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GROUNDWATER TREATMENT SYSTEM DECOMMISSIONING SUMMARY REPORT

FORMER SPIEGELBERG SUPERFUND SITE
LIVINGSTON COUNTY, MICHIGAN

DRAFT FOR REVIEW

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LIVINGSTON COUNTY, MICHIGAN

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1.0 INTRODUCTION

This Groundwater Treatment System Decommissioning Summary Report has been prepared by Conestoga-Rovers & Associates, Inc. (CRA) on behalf of Ford Motor Company (Ford) of Dearborn, Michigan. This report summarizes the groundwater treatment system decommissioning activities conducted at the former Spiegelberg Superfund Site (Spiegelberg Site) located on Spicer Road in Green Oak Township, Livingston County, Michigan (Site). The location of the Site is presented in Figure 1. A Site Plan depicting current Site conditions is presented in Drawing 1.

The decommissioning activities included: (1) decontaminating and decommissioning the groundwater treatment system components within the treatment building; (2) cleaning the treatment building walls and floor; and (3) abandoning the network of groundwater monitoring wells, extraction wells and injection wells associated with the treatment system. The decommissioning and well abandonment activities were completed in accordance with the following:

1. The June 2006 CRA Groundwater Treatment System Decommissioning Plan (Appendix A).
2. The June 21, 2006 CRA letter to the United States Environmental Protection Agency (EPA) regarding the Well Abandonment Program (Appendix B).
3. The May 18, 2011 EPA letter to CRA regarding Spiegelberg Landfill: Decommissioning Groundwater Remediation System and Well Abandonment Program (Appendix C).
4. The January 4, 2012 CRA Request for Proposal and associated Addendums.
5. The April 4, 2012 CRA Ford Purchase Order Request and associated Ford Purchase Order.

1.1 PROJECT TEAM

The predominant members of the project team and their affiliations are presented below.

Project Team	Affiliation	Responsibility
Dave Miller/ Chuck Pinter	Ford	Owner's Representative
Gordon Hotchkiss	CRA	Project Manager (PM)
Nathan Kuhl	CRA	Project Coordinator

Project Team	Affiliation	Responsibility
Mike Favor	EQ	Waste Disposal Services PM
Mike Favor	EQ	Decommissioning Subcontractor PM
Jay Herrington	Terra Probe / Williams-Oddo Well Drilling, Inc.	Well Abandonment PM
Denise Heckler	TestAmerica	Laboratory Services PM

1.2 REPORT ORGANIZATION

The remainder of this report is organized as follows:

SECTION 2.0 BACKGROUND
SECTION 3.0 SYSTEM DECOMMISSIONING
SECTION 4.0 WASTE REMOVAL
SECTION 5.0 SITE RESTORATION
SECTION 6.0 SITE INSPECTIONS
SECTION 7.0 PROJECT CLOSURE
SECTION 8.0 REFERENCES

2.0 BACKGROUND

2.1 SYSTEM DESCRIPTION

The Spiegelberg Site included a groundwater pump and treat remediation system designed to control groundwater migration and remove volatile organic compounds (VOCs) detected in groundwater at the Site. The groundwater treatment system performance and VOC removal efficiency was monitored by collecting and analyzing groundwater samples from system influent prior to treatment and groundwater samples from the system effluent after treatment. As part of the groundwater treatment system operation and maintenance, the concentration trends of VOCs detected in Site groundwater were monitored by collecting and analyzing samples from a monitoring well network installed at the Site in previous investigations. The groundwater remediation system and the groundwater monitoring network at the Site were comprised of the following components:

- Five groundwater extraction wells screened within the former VOC impacted areas. Each extraction well was equipped with an electric downhole pump that discharged impacted groundwater to subsurface piping that connected the extraction well to the groundwater remediation system.
- A groundwater treatment system that included an equalization tank, air stripper compressor, sludge tank, pump tank, sand filter, five liquid phase granulated activated carbon (GAC) vessels, three vapor phase GAC drums, transfer pumps, sludge pumps, and re-injection pumps.
- A metal paneled treatment building that measured approximately 40 feet wide by 80 feet long that housed the groundwater remediation system. The concrete building floor was constructed with 12-inch high concrete pedestals for the remediation equipment, a sump for treated groundwater, a control room and several catwalks to access storage areas or the top of the carbon vessels.
- Eight groundwater injection wells that discharged treated groundwater from a sump in the treatment building back into the same formation where groundwater was being extracted.
- Thirty-one monitoring wells that were used to monitor groundwater quality trends in Site groundwater.
- Twelve piezometers that were used to assess the hydraulic conditions at the Site.

The groundwater remediation system operated between August 1995 and September 1998. In September 1998, with the approval of the EPA and the Michigan

Department of Environmental Quality (MDEQ), the operation of the system was reduced from continuous to intermittent. The designed peak flow of the system components was 125 gallons per minute. The make and model of all the remediation equipment was presented in CRA's approved Groundwater Treatment System Decommissioning Plan.

The treatment system was designed to divide the extracted groundwater into two process streams to efficiently remove VOCs from the groundwater influent. Stream A was designed to treat groundwater with higher VOC concentrations, utilizing an air stripper as the most efficient primary treatment technology. Liquid and vapor phase GAC was employed as a secondary technology to treat the VOCs from the air stripper vapor effluent and to provide final polishing of the groundwater effluent. Air stripping commonly produces solids by oxidizing soluble metals (mainly iron) into a less soluble form. Therefore, a sand filter and sludge tank were needed in Stream A to collect and concentrate sludge generated in the system.

Stream B was designed to treat groundwater with lower VOC concentrations. Due to the lower organic content in the groundwater, aqueous phase carbon was the most efficient technology for treatment. Stream B was capable of handling peak flow rates up to 50 gallons per minute (gpm).

2.2 SITE UTILITIES

Utilities at the Site included:

- Aboveground 3-phase, 480-volt electrical service to the Site via a utility pole located adjacent to the treatment system building. Electrical service entered the building at a motor control center (MCC) located in the control room in the southwest corner of the treatment building. The MCC contained two transformers; one converting 480-volt power to 120/208-volt, 3-phase, and a second providing isolated and filtered 120-volt power. Underground electrical conduits were located throughout the Site to supply extraction and injection wells.
- Extraction and injection force mains located approximately 3.5 feet below ground surface (BGS) between the treatment building and extraction/injection wells.
- An air compressor supplied air throughout the treatments system building.
- Closed potable water system consisting of one underground 550-gallon polyethylene potable water holding tank and associated piping.

- Closed emergency shower system consisting of one aboveground 125-gallon polyethylene emergency shower tank and associated piping and components.
- Closed process water system consisting of a 2,000-gallon capacity sump and trench drain.
- Closed sanitary system consisting of a 5,000-gallon carbon steel sanitary holding tank and associated components.

The closed potable water system, emergency shower system closed sanitary system, and trench drain were left in place for future use.

2.3 REMEDIATION SYSTEM DECOMMISSIONING HISTORY

Groundwater monitoring was conducted on a regular basis throughout the operating life of the groundwater remediation system.

In August 2004, the last groundwater monitoring event was conducted at the Site as specified in the EPA-approved "Protocol for Intermittent Operation of the Groundwater Remediation System" (CRA, August 1998).

In February 2005, following the receipt and review of the monitoring data from the August 2004 event, CRA issued a letter to the EPA proposing that the groundwater remediation system at the Spiegelberg Site be decommissioned and the long-term groundwater monitoring program be discontinued. Based on the results of the previous remedial activities completed, the CRA letter also petitioned the EPA to delist the Site from the National Priorities List.

In June 2006, CRA submitted a Monitoring Well Abandonment request to the EPA.

In June 2006, CRA also submitted the "Groundwater Treatment System Decommissioning Plan" to the EPA on behalf of Ford.

In May 2011, the EPA, with concurrence from the Michigan Department of Environmental Quality, indicated it was appropriate to: (1) decommission the groundwater remediation system; (2) terminate the long-term groundwater monitoring program; (3) rescind the 1991 Deed Restriction on the former Spiegelberg Landfill Site; and (4) initiate the Monitoring Well Abandonment Program.

In January 2012, CRA, on behalf of Ford, submitted a Request for Proposal to several local contractors to decommission the Spiegelberg Site treatment system and abandon the monitoring wells.

In May 2012, CRA received and evaluated bids from prospective contractors.

In June 2012, CRA, on behalf of Ford, selected the Environmental Quality Company (EQ) to decommission the groundwater remediation system and Terra Probe Environmental Inc. (TerraProbe) to abandon the monitoring wells. CRA also conducted waste characterization sampling for the carbon and sand.

In June 2012, Terra Probe and EQ mobilized to the Site to initiate the well abandonment and remediation system decommissioning activities, respectively.

In July 2012, Terra Probe and EQ completed Site well abandonment and decommissioning activities.

In August 2012, EQ and CRA completed waste removal and disposal activities.

In November 2012, electrical service was restored to the building and the air compressor was reinstalled.

3.0 SYSTEM DECOMMISSIONING

3.1 OBJECTIVES

Building decommissioning objectives included:

- Ensuring compliance with applicable environmental regulations
- Limiting long-term cleanup liability by removing and properly disposing regulated wastes off Site
- Protecting workers and adjacent property owners during and after decommissioning activities
- Protecting the natural environment during and after decommissioning activities

Photographs of the Site throughout decommissioning activities can be found in Appendix D. The following sections describe decommissioning work activities.

3.2 PERMITTING

The following approval was required prior to the initiation of decommissioning activities:

- May 18, 2011 EPA Letter Re: Decommissioning Groundwater Remediation System and Well Abandonment Program (Appendix C)

In this letter, the EPA approved of decommissioning the groundwater remediation system, terminating the groundwater monitoring program, and lifting the 1991 Deed Restriction on the Site, though the 1995 Deed Restriction associated with the adjacent Rasmussen Dump Superfund must remain in place.

In addition, the EPA and MDEQ requested that 14 groundwater monitoring wells remain in place. The wells requested were:

- 81-2
- 81-4
- 81-5
- 81-7
- CRA-RA-1
- CRA-RA-4
- CRA-RA-7
- CRA-RA-8
- CRA-RA-9
- CRA-RA-13
- CRA-RA-21
- SP-MW-30D
- SP-MW-19
- SW-MW-49

It should be noted that the EPA letter reference to SW-MW-49 is assumed to be a typographical error and was intended to refer to SP-MW-49.

3.3 UTILITY SEPARATION AND DISCONNECTION

Utility service lines serving the facility included the following:

- Electrical
- Force mains
- Compressed air lines
- Closed potable water system
- Closed emergency shower system
- Closed process water system
- Closed sanitary system

Electrical Service: Electrical service to the Site was reportedly cut off by DTE Energy Company (DTE) in 2004 when the system was shut down. However, it was observed during decommissioning activities that power to the building was active via a utility pole located adjacent to the treatment system building. DTE was notified of the continued power service and on July 12, 2012 DTE terminated power at the utility pole.

Electrical service entered the building in the control room at the MCC, which had been damaged prior to initiation of decommissioning activities. The MCC contained two transformers; one converting 480 volt power to 120/208 volt 3-phase, and a second providing isolated and filtered 120 volt power. As requested by Ford, the damaged portions of the MCC (the circuit breaker and the shunt trip) were replaced and power to the building was restored for future use by the property owner. Underground electrical conduits located throughout the Site to supply power to extraction and injection wells were cut and disconnected at the well locations, as detailed in Section 4.4.

Force Mains: The force mains are buried at least 3.5 feet bgs and are unlikely to interfere with future land use. Therefore, the force mains were abandoned in place, as detailed in Section 4.4.

Compressed Air: Compressed air lines were left in place for future building use. The air compressor servicing these lines was inadvertently shipped to another Ford site during decommissioning activities. At the request of Ford and the property owner, the air compressor was returned to the site and reinstalled November 15, 2012.

Closed Potable Water System: The potable water system was left in place for future use at the request of Ford and the property owner.

Closed Emergency Shower System: The emergency shower system was left in place at the request of Ford and the property owner.

Closed Process Water System: The process water system and associated equipment was left in place at the request of Ford and the property owner.

Closed Sanitary System: The sanitary system and associated equipment was left in place at the request of Ford and the property owner.

3.4 ABOVEGROUND STRUCTURAL DECOMMISSIONING

Aboveground components of the remediation system were dismantled and removed by EQ between June and August 2012. Several items that remained in usable condition, including the air stripper, carbon vessels, extraction pumps, and various tanks, switches and valves, were shipped to Hapeville, Georgia to be utilized for other Ford remediation projects. A list of specific equipment that was dismantled and shipped to Georgia is presented in Table 1.

The GAC was removed from the carbon vessels by a vac truck and containerized in roll-off boxes on Site prior to off-Site disposal. Additionally, CRA identified three used carbon drums at the Site and arranged for their off-Site disposal as part of the decommissioning. Concrete removed from the system building and from well abandonment activities were stockpiled on Site prior to disposal.

Remaining items were segregated according to disposal requirements and/or future use. Metal was separated for disposal as scrap metal. Waste disposal and recycling activities are described in Section 4.0.

The interior floor and lower wall surfaces of the treatment building were steam cleaned. The June 2006 CRA Decommissioning Plan indicated that wipe samples were to be collected from several discrete surfaces for VOC analysis. After discussion with Ford, CRA eliminated this portion of the decommissioning activities as the results were unlikely to provide useful information nor were they required by local, state, or federal regulations.

3.5 WELL ABANDONMENT AND DECOMMISSIONING

A total of 46 wells were abandoned by pressure-grouting the wells in place. CRA's June 2006 request to the EPA to abandon the wells referenced Michigan Well Construction Code Administrative Rules R 325.1662 through R 325.1664 (April 1994), which are typically used to abandon municipal drinking water wells. As the Site extraction wells, injection wells, and monitoring wells were installed for groundwater monitoring and remediation, Terra-Probe hired a licensed qualified drilling contractor (Williams-Oddo Well Drilling, Inc.) to pressure grout each of the wells with a neat cement using a 1-inch diameter tremie pipe. The tremie pipe was used to inject grout at the base of each well and was gradually raised to ensure the well was filled from bottom to top. Grout injection continued until the entire length of riser pipe was filled. The

grout material was allowed to settle and stabilize within the well. Where settlement occurred, a second grouting event was used to top off the grout levels at each well.

Well abandonment details are included in Table 2 and Appendix E. Locations of abandoned wells are presented on Drawing 1. Electrical service to the wells was disconnected and all electrical equipment was removed, including down hole pumps (see following paragraph for exceptions), piping, wiring and equipment, as well as electrical boxes and instrumentation contained within well housings. Below grade force mains and conduit were exposed near the well through excavation, and the force mains leading away from the wells were cut and plugged. All protective housings and bollards were removed.

The pumps could not be removed from three wells (EW-03, EW-04, and EW-08), and were therefore pressure-grouted in place. According to the Site owner, three wells (EXT-PZ-3, SP-MW-64, and SP-MW-64A) were destroyed during Site activities prior to the CRA well abandonment activities. In addition, from the original proposed well abandonment list, seven wells (CRA-PZ-4, CRA-RA-13, CRA-RA-21, OBG-2, SP-MW-29D, SP-MW-60, and SP-MW-62) were not found and CRA assumes these wells were decommissioned and/or destroyed prior to Site mobilization.

The following wells (Drawing 1) were left in place at the request of the EPA, Ford, and/or the property owner:

- 81-2
- 81-4
- 81-5
- 81-7
- CRA-RA-1
- CRA-RA-4
- CRA-RA-7
- CRA-RA-8
- CRA-RA-9
- CRA-RA-31
- EW-02
- SW-MW-49
- SP-MW-19
- SP-MW-30D

It should be noted that CRA-RA-21, which the EPA requested remain on Site, could not be located. The EPA requested that CRA-RA-13 remain on Site, however, current records do not include CRA-RA-13 as a well on the Site or the adjacent property.

Copies of Michigan Department of Environmental Quality (DEQ) Abandoned Well Plugging Records are presented in Appendix E.

At the request of the property owner, the well risers that were above grade were not cut to grade level so the abandoned well locations could be identified in future sand mining activities planned for the Site. Additionally, the steel bollards surrounding the extraction and injection wells were removed but left on Site at the owner's request.

4.0 WASTE REMOVAL

Site decommissioning activities generated four general waste streams: asphalt and concrete, GAC, sand, and general trash. Disposal activities are summarized in this Section.

4.1 WASTE DISPOSAL FACILITIES

Waste generated during decommissioning was coordinated by EQ, a Ford-approved Total Waste Manager (TWM) and disposed of at the following facilities.

- **Concrete** - King's Construction Services, Saline, Michigan and GBM Recycled Concrete, Co., Brighton, Michigan
- **Waste GAC and Sand Filter Media** - Michigan Disposal Waste Treatment Plant, Belleville, Michigan
- **Lab Pack** - EQ Detroit, Inc., Detroit, Michigan
- **Scrap Metal and General Trash** - EQ Facility

Available waste manifests and load tickets are included in Appendix F.

4.2 LIGHTING REMOVAL

All lighting was left in place for future use by the property owner.

4.3 UNIVERSAL WASTE REMOVAL

No universal waste was generated during Site decommissioning activities.

4.4 CHLOROFLUOROCARBON REMOVAL

No chlorofluorocarbon (CFC) containing equipment was present at the Site.

4.5 NON-HAZARDOUS LIQUID WASTE

Rinsate water was collected in trenches within the treatment building and had evaporated by the completion of decommissioning activities. Therefore, CRA did not dispose of any liquid waste.

4.6 SOLID WASTE CHARACTERIZATION AND DISPOSAL

A sample key and analytical result summary are presented in Tables 3 and 4, respectively. Laboratory results are presented in Appendix G.

GAC Characterization and Disposal: Four samples of carbon were submitted to Siemens in Pennsylvania for a regeneration study and analysis. Total quantities of re-usable carbon were less than anticipated, so regeneration was deemed not feasible.

Characterization samples of the liquid and vapor phase carbon and sand filter material from the carbon vessels in the Treatment Building were non-hazardous based on Resource Conservation Recovery Act (RCRA) criteria for characteristically hazardous material. Three drums containing carbon were present at the Site. Characterization sampling of the drums indicated that all three were considered non-hazardous based on RCRA criteria for characteristically hazardous material. As such, all drummed carbon was disposed as non-hazardous waste at Michigan Disposal Waste Treatment Plant in Belleville, Michigan. Approximately 28.2 tons of spent GAC were disposed of as non-hazardous waste. Waste manifests and load tickets are included in Appendix F.

Concrete Characterization and Disposal: Concrete was determined to be non-hazardous based on generator knowledge. Approximately 54 tons of concrete were recycled at King's Construction Services (Saline, Michigan) and GBM Recycled Concrete, Co., (Brighton, Michigan). Concrete load tickets are included in Appendix F.

Chemical Sweep: At the completion of the decommissioning activities, EQ performed a chemical sweep in the Treatment Building. Compatible waste streams were combined in lab packs and disposed of at the EQ site in Detroit, Michigan. The waste manifest is included in Appendix F.

Scrap Metal and General Trash Disposal: All other waste generated during decommissioning and well abandonment activities (approximately 30 tons) was disposed of as general trash.

5.0 SITE RESTORATION

Decommissioning activities were completed at grade, therefore no depressions or excavations were created. The building structure, including sanitary systems, heating, ventilation, air conditioning components, lighting, smoke detectors, manhole covers and overhead door, was left in place for future use by the property owner. At the request of the property owner and approved by Ford, the following additional items were left for future use:

- Sump Pump P-6
- Air Compressor AC-1
- Sanitary Holding Tank T-7
- Motor Control Center MCC-1 and Safety Switch
- Emergency shower & eyewash station
- Unit heaters
- Steel 12-foot high stairway on rollers
- Steel storage cabinet
- Utility sink and mop service basin
- Bathroom fixtures
- Water heater
- Lighting fixtures
- Steel 6-inch diameter concrete-filled bollards surrounding extraction and injection wells (approximately 50)
- 2000-gallon Polytank (potable water system on catwalk)
- Extraction well EW-02
- Concrete pad (35-foot x 7-foot x 0.7-foot) under the 5 liquid phase carbon vessels as the pad also supports the catwalk adjacent to the vessels

A photo log detailing Site decommissioning is presented in Appendix D.

6.0 SITE INSPECTIONS

No inspections were required by Township, County, or State officials.

7.0 PROJECT CLOSURE

The decommissioning of the Spiegelberg Site was conducted between June and November 2012 in general accordance with local, state and federal guidelines. All agency permits and approvals are presented in this summary report and Ford's obligations to the property owner have been fulfilled.

8.0 REFERENCES

August 1998, CRA, *Protocol for Intermittent Operation of the Groundwater Remediation System*

June 2006, CRA, Groundwater Treatment System Decommissioning Plan (Appendix A)

June 21, 2006, CRA Letter to the EPA, "Well Abandonment Program, Spiegelberg Site – Livingston County, Michigan" (Appendix B)

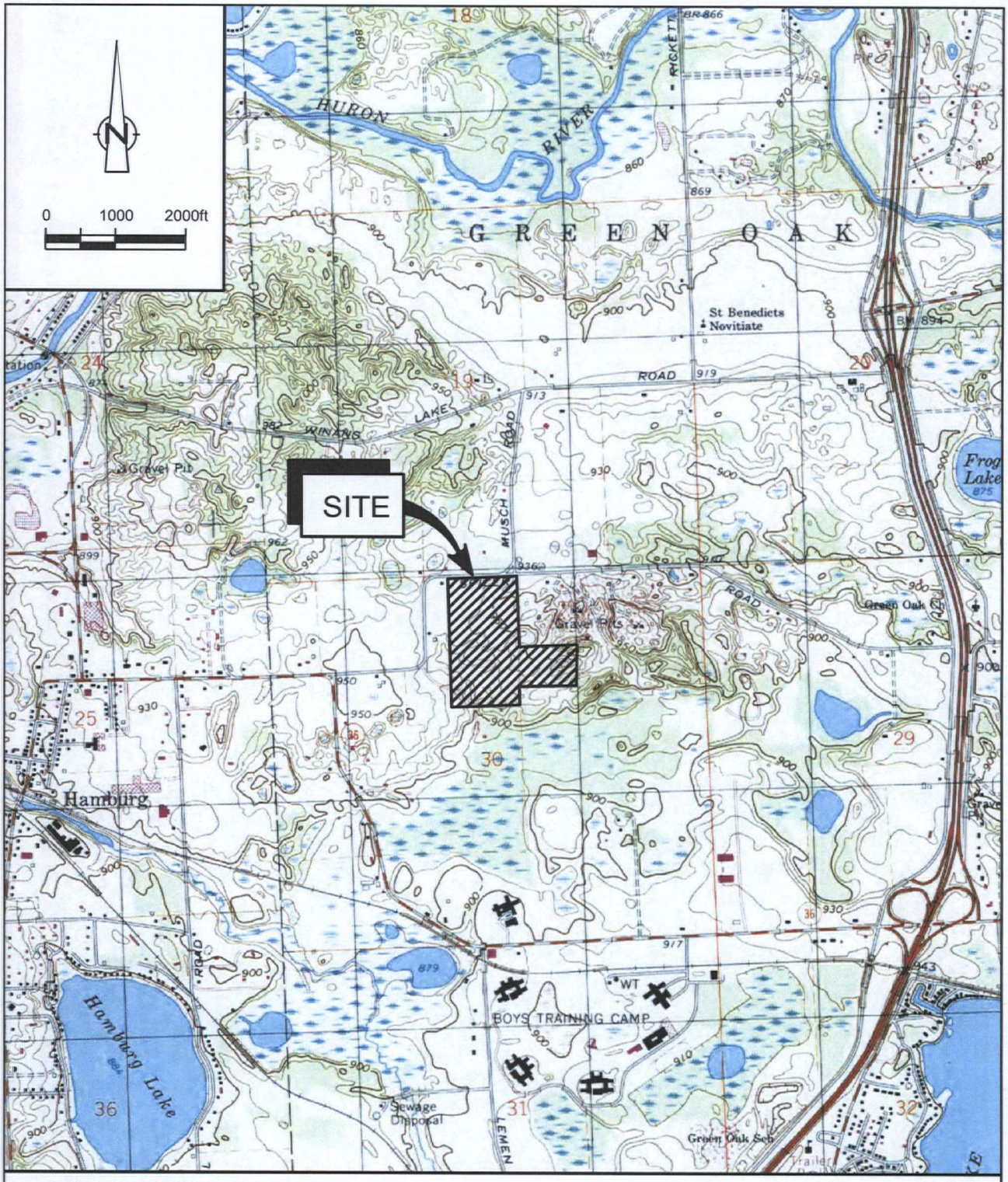
May 18, 2011, EPA Letter to CRA, "Spiegelberg Landfill: Decommissioning Groundwater Remediation System and Well Abandonment Program" (Appendix D)

January 4, 2012 CRA Letter to Subcontractors "Request for Proposal" and "Addendums"

April 4, 2012 CRA Ford Purchase Order Request

FIGURES

FIGURE



SOURCE: USGS QUADRANGLE MAP;
HAMBURG, MICHIGAN, 1996

figure 1

SITE LOCATION MAP
SPIEGELBERG SITE
SPICER ROAD
Livingston County, Michigan

003581-00(042)GN-DE001 AUG 5/2013

DRAWINGS

DRAWING

TABLES

TABLES

TABLE 1

**FINAL SHIPPED EQUIPMENT INVENTORY LIST
GROUNDWATER TREATMENT SYSTEM DECOMMISSIONING
FORMER SPIEGELBERG SUPERFUND SITE
LIVINGSTON COUNTY, MICHIGAN**

ID No.	*Equipment Name*	*Manufacturer*	*Description and Components*
AS-1 B-1	Low Profile Air Stripper / Blower	North East Environmental Products Inc.	Shallow Tray 2621 Low Profile Air Stripper package, 50 gpm water flow rate. 600 cfm airflow rate. 50°F water and air temp. A/W Ratio 81.6 cu.ft./cu.ft. 5 HP, 460V, 2 trays, 48" w x 74" x 99" h, 1,280 lbs. Empty.
C-5	Vapour Carbon Adsorber	Carbon Service Company	Air 2500 Plasite lined carbon steel 60" x 60" x 67" H vessel, 4" inlet and outlet, 100-1,000 cfm, 14 psi, 2,500 lbs. Domestic course virgin 4x10 mesh carbon, coal or coconut base, 60 min. CCl4 activity, 5,200 lbs. Operating weight.
P-1 P-2 P-3	Extraction Pump - Well TEW Extraction Pump - Well EW-01 Extraction Pump - Well EW-02	Grundfos Pumps Corp.	Redi-flow 4 16E7 Stainless Steel Submersible Pump, 1 ¼" discharge, 15 GPM capacity, 0.75 HP, 460 V, 3,450 RPM, 39 lbs.
P-7 P-11	Equalization Tank Pump Tank Sludge Pumps	Warren Rupp, Inc.	PB1-A Type 3 Polypropylene/Neoprene, Air-Powered Double-diaphragm non-metallic pump. 1" inlet and 1" discharge, 15 GPM at 18 ft. head, 30 lbs.
LSH 110 LSL 300 LSL 302	Level Float Switches	Anchor Scientific Inc.	Roto-Float, Type S suspended float switch S20N0-NC single pole mercury switch, polypropylene casing PVC type STO#18 conductors, 41 strand 600V, 20'L cable.
PSH106 PSH119 PSH127	Pressure Switches	Mercoid Division, Dwyer Instruments, Inc.	Mercoid AP-153-37 & AP-153-39 diaphragm operated pressure switches, 1-30 & 10-125 psig, visible screw-type set point adjustment, mercury type switch, SPDT 4A @ 120V, 2A @ 240V AC/AC
PI 106-109 PI 114 PI 116-118 PI 123-125 PI 127-129 PI 132-134	Pressure Indicators	Ashcroft	Ashcroft 45-1009-AS-02L-XXX psig, type 1009, grade 1A, 0-15, 0-30 & 0-60 psig, ¼ NPT
T-1	Equalization Tank	Nalgene Industrial Products Group	53309-3000 XLPE Conical-bottom bulk storage tank. 90" Dx140" H, 3,000 gallon capacity, .56" wall thickness, seamless one-piece construction. 1.9 specific gravity, 21" manway. 825 lbs. Empty. 53009-1575 conical bottom stand, 30 degree cone angle, 400 lbs.
T-2	Air Stripper Sump	Corp Tech Incorporated	Custom Fabricated 580 gallon tank, ½" thick, polypropylene, 60"W x 66"L x 36"D, Rigid cover, top flange and (2) support flanges
T-5	Potable Water Tank	Nalgene Industrial Products Group	51109-0550 HDPE Vertical bulk storage tank. 48"D x 84"H, 550 gallon capacity, 0.25" wall thickness, seamless construction 1.9 specific gravity, 16" manway, 140 lbs. Empty. Replenished with potable water on an as needed basis.
T-6	Emergency Shower Water Tank	Nalgene Industrial Products Group	25100-0125 HDPE Horizontal storage leg tank. 30"D x 50 ¼"H, 125 gallon capacity, 5/32" wall thickness, molded 1.5 specific gravity, 8 ½" opening, 46 lbs. Empty. Filled to capacity always
	Y-Strainer (2")	Hayward Industrial Products, Inc.	PVC Y-Strainer, full port, full-flow openings, 1/32" perforations, socket ends
	PCV Ball Valves (¾" ½", 1", 1 ½", 2", 3")	Hayward Industrial Products, Inc.	Safe Block™True Union Ball Valve, PVC, Socket ¼ turn on-off control, Teflon seats and EPDM O-rings, full port design
	PCV Check Valves (1 ½", 2", 3")	Hayward Industrial Products, Inc.	True Check™ Ball Check Valve, PVC, Socketed ends
	PVC Schedule 80 Pipe	Cresline Plastic Pipe Co., Inc.	SCH-80 Pressure Pipe PVC 1120 ASTM D-1785, ¼" 1", 1 ½", 2", 3", 6" D

TABLE 2

WELL STATUS SUMMARY
GROUNDWATER TREATMENT SYSTEM DECOMMISSIONING
FORMER SPIEGELBERG SUPERFUND SITE
LIVINGSTON COUNTY, MICHIGAN

WELL ID	Top of Casing (ft. AMSL)	GS (ft. AMSL)	Stickup (ft.)	Top of Screen (ft. BGS)	Bottom of Screen (ft. BGS)	Screen Length (ft.)	End of Borehole (ft. BGS)	Well Diameter (inches)	Date Abandoned	Notes
CRA-MW-2	954.4	952.0	2.40	85	100	15	102	2	7/12/2012	
CRA-MW-5	907.6	905.0	2.57	28	38	10	40	2	7/12/2012	
CRA-MW-6	952.7	949.6	3.13	104.5	109.5	5	109.5	2	7/12/2012	
CRA-MW-7	940.0	936.6	3.40	91.5	96.5	5	96.5	2	7/12/2012	Well abandonment log missing
CRA-PZ-1	932.9	930.7	2.22	45	55	10	60	2	7/12/2012	
CRA-PZ-2	937.1	934.8	2.30	48	58	10	78	2	7/12/2012	
CRA-PZ-3	926.8	923.6	3.19	58	68	10	70	2	7/12/2012	
EW-01	899.7	897.5	2.18	28	48	20	54	6	7/12/2012	
EW-03	915.8	913.1	2.71	62.5	97.5	35	99	6	7/12/2012	Pumping equipment left in well
EW-04	915.3	912.3	2.98	62	97	35	99	6	7/12/2012	Pumping equipment left in well
EXT-PZ-1	904.6	902.5	2.10	25	35	10	36	2	7/12/2012	
EXT-PZ-2	906.6	904.7	1.90	27	37	10	38	2	7/12/2012	
INJ-PZ-1	898.6	893.7	4.90	15	25	10	26	2	7/12/2012	
INJ-PZ-2	898.7	894.6	4.10	16	26	10	27	2	7/12/2012	
INJ-PZ-3	899.3	895.2	4.10	17	27	10	28	2	7/12/2012	
INJ-PZ-4	897.4	892.5	4.90	14	24	10	25	2	7/12/2012	
INJ-PZ-5	898.1	893.1	5.00	14	24	10	25	2	7/12/2012	
IW-01	909.5	906.5	3.04	27	32	5	34	6	7/12/2012	
IW-02	908.9	906.1	2.83	25	35	10	39	6	7/12/2012	
IW-03	911.7	909.2	2.46	27.5	37.5	10	39	6	7/12/2012	
IW-04	917.1	914.1	3.01	32	52	20	59	6	7/12/2012	
IW-05	893.2	891.3	1.93	8	38	30	47	6	7/12/2012	
IW-06	915.2	911.6	3.58	31	76	45	87	6	7/12/2012	
IW-07	933.1	929.3	3.77	51	71	20	97	6	7/12/2012	
IW-08				WELL LOG NOT FOUND					7/12/2012	Pumping equipment left in well
OBG-1A	893.3	890.4	2.90	4	14	10	14	2	7/12/2012	
OBG-4A	912.9	910.2	2.75	24	34	10	34	2	7/12/2012	
OBG-4B	911.1	909.1	2.00	63	73	10	75	2	7/12/2012	
OBG-5A	911.3	907.4	3.90	33	43	10	43	2	7/12/2012	
OBG-5B	911.5	907.3	4.15	68	78	10	80	2	7/12/2012	
SP-MW-13	940.2	937.6	2.57	73.5	76.5	3	76.5	2	7/12/2012	
SP-MW-15	890.9	887.9	3.00	15	18	3	18	2	7/12/2012	
SP-MW-20D	918.9	917.2	1.70	72	76	4	183.5	4	7/12/2012	
SP-MW-25D	930.3	927.3	3.00	160	163	3	187	4	7/12/2012	
SP-MW-40	914.4	914.5	0.00	72	75	3	80	2	7/12/2012	
SP-MW-44	919.3	918.1	1.20	158	162	4	169	4/6 **	7/12/2012	
SP-MW-46	952.7	952.3	0.50	174	178	4	178	—	7/12/2012	
SP-MW-50	–	911.0	–	93.5	96.5	3	97	4	7/12/2012	
SP-MW-51	911.3	907.1	4.17	36.5	39.5	3	50	4	7/12/2012	
SP-MW-51A	911.2	907.5	3.75	64	67	3	70	4	7/12/2012	
SP-MW-52	950.8	948.5	2.29	78.5	81.5	3	100	—	7/12/2012	
SP-MW-53	940.6	937.9	2.62	67	70	3	80	—	7/12/2012	
SP-MW-60R	905.2	901.9	3.30	40	45	5	45	2	7/12/2012	
SP-MW-61	898.2	894.9	3.25	38	41	3	80	—	7/12/2012	
TEW	906.6	903.8	2.80	25	35	10	40	6	7/12/2012	
TIW	898.2	893.9	4.30	14	34	20	37	6	7/12/2012	

Notes:
** 4-inch galvanized steel and 6-inch black iron
AMSL - above mean sea level
GS - Ground Surface
BGS - Below ground surface
EPA - United States Environmental Protection Agency

TABLE 2

WELL STATUS SUMMARY
GROUNDWATER TREATMENT SYSTEM DECOMMISSIONING
FORMER SPIEGELBERG SUPERFUND SITE
LIVINGSTON COUNTY, MICHIGAN

