OHIO ENVIRONMENTAL PROTECTION AGENCY
VOLUNTARY ACTION PROGRAM
PHASE II PROPERTY ASSESSMENT

Eddy-Kirby Property, Parcels 4 & 5
170 East 131st Street
Cleveland, Cuyahoga County, Ohio

September 12, 2023

VOLUNTEER: Cuyahoga County
Department of Public Works
2079 East 9th Street
Cleveland, Ohio 44115

Project #: 2093.10A

PREPARED BY: Partners
31100 Solon Road, Suite G
Solon, Ohio 44139
(800) 763-1363 (phone)
(518) 734-0132 (fax)

TABLE OF CONTENTS

1.0 INTRODUCTION 1
1.1 Property Description 1
1.2 Previous Investigations 1

2.0 PHASE I PROPERTY ASSESSMENT 5

3.0 STATEMENT OF LIMITATIONS or qualifications 8

4.0 CONCEPTUAL SITE MODEL 9

5.0 SAMPLING PROCEDURES 9
5.1 VAP Assessment Methodologies 9
5.1.1 Notification to OUPS and OGPUPS 10
5.1.2 Direct Push Soil Borings 10
5.1.3 Soil Sample Handling, Field Screening, and Selection for Analysis 10
5.1.4 Monitoring Well Construction and Development 11
5.1.5 Monitoring Well Gauging, Purging and Sampling 11
5.1.6 Sub-Slab Vapor and Ambient Air Sampling 12
5.1.7 Soil Gas Implant Sampling 12
5.1.8 Site Measurements 12
5.1.9 Analytical Testing 13
5.1.10 Drummed Waste Disposal 13

6.0 DATA COLLECTION ACTIVITIES 13
6.1 Data Quality Objectives/Sampling and Sample Analysis Plan 13
6.2 VAP Phase II Property Assessment Data Collection Activities 13
6.3 Geography, Topography, Geology, and Hydrogeology 14
6.3.1 Geography and Topography 14
6.3.2 Regional Geology and Hydrogeology 14
6.3.3 Property Specific Geology and Soil Properties 14
6.3.4 Property Specific Hydrogeology 14
6.3.5 Property Specific Recharge 14
6.3.6 Groundwater Use 15
6.4 Comparison Standards 15
6.4.1 Ohio VAP Applicable Soil Standards 15
6.4.2 Ohio VAP Groundwater Standards 15
6.4.3 Ohio VAP Generic Indoor Air Standards Due to Vapor Intrusion 15
6.4.4 Toxic Substances Control Act (TSCA) PCB Regulations 15
6.5 Scope & Findings 15
6.5.1 Results of Soil Analysis 16
6.5.2 Results of Groundwater Analysis 19
6.5.3 Results of Sub-Slab Vapor Analysis 21
6.5.5 Results of Ambient Air Analysis 22
6.6 QA/QC Sampling and Testing 23

7.0 DETERMINATIONS 24
7.1 Groundwater Classification and Response Requirements 24
7.2 Protection of Groundwater Meeting the Unrestricted Potable Use Standard (POGWMUPUS) 24
7.3 Applicable Standard Determination and Exposure Point Concentrations 25

8.0 BACKGROUND DETERMINATIONS 25

9.0 MODELING 25

10.0 URBAN SETTING DESIGNATION 25

11.0 PROPERTY-SPECIFIC RISK ASSESSMENT (PSRA) 26
11.1 COCs Used in Risk Characterization 26
11.2 Exposure Assessment 26
11.2.1 Current and Proposed Land Use 26
11.2.2 Identification of Receptor Population 26

TABLE OF CONTENTS

11.2.3 Evaluation of Complete Exposure Pathways 27
11.2.4 Exposure Units (EUs) 27
11.2.5 Exposure Point Concentrations (EPCs) 27
11.3 Toxicity Assessment 28
11.4 Risk Characterization 28
11.4.1 Carcinogenic Risk 28
11.4.2 Non-Carcinogenic Hazard Quotient 28
11.4.3 Carcinogenic and Non-Carcinogenic Risk Ratio Calculations 28
11.5 Results of Risk Calculations 28

12.0 REMEDIAL ACTIVITIES PRIOR TO NFA LETTER 30
12.1 Environmental Covenant 30
12.2 Risk Mitigation Plan 31

13.0 COMPLIANCE WITH APPLICABLE STANDARDS 31

14.0 BIBLIOGRAPHY 32

FIGURES

Figure 1 Property Location Map
Figure 2 Property and Surrounding Area Map
Figure 3 Identified Areas Map
Figure 4 Sample Location Map
Figure 4A Sample Location Map – HzW Excavation Areas
Figure 4B Distribution of COC Exceedances in Soil Map
Figure 4C Distribution of COC Exceedances in Groundwater Map
Figure 4D Distribution of COC Exceedances in Sub-Slab Soil Vapor & Soil Gas Map
Figure 5 Conceptual Site Model
Figure 6 Exceedances in Soil
Figure 7 Exceedances in Groundwater
Figure 8 Exceedances in Soil Vapor
Figure 9 Groundwater Flow Direction Map (Completed by HzW)

TABLE OF CONTENTS

TABLES

Table 1	Summary of Identified Areas and Chemicals of Concern
Table 2	Summary of Sampling and Analysis per Identified Area
Table 3	Groundwater Monitoring Well Information
Table 4	Results of Soil Analysis
	Table 4A: Summary of VOC Soil Analysis
	Table 4B: Summary of PAH and TPH Soil Analysis
	Table4C: Summary of RCRA 8 Metals and PCB Analysis
Table 5	Results of Groundwater Analysis
	Table 5A: Summary of VOCs in Groundwater
	Table 5B: Summary of PAHs RCRA 8 Metals and PCBs in Groundwater
Table 6	Results of Sub-Slab Vapor and Soil Gas Analysis
	Table 6A: Summary of VOCs in Sub-Slab Vapor
	Table 6B: Summary of VOCs in Soil Gas
Table 7	Soil Direct Contact Risk for VOCs, PAHs, and Metals
	Table 7A: Soil Direct Contact Risk for Residential Land Use
	Table 7B: Soil Direct Contact Risk for Commercial/Industrial Land Use
	Table 7C: Soil Direct Contact Risk for Construction/Excavation Activities Land Use
Table 8	Viginia Unified Risk Assessment Model
Table 9	Soil Vapor Direct Contact Risk for VOCs
	Table 9A: Soil Vapor Risk for Residential Land Use
	Table 9B: Soil Vapor Risk for Commercial/Industrial Land Use
Table 10	Applicable Standards and Remedial Activities for Each Exposure Pathway

APPENDICES

Appendix A	Property Detail Information
Appendix B	Previous Reports
Appendix C	Data Quality Objectives and Sampling and Analysis Plan (DQO/SAP)
Appendix D	Soil Boring, Groundwater Monitoring Well, and Soil Gas Implant Logs
Appendix E	Well Development/Purge and Sampling Data Sheets
Appendix F	Laboratory Analytical Reports
Appendix G	USD Map, ODNR Well Logs and Ohio EPA Drinking Water Source Protection Areas
Appendix H	Personnel Profiles

ACRONYMS

BGS	Below Ground Surface
CIDARS	Chemical Information Database and Applicable Regulatory Standards
CL	Certified Laboratory (VAP)
CNS	Covenant Not to Sue
COC	Chemicals of Concern
CP	Ohio VAP Certified Professional
DQO/SAP	Data Quality Objectives and Sampling and Analysis Plan
ECLR	Excess Lifetime Cancer Risk
EPC	Exposure Point Concentration
EU	Exposure Unit
GDCS	Generic Direct Contact Standards
GPM	Gallons Per Minute
HI	Hazard Index
HSA	Hollow Stem Augers
IA	Identified Area
IDW	Investigation Derived Waste
IRIS	Integrated Risk Information System
NFA	No Further Action
Ohio EPA	Ohio Environmental Protection Agency
OGPUPS	Oil & Gas Producers Underground Protection Service
OUPS	Ohio Utilities Protection Service
PAH	Polynuclear Aromatic Hydrocarbons
PID	Photoionization Detector
PSRA	Property Specific Risk Assessment
PVC	Polyvinyl Chloride
QA/QC	Quality Assurance/Quality Control
RCRA Metals	Resource Conservation and Recovery Act Metals
SOP	Standard Operating Procedure
TPH	Total Petroleum Hydrocarbons
UCL95	95% Upper Confidence Limit
UPUS	Unrestricted Potable Use Standard
USD	Urban Setting Designation
USEPA	United States Environmental Protection Agency
VAP	Voluntary Action Program
VOC	Volatile Organic Compounds

1.0 INTRODUCTION

This report presents the methods and findings of the Ohio Environmental Protection Agency (Ohio EPA) Voluntary Action Program (VAP) Phase II Property Assessment (Phase II) for the Eddy-Kirby Property, in the City of Cleveland, Cuyahoga County, Ohio (Property). The Property encompasses two (2) individual tax parcels including 111-20-002 (Parcel 4) and 111-19-010 (Parcel 5). They are currently owned by Acme Realty LLC and PN Holdings LLC, respectively. Parcel 4 consists of approximately 13.42 total acres and is currently developed with one (1) commercial/industrial building in poor condition. Parcel 5 consists of 21.78 acres and is developed with two (2) commercial rental/maintenance vehicle garages. Generally, the Property is bound to the northwest by Kirby Avenue right-of-way; to the north/northeast by Coit Road; to the east by East 131st Street right-of-way; to the south by vacant commercial/industrial properties; and to the southwest by a Cleveland Water Pollution facility. The location of the Property is depicted on **Figure 1**. This report was prepared by Partners Environmental Consulting, Inc. (Partners) and was requested and authorized by the Cuyahoga County Department of Public Works (Volunteer).

The Phase II was completed in accordance with the Ohio EPA rules set forth in Ohio Administrative Code (OAC) 3745-300-07 through 3745-300-011. This Phase II was completed to support the issuance of a No Further Action (NFA) Letter by a Certified Professional (CP) in accordance with the VAP and obtaining a Covenant Not to Sue (CNS).

The following Partners' personnel contributed to this assessment:

- Mr. John T. Garvey (CP-118), Director of Brownfield and Remediation Services, served as the CP.
- Ms. Halle A. Miller, Project Manager, served as the Project Manager, conducted Property Specific Risk Assessment (PSRA), and served as a contributing author of this report.
- Mr. Jeremy R. Kendle, Project Manager, conducted field activities, conducted Property Specific Risk Assessment (PSRA), and served as a contributing author of this report.
- Mr. Zachary Graham, Environmental Professional, conducted field activities.

Personnel profiles summarizing the qualifications of these individuals are included in **Appendix H**.

1.1 Property Description

The Property encompasses approximately 35.2-acres and consists of two (2) parcels identified in Cuyahoga County records as parcel numbers 111-20-002 (Parcel 4) and 111-19-010 (Parcel 5). The parcels are currently zoned General Industry (GI). **Figure 2** shows the Property and surrounding area. Property information and topographic survey with a contour interval of two (2) feet are included in **Appendix A**. A legal description and survey were not completed at this time. The latitude and longitude of the Property corners are as follows:

NW:41.551178, -81.598664
NE: 41.5529, -81.592175
SE: 41.548344, -81.597181
SW: 41.548758, -81.598578

1.2 Previous Investigations

In 2023, Partners prepared a VAP Phase I Property Assessment (PA) for the Property, which originally included seven (7) parcels. The report, dated April 21, 2023, was titled *Ohio Environmental Protection Agency Voluntary Action Program Phase I Environmental Site Assessment*, *Commercial Lot, Eddy-Kirby Seven (7) Parcels, Cleveland, Cuyahoga County, Ohio*. Of the seven (7) parcels included in the Phase I PA report, the Volunteer elected to further investigate only Parcels 4 and 5 at this time. This report is further detailed in **Section 2.0**.

Prior to the 2023 VAP Phase I PA report prepared by Partners, several investigations were completed related to the Property between 1991 and 2017, mainly on Parcel 4. Previous investigations are detailed below, with their full reports, when readily available, included in **Appendix B**:

Parcel 4:

Several consultants assisted with initial Property assessment in the 1990s, including coal pile sampling, UST closures, and Phase I Environmental Site Assessments (ESAs). However, the most extensive and comprehensive prior work for the Property was completed by HzW Environmental Consultants (HzW). HzW conducted widespread investigation of the Parcel 4 portion of the Property from 1999 through 2012, including soil, groundwater, and sub-slab vapor sampling, and laboratory analysis. HzW advanced a total of 87 soil borings and collected a total of 201 soil samples. Soil borings in Identified Areas 1, 1A, and 2 were limited due to access, size and underground utilities. HzW also installed nine (9) sub-slab soil gas points and installed 20 groundwater monitoring wells. Three (3) groundwater wells were already present on-Property, installed by Pioneer Environmental Systems, Inc. (Pioneer) in 1993. A summary of the findings from the VAP Phase II completed by HzW is described below and a map of sample locations is provided on **Figure 4**, with exceedances presented on **Figures 4A** through **4D**.

Soil Analysis:

- **IA-1 (10 Abandoned USTs and associated oil pit):** Soil detections include VOCs, PAHs, and TPH below the VAP GDCS for commercial/industrial land use and/or construction excavation activities with the exception of TCE at HB-104 (6-8) (2.27 mg/kg) which exceeded the generic (Leach Based Soil Value) LBSV. Compared to current VAP standards **no** VOCs, PAHs, or TPH detections exceed current VAP standards.

- **IA-1A (Milling Machine Area):** Nine (9) soil samples had detections of VOCs, PAHs, and TPH all of which were below VAP standards for commercial/industrial land use and construction/excavation activities. TCA, 1,1-DCA, 1,2,3-TMB, cis-1,2-DCE, PCE, and TCE exceeded generic LBSV or site specific LBSV. Compared to current VAP standards TCE concentrations exceed the residential land use category in four (4) boring locations, and two (2) boring locations exceed the commercial/industrial land use category.

- **IA-2 (Former Degreaser):** VOCs were detected in all eight (8) soil samples collected in IA-2. PAHs were detected in two (2) soil samples, and TPH was detected in five (5) soil samples. Once exceedance of TCE for the commercial/industrial land use category is recorded. Compared to current VAP standards show two (2) samples exceed the residential land use and commercial/industrial land use for TCE.

- **IA-3 (Heat Treating and Associated Quench Pits):** VOCs were detected four (4) of the seven (7) soil samples collected in IA-3. Two (2) samples were analyzed for metals exhibiting low concentrations. VOC concentrations did not exceed generic or site-specific LBSV. TPH concentrations were analyzed for total recoverable hydrocarbons (TR) and has no regulatory standard. High concentrations (up to 74,900 mg/kg) were evident. Compared to current VAP standards **no** COCs exceeded current VAP standards.

- **IA-4 (Former Tin Plating Area):** 25 soil samples were collected from five (5) soil borings in IA-4. Samples analyzed for metals were below the GDCS for commercial/industrial land use and PCBs were not detected. Compared to current VAP standards show arsenic above the GDCS for residential land use in eight (8) soil samples.

- **IA-5 (Pickling Area)):** Five (5) soil borings were advanced in IA-5 with 20 soil samples collected. Arsenic in one (1) soil sample exceeded the GDCS for commercial/industrial land use. Compared to current VAP standards five (5) soil samples exceeded the current VAP GDCS for residential land use in IA-5.

- **IA-6 (Dip Tank Area):** Three (3) soil borings were advanced in IA-6 with six (6) soil samples collected. Metals were detected in the soil samples with no concentrations above VAP standards. Compared to current VAP standards **no** COCs were identified above current VAP standards.

- **IA-7 (Solvent Tank):** Three (3) soil borings were advanced in IA-7 with five (5) soil samples collected. VOCs were detected in all five (5) soil samples. VOCs were below GDCS for commercial/industrial land use and construction/excavation activities. 1,2,4-TMB and 1,3,5-TMB exceeded the site-specific SPV. TPH concentrations were detected in three (3) samples. TPH was below the VAP GDCS for commercial industrial land use and construction/excavation activities. Compared to current VAP standards **no** COCs were detected above current VAP standards. The TPH samples were analyzed for hydrocarbon fractions that have no current standard (C6-C7, C6-C12, and C16-C32).

- **IA-8 (Outdoor Oil Staining):** Three (3) shallow soil samples were collected in IA-8. Concentrations of TCE, PAHs and TPH were detected in the soil samples. No concentrations exceeded VAP GDCS for commercial/industrial land use or construction/excavation activities. Compared to current VAP standards **no** COCs were identified above current VAP standards. The TPH samples were analyzed for hydrocarbon fractions that have no current standard (TR, C6-C7, C6-C12, and C16-C32).

- **IA-9 (Former Coal and Exterior Drum Storage Area):** 12 soil borings were advanced in IA-9 with 18 soil samples collected. VOCs, PAHs, and metals exceeded either generic LBSV or site-specific SPV. Compared to current VAP standards show ethylbenzene (4,010 mg/kg), isopropylbenzene (453 mg/kg) and xylenes (20,260 mg/kg) exceed the residential land use and construction/excavation activities GDCS. TCE (16.1 mg/kg) exceeded the VAP GDCS for residential land use. The TPH samples were analyzed for hydrocarbon fractions that have no current standard (C6-C7, C6-C12, and C16-C32).

- **IA-10 (Former Incinerator):** Three (3) soil borings were advanced in IA-10 with four (4) soil samples collected. VOC concentrations were detected in all four (4) soil samples. VOCs exceeded the generic LBSV or a site-specific SPV. Concentrations were below the VAP GDCS for commercial/industrial land use or construction/excavation activities categories. Concentrations of metals were detected in all four (4) soil samples below VAP GDCS for commercial/industrial land use and construction/excavation activities categories. Compared to current standards TCE (20 mg/kg) exceeds the current VAP GDCS for residential land use, lead (652 mg/kg), chromium (28.5 mg/kg), arsenic (43.4 mg/kg and 24 mg/kg), exceeded the VAP GDCS for residential land use, chromium (366 mg/kg) also exceeded the GDCS commercial/industrial land use category.

- **IA-11 (Metal Chip Pit and Conveyor Line):** Five (5) soil borings were installed in IA-11 with seven (7) soil samples collected. VOCs, PAHs, TPH, and metals were detected in the soil samples. All concentrations were below VAP GDCS for commercial/industrial land use and construction/excavation activities. Compared to current standards arsenic (maximum of 20.9 mg/kg), cadmium (160 mg/kg), chromium (max of 554 mg/kg), and lead (max of 475 mg/kg) exceed the VAP GDCS for residential land use. Chromium also exceeded the VAP GDCS for commercial/industrial land use and construction/excavation activities category. The TPH samples were analyzed for hydrocarbon fractions that have no current standard (C6-C7, C6-C12, and C16-C32).

- **IA-12 (Four [4] Former Aboveground Oil Storage Tanks):** Seven (7) soil borings were advanced in IA-12 with eight (8) soil samples collected. VOCs were detected in two (2) samples, PAHs were detected in three (3) samples, and TPH was detected in two (2) samples. No COCs exceeded VAP GDCS for commercial/industrial land use or construction/excavation activities. Compared to current VAP standards benzo(a)pyrene (6.27 mg/kg) exceeded the VAP GDCS for residential land use. The TPH samples were analyzed for hydrocarbon fractions that have no current standard (C6-C7, C6-C12, and C16-C32).

- **IA-13 (Former 20,000-gallon Heating Oil UST/Piping Manifold for IA-1 USTs):** Three (3) soil borings were advanced in IA-13 with three (3) soil samples collected. No detectable concentrations of VOCs or PAHs were detected in the samples.

- **IA-14 (Railroad Spur):** Ten (10) soil borings were advanced in IA-14 with 26 soil samples collected. Elevated concentrations of lead and/or arsenic were detected in IA-14. VOC and PAH concentrations were below applicable standards. Compared to current VAP standards no COCs exceed VAP GDCS for residential land use, commercial/industrial land use, or construction/excavation activities. The TPH samples were analyzed for hydrocarbon fractions that have no current standard (C6-C7, C6-C12, and C16-C32).

Groundwater Analysis:

Out of the 24 total HzW groundwater wells sampled, 13 of these showed no exceedances of applicable standards. Five (5) groundwater wells had COC concentrations (HzW-02, HzW-03, HzW-15, HzW-17, and WP-03). Identified Areas affected include IA-1A, IA-2, IA-3, and IA-14. An injection event occurred in IA-2 and IA-3 but had little effect on VOCs prompting soil gas sampling. Compared to current VAP standards, show TCE above USEPA VISL standards at six (6) monitoring wells. Vinyl chloride exceeded the USEPA VISL at two (2) monitoring wells, PCE exceeded the USEPA VISL at two (2) monitoring wells, cis-1,2-dichloroethene exceeded the USEPA VISL at one (1) monitoring well, trans-1,2-dichloroethene exceeded the USEPA VISL at three (3) monitoring wells, 1,1-dichloroethane exceeded the USEPA VISL at two (2) monitoring wells, 1,1,1,2-tectrachloroethane exceeded the USEPA VISL at one (1) monitoring well.

Soil Gas Analysis:

HzW collected nine (9) soil gas samples beneath the building slab in IA-2 and IA-3. VOCs were detected in high concentrations at the soil gas sampling points. Compared to current VAP standards with an applied attenuation factor of 0.03 exhibit exceedances of trichloroethene (maximum of 4,800,000 ug/m3), vinyl chloride (maximum of 1,200 ug/m3), chloroform (maximum of 2,000 ug/m3), and bromodichloromethane (maximum of 600 ug/m3) above residential land use and commercial/industrial land use. Benzene (maximum of 320 ug/m3), ethylbenzene (maximum of 520 ug/m3), and tetrachloroethene (maximum of 4,600 ug/m3) exceeded the VAP GDCS for residential land use with an applied attenuation factor of 0.03.

Corrective Action:

HzW completed excavation activities at IA-9 and IA-14 in April 2007. The excavation activities evolved into one (1) consolidated soil excavation during which a total of 1,389.6 tons of soil were excavated to a maximum depth of six (6) feet bgs. The excavated soil was stabilized with “Tri-Super Phosphate®” prior to being transported to a licensed disposal facility. Backfill of the IAs was completed with crushed limestone and crushed brick. Sidewall samples collected from 0-2 feet bgs during the excavation activities exhibit elevated arsenic, lead, and chromium exceedances throughout the excavation area. Excavations were terminated due to the CP’s determinations, structures, or property boundaries.

