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November 3, 2011

Mr. Allen Wojtas
Contract Level Contracting Officer's Representative
U.S. EPA, Region 5, LP-9J
77 W. Jackson Blvd
Chicago, IL 60604

Reference: EPA Contract No. EP-W-07-074; TechLaw Task Order No. R05033; EPA Task Order No. EP-G10S-00032; Final Field Sampling Activity Report; Carboline Company, Xenia, Ohio; Task 06 Deliverable

Dear Mr. Wojtas:

Please find enclosed a Final Field Sampling Activity Report that describes soil sample collection activities associated with the Carboline Company facility in Xenia, Ohio. The soil samples were collected by a team consisting of TechLaw representatives on April 26 and 27, 2011. All samples collected were analyzed by the EPA Region 5 Central Regional Laboratory (CRL) in Chicago, Illinois.

For your convenience, the text, figures, and tables have also been E-mailed to both you and Mr. John Nordine in Microsoft Word (report text) and Adobe pdf (entire report) formats. If you have any questions, please contact me at (303) 716-3758 or Ms. Kim Whitlock, TechLaw's Task Order Manager, at (312) 345-8930.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Terry Zdon', written over a light blue horizontal line.

Terry Zdon
Regional Project Manager

cc: C. Kerzhner, EPA CO (E-mail only)
B. Freeman, EPA CLTOCOR
J. Nordine, EPA Region 5

B. Smith (E-mail only)
K. Whitlock (E-mail only)
TechLaw Chicago Files

**FINAL FIELD SAMPLING ACTIVITY REPORT
FOR
CARBOLINE COMPANY
XENIA, OHIO**

Submitted to:

**Mr. Allen Wojtas
Contract Level Contracting Officer's Representative
U.S. Environmental Protection Agency
Region 5, LP-9J
77 W. Jackson Boulevard
Chicago, Illinois 60604**

Submitted by:

**TechLaw, Inc.
205 W Wacker, Suite 1622
Chicago, Illinois 60606**

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Contract No.	: EP-W-07-074
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November 3, 2011

**FINAL FIELD SAMPLING ACTIVITY REPORT
FOR
CARBOLINE COMPANY
XENIA, OHIO**

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**FINAL FIELD SAMPLING ACTIVITY REPORT
FOR
CARBOLINE COMPANY
XENIA, OHIO**

1.0 INTRODUCTION

The purpose of this Final Field Sampling Activity Report (Report) is to summarize sample collection procedures for sampling activities at the Carboline Company (Carboline) facility in Xenia, Ohio, see Figure 1, Site Location Map. The soil sampling activities took place on April 26 and 27, 2011. Prior to the sampling event, TechLaw submitted a Sampling and Analysis Plan (SAP) to EPA, which described the proposed sample collection and analytical methods. This SAP was approved by EPA before the field visit. All soil samples were submitted for analysis of volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs) and total metals. Chemical analysis of the samples was conducted by the EPA Region 5 Central Regional Laboratory (CRL) in Chicago, Illinois.

In total, TechLaw collected 18 soil samples at the Carboline Company facility; see Figure 2, Sampling Locations Map. TechLaw collected surface soils with a hand auger from approximately 0 to 12 inches below ground surface (bgs) and subsurface soils from approximately 2 to 3 feet bgs using a hand auger. Composite samples for non-VOC analytes consisted of four aliquots per sample. For each composite, four hand auger locations were advanced to a total depth of approximately three feet bgs in a triangular pattern, with one location at the approximate center of the triangle. A discrete VOC soil sample was collected from the center location. Samples were collected to evaluate if releases to environmental media occurred as a result of historical operations at the Carboline site, and whether contaminants of concern were present at concentrations which exceed applicable EPA Regional Screening Levels (RSLs), see Table 1, Soil Analytical Results. Global Positioning System (GPS) Coordinates were also collected at each hand auger location; see Table 2, Hand Auger GPS Coordinates. A copy of the Field Log Book for the sampling event is presented in Attachment 1. A Photograph Log depicting the sampling activities is provided in Attachment 2. Chain of custody (COC) forms are provided in Attachment 3.

2.0 SITE DESCRIPTION AND HISTORY

The earliest available land use records for the Carboline site indicate that between 1944 and 1950, a farm implement dealer conducted commercial activities on the site. In 1953, the Moran Paint Company of Xenia, Ohio (Moran) initiated operations. Moran manufactured paint finishes for the automotive and appliance industries. In 1963, the facility was purchased by Carboline, which continued manufacturing products under the Moran name.

Carboline specialized in manufacturing epoxy coatings, which were used in various industries as corrosion inhibitors for metallic surfaces. Carboline blended various grades of liquid and solid

paint materials and solvents to match according to order specifications. The manufacturing process consisted of milling and high-speed dispersal of raw materials (i.e., pigments, fillers, solvents, resins, and other additives) into a liquid or paste. The facility was known to store roughly 700 virgin chemicals on site in 55-gallon drums and 1-cubic yard bulk packages for production purposes. Final products were packaged and transported off-site in 1-, 5-, and 55-gallon containers to an offsite distribution center.

Carboline was purchased by Sun Chemical Company in 1980, and the Moran product line was sold in 1982. Manufacturing operations remained at the site for those products not part of the Moran product line. Sun Chemical Company sold the assets of the Carboline Division to RPM, Inc. (RPM), in 1986. RPM closed the facility in December 2000.

The Carboline facility, when active, consisted of four primary buildings: a raw materials and product storage warehouse, a three-story manufacturing plant, a dry pigment warehouse, and an office building. The storage building on the northwestern side of the site was reportedly destroyed by a tornado between 2005 and 2008, and the former manufacturing building is in the process of being demolished. The site is presently occupied by two tenants, Elsome Trucking and Seek-n-Destroy Paintball, collectively they appear to utilize most of the property, with the exception of the former manufacturing building in the southeastern portion of the property.

2.1 Previous Investigations

In May 1992, Carboline commissioned a subsurface soil and groundwater investigation. The purpose of the investigation was to determine if paint solvents were present in the soil or groundwater in the borings advanced on the site, and to describe the hydrogeologic conditions near the location of three aboveground storage tanks (ASTs). In the June 1992 investigation report, it is stated that a paint solvent mixture of toluene and methyl ethyl ketone (MEK) was spilled in the location investigated. The investigation concluded that toluene, ethylbenzene, and xylene were detected in the samples collected from the top 2 ½ feet of the borings. The photo-ionization detector (PID) readings indicated that “paint solvents probably did not migrate downward to any great extent at the locations sampled.”

In May 1992, EPA commissioned a Preliminary Assessment/Visual Site Inspection (PA/VSI). The PA/VSI was part of EPA Region 5’s Environmental Priorities Initiative, which was created “to identify and address RCRA facilities that have a high priority for corrective action under applicable RCRA and CERCLA authorities.” The PA/VSI was the “first step in prioritizing facilities for corrective action.” The PA/VSI for this facility recommended subsurface soil sampling in the following areas:

- Solid Waste Management Area (SWMA) 2: Hazardous Waste Storage Area
- Solid Waste Management Unit (SWMU) 3: D-Waste Storage Tank
- SWMU 6: Back Pad
- Area of Concern (AOC) 1: Solvent Blending Tank Area

In 1997, a burn pit was encountered while performing excavation in support of a new sewer line. The burn pit reportedly was deactivated in the 1950s. Subsequently, OHM Remediation Services Corporation (OHM) was commissioned to investigate and remove soils associated with the burn pit. The investigation bounded the limits of the burned materials visually, and samples were collected and analyzed for PCBs, VOCs and lead. Four rounds of excavation and sampling were conducted until the results indicated successful removal of soils with concentrations above action levels.

RPM discontinued operations at the Xenia facility in December 2000, at which time all production was discontinued at the facility. The remaining product was shipped from the Carboline facility to RPM's local distribution center through January 2001. Most of the process equipment was removed; however, the tanks and associated secondary containment structures remained onsite outside of the buildings.

An ASTM Practice E 1528-00 Compliant Transaction Screen Report commissioned in April 2003 by the RPM Brownfields Restoration Group (BRG) concluded that based on the scope of work of the report that there were no recognized environmental conditions at this property.

On April 5, 2007, EPA Region 5 sent a letter to the former owner (Carboline) indicating that the Xenia facility is included in the 2020 Corrective Action Universe (2020 CAU) under the RCRA. Carboline forwarded this letter to BRG. In April 2009, BRG commissioned an assessment of the site to resolve concerns associated with the four areas of interest identified in the 1992 PA/VSI (SWMA 2: Hazardous Waste Storage Area, SWMU 3: D-Waste Storage Tank, SWMU 6: Back Pad, and AOC 1: Solvent Blending Tank Area). The resulting 2009 assessment report concluded that SWMU 6, an uncovered concrete pad measuring approximately 50 feet by 200 feet, was intact and generally in good condition. Based on these and other observations, the report concluded that any spills in this area were likely minor and restricted to small localized areas on the concrete surface. Additionally, AOC-1, consisting of three 600 gallon above-ground solvent blending tanks, formerly occupied an area near the southeast corner of the manufacturing building. The concrete secondary containment surrounding the three former solvent blending tanks was intact and appeared to be in good condition and the 2009 BRG report concludes that no further investigation of this unit was warranted, which is consistent with the May 1992 report.

SWMU 3 (6,000 gallon AST) is listed as storing waste paint (D001, D007, and D008) for less than 90 days. Staining was observed at this unit during the PA/VSI, but no further data regarding this unit could be located in support of the 2009 Report. Similarly, SWMA 2 was closed as a hazardous waste storage area in 1982, but continued to operate as a less than 90 day storage area. During the PA/VSI, hazardous waste stored in this area included: waste paint material (F003, F005, D001, D005, D007, and D008); halogenated waste paint thinner (F001, F003, and F005); and miscellaneous dust (D007 and D008). Staining was also observed at this unit during the PA/VSI, but no further data regarding this unit could be located in support of the 2009 Report.

2.2 Contaminants of Concern

The areas of interest for this field event are the Burn Pit Area, SWMA 2, and SWMU 3. Information known regarding each of these areas is presented below.

2.2.1 Burn Pit Area

The Burn Pit was discovered in 1997 during the installation of new sewer lines. According to the "Sample Summary" report, OHM performed an environmental site investigation of this area during May 1997. Lead and PCBs were detected in soil samples at levels above the Ohio Environmental Protection Agency (OEPA) Voluntary Action Program (VAP) cleanup standards for soil. According to the Environmental Site Review Report, the impacted soil and ash were excavated and disposed off site, and the area was backfilled. The "Sample Summary" report also states that four rounds of excavation and sampling occurred between May 15 and November 13, 1997. The final confirmation sample collected on November 13, 1997 contained 2.8 micrograms per kilogram (ug/kg) PCB-1254, which was below the VAP cleanup standard of 25 ug/kg PCBs in soil.

2.2.2 Solid Waste Management Area 2 (Hazardous Waste Storage Area)

SWMA 2 started in 1980 and was used to store drums of hazardous waste for less than 90 days. The wastes included drum-storage of waste paint materials (F003, F005, D001, D005, D007, and D008) and halogenated waste paint thinners (F001, F003, and F005), as well as miscellaneous dust (D007 and D008) that accumulated in the baghouse. The unit measured roughly 40 feet by 40 feet and was composed of an uncovered gravel pad of undefined dimensions. There was no berm surrounding the area and no secondary containment. Fifty-five-gallon drums were stored in the area, mainly on pallets. In 1982, the unit was certified as closed by a professional engineer.

2.2.3 Solid Waste Management Unit 3 (D-Waste Storage Tank)

SWMU 3 was located adjacent to the Hazardous Waste Storage Area (SWMA 2) and was placed into service in 1980. SWMU 3 consisted of a 6,000-gallon, single-walled steel AST used for the bulk accumulation of waste paint materials. The tank did not rest on concrete or have any secondary containment. Drums of ignitable D-wastes were brought to the area and pumped into the AST. From here, bulk wastes were removed from the facility for incineration. During the VSI, stains were present on the grass and gravel surrounding the area. Spilled materials were also noted on the AST.