WELL ID	*Top of Casing (ft. AMSL)*	*GS (ft. AMSL)*	*Stickup (ft.)*	*Top of Screen (ft. BGS)*	*Bottom of Screen (ft. BGS)*	*Screen Length (ft.)*	*End of Borehole (ft. BGS)*	*Well Diameter (inches)*	*Date Abandoned*	*Notes*
81-2	–	–	–	–	–	–	–	–	–	Not abandoned - per EPA request
81-4	–	–	–	–	–	–	–	–	–	Not abandoned - per EPA request
81-5	–	–	–	–	–	–	–	–	–	Not abandoned - per EPA request
81-7	–	–	–	–	–	–	–	–	–	Not abandoned - per EPA request
CRA-PZ-4	–	–	–	–	–	–	–	–	–	Could not locate - believed destroyed
CRA-RA-1	–	–	–	–	–	–	–	–	–	Not abandoned - per EPA request
CRA-RA-4	–	–	–	–	–	–	–	–	–	Not abandoned - per EPA request
CRA-RA-7	–	–	–	–	–	–	–	–	–	Not abandoned - per EPA request
CRA-RA-8	–	–	–	–	–	–	–	–	–	Not abandoned - per EPA request
CRA-RA-9	–	–	–	–	–	–	–	–	–	Not abandoned - per EPA request
CRA-RA-13	–	–	–	–	–	–	–	–	–	EPA requested well be maintained, however, current records do not include a CRA-RA-13 on-Site or on adjacent parcel
CRA-RA-21	–	–	–	–	–	–	–	–	–	Could not locate - believed destroyed
CRA-RA-31	–	–	–	–	–	–	–	–	–	Not abandoned - per EPA request
EW-02	904.0	900.8	3.17	42	72	30	92	6	–	Not abandoned - per Site owner request
EXT-PZ-3	909.4	907.4	2.00	29	39	10	40	2	–	Destroyed during Site activities prior to CRA activities - per Site owner
OBG-2	–	–	3.00	37	47	10	47	2	–	Could not locate - believed destroyed
SP-MW-19	897.9	895.6	2.30	15	18	3	20	2	–	Not abandoned - per Site owner request
SP-MW-29D	936.4	936.4	0.00	–	–	–	42	4	–	Could not locate - believed destroyed
SP-MW-30D	901.5	899.0	2.50	128.5	132.5	4	143	4	–	Not abandoned - per Site owner request
SP-MW-49	914.3	913.1	1.20	140	144	4	161	4/6 **	–	Not abandoned - per EPA request
SP-MW-60	–	–	–	40	43	3	90	—	–	Could not locate - believed destroyed
SP-MW-62	–	–	–	31	34	3	59	—	–	Could not locate - believed destroyed
SP-MW-64	922.8	920.2	2.63	42.5	45.5	3	61.5	—	–	Destroyed during Site activities prior to CRA activities - per Site owner
SP-MW-64A	–	–	–	67	70	3	70	3	–	Destroyed during Site activities prior to CRA activities - per Site owner

Notes:
** 4-inch galvanized steel and 6-inch black iron
AMSL - above mean sea level
GS - Ground Surface
BGS - Below ground surface
EPA - United States Environmental Protection Agency

TABLE 3

SOLID WASTE SAMPLE KEY
GROUNDWATER TREATMENT SYSTEM DECOMMISSIONING
SPIEGELBERG LANDFILL
LIVINGSTON COUNTY, MICHIGAN

CRA Sample ID	*Sample Matrix*	*Sample Location*	*Collection Date*	*Analyses*	*Laboratory*
ST-03581-060512-SK-001	Solid Waste	Liquid Phase WS 2 - Location C1	6/5/12	VOCs,TCLP VOCs	Test America (North Canton, OH)
ST-03581-060512-SK-002	Solid Waste	Liquid Phase WS 2 - Location C2	6/5/12	VOCs, TCLP VOCs	Test America (North Canton, OH)
ST-03581-060512-SK-003	Solid Waste	Liquid Phase WS 2 - Location C3	6/5/12	VOCs, TCLP VOCs, TCLP SVOCs, TCLP metals, PCBs	Test America (North Canton, OH)
ST-03581-060512-SK-004	Solid Waste	Vapor Phase - Location C4	6/5/12	VOCs	Test America (North Canton, OH)
ST-03581-060512-SK-005	Solid Waste	Vapor Phase - Location C5	6/5/12	VOCs	Test America (North Canton, OH)
ST-03581-060512-SK-006	Solid Waste	Liquid Phase WS 1 - Location C6	6/5/12	VOCs, TCLP VOCs	Test America (North Canton, OH)
ST-03581-060512-SK-007	Solid Waste	Liquid Phase WS 1 - Location C7	6/5/12	VOCs, TCLP VOCs	Test America (North Canton, OH)
ST-03581-060512-SK-008	Solid Waste	Sand Filter F1 - Location F1	6/5/12	VOCs, SVOCs, RCRA metals, PCBs	Test America (North Canton, OH)
ST-03581-060512-SK-009	Solid Waste	Drum 1	6/5/12	VOCs	Test America (North Canton, OH)
ST-03581-060512-SK-010	Solid Waste	Drum 2	6/5/12	VOCs	Test America (North Canton, OH)
ST-03581-060512-SK-011	Solid Waste	Drum 3	6/5/12	VOCs	Test America (North Canton, OH)
ST-03581-060512-SK-012	Solid Waste	Vapor Phase - Location C8	6/5/12	VOCs	Test America (North Canton, OH)
Composite (Samples 005 & 010)	Solid Waste	Vapor Phase - Location C5/Drum 2	6/5/12	TCLP VOCs, TCLP SVOCs, TCLP metals, PCBs	Test America (North Canton, OH)
Composite (Samples 013 & 014)	Solid Waste	Outdoor Carbon Tanks	6/19/12	TCLP VOCs	Test America (North Canton, OH)
ST-03581-061912-SK-015	Solid Waste	Location C1, C2, C3	6/19/12	Reactivity	Siemens Industries, Inc.
ST-03581-061912-SK-016	Solid Waste	Location C6, C7	6/19/12	Reactivity	Siemens Industries, Inc.
ST-03581-061912-SK-017	Solid Waste	Vapor Drum	6/19/12	Reactivity	Siemens Industries, Inc.
ST-03581-061912-SK-018	Solid Waste	Location C5	6/19/12	Reactivity	Siemens Industries, Inc.

TABLE 4

SAMPLE ANALYTICAL RESULTS
GROUNDWATER TREATMENT SYSTEM DECOMMISSIONING
FORMER SPIEGELBERG SUPERFUND SITE
LIVINGSTON COUNTY

Sample Location		RCRA	20 X RCRA	TSCA	C1	C2	C3	C4	C5	C6	C7	C8	F1	Drum 1	Dru	Drum 2	Drum 3	C5/Drum 2	Outdoor
					LP WS2	LP WS2	LP WS2	VP	VP	LP WS1	LP WS1	VP	Sand Filter	Drum 1	Dru	Drum 2	Drum 3	VP	Carbon tanks
					Sample-001	Sample-002	Sample-003	Sample-004	Sample-005	Sample-006	Sample-007	Sample-012	Sample-008	Sample-009	Samp	Sample-010	Sample-011	005 & 010 (composite)	013 & 014 (composite)
Sample Date					6/5/2012	6/5/2012	6/5/2012	6/5/2012	6/5/2012	6/5/2012	6/5/2012	6/5/2012	6/5/2012	6/5/2012	6/5/	6/5/2012	6/5/2012	6/5/2012	6/19/2012
	Units	a	b	c															
Volatile Organic Compounds (VOCs)																–	–	–	–
1,1,1-Trichloroethane	mg/kg	–	–	–	6.3	0.43	21	0.14 U	0.47	0.42	0.13 U	0.094 J	0.04 U	13	1	–	–	–	–
1,1,2,2-Tetrachloroethane	mg/kg	–	–	–	0.12 U	0.19 U	0.4 U	0.14 U	0.16 U	0.16 U	0.13 U	0.15 U	0.04 U	0.28 U	0.6	–	–	–	–
1,1,2-Trichloroethane	mg/kg	–	–	–	0.12 U	0.19 U	0.4 U	0.14 U	0.16 U	0.16 U	0.13 U	0.15 U	0.04 U	0.28 U	0.6	–	–	–	–
1,1-Dichloroethane	mg/kg	–	–	–	8.6	0.75	25	0.28	0.23	1.7	0.41	0.56	0.04 U	15	2	–	–	–	–
1,1-Dichloroethene	mg/kg	–	14	–	0.81	0.19 U	3.2	0.14 U	0.16 U	0.16 U	0.13 U	0.15 U	0.04 U	1.5	1	–	–	–	–
1,2,4-Trichlorobenzene	mg/kg	–	–	–	0.6 U	0.93 U	2 U	0.68 U	0.81 U	0.82 U	0.63 U	0.77 U	0.2 U	1.4 U	3.2	–	–	–	–
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	–	–	–	0.6 U	0.93 U	2 U	0.68 U	0.81 U	0.82 U	0.63 U	0.77 U	0.2 U	1.4 U	3.2	–	–	–	–
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	–	–	–	0.6 U	0.93 U	2 U	0.68 U	0.81 U	0.82 U	0.63 U	0.77 U	0.2 U	1.4 U	3.2	–	–	–	–
1,2-Dichlorobenzene	mg/kg	–	–	–	0.24 U	0.37 U	0.81 U	0.27 U	0.33 U	0.33 U	0.25 U	0.31 U	0.081 U	0.56 U	1.3	–	–	–	–
1,2-Dichloroethane	mg/kg	–	10	–	0.038 J	0.19 U	0.4 U	0.14 U	0.38	0.061 J	0.13 U	0.15 U	0.04 U	0.18 J	0.6	–	–	–	–
1,2-Dichloropropane	mg/kg	–	–	–	0.12 U	0.19 U	0.4 U	0.14 U	0.22	0.16 U	0.13 U	0.15 U	0.04 U	0.28 U	0.6	–	–	–	–
1,3-Dichlorobenzene	mg/kg	–	–	–	0.24 U	0.37 U	0.81 U	0.27 U	0.33 U	0.33 U	0.25 U	0.31 U	0.081 U	0.56 U	1.3	–	–	–	–
1,4-Dichlorobenzene	mg/kg	–	150	–	0.24 U	0.37 U	0.81 U	0.27 U	0.33 U	0.33 U	0.25 U	0.31 U	0.081 U	0.56 U	1.3	–	–	–	–
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	–	–	–	1.8 U	2.8 U	6.1 U	2 U	2.5	2.5 U	1.9 U	2.3 U	0.6 U	4.2 U	9.6	–	–	–	–
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	–	4000	–	1.8 U	2.8 U	6.1 U	2 U	2.5	2.5 U	1.9 U	2.3 U	0.6 U	4.2 U	9.6	–	–	–	–
2-Hexanone	mg/kg	–	–	–	6 U*	9.3 U*	20 U*	6.8 U*	8.1 U*	8.2 U*	6.3 U*	7.7 U*	2 U*	14 U*	32	–	–	–	–
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	–	–	–	6 U	9.3 U	20 U	6.8 U	2 J	8.2 U	6.3 U	7.7 U	2 U	14 U	32	–	–	–	–
Acetone	mg/kg	–	–	–	1.8 U	2.8 U	6.1 U	2 U	2.3 J	2.5 U	1.9 U	2.3 U	0.6 U	4.2 U	9.6	–	–	–	–
Benzene	mg/kg	–	10	–	0.12 U	0.19 U	0.17 J	0.14 U	7.3	0.16 U	0.13 U	0.15 U	0.04 U	0.13 J	0.6	–	–	–	–
Bromodichloromethane	mg/kg	–	–	–	0.24 U	0.37 U	0.81 U	0.27 U	0.33 U	0.33 U	0.25 U	0.31 U	0.081 U	0.56 U	1.3	–	–	–	–
Bromoform	mg/kg	–	–	–	0.24 U	0.37 U	0.81 U	0.27 U	0.33 U	0.33 U	0.25 U	0.31 U	0.081 U	0.56 U	1.3	–	–	–	–
Bromomethane (Methyl bromide)	mg/kg	–	–	–	0.6 U	0.93 U	2 U	0.68 U	0.81 U	0.82 U	0.63 U	0.77 U	0.2 U	1.4 U	3.2	–	–	–	–
Carbon disulfide	mg/kg	–	–	–	0.6 U	0.93 U	2 U	0.68 U	0.81 U	0.82 U	0.63 U	0.77 U	0.2 U	1.4 U	3.2	–	–	–	–
Carbon tetrachloride	mg/kg	–	10	–	0.12 U	0.19 U	0.4 U	0.14 U	2	0.16 U	0.13 U	0.15 U	0.04 U	0.13 J	0.6	–	–	–	–
Chlorobenzene	mg/kg	–	2000	–	0.12 U	0.19 U	0.4 U	0.14 U	2.1	0.58	0.023 J	0.15 U	0.04 U	0.36	0.6	–	–	–	–
Chloroethane	mg/kg	–	–	–	0.6 U	0.93 U	2 U	0.68 U	0.81 U	0.82 U	0.63 U	0.77 U	0.2 U	1.4 U	3.2	–	–	–	–
Chloroform (Trichloromethane)	mg/kg	–	120	–	0.12 U	0.044 J	0.4 U	0.14 U	0.16 U	0.16 U	0.13 U	0.15 U	0.04 U	0.28 U	0.6	–	–	–	–
Chloromethane (Methyl chloride)	mg/kg	–	–	–	0.6 U	0.93 U	2 U	1.4	0.81 U	0.82 U	0.63 U	1.1	0.2 U	1.4 U	3.2	–	–	–	–
cis-1,2-Dichloroethene	mg/kg	–	–	–	0.23	0.19 U	0.43	0.14 U	0.16 U	0.12 J	0.13 U	0.15 U	0.04 U	0.85	0.	–	–	–	–
cis-1,3-Dichloropropene	mg/kg	–	–	–	0.12 U	0.19 U	0.4 U	0.14 U	0.16 U	0.16 U	0.13 U	0.15 U	0.04 U	0.28 U	0.6	–	–	–	–
Cyclohexane	mg/kg	–	–	–	2.9 U	4.5 U	9.7 U	3.2 U	3.9 U	3.9 U	3 U	3.7 U	0.97 U	0.51 J	0.				
Dibromochloromethane	mg/kg	–	–	–	0.12 U	0.19 U	0.4 U	0.14 U	0.16 U	0.16 U	0.13 U	0.15 U	0.04 U	0.28 U	0.6	–	–	–	–
Dichlorodifluoromethane (CFC-12)	mg/kg	–	–	–	0.24 U	0.37 U	0.81 U	0.27 U	0.33 U	0.33 U	0.25 U	0.31 U	0.081 U	0.56 U	1.3	–	–	–	–
Ethylbenzene	mg/kg	–	–	–	0.12 U	0.19 U	0.4 U	0.14 U	0.83	0.16 U	0.13 U	0.15 U	0.04 U	0.28 U	0.6	–	–	–	–
Isopropyl benzene	mg/kg	–	–	–	0.6 U	0.93 U	2 U	0.68 U	0.067 J	0.82 U	0.63 U	0.77 U	0.2 U	1.4 U	3.2	–	–	–	–
Methyl acetate	mg/kg	–	–	–	0.43 J	0.35 J	1.6 J	0.5 J	3.2 J	0.19 J	0.18 J	0.44 J	0.97 U	6.7 U	15	–	–	–	–
Methyl cyclohexane	mg/kg	–	–	–	2.9 U	4.5 U	9.7 U	3.2 U	2.3 J	3.9 U	3 U	3.7 U	0.97 U	0.33 J	15	–	–	–	–
Methyl tert butyl ether (MTBE)	mg/kg	–	–	–	0.6 U	0.93 U	2 U	0.68 U	0.61 J	0.82 U	0.63 U	0.033 J	0.2 U	0.09 J	0.1	–	–	–	–
Methylene chloride	mg/kg	–	–	–	0.6 U	0.93 U	2 U	0.68 U	0.81 U	0.82 U	0.63 U	0.77 U	0.2 U	1.4 U	1.	–	–	–	–
Styrene	mg/kg	–	–	–	0.12 U	0.19 U	0.4 U	0.14 U	0.16 U	0.16 U	0.13 U	0.15 U	0.04 U	0.28 U	0.6	–	–	–	–
Tetrachloroethene	mg/kg	–	14	–	0.12 U	0.19 U	0.4 U	0.14 U	0.24	0.1 J	0.13 U	0.15 U	0.04 U	0.11 J	0.6	–	–	–	–
Toluene	mg/kg	–	–	–	0.24 U	0.37 U	0.81 U	0.27 U	0.74	0.33 U	0.25 U	0.31 U	0.081 U	0.56 U	1.3	–	–	–	–
trans-1,2-Dichloroethene	mg/kg	–	–	–	0.053 J	0.19 U	0.4	0.14 U	0.16 U	0.16 U	0.13 U	0.15 U	0.04 U	0.28 U	0.6	–	–	–	–
trans-1,3-Dichloropropene	mg/kg	–	–	–	0.12 U	0.19 U	0.4 U	0.14 U	0.16 U	0.16 U	0.13 U	0.15 U	0.04 U	0.28 U	0.6	–	–	–	–
Trichloroethene	mg/kg	–	10	–	0.12 U	0.19 U	0.4 U	0.14 U	1.4	0.081 J	0.13 U	0.15 U	0.04 U	0.22 J	0.6	–	–	–	–
Trichlorofluoromethane (CFC-11)	mg/kg	–	–	–	0.24 U	0.37 U	0.81 U	0.46	0.2 J	0.33 U	0.25 U	0.15 J	0.081 U	0.56 U	1.3	–	–	–	–
Trifluorotrichloroethane (Freon 113)	mg/kg	–	–	–	0.6 U	0.93 U	2 U	0.68 U	0.44 J	0.82 U	0.63 U	0.45 J	0.2 U	1.4 U	3.2	–	–	–	–
Vinyl chloride	mg/kg	–	4	–	0.096 U	0.15 U	0.32 U	0.11 U	0.13 U	0.13 U	0.1 U	0.12 U	0.032 U	0.22 U	0.5	–	–	–	–
Xylenes (total)	mg/kg	–	–	–	0.36 U	0.56 U	1.2 U	0.41 U	1.3	0.49 U	0.38 U	0.46 U	0.12 U	0.84 U	1.9	–	–	–	–
Semi-Volatile Organic Compounds (SVOCs)																–	–	–	–
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	–	–	–	–	–	–	–	–	–	–	–	0.26 U	–		–	–	–	–
2,4,5-Trichlorophenol	mg/kg	–	8000	–	–	–	–	–	–	–	–	–	0.26 U	–		–	–	–	–
2,4,6-Trichlorophenol	mg/kg	–	40	–	–	–	–	–	–	–	–	–	0.26 U	–		–	–	–	–
2,4-Dichlorophenol	mg/kg	–	–	–	–	–	–	–	–	–	–	–	0.26 U	–		–	–	–	–
2,4-Dimethylphenol	mg/kg	–	–	–	–	–	–	–	–	–	–	–	0.26 U	–		–	–	–	–
2,4-Dinitrophenol	mg/kg	–	–	–	–	–	–	–	–	–	–	–	0.15 U	–		–	–	–	–
2,4-Dinitrotoluene	mg/kg	–	2.6	–	–	–	–	–	–	–	–	–	0.26 U	–					
2,6-Dinitrotoluene	mg/kg	–	–	–	–	–	–	–	–	–	–	–	0.26 U	–					

Notes:

RCRA - Resource Conservation Recovery Act (RCRA) criteria for the toxicity characteristic (40 CFR 261.24).
20 x RCRA - 20 times the Resource Conservation Recovery Act (RCRA) criteria for the toxicity characteristic (40 CFR 261.24).
TSCA - Toxic Substances Control Act (TSCA) criteria for bulk PCB remediation waste in high occupancy areas (40 CFR 761.61 (a)(4)(i)).
LP - Liquid Phase
VP - Vapor Phase
WS-2 -

Test America Lab Qualifiers

B - Compound was found in the blank and sample.
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
* - LCS or LCSD exceeds the control limits
U - Not present at or above the associated value.

TABLE 4

SAMPLE ANALYTICAL RESULTS
GROUNDWATER TREATMENT SYSTEM DECOMMISSIONING
FORMER SPIEGELBERG SUPERFUND SITE
LIVINGSTON COUNTY

Sample Location		RCRA	20 X RCRA	TSCA	C1	C2	C3	C4	C5	C6	C7	C8	F1	Drum 1	Drum 2	Drum 3	C5/Drum 2	Outdoor
					LP WS2	LP WS2	LP WS2	VP	VP	LP WS1	LP WS1	VP	Sand Filter	Drum 1	Drum 2	Drum 3	VP	Carbon tanks
					Sample-001	Sample-002	Sample-003	Sample-004	Sample-005	Sample-006	Sample-007	Sample-012	Sample-008	Sample-009	Sample-010	Sample-011	005 & 010 (composite)	013 & 014 (composite)
Sample Date					6/5/2012	6/5/2012	6/5/2012	6/5/2012	6/5/2012	6/5/2012	6/5/2012	6/5/2012	6/5/2012	6/5/2012	6/5/2012	6/5/2012	6/5/2012	6/19/2012
	Units	a	b	c														
PCBs																		
Aroclor-1016 (PCB-1016)	mg/kg	–	–	–	–	–	0.17 U	–	–	–	–	–	0.033 U	–	–	–	0.044 U	–
Aroclor-1221 (PCB-1221)	mg/kg	–	–	–	–	–	0.17 U	–	–	–	–	–	0.033 U	–	–	–	0.044 U	–
Aroclor-1232 (PCB-1232)	mg/kg	–	–	–	–	–	0.17 U	–	–	–	–	–	0.033 U	–	–	–	0.044 U	–
Aroclor-1242 (PCB-1242)	mg/kg	–	–	–	–	–	0.17 U	–	–	–	–	–	0.033 U	–	–	–	0.044 U	–
Aroclor-1248 (PCB-1248)	mg/kg	–	–	–	–	–	0.17 U	–	–	–	–	–	0.033 U	–	–	–	0.044 U	–
Aroclor-1254 (PCB-1254)	mg/kg	–	–	–	–	–	0.17 U	–	–	–	–	–	0.033 U	–	–	–	0.044 U	–
Aroclor-1260 (PCB-1260)	mg/kg	–	–	–	–	–	0.17 U	–	–	–	–	–	0.033 U	–	–	–	0.044 U	–
Total PCBs	mg/kg	–	–	1.0	–	–	ND	–	–	–	–	–	ND	–	–	–	ND	–
Metals																		
Arsenic	mg/kg	–	100	–	–	–	–	–	–	–	–	–	24	–	–	–	–	–
Barium	mg/kg	–	2000	–	–	–	–	–	–	–	–	–	12 B	–	–	–	–	–
Cadmium	mg/kg	–	20	–	–	–	–	–	–	–	–	–	0.095 U	–	–	–	–	–
Chromium	mg/kg	–	100	–	–	–	–	–	–	–	–	–	1.5	–	–	–	–	–
Lead	mg/kg	–	100	–	–	–	–	–	–	–	–	–	0.38 B	–	–	–	–	–
Mercury	mg/kg	–	4	–	–	–	–	–	–	–	–	–	0.035 U	–	–	–	–	–
Selenium	mg/kg	–	20	–	–	–	–	–	–	–	–	–	0.15 U	–	–	–	–	–
Silver	mg/kg	–	100	–	–	–	–	–	–	–	–	–	0.076 U	–	–	–	–	–
TCLP-VOCs																		
1,1-Dichloroethene	mg/L	0.7	–	–	0.025 U	0.025 U	0.025 U	–	–	0.025 U	0.025 U	–	–	–	–	–	0.025 U	0.025 U
1,2-Dichloroethane	mg/L	0.5	–	–	0.025 U	0.025 U	0.025 U	–	–	0.025 U	0.025 U	–	–	–	–	–	0.025 U	0.025 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/L	200	–	–	0.25 U	0.25 U	0.25 U	–	–	0.25 U	0.25 U	–	–	–	–	–	0.25 U	0.25 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/L	200	–	–	0.25 U	0.25 U	0.25 U	–	–	0.25 U	0.25 U	–	–	–	–	–	0.25 U	0.25 U
Benzene	mg/L	0.5	–	–	0.025 U	0.025 U	0.025 U	–	–	0.025 U	0.025 U	–	–	–	–	–	0.025 U	0.025 U
Carbon tetrachloride	mg/L	0.5	–	–	0.025 U	0.025 U	0.025 U	–	–	0.025 U	0.025 U	–	–	–	–	–	0.025 U	0.025 U
Chlorobenzene	mg/L	100	–	–	0.025 U	0.025 U	0.025 U	–	–	0.025 U	0.025 U	–	–	–	–	–	0.025 U	0.025 U
Chloroform (Trichloromethane)	mg/L	6	–	–	0.025 U	0.025 U	0.025 U	–	–	0.025 U	0.025 U	–	–	–	–	–	0.025 U	0.025 U
Tetrachloroethene	mg/L	0.7	–	–	0.025 U	0.025 U	0.025 U	–	–	0.025 U	0.025 U	–	–	–	–	–	0.025 U	0.025 U
Trichloroethene	mg/L	0.5	–	–	0.025 U	0.025 U	0.025 U	–	–	0.025 U	0.025 U	–	–	–	–	–	0.025 U	0.025 U
Vinyl chloride	mg/L	0.2	–	–	0.025 U	0.025 U	0.025 U	–	–	0.025 U	0.025 U	–	–	–	–	–	0.025 U	0.025 U
TCLP-SVOCs																		
1,4-Dichlorobenzene	mg/L	7.5	–	–	–	–	0.0040 U	–	–	–	–	–	–	–	–	–	0.0040 U	–
2,4,5-Trichlorophenol	mg/L	400	–	–	–	–	0.020 U	–	–	–	–	–	–	–	–	–	0.020 U	–
2,4,6-Trichlorophenol	mg/L	2	–	–	–	–	0.020 U	–	–	–	–	–	–	–	–	–	0.020 U	–
2,4-Dinitrotoluene	mg/L	0.13	–	–	–	–	0.020 U	–	–	–	–	–	–	–	–	–	0.020 U	–
2-Methylphenol	mg/L	200	–	–	–	–	0.0040 U	–	–	–	–	–	–	–	–	–	0.0040 U	–
3&4-Methylphenol	mg/L	–	–	–	–	–	0.040 U	–	–	–	–	–	–	–	–	–	0.040 U	–
Hexachlorobenzene	mg/L	0.13	–	–	–	–	0.020 U	–	–	–	–	–	–	–	–	–	0.020 U	–
Hexachlorobutadiene	mg/L	0.5	–	–	–	–	0.020 U	–	–	–	–	–	–	–	–	–	0.020 U	–
Hexachloroethane	mg/L	3	–	–	–	–	0.020 U	–	–	–	–	–	–	–	–	–	0.020 U	–
Nitrobenzene	mg/L	2	–	–	–	–	0.0040 U	–	–	–	–	–	–	–	–	–	0.0040 U	–
Pentachlorophenol	mg/L	100	–	–	–	–	0.040 U	–	–	–	–	–	–	–	–	–	0.040 U	–
Pyridine	mg/L	5	–	–	–	–	0.020 U	–	–	–	–	–	–	–	–	–	0.020 U	–
TCLP-Metals																		
Arsenic	mg/L	5	–	–	–	–	2.0 U	–	–	–	–	–	–	–	–	–	0.062 J	–
Barium	mg/L	100	–	–	–	–	0.12 JB	–	–	–	–	–	–	–	–	–	0.082 JB	–
Cadmium	mg/L	1	–	–	–	–	0.0014 J	–	–	–	–	–	–	–	–	–	0.10 U	–
Chromium	mg/L	5	–	–	–	–	0.0054 J	–	–	–	–	–	–	–	–	–	0.50 U	–
Lead	mg/L	5	–	–	–	–	0.0041 J	–	–	–	–	–	–	–	–	–	0.50 U	–
Mercury	mg/L	0.2	–	–	–	–	0.00015 J	–	–	–	–	–	–	–	–	–	0.0020 U	–
Selenium	mg/L	1	–	–	–	–	1.0 U	–	–	–	–	–	–	–	–	–	0.0065 J	–
Silver	mg/L	5	–	–	–	–	0.0035 J	–	–	–	–	–	–	–	–	–	0.50 U	–

Notes:

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WS-2 -

Test America Lab Qualifiers

B - Compound was found in the blank and sample.
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
* - LCS or LCSD exceeds the control limits
U - Not present at or above the associated value.

APPENDICES

APPENDIX A

GROUNDWATER TREATMENT SYSTEM DECOMMISSIONING PLAN (CRA, 2006)

CONESTOGA-ROVERS
& ASSOCIATES

GROUNDWATER TREATMENT SYSTEM DECOMMISSIONING PLAN

SPIEGELBERG SITE
LIVINGSTON COUNTY, MICHIGAN

PREPARED BY:
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1.0 INTRODUCTION

A groundwater remediation system consisting of groundwater extraction wells, a treatment system, and groundwater injection wells was operated at the Spiegelberg Site in Livingstone County, Michigan, between August 1995 and September 1998. In September 1998, with the approval of the United States Environmental Protection Agency (USEPA) and the Michigan Department of Environmental Quality (MDEQ), the operation of the system was reduced from continuous to intermittent.

Groundwater monitoring was conducted on a regular basis throughout the operating life of the groundwater remediation system. The last groundwater monitoring event was conducted in August 2004 as specified in the USEPA-approved "Protocol for Intermittent Operation of the Groundwater Remediation System" (CRA, August 1998). Following the receipt and review of the monitoring data from the August 2004 event, a proposal that the groundwater remediation system at the Spiegelberg Site be decommissioned and the long-term groundwater monitoring program be discontinued was submitted to the USEPA.

The plan presented in this report describes the components of the groundwater remediation system and outlines the approach to decommissioning the system so that the equipment may be reused at other locations. The report is organized as follows:

- Section 1.0 - Introduction: An overview of the history of the operation of the groundwater remediation system is presented in Section 1.
- Section 2.0 - System Description: Descriptions of the components of the groundwater remediation system are presented in Section 2.
- Section 3.0 - System Decommissioning: An outline for the decommissioning of the groundwater remediation system is presented in Section 3.

2.0 SYSTEM DESCRIPTION

2.1 GENERAL

The following description of the remediation system was obtained from the Operation and Maintenance (O&M) Manual for the Site (CRA, June 1994). The groundwater remediation system included an extraction system, a treatment system, and a treated water reinjection system. The designed peak flow of the system components was 125 gallons per minute (gpm).

The treatment system operated two separate treatment process streams, identified as Stream A and Stream B, designed to address different general chemistry conditions and concentrations of volatile organic compounds (VOCs) in the extracted groundwater. The individual process components of Stream A are as follows:

i) equalization tank;

ii) air stripper with sump;

iii) sand filter;

iv) liquid and vapor phase granular activated carbon (GAC); and

v) sludge tank.

The only process component of Stream B is liquid phase GAC.

Distribution control valves and spare ports were provided at the extraction well influent manifold (inside the Treatment Building) so that groundwater from individual extraction wells could be redistributed to Stream A or Stream B as groundwater chemistry changed with time.

Treated water from both streams was collected in the reinjection sump and subsequently re-injected into the Site aquifers through nine injection wells.

A treatment process schematic is presented on Figure 2.1. Process and Instrumentation Diagrams (P&ID) and a utilities drawing are presented in Appendix A.

2.2 GROUNDWATER EXTRACTION COMPONENTS

2.2.1 EXTRACTION WELL PUMPS

Five submersible well pumps (Grundfos electrical stainless steel submersible centrifugal pumps) rated between 15 and 50 gpm were used to maintain hydraulic containment at the Site.

Flow rates from each extraction well were regulated by throttling valves on the extraction manifold inside the treatment building. Flow rate sensors and digital read-out panels, located next to the extraction well throttling valves, were used to control and monitor the extraction flow rates.

A listing of the extraction well pumps and their capacities is provided in Appendix B.

2.2.2 FORCEMAIN

Discharge from each extraction well was conveyed through individual underground forcemain to the extraction manifold located inside the treatment facility. The buried forcemains are constructed of high density polyethylene (HDPE) DR11 pipe.

The forcemains are buried at least 3.5 feet below ground surface (bgs). Therefore, they will not interfere with future land use and can be abandoned in place.

2.3 GROUNDWATER TREATMENT COMPONENTS

2.3.1 STREAM A

As stated previously, the system was divided into two process streams to efficiently remove VOCs from the extracted groundwater. Stream A was designed to treat groundwater with higher VOC concentrations. Because of the higher VOC concentrations, air stripping was selected as the most efficient primary treatment technology for Stream A. GAC (liquid and vapor phase) was employed as a secondary technology to remove the VOCs from the air stripper vapor effluent and to provide final polishing of the groundwater effluent. Air stripping will produce solids by oxidizing soluble metals (mainly iron) into a less soluble form. Therefore, a sand filter and sludge tank were needed in Stream A to collect and concentrate sludge generated in the system.

The following sections describe the individual Stream A process components and summaries of the components' associated features. Detailed vendor specifications, drawings and instructions can be found in Part II of the "Operations and Maintenance Manual", dated June 1994. The major components of the treatment process were inspected in June 2006 to determine their condition and assess potential usability; however, neither the pumping or treatment systems were operational at the time of the inspection. Therefore, the assessments presented are limited to what could be visually observed.

2.3.1.1 EQUALIZATION TANK

Description:

- Conical bottom polyethylene tank with a vented cover.
- 3,000-gallon capacity.

Associated Features:

- Sludge was pumped manually from tank bottom drain, as needed, using a Warren Rupp Sandpiper (Model PB1-A Type 3) air operated diaphragm pump.
- Overflow drains from the sludge tank and the knock-out pot fed into the equalization tank.
- An effluent pump from the building collection sump discharged into the equalization tank.

Current Condition:

- The equalization tank is in good condition but shows some scaling. The tank will require cleaning before reuse. The conditions of the pumps cannot be determined until they are removed and can be tested.

2.3.1.2 AIR STRIPPER

Description:

- Shallow Tray Low Profile Air Stripper Model 2621 as manufactured by Northeast Environmental Products, Inc.
- 50 gpm flow rate, 600 cfm airflow rate.
- 50°F water and air temperature.

- A/W Ration 81.6 cubic feet (cu. ft.)/cu. ft.
- 5 HP, 460v
- Two trays, 48" w x 74" x 99" h, 1,280 pounds empty.

Associated Features:

- The unit includes a regenerative blower capable of generating 600 cubic feet per minute (cfm) air flow rate.
- The air blown through the unit discharged through a demister and a 55-gallon lined carbon steel knock-out pot prior to vapor phase granular activated carbon treatment.
- A separate sump tank, connected to the air stripper sump, provided an additional 500-gallon minimum pumping reservoir. The sump tank is a rectangular polypropylene vessel.
- The treated water from the air stripper was pumped to the sand filter via Goulds G&L centrifugal stainless steel transfer pumps, Model NPE 1ST. The pumping system included three pumps set up so that two pumps operate and the third is on standby.

Current Condition:

- The air stripper and blower are good condition. The trays and interior of the stripper housing will require cleaning before reuse.

2.3.1.3 SAND FILTER

Description:

- Continuous backwash Parkson Dynasand Model DSF-12.
- Cylindrical unit.
- 50 gpm, 12 ft^2 filtration area.
- 40" id x 144" h.
- 3.3 tons of sand, 15,500 lbs.
- Air stream of 1 standard cubic feet per minute (scfm).

Associated Features:

- Air from the air compressor was used to scour sand, and was controlled by a filter, regulator, and lubricator.

Current Condition:

The sand filter is in fair condition. Corrosion is apparent on fittings. The filter media would need to be removed and replaced prior to reuse of the unit at another site. The used filter media would be disposed in accordance with appropriate State and Federal regulations.

2.3.1.4 PUMP TANK

Description:

- Conical bottom polyethylene vessel with a vented cover
- 1,575-gallon capacity
- 86" D x 103" H
- 450 pounds

Associated Features:

- Sludge was pumped manually from the tank bottom drain, as needed, using a Warren Rupp Sandpiper (Model PB1-A Type 3) air-operated diaphragm pump.
- Water from the pump tank was conveyed to the liquid phase GAC units via Goulds G&L centrifugal stainless steel transfer pumps, Model NPE 1ST. The pumping system includes three pumps set up so that two pumps operate and the third is on standby.

