proper PPE during the  
consolidation activities. ⑥ crushing  
of RCRA-empty containers; ⑦ main-  
tenance of power tools and the use of  
GFCIs; ⑧ thunderstorms possible/  
likely today; ⑨ cutting safety. — MTB
- 0850- Following the calibration and de-  
ployment of four Area RAE units  
and one SPM Flex unit, START  
Browning elects to not deploy the  
four Dust Trac units due to a  
steady rain that occurred  
from 0720-0840 and another  
rain event that is slated to take  
place around lunch time. — MTB

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- 0750- The ERRS crew members work on  
1010 <sup>MTB</sup> consolidating the acid containers,  
with the likelihood of working on  
<sup>bases</sup> MTB ~~neutral~~ liquids during the next shift.
- 1040- The ERRS crew workers continue  
1236 their activities related to the con-  
solidation of liquids in Building 1.
- 1340- The ERRS crew members consolidate  
1540 neutral liquids. Note: During the  
first entry, a total of 23 buckets  
and 2 drums were consolidated;  
during the second entry, a total of  
7 buckets were consolidated; and  
during the third entry, a total of  
24 buckets were consolidated.
- 1614- The ERRS crew consolidates an add-  
1716 itional 13 neutral buckets of liquid.
- 1730- START Browning leaves the site for  
the day. — MTB

Michael Browning  
8/17/17



08/18/17

0700: START Thomas onsite. attended site safety meeting. Today's activities will include: continue haz rating samples; continue segregating waste containers in Building 1; continue consolidating neutral liquids; bucket-bulking testing in Building 1; set up pumps to testes for pumping caustic liquids from vats; cut/crush empty containers; load non-haz bags into the roll-off dumpster; Safety topic: drum handling: moving drums with chemicals; use fork lift/cart; proper hand tfeet: Physical to chemical hazards; wear proper PPE. Weather: 70°F; mostly sunny; winds: SW @ 9 mph; 84% Humidity

0730: Calibrated Area PPEs, zeroed dust traps and started SPM Flex.

0815: Deployed air monitors to Am-1, 2, 3, & 4 and started VIPER runs.

0830: Crew entered work zone to continue consolidating neutral liquids, cutting empty containers, and bucket testing vat containers. Vats contain acidic, caustic, and neutral liquids, and will be disposed ~~in the~~ by using pumps to transfer into testes.

1000: START observed smell in the ~~site~~ area

8/18/17 37

surrounding the site appears to be petroleum based smell. odor appears to be coming from the building several doors west of the site and not from onsite activities. START to OSC Churchill used Multi-PAC Pro to conduct a walk around the block. No readings on the air monitors, but very strong oil odor observed. Strongest near the open bay doors of the west adjoining property.

1245: Crew breaks for lunch.

1350: Crew continued morning activities.

1600: Crew cleaning up and securing the site for the weekend.

1630: ~~collected~~ collected air monitors and stopped VIPER runs.

1230: START Thomas off site.

8/21/17

0700: START Thomas onsite. Weather: 68°F, mostly sunny, 94% Humidity, Winds: NE

@ 1 mph. Today's activities will include: continue haz-ratting samples; continue segregating wastes based on haz-rat results; continue consolidating wastes in Building 1; continue loading non-haz bags of wastes; begin pumping ~~some~~ neutral liquid vats to totes. Safety topic: Classes of fire extinguishers.

0730: Calibrated AREAAS, zeroed dusttraps, and started SPM filters.

0830: Deployed air monitors to AM-1, 2, 3, 6, and started VEEC runs. Crew entered work zone to begin setting up to pump neutral liquids from vats to totes and continue consolidating drums to buckets into vats. City of Madison Heights present onsite to pump storm sewers. No elevated air monitoring readings observed.

1000: Crew breaks.

1100: Crew reenters work zone to continue setting up for pumping neutral liquids from vats.

Crew pumped vats ~~to~~ V020 and V026 to totes. Both are basic liquids. V026 reportedly foamed when transferring (contains soap/cleaner material). Foam was

8/21/17 39

not associated with a reaction - crew will let foam dissipate during break and continue afterward.

1230: Crew breaks for lunch.

1345: Crew reenters work zone to continue morning activities.

1500: MA representatives onsite flushing and imaging sanitary sewer line. START, EPA, and EES EM went to observe imaging of sewer line. Sewer appears to be caved in (perhaps due to corrosion) near the connection to the ~~site~~ Eastern Site Building. Orange/brown liquid appears to be seeping into the sewer. May be chrome liquid. Contact for sewer video at MHT: Corey Almas 248-501-3584

1700: Stopped VEEC runs and collected air monitors.

1730: START Thomas offsite.



8/22/17

0700. START Thomas on site. Attended daily Safety meeting. Today's activities will include: Continue haz-catting samples; continue segregating waste containers; continue transferring HAZ-Liquid drums to vats to fumes; cut to crush empty containers; Safety topic: reporting near misses to reduce injuries. Pinch points around heavy equipment and tools. Weather: 76°F, wind: SW @ 14 mph, 78% humidity, cloudy, ~~thunder~~ rain/storms expected through out the day.

0730: Calibrated Area RAES. START will not deploy DUSTTraks to SPN Flex due to rain expected throughout the day.

0800 Deployed Area RAES at Amt, 2, 3, 6, and started VIPER run

0830: Crew entered work zone to collect samples from open vats / buckets and drums inside Building #1. Team #2 continued pumping base liquids from vats to fumes. Crew pumped liquids to vats. Crew used drum-vac to pump sludge from vats to fumes. Crew also used power washer to rinse items in the vats (i.e. dip objects, pps, metal, etc.) and rinse the sides of open vats. Rinse water was also vacuumed into vat. Crew will only rinse vats until rinse water is

8/22/17

neutral pH (i.e. not triple rinsing vats).

1020: Crew breaks.

1130: Crew reentered work zone. Team #1 bucket testing next to waste group. Team #2 continued vacuuming out vats with base liquids.

Crew also using power washer to rinse vats to metal items (i.e. pipes, dip rods, etc.).

1300: crew breaks for lunch.

1400: Crew reenters work zone to continue morning activities. Continued bucket tests of acid to neutral liquids and continued transferring base liquids from vats and power washing vats. EHS chemist also haz-catting vat / bucket / drum samples collected.

1600: crew breaks.

1630: Crew reenters work zone to continue bucket testing tests.

1700: Stopped VIPER runs to collected air monitors. Crew cleaning up for the day.

1730: START Thomas off site.



8/23/17

0700: START Thomas onsite. Attended site safety meeting. Today's activities will include: continue haz-catty samples; continue bucket testing acid liquids to neutral liquids; continue transferring base liquids from vats to drums to totes; continue rinsing vats to objects from the vats using the power washer. Safety topic: lead at construction sites. EPRS will use personal air monitors to test for Pb, Cr(VI), Cd, other metals when crew begins hard chrome transfer, and when crew begins sweeping/moving solid materials. — (P)

Weather: 71°F, mostly sunny, 67% humidity, wind: 5 mph NW — (P)

0730: 200ed DustTraks to deployed at AM-1, 2, 3, & 4. Started VIPER run. — (P)

0800: Installed HCN sensors in AE-3 & 4.

START will no longer deploy SPM sensors.

0830: Calibrated area RAEs to deployed to AM-1, 2, 3, & 4. Started VIPER runs. — (P)

0900: crew is transferring base liquids from vats to drums to totes. Crew also transferred drums to containers from Building 2 to Building 1 that still need to be repackaged. Building 2 will be utilized for storage of sealed/sealing containers only. Crew also conducted bucket

8/23/17

bulking tests with acid to neutral liquids.

1030: crew breaks — (P)

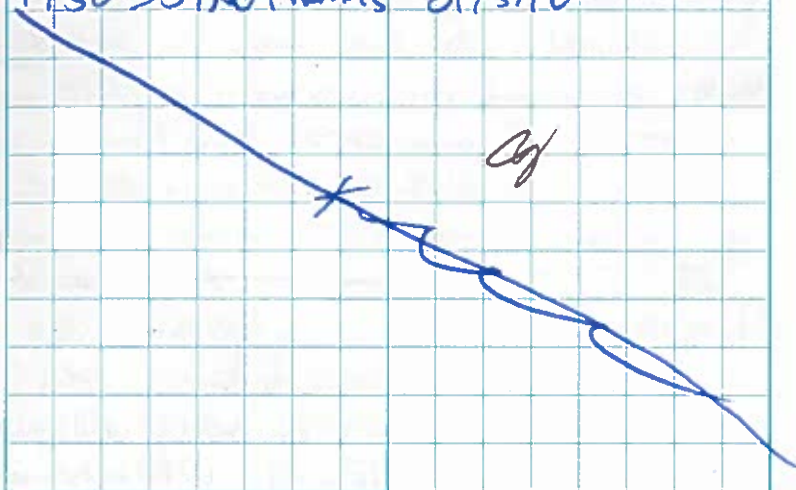
1115: Crew reentered work zone. Crew cutting empty containers. Crew also collected samples from vats with neutral liquids. Chem's will re-haz-cat the contents to test for cyanides, which was not previously tested. — (P)

1230: crew breaks for lunch. — (P)

1330: Crew preparing to reenter work zone to continue morning activities. Crew continued collecting samples from vats to cutting empty containers. — (P)

1645: Stopped VIPER runs to collected air monitors — (P)

1730: START Thomas off site.





8/24/17

0700: START Thomas on site. Weather: 56°F, mostly sunny; wind: NW @ 2 mph, 84% humidity. Attended Daily Safety meeting: 56°F, mostly sunny. Today's activities will include: continue hot-calling samples; continue consolidating base liquids from vats to drums; collect samples of completed waste groups for disposal purposes; cut/crush empty containers. Safety topic: Safety Data Sheets (SDS) use. Crew will also move remaining containers (mostly acids) from Building 2 that need to be repackaged/consolidated. All remaining containers in Building 2 will be repackaged/consolidated containers that are ready for shipment.

0730: Calibrated Analyzers to zeroed AustTrak.

0815: Deployed air monitors to AM-1, 2, 3, & 4 and started USPER runs.

0830: Crew entered working zone to continue transferring neutral liquids from ~~test~~ drums to vats to totes. Crew also transferred ~~neutral~~ base solids from the bottoms of the vats to drums to new containers.

1000: crew breaks.

1045: Crew enters work zone to consolidate acidic liquids from vats to drums to totes. Crew filled ~ 2 totes with acidic liquids. 1 tote appeared to be bulging when ~~test~~ transported

8/24/17 45

to staging area outside the building, crew left the top slightly open to allow gas to off-gas. Crew reported that this acid group reacted slightly when consolidated.

Crew also continued bucket bulking tests with neutral liquids.

1245: crew breaks for lunch.

0345: Crew entered work zone to continue morning activities. Crew moved acid liquid tote back in the building due to apparent reactions observed. Green/brown solid appears to have formed and came out of the tote. No elevated air monitors for my readings. Crew started consolidating 1 drum but fumes appeared during bulking. Crew set aside drum and will grow the drum separately. Crew also collected samples from the waste streams for disposal purposes and continued bucket bulking tests.

~~1500~~ 1530: crew breaks.

1610: Crew returns to activities, bulking acids from vats to bucket tests.

1645: Stopped USPER runs and collected air monitors.

1730: START Thomas offsite.



8/25/17

0700: START Thomas onsite. Weather: 62°F,  
62% Humidity; mostly sunny; wind: NNE @ 4 mph

Attended Daily safety meeting. Today's activities  
will include: Continue haz-cutting samples; collect  
remaining composite samples from completed waste  
samples groups; continue segregating waste streams;  
continue consolidating acid ~~and~~ liquids from vats;  
cut & crush empty containers; clean up & organize

Site for security over the weekend. Safety topic:  
~~refueling equipment~~ refueling equipment. Physical  
hazards; proper ppe. Several drums of Lead  
fluoroborate w/ small quantities of HF have  
been identified. Drums will not be mixed or  
moved due to high toxicity

0800: Calibrated AreaRAEs and 2 Wood Austriaks

0830: Deployed air monitors to AM-1, 2, 3, 6, 4  
and started VIPEE runs.

0900: Crew entered work zone to continue consolidating  
acid liquids from vats into totes. Crew also  
consolidated acid solids from the bottoms of  
drums & vats into poly drums.

1030: Crew breaks.

1130: crew returns to morning activities.  
Crew continued transferring acid liquids from  
vats to totes.

8/25/17

Crew also collected remaining waste  
samples from consolidated materials for  
lab analysis.

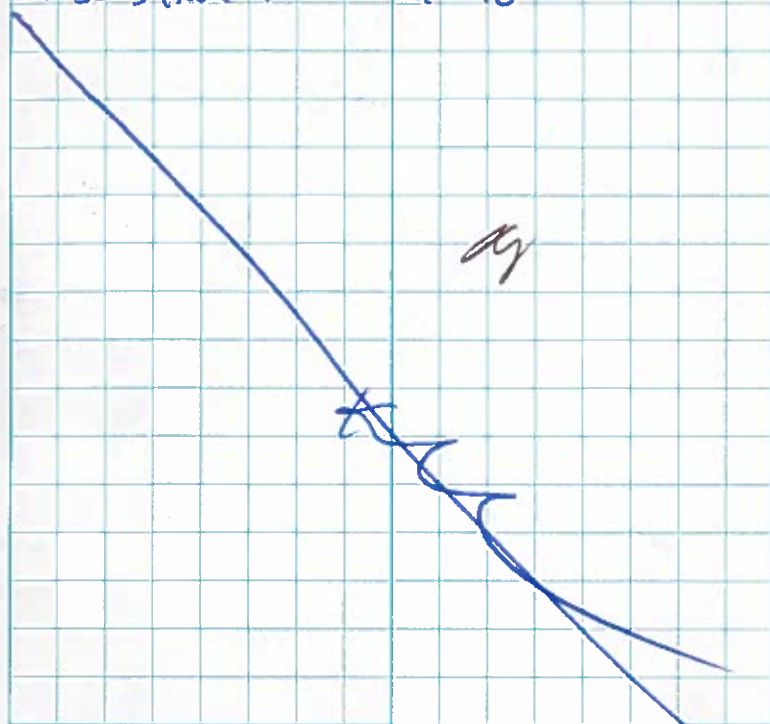
1230: Crew breaks for lunch.

1330: crew reentered work zone to secure  
building for weekend.

1600: crew cleaning up site for weekend.

1630: Stopped VIPEE runs & collected air  
monitors.