3.0 SAMPLE LOCATIONS

EPA obtained permission from the current property owner to collect soil samples onsite. A total of 18 soil samples and one rinsate sample were collected and analyzed for VOCs, SVOCs, PCBs,

and total metals, including:

- three surface and three subsurface soil samples at the Burn Pit Area for a total of 6 samples, see Figure 3;
- three surface and three subsurface soil samples at SWMA 2 (drum area) for a total of 6 samples;
- one surface and one subsurface soil sample at SWMU 3 (tank area) for a total of 2 samples;
- a background surface and subsurface soil sample for a total of 2 samples,
- a duplicate surface and subsurface soil sample for a total of 2 samples; and,
- a rinsate sample.

Samples were collected to evaluate if releases to environmental media occurred as a result of historical operations at the Carboline site, and whether contaminants of concern were present at concentrations which exceed applicable EPA RSLs. Refer to Table 1, Soil Analytical Results for the soils sampling results. Also, refer to Attachment 2, Photograph Log for a depiction of the sample collection locations. Specific sampling procedures are discussed below.

4.0 SAMPLE COLLECTION ACTIVITIES

The TechLaw Sampling Team collected, managed, prepared, and delivered the samples to CRL in accordance with the site-specific SAP and the Region 5 Generic Quality Assurance Project Plan (QAPP). Descriptions of the sampling procedures at the facility are included below.

During the sampling activities, appropriate quality control samples were collected in accordance with TechLaw's EPA-approved SAP and QAPP. One matrix spike/matrix spike duplicate (MS/MSD) sample was collected. In addition, two blind duplicate samples were collected. The duplicate samples were collected on April 26, 2011. One of the duplicate samples was collected from sample location CC-BA-SS-02 collected at 1200, which was identified on the COC as CC-BA-SS-04, collected at 1000. The other duplicate sample was collected from CC-BA-SF-02 collected at 1230, and was identified on the COC as CC-BA-SF-04, collected at 1020.

Each sample, except for the background sample and samples collected for VOC analysis, was composed of soil from four hand auger locations. Soil from each interval was mixed in a stainless steel bowl prior to collection. Each hand auger location was labeled A,B, C, or D, with the VOC En Core® sample collected from the center, C, location. See Table 2, Hand Auger GPS Coordinates, for the approximate GPS locations of each hand auger. The TechLaw Sampling Team decontaminated the stainless steel hand augers, bowls and spoons prior to collection of each sample, and an equipment rinsate sample was collected on April 27, 2011 at 1730. Samples were labeled and then placed on ice in a cooler. TechLaw shipped the VOC En Core® samples to CRL daily, and hand delivered all other samples to CRL on April 28, 2011.

The samples were originally collected for VOCs, SVOCs, and metals, as specified in the SAP;

however, upon further clarification from EPA before analysis, all samples were also analyzed for PCBs. However, the equipment blank was not analyzed for PCBs because not enough volume was available for the analysis.

5.0 ANALYTICAL RESULTS

Chemical analysis of the samples was conducted by CRL. TechLaw collected 18 soil samples during the April 2011 sampling event. All soil samples were analyzed for VOCs, SVOCs, PCBs and total metals.

As requested by EPA, TechLaw performed 25% data validation on the CRL Toxicity Characteristic Leaching Procedure (TCLP) metals data packages. Based on the data validation, no analytical results were rejected. A copy of the data validation report is included in Attachment 4.

5.1 Background Samples

The surface soil and subsurface soil background sample contained several analytes at concentrations above the laboratory reporting limits, but no analytes were reported at concentrations above EPA Regional Screening Criteria for Residential or Industrial Soil.

5.2 Burn Area Samples

The surface soil and subsurface soil burn area samples contained several analytes at concentrations above the laboratory reporting limits, and some PCBs and SVOCs at concentrations above residential or industrial soil RSLs. The boring with the most elevated exceedances was subsurface soil sample CC-BA-SF-03; however, exceedances were also present in all surface soil samples and subsurface soil sample CC-BA-SF-01. Subsurface soil samples CC-BA-SF-02 and its duplicate, CC-BA-SF-04, did not exceed RSLs.

- **PCBs** - Industrial and residential soil RSL exceedances were reported for 6 of the 8 samples in the burn area including all surface soil samples and one subsurface soil sample. The maximum PCB concentrations in surface soil samples were 3.79 micrograms per gram (ug/g) Aroclor-1254 and 0.770 ug/g Aroclor-1260, which were present in CC-BA-SS-04, a duplicate of sample CC-BA-SS-02. Both concentrations exceeded the industrial soil RSL of 0.74 ug/g. The maximum PCB concentrations in subsurface soil samples were present in CC-BA-SF-03 at 4.63 ug/g Aroclor-1254 and 0.674 ug/g Aroclor-1260, which exceeded the industrial soil RSL of 0.74 ug/g and the residential RSL of 0.22 ug/g, respectively.
- **SVOCs** – Industrial RSL exceedances of dibenz(a,h)anthracene were reported for two of the eight samples in the burn area, including the surface soil sample CC-SS-04 which was a duplicate of sample CC-BA-SS-02, and the subsurface soil sample CC-BA-SF-03. The maximum concentration of dibenz(a,h)anthracene was present in sample CC-BA-SF-03 at 302 ug/kg, which exceeded the industrial soil RSL of 210 ug/kg. Additionally,

residential RSL exceedances of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, bis(2-ethylhexyl) phthalate, and/or indeno(1,2,3-cd)pyrene were reported for four of the eight samples in the burn area, including all surface soil samples, and the subsurface soil sample CC-BA-SF-03. The maximum concentration of benzo(a)anthracene was present in sample CC-BA-SS-04, a duplicate of CC-BA-SS-02 at 469 ug/kg, which exceeded the residential soil RSL of 150 ug/kg. Sample CC-BA-SF-03 contained the maximum concentrations of: 936 ug/kg benzo(a)pyrene which exceeded the residential soil RSL of 15 ug/kg; 1320 ug/kg benzo(b)fluoranthene which exceeded the residential soil RSL of 150 ug/kg; 63,000 ug/kg bis(2-ethylhexyl) phthalate which exceeded the residential soil RSL of 35,000 ug/kg; and, 969 ug/kg indeno(1,2,3-cd)pyrene, which exceeded the residential soil RSL of 150 ug/kg.

5.3 SWMA 2 Area Samples

The surface soil and subsurface soil SWMA 2 area samples contained several analytes with concentrations above the laboratory reporting limits, with one metal and one SVOC detected above residential soil RSLs in two surface soil samples.

- **Metals** – In surface soil sample CC-S2-SS-02, 58K mg/kg antimony exceeded the residential soil RSL of 31 mg/kg.
- **SVOC** – In surface soil sample CC-S2-SS-01, 87.6 ug/kg benzo (a)pyrene exceeded the residential soil RSL of 15 ug/kg.

5.4 SWMU 3 Area Samples

The surface soil and subsurface soil SWMU 3 area samples contained several analytes above the laboratory reporting limits, but no analytes were reported above residential or industrial soil RSLs.

5.5 Equipment Blank Sample

The only analyte detected in the equipment blank sample above the laboratory reporting limits was chloroform, which was present at 7.89 mg/kg. Chloroform was not present in any other samples and no other analytes were reported above RSLs.