Current Condition:

- The pump tank is in good condition. Some sediment and scale is apparent inside the tank. The tank will require cleaning prior to removal from the Site. The conditions of the pumps cannot be determined until they can be tested.

2.3.1.5 AQUEOUS PHASE GAC

Description:

- Two liquid phase GAC units installed to polish Stream A are Model Aqua 5,000 HP manufactured by Carbon Services Company.
- Capacity 40 to 150 gpm/unit.

- 15, 520 lbs.
- 5'3" D x 13'7.5" H

Current Condition:

The aqueous phase carbon units are full. Based on visual observation of the outsides of the units, they are in good condition. The condition of the carbon inside the vessels is unknown, it is not believed that the units were drained when the system was shut down. The carbon would be removed and disposed prior to removal of the vessels from the Site. The vessels can be removed through the overhead door if placed on their sides.

2.3.1.6 VAPOR PHASE GAC FOR AIR STRIPPER

Description:

- Vapor phase GAC provided by Carbon Services Company, Model Air 2500.
- 60" x 60" x 67" H.
- 5200 lbs, operating weight.

Current Condition:

- Based on visual observations of the outside of the carbon unit, the condition is good. The carbon bed is full of carbon. This unit would be not be reusable at another site.

2.3.1.7 VAPOR PHASE GAC FOR VENTS

Description:

- Vapor phase GAC drums, Model Air 175 as provided by Carbon Services Company.

Current Condition:

- The carbon drums are full and in good condition. The carbon drums would not be reusable at another site.

2.3.1.8 SLUDGE HANDLING

Description:

- Conical bottom polyethylene tank with vented cover for storing sludge.
- 2,600-gallon capacity.

Current Condition:

- The sludge tank is in good condition. Some sediment and scale is apparent inside the tank. The tank will require cleaning prior to removal from the Site.

2.3.2 STREAM B

Stream B was designed to treat groundwater with lower VOC concentrations. Because of the lower organic content, aqueous phase carbon was the most efficient technology for treatment. Stream B was capable of handling peak flow rates up to 50 gpm.

The major components of the treatment process were inspected in June 2006 to determine their condition and assess potential usability; however, neither the pumping or treatment systems were operational at the time of the inspection. Therefore, the assessments presented are limited to what could be visually observed.

2.3.2.1 AQUEOUS PHASE GAC

Description:

- Three liquid phase GAC units, Model Aqua 5,000 HP manufactured by Carbon Services Company.
- Capacity 40 to 150 gpm/unit.
- 15, 520 lbs.
- 5'3" D x 13'7.5" H

Current Condition:

The aqueous phase carbon units are full. Based on visual observation of the outsides of the units, they are in good condition. The condition of the carbon inside the vessels is unknown, it is not believed that the units were drained when the system was shut down. The carbon would be removed and disposed prior to removal of the vessels from the Site. The vessels can be removed through the overhead door if placed on their sides.

2.4 REINJECTION COMPONENTS

2.4.1 REINJECTION PUMPS AND SUMP

Description:

- The 2,000-gallon reinjection sump collected treated water from both Streams A and B.
- Three Goulds Model 3885 series WE15HH cast iron submersible pumps distributed treated water to nine injection wells around the Site.
- Pumps have 2-inch discharge and are each capable of pumping 40 gpm.

Associated Features:

- Throttling valves on each injection line allow the operator to set the required flow rate of each injection well for proper hydraulic balance. Flow rate sensors and digital read-out panels, located next to the injection well throttling valves, will be used to monitor and control the injection well flow rates.

Current Condition:

- The conditions of the pumps cannot be determined until after they are removed and can be tested. Because the system was not operational at the time of the June 2006 inspection, the usability of the flow rate sensors, valves, etc., is unknown.

2.4.2 INJECTION FORCEMAIN

Discharge from the reinjection sump was directed through the injection well manifold and conveyed through the individual underground forcemains to each injection well. The buried forcemains are constructed of HDPE DR11 pipe.

The injection forcemain was typically buried at least 3.5 feet below grade. As a result, the forcemain will not interfere with future land use. Therefore, the forcemain can be abandoned in place.

2.5 UTILITIES

2.5.1 ELECTRICAL POWER DISTRIBUTION

The water treatment plant power supply is a 3-phase, 480 volt service provided by Detroit Edison. The service is brought to a motor control center (MCC) located in the control room in the southwest corner of the treatment building. The MCC contains two transformers. One transformer converts the 480 volt power to 120/208 volt, 3-phase for power supply requirements throughout the treatment process. The second transformer provides isolated and filtered 120 volt power for the Programmable Logic Controller (PLC)-based control system.

The MCC contains combination starters used to distribute 480 volt 3-phase power to individual equipment components throughout the process. Starters for process equipment were operated through the PLC. Starters for the air compressor, overhead door and building sump pump were operated manually. The MCC also provides circuit breakers to provide power to the air stripper and the electric unit building heaters.

A lighting panel is provided for distribution of the 120/208 volt, 3-phase power. The building exhaust fan and ceiling fans are also controlled from the lighting panel.

For continued power supply to the building the transformers would be left in place.

2.5.2 CONTROL SYSTEM

The system was controlled by a PLC located in the control room of the treatment building. Process data and alarms are provided on a display located on the PLC control panel. The PLC is linked to on-Site and off-Site personal computers (PCs) used to monitor the treatment system operation.

Start and stop push buttons are located throughout the treatment system near the individual equipment components and are interfaced to the PLC. When push buttons were pressed, the PLC initiated the appropriate action.

All analog and digital process input and output signals were interfaced to the PLC. The PLC operated all equipment as required based on the input signals from the field devices. The PLC also monitored the treatment system for alarm conditions and initiated appropriate actions, including inhibiting equipment operation and effecting a plant shutdown, as necessary.

The PLC is likely reusable; however, reprogramming will be required.

2.5.3 AIR COMPRESSOR

Description:

- The Model QT-7.5 air compressor, as manufactured by Quincy Compressor, has a 7 1/2 horsepower motor, capable of producing 23.8 cfm at 175 pounds per square inch (psi).

Current Condition:

- Because the system was not operational at the time of the June 2006 inspection, the air compressor could not be assessed. It is likely that the compressor is reusable; however, routine maintenance and repair may be necessary.

2.5.4 POTABLE WATER SYSTEM

Description:

- The potable water system consists of the 550-gallon polyethylene potable water tank, lavatory water heater, wash basins and mop receptor.

Current Condition:

- The potable water system will be left in place for future use of the building.

2.5.5 EMERGENCY SHOWER SYSTEM

Description:

- The emergency shower system consists of a 125-gallon polyethylene emergency shower tank and the Haws Model 8301 safety shower and eyewash.

Current Condition:

The emergency shower system can be removed and reused.

2.5.6 FLOOR DRAIN SYSTEM

Description:

- The building sump has a 2,000-gallon capacity.
- A shallow trench runs almost the entire length of the treatment building and drains into the building sump. The floor slab has a 4-inch containment curb around the treatment building and is sloped toward the floor trench.

Associated Features:

- The sump was equipped with a submersible Goulds pump (Model 3885 WE05HH).

Current Condition:

The sump and pump will be left in place for future use of the building.

2.5.7 HEATING, VENTILATION, AND AIR CONDITIONING

Description:

- Electric unit heaters manufactured by Chromalox (Model LUH) provide heat to the building based upon individual thermostat readings.
- South endwall-mounted building exhaust fan exhausts air continuously.
- North endwall mechanical louvers allow introduction of fresh air into treatment building.
- Circulation fans on the ceiling circulate air internally.
- The washroom is provided with an exhaust fan.
- The control room is provided with a heater/air conditioner.

Associated Features:

- A low level building temperature thermostat is linked to the PLC to provide an alarm condition if the ambient building temperature falls below an established operating level.

Current Condition:

- The heating, ventilation, and air conditioning system will be left in place for future use of the building.

2.5.8 SANITARY SYSTEM

Description:

- The sanitary system is comprised of a low-flow toilet and a sanitary holding tank.
- The 5,000-gallon carbon steel sanitary holding tank is located underground south of the treatment building.

Associated Features:

- A level transmitter is installed in the holding tank. The signal from the transmitter is used to display the sanitary tank liquid level on the PC "utility" display screen.

Current Condition:

- The sanitary system will be left in place. However, the PC will be removed and an alternate method of monitoring the liquid level in the sanitary tank will be required for continued use.

2.5.9 FIRE AND INTRUSION SYSTEM

Description:

- Alarm system using smoke alarms, door contacts and a contact from the PLC to trigger alarms to the proper agencies for appropriate action.

Associated Features:

- The fire/intrusion system controller may be interfaced to a security monitoring service via the building telephone system.

Current Condition:

- All alarms will be disconnected when the treatment system is decommissioned.

3.0 SYSTEM DECOMMISSIONING

The groundwater treatment system components and associated instrumentation shall be removed from the Site for reuse or off-Site disposal, as appropriate. The treatment building will be left in place as will the sanitary systems, heating, ventilation, and air conditioning components, lighting, smoke detectors, manhole covers, and overhead door.

The decommissioning of the Site groundwater treatment system will consist of the following:

i) inspection and/or testing of system features and components to evaluate condition and operability;

ii) removal of bulk liquids, solids, and residues from tanks, pits, sumps, and equipment;

iii) cleaning of the treatment building and system features and components;

iv) confirmatory sampling to evaluate the effectiveness of the cleaning;

v) dismantlement of the treatment system;

vi) plugging of groundwater extraction and injection underground piping; and

vii) disposal of liquid and solid wastes resulting from the decommissioning.

General descriptions of the decommissioning activities are presented in the following subsections. Specific procedures will be provided in a detailed Decommissioning Plan prepared by the contractor selected to perform the work.

3.1 INSPECTION AND TESTING

An inventory of equipment contained within the treatment system building was completed in October 2005. A copy of this equipment inventory is presented in Appendix B. Identification numbers shown on the equipment inventory are referenced to the P&ID drawings presented in Appendix A.

3.2 REMOVAL OF BULK WASTES

All tanks, pipes, sumps, pits, and treatment vessels will be inspected and any liquids or solids contained within will be removed. Solids and liquids will be segregated.

The materials removed will include the filter media from the sand filter and carbon from the carbon beds. All materials removed will be containerized and handled as described in Section 3.6.

3.3 CLEANING

Cleaning of system components will be accomplished through one or more of the following methods:

i) rinsing with potable water (such as switches and gauges through which extracted, untreated groundwater passed);

ii) high pressure water rinse;

iii) steam cleaning; and

iv) hand cleaning where accessibility is limited.

If possible, potable water or clean groundwater will be passed through the treatment system prior to beginning the cleaning of individual components. In this way, any gross contamination can be flushed through the system and treated on-Site using the existing system. The cleaning of individual components may be conducted before, during, or after the dismantlement of the treatment system. All electrical instrumentation, including the PLC and display, shall be removed from the treatment building and properly stored prior to beginning the cleaning process.

The treatment building walls, floors, sumps, and floor trenches will be cleaned following the removal of all equipment from the treatment building. Discharge piping from these features should be plugged prior to cleaning to prevent accidental discharge of washwater. Cleaning of these areas may require the use of vacuum equipment.

3.4 CONFIRMATORY SAMPLING

Wipe samples will be collected from the following after cleaning is completed:

i) the sand filter bed;

ii) all tanks;

iii) air stripper; and

iv) building walls, floors, sumps, and pits.

Samples of water passed through the sump and effluent (injection) pumps shall also be collected following cleaning.

Piping which does not display the presence of residue or staining following cleaning will not be sampled.

All samples will be analyzed for Target Compound List (TCL) VOCs and lead. The data will be reviewed to evaluate whether the components are suitable for reuse. If it is found that chemical presence remains on any of the cleaned, sampled surfaces, the equipment will either be recleaned (and resampled) or sent for appropriate disposal. The final data will be kept on file for reference purposes in the event that system components are reused.

3.5 INCOMING AND OUTGOING UNDERGROUND PIPING

Groundwater extraction system forcemain and reinjection piping will be exposed outside the treatment system building through excavation. Once exposed, the pipes will be severed and plugged. The plugging of this piping adjacent to the treatment building is to be performed in addition to the plugging near the individual well heads during well abandonment.

3.6 WASTE HANDLING AND DISPOSAL

The wastes removed will be containerized, labeled, and stored for subsequent off-Site disposal at a permitted facility. Carbon treatment drums will be sent off-Site for recycling or disposal.

Waste materials and debris to be sent off-Site for disposal will be characterized as required by the treatment, storage, and disposal facility.

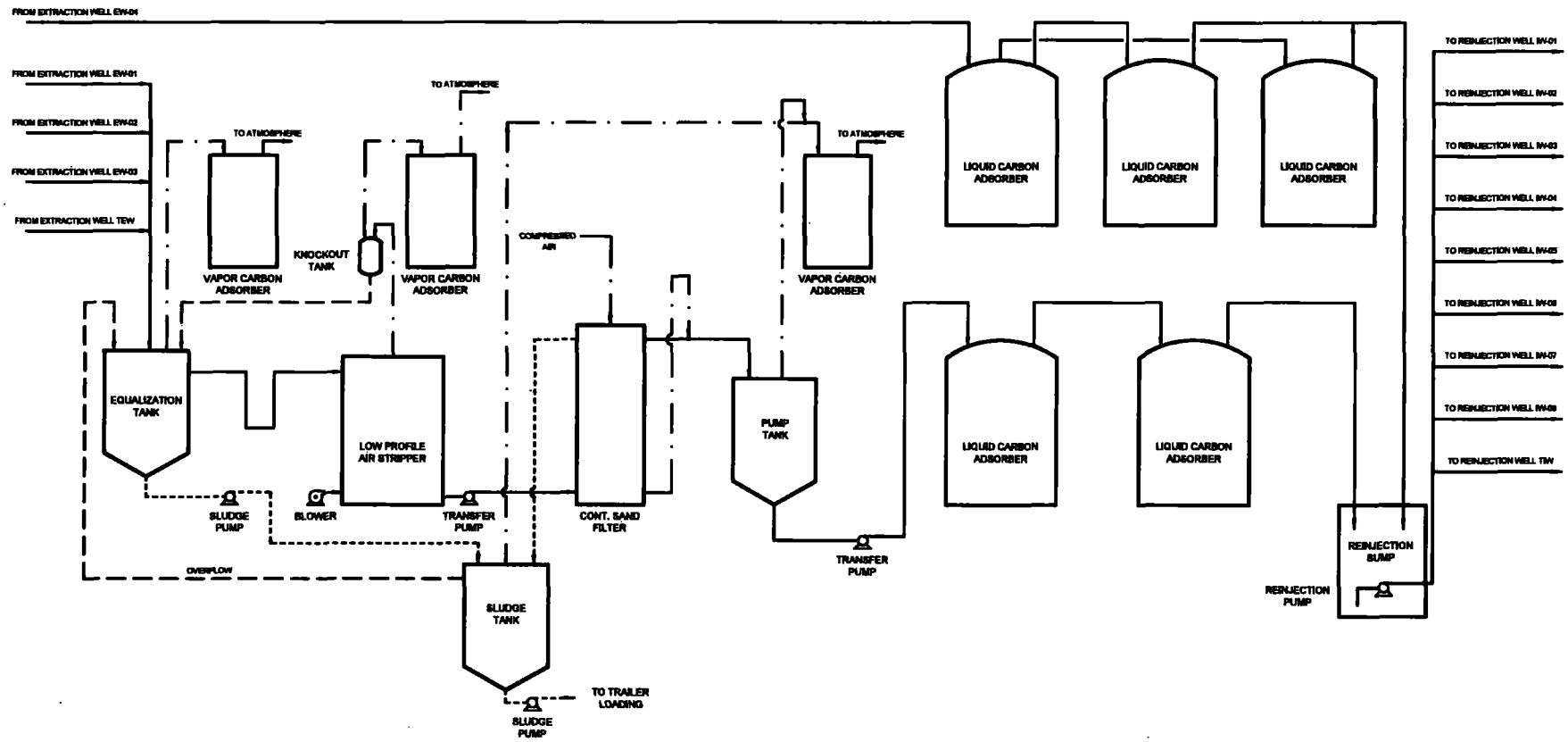

figure 2.1
PROCESS FLOW DIAGRAM
SPIEGELBERG SITE
Livingston County, Michigan

3581-00(041)GN-BE001 MAY 09/2006

APPENDIX B

CRA LETTER TO MR. HOWARD CAINE, U.S. EPA
RE: WELL ABANDONMENT PROGRAM (JUNE, 21, 2006)

CONESTOGA-ROVERS
& ASSOCIATES

651 Colby Drive, Waterloo, Ontario, Canada N2V 1C2
Telephone: 519-884-0510 Facsimile: 519-884-0525
www.CRAworld.com

June 21, 2006

Reference No. 3581

Mr. Howard Caine
Remedial Project Manager
United States Environmental Protection Agency
Region 5
77 West Jackson Street
Chicago, Illinois 60604-3590

Dear Mr. Caine:

Re: Well Abandonment Program
Spiegleberg Site – Livingston County, Michigan

Conestoga-Rovers & Associates (CRA) has prepared this letter on behalf of the Ford Motor Company (Ford) to present the United States Environmental Protection Agency (USEPA) and Michigan Department of Environmental Quality (MDEQ) with the well abandonment program for the Spiegleberg Site (Site). As you are aware, Ford submitted a request to decommission the groundwater extraction and treatment system following the completion of the August 2004 groundwater monitoring event. As part of the system decommissioning, it is necessary to properly abandon all extraction wells, injection wells, monitoring well and piezometers on the Site in accordance with Michigan rules and regulations.

The attached program presents the list of wells to be abandoned and the procedures to be employed. It is Ford's intent to proceed with the abandonment program following USEPA approval of the program.

If you have any questions regarding this program please contact Steve Nadeau (313-465-7943) or the writer at your convenience.

Yours truly,

CONESTOGA-ROVERS & ASSOCIATES

Michael G. Mateyk

MGM/pw/1
Encl.

c.c.: Keith Krawczyk, MDEQ
David Miller, Ford
Steve Nadeau, Honigman Miller Schwatrz and Cohn
Carol Barron, CRA

WELL ABANDONMENT PROGRAM
SPIEGELBERG SITE
LIVINGSTON COUNTY, MICHIGAN

As part of the decommissioning of the groundwater extraction and treatment system at the Spiegelberg Site (Site) it is necessary to abandon all extraction wells, injections, monitoring wells, and piezometers at the Site. Conestoga-Rovers & Associates (CRA) has prepared the following well abandonment program on behalf of Ford Motor Company (Ford) to inform the United States Environmental Protection Agency (USEPA) and the Michigan Department of Environmental Quality (MDEQ) of the procedures to be used. Based on a review of the Site and related documents, there are currently 58 wells located on the Site; 32 monitoring wells, 5 extraction wells, 9 injection wells, and 12 piezometers. A listing of the wells and piezometers and installation details is provided in Table 1. One monitoring well, CRA-RA-7, is currently used for monitoring of the adjacent Rasmussen Site. Therefore, well CRA-RA-7 will not be abandoned at this time.

PREPARATORY ACTIVITIES

Typical details of extraction and injection well installations are shown on the as-constructed drawings contained in Attachment A. Prior to beginning the well abandonment, the following will be completed:

i) Electrical service to individual wells will be shut down;
ii) Protective bollards surrounding above-ground wells will be removed;
iii) Protective well housings will be removed;
iv) Electrical boxes and instrumentation contained within the well housing will be removed;
v) All downhole piping, wiring and equipment will be removed from the well;
vi) Below grade forcemain and conduit will be exposed near the well through excavation;
vii) Forcemain leading away from the well will be cut and plugged; and
viii) Electrical conduit and the wire(s) contained within will be cut.

WELL ABANDONMENT PROCEDURE

The well abandonment procedures presented below have been prepared in accordance with Michigan Well Construction Code Administrative Rules R 325.1662 through R 325.1664 (April 1994). A qualified contractor will undertake the well abandonments under the direction of CRA.

Wells will be abandoned by pressure grouting in place using the tremie method. The grouting material will be one of the following mixed in accordance with the manufacturer's instructions:

i) neat cement;
ii) concrete grout;
iii) bentonite chips;
iv) bentonite pellets; or
v) bentonite grout.

The tremie pipe will be at least 1-inch inside diameter.

Prior to beginning the well abandonment, the volume of the well installation should be calculated. As the injection of the grouting material proceeds, the volume injected will be compared to this calculated well volume to ensure that the volume of material used is at least equivalent to the volume of the well.

The procedure for abandonment of wells is:

i) Install the tremie pipe into the well to a depth within 2 feet of the installed bottom depth of the well screen.
ii) Inject the grouting material into the well through the tremie pipe, gradually raising the pipe to ensure the well is filled from bottom to top.
iii) Continue injection until the entire length of riser pipe is filled with grouting material and return is seen at the ground surface.
iv) Allow grouting material to stabilize within the well and add additional material until the level remains within 2 feet of the ground surface.
v) Remove protective casings and surface seals not previously removed and cut the well riser at least 2 feet below the ground surface.
vi) Fill the open excavation or annular space above the cut riser with material consistent with the surrounding area.
vii) Restore the ground surface consistent with the surrounding area.

Following the well abandonments, the drilling contractor will complete an Abandoned Well Plugging Record. The records will be submitted to the Michigan Department of Public Health and the Livingston County Health Department

EQUIPMENT DECONTAMINATION AND WASTE HANDLING

Soil excavated from around the well installation may be used as backfill at the location from which they were removed.

Piping removed from the well and any sections of forcemain removed shall be cleaned using either a high-pressure wash or steam cleaning. Pumps will also be cleaned using either a high-pressure wash or steam cleaning. Extraction well submersible pumps and monitoring wells bladder pumps will be cleaned by 7 pumping potable water through them. The pumps may be reused at other Ford facilities.

All wash waters will be contained and disposed in accordance with applicable federal and state regulations.

REPORTING

Following the completion of the well abandonment program a report will be prepared and submitted to USEPA and MDEQ. The report will present the field activities and will include copies of the Abandoned Well Plugging Records.

TABLE 1

WELL INSTALLATION DETAILS
SPIEGELBERG SITE
LIVINGSTON COUNTY, MICHIGAN

WELL ID	Top of Casing (ft. AMSL)	GS (ft. AMSL)	Stickup (ft.)	Top of Screen (fbgs)	Bottom of Screen (fbgs)	Screen Length	End of Borehole (fbgs)	Well Diameter (inches)	Comment
CRA-MW-2	954.4	952	2.4	85	100	15	102	2	
CRA-MW-5	907.57	905	2.57	28	38	10	40	2	
CRA-MW-6	952.73	949.6	3.13	104.5	109.5	5	109.5	2	
CRA-MW-7	939.98	936.6	3.4	91.5	96.5	5	96.5	2	
CRA-PZ-1	932.92	930.7	2.22	45	55	10	60	2	
CRA-PZ-2	937.1	934.8	2.3	48	58	10	78	2	
CRA-PZ-3	926.79	923.6	3.19	58	68	10	70	2	
CRA-PZ-4	Well log not found								
EW-01	899.68	897.5	2.18	28	48	20	54	6	
EW-02	903.97	900.8	3.17	42	72	30	92	6	
EW-03	915.81	913.1	2.71	62.5	97.5	35	99	6	
EW-04	915.28	912.3	2.98	62	97	35	99	6	
EXT-PZ-1	904.6	902.5	2.1	25	35	10	36	2	
EXT-PZ-2	906.6	904.7	1.9	27	37	10	38	2	
EXT-PZ-3	909.4	907.4	2	29	39	10	40	2	
INJ-PZ-1	898.6	893.7	4.9	15	25	10	26	2	
INJ-PZ-2	898.7	894.6	4.1	16	26	10	27	2	
INJ-PZ-3	899.3	895.2	4.1	17	27	10	28	2	
INJ-PZ-4	897.4	892.5	4.9	14	24	10	25	2	
INJ-PZ-5	898.1	893.1	5	14	24	10	25	2	
IW-01	909.54	906.5	3.04	27	32	5	34	6	
IW-02	908.93	906.1	2.83	25	35	10	39	6	
IW-03	911.66	909.2	2.46	27.5	37.5	10	39	6	
IW-04	917.11	914.1	3.01	32	52	20	59	6	
IW-05	893.23	891.3	1.93	8	38	30	47	6	
IW-06	915.18	911.6	3.58	31	76	45	87	6	
IW-07	933.07	929.3	3.77	51	71	20	97	6	
IW-08	Well log not found								
OBG-1A	893.3	890.4	2.9	4	14	10	14	2	
OBG-4A	912.91	910.16	2.75	24	34	10	34	2	
OBG-4B	911.05	909.06	2	63	73	10	75	2	
OBG-5A	911.33	907.44	3.9	33	43	10	43	2	
OBG-5B	911.49	907.34	4.15	68	78	10	80?	2	
SP-MW-13	940.17	937.6	2.57	73.5	76.5	3	76.5	2	
SP-MW-15	890.9	887.9	3	15	18	3	18	2	
SP-MW-20D	918.9	917.2	1.7	72	76	4	183.5	4	
SP-MW-25D	930.3	927.3	3	160	163	3	187	4	
SP-MW-40	914.4	914.5	0	72	75	3	80	2	

TABLE 1

WELL INSTALLATION DETAILS
SPIEGELBERG SITE
LIVINGSTON COUNTY, MICHIGAN

WELL ID	Top of Casing (ft. AMSL)	GS (ft. AMSL)	Stickup (ft.)	Top of Screen (fbgs)	Bottom of Screen (fbgs)	Screen Length	End of Borehole (fbgs)	Well Diameter (inches)	Comment
SP-MW-44	919.3	918.1	1.2	158	162	4	169	4/6	4"Galvinized and 6" Black Iron
SP-MW-46	952.73	952.25	0.5	174	178	4	178	?	
SP-MW-49	914.3	913.1	1.2	140	144	4	161	4/6	4"Galvinized and 6" Black Iron
SP-MW-50	?	911	?	93.5	96.5	3	97	4	
SP-MW-51	911.28	907.11	4.17	36.5	39.5	3	50	4	
SP-MW-51A	911.21	907.45	3.75	64	67	3	70	4	
SP-MW-52	950.75	948.46	2.29	78.5	81.5	3	100		
SP-MW-53	940.56	937.94	2.62	67	70	3	80		
SP-MW-60R	905.18	901.9	3.3	40	45	5	45	2	
SP-MW-61	898.19	894.94	3.25	38	41	3	80		
SP-MW-64	922.8	920.17	2.63	42.5	45.5	3	61.5		
TEW	906.6	903.8	2.8	25	35	10	40	6	
TIW	898.2	893.9	4.3	14	34	20	37	6	
SP-MW-19	897.9	895.6	2.3	15	18	3	20	2	
OBG-2	?	?	3	37	47	10	47	2	
SP-MW-29D	936.4	936.4	0				42	4	
SP-MW-30D	901.5	899	2.5	128.5	132.5	4	143	4	
SP-MW-60	?	?	5?	40	43	3	90		
SP-MW-62	?	?	5?	31	34	3	59		
SP-MW-64A	?	?	5?	67	70	3	70	3	

APPENDIX C

HOWARD CAINE, U.S. EPA - LETTER TO CRA
RE: DECOMMISSIONING GROUNDWATER REMEDIATION SYSTEM
AND WELL ABANDONMENT PROGRAM (MAY 18, 2011)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

Rec'd CRA
MAY 30 2011

REPLY TO THE ATTENTION OF:
SR-6J

May 18, 2011

Michael G. Mateyk
Conestoga-Rovers & Associates
651 Colby Drive
Waterloo, Ontario Canada N2V 1C2

Re: Spiegelberg Landfill: Decommissioning Groundwater Remediation System and Well Abandonment Program

Dear Mr. Mateyk:

The United States Environmental Protection Agency (U.S. EPA) Region 5, with concurrence from the Michigan Department of Environment Quality (MDEQ), signed off on the Final Close Out Report for the Spiegelberg Landfill Superfund site in Livingston County, Michigan on July 19, 2010. A Superfund site must meet the criteria below to be eligible for site completion: 1) cleanup goals specified in all Records of Decision (ROD) or removals are met, 2) Institutional Controls are in place, 3) all Remedial Action (RA) Reports, On-Scene Coordinator (OSC) Reports and Pollution Reports (POLREP) have been completed, 4) all RODs, ROD Amendments, and Explanation of Significant Differences (ESD) have been completed, 5) the site is protective of human health and the environment, and 6) the only remaining activities, if any, at the site are operation and maintenance activities that are performed by the State, Federal Factility or responsible parties. The Spiegelberg Landfill Superfund site ("the Site") meets these requirements. Further, the Site was proposed (proposed rule: notice of intent and direct final rule) for Deletion from the National Priorities List (NPL) on April 13, 2011 in the Federal Register (attached). The direct final deletion is effective on June 13, 2011 unless EPA received adverse comments by May 13, 2011. EPA received no adverse comments.

Conestoga Rovers & Associates (CRA) letter of February 14, 2005 recommended that 1) decommissioning of the groundwater remediation system at the site was appropriate, and 2) the long-term program should be terminated. The letter also petitioned the U.S. EPA to delist the site from the NPL. CRA's cover letter of February 16, 2005 to the August 2004 Groundwater Monitoring and O&M Annual Report stated that it had completed the final groundwater sampling event contemplated in the Protocol for Intermittent Operation of the Groundwater Remedial System. CRA also submitted a Well Abandonment Program request on June 21, 2006.

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U.S. EPA provided comments to this request on October 4, 2007. CRA addressed U.S. EPA's comments on January 3, 2008 and provided additional information.

U.S. EPA Region 5, with concurrence from MDEQ, believes that it is appropriate to:

- Decommission the groundwater remediation system at the Site,
- Terminate the long-term groundwater monitoring program at the Site,
- The 1991 Deed Restriction on the Spiegelberg Landfill Superfund site is no longer needed since all cleanup standards have been met, however, the 1995 Deed Restriction on the Spiegelberg property associated with the Rasmussen's Dump Superfund site ("1995 Deed Restriction") must remain in place.
- CRA may commence with the Well Abandonment Program. U.S. EPA and MDEQ are requiring that the 14 groundwater monitoring wells associated with the 1995 Deed Restriction shall also remain in place at this time. These wells were identified as CRA-RA-21, 81-7, CRA-RA-1, CRA-RA-4, 81-5, 81-4, CRA-RA-7, SW-MW-49, 81-2, CRA-RA-8, CRA-RA-13, CRA-RA-9, SP-MW-30D and SP-MW-19. Your letter discussed amending the 1995 Deed Restriction in the future which would reduce the number of associated wells from 14 to 5 (81-7, 81-4, CRA-RA-31, CRA-RA-7 and CRA-RA-8). U.S. EPA and MDEQ are available to discuss this issue with you.

If you have any questions regarding this letter, please feel free to contact me at 312 353 9685 or by email at caine.howard@epa.gov.

Sincerely,

Howard Caine, RPM
U.S. EPA Region 5
Superfund

Attachments

cc: Cynthia Kawakami, U.S. EPA via email
Keith Krawczyk, MDEQ
Jerome Kujawa, U.S. EPA via email
Steven Nadeau, Honigman, Miller, Schwartz & Cohn

APPENDIX D

SITE PHOTOGRAPHS
(JUNE, 2012 - DECEMBER, 2012)

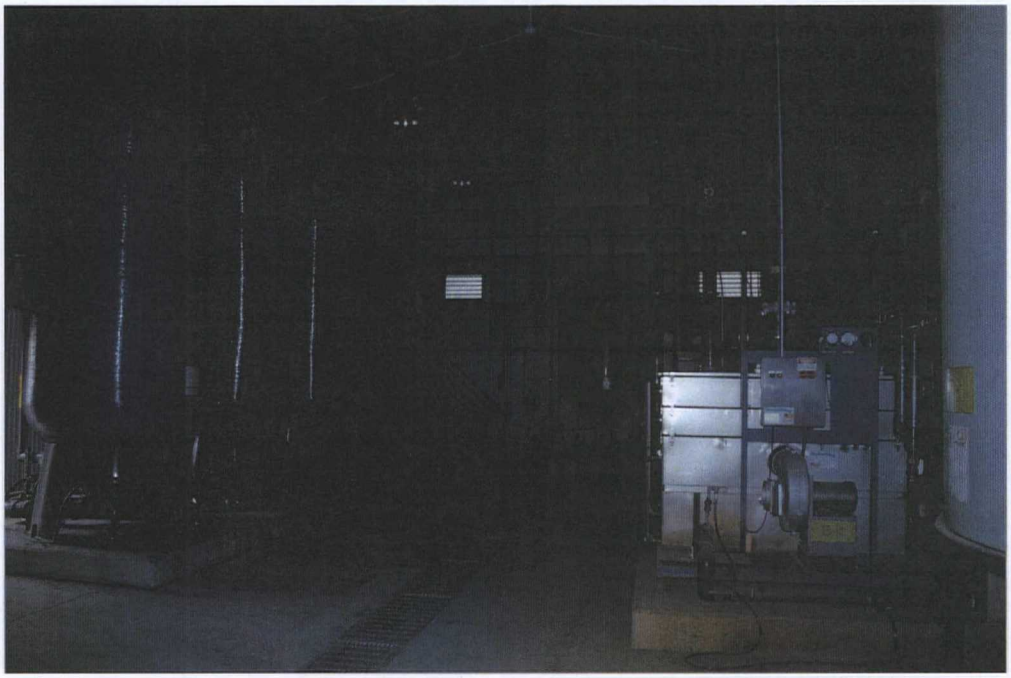

Photo 1: Treatment Building prior to decommissioning activities.

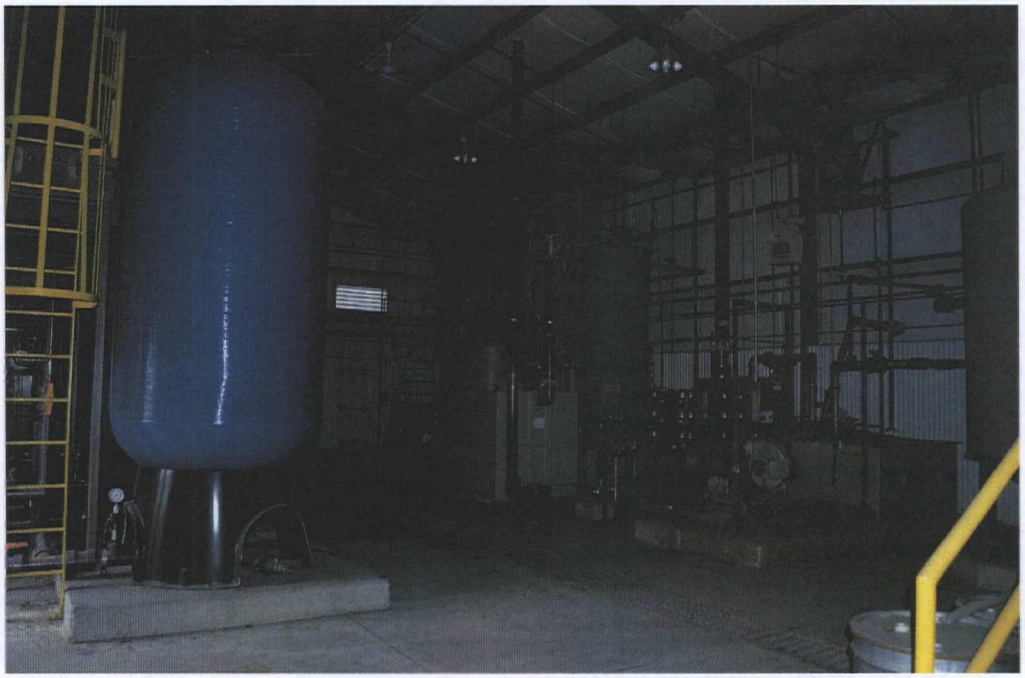

Photo 2: Treatment Building prior to decommissioning activities.