1730 START Thomas offsite.



S05-0001-1703-001

Electro Plating Services  
RV



*Rite in the Rain.*

ALL-WEATHER

**FIELD**

Nº 351FX

Book #4



8/28/17

- 0700- START Browning arrives on site. Weather: 63°F, partly cloudy; wind is calm.
- 0701- Daily activity and H and S meeting
- 0718 takes place. Topics: ① pinch points, ② proper lifting techniques; ③ chemical hazards associated with lab-<sup>MTB</sup> packing; ④ levels of PPE by activity; ⑤ hospital routes. MTB
- 0740- Activities: ① ERRS crew is removing the contents from and cleaning <sup>MTB</sup> the
- 1005 Vats 19, 25, and 44. ② the U.S.
- 1055 Ecology crew is continuing its activities related to the lab packing of chemicals in the laboratory area. Screening of the lab area and Vat area indicated no readings above background for O<sub>2</sub>, HCN, LEL, CO and VOCs. — MTB
- 1252 Activities: ① Additional work done on Vat 19 due to acid located beneath the liner. Note: U.S. Ecology crew left at 1332. MTB
- 1550 Activity: ① <sup>MTB</sup> consolidating cleaning the equipment used for pumping out materials.
- 1730- START leaves for the day. — MTB

8/29/17 3

- 0710- START Browning arrives on site. Weather: 65°F, overcast with steady rain. MTB
- 0710- Daily activity and H and S already taking place. Topics: ① use of proper PPE relative to the exclusion zone; ② drum handling; ③ lab-packing.
- 0740- Activities: ① ERRS crew is making <sup>MTB</sup> 1020, room in Building 1 by moving drums 1100- to 200 to Building 2 so that the 1240 pumping activities of neutral liquids can take place; and ② the U.S. Ecology crew is continuing their lab-packing activities in the lab of Building 1. — MTB
- 1405- Activities: ① Preparation of vats for the removal of their contents; ② <sup>MTB</sup> composting of substances from different ~~substances~~ containers to ensure that the materials / substances are compatible. MTB
- 1200- Backnote: U.S. Ecology personnel are off-site for the day. — MTB
- 1520- ERRS crew is consolidating materials 1725 into a vat. — MTB
- 1730- START Browning leaves for the day



8/30/17

- 0700- START Browning arrives on site. Weather: 60s, dense fog, wind is calm. HTB
- 0700- Daily activity and Hand Smeeting takes place. Topics: ① fire extinguishers; ② physical hazards of drum handling and using the pressurized air hoses (inspection of air hoses); ③ hazards of consolidating materials (make eye contact with the <sup>HTB</sup> equipment operators); ④ cutting and crushing RCRA empty containers (hazards associated with blades and use of chemical-resistant gloves). On 8/29/17, ERRS consolidated a total of 21 containers, with neutral liquids, into totes 5 and 6. <sup>HTB</sup> HTB
- 0830- Activities: ① ~~ERRS~~ <sup>HTB</sup> ERRS crew continued consolidated neutral liquids into a tote, and ② transferred neutral liquid from one tote to another tote due to a pinhole leak in the first tote.
- 1025- U.S. Ecology arrives on site to load and haul from the site the lab-packed chemicals from the lab area of Building 1. HTB

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- 1125- The U.S. Ecology personnel finish loading the lab-packed chemicals on the truck. HTB
- 1212- U.S. Ecology crew leaves the site for the day after placing the placards on the truck. HTB
- 1100- Activities: ① The ERRS crew continued consolidating the neutral liquids from drums into totes and ② crushed or cut the empty containers. 1518 Activities: ① removing a total of 23 bags of non-hazardous material from the Building 1, and the placement of this material in the rolloff box. HTB
- 1730- START off-site. HTB

~~Michael Brown~~  
8/30/17



8/31/17

- 0655- START Browning arrives on site.  
Weather: 64°F, partly cloudy; wind:  
8 mph out of the north. MTB
- 0701- Daily activity and H and S meeting  
0731 takes place. Topics: ① housekeeping;  
② impact of good housekeeping results  
in reducing accidents; ③ physical haz-  
ard for the day (heavy hoses, etc.);  
airline inspections; ④ composite the  
materials slowly in order to minimize  
the likelihood of reactions; ⑤ PPE;  
⑥ near miss related to faulty tote;  
⑦ stay focused. MTB
- 0745- Activities: ① Transferring of the  
1008 base liquids, located in the base-  
ment of Building 1, into DOT-shippable  
containers; and ② power-washing  
the interior of T004 in order to  
remove the contents of this tank  
to DOT-shippable containers. MTB
- 1040- OSC Lippert requests that START  
Browning scan, for the site records,  
an official record/form that was  
placed on the front door of the  
Electro Plating facility, that is

8/31/17

from City of Detroit Department  
of Administrative Hearings, and is  
entitled "Request and Order to  
Seize Property." After <sup>MTB</sup> speaking  
with the Electro Plating owner, the  
OSC stated that he will place the  
record/form into the company  
mail box. MTB

- 1055- Activities: ① continued removal of  
1230, the base liquids and solids from  
1330- the totes located in the basement  
1540 of Building 1; ② completion of the  
cleaning out and removal of the  
contents from Tank 004; ③ stirring  
of the contents from in ~~X~~ Vat  
72; ④ removal of the roll off  
box for disposal; and ⑤ the  
delivery of a new roll off box.
- 1730- START Browning leaves the site  
for the day. MTB

*Michael J. Browning*  
8/31/17

*Michael J. Browning*



9/5/17

- 0630- START Browning arrives on site. Weather: low-60s; cloudy; wind out of the west at 5 mph.
- 0705- Daily activity and H and S meeting takes place. Topics: ① dressing for the weather to take in account the morning temps; ② using air-driven pumps; ③ pinch-points near the heavy equipment; ④ reactions around / in chemicals; ⑤ level C PPE and level D PPE. — MTB
- 0753- Activities: ① Pumping contents from Vat #72 into totes; ② pumping base liquids, located in the basement of Building 1, into totes. — MTB
- 1047- Activities: ① Continued work on pumping 1235, the contents from Vat 72 into totes; 1345- ② continued work on removing base 1540 materials into totes; and ③ transferring filled totes from Building 1 to Building 2. — MTB
- 1628- Activities: ① cleaning the pump and hoses that were used with the base liquids and ② continued pumping of contents from Vat 72. — MTB
- 1730- START Browning leaves the site for the day. — MTB

9/5/17

9/6/17 9

- 0700- START Browning arrives on site. Weather: 50°F; clear; wind is calm.
- 0701- Daily activity and H and S meeting takes place. Topics: ① fire triangle, components and ways to stop the triangle from forming; ② physical hazards related to transferring of contents from vats to totes; ③ working near / around pressurized air hoses; ④ working around heavy equipment; ⑤ wear proper PPE; ⑥ use of GFCIs and cut-resistant gloves while cutting drums; ⑦ levels of PPE; ⑧ be careful walking on the second level of Build 1
- 0745- Activities: ① continued to pump the 0958, contents of Vat 72 into DOT-shippable 1031-totes; and ② place the solid basic 1235 material into new drums. — MTB
- 1400- Activities: ① continued removal of 1559 contents from Vat 72 into totes; ② re-sampling the neutral liquids / contents from the vats. — MTB
- 1730- START Browning leaves the site for the day. — MTB

9/6/17

Rite in the Rain



9/7/17

- 0700- START Browning arrives on site. Weather: 55°F; partly cloudy; wind is calm. MTB
- 0702- Daily activity and H and S meeting takes place. Topics: ① equipment refueling, rules to remember (no smoking, keep a fire extinguisher near by, shut off the engine, make sure it's grounded, don't overfill, clean up any spills quickly, put can back in the fuel storage area; ② chemical hazards of fuels and other chemicals present in the building; ③ Levels of PPE. MTB
- 0745- Activities: ① obtaining additional access to Vat 72 by using a saw-zall to cut a hole in the side of the vat (Note: Given the location of the iron grating on top of the vat, EPA and ERRS determined that the only way to gain access to the remaining material in the vat and for decontaminating the vat was to cut a hole in the side of the <sup>MTB</sup> vat. MTB
- 1050- Activities: ① continued work on re-  
1227 moving the contents from Vat 72,

9/7/17 11

- including cut a hole in the north side of the vat in order to gain access to additional material; and ③ collection of the neutral liquids from the vats in order to determine which vats contain cyanide. - MTB
- 1335- Activities: ① removal of contents from Vat 72 and bulking of the nickel-based acid liquid oxidizers; specifically, the nickel-based acid liquid oxidizers. Note: The emptying of Vat 72 is now complete, aside from final cleanup, with a total of 24 totes. MTB
- 1730- START Browning leaves the site for the day. MTB

~~Michael J. Browning~~  
9/7/17



7/8/17

- 0700- START Browning arrives on site.  
Weather: 50°F, clear, wind: west 5mph.
- 0701- Daily activity and H and S meeting
- 0722 takes place. Topics: ① pay close attention when transferring acid liquid oxidizers into the totes; ② location of muster point; ③ slips, trips, and falls; ④ physical hazards associated with the consolidation of drums and use of the air compressor; ⑤ levels of PPE, depending on the activities
- 0735- Activities: ① preparing Vat 73 for 1018, the removal of its contents; ②
- 1105- receipt and staging of the 275-  
1230, gallon totes; and ③ continued  
1332- consolidation of the acid liquid  
1518 oxidizers that contain nickel.
- 1550- Activities: ① staging of the drums  
1715 and buckets that contain oil; and  
③ consolidation of the acid liquid  
oxidizers that contain nickel. MTB
- 1730- START Browning leaves the site  
for the day. MTB

Michael Browning  
7/8/17

9/11/17 13

- 0700- START Browning arrives on site. Weather:  
50°F, cloudy, wind: N at 3 mph. MTB
- 0703- Daily activity and H and S meeting
- 0726 takes place. Topics: ① location of  
the muster point; ② hearing protection;  
③ use of pressurized lines and locking  
connectors; ④ drum handling hazards  
and proper lifting techniques; ⑤  
cutting and crushing of containers  
(use of cut-resistant gloves and  
GFCIs); ⑥ level of PPE. MTB
- 0740- Activities: ① consolidating the acid  
1012 liquid oxidizers (containing nickel)  
into totes. MTB
- 0840- The VOC alarm activated for Air-  
MTB RAE unit 2 due to the FRRS crew  
using spray paint to cover the  
labels of drums that will eventu-  
ally be placed to the rolloff box.
- 1043- Activities: ① <sup>MTB</sup> continued con-  
1236 solidated of the acid liquid ox-  
idizing liquid (containing nickel)  
② cutting and <sup>MTB</sup> crushing drums and  
containers; ③ drumming the acid  
solid oxidizers. MTB

Return to the Room



9/11/17

- 1405- Activities: ① consolidation of the  
 1550 regular acid liquid oxidizers; ②  
 1625- cutting and crushing of drums (metal  
 1715 and poly) and the placement of  
 these drums into the rolloff box;  
 ③ dismantling of a faulty tote.  
 1730- START Browning leaves the site  
 for the day. MTB

*Milad Browning*  
 9/11/17

9/12/17 15

0700: START Thomas onsite. Weather:  
 52°F, mostly clear skies, Wind: SE @  
 1 mph, 95% humidity. Attended site  
 Safety meeting. Today's activities will  
 include: Continue creating bulk samples;  
 begin circulating vat 073 and begin  
 transferring today/tomorrow; continue oxidizing  
 acid oxidizers; continue consolidation of  
 chromium trioxide drums; consolidation of  
 waste oil from building 11; cut and crush  
 empty drums; Safety tip: heavy lifting.  
 Equipment inspections on Wednesday's include  
 vehicles to onsite ~~for~~ equipment (compressor,  
 forklift, pumps, etc). MTB

0730: Calibrated AREAES to zeroed  
 Dust Traks. MTB

0815: Deployed air monitors to AM-1, 2, 3, 4.

0830: crew preparing to enter Building #1 to  
 begin daily activities. Crew will begin  
 consolidating oxidizing liquid containers to  
 new totes & cutting empty containers. MTB

1000: crew breaks.

1100: crew continued ~~work~~ consolidating oxidizing  
 liquids. During consolidation, AR-4 had HCl  
 > 5.0 => set MTB VPRP alarm. START with



9/12/17

small ~~HCl~~<sup>H<sub>2</sub>O</sup> strong odor outside the exclusion zone and acids appeared to be fuming before and during can solidation. Crew ended consolidation activities and moved containers s/n neutralized/cut empty containers. Crew will wait until after lunch to continue consolidation. HCl ~ 1.5pm after activity ended.

1200: crew breaks for lunch

1300: Crew returned to work zone to continue consolidation activities. Crew will dilute fuming acid tote in an attempt to stop ongoing reaction. HCN and HCl > action levels while crew diluted acids. Crew will leave the totes open to allow further reaction throughout the night.

1530: crew breaks.

1600: Crew reentered work zone to cut empty drums & containers. Acid odor still present outside Building #1.

1645: Stepped VIPER runs & collected Airmanibvs. Crew cleaning up for the day.

1730: START Thomas offsite.

9/13/17 17

0700: START Thomas on site. weather: 57°F, mostly cloudy, wind: N @ 5mph, 68.5% Humidity. Attended daily safety meeting.

Today's activities will include: leave reacting tote open and alone until reaction has completed. START & FROES RM observed the tote is still slightly reacting (some heat & gas generation). Discussed mixing acids safely and slowly. Crew should change cartridges often and exit hot zone if break-throughs encountered. Crew will also continue creating composite samples; continue consolidating acid liquids; hazwacating of additional samples; cut & crush empty containers as needed. Physical hazards: inspect hoses and make sure to have someone at the end of the hose during pumping.

0730: Calibrated AreaRAES to zeroed out. 0815: Deployed air monitors to AM-1, 2, 3, & 4 and started VIPER runs.

0830: Crew preparing to enter work zone to continue consolidating oxidizing acids. Crew also conducted new bucket testing on the next containers to be consolidated to ensure no reaction was observed.

1000: crew breaks.



9/13/17

1100: Crew continued consolidating oxidizing liquids. No elevated air monitoring readings detected except when compressor exhaust blew directly on dusttrak and PM<sub>10</sub> exceeded  $2.5 \text{ mg/m}^3$ .

1130: HCl exceedance at AR-4 due to crew completing bucket tests with small quantities of acids to be bulked. Several of the containers will not be bulked with the remainder of the containers due to reactions.

1215: crew breaks for lunch. ———

1330: Crew returns to morning activities. Crew is gathering containers that will be consolidated, and continuing bucket bulk testing with oxidizing acids. Crew is using AR-4 for testing the presence of HCl gas, therefore several exceedances were detected with HCl  $> 5.0 \text{ ppm}$  due to incompatible materials mixing. ———

1645: crew cleaning up for the day. ———

1730: START Thomas off site. ———

9/14/17

0700: START Thomas onsite. Attended site safety meeting. Today's activities will include: Continue consolidating oxidizing acid liquids; segregate containers that will be disposed of with SDS sheets; continue repackaging Chromium trioxide containers; Consolidate waste oil containers; Consolidate flammable liquids. Safety topic: drum container handling; make sure to look at labels & compare label / container info to what's listed on the drum logs. ———

0730: Calibrated AERAEs to zeroed DustTraks. ———

0815: Deployed air monitors to AM-1, 2, 3, & 4 and started VIPER runs. ———

0830: Crew preparing to enter work zone.

Continue consolidating acid liquid containers.

1200: crew breaks. Crew continued consolidate acid liquid containers throughout the morning. No elevated readings detected. ———

1500: Crew continued morning activities.

1645: Stopped VIPER runs to collect air monitor.

1730: START Thomas off site. ———

9/15/17

0700. START Thomas on site. Weather 59°F, foggy, overcast, calm winds, 100% humidity. Attended daily safety meeting. Today's activities will include: no consolidation activities to minimize reactions over the weekend; segregate waste containers being disposed of w/ SDS's; direct transfer wat acid liquids to totes; cut/crush containers consolidate flammable liquids. Safety topic: heat stress signs to symptoms. Weather is a little hotter than it has been the past couple weeks. Be mindful of higher temperatures and time it takes the body to re-adjust to the high temperatures. — (21)

0730. Calibrated AreaQuest zeroed DataRAMs.

0815: Deployed Air Monitors to AM-1, 2, 3, & 4 and started VIEP runs. — (21)

0830: Crew entered work zone to begin consolidating flammable liquids by staging/segregating waste containers ( $H_2O_2$ , acids, Chromium trioxide) which will be disposed of w/ SDS's. — (21)

Several VOC hits above 5ppm but below 500 ppm. There fore crew did not upgrade pp. Exceedances due to flammable liquids (paints). — (21)

1100: Crew continue morning activities, segregated containers and finished consolidating flammable liquids. — (21)

9/15/17

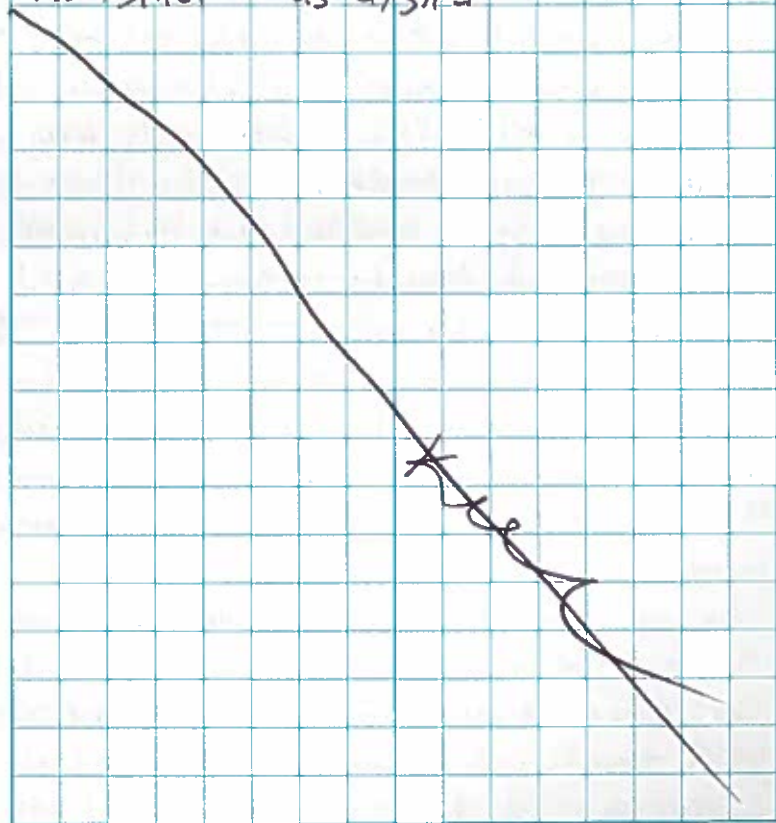
1300: Crew breaks for lunch.