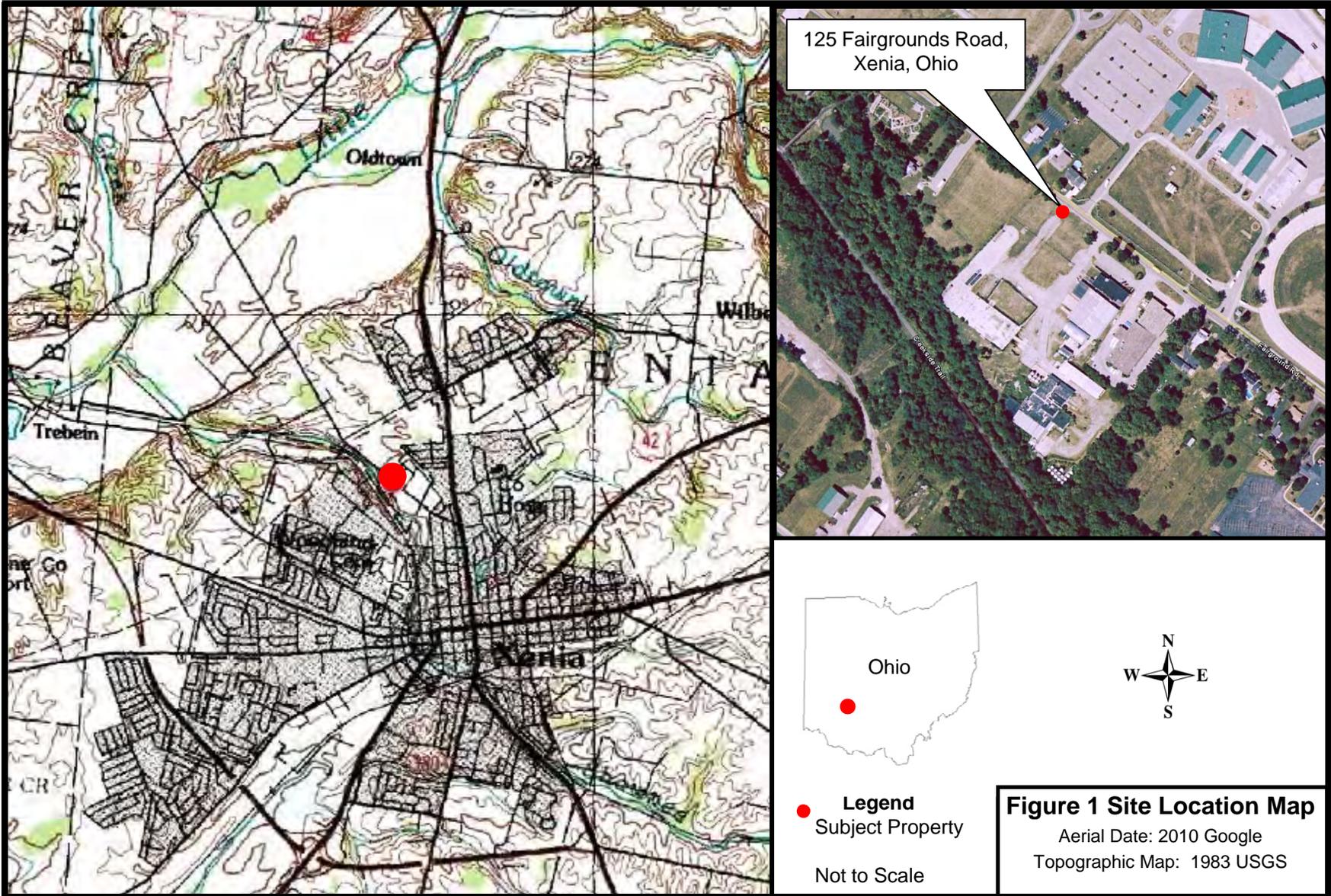
6.0 CONCLUSIONS

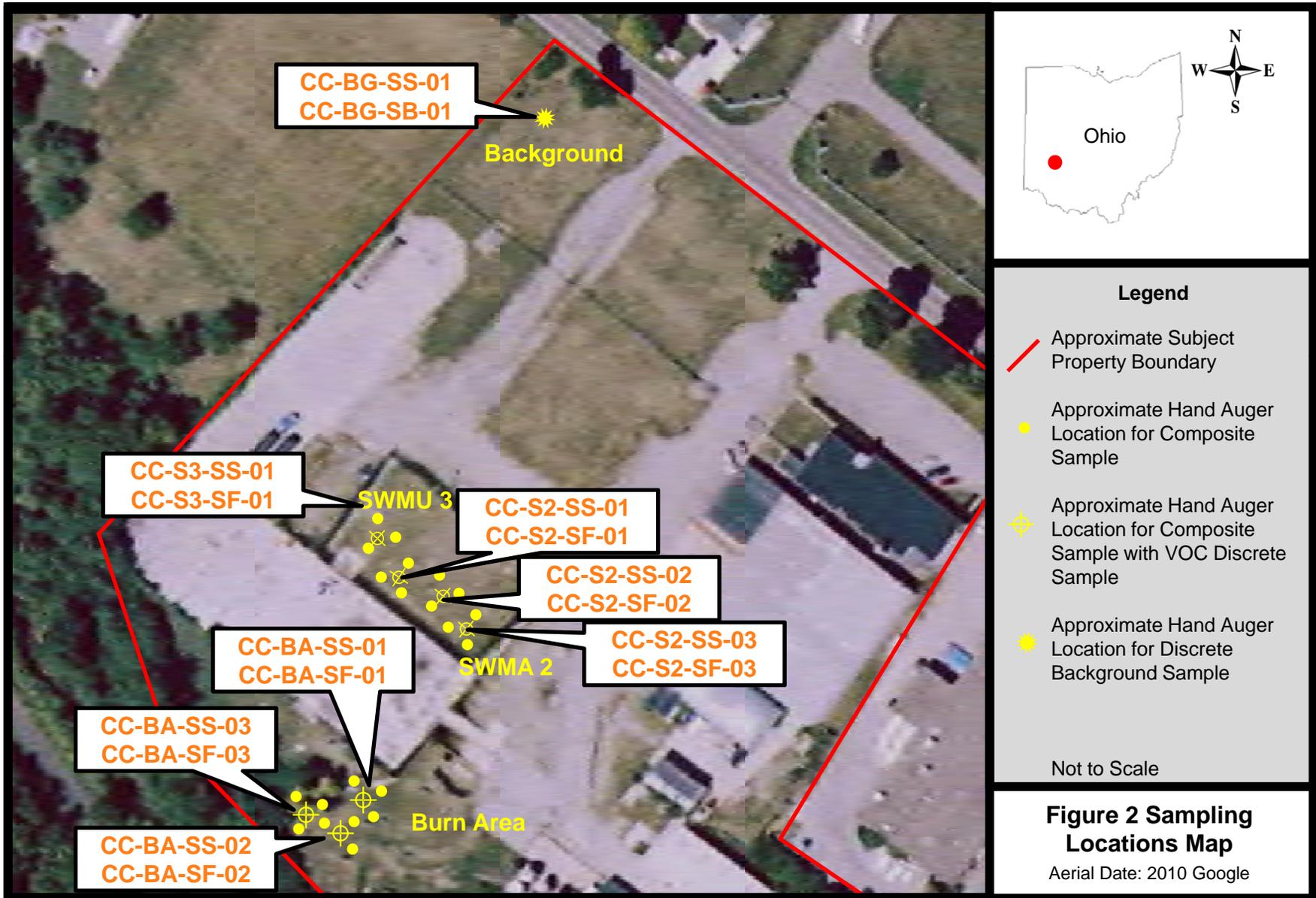
TechLaw completed the sampling activities in accordance with the EPA-approved SAP. The sampling results indicate that elevated levels of PCBs and SVOCs are present in the burn area and elevated levels of one metal and one SVOC are present in the SWMA 2 area. Industrial soil RSLs were exceeded in all three surface soil sample locations and two subsurface soil sample locations within the burn area, as well as one sample location in SWMA 2. Further investigation is recommended to evaluate the nature and extent of contamination in the area.

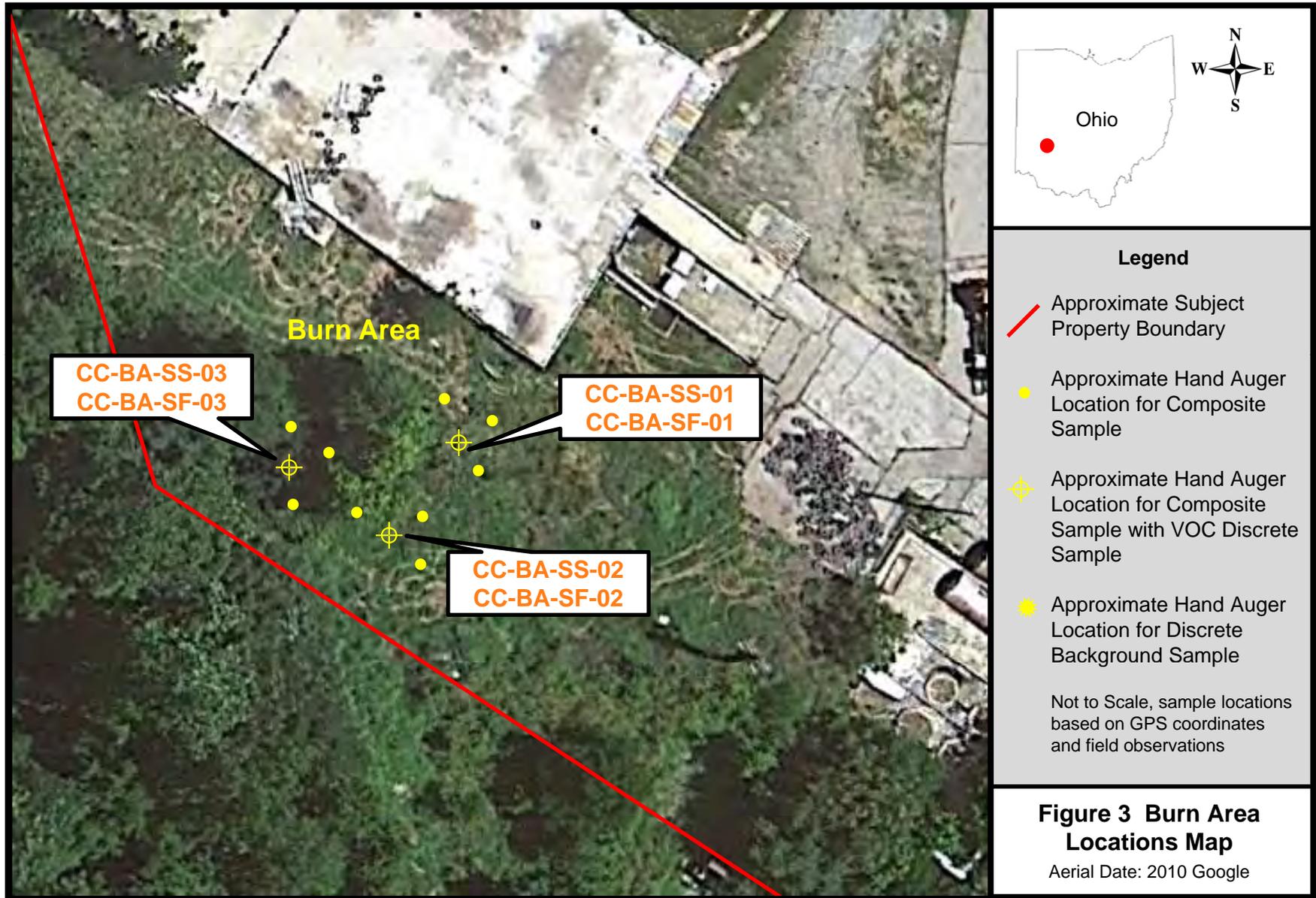
FIGURES

Carboline Draft Field Sampling Activity Report

125 Fairground Road, Xenia, Ohio







TABLES

TABLE 1 SOIL ANALYTICAL RESULTS
CARBOLINE COMPANY - APRIL 2011 SAMPLING EVENT

ANALYTE	EPA Regional Screening Level: Residential Soil	EPA Regional Screening Level: Industrial Soil	Toxic Substances Control Act PCB Regulation	CC-BG-SS-01		CC-BG-SB-01		CC-BA-SS-01		CC-BA-SF-01		CC-BA-SS-02		CC-BA-SS-04 (Duplicate of CC-BA-SS-02)		CC-BA-SF-02		CC-BA-SF-04 (Duplicate of CC-BA-SF-02)		CC-BA-SS-03		CC-BA-SF-03		CC-S2-SS-01		CC-S2-SF-01		CC-S2-SS-02		CC-S2-SF-02		CC-S2-SS-03		CC-S2-SF-03		CC-S3-SS-01		CC-S3-SF-01		CC-EB-01					
				Apr-11		Apr-11		Apr-11		Apr-11		Apr-11		Apr-11		Apr-11		Apr-11		Apr-11		Apr-11		Apr-11		Apr-11		Apr-11		Apr-11		Apr-11		Apr-11		Apr-11		Apr-11		Apr-11		Apr-11			
				RESULT	Q	RESULT	Q	RESULT	Q	RESULT	Q	RESULT	Q	RESULT	Q	RESULT	Q	RESULT	Q	RESULT	Q	RESULT	Q	RESULT	Q	RESULT	Q	RESULT	Q	RESULT	Q	RESULT	Q	RESULT	Q	RESULT	Q	RESULT	Q	RESULT	Q	RESULT	Q	RESULT	Q
VOCs (ug/kg)				Background Samples				Burn Area Samples								SWMA 2 Area Samples								SWMU 3 Area Samples				Rinsate Sample																	
2-Butanone	3.E+07	2.E+08	NA	30.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
Acetone	6.E+07	6.E+08	NA	248	100	ND	ND	ND	ND	ND	ND	ND	ND	114	199	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Benzene	1100	5400	NA	ND	ND	ND	ND	ND	ND	8.38	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Carbon disulfide	8.20E+05	3.70E+06	NA	ND	ND	ND	ND	5.96	NA	12.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Chloroform	290	1500	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.89		
Ethylbenzene	5400	27000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Toluene	5.E+06	5.E+07	NA	ND	ND	ND	ND	ND	ND	17.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Mercury (mg/kg)																																													
Mercury	10	43	NA	0.090	ND	0.070	0.1	0.3	J	0.1	J	0.1	0.1	0.2	JK	0.2	0.060	J	0.020	J	0.060	0.060	0.1	0.060	0.050	0.020	J	ND																	
Metals (mg/kg)																																													
Aluminum	7.70E+04	9.90E+05	NA	9900	18000	11000	15000	9500	8800	18000	20000	13000	14000	9700	20000	5200	17000	10000	19000	7800	13000	ND																							
Antimony	31	410	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Barium	1.50E+04	1.90E+05	NA	160	87	140	100	140	84	84	210	230	93	100	ND	87	110	100	55	82	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Beryllium	160	2000	NA	0.73	0.74	ND	0.78	0.82	ND	0.73	0.77	0.67	0.70	ND	0.85	56	0.78	0.61	0.83	ND	0.60	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Boron	1.60E+04	2.00E+05	NA	6.5	6.6	ND	8.1	8.3	10	5.8	6.6	10	11	11	7.2	14	6.9	5.7	10	9.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Cadmium	70	800	NA	ND	ND	3.2	ND	1.0	1.4	ND	ND	1.7	1.7	ND	ND	1.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Calcium	NA	NA	NA	1900	2000	11000	23000	22000	J	41000	J	3400	3200	44000	29000	68000	4100	160000	2800	23000	3300	60000	39000	ND																					
Chromium	NA	NA	NA	13	22	46	23	35	41	24	27	38	J	69	19	24	11	K	22	18	24	13	18	ND																					
Cobalt	23	300	NA	10	11	7.5	6.5	6.5	6.8	10	9.1	7.4	9.3	6.4	9.9	3.2	L	11	9.4	10	6.1	7.8	ND																						
Copper	3100	41000	NA	11	24	16	19	20	20	21	22	20	25	14	24	8.2	24	15	23	15	19	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iron	5.50E+04	7.20E+05	NA	15000	33000	18000	23000	16000	16000	31000	33000	24000	24000	17000	33000	9300	33000	18000	32000	21000	24000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Lead	400	800	NA	25	15	240	36	170	210	26	26	210	260	91	14	31	L	15	30	17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
Lithium	160	2000	NA	6.1	13	7.9	11	7.7	7.4	12	14	11	12	8.4	13	5.7	11	7.6	12	9.1	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Magnesium	NA	NA	NA	1700	3500	4600	11000	11000	17000	3400	3700	13000	11000	17000	4400	30000	3500	11000	3800	16000	14000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Manganese	1800	23000	NA	1500	510	390	520	600	620	310	250	610	JK	630	530	400	390	570	910	530	480	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Nickel	NA	NA	NA	14	23	12	17	12	11	20	21	14	15	10	24	ND	22	13	22	15	15	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Potassium	NA	NA	NA	860	1400	970	1100	1000	990	1300	1500	1300	1400	1100	1600	690	1400	1100	1600	870	1200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Sodium	NA	NA	NA	44	61	48	70	71	81	49	53	65	74	80	65	110	47	54	47	72	66	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Strontium	4.70E+04	6.10E+05	NA	9.2	13	14	20	21	34	11	11	55	43	48	14	86	12	24	13	65	34	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Titanium	NA	NA	NA	140	190	130	130	140	130	170	170	87	110	120	210	80	150	140	220	120	140	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Vanadium	390	5200	NA	23	42	26	32	24	22	43	45	30	31	22	45	12	40	25	43	19	31	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
Zinc	2.30E+04	3.10E+05	NA	63	74	250	96	600	570	89	89	310	490	180	79	96	77	150	89	84	69	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
PCBs (ug/g)																																													
Aroclor-1254	0.22	0.74	25	ND	ND	1.21	2.98	2.02	3.79	0.155	J	0.076	J	2.18	4.63	0.162	J	ND	0.059	ND	0.059	J	ND	ND																					