Appendix D - SITE PHOTOGRAPHS

Groundwater Treatment System Decommissioning Report
Spiegelberg Site, Livingston County, Michigan

Photo 3: Treatment Building prior to decommissioning activities.

Photo 4: Well housings and bollards prior to abandonment.

Appendix D - SITE PHOTOGRAPHS
Groundwater Treatment System Decommissioning Report
Spiegelberg Site, Livingston County, Michigan

Photo 5: Removal of concrete pads with hydraulic breaking hammer.

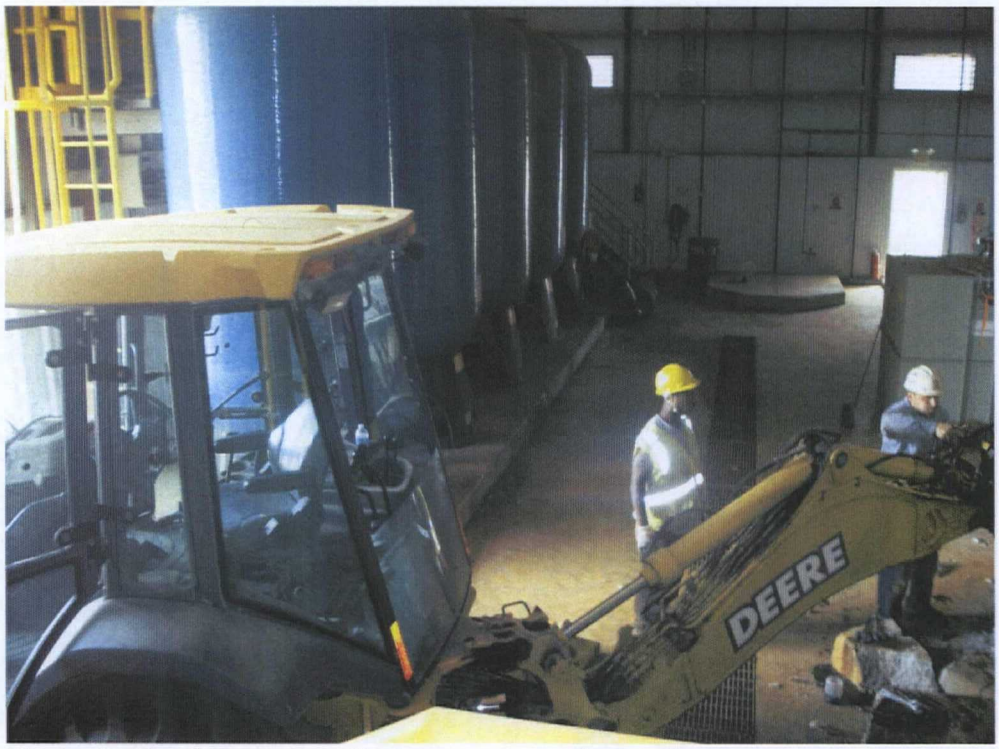

Photo 6: Further removal of concrete pads.

Appendix D - SITE PHOTOGRAPHS

Groundwater Treatment System Decommissioning Report
Spiegelberg Site, Livingston County, Michigan

Photo 7: Removal of GAC by vacuum truck.

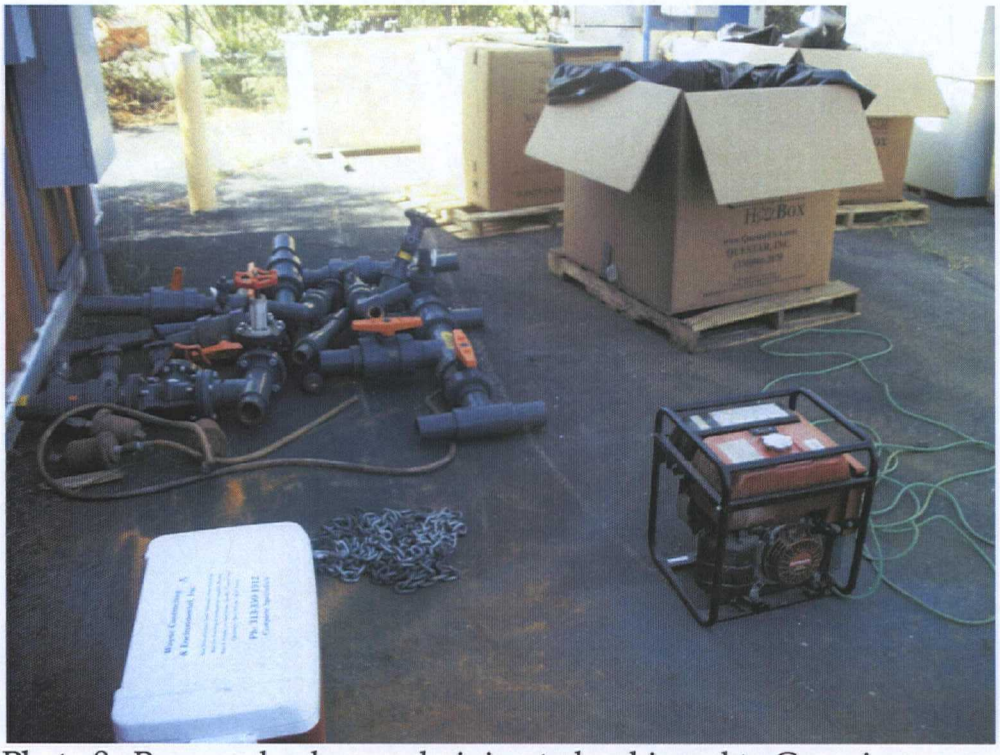

Photo 8: Removed valves and piping to be shipped to Georgia.

Appendix D - SITE PHOTOGRAPHS

Groundwater Treatment System Decommissioning Report
Spiegelberg Site, Livingston County, Michigan

Photo 9: Removal of GAC by vacuum method.

Photo 10: Vacuum boxes and removed piping.

Appendix D - SITE PHOTOGRAPHS

Groundwater Treatment System Decommissioning Report
Spiegelberg Site, Livingston County, Michigan

Photo 11: Carbon drums and 5,000 gallon poly tank.

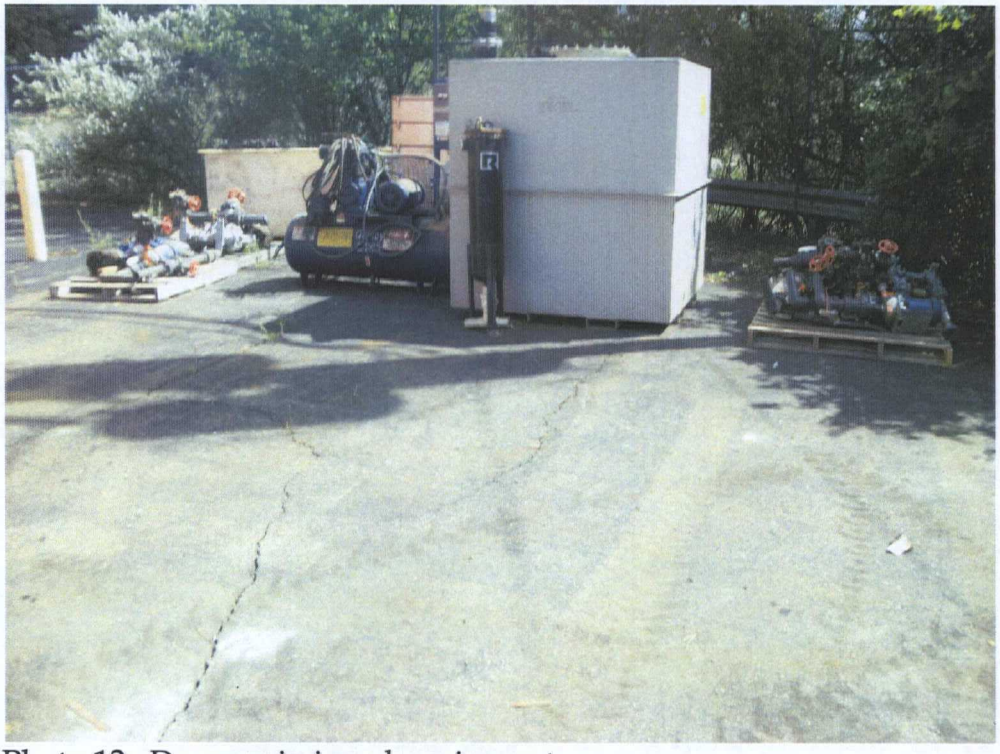

Photo 12: Decommissioned equipment.

Appendix D - SITE PHOTOGRAPHS

Groundwater Treatment System Decommissioning Report
Spiegelberg Site, Livingston County, Michigan

Photo 13: Removed pumps shipped to a Ford facility in Georgia.

Photo 14: Removed piping and conduit.

Photo 15: General trash.

Photo 16: Equipment shipped to Ford facility in Georgia.

Appendix D - SITE PHOTOGRAPHS

Groundwater Treatment System Decommissioning Report
Spiegelberg Site, Livingston County, Michigan

Photo 17: Air compressor shipped to Ford facility in Georgia and returned.

Photo 18: Equipment shipped to Ford facility in Georgia.

Photo 19: Equipment shipped to Ford facility in Georgia.

Photo 20: Holes cut in GAC vessels to facilitate carbon sampling.

Appendix D - SITE PHOTOGRAPHS

Groundwater Treatment System Decommissioning Report
Spiegelberg Site, Livingston County, Michigan

Photo 21: Treatment Building during decommissioning.

Photo 22: Potable water system on catwalk left on-Site.

Photo 23: General Trash.

Photo 24: Removed concrete pad.

Photo 25: Removed well housings.

Photo 26: Stockpiled concrete from well pads prior to disposal.

Appendix D - SITE PHOTOGRAPHS

Groundwater Treatment System Decommissioning Report
Spiegelberg Site, Livingston County, Michigan

Photo 27: Removed bollards, formerly surrounding well housings. Bollards left on-Site per Site owner's request.

Photo 28: Removed injection and extraction well components. Disposed of as general trash.

Appendix D - SITE PHOTOGRAPHS

Groundwater Treatment System Decommissioning Report
Spiegelberg Site, Livingston County, Michigan

Photo 29: CRA-MW-5, abandoned by filling with grout.

Photo 30: Well following removal of housing and components.

Appendix D - SITE PHOTOGRAPHS
Groundwater Treatment System Decommissioning Report
Spiegelberg Site, Livingston County, Michigan

Photo 31: Treatment building following completion of decommissioning.

Photo 32: Treatment building following completion of decommissioning.

Appendix D - SITE PHOTOGRAPHS

Groundwater Treatment System Decommissioning Report
Spiegelberg Site, Livingston County, Michigan

Photo 33: Treatment building following completion of decommissioning.

Photo 34: Treatment building following completion of decommissioning.

Photo 35: Extraction and injection well piping left in place following system decommissioning.

Photo 36: Electrical system left in place.

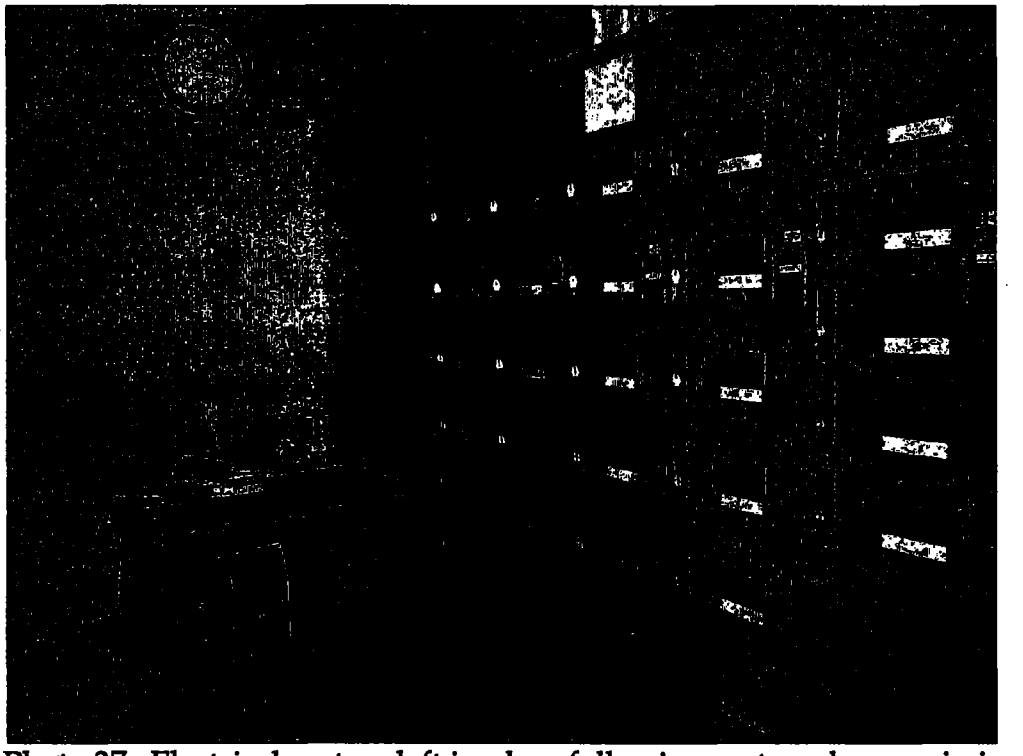

Photo 37: Electrical system left in place following system decommissioning.

APPENDIX E

WELL ABANDONMENT RECORDS

CRA MW-2

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak

Well ID: 47000029837

Elevation:
Latitude: 42.454803
Longitude: -83.77368
Measurement Method: Interpolation-Map

Town/Range:	Section:	WSSN:	Source ID/Well No:
01N 06E	30		

Distance and Direction from Road Intersection:
1/4 mile south of spicer

Well Owner: Spiegelberg Site

Well Address:	Owner Address:
8640 Spicer Brighton, MI 48116	8640 Spicer Brighton, MI 48116

Date of Well Plugging: 7/12/2012
Well Use: Other
Well Construction Type: Sand/Gravel Well
Date Well Constructed:

Casing Status after Plugging: 2.00 ft. above grade
Reason for Abandoning Well: Well no longer needed
Abandonment Method: Pumped through grout pipe
Drilling Record:

Casing Type: PVC plastic
Diameter:
Measured Well Depth: 100 ft. Well Diameter: 2 in.

Pumping Equipment Removed: No
Equipment Removed:

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	100.00	3.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor
Registration No: 58-2421
Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc
Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: monitoring well

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak
Town/Range: 01N 06E	Section: 30	WSSN:	Source ID/Well No:

Well ID: 47000029838

Elevation:

Latitude: 42.454804

Longitude: -83.77368

Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection: 1/4 mile south of spicer

Well Owner: Spiegelberg Site

Well Address: 8640 Spicer, Brighton, MI 48116

Owner Address: 8640 Spicer, Brighton, MI 48116

Date of Well Plugging: 7/12/2012

Well Use: Other

Casing Status after Plugging: 2.00 ft. above grade

Reason for Abandoning Well: Well no longer needed

Abandonment Method: Pumped through grout pipe

Well Construction Type: Sand/Gravel Well

Date Well Constructed:

Drilling Record:

Casing Type: PVC plastic

Diameter:

Pumping Equipment Removed: No

Equipment Removed:

Measured Well Depth: 40 ft. Well Diameter: 2 in.

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	40.00	2.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor

Registration No: 58-2421

Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling, Inc

Address: PO Box 222, Ottawa Lake, MI 49267

Remarks:

Well Use: monitoring well

General Remarks: cra-mw-5

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak

Town/Range:	Section:	WSSN:	Source ID/Well No:
01N 06E	30		

Well ID: 47000029839

Elevation:

Latitude: 45.454804

Longitude: -83.77368

Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
1/4 mile south

Well Owner: Spiegelberg

Well Address:	Owner Address:
8640 Spicer Brighton, MI 48116	8640 Spicer Brighton, MI 48116

Date of Well Plugging:	Well Use:
7/12/2012	Other
Well Construction Type:	**Date Well Constructed:**
Sand/Gravel Well	

Casing Status after Plugging: 3.00 ft. above grade
Reason for Abandoning Well: Well no longer needed
Abandonment Method: Pumped through grout pipe
Drilling Record:

Casing Type: PVC plastic
Diameter:

Measured Well Depth: 104 ft. Well Diameter: 2 in.

Pumping Equipment Removed: No
Equipment Removed:

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	104.00	3.50	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor
Registration No: 58-2421
Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc
Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: monitoring
General Remarks: cra-mw6

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston		Township: Green Oak	
Well ID: 47000029840		Town/Range: 01N 06E	Section: 30	WSSN:	Source ID/Well No:
Elevation:		Distance and Direction from Road Intersection: 1/4 mile south			
Latitude: 45.454804		Well Owner: Spiegelberg site			
Longitude: -83.77368		Well Address: 8640 Spicer Brighton, MI 48116		Owner Address: 8640 Spicer Brighton, MI 48116	
Measurement Method: GPS Std Positioning Svc SA Off					

Date of Well Plugging: 7/12/2012	Well Use: Other	Casing Status after Plugging: 2.00 ft. above grade
Well Construction Type: Sand/Gravel Well	Date Well Constructed:	Reason for Abandoning Well: Well no longer needed
		Abandonment Method: Pumped through grout pipe
		Drilling Record:
Casing Type: Steel - unknown		Pumping Equipment Removed: No
Diameter:		Equipment Removed:
Measured Well Depth: 55 ft.	Well Diameter: 2 in.	

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	55.00	1.50	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor Registration No: 58-2421 Registered Contractor: Jay L. Herrington	Business Name: Williams-Oddo Well Drilling, Inc Address: PO Box 222 Ottawa Lake, MI 49267
Remarks: Well Use: MONITORING WELL General Remarks: cra-pz-1	**Water Well Contractor's Certification** This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code. Signature of Registered Contractor Date

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak

Town/Range:	Section:	WSSN:	Source ID/Well No:
01N 06E	30		

Well ID: 47000029841

Elevation:

Latitude: 45.454804

Longitude: -83.77368

Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
1/4 mile south of spicer

Well Owner: Spiegelberg site

Well Address:
8640 Spicer
Brighton, MI 48116

Owner Address:
8640 Spicer
Brighton, MI 48116

Date of Well Plugging: 7/12/2012

Well Use: Other

Well Construction Type: Sand/Gravel Well

Date Well Constructed:

Casing Status after Plugging: 2.00 ft. above grade

Reason for Abandoning Well: Well no longer needed

Abandonment Method: Pumped through grout pipe

Drilling Record:

Casing Type: Steel - unknown

Diameter:

Measured Well Depth: 58 ft. Well Diameter: 2 in.

Pumping Equipment Removed: No

Equipment Removed:

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	58.00	1.50	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor

Registration No: 58-2421

Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc

Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: monitoring well
General Remarks: cra-pz-2

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak

Town/Range:	Section:	WSSN:	Source ID/Well No:
01N 06E	30		

Well ID: 47000029842

Elevation:

Latitude: 45.454804

Longitude: -83.77368

Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
1/4 mile south of spicer

Well Owner: Spiegelberg site

Well Address:
8640 Spicer
Brighton, MI 48116

Owner Address:
8640 Spicer
Brighton, MI 48116

Date of Well Plugging: 7/12/2012

Well Use: Other

Well Construction Type: Sand/Gravel Well

Date Well Constructed:

Casing Status after Plugging: 3.00 ft. above grade

Reason for Abandoning Well: Well no longer needed

Abandonment Method: Pumped through grout pipe

Drilling Record:

Casing Type: Steel - unknown

Diameter:

Measured Well Depth: 68 ft. Well Diameter: 2 in.

Pumping Equipment Removed: No

Equipment Removed:

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	68.00	1.50	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor
Registration No: 58-2421
Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc
Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: MONITORING
General Remarks: cra-pz-3

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak

Town/Range:	Section:	WSSN:	Source ID/Well No:
01N 06E	30		

Well ID: 47000029843

Elevation:

Latitude: 45.454804

Longitude: -83.77368

Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
1/4 mile south of spicer

Well Owner: Spiegelberg site

Well Address:
8640 Spicer
Brighton, MI 48116

Owner Address:
8640 Spicer
Brighton, MI 48116

Date of Well Plugging: 7/12/2012

Well Use: Other

Casing Status after Plugging: 2.00 ft. above grade

Reason for Abandoning Well: Well no longer needed

Abandonment Method: Pumped through grout pipe

Well Construction Type: Sand/Gravel Well

Date Well Constructed:

Drilling Record:

Casing Type: Steel - unknown

Diameter:

Measured Well Depth: 51 ft. Well Diameter: 6 in.

Pumping Equipment Removed: No

Equipment Removed:

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	54.00	9.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor
Registration No: 58-2421
Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc
Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: injection well
General Remarks: ew-01

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak

Town/Range:	Section:	WSSN:	Source ID/Well No:
01N 06E	30		

Well ID: 47000029844

Elevation:

Latitude: 45.454804

Longitude: -83.77388

Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
1/4 mile south of spicer

Well Owner: Spiegelberg site

Well Address:
8640 Spicer
Brighton, MI 48116

Owner Address:
8640 Spicer
Brighton, MI 48116

Date of Well Plugging: 7/12/2012

Well Use: Other

Casing Status after Plugging: 3.00 ft. above grade

Reason for Abandoning Well: Well no longer needed

Well Construction Type: Sand/Gravel Well

Date Well Constructed:

Abandonment Method: Pumped through grout pipe

Drilling Record:

Casing Type: Steel - unknown

Diameter:

Pumping Equipment Removed: No

Equipment Removed:

Measured Well Depth: 97 ft. Well Diameter: 6 in.

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	97.00	14.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor
Registration No: 58-2421
Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc
Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: injection well
General Remarks: pump stuck, tried to be removed by others

EW 03

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak

Town/Range:	Section:	WSSN:	Source ID/Well No:
01N 06E	30		

Well ID: 47000029845

Elevation:

Latitude: 45.454804

Longitude: -83.77368

Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
1/4 mile south of spicer

Well Owner: Spiegelberg site

Well Address:
8640 spicer
Brighton, MI 48116

Owner Address:
8640 spicer
Brighton, MI 48116

Date of Well Plugging: 7/12/2012

Well Use: Other

Well Construction Type: Sand/Gravel Well

Date Well Constructed:

Casing Status after Plugging: 3.00 ft. above grade

Reason for Abandoning Well: Well no longer needed

Abandonment Method: Pumped through grout pipe

Drilling Record:

Casing Type: Steel - unknown

Diameter:

Measured Well Depth: 97.5 ft. Well Diameter: 6 in.

Pumping Equipment Removed: No

Equipment Removed:

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	97.50	14.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor

Registration No: 58-2421

Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc

Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: Injection well
General Remarks: pump attempted by others
ew-04

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak
Town/Range: 01N 08E	Section: 30	WSSN:	Source ID/Well No:

Well ID: 47000029846

Elevation:
Latitude: 45.454804
Longitude: -83.77368
Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection: 1/4 mile south of spicer

Well Owner: Spiegelberg site

Well Address: 8640 spicer, Brighton, MI 48116

Owner Address: 8640 spicer, Brighton, MI 48116

Date of Well Plugging: 7/12/2012
Well Use: Other
Well Construction Type: Sand/Gravel Well
Date Well Constructed:

Casing Status after Plugging: 5.00 ft. above grade
Reason for Abandoning Well: Well no longer needed
Abandonment Method: Pumped through grout pipe
Drilling Record:

Casing Type: PVC plastic
Diameter:
Measured Well Depth: 35 ft. Well Diameter: 2 in.

Pumping Equipment Removed: No
Equipment Removed:

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	35.00	1.50	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor
Registration No: 58-2421
Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling, Inc
Address: PO Box 222, Ottawa Lake, MI 49267

Remarks:
Well Use: injection
General Remarks: ext-pz-1

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak

Town/Range:	Section:	WSSN:	Source ID/Well No:
01N 06E	30		

Well ID: 47000029847

Elevation:

Latitude: 45.45804

Longitude: -83.77368

Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
1/4 mile south of spicer

Well Owner: *Spiegelberg Site*

Well Address:
8640 Spicer
Brighton, MI 48116

Owner Address:
8640 Spicer
Brighton, MI 48116

Date of Well Plugging: 7/12/2012

Well Use: Other

Well Construction Type: Sand/Gravel Well

Date Well Constructed:

Casing Status after Plugging: 4.00 ft. above grade
Reason for Abandoning Well: Well no longer needed
Abandonment Method: Pumped through grout pipe
Drilling Record:

Casing Type: PVC plastic
Diameter:

Pumping Equipment Removed: No
Equipment Removed:

Measured Well Depth: 37 ft. **Well Diameter:** 2 in.

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	37.00	1.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor
Registration No: 58-2421
Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc
Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: monitoring
General Remarks: ext-pz-2

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor **Date**

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston		Township: Green Oak	
Well ID: 47000029848		Town/Range: 01N 06E	Section: 30	WSSN:	Source ID/Well No:
Elevation:		Distance and Direction from Road Intersection: 1/4 mile south			
Latitude: 45.45804		Well Owner: Spiegelberg site			
Longitude: -83.77368		Well Address: Spicer rd Brighton, MI 48116		Owner Address: Spicer rd Brighton, MI 48116	
Measurement Method: GPS Std Positioning Svc SA Off					

Date of Well Plugging: 7/12/2012	Well Use: Other	Casing Status after Plugging: 5.00 ft. above grade
Well Construction Type: Sand/Gravel Well	Date Well Constructed:	Reason for Abandoning Well: Well no longer needed
		Abandonment Method: Pumped through grout pipe
		Drilling Record:
Casing Type: Steel - unknown		Pumping Equipment Removed: No
Diameter:		Equipment Removed:
Measured Well Depth: 25 ft.	Well Diameter: 2 in.	

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	25.00	1.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor	Business Name: Williams-Oddo Well Drilling , Inc
Registration No: 58-2421	Address: PO Box 222 Ottawa Lake, MI 49267
Registered Contractor: Jay L. Herrington	
Remarks: Well Use: monitoring General Remarks: inj-pz-1	**Water Well Contractor's Certification** This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code. Signature of Registered Contractor Date

18

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak

Town/Range:	Section:	WSSN:	Source ID/Well No:
01N 06E	30		

Well ID: 47000029849

Elevation:

Latitude: 45.45804

Longitude: -83.77368

Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
1/4 mile south of spicer

Well Owner: Spiegelberg site

Well Address:	Owner Address:
spicer rd Brighton, MI 48116	spicer rd Brighton, MI 48116

Date of Well Plugging:	Well Use:
7/12/2012	Other
Well Construction Type:	**Date Well Constructed:**
Sand/Gravel Well	

Casing Status after Plugging: 4.00 ft. above grade
Reason for Abandoning Well: Well no longer needed
Abandonment Method: Pumped through grout pipe
Drilling Record:

Casing Type: PVC plastic
Diameter:

Measured Well Depth: 25 ft. Well Diameter: 2 in.

Pumping Equipment Removed: No
Equipment Removed:

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	25.00	1.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor
Registration No: 58-2421
Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc
Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: monitoring
General Remarks: Inj-pz-2

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak

Town/Range:	Section:	WSSN:	Source ID/Well No:
01N 06E	30		

Well ID: 47000029850

Elevation:

Latitude: 45.45804

Longitude: -83.77388

Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
1/4 mile south of spicer

Well Owner: Spiegelberg site

Well Address:	Owner Address:
spicer rd Brighton, MI 48116	spicer rd Brighton, MI 48116

Date of Well Plugging:	Well Use:
7/12/2012	Other
Well Construction Type:	**Date Well Constructed:**
Sand/Gravel Well	

Casing Status after Plugging: 4.00 ft. above grade
Reason for Abandoning Well: Well no longer needed
Abandonment Method: Pumped through grout pipe
Drilling Record:

Casing Type: PVC plastic
Diameter:

Measured Well Depth: 25 ft. Well Diameter: 2 in.

Pumping Equipment Removed: No
Equipment Removed:

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	25.00	1.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor
Registration No: 58-2421
Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc
Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: monitoring well
General Remarks: Inj-pz-3

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	**Permit No:**	**County:** Livingston	**Township:** Green Oak

Well ID: 47000029851

Elevation:
Latitude: 45.45804
Longitude: -83.77367
Measurement Method: GPS Std Positioning Svc SA Off

Town/Range:	**Section:**	**WSSN:**	**Source ID/Well No:**
01N 06E	30		

Distance and Direction from Road Intersection:
1/4 mile south

Well Owner: Spiegelberg

Well Address:	**Owner Address:**
spicer rd Brighton, MI 48116	spicer rd Brighton, MI 48116

Date of Well Plugging: 7/12/2012
Well Use: Other
Well Construction Type: Sand/Gravel Well
Date Well Constructed:

Casing Status after Plugging: 4.00 ft. above grade
Reason for Abandoning Well: Well no longer needed
Abandonment Method: Pumped through grout pipe
Drilling Record:

Casing Type: PVC plastic
Diameter:
Measured Well Depth: 24 ft. **Well Diameter:** 2 in.

Pumping Equipment Removed: No
Equipment Removed:

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	24.00	0.50	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor
Registration No: 58-2421
Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc
Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: monitoring
General Remarks: Inj-pz-4

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor **Date**

19

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston		Township: Green Oak	
Well ID: 47000029852		Town/Range: 01N 06E	Section: 30	WSSN:	Source ID/Well No:
Elevation:		Distance and Direction from Road Intersection: 1/4 mile south of spicer			
Latitude: 45.45804		Well Owner: Spiegelberg site			
Longitude: -83.77367		Well Address: spicer rd Brighton , MI 48116		Owner Address: spicer rd Brighton , MI 48116	
Measurement Method: GPS Std Positioning Svc SA Off					

Date of Well Plugging: 7/12/2012	Well Use: Other	Casing Status after Plugging: 5.00 ft. above grade
Well Construction Type: Sand/Gravel Well	Date Well Constructed:	Reason for Abandoning Well: Well no longer needed
		Abandonment Method: Pumped through grout pipe
		Drilling Record:
Casing Type: PVC plastic		Pumping Equipment Removed: No
Diameter:		Equipment Removed:
Measured Well Depth: 24 ft.	Well Diameter: 2 in.	

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	24.00	0.50	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor
Registration No: 58-2421
Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc
Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: monitoring well
General Remarks: Inj-pz-5

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

2/0

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	**Permit No:**	**County:** Livingston	**Township:** Green Oak
		Town/Range: 01N 06E	**Section:** 30
		WSSN:	**Source ID/Well No:**

Well ID: 47000029853

Elevation:

Latitude: 45.45804

Longitude: -83.77367

Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
1/4 mile south of spicer

Well Owner: Spiegelberg site

Well Address:
spicer rd
Brighton, MI 48116

Owner Address:
spicer rd
Brighton, MI 48116

Date of Well Plugging: 7/12/2012

Well Use: Other

Well Construction Type: Sand/Gravel Well

Date Well Constructed:

Casing Status after Plugging: 3.00 ft. above grade
Reason for Abandoning Well: Well no longer needed
Abandonment Method: Pumped through grout pipe
Drilling Record:

Casing Type: Steel - unknown
Diameter:

Measured Well Depth: 32 ft. **Well Diameter:** 6 in.

Pumping Equipment Removed: Yes
Equipment Removed: Drop pipe

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	32.00	5.50	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor
Registration No: 58-2421
Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc
Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: monitoring well
General Remarks: IW-01

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor **Date**

21

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak

Well ID: 47000029854

Elevation:

Latitude: 45.45804

Longitude: -83.77367

Measurement Method: GPS Std Positioning Svc SA Off

Town/Range:	Section:	WSSN:	Source ID/Well No:
01N 06E	30		

Distance and Direction from Road Intersection:
1/4 mile south of spicer

Well Owner: spiegelberg site

Well Address:	Owner Address:
spicer rd brighton, MI 48116	spicer rd brighton, MI 48116

Date of Well Plugging: 7/12/2012

Well Use: Other

Well Construction Type: Sand/Gravel Well

Date Well Constructed:

Casing Status after Plugging: 3.00 ft. above grade

Reason for Abandoning Well: Well no longer needed

Abandonment Method: Pumped through grout pipe

Drilling Record:

Casing Type: Steel - unknown

Diameter:

Measured Well Depth: 35 ft. Well Diameter: 6 in.

Pumping Equipment Removed: Yes

Equipment Removed: Drop pipe

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	35.00	7.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor
Registration No: 58-2421
Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc
Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: injection well
General Remarks: iw-02

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

22

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak
Town/Range: 01N 06E	Section: 30	WSSN:	Source ID/Well No:

Well ID: 47000029855

Elevation:
Latitude: 45.45804
Longitude: -83.77367
Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection: 1/4 mile south of spicer

Well Owner: spiegelberg site

Well Address: spicer rd, brighton, MI 48116

Owner Address: spicer rd, brighton, MI 48116

Date of Well Plugging: 7/12/2012
Well Use: Other
Well Construction Type: Sand/Gravel Well
Date Well Constructed:

Casing Status after Plugging: 2.50 ft. above grade
Reason for Abandoning Well: Well no longer needed
Abandonment Method: Pumped through grout pipe
Drilling Record:

Casing Type: Steel - unknown
Diameter:
Measured Well Depth: 37 ft. Well Diameter: 6 in.

Pumping Equipment Removed: Yes
Equipment Removed: Drop pipe

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	37.00	8.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor
Registration No: 58-2421
Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling, Inc
Address: PO Box 222, Ottawa Lake, MI 49267

Remarks:
Well Use: Injection
General Remarks: lw-03

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

23

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak

Town/Range:	Section:	WSSN:	Source ID/Well No:
01N 06E	30		

Well ID: 47000029857

Elevation:

Latitude: 45.45804

Longitude: -83.77367

Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
1/4 mile south of spicer

Well Owner: Spegelberg Site

Well Address:	Owner Address:
spicer road Brighton, MI 48116	spicer road Brighton, MI 48116

Date of Well Plugging:	Well Use:
7/12/2012	Other
Well Construction Type:	**Date Well Constructed:**
Sand/Gravel Well	

Casing Status after Plugging: 3.00 ft. above grade
Reason for Abandoning Well: Well no longer needed
Abandonment Method: Pumped through grout pipe
Drilling Record:

Casing Type: Steel - unknown
Diameter:

Measured Well Depth: 52 ft. Well Diameter: 6 in.

Pumping Equipment Removed: Yes
Equipment Removed: Drop pipe

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	52.00	9.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor
Registration No: 58-2421
Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc
Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: INJECTION WELL
General Remarks: iw-04

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak

Town/Range:	Section:	WSSN:	Source ID/Well No:
01N 06E	30		

Well ID: 47000029858

Elevation:

Latitude: 45.45804

Longitude: -83.77367

Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
1/4 mile south of spicer road

Well Owner: Spegelberg Site

Well Address:
spicer road
Brighton, MI 48116

Owner Address:
spicer road
Brighton, MI 48116

Date of Well Plugging: 7/12/2012

Well Use: Other

Casing Status after Plugging: 2.00 ft. above grade

Reason for Abandoning Well: Well no longer needed

Abandonment Method: Pumped through grout pipe

Well Construction Type: Sand/Gravel Well

Date Well Constructed:

Drilling Record:

Casing Type: Steel - unknown

Diameter:

Measured Well Depth: 38 ft. Well Diameter: 6 in.