1400: crew returns to continue morning activities. Additional VOC exceedances due to consolidation of flammable liquids. — (21)

1600: crew cleaning up for the day.

1645: Collected air monitors & stopped VIEP runs. — (21)

1750: START Thomas off site.





9/18/17

- 0700: START Thomas onsite. Attended daily safety meeting. Today's activities will include: Continue haz-cutting samples; collect samples from waste groups for waste lab analysis; Segregate waste containers to repackage/overpack waste containers that will be disposed of w/ SDS's; Continue consolidation of acid oxidizers; cut/crush empty containers; cover containers/totes that are outside. Discussed physical and chemical hazards. Weather: 68°F, overcast and light rain; 86% humidity, winds: ~~W@10~~ @ 10 mph.
- 0730: Calibrated AreaRAEs. START will not deploy DustTraks due to expected rain throughout the day.
- 0800: deployed AreaRAEs to Am-1, 2, 3, 4 and started Viper runs. (15)
- 0830: crew prepared to enter work zone to begin consolidating additional oxidizing acids into totes, and transferring vat contents into totes.
- 0930: crew encountered a wood vat in the northern portion of the building. crew was washing the vat after pumping, and observed that the vat had ~ 5 inches over ~~the~~ fabricated wood vat. Crew removed the wood (which appeared stained from acid contents of the vat); cut and bagged. Crew continued doing small scale bucket tests

9/18/17 9/18/17

- with waste groups to determine if reactions were present. Several exceedances due to crew small scale bucket tests (2)
- 1230 crew breaks for lunch. (1)
- 1315: crew reentered work zone for continuing morning activities. Crew continued small scale bucket tests, and consolidating oxidizing acids; crew also collected waste characterization samples; crew cut wood from fabricated wood vat, covered in poly, and loaded into the ~~roll-off~~ roll-off dumpster (2)
- 1645: Stopped Viper run and collected AreaRAEs. (1)
- 1730 START Thomas offsite.

9/19/17

0700: START Thomas onsite. Weather: 40°F, overcast; 90% Humidity, winds NE @ 4 mph. (17)

Attended daily safety meeting. Today's activities will include: continue segregating containers that will be disposed w/ SPS's; continue bucket testing and consolidating w/ acid oxidizers; wax-casting as needed; transfer vat contents to totes; solidify chromium trioxide for disposal; Safety topic: heat stress & exhaustion signs. (17)

0730: Calibrated AreaRAEs and deployed to AM-1, 2, 3, 4. (17)

0800: started UIPER run. (17)

0815: crew entered work zone to begin cutting empty containers; over packing containers from the Second level that will be disposed of w/ SPS's. (17)

Crew moved acid soaked wood from wood cut into the basement to dry out the wood. Crew used pH paper on the wood. pH ~ 0.50. Crew also continued bucket testing and consolidating oxidizing acid liquids. (17)

1230: Crew breaks for lunch. (17)

1330: crew continued morning activities. Light rain began. AreaRAE # 4 (outside southern bay door) will not calibrate for HCl. This

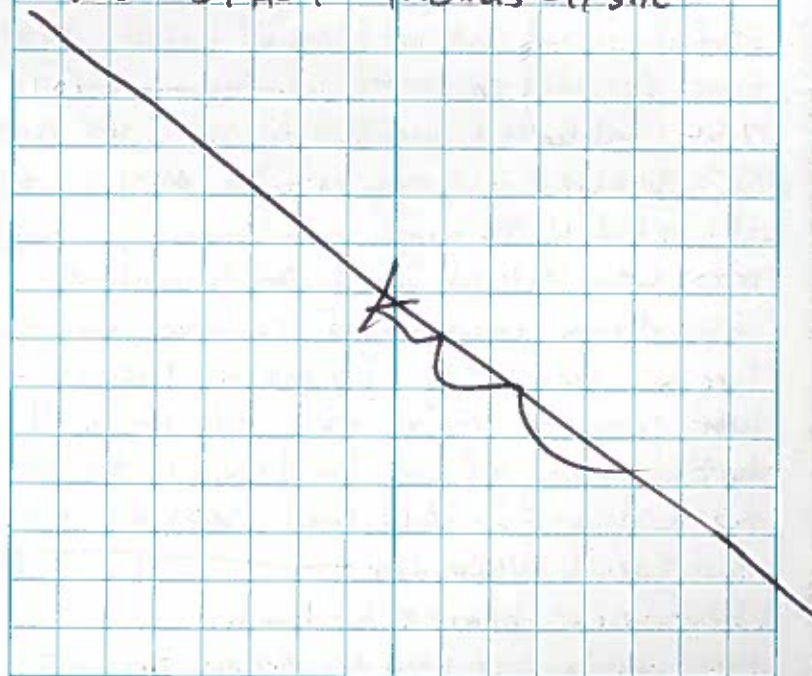
9/19/17

is the unit the crew used to check for reactivity during the bucket tests. The sensor may be worn but due to high detections over the past week START will check (17) START investigating new sensor for the unit. (17)

Crew completed consolidation of Oxidizing acids and over packing containers that will be disposed of with SPS's.

1650: stopped UIPER run to collect air monitors. (17)

1730: START Thomas off site. (17)





9/20/17

0700: START Thomas onsite. weather: 16.6°F, Foggy; 96% Humidity, no winds; hotter temps expected.

Attended Daily safety meeting. Today's activities will include: continue hazardous waste sampling as needed; continue creating waste disposal bulk samples; identify unknown bags (some unreadable, some with foreign writing); package waste that will be shipped w/ SDBs; continue consolidating chromic acid waste stream; cut/crush empty containers. Discussed rinsing empty containers and disposing rinse water into the same tote where the contents went; discussed chemical to physical hazards. Safety topic: Refueling equipment. (19)

0730: Calibrated Area/PEES to zeroed. (20) Distances

0815: Deployed air monitors to AM-1, 2, 3, 64 and started VIPER runs. (21)

0830: Crews entered work zone to continue consolidating chromic acid containers; crews also began transferring chromic acid vats to totes; crew also moved full vats that will be transferred off site for disposal tomorrow to building #2. Additional trucks are scheduled on Tues & Wednesday. (22)

1300: Crew breaks for lunch.

1400: Crew returned to normal activities.

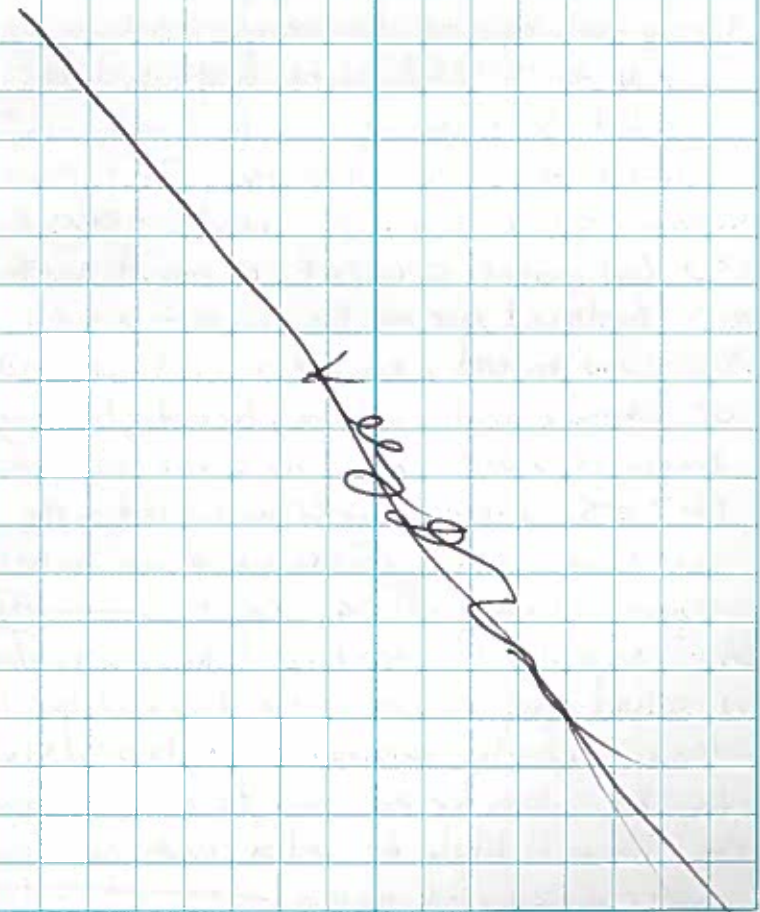
9/20/17

Crew identified several bags in the basement area with unknown contents & foreign labels.

Crew segregated the bags. (23)

1700: Stopped VIPER runs & collected air monitors. (24)

1730: START Thomas offsite.



9/21/17

0700: START Thomas onsite. Attended Daily Safety meeting. Today's activities will include: Continue haz-cathing samples as needed; consolidate chromic acid containers to Uats; begin consolidating base liquids (segregate, gather); cut/crush empty containers as needed; load totes (1) 1 truck will be onsite to transport to dispose cyanide totes. Safety topic: hot/humid day expected, safe working practices. Limit horseplay on the job. Weather: 75°F, mostly sunny, 85% Humidity, Winds: SSE @ 2 mph.

0730: Calibrated area RAEs to zeroed dust traps

0815: Deployed air monitors to AM-1, 2, 3, & 4

0830: Crew entered work zone to continue consolidation of chromic acid containers to cutting/crushing empty containers. One VIPER exceedance for CO<sub>2</sub> 2.5 ppm when crew turned on the air compressor. Levels went down to below 2.5 ppm following initial spike (1)

RM indicated no truck will be onsite due to scheduling issues at the disposal facility. 2 trucks onsite tomorrow. RM also discussed with OSC plans for the wind dig pit in the basement. The pit will likely be filled with crushed waste after it is pumped again (2)

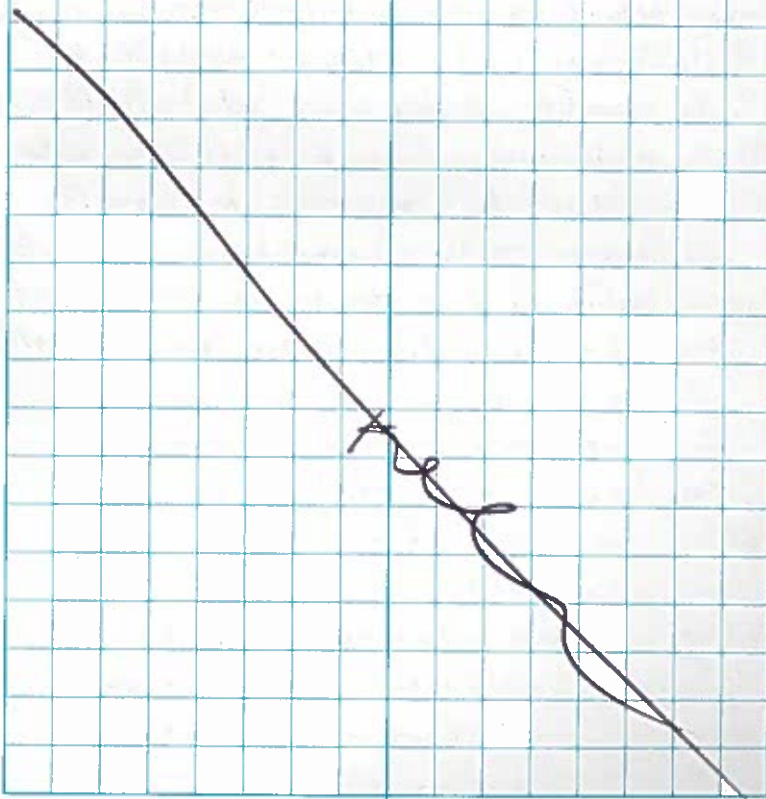
9/21/17

1300: crew to racks. (3)

1400: crew returns to normal activities. Crew located mass of non-hazardous powder material in the roll off dumpster along with cut/crushed empty drums. (4)

1450: stopped VIPER runs to collect air monitors (5)

1730: START Thomas offsite.





9/22/17

0700: START Thomas on site. Attended Daily Safety meeting. Today's activities will include: continue consolidation of chromic acid containers; begin transferring Vat 23 (cyanide vat) (not) crush RRA empty containers; transport/dispose cyanide waste water totes; hazard categorizing as needed. Safety topic: heat stress. Today is expected to be hot/humid. Crew should take more breaks; watch out for other crew members. Chemical to physical hazards. Weather: 69°F, 93% humidity. Mostly sunny. Winds: W @ 1 mph. High heat and humidity expected throughout the day.

0730: Zeroed ~~all~~ data ~~LAUS~~ to zero ~~LAUS~~

calibrated Analyzers. ———— HTB

0800: Deployed Air Monitors to AM-1, 2, 3, 64, and started VIPER runs. ———— HTB

9/25/17 31

0700- START Browning arrives on site.

Weather: 68°F; mostly clear; wind calm.

0701- Daily activity and Hand S meeting takes place. Topics: ① protective clothing, such as coveralls and gloves, boots, clean clothes, respirators, cartridges; ② physical hazards; ③ use of the air compressors; ④ levels of protection for various activities; ⑤ high temperatures. ———— HTB

0800- Activities: ① containerizing the acid solid oxidizers that remained in the totes after the removal of the acid liquid oxidizers from these same containers; ② cleaning then cutting the containers from which the acid liquid and solid oxidizers were removed; and ③ consolidating the oils that are located in Building 2. — HTB

1120- Activities: In Building 1, continued consolidation of the acid solid oxidizers and the cleaning and cutting of the containers; in Building 2, consolidation of oils. — HTB

*Hot in the Rain*



9/25/17

1156- Note: 2 exceedances, in VOCs, in Building 2 have occurred due to the consolidation of the oils in the building. Given that the readings were between 5.1 and 6.3 ppm, the levels were not above the levels necessary for the workers to go from Level C (the current level of protection) to Level B. Note 2: The location of the first reading (Area RAE 4) was actually from Area RAE 3.

This error was due to Viper deployment area, which was corrected prior to the next/second exceedance.

1145- Activities in Building 2 are now complete. ————— MTB

1400- Activities: ① cleaning and cutting of 1533, the containers/vats that had acid

1611- solid oxidizers that has chromium;

1721 and ③ placement of the cut containers into the rolloff box. MTB

1730- START leaves the site for the day.

*Michael J. Brown*  
9/25/17

9/26/17 33

0700- START Browning arrives on site. Weather: 70°F. Mostly clear, calm wind.

0702- Daily activity and Hard S' meeting

0731 takes place. Topics: ① Hard protection and various types of hard injuries (hard protection is not an option), if possible, don't use jewelry; ② chemicals that can cause burns; ③ think through activity before undertaking the task; ④ physical hazards associated with today's activities; ⑤ high outdoor temperatures. ————— MTB

0745- Activities: ① removal of the contents 1005, in Tote 14 into a DOT-shippable

1100- container, the cleaning of Tote 14;

1300 ② removal of the contents from Vat 57 (chromic acid) into DOT-shippable containers; ③ consolidation of the flammable material from Drum 353 into a shippable container.