The VAP Phase II completed by HzW resulted in a No Further Action (NFA) Letter and is the subject of a Covenant Not to Sue (CNS) from the OHIO EPA VAP through the submission of a NFA Letter (No.09NFA364) in January of 2012. The Volunteer under the CNS was Acme Realty, LLC and Cuyahoga County. The current Volunteer is Cuyahoga County. The CNS and NFA outline the current obligation and requirements under the VAP with respect to the Property, as follows:

- An Environmental Covenant (EC) is in place, which includes a limitation for commercial or industrial land uses and a limitation prohibiting groundwater extraction and uses, except for investigation or remediation.

- A Risk Mitigation Plan (RMP) is in place to protect construction and excavation workers at the Property from exposures of arsenic and VOCs at the Property in subsurface soil and groundwater.

The RMP must be implemented whenever construction or excavation activities occur at or below two (2) feet in depth.

- An Operation and Maintenance Plan (O&M Plan) is in place to manage institutional and engineering controls consisting of pavement engineering controls located south of the building, an enclosure of the former degreaser pit and areas immediately downgradient of the pit with the construction of a cinder block wall from floor to ceiling. This area is not accessible and prevents commercial/industrial workers from entering the area with elevated VOC concentrations.

Parcel 5:

Partners was not provided with information related to any previous investigations specifically conducted on Parcel 5, other than the 2023 VAP Phase I PA. However, two (2) IAs identified during the HzW work described above were noted here:

- **Reported 14,000-gallon Heating Oil UST:** According to Cleveland Fire Department records, one (1) 14,000-gallon fuel oil UST was located in the northeastern corner of Parcel 5. This UST was presumed to be a buried rail car based on the age of the UST. Prior HzW reports noted this as a down-gradient adjoining IA (IA-17) because their Property limits at the time only included Parcel 4. During this current Phase II Investigation, a ground penetrating radar (GPR) survey was done in the area of the UST. Based on this, it was determined that the UST is still present in the northeastern corner of Parcel 5.

- **Apparent USTs - Vent Pipes:** According to observations during the HzW VAP Phase I PA, vent pipes were noted on Parcel 4 with piping leading to four (4) apparent USTs on the northwestern portion of Parcel 5. No further information was available for these USTs relating to size, contents, condition, or status. Prior HzW reports noted this as a down-gradient adjoining IA (IA-18) because the Property limits at the time only included Parcel 4. During this current Phase II Investigation, evidence of USTs or vent pipes were not observed; however, sampling was conducted in this area.

2.0 PHASE I PROPERTY ASSESSMENT

A VAP Phase I Property Assessment (PA) was prepared by Partners and dated April 21, 2023. This work was completed in accordance with the Ohio EPA VAP as described under OAC 3745-300-06. The Phase I PA consisted of conducting site walkovers, interviews, obtaining and reviewing federal, state, and local environmental databases, reviewing historical and reasonably ascertainable public records for the Property and surrounding sites, and reviewing previous reports.

Parcel 4 was historically (approximately 1925-2001) operated by The National Acme Company. The National Acme Company was the result of the merger of The Acme Screw Machine Company of Hartford, Connecticut, and The National Manufacturing Company, of Cleveland, Ohio. The National Acme Company, headquartered in Cleveland, Ohio, was best known for the manufacture and distribution of screw machine products, and shifted to the production and sale of automated machine tools, foundry equipment, and electrical controls. Activities on the Property included steel cutting, machining, painting, and tempering. Warehousing, repair and storage of parts, vehicle maintenance and refueling, waste storage, and administrative operations also occurred on the Property. The National Acme Company went bankrupt in 2000. This assessment revealed evidence of numerous USTs historically on-site. Ten (10) USTs were abandoned in-place beneath the central portion of the building. A No Further Action Letter was received for these USTs in 1993. A 20,000-gallon heating oil UST was also removed in 1990, but heating oil USTs are not regulated. A portion of the former manufacturing facility has been demolished, leaving approximately 2/3 of the former building in place. Parcel 4 is Accessed via a concrete and asphalt drive on Kirby Avenue and is currently owned by Acme Realty LLC. Parcel 4 (111-20-002)

Parcel 5 was historically operated by Elyria Iron & Steel Company, or by the Steel and Tubes Division of Republic Steel (1950-2011), the Chandler Motor Car Company, and Weatherhead Company Auto

Accessories and Parts Manufacturer (1940s-1982). Structures related to the manufacturing that historically occurred on this parcel have been razed. Currently the parcel consists of 2 corrugated steel out buildings and one (1) slab-on-grade office and retail building. Parcel 5 is accessed via a concrete drive on Kirby Avenue and is currently owned by Pn Holdings, LLC.

Based on the conclusions of the Phase I PA, a total of 21 Identified Areas (IAs) were determined for the Property, as described below. The locations of the IAs are shown on **Figure 3**. The IAs and the associated potential chemicals of concern (COCs) are summarized in **Table 1**. The VAP Phase I PA completed by Partners in 2023 included seven (7) parcels. A total of 57 IAs were identified on all seven (7) parcels combined; however. only two (2) parcels were included in this investigation (Parcels 4 & 5), therefore the IA numbers are not sequential between the parcels.

Parcel 4 IAs:

- **10 Abandoned USTs and associated oil pit (IA-1):** Ten (10) USTs were identified as being removed from Parcel 4 from 1992 through 1994. At least three (3) Leaking Underground Storage Tank (LUST) events were reported and three (3) of the LUSTs received No Further Action (NFA) letters. The USTs ranged in capacity from 3,300-gallons to 15,000-gallons. The USTs were used to store mineral spirits, Parafin No. 39, Sulkleer 153 E New and Used, Solvac 1533 New, lubricating oil, No. 2 oil, and Stoddard Solvent. The USTs were in the basement of the central portion of the building. The basement and areas directly surrounding these USTs was not accessible during this investigation.

- **Milling Machine Area (IA-1A):** The milling machine area included a four (4)-foot pit adjacent to IA-1. The pit provided access to the USTs in the basement and milling machines historically operated at this location. Milling machines use large quantities of cutting oils, lubricants, or possibly solvents to cut or shape metal parts during fabrication. The Milling Machine Area was not accessible during this investigation.

- **Former Degreaser Pit (IA-2):** The Former Degreaser Pit is a 10' x 10' concrete slab in the building. Interviews conducted with Mr. Eugene Vasu, who served as Plant Engineer from 1991 through 2000 stated that the degreaser used 1,1,1-trichloroethane. The degreaser pit was removed, and the pit was filled with concrete in approximately 1993. Degreasers use chlorinated solvents to remove grease and oil from parts prior to heat treating. The depth of the pit is unknown.

- **Heat Treating and Associated Quench Pits (IA-3):** Heat treating operations occurred in the northwestern portion of the building in shallow pits. These operations consisted of heating metal parts in furnaces and quenching the parts in vats containing salts or oils. Heat treating typically involves the use of oils or cyanide baths for quenching of hot metal parts. The concrete in the pits exhibited visible cracks and staining during the Phase I ESA completed by HzW in 2009.

- **Former Tin Plating Area (IA-4):** The Former Tin Plating Area was observed to have been filled with concrete during the Phase I ESA completed by HzW in 2009. The pit was surrounded by an older concrete curb. Disconnected overhead vents were also observed. Observations of the condition of the bottom of the pit was not possible. Plating operations typically involve metals and possible PCBs.

- **Pickling Area (IA-5):** The Pickling Area was depicted on historical fire insurance maps. No evidence of pickling (i.e., pitted floors, staining, etc.) was observed. Disconnected overhead vents were observed along with evidence of former equipment being fastened to the floor. Pickling operations typically include the dipping of steel parts in an acid solution to etch the metal prior to the application of another metal during plating.

- **Dip Tank Area (IA-6):** The former dip tank area or paint dip tank consisted of a small 10 foot by 10-foot structure with a 3-foot by 3-foot steel dip tank. Residue was observed on the tank and floor

around the tank during the previous Phase I ESA investigation conducted by HzW in 2009. The floor below the tank and walls around the tank were covered in a hardened resin material. The tank was removed in approximately 2001. Resins typically contain a solvent that evaporates leaving the hardened resin coating.

- **Solvent Tank (IA-7):** A solvent tank was depicted on the historical documents but was not observed during this investigation. Slight staining and cracking of the concrete under the tank was observed during the Phase I ESA completed by HzW in 2009. The contents of the solvent tank are unknown.

- **Outdoor Oil Staining (IA-8):** Oil staining was observed on the northeastern wall during site inspections of the Phase I ESA completed by HzW. The staining appeared to originate from inside the building resulting in dead vegetation. Operations on the interior of the building in the area include the heat treating area (IA-3). This area was not accessible during this investigation.

- **Former Coal and Exterior Drum Storage Area (IA-9):** This area was located southwest of the building. Historical documentation indicates this area was used for coal storage from approximately 1949 through 1978. Aerial photographs after 1978 show a large number of drums stored in the area. Stressed vegetation was observed in the area during the Phase I ESA completed by HzW. This area also overlaps the footprint of a former coal-fired boiler building.

- **Former Incinerator (IA-10):** The former incinerator is located in the southwestern portion of the building. It is unknown what waste the incinerator was used for, or what fuel was used in the incinerator. The area of the former incinerator is paved with concrete. COCs include VOCs and metals.

- **Metal Chip Pit and Conveyor Line (IA-11):** Historic operations included a chip conveyor and chip pit were located at a shipping dock in the south-central portion of the building near the former incinerator. The system consisted of a depressed concrete pit into which metal chips were conveyed to be stored until disposal. The former metal chip pit has been filled with concrete. Metal chips stored in this pit may have been saturated with cutting oils or solvents, and the condition of the bottom of the pit is unknown. IA-11 can contain metals, VOCs, and PAHs.

- **Four (4) Former Aboveground Oil Storage Tanks (IA-12):** The ASTs were located adjacent to the southern side of the building near the former loading docks. Four (4) 5,000-gallon were removed at some point after 1972. The area has been repaved, and subsurface conditions are unknown. Oil storage tanks are associated with PAHs and VOCs.

- **Former 20,000-gallon Heating Oil UST/Piping Manifold for IA-1 USTs (IA-13):** The 20,000-gallon heating oil UST was removed in 1990. Heating oil USTs are not regulated by BUSTR. Residual COCs were detected in soil after removal of the UST. Aboveground piping associated with the 10 USTs (IA-1) originate from this area. The piping was determined to be aboveground. An NFA was never obtained for this UST.

- **Railroad Spur (IA-14):** A former rail spur ran the length of the building on the southern side prior to curving north across Kirby Avenue. The railroad lines were used to service the loading docks on the south side of the building. The railcars were also used to transport metal chips for recycling.

- **General Coverage, Parcel 4:** While not considered an IA, some borings were strategically placed for general coverage on Parcel 4, as well as a replacement for IA-1, IA-1A, and IA-8, which were not directly accessible during this investigation.

Parcel 5 IAs:

- **Transformer House 1 (IA-51):** Transformer houses are present on Sanborn Fire Insurance Maps for Parcel 5. Historically transformers used PCB containing oil for cooling purposes.

- **Transformer House 2 (IA-52):** Transformer houses are present on Sanborn Fire Insurance Maps for Parcel 5. Historically transformers used PCB containing oil for cooling purposes.

- **Four Reported Tanks (IA-53):** According to observations during previous investigation, vent pipes were noted on Parcel 4 with piping leading to four (4) apparent USTs on the northeast portion of Parcel 5. No further information was available for these USTs relating to size, contents, condition, or status. It should be noted that in previous HzW reports, these USTs were listed as IA-18.

- **14,000-gallon Fuel Oil UST (IA-54):** Sanborn Fire Insurance Maps and Cleveland Fire Department records indicate a 14,000-gallon fuel oil UST located in the northeastern corner of Parcel 5. This UST is presumed to be a buried rail car based on the age of the UST. During this Phase II Investigation a ground penetrating radar (GPR) survey was done in the area of the UST. It was determined during the GPR survey that the UST is still present in the northeast corner of Parcel 5. It should be noted that in previous HzW reports, this UST was listed as IA-17 adjacent to Parcel 4.

- **Pickling Room (IA-55):** A Pickling Room is depicted on Sanborn Fire Insurance Maps in the north central portions of the manufacturing facility on Parcel 5 from approximately 1950 through 1972. The buildings were demolished in approximately 2005. Pickling operations typically include the dipping of steel parts in an acid solution to etch the metal prior to the application of another metal during plating.

- **Machine Shop (IA-56):** A machine shop is depicted on Sanborn Fire Insurance Maps in the southwestern portion of the former manufacturing facility on Parcel 5 from approximately 1950 through 1972. Aerial photographs show the machine shop building present on Parcel 5 until approximately 2005. It is unknown what operations occurred in the machine shop. Use of solvents, hydrocarbons, and other materials are presumed likely.

- **Automotive Scrap Garage with Eight (8) ASTs (IA-57):** During site reconnaissance an outbuilding was observed on the western portion of Parcel 5 that contained signage referring to “do it yourself” automotive scrap and repair activities. The open garage area appears to have been used to drain automotive fluids prior to scrapping of vehicles. The automobiles were placed on raised platforms where fluids were drained. A floor drain was observed in the outbuilding as well as a separate room used for battery storage and charging. Furthermore, a series of eight (8) ASTs were present on the north side of the building. Based on the National Fire protection Association (NFPA) labels on the ASTs, they are presumed to contain the following: four (4) ASTs of gasoline, three (3) ASTs of ethylene glycol (antifreeze), and one (1) AST of unknown contents. However, all eight (8) ASTs were spray painted with the notation “Empty 2/17” at the time of reconnaissance, possibly noting that they were last emptied in February 2017.

- **General Coverage, Parcel 5:** While not considered an IA, some borings were strategically placed for general coverage on Parcel 5 given the lengthy industrial history of the parcel and surrounding area.

3.0 STATEMENT OF LIMITATIONS OR QUALIFICATIONS

In conducting this assessment, we have relied, in part, on the information presented in the environmental reports prepared by others and have accepted this information as accurate and complete unless we discovered otherwise during our assessment.

4.0 CONCEPTUAL SITE MODEL

A conceptual site model (CSM) has been prepared to illustrate the relationships between contaminants, transport media and receptors in connection with the Property. The CSM has been prepared in accordance with OAC 3745-300-07 (C)(7) and (J) and graphically illustrates relationships between contaminants, transport media and receptors on the Property (**Figure 5**).

The Property has been used industrially from at least 1925 to 2000. Operations have included milling, degreasing, heat treating and quenching, plating, pickling, dip tanks, painting, railroad activities, hazardous material storage, machining, illegal solid waste storage, and auto salvaging. The surrounding area was industrial from the 1900s until today with uses including The Lincoln Electric Company manufacturing facility, smelting, White Motor company, and The Weatherhead Company, and steel container storage. To the south was a lead smelter, battery manufacturer, a Mustard Agent Disposal Area, Cres Cor, a service station, and an aviation parts manufacturer. To the north was a textile company and railroad property.

The subsurface of the Property is characterized by fill materials consisting of silty clay to silty sand with varying amounts of slag, concrete, brick, and gravel encountered across the Property. Fill materials encountered were present from depths of two (2) to nine (9) feet bgs. Groundwater is present at depths ranging from 3.93 to 14.56 feet bgs and groundwater flow is to the northwest toward Lake Erie. Groundwater has been determined to be Class A within an Urban Setting Designation (USD) with no deeper water bearing zone. Trench related groundwater exposures are applicable as water is present at depths shallower than 10 feet.

As part of the NFA, an environmental covenant will be in place which includes a groundwater use restriction, a land use restriction to limit use of the Property to Restricted Residential and Commercial/Industrial Land use, and a limitation on building occupancy requiring a remedy to eliminate potential indoor air vapor intrusion. Therefore, complete exposure pathways include the following:

- Restricted Residential Receptors: Direct contact with soil via ingestion, dermal contact, and inhalation of volatile and particulate emissions withing a point of compliance of 2-feet. Inhalation due to vapor intrusion of volatile emissions to indoor air.

- Commercial/Industrial Receptors: Direct contact with soil via ingestion, dermal contact, and inhalation of volatile and particulate emissions within a point of compliance of 2-feet.

- Construction/Excavation Workers: Direct contact with soil via ingestion, dermal contact, and inhalation of volatile and particulate emissions within a point of compliance of 10-feet. Dermal contact with groundwater and inhalation of volatile emissions during trench excavation activities.

5.0 SAMPLING PROCEDURES

5.1 VAP Assessment Methodologies

The methods described in this section pertain to all VAP sampling activities conducted by Partners in July 2023. Partners sampling activities were conducted in general accordance with protocols outlined in Ohio EPA Technical Guidance Manual for Hydrogeologic Investigations and Groundwater Monitoring, the Ohio EPA document *Sample Collection and Evaluation of Vapor Intrusion to Indoor Air for Remedial Response, RCRA and VAP,* and with Partners' Field Standard Operating Procedures (FSOPs) located in the Data Quality Objectives Plan & Sampling and Analysis Plan (DQO/SAP) attached in **Appendix C**. This section provides an overview of key aspects of the assessment methodology, but greater details is contained within the referenced documents.

Partners scope of work included:

- Installing and sampling 34 soil borings,
- Completing 11 of the soil borings as groundwater monitoring wells,
- Installing seven (7) and sampling six (6) soil-gas implants (1 round of sampling),
- Installing and sampling six (6) sub-slab vapor samples (1 round of sampling),
- Collecting an ambient air sample at one (1) locations (1 round of sampling), and
- Sampling the 11 groundwater monitoring wells (1 round of sampling).

5.1.1 Notification to OUPS and OGPUPS

The Ohio Utilities Protection Service (OUPS) and the Oil Gas Producers Underground Protection Service (OGPUPS) were notified prior to completing subsurface activities. This notification was made a minimum of 48 hours prior to initiating intrusive activities on the Property. The notification allowed OUPS to contact various utilities to mark the location of their underground utility lines (if any) on the Property. In addition, Partners contracted a private utility locator to clear a radius around each boring location on the Property and conduct GPR surveys in the areas of suspected orphan USTs.

5.1.2 Direct Push Soil Borings

Soil borings were completed via a drill rig utilizing direct-push technology (Geoprobe™). The soil borings were installed to depths ranging from 4 to 10 feet bgs. The Geoprobe™ drives a two (2) inch outer diameter, stainless steel tube containing a new disposable acetate liner into the subsurface to obtain soil samples. The soil is forced into the liner at continuous four (4) foot intervals and is then retrieved to the surface. Each soil sample was visually observed, logged following the ASTM Visual-Manual Procedure D2488, and sampled by a member of Partners' field staff. Soil boring logs are included in **Appendix D** and boring locations are depicted on **Figure 4**. Select soil borings were over-drilled and completed as groundwater monitoring wells using hollow stem augers (HSA).

Soil borings not completed as wells were properly abandoned at the completion of field activities by filling with the drilling cuttings and filling to grade with hydrated bentonite chips, as necessary. Excess soil and decontamination fluids from washing the sampling equipment between samples were containerized and drummed for proper disposal. Drummed waste disposal is discussed in **Section 5.1.9**.

5.1.3 Soil Sample Handling, Field Screening, and Selection for Analysis

Soil samples were field screened with a photoionization detector (PID) to check for the presence of organic vapors. The PID (RAE Systems MiniRae 3000) was calibrated prior to field activities using a known concentration of a calibration gas standard in accordance with the manufacturers' specifications and FSOP No. 007, "Headspace Screening for Volatile Organic Compounds", located in **Appendix C**. PID readings are presented on the soil boring logs located in **Appendix D**.

Soil samples were divided into two (2) portions. One (1) portion was collected into two (2)-ounce and/or four (4)-ounce, pre-cleaned glass jars with Teflon® lined lids, and the other portion was placed into a re-sealable plastic bag for field screening purposes. Samples collected in the glass jars were labeled and placed into a cooler containing ice, stored at approximately 4°C, and submitted under appropriate chain-of-custody control to Alpha Analytical (VAP Certified Laboratory, CL108).

Soil samples submitted for analyses were selected based upon the potential source of contaminants, visual observations, odors, staining, depth to groundwater, the specific area or depth interval being assessed, and evaluation of the point of compliance.

New disposable gloves were worn and changed between each sample to prevent cross-contamination. The sampling equipment was decontaminated between sampling events with an Alconox detergent rinse.

5.1.4 Monitoring Well Construction and Development

A total of 11 groundwater monitoring wells were installed at depths ranging from approximately 8.17 to 20.89 feet bgs using hollow stem auger (HSA) drilling methods. Groundwater monitoring wells were constructed of two (2)-inch inside diameter (ID) polyvinyl chloride (PVC) 0.010-inch slotted screen (10-foot lengths) and PVC riser of appropriate length. The PVC sections were connected using threaded joints. A filter pack, comprised of clean silica sand, was installed around the PVC screen. The filter pack extended above the well screen approximately two (2) feet. Approximately two (2) feet of granular bentonite well seal was installed above the filter pack and the remainder of the well annulus was filled with bentonite to approximately one (1) foot below ground surface. The wells were completed at the surface with steel, flush-mount protective covers set in a concrete pad or with metal stick-up well covers. Well construction diagrams are in **Appendix D** and their locations are depicted on **Figure 4**.

Monitoring wells were developed within 48 hours of completion. Prior to development and at subsequent dates, groundwater levels were measured to the nearest 0.01 ft. using a Solinst product-water interface probe (IP) to check for non-aqueous phase liquids (NAPL) in the water column. The saturated volume in each well was calculated and recorded.

For well development, a Whaler pump was used to extract water from the wells until the discharged water visibly cleared, at least five (5) well volumes had been removed, or the wells were pumped dry. During development, the pump was gently lowered and raised through the screened interval of the water column to develop the entire sand filter pack. The wells were allowed to recover a minimum of 24 to 48 hours prior to purging and sampling. No phase-separated liquids were observed in any of the wells. The well development form is included in **Appendix E**.

5.1.5 Monitoring Well Gauging, Purging and Sampling

Groundwater levels were measured to the nearest 0.01 foot using a product-water IP to check for NAPL at the top and bottom of the water column in the well. Depth to water measurements were recorded in the field notes and are included on the monitoring well construction diagrams. These measurements were used to determine groundwater flow direction. During purging, the water was monitored for temperature, pH, specific conductivity, turbidity, dissolved oxygen (DO), and oxidation-reduction potential (ORP). Well purging and sampling field data sheets are presented in **Appendix E**.

Groundwater sampling was conducted using low flow methods to purge and sample the groundwater monitoring wells. A QED SamplePro portable micropurge bladder pump, QED Micropurge Basics controller with a compressed gas cylinder, and disposable polyethylene bladders/tubing were utilized to obtain groundwater samples using low flow sampling techniques. Based on aquifer characteristics and monitoring well diameter, flow rates of 50-300 milliliters (ml) per minute were utilized. A Horiba U-52 Water Quality Monitoring System with a flow-through cell was used by Partners to monitor water quality.