Pumping Equipment Removed: Yes

Equipment Removed: Drop pipe

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	38.00	7.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor

Registration No: 58-2421

Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc

Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: INJECTION WELL
General Remarks: IW-05

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

25

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston		Township: Green Oak	
Well ID: 47000029859		Town/Range: 01N 06E	Section: 30	WSSN:	Source ID/Well No:
Elevation:		Distance and Direction from Road Intersection: 1/4mile south of spicer			
Latitude: 45.45804		Well Owner: spiegelberg site			
Longitude: -83.77367		Well Address: spicer rd brighton, MI 48116		Owner Address: spicer rd brighton, MI 48116	
Measurement Method: GPS Std Positioning Svc SA Off					

Date of Well Plugging: 7/12/2012	Well Use: Other	Casing Status after Plugging: 3.50 ft. above grade
Well Construction Type: Sand/Gravel Well	Date Well Constructed:	Reason for Abandoning Well: Well no longer needed
		Abandonment Method: Pumped through grout pipe
		Drilling Record:
Casing Type: Steel - unknown		Pumping Equipment Removed: Yes
Diameter:		Equipment Removed: Drop pipe
Measured Well Depth: 76 ft.	Well Diameter: 6 in.	

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	76.00	14.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor
Registration No: 58-2421
Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc
Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: injection
General Remarks: iw-06

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

2<

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston		Township: Green Oak	
Well ID: 47000029860		Town/Range: 01N 06E	Section: 30	WSSN:	Source ID/Well No:
Elevation:		Distance and Direction from Road Intersection: 1/4 mile south of spicer			
Latitude: 45.45804		Well Owner: spiegelberg			
Longitude: -83.77367		Well Address: spicer rd brighton, MI 48116		Owner Address: spicer rd brighton, MI 48116	
Measurement Method: GPS Precise Positioning Service					

Date of Well Plugging: 7/12/2012	Well Use: Other	Casing Status after Plugging: 3.60 ft. above grade
		Reason for Abandoning Well: Well no longer needed
Well Construction Type: Sand/Gravel Well	Date Well Constructed:	Abandonment Method: Pumped through grout pipe
		Drilling Record:
Casing Type: Steel - unknown		Pumping Equipment Removed: Yes
Diameter:		Equipment Removed: Drop pipe
Measured Well Depth: 71 ft.	Well Diameter: 6 in.	

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	71.00	10.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor
Registration No: 58-2421
Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc
Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: injection
General Remarks: lw-07

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

27

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak

Town/Range:	Section:	WSSN:	Source ID/Well No:
01N 06E	30		

Well ID: 47000029861

Elevation:

Latitude: 45.45804

Longitude: -83.77367

Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
1/4 mile south

Well Owner: spiegelberg

Well Address:
spicer rd
brighton, MI 48116

Owner Address:
spicer rd
brighton, MI 48116

Date of Well Plugging: 7/12/2012

Well Use: Other

Well Construction Type: Sand/Gravel Well

Date Well Constructed:

Casing Status after Plugging: 3.00 ft. above grade

Reason for Abandoning Well: Well no longer needed

Abandonment Method: Pumped through grout pipe

Drilling Record:

Casing Type: Steel - unknown

Diameter:

Measured Well Depth: 100 ft. Well Diameter: 6 in.

Pumping Equipment Removed: No

Equipment Removed:

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	100.00	14.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor
Registration No: 58-2421
Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc
Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: injection
General Remarks: iw-08
pump couldn't be removed

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

38

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston		Township: Green Oak	
Town/Range: 01N 06E	Section: 30	WSSN:	Source ID/Well No:		

Well ID: 47000029862

Elevation:

Latitude: 45.45804

Longitude: -83.77367

Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection: 1/4 mile south

Well Owner: spiegelberg site

Well Address: spicer rd, brighton, MI 48116

Owner Address: spicer rd, brighton, MI 48116

Date of Well Plugging: 7/12/2012

Well Use: Other

Well Construction Type: Sand/Gravel Well

Date Well Constructed:

Casing Status after Plugging: 3.00 ft. above grade

Reason for Abandoning Well: Well no longer needed

Abandonment Method: Pumped through grout pipe

Drilling Record:

Casing Type: PVC plastic

Diameter:

Measured Well Depth: 14 ft. Well Diameter: 2 in.

Pumping Equipment Removed: No

Equipment Removed:

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	14.00	1.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor

Registration No: 58-2421

Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc

Address: PO Box 222, Ottawa Lake, MI 49267

Remarks:

Well Use: monitoring

General Remarks: obg-1a

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

29

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak

Town/Range:	Section:	WSSN:	Source ID/Well No:
01N 06E	30		

Well ID: 47000029863

Elevation:

Latitude: 45.45804

Longitude: -83.77367

Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection: 1/4 mile south

Well Owner: spiegelberg site

Well Address: spicer, brighton, MI 48116

Owner Address: spicer, brighton, MI 48116

Date of Well Plugging: 7/12/2012

Well Use: Other

Casing Status after Plugging: 2.00 ft. above grade

Reason for Abandoning Well: Well no longer needed

Abandonment Method: Pumped through grout pipe

Drilling Record:

Well Construction Type: Sand/Gravel Well

Date Well Constructed:

Casing Type: PVC plastic

Diameter:

Measured Well Depth: 34 ft. Well Diameter: 2 in.

Pumping Equipment Removed: No

Equipment Removed:

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	34.00	2.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor

Registration No: 58-2421

Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc

Address: PO Box 222, Ottawa Lake, MI 49267

Remarks:

Well Use: monitoring

General Remarks: obg-4a

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

31

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston		Township: Green Oak	
Well ID: 47000029864		Town/Range: 01N 06E	Section: 30	WSSN:	Source ID/Well No:
Elevation:		Distance and Direction from Road Intersection: 1/4 mile south of spicer			
Latitude: 45.45804		Well Owner: spiegelberg site			
Longitude: -83.77367		Well Address: spicer rd brighton, MI 48116		Owner Address: spicer rd brighton, MI 48116	
Measurement Method: GPS Std Positioning Svc SA Off					

Date of Well Plugging: 7/12/2012	Well Use: Other	Casing Status after Plugging: 2.00 ft. above grade
Well Construction Type: Sand/Gravel Well	Date Well Constructed:	Reason for Abandoning Well: Well no longer needed
		Abandonment Method: Pumped through grout pipe
		Drilling Record:
Casing Type: PVC plastic		Pumping Equipment Removed: No
Diameter:		Equipment Removed:
Measured Well Depth: 73 ft.	Well Diameter: 2 in.	

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	73.00	2.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor	Business Name: Williams-Oddo Well Drilling , Inc
Registration No: 58-2421	Address: PO Box 222 Ottawa Lake, MI 49267
Registered Contractor: Jay L. Herrington	

Remarks:
Well Use: monitoring
General Remarks: obg-4b

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

32

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak

Well ID: 47000029865

Elevation:
Latitude: 45.45804
Longitude: -83.77367
Measurement Method: GPS Std Positioning Svc SA Off

Town/Range:	Section:	WSSN:	Source ID/Well No:
01N 06E	30		

Distance and Direction from Road Intersection:
1/4 mile south

Well Owner: spiegelberg

Well Address:	Owner Address:
spicer rd brighton, MI 48116	spicer rd brighton, MI 48116

Date of Well Plugging: 7/12/2012	Well Use: Other	Casing Status after Plugging: 4.00 ft. above grade
Well Construction Type: Sand/Gravel Well	Date Well Constructed:	Reason for Abandoning Well: Well no longer needed
		Abandonment Method: Pumped through grout pipe
		Drilling Record:

Casing Type: PVC plastic
Diameter:

Pumping Equipment Removed: No
Equipment Removed:

Measured Well Depth: 43 ft. Well Diameter: 2 in.

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	43.00	1.50	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor
Registration No: 58-2421
Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc
Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: monitoring
General Remarks: obg-5a

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

33

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak

Town/Range:	Section:	WSSN:	Source ID/Well No:
01N 06E	30		

Well ID: 47000029866

Elevation:
Latitude: 45.45804
Longitude: -83.77367
Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection: 1/4 mile south of spicer

Well Owner: spiegelberg site

Well Address: spicer rd, brighton, MI 48116

Owner Address: spicer rd, brighton, MI 48116

Date of Well Plugging: 7/12/2012
Well Use: Other
Well Construction Type: Sand/Gravel Well
Date Well Constructed:

Casing Status after Plugging: 4.00 ft. above grade
Reason for Abandoning Well: Well no longer needed
Abandonment Method: Pumped through grout pipe
Drilling Record:

Casing Type: PVC plastic
Diameter:

Pumping Equipment Removed: No
Equipment Removed:

Measured Well Depth: 78 ft. Well Diameter: 2 in.

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	78.00	2.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor
Registration No: 58-2421
Registered Contractor: Jay L. Hemington

Business Name: Williams-Oddo Well Drilling , Inc
Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: monitoring
General Remarks: obg5b

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak

Town/Range:	Section:	WSSN:	Source ID/Well No:
01N 06E	30		

Well ID: 47000029867

Elevation:

Latitude: 45.45804

Longitude: -83.77367

Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
1/4 mile south of spicer

Well Owner: spiegelberg site

Well Address:
spicer rd
brighton, MI 48116

Owner Address:
spicer rd
brighton, MI 48116

Date of Well Plugging: 7/12/2012

Well Use: Other

Casing Status after Plugging: 2.50 ft. above grade

Reason for Abandoning Well: Well no longer needed

Well Construction Type: Sand/Gravel Well

Date Well Constructed:

Abandonment Method: Pumped through grout pipe

Drilling Record:

Casing Type: PVC plastic

Diameter:

Measured Well Depth: 76 ft. Well Diameter: 2 in.

Pumping Equipment Removed: No

Equipment Removed:

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	76.00	3.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor
Registration No: 58-2421
Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc
Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: monitoring
General Remarks: sp-mw-13

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

35

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak

Town/Range:	Section:	WSSN:	Source ID/Well No:
01N 06E	30		

Well ID: 47000029868

Elevation:

Latitude: 45.45804

Longitude: -83.77367

Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
1/4 mile south

Well Owner: spiegelberg site

Well Address:	Owner Address:
spicer rd brighton, MI 48116	spicer rd brighton, MI 48116

Date of Well Plugging:	Well Use:
7/12/2012	Other
Well Construction Type:	**Date Well Constructed:**
Sand/Gravel Well	

Casing Status after Plugging: 3.00 ft. above grade
Reason for Abandoning Well: Well no longer needed
Abandonment Method: Pumped through grout pipe
Drilling Record:

Casing Type: PVC plastic
Diameter:

Measured Well Depth: 18 ft. Well Diameter: 2 in.

Pumping Equipment Removed: No
Equipment Removed:

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	18.00	1.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor
Registration No: 58-2421
Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc
Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: monitoring
General Remarks: sp-mw-15

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

36

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak
Town/Range: 01N 06E	Section: 30	WSSN:	Source ID/Well No:

Well ID: 47000029869

Elevation:
Latitude: 45.45804
Longitude: -83.77367
Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection: 1/4 mile south

Well Owner: spiegelberg site

Well Address: spicer rd, brighton, MI 48116

Owner Address: spicer rd, brighton, MI 48116

Date of Well Plugging: 7/12/2012
Well Use: Other
Well Construction Type: Sand/Gravel Well
Date Well Constructed:

Casing Status after Plugging: 1.70 ft. above grade
Reason for Abandoning Well: Well no longer needed
Abandonment Method: Pumped through grout pipe
Drilling Record:

Casing Type: Steel - unknown
Diameter:
Measured Well Depth: 76 ft. Well Diameter: 4 in.

Pumping Equipment Removed: No
Equipment Removed:

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	76.00	5.50	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor
Registration No: 58-2421
Registered Contractor: Jay L. Hemington

Business Name: Williams-Oddo Well Drilling , Inc
Address: PO Box 222, Ottawa Lake, MI 49267

Remarks:
Well Use: monitoring
General Remarks: sp-mw-20d

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

38

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak

Town/Range:	Section:	WSSN:	Source ID/Well No:
01N 06E	30		

Well ID: 47000029870

Elevation:

Latitude: 45.45804

Longitude: -83.77367

Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
1/4 mile south of spicer

Well Owner: spiegelberg site

Well Address:
spicer rd
brighton, MI 48116

Owner Address:
spicer rd
brighton, MI 48116

Date of Well Plugging: 7/12/2012

Well Use: Other

Casing Status after Plugging: 3.00 ft. above grade

Reason for Abandoning Well: Well no longer needed

Abandonment Method: Pumped through grout pipe

Drilling Record:

Well Construction Type: Sand/Gravel Well

Date Well Constructed:

Casing Type: Steel - unknown

Diameter:

Measured Well Depth: 163 ft. Well Diameter: 4 in.

Pumping Equipment Removed: No

Equipment Removed:

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	163.00	6.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor
Registration No: 58-2421
Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc
Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: monitoring
General Remarks: sp-mw-25d

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

39

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak

Town/Range:	Section:	WSSN:	Source ID/Well No:
01N 06E	30		

Well ID: 47000029871

Elevation:

Latitude: 45.45804

Longitude: -83.77367

Measurement Method: GPS Std Poeitioning Svc SA Off

Distance and Direction from Road Intersection:
1/4 mile south of spicer

Well Owner: spiegelberg site

Well Address:	Owner Address:
spicer rd brighton, MI 48116	spicer rd brighton, MI 48116

Date of Well Plugging:	Well Use:
7/12/2012	Other
Well Construction Type:	**Date Well Constructed:**
Sand/Gravel Well	

Casing Status after Plugging: 1.00 ft. above grade
Reason for Abandoning Well: Well no longer needed
Abandonment Method: Pumped through grout pipe
Drilling Record:

Casing Type: Steel - unknown
Diameter:

Measured Well Depth: 75 ft. Well Diameter: 2 in.

Pumping Equipment Removed: No
Equipment Removed:

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	75.00	3.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor
Registration No: 58-2421
Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc
Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: monitoring
General Remarks: sp-mw-40

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

42

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak
Town/Range: 01N 06E	Section: 30	WSSN:	Source ID/Well No:

Well ID: 47000029872

Elevation:

Latitude: 45.45804

Longitude: -83.77367

Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection: 1/4 mile south of spicer

Well Owner: spiegelberg site

Well Address: spicer rd, brighton, MI 48116

Owner Address: spicer rd, brighton, MI 48116

Date of Well Plugging: 7/12/2012

Well Use: Other

Well Construction Type: Sand/Gravel Well

Date Well Constructed:

Casing Status after Plugging: 1.00 ft. above grade

Reason for Abandoning Well: Well no longer needed

Abandonment Method: Pumped through grout pipe

Drilling Record:

Casing Type: Steel - unknown

Diameter:

Measured Well Depth: 162 ft. Well Diameter: 4 in.

Pumping Equipment Removed: No

Equipment Removed:

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	162.00	12.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor

Registration No: 58-2421

Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc

Address: PO Box 222, Ottawa Lake, MI 49267

Remarks:

Well Use: monitoring

General Remarks: sp-mw-44

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

43

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston		Township: Green Oak	
Town/Range: 01N 06E	Section: 30	WSSN:		Source ID/Well No:	

Well ID: 47000029873

Elevation:

Latitude: 45.45804

Longitude: -83.77367

Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection: 1/4 mile south of spicer

Well Owner: spiegelberg site

Well Address: spicer, brighton, MI 48116

Owner Address: spicer, brighton, MI 48116

Date of Well Plugging: 7/12/2012

Well Use: Other

Casing Status after Plugging: 1.00 ft. above grade

Reason for Abandoning Well: Well no longer needed

Well Construction Type: Sand/Gravel Well

Date Well Constructed:

Abandonment Method: Pumped through grout pipe

Drilling Record:

Casing Type: Steel - unknown

Diameter:

Measured Well Depth: 178 ft. Well Diameter: 4 in.

Pumping Equipment Removed: No

Equipment Removed:

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	178.00	12.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor

Registration No: 58-2421

Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc

Address: PO Box 222, Ottawa Lake, MI 49267

Remarks:

Well Use: monitoring

General Remarks: sp-mw-46

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

44

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	**Permit No:**	**County:** Livingston	**Township:** Green Oak

Town/Range: 01N 06E	**Section:** 30	**WSSN:**	**Source ID/Well No:**

Well ID: 47000029874

Elevation:

Latitude: 45.45804

Longitude: -83.77367

Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
1/4 mile south

Well Owner: spiegelberg site

Well Address:
spicer
brighton, MI 48116

Owner Address:
spicer
brighton, MI 48116

Date of Well Plugging: 7/12/2012

Well Use: Other

Well Construction Type: Sand/Gravel Well

Date Well Constructed:

Casing Status after Plugging: 1.00 ft. above grade
Reason for Abandoning Well: Well no longer needed
Abandonment Method: Pumped through grout pipe
Drilling Record:

Casing Type: Steel - unknown
Diameter:

Measured Well Depth: 96 ft. **Well Diameter:** 4 in.

Pumping Equipment Removed: No
Equipment Removed:

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	96.00	2.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor
Registration No: 58-2421
Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc
Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: monitoring
General Remarks: sp-mw-50

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor **Date**

4/6

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak
Town/Range: 01N 06E	Section: 30	WSSN:	Source ID/Well No:

Well ID: 47000029875

Elevation:

Latitude: 45.45804

Longitude: -83.77367

Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
1/4 mile south of spicer

Well Owner: spiegelberg

Well Address:
spicer
brighton, MI 48116

Owner Address:
spicer
brighton, MI 48116

Date of Well Plugging: 7/12/2012

Well Use: Other

Well Construction Type: Sand/Gravel Well

Date Well Constructed:

Casing Status after Plugging: 4.00 ft. above grade

Reason for Abandoning Well: Well no longer needed

Abandonment Method: Pumped through grout pipe

Drilling Record:

Casing Type: Steel - unknown

Diameter:

Measured Well Depth: 39 ft. Well Diameter: 4 in.

Pumping Equipment Removed: No

Equipment Removed:

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	39.00	1.50	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor
Registration No: 58-2421
Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc
Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: monitoring
General Remarks: sp-mw-51

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak

Town/Range: 01N 06E	Section: 30	WSSN:	Source ID/Well No:

Well ID: 47000029876

Elevation:

Latitude: 45.45804

Longitude: -83.77367

Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection: 1/4 mile south

Well Owner: spiegelberg site

Well Address: spicer, brighton, MI 48116

Owner Address: spicer, brighton, MI 48116

Date of Well Plugging: 7/12/2012

Well Use: Other

Casing Status after Plugging: 3.50 ft. above grade

Reason for Abandoning Well: Well no longer needed

Abandonment Method: Pumped through grout pipe

Well Construction Type: Sand/Gravel Well

Date Well Constructed:

Drilling Record:

Casing Type: Steel - unknown

Diameter:

Pumping Equipment Removed: No

Equipment Removed:

Measured Well Depth: 67 ft. Well Diameter: 4 in.

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	67.00	2.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor

Registration No: 58-2421

Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc

Address: PO Box 222, Ottawa Lake, MI 49267

Remarks:

Well Use: monitoring

General Remarks: sp-mw-51a

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

48

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak

Town/Range:	Section:	WSSN:	Source ID/Well No:
01N 08E	30		

Well ID: 47000029877

Elevation:

Latitude: 45.45804

Longitude: -83.77367

Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
1/4 mile south of spicer

Well Owner: spiegelberg site

Well Address:
spicer rd
brighton, MI 48116

Owner Address:
spicer rd
brighton, MI 48116

Date of Well Plugging: 7/12/2012

Well Use: Other

Well Construction Type: Sand/Gravel Well

Date Well Constructed:

Casing Status after Plugging: 2.00 ft. above grade

Reason for Abandoning Well: Well no longer needed

Abandonment Method: Pumped through grout pipe

Drilling Record:

Casing Type: Steel - unknown

Diameter:

Measured Well Depth: 81 ft. Well Diameter: 4 in.

Pumping Equipment Removed: No

Equipment Removed:

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	81.00	4.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor

Registration No: 58-2421

Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc

Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: monitoring
General Remarks: sp-mw-52

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak

Town/Range:	Section:	WSSN:	Source ID/Well No:
01N 06E	30		

Well ID: 47000029878

Elevation:

Latitude: 45.45804

Longitude: -83.77367

Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
1/4 mile south of spicer

Well Owner: spiegelberg site

Well Address:
spicer rd
brighton, MI 48116

Owner Address:
spicer rd
brighton, MI 48116

Date of Well Plugging: 7/12/2012

Well Use: Other

Casing Status after Plugging: 2.00 ft. above grade

Reason for Abandoning Well: Well no longer needed

Well Construction Type: Sand/Gravel Well

Date Well Constructed:

Abandonment Method: Pumped through grout pipe

Drilling Record:

Casing Type: Steel - unknown

Diameter:

Measured Well Depth: 70 ft. Well Diameter: 4 in.

Pumping Equipment Removed: No

Equipment Removed:

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	70.00	3.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor
Registration No: 58-2421
Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc
Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: monitoring
General Remarks: sp-mw-53

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak

Town/Range:	Section:	WSSN:	Source ID/Well No:
01N 06E	30		

Well ID: 47000029879

Elevation:

Latitude: 45.45804

Longitude: -83.77367

Measurement Method: GPS Std Poeitioning Svc SA Off

Distance and Direction from Road Intersection:
1/4 mile south of spicer

Well Owner: spiegelberg site

Well Address:
spicer rd
brighton, MI 48116

Owner Address:
spicer rd
brighton, MI 48116

Date of Well Plugging: 7/12/2012

Well Use: Other

Well Construction Type: Sand/Gravel Well

Date Well Constructed:

Casing Status after Plugging: 3.00 ft. above grade

Reason for Abandoning Well: Well no longer needed

Abandonment Method: Pumped through grout pipe

Drilling Record:

Casing Type: PVC plastic

Diameter:

Measured Well Depth: 45 ft. Well Diameter: 2 in.

Pumping Equipment Removed: No

Equipment Removed:

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	45.00	1.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor
Registration No: 58-2421
Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc
Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: monitoring
General Remarks: sp-mw-60r

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

52

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak

Town/Range:	Section:	WSSN:	Source ID/Well No:
01N 06E	30		

Well ID: 47000029880

Elevation:

Latitude: 45.45804

Longitude: -83.77367

Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
1/4 mile south of spicer

Well Owner: spiegelberg site

Well Address:
spicer rd
brighton, MI 48116

Owner Address:
spicer rd
brighton, MI 48116

Date of Well Plugging: 7/12/2012

Well Use: Other

Well Construction Type: Sand/Gravel Well

Date Well Constructed:

Casing Type: PVC plastic

Diameter:

Measured Well Depth: 41 ft. Well Diameter: 2 in.

Casing Status after Plugging: 3.00 ft. above grade

Reason for Abandoning Well: Well no longer needed

Abandonment Method: Pumped through grout pipe

Drilling Record:

Pumping Equipment Removed: No

Equipment Removed:

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	41.00	1.00	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor
Registration No: 58-2421
Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc
Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: monitoring
General Remarks: sp-mw-61

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

53

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak

Town/Range:	Section:	WSSN:	Source ID/Well No:
01N 08E	30		

Well ID: 47000029881

Elevation:

Latitude: 45.45804

Longitude: -83.77367

Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
1/4 mile south of spicer

Well Owner: spiegelberg site

Well Address:	Owner Address:
spicer rd brighton, MI 48116	spicer rd brighton, MI 48116

Date of Well Plugging:	Well Use:
7/12/2012	Other
Well Construction Type:	**Date Well Constructed:**
Sand/Gravel Well	

Casing Status after Plugging: 3.00 ft. above grade
Reason for Abandoning Well: Well no longer needed
Abandonment Method: Pumped through grout pipe
Drilling Record:

Casing Type: Steel - unknown
Diameter:

Measured Well Depth: 35 ft. Well Diameter: 6 in.

Pumping Equipment Removed: No
Equipment Removed:

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	35.00	5.50	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor
Registration No: 58-2421
Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc
Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: monitoring
General Remarks: tew

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

Import ID:

Tax No:	Permit No:	County: Livingston	Township: Green Oak

Town/Range:	Section:	WSSN:	Source ID/Well No:
01N 06E	30		

Well ID: 47000029882

Elevation:

Latitude: 45.45804

Longitude: -83.77367

Measurement Method: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
1/4 mile south of spicer

Well Owner: spiegelberg site

Well Address:
spicer
brighton, MI 48116

Owner Address:
spicer
brighton, MI 48116

Date of Well Plugging: 7/12/2012

Well Use: Other

Well Construction Type: Sand/Gravel Well

Date Well Constructed:

Casing Status after Plugging: 4.00 ft. above grade

Reason for Abandoning Well: Well no longer needed

Abandonment Method: Pumped through grout pipe

Drilling Record:

Casing Type: Steel - unknown

Diameter:

Measured Well Depth: 37 ft. Well Diameter: 6 in.

Pumping Equipment Removed: No

Equipment Removed:

Note: Cutting casing off 4 feet below grade is recommended.

Plugging Material	From (ft)	To (ft)	Quantity	Quantity Unit
Neat cement	0.00	37.00	7.50	Bags

Plugging Remarks:

Note: Plugging from well bottom up to ground surface is required.

Certification: Water Well Drilling Contractor

Registration No: 58-2421

Registered Contractor: Jay L. Herrington

Business Name: Williams-Oddo Well Drilling , Inc

Address: PO Box 222
Ottawa Lake, MI 49267

Remarks:
Well Use: monitoring
General Remarks: tlw

Water Well Contractor's Certification

This well was plugged under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor Date

APPENDIX F

WASTE DISPOSAL DOCUMENTATION

043482

[illegible] Services

[illegible] Rd. Saline, Mi.

Mon

CUSTOMER'S ORDER NO.	DATE 1-23-12
NAME Wayne Contracting	
ADDRESS	
CITY, STATE, ZIP Tri-Axle Dump	

SOLD BY	CASH	CHARGE	ON ACCT.	MDSE. RETD.	O/OUT

QUAN.	DESCRIPTION	PRICE	AMOUNT
1	Job # 15 Ankney		
2	Spelburg		
3			
4	Haul Broken Concrete		
5	to GMB Recycled Concrete		
6	Kensington Rd		
7			
8			
9	Start - 8AM	10 hrs	
10			
11	Stop - 6PM		
12			
13			

RECEIVED BY

KEEP THIS SLIP FOR REFERENCE

[illegible] Service

[illegible] Salina, Mi

Tues

CUSTOMER'S ORDER NO.	DATE 2-4-12
NAME Wayne Contracting	
ADDRESS	
CITY, STATE, ZIP Tri-Arle Dum	

SOLD BY	CASH	C.O.D.	CHARGE	ON ACCT.	MDSE. RETD.	PAID OUT

QUAN.	DESCRIPTION	PRICE	AMOUNT
1	[illegible] Mershey		
2	Spalding		
3			
4	Haul Broken Concrete		
5	to GMB Recycled Concrete		
6	Kensington Rd.		
7			
8			
9	Start 8 AM	4/hr	
10			
11	Stop 12 Noon	M/N	
12			

RECEIVED BY

KEEP THIS SLIP FOR REFERENCE

GEM RECYCLED CONCRETE CO.

LOAD AND TIME TICKET

7644 Whitmore Lake Road · Brighton, MI 48116 · (810) 231-5180

ORDER NO. | DATE

SOLD TO

ADDRESS

M.P.S.C. NO. | TRUCK NO. | LOADED MILES | RATE

NAME OF CARRIER

FROM LOADING PLACE | TO UNLOADING PLACE

DRIVER SIGNATURE

TONS - CU. YDS.	DESCRIPTION
	SAND CL I - CL II - CL III
	GRAVEL 21AA - 21A - 22A - 22A
	BANK RUN
	CRUSHED CONCRETE - FINES
	CRUSHED CONCRETE 1 1/2 - 4" CLEAN
5	tri axle loads
	15 ton each
	GROSS WGT.
	TARE WGT.
	NET WGT.
	ACCUMULATION
	CUSTOMER SIGNATURE

No.

White - Original
Yellow - Office Copy
Pink - Driver's Copy
Gold - Customer's Copy

009046591JJK

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	MID 980 794 481	1	(800) 535-5976	009046591 JJK

5. Generator's Name and Mailing Address: FORD MOTOR COMPANY
6300 SPICER ROAD
GREEN OAK TOWNSHIP, MI 48116
Generator's Phone:

Generator's Site Address (if different than mailing address):

6. Transporter 1 Company Name: RD INDUSTRIAL SERVICES — U.S. EPA ID Number: MID 000 265 871

7. Transporter 2 Company Name — U.S. EPA ID Number:

8. Designated Facility Name and Site Address: MICHIGAN DISPOSAL WTP
49350 N I-94 SERVICE DRIVE
BELLEVILLE, MI 48111
Facility's Phone: (800) 592-5489
U.S. EPA ID Number: MID 000 724 831

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
X	NON HAZARDOUS SOLID WASTE, NOT DOT NOT RCRA REGULATED	01	CM	12	Y	NONE		
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information
G12[illegible]MDI / Spent Activated Carbon & Sand

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b)(3) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Nathan [illegible] Ford — Signature: [illegible] — Month 8 Day 1 Year 12

16. International Shipments: ☐ Import to U.S. ☐ Export from U.S. — Port of entry/exit: ____ Date leaving U.S.: ____
Transporter signature (for exports only):

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Frank Hunt — Signature: Frank Hunt — Month 08 Day 01 Year 12
Transporter 2 Printed/Typed Name — Signature — Month Day Year

18. Discrepancy
18a. Discrepancy Indication Space: ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. NONE 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name — Signature — Month 08 Day 01 Year 12

GENERATOR — TRANSPORTER — DESIGNATED FACILITY

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete. DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

009046592JJK

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	MID 980 794 491	1	(800) 838-3075	009046592 JJK

5. Generator's Name and Mailing Address: FORD MOTOR COMPANY
8800 SPICER ROAD
GREEN OAK TOWNSHIP, MI 48116
Generator's Phone:

Generator's Site Address (if different than mailing address):

6. Transporter 1 Company Name: EQ INDUSTRIAL SERVICES — U.S. EPA ID Number: MID 000 263 871

7. Transporter 2 Company Name — U.S. EPA ID Number:

8. Designated Facility Name and Site Address: MICHIGAN DISPOSAL WTP
49350 N I-94 SERVICE DRIVE
BELLEVILLE, MI 48111
Facility's Phone: (800) 592-5489
U.S. EPA ID Number: MID 000 724 831

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. NON HAZARDOUS SOLID WASTE, NOT DOT NOT RCRA REGULATED	001	Cy	12	Y	MW6
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1. 012[illegible] / Spent Activated Carbon & Sand

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: [illegible] on behalf of Ford — Signature: [illegible] — Month 8 Day 1 Year 12

16. International Shipments: ☐ Import to U.S. ☐ Export from U.S. — Port of entry/exit: — Date leaving U.S.:
Transporter signature (for exports only):

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Tim Stoker — Signature: [illegible] — Month 09 Day 01 Year 12
Transporter 2 Printed/Typed Name — Signature — Month Day Year

18. Discrepancy
18a. Discrepancy Indication Space: ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. NONE 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: [illegible] — Signature: [illegible] — Month 08 Day 01 Year 12

GENERATOR — TRANSPORTER — DESIGNATED FACILITY

EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete. DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

009046593JJK

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number: MID 980 794 481	2. Page 1 of: 1	3. Emergency Response Phone: (800) 839-3975	4. Manifest Tracking Number: 009046593 JJK

5. Generator's Name and Mailing Address: FORD MOTOR COMPANY
5600 SPICER ROAD
GREEN OAK TOWNSHIP, MI 48116
Generator's Site Address (if different than mailing address):
Generator's Phone:

6. Transporter 1 Company Name: RD INDUSTRIAL SERVICES — U.S. EPA ID Number: MID 000 288 871

7. Transporter 2 Company Name: — U.S. EPA ID Number:

8. Designated Facility Name and Site Address: MICHIGAN DISPOSAL WTP
49300 N I-94 SERVICE DRIVE
BELLEVILLE, MI 48111
Facility's Phone: (800) 592-5489
U.S. EPA ID Number: MID 000 724 831

Item	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X.	1. NON HAZARDOUS SOLID WASTE, NOT DOT NOT RCRA REGULATED	01	CM	20	Y	
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1. [illegible] / Spent Activated Carbon & Sand

Bay IV 2030

15. GENERATOR/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Mark on behalf of Ford — Signature: [signature] — Month 8 Day 1 Year 12

16. International Shipments: ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit: Date leaving U.S.:
Transporter signature (for exports only):

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Frank Hunt — Signature: [signature] — Month 08 Day 01 Year 12
Transporter 2 Printed/Typed Name: — Signature: — Month Day Year

18. Discrepancy
18a. Discrepancy Indication Space: ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:

19. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:
19b. Signature of Alternate Facility (or Generator) — Month Day Year

20. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. NONE 2. 3. 4.

21. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Jacob Wilson — Signature: [signature] — Month 08 Day 02 Year 12

GENERATOR / INTL. / TRANSPORTER / DESIGNATED FACILITY

EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

009046594JJK

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number: MID 980 794 481	2. Page 1 of 1	3. Emergency Response Phone: (800) 839-3975	4. Manifest Tracking Number: 009046594 JJK

5. Generator's Name and Mailing Address: FORD MOTOR COMPANY
8800 SPICER ROAD
GREEN OAK TOWNSHIP, MI 48116
Generator's Phone:
Generator's Site Address (if different than mailing address):

6. Transporter 1 Company Name: EQ INDUSTRIAL SERVICES — U.S. EPA ID Number: MID 000 263 871

7. Transporter 2 Company Name: — U.S. EPA ID Number:

8. Designated Facility Name and Site Address: MICHIGAN DISPOSAL WTP
49350 N I-94 SERVICE DRIVE
BELLEVILLE, MI 48111
Facility's Phone: (800) 592-5489
U.S. EPA ID Number: MID 000 724 831

Sr. No.	9a. U.S. DOT Description (Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. NON HAZARDOUS SOLID WASTE, NOT DOT NOT RCRA REGULATED	001	CM	20	Y	NONE
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1. [illegible] / Spent Activated Carbon & Sand
Box # U2649
Start Date 8-1-12

15. GENERATOR/SHIPPER'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Owner's Printed/Typed Name: Nathan Kuhl on behalf of Ford — Signature: [signature] — Month 8 Day 1 Year 12

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Andrew Feeman — Signature: [signature] — Month 8 Day 1 Year 12
Transporter 2 Printed/Typed Name: — Signature: — Month Day Year

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
NONE			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Josh Heath — Signature: [signature] — Month 08 Day 02 Year 12

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

Michigan Disposal, Inc.

Michigan Disposal Waste Treatment Plant

49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

EQ-DETROIT LABPACK
36255 Michigan Ave
ATTN: Kellly Williams
Wayne, MI 48184

Receipt ID: 503528
EQ Account #: 50013
Manifest / BOL: 009046591JJK
Transporter: EQISYPSI
Date: 08/01/2012
Time In: 11:32 AM
Time Out: 1:07 PM

Line	Description Generator	Qty. Unit
1 - 1	G123830MDI - Spent Activated Carbon & Sand (non haz)	4.860 TONS
	Perpetual Care Ton	4.860 TONS
	MID980794481 FORD MOTOR COMPANY	
	Gross: 65,240 **Tare:** 55,520 **Net:** 9,720	
2	NON-HAZARDOUS WASHOUT	1.000 EACH
	MID980794481 FORD MOTOR COMPANY	
	Gross: 65,240 **Tare:** 55,520 **Net:** 9,720	

NO SALVAGING ON PREMISES

Michigan Disposal, Inc.

Michigan Disposal Waste Treatment Plant

49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

EQ-DETROIT LABPACK
36255 Michigan Ave
ATTN: Kelly Williams
Wayne, MI 48184

Receipt ID: 503529
EQ Account #: 50013
Manifest / BOL: 009046592JJK
Transporter: EQISYPSI
Date: 08/01/2012
Time In: 11:34 AM
Time Out: 1:13 PM

Line	Description Generator	Qty. Unit
1 - 1	G123830MDI - Spent Activated Carbon & Sand (non haz)	6.410 TONS
	Perpetual Care Ton	6.410 TONS
	MID980794481 FORD MOTOR COMPANY	
	Gross: 63,540 **Tare:** 50,720 **Net:** 12,820	
2	NON-HAZARDOUS WASHOUT	1.000 EACH
	MID980794481 FORD MOTOR COMPANY	
	Gross: 63,540 **Tare:** 50,720 **Net:** 12,820	

NO SALVAGING ON PREMISES

Michigan Disposal, Inc.