1045- Rolloff box leaves the site. MTB

1350- Activities are the same as the time 1520 period from 1100-1300. ————— MTB

1535- START Browning leaves for the day. MTB

*Rite in the Rain*



9/27/17

- 0700- START Browning arrives on site. Weather: 71°F; mostly sunny; wind out of NE at 3 mph.
- 0704 - Daily activity and Hard S meeting takes place. Topics: ① wind direction; ② hard hat safety, reasons for their use, and examples of the consequences of not using them; ③ physical hazards; ④ guard against negative reactions while combining materials; ⑤ level of PPE; ⑥ use assigned radio. MTB
- 0750- Activities: ① pumping the chromic acid contents from Vat 57 into DOT-shippable totes; ② circulating the contents of Vat 71; and ③ continued hazcatting of samples in order to determine waste streams. — MTB
- 1028 MTB
- 1050- The DustTrak units at Positions 1 and 4 are taken down due to rain. The DustTrak at Position 2, which is inside Building 1, and thus sheltered by the rain, will remain running. MTB
- 1115 - Activities: ① cutting of a second liner located in Vat 57, and ② pumping the contents of Vat 71 into DOT-shippable totes. MTB
- 1248

- 1340- Activities: ① continued removal of the contents and cleaning of Vat 57, and 1540 ② continued removal of the contents from Vat 71, and the placement of the contents into DOT-shippable totes. MTB
- 1625- ② continued removal of the contents from Vat 71, and the placement of the contents into DOT-shippable totes. MTB
- 1715
- 1730- START Browning leaves the site for the day. MTB

*Michael Browning*  
9/27/17



9/28/17

- 0700- START Browning is on site. Weather: 50°F; mostly clear; wind out of NW.
- 0702- Daily activity and H and S meeting takes place. Topics: ① fire extinguishers and the types of extinguisher for different types of fires; ② the newly added chemical hazards: sodium cyanide solutions and hydrogen cyanide; ③ Levels of PPE; ④ physical hazards; ⑤ unplug electrical equipment prior to servicing. — MTB
- 0740- Activities: ① continuation of the 1029, cleanout of Vat 57; and ② continuation of the content removal from 1110- Vat 71; and ③ continued creation of waste composite samples that will be sent to the lab for analysis.
- 1335- Activities: ① Completion of Vat 57, 1540, and initiation of the content removal activities for Vat 56; and ③ continued work on removing the contents of Vat 71. Also, a total of five waste characterization will be sent out
- 1730- START Browning leaves the site. MTB

9/29/17 37

- 0700- START Browning on site. Weather: 56°F, cloudy; wind: SW at 9 mph. — MTB
- 0703- Daily activity and H and S meeting takes place. Topics: ① slips, trips, and falls; ② physical hazards associated with loading totes onto the trailers and around the moving equipment; ③ electrical safety; ④ level of PPE; ⑤ hearing protection while using the cutting tools. — MTB
- 0735- Activities: ① cutting of the side of 1048 Vat 56 in order to gain access to the vat bottom; and ② the continued removal of the Vat 71 contents. — MTB
- 0906- Two trucks arrive on site for the totes that are stored in Building 2. This shipment will also include a total of nine drums. — MTB
- 1125- Activities: ① continued removal of 1255, the contents from Vat 56; and ② 1330- continued removal of the contents 1530 from Vat 71. Note: 30 totes left the site today. — MTB
- 1730- START leaves the site for the day. — MTB

Rite in the Rain



0700 HTB

10/2/17

0704 - START Browning is on site. Weather: 47°F, mostly clear; wind is calm

0704 - Daily activity and Hand S meeting takes

0716 place. Topics: ① dressing for the weather (early in the morning is cold, afternoon is warm), dress in layers; ② physical hazards: airline checks and use locking connectors or use duct tape; consolidation activities; use proper PPE during consolidation; cutting and crushing of drums. ③ level of PPE has not changed; ④ proper break schedule. — HTB

0735 - Activities: ① Using a sawzall to gain

1004, access to the bottom of Vat #71.

1029 - ③ removal of the contents from Vat

1240 #55. ③ continuation of the removal of the contents from Vats 57 and 71; and ④ creation of additional hazcat samples. — HTB

1330 - Activities: ① Completion of the clean-

1510, out activities associated with Vats

1540 - 55, 56, 57, and 71; and ② com-

1710 pletion of liquid removal from Vat 29.

1730 - START leaves the site for the day.

10/3/17 39

0700 - START Browning on site. Weather: 52°F, fair; wind is calm. — HTB

0702 - Daily activity and Hand S meeting takes

0729 place. Topics: ① housekeeping and the negative impacts of poor house-keeping and rules associated with good housekeeping; ② chemical hazards; ③ physical hazards (heavy equipment and eye contact); ④ inspection of airhoses; ⑤ bench-testing chemicals; ⑥ cutting access points into vats; ⑦ level of PPE

0745 - Activities: ① removal of the con-

1130 tents from Vat 29; and ② the receipt and staging of 50 275-gal polytotes. Note: Between 10:03 and 10:31, 2 particulate readings, at Location 3, of 66 and 81 mg/m<sup>3</sup>, respectively, were recorded. Given these high levels, the readings were attributed to a blockage in the pump. This blockage was addressed by "pulsing" the air inlet and then unblocking it repeatedly. — HTB

*Rite in the Rain*



10/3/17

- 1245- Activities: ① continued work on re-  
 1515 moving the contents and liners from  
 1540- Vat # 29; and ② locating the individ-  
 1725 val containers that need to go out  
 on their own and placing them in  
 Building 2 to be palletized for  
 eventual shipment. — HTB
- 1730- START Browning leaves the site  
 for the day. — HTB

*Michael Browning*  
 10/3/17

10/4/17

- 0700- START Browning is onsite. Weather:  
 72°F; partly cloudy; wind: SW at 14 mph.
- 0700- Daily activity and H and S meeting takes  
 0724 place. Topics: ① lighting protocol;  
 ② refueling of equipment; ③ chemical  
 hazards of fuel; ④ physical hazards  
 and pinch points; ⑤ severe reactions  
 of incompatible materials; ⑥ cutting  
 and <sup>HTB</sup> crushing of containers; ⑦  
 general housekeeping; ⑧ levels of PPE;  
 ⑨ hearing protection while cutting the  
 containers. — HTB
- 0830- Due to there being a 90% chance of  
 rain, mainly before noon, the outdoor  
 Dust Traps (1, 3, and 4) will not be  
 deployed today. However, a PDR 1000AM  
 particulate monitor will be <sup>HTB</sup> de-  
 ployed inside Building 1. — HTB
- 0950- Activities: ① continued removal of the  
 contents from Vat # 29; ② removal of  
 the contents from Vat # 70 into DOT-  
 shippable totes; ③ power washing  
 the conex located along the north-  
 ern side of the Building 1. — HTB
- 1138- Activities: ① Completion of the re-



10/4/17

removal of the contents from Vats # 29 and 77. ③ removal of the contents from Vat 70 into DOT-shippable containers and the placement of these totes into Building 2. — HTB

1240 - Activities: ① cutting stained wood 1520, located in the building 1; ② cutting totes located in Building 1. ③ continued removal of the contents from Vat 70. — HTB

1730 - START leaves for the day. — HTB

*Michael J. Brown*  
10/4/17

10/5/17 43

0700 - START Browning on site. Weather: 54°F. clear; wind is calm. — HTB

0701 - Daily activity and H and S meeting takes place. Topics: ① power-washer safety;

high psi of stream can damage skin, use the washer for cleaning not decon;

② chemical hazards of cyanide: PEL = 10.0 ppm; TLV = 4.7 ppm, routes of entry;

③ levels of PPE for the day's activities and for the high-level cyanide. HTB

0745 - Activities: ① continuing to remove 1135, the contents of Vat 70 into DOT-

1240 - shippable containers and staging

1510 these containers in front of

Building 2; and ② consolidating

the acid solid materials into a

play drum. — HTB

1540 - Activities: ① continuing work on Vat 70;

1706 ② containerizing the oxidizing solids

1730 - START Browning leaves for the day.

*Michael J. Brown*  
10/5/17



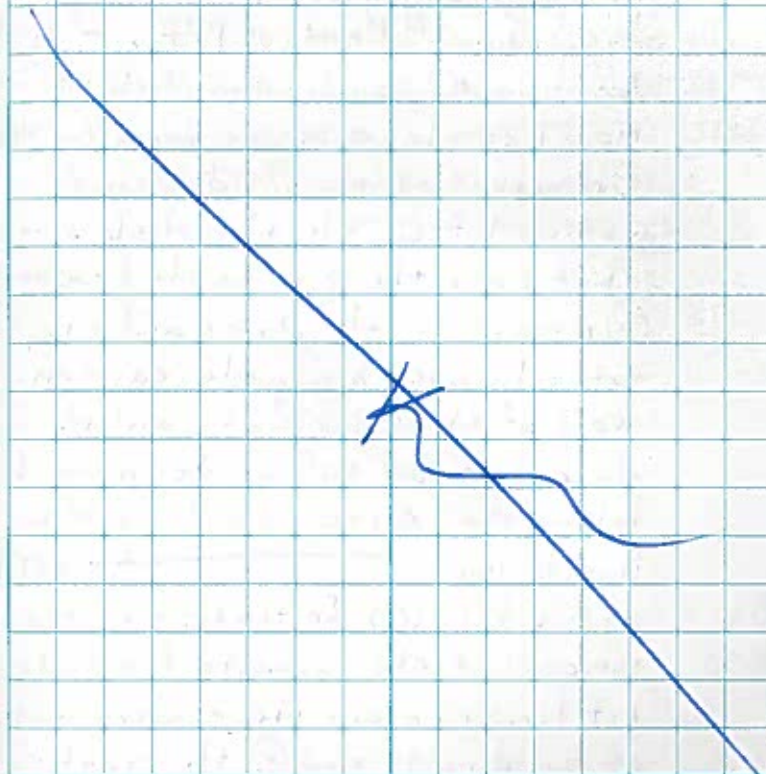
10/6/17

- 0700- START Browning is on-site. Weather: 57°F; overcast with light but steady rain; wind is out of NE at 3 mph. — MTB
- 0701- Daily activity and H and S meeting takes place. Topics: ① forklift safety, dos and don'ts of forklift operation; ② drum handling hazards; ③ drum/crushing hazards; ④ wear proper PPE in the building (hard hats). — MTB
- 0728 — MTB
- 0729- Dust Traks will not be deployed today. due to steady rain. — MTB
- 0745- Work inside Building 1 begins. — MTB
- 0905- Two trucks from Chem Tron arrive on site to accept DOT-shippable totes. A total of 32 totes, containing inorganic chromium cyanide liquid, were hauled off site. — MTB.
- 1130- First shift of work in Building 1 ends. Activities: ① continued removal of contents from Vat 70; ② cutting and crushing of RCRA empty containers; and ③ consolidation/staging of neutral solids. — MTB
- 1230- Activities: ① continued staging of the neutral solids; ② initial staging of the
- 1510 — MTB

10/6/17 45

cyanide solids; and ③ continued removal of the contents from Vats 70 and 73. — MTB

- 1550- Activities: ① Power-washing Vat 70; ② removing contents from, and cutting the liner out of Vat 46. — MTB
- 1730- START Browning leaves the site for the day. — MTB



*Rite in the Rain*



10/10/17

10/10/17 47

~~Start~~ START on site. Weather: 58°F, air, wind is out of the north at 7 mph. Daily activity and Hand S meeting takes place. Topics: ① SDS sheets: components, history, global extent; ② chemical hazards: cyanide liquids; ③ physical hazards: pinch points, heavy objects; use of air-driven pumps, working around the heavy equipment; ④ levels of PPE. — MTB

Activities: ① Completion of the removal of the contents from Vat 46; ② removal of the solid cyanide material from the top of the plates that cover the pit in the basement; ③ removal of the plates and the plates located along the eastern wall of the basement, and their placement outside of Building 1, along the northern side of the Building 1. — MTB

Activities: ① Initiation of the removal of the contents from the pit located along the eastern wall of Building 1; and ② the transfer of

the material from a tote into poly drums due to the material in the tote exhibiting the characteristic of flammability, based on laboratory analytical results. — MTB

1555- Activities: ① continued work on removing the contents from the pit. — MTB

② conducting a further analysis/inventory of the compounds in the building in order to minimize the number of items present in the cyanide stream. — MTB

1730- START Browning leaves the site for the day. — MTB

~~Michael Browning~~  
10/10/17

Rite in the Rain

505-0001-1703-001

Electro Plating Services

RV



*Rite in the Rain*

ALL-WEATHER

**FIELD**

Nº 351FX

Book # 5



10/11/17

- 0700- START Browning on-site. Weather: 53°F; steady rain; wind: NE at 9 mph. MTB
- 0704- Daily activity and Hand S meeting takes place. Topics: ① a break-in took place over the weekend; ② make sure that all tools are put away and that all doors are locked; ③ slips, trips, and falls; ④ physical hazards: air compressor hose hookup; ⑤ use of electrical tools while it's raining; and ⑥ level C PPE. — MTB
- 0730- Due to steady rain, the outdoor Dust-Traks will not be deployed. However, an indoor PDR will be deployed. MTB
- 0750- Activities: ① completion of the removal of the acid solid oxidizers from Vat 69; and ② continued removal of the contents from the pit located along the eastern wall of Building 1 MTB
- 1128
- 1250- Activities: ① continued removal of the contents from the pit. — MTB
- 1520
- 1555- Activity during this period was the same as during the period of 1250-1520.
- 1720
- 1730- START Browning off-site. — MTB

10/12/17

- 0700- START Browning is on-site. Weather: 49°F; light + steady rain; wind: N, 8 mph.
- 0704- Daily activity and Hand S meeting takes place. Topics: ① near misses, description and examples; ② wind direction; ③ physical hazards/issues of working around the pit; ④ working on the cyanide solids and the fence along the north side of the building. — MTB
- 0730- Due to a light, but steady rain, the outdoor Dust Traks will not be deployed. However, an indoor PDR will be deployed. — MTB
- 0745- Activities: ① continued work on re-moving the contents from the pit; ② completion of the power washing of Vat 69 to complete the removal of the contents from this vat; and ③ the shipment of 12 containers, comprising 2,955 pounds of waste, to U.S. Ecology. — MTB
- 1150
- 1245- Activities: ① continued work on re-moving the contents from the pit
- 1725

Rite in the Rain

10/12/17

- located along the eastern wall of Bldg. 1; and ③ the placement of material from Tank 4 into totes that had been temporarily loaded into Tank 4 from Vats 70 and 71. ———— HTB
- 1730- START Browning is off the site for the day. ———— MFB

*Michael Browning*  
10/12/17

10/13/17

- 0700- START Browning is on site. Weather: 50s; overcast and cloudy; wind: SW.
- 0700- Daily activity and Hand Smeeting takes place. Topics: ① respirator fit tests and proper use to ensure safe use; ② physical hazards: working around the pit; heavy lifting and back strains; air hoses connected to the air compressor; consolidation of waste - pinch points; cutting and crushing the containers - wear proper gloves. ③ GFCI connections; ④ level of PPE. HTB
- 0740- Activities: ① delivery of 40 empty 1147, totes; ② removal of the base solids from one tote into one drum; ③ draining of Tank 4 contents (originally from Vat 70 and 71) into DOT-shippable totes; and ④ continued work on removing the contents from the pit. Also, shipments of waste left the site for U.S. Ecology and Chemtron.
- 1550- Activities: ① continued removal of contents from pit; ② placement of debris in roll off.
- 1730- START off-site. ———— HTB

*Rite in the Rain*



10/16/17

0700: START Thomas on site. Attended daily Safety meeting. Weather: ~~56°F~~ 43°F, mostly cloudy throughout the day, 88% humidity, winds NW @ 5 mph. Today's activities will include: Har-cat samples as needed; transfer cyanide liquids from basement pit as needed; create bulked waste samples as needed; continue rinsing/cutting/crushing imp + containers; continue transferring liquids from vats/tanks to new containers; transfer cyanide tanks/vats to new totes. Chemical to physical hazards: discussed ppe for cyanide liquid transfer (Level B w/ air lines). Safety topic: preventing fires to fire triangle.

0730: Calibrated MIRAES & zeroed SAM Flexes.

0815: Deployed air monitors to AM-1, 2, 3, 4, and started VIPER runs.

0830: Crew entered work zone to begin activities. Team #1 entered Building 1 to transfer neutral liquids and base liquid to totes for shipment. Team #2 entered in Level B ppe to transfer cyanide liquids. Team #1 also rinsing/crushing vats & transferring wash water to totes.

USC Lippert indicated vats may be cut out and used so that crews can shovel/remove solids built up

10/16/17

around the vats.

1200: Crew breaks for lunch.

1330: Crew members worked to continue morning activities. Team #1 cut vat V073 to be able to transfer contents. START photo documented the vat before & after it was cut.