Table 2 Hand Auger GPS Coordinates		
Sample ID	Latitude	Longitude
CC-BG-SS-01, CC-BG-SB-01		
	39° 41.916"	83°56.440"
CC-BA-SS-01, CC-BA-SF-01		
A	39° 41.843"	83°56.503"
B	39° 41.843"	83°56.508"
C	39° 41.845"	83°56.504"
D	39° 41.844"	83°56.504"
CC-BA-SS-02, CC-BA-SS-04, CC-BA-SF-02, CC-BA-SF-04		
A	39° 41.842"	83°56.506"
B	39° 41.840"	83°56.503"
C	39° 41.839"	83°56.505"
D	39° 41.838"	83°56.502"
CC-BA-SS-03, CC-BA-SF-03		
A	39° 41.842"	83°56.509"
B	39° 41.841"	83°56.507"
C	39° 41.840"	83°56.509"
D	39° 41.843"	83°56.509"
CC-S2-SS-01, CC-S2-SF-01		
A	39° 41.877"	83°56.493"
B	39° 41.879"	83°56.489"
C	39° 41.876"	83°56.490"
D	39° 41.874"	83°56.491"
CC-S2-SS-02, CC-S2-SF-02		
A	39° 41.871"	83°56.487"
B	39° 41.873"	83°56.489"
C	39° 41.874"	83°56.488"
D	39° 41.876"	83°56.487"
CC-S2-SS-03, CC-S2-SF-03		
A	39° 41.868"	83°56.454"
B	39° 41.871"	83°56.480"
C	39° 41.870"	83°56.454"
D	39° 41.873"	83°56.484"
CC-S3-SS-01, CC-S3-SF-01		
A	39° 41.879"	83°56.502"
B	39° 41.883"	83°56.498"
C	39° 41.881"	83°56.501"
D	39° 41.880"	83°56.497"

ATTACHMENT 1

Field Log Book



"*Rain in the Rain*"
ALL-WEATHER
JOURNAL
No. 391

Carbolite Company
Kelua, Ohio

4/26/11 → 4/28/11
m

s
m

2
Carbolium Xenia, OH Delima 4/26/11

- 0700 CDellaria, M. Nur, R. Potter -
Technon site at PS fairgrounds
Road - part of Ohio Allstars
Former Carbolium facility.
Weather today - storms likely -
currently cool, windy - from
South/East, partly cloudy
AED Readings 00, ISobak, none
97.6 ppm
0730 J. Nardine ^{ex} onsite, do near/bk -
safety meeting - possible severe
weather today - don't have
access to building - does
have an overhang for many rain -
hbleg - under bleeds, very windy - area
safety glasses - steel toed boots,
0740 Scope of site - walk around tank
and burn areas - find sewer
line near burn area, compare to
map - discuss sample order &
locations.
0755 Go back to cons, prepare to do
background locations for homologer
0800 Awer ships by to talk to J. Nardine/EDA

Carbolium Xenia, OH Delima 4/26/11

- will be cutting grass today
0823 Photo taken by E. Potter #63
view North of Encore sample
ring taken from homologer
0823 Photo taken of Encore
sample view SE homologer
collection
0830 Sample CC = Carbolium Company
B6 = Background
SS = Surface Soil
O1 = location O1
Sample collected at 0830
0840 ~~CC-B6-SS-O1~~
Continue hand augering - to
3 feet after discarding to side
1-2
0850 Take Sample ~~CC-B6-SS-O1~~
for UAS, SUAS, Metals
0915 Dean Hand auger 7 bowls
GPS location
39° 41.916 N
083° 56.470 W
920 ft
0930 Clean up at Background location
then move to Burn area

Carboline Xenig 4/26/11

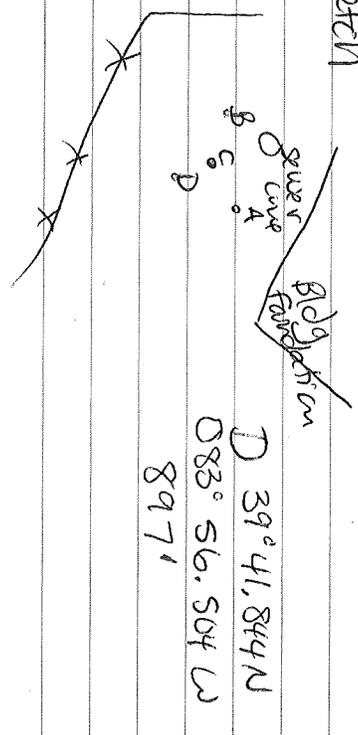
Discuss locations, decide that 25' spacing is too large - will do 10' location. Discuss locations near sewer lines etc.

GPS. of center locations (will stake at 10 from center for other hand augers

Center: 39° 41.845 N
A 39° 41.843 N
B 39° 41.843 N
C 083° 56.504 W
905 ft
920 ft
906 ft

083° 56.503 W
083° 56.504 W

Sketch



D 39° 41.844 N
083° 56.504 W
897'

Carboline Xenig, OH 4/26/11

1030 Take sample [CC-BA-SS-01]

VOCs

cautious hand digging, wait to do all composites + if any hand augers done

1045 Take sample [CC-BA-SF-01]

VOCs

Pictures taken near barn area

0955 view North toward

board at south west portion of property near fence - far

paint ball probably

0956 view NE toward barn area

0956 view SE toward barn area

0956 view SE toward barn area and building

1022 - view NE toward N Nur, T. Verdine hand digging

1050 Golf to 31 bottom of center point (C) - gravel at bottom - think backfilled with gravel when excavated.

6 Carboline Xenia Delaware 4/26/11

1100 Begin Point D hand auger
location from sample site →

1115 Dean hand augers and bowls
Metals samples

1145 Move to second Burn area

Location - 02
1200 Take sample CC-BA-SS-02 VOCs
Duplicate CC-BA-SS-04 VOCs
taken at 11000

Catchive Augering to 3' After discharging
2-3' 1-2' 3

1230 ~~Take~~ sample CC-BA-SF-02 VOCs
Duplicate CC-BA-SF-04
at 11020

Talk to E. Whitlock - says that
we need to ship Encore samples today
looked up nearest FedEx - in fair barn -
calls to confirm what-time they close -
7pm - so will need to finish =

Ship Encore samples today - may have
Rater drive cooler to FedEx if necessary
1315 Begin bring at center of O3 to
take VOCs early sun store in
rest of SS & SF soil for composite

7 Carboline Xenia Delaware 4/26/11

1320 Take MSMSD sample
CC-BA-SS-03 MSMSD

1403 Pictures taken of Burn area
Photo facing E of sample 2

1404 Photo facing S of augering
sample

1430 Finish hand augering at area 2
finish compositing soil for samples,
fill composite jars

1445 Pick up at sample area 2 - get
ready to eat lunch

1500 CD Lora, M. Nur, R. Petter, J.
Nardine outside for lunch

1545 Return to site, Dean augers,
prepare to do sample area 3
need to finish center location,
collect VOC samples, finish

3 hand augers for composite
1620 Collect sample CC-BA-SF-03
Catchive hand Augering for

Composite SVOC, Metals samples
Collect sample for SVOCs
and Metals - at sample
area O3 after Homogenizing
composite samples

Carbolina Xenia Delana 4/26/11

1730 Collect Trip Blake water

sample for cooler shipment
CC-TB-01/CDelana preps

cooler

Center 39° 41.839 N
083° 56.505 W



cement

870 ft

A 39° 41.842 N

• B

083° 56.506 W

A °

887 ft

B 39° 41.840 N

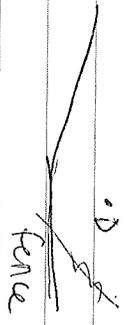
083° 56.503 W

890 ft

D 39° 41.838 N

083° 56.502 W

924 ft



Photos of sample area

1738 Photo facing south, looking at

fence with center sample stake at bottom and D at left

1739 Photo facing North with center

stake bottom ^{right} and A location

at left where orange screwdriver is.

1739 Photo facing east of location B

with orange screwdriver

Carbolina Xenia Delana 4/26/11

1800 Cooler is almost ready, will

need to tape up where we

get to feeder - load all

supplies into mini van

1815 Delana, M. Nur, R. Potter

offsite to feeder to ship cooler

J. Nordin offsite to water

1840 Delana, M. Nur, R. Potter

arrive at feeder fill out Aribol 11

and tape cooler strips

1850 Slip cooler - go back to

hotel - will need to get to

start tonight to get worn

supplies for tomorrow

~~Delana 4/26/11~~

Carboline Xenia Delava 4/26/11 27

0700 Delona, H. New onsite, got ready for sampling today

weather today - same as yesterday

SOS rain likely possibly severe, windy

PIDD 0.0 -> 100.5 ppm on

Isobutylene

Mini Rite Cite - PG M7300

T XD - Fair west Reutal

Equipment

0730 J. Verdile onsite, routine to prepare samples

0744 Urea Southwest along Fairgrounds Road of background

sample location - Picture

0745 Urea North East toward Fairgrounds Road and

County Airgrounds.

0800 State at hand over locations at SWMUS 28B turn

0830 get ready to hand over

Take sample CC-S3-SS-017 for VOCs

0855 Take sample CC-S3-SF-017 for VOCs

Carboline Xenia Delava 4/27/11 11

0900 Routine hand overing at SWMUS - Westing gravel in this Area

Had to move Cart of the depressed area because cannot

take encore sample of gravel take other auger locations

in gravel, especially D and B, A is in an unvegetated

area, some gravel in that berm, but clay underneath

0930 Finish augring area and take jars for SVOCs, Metals

0945 Begin deanning, starting to rain increasingly hard -

1000 go wait in cars for rain to pass since very difficult to walk in hard rain,

check radar - one band of stray storms passing through

turn lighter rain behind finish deanning - filled at

1030 labels, chain of custody in car during rain

1100 Take sample CC-S2-SS-017

Carboline Xenia Delora 4/27/11
for VOCs

1115 continue hand augring at
SUH A 2 area - first sample
area

1130 Sample CC-S2-SF-01 for VOCs
Carbine hand augring to get
soil for composite SDOC, Pestic
samples at locations A, B, D

1215 Brake for lunch
1300 Finish decanning prep work to
start hand augring at next location,
1445 Sample CC-S2-SS-02 for
VOCs - surface soil

1520 Sample CC-S2-SF-02 for
VOCs subsurface soil

1530 Carbine hand augring to
get soil for composite SDOC,
metal samples at locations
A, B, D

1545 Decom equipment to prepare
for next area for sampling
I. Nerdine helps with hand
augring Sample CC-S2-SS-03
taken for VOCs

1610 Sample CC-S2-SF-03 taken

Carboline Xenia Delora 4/27/11
for VOCs

1620 Delora finishing paperwork
and preparing cooler

1700 Take Sample CC-1B-02
trip blank for cooler

1730 finish hand augring, Carbine
prepares cooler take CC-EB-01

1800 Delora, N. New offsite
deliver cooler to FedEx for
shipment to lab for VOC
analysis - will arrive tomorrow
Thursday offsite