Michigan Disposal Waste Treatment Plant

49350 North I-94 Service Drive, Belleville, Michigan 48111

Receipt

EQ-DETROIT LABPACK
36255 Michigan Ave
ATTN: Kelly Williams
Wayne, MI 48184

Receipt ID: 503574
EQ Account #: 50013
Manifest / BOL: 009046594JJK
Transporter: EQISYPSI
Date: 08/02/2012
Time In: 9:24 AM
Time Out: 4:42 PM

Line	Description Generator	Qty. Unit
1 - 1	G123830MDI - Spent Activated Carbon & Sand (non haz)	9.590 TONS
	Perpetual Care Ton	9.590 TONS
	MID980794481 FORD MOTOR COMPANY	
	Gross: 71,260 **Tare:** 52,080 **Net:** 19,180	
2	NON-HAZARDOUS WASHOUT	1.000 EACH
	MID980794481 FORD MOTOR COMPANY	
	Gross: 71,260 **Tare:** 52,080 **Net:** 19,180	

NO SALVAGING ON PREMISES

010248000JJK

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number: MID 980 794 481	2. Page 1 of 1	3. Emergency Response Phone: 734.716.9270	4. Manifest Tracking Number: 010248000 JJK

5. Generator's Name and Mailing Address: FORD MOTOR COMPANY, 14496 SHELDON RD, SUITE 200, PLYMOUTH, MI 48170
Generator's Phone: 313 322 3761
Generator's Site Address (if different than mailing address): 8802 SPICER RD, BRIGHTON, MI 48116

6. Transporter 1 Company Name: EQ - INDUSTRIAL SERVICES — U.S. EPA ID Number: MID 000 263 871

7. Transporter 2 Company Name: — U.S. EPA ID Number:

8. Designated Facility Name and Site Address: EQ DETROIT, INC, 1923 FREDERIC ST, DETROIT, MI 48111 — U.S. EPA ID Number: MID 980 991 566
Facility's Phone: 313.923.0080

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. UN1993, WASTE FLAMMABLE LIQUIDS, NOS, (2-PROPANOL, METHYL ETHYL KETONE), 3, II ERG #128	01	DM	60	P	D001 D035
X	2. UN3264, WASTE CORROSIVE LIQUID, ACIDIC, INORGANIC, NOS, (SULFURIC/HYDROCHLORIC ACID), 8, II ERG #154	01	DF	15	P	D002
	3. NON-DOT, NON-RCRA REGULATED LIQUID, (LATEX, INORGANIC SALT SOLUTIONS),	01	DM	75	P	D29L
	4.					

14. Special Handling Instructions and Additional Information
1) LAB PACK 5-02 L124043DET
2) LAB PACK 5-03 L124046DET
3) LAB PACK 5-01 L124044DET

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: David Canfield on behalf of Ford Motor Company — Signature: [signature] — Month 12 Day 06 Year 12

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Michael Faver — Signature: [signature] — Month 12 Day 06 Year 12
Transporter 2 Printed/Typed Name: — Signature: — Month Day Year

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. H111 2. H111 3. W100 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Dorcas McCall — Signature: [signature] — Month 12 Day 10 Year 12

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number: MID 980 794 481	2. Page 1 of 1	3. Emergency Response Phone: 734 946 9270	4. Manifest Tracking Number: 010248000 JJK

5. Generator's Name and Mailing Address: Ford Motor Company, 14496 Sheldon Rd, Suite 200, Plymouth, MI 48170
Generator's Phone: 313 323 3761

Generator's Site Address (if different than mailing address): 5802 Spicer Rd, Brighton, MI 48116

6. Transporter 1 Company Name: CO Industrial Services — U.S. EPA ID Number: MID 000 263 871

7. Transporter 2 Company Name: — U.S. EPA ID Number:

8. Designated Facility Name and Site Address: CO Detroit, Inc, 1923 Frederick St, Detroit, MI 48211
Facility's Phone: 313 923 0086 — U.S. EPA ID Number: MID 980 991 566

9a. HM	9b. U.S. DOT Description (Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. UN1993, Waste Flammable Liquids, NOS, (2-Propanol, Methyl Ethyl Ketone), 3, II, ERG# 128	01	DM	60	P	D001, D035
X	2. UN3264, Waste Corrosive Liquid, Acidic, Inorganic, NOS, (Sulfuric/Hydrochloric Acid), 8, II, ERG# 154	01	DF	15	P	D002
	3. Non-DOT, Non-RCRA Regulated Liquid, (Latex, Inorganic Salt Solutions)	01	DM	75	P	D294
	4.					

14. Special Handling Instructions and Additional Information
1) Lab Pack S-02
2) Lab Pack S-03
3) Lab Pack S-01

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: David Canfield on behalf of Ford Motor Company — Signature: [signature] — Month 12 Day 06 Year 17

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Michael Favia — Signature: [signature] — Month 12 Day 06 Year 17
Transporter 2 Printed/Typed Name: — Signature: — Month Day Year

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name — Signature — Month Day Year

GENERATOR — TRANSPORTER INT'L — DESIGNATED FACILITY

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete. GENERATOR'S INITIAL COPY

CONTAINER CONTENTS

Drum Lab Pack

Drum #	Date	Approval #	Chemist
S-01	12/6/12		M. FAVOR

UN / NA Number	Proper DOT Shipping Name
N/A	NON-HAZARDOUS LIQUID

Hazard Class	Packaging Group	Circle One	Container type
N/A	I II III	Virgin Product Spent Material	5 10 15 20 30 55 85 CY (DM / DE)

Manifest #

Line No.	Material Description	Type/ State	Size	EPA Waste Code(s)
01	LATEX PAINT, DRIED	S	2X5GAL	N/R
02	ALCONOX, SOAP	S	3X1LB	N/R
03	0.05 N KCL (POTASSIUM CHLORIDE)	L	1X1PT	029L
04	WATER	L	2X1QT	029L
05	SOAP SOLUTION	L	1X1PT	029L
06	PH 4 BUFFER SOLUTION	L	4X1PT	029L
07	PH 10 BUFFER SOLUTION	L	3X1PT	029L
08	PH 7 BUFFER SOLUTION	L	2X1PT	029L
09	CONDUCTIVITY STANDARD (POTASSIUM CHLORIDE)	L	2X1PT	029L
10				
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Chemist Verification _____ This Lab Pack list continues: Yes No This is page _____ of _____

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CONTAINER CONTENTS — Drum — Lab Pack

Drum #	Date:	Approval #:	Chemist:
5-02	12/6/12		M. Favor

UN / NA Number:	Proper DOT Shipping Name:
1993	Waste Flammable Liquids, No 5

Hazard Class:	Packaging Group:	Circle One:	Container type:
3	I (II) III	(Virgin Product) Spent Material	DM (DF) 5 10 15 20 30 (55) 85 CY

Manifest #:

Line No.	Material Description	Type/ State	Size	EPA Waste Code(s)
01	2-Propanol	L	3x1/2	D001
02	Industrial Enamels Paint	L/S	2x1 gal	D001
03	Isopropanol	L	1x1 pt	D001
04	PVC Cement (Cyclohexanone, THF)	S	1x50 ml	D001
05	Polyacryl Blue Paint	L	1x1 pt	D001, D035
06	Madison Chemical Coating	L	1x1 pt	D001
07	(Petroleum Distillates)			
08	Dupont 50P Polyacryl Enamel A	L	1x1 pt	D001, D035
09	(Propylene Glycol Monomethyl ~~Ether~~ Ether			
10	Acetate, Xylene, Acrylic Resin, Methyl			
11	Ethyl Ketone)			
12	Dupont 50 PC Polyacryl Enamel C	L	1x1 pt	D001
13	(Ethylene Glycol Monoethyl Ether, Acetone,			
14	Dimethylethanolamine, Butanol, Ethyl Alcohol			
15				
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Chemist Verification _____ This Lab Pack list continues: Yes No This is page _____ of _____

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CONTAINER CONTENTS — Drum — Lab Pack

Drum #	Date	Approval #	Chemist
5-03	7/6/12		[illegible]

UN / NA Number	Proper DOT Shipping Name
3264	[illegible]

Hazard Class	Packaging Group	Circle One	Container type
8	I (II) III	(Virgin Product) Spent Material	(5) 10 15 20 30 55 85 CY DM DF

Manifest #:

Line No.	Material Description	Type/ State	Size	EPA Waste Code(s)
01	10% Sulfuric Acid Solution	L	[illegible]	D002
02	10% Nitric Acid Solution	L	[illegible]	D002
03	10% Acetic Acid Solution	L	[illegible]	D002
04	1% Hydrochloric Acid/water	L	5x50mL	D002
05	Empty 1% Containers	S	30x50mL	N.R
06				
07				
08				
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Chemist Verification _____ This Lab Pack list continues: Yes No This is page _____ of

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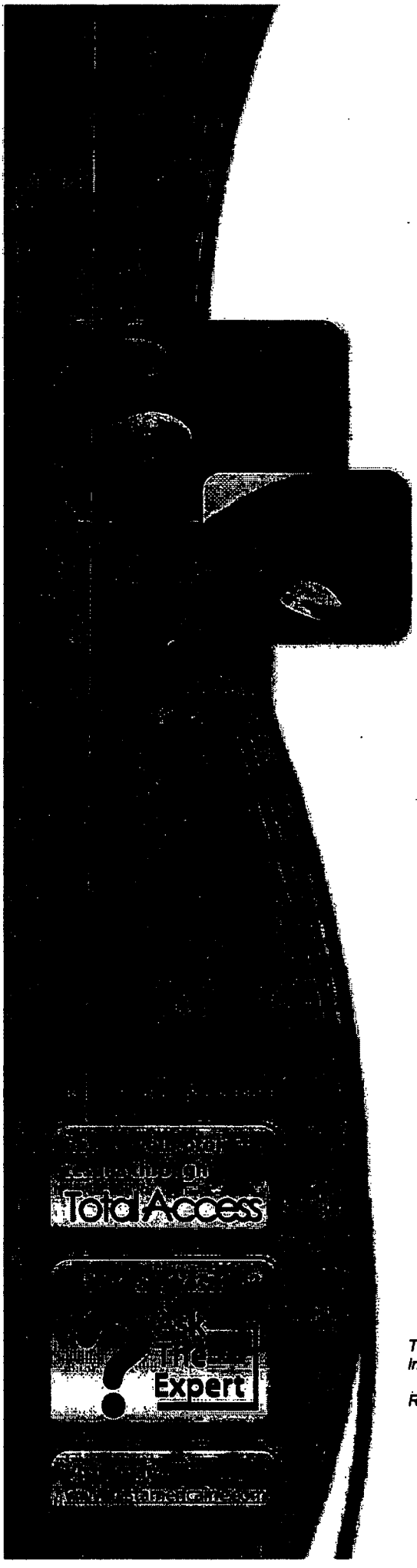
APPENDIX G

LABORATORY REPORTS



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

TestAmerica Job ID: 240-11944-2
Client Project/Site: 3581, Spiegelberg

For:
Conestoga-Rovers & Associates, Inc.
14496 Sheldon Road, Suite 200
Plymouth, Michigan 48170

Attn: Mr. Paul Wiseman

Denise D Heckler

Authorized for release by:
6/20/2012 7:36:06 AM

Denise Heckler
Project Manager II
denise.heckler@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 240-11944-2

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: Conestoga-Rovers & Associates, Inc.

Project: 3581, Spiegelberg

Report Number: 240-11944-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica North Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

On June 12, 2012, CRA took select samples off hold for various analysis. A revised chain of custody was provided.

RECEIPT
The samples were received on 06/06/2012; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 2.2 C.

TCLP VOLATILE ORGANIC COMPOUNDS (GC-MS)
Samples ST-03581-060512-SK-001 (240-11944-1), ST-03581-060512-SK-002 (240-11944-2), ST-03581-060512-SK-003 (240-11944-3), ST-03581-060512-SK-006 (240-11944-6), ST-03581-060512-SK-007 (240-11944-7) and 005 & 010 COMP (240-11944-14) were analyzed for TCLP volatile organic compounds (GC-MS) in accordance with EPA SW-846 Methods 1311/8260B. The samples were leached on 06/13/2012 and analyzed on 06/14/2012.

No difficulties were encountered during the VOCs analyses.

All quality control parameters were within the acceptance limits.

TCLP SEMIVOLATILE ORGANIC COMPOUNDS (GC-MS)
Samples ST-03581-060512-SK-003 (240-11944-3) and 005 & 010 COMP (240-11944-14) were analyzed for TCLP semivolatile organic compounds (GC-MS) in accordance with EPA SW-846 Methods 1311/8270C. The samples were leached on 06/13/2012, prepared on 06/14/2012 and analyzed on 06/18/2012.

Job ID: 240-11944-2 (Continued)

Laboratory: TestAmerica Canton (Continued)

Surrogates are added during the extraction process prior to dilution. When the sample is diluted, surrogate recoveries are diluted out and no corrective action is required.

No difficulties were encountered during the SVOCs analyses.

All quality control parameters were within the acceptance limits.

SEMIVOLATILE ORGANIC COMPOUNDS (GC-MS)

Sample ST-03581-060512-SK-008 (240-11944-8) was analyzed for semivolatile organic compounds (GC-MS) in accordance with EPA SW-846 Method 8270C. The samples were prepared on 06/15/2012 and analyzed on 06/18/2012.

Surrogates are added during the extraction process prior to dilution. When the sample is diluted, surrogate recoveries are diluted out and no corrective action is required.

Bis(2-ethylhexyl) phthalate was detected in method blank MB 240-47578/23-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged.

2,4,6-Trichlorophenol, 2,4-Dinitrophenol, 4,6-Dinitro-2-methylphenol and Pentachlorophenol failed the recovery criteria low for the MS of sample ST-03581-060512-SK-008MS (240-11944-8) in batch 240-47760.

Several analytes failed the recovery criteria low for the MSD of sample ST-03581-060512-SK-008MSD (240-11944-8) in batch 240-47760. Several analytes exceeded the rpd limit.

No other difficulties were encountered during the SVOCs analysis.

All other quality control parameters were within the acceptance limits.

POLYCHLORINATED BIPHENYLS (PCBS)

Samples ST-03581-060512-SK-003 (240-11944-3), ST-03581-060512-SK-008 (240-11944-8) and 005 & 010 COMP (240-11944-14) were analyzed for polychlorinated biphenyls (PCBs) in accordance with EPA SW-846 Method 8082. The samples were prepared on 06/15/2012 and analyzed on 06/17/2012.

Surrogates are added during the extraction process prior to dilution. When the sample dilution is 5X or greater, surrogate recoveries are diluted out and no corrective action is required.

Two surrogates are used for this analysis. The laboratory's SOP allows 1 of these surrogates to be outside acceptance criteria without performing re-extraction. The following sample contained an allowable number of surrogate compounds outside limits: 005 & 010 COMP (240-11944-14).

The following samples required a tetrabutylammonium sulfite (TBA) clean-up to reduce matrix interferences caused by sulfur: 005 & 010 COMP (240-11944-14), ST-03581-060512-SK-003 (240-11944-3), ST-03581-060512-SK-008 (240-11944-8). Lot # S65830

No other difficulties were encountered during the PCBs analyses.

All other quality control parameters were within the acceptance limits.

TCLP METALS (ICP)

Samples ST-03581-060512-SK-003 (240-11944-3) and 005 & 010 COMP (240-11944-14) were analyzed for TCLP metals (ICP) in accordance with EPA SW-846 Methods 1311/ 6010B. The samples were leached on 06/13/2012, prepared on 06/14/2012 and analyzed on 06/15/2012.

Barium was detected in method blank LB 240-47412/1-C at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". If the associated sample reported a result above the MDL and/or

Job ID: 240-11944-2 (Continued)

Laboratory: TestAmerica Canton (Continued)

RL, the result has been "B" flagged.

Sample ST-03581-060512-SK-003 (240-11944-3)[4X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Barium was detected in method blank MB 240-47440/2-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged.

No other difficulties were encountered during the metals analyses.

All other quality control parameters were within the acceptance limits.

TOTAL METALS (ICPMS)

Sample ST-03581-060512-SK-008 (240-11944-8) was analyzed for total metals (ICPMS) in accordance with EPA SW-846 Method 6020. The samples were prepared on 06/13/2012 and analyzed on 06/14/2012.

Barium and Lead were detected in method blank MB 240-47278/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged.

No other difficulties were encountered during the metals analysis.

All other quality control parameters were within the acceptance limits.

TCLP MERCURY

Samples ST-03581-060512-SK-003 (240-11944-3) and 005 & 010 COMP (240-11944-14) were analyzed for TCLP mercury in accordance with EPA SW-846 Methods 1311/7470A. The samples were leached on 06/13/2012, prepared on 06/14/2012 and analyzed on 06/15/2012.

No difficulties were encountered during the mercury analyses.

All quality control parameters were within the acceptance limits.

TOTAL MERCURY

Sample ST-03581-060512-SK-008 (240-11944-8) was analyzed for total mercury in accordance with EPA SW-846 Method 7471A. The samples were prepared and analyzed on 06/13/2012.

No difficulties were encountered during the mercury analysis.

All quality control parameters were within the acceptance limits.

Definitions/Glossary

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3581, Spiegelberg

TestAmerica Job ID: 240-11944-2

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F	MS or MSD exceeds the control limits
F	RPD of the MS and MSD exceeds the control limits

GC Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
X	Surrogate is outside control limits

Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Sample Summary

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3581, Spiegelberg

TestAmerica Job ID: 240-11944-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-11944-1	ST-03581-060512-SK-001	Solid	06/05/12 10:55	06/06/12 09:20
240-11944-2	ST-03581-060512-SK-002	Solid	06/05/12 11:00	06/06/12 09:20
240-11944-3	ST-03581-060512-SK-003	Solid	06/05/12 11:05	06/06/12 09:20
240-11944-6	ST-03581-060512-SK-006	Solid	06/05/12 11:20	06/06/12 09:20
240-11944-7	ST-03581-060512-SK-007	Solid	06/05/12 11:25	06/06/12 09:20
240-11944-8	ST-03581-060512-SK-008	Solid	06/05/12 11:30	06/06/12 09:20
240-11944-14	005 & 010 COMP	Solid	06/05/12 00:00	06/06/12 09:20

Detection Summary

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3581, Spiegelberg

TestAmerica Job ID: 240-11944-2

Client Sample ID: ST-03581-060512-SK-001 — Lab Sample ID: 240-11944-1

No Detections

Client Sample ID: ST-03581-060512-SK-002 — Lab Sample ID: 240-11944-2

No Detections

Client Sample ID: ST-03581-060512-SK-003 — Lab Sample ID: 240-11944-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.12	J B	10	0.00067	mg/L	1		6010B	TCLP
Cadmium	0.0014	J	0.10	0.00066	mg/L	1		6010B	TCLP
Chromium	0.0054	J	0.50	0.0022	mg/L	1		6010B	TCLP
Lead	0.0041	J	0.50	0.0019	mg/L	1		6010B	TCLP
Silver	0.0035	J	0.50	0.0022	mg/L	1		6010B	TCLP
Mercury	0.00015	J	0.0020	0.00012	mg/L	1		7470A	TCLP

Client Sample ID: ST-03581-060512-SK-006 — Lab Sample ID: 240-11944-6

No Detections

Client Sample ID: ST-03581-060512-SK-007 — Lab Sample ID: 240-11944-7

No Detections

Client Sample ID: ST-03581-060512-SK-008 — Lab Sample ID: 240-11944-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Bis(2-ethylhexyl) phthalate	30	J B	260	19	ug/Kg	1	☼	8270C	Total/NA
Arsenic	24		0.076	0.059	mg/Kg	1	☼	6020	Total/NA
Barium	12	B	0.47	0.044	mg/Kg	1	☼	6020	Total/NA
Chromium	1.5		0.19	0.038	mg/Kg	1	☼	6020	Total/NA
Lead	0.38	B	0.095	0.012	mg/Kg	1	☼	6020	Total/NA

Client Sample ID: 005 & 010 COMP — Lab Sample ID: 240-11944-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.062	J	0.50	0.0032	mg/L	1		6010B	TCLP
Barium	0.082	J B	10	0.00067	mg/L	1		6010B	TCLP
Selenium	0.0065	J	0.25	0.0041	mg/L	1		6010B	TCLP

Method Summary

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3581, Spiegelberg

TestAmerica Job ID: 240-11944-2

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL NC
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL NC
8082	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	TAL NC
6010B	Metals (ICP)	SW846	TAL NC
6020	Metals (ICP/MS)	SW846	TAL NC
7470A	Mercury (CVAA)	SW846	TAL NC
7471A	Mercury (CVAA)	SW846	TAL NC
Moisture	Percent Moisture	EPA	TAL NC

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL NC = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Client Sample Results

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3581, Spiegelberg

TestAmerica Job ID: 240-11944-2

Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Client Sample ID: ST-03581-060512-SK-001
Date Collected: 06/05/12 10:55
Date Received: 06/06/12 09:20

Lab Sample ID: 240-11944-1
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	0.025	U	0.025	0.0095	mg/L			06/14/12 21:27	1
1,2-Dichloroethane	0.025	U	0.025	0.011	mg/L			06/14/12 21:27	1
2-Butanone (MEK)	0.25	U	0.25	0.029	mg/L			06/14/12 21:27	1
Benzene	0.025	U	0.025	0.0065	mg/L			06/14/12 21:27	1
Carbon tetrachloride	0.025	U	0.025	0.0065	mg/L			06/14/12 21:27	1
Chlorobenzene	0.025	U	0.025	0.0075	mg/L			06/14/12 21:27	1
Chloroform	0.025	U	0.025	0.0080	mg/L			06/14/12 21:27	1
Tetrachloroethene	0.025	U	0.025	0.015	mg/L			06/14/12 21:27	1
Trichloroethene	0.025	U	0.025	0.0085	mg/L			06/14/12 21:27	1
Vinyl chloride	0.025	U	0.025	0.011	mg/L			06/14/12 21:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*80 - 121*		*06/14/12 21:27*	*1*
4-Bromofluorobenzene (Surr)	*94*		*70 - 124*		*06/14/12 21:27*	*1*
Toluene-d8 (Surr)	*105*		*90 - 115*		*06/14/12 21:27*	*1*
Dibromofluoromethane (Surr)	*116*		*84 - 128*		*06/14/12 21:27*	*1*

Client Sample Results

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3581, Spiegelberg

TestAmerica Job ID: 240-11944-2

Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Client Sample ID: ST-03581-060512-SK-002
Date Collected: 06/05/12 11:00
Date Received: 06/06/12 09:20

Lab Sample ID: 240-11944-2
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	0.025	U	0.025	0.0095	mg/L			06/14/12 21:51	1
1,2-Dichloroethane	0.025	U	0.025	0.011	mg/L			06/14/12 21:51	1
2-Butanone (MEK)	0.25	U	0.25	0.029	mg/L			06/14/12 21:51	1
Benzene	0.025	U	0.025	0.0065	mg/L			06/14/12 21:51	1
Carbon tetrachloride	0.025	U	0.025	0.0065	mg/L			06/14/12 21:51	1
Chlorobenzene	0.025	U	0.025	0.0075	mg/L			06/14/12 21:51	1
Chloroform	0.025	U	0.025	0.0080	mg/L			06/14/12 21:51	1
Tetrachloroethene	0.025	U	0.025	0.015	mg/L			06/14/12 21:51	1
Trichloroethene	0.025	U	0.025	0.0085	mg/L			06/14/12 21:51	1
Vinyl chloride	0.025	U	0.025	0.011	mg/L			06/14/12 21:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*80 - 121*		*06/14/12 21:51*	*1*
4-Bromofluorobenzene (Surr)	*97*		*70 - 124*		*06/14/12 21:51*	*1*
Toluene-d8 (Surr)	*105*		*90 - 115*		*06/14/12 21:51*	*1*
Dibromofluoromethane (Surr)	*115*		*84 - 128*		*06/14/12 21:51*	*1*

Client Sample Results

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3581, Spiegelberg

TestAmerica Job ID: 240-11944-2

Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Client Sample ID: ST-03581-060512-SK-003
Date Collected: 06/05/12 11:05
Date Received: 06/06/12 09:20

Lab Sample ID: 240-11944-3
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	0.025	U	0.025	0.0095	mg/L			06/14/12 22:14	1
1,2-Dichloroethane	0.025	U	0.025	0.011	mg/L			06/14/12 22:14	1
2-Butanone (MEK)	0.25	U	0.25	0.029	mg/L			06/14/12 22:14	1
Benzene	0.025	U	0.025	0.0065	mg/L			06/14/12 22:14	1
Carbon tetrachloride	0.025	U	0.025	0.0065	mg/L			06/14/12 22:14	1
Chlorobenzene	0.025	U	0.025	0.0075	mg/L			06/14/12 22:14	1
Chloroform	0.025	U	0.025	0.0080	mg/L			06/14/12 22:14	1
Tetrachloroethene	0.025	U	0.025	0.015	mg/L			06/14/12 22:14	1
Trichloroethene	0.025	U	0.025	0.0085	mg/L			06/14/12 22:14	1
Vinyl chloride	0.025	U	0.025	0.011	mg/L			06/14/12 22:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*80 - 121*		*06/14/12 22:14*	*1*
4-Bromofluorobenzene (Surr)	*94*		*70 - 124*		*06/14/12 22:14*	*1*
Toluene-d8 (Surr)	*106*		*90 - 115*		*06/14/12 22:14*	*1*
Dibromofluoromethane (Surr)	*114*		*84 - 128*		*06/14/12 22:14*	*1*

Client Sample Results

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3581, Spiegelberg

TestAmerica Job ID: 240-11944-2

Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Client Sample ID: 005 & 010 COMP
Date Collected: 06/05/12 00:00
Date Received: 06/06/12 09:20

Lab Sample ID: 240-11944-14
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	0.025	U	0.025	0.0095	mg/L			06/14/12 23:27	1
1,2-Dichloroethane	0.025	U	0.025	0.011	mg/L			06/14/12 23:27	1
2-Butanone (MEK)	0.25	U	0.25	0.029	mg/L			06/14/12 23:27	1
Benzene	0.025	U	0.025	0.0065	mg/L			06/14/12 23:27	1
Carbon tetrachloride	0.025	U	0.025	0.0085	mg/L			06/14/12 23:27	1
Chlorobenzene	0.025	U	0.025	0.0075	mg/L			06/14/12 23:27	1
Chloroform	0.025	U	0.025	0.0080	mg/L			06/14/12 23:27	1
Tetrachloroethene	0.025	U	0.025	0.015	mg/L			06/14/12 23:27	1
Trichloroethene	0.025	U	0.025	0.0085	mg/L			06/14/12 23:27	1
Vinyl chloride	0.025	U	0.025	0.011	mg/L			06/14/12 23:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*80 - 121*		*06/14/12 23:27*	*1*
4-Bromofluorobenzene (Surr)	*94*		*70 - 124*		*06/14/12 23:27*	*1*
Toluene-d8 (Surr)	*106*		*90 - 115*		*06/14/12 23:27*	*1*
Dibromofluoromethane (Surr)	*119*		*84 - 128*		*06/14/12 23:27*	*1*

Client Sample Results

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3581, Spiegelberg

TestAmerica Job ID: 240-11944-2

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: ST-03581-060512-SK-008
Date Collected: 06/05/12 11:30
Date Received: 06/06/12 09:20

Lab Sample ID: 240-11944-8
Matrix: Solid
Percent Solids: 99.7

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	260	U	260	27	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
2,2'-oxybis[1-chloropropane]	260	U	260	9.5	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
2,4,5-Trichlorophenol	260	U	260	25	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
2,4,6-Trichlorophenol	260	U	260	80	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
2,4-Dichlorophenol	260	U	260	20	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
2,4-Dimethylphenol	260	U	260	20	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
2,4-Dinitrophenol	150	U	150	80	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
2,4-Dinitrotoluene	260	U	260	27	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
2,6-Dinitrotoluene	260	U	260	21	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
2-Chloronaphthalene	260	U	260	3.3	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
2-Chlorophenol	260	U	260	27	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
2-Methylnaphthalene	260	U	260	3.3	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
2-Methylphenol	260	U	260	80	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
2-Nitroaniline	200	U	200	9.1	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
2-Nitrophenol	260	U	260	27	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
3,3'-Dichlorobenzidine	1600	U	1600	18	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
3-Nitroaniline	200	U	200	16	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
4,6-Dinitro-2-methylphenol	150	U	150	80	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
4-Bromophenyl phenyl ether	260	U	260	13	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
4-Chloro-3-methylphenol	260	U	260	21	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
4-Chloroaniline	200	U	200	17	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
4-Chlorophenyl phenyl ether	260	U	260	13	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
4-Nitroaniline	200	U	200	26	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
4-Nitrophenol	330	U	330	80	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
Acenaphthene	260	U	260	3.3	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
Acenaphthylene	260	U	260	3.3	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
Acetophenone	260	U	260	9.2	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
Anthracene	260	U	260	3.3	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
Atrazine	40	U	40	9.1	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
Benzaldehyde	260	U	260	12	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
Benzo[a]anthracene	260	U	260	3.3	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
Benzo[a]pyrene	260	U	260	3.3	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
Benzo[b]fluoranthene	260	U	260	3.3	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
Benzo[g,h,i]perylene	260	U	260	3.3	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
Benzo[k]fluoranthene	260	U	260	3.3	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
Bis(2-chloroethoxy)methane	260	U	260	22	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
Bis(2-chloroethyl)ether	80	U	80	2.0	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
Bis(2-ethylhexyl) phthalate	30	J B	260	19	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
Butyl benzyl phthalate	260	U	260	10	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
Caprolactam	260	U	260	37	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
Carbazole	260	U	260	27	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
Chrysene	260	U	260	1.1	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
Dibenz(a,h)anthracene	260	U	260	3.3	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
Dibenzofuran	260	U	260	3.3	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
Diethyl phthalate	260	U	260	16	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
Dimethyl phthalate	260	U	260	17	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
Di-n-butyl phthalate	260	U	260	15	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
Di-n-octyl phthalate	260	U	260	27	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
Fluoranthene	260	U	260	3.3	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
Fluorene	260	U	260	3.3	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1
Hexachlorobenzene	260	U	260	2.1	ug/Kg	☼	06/15/12 08:37	06/18/12 10:44	1

Client Sample Results

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3581, Spiegelberg

TestAmerica Job ID: 240-11944-2

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Client Sample ID: ST-03581-060512-SK-008
Date Collected: 06/05/12 11:30
Date Received: 06/06/12 09:20

Lab Sample ID: 240-11944-8
Matrix: Solid
Percent Solids: 99.7

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	33	U	33	21	ug/Kg	☼	06/15/12 08:48	06/17/12 23:15	1
Aroclor-1221	33	U	33	16	ug/Kg	☼	06/15/12 08:48	06/17/12 23:15	1
Aroclor-1232	33	U	33	14	ug/Kg	☼	06/15/12 08:48	06/17/12 23:15	1
Aroclor-1242	33	U	33	13	ug/Kg	☼	06/15/12 08:48	06/17/12 23:15	1
Aroclor-1248	33	U	33	17	ug/Kg	☼	06/15/12 08:48	06/17/12 23:15	1
Aroclor-1254	33	U	33	17	ug/Kg	☼	06/15/12 08:48	06/17/12 23:15	1
Aroclor-1260	33	U	33	17	ug/Kg	☼	06/15/12 08:48	06/17/12 23:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*81*		*29 - 151*	*06/15/12 08:48*	*06/17/12 23:15*	*1*
DCB Decachlorobiphenyl	*84*		*14 - 163*	*06/15/12 08:48*	*06/17/12 23:15*	*1*

Client Sample Results

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3581, Spiegelberg

TestAmerica Job ID: 240-11944-2

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Client Sample ID: 005 & 010 COMP
Date Collected: 06/05/12 00:00
Date Received: 06/06/12 09:20

Lab Sample ID: 240-11944-14
Matrix: Solid
Percent Solids: 74.9

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	44	U	44	28	ug/Kg	☼	06/15/12 08:48	06/17/12 23:30	1
Aroclor-1221	44	U	44	21	ug/Kg	☼	06/15/12 08:48	06/17/12 23:30	1
Aroclor-1232	44	U	44	19	ug/Kg	☼	06/15/12 08:48	06/17/12 23:30	1
Aroclor-1242	44	U	44	17	ug/Kg	☼	06/15/12 08:48	06/17/12 23:30	1
Aroclor-1248	44	U	44	23	ug/Kg	☼	06/15/12 08:48	06/17/12 23:30	1
Aroclor-1254	44	U	44	23	ug/Kg	☼	06/15/12 08:48	06/17/12 23:30	1
Aroclor-1260	44	U	44	23	ug/Kg	☼	06/15/12 08:48	06/17/12 23:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*18*	*X*	*29 - 151*	*06/15/12 08:48*	*06/17/12 23:30*	*1*
DCB Decachlorobiphenyl	*94*		*14 - 163*	*06/15/12 08:48*	*06/17/12 23:30*	*1*

Client Sample Results

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3581, Spiegelberg

TestAmerica Job ID: 240-11944-2

Method: 6010B - Metals (ICP) - TCLP

Client Sample ID: ST-03581-060512-SK-003
Date Collected: 06/05/12 11:05
Date Received: 06/06/12 09:20

Lab Sample ID: 240-11944-3
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.0	U	2.0	0.013	mg/L		06/14/12 09:32	06/15/12 20:02	4
Barium	0.12	J B	10	0.00067	mg/L		06/14/12 09:32	06/15/12 12:17	1
Cadmium	0.0014	J	0.10	0.00066	mg/L		06/14/12 09:32	06/15/12 12:17	1
Chromium	0.0054	J	0.50	0.0022	mg/L		06/14/12 09:32	06/15/12 12:17	1
Lead	0.0041	J	0.50	0.0019	mg/L		06/14/12 09:32	06/15/12 12:17	1
Selenium	1.0	U	1.0	0.016	mg/L		06/14/12 09:32	06/15/12 20:02	4
Silver	0.0035	J	0.50	0.0022	mg/L		06/14/12 09:32	06/15/12 12:17	1

Client Sample Results

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3581, Spiegelberg

TestAmerica Job ID: 240-11944-2

Method: 6010B - Metals (ICP) - TCLP

Client Sample ID: 005 & 010 COMP
Date Collected: 06/05/12 00:00
Date Received: 06/06/12 09:20

Lab Sample ID: 240-11944-14
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.062	J	0.50	0.0032	mg/L		06/14/12 09:32	06/15/12 20:13	1
Barium	0.082	J B	10	0.00067	mg/L		06/14/12 09:32	06/15/12 20:13	1
Cadmium	0.10	U	0.10	0.00066	mg/L		06/14/12 09:32	06/15/12 20:13	1
Chromium	0.50	U	0.50	0.0022	mg/L		06/14/12 09:32	06/15/12 20:13	1
Lead	0.50	U	0.50	0.0019	mg/L		06/14/12 09:32	06/15/12 20:13	1
Selenium	0.0065	J	0.25	0.0041	mg/L		06/14/12 09:32	06/15/12 20:13	1
Silver	0.50	U	0.50	0.0022	mg/L		06/14/12 09:32	06/15/12 20:13	1

Client Sample Results

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3581, Spiegelberg

TestAmerica Job ID: 240-11944-2

Method: 6020 - Metals (ICP/MS)

Client Sample ID: ST-03581-060512-SK-008
Date Collected: 06/05/12 11:30
Date Received: 06/06/12 09:20