Crew also cut Vats V071 & V073 to access contents & transfer to totes for disposal. 1700: Crew cleaning up for the day. ~~Collected~~ START collected air monitors.

1730: START Thomas off site.

10/17/17

0700: START Thomas onsite. Attended daily safety meeting. Today's activities will include: Continue hazardous samples as needed; create waste disposal samples; cut/crush empty containers; cut vats to access contents in water treatment vats (i.e. vats V071-V073); finish transferring cyanide liquids to totes and power wash/triple rinse vats as needed; 1 Load of ~~chromic~~ chromic acid/hydrochloric acid to be shipped offsite for disposal. Safety topics: Fire extinguisher use; Chemical to physical hazards? working in Level Bppe during cyanide transfer. Crew got 1 hit of HCN above the action level. Crew was already in Level Bppe and no additional instruments alarmed.

0730: Calibrated ARAPIES to zeroed dust tracks. Appointed monitors to AM-1, 2, 3, & 4.

0845: crews entered Building #1 to begin daily activities. Team #1 transferring cyanide liquids from vats to containers in the north eastern portion of the building. Team #2 cut empty tanks to vats for and rinsed the vats using a power washer.

0945: truck onsite for transport of chromic and hydrochloric acid totes to Chemtran Corporation.

1030: Truck offsite. Crew continued morning activities.

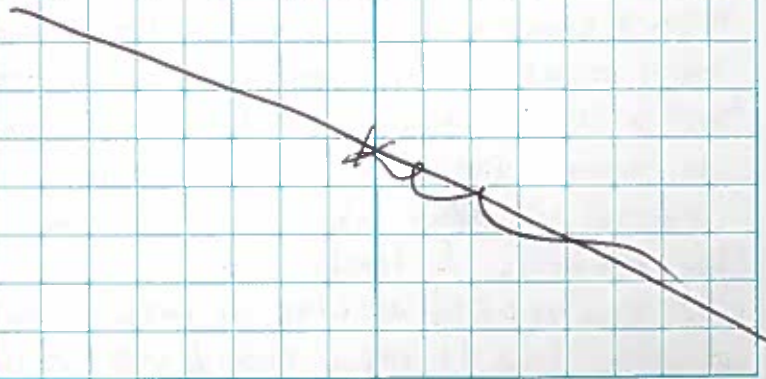
1200: crew breaks for lunch

10/17/17

1330: Crew returns to morning activities. Team #1 transferring solids from the bottom of cyanide totes/tanks/drums to new drums. Crew used the Min. Excavator due to hardness of ~~the~~ the solids. Team #2 consolidated a sulfuric acid drum in the southern portion of the building. Drum was initially mixed with small amounts of HCL and ~~the~~ resulting in small acid gas evolution. HCL alarm at AR#4 was due to this reaction. Crew mixed small amounts into H<sub>2</sub>SO<sub>4</sub> drum which yielded no reaction to no response at AR#4.

1700 Crew cleaning up for the day. Stopped VIPER runs to collect air monitors.

1730: START Thomas offsite.



*Rate in the Rain.*



10/18/17

0700: START Thomas on-site. Attended daily Safety meeting. Today's activities will include: Continue transfer of cyanide liquids to new totes; Solidify sludge/remaining liquid in the floor pit; transfer solids from remaining acidic solids vats; collect waste characterization sample of acidic solid; add portland cement to basement pit; cut/crush empty containers; continue power washing empty vats; Roll-off dumpster will be shipped off-site today. Safety topic: Using and being around heavy equipment. Chemical to physical hazards. weather: 48°F, Sunny, 77% humidity, winds:

SSW @ 6 mph. Pleasant temps expected throughout day. 0730: Calibrated AccuTest Zeroed dust traps. Adjusted air monitors to AM 1, 2, 3, & 4.

0815: crew entered work zone to begin Activities. Team #1 scraping & shoveling cyanide solids; team #2 cutting empty drums/tanks and loading into roll-off dumpster; team #3 using cement to solidify sludge/liquid in basement floor pit. Crews also loaded floor material in basement into the pit for solidification. 1200: crew breaks for lunch.

1300: crew reentered work zone to continue morning activities. Team #1 rinsing cyanide vats/transferring

liquids to totes. (1)

1400: Roll-off dumpster w/ RCRA empty containers transported off-site for disposal. Empty dumpster #6 delivered. (2)

1430: Crew continued morning activities. Crew also conducted bucket tests on remaining acid liquid containers to determine which waste groups to dispose with/and which containers to handle with. (3)

1500: crew cleaning up for the day. START collecting air monitors & ended VIAL runs. (4)

1730: START Thomas off-site.

*Return to the Rain*

10/19/17

0700: START Thomas onsite. Weather: 54°F, partly cloudy, 70% humidity, Winds: SW @ 10 mph. Attended daily safety meeting. Today's activities will include: Frac tank to be delivered today for neutral liquid transfer; Continue transferring cyanide liquids/solids from vats/drums/tanks; Transfer solids from oxidizing acid vats to drums; continue solidifying ~~base~~ <sup>acid</sup> sludge/liquid in basement pit; transfer remaining acid liquids; neutralize 4 5-gallon buckets with neutral liquids using sodium bicarbonate that will not mix with other acids. Safety topic: compressed air safety. Discussed chemical & physical hazards.

0730: Calibrated ARIARAEs, Zeroed Dust Traces and ~~and~~ <sup>SPM Filter</sup> Deployed air monitors to AM-1, 2, 3, & 4.

0815: Started VIPER runs

0830: Crews enter work zone to begin morning activities. Team #1 transferring cyanide liquids from vats; Team #2 ~~team~~ <sup>team</sup> solidifying cyanide sludge in the pit in the basement; Team #3 rinsed empty vats, cut/crushed RCN empties to loaded into the Roll-off dumpster.

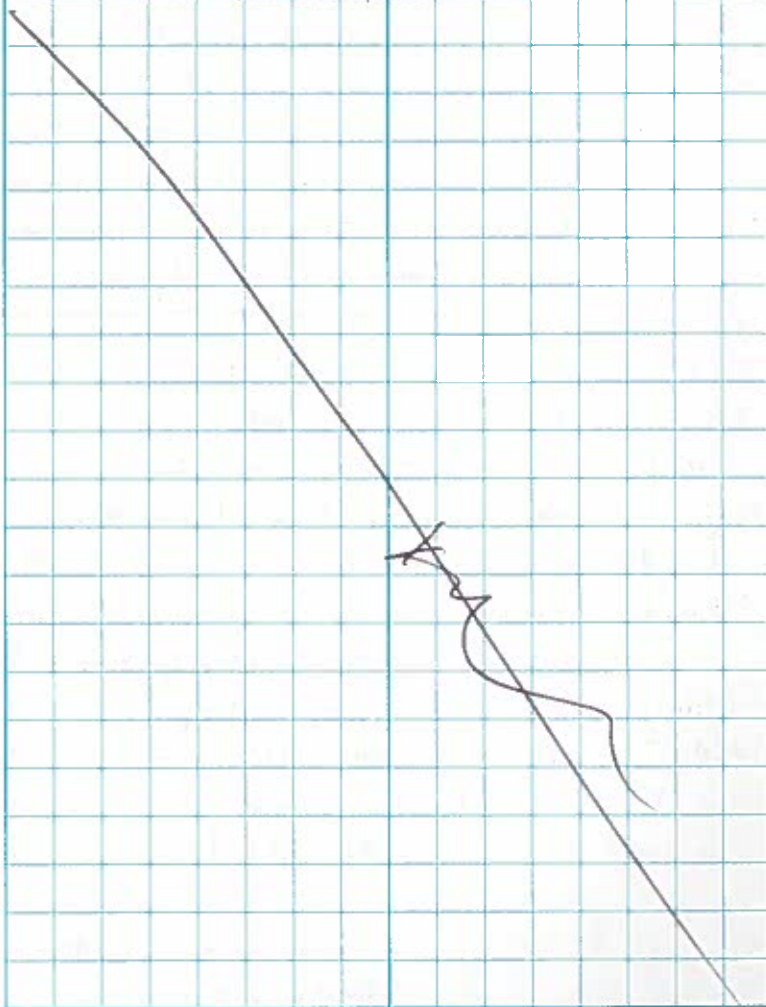
1200: Crew breaks for lunch.

1300: Crew returns to working to continue morning activities

10/19/17

1700: crew cleaning up for the day. Stopped VIPER runs to collected air monitors.

1730: START Thomas off site.





10/20/17

0700: START Thomas on site. Attended daily safety meeting. Today's activities will include: continue transferring cyanide liquids to totes; rinsing empty vats - 3 loads off site today with base cyanide liquids and 2 loads of remaining acidic liquids; Safety topic: appropriate dress for the weather - with changing temps and cooling temps, crews should be sure to have layers for cold mornings and warm afternoons. Chemical & physical hazards. (21)

0730: Calibrated AreaAES to zeroed test tubes.

0815: Deployed air monitors to AM-1, 2, 3, & 4 and started VIPER runs. (21)

0830: crew enter work zone. Team #1 transferring cyanide liquids and associated solids from vats. Team #2 transferring base cyanide solids from drums/buckets to cubic yard boxes; Team #3 collecting samples from remaining containers for haz-cutting. (21)

0930: 3 Trucks on site for off site transport to disposal.

1100: Trucks off site. Crews continued morning activities during truck loading. Team #1 continued pumping cyanide liquids from vats, and power washing the vats. Team #2 also continued transferring neutral solids from drums to cubic yard boxes. Team #3 with EBS chemist

10/20/17

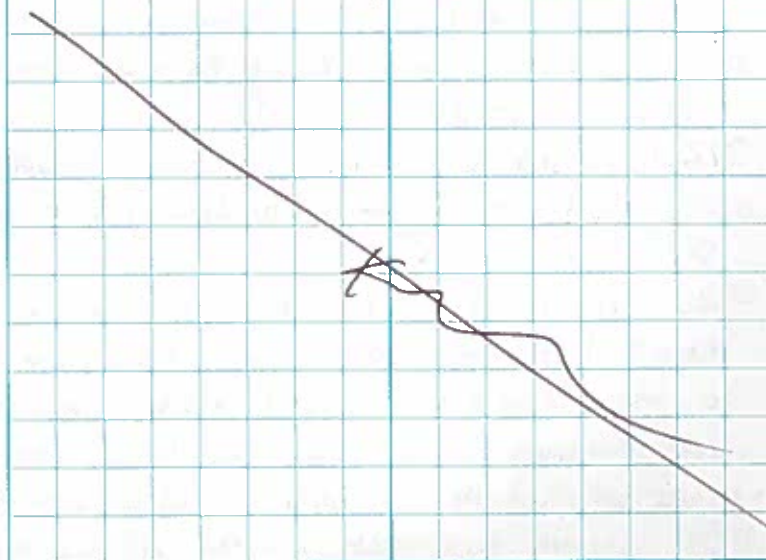
Segregated neutral solids (process products containing solids) cyanides v.s. Solid waste materials with likely metals but no cyanides.

1200: Crew breaks for lunch.

1300: Crew reenters work zone for continuing morning activities. Team #1 continued transferring cyanide liquids from vats; team #2 continued transferring neutral solids to boxes to cutting and loading empty containers. (21)

1700: Crew cleaning up for the day. Collected air monitors. (21)

1730: START Thomas off site.



*Rite in the Rain*

10/23/17

0700: START Thomas on site. Attended daily Safety meeting. Today's activities will include: Continue transferring cyanide liquids to solids to shippable containers; Remove Sludge/cement mixture from basement pit and ~~pit~~ transfer into cubic yard boxes for disposal; Power wash basement pit after solid removal & set up hoses for transferring neutral liquids/basement pit water into Frac tank; disconnect power and set up Haul-Cat trailer for demob. Weather: 63°F overcast; 71% Humidity, Winds: SSE @ 4 mph, rain expected in the afternoon. Safety topic: slip trips, & falls: hoses and working around the pit increases opportunity for trip hazards. Chemical & physical hazards.

0730: Zeroed DustTraks to calibrated AreaRAEs.

0815: Deployed air monitors to AM-1, 2, 3, & 4 and started VIPER runs.

0830: Crew entered working to begin burning activities. Team #1 transferred ~~pit~~ cyanide liquids from uats to bles. Team #2 transferred sludge/cement mix from basement pit to cubic yard boxes. Crew also power washed the pit after solid was removed.

1130: stopped dusttrac run and collected monitors

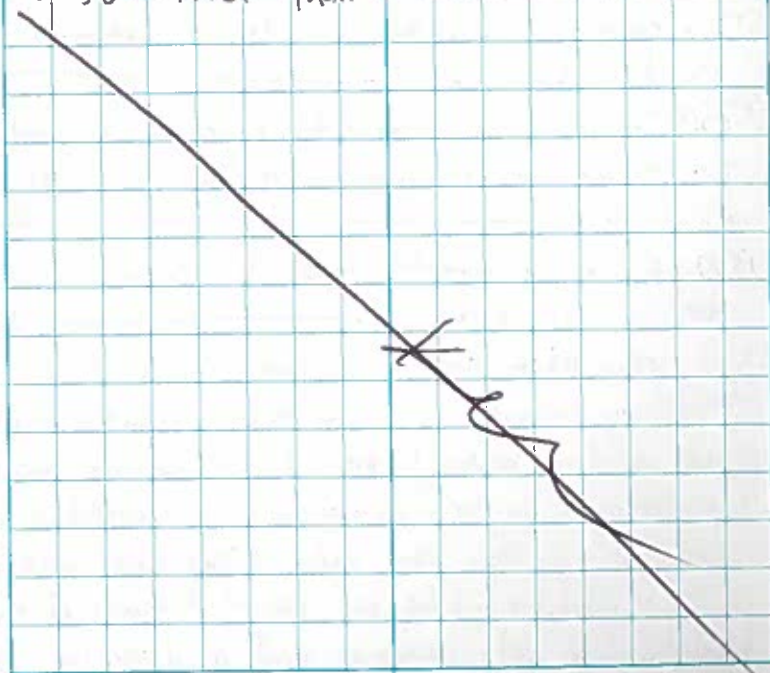
10/23/17

due to tight <sup>(P)</sup> rain expected throughout the afternoon. 1145: crew breaks for lunch. ~~\_\_\_\_\_~~ (P)

1230: crew re-enters work zone to continue burning activities. RM discussed tomorrow's waste shipment w/ OSC support. Tomorrow's shipment will be postponed until additional funding is received. ~~\_\_\_\_\_~~ (P)

1700: crew cleaning up for the day. Stopped VIPER run and collected air monitors.

1730: START Thomas off site.



*Rite in the Rain*



10/24/17

0700: START Thomas onsite. ~~Today's~~ ~~Attended~~  
 Daily safety meeting: today's activities will include:  
 Continue transferring cyanide liquids to totes; finish  
 power washing basement vat; decan hoses/pumps/equipment  
 to basin using to transferring neutral liquid to free  
 tank; transfer latex paint drums to new containers;  
 transfer 2 neutral liquid vats that are sitting inside  
 an oxidizing solid's vats; Safety topic: fire  
 extinguisher inspections should occur monthly. Chemical  
 & Physical Hazards. Weather: 49°F, cloudy, raining,  
 rain expected throughout the day; 90% humidity,  
 winds: S @ 12 mph

0730: Calibrated AERAPES. Due to expected  
 rain throughout the day, START will not deploy  
 dustTraks

0800: Deployed ~~AM-1~~ AERAPES to AM-1, 2, 3, & 4  
 and started VIPER run

0830: crew began morning activities. Team #1 continued  
 transferring cyanide liquids to totes. Team #2 finished  
 power washing basement pit. 1 small area of concrete  
 buildup in the northern portion of the pit could not be  
 scraped and removed. crew replaced three metal plates under  
 of the pit until backfill ops. Team #3 transferred neutral  
 liquids from vats on top of acid oxidizer vat, began

10/24/17

decanning hoses/pumps/other equipment; and  
 transferred oxidizing acid solid to drum.

1130: crew breaks for lunch

1215: Crew restarted work zone to continue  
 morning activities. Crew also prepared site  
 for potential work shutdown due to low  
 funds; i.e. collecting additional recycle materials  
 decanning rental equipment, etc.

1505: crew cleaning up for the day. crew  
 will work 8-hour day throughout the week  
 due to lack of funding

START stopped VIPER run and collected air  
 monitors.