Depth to groundwater was measured prior to lowering the bladder pump so that the pump intake was placed at the approximate midpoint of the water column or the midpoint of the well screened interval. The bladder pump was lowered slowly into the well. The pump was started at its lowest setting and the pumping rate was slowly increased until discharge was observed at the flow-through cell. The pump speed was adjusted to minimize, or at least stabilize the drawdown of the groundwater in the well. The pump setting, purge rate, cumulative volume purged, and field parameters were recorded at approximate 0.25 to one (1) liter volume intervals during purging. The wells were pumped until a minimum of three (3) well volumes of water were purged, the water quality readings were stable, and/or the purge water had low turbidity readings and appeared clear. Groundwater samples were collected by disconnecting the flow-through cell and pumping groundwater directly into the appropriate laboratory supplied sample containers as described in the following paragraph.

Groundwater samples to be tested for Volatile Organic Compounds (VOCs) were placed in two (2) 40 ml amber glass Volatile Organic Analysis (VOA) vials containing a hydrochloric acid preservative. Samples to be tested for Polynuclear Aromatic Hydrocarbons (PAHs) were placed in three (3) non-preserved 40 ml amber glass VOA vials. Samples to be tested for metals Resource Conservation and Recovery Act (RCRA)

eight [8] Metals were collected in one (1) 500 ml plastic bottle containing nitric acid preservative. Samples to be tested for Polychlorinated Biphenyls (PCBs) were placed in one (1) non-preserved 100 ml amber glass vial. Groundwater samples were labeled and placed into a cooler containing ice, stored at approximately 4◦C, and submitted under appropriate chain-of-custody control to Pace Analytical (CL0069) for analysis.

5.1.6 Sub-Slab Vapor and Ambient Air Sampling

A total of six (6) sub-slab vapor points were installed and sampled. The sample locations are depicted on **Figure 4**. Each sub-slab vapor point was installed into the granular base beneath the respective building using Vapor Pins™ installed through a 5/8-inch diameter hole through the slab and approximately three (3) inches into the underlying base material. Loose cuttings were removed with a vacuum. The lower end of Vapor Pin™ assembly was placed into the drilled hole. The protective handle was placed over the Vapor Pin™ to protect the barb fitting and cap, and the Vapor Pin™ was tapped into place using a hammer. Leak testing was conducted by filling the recessed point with water covering the pin and hose coupling.

Teflon tubing was used to connect the implants to a laboratory, certified clean, six (6) liter SUMMA® canister. Prior to sampling, a low volume (<0.2 liters per minute) vacuum pump was utilized to purge three (3) volumes of air from the implant and tubing. The flow regulator on each SUMMA® canister was used to collect a sample directly from the sampling point. The sub-slab samples, and one (1) duplicate sample were collected over a one (1)-hour time period.

One (1) sample of ambient air (Background) was obtained concurrently from an exterior area of the Property believed to be unimpacted by the concerns being assessed and was obtained in order to evaluate potential background conditions.

The samples were shipped via overnight carrier under chain-of-custody protocol to Alpha Analytical for VOC analysis by USEPA Method 8260 Compendium TO-15.

5.1.7 Soil Gas Implant Sampling

A total of seven (7) soil vapor implants were installed on the Property. Implant construction diagrams are in **Appendix D** and their locations are depicted on **Figure 4**. Each soil vapor implant was installed using a direct-push technology (Geoprobe™). The soil borings were installed to depths ranging from two (2) to five (5) feet bgs. The Geoprobe™ drives a two (2) inch outer diameter, stainless steel tube to a desired depth. A 6-inch stainless-steel mesh vapor implant is installed with 1/8-inch Teflon tubing through the outer rods. Once at depth clean silica sand is placed around the soil vapor implant, and approximately 0.5-1-foot above the implant. The outer rods are removed from the bore hole and hydrated bentonite is added to seal the soil vapor implant from the surface. The Teflon tubing is capped at the surface, and the soil vapor implant is completed at the surface with steel, flush-mount protective covers set in a concrete pad.

Prior to sampling the soil vapor implants, a low volume (<0.2 liters per minute) vacuum pump was utilized to purge three (3) volumes of air from the implant and tubing. Samples were obtained by utilizing laboratory, certified clean, six (6) liter SUMMA® canister. The laboratory certified flow regulator was on each SUMMA® canister was used to collect a sample directly from the sampling point over a period of approximately one (1) hour. Only six (6) soil vapor implants were able to be sampled. One (1), P4-IA01-VI01, was found to be submerged during the purging with the low volume vacuum pump.

The samples were shipped via overnight carrier under chain-of-custody protocol to Pace Analytical for VOC analysis by USEPA Method 8260 Compendium TO-15.

5.1.8 Site Measurements

Surveying services were not included as part of this current investigation due to only two (2) of seven (7) parcels being investigated at this time. Surveying services will be implemented in the event of completing the investigation of the additional five (5) parcels. For the purposes of this report Partners is relying on the previous VAP Phase II completed on Parcel 4 by HzW showing groundwater flow direction. Comparison of

groundwater levels are similar and are not though likely to change. A copy of the groundwater flow map from the HzW Phase II is included in the Appendix as **Figure 9.**

5.1.9 Analytical Testing

Soil, groundwater, sub-slab vapor, ambient air, and soil vapor implant samples were submitted for laboratory analyses as detailed in **Table 2** and summarized below. Soil samples submitted for analyses were selected based upon PID readings, odors, staining, the potential source of contaminants, point of compliance being evaluated, and depth to groundwater. Soil and groundwater samples were submitted for one (1) or more of the following analyses, based on the potential or known COC:

SOIL

- Volatile Organic Compounds (VOCs) by USEPA Method 8260,
- Polynuclear Aromatic Hydrocarbons (PAHs) by USEPA Method 8270,
- RCRA 8 Metals by USEPA Methods 6010/7471,
- Total Petroleum Hydrocarbon (TPH) (C_6-C_{12}/C_{10}-C_{34}) by USEPA Method 8015, and
- Polychlorinated Biphenyls (PCBs) by USEPA Method 8082.

GROUNDWATER

- VOCs by the USEPA Method 8260
- PAHs by USEPA Method 8270
- RCRA Metals by USEPA Method 6010/7471, and
- Polychlorinated Biphenyls (PCBs) by USEPA Method 8082.

SUB-SLAB VAPOR AND AMBIENT AIR

- VOCs by the USEPA Method 8260, Compendium TO15,

SOIL VAPOR

- VOCs by the USEPA Method 8260, Compendium TO15.

Analytical results are summarized in **Section 6.0**. The laboratory reports, chains-of-custody, and VAP laboratory affidavits are included in **Appendix F**.

5.1.10 Drummed Waste Disposal

Soil cuttings from the borings/monitoring wells and water (decontamination, development, and purge waters) generated during the investigation were placed into 55-gallon drums that were properly labeled and temporarily stored on the Property pending waste characterization activities. The drums will be scheduled for removal and off-site disposal by Lake County Green.

6.0 DATA COLLECTION ACTIVITIES

6.1 Data Quality Objectives/Sampling and Sample Analysis Plan

The DQO/SAP was completed in accordance with OAC 3745-300-07(D) to ensure that sampling and analysis procedures of the VAP Phase II would be adequate for potential use in support of a No Further Action Submittal (NFA) under the VAP. A copy of the DQO/SAP is included in **Appendix C**.

6.2 VAP Phase II Property Assessment Data Collection Activities

The scope of the VAP Phase II assessment was developed to ensure adequate sampling to evaluate the 22 IAs at the Property. The IAs were defined based the VAP Phase I Property Assessment prepared by Partners. Assessment activities completed by Partners associated with the completion of this Phase II were conducted in June 2023.

6.3 Geography, Topography, Geology, and Hydrogeology

6.3.1 Geography and Topography

The Property is shown on the USGS 7.5-Minute Topographic Map of the Cleveland North, Ohio Quadrangle (**Figure 1**). The Property is generally flat with a gentle slope down to the northwest toward Lake Erie located 1,250 feet to the northwest. The surface elevation of the Property is approximately 620 feet above mean sea level (AMSL). A map showing the Property topography with a contour interval of two (2) feet is included in **Appendix A**.

6.3.2 Regional Geology and Hydrogeology

According to the *Surficial Geology of Cleveland North 30 x 60 Minute Quadrangle* map, subsurface material underlying the Property consists of Wisconsinan-age clayey to silty till with a thickness of about 10 feet, underlain by Mississippian aged shale and sandstone bedrock.

The ODNR map titled *Groundwater Resources of Cuyahoga County* indicates that the Property is located in an area in which groundwater can be obtained from the shales of the Cuyahoga Formation which can produce yields of three (3) to 10 gallon per minute (gpm).

Partners reviewed information from the Ohio Department of Natural Resources (ODNR), Division of Soil and Water Resources regarding well logs in a one-half (0.5) mile radius of the Property. The Water Well Log Report On-line Search Tool indicates that there are no records potable water wells located within the search radius. Several groundwater monitoring wells are plotted south of the Property which were installed as part of subsurface investigations in 1992 by EDP Consultants and abandoned test wells installed in 1936. Copies of the well logs are included in **Appendix G.**

6.3.3 Property Specific Geology and Soil Properties

Fill materials consisting of silty clay to sand with varying amounts of slag, concrete, brick, and gravel were encountered across the Property from zero (0) to 10 feet. Native soils encountered below the fill consists of gray to brown silt, sand two (2) to 12 feet bgs, and clay. Weathered shale bedrock was encountered in one (1) boring on Parcel 5 at 18-feet bgs. Boring, well, and soil gas implant logs are included in **Appendix D**.

6.3.4 Property Specific Hydrogeology

The water bearing zone is present at depths ranging from 3.9 to 14.5 feet bgs. Groundwater measurements on Parcel 4 ranged from 3.9 to 7.4 feet bgs, while measurements on Parcel 5 ranged from 10.46 to 14.5 feet bgs. Given that a survey of the well locations has not been included in this scope of work, Property-specific groundwater surface elevations from this investigation were not calculated at this time. However, based on historical groundwater elevation models completed during the HzW VAP Phase II of Parcel 4, the direction of groundwater flow is northwest toward Lake Erie. This aligns with known groundwater resources in the general vicinity of the Property. Measurements from the gauging events are presented in **Table 3**. A copy of the Piezometric Surface Map completed by HzW is included in the Appendix as **Figure 9**.

6.3.5 Property Specific Recharge

According to published documentation, the average annual precipitation in this portion of Cuyahoga County is approximately 36 inches per year (ODNR, 2003). Evaporation and surface water runoff serve to significantly reduce the groundwater recharge rate. Recharge rates are presented in Ohio EPA Technical Guidance Compendium, VA30007.14.014 (Ohio EPA, 2005). The suggested recharge rate for silty and clayey sands typical at the Property is between four (4) to 10 inches per year.

6.3.6 Groundwater Use

Municipal water at and in the vicinity of the Property is provided by the Cleveland Water Department, which obtains its water from Lake Erie. No drinking water source protection areas are located at or within a one-half mile of the Property. The Property is located within the Cleveland City-Wide Urban Setting Designation (USD). The USD covers the City of Cleveland in which it has been established that groundwater is not and will not likely be used as a drinking water source (**Appendix D**).

6.4 Comparison Standards

6.4.1 Ohio VAP Applicable Soil Standards

Analytical results, discussed in **Section 6.5**, were compared to the generic numerical standards, as described in OAC 3745-300-08.

The current and planned land use of the Property is residential. The VAP Generic Direct Contact Soil Standards (GDCS) for the Restricted Residential Land Use Category, Commercial/Industrial Land Use Category and the Construction/Excavation Activities Category (OAC rule 3745-300-08) were used for evaluation of the results of soil analyses. Constituents for which no GDCS have been derived were compared to the Ohio EPA VAP Chemical Information Database and Applicable Regulatory Standards (CIDARS), Supplemental Criteria.

6.4.2 Ohio VAP Groundwater Standards

Results of groundwater analyses were compared to standards for potable use and vapor intrusion. Ohio VAP generic and risk-based Unrestricted Potable Use Standards (UPUS) (OAC rule 3745-300-08). UPUS is not an applicable standard for the Property, but comparison is required for groundwater response requirement and protection determinations under the VAP.

USEPA Vapor Intrusion Screening Levels (VISL) Target Groundwater Concentrations were determined for residential land use with a carcinogenic risk of 1E-5, hazard quotient of 1, an attenuation factor (AF) of 0.001, and a groundwater temperature of 11 degrees Celsius in accordance with the Ohio EPA document *Sample Collection and Evaluation of Vapor Intrusion to Indoor Air for Remedial Response, RCRA and VAP.*

6.4.3 Ohio VAP Generic Indoor Air Standards Due to Vapor Intrusion

To evaluate sub-slab vapor and soil gas results, an attenuation factor is applied to the Ohio VAP generic indoor air standards due to vapor intrusion, restricted residential land use and commercial/industrial land use category (OAC rule 3745-300-08) to account for the reduction in concentration during vapor migration in the subsurface coupled with the dilution that occurs when the vapors enter a building and mix with indoor air. In accordance with Ohio EPA guidance, an attenuation factor of 0.03 was applied to the Indoor Air Standards.

6.4.4 Toxic Substances Control Act (TSCA) PCB Regulations

PCB analytical results were compared to the USEPA action levels set forth in 40 CFR 761. The comparison standard for wipe samples on non-porous materials is 10 micrograms per 100 cm^2 (10ug/100cm^2) PCBs for a commercial surface for reuse.

6.5 Scope & Findings

This section provides a discussion of the Phase II activities and findings for each parcel and IA and incorporates the results from investigations conducted by Partners and others. A summary of soil, groundwater, sub-slab vapor and soil gas samples obtained in each IA during Partners' investigation is provided in **Table 2**.

Analytical results are presented in **Tables 4 through 6**. Laboratory analytical reports are included in **Appendix F**. Laboratory reporting limits were below applicable standards for constituents in soil and

groundwater except as noted in the QA/QC Summary in **Section 6.6**. Further evaluation was conducted to assess exposure pathways and receptors through the PSRA (**Section 11**).

6.5.1 Results of Soil Analysis

A summary of the results of soil analysis by Identified Area is described below:

- **IA-01 (10 Abandoned USTs and associated oil pit):** Six (6) soil samples had detections of VOCs, PAHs, and TPH all of which were below VAP standards for Restricted Residential Land Use, Commercial/Industrial Land Use, and Construction Excavation Activities.

- **IA-02 (Former Degreaser):** One (1) soil sample had detections for VOCs and metals all of which were below VAP standards for Restricted Residential Land Use, Commercial/Industrial Land Use and Construction/Excavation Activities.

- **IA-03 (Heat Treating and Quench Pits):** Two (2) soil samples had detections of VOCs, PAHs, and metals all of which were below VAP standards for Restricted Residential Land Use, Commercial/Industrial Land Use and Construction/Excavation Activities.

- **IA-04 (Former Tin Plating Area):** One (1) soil sample had detections for VOCs, PAHs, and metals all of which were below VAP standards for Restricted Residential Land Use, Commercial/Industrial Land Use, and Construction Excavation Activities.

- **IA-05 (Pickling Area):** One soil sample had detections for VOCs, PAHs, and metals all of which were below VAP standards for Restricted Residential Land Use, Commercial/Industrial Land Use, and Construction Excavation Activities.

- **IA-06 (Dip Tank Area):** One (1) soil sample had detections for VOCs and metals all of which were below VAP standards for Restricted Residential Land Use, Commercial/Industrial Land Use, and Construction Excavation Activities with the exception of arsenic at P4-IA06-SB01 (4-6) (21 mg/kg) above the Residential Land Use Category but is below the Cuyahoga County Background Levels for Metals in Soil.

- **IA-07 (Solvent Tank):** One (1) soil sample had detections for VOCs, PAHs, and metals all of which were below VAP standards for Restricted Residential Land Use, Commercial/Industrial Land Use, and Construction Excavation Activities.

- **IA-09 (Former Coal and Drum Storage):** One (1) soil sample had detections for VOCs, PAHs and metals all of which were below VAP standards for Restricted Residential Land Use, Commercial/Industrial Land Use, and Construction Excavation Activities.

- **IA-10 (Former Incinerator):** One (1) soil sample had detections for PAHs and metals all of which were below VAP standards for Restricted Residential Land Use, Commercial/Industrial Land Use, and Construction Excavation Activities with the exception of chromium (58.7 mg/kg) above the Residential Land Use Category and lead (2,530 mg/kg) at P4-IA10-SB01 (2-4) above the Residential Land Use Category, Commercial/Industrial Land Use Category, and Construction/Excavation Activities.

- **IA-11 (Metal Chip Pit and Conveyor Line):** One (1) soil sample had detections of VOCs, PAHs, and metals all of which were below VAP standards for Restricted Residential Land Use, Commercial/Industrial Land Use, and Construction Excavation Activities.

- **IA-12 (Four Former Oil ASTs):** One (1) soil sample had detections of VOCs, PAHs, and TPH, all of which were below VAP standards for Restricted Residential Land Use, Commercial/Industrial Land Use, and Construction Excavation Activities.

- **IA-14 (Railroad Spur):** Two (2) soil samples had detections for VOCs all of which were below VAP standards for Restricted Residential Land Use, Commercial/Industrial Land Use, and Construction Excavation Activities. Three (3) soil samples had detections for PAHs and metals all of which below VAP standards for Restricted Residential Land Use, Commercial/Industrial Land Use, and Construction Excavation Activities with the exception of benzo(a)pyrene at P4-IA14-SB01 (0-2) (2.86 mg/kg) and P4-IA14-SB02 (2-4) (11.2 mg/kg) was above the Residential Land Use category.

- **Parcel 4 General Coverage:** Two (2) soil borings had detections for VOCs, PAHs, and metals all of which were below VAP standards for Restricted Residential Land Use, Commercial/Industrial Land Use, and Construction Excavation Activities.

- **IA-51 (Transformer House 1):** Two (2) soil samples had detections for PAHs, TPH, and PCBs all of which were below VAP standards for Restricted Residential Land Use, Commercial/Industrial Land Use, and Construction Excavation Activities with the exception of benzo(a)pyrene at P5-IA51-SB01 (2-4) (5.33 mg/kg) and P5-IA51-SB02 (2-4) (17.3 mg/kg), and dibenz(a,h)anthracene (3.58 mg/kg) at P5-IA51-SB02 (2-4) above the Residential Land Use Category.

- **IA-52 (Transformer House 2):** Two (2) soil samples had detections for PAHs and TPH all of which were below VAP standards for Restricted Residential Land Use, Commercial/Industrial Land Use, and Construction Excavation Activities.

- **IA-53 (Four Reported Tanks):** One (1) soil sample had detections for VOCs which were below VAP standards for Restricted Residential Land Use, Commercial/Industrial Land Use, and Construction Excavation Activities. Two (2) soil samples had detections for PAHs, TPH, and metals all of which were below VAP standards for Restricted Residential Land Use, Commercial/Industrial Land Use, and Construction Excavation Activities.

- **IA-54 (14,000 Gallon Fuel Oil UST):** Two (2) soil samples had detections for VOCs, PAHs, and TPH all of which were below VAP standards for Restricted Residential Land Use, Commercial/Industrial Land Use, and Construction Excavation Activities.

- **IA-55 (Pickling Room):** One (1) soil sample had detections for VOCs, PAHs, and metals all of which were below VAP standards for Restricted Residential Land Use, Commercial/Industrial Land Use, and Construction Excavation Activities.

- **IA-56 (Machine Shop):** Two (2) soil samples had detections of VOCs, PAHs, and metals all of which were below VAP standards for Restricted Residential Land Use, Commercial/Industrial Land Use, and Construction Excavation Activities with the exception of benzo(a)pyrene (3.22 mg/kg) at P5-IA56-SB01 (2-4) exceeds the Residential Land Use Category.

- **IA-57 (Auto Scrap Garage with Eight ASTs):** Two (2) soil samples had detections for VOCs, PAHs, TPH, and metals all of which were below VAP standards for Restricted Residential Land Use, Commercial/Industrial Land Use, and Construction Excavation Activities with the exception of benzo(a)pyrene (2.74 mg/kg) at P5-IA57-MW01 (2-4) and lead (404 mg/kg) at P5-IA57-MW01 (2-4) above the Residential Land Use Category.

- **Parcel 5 General Coverage:** Three (3) soil samples had detections for VOCs, PAHs, and metals all of which were below VAP standards for Restricted Residential Land Use, Commercial/Industrial Land Use, and Construction Excavation Activities.

Additionally, the previous VAP Phase II completed by HzW found the following exceedances in soil when compared to the current VAP standards.

- **IA-1A (Milling Machine Area):** Nine (9) soil samples had detections of VOCs, PAHs, and TPH all of which were below VAP standards for commercial/industrial land use and construction/excavation

activities. TCA, 1,1-DCA, 1,2,3-TMB, cis-1,2-DCE, PCE, and TCE exceeded generic LBSV or site specific LBSV.

- **IA-2 (Former Degreaser):** VOCs were detected in all eight (8) soil samples collected in IA-2. PAHs were detected in two (2) soil samples, and TPH was detected in five (5) soil samples. Once exceedance of TCE for the commercial/industrial land use category is recorded. Compared to current VAP standards show two (2) samples exceed the residential land use and commercial/industrial land use for TCE.

- **IA-4 (Former Tin Plating Area):** 25 soil samples were collected from five (5) soil borings in IA-4. Samples analyzed for metals were below the GDCS for commercial/industrial land use and PCBs were not detected. Compared to current VAP standards show arsenic above the GDCS for residential land use in eight (8) soil samples.

- **IA-5 (Pickling Area):** Five (5) soil borings were advanced in IA-5 with 20 soil samples collected. Arsenic in one (1) soil sample exceeded the GDCS for commercial/industrial land use. Compared to current VAP standards five (5) soil samples exceeded the current VAP GDCS for residential land use in IA-5.

- **IA-9 (Former Coal and Exterior Drum Storage Area):** 12 soil borings were advanced in IA-9 with 18 soil samples collected. VOCs, PAHs, and metals exceeded either generic LBSV or site-specific SPV. Compared to current VAP standards show ethylbenzene (4,010 mg/kg), isopropylbenzene (453 mg/kg) and xylenes (20,260 mg/kg) exceed the residential land use and construction/excavation activities GDCS. TCE (16.1 mg/kg) exceeded the VAP GDCS for residential land use. The TPH samples were analyzed for hydrocarbon fractions that have no current standard (C6-C7, C6-C12, and C16-C32).