~~CD Delora~~

~~4/27/11~~

Caroline Kevin Dillon 4/28/11

0700 CD Delkner, M. Nur onsite, organize

0720 Samples, T. Nordine onsite

0725 Prepare to take pictures of SW HU 283

0747

New north west of SWHU

283 area - hand augers

worked with orange flags

GPS Bings

S2-03B

39° 41.571N

083° 56.480W 911'

S203A

39° 41.868N

083° 56.484W 910'

S203C

39° 41.870N

083° 56.484W 915

S2-03D

39° 41.873N

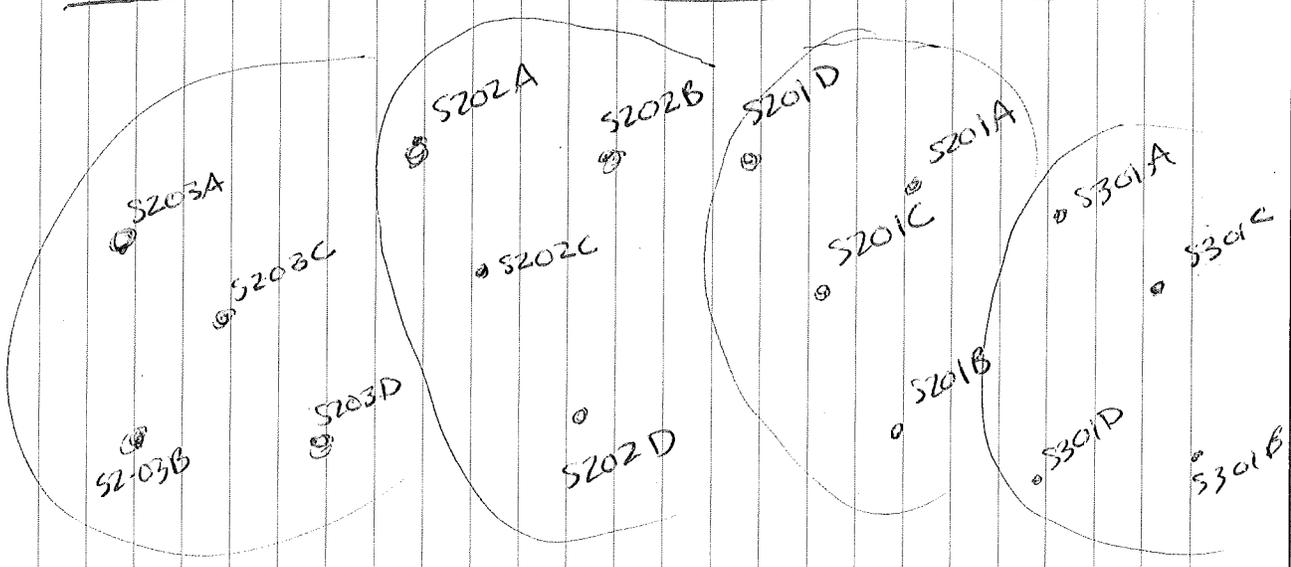
083° 56.484W 918'

S2-02A

39° 41.871N

083° 56.487W 916'

Building foundation



Carbolina Kenya Delawa 4/28/11

0752 View facing south toward building foundation of SWM02

0757 View South toward bldg foundation of SWM02-02

GPS S2-02C

39° 41.874 N

083° 56.488 W 918'

S202D

39° 41.876 N

083° 56.487 W 924'

S2-02 B

39° 41.873 N

083° 56.489 W - 921'

S201C

39° 41.876 N

083° 56.490 W 918'

S201D

39° 41.874 N

083° 56.491 W 915'

S201B

39° 41.879 N

083° 56.489 W 920'

S201A

39° 41.871 N

083° 56.493 W 916'

Carbolina Kenya Delawa 4/28/11

0802 View South toward bldg foundation of SWM2

surple area of GPS

S301A

39° 41.879 N

083° 56.502 W 916'

0805

View south toward bldg foundation of SWM03

of surple area of GPS

S301C

39° 41.881 N

083° 56.501 W 921'

S301B

39° 41.883 N

083° 56.498 W 920'

S301D

39° 41.880 N

083° 56.497 W 928'

0808⁰⁰ View-overview of site including bldgs, pad, foundation facing SE

Delawa

Dellana 4/28/11

Caroline-Kenna
0810 Go to Bumarua to state

parings and take pictures

0816 Place marks for BA-01

Picture facing SW toward
area 01

0821 Picture for BA-02

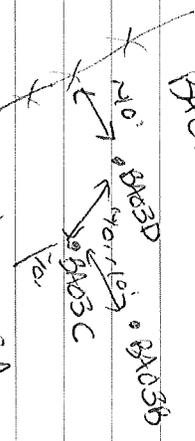
facing SW NW toward
BA-02 Area

0822 Picture west toward BA-02
Sketch of BA-03

Big fat

0822/23/24

BA-01



0824 Picture East toward BA-03

Area CDellana at BA-03A

Caroline to take GPS locations
and check that none are all 0s
→ all necessary pictures

Caroline Kenna Dellana 4/28/11

GPS 39° 41.842N BA03A

083° 56.509W 908'

BA 03C

39° 41.840N

083° 56.509W 898'

BA03B

39° 41.841N

083° 56.507W 905'

BA03D

39° 41.843 N

083° 56.509 W 892'

0830 fmsh taking GPS locations

Nur JD vendue offsite

CDellana decons SS builds

0912 *spoons from yesterday
New Southward cable

sign on property for owners -

"Heart of Ohio All Stars"

0912 view Southwest toward our 1/2

building at northeast side of

property

0920 CDellana offsite

[Handwritten signature]

ATTACHMENT 2

Photograph Log



Photograph No. 1
Date: 04/26/11

Direction: North
Time: 0823*

View of En Core® sample being collected from hand auger at background sample location BG-01.

* Actual sample collection time. Camera time stamp was not adjusted to reflect appropriate time zone.



Photograph No. 2
Date: 04/26/11

Direction: Southeast
Time: 0823*

View of En Core® sample being collected from hand auger at background sample location BG-01.

* Actual sample collection time. Camera time stamp was not adjusted to reflect appropriate time zone.



Photograph No. 3
Date: 04/26/11

Direction: North
Time: 0955*

View toward board near the burn area and fence at southwestern portion of property, which is likely used for paintball activities onsite.

* Actual sample collection time. Camera time stamp was not adjusted to reflect appropriate time zone.



Photograph No. 4
Date: 04/26/11

Direction: Northeast
Time: 0956*

View toward burn area at southwest portion of site near sample locations BA-01 and BA-02.

* Actual sample collection time. Camera time stamp was not adjusted to reflect appropriate time zone.



Photograph No. 5
Date: 04/26/11

Direction: Southeast
Time: 0956*

View toward burn area at southwest portion of site near sample locations BA-01 and BA-02.

* Actual sample collection time. Camera time stamp was not adjusted to reflect appropriate time zone.



Photograph No. 6
Date: 04/26/11

Direction: Southeast
Time: 0956*

View toward burn area at southwest portion of site near sample locations BA-01 and BA-02.

* Actual sample collection time. Camera time stamp was not adjusted to reflect appropriate time zone.



Photograph No. 7
Date: 04/26/11

Direction: Northeast
Time: 1022*

View toward hand auger locations for composite sample BA-01 in burn area.

* Actual sample collection time. Camera time stamp was not adjusted to reflect appropriate time zone.



Photograph No. 8
Date: 04/26/11

Direction: East
Time: 1403*

View toward hand auger locations for composite sample BA-02 in burn area.

* Actual sample collection time. Camera time stamp was not adjusted to reflect appropriate time zone.



Photograph No. 9
Date: 04/26/11

Direction: South
Time: 1404*

View toward hand auger locations for composite sample BA-02 in burn area.

* Actual sample collection time. Camera time stamp was not adjusted to reflect appropriate time zone.



Photograph No. 10
Date: 04/26/11

Direction: South
Time: 1738*

View toward hand auger locations for composite sample BA-03 in burn area and wood debris.

* Actual sample collection time. Camera time stamp was not adjusted to reflect appropriate time zone.



Photograph No. 11
Date: 04/26/11

Direction: North
Time: 1739*

View toward hand auger locations for composite sample BA-03 in burn area.

* Actual sample collection time. Camera time stamp was not adjusted to reflect appropriate time zone.



Photograph No. 12
Date: 04/26/11

Direction: East
Time: 1739*

View toward hand auger locations for composite samples BA-01 and BA-02 in burn area.

* Actual sample collection time. Camera time stamp was not adjusted to reflect appropriate time zone.



Photograph No. 13
Date: 04/27/11

Direction: Southeast
Time: 0744*

View toward background sample location BG-01 and along Fairgrounds Road.

* Actual sample collection time. Camera time stamp was not adjusted to reflect appropriate time zone.



Photograph No. 14
Date: 04/27/11

Direction: Northeast
Time: 0745*

View toward background sample location BG-01 and across Fairgrounds Road.

* Actual sample collection time. Camera time stamp was not adjusted to reflect appropriate time zone.



Photograph No. 15
Date: 04/28/11

Direction: Northwest
Time: 0747*

View toward SWMA 2 and SWMU 3 area showing hand auger locations marked with orange flags.

* Actual sample collection time. Camera time stamp was not adjusted to reflect appropriate time zone.



Photograph No. 16
Date: 04/28/11

Direction: South
Time: 0752*

View toward the east side of the building foundation adjacent to SWMA 2 area sample location S2-03.

* Actual sample collection time. Camera time stamp was not adjusted to reflect appropriate time zone.



Photograph No. 17
Date: 04/28/11

Direction: Southwest
Time: 0757*

View toward the east side of the building foundation adjacent to SWMA 2 sample location S2-02 area showing hand auger locations marked with orange flags.

* Actual sample collection time. Camera time stamp was not adjusted to reflect appropriate time zone.



Photograph No. 18
Date: 04/28/11

Direction: Southwest
Time: 0802*

View toward the building foundation adjacent to SWMA 2 sample location S2-01 area showing hand auger locations marked with orange flags.

* Actual sample collection time. Camera time stamp was not adjusted to reflect appropriate time zone.



Photograph No. 19
Date: 04/28/11

Direction: Southwest
Time: 0805*

View toward the building foundation adjacent to SWMU 3 sample location S3-01 area showing hand auger locations marked with orange flags.

* Actual sample collection time. Camera time stamp was not adjusted to reflect appropriate time zone.



Photograph No. 20
Date: 04/28/11

Direction: Southeast
Time: 0807*

View toward SWMA 2 and SWMU 3 with building foundation to right and other onsite buildings in background and hand auger locations marked with orange flags.

* Actual sample collection time. Camera time stamp was not adjusted to reflect appropriate time zone.



Photograph No. 21
Date: 04/28/11

Direction: Southwest
Time: 0816*

View toward BA-01 area showing hand auger locations marked with orange flags.

* Actual sample collection time. Camera time stamp was not adjusted to reflect appropriate time zone.



Photograph No. 22
Date: 04/28/11

Direction: Southwest
Time: 0821*

View toward BA-02 area showing hand auger locations marked with orange flags.

* Actual sample collection time. Camera time stamp was not adjusted to reflect appropriate time zone.



Photograph No. 23
Date: 04/28/11

Direction: West
Time: 0822*

View toward BA-02 area showing hand auger locations marked with orange flags.

* Actual sample collection time. Camera time stamp was not adjusted to reflect appropriate time zone.



Photograph No. 24
Date: 04/28/11

Direction: West
Time: 0824*

View toward BA-03 area showing hand auger locations marked with orange flags.

* Actual sample collection time. Camera time stamp was not adjusted to reflect appropriate time zone.



Photograph No. 25
Date: 04/28/11

Direction: Southwest
Time: 0912*

View toward fence and sign of "Heart of Ohio All Stars," which is the current property owner.

* Actual sample collection time. Camera time stamp was not adjusted to reflect appropriate time zone.