Lab Sample ID: 240-11944-8
Matrix: Solid
Percent Solids: 99.7

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	24		0.076	0.059	mg/Kg	☼	06/13/12 09:48	06/14/12 18:25	1
Barium	12	B	0.47	0.044	mg/Kg	☼	06/13/12 09:48	06/14/12 18:25	1
Cadmium	0.095	U	0.095	0.0074	mg/Kg	☼	06/13/12 09:48	06/14/12 18:25	1
Chromium	1.5		0.19	0.038	mg/Kg	☼	06/13/12 09:48	06/14/12 18:25	1
Lead	0.38	B	0.095	0.012	mg/Kg	☼	06/13/12 09:48	06/14/12 18:25	1
Selenium	0.15	U	0.15	0.085	mg/Kg	☼	06/13/12 09:48	06/14/12 18:25	1
Silver	0.076	U	0.076	0.015	mg/Kg	☼	06/13/12 09:48	06/14/12 18:25	1

Client Sample Results

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3581, Spiegelberg

TestAmerica Job ID: 240-11944-2

Method: 7470A - Mercury (CVAA) - TCLP

Client Sample ID: ST-03581-060512-SK-003
Date Collected: 06/05/12 11:05
Date Received: 06/06/12 09:20

Lab Sample ID: 240-11944-3
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00015	J	0.0020	0.00012	mg/L		06/14/12 14:15	06/15/12 09:07	1

Client Sample Results

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3581, Spiegelberg

TestAmerica Job ID: 240-11944-2

Method: 7470A - Mercury (CVAA) - TCLP

Client Sample ID: 005 & 010 COMP
Date Collected: 06/05/12 00:00
Date Received: 06/06/12 09:20

Lab Sample ID: 240-11944-14
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0020	U	0.0020	0.00012	mg/L		06/14/12 14:15	06/15/12 09:08	1

Client Sample Results

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3581, Spiegelberg

TestAmerica Job ID: 240-11944-2

Method: 7471A - Mercury (CVAA)

Client Sample ID: ST-03581-060512-SK-008
Date Collected: 06/05/12 11:30
Date Received: 06/06/12 09:20

Lab Sample ID: 240-11944-8
Matrix: Solid
Percent Solids: 99.7

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.035	U	0.035	0.013	mg/Kg	☼	06/13/12 13:05	06/13/12 14:12	1

QC Association Summary

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3581, Spiegelberg

TestAmerica Job ID: 240-11944-2

GC/MS VOA

Leach Batch: 47396

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-11944-1	ST-03581-060512-SK-001	TCLP	Solid	1311	
240-11944-1 MS	ST-03581-060512-SK-001	TCLP	Solid	1311	
240-11944-1 MSD	ST-03581-060512-SK-001	TCLP	Solid	1311	
240-11944-2	ST-03581-060512-SK-002	TCLP	Solid	1311	
240-11944-3	ST-03581-060512-SK-003	TCLP	Solid	1311	
240-11944-6	ST-03581-060512-SK-006	TCLP	Solid	1311	
240-11944-7	ST-03581-060512-SK-007	TCLP	Solid	1311	
240-11944-14	005 & 010 COMP	TCLP	Solid	1311	
LB 240-47396/1-A MB	Method Blank	TCLP	Solid	1311	

Analysis Batch: 47532

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-11944-1	ST-03581-060512-SK-001	TCLP	Solid	8260B	
240-11944-1 MS	ST-03581-060512-SK-001	TCLP	Solid	8260B	
240-11944-1 MSD	ST-03581-060512-SK-001	TCLP	Solid	8260B	
240-11944-2	ST-03581-060512-SK-002	TCLP	Solid	8260B	
240-11944-3	ST-03581-060512-SK-003	TCLP	Solid	8260B	
240-11944-6	ST-03581-060512-SK-006	TCLP	Solid	8260B	
240-11944-7	ST-03581-060512-SK-007	TCLP	Solid	8260B	
240-11944-14	005 & 010 COMP	TCLP	Solid	8260B	
LB 240-47396/1-A MB	Method Blank	TCLP	Solid	8260B	
LCS 240-47532/9	Lab Control Sample	Total/NA	Solid	8260B	

GC/MS Semi VOA

Leach Batch: 47412

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-11944-3	ST-03581-060512-SK-003	TCLP	Solid	1311	
240-11944-14	005 & 010 COMP	TCLP	Solid	1311	

Prep Batch: 47426

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-11944-3	ST-03581-060512-SK-003	TCLP	Solid	3510C	47412
240-11944-14	005 & 010 COMP	TCLP	Solid	3510C	47412
LCS 240-47426/12-A	Lab Control Sample	Total/NA	Solid	3510C	
MB 240-47426/11-A	Method Blank	Total/NA	Solid	3510C	

Prep Batch: 47578

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-11944-8	ST-03581-060512-SK-008	Total/NA	Solid	3540C	
240-11944-8 MS	ST-03581-060512-SK-008	Total/NA	Solid	3540C	
240-11944-8 MSD	ST-03581-060512-SK-008	Total/NA	Solid	3540C	
LCS 240-47578/24-A	Lab Control Sample	Total/NA	Solid	3540C	
MB 240-47578/23-A	Method Blank	Total/NA	Solid	3540C	

Analysis Batch: 47760

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-11944-8	ST-03581-060512-SK-008	Total/NA	Solid	8270C	47578
240-11944-8 MS	ST-03581-060512-SK-008	Total/NA	Solid	8270C	47578
240-11944-8 MSD	ST-03581-060512-SK-008	Total/NA	Solid	8270C	47578
MB 240-47578/23-A	Method Blank	Total/NA	Solid	8270C	47578

GC/MS Semi VOA (Continued)

Analysis Batch: 47765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-11944-3	ST-03581-060512-SK-003	TCLP	Solid	8270C	47426
240-11944-14	005 & 010 COMP	TCLP	Solid	8270C	47426
LCS 240-47426/12-A	Lab Control Sample	Total/NA	Solid	8270C	47426
MB 240-47426/11-A	Method Blank	Total/NA	Solid	8270C	47426

Analysis Batch: 47924

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 240-47578/24-A	Lab Control Sample	Total/NA	Solid	8270C	47578

GC Semi VOA

Prep Batch: 47584

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-11944-3	ST-03581-060512-SK-003	Total/NA	Solid	3540C	
240-11944-8	ST-03581-060512-SK-008	Total/NA	Solid	3540C	
240-11944-14	005 & 010 COMP	Total/NA	Solid	3540C	
LCS 240-47584/24-A	Lab Control Sample	Total/NA	Solid	3540C	
MB 240-47584/23-A	Method Blank	Total/NA	Solid	3540C	

Analysis Batch: 47744

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-11944-3	ST-03581-060512-SK-003	Total/NA	Solid	8082	47584
240-11944-8	ST-03581-060512-SK-008	Total/NA	Solid	8082	47584
240-11944-14	005 & 010 COMP	Total/NA	Solid	8082	47584
LCS 240-47584/24-A	Lab Control Sample	Total/NA	Solid	8082	47584
MB 240-47584/23-A	Method Blank	Total/NA	Solid	8082	47584

Metals

Analysis Batch: 47244

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-11944-8	ST-03581-060512-SK-008	Total/NA	Solid	7471A	47289
240-11944-8 MS	ST-03581-060512-SK-008	Total/NA	Solid	7471A	47289
240-11944-8 MSD	ST-03581-060512-SK-008	Total/NA	Solid	7471A	47289
LCS 240-47289/2-A	Lab Control Sample	Total/NA	Solid	7471A	47289
MB 240-47289/1-A	Method Blank	Total/NA	Solid	7471A	47289

Prep Batch: 47278

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-11944-8	ST-03581-060512-SK-008	Total/NA	Solid	3050B	
240-11944-8 MS	ST-03581-060512-SK-008	Total/NA	Solid	3050B	
240-11944-8 MSD	ST-03581-060512-SK-008	Total/NA	Solid	3050B	
LCS 240-47278/2-A	Lab Control Sample	Total/NA	Solid	3050B	
MB 240-47278/1-A	Method Blank	Total/NA	Solid	3050B	

Prep Batch: 47289

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-11944-8	ST-03581-060512-SK-008	Total/NA	Solid	7471A	
240-11944-8 MS	ST-03581-060512-SK-008	Total/NA	Solid	7471A	
240-11944-8 MSD	ST-03581-060512-SK-008	Total/NA	Solid	7471A	
LCS 240-47289/2-A	Lab Control Sample	Total/NA	Solid	7471A	
MB 240-47289/1-A	Method Blank	Total/NA	Solid	7471A	

Metals (Continued)

Leach Batch: 47412

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-11944-3	ST-03581-060512-SK-003	TCLP	Solid	1311	
240-11944-14	005 & 010 COMP	TCLP	Solid	1311	
LB 240-47412/1-C LB	Method Blank	TCLP	Solid	1311	
LB 240-47412/1-D LB	Method Blank	TCLP	Solid	1311	

Prep Batch: 47440

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-11944-3	ST-03581-060512-SK-003	TCLP	Solid	3010A	47412
240-11944-14	005 & 010 COMP	TCLP	Solid	3010A	47412
LB 240-47412/1-C LB	Method Blank	TCLP	Solid	3010A	47412
LCS 240-47440/3-A	Lab Control Sample	Total/NA	Solid	3010A	
MB 240-47440/2-A	Method Blank	Total/NA	Solid	3010A	

Prep Batch: 47444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-11944-3	ST-03581-060512-SK-003	TCLP	Solid	7470A	47412
240-11944-14	005 & 010 COMP	TCLP	Solid	7470A	47412
LB 240-47412/1-D LB	Method Blank	TCLP	Solid	7470A	47412
LCS 240-47444/3-A	Lab Control Sample	Total/NA	Solid	7470A	
MB 240-47444/2-A	Method Blank	Total/NA	Solid	7470A	

Analysis Batch: 47551

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-11944-8	ST-03581-060512-SK-008	Total/NA	Solid	6020	47278
240-11944-8 MS	ST-03581-060512-SK-008	Total/NA	Solid	6020	47278
240-11944-8 MSD	ST-03581-060512-SK-008	Total/NA	Solid	6020	47278
LCS 240-47278/2-A	Lab Control Sample	Total/NA	Solid	6020	47278
MB 240-47278/1-A	Method Blank	Total/NA	Solid	6020	47278

Analysis Batch: 47592

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-11944-3	ST-03581-060512-SK-003	TCLP	Solid	7470A	47444
240-11944-14	005 & 010 COMP	TCLP	Solid	7470A	47444
LB 240-47412/1-D LB	Method Blank	TCLP	Solid	7470A	47444
LCS 240-47444/3-A	Lab Control Sample	Total/NA	Solid	7470A	47444
MB 240-47444/2-A	Method Blank	Total/NA	Solid	7470A	47444

Analysis Batch: 47762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-11944-3	ST-03581-060512-SK-003	TCLP	Solid	6010B	47440
240-11944-3	ST-03581-060512-SK-003	TCLP	Solid	6010B	47440
240-11944-14	005 & 010 COMP	TCLP	Solid	6010B	47440
LB 240-47412/1-C LB	Method Blank	TCLP	Solid	6010B	47440
LCS 240-47440/3-A	Lab Control Sample	Total/NA	Solid	6010B	47440
MB 240-47440/2-A	Method Blank	Total/NA	Solid	6010B	47440

General Chemistry

Analysis Batch: 47334

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-11944-3	ST-03581-060512-SK-003	Total/NA	Solid	Moisture	
240-11944-3 DU	ST-03581-060512-SK-003	Total/NA	Solid	Moisture	

QC Association Summary

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3581, Spiegelberg

TestAmerica Job ID: 240-11944-2

General Chemistry (Continued)

Analysis Batch: 47334 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-11944-8	ST-03581-060512-SK-008	Total/NA	Solid	Moisture	
240-11944-14	005 & 010 COMP	Total/NA	Solid	Moisture	

QC Sample Results

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3581, Spiegelberg

TestAmerica Job ID: 240-11944-2

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: LCS 240-47532/9
Matrix: Solid
Analysis Batch: 47532

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.00	0.995		mg/L		100	71 - 133
1,2-Dichloroethane	1.00	0.970		mg/L		97	81 - 114
2-Butanone (MEK)	2.00	2.14		mg/L		107	49 - 120
Benzene	1.00	0.945		mg/L		95	84 - 120
Carbon tetrachloride	1.00	1.09		mg/L		109	54 - 122
Chlorobenzene	1.00	0.975		mg/L		98	86 - 111
Chloroform	1.00	0.950		mg/L		95	87 - 123
Tetrachloroethene	1.00	1.07		mg/L		107	79 - 134
Trichloroethene	1.00	1.04		mg/L		104	78 - 130
Vinyl chloride	1.00	0.905		mg/L		91	56 - 111

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*115*		*80 - 121*
4-Bromofluorobenzene (Surr)	*96*		*70 - 124*
Toluene-d8 (Surr)	*109*		*90 - 115*
Dibromofluoromethane (Surr)	*117*		*84 - 128*

Lab Sample ID: LB 240-47396/1-A MB
Matrix: Solid
Analysis Batch: 47532

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	0.025	U	0.025	0.0095	mg/L			06/14/12 19:51	1
1,2-Dichloroethane	0.025	U	0.025	0.011	mg/L			06/14/12 19:51	1
2-Butanone (MEK)	0.25	U	0.25	0.029	mg/L			06/14/12 19:51	1
Benzene	0.025	U	0.025	0.0065	mg/L			06/14/12 19:51	1
Carbon tetrachloride	0.025	U	0.025	0.0065	mg/L			06/14/12 19:51	1
Chlorobenzene	0.025	U	0.025	0.0075	mg/L			06/14/12 19:51	1
Chloroform	0.025	U	0.025	0.0080	mg/L			06/14/12 19:51	1
Tetrachloroethene	0.025	U	0.025	0.015	mg/L			06/14/12 19:51	1
Trichloroethene	0.025	U	0.025	0.0085	mg/L			06/14/12 19:51	1
Vinyl chloride	0.025	U	0.025	0.011	mg/L			06/14/12 19:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*80 - 121*		*06/14/12 19:51*	*1*
4-Bromofluorobenzene (Surr)	*97*		*70 - 124*		*06/14/12 19:51*	*1*
Toluene-d8 (Surr)	*106*		*90 - 115*		*06/14/12 19:51*	*1*
Dibromofluoromethane (Surr)	*116*		*84 - 128*		*06/14/12 19:51*	*1*

Lab Sample ID: 240-11944-1 MS
Matrix: Solid
Analysis Batch: 47532

Client Sample ID: ST-03581-060512-SK-001
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	0.025	U	1.00	0.935		mg/L		94	67 - 139
1,2-Dichloroethane	0.025	U	1.00	0.915		mg/L		92	80 - 115
2-Butanone (MEK)	0.25	U	2.00	1.81		mg/L		91	49 - 117
Benzene	0.025	U	1.00	0.880		mg/L		88	85 - 119
Carbon tetrachloride	0.025	U	1.00	0.925		mg/L		93	60 - 110

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-11944-1 MS — **Client Sample ID: ST-03581-060512-SK-001**
Matrix: Solid — **Prep Type: TCLP**
Analysis Batch: 47532

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chlorobenzene	0.025	U	1.00	0.905		mg/L		91	85 - 113
Chloroform	0.025	U	1.00	0.895		mg/L		90	86 - 124
Tetrachloroethene	0.025	U	1.00	1.03		mg/L		103	74 - 138
Trichloroethene	0.025	U	1.00	1.01		mg/L		101	75 - 134
Vinyl chloride	0.025	U	1.00	0.845		mg/L		85	51 - 118

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*111*		*80 - 121*
4-Bromofluorobenzene (Surr)	*99*		*70 - 124*
Toluene-d8 (Surr)	*110*		*90 - 115*
Dibromofluoromethane (Surr)	*117*		*84 - 128*

Lab Sample ID: 240-11944-1 MSD — **Client Sample ID: ST-03581-060512-SK-001**
Matrix: Solid — **Prep Type: TCLP**
Analysis Batch: 47532

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	0.025	U	1.00	0.950		mg/L		95	67 - 139	2	30
1,2-Dichloroethane	0.025	U	1.00	0.910		mg/L		91	80 - 115	1	30
2-Butanone (MEK)	0.25	U	2.00	1.93		mg/L		97	49 - 117	6	30
Benzene	0.025	U	1.00	0.875		mg/L		88	85 - 119	1	30
Carbon tetrachloride	0.025	U	1.00	0.970		mg/L		97	60 - 110	5	30
Chlorobenzene	0.025	U	1.00	0.925		mg/L		93	85 - 113	2	30
Chloroform	0.025	U	1.00	0.890		mg/L		89	86 - 124	1	30
Tetrachloroethene	0.025	U	1.00	1.00		mg/L		100	74 - 138	2	30
Trichloroethene	0.025	U	1.00	1.01		mg/L		101	75 - 134	0	30
Vinyl chloride	0.025	U	1.00	0.855		mg/L		86	51 - 118	1	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*110*		*80 - 121*
4-Bromofluorobenzene (Surr)	*97*		*70 - 124*
Toluene-d8 (Surr)	*110*		*90 - 115*
Dibromofluoromethane (Surr)	*119*		*84 - 128*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-47426/11-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 47765 — **Prep Batch: 47426**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	0.0040	U	0.0040	0.00034	mg/L		06/14/12 09:15	06/18/12 09:51	1
2,4,5-Trichlorophenol	0.020	U	0.020	0.00030	mg/L		06/14/12 09:15	06/18/12 09:51	1
2,4,6-Trichlorophenol	0.020	U	0.020	0.00080	mg/L		06/14/12 09:15	06/18/12 09:51	1
Pyridine	0.020	U	0.020	0.00035	mg/L		06/14/12 09:15	06/18/12 09:51	1
2,4-Dinitrotoluene	0.020	U	0.020	0.00027	mg/L		06/14/12 09:15	06/18/12 09:51	1
2-Methylphenol	0.0040	U	0.0040	0.00080	mg/L		06/14/12 09:15	06/18/12 09:51	1
Hexachlorobenzene	0.020	U	0.020	0.00010	mg/L		06/14/12 09:15	06/18/12 09:51	1
Hexachlorobutadiene	0.020	U	0.020	0.00027	mg/L		06/14/12 09:15	06/18/12 09:51	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-47426/11-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 47765 — **Prep Batch: 47426**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachloroethane	0.020	U	0.020	0.00080	mg/L		06/14/12 09:15	06/18/12 09:51	1
Nitrobenzene	0.0040	U	0.0040	0.000040	mg/L		06/14/12 09:15	06/18/12 09:51	1
Pentachlorophenol	0.040	U	0.040	0.0024	mg/L		06/14/12 09:15	06/18/12 09:51	1
3 & 4 Methylphenol	0.040	U	0.040	0.00075	mg/L		06/14/12 09:15	06/18/12 09:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*44*		*22 - 110*	*06/14/12 09:15*	*06/18/12 09:51*	*1*
2-Fluorophenol (Surr)	*48*		*10 - 110*	*06/14/12 09:15*	*06/18/12 09:51*	*1*
2,4,6-Tribromophenol (Surr)	*44*		*17 - 117*	*06/14/12 09:15*	*06/18/12 09:51*	*1*
Nitrobenzene-d5 (Surr)	*44*		*29 - 111*	*06/14/12 09:15*	*06/18/12 09:51*	*1*
Phenol-d5 (Surr)	*38*		*10 - 110*	*06/14/12 09:15*	*06/18/12 09:51*	*1*
Terphenyl-d14 (Surr)	*64*		*40 - 119*	*06/14/12 09:15*	*06/18/12 09:51*	*1*

Lab Sample ID: LCS 240-47426/12-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 47765 — **Prep Batch: 47426**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4,5-Trichlorophenol	0.0800	0.0514		mg/L		64	35 - 111
2,4,6-Trichlorophenol	0.0800	0.0450		mg/L		56	32 - 110
Pyridine	0.0800	0.0399		mg/L		50	10 - 110
2,4-Dinitrotoluene	0.0800	0.0501		mg/L		63	45 - 126
2-Methylphenol	0.0800	0.0417		mg/L		52	24 - 110
Hexachlorobenzene	0.0800	0.0491		mg/L		61	47 - 116
Hexachlorobutadiene	0.0800	0.0365		mg/L		46	10 - 110
Hexachloroethane	0.0800	0.0446		mg/L		56	10 - 110
Nitrobenzene	0.0800	0.0383		mg/L		48	35 - 117
Pentachlorophenol	0.0800	0.0514		mg/L		64	12 - 110
3 & 4 Methylphenol	0.160	0.0904		mg/L		57	27 - 110

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*48*		*22 - 110*
2-Fluorophenol (Surr)	*53*		*10 - 110*
2,4,6-Tribromophenol (Surr)	*53*		*17 - 117*
Nitrobenzene-d5 (Surr)	*47*		*29 - 111*
Phenol-d5 (Surr)	*45*		*10 - 110*
Terphenyl-d14 (Surr)	*68*		*40 - 119*

Lab Sample ID: MB 240-47578/23-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 47760 — **Prep Batch: 47578**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	260	U	260	27	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
2,2'-oxybis[1-chloropropane]	260	U	260	9.5	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
2,4,5-Trichlorophenol	260	U	260	25	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
2,4,6-Trichlorophenol	260	U	260	80	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
2,4-Dichlorophenol	260	U	260	20	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
2,4-Dimethylphenol	260	U	260	20	ug/Kg		06/15/12 08:37	06/18/12 08:49	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-47578/23-A
Matrix: Solid
Analysis Batch: 47760

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 47578

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dinitrophenol	150	U	150	80	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
2,4-Dinitrotoluene	260	U	260	27	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
2,6-Dinitrotoluene	260	U	260	21	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
2-Chloronaphthalene	260	U	260	3.3	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
2-Chlorophenol	260	U	260	27	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
2-Methylnaphthalene	260	U	260	3.3	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
2-Methylphenol	260	U	260	80	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
2-Nitroaniline	200	U	200	9.1	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
2-Nitrophenol	260	U	260	27	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
3,3'-Dichlorobenzidine	1600	U	1600	18	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
3-Nitroaniline	200	U	200	16	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
4,6-Dinitro-2-methylphenol	150	U	150	80	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
4-Bromophenyl phenyl ether	260	U	260	13	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
4-Chloro-3-methylphenol	260	U	260	21	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
4-Chloroaniline	200	U	200	17	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
4-Chlorophenyl phenyl ether	260	U	260	13	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
4-Nitroaniline	200	U	200	26	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
4-Nitrophenol	330	U	330	80	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Acenaphthene	260	U	260	3.3	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Acenaphthylene	260	U	260	3.3	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Acetophenone	260	U	260	9.2	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Anthracene	260	U	260	3.3	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Atrazine	40	U	40	9.1	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Benzaldehyde	260	U	260	12	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Benzo[a]anthracene	260	U	260	3.3	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Benzo[a]pyrene	260	U	260	3.3	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Benzo[b]fluoranthene	260	U	260	3.3	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Benzo[g,h,i]perylene	260	U	260	3.3	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Benzo[k]fluoranthene	260	U	260	3.3	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Bis(2-chloroethoxy)methane	260	U	260	22	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Bis(2-chloroethyl)ether	80	U	80	2.0	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Bis(2-ethylhexyl) phthalate	21.2	J	260	19	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Butyl benzyl phthalate	260	U	260	10	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Caprolactam	260	U	260	37	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Carbazole	260	U	260	27	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Chrysene	260	U	260	1.1	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Dibenz(a,h)anthracene	260	U	260	3.3	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Dibenzofuran	260	U	260	3.3	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Diethyl phthalate	260	U	260	16	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Dimethyl phthalate	260	U	260	17	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Di-n-butyl phthalate	260	U	260	15	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Di-n-octyl phthalate	260	U	260	27	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Fluoranthene	260	U	260	3.3	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Fluorene	260	U	260	3.3	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Hexachlorobenzene	260	U	260	2.1	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Hexachlorobutadiene	40	U	40	27	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Hexachlorocyclopentadiene	260	U	260	27	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Hexachloroethane	260	U	260	9.0	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Indeno[1,2,3-cd]pyrene	260	U	260	3.3	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Isophorone	260	U	260	13	ug/Kg		06/15/12 08:37	06/18/12 08:49	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-47578/23-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 47760 — **Prep Batch: 47578**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	260	U	260	3.3	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Nitrobenzene	260	U	260	2.2	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
N-Nitrosodi-n-propylamine	260	U	260	27	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
N-Nitrosodiphenylamine	260	U	260	21	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Pentachlorophenol	150	U	150	80	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Phenol	260	U	260	27	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Phenanthrene	260	U	260	3.3	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
Pyrene	260	U	260	3.3	ug/Kg		06/15/12 08:37	06/18/12 08:49	1
3 & 4 Methylphenol	260	U	260	20	ug/Kg		06/15/12 08:37	06/18/12 08:49	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*68*		*34 - 110*	*06/15/12 08:37*	*06/18/12 08:49*	*1*
2-Fluorophenol (Surr)	*72*		*26 - 110*	*06/15/12 08:37*	*06/18/12 08:49*	*1*
2,4,6-Tribromophenol (Surr)	*27*		*10 - 118*	*06/15/12 08:37*	*06/18/12 08:49*	*1*
Nitrobenzene-d5 (Surr)	*66*		*24 - 112*	*06/15/12 08:37*	*06/18/12 08:49*	*1*
Phenol-d5 (Surr)	*79*		*28 - 110*	*06/15/12 08:37*	*06/18/12 08:49*	*1*
Terphenyl-d14 (Surr)	*84*		*41 - 119*	*06/15/12 08:37*	*06/18/12 08:49*	*1*

Lab Sample ID: LCS 240-47578/24-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 47924 — **Prep Batch: 47578**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1'-Biphenyl	667	636		ug/Kg		95	50 - 130
2,2'-oxybis[1-chloropropane]	667	470		ug/Kg		70	36 - 116
2,4,5-Trichlorophenol	667	362		ug/Kg		54	42 - 110
2,4,6-Trichlorophenol	667	287		ug/Kg		43	37 - 110
2,4-Dichlorophenol	667	510		ug/Kg		76	40 - 110
2,4-Dimethylphenol	667	493		ug/Kg		74	28 - 110
2,4-Dinitrophenol	667	81.3	J	ug/Kg		12	10 - 110
2,4-Dinitrotoluene	667	511		ug/Kg		77	55 - 116
2,6-Dinitrotoluene	667	535		ug/Kg		80	54 - 115
2-Chloronaphthalene	667	461		ug/Kg		69	46 - 110
2-Chlorophenol	667	513		ug/Kg		77	39 - 110
2-Methylnaphthalene	667	506		ug/Kg		76	46 - 110
2-Methylphenol	667	508		ug/Kg		76	36 - 110
2-Nitroaniline	667	626		ug/Kg		94	47 - 124
2-Nitrophenol	667	568		ug/Kg		85	35 - 110
3,3'-Dichlorobenzidine	667	347	J	ug/Kg		52	31 - 110
3-Nitroaniline	667	489		ug/Kg		73	44 - 110
4,6-Dinitro-2-methylphenol	667	149	J	ug/Kg		22	21 - 110
4-Bromophenyl phenyl ether	667	486		ug/Kg		73	53 - 112
4-Chloro-3-methylphenol	667	497		ug/Kg		75	42 - 110
4-Chloroaniline	667	366		ug/Kg		55	25 - 110
4-Chlorophenyl phenyl ether	667	490		ug/Kg		73	53 - 110
4-Nitroaniline	667	517		ug/Kg		78	50 - 110
4-Nitrophenol	667	462		ug/Kg		69	24 - 117
Acenaphthene	667	532		ug/Kg		80	46 - 110
Acenaphthylene	667	518		ug/Kg		78	47 - 110

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-47578/24-A
Matrix: Solid
Analysis Batch: 47924

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 47578

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetophenone	667	535		ug/Kg		80	50 - 130
Anthracene	667	527		ug/Kg		79	56 - 111
Atrazine	667	693		ug/Kg		104	50 - 130
Benzaldehyde	667	473		ug/Kg		71	10 - 130
Benzo[a]anthracene	667	491		ug/Kg		74	58 - 111
Benzo[a]pyrene	667	473		ug/Kg		71	44 - 115
Benzo[b]fluoranthene	667	503		ug/Kg		75	43 - 124
Benzo[g,h,i]perylene	667	543		ug/Kg		81	44 - 120
Benzo[k]fluoranthene	667	525		ug/Kg		79	38 - 122
Bis(2-chloroethoxy)methane	667	477		ug/Kg		72	42 - 110
Bis(2-chloroethyl)ether	667	470		ug/Kg		70	41 - 110
Bis(2-ethylhexyl) phthalate	667	610		ug/Kg		91	56 - 123
Butyl benzyl phthalate	667	539		ug/Kg		81	57 - 121
Caprolactam	667	596		ug/Kg		89	50 - 130
Carbazole	667	539		ug/Kg		81	56 - 115
Chrysene	667	518		ug/Kg		78	56 - 111
Dibenz(a,h)anthracene	667	557		ug/Kg		83	45 - 122
Dibenzofuran	667	521		ug/Kg		78	50 - 110
Diethyl phthalate	667	589		ug/Kg		88	55 - 114
Dimethyl phthalate	667	566		ug/Kg		85	54 - 112
Di-n-butyl phthalate	667	568		ug/Kg		85	57 - 119
Di-n-octyl phthalate	667	543		ug/Kg		81	45 - 123
Fluoranthene	667	553		ug/Kg		83	55 - 118
Fluorene	667	536		ug/Kg		80	51 - 110
Hexachlorobenzene	667	528		ug/Kg		79	51 - 110
Hexachlorobutadiene	667	499		ug/Kg		75	39 - 110
Hexachlorocyclopentadiene	667	425		ug/Kg		64	10 - 110
Hexachloroethane	667	518		ug/Kg		78	38 - 110
Indeno[1,2,3-cd]pyrene	667	536		ug/Kg		80	45 - 121
Isophorone	667	528		ug/Kg		79	46 - 117
Naphthalene	667	510		ug/Kg		76	42 - 110
Nitrobenzene	667	491		ug/Kg		74	40 - 110
N-Nitrosodi-n-propylamine	667	572		ug/Kg		86	40 - 114
N-Nitrosodiphenylamine	667	527		ug/Kg		79	54 - 112
Pentachlorophenol	667	151		ug/Kg		23	10 - 110
Phenol	667	503		ug/Kg		75	39 - 110
Phenanthrene	667	521		ug/Kg		78	54 - 110
Pyrene	667	511		ug/Kg		77	58 - 113
3 & 4 Methylphenol	1330	953		ug/Kg		72	40 - 110

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*67*		*34 - 110*
2-Fluorophenol (Surr)	*70*		*26 - 110*
2,4,6-Tribromophenol (Surr)	*42*		*10 - 118*
Nitrobenzene-d5 (Surr)	*67*		*24 - 112*
Phenol-d5 (Surr)	*75*		*28 - 110*
Terphenyl-d14 (Surr)	*82*		*41 - 119*

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-11944-8 MS — **Client Sample ID: ST-03581-060512-SK-008**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 47760 — **Prep Batch: 47578**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1'-Biphenyl	260	U	668	540		ug/Kg	☼	81	50 - 130
2,2'-oxybis[1-chloropropane]	260	U	668	367		ug/Kg	☼	55	25 - 124
2,4,5-Trichlorophenol	260	U	668	633		ug/Kg	☼	95	32 - 112
2,4,6-Trichlorophenol	260	U	668	260	U F	ug/Kg	☼	0	22 - 110
2,4-Dichlorophenol	260	U	668	467		ug/Kg	☼	70	33 - 110
2,4-Dimethylphenol	260	U	668	396		ug/Kg	☼	59	19 - 114
2,4-Dinitrophenol	150	U	668	150	U F	ug/Kg	☼	0	10 - 110
2,4-Dinitrotoluene	260	U	668	440		ug/Kg	☼	66	42 - 118
2,6-Dinitrotoluene	260	U	668	451		ug/Kg	☼	67	28 - 137
2-Chloronaphthalene	260	U	668	399		ug/Kg	☼	60	40 - 110
2-Chlorophenol	260	U	668	444		ug/Kg	☼	66	32 - 110
2-Methylnaphthalene	260	U	668	453		ug/Kg	☼	68	10 - 200
2-Methylphenol	260	U	668	485		ug/Kg	☼	73	19 - 124
2-Nitroaniline	200	U	668	484		ug/Kg	☼	72	31 - 141
2-Nitrophenol	260	U	668	281		ug/Kg	☼	42	17 - 110
3,3'-Dichlorobenzidine	1600	U	668	345	J	ug/Kg	☼	52	10 - 110
3-Nitroaniline	200	U	668	441		ug/Kg	☼	66	24 - 110
4,6-Dinitro-2-methylphenol	150	U	668	150	U F	ug/Kg	☼	0	10 - 110
4-Bromophenyl phenyl ether	260	U	668	416		ug/Kg	☼	62	44 - 120
4-Chloro-3-methylphenol	260	U	668	470		ug/Kg	☼	70	32 - 117
4-Chloroaniline	200	U	668	355		ug/Kg	☼	53	11 - 110
4-Chlorophenyl phenyl ether	260	U	668	433		ug/Kg	☼	65	47 - 116
4-Nitroaniline	200	U	668	476		ug/Kg	☼	71	23 - 124
4-Nitrophenol	330	U	668	136	J	ug/Kg	☼	20	10 - 125
Acenaphthene	260	U	668	465		ug/Kg	☼	70	10 - 200
Acenaphthylene	260	U	668	447		ug/Kg	☼	67	10 - 200
Acetophenone	260	U	668	454		ug/Kg	☼	68	50 - 130
Anthracene	260	U	668	453		ug/Kg	☼	68	10 - 200
Atrazine	40	U	668	588		ug/Kg	☼	88	50 - 130
Benzaldehyde	260	U	668	359		ug/Kg	☼	54	10 - 130
Benzo[a]anthracene	260	U	668	487		ug/Kg	☼	73	10 - 200
Benzo[a]pyrene	260	U	668	411		ug/Kg	☼	61	10 - 200
Benzo[b]fluoranthene	260	U	668	538		ug/Kg	☼	80	10 - 200
Benzo[g,h,i]perylene	260	U	668	466		ug/Kg	☼	70	10 - 200
Benzo[k]fluoranthene	260	U	668	368		ug/Kg	☼	55	10 - 200
Bis(2-chloroethoxy)methane	260	U	668	420		ug/Kg	☼	63	36 - 110
Bis(2-chloroethyl)ether	80	U	668	383		ug/Kg	☼	57	32 - 118
Bis(2-ethylhexyl) phthalate	30	J B	668	459		ug/Kg	☼	64	10 - 200
Butyl benzyl phthalate	260	U	668	453		ug/Kg	☼	68	43 - 138
Caprolactam	260	U	668	459		ug/Kg	☼	69	50 - 130
Carbazole	260	U	668	461		ug/Kg	☼	69	10 - 162
Chrysene	260	U	668	445		ug/Kg	☼	67	10 - 200
Dibenz(a,h)anthracene	260	U	668	474		ug/Kg	☼	71	10 - 200
Dibenzofuran	260	U	668	461		ug/Kg	☼	69	10 - 200
Diethyl phthalate	260	U	668	489		ug/Kg	☼	73	48 - 118
Dimethyl phthalate	260	U	668	491		ug/Kg	☼	73	47 - 116
Di-n-butyl phthalate	260	U	668	476		ug/Kg	☼	71	31 - 145
Di-n-octyl phthalate	260	U	668	445		ug/Kg	☼	67	10 - 182
Fluoranthene	260	U	668	472		ug/Kg	☼	71	10 - 200