- **IA-10 (Former Incinerator):** Three (3) soil borings were advanced in IA-10 with four (4) soil samples collected. VOC concentrations were detected in all four (4) soil samples. VOCs exceeded the generic LBSV or a site-specific SPV. Concentrations were below the VAP GDCS for commercial/industrial land use or construction/excavation activities categories. Concentrations of metals were detected in all four (4) soil samples below VAP GDCS for commercial/industrial land use and construction/excavation activities categories. Compared to current standards TCE (20 mg/kg) exceeds the current VAP GDCS for residential land use, lead (652 mg/kg), chromium (28.5 mg/kg), arsenic (43.4 mg/kg and 24 mg/kg), exceeded the VAP GDCS for residential land use, chromium (366 mg/kg) also exceeded the GDCS commercial/industrial land use category.

- **IA-11 (Metal Chip Pit and Conveyor Line):** Five (5) soil borings were installed in IA-11 with seven (7) soil samples collected. VOCs, PAHs, TPH, and metals were detected in the soil samples. All concentrations were below VAP GDCS for commercial/industrial land use and construction/excavation activities. Compared to current standards arsenic (maximum of 20.9 mg/kg), cadmium (160 mg/kg), chromium (max of 554 mg/kg), and lead (max of 475 mg/kg) exceed the VAP GDCS for residential land use. Chromium also exceeded the VAP GDCS for commercial/industrial land use and construction/excavation activities category. The TPH samples were analyzed for hydrocarbon fractions that have no current standard (C6-C7, C6-C12, and C16-C32).

- **IA-12 (Four [4] Former Aboveground Oil Storage Tanks):** Seven (7) soil borings were advanced in IA-12 with eight (8) soil samples collected. VOCs were detected in two (2) samples, PAHs were detected in three (3) samples, and TPH was detected in two (2) samples. No COCs exceeded VAP GDCS for commercial/industrial land use or construction/excavation activities. Compared to current VAP standards benzo(a)pyrene (6.27 mg/kg) exceeded the VAP GDCS for residential land use. The TPH samples were analyzed for hydrocarbon fractions that have no current standard (C6-C7, C6-C12, and C16-C32).

Results of soil analysis are shown in **Tables 4A** through **4C**. The locations of Partners soil exceedances are presented on **Figure 6**, while the locations of HzW soil exceedances are presented in the previous report in **Appendix B**.

6.5.2 Results of Groundwater Analysis

A summary of the results of groundwater analysis by Identified Area is described below:

- **IA-01 (10 Abandoned USTs & Associated Oil Pit):** Groundwater samples collected had detectable concentrations of VOCs and PAHs all of which were below the US EPA VISL for Residential Land Use and The UPUS VAP standards.

- **IA-03 (Heat Treating and Quench Pits):** Groundwater samples collected had detectable concentrations of VOCs, PAHs, and metals all below the US EPA VISL for Residential Land Use and the UPUS VAP standards with the exception of vinyl chloride. Vinyl chloride (0.0049 mg/l) was detected above the UPUS and US EPA VISL for Residential Land use in P4-IA03-MW01).

- **IA-04 (Former Tin Plating Area):** Groundwater samples collected had detectable concentrations of VOCs, PAHs, and metals all below the US EPA VISL for Residential Land Use and the UPUS VAP standards.

- **IA-07 (Solvent Tank):** Groundwater samples collected had detectable concentrations of PAHs and metals all below the US EPA VISL for Residential Land Use and the UPUS VAP standards.

- **IA-11 (Metal Chip Pit and Conveyor Line):** Groundwater samples collected had detectable concentrations of VOCs and metals all below the US EPA VISL for Residential Land Use and the UPUS VAP standards with the exception of cis-1,2-dichloroethene (0.15 mg/l) above the VAP UPUS and vinyl chloride (0.00895 mg/l) above the US EPA VISL for Residential Land Use.

- **Parcel 4 General Coverage:** Groundwater samples collected had detectable concentrations of PAHs and metals all below the US EPA VISL for Residential Land Use and The UPUS VAP standards.

- **IA-53 (Four Reported Tanks):** Groundwater samples collected had detectable concentrations of metals all below the US EPA VISL for Residential Land Use and The UPUS VAP standards.

- **IA-54 (14,000 Gallon Fuel Oil UST):** Groundwater samples collected had detectable concentrations of VOCs and PAHs all below the US EPA VISL for Residential Land Use and The UPUS VAP standards with the exception of 1-methylnaphthalene above the VAP UPUS.

- **IA-56 (Machine Shop):** Groundwater samples collected had detectable concentrations of PAHs and metals all below the US EPA VISL for Residential Land Use and The UPUS VAP standards.

- **IA-57 (Auto Scrap Garage with Eight ASTs):** Groundwater samples collected had detectable concentrations of metals all below The US EPA VISL for Residential Land Use and The UPUS VAP standards with the exception of arsenic (0.0104 mg/kg) above the VAP UPUS.

- **Parcel 5 General Coverage:** Groundwater samples collected had detectable concentrations of metals all below the US EPA VISL for Residential Land Use and the UPUS VAP standards.

Additionally, the previous VAP Phase II completed by HzW found the following exceedances in groundwater when compared to the current VAP standards. Access for well installation completed by HzW was limited and some wells are adjacent to or placed in the nearest possible location to the listed Identified Areas:

- **IA-01 (10 Abandoned USTs & Associated Oil Pit):** Groundwater samples collected had detectable concentrations of VOCs and metals all below **t**he US EPA VISL for Residential Land Use and The UPUS VAP standards with the exception of trichloroethene (0.0134 mg/l) and vinyl chloride (maximum of 0.00857 mg/l) above the US EPA VISL for Residential Land Use and 1,2-dichloroethane (EDC) (0.00542 mg/l) above the VAP UPUS. Lead (0.0405 mg/l) is above the VAP UPUS.

- **IA-01A (Milling Machine Area):** Groundwater samples collected had detectable concentrations of VOCs and metals all below the US EPA VISL for Residential Land Use and The UPUS VAP standards with the exception of 1,1-dichloroethane (maximum of 0.471 mg/l), 1,1,1-trichloroethane (maximum of 0.521 mg/l), and trichloroethene (maximum of 1.66 mg/l) above the US EPA VISL for Residential Land Use. 1,1-dichloroethene (maximum of 0.0527 mg/l) and cis-1,2-dichloroethene (0.466 mg/l) and lead (0.0477 mg/l) are above the VAP UPUS.

- **IA-02 (Former Degreaser):** Groundwater samples collected had detectable concentrations of VOCs all below the US EPA VISL for Residential Land Use and The UPUS VAP standards with the exception of trans-1,2-dichloroethene (maximum of 2.5 mg/l), tetrachloroethene (0.837 mg/l), and trichloroethene (maximum of 93 mg/l) above the US EPA VISL for Residential Land Use. Cis-1,2-dichloroethene (maximum of 63 mg/l) and lead (0.134 mg/l) are above the VAP UPUS.

- **IA-03 (Heat Treating and Quench Pits):** Groundwater samples collected had detections of VOCs and metals all below the US EPA VISL for Residential Land Use and The UPUS VAP standards with the exception of trans-1,2-dichloroethene (maximum of 0.436 mg/l), trichloroethene (maximum of 0.435 mg/l), and total xylenes (maximum of 13 mg/l) above the US EPA VISL for Residential Land Use. Cis-1,2-dichloroethene (maximum of 8.5 mg/l) is above the VAP UPUS.

- **IA-05 (Pickling Area):** Groundwater samples collected had no detections for VOCs, PAHs, or metals.

- **IA-06 (Dip Tank Area):** Groundwater samples collected had no detections for VOCs, PAHs, or metals.

- **IA-08 (Outdoor Oil Staining) :** Groundwater samples collected had detectable concentrations of VOCs and metals all below the US EPA VISL for Residential Land Use and The UPUS VAP standards.

- **IA-09 (Former Coal and Drum Storage):** Groundwater samples collected had detectable concentrations of VOCs and metals all below the US EPA VISL for Residential Land Use and The UPUS VAP standards with the exception of 1,1,1,2-tetrachloroethane (0.0952 mg/l), trichloroethene (0.0264 mg/l), and vinyl chloride (0.0753 mg/l) above the US EPA VISL for Residential land Use. 1,1-dichloroethane (0.0594 mg/l) and cis-1,2-dichloroethene (0.146 mg/l) are above the VAP UPUS.

- **IA-10 (Former Incinerator):** Groundwater samples collected had detectable concentrations of metals all below the US EPA VISL for Residential Land Use and The UPUS VAP standards with the exception of barium (52.2 mg/l) and lead (0.0161 mg/l) above the VAP UPUS standards.

- **IA-11 (Metal Chip Pit and Conveyor Line):** Groundwater samples collected had detectable concentrations of VOCs and metals all below the US EPA VISL for Residential Land Use and The UPUS VAP standards with the exception of vinyl chloride (0.00895 mg/l) above the US EPA VISL for Residential Land Use and cis-1,2-dichloroethene (0.15 mg/l) and lead (0.0502 mg/l) above the VAP UPUS.

- **IA-12 (Four former Oil ASTs):** Groundwater samples collected had detectable concentrations of metals all below the US EPA VISL for Residential Land Use and The UPUS VAP standards with the exception of lead (maximum of 0.0686 mg/l) above the VAP UPUS standards.

- **IA-14 (Railroad Spur):** Groundwater samples collected had detectable concentrations of VOCs and metals all below the US EPA VISL for Residential Land Use and The UPUS VAP standards with the exception of 1,1-dichloroethane (0.219 mg/l) above the US EPA VISL for Residential Land Use Category. Cis-1,2-dichloroethene (0.272 mg/l) above the VAP UPUS.

Results of groundwater analysis are shown in **Tables 5A** and **5B**. The locations of Partners groundwater exceedances are presented on **Figure 7**, while the locations of HzW groundwater exceedances are presented in the previous report in **Appendix B**.

6.5.3 Results of Sub-Slab Vapor Analysis

A summary of the results of sub-slab vapor analysis by Identified Area is described below:

- **IA-02 (Former Degreaser Pit):** Vapor samples collected had detectable concentrations of VOCs all below the VAP Indoor Air Standard for Residential and Commercial/industrial Land Uses with an applied attenuation factor of 0.03 with the exception of trichloroethene (6,640 ug/m3) above the VAP Indoor Air Standard for Commercial/Industrial Land Use.

- **IA-03 (Heat Treating and Quench Pits):** Vapor samples collected had detectable concentrations of VOCs all below the VAP Indoor Air Standard for Residential and Commercial/industrial Land Uses with an applied attenuation factor of 0.03 with the exception of naphthalene (110 ug/m3) above the VAP Indoor Air Standard for Residential Use with an applied attenuation factor of 0.03.

- **IA-04 (Former Tin Plating):** Vapor samples collected had detectable concentrations of VOCs all below the VAP Indoor Air Standard for Residential and Commercial/industrial Land Uses with an applied attenuation factor of 0.03 with the exception of naphthalene (451 ug/m3) and trichloroethene (298 ug/m3) above the VAP Indoor Air Standard Commercial/industrial Land Uses with an applied attenuation factor of 0.03.

- **IA-05 (Pickling Area):** Vapor samples collected had detectable concentrations of VOCs all below the VAP Indoor Air Standard for Residential and Commercial/industrial Land Uses with an applied attenuation factor of 0.03.

- **IA-07 (Solvent Tank):** Vapor samples collected had detectable concentrations of VOCs all below the VAP Indoor Air Standard for Residential and Commercial/industrial Land Uses with an applied attenuation factor of 0.03 with the exception of naphthalene (4,480 ug/m3) above the VAP Indoor Air Standard for Commercial/industrial Land Uses with an applied attenuation factor of 0.03.

- **IA-57 (Auto Scrap Garage with Eight ASTs):** Vapor samples collected had detectable concentrations of VOCs all below the VAP Indoor Air Standard for Residential and Commercial/industrial Land Uses with an applied attenuation factor of 0.03 with the exception of benzene (10,800 ug/m3) and ethylbenzene (8,020 ug/m3) above the VAP Indoor Air Standard for Commercial/Industrial Land Use with an applied attenuation factor of 0.03. N-hexane (86,700 ug/m3), vinyl chloride (10,100 ug/m3), and 1,2,4-trimehtylbenzene (6,180 ug/m3) are above the VAP Indoor Air Standard for Residential land Use with an applied attenuation factor of 0.03.

Additionally, the previous VAP Phase II completed by HzW found the following exceedances in sub-slab vapor when compared to current VAP standards:

- **IA-02 (Former Degreaser Pit):** Vapor samples collected had detectable concentrations of VOCs all below the VAP Indoor Air Standard for Residential and Commercial/industrial Land Uses with an applied attenuation factor of 0.03 with the exception of bromodichloromethane (600 ug/m3), trichloroethene (4,800,000 ug/m3), and chloroform (2,000 ug/m3) above the VAP Indoor Air Standard for Commercial/industrial Land Uses with an applied attenuation factor of 0.03. Benzene

(320 ug/m3) and tetrachloroethene (4,600 ug/m3) were above the VAP Indoor Air Standard for Residential Use with an applied attenuation factor of 0.03.

- **IA-03 (Heat Treating and Quench Pits):** Vapor samples collected had detectable concentrations of VOCs all below the VAP Indoor Air Standard for Residential and Commercial/industrial Land Uses with an applied attenuation factor of 0.03 with the exception of trichloroethene (4,100 ug/m3) above the VAP Indoor Air Standard for Commercial/industrial Land Uses with an applied attenuation factor of 0.03. Naphthalene (110 ug/m3), benzene (320 ug/m3), and ethylbenzene (520 ug/m3) are the VAP Indoor Air Standard for Residential Use with an applied attenuation factor of 0.03.

Results of sub-slab vapor analysis are shown in **Table 6A**. The locations of Partners sub-slab vapor exceedances are presented on **Figure 8**, while the locations of HzW soil exceedances are presented in the previous report in **Appendix B**.

6.5.4 Results of Soil Vapor Implant Analysis

A summary of the results of soil gas implant analysis by Identified Area is described below:

- **IA-06 (Dip Tank Area):** Soil gas samples collected had detectable concentrations of VOCs all below the VAP Indoor Air Standard for Residential and Commercial/industrial Land Uses with an applied attenuation factor of 0.03.

- **IA-09 (Former Coal & Drum Storage):** Soil gas samples collected had detectable concentrations of VOCs all below the VAP Indoor Air Standard for Residential and Commercial/industrial Land Uses with an applied attenuation factor of 0.03 with the exception of tetrachloroethene (13,200 ug/m3) above the VAP Indoor Air Standard for Commercial/industrial Land Uses with an applied attenuation factor of 0.03 and trichloroethene (168 ug/m3) above the VAP Indoor Air Standard for Residential Use with an applied attenuation factor of 0.03.

- **IA-53 (Four Reported Tanks):** Soil gas samples collected had detectable concentrations of VOCs all below the VAP Indoor Air Standard for Residential and Commercial/industrial Land Uses with an applied attenuation factor of 0.03.

- **IA-54 (14,000 Gallon Fuel Oil UST):** Soil gas samples collected had detectable concentrations of VOCs all below the VAP Indoor Air Standard for Residential and Commercial/industrial Land Uses with an applied attenuation factor of 0.03.

- **IA-55 (Pickling Room):** Soil gas samples collected had detectable concentrations of VOCs all below the VAP Indoor Air Standard for Residential and Commercial/industrial Land Uses with an applied attenuation factor of 0.03 with the exception of trichloroethene (111 ug/m3) above the VAP Indoor Air Standard for Residential Use with an applied attenuation factor of 0.03.

- **IA-56 (Machine Shop):** Soil gas samples collected had detectable concentrations of VOCs all below the VAP Indoor Air Standard for Residential and Commercial/industrial Land Uses with an applied attenuation factor of 0.03.

Results of soil vapor analysis are shown in **Table 6B**. The locations of Partners soil vapor exceedances are presented on **Figure 8**.

6.5.5 Results of Ambient Air Analysis

Results of ambient air analysis showed no concentrations of VOCs above Ohio VAP Generic Indoor Air Standards due to Vapor Intrusion (Residential Land Use or Commercial/Industrial Land Use Categories).

6.6 QA/QC Sampling and Testing

Quality Assurance/Quality Control (QA/QC) samples consisted of duplicate samples, trip blanks, and equipment blanks. The equipment blanks consisted of samples collected by passing organic-free water or deionized water over decontaminated sampling equipment and into the sample container. The following is a summary of the QA/QC samples collected during the Phase II Property Assessment.

- Duplicate Soil Samples: One (1) duplicate soil sample was collected. Duplicate sample was submitted for analysis of VOC, PAHs, metals, and PCBs.
- Duplicate Groundwater Samples: One (1) duplicate sample was submitted for VOC, PAH, metals analysis.
- Duplicate Air Samples: One (1) duplicate sample was submitted for VOC analysis.
- One (1) trip blank was submitted for VOC analysis. Two (2) field blanks were submitted for VOC analysis. One (1) equipment blank was obtained for analysis of VOCs, PAHs, metals, and PCBs.

A review of laboratory narratives and an examination of all flagged compounds and QA/QC blank sample results suggest that laboratory analysis and field procedures were generally consistent and that no significant or identifiable cross-contamination occurred between samples, equipment, or field blanks was detected during Phase II activities. Additionally, laboratory data qualifiers reported indicated that laboratory QA/QC sample deviations were explainable, generally acceptable, and were not expected to adversely affect analytical results. Therefore, the analytical results presented are deemed acceptable for this project.

7.0 DETERMINATIONS

7.1 Groundwater Classification and Response Requirements

Groundwater Classification:

Groundwater classification was conducted in accordance with OAC 3745-300-10. According to OAC 3745-300-10, there are three (3) classifications for groundwater 1) critical resource, 2) Class A, and 3) Class B.

The following criteria for critical resource groundwater are not met at the Property; unconsolidated saturated zones capable of yielding an average rate greater than 100 gpm are not present; federally protected consolidated sole source aquifers are not present; and areas that are within a wellhead protection area endorsed or under review by Ohio EPA for a public water system are not present. A copy of the Ohio EPA Drinking Water Source Protection Areas Map depicting the Property and surrounding area is included in **Appendix G**.

One (1) groundwater zone has been identified at the Property. The water bearing zone is comprised of unconsolidated fill materials and predominantly sand soils with varying amounts of silt and clay and has been determined to be *Class A within a USD* as another ground water zone is not present beneath the Property or surrounding area that is a potential source of potable water (OAC 3745-300-10(B)(2)). The Property and surrounding area are underlain by the Devonian Ohio Shale. The Ohio Shale is described as being impermeable and does not provide sufficient volumes of groundwater for domestic use. The Ohio Shale is documented to be generally greater than 400 feet thick and extends laterally beneath all of Cuyahoga County (Banks & Feldman, 1970). The Ohio Shale is a groundwater confining layer and is not considered an aquifer in this region of Ohio as little to no water is available for use from these shales (Stout, Ver Steeg, and Lamb, 1943).

Groundwater Response Requirements:

Response requirements are met for the single water bearing zone. Results of groundwater analysis showed concentrations of vinyl chloride and cis-1,2-dichloroethene above the potable use standards; however, the potable use standards are not an applicable standard for the Property as it is located in the City of Cleveland Urban Setting Designation in which it has been established that groundwater is not and will not likely be used as a drinking water source. The applicable standard for groundwater at the Property is the USEPA Vapor Intrusion Screening Level (VISL) for residential land use. Vinyl chloride exceeded the VISL in P4-IA03-MW01 and P4-IA11-MW01. Results of groundwater analysis conducted by HzW when compared to current standards show exceedances of 1,1-dichloroethane, 1,1,1-trichloroethane, trichloroethane, vinyl chloride, trans-1,2-dichloroethene, tetrachloroethene, xylenes, and 1,1,1,2-tetrachloroethane exceed current USEPA VISL for residential land use.

- Implement institutional controls or engineering controls that reliably prevent human exposure on the Property to groundwater with concentrations of COCs in excess of UPUS (OAC 3745-300-10(E)(2).

- UPUS exceedances exist in the water bearing zone. A Groundwater Use Restriction through an Environmental Covenant will be filed with the NFA. The environmental covenant is detailed further in **Section 12.0**.

7.2 Protection of Groundwater Meeting the Unrestricted Potable Use Standard (POGWMUPUS)

Results of groundwater analyses conducted as part of this Phase II and described in **Section 6.0**, found that groundwater in the water bearing zone does not meet UPUS. A demonstration that groundwater in this water bearing zone is protected against COCs leaching from soil and causing the UPUS to be exceeded is not necessary.

No deeper water bearing zone is present beneath or within one (1) mile of the Property. The Ohio Shale is described as being impermeable and does not provide sufficient volumes of groundwater for domestic use. The Ohio Shale is documented to be generally greater than 400 feet thick and extends laterally beneath all of Cuyahoga County (Banks & Feldman, 1970). The Ohio Shale is a groundwater confining layer and is not considered an aquifer in this region of Ohio as little to no water is available for use from these shales (Stout, Ver Steeg, and Lamb, 1943). Jagucki and Dorner (2001) concluded in their study that the Ohio Shale is poorly permeable, with yields too low to meet domestic supply demands. The hydraulic conductivity of shale in general ranges from $1x10^{-7}$ to $1x10^{-11}$ cm/second, with the higher end of the range being a result of fractures (Heath, 1994). It is reasonable to conclude that the hydraulic conductivity of the Ohio Shale is not significantly more than $1x10^{-7}$ cm/second. Based upon the documented hydrogeology, extent and thickness of the Ohio Shale, a lower ground water bearing zone is not believed to exist within the deeper portion of the shale bedrock beneath the Property.

7.3 Applicable Standard Determination and Exposure Point Concentrations

Based on the exposure pathway assessment and COCs present, the applicable standards and points of compliance for soil at the Property are as follows:

- The GDCS for the Restricted Residential Land Use Category for a 2-foot point of compliance,
- The GDCS for the Commercial/Industrial Land Use Category for a 2-foot point of compliance, and
- The GDCS for the Construction/Excavation Activities Category for a 10-foot point of compliance.

Response requirements for groundwater classified as *Class A with a USD* necessitates compliance with standards for potential exposures not associated with groundwater ingestion. A Groundwater Use Restriction will be applied to the Property to ensure that groundwater shall not be extracted or used for any purpose, potable or otherwise, except in conjunction with groundwater investigation, remedial activities, or construction or excavation activities or maintenance of subsurface utilities as necessary. Based on this, the location of the Property in a USD, and the planned use, the applicable standards for groundwater are as follows:

- Groundwater to indoor air for the commercial/industrial worker: USEPA Vapor Intrusion Screening Level (VISL).