Photograph No. 26
Date: 04/28/11

Direction: Southeast
Time: 0912*

View toward onsite building at northeast side of property.

* Actual sample collection time. Camera time stamp was not adjusted to reflect appropriate time zone.

ATTACHMENT 3

Chain of Custody Forms



Chain of Custody Record

NO 20496

Project Code 03043005.03.015.000.RL		Samples Shipped To		Samplers Names		1) Sample description (Enter in column A)		2) Preservatives (Enter in column B)	
Project (site) Name Carboline Company		Carrier FedEx		Samplers Signatures C. Bellavia		1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil 7. Waste 8. Other (specify)		1. HCl 2. HNO ₃ 3. NaHSO ₄ 4. H ₂ SO ₄ 5. NaOH 6. Other (specify) 7. Ice only N. Not preserved	
City, State, Zip Code Xenia, OH		Air Bill Number 875718936496		MM/DD/YY Time sample collection					
Date Shipped 04/26/11									
Sample Identification Numbers		A. Matrix enter from Box 1	B. Preser. enter from Box 2	Grab or Comp	Number of Sample Containers	MM/DD/YY	Time sample collection	Analysis	Remarks/ Tag Numbers
CC-BG-SS-01		5	7	Grab	3	04/26/11	0630		
CC-BG-SB-01		5	7	Grab	3	04/26/11	0850		
CC-BA-SS-01		5	7	Grab	3	04/26/11	1030		
CC-BA-SF-01		5	7	Grab	3	04/26/11	1045		
CC-BA-SS-02		5	7	Grab	3	04/26/11	1200		
CC-BA-SS-04		5	7	Grab	3	04/26/11	1000		
CC-BA-SF-02		5	7	Grab	3	04/26/11	1000		
CC-BA-SF-04		5	7	Grab	3	04/26/11	1020		
CC-BA-SS-03MSD		5	7	Grab	3	04/26/11	1320		
CC-BA-SF-03		5	7	Grab	3	04/26/11	1620		
CC-TD-01		8	7	Grab	2	04/26/11	1730		
CC-BA-SS-01									
CC-BA-SS-02									
CC-BA-SS-03									
CC-BA-SS-04									
CC-BA-SF-01									
CC-BA-SF-02									
CC-BA-SF-03									
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CC-BA-SS-03									
CC-BA-SS-04									
CC-BA-SF-01									
CC-BA-SF-02									



TECHLAW, INC.

Chain of Custody Record

NE 20491

Project Code 03043005.033.04.5.0000	Project (site) Name Carbolaw Company	City, State, Zip Code Xenia, OH	Date Shipped 4/27/11	Carrier FedEx	Air Bill Number 875718939315	Samples Shipped To CRL	Samplers Names C. DeLawa M. N.W.	Samplers Signatures C. DeLawa Michael O'Neil	1) Sample description (Enter in column A) 1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil 7. Waste 8. Other (specify) <i>DE</i>	2) Preservatives (Enter in column B) 1. HCl 2. HNO ₃ 3. Na HSO ₄ 4. H ₂ SO ₄ 5. Na OH 6. Other (specify) 7. Ice only N. Not preserved
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Sample Identification Numbers	A.		B.	Grab or Comp	Number of Sample Containers	MM/DD/YY Time sample collection	Analysis	Remarks/ Tag Numbers
	Matrix enter from Box 1	Preser. enter from Box 2						
CC-S3-SS-01	5	7	Grab	3	04/27/11 0830			
CC-S3-SF-01	5	7	Grab	3	04/27/11 0855			
CC-S2-SS-01	5	7	Grab	3	04/27/11 1100			
CC-S2-SF-01	5	7	Grab	3	04/27/11 1130			
CC-S2-SS-02	5	7	Grab	3	04/27/11 1445			
CC-S2-SF-02	5	7	Grab	3	04/27/11 1520			
CC-S2-SS-03	5	7	Grab	3	04/27/11 1600			
CC-S2-SF-03	5	7	Grab	3	04/27/11 1616			
CC-TB-02	8	1	Grab	2	4/27/11 1700			
<i>C. DeLawa 4/27/11</i>								

Relinquished By <i>Cristina Bellawa</i>	Time 1800	Date 4/27/11	Received By	Time	Date	Received By	Time	Date	Received By	Time	Date
Relinquished By	Time	Date	Received By	Time	Date	Received By	Time	Date	Received By	Time	Date

Remarks
Split Samples — Accepted — Declined (Signature)

Distribution: Original — TECHLAW, INC.
Carbon copies — Laboratory, work assignment manager, client (as appropriate)

Page ___ of ___



Chain of Custody Record

MA 20159

Project Code 03443.08.038.04.5.0000	Project (site) Name Carrollville Company	City, State, Zip Code Xenia, OH	Date Shipped 4/28/11	Carrier Hand Delivery	Air Bill Number NA	Carrier Signatures	Samplers Names C. DeLuca	1) Sample description (Enter in column A) 1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil 7. Waste 8. Other (specify)	2) Preservatives (Enter in column B) 1. HCl 2. HNO ₃ 3. NaHSO ₄ 4. H ₂ SO ₄ 5. NaOH 6. Other (specify) 7. Ice only N. Not preserved
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Sample Identification Numbers	A. Matrix enter from Box 1		B. Preser. enter from Box 2	Grab or Comp	Number of Sample Containers	MM/DD/YY Time sample collection	Analysis	Remarks/ Tag Numbers
	Time	Date						
CC-06-SS-01	5	7	7	Comp	2	04/24/11 0830	SVOCS TRIMM	MSUSD
CC-06-SS-01					2	0850		
CC-0A-SS-01						1030		
CC-0A-SF-01						1045		
CC-0A-SS-02						1200		
CC-0A-SS-04						1000		
CC-0A-SF-02						1230		
CC-0A-SF-04						1020		
CC-0A-SS-03MSD						1020		
CC-0A-SF-03						1020		
CC-0B-SS-01						04/27/11 0830		
CC-0B-SF-01						0855		
CC-0Z-SS-01						1100		
CC-0Z-SF-01						1130		

Relinquished By	Time	Date	Date Received By	Time	Date	Date Received By	Time	Date
WALTER SULLAWAY	1120	04/28/11	[Signature]	1520	04/28/11	[Signature]	1530	04/28/11
Relinquished By	Time	Date	Date Received By	Time	Date	Date Received By	Time	Date

Remarks
Split Samples — Accepted — Declined (Signature)



Chain of Custody Record

Project Code 050430050550450000		Samples Shipped To CRL		Samplers Names C. Dillman		1) Sample description (Enter in column A) 1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil 7. Waste 8. Other (specify)		2) Preservatives (Enter in column B) 1. HCl 2. HNO ₃ 3. NaHSO ₄ 4. H ₂ SO ₄ 5. NaOH 6. Other (specify) 7. Ice only N. Not preserved		
Project (site) Name Carboline Company		Carrier Hand Delivery		Samplers Signatures Cristina Salgado						
City, State, Zip Code Kenia, OH		Air Bill Number NA								
Date Shipped 4/28/11										
Sample Identification Numbers	A. Matrix enter from Box 1	B. Preser. enter from Box 2	Grab or Comp	Number of Sample Containers	MM/DD/YY Time sample collection	Analysis	Remarks/ Tag Numbers	Relinquished By	Time	Date
CC-SZ-SS-02	5	7	Grab	2	04/27/11 1445	✓				
CC-SZ-SF-02	5	7	Grab	2	1520	✓				
CC-SZ-SS-03	5	7	Grab	2	1600	✓				
CC-SZ-SF-03	5	7	Grab	2	1616	✓				
CC-TB-03	8	1	Grab	2	1720	✓				
CC-EB-01	4	12, 7	Grab	5	1730	✓				
C. Dillman 4/28/11										
Remarks										
Split Samples — Accepted — Declined (Signature)										

ATTACHMENT 4

Data Validation Report

ORGANIC DATA VALIDATION REPORT

Validated by: Jana Dawson, TechLaw, Inc.
 Report Date: August 10, 2011
 Project/Site: Carboline Company OHD 030 963 615
 Laboratory: Region 5 Laboratory, Chicago, Illinois
 Sample Delivery Group: 1104015
 DCN#: RZ2.R05033.04-ID-021

This memorandum presents the data validation report for organic analysis of samples obtained during the field activities for the above referenced work assignment. The purpose of this review is to provide a full data validation of selected samples collected April 26 & 27, 2011 and analyzed by the EPA Region 5 Chicago Regional Laboratory. The sample(s) selected for full validation are identified below:

Field Sample Numbers	Laboratory ID	Matrix	Method
CC-BG-SS-01	1104015-01 (SVOC, PCB) 1104013-01 (VOC)	Soil	SVOCs – SW846 8270D PCBs – SW846 8082
CC-BG-SB-01	1104015-02 (SVOC, PCB) 1104013-02 (VOC)	Soil	VOCs – SW846 8260
CC-BA-SS-01	1104015-03 (SVOC, PCB)	Soil	SVOCs – SW846 8270D PCBs – SW846 8082
CC-BA-SF-01 ⁺	1104015-04 (SVOC, PCB) 1104013-04 (VOC)	Soil	SVOCs – SW846 8270D PCBs – SW846 8082
CC-BA-SS-02	1104015-05 (SVOC, PCB) 1104013-05 (VOC)	Soil	VOCs – SW846 8260
CC-BA-SS-04 ⁺	1104015-06 (SVOC, PCB) 1104013-06 (VOC)	Soil	
CC-BA-SF-02 ⁺⁺	1104015-7 (SVOC, PCB) 1104013-07 (VOC)	Soil	
CC-BA-SF-04	1104015-08 (SVOC, PCB) 1104013-08 (VOC)	Soil	
CC-BA-SF-03 ⁺	1104015-09 (SVOC, PCB) 1104013-09 (VOC)	Soil	

Field Sample Numbers	Laboratory ID	Matrix	Method
CC-BA-SS-03	1104013-10 (VOC)	Soil	VOCs – SW846 8260
CC-S3-SS-01	1104015-10 (SVOC, PCB) 1104014-01 (VOC)	Soil	SVOCs – SW846 8270D PCBs – SW846 8082
CC-S3-SF-01	1104015-11 (SVOC, PCB) 1104014-02 (VOC)	Soil	VOCs – SW846 8260
CC-S2-SS-01	1104015-12 (SVOC, PCB) 1104014-03 (VOC)	Soil	
CC-S2-SF-01 ⁺	1104015-13 (SVOC, PCB) 1104014-04 (VOC)	Soil	
CC-S2-SS-02	1104015-14 (SVOC, PCB) 1104014-05 (VOC)	Soil	
CC-S2-SF-02	1104015-15 (SVOC, PCB) 1104014-06 (VOC)	Soil	
CC-S2-SS-03	1104015-16 (SVOC, PCB) 1104014-07 (VOC)	Soil	
CC-S2-SF-03 ⁺	11404015-17 (SVOC, PCB) 1104014-08 (VOC)	Soil	
CC-BA-SS-03MSMSD	1104015-18	Soil	
CC-TB-01	1104013-11	Water	VOC – SW846 8260
CC-TB-02	1104014-09	Water	
CC-TB-03	1104015-19	Water	
CC-EB-01	1104015-20	Water	VOCs – SW846 8260 SVOCs – SW846 8270D PCBs – SW846 8082

⁺ denotes full validation of VOC, SVOC, and PCBs

⁺⁺ denotes full validation of VOCs analysis only

Data validation was conducted in accordance with the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 (NFG-Org) and Test Methods for Evaluating Solid Waste, SW-846, 3rd Edition (Fourth update 2008).

A standard technical validation was performed on the samples. The data were evaluated based on the following parameters:

Data Completeness

- * Preservation and Holding Times
- * GC/MS Instrument Performance Check

Calibration

- 1) Initial Calibration
- 2) Continuing Calibration Verification

Blanks

- * Surrogate Recoveries

Laboratory Control Samples

Matrix Spike/Matrix Spike Duplicates

Blank Spikes (Laboratory Control Samples)

- * Internal Standards

Field Duplicates

- * Target Compound Identification

- * Overall Assessment

- * **Sample results were qualified based on this parameter**

Data Completeness

All data necessary to complete the data validation were provided, with the exception that the raw data for the initial calibration standards (quantitation reports) for the SVOC data in case number 1104015, was missing from the hard copy data package. The initial calibration performed on May 20, 2011 was submitted by the laboratory on July 25, 2011. Additionally, while validating the PCB data, it was determined that the Aroclor 1260 results in samples 1104015-04 (CC-BA-SF-01) and 1104015-03 (CC-BA-SS-01) were reported incorrectly at twice the actual values. The EPA Region 5 provided a re-submission of the PCB results for these two samples with the corrected concentrations.