1530: START Thomas offsite.

Rite in the Rain

14/25/17 10/25/17

0700: START Thomas on site. Weather: 42°F, raining; cloudy, 90% humidity, winds: WSW @ 2mph;

overcast/drizzle expected throughout day.

Attended daily safety meeting. Today's activities will include: continue transferring cyanide liquids/solids from vats; continue pumping/transferring neutral liquids/solids; continue decanning pumps to hoses as needed; transfer latex paint drums to overpacks; transfer acid solids to drums/bags;

Safety topic: equipment safety, situational awareness, chemical to physical hazards.

0730: due to rain expected throughout the day, START will not deploy dusttraks. Calibrated ArcorAES & deployed at AM-1, 2, 3, & 4

0800: started VIPER runs.

0830: crew entered work zone to transfer cyanide liquid/solids, and transfer latex paint.

1130: crew breaks for lunch.

1230: crew continued morning activities.

1530: crew stopped activities for the day. Collected air monitors & stopped VIPER run. Crew offsite.

1730: START offsite once overnight security arrived.

10/26/17

0700: START Thomas on site. Attended Daily Safety meeting. Today's activities will include: continue transferring cyanide liquids/solids; continue transferring acid oxidizer solid; begin hose set up for transferring neutral liquids/basement pit water to the frac tank; Safety Topic: cold weather - working tips.

0730: Weather: 47°F, light winds, partly cloudy, 71% humidity. Calibrated ArcorAES and zeroed DustTraks. Deployed at AM-1, 2, 3, & 4

0830: started VIPER runs. Crews entered work zone. Team #1 continued transferring cyanide liquids & solids from vats. Team #2 finished transferring acid solid and set up pumps & hoses to begin pumping neutral liquids to frac tank.

1130: crew breaks for lunch

1215: crew reenters work zone to continue transferring cyanide solids from vats. Crew finished with acid solids to cyanide liquids.

1530: crew finished activities. START collected air monitors & stopped VIPER runs.

1730: START Thomas offsite once overnight security arrived.



10/27/17

0700: START Thomas Onsite. Weather: 46°F, mostly cloudy, 81% humidity, wind: S @ 5 mph; rain expected in the afternoon. Attended Daily Safety meeting. Today's activities will include: Continue transferring cyanide liquids/solids to shippable containers; triple rinse containers/vats; transfer drums S11 to S12 to new drums; set up hose and connect to frac tank. Safety topic: Hand tool safety: use proper hand tools correctly as designed. Chemical to physical hazards.

0730: Calibrated AreaAES to zeroed DustTraks.

Deployed air monitors to AM-1, 2, 3, & 4. (1)

0815: Started VIPER runs. Crews entered work zone to begin daily activities. Teams continued to transfer cyanide solid vats and power washed vats. Crew also used flour dry to dry out wet sludge/solids from vats before transferring. (1)

1130: Crew breaks for lunch. (1)

1230: Crew reenters work zone to continue morning activities: transferred cyanide solids to transferred 2 acid drums using hand pumps.

1530: crew cleaning up for the day. Stopped VIPER runs to collect air monitors. (1)

1730: START Thomas offsite. (1)

10/30/17

0700: START Thomas Onsite. Weather: 38°F, 75% humidity, overcast; winds: SW @ 8 mph. Attended Daily Safety meeting. Today's activities will include: finishing cyanide liquids/solids transfer; set up hoses/pumps to begin transferring neutral liquids to the frac tank; decon and clean air gear to prepare to demobe EPA air trailer; Safety Topic: Regular house keeping - cleaning areas regularly as the project winds down. Chemical to physical hazards. -mornings have low light conditions. Crew will ensure adequate light is present in the bldg.

0730: Calibrated AreaAES to zeroed DustTraks.

0815: Deployed air monitors at AM1, 2, 3, & 4 to started VIPER runs. (1)

0830: Crew entered work zone to begin transferring cyanide solids from vats to shippable drums; crew also transferred filter cake on 2nd floor to cubic yard bags. (1)

1130: Crew breaks for lunch. (1)

1230: Crew reenters work zone to continue transferring cyanide solids to setting up hoses to transfer liquids to frac tank. (1)

1530: crew cleaning up for day. Stopped VIPER runs to collect air monitors. START Thomas offsite. (1)

10/3/17

0700 START Thomas onsite. Attended daily safety meeting. Today's activities will include: continue transferring cyanide solids to cubic yard boxes; transfer neutral liquids from basement pit to frac tank; disconnect and wrap air lines from air trailer. Safety topic: refueling equipment - recover safety tips - refuel only equipment that is off and has not run recently; Chemical to physical hazards. Weather: 33°F, wind: WSW @ 11 mph, 72% humidity. Cloudy, rain/snow expected today.

0730: Calibrated AreaPACs and Zeroed O<sub>2</sub> & T<sub>2</sub> Traks. Deployed at AM-1, 2, 3, & 4

0815: Started UPER runs

0830: Crew entered work zone to continue transferring cyanide solids from last 3 remaining vats; crew also transferred basement pit water to frac tank.

1130: Crew breaks for lunch

1230: Crew reentered work zone to continue morning activities

Crew continued transferring cyanide solids; transferred 2 neutral liquid vats to the frac tank, rinsed out the vat, and transferred the rinse water; crew also cut empty containers to washed material from the cyanide to neutral liquid vats

1530: Crew cleaning up. START stopped UPER runs to collect air monitors

1730 START Thomas off site

10/1/17

0700: START Thomas onsite. Weather 39°F, overcast, Wind: SE @ 5 mph, 75% humidity. Attended Daily Safety Meeting. Today's activities will include: Continue transferring neutral liquids to frac tank - transfer liquids to one vat to mix inside the building, and then transfer the contents to the frac tank; continue cleaning/pour washing vats after liquids transfer; Use corn cob/flow dry to solidify any sludges/solids in the vats to transfer to boxes; clean/disconnect air lines and prepare EPA Air Trailer for demobil off site; Start picking up/cleaning up solids to swept into piles the solids on the floors in the basement and around the vats. Safety Topic: Carbon monoxide from equipment in the building

0730: Calibrated AreaPACs & Zeroed Dust Traks

0815: Deployed air monitors @ AM-1, 2, 3, & 4 and started UPER runs.

0830: Crews entered work zone to begin activities. Team #1 disconnected air trailer, hoses, and pumps & packed the EPA Air Trailer to prepare to demobilize; Team #2 transferred neutral liquids from vats to a large empty vat to mix the liquids prior to transfer to the frac tank.

*Rite in the Rain*



11/1/17

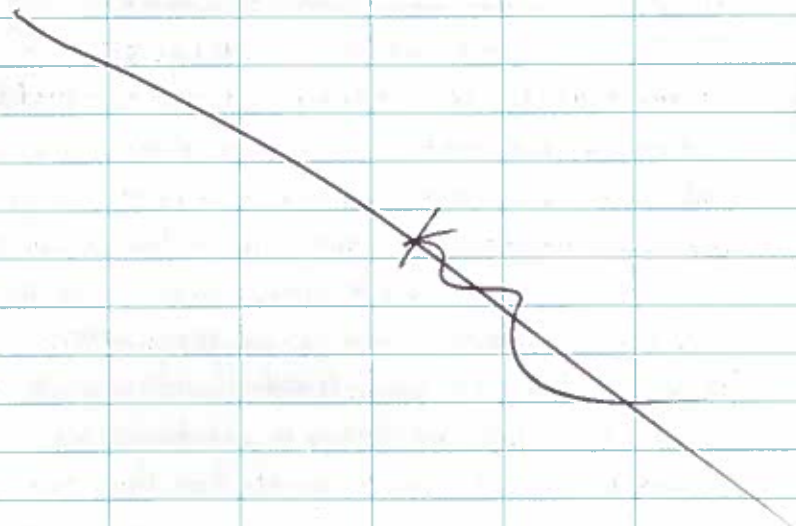
Crew transferred 3 vats with ~600 gallons to the frac tank; Team #3 finished cleaning/rinsing the cyanide totes to put the totes out of the metal caging (metal cage was left intact.) (K)

1130: Crew breaks for lunch.

1230: Crew reentered work zone to continue morning activities. Team #1 continued decoming and prepping Air Trailer. Teams 2 & 3 pumped neutral liquid into the holding vat in the building prior to pumping into the frac tank. (K)

1530: Crew exits work zone. Stopped VIPER runs to collect air monitors.

1730: START Thomas offsite. (K)



11/2/17

0700: START Thomas onsite. Weather: Rain, 49°F, 96% humidity, Winds: SE @ 2 mph.

Attended daily Safety meeting. Today's activities will include: continue transferring neutral liquids to frac tank; transfer solids from neutral liquid vats to drums/boxes; triple rinse vats to equipment in the empty vats; transfer neutral liquids with low levels of cyanides from vats to drums to totes which will be disposed of with cyanide waste waters; Safety topic: Safety Data Sheets, Chemical to physical hazards.

0730: Calibrated AreaRAEs. Due to rain expected throughout the day, START will not deploy AreaRAEs or Dust Traks. (K)

0800: Deployed AreaRAEs to AM 1, 2, 3, & 4 to started VIPER run. (K)

0830: Crew entered work zone to begin daily activities. Crew transferred neutral liquids from vats to the frac tank; after liquids were transferred crews used AreaRAEs to transfer solids to sludges to cubic yard boxes. Crew also transferred low-level cyanide liquids to separate totes to dispose of with cyanide waste. Crew also transferred low level cyanide

*Return the Rain*

11/2/17

Solids to cubic yard boxes. No elevated cyanide readings on air monitoring equipment for (CN. Sewer) exceedances of AL @ AM 2 & 4 for Carbon Monoxide.

Due to equipment (pump, air compressors) turning on. Spikes only lasted a few seconds. OSC to RM discussed, if additional exceedances are encountered, RM will install fans for additional air flow in the building.

11:00: Crew breaks for lunch.

12:30: Crew reentered work zone to continue morning activities. Crew continued transferring neutral liquids to and solids, while transferring vat 38, crews

HCN personal alarmed at 3:5 pm. Used Area RAE 2 to confirm the result. HCN ~ 70 ppm, crew exits the area and will have to transfer solids in level B area. Crew also confirmed the result with

MultiRAE Pro.

15:30: Crew offsite. Collected air monitors and stopped VIPER run.

17:30: START Thomas offsite.

11/3/17

0700: START Thomas onsite. Weather: 5°F wind: NNW @ 4 mph, overcast, 71% Humidity. Attended Daily Safety Meeting. Today's activities will include: Continue transferring neutral liquids to frac tank; Rinse empty vats to remove neutral solids; Begin spreading gravel in the basement concrete pit. Safety Topic: electrical safety.

0730: Calibrated AreaRAEs to be deployed to Am 1, 2, 3, & 4.

0815: Started VIPER run.

0830: Crew entered work zone to begin activities: Crew continued transferring neutral liquids to frac tank, transferred solids to drums to triple rinsed vats. 1 additional load of gravel delivered to fill in cyanide pit.

1130: Crew breaks for lunch.

1230: Crew continued morning activities: transferring solids from vats to drums to cubic yard boxes.

Crew also filled in cyanide pit with gravel.

1530: Crew offsite and stopped VIPER run.

1800: START Thomas offsite.



11/6/17

- 0600 - START Browning on-site. Weather: 44°F, cloudy; wind: out of the north at 10 mph.
- 0700 - Daily activity and health and safety meeting takes place. Topics: ① slips, trips, and falls; ② physical hazards of today's activities (vat material removal and lifting objects); ③ levels of PPE; ④ near-miss with Bobcat and backfilling the basement.
- 0835 - All Area RAE units and the Multi-RAE Pro unit have been calibrated and are now deployed, and, in the case of the Area-RAE units, are now acknowledged by VIPER. Also, due to the potential for rain, the Dust Tracs have not been deployed. ~~MTB~~
- 0740 - Activities: ① removal of the contents from Vats 5, 8, 37, 38, and 47; and ② continued air monitoring. ~~MTB~~
- 1153 - Activities: ① decommissioning air supply equipment; ② completed Vats 5 and 8 (neutral liquid and solid); ③ completed 37 and 38 (cyanide) and 47 (neutral liquid and solid); and ④ working on 49 (neutral liquid and solid).
- 1347 - START transitions to START Thomas.

11/6/17

- 1430 - Crew continued morning activities: transfer neutral solids from vats to drums to cubic yard boxes; crew also filled ⑩ continued filling in basement cyanide pit with gravel. Also filled in basement trench drain that drained in to the pit. ~~Crew work~~ ⑪
- 1600 - Crew breaks ~~MTB~~
- 1630 - crew reentered work zone to continue solid transfer activities in Level Cope. Crew began transferring neutral solids from Vats 5 to 8. ~~MTB~~
- 1700 - Collected air monitors & crew began cleaning up for the day. ~~MTB~~
- 1730 - START Thomas Offsite. ⑫

11/7/17

- 0700- START Browning arrives on site. HTB  
Weather: 37°F; partly cloudy; wind: NE  
at 3 mph. — HTB
- 0702- Daily activity and health and safety mtg  
0727 takes place. Topics: ① confined space  
definition and examples and policies; ②  
physical hazards & proper PPE while work-  
ing inside the ~~so.~~ frac tank and chemical  
hazards; ③ air monitoring for CO. — HTB
- 0750- Activities: ① removal of the contents  
1130, from Vats 49, 5, and 9; ② shipment  
1240- of 14,315 gallons of D007 liquid to  
1715 U.S. Ecology, between 1130 and 1620;  
and ③ triple-rising of Vats 49, 5,  
and 9, following the removal of the  
contents from Vats 49, 5, and 9. — HTB

*Michael Brown*  
11/7/17

11/8/17

- 0700- START Browning on site. Weather: 28°F.  
clear; wind: NW at 6 mph. — HTB
- 0701- Daily activity and H and S meeting takes  
0716 place. Topics: ① buddy system and  
following the same schedule; ② con-  
fined space entries; ③ communication;  
④ BY polysuits for confined space work.
- 0740- Activities: ① using a sawzall to cut  
1140 RCRA-empty containers so that they  
can be placed into the rolloff box; ②  
removing the contents from Drums 290-  
292 are placing their contents into  
a "Neutral Solids" cubic yard box; ③  
removing the contents from Vat 23, which  
started on 11/7/17; and ④ started and  
completed the removal of the contents  
from Vat 67 (neutral solid). — HTB
- 1250- Activities: ① continued removal of the  
1520, contents from Vat 23 (neutral solid);  
1550- ② relocation of closed containers from  
1720 Building 1 to Building 2. — HTB
- 1445- Frac tank off site. — HTB
- 1730- START Browning leaving the site for the  
day. — HTB

*Rite in the Rain*



11/9/17

- 0700 - START Browning arrives on site. Weather: 37°F; partly cloudy; wind: SW at 6 mph. H/TB
- 0702 - Daily activity and H and S meeting takes place. Topics: ① complacency - be mindful of all hazards prior to the long weekend; ② physical hazards - confined spaces in the vats; ③ confined space permit; ④ hearing protection while using the air tools; ⑤ BY suits for interior vat work.
- 0850 - Activities: ① placing poly over the entrance to north bay door; ② removing the contents from Vats 48 and 82; ③ further solidifying the material in Vat 23. ④ removing the materials from Tote 15. ⑤ placing poly over the opening on the second floor of Building 1; and ⑥ power washing the baskets located in Vat 49.
- 1135 Note: The rolloff box left the site at 0830, and was replaced by a ~~new~~ empty rolloff box. H/TB
- 1240 - Activities: ① removal of the contents from VAT 23; ② solidifying contents in Vat 28; ③ rinse down equipment in Vat 49.
- 1520 ④ finished removing contents 48. - H/TB

11/9/17

- Activities: ① continued work on Vats 23 and 28. H/TB
- 1130 - START Browning leaves the site for the day. H/TB

*Michael Browning*  
11/9/17

11/13/17

- 0700- START Browning on site. Weather: 36°F, overcast; wind: NW at 5 mph. — HTB
- 0702- Daily activity and H and S meeting takes place. Topics: ① slips, trips; ② GFCI in place. — HTB
- 0720- Activities: ① the ERRS crew used brooms 1125, and shovels to remove the materials 1235- from the floor of the basement (i.e., 1525 filter cake and other debris) into piles or into cubic-yard pump boxes.
- 1400- START Browning leaves the site for the day. — HTB

*Neil Browning*  
11/13/17

11/14/17

- 0700- START Browning arrives on site. Weather: 33°F, calm wind; clear. HTB
- 0702- Morning activity and H and S meeting takes place. Topics: ① slips, trips, and falls. — HTB
- 0720- Activities: ① continued work on 1135 sweeping and shoveling the filter cake and other debris from the floor of the basement and its placement into piles or cubic yard boxes. HTB
- 1402- Elevated reading above 5.0 ppm, for 1437 VOCs, are observed in Building 1, as a result of the ERRS crew digging out a sump. However, given that the ERRS workers are already in Level C PPE and that the VOC readings are not sustained for five straight minutes, the ERRS crew continued working in the building. — HTB
- 1245- Activities: ① sweeping and piling in 1520 the basement of Building 1; ② dig out of sump in the basement of Building; ③ removal of contents from Vat 28.
- 1530- START leaves the site for the day.