The applicable standards for vapor intrusion at the Property are as follows:

- Ohio VAP Generic Indoor Air Standards due to Vapor Intrusion (Commercial/ Industrial Land Use Category) with an applied attenuation factor of 0.03 for sub-slab vapor.

8.0 BACKGROUND DETERMINATIONS

No background determinations were completed as part of this Phase II. However, The Ohio EPA Division of Environmental Response and Revitilization Background metal Soil Concentrations for Cuyahoga County were used for arsenic comparisons as no on-site unimipacted soil was evident and Cuyahoga County used similar soils for nearby locations when generating the background level.

9.0 MODELING

No fate and transport modeling was completed as part of this Phase II.

10.0 URBAN SETTING DESIGNATION

The Property is located within the Cleveland City-Wide Urban Setting Designation (USD). The USD covers the City of Cleveland in which it has been established that groundwater is not and will not likely be used as a drinking water source. No request for a Property-specific USD determination was submitted.

11.0 PROPERTY-SPECIFIC RISK ASSESSMENT (PSRA)

The purpose of this PSRA is to determine if chemical compounds detected in soil, groundwater and sub-slab vapor are likely to pose an unacceptable human health risk. The PSRA provides estimates of the carcinogenic and non-carcinogenic risks posed to receptor populations on and off the Property, based upon applicable standards and the acceptable risk goals established by the Ohio VAP. The PSRA is comprised of four (4) parts, outlined in OAC 3745-300-09: the selection of chemicals of concern, the exposure assessment, the toxicity assessment, and the characterization of risk.

There are no ecological receptors (e.g., surface water, wetlands, or sediments) on or abutting the Property and no subsurface conduits that may transport any contamination to important ecological receptors. Therefore, it was not necessary to evaluate COC exposures for complete pathways to ecological receptor populations.

11.1 COCs Used in Risk Characterization

In order to provide a conservative evaluation of the risk to human health at the Property, detected COCs in soil, groundwater, and vapor were evaluated.

For lead, the GDCS takes into account other factors and assumptions in addition to the carcinogenic or non-carcinogenic risks so that using cumulative risk adjustment is not appropriate (OAC 3745-300-08). The TPH standards are based upon soil saturation and made up of numerous petroleum factions such that using cumulative risk adjustment is not appropriate (OAC 3745-300-08).

11.2 Exposure Assessment

The objective of the exposure assessment is to determine the reasonably anticipated magnitude, frequency, duration, and routes of exposure on the Property and on areas adjacent to the Property. Both the Property specific data and intended land uses are considered (**Table 10**).

11.2.1 Current and Proposed Land Use

The current land use of the Property is vacant commercial/industrial land. Information from the City of Cleveland indicates that the Property and surrounding area are zoned General Industry. The Property is bordered to the north, south, and east by commercial and industrial facilities. The proposed land use of the Property, and purpose of this Phase II Assessment is to evaluate the Property's potential as a site for The Cuyahoga County Jail and Justice Center with Restricted Residential Land Use and Commercial/Industrial Land Use.

11.2.2 Identification of Receptor Population

On-Property receptor populations based on the current and planned use of the Property include:

- On-Property Restricted Residential Residents and Commercial/Industrial Workers
- On-Property Construction/Excavation Workers.

Additionally, a trespasser or visitor may also be considered a potential receptor. Compliance for on-Property residential and construction/excavation worker with the applicable standards is considered adequately protective of the potential trespasser or visitor whose exposure would be more limited than the on-Property workers and residents.

Potential off-Property receptor populations based on the surrounding land use include:

- Off-Property Commercial/Industrial Workers

11.2.3 Evaluation of Complete Exposure Pathways

A determination of the complete exposure pathways was conducted based on the identified receptor populations and distribution of COCs in environmental media. Soil exposure risks are presented in **Tables 7A** through **7C**, groundwater exposure risks are presented in **Tables 8A** and **8B**, and soil vapor exposure risks are presented in **Tables 9A** and **9B**. The following complete pathways were evaluated.

On-Property Residential and Workers

- Direct contact with soil via ingestion, dermal contact with soil and inhalation of volatile and particulate emissions.

The evaluation of direct contact exposure for restricted residential and commercial/industrial workers is quantified using data collected from soils within a 2-foot point of compliance. With the Environmental Covenant in place Inhalation due to vapor intrusion of volatile emissions to indoor air is dependent on future land use and building plans.

On-Property Construction/Excavation Workers

- Direct contact with soil within the upper 10 feet via ingestion, dermal contact, and inhalation of volatile and particulate emissions.

The evaluation for direct contact exposure to soil for the construction/excavation worker is quantified using data within a point of compliance of 10 feet bgs. Depths to groundwater ranges from 3.93 to 14.56 feet bgs. Therefore, potential construction and excavation worker exposure to groundwater is reasonably anticipated during trenching activities.

Off-Property Receptors

The upper water bearing zone is classified as *Class A with a USD* and no lower zone exists. Therefore, response requirements must ensure protection of off-Property receptors from exposures to COCs in groundwater not related to potable use. In this case, potential exposures include vapor migration from groundwater to indoor air for commercial/industrial receptors.

- Off-Property Commercial/Industrial Workers - Vapor intrusion from groundwater to indoor air.

11.2.4 Exposure Units (EUs)

An exposure unit is a location within which an exposed receptor may reasonably be assumed to move at random and where contact with an environmental medium (e.g., soil) is equally likely at all sub-locations. Based on the distribution of COCs and the current and reasonable anticipated development of the Property, one (1) Property wide exposure unit (EU) was established for the evaluation of residential land use, commercial/ industrial land use, and construction/excavation activities.

11.2.5 Exposure Point Concentrations (EPCs)

The EPCs for evaluating the risk posed to the potential receptors are described below:

<u>On-Property Residential and Commercial/Industrial Worker</u>

The EPC used for the evaluation of direct contact exposure for Residential and Commercial/Industrial workers was quantified using maximum concentrations from soils within a 2-foot point of compliance.

On-Property Construction/Excavation Worker

The EPC for direct contact exposures to soil for the construction/excavation worker had the maximum detected values within the point of compliance of 10 feet.

11.3 Toxicity Assessment

The toxicity criteria were determined in accordance OAC 3745-300-09. The toxicity values are consistent with the toxicity criteria in the most up to date values presented in the USEPA Integrated Risk Information System (IRIS) and those published in the Ohio EPA Chemical Information Database and Applicable Regulatory Standards (CIDARS).

11.4 Risk Characterization

Risk characterization integrates the exposure point concentrations of the COCs, exposure routes, and toxicity values in order to estimate the carcinogenic and non-carcinogenic health risks for the identified receptor populations.

11.4.1 Carcinogenic Risk

Carcinogenic risk is expressed in scientific notation as a unitless probability. Risk due to exposure to multiple chemicals is assumed to be additive without consideration to target organs or systems. As presented in OAC 3745-300-09, the cumulative carcinogenic risk, attributable to the chemicals of concern on, underlying or emanating from a property, must not exceed an excess upper bound lifetime cancer risk to an individual of one (1) in 100,000 (1E-05).

11.4.2 Non-Carcinogenic Hazard Quotient

Non-carcinogenic hazards are expressed as hazard quotients. For a conservative determination the hazard quotients for individual chemicals are assumed to be additive without consideration to target organs or systems. The sum of the hazard quotients is called a hazard index (HI). A HI above one (1) indicates that the potential for adverse effects cannot be ruled out. The cumulative non-carcinogenic hazard, attributable to the chemicals of concern on, underlying or emanating from a property, must not exceed one (1).

11.4.3 Carcinogenic and Non-Carcinogenic Risk Ratio Calculations

The carcinogenic and non-carcinogenic incremental risk ratios were calculated for exposure scenarios associated with each receptor.

The risk ratio calculations were conducted by dividing the EPC of each COC by its associated standard for either single chemical carcinogens or single chemical non-carcinogens, in accordance with the procedures described in OAC 3745-300-08 and OAC 3745-300-09. The resultant cancer ratios were summed as an expression of estimated cancer risk and the resultant non-cancer ratios were summed as an expression of estimated hazard index. The cancer risk ratio is converted into an excess upper bound lifetime cancer risk (ELCR) by multiplying the risk ratio value by (1E-05). Therefore, a cancer risk ratio of one (1) represents a risk of (1E-05).

11.5 Results of Risk Calculations

The locations of Partners soil, groundwater, and soil vapor exceedances are presented on **Figure 6, 7,** and **8,** respectively. The locations of HzW soil, groundwater, and soil vapor exceedances are presented on **Figures 4A** through **4D**.

Restricted Residential Land Use:

The cumulative excess lifetime cancer risk (ELCR) and non-carcinogenic hazard index (HI) for restricted residential land use is presented below.

The complete exposure pathway includes direct contact with soil with a point of compliance of 2-feet for Restricted Residential land use. Incremental risk for direct contact with soil is presented on **Table 7A**, while risk for sub-slab soil vapor and soil gas is presented on **Table 9A**.

Restricted Residential Land Use		
Exposure Pathway	*HI*	*ELCR*
Direct Contact with Soil	3.9	1.3E-04

The hazard index and Cumulative lifetime cancer risk do not meet the applicable standards.

Commercial and Industrial Land Use:

The cumulative excess lifetime cancer risk (ELCR) and non-carcinogenic hazard index (HI) for a commercial worker is presented below.

With the Environmental Covenant in place, the complete exposure pathway includes direct contact with soil with a point of compliance of 2-feet. Incremental risk for direct contact with soil is presented on **Table 7B**, while risk for sub-slab soil vapor and soil gas is presented on **Table 9B**..

Commercial and Industrial Land Use		
Exposure Pathway	*HI*	*ELCR*
Direct Contact with Soil	0.73	1.3E-05

Cumulative risk for direct contact with soil for a commercial/industrial worker does not meet applicable standards.

Construction and Excavation Activities

The cumulative excess lifetime cancer risk and non-carcinogenic hazard index for a construction/ excavation worker is presented below. Exposure includes direct contact with soil with a point of compliance of 10 feet. Incremental risk for direct contact with soil is presented on **Table 7C**.

Construction and Excavation Activities		
Exposure Pathways	*HI*	*ELCR*
Direct Contact with Soil	34.18	1.1E-05

The hazard index and cumulative risk for direct contact with soil does not meet applicable standards.

The cumulative excess lifetime cancer risk and non-carcinogenic hazard index for construction/excavation activities is presented below. Exposure includes inhalation of soil vapor and vapor intrusion via groundwater in trenches with a point of compliance of 10 feet. The locations of exceedances are presented in **Figure 8**.

Construction and Excavation Activities		
Exposure Pathway	*HI*	*ELCR*
Direct Contact with Soil	1.8E-03	2.3E-04

Cumulative risk for inhalation of soil vapor and vapor intrusion of groundwater in trenches does not meet the applicable standards.

Because the point of compliance for groundwater is less than two (2) feet, or 10 feet which is covered under the trench model, a construction worker quantitative risk assessment was completed using the Virginia Unified Risk Assessment Model (VURAM) developed by the Virginia Department of Environmental Quality (DEQ) and considered to be industry standard. The VURAM is provided as **Table 8**.

12.0 REMEDIAL ACTIVITIES PRIOR TO NFA LETTER

Based on the findings of the Phase II Property Assessment, it was determined that with targeted soil removal remedy and the implementation of the Environmental Covenant, Risk Mitigation Plan (RMP), and Operations and Maintenance Plan (O&M Plan) the Property will meet applicable standards.

12.1 Environmental Covenant

An Environmental Covenant will be implemented to meet applicable standards, as detailed below:

- A land use restriction will be implemented to limit use of the Property to Restricted Residential Land Use.
- Concentrations of VOCs, PAHs, Metals, and TPH in the soil exceed applicable standards. Targeted soil removal and treatment remedies will be implemented, such that COC concentrations meet the Restricted Residential land use category.
- Concentrations of COCs in groundwater at the Property require Groundwater Use Restriction through an Environmental Covenant, such that, groundwater underlying the Property shall not be extracted or used for any purpose, potable or otherwise, except in conjunction with construction or excavation activities or maintenance of subsurface utilities as necessary.
- Concentrations of VOCs is sub-slab vapor, soil vapor, and shallow groundwater (<15' bgs) dictate an Environmental Covenant will be implemented to include limitations whereby, prior to any human occupancy of these buildings or future buildings, a demonstration that applicable standards are met or a remedy that eliminates vapor intrusion to indoor air exposure shall be installed and maintained as an engineering control.

A Risk Mitigation Plan (RMP) will be developed to protect construction and excavation workers at the Property from exposure to COCs in subsurface soil and groundwater. The RMP must be implemented whenever construction or excavation activities occur at or below two (2) feet in depth due to the presence of VOCs, metals, TPH, and PAHs.

An Operation and Maintenance Plan (O&M Plan) will be put into place to manage engineering controls implemented at the Property. Engineering controls will consist of a two (2) foot thick soil cover or pavement controls in areas where soil removal or treatment are not possible.

The presence of the 14,000-gallon Fuel Oil UST at IA-54 on Parcel 5 evidenced during the ground penetrating radar (GPR) survey should be addressed with the Ohio Bureau of Underground Storage Tank Regulations (BUSTR) closure activities.

12.2 Risk Mitigation Plan

An RMP will be prepared to assist construction and excavation workers in managing the risk associated with the presence of metals in soil. Risk mitigation measures are those health and safety precautions and other such activities that provide protection to persons working in construction or excavation from exposures to COCs in impacted environmental media, as described by OAC 3745-300-11. Implementation of the RMP allows the Property to maintain compliance with applicable standards for construction and excavation activities.

13.0 COMPLIANCE WITH APPLICABLE STANDARDS

3745-300-07(J)(14) and 3745-300-07(I)

Applicable standards are met at the Property for residential land use, commercial/industrial use, and construction/excavation activities with the Environmental Covenant, RMP and O&M Plan in place.

Sufficient testing was completed to determine the nature and extent of the contaminants of concern on the Property. The exposure scenarios used to evaluate risk and compliance with standards are based on the implementation of an Environmental Covenant, which will include restrictions on land use, an RMP to assist construction and excavation workers with risks in soil, and an O&M Plan for the SSD system engineering control. With these controls in place the Property meets the requirements for No Further Action under OAC 3745-300.

Personnel profiles are included in **Appendix H**. Signatures of the primary authors are provided below.

DRAFT

_____

Halle A. Miller
Project Manager

DRAFT

_____

John T. Garvey, CP-118
Vice President

14.0 BIBLIOGRAPHY

HzW Environmental Consultants, LLC, *Voluntary Action Program Phase II Property Assessment: Former National Acme Facility 170 East Street, Cleveland, Cuyahoga County, Ohio*, February 2009

HzW Environmental Consultants, LLC, *Voluntary Action Program Phase I Property Assessment: Permanent Parcel Numbers 111-20-002 and 111-20-003, 170 and 221 East 131st Street, Cleveland, Cuyahoga County, Ohio,* February 2009

Ohio EPA, *Issuance of Covenant Not to Sue for the Former National Acme Property (09NFA364), 170 and 221 East 131st Street, Cleveland, Cuyahoga County, Ohio,* January 2012

HzW Environmental Consultants, LLC, *2016 Annual Operations and Maintenance (O&M) Plan Report, Notification of Risk Mitigation Plan (RMP) Activities, and Activity Use Restriction Notification (AURN) for Former National ACME Facility, 170 East 131st Street, Cleveland, Cuyahoga County, OHIO (09NFA364),* October 2017

Partners Environmental Consulting, Inc., *Ohio Environmental Protection Agency Voluntary Action Program Phase I Property Assessment: Commercial Lot Eddy-Kirby Seven (7) Parcels, Cleveland, Cuyahoga County, Ohio,* April 2023

ODNR, Division of Geological Survey, Surficial Geology of Cleveland South 30 x 60 Minute Quadrangle, 2006.

ODNR, Division of Water, Groundwater Resources of Cuyahoga County.

ODNR Division of Soil and Water Resources, Groundwater Mapping and Technical Services Water Well Locator: http://www.dnr.state.oh.us/water/maptechs/wellogs/app/.

OAC 3745-300-08, *Generic Numerical Standards Rule* for the Voluntary Action Program.

OAC 3745-300-10, *Ground Water Classification and Response Requirements* for the Voluntary Action Program.

Ohio EPA 2020, *Sample Collection and Evaluation of Vapor Intrusion to Indoor Air for Remedial Response, RCRA and VAP.*

Ohio EPA, 2019. Chemical Information Database and Applicable Regulatory Standards (CIDARS) Database.

Ohio EPA, Technical Guidance Compendium VA30009.14.003, Supplemental Values for Chemicals of Concern without Generic Numerical Standards.

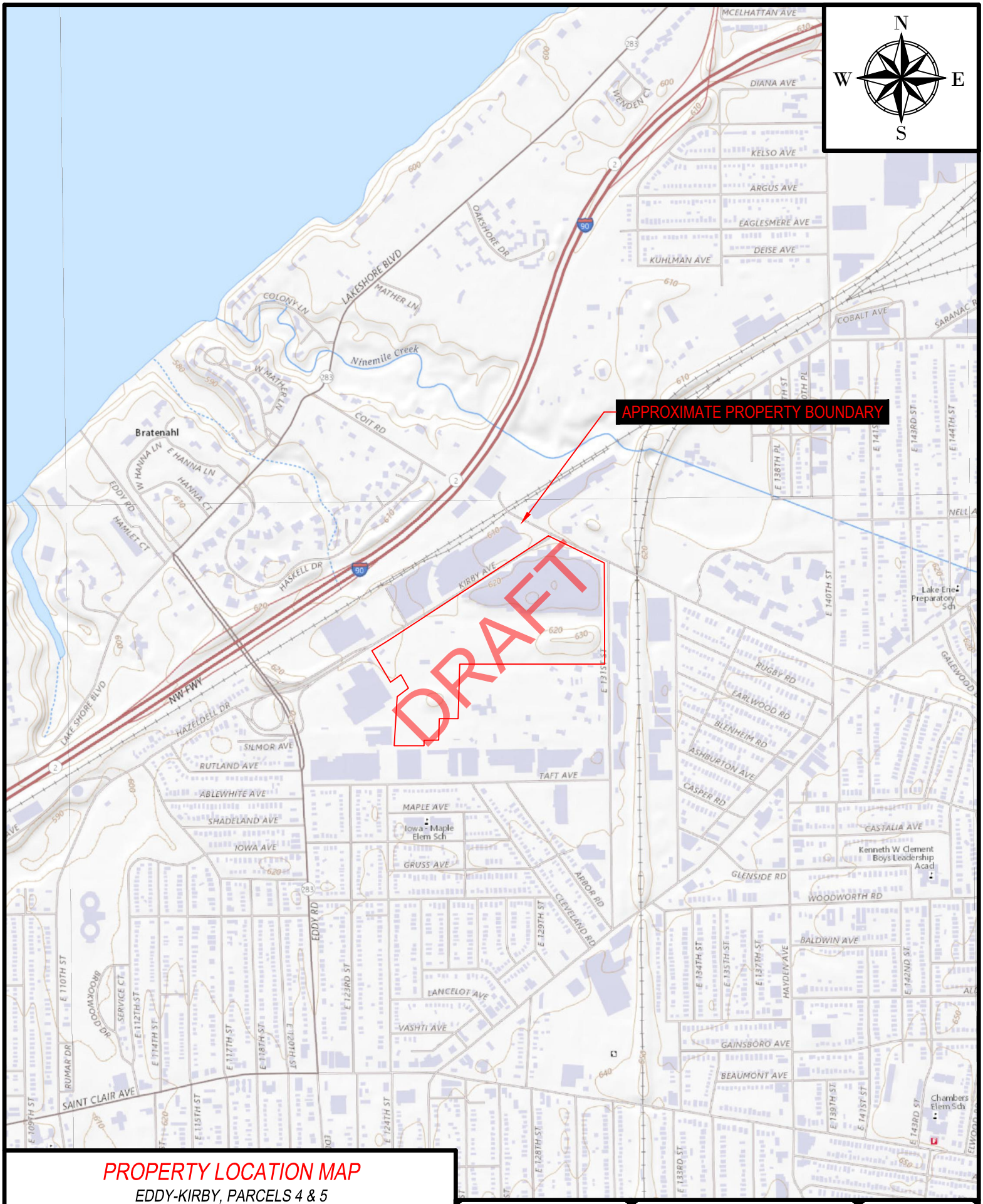
USEPA, 2002. Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. Office of Emergency and Remedial Response. OSWER 9285.6-10.

USEPA, 2009. *Risk Assessment Guidance for Superfund: Volume I- Human Health Evaluation Manual (Part F, Supplemental Guidance for Inhalation Risk Assessment*). Final. USEPA, Office of Emergency and Remedial Response. EPA/540R/070/002.

USEPA. 2010. *Exposure Factors Handbook*. U.S. Environmental Protection Agency, Office of Health and Environmental Assessment.