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-11944-8 MS — **Client Sample ID: ST-03581-060512-SK-008**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 47760 — **Prep Batch: 47578**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluorene	260	U	668	470		ug/Kg	☼	70	10 - 187
Hexachlorobenzene	260	U	668	455		ug/Kg	☼	68	37 - 122
Hexachlorobutadiene	40	U	668	425		ug/Kg	☼	64	30 - 110
Hexachlorocyclopentadiene	260	U	668	362		ug/Kg	☼	54	10 - 110
Hexachloroethane	260	U	668	411		ug/Kg	☼	61	13 - 110
Indeno[1,2,3-cd]pyrene	260	U	668	459		ug/Kg	☼	69	10 - 200
Isophorone	260	U	668	444		ug/Kg	☼	66	32 - 129
Naphthalene	260	U	668	451		ug/Kg	☼	67	10 - 200
Nitrobenzene	260	U	668	412		ug/Kg	☼	62	33 - 111
N-Nitrosodi-n-propylamine	260	U	668	439		ug/Kg	☼	66	30 - 121
N-Nitrosodiphenylamine	260	U	668	455		ug/Kg	☼	68	10 - 169
Pentachlorophenol	150	U	668	150	U F	ug/Kg	☼	0	10 - 182
Phenol	260	U	668	425		ug/Kg	☼	64	10 - 144
Phenanthrene	260	U	668	457		ug/Kg	☼	68	10 - 200
Pyrene	260	U	668	449		ug/Kg	☼	67	10 - 200
3 & 4 Methylphenol	260	U	1340	855		ug/Kg	☼	64	27 - 116

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*57*		*34 - 110*
2-Fluorophenol (Surr)	*57*		*26 - 110*
2,4,6-Tribromophenol (Surr)	*34*		*10 - 118*
Nitrobenzene-d5 (Surr)	*56*		*24 - 112*
Phenol-d5 (Surr)	*65*		*28 - 110*
Terphenyl-d14 (Surr)	*76*		*41 - 119*

Lab Sample ID: 240-11944-8 MSD — **Client Sample ID: ST-03581-060512-SK-008**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 47760 — **Prep Batch: 47578**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1'-Biphenyl	260	U	668	472		ug/Kg	☼	71	50 - 130	13	30
2,2'-oxybis[1-chloropropane]	260	U	668	283		ug/Kg	☼	42	25 - 124	26	30
2,4,5-Trichlorophenol	260	U	668	196	J F	ug/Kg	☼	29	32 - 112	105	30
2,4,6-Trichlorophenol	260	U	668	260	U F	ug/Kg	☼	0	22 - 110	NC	30
2,4-Dichlorophenol	260	U	668	314	F	ug/Kg	☼	47	33 - 110	39	30
2,4-Dimethylphenol	260	U	668	301		ug/Kg	☼	45	19 - 114	27	30
2,4-Dinitrophenol	150	U	668	150	U F	ug/Kg	☼	0	10 - 110	NC	30
2,4-Dinitrotoluene	260	U	668	345		ug/Kg	☼	52	42 - 118	24	30
2,6-Dinitrotoluene	260	U	668	359		ug/Kg	☼	54	28 - 137	23	30
2-Chloronaphthalene	260	U	668	303		ug/Kg	☼	45	40 - 110	28	30
2-Chlorophenol	260	U	668	308	F	ug/Kg	☼	46	32 - 110	36	30
2-Methylnaphthalene	260	U	668	355		ug/Kg	☼	53	10 - 200	24	30
2-Methylphenol	260	U	668	340	F	ug/Kg	☼	51	19 - 124	35	30
2-Nitroaniline	200	U	668	368		ug/Kg	☼	55	31 - 141	27	30
2-Nitrophenol	260	U	668	260	U F	ug/Kg	☼	0	17 - 110	NC	30
3,3'-Dichlorobenzidine	1600	U	668	273	J	ug/Kg	☼	41	10 - 110	24	30
3-Nitroaniline	200	U	668	339		ug/Kg	☼	51	24 - 110	26	30
4,6-Dinitro-2-methylphenol	150	U	668	150	U F	ug/Kg	☼	0	10 - 110	NC	30
4-Bromophenyl phenyl ether	260	U	668	349		ug/Kg	☼	52	44 - 120	18	30

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-11944-8 MSD — **Client Sample ID: ST-03581-060512-SK-008**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 47760 — **Prep Batch: 47578**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4-Chloro-3-methylphenol	260	U	668	358		ug/Kg	☼	54	32 - 117	27	30
4-Chloroaniline	200	U	668	267		ug/Kg	☼	40	11 - 110	28	30
4-Chlorophenyl phenyl ether	260	U	668	348		ug/Kg	☼	52	47 - 116	22	30
4-Nitroaniline	200	U	668	362		ug/Kg	☼	54	23 - 124	27	30
4-Nitrophenol	330	U	668	96.9	J F	ug/Kg	☼	15	10 - 125	33	30
Acenaphthene	260	U	668	359		ug/Kg	☼	54	10 - 200	26	30
Acenaphthylene	260	U	668	345		ug/Kg	☼	52	10 - 200	26	30
Acetophenone	260	U	668	412		ug/Kg	☼	62	50 - 130	10	30
Anthracene	260	U	668	369		ug/Kg	☼	55	10 - 200	21	30
Atrazine	40	U	668	583		ug/Kg	☼	87	50 - 130	1	30
Benzaldehyde	260	U	668	311		ug/Kg	☼	47	10 - 130	14	30
Benzo[a]anthracene	260	U	668	368		ug/Kg	☼	55	10 - 200	28	30
Benzo[a]pyrene	260	U	668	336		ug/Kg	☼	50	10 - 200	20	30
Benzo[b]fluoranthene	260	U	668	392	F	ug/Kg	☼	59	10 - 200	31	30
Benzo[g,h,i]perylene	260	U	668	397		ug/Kg	☼	59	10 - 200	16	30
Benzo[k]fluoranthene	260	U	668	349		ug/Kg	☼	52	10 - 200	5	30
Bis(2-chloroethoxy)methane	260	U	668	321		ug/Kg	☼	48	36 - 110	27	30
Bis(2-chloroethyl)ether	80	U	668	293		ug/Kg	☼	44	32 - 118	27	30
Bis(2-ethylhexyl) phthalate	30	J B	668	385		ug/Kg	☼	53	10 - 200	18	30
Butyl benzyl phthalate	260	U	668	364		ug/Kg	☼	54	43 - 138	22	30
Caprolactam	260	U	668	392		ug/Kg	☼	59	50 - 130	16	30
Carbazole	260	U	668	385		ug/Kg	☼	58	10 - 162	18	30
Chrysene	260	U	668	403		ug/Kg	☼	60	10 - 200	10	30
Dibenz(a,h)anthracene	260	U	668	407		ug/Kg	☼	61	10 - 200	15	30
Dibenzofuran	260	U	668	358		ug/Kg	☼	54	10 - 200	25	30
Diethyl phthalate	260	U	668	395		ug/Kg	☼	59	48 - 118	21	30
Dimethyl phthalate	260	U	668	393		ug/Kg	☼	59	47 - 116	22	30
Di-n-butyl phthalate	260	U	668	401		ug/Kg	☼	60	31 - 145	17	30
Di-n-octyl phthalate	260	U	668	354		ug/Kg	☼	53	10 - 182	23	30
Fluoranthene	260	U	668	394		ug/Kg	☼	59	10 - 200	18	30
Fluorene	260	U	668	376		ug/Kg	☼	56	10 - 187	22	30
Hexachlorobenzene	260	U	668	371		ug/Kg	☼	56	37 - 122	20	30
Hexachlorobutadiene	40	U	668	347		ug/Kg	☼	52	30 - 110	20	30
Hexachlorocyclopentadiene	260	U	668	234	J F	ug/Kg	☼	35	10 - 110	43	30
Hexachloroethane	260	U	668	330		ug/Kg	☼	49	13 - 110	22	30
Indeno[1,2,3-cd]pyrene	260	U	668	389		ug/Kg	☼	58	10 - 200	17	30
Isophorone	260	U	668	340		ug/Kg	☼	51	32 - 129	27	30
Naphthalene	260	U	668	346		ug/Kg	☼	52	10 - 200	26	30
Nitrobenzene	260	U	668	315		ug/Kg	☼	47	33 - 111	27	30
N-Nitrosodi-n-propylamine	260	U	668	333		ug/Kg	☼	50	30 - 121	27	30
N-Nitrosodiphenylamine	260	U	668	368		ug/Kg	☼	55	10 - 169	21	30
Pentachlorophenol	150	U	668	150	U F	ug/Kg	☼	0	10 - 182	NC	30
Phenol	260	U	668	315		ug/Kg	☼	47	10 - 144	30	30
Phenanthrene	260	U	668	376		ug/Kg	☼	56	10 - 200	19	30
Pyrene	260	U	668	363		ug/Kg	☼	54	10 - 200	21	30
3 & 4 Methylphenol	260	U	1340	653		ug/Kg	☼	49	27 - 116	27	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*46*		*34 - 110*

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-11944-8 MSD — **Client Sample ID: ST-03581-060512-SK-008**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 47760 — **Prep Batch: 47578**

Surrogate	MSD %Recovery	MSD Qualifier	Limits
2-Fluorophenol (Surr)	43		26 - 110
2,4,6-Tribromophenol (Surr)	24		10 - 118
Nitrobenzene-d5 (Surr)	45		24 - 112
Phenol-d5 (Surr)	51		28 - 110
Terphenyl-d14 (Surr)	64		41 - 119

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 240-47584/23-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 47744 — **Prep Batch: 47584**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	33	U	33	21	ug/Kg		06/15/12 08:48	06/17/12 21:28	1
Aroclor-1221	33	U	33	16	ug/Kg		06/15/12 08:48	06/17/12 21:28	1
Aroclor-1232	33	U	33	14	ug/Kg		06/15/12 08:48	06/17/12 21:28	1
Aroclor-1242	33	U	33	13	ug/Kg		06/15/12 08:48	06/17/12 21:28	1
Aroclor-1248	33	U	33	17	ug/Kg		06/15/12 08:48	06/17/12 21:28	1
Aroclor-1254	33	U	33	17	ug/Kg		06/15/12 08:48	06/17/12 21:28	1
Aroclor-1260	33	U	33	17	ug/Kg		06/15/12 08:48	06/17/12 21:28	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	72		29 - 151	06/15/12 08:48	06/17/12 21:28	1
DCB Decachlorobiphenyl	65		14 - 163	06/15/12 08:48	06/17/12 21:28	1

Lab Sample ID: LCS 240-47584/24-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 47744 — **Prep Batch: 47584**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aroclor-1016	333	296		ug/Kg		89	62 - 120
Aroclor-1260	333	290		ug/Kg		87	56 - 122

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	83		29 - 151
DCB Decachlorobiphenyl	86		14 - 163

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 240-47440/2-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 47762 — **Prep Batch: 47440**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.50	U	0.50	0.0032	mg/L		06/14/12 09:32	06/15/12 10:42	1
Barium	0.00111	J	10	0.00067	mg/L		06/14/12 09:32	06/15/12 10:42	1
Cadmium	0.10	U	0.10	0.00066	mg/L		06/14/12 09:32	06/15/12 10:42	1
Chromium	0.50	U	0.50	0.0022	mg/L		06/14/12 09:32	06/15/12 10:42	1

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: MB 240-47440/2-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 47762 — **Prep Batch: 47440**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.50	U	0.50	0.0019	mg/L		06/14/12 09:32	06/15/12 10:42	1
Selenium	0.25	U	0.25	0.0041	mg/L		06/14/12 09:32	06/15/12 10:42	1
Silver	0.50	U	0.50	0.0022	mg/L		06/14/12 09:32	06/15/12 10:42	1

Lab Sample ID: LCS 240-47440/3-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 47762 — **Prep Batch: 47440**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	2.00	2.18		mg/L		109	50 - 150
Barium	2.00	2.21	J	mg/L		110	50 - 150
Cadmium	0.0500	0.0519	J	mg/L		104	50 - 150
Chromium	0.200	0.212	J	mg/L		106	50 - 150
Lead	0.500	0.504		mg/L		101	50 - 150
Selenium	2.00	2.26		mg/L		113	50 - 150
Silver	0.0500	0.0558	J	mg/L		112	50 - 150

Lab Sample ID: LB 240-47412/1-C LB — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: TCLP**
Analysis Batch: 47762 — **Prep Batch: 47440**

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.50	U	0.50	0.0032	mg/L		06/14/12 09:32	06/15/12 10:38	1
Barium	0.00192	J	10	0.00067	mg/L		06/14/12 09:32	06/15/12 10:38	1
Cadmium	0.10	U	0.10	0.00066	mg/L		06/14/12 09:32	06/15/12 10:38	1
Chromium	0.50	U	0.50	0.0022	mg/L		06/14/12 09:32	06/15/12 10:38	1
Lead	0.50	U	0.50	0.0019	mg/L		06/14/12 09:32	06/15/12 10:38	1
Selenium	0.25	U	0.25	0.0041	mg/L		06/14/12 09:32	06/15/12 10:38	1
Silver	0.50	U	0.50	0.0022	mg/L		06/14/12 09:32	06/15/12 10:38	1

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 240-47278/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 47551 — **Prep Batch: 47278**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.080	U	0.080	0.062	mg/Kg		06/13/12 09:48	06/14/12 17:59	1
Barium	0.0685	J	0.50	0.046	mg/Kg		06/13/12 09:48	06/14/12 17:59	1
Cadmium	0.10	U	0.10	0.0078	mg/Kg		06/13/12 09:48	06/14/12 17:59	1
Chromium	0.20	U	0.20	0.040	mg/Kg		06/13/12 09:48	06/14/12 17:59	1
Lead	0.0320	J	0.10	0.013	mg/Kg		06/13/12 09:48	06/14/12 17:59	1
Selenium	0.16	U	0.16	0.090	mg/Kg		06/13/12 09:48	06/14/12 17:59	1
Silver	0.080	U	0.080	0.016	mg/Kg		06/13/12 09:48	06/14/12 17:59	1

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 240-47278/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 47551 — **Prep Batch: 47278**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	100	87.3		mg/Kg		87	73 - 110
Barium	100	97.2		mg/Kg		97	70 - 110
Cadmium	100	91.9		mg/Kg		92	74 - 110
Chromium	100	101		mg/Kg		101	70 - 110
Lead	100	93.5		mg/Kg		93	75 - 110
Selenium	100	81.6		mg/Kg		82	65 - 110
Silver	10.0	10.4		mg/Kg		104	60 - 114

Lab Sample ID: 240-11944-8 MS — **Client Sample ID: ST-03581-060512-SK-008**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 47551 — **Prep Batch: 47278**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	24		92.9	103		mg/Kg	☼	85	23 - 131
Barium	12	B	92.9	101		mg/Kg	☼	96	10 - 199
Cadmium	0.095	U	92.9	84.6		mg/Kg	☼	91	58 - 110
Chromium	1.5		92.9	93.9		mg/Kg	☼	99	10 - 199
Lead	0.38	B	92.9	85.8		mg/Kg	☼	92	10 - 199
Selenium	0.15	U	92.9	75.6		mg/Kg	☼	81	39 - 116
Silver	0.076	U	9.29	9.42		mg/Kg	☼	101	75 - 125

Lab Sample ID: 240-11944-8 MSD — **Client Sample ID: ST-03581-060512-SK-008**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 47551 — **Prep Batch: 47278**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	24		92.9	103		mg/Kg	☼	85	23 - 131	1	20
Barium	12	B	92.9	99.9		mg/Kg	☼	95	10 - 199	1	20
Cadmium	0.095	U	92.9	84.0		mg/Kg	☼	90	58 - 110	1	20
Chromium	1.5		92.9	92.4		mg/Kg	☼	98	10 - 199	2	20
Lead	0.38	B	92.9	85.8		mg/Kg	☼	92	10 - 199	0	20
Selenium	0.15	U	92.9	74.7		mg/Kg	☼	80	39 - 116	1	20
Silver	0.076	U	9.29	9.37		mg/Kg	☼	101	75 - 125	0	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-47444/2-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 47592 — **Prep Batch: 47444**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0020	U	0.0020	0.00012	mg/L		06/14/12 14:15	06/15/12 08:33	1

Lab Sample ID: LCS 240-47444/3-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 47592 — **Prep Batch: 47444**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00500	0.00489		mg/L		98	50 - 150

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LB 240-47412/1-D LB — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: TCLP**
Analysis Batch: 47592 — **Prep Batch: 47444**

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0020	U	0.0020	0.00012	mg/L		06/14/12 14:15	06/15/12 08:31	1

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 240-47289/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 47244 — **Prep Batch: 47289**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.040	U	0.040	0.015	mg/Kg		06/13/12 13:05	06/13/12 14:10	1

Lab Sample ID: LCS 240-47289/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 47244 — **Prep Batch: 47289**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.833	0.853		mg/Kg		102	73 - 121

Lab Sample ID: 240-11944-8 MS — **Client Sample ID: ST-03581-060512-SK-008**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 47244 — **Prep Batch: 47289**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.035	U	0.162	0.161		mg/Kg	☼	99	11 - 192

Lab Sample ID: 240-11944-8 MSD — **Client Sample ID: ST-03581-060512-SK-008**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 47244 — **Prep Batch: 47289**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.035	U	0.162	0.162		mg/Kg	☼	100	11 - 192	1	20

Surrogate Summary

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3581, Spiegelberg

TestAmerica Job ID: 240-11944-2

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
Lab Sample ID	Client Sample ID	12DCE (80-121)	BFB (70-124)	TOL (90-115)	DBFM (84-128)
LCS 240-47532/9	Lab Control Sample	115	96	109	117

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: TCLP**

		Percent Surrogate Recovery (Acceptance Limits)			
Lab Sample ID	Client Sample ID	12DCE (80-121)	BFB (70-124)	TOL (90-115)	DBFM (84-128)
240-11944-1	ST-03581-060512-SK-001	107	94	105	116
240-11944-1 MS	ST-03581-060512-SK-001	111	99	110	117
240-11944-1 MSD	ST-03581-060512-SK-001	110	97	110	119
240-11944-2	ST-03581-060512-SK-002	108	97	105	115
240-11944-3	ST-03581-060512-SK-003	105	94	106	114
240-11944-6	ST-03581-060512-SK-006	107	94	107	116
240-11944-7	ST-03581-060512-SK-007	108	94	106	113
240-11944-14	005 & 010 COMP	108	94	106	119
LB 240-47396/1-A MB	Method Blank	109	97	106	116

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
Lab Sample ID	Client Sample ID	FBP (34-110)	2FP (26-110)	TBP (10-118)	NBZ (24-112)	PHL (28-110)	TPH (41-119)
240-11944-8	ST-03581-060512-SK-008	65	69	42	63	75	84
240-11944-8 MS	ST-03581-060512-SK-008	57	57	34	56	65	76
240-11944-8 MSD	ST-03581-060512-SK-008	46	43	24	45	51	64
LCS 240-47578/24-A	Lab Control Sample	67	70	42	67	75	82
MB 240-47578/23-A	Method Blank	68	72	27	66	79	84

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
2FP = 2-Fluorophenol (Surr)
TBP = 2,4,6-Tribromophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
PHL = Phenol-d5 (Surr)
TPH = Terphenyl-d14 (Surr)

Surrogate Summary

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3581, Spiegelberg

TestAmerica Job ID: 240-11944-2

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
Lab Sample ID	Client Sample ID	FBP (22-110)	2FP (10-110)	TBP (17-117)	NBZ (29-111)	PHL (10-110)	TPH (40-119)
LCS 240-47426/12-A	Lab Control Sample	48	53	53	47	45	68
MB 240-47426/11-A	Method Blank	44	48	44	44	38	64

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
2FP = 2-Fluorophenol (Surr)
TBP = 2,4,6-Tribromophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
PHL = Phenol-d5 (Surr)
TPH = Terphenyl-d14 (Surr)

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: TCLP**

		Percent Surrogate Recovery (Acceptance Limits)					
Lab Sample ID	Client Sample ID	FBP (22-110)	2FP (10-110)	TBP (17-117)	NBZ (29-111)	PHL (10-110)	TPH (40-119)
240-11944-3	ST-03581-060512-SK-003	43	39	33	45	33	69
240-11944-14	005 & 010 COMP	50	52	38	48	38	68

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
2FP = 2-Fluorophenol (Surr)
TBP = 2,4,6-Tribromophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
PHL = Phenol-d5 (Surr)
TPH = Terphenyl-d14 (Surr)

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	TCX1 (29-151)	DCB1 (14-163)
240-11944-3	ST-03581-060512-SK-003	54	58
240-11944-8	ST-03581-060512-SK-008	81	84
240-11944-14	005 & 010 COMP	18 X	94
LCS 240-47584/24-A	Lab Control Sample	83	86
MB 240-47584/23-A	Method Blank	72	65

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl

Lab Chronicle

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3581, Spiegelberg

TestAmerica Job ID: 240-11944-2

Client Sample ID: ST-03581-060512-SK-001

Lab Sample ID: 240-11944-1
Date Collected: 06/05/12 10:55
Matrix: Solid
Date Received: 06/06/12 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			47396	06/13/12 18:00	DJ	TAL NC
TCLP	Analysis	8260B		1	47532	06/14/12 21:27	TL	TAL NC

Client Sample ID: ST-03581-060512-SK-002

Lab Sample ID: 240-11944-2
Date Collected: 06/05/12 11:00
Matrix: Solid
Date Received: 06/06/12 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			47396	06/13/12 18:00	DJ	TAL NC
TCLP	Analysis	8260B		1	47532	06/14/12 21:51	TL	TAL NC

Client Sample ID: ST-03581-060512-SK-003

Lab Sample ID: 240-11944-3
Date Collected: 06/05/12 11:05
Matrix: Solid
Date Received: 06/06/12 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			47396	06/13/12 18:00	DJ	TAL NC
TCLP	Analysis	8260B		1	47532	06/14/12 22:14	TL	TAL NC
TCLP	Leach	1311			47412	06/13/12 18:00	DJ	TAL NC
TCLP	Prep	3510C			47426	06/14/12 09:15	SE	TAL NC
TCLP	Analysis	8270C		1	47765	06/18/12 13:33	TH	TAL NC
Total/NA	Prep	3540C			47584	06/15/12 08:48	AK	TAL NC
Total/NA	Analysis	8082		1	47744	06/17/12 22:59	LH	TAL NC
TCLP	Leach	1311			47412	06/13/12 18:00	DJ	TAL NC
TCLP	Prep	7470A			47444	06/14/12 14:15	AS	TAL NC
TCLP	Analysis	7470A		1	47592	06/15/12 09:07	BD	TAL NC
TCLP	Prep	3010A			47440	06/14/12 09:32	AS	TAL NC
TCLP	Analysis	6010B		4	47762	06/15/12 20:02	NJM	TAL NC
TCLP	Analysis	6010B		1	47762	06/15/12 12:17	NJM	TAL NC
Total/NA	Analysis	Moisture		1	47334	06/13/12 15:14	JB	TAL NC

Client Sample ID: ST-03581-060512-SK-006

Lab Sample ID: 240-11944-6
Date Collected: 06/05/12 11:20
Matrix: Solid
Date Received: 06/06/12 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			47396	06/13/12 18:00	DJ	TAL NC
TCLP	Analysis	8260B		1	47532	06/14/12 22:39	TL	TAL NC

Lab Chronicle

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3581, Spiegelberg

TestAmerica Job ID: 240-11944-2

Client Sample ID: ST-03581-060512-SK-007

Lab Sample ID: 240-11944-7

Date Collected: 06/05/12 11:25
Date Received: 06/06/12 09:20

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			47396	06/13/12 18:00	DJ	TAL NC
TCLP	Analysis	8260B		1	47532	06/14/12 23:03	TL	TAL NC

Client Sample ID: ST-03581-060512-SK-008

Lab Sample ID: 240-11944-8

Date Collected: 06/05/12 11:30
Date Received: 06/06/12 09:20

Matrix: Solid
Percent Solids: 99.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3540C			47578	06/15/12 08:37	AK	TAL NC
Total/NA	Analysis	8270C		1	47760	06/18/12 10:44	MU	TAL NC
Total/NA	Prep	3540C			47584	06/15/12 08:48	AK	TAL NC
Total/NA	Analysis	8082		1	47744	06/17/12 23:15	LH	TAL NC
Total/NA	Prep	7471A			47289	06/13/12 13:05	DE	TAL NC
Total/NA	Analysis	7471A		1	47244	06/13/12 14:12	BD	TAL NC
Total/NA	Prep	3050B			47278	06/13/12 09:48	DE	TAL NC
Total/NA	Analysis	6020		1	47551	06/14/12 18:25	KC	TAL NC
Total/NA	Analysis	Moisture		1	47334	06/13/12 15:14	JB	TAL NC

Client Sample ID: 005 & 010 COMP

Lab Sample ID: 240-11944-14

Date Collected: 06/05/12 00:00
Date Received: 06/06/12 09:20

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			47396	06/13/12 18:00	DJ	TAL NC
TCLP	Analysis	8260B		1	47532	06/14/12 23:27	TL	TAL NC
TCLP	Leach	1311			47412	06/13/12 18:00	DJ	TAL NC
TCLP	Prep	3510C			47426	06/14/12 09:15	SE	TAL NC
TCLP	Analysis	8270C		1	47765	06/18/12 13:15	TH	TAL NC
Total/NA	Prep	3540C			47584	06/15/12 08:48	AK	TAL NC
Total/NA	Analysis	8082		1	47744	06/17/12 23:30	LH	TAL NC
TCLP	Leach	1311			47412	06/13/12 18:00	DJ	TAL NC
TCLP	Prep	7470A			47444	06/14/12 14:15	AS	TAL NC
TCLP	Analysis	7470A		1	47592	06/15/12 09:08	BD	TAL NC
TCLP	Prep	3010A			47440	06/14/12 09:32	AS	TAL NC
TCLP	Analysis	6010B		1	47762	06/15/12 20:13	NJM	TAL NC
Total/NA	Analysis	Moisture		1	47334	06/13/12 15:14	JB	TAL NC

Laboratory References:

TAL NC = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Certification Summary

Client: Conestoga-Rovers & Associates, Inc.
Project/Site: 3581, Spiegelberg

TestAmerica Job ID: 240-11944-2

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Canton	California	NELAC	9	01144CA
TestAmerica Canton	Connecticut	State Program	1	PH-0590
TestAmerica Canton	Florida	NELAC	4	E87225
TestAmerica Canton	Georgia	State Program	4	N/A
TestAmerica Canton	Illinois	NELAC	5	200004
TestAmerica Canton	Kansas	NELAC	7	E-10336
TestAmerica Canton	Kentucky	State Program	4	58
TestAmerica Canton	L-A-B	DoD ELAP		L2315
TestAmerica Canton	Minnesota	NELAC	5	039-999-348
TestAmerica Canton	Nevada	State Program	9	OH-000482008A
TestAmerica Canton	New Jersey	NELAC	2	OH001
TestAmerica Canton	New York	NELAC	2	10975
TestAmerica Canton	Ohio VAP	State Program	5	CL0024
TestAmerica Canton	Pennsylvania	NELAC	3	68-00340
TestAmerica Canton	USDA	Federal		P330-11-00328
TestAmerica Canton	Virginia	NELAC	3	460175
TestAmerica Canton	Washington	State Program	10	C971
TestAmerica Canton	West Virginia DEP	State Program	3	210
TestAmerica Canton	Wisconsin	State Program	5	999518190

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

CONESTOGA-ROVERS & ASSOCIATES

CHAIN OF CUSTODY RECORD

14496 Sheldon Road, Suite #200, Plymouth, Michigan 48170
Phone: (734) 453-5123 Fax: (734) 453-5201

COC NO. PL-09131
PAGE 1 OF 1
(See Reverse Side for Instructions)

Project No/ Phase/Task Code: 003581-100
Project Name: Spiegelberg
Project Location: Livingston County, M.I.
Chemistry Contact: R. Fleisher
Sampler(s): S. Kippen

Laboratory Name: Test America
Lab Contact: D. Heckler
Lab Location: N. Canton, M.I.
Lab Quote No: —
SSOW ID: 003581-
Cooler No: —
Carrier: Fed ex
Airbill No: —
Date Shipped: 06-05-12

Item	Sample Identification (Containers for each sample may be combined on one line)	Date (mm/dd/yy)	Time (hh:mm)	Matrix Code (see back of COC)	Grab (G) or Comp (C)	Unpreserved	Hydrochloric Acid (HCl)	Nitric Acid (HNO_3)	Sulfuric Acid (H_2SO_4)	Sodium Hydroxide (NaOH)	Methanol/Water (Soil VOC)	EnCores 3x5-g, 1x25-g	Other:	Total Containers/Sample	VOC's	TCLP (HOLD)								MS/MSD Request	Comments/ Special Instructions:
1	ST-03581-060512-SK-001	06/05/12	10:55	ST	G	1					1			2	X	X									Location-C1
2	-002		11:00			1					1			2	X	X									-C2
3	-003		11:05			1					1			2	X	X									-C3
4	-004		11:10			1					1			2	X	X									-C4
5	-005		11:15			1					1			2	X	X									-C5
6	-006		11:20			1					1			2	X	X									-C6
7	-007		11:25			1					1			2	X	X									-C7
8	-008		11:30			1					1			2	X	X									-F1
9	009		13:20			1					1			2	X	X									drum-1
10	010		13:25			1					1			2	X	X									-2
11	011		13:30			1					1			2	X	X									-3
12	012		13:35			1					1			2	X	X									-C8
13	TB-03581-060512-SK	6/5/12	—	TB	—						1			1	X										
14																									
15																									

TAT Required in business days (use separate COCs for different TATs): (X) 1 Day ☐ 2 Days ☐ 3 Days ☐ 1 Week ☐ 2 Week ☐ Other:

Total Number of Containers: 25
All Samples in Cooler must be on COC

Notes/ Special Requirements: HOLD-TCLP

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
1. Scott Kippen	06-05-12	CRA	15:00	1. [illegible]	TAL	6-6-12	920
2.				2.			
3.				3.			

THE CHAIN OF CUSTODY IS A LEGAL DOCUMENT – ALL FIELDS MUST BE COMPLETED ACCURATELY

Distribution: WHITE – Fully Executed Copy (CRA) YELLOW – Receiving Laboratory Copy PINK – Shipper GOLDENROD – Sampling Crew

CRA Form: COC-10A (20110804)

6/20/2012

TestAmerica North Canton Sample Receipt Form/Narrative Login # : 11944

Client CRA Site Name _____ By: _____ (Signature)

Cooler Received on 6-6-12 Opened on 6-6-12

FedEx: 1st Grd Exp UPS FAS Stetson Client Drop Off TestAmerica Courier Other _____

TestAmerica Cooler # 142 Foam Box Client Cooler Box Other _____

Packing material used: Bubble Wrap Foam Plastic Bag None Other _____

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt

IR GUN# 1	(CF 0°C)	Observed Sample Temp. ____ °C	Corrected Sample Temp. ____ °C	
IR GUN# 4G	(CF –1°C)	Observed Sample Temp. ____ °C	Corrected Sample Temp. ____ °C	■ Multiple on Back
IR GUN# 5G	(CF –1°C)	Observed Sample Temp. 3.2 °C	Corrected Sample Temp. 2.2 °C	

2. Were custody seals on the outside of the cooler(s)? If Yes Quantity _____ Yes No
   - Were custody seals on the outside of the cooler(s) signed & dated? Yes No NA
   - Were custody seals on the bottle(s)? Yes No
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Did all bottles arrive in good condition (Unbroken)? Yes No
7. Could all bottle labels be reconciled with the COC? Yes No
8. Were correct bottle(s) used for the test(s) indicated? Yes No
9. Sufficient quantity received to perform indicated analyses? Yes No
10. Were sample(s) at the correct pH upon receipt? Yes No NA
11. Were VOAs on the COC? Yes No
12. Were air bubbles >6 mm in any VOA vials? Yes No NA
13. Was a trip blank present in the cooler(s)? Yes No

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

14. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

15. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container.

Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

16. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in Sample Receiving to meet recommended pH level(s). Nitric Acid Lot# 110410-HNO3; Sulfuric Acid Lot# 041911-H2SO4; Sodium Hydroxide Lot# 121809 -NaOH; Hydrochloric Acid Lot# 041911-HCl; Sodium Hydroxide and Zinc Acetate Lot# 100108-(CH3COO)2ZN/NaOH. What time was preservative added to sample(s)?

Client ID	pH	Date	Initials

Cooler #	Observed Sample Temp. °C	Corrected Sample Temp. °C	IR #	Coolant

CHAIN OF CUSTODY RECORD

CONESTOGA-ROVERS & ASSOCIATES
14496 Sheldon Road, Suite #200, Plymouth, Michigan 48170
Phone: (734) 453-5123 Fax: (734) 453-5201

COC NO. PL-09131
PAGE 1 OF 1
(See Reverse Side for Instructions)

Project No/ Phase/Task Code: 003581-100
Project Name: Spiegelberg
Project Location: Livingston County, M.I.
Chemistry Contact: R. Flesher
Sampler(s): S. Kieper

Laboratory Name: Test America
Lab Contact: D. Heckler
Lab Location: N. Canton, M.I.
Lab Quote No: —

SSOW ID: 003581-
Cooler No: [illegible]
Carrier: Fed ex
Airbill No: —
Date Shipped: 06-05-12

	Sample Identification	Date	Time	Matrix Code	Lab Pack of COC	Grab (G) or Comp (C)	Unpreserved	Hydrochloric Acid (HCl)	Nitric Acid (HNO3)	Sulfuric Acid (H2SO4)	Sodium Hydroxide (NaOH)	Methanol/Water (MeOH VOC)	EnCores 25g, 1/25g	Other:	Total Containers/Sample	VOC	TCLP (VOC)	TCLP	TCLP VOC	TCLP SVOC	TCLP MetAl	PCB	SVOC	Metals-Hg		Millipore Request	Location
1	ST-03581-060512-SK-001	06/05/12	10:55	ST		G	1					1			2	X	X		X								Location-C1
2	-002		11:00				1					1			2	X	X		X								-C2
3	-003		11:05				1					1			2	X	X		X	X	X	X					-C3
4	-004		11:10				1					1			2	X	X										-C4
5	-005		11:15				1					1			2	X	X		X	X	X	X					-C5
6	-006		11:20				1					1			2	X	X		X								-C6
7	-007		11:25				1					1			2	X	X		X								-C7
8	-008		11:30				1					1			2	X	X					X	X	X			-F1
9	009		13:20				1					1			2	X	X										Aqui-1
10	010		13:25				1					1			2	X	X		X	X	X	X					-2
11	011		13:30				1					1			2	X	X										-3
12	012		13:35				1					1			2	X	X										-C8
13	TB-03581-060512-SK	6/5/12	—	TB		—						1			1	X											
14																											
15																											

TAT Required in business days (use separate COCs for different TATs): (X) 1 Day ☐ 2 Days ☐ 3 Days ☐ 1 Week ☐ 2 Week ☐ Other:

Total Number of Containers: 25
All Samples in Cooler must be on COC

Notes/ Special Requirements: HOLD-TCLP

⊙ = Please combine discrete samples 005 and 010 into a single composite sample prior to conducting the required analysis

	Relinquished By	Date	Company	Time	Received By	Date
1.	Scott Kieper	06-05-12	CRA	15:00	1.	Jason J. Hitchcock 6/12/12
2.					2.	
3.					3.	

THE CHAIN OF CUSTODY IS A LEGAL DOCUMENT – ALL FIELDS MUST BE COMPLETED ACCURATELY

Distribution: WHITE – Fully Executed Copy (CRA) YELLOW – Receiving Laboratory Copy PINK – Shipper GOLDENROD – Sampling Crew

CRA Form: COC-10A (20110804)

Page 54 of 57

06/06/2012

Login Sample Receipt Checklist

Client: Conestoga-Rovers & Associates, Inc.

Job Number: 240-11944-2

Login Number: 11944
List Number: 1
Creator: Livengood, Chris

List Source: TestAmerica Canton

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	