Form VA, Volatile Organic Instrument Performance Check, did not list sample CC-BA-SF-03 (1104013-09), however based on the time of analysis and a check of the raw data, this sample was analyzed within 12 hours of the injection of the instrument tune standard, BFB. No action was taken based on this omission.

Preservation and Holding Times

All samples were received intact and at the proper shipping temperature of less than 6°C. The samples for SVOC analysis were extracted within the recommended holding time of 14 days, and analyzed within 40 days. The samples for VOC analysis were analyzed within 14 days. The samples for PCB analysis were extracted and analyzed within 40 days.

GC/MS Instrument Performance Check

The bromofluorobenzene (BFB) tuning solution was analyzed prior to each VOC analytical run to check the instrument performance. GC/MS tuning complied with the mass list and ion abundance acceptance criteria. All samples were analyzed within the twelve (12) hour periods between instrument performance checks.

The decafluorotriphenylphosphine (DFTPP) tuning solution was analyzed prior to each SVOC analytical sequence to check the instrument performance. GC/MS tuning complied with the mass list and ion abundance acceptance criteria. All samples were analyzed within the twelve (12) hour periods between instrument performance checks.

Calibration

The percent relative standard deviations (%RSDs) for the relative response factors or calibration factors for the target analytes in the initial calibrations were within the QC limits. When linear calibration was used, R^2 values were above 0.990.

The percent difference (%D) for the target analytes in the ICVs and CCVs were within the QC limits with the following exceptions:

VOCs:

- The percent relative standard deviation (%RSD) limit of 30% was exceeded in the initial calibration associated with the soil samples CC-BG-SS-01, CC-BG-SB-01, CC-BA-SF-01, CC-BA-SS-02, CC-BA-SS-04, CC-BA-SF-02, CC-BA-SF-04, CC-BA-SF-03, and CC-BA-SS-03 (1104013-01, 1104013-02, and 1104013-04 – 1104013-10) for vinyl chloride (42.55%) and bromomethane (45.12%), therefore these compounds are qualified as estimated (J/UJ).
- The recovery of dichlorodifluoromethane, vinyl chloride, and chloroethane exceeded the acceptance limit of 25% difference in the calibration verification standard associated with samples CC-BG-SS-01, CC-BG-SB-01, CC-BA-SF-01, CC-BA-SS-02, CC-BA-SS-04, CC-BA-SF-02, CC-BA-SF-04, CC-BA-SF-03, and CC-BA-SS-03 (1104013-01, 1104013-02, and 1104013-04 – 1104013-10), therefore these compounds are qualified as estimated (J/UJ).
- The recovery of chloromethane was slightly above the 25% difference acceptance limit at 25.6% for the ending continuing calibration verification (CCV) bracketing the soil samples CC-S3-SS-01, CC-S3-SF-01, CC-S2-SS-01, CC-S2-SF-01, CC-S2-SS-02, CC-S2-SF-02, CC-S2-SS-03, and CC-S2-SF-03 (1104014-01 – 1104014-08). Chloromethane was not detected in any of the associated soil samples, therefore chloromethane was qualified as estimated (UJ).

SVOCs

- Recoveries from one or both bracketing continuing calibration verification (CCV) standards for samples CC-BA-SF-01 (1104015-04) and CC-S2-SF-01 (1104015-13) exceeded the 25% difference criteria for 2,4,5-trichlorophenol, 2,4,6-trichlorophenol, and 4-nitrophenol. All results for these analytes were non-detected and qualified as not detected at an estimated quantitation limit (UJ).
- Recoveries from one or both of the bracketing continuing calibration verification (CCV) standards for samples CC-BA-SS-04 (1104015-06), CC-BA-SF-03 (1104015-09), and CC-S2-SF-03 (1104015-17) exceeded the 25% difference criteria for hexachlorocyclobutadiene, 2,4-dinitrophenol, and pentachlorophenol. All results for these analytes were non-detected and qualified as not detected at an estimated quantitation limit (UJ) in samples.

Blanks

A method blank was prepared along with each batch of samples and carried through the preparation procedure and analysis. All method blank results were less than the reporting limit. No compounds were detected in the method blank except the following:

SVOCs

- Di-n-butyl phthalate was detected in the SVOC method blank analysis. All sample results for this compound were non-detects, therefore no action was taken.

Three trip blanks and one equipment blank were collected. No compounds were detected above the reporting limits except the following:

- Chloroform was detected in trip blank samples CC-TB-01 (1104013-11), CC-TB-02 (1104014-09), and CC-TB-03 (1104015-19) and in the Equipment Blank (CC-EB-01). All associated soil sample results for chloroform are non-detect, therefore no qualifiers have been applied.

Surrogate Recoveries

Surrogate compounds were added to the samples and QC samples. The surrogate percent recoveries were within laboratory QC limits with the following exceptions:

SVOCs

- The recovery for 2 acid fraction surrogates were below the acceptance limit: phenol-d5 (43.6%) and 2,4,6-tribromophenol (52.8%). Only one base-fraction surrogate was below the acceptance limit, therefore no qualifiers are applied to base compounds. As a result of the low acid fraction surrogate recoveries, the following compounds in sample CC-BA-SF-01 (1104015-04) are qualified as estimated at the detection limit (UJ): phenol, 2-chlorophenol, 2-methylphenol, 3 &/or 4-methylphenol, 2-nitrophenol, 2,4-dimethylphenol, 2,4-dichlorophenol, 2,6-dichlorophenol, 4-chloro-3-methylphenol, 2,4,6-trichlorophenol, 2,4,5-trichlorophenol, 4-nitrophenol, 4,6-dinitro-2-methylphenol, and pentachlorophenol.

Blank Spikes - Laboratory Control Samples (LCS)

LCS samples were prepared in duplicate for all organic batches. The percent recoveries and relative percent differences (RPDs) of the LCS samples were within laboratory QC limits for all analytes with the following exceptions:

SVOCs

- Benzidine and 3,3'-dimethylbenzidine were not recovered in the LCS/LCSD. Benzidine and 3,3'-dimethylbenzidine are not reported in the associated samples, therefore qualifiers were not required for these compounds. Additionally, di-n-butylphthalate recovered above the acceptance limit at 30%. All sample results for this compound were non-detects, therefore no action was taken.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

A MS/MSD was prepared from sample CC-BA-SS-03MSMSD (1104015-18) for SVOC and PCB analysis. For VOC analysis a MS/MSD was prepared from sample CC-BA-SS-03 (1104013-10). The percent recoveries and relative percent differences (RPDs) from the MS/MSD samples were within laboratory QC limits with the following exceptions:

VOCs

- Matrix spike results were evaluated for National Functional Guideline (NFG) specified compounds, 1,1-dichloroethene, trichloroethene, benzene, toluene, and chlorobenzene and the NFG recovery limits. The recoveries of benzene (50%), toluene (43.3%) and chlorobenzene (47%) were below the NFG acceptance limits in the MSD only. Additionally, the RPD values for these compounds were non-compliant. As a result of these matrix spike nonconformances, the results for benzene, toluene, and chlorobenzene are flagged as estimated (J) in the parent sample CC-BA-SS-03 (1104013-10).

SVOCs

- The recoveries of the following compounds were below the acceptance criteria: pyridine (0%/0%), benzidine (0%/0%), 3,3'-dimethylbenzidine (0%/0%), 4-Chloroaniline (8.21%/18.4%), 3-nitroaniline (28%/38.8%), 2,4-dinitrophenol (38.7%/41.8%), and 4-nitroaniline (51.5%/32.3%). Additionally, bis(2-ethylhexyl)phthalate (363%-MS only) was recovered above the acceptance criteria in the matrix spike analysis. Generally, data are not qualified based on MS/MSD data alone. Additionally, benzidine and 3,3'-dimethylbenzidine are not reported in the samples, therefore no qualifications are required for these compounds. However, given the extremely low recoveries, professional judgment was used to qualify for the low recoveries, as follows: Pyridine is flagged as rejected (R) for no recovery in the MS/MSD, and 4-chloroaniline, 3-nitroaniline, 2,4-dinitrophenol, 4-nitroaniline are flagged as estimated (J) for low recoveries in parent sample CC-BA-SS-03MSMSD (1104015-18). Additionally, based on the extremely high recovery of Bis(2-ethylhexyl)phthalate, professional judgment was used to qualify the detected result as estimated (J) in parent sample CC-BA-SS-03MSMSD (1104015-18).

PCBs

- Aroclor 1260 was recovered at 141% in the matrix spike only. Since the MSD and LCS recoveries were compliant, and generally, qualifiers are not applied on MS/MSD data alone, the sample results are not qualified based on the elevated MS result.

Internal Standards

Internal Standards were added to the calibration standards, field samples, and QC samples. The recoveries and retention times were within method QC limits.

Field Duplicates

Soil samples CC-BA-SS-02 (1104015-05)/ CC-BA-SS-04 (1104015-06) and CC-BA-SF-02 (1104015-07)/ CC-BA-SF-04 (1104015-08) were collected as field duplicates for this project. All results for the duplicate pairs met the 50% RPD acceptance criteria for soil samples, or if one or both results were less than 5 times reporting limit, the difference in the duplicate results were less than 2 times the reporting limit (2xRL), except for the following:

- Phenol (Diff >2x Reporting Limit [RL]), 2-methyl naphthalene (Diff >2x RL), acenaphthene (Diff >2x RL), dibenzofuran (Diff >2x RL), fluorine (Diff >2x RL), phenanthrene (RPD of 193%), anthracene (RPD 190%), fluoranthene (RPD 144%), pyrene (144%), benzo(a)anthracene (RPD 81%), chrysene (RPD 57%), and Bis(2-ethylhexy)phthalate (RPD 43%) in duplicate pair CC-BA-SS-02 (1104015-05)/ CC-BA-SS-04 (1104015-06). Results indicate heterogeneity exists in the samples and contamination distribution. Professional judgment was used to qualify these compounds as estimated (J) in the field duplicate pair samples CC-BA-SS-02 (1104015-05)/ CC-BA-SS-04 (1104015-06).

Target Compound Identification

Aroclor 1260 results in samples 1104015-04 and 1104015-03 (CC-S2-SS-01) were reported incorrectly at twice the actual values. The EPA Region 5 lab provided a re-submission of the PCB 1260 results for these two samples with the corrected concentrations.

Overall Assessment of Organic Data

All reported results were within the linear range of the instrumentation.

Vinyl chloride and bromomethane are qualified as estimated (J/UJ) in all soil samples in batch 1104013, which include CC-BG-SS-01, CC-BG-SB-01, CC-BA-SF-01, CC-BA-SS-02, CC-BA-SS-04, CC-BA-SF-02, CC-BA-SF-04, CC-BA-SF-03, and CC-BA-SS-03 (1104013-01, 1104013-02, and 1104013-04 – 1104013-10) for exceeding the %RSD

acceptance limit in the initial calibration associated with the soil sample analyses.

Dichlorodifluoromethane, vinyl chloride, and chloroethane were above the acceptance limit of 25% in the initial calibration verification and are qualified as estimated (J/UJ) in all soil samples in batch 1104013, which include CC-BG-SS-01, CC-BG-SB-01, CC-BA-SF-01, CC-BA-SS-02, CC-BA-SS-04, CC-BA-SF-02, CC-BA-SF-04, CC-BA-SF-03, and CC-BA-SS-03 (1104013-01, 1104013-02, and 1104013-04 – 1104013-10).