USEPA. IRIS: Integrated Risk Information System. U.S. Environmental Protection Agency. Office of Research and Development. http://www.epa.gov/iris/

FIGURES



PROPERTY LOCATION MAP

EDDY-KIRBY, PARCELS 4 & 5

170 EAST 131ST STREET
CLEVELAND, CUYAHOGA COUNTY, OHIO

FOR: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS

2093.10A

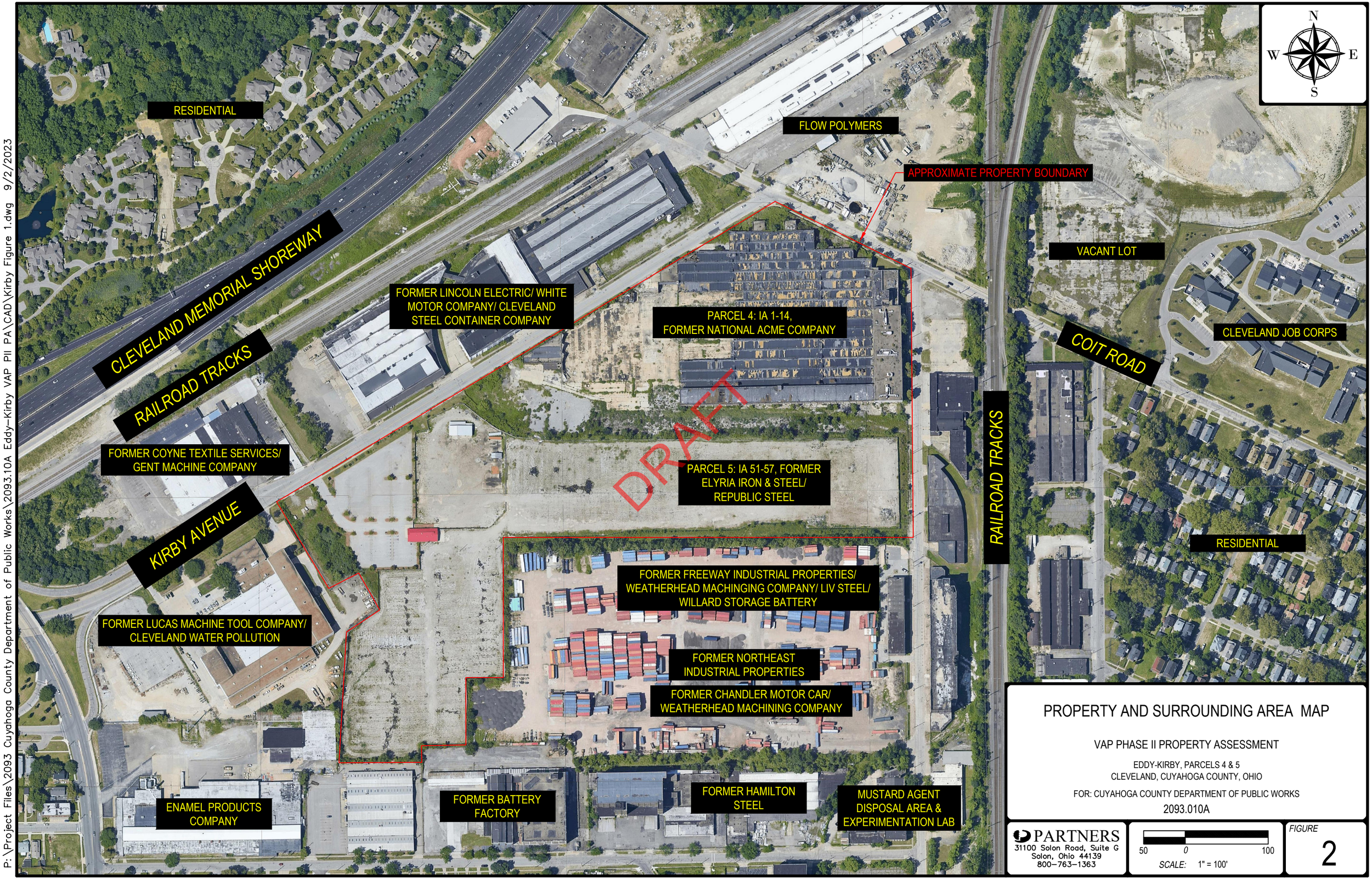
PARTNERS
31100 Solon Road, Suite G
Solon, Ohio 44139
800-763-1363

500 0 1000

SCALE: 1" = 1000'

FIGURE 1

P:\Project Files\2093 Cuyahoga County Department of Public Works\2093.10A Eddy-Kirby VAP PII PA\CAD\Figures 1 and 2.dwg 9/2/2023



PROPERTY AND SURROUNDING AREA MAP

VAP PHASE II PROPERTY ASSESSMENT

EDDY-KIRBY, PARCELS 4 & 5
CLEVELAND, CUYAHOGA COUNTY, OHIO

FOR: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS

2093.010A

PARTNERS
31100 Solon Road, Suite G
Solon, Ohio 44139
800-763-1363

50 0 100

SCALE: 1" = 100'

FIGURE 2

P:\Project Files\2093 Cuyahoga County Department of Public Works\2093.10A Eddy-Kirby VAP PII PA\CAD\Kirby Figure 1.dwg 9/2/2023

P:\Project Files\2093 Cuyahoga County Department of Public Works\2093.10A Eddy-Kirby VAP PII PA\CAD\IA Map.dwg 9/2/2023

N
W E
S

RESIDENTIAL

FLOW POLYMERS

APPROXIMATE PROPERTY BOUNDARY

VACANT LOT

CLEVELAND JOB CORPS

COIT ROAD

E. 131ST STREET

RESIDENTIAL

FORMER COYNE TEXTILE SERVICES/
GENT MACHINE COMPANY

KIRBY AVENUE

FORMER LUCAS MACHINE TOOL COMPANY/
CLEVELAND WATER POLLUTION

ENAMEL PRODUCTS
COMPANY

FORMER BATTERY
FACTORY

FORMER HAMILTON
STEEL

MUSTARD AGENT
DISPOSAL AREA &
EXPERIMENTATION LAB

TAFT AVENUE

FORMER LINCOLN ELECTRIC/WHITE MOTOR
COMPANY/CLEVELAND STEEL CONTAINER
COMPANY

IA-03 HEAT TREATING
& QUENCH PITS

IA-02 FORMER
DEGREASER PIT

IA-05 PICKLING AREA

IA-04 FORMER TIN PLATING

IA-06 DIP TANK AREA

IA-08 OUTDOOR OIL STAINING

IA-01 10 ABANDONED USTS & OIL PIT

IA-07 SOLVENT TANK

IA-01A MILLING MACHINE AREA

IA-11 METAL CHIP PIT
& CONVEYOR LINE

IA-09 FORMER COAL
& DRUM STORAGE

IA-23 PIPING TUNNELS

IA-13 FORMER 20,000 GAL HEATING OIL UST & PIPE MANIFOLD FOR IA-01 USTS

IA-12 FOUR FORMER OIL ASTS

IA-10 FORMER INCINERATOR

IA-14 RAILROAD SPUR

IA-57 AUTO SCRAP GARAGE
WITH EIGHT ASTS

IA-53 FOUR REPORTED TANKS

IA-54 14,000 GAL FUEL OIL UST

IA-55 PICKLING ROOM

IA-51 TRANSFORMER HOUSE 1

IA-56 MACHINE SHOP

IA-52 TRANSFORMER HOUSE 2

FORMER FREEWAY INDUSTRIAL
PROPERTIES/WEATHERHEAD MACHINING
COMPANY/LIV STEEL/WILLARD STORAGE
BATTERY

FORMER NORTHEAST INDUSTRIAL
PROPERTIES

FORMER CHANDLER MOTOR CAR/
WEATHERHEAD MACHINING COMPANY

IDENTIFIED AREAS MAP

VAP PHASE II PROPERTY ASSESSMENT

EDDY-KIRBY, PARCELS 4 & 5
CLEVELAND, CUYAHOGA COUNTY, OHIO

FOR: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS

2093.10A

PARTNERS
31100 Solon Road, Suite G
Solon, Ohio 44139
800-763-1363

50 0 100
SCALE: 1" = 100'

FIGURE
3

LEGEND

- SOIL BORING
- SOIL BORING/MONITORING WELL
- SOIL VAPOR IMPLANT
- SUB-SLAB VAPOR POINT
- PRIOR HzW MONITORING WELL
- PRIOR HzW SOIL BORING
- PRIOR HzW SOIL GAS SAMPLE

FLOW POLYMERS

APPROXIMATE PROPERTY BOUNDARY

VACANT LOT

COIT ROAD

E. 131ST STREET

FORMER LINCOLN ELECTRIC/WHITE MOTOR COMPANY/CLEVELAND STEEL CONTAINER COMPANY

IA-02 FORMER DEGREASER PIT

IA-03 HEAT TREATING & QUENCH PITS

IA-04 FORMER TIN PLATING

IA-05 PICKLING AREA

IA-06 DIP TANK AREA

IA-08 OUTDOOR OIL STAINING

IA-01 10 ABANDONED USTS & OIL PIT

IA-07 SOLVENT TANK

IA-01A MILLING MACHINE AREA

IA-11 METAL CHIP PIT & CONVEYOR LINE

IA-23 PIPING TUNNELS

IA-09 FORMER COAL & DRUM STORAGE

IA-13 FORMER 20,000 GAL HEATING OIL UST & PIPE MANIFOLD FOR IA-01 USTS

IA-12 FOUR FORMER OIL ASTS

IA-10 FORMER INCINERATOR

IA-14 RAILROAD SPUR

IA-54 14,000 GAL FUEL OIL UST

IA-57 AUTO SCRAP GARAGE WITH EIGHT ASTS

IA-53 FOUR REPORTED TANKS

IA-55 PICKLING ROOM

IA-56 MACHINE SHOP

IA-51 TRANSFORMER HOUSE 1

IA-52 TRANSFORMER HOUSE 2

P4-IA02-SB01
P4-IA03-MW01
P4-IA01-SV01
P4-IA03-SV01
P4-IA04-SV01
P4-IA05-SV01
P4-IA05-SB01
P4-IA04-MW01
P4-IA03-SB01
P4-IA06-SB01
P4-IA01-MW01
P4-IA01-SB01
P4-IA01-VI01
P4-IA07-MW01
P4-IA07-SV01
P4-GC-MW01
P4-GC-SB01
P4-IA11-MW01
P4-IA12-SB01
P4-IA14-SB03
P4-IA09-SB01
P4-IA09-VI01
P4-IA14-SB02
P4-IA14-SB01
P4-IA10-SB01
P5-IA57-MW01
P5-IA57-SV01
P5-IA57-SB01
P5-IA53-VI01
P5-IA53-MW01
P5-IA53-SB01
P5-GC-SB03
P5-GC-SB02
P5-GC-SB01
P5-IA55-VI01
P5-IA55-SB01
P5-IA56-VI01
P5-IA56-MW01
P5-IA56-SB01
P5-IA52-SB01
P5-IA52-SB02
P5-IA51-SB02
P5-IA51-SB01
P5-IA54-MW01
P5-IA54-VI01
P5-IA54-SB01
P5-GC-MW01

HZW-8 HZW-9 HZW-10 HZW-11 HZW-12 HZW-13 HZW-14 HZW-15 HZW-17 HZW-18 HZW-19 HZW-20 HZW-21 HZW-01 HZW-02 HZW-03 HZW-04 HZW-05 HZW-6 HZW-7

MW-1(P) MW-2(P) MW-3(P) WP-4

B-15 B-20 B-30 B-37 B-36 B-34 B-35 B-18 B-19 B-21 B-22 B-46 B-45 B-25 B-24 B-26 B-27 B-28 B-29 B-41 B-42 B-43 B-44 B-3 B-7 B-6 B-8 B-9 B-38 B-40 B-39 B-10 B-11 B-13 B-14 B-16

IA-8-01 IA-8-02 IA-6-01 IA-6-02 IA-6-03 IA-2-01 IA-2-02 IA-2-03 IA-5-01 IA-5-02 IA-5-03 IA-4-01 IA-4-02 IA-4-03 IA-7-01 IA-7-02

HB-105 HB-106 HB-100 HB-101

IA-9-B-01 IA-9-B-02 IA-9-B-03 IA-9-B-04 IA-10-B-01 IA-10-B-02 B-IA-11-01 B-IA-11-02 B-IA-12-01 B-IA-14-01 B-IA-14-02 B-IA-14-03 B-IA-14-04

DRAFT

P:\Project Files\2093 Cuyahoga County Department of Public Works\2093.10A Eddy-Kirby VAP PII PA\CAD\Figure 4.dwg 9/12/2023

SAMPLE LOCATION MAP

VAP PHASE II PROPERTY ASSESSMENT

EDDY-KIRBY, PARCELS 4 & 5
CLEVELAND, CUYAHOGA COUNTY, OHIO

FOR: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS

2093.10A

PARTNERS
31100 Solon Road, Suite G
Solon, Ohio 44139
800-763-1363

75 0 150

SCALE: 1" = 150'

FIGURE 4

LEGEND

⊠ HzW EXCAVATION SOIL SAMPLE

N

W E

S

APPROXIMATE PROPERTY BOUNDARY

042707-02
042707-01
042707-03
POD6-4
POD5-1
POD5-2
POD4-4
POD6-1
POD4-1
POD6-2
POD3-2
042707-04
042307-01
042707-04
POD3-01
POD6-3
POD5-4
POD5-3
POD4-3
POD4-2

IA-14 RAILROAD SPUR

POD2-1
POD1-02
POD1-01
POD1-5
POD2-4
POD2-3
POD2-2
POD1-04
POD1-03
POD1-6

DRAFT

P:\Project Files\2093 Cuyahoga County Department of Public Works\2093.10A Eddy-Kirby VAP PII PA\CAD\Figure 4.dwg 9/7/2023

SAMPLE LOCATION MAP - EXCAVATION AREAS

VAP PHASE II PROPERTY ASSESSMENT

EDDY-KIRBY, PARCELS 4 & 5
CLEVELAND, CUYAHOGA COUNTY, OHIO

FOR: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS

2093.10A

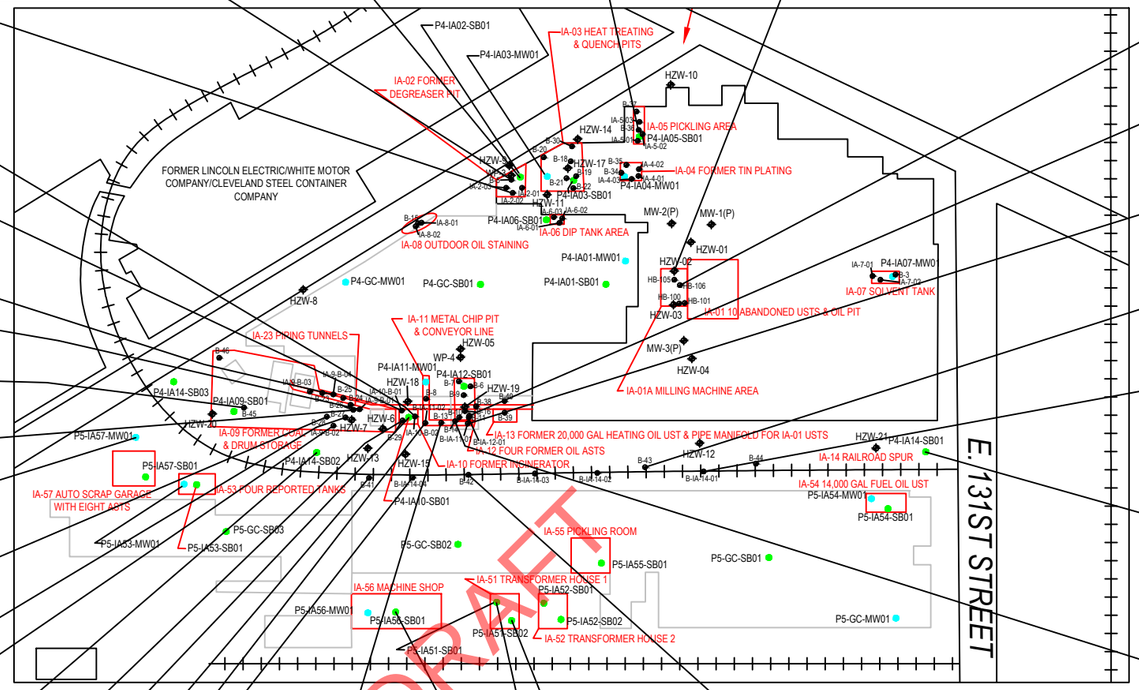
PARTNERS
31100 Solon Road, Suite G
Solon, Ohio 44139
800-763-1363

15 0 30

SCALE: 1" = 30'

FIGURE
4A

P:\Project Files\2093 Cuyahoga County Department of Public Works\2093.10A Eddy–Kirby VAP PII PA\CAD\Figure 4.dwg 9/12/2023



B-IA-10-02 (0-2 FT) 6/11/2004	Residential	Result (mg/kg)
VOCs		
Trichloroethene	10	20
RCRA 8 Metals		
Arsenic	14	24
Chromium	27	366

B-5 (8-10 FT) 3/28/2000	Residential	Result (mg/kg)
VOCs		
Trichloroethene	10	518

P4-IA02-SB01 (4-6 FT) 6/14/2023	Residential	Result (mg/kg)
RCRA 8 Metals		
Cadmium	140	159

B-36 (2-4 FT) 5/31/2001	Residential	Result (mg/kg)
RCRA 8 Metals		
Arsenic	14	33.9

HzW-02 (8-10 FT) 3/27/2000	Residential	Result (mg/kg)
VOCs		
Trichloroethene	10	38.7

B-106 (3-5 FT) 12/11/2008	Residential	Result (mg/kg)
VOCs		
Trichloroethene	10	67.9
TPHs		
C6-C12	10000	17,000

B-106 (5-7 FT) 12/11/2008	Residential	Result (mg/kg)
VOCs		
Trichloroethene	10	291
TPHs		
C6-C12	10000	1,100,000

IA-10-B-01 (0-2 FT) 6/16/2004	Residential	Result
RCRA 8 Metals		
Chromium	27	28.5

IA-10-B-01 (6-8 FT) 6/16/2004	Residential	Result
RCRA 8 Metals		
Arsenic	14	43.4

IA-2-02 (6-8 FT) 10/9/2008	Residential	Result (mg/kg)
VOCs		
Trichloroethene	10	115

IA-9-B-04 (0-2 FT) 6/16/2004	Residential	Result (mg/kg)
RCRA 8 Metals		
Arsenic	14	20.6
Chromium	27	109
Lead	400	546

IA-9-B-01 (0-2 FT) 6/16/2004	Residential	Result (mg/kg)
RCRA 8 Metals		
Arsenic	14	35.2

IA-9-B-01 (4-6 FT) 6/16/2004	Residential	Result (mg/kg)
RCRA 8 Metals		
Arsenic	14	25

B-45 (0-2 FT) 5/30/2001	Residential	Result (mg/kg)
RCRA 8 Metals		
Arsenic	14	29.1

B-26 (4-6 FT) 5/24/2000	Residential	Result (mg/kg)
VOCs		
Ethylbenzene	140	4010
Isopropylbenzene	270	453
Xylenes, total	260	20260
RCRA 8 Metals		
Arsenic	14	53.7

P5-IA57-MW01 (2-4 FT) 6/20/2023	Residential	Result
RCRA 8 Metals		
Lead	400	404
PAHs		
Benzo(a)pyrene	2.3	2.74

B-28 (2-4 FT) 5/24/2000	Residential	Result (mg/kg)
RCRA 8 Metals		
Arsenic	14	22
Chromium	140	117
Lead	400	478

B-27 (4-6 FT) 5/24/2000	Residential	Result (mg/kg)
VOCs		
Trichloroethene	10	16.1

IA-9-B-02 (0-2 FT) 6/16/2004	Residential	Result (mg/kg)
RCRA 8 Metals		
Arsenic	14	15.1
Chromium	27	33.3

P4-IA14-SB02 (2-4 FT) 6/13/2023	Residential	Result (mg/kg)
PAHs		
Benzo(a)pyrene	2.3	11.2

B-29 (2-4 FT) 5/25/2000	Residential	Result
RCRA 8 Metals		
Lead	400	652

P4-IA10-SB01 (2-4 FT) 6/13/2023	Residential	Result (mg/kg)
RCRA 8 Metals		
Chromium	27	58.7
Lead	400	2,530

B-41 (0-2 FT) 5/30/2001	Residential	Result
RCRA 8 Metals		
Chromium	27	46.1
Lead	400	522

B-13 (4-5 FT) 3/28/2000	Residential	Result
RCRA 8 Metals		
Arsenic	14	20.9
Chromium	27	554

P5-IA56-SB01 (2-4 FT) 6/22/2023	Residential	Result (mg/kg)
PAHs		
Benzo(a)pyrene	2.3	3.22

B-IA-14-4 (0-2 FT) 6/10/2004	Residential	Result
RCRA 8 Metals		
Arsenic	14	89.8
Chromium	27	50.8
Lead	400	678

B-IA-11-02 (0-2 FT) 6/11/2004	Residential	Result
RCRA 8 Metals		
Arsenic	14	20.7
Chromium	27	394
Lead	400	475

B-IA-11-02 (6-7 FT) 6/11/2004	Residential	Result
RCRA 8 Metals		
Arsenic	14	17.8
Chromium	27	380

P5-IA51-SB01 (2-4 FT) 6/22/2023	Residential	Result (mg/kg)
PAHs		
Benzo(a)pyrene	2.3	5.33

P5-IA51-SB02 (2-4 FT) 6/22/2023	Residential	Result (mg/kg)
PAHs		
Benzo(a)pyrene	2.3	17.3
Dibenz(a,h)anthracene	2.3	3.58

B-42 (0-2 FT) 5/30/2001	Residential	Result
RCRA 8 Metals		
Arsenic	14	29.7
Chromium	27	265
Lead	400	1540

B-42A (2-4 FT) 6/10/2004	Residential	Result
RCRA 8 Metals		
Arsenic	14	15.1
Chromium	27	334
Lead	400	14200

B-42A (4-6 FT) 6/10/2004	Residential	Result
RCRA 8 Metals		
Arsenic	14	22.9
Chromium	27	546

B-11 (4-6 FT) 3/28/2000	Residential	Result (mg/kg)
PAHs		
Benzo(a)pyrene	2.3	6.27

B-IA-11-01 (0-2 FT) 6/11/2004	Residential	Result
RCRA 8 Metals		
Chromium	27	34.7

B-43 (2-4 FT) 5/30/2001	Residential	Result
RCRA 8 Metals		
Chromium	27	37.6

B-IA-14-1 (0-2 FT) 6/10/2004	Residential	Result
RCRA 8 Metals		
Arsenic	14	81.9
Chromium	27	919

P4-IA14-SB01 (0-2 FT) 6/13/2023	Residential	Result (mg/kg)
PAHs		
Benzo(a)pyrene	2.3	2.86

B-14 (4-6 FT) 3/28/2000	Residential	Result
RCRA 8 Metals		
Chromium	27	69.7
Lead	400	414

LEGEND

- SOIL BORING
- SOIL BORING/MONITORING WELL
- PRIOR HzW MONITORING WELL
- PRIOR HzW SOIL BORING

Notes
1. VOCs = Volatile Organic Compounds
2. PAHs = Polynuclear Aromatic Hydrocarbons
3. TPH = Total Petroleum Hydrocarbons
4. PCBs = Polychlorinated Biphenyls
5. Only exceedances of a comparison are shown
6. All results are presented in milligrams per kilogram (mg/kg) or parts per million (ppm)

DISTRIBUTION OF COC EXCEEDANCES IN SOIL MAP

VAP PHASE II PROPERTY ASSESSMENT

EDDY-KIRBY, PARCELS 4 & 5
CLEVELAND, CUYAHOGA COUNTY, OHIO

FOR: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS

2093.10A

PARTNERS
31100 Solon Road, Suite G
Solon, Ohio 44139
800–763–1363

100 0 200
SCALE: 1" = 200'

FIGURE
4B

P:\Project Files\2093 Cuyahoga County Department of Public Works\2093.10A Eddy-Kirby VAP PII PA\CAD\Figure 4.dwg 9/12/2023