*Rite in the Rain*



11/15/17

- 0700 - START Browning on site. Weather: 41°F; cloudy; wind: S out of 12 mph. - HTB
- 0701 - Daily activity and H and S meeting takes place. Topics: ① water in the building; ② dust in the building; ③ heavy lifting; ④ stay hydrated. - HTB
- 0710 - Due to the likelihood of rain, during the day, the Dust Traks (outdoors) will not be deployed. However, the Dust Trak, inside Building 1, will be deployed. - HTB
- 0725 - Activities: ① The ERRS continued to sweep up the material located on the floor of the basement in Building 1 and to put the material into piles; ② consolidate/stage empty vats at the south end of Building 1 (11/14). - HTB
- 1357 - BackNote: Area RAE #4 displayed readings, for VOCs, above 5.0 ppm. However, the other Area RAE units did not display such readings. As a result, the MultiRAE Pro was used at the Area RAE 4 position and showed a peak reading of 250 ppb. The likely cause is sensor drift due to high humidity. - HTB
- 1530 - START Browning off site for the day. HTB

11/16/17

- 0700 - START Browning on site. Weather: 39°F; overcast; wind: west at 13 mph.
- 0701 - Daily activity and H and S meeting takes place. Topics: ① making room in Bldg 2 for meter reading; ② slip, trips, and falls in Bldg 1 due to rain. - HTB
- 0730 - Activities: ① continual sweeping of materials from the floor of Building 1 and the placement of the material into piles for later <sup>HTB</sup> ~~sample~~ sampling and disposal. - HTB
- 1130 - Additionally, ERRS removed the contents from Vat 81, placed these contents into a cubic yard box, and scraped the floor beneath the vat.
- 1530 - START Browning leaves the site for the day. - HTB

*Michael J. Brown*  
11/16/17

11/17/17

- 0700- START Browning on site. Weather: 34°F, cloudy; wind: E at 5 mph. ——— MTB
- 0704 - Daily activity and Hand S meeting takes place. Topics: ① complacency on each Friday, be aware of the job on hand; ② slips, trips, and falls. ——— MTB
- 0735 - Activities: ① removal of the contents from Vat 28, and their placement into a cubic yard box, and the triple-rinsing of nine <sup>MTB</sup> empty vats, and the placement of the rinse water into a tote. ——— MTB
- 1130, 1235, 1510
- 1530- START Browning leaves the site for the day. ——— MTB

*Michael Browning*  
11/17/17

11/20/17

- 0700- START Browning on-site. Weather: 30°F; clear; calm wind. ——— MTB
- 0702- Daily activity and Hand S meeting takes place. Topics: ① status of moving containers in Building 2 for water access; ② hand-wash station leaving the site; ③ wear poly suits for cleaning the mats; ④ slips, trips, and falls. ——— MTB
- 0730- Activities: ① picking up trash and debris from the floor of Building 1, ② staging empty poly totes for eventual triple-rinsing, and ③ removing the rubber floor mats from the floor of Building 1 and knocking the hardened material from the mats onto a sheet of poly. ——— MTB
- 1140, 1245-
- 1530- START Browning off site for the day.

*Michael Browning*  
11/20/17



11/21/17

- 0700 - START Browning on site. Weather: 40s, fair, wind: SW at 16 mph. ——— MTB
- 0700 - Daily activity and Hand Sweeping takes place. Topics: ① complacency close to Thanksgiving; ② proper lifting while working with the mats; ③ protocol for site emergency during the Thanksgiving holiday. ——— MTB
- 0727 - Activities: ① removed solids from the 1130, rubber mats and plastic grates; ② 1230 - picked up garbage and debris from the second level and placed into drum liners. ——— MTB
- 1215 1530 - START Browning leaves the site for the day. ——— MEB

*Phil Browning*  
11/21/17

11/27/17

- 0700: START Thomas on site. Weather: 33°F, partly cloudy, 90% humidity, winds: N @ 2 mph. Attended Daily Safety Meeting. Today's activities will include: Check temperature of solid piles with temperature gun; bag ~~sport~~ material that was around the cyanide vats which will be disposed with cyanide solid materials; Prep building 2 for waste pickup tomorrow. Safety Topic: Forklift safety. ——— (1)
- 0730: Calibrated AreaPACs to record dust & gases. Deployed air monitors to AM 12, 3, 64. ——— (1)
- 0830: Started VIPER runs. Crews began shoveling piles of solids into cubic yard boxes for disposal. Crews also ~~for~~ fixed the oil off box and disposed of empty containers. ——— (1)
- 1230: Crew breaks for lunch. ——— (1)
- 1230: Crew continued morning activities. Shoveling floor wastes around vats into boxes. Crews also used temp gun to check for reactions in the piles.
- 1700: Crew cleaning up for the day. Stopped VIPER runs to collect air monitors.
- 1730: START Thomas off site. ——— (1)

*Rite in the Rain*

11/28/17

0700: START Thomas on site. Weather: 50°F, partly cloudy, 80% humidity, wind: 2 mph. Attended Daily Safety Meeting. Today's activities will include: continue removing solids from the floors to around the rats; use floor sweep material to sweep walkways; T & D of cyanide solid containers; transfer remaining neutral liquid drums to a tote. Safety Topic: 12 activities that cause the most injuries, i.e. hoseplay, improper use of PPE, equipment, heavy machinery. (CP)

0730: Calibrated Area DEXES to Zerced Dust Traks. (CP)

Deployed air monitors to AM-1, 2, 3, 6, 4

0815: Started VICE runs. (CP)

0830: Crews entered work zone to continue sweeping and shoveling solid materials from floors to around rats into cubed yard boxes. Crew also transferred last remaining liquid from drums into a tote. (CP)

0900: Crew (CP) Truck #1 on site to crew loading cyanide solids for T & D. (CP)

1130: Truck #2 on site to crew loading acid solids and non-haz solids for T & D. (CP)

1200: crew breaks for lunch.

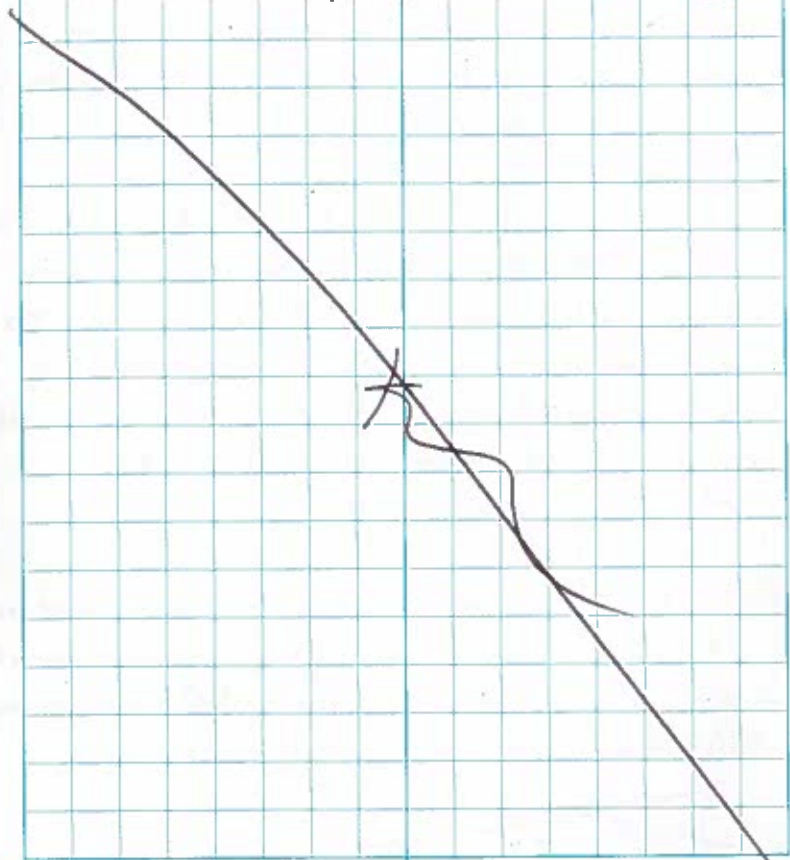
1300: crew reentered work zone to continue morning activities. continued (CP) sweeping floors

11/28/17

to cleaning ground water. Crew also pour washed neutral liquid drums to finished bulking liquids in a tote. (CP)

1645: Stopped VICE runs to collated air monitors. (CP)

1730: START Thomas off site. (CP)



*Rate in the Rain*



11/29/17

0700: START Thomas on site. Attended daily safety meeting. Today's activities will include:

Continue cleaning walkways and around the vats; begin moving vats on the west side of the building to clean under the vats to remove the solid materials; move unused containers (clean, new airpacs, drums, totes) to building 2. But @ Safety topic: fire extinguisher use. Weather:

41°F, mostly sunny, 45% humidity, Wind: WNW @ 5mph

0730: Calibrated Area RAEs to zeroed dusttrks.

0815: Deployed air monitors at AM 1, 2, 3, 6 and started VIPER runs. ~~\_\_\_\_\_~~ (1)

0830 Crew entered work zone to continue cleaning floors around vats; crew also finished transferring neutral liquids from remaining drums/totes to totes, to dig out solids from containers.

1130: crew breaks for lunch.

1230: crew continued morning activities. Cleaned/swept floors to catwalks in central portion of vat area.

~~1500~~ (1) 1700: Stopped VIPER run to collected air monitors

1730: START Thomas off site.

11/30/17

0700: START Thomas On site. Weather: 41°F, cloudy, rain expected in the afternoon, wind SSW @ 2mph. Attended daily safety meeting. (1) Today's activities will include:

continue removing solid material from walkways to around the vats in the vat area and in the basement. Safety topic: Housekeeping

0730: Calibrated Area RAEs and zeroed dusttrks.

0815: Deployed Air monitors to AM-1, 2, 3, 6 and started VIPER runs. ~~\_\_\_\_\_~~ (1)

0830: Crews cleaning under walkways to between vats. Sweeping solids off floors to from the remaining vats/drums/totes with neutral solids.

0915: Crew ~~was~~ discovered an unopened 15-gal drum under the floor in the vat area. HCN readings on personal monitors. Crew unpacked and staged container.

1230: crew breaks for lunch.

1230: crew continued morning activities. (1)

1445: stopped VIPER runs to collected air monitors

1730: START Thomas off site

**APPENDIX D**  
**PHOTOGRAPHIC DOCUMENTATION LOG**





## Photographic Documentation

**Client:** U.S. EPA Region 5

**Site Name:** Electro Plating Services Removal Site

**Location:** 945 East 10 Mile Road, Madison Heights, MI

**Prepared by:** Tetra Tech, Inc.

**TDD Number:** S05-0001-1703-001

**Date:** January 19, 2018

### Photograph No. 1

**Photographer:**

Kelly Thomas

**Date:** 04/17/2017

**Description:**

Central parking area prior to the beginning of the removal action activities.



### Photograph No. 2

**Photographer:**

Kelly Thomas

**Date:** 04/17/2017

**Description:**

Emergency and Rapid Response Services (ERRS) contractor completing the site setup activities to establish the command post area.





## Photographic Documentation

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**Prepared by:** Tetra Tech, Inc.

**TDD Number:** S05-0001-1703-001

**Date:** January 19, 2018

### Photograph No. 3

**Photographer:**

Kelly Thomas

**Date:** 05/24/2017

**Description:**

Decontamination area setup outside of Building #1.



### Photograph No. 4

**Photographer:**

Kelly Thomas

**Date:** 06/12/2017

**Description:**

Drum and container storage area on the plating level of Building #1.







## Photographic Documentation

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**Location:** 945 East 10 Mile Road, Madison Heights, MI

**Prepared by:** Tetra Tech, Inc.

**TDD Number:** S05-0001-1703-001

**Date:** January 19, 2018

### Photograph No. 5

**Photographer:**

Kelly Thomas

**Date:** 07/05/2017

**Description:**

Plating area prior to the removal action activities in Building #1.



### Photograph No. 6

**Photographer:**

Kelly Thomas

**Date:** 06/29/2017

**Description:**

Green wastewater with hazardous concentrations of chromium in the earthen basement pit in Building #1.





## Photographic Documentation

**Client:** U.S. EPA Region 5

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**Location:** 945 East 10 Mile Road, Madison Heights, MI

**Prepared by:** Tetra Tech, Inc.

**TDD Number:** S05-0001-1703-001

**Date:** January 19, 2018

### Photograph No. 7

**Photographer:**

Kelly Thomas

**Date:** 09/10/2017

**Description:**

Container storage area in the basement of Building #1.



### Photograph No. 8

**Photographer:**

Kelly Thomas

**Date:** 06/06/2017

**Description:**

Container staging and sampling area on the second floor in Building #1.







## Photographic Documentation

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**Prepared by:** Tetra Tech, Inc.

**TDD Number:** S05-0001-1703-001

**Date:** January 19, 2018

### Photograph No. 9

**Photographer:**

Kelly Thomas

**Date:** 06/06/2017

**Description:**

Container staging and sampling area in the warehouse portion in Building #2.



### Photograph No. 10

**Photographer:**

Kelly Thomas

**Date:** 06/13/2017

**Description:**

Container staging and sampling area in a temporary conex storage box.





## Photographic Documentation

**Client:** U.S. EPA Region 5

**Site Name:** Electro Plating Services Removal Site

**Location:** 945 East 10 Mile Road, Madison Heights, MI

**Prepared by:** Tetra Tech, Inc.

**TDD Number:** S05-0001-1703-001

**Date:** January 19, 2018

### Photograph No. 11

**Photographer:**

Kelly Thomas

**Date:** 06/20/2017

**Description:**

ERRS crew members conducting container sampling activities in Level B personal protective equipment (PPE).



### Photograph No. 12

**Photographer:**

Kelly Thomas

**Date:** 06/16/2017

**Description:**

ERRS crew members conducting container sampling activities in Level B PPE.







## Photographic Documentation

**Client:** U.S. EPA Region 5

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**Location:** 945 East 10 Mile Road, Madison Heights, MI

**Prepared by:** Tetra Tech, Inc.

**TDD Number:** S05-0001-1703-001

**Date:** January 19, 2018

### Photograph No. 13

**Photographer:**

Kelly Thomas

**Date:** 06/15/2017

**Description:**

ERRS chemist conducting hazard categorization (HAZCAT) activities.



### Photograph No. 14

**Photographer:**

Kelly Thomas

**Date:** 07/10/2017

**Description:**

The basement concrete pit in Building #1 covered with metal plates.