Chloromethane was qualified as estimated (UJ) in all soil samples (1104014-01 – 1104014-08) due to a percent difference exceedance (25.6%) above the acceptance limit in the ending bracketing CCV standard, which included samples CC-S3-SS-01, CC-S3-SF-01, CC-S2-SS-01, CC-S2-SF-01, CC-S2-SS-02, CC-S2-SF-02, CC-S2-SS-03, and CC-S2-SF-03 (1104014-01 – 1104014-08).

Benzene, toluene, and chlorobenzene are flagged as estimated (J) in the parent sample CC-BA-SS-03 (1104013-10) for exceeding the matrix spike recovery criteria in the MSD, and the RPD criteria for the MS/MSD.

Pyridine is flagged as rejected (R) for no recovery in the MS/MSD, and 4-chloroaniline, 3-nitroaniline, 2,4-dinitrophenol, and 4-nitroaniline are flagged as estimated (J) for low MS/MSD recoveries in the parent sample CC-BA-SS-03MSMSD (1104015-18). Additionally, the detected result for Bis(2-ethylhexyl)phthalate is flagged as estimated (J) in parent sample CC-BA-SS-03MSMSD.

Phenol, 2-chlorophenol, 2-methylphenol, 3 &/or 4-methylphenol, 2-nitrophenol, 2,4-dimethylphenol, 2,4-dichlorophenol, 2,6-dichlorophenol, 4-chloro-3-methylphenol, 2,4,6-trichlorophenol, 2,4,5-trichlorophenol, 4-nitrophenol, 4,6-dinitro-2-methylphenol, and pentachlorophenol are qualified as estimated at the detection limit (UJ) in sample CC-BA-SF-01 (1104015-04) as a result of low acid fraction surrogate recoveries.

2,4,5-Trichlorophenol, 2,4,6-trichlorophenol, and 4-nitrophenol are qualified as estimated at the detection limit (UJ) in samples CC-BA-SF-01 (1104015-04) and CC-S2-SF-01 (1104015-13) for low recoveries from one or both bracketing continuing calibration verification (CCV) standards.

Hexachlorocyclobutadiene, 2,4-dinitrophenol, and pentachlorophenol are qualified as estimated at the detection limit (UJ) in samples CC-BA-SS-04 (1104015-06), CC-BA-SF-03 (1104015-09), and CC-S2-SF-03 (1104015-17) for low recoveries in one or both of the bracketing continuing calibration verification (CCV) standards.

Phenol, 2-methyl naphthalene, acenaphthene, dibenzofuran, fluorine, phenanthrene, anthracene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, and Bis(2-ethylhexyl)phthalate exceeded the PRD or percent difference acceptance criteria in duplicate pair CC-BA-SS-02 (1104015-05)/ CC-BA-SS-04 (1104015-06). Professional judgment was used to qualify these compounds as estimated (J) in the field duplicate pair samples CC-BA-SS-02 (1104015-05)/ CC-BA-SS-04 (1104015-06).

DATA QUALIFIER DEFINITIONS

For the purpose of Data Validation, the following code letters and associated definitions are provided for use by the data validator to summarize the data quality.

- R - Reported value is “rejected.” Resampling or reanalysis may be necessary to verify the presence or absence of the compound.
- J - The associated numerical value is an estimated quantity because the Quality Control criteria were not met.
- UJ - The reported quantitation limit is estimated because Quality Control criteria were not met. Element or compound was not detected.
- NJ - Estimated value of a tentatively identified compound. (Identified with a CAS number.) ORGANICS analysis only.
- U - The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.
- NR - Result was not used from a particular sample analysis. This typically occurs when more than one result for a compound is reported due to dilutions and reanalyses.
- Z - The chromatographic response does not resemble a typical fuel pattern.

INORGANIC DATA VALIDATION REPORT

Validated by: Jana Dawson, TechLaw, Inc.
 Report Date: August 2, 2011
 Project/Site: Carboline
 Laboratory: Region 5 Laboratory, Chicago, Illinois
 Sample Delivery Group: 1104015
 DCN#: RZ2.R05033.04-ID-021

This memorandum presents the data validation report for inorganic analysis of samples obtained during the field activities for the above referenced work assignment. A full validation including calculation checks was performed on the selected sample(s) identified below:

Field Sample Numbers	Laboratory ID	Matrix	Preparation and Analyses
CC-BG-SS-01	1104015-01	Soil	Metals – ICP Method 200.7
CC-BG-SB-01	1104015-02	Soil	Mercury – SW846 7471A
CC-BA-SS-01	1104015-03	Soil	Percent Moisture – EPA moisture
CC-BA-SF-01 ⁺	1104015-04	Soil	
CC-BA-SS-02	1104015-05	Soil	
CC-BA-SS-04 ⁺	1104015-06	Soil	
CC-BA-SF-02	1104015-07	Soil	
CC-BA-SF-04	1104015-08	Soil	
CC-BA-SF-03 ⁺	1104015-09	Soil	
CC-S3-SS-01	1104015-10	Soil	
CC-S3-SF-01	1104015-11	Soil	
CC-S2-SS-01	1104015-12	Soil	
CC-S2-SF-01	1104015-13	Soil	
CC-S2-SS-02 ⁺	1104015-14	Soil	
CC-S2-SF-02	1104015-15	Soil	
CC-S2-SS-03	1104015-16	Soil	
CC-S2-SF-03 ⁺	1104015-17	Soil	
CC-BA-SS-03MSMSD	1104015-18	Soil	

Field Sample Numbers	Laboratory ID	Matrix	Preparation and Analyses
CC-EB-01	1104015-20	Water	Metals – ICP Method 200.7

⁺ denotes full validation

Data validation was conducted in accordance with the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010 (NFG-Inorg) and Test Methods for Evaluating Solid Waste, SW-846, 3rd Edition (Fourth update 2008).

A standard technical validation was performed on the samples. The data were evaluated based on the following parameters:

- Data Completeness
- Preservation and Holding Times
- Calibration
 - 1) Initial Calibration
 - 2) Initial and Continuing Calibration Verification
 - 3) Lower limit of quantitation check
- * Blanks
 - Inductively Coupled Plasma Interference Check Sample
 - Laboratory Control Samples
 - Duplicate Sample Analysis
- * Spike Sample Analysis
 - Serial Dilution
- * Field Duplicates
 - Overall Assessment
- * **Sample results were qualified based on this parameter**

Data Completeness

All data necessary to complete the data validation were provided, with the exception that the laboratory did not provide summary forms for the quality control samples which demonstrated percent recoveries. This information was requested for the laboratory, but was not provided. From review of the raw data, it appears the laboratory spiked the continuing calibration standards and matrix spike at 3 ppb. It appears the blank spike was spiked at 1.5 ppb. Recoveries were calculated using these spike concentrations.

Additionally, the laboratory did not provide the mercury data for the equipment blank sample, CC-EB-01. The laboratory was contacted and it was determined this sample was inadvertently not analyzed for mercury, therefore mercury results are not available for this field QC sample.

Preservation and Holding Times

Soil samples for metals analysis (excluding mercury) should be analyzed within 180 days of collection and do not have a specified storage temperature. Mercury should be analyzed within 28 days of collection and maintained at a temperature of $\leq 6^{\circ}\text{C}$, with aqueous samples preserved to $\text{pH} \leq 2$ S.U. with nitric acid.

Samples were collected April 26 and 27, 2011 and were received on April 28, 2011 as part of sample delivery group (SDG) 1104015. Soil samples were prepared for analysis by 200.7 on May 2, 2011 and analyzed on June 1, 2011. Soil samples were prepared for analysis by 7471A on May 11, 2011 and analyzed on May 13, 2011.

All samples were analyzed within the recommended holding times for metals and mercury analysis.

Calibration

For metals and mercury analysis, recoveries of analytes in the initial calibration verification standard (ICV) and all continuing calibration verification standards (CCVs) were within 90-110%; no more than ten samples were analyzed between CCVs. The recoveries of analytes in the lower limit of quantitation check were between 50-150%.

Blanks

An initial calibration blank (ICB) was analyzed after the ICV, and a continuing calibration blank (CCB) was analyzed after each CCV. Method blanks were prepared for each batch along with the samples and carried through the entire preparation and analysis procedures. The absolute concentration values of all ICB, CCB, extraction blank and digestion blank results were less than the reporting limit.

One equipment blank was collected for this project and analyzed for ICP metals. No analytes were detected above the reporting limit in the equipment blank sample with the exception of Sodium which was reported at 1.16 mg/L. With sodium being so ubiquitous, especially in water matrices, there is no way to clearly correlate this water result to the soil results. No action is taken.

ICP-Interference Check

Interference check standards (ICS) A and AB were analyzed according to Method 6010B. Recoveries of all analytes were within 20% of their true value or less than the reporting level, whichever is greater. Absolute values of analytes which are not present in the ICS solution were less than the reporting limit. Reporting limits for batch 85559 (soil and waste) were determined by converting from mg/kg in final sample to mg/L on instrument, assuming 1 gram dry weight is digested and diluted to 50 milliliters final volume.

Laboratory Control Sample

Laboratory control samples (LCS) were prepared for each batch by spiking a solution of known concentration into reagent water and digesting along with the samples. The

recoveries of all reported metal analytes were within QC limits of 70-130% required by NFG.

Duplicate Sample Analysis

A laboratory duplicate was prepared from sample CC-BG-SS-01 (110415-01) For analytes detected in both samples, the RPDs were either (1) all less than the NFG-Inorg limit of 35% for soils; or (2), 2X the absolute differences were less than the reporting limit if either sample was <5x the reporting limit.

Spike Sample Analysis

A matrix spike and matrix spike duplicate (MS/MSD) and post-digestion spike (PDS) were prepared from sample CC-BA-SS-03MSMSD (1104015-18). All recoveries and RPDs were within NFG control limits (MS/MSD and PDS recoveries between 75-125% and RPDs less than 20%) with the exception of the matrix spike duplicate recovery for manganese.

- Manganese is estimated (J) in sample CC-BA-SS-03MSMSD (1104015-18) because the recovery in the soil MSD was 150%.

Serial Dilution

No serial dilution is required per EPA Method 200.7. Data were assessed on the basis of MS/MSD performance.

Field Duplicates

Soil samples CC-BA-SS-02 (1104015-05)/ CC-BA-SS-04 (1104015-06) and CC-BA-SF-02 (1104015-07)/ CC-BA-SF-04 (1104015-08) were collected as field duplicates for this project. All results for the duplicate pairs met the project-specific RPD acceptance criteria for soil samples of 50%RPD, or if one or both results were less than 5 times reporting limit, the difference in the duplicate results were less than 2 times the reporting limit (2xRRL), except for the following:

- Calcium exceeded the RPD acceptance limit at 60%RPD in field duplicate samples CC-BA-SS-02 (1104015-05) and CC-BA-SS-04 (1104015-06). As a result, calcium results are estimated (J) in field duplicate samples CC-BA-SS-02 (1104015-05) and CC-BA-SS-04 (1104015-06) for exceeding the 50% RPD field duplicate acceptance criteria.
- Mercury exceeded the RPD acceptance limit at 100% in field duplicate samples CC-BA-SS-02 (1104015-05) and CC-BA-SS-04 (1104015-06). As a result, mercury results are estimated (J) in field duplicate samples CC-BA-SS-02 (1104015-05) and CC-BA-SS-04 (1104015-06) for exceeding the 50% RPD field duplicate acceptance criteria.

No action was taken if the analyte was not detected in both samples.

Overall Assessment of Metals Data

All reported results were within the linear range of the instrumentation.

Calcium results are estimated (J) in field duplicate samples CC-BA-SS-02 (1104015-05) and CC-BA-SS-04 (1104015-06) for exceeding the 50% RPD field duplicate acceptance criteria.

Manganese is estimated (J) in sample CC-BA-SS-03MSMSD (1104015-18) because the recovery in the soil MSD was 150%.

Mercury results are estimated (J) in field duplicate samples CC-BA-SS-02 (1104015-05) and CC-BA-SS-04 (1104015-06) for exceeding the 50% RPD field duplicate acceptance criteria.

DATA QUALIFIER DEFINITIONS

For the purpose of Data Validation, the following code letters and associated definitions are provided for use by the data validator to summarize the data quality.

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