HzW-17	Residential	Result (mg/l) Date								
VOCs		12/21/2000	1/4/2001	7/5/2007	10/10/2007	11/8/2007	12/18/2007	1/15/2008	4/2/2008	8/18/2008
cis-1,2-Dichloroethene	0.07	8.28	7.34	6.6	8.5	7.3	4.1	3.4	3.8	ND
trans-1,2-Dichloroethene	0.1	0.436	0.366	ND	0.25	ND	0.18	0.18	ND	ND
Tetrachloroethene	0.005	0.435	0.374	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	0.005	1.36	0.985	ND	0.47	1.4	2.7	4	13	4

WP-3	Residential	Result (mg/l) Date									
VOCs		3/29/2000	10/5/2000	11/2/2000	6/10/2004	10/11/2007	11/8/2007	12/18/2007	1/15/2008	4/2/2008	8/18/2008
cis-1,2-Dichloroethene	0.07	3.53	3.32	28.4	28.1	40	63	25	20	16	22
trans-1,2-Dichloroethene	0.1	ND	1.14	1.22	ND	ND	2.5	ND	ND	ND	ND
Tetrachloroethene	0.005	ND	0.837	0.559	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	0.005	36.8	88.9	81	37.2	5.8	16	87	93	64	51

HzW-14	Residential	Result (mg/l) Date		
Metals		11/2/2000	12/21/2000	1/4/2001
Lead	0.015	0.134	0.0952	0.0789

HzW-14	Residential	Result (mg/l) Date		
Metals		2/16/2001	3/2/2001	3/15/2001
Barium		5.35	4.56	52.2
Lead	0.015	0.0161	ND	ND

P4-IA03-MW01 6/28/2023	Residential	Result (mg/l)
VOCs		
Vinyl Chloride	0.002	0.0049

MW-2 3/14/2001	Residential	Result (mg/l)
Metals		
Lead	0.015	0.0477

MW-1 3/14/2001	Residential	Result (mg/l)
Metals		
Lead	0.015	0.0236

HzW-05 11/2/2000	Residential	Result (mg/l)
Metals		
Lead	0.015	0.0502

P4-IA11-MW01 6/28/2023	Residential	Result (mg/l)
VOCs		
cis-1,2-Dichloroethene	0.07	0.15
Vinyl Chloride	0.002	0.00895

HzW-07	Residential	Result (mg/l) Date	
VOCs		7/20/2000	6/9/2004
1,1-Dichloroethane	0.028	0.219	0.103

P5-IA57-MW01 6/30/2023	Residential	Result (mg/l)
Metals		
Arsenic	0.010	0.0104

HzW-02	Residential	Result (mg/l) Date		
VOCs		3/31/2000	10/5/2000	11/2/2000
1,1-Dichloroethane	0.028	0.0519	0.471	0.341
1,1-Dichloroethene	0.007	0.0103	0.0527	0.0383
cis-1,2-Dichloroethene	0.07	0.0799	0.466	0.29
1,1,1,-Trichloroethane	0.2	ND	0.521	0.296
Trichloroethene	0.005	0.268	1.66	0.999

HzW-03	Residential	Result (mg/l) Date		
VOCs		3/31/2000	6/8/2004	7/1/2004
Trichloroethene	0.005	0.0183	0.0247	0.0263

MW-3	Residential	Result (mg/l) Date	
VOCs		3/31/2000	3/14/2001
Vinyl Chloride	0.002	0.00857	0.0048
1,2-Dichloroethene	0.005	ND	0.00542
Metals			
Lead	0.015	NT	0.0405

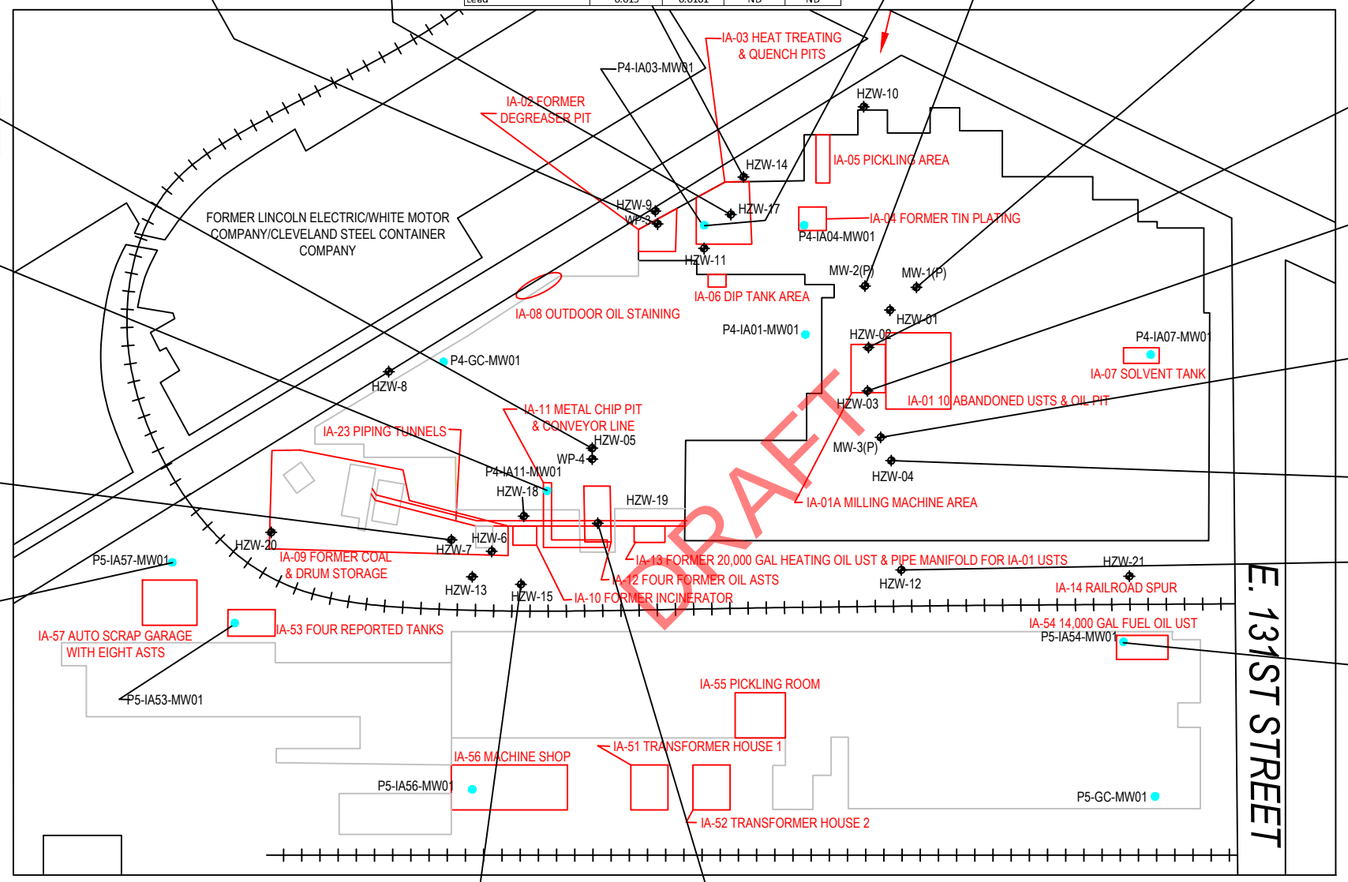
HzW-04 7/20/2000	Residential	Result (mg/l)
VOCs		
Trichloroethene	0.005	0.0134

HzW-12	Residential	Result (mg/l) Date	
VOCs		10/9/2000	11/2/2000
cis-1,2-Dichloroethene	0.07	0.272	0.0237

P5-IA54-MW01 6/29/2023	Residential	Result (mg/l)
PAHs		
1-Methylnaphthalene	0.011	0.0118

HzW-15	Residential	Result (mg/l) Date	
VOCs		11/17/2000	12/5/2000
1,1-Dichloroethane	0.028	0.0594	0.0521
cis-1,2-Dichloroethene	0.07	0.146	0.121
1,1,1,2-Tetrachloroethane	0.0057	0.0952	ND
Trichloroethene	0.005	0.0207	0.0264
Vinyl chlroide	0.002	0.0753	0.047

HzW-19	Residential	Result (mg/l) Date	
Metals		6/1/2001	6/16/2001
Lead	0.015	0.0686	0.0272



N
W E
S

LEGEND

- SOIL BORING/MONITORING WELL
- PRIOR HzW MONITORING WELL

Notes
1. VOCs = Volatile Organic Compounds
2. PAH = Polynuclear Aromatic Hydrocarbons
3. Only exceedances of a comparison standard are shown
4. All results are presented in milligrams per liter (mg/l) or parts per million (ppm)

DISTRIBUTION OF COC EXCEEDANCES IN GROUNDWATER MAP

VAP PHASE II PROPERTY ASSESSMENT

EDDY-KIRBY, PARCELS 4 & 5
CLEVELAND, CUYAHOGA COUNTY, OHIO

FOR: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS

2093.10A

PARTNERS
31100 Solon Road, Suite G
Solon, Ohio 44139
800-763-1363

75 0 150
SCALE: 1" = 150'

FIGURE 4C

P:\Project Files\2093 Cuyahoga County Department of Public Works\2093.10A Eddy-Kirby VAP PII PA\CAD\Figure 4.dwg 9/12/2023

4 8/15/2008	Residential	Result (ug/m³)
VOCs		
Benzene	120	320
Bromodichloromethane	173	600
Chloroform	41	2,000

3 8/15/2008	Residential	Result (ug/m³)
VOCs		
Chloroform	41	68
Trichloroethene	70	17,000

P4-IA03-SV01 6/27/2023	Residential	Result (ug/m³)
VOCs		
Naphthalene	28	110

02 8/15/2008	Residential	Result (ug/m³)
VOCs		
Trichloroethene	70	4,800,000

5 8/15/2008	Residential	Result (ug/m³)
VOCs		
Benzene	120	130
Trichloroethene	70	1,400

8 8/15/2008	Residential	Result (ug/m³)
VOCs		
Trichloroethene	70	1,200

7 8/15/2008	Residential	Result (ug/m³)
VOCs		
Trichloroethene	70	1,200

01 8/15/2008	Residential	Result (ug/m³)
VOCs		
Tetrachloroethene	1,400	4,600
Trichloroethene	70	270,000
Vinyl Chloride	56	1,200

6 8/15/2008	Residential	Result (ug/m³)
VOCs		
Trichloroethene	70	4,100

P4-IA04-SV01 6/27/2023	Residential	Result (ug/m³)
VOCs		
Naphthalene	28	451
Trichloroethene	70	298

P4-IA02-SV01 6/27/2023	Residential	Result (ug/m³)
VOCs		
Trichloroethene	70	6,640

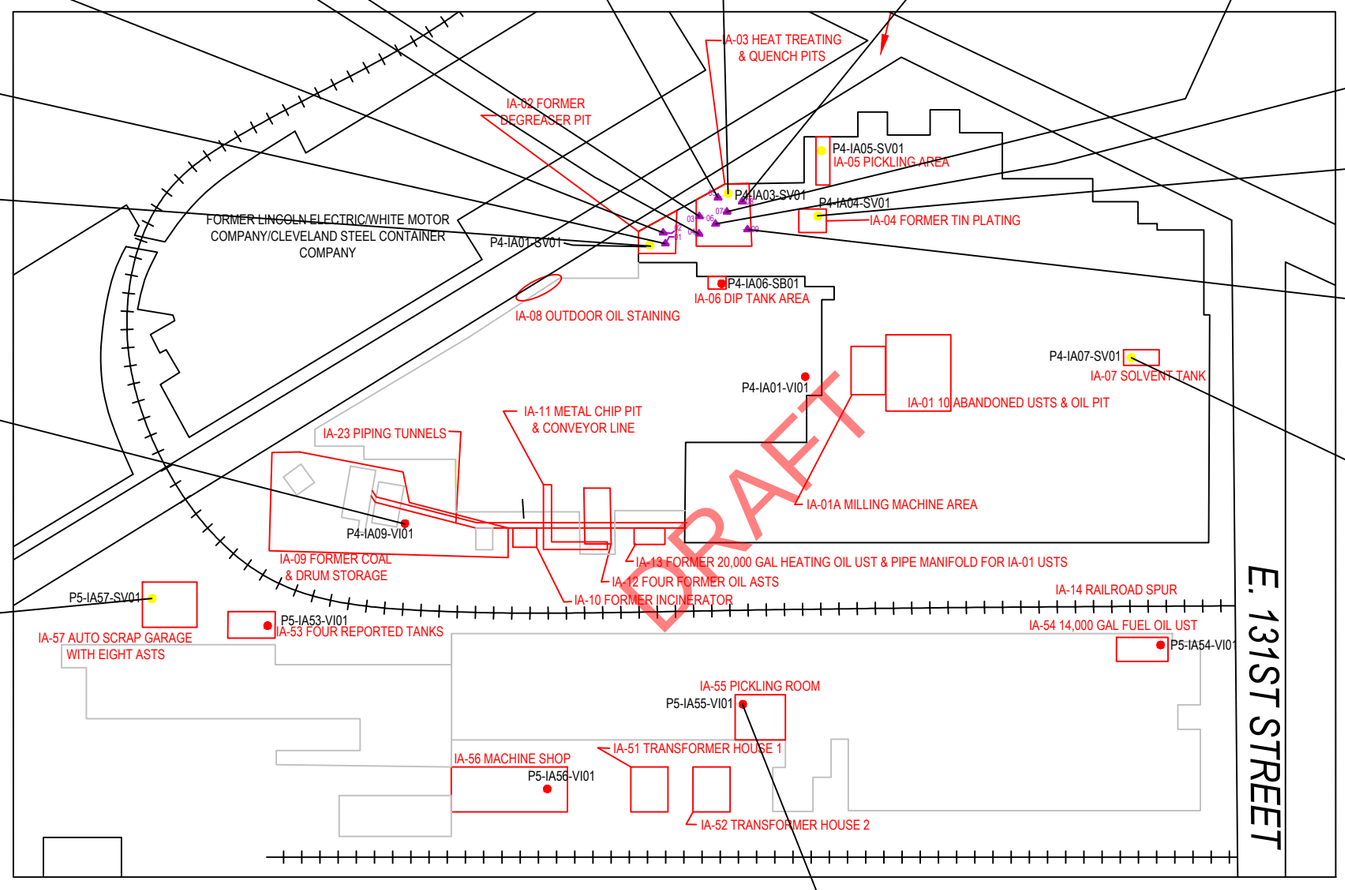
9 8/15/2008	Residential	Result (ug/m³)
VOCs		
Benzene	120	320
Ethylbenzene	366	520
Trichloroethene	70	1,000

P4-IA09-VI01 6/27/2023	Residential	Result (ug/m³)
VOCs		
Tetrachloroethene	1,400	13,200
Trichloroethene	70	168

P4-IA07-SV01 6/27/2023	Residential	Result (ug/m³)
VOCs		
Naphthalene	28	4,480

P4-IA57-SV01 6/27/2023	Residential	Result (ug/m³)
VOCs		
Benzene	120	10,800
Ethylbenzene	366	8,020
N-Hexane	24,333	86,700
Xylenes	3,333	10,100
1,2,4-Trimethylbenzene	2,100	6,180

P5-IA55-VI01 6/27/2023	Residential	Result (ug/m³)
VOCs		
Trichloroethene	70	111



LEGEND

- SOIL VAPOR IMPLANT
- SUB-SLAB VAPOR POINT
- PRIOR HzW SOIL GAS SAMPLE

Notes
1. VOCs = Volatile Organic Compounds
2. Only Exceedances of a Comparison Standard are shown
3. All results are presented in micrograms per square meter (ug/m3)

DISTRIBUTION OF COC EXCEEDANCES IN SUB-SLAB VAPOR & SOIL GAS MAP

VAP PHASE II PROPERTY ASSESSMENT

EDDY-KIRBY, PARCELS 4 & 5
CLEVELAND, CUYAHOGA COUNTY, OHIO

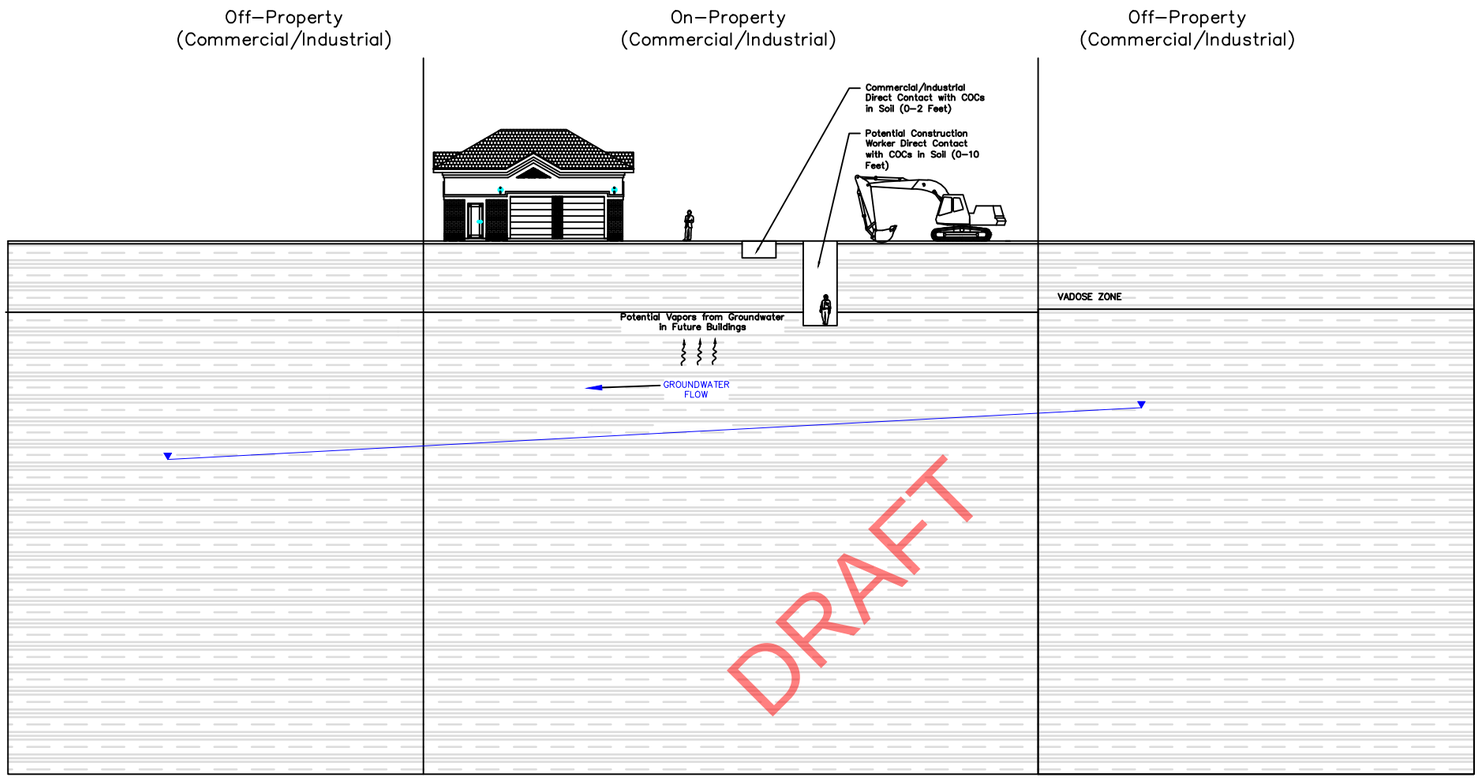
FOR: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS

2093.10A

PARTNERS
31100 Solon Road, Suite G
Solon, Ohio 44139
800-763-1363

SCALE: 1" = 150'

FIGURE 4D



CONCEPTUAL SITE MODEL

COMMERCIAL LOTS

170 EAST 131ST STREET
CLEVELAND, CUYAHOGA COUNTY, OHIO
2093.10A

PARTNERS
31100 Solon Road, Suite G
Solon, Ohio 44139
800–763–1363

50 0 100
SCALE: 1" = 100'

FIGURE
5

P4-GC-MW01 (2-4 FT) 6/19/2023	Residential	Commercial/ Industrial	Construction & Excavation Activities	Result
RCRA 8 Metals				
Arsenic	14	100	760	26.3

P4-IA11-MW01 (0-2 FT) 6/13/2023	Residential	Commercial/ Industrial	Construction & Excavation Activities	Result
RCRA 8 Metals				
Arsenic	14	100	760	17.6
Cadmium	140	3300	710	160

P4-IA10-SB01 (2-4 FT) 6/13/2023	Residential	Commercial/ Industrial	Construction & Excavation Activities	Result (mg/kg)
RCRA 8 Metals				
Arsenic	14	100	760	2530
Cadmium	140	3300	710	1060

P4-IA09-SB01 (0-2 FT) 6/13/2023	Residential	Commercial/ Industrial	Construction & Excavation Activities	Result (mg/kg)
RCRA 8 Metals				
Arsenic	14	100	760	88.1
Cadmium	140	3300	710	656

P5-IA57-MW01 (2-4 FT) 6/20/2023	Residential	Commercial/ Industrial	Construction & Excavation Activities	Result
RCRA 8 Metals				
Lead	400	800	400	404
PAHs				
Benzo(a)pyrene	2.3	62	230	2.74

P5-IA57-SB01 (2-4 FT) 6/19/2023	Residential	Commercial/ Industrial	Construction & Excavation Activities	Result
RCRA 8 Metals				
Arsenic	14	100	760	26

P4-IA02-SB01 (4-6 FT) 6/14/2023	Residential	Commercial/ Industrial	Construction & Excavation Activities	Result (mg/kg)
RCRA 8 Metals				
Cadmium	140	3300	710	159

P4-GC-SB01 (0-2 FT) 6/19/2023	Residential	Commercial/ Industrial	Construction & Excavation Activities	Result
RCRA 8 Metals				
Arsenic	14	100	760	21.4

P4-IA03-MW01 (0-2 FT) 6/14/2023	Residential	Commercial/ Industrial	Construction & Excavation Activities	Result (mg/kg)
RCRA 8 Metals				
Arsenic	14	100	760	14.3

P4-IA06-SB01 (4-6 FT) 6/13/2023	Residential	Commercial/ Industrial	Construction & Excavation Activities	Result (mg/kg)
RCRA 8 Metals				
Arsenic	14	100	760	14.2

P4-IA03-SB01 (2-4 FT) 6/14/2023	Residential	Commercial/ Industrial	Construction & Excavation Activities	Result (mg/kg)
RCRA 8 Metals				
Arsenic	14	100	760	16.1

P4-IA07-MW01 (0-2 FT) 6/14/2023	Residential	Commercial/ Industrial	Construction & Excavation Activities	Result (mg/kg)
RCRA 8 Metals				
Arsenic	14	100	760	17.8