## Photographic Documentation

**Client:** U.S. EPA Region 5

**Site Name:** Electro Plating Services Removal Site

**Location:** 945 East 10 Mile Road, Madison Heights, MI

**Prepared by:** Tetra Tech, Inc.

**TDD Number:** S05-0001-1703-001

**Date:** January 19, 2018

### Photograph No. 15

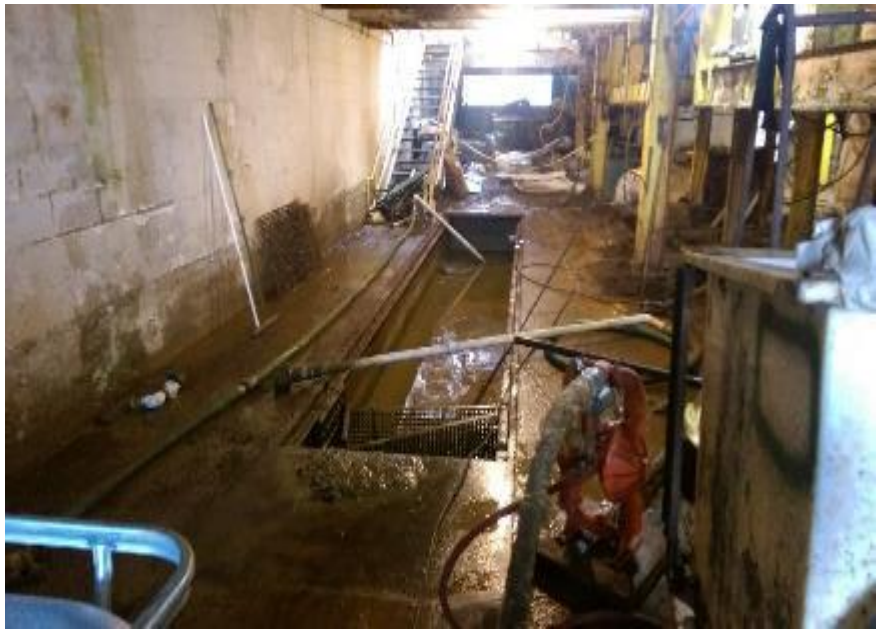
**Photographer:**

Kelly Thomas

**Date:** 10/24/2017

**Description:**

The basement concrete pit during removal of the cyanide liquids and sludge.



### Photograph No. 16

**Photographer:**

Kelly Thomas

**Date:** 11/01/2017

**Description:**

The basement concrete pit during removal of the cyanide sludge.







## Photographic Documentation

**Client:** U.S. EPA Region 5

**Site Name:** Electro Plating Services Removal Site

**Location:** 945 East 10 Mile Road, Madison Heights, MI

**Prepared by:** Tetra Tech, Inc.

**TDD Number:** S05-0001-1703-001

**Date:** January 19, 2018

### Photograph No. 17

**Photographer:**

Kelly Thomas

**Date:** 11/08/2017

**Description:**

The basement concrete pit after removal of the hazardous waste contents and power-washing of the sidewalls and floor.



### Photograph No. 18

**Photographer:**

Kelly Thomas

**Date:** 11/21/2017

**Description:**

The basement concrete pit after crews filled it in with crushed concrete gravel.





## Photographic Documentation

**Client:** U.S. EPA Region 5

**Site Name:** Electro Plating Services Removal Site

**Location:** 945 East 10 Mile Road, Madison Heights, MI

**Prepared by:** Tetra Tech, Inc.

**TDD Number:** S05-0001-1703-001

**Date:** January 19, 2018

### Photograph No. 19

**Photographer:**

Kelly Thomas

**Date:** 06/29/2017

**Description:**

The basement earthen pit filled with green wastewater with hazardous concentrations of chromium.



### Photograph No. 20

**Photographer:**

Kelly Thomas

**Date:** 12/12/2017

**Description:**

The basement earthen pit after the hazardous wastewater was removed and transported offsite for disposal.







## Photographic Documentation

**Client:** U.S. EPA Region 5

**Site Name:** Electro Plating Services Removal Site

**Location:** 945 East 10 Mile Road, Madison Heights, MI

**Prepared by:** Tetra Tech, Inc.

**TDD Number:** S05-0001-1703-001

**Date:** January 19, 2018

### Photograph No. 21

**Photographer:**

Kelly Thomas

**Date:** 12/14/2017

**Description:**

The area of the basement earthen pit filled with crushed concrete gravel.



### Photograph No. 22

**Photographer:**

Kelly Thomas

**Date:** 07/07/2017

**Description:**

The metal plating vats in the plating area in Building #1.





## Photographic Documentation

**Client:** U.S. EPA Region 5

**Site Name:** Electro Plating Services Removal Site

**Location:** 945 East 10 Mile Road, Madison Heights, MI

**Prepared by:** Tetra Tech, Inc.

**TDD Number:** S05-0001-1703-001

**Date:** January 19, 2018

### Photograph No. 23

**Photographer:**

Kelly Thomas

**Date:** 07/10/2017

**Description:**

A typical plating vat in Building #1 prior to removal of the hazardous waste contents.



### Photograph No. 24

**Photographer:**

Kelly Thomas

**Date:** 12/12/2017

**Description:**

A plating vat in Building #1 following the removal of the hazardous contents. Note: the vat radiators were left inside the vats following removal.







## Photographic Documentation

**Client:** U.S. EPA Region 5

**Site Name:** Electro Plating Services Removal Site

**Location:** 945 East 10 Mile Road, Madison Heights, MI

**Prepared by:** Tetra Tech, Inc.

**TDD Number:** S05-0001-1703-001

**Date:** January 19, 2018

### Photograph No. 25

**Photographer:**

Kelly Thomas

**Date:** 12/12/2017

**Description:**

A vat in the plating area in Building #1. The side of the vat was cut in order for crews to remove the hazardous waste materials.



### Photograph No. 26

**Photographer:**

Kelly Thomas

**Date:** 12/12/2017

**Description:**

Overturned vats left inside of Building #1 following the removal action activities.





## Photographic Documentation

**Client:** U.S. EPA Region 5

**Site Name:** Electro Plating Services Removal Site

**Location:** 945 East 10 Mile Road, Madison Heights, MI

**Prepared by:** Tetra Tech, Inc.

**TDD Number:** S05-0001-1703-001

**Date:** January 19, 2018

### Photograph No. 27

**Photographer:**

Kelly Thomas

**Date:** 12/01/2017

**Description:**

Basement solids next to the earthen pit in Building #1.  
Note: The EPS workers had reportedly dug this material from the earthen pit prior to the site assessment activities.



### Photograph No. 28

**Photographer:**

Kelly Thomas

**Date:** 12/15/2017

**Description:**

ERRS crew members removing solids from the basement floors in Building #1.







## Photographic Documentation

**Client:** U.S. EPA Region 5

**Site Name:** Electro Plating Services Removal Site

**Location:** 945 East 10 Mile Road, Madison Heights, MI

**Prepared by:** Tetra Tech, Inc.

**TDD Number:** S05-0001-1703-001

**Date:** January 19, 2018

### Photograph No. 29

**Photographer:**

Kelly Thomas

**Date:** 12/15/2017

**Description:**

Floors in the plating area where the ERRS crew members removed solids underneath the vats and cleaned the mats and grates covering the walkways.



### Photograph No. 30

**Photographer:**

Kelly Thomas

**Date:** 09/16/2017

**Description:**

Cyanide solids from the site repackaged into a cubic yard box and loaded onto a truck for offsite transport and disposal.





## Photographic Documentation

**Client:** U.S. EPA Region 5

**Site Name:** Electro Plating Services Removal Site

**Location:** 945 East 10 Mile Road, Madison Heights, MI

**Prepared by:** Tetra Tech, Inc.

**TDD Number:** S05-0001-1703-001

**Date:** January 19, 2018

### Photograph No. 31

**Photographer:**

Kelly Thomas

**Date:** 07/25/2017

**Description:**

Hydrochloric acid drums being loaded onto a truck for offsite transport and disposal.



### Photograph No. 32

**Photographer:**

Kelly Thomas

**Date:** 08/21/2017

**Description:**

Drums containing flammable liquids being loaded onto a truck for offsite transport and disposal.







## Photographic Documentation

**Client:** U.S. EPA Region 5

**Site Name:** Electro Plating Services Removal Site

**Location:** 945 East 10 Mile Road, Madison Heights, MI

**Prepared by:** Tetra Tech, Inc.

**TDD Number:** S05-0001-1703-001

**Date:** January 19, 2018

### Photograph No. 33

**Photographer:**

Kelly Thomas

**Date:** 12/10/2017

**Description:**

Plating area floors in Building #1 following the removal action activities.



### Photograph No. 34

**Photographer:**

Kelly Thomas

**Date:** 12/10/2017

**Description:**

The container storage area on the second floor of Building #1 following the removal action activities.





## Photographic Documentation

**Client:** U.S. EPA Region 5

**Site Name:** Electro Plating Services Removal Site

**Location:** 945 East 10 Mile Road, Madison Heights, MI

**Prepared by:** Tetra Tech, Inc.

**TDD Number:** S05-0001-1703-001

**Date:** January 19, 2018

### Photograph No. 35

**Photographer:**

Kelly Thomas

**Date:** 09/22/2017

**Description:**

The lab area in Building #1 following the removal action activities.



### Photograph No. 36

**Photographer:**

Kelly Thomas

**Date:** 07/05/2017

**Description:**

Subcontracted Geoprobe rig which advanced four soil borings surrounding Building #1.







## Photographic Documentation

**Client:** U.S. EPA Region 5

**Site Name:** Electro Plating Services Removal Site

**Location:** 945 East 10 Mile Road, Madison Heights, MI

**Prepared by:** Tetra Tech, Inc.

**TDD Number:** S05-0001-1703-001

**Date:** January 19, 2018

**Photograph No. 37**

**Photographer:**

Kelly Thomas

**Date:** 07/05/2017

**Description:**

Section of a soil boring at  
Borehole Location #4.



**Photograph No. 38**

**Photographer:**

Kelly Thomas

**Date:** 07/05/2017

**Description:**

Section of a soil boring at  
Borehole Location #4.





## Photographic Documentation

**Client:** U.S. EPA Region 5

**Site Name:** Electro Plating Services Removal Site

**Location:** 945 East 10 Mile Road, Madison Heights, MI

**Prepared by:** Tetra Tech, Inc.

**TDD Number:** S05-0001-1703-001

**Date:** January 19, 2018

### Photograph No. 39

**Photographer:**

Kelly Thomas

**Date:** 08/21/2017

**Description:**

City of Madison Heights officials using a camera to scope the inside of the sanitary sewer line running through the northern portion of the site.



### Photograph No. 40

**Photographer:**

Kelly Thomas

**Date:** 7/16/2015

**Description:**

City of Madison Heights officials using a camera to view and evaluate the inside of the sanitary sewer line running through the northern portion of the site.







## Photographic Documentation

**Client:** U.S. EPA Region 5

**Site Name:** Electro Plating Services Removal Site

**Location:** 945 East 10 Mile Road, Madison Heights, MI

**Prepared by:** Tetra Tech, Inc.

**TDD Number:** S05-0001-1703-001

**Date:** January 19, 2018

### Photograph No. 41

**Photographer:**

Kelly Thomas

**Date:** 06/08/2017

**Description:**

A drum discovered on the first floor of Building #1 that is connected to the sanitary sewer line.



### Photograph No. 42

**Photographer:**

Kelly Thomas

**Date:** 06/08/2017

**Description:**

A drum discovered on the first floor of Building #1 that is connected to the sanitary sewer line.





## Photographic Documentation

**Client:** U.S. EPA Region 5

**Site Name:** Electro Plating Services Removal Site

**Location:** 945 East 10 Mile Road, Madison Heights, MI

**Prepared by:** Tetra Tech, Inc.

**TDD Number:** S05-0001-1703-001

**Date:** January 19, 2018

### Photograph No. 43

**Photographer:**

Kelly Thomas

**Date:** 12/04/2017

**Description:**

Corroded and damaged concrete in the basement of Building #1.



### Photograph No. 44

**Photographer:**

Kelly Thomas

**Date:** 12/04/2017

**Description:**

Corroded and damaged concrete in the basement of Building #1.







## Photographic Documentation

**Client:** U.S. EPA Region 5

**Site Name:** Electro Plating Services Removal Site

**Location:** 945 East 10 Mile Road, Madison Heights, MI

**Prepared by:** Tetra Tech, Inc.

**TDD Number:** S05-0001-1703-001

**Date:** January 19, 2018

### Photograph No. 45

**Photographer:**

Kelly Thomas

**Date:** 12/04/2017

**Description:**

Areas of the plating level where the ERRS crew was unable to move the plating vats due to damaged or missing floors.



### Photograph No. 46

**Photographer:**

Kelly Thomas

**Date:** 07/16/2017

**Description:**

Severely damaged and corroded building structures in the basement of Building #1.





## Photographic Documentation

**Client:** U.S. EPA Region 5

**Site Name:** Electro Plating Services Removal Site

**Location:** 945 East 10 Mile Road, Madison Heights, MI

**Prepared by:** Tetra Tech, Inc.

**TDD Number:** S05-0001-1703-001

**Date:** January 19, 2018

### Photograph No. 47

**Photographer:**

Kelly Thomas

**Date:** 07/26/2017

**Description:**

Severely damaged and corroded building structures in the basement of Building #1.





**APPENDIX E**  
**ENVIRONMENTALLY PREFERRED PRACTICES**

START implemented environmentally preferred practices to maximize sustainability; reduce energy, water use, and toxic air emissions; promote carbon neutrality; and encourage industrial material reuse and recycling. In accordance with contract requirements, U.S. Environmental Protection Agency (EPA) policies, and relevant guidance, START documented project-specific environmentally preferred practices and available metrics in the Environmental Field Practices Checklist, Environmental Office Practices Checklist, and Green Metrics Table (ASTM International 2016; EPA 2012a, 2012b, and 2016).

## **References:**

- ASTM International (ASTM). 2016. "Standard Guide for Greener Cleanups." E2893-16. April 1.
- EPA. 2012a. "Methodology for Understanding and Reducing a Project's Environmental Footprint." Office of Solid Waste and Emergency Response, Office of Superfund Remediation and Technology Innovation. EPA 542-R-12-002. February.
- EPA. 2012b. "U.S. EPA Region 5 Superfund Greener Cleanup Implementation Strategy." March 16.
- EPA. 2016. Memorandum Regarding Consideration of Greener Cleanup Activities in the Superfund Cleanup Process. From Woolford, James, Director, *et. al.* To Regional Superfund National Program Managers and Regional Counsels, Regions 1 – 10. August 2.



<b>TDD #:</b>	0001/S05-0001-1703-001
<b>Site Name:</b>	Electro Plating Services Removal Site
<b>Site City, State:</b>	Madison Heights, Michigan
<b>Site Project Manager:</b>	Kelly Thomas
<b>EPA OSC:</b>	Jeffrey Lippert

Environmentally Preferred General Field Practices				
If a general category is not applicable, then check N/A for the category box, not for each subcategory.	N= Not Used	N/A= Not Applicable	Y = Yes Implemented	Comments Section Justify in the comments for each BMP field as to why the practice was not used, not applicable, or implemented.
<b>Energy</b>				
<b>Use of Energy Efficient Equipment</b>				
Computer Equipment (FEMP/Energy Star)			Y	Energy Star rate PC issued
Installation of Electric Service			Y	Power drop from DTE Energy
<b>Reduce Carbon Emissions from Transportation</b>				
Use Internet Based Meetings/Conferences			Y	
Maximize Carpooling		NA		
Use of Local Labor/Suppliers/Waste Disposal Facilities (50 mile radius)			Y	Used mostly local staff throughout the removal. Five of seven disposal facilities also located within 50 mile radius
No idling, except for extreme weather conditions			Y	
Use of Alternative Fuels, if available within 10 miles		NA		
Properly Inflated Tires			Y	
Email Small Files (less than 8MB)			Y	
Reusable Electronic Storage Media or the Cloud			Y	
<b>Water</b>				
Use of Low Flow Sampling Pumps		NA		
<b>Waste</b>				
Use of Local Recycling Programs			Y	
Use of Rechargeable Batteries			Y	
Recycling – Other			Y	
Plastic Reduction			Y	
Reuse of Resources			Y	367 tons of recycled crushed concrete gravel used to fill basement pits
Direct Push Boring			Y	
<b>Materials</b>				
<b>Printing when Required</b>				
Double-sided Printing			Y	
100% post-consumer recycled paper			Y	

Environmentally Preferred General Field Practices				
If a general category is not applicable, then check N/A for the category box, not for each subcategory.	N = Not Used	N/A = Not Applicable	Y = Yes Implemented	Comments Section Justify in the comments for each BMP field as to why the practice was not used, not applicable, or implemented.
<b>Land &amp; Ecosystems</b>				
Minimize Disruption to Natural Vegetation		NA		
Use of Non-invasive Investigation Techniques		NA		
<b>Environmentally Preferred</b>				
<b>Green Procurement</b>				
Environmentally Preferred Vendors		NA		
Green Lodging/Hotels		NA		
Use of Green Laboratories		NA		