P4-IA14-SB01 (0-2 FT) 6/13/2023	Residential	Commercial/ Industrial	Construction & Excavation Activities	Result (mg/kg)
PAHs				
Benzo(a)pyrene	2.3	62	230	2.86

P4-IA14-SB02 (2-4 FT) 6/13/2023	Residential	Commercial/ Industrial	Construction & Excavation Activities	Result (mg/kg)
PAHs				
Benzo(a)pyrene	2.3	62	230	11.2

P5-IA51-SB02 (2-4 FT) 6/22/2023	Residential	Commercial/ Industrial	Construction & Excavation Activities	Result (mg/kg)
PAHs				
Benzo(a)pyrene	2.3	62	230	17.3
Dibenz(a,h)anthracene	2.3	62	1000	3.58

P5-IA56-SB01 (2-4 FT) 6/22/2023	Residential	Commercial/ Industrial	Construction & Excavation Activities	Result (mg/kg)
PAHs				
Benzo(a)pyrene	2.3	62	230	3.22

P5-IA51-SB01 (2-4 FT) 6/22/2023	Residential	Commercial/ Industrial	Construction & Excavation Activities	Result (mg/kg)
PAHs				
Benzo(a)pyrene	2.3	62	230	5.33

N
W E
S

P4-IA02-SB01
P4-IA03-MW01
IA-03 HEAT TREATING & QUENCH PITS
IA-02 FORMER DEGREASER PIT
IA-05 PICKLING AREA
P4-IA05-SB01
IA-04 FORMER TIN PLATING
P4-IA04-MW01
P4-IA03-SB01
P4-IA06-SB01
P4-IA06-SB01
IA-06 DIP TANK AREA
IA-08 OUTDOOR OIL STAINING
P4-IA01-MW01
P4-GC-MW01
P4-GC-SB01
P4-IA01-SB01
IA-01 10 ABANDONED USTS & OIL PIT
P4-IA07-MW01
IA-07 SOLVENT TANK
IA-01A MILLING MACHINE AREA
IA-11 METAL CHIP PIT & CONVEYOR LINE
P4-IA14-SB03
P4-IA11-MW01
P4-IA12-SB01
P4-IA10-SB01
P4-IA09-SB01
IA-09 FORMER COAL & DRUM STORAGE
IA-23 PIPING TUNNELS
P4-IA14-SB02
IA-13 FORMER 20,000 GAL HEATING OIL UST & PIPE MANIFOLD FOR IA-01 USTS
IA-12 FOUR FORMER OIL ASTS
IA-10 FORMER INCINERATOR
P4-IA14-SB01
IA-14 RAILROAD SPUR
P5-IA57-MW01
P5-IA57-SB01
IA-57 AUTO SCRAP GARAGE WITH EIGHT ASTS
IA-53 FOUR REPORTED TANKS
IA-54 14,000 GAL FUEL OIL UST
P5-IA54-MW01
P5-IA54-SB01
P5-GC-SB03
P5-IA53-MW01
P5-IA53-SB01
IA-55 PICKLING ROOM
P5-GC-SB02
P5-IA55-SB01
P5-GC-SB01
IA-56 MACHINE SHOP
IA-51 TRANSFORMER HOUSE 1
P5-IA52-SB01
P5-IA56-MW01
P5-IA56-SB01
P5-IA52-SB02
P5-GC-MW01
IA-52 TRANSFORMER HOUSE 2
P5-IA51-SB01
P5-IA51-SB02

DRAFT

OW POLYMERS

VACANT LOT

APPROXIMATE PROPERTY BOUNDARY

CLEVELAND JOB CORPS

COIT ROAD

E. 131ST STREET

KIRBY AVENUE

RESIDENTIAL

FORMER LUCAS MACHINE TOOL COMPANY/ CLEVELAND WATER POLLUTION

FORMER NORTHEAST INDUSTRIAL PROPERTIES

FORMER CHANDLER MOTOR CAR/ WEATHERHEAD MACHINING COMPANY

ENAMEL PRODUCTS COMPANY

FORMER BATTERY FACTORY

FORMER HAMILTON STEEL

MUSTARD AGENT DISPOSAL AREA & EXPERIMENTATION LAB

TAFT AVENUE

EXCEEDANCES IN SOIL

VAP PHASE II PROPERTY ASSESSMENT

EDDY-KIRBY, PARCELS 4 & 5
CLEVELAND, CUYAHOGA COUNTY, OHIO

FOR: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS

2093.10A

PARTNERS
31100 Solon Road, Suite G
Solon, Ohio 44139
800-763-1363

50 0 100
SCALE: 1" = 100'

FIGURE 6

P:\Project Files\2093 Cuyahoga County Department of Public Works\2093.10A Eddy-Kirby VAP PII PA\CAD\Figure 6.dwg 9/2/2023

P:\Project Files\2093 Cuyahoga County Department of Public Works\2093.10A Eddy-Kirby VAP PII PA\CAD\Figure 7.dwg 9/2/2023

P4-IA03-MW01 6/28/2023	Residential	Commercial/ Industrial	Result (mg/l)
VOCs			
Vinyl Chloride	0.002	0.002	0.0049

P4-IA11-MW01 6/28/2023	Residential	Commercial/ Industrial	Result (mg/l)
VOCs			
cis-1,2-Dichloroethene	0.07	NIT	0.15
Vinyl Chloride	0.002	0.002	0.00895

P5-IA57-MW01 6/30/2023	Residential	Commercial/ Industrial	Result (mg/l)
Metals			
Arsenic	0.010	NIT	0.0104

P5-IA54-MW01 6/29/2023	Residential	Commercial/ Industrial	Result (mg/l)
PAHs			
1-Methylnaphthalene	0.011	NIT	0.0118

FLOW POLYMERS

APPROXIMATE PROPERTY BOUNDARY

VACANT LOT

CLEVELAND JOB CORPS

COIT ROAD

IA-03 HEAT TREATING & QUENCH PITS

IA-02 FORMER DEGREASER PIT

IA-05 PICKLING AREA

FORMER LINCOLN ELECTRIC/WHITE MOTOR COMPANY/CLEVELAND STEEL CONTAINER COMPANY

P4-IA04-MW01

P4-IA03-MW01

IA-06 DIP TANK AREA

IA-08 OUTDOOR OIL STAINING

P4-IA01-MW01

IA-01 10 ABANDONED USTS & OIL PIT

P4-IA07-MW01

IA-07 SOLVENT TANK

P4-GC-MW01

IA-11 METAL CHIP PIT & CONVEYOR LINE

IA-01A MILLING MACHINE AREA

P4-IA11-MW01

P5-IA57-MW01

IA-09 FORMER COAL & DRUM STORAGE

IA-23 PIPING TUNNELS

IA-13 FORMER 20,000 GAL HEATING OIL UST & PIPE MANIFOLD FOR IA-01 USTS

IA-12 FOUR FORMER OIL ASTS

IA-10 FORMER INCINERATOR

IA-14 RAILROAD SPUR

P5-IA53-MW01

IA-53 FOUR REPORTED TANKS

IA-54 14,000 GAL FUEL OIL UST

P5-IA54-MW01

IA-57 AUTO SCRAP GARAGE WITH EIGHT ASTS

IA-55 PICKLING ROOM

IA-56 MACHINE SHOP

IA-51 TRANSFORMER HOUSE 1

P5-IA56-MW01

P5-GC-MW01

IA-52 TRANSFORMER HOUSE 2

DRAFT

KIRBY AVENUE

E. 131ST STREET

RESIDENTIAL

FORMER LUCAS MACHINE TOOL COMPANY/ CLEVELAND WATER POLLUTION

FORMER FREEWAY INDUSTRIAL PROPERTIES/WEATHERHEAD MACHINING COMPANY/LIV STEEL/WILLARD STORAGE BATTERY

FORMER NORTHEAST INDUSTRIAL PROPERTIES

FORMER CHANDLER MOTOR CAR/ WEATHERHEAD MACHINING COMPANY

ENAMEL PRODUCTS COMPANY

FORMER BATTERY FACTORY

FORMER HAMILTON STEEL

MUSTARD AGENT DISPOSAL AREA & EXPERIMENTATION LAB

TAFT AVENUE

N W E S

EXCEEDANCES IN GROUNDWATER

VAP PHASE II PROPERTY ASSESSMENT

EDDY-KIRBY, PARCELS 4 & 5
CLEVELAND, CUYAHOGA COUNTY, OHIO

FOR: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS

2093.10A

PARTNERS
31100 Solon Road, Suite G
Solon, Ohio 44139
800-763-1363

50 0 100

SCALE: 1" = 100'

FIGURE 7

P:\Project Files\2093 Cuyahoga County Department of Public Works\2093.10A Eddy-Kirby VAP PII PA\CAD\Figure 8.dwg 9/2/2023

P4-IA02-SV01 6/27/2023	Residential	Commercial/ Industrial	Result (ug/m^3)
VOCs			
Trichloroethene	70	290	6,640

P4-IA03-SV01 6/27/2023	Residential	Commercial/ Industrial	Result (ug/m^3)
VOCs			
Naphthalene	28	120	110

P4-IA04-SV01 6/27/2023	Residential	Commercial/ Industrial	Result (ug/m^3)
VOCs			
Naphthalene	28	120	451
Trichloroethene	70	290	298

P4-IA09-VI01 6/27/2023	Residential	Commercial/ Industrial	Result (ug/m^3)
VOCs			
Tetrachloroethene	1,400	5,800	13,200
Trichloroethene	70	290	168

P4-IA57-SV01 6/27/2023	Residential	Commercial/ Industrial	Result (ug/m^3)
VOCs			
Benzene	120	533	10,800
Ethylbenzene	366	1,633	8,020
N-Hexane	24,333	103,333	86,700
Xylenes	3,333	14,667	10,100
1,2,4-Trimethylbenzene	2,100	8,667	6,180

P4-IA07-SV01 6/27/2023	Residential	Commercial/ Industrial	Result (ug/m^3)
VOCs			
Naphthalene	28	120	4,480

P5-IA55-VI01 6/27/2023	Residential	Commercial/ Industrial	Result (ug/m^3)
VOCs			
Trichloroethene	70	290	111

N

W E

S

FLOW POLYMERS

APPROXIMATE PROPERTY BOUNDARY

VACANT LOT

CLEVELAND JOB CORPS

RESIDENTIAL

COIT ROAD

E. 131ST STREET

KIRBY AVENUE

TAFT AVENUE

FORMER LINCOLN ELECTRIC/WHITE MOTOR COMPANY/CLEVELAND STEEL CONTAINER COMPANY

FORMER LUCAS MACHINE TOOL COMPANY/ CLEVELAND WATER POLLUTION

ENAMEL PRODUCTS COMPANY

FORMER BATTERY FACTORY

FORMER HAMILTON STEEL

MUSTARD AGENT DISPOSAL AREA & EXPERIMENTATION LAB

FORMER FREEWAY INDUSTRIAL PROPERTIES/WEATHERHEAD MACHINING COMPANY/LIV STEEL/WILLARD STORAGE BATTERY

FORMER NORTHEAST INDUSTRIAL PROPERTIES

FORMER CHANDLER MOTOR CAR/ WEATHERHEAD MACHINING COMPANY

IA-02 FORMER DEGREASER PIT

IA-03 HEAT TREATING & QUENCH PITS

P4-IA01-SV01

P4-IA03-SV01

P4-IA05-SV01
IA-05 PICKLING AREA

P4-IA04-SV01
IA-04 FORMER TIN PLATING

P4-IA06-SB01
IA-06 DIP TANK AREA

IA-08 OUTDOOR OIL STAINING

IA-01 10 ABANDONED USTS & OIL PIT

IA-07 SOLVENT TANK
P4-IA07-SV01

P4-IA01-VI01

IA-01A MILLING MACHINE AREA

IA-11 METAL CHIP PIT & CONVEYOR LINE

P4-IA09-VI01

IA-09 FORMER COAL & DRUM STORAGE

IA-23 PIPING TUNNELS

IA-13 FORMER 20,000 GAL HEATING OIL UST & PIPE MANIFOLD FOR IA-01 USTS

IA-12 FOUR FORMER OIL ASTS

IA-10 FORMER INCINERATOR

IA-14 RAILROAD SPUR

P5-IA57-SV01

P5-IA53-VI01

IA-53 FOUR REPORTED TANKS

IA-54 14,000 GAL FUEL OIL UST

P5-IA54-VI01

IA-57 AUTO SCRAP GARAGE WITH EIGHT ASTS

IA-55 PICKLING ROOM

P5-IA55-VI01

IA-51 TRANSFORMER HOUSE 1

IA-56 MACHINE SHOP

P5-IA56-VI01

IA-52 TRANSFORMER HOUSE 2

DRAFT

EXCEEDANCES IN SOIL VAPOR

VAP PHASE II PROPERTY ASSESSMENT

EDDY-KIRBY, PARCELS 4 & 5
CLEVELAND, CUYAHOGA COUNTY, OHIO

FOR: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS

2093.10A

PARTNERS
31100 Solon Road, Suite G
Solon, Ohio 44139
800-763-1363

50 0 100

SCALE: 1" = 100'

FIGURE 8

I:\HZW\2006\H06238\CADDWGS2009\CADDWGS FINAL\ACMEPIEZO-F27.DWG (DSV/GMB) 2/20/09

BRATENAHL

CLEVELAND

KIRBY AV.

COIT RD.

E. 131 ST

N

SCALE: 1"=120'

HZW-10
HZW-14
HZW-9
WP-3
HZW-17
HZW-11
MW-2(P)
MW-1(P)
HZW-02
HZW-01
HZW-8
HZW-03
MW-3(P)
HZW-05
HZW-04
HZW-7
HZW-6
HZW-18
HZW-19
HZW-20
HZW-13
HZW-15
HZW-12
HZW-21

602
603
604
605
606

DRAFT

LEGEND

PROPERTY BOUNDARY

HzW Environmental
Consultants, Inc.
6105 Heisley Rd. ▪ Mentor, OH 44060
440-357-1260 ▪ Fax 440-357-1510

FIGURE 27

PIEZOMETRIC SURFACE MAP
JUNE 9, 2004
FORMER NATIONAL ACME FACILITY
170 EAST 131ST STREET,
CLEVELAND, CUYAHOGA COUNTY, OHIO

TABLES

Table 1: Summary of Identified Areas and Chemicals of Concern
Eddy-Kirby Property, Parcels 4 & 5
Cleveland, Ohio

IA	Location	Description	Chemicals of Concern (COCs)
1	Parcel 4: PN 111-20-002; Former National Acme Company	10 abandoned USTs and associated oil pit	VOC, PAH, TPH
1A		Milling machine area	VOC, PAH, RCRA 8 Metals
2		Former degreaser pit	VOC, PAH, RCRA 8 Metals, PCB
3		Heat treating and associated quench pits	VOC, PAH, RCRA 8 Metals, PCB
4		Former tin plating	VOC, PAH, RCRA 8 Metals
5		Pickling area	VOC, PAH, RCRA 8 Metals
6		Dip tank area	VOC, PAH, RCRA 8 Metals
7		Solvent tank	VOC, PAH, RCRA 8 Metals, PCB
8		Outdoor oil staining	VOC, PAH, TPH
9		Former coal and exterior drum storage area	VOC, PAH, TPH, RCRA 8 Metals, PCB
10		Former incinerator	VOC, PAH, RCRA 8 Metals
11		Metal chip pit and conveyor line	VOC, PAH, RCRA 8 Metals
12		Four former aboveground oil storage tanks	VOC, PAH, TPH
13		Former 20,000 gallon Heating Oil UST/Pipe Manifold for IA 1 USTs	VOC, PAH, TPH
14		Railroad Spur	VOC,PAH
GC		General Coverage	VOC, PAH, RCRA 8 Metals
51	Parcel 5: PN 111-19-010; Former Elyria Steel/Republic Steel	Transformer house 1	VOC, PAH, PCB
52		Transformer house 2	VOC, PAH, PCB
53		Four reported tanks	VOC, PAH, TPH
54		14,000 gallon fuel oil UST	VOC, PAH, TPH
55		Pickling room	VOC, PAH, RCRA 8 Metals
56		Machine shop	VOC, PAH
57		Automotive Scrap Garage with eight (8) ASTs	VOC, PAH, TPH, RCRA 8 Metals
GC		General Coverage	VOC, PAH, RCRA 8 Metals

Table 2: Summary of Sampling and Analysis per Identified Area
Eddy-Kirby Property, Parcels 4 & 5
Cleveland, Ohio

Identified Area	Boring/ Well/ Sample ID	Installation Date	Sample/Drill Method	Total Depth (feet)	*Laboratory Analysis performed by Pace Analytical (CL#0069)*									
					VOC - EPA Method 8260		PAH - EPA Method 8270		RCRA Metals - EPA Method 6010/7470		TPH (C6-34) - EPA Method 8015	PCBs - EPA Method 8082		VOC - Method 8260, Compendium TO-15
					Soil	GW	Soil	GW	Soil	GW	Soil	Soil	GW	Air
Parcel 4														
1*	P4-IA01-SB01	6/14/2023	DP	10	1	-	1	-	-	-	1	-	-	-
	P4-IA01-MW01	6/14/2023	DP / HSA	13	1	1	1	1	-	-	1	-	-	-
	P4-IA01-VI01	6/14/2023	DP	4	-	-	-	-	-	-	-	-	-	1
	HzW-01	3/24/2000	DP / HSA	15	1	2	1	3	-	-	-	-	-	-
	HzW-04	7/20/2000	DP / HSA	15	-	2	-	2	-	1	-	-	-	-
	HB-102	10/3/2007	DP	8	2	-	2	-	-	-	1	-	-	-
	HB-103	10/3/2007	DP	8	2	-	2	-	-	-	2	-	-	-
	B-104	12/11/2008	DP	8	2	-	2	-	-	-	2	-	-	-
1A*	HB-101	10/3/2007	DP	8	2	-	2	-	-	-	2	-	-	-
	HzW-02	3/27/2000	HSA	15	1	3	1	1	-	-	-	-	-	-
	HzW-03	3/24/2000	HSA	15	1	3	1	2	-	-	-	-	-	-
	MW-2	8/25/1993	HSA	13	-	2	-	1	-	1	-	-	-	-
	HB-100	10/3/2007	DP	8	1	-	2	-	-	-	-	-	-	-
	B-105	12/11/2008	DP	8	2	-	2	-	-	-	-	-	-	-
	B-106	12/11/2008	DP	8	2	-	2	-	-	-	-	-	-	-
2	P4-IA02-SB01	6/14/2023	DP	10	1	-	1	-	1	-	-	1	-	-
	P4-IA02-SV01	6/27/2023	-	4	-	-	-	-	-	-	-	-	-	1
	B-5/WP-03	3/28/2000	HSA	10	1	10	-	-	-	-	-	-	-	-
	IA-2-01	10/9/2008	DP	10	2	-	2	-	-	-	-	-	-	-
	IA-2-02	10/9/2008	DP	10	2	-	3	-	-	-	-	-	-	-
	IA-2-03	10/9/2008	DP	10	2	-	2	-	-	-	-	-	-	-
	1	8/15/2008	DP	2	-	-	-	-	-	-	-	-	-	1
	2	8/15/2008	DP	2	-	-	-	-	-	-	-	-	-	1
	3	8/15/2008	DP	2	-	-	-	-	-	-	-	-	-	1
	4	8/15/2008	DP	2	-	-	-	-	-	-	-	-	-	1
3	P4-IA03-SB01	6/14/2023	DP	10	1	-	1	-	1	-	-	1	-	-
	P4-IA03-MW01	6/14/2023	DP / HSA	13	1	1	1	1	1	1	-	1	1	-
	P4-IA03-SV01	6/27/2023	DP	-	-	-	-	-	-	-	-	-	-	1
	B-18	5/25/2000	DP	12	1	-	1	-	-	-	1	-	-	-
	B-19	5/25/2000	DP	12	1	-	1	-	-	-	1	-	-	-
	B-20	5/25/2000	DP	12	1	-	1	-	-	-	1	-	-	-
	B-21	5/25/2000	DP	12	1	-	1	-	-	-	1	-	-	-
	B-22	5/25/2000	DP	12	1	-	1	-	-	-	1	-	-	-
	B-30	12/5/2000	DP	12	-	-	-	-	2	-	-	-	-	-
	HzW-09	7/20/2000	HSA	UNK	-	4	-	-	-	-	-	-	-	-
	HMW-9R	11/8/2007	HSA	UNK	-	5	-	-	-		-	-	-	-
	HzW-14	11/2/2000	HSA	UNK	-	2	7	-	-	7	-	-	-	-
	HzW-17	12/21/2000	HSA	UNK	-	-	-	-	-	-	-	-	-	-
	5	8/15/2008	DP	2	-	-	-	-	-	-	-	-	-	1
	6	8/15/2008	DP	2	-	-	-	-	-	-	-	-	-	1
	7	8/15/2008	DP	2	-	-	-	-	-	-	-	-	-	1
	8	8/15/2008	DP	2	-	-	-	-	-	-	-	-	-	1
	9	8/15/2008	DP	2	-	-	-	-	-	-	-	-	-	1
	P4-IA04-MW01	6/14/2023	DP / HSA	13	1	1	1	1	1	1	-	-	-	-
	P4-IA04-SV01	6/27/2023	-	-	-	-	-	-	-	-	-	-	-	1
	B-31	5/31/2001	DP	10	-	-	-	-	1	-	-	-	-	-

Table 2: Summary of Sampling and Analysis per Identified Area
Eddy-Kirby Property, Parcels 4 & 5
Cleveland, Ohio

Identified Area	Boring/ Well/ Sample ID	Installation Date	Sample/Drill Method	Total Depth (feet)	*Laboratory Analysis performed by Pace Analytical (CL#0069)*									
					VOC - EPA Method 8260		PAH - EPA Method 8270		RCRA Metals - EPA Method 6010/7470		TPH (C6-34) - EPA Method 8015	PCBs - EPA Method 8082		VOC - Method 8260, Compendium TO-15
					Soil	GW	Soil	GW	Soil	GW	Soil	Soil	GW	Air
4	B-34	5/31/2001	DP	10	-	-	-	-	4	-	-	-	-	-
	B-35	5/31/2001	DP	10	-	-	-	-	5	-	-	-	-	-
	IA-4-01	9/25/2008	DP	10	-	-	-	-	5	-	-	-	-	-
	IA-4-02	9/25/2008	DP	10	-	-	-	-	5	-	-	-	-	-
	IA-4-03	9/25/2008	DP	10	-	-	-	-	5	-	-	-	-	-
5	P4-IA05-SB01	N/A	N/A	N/A	1	-	1	-	1	-	-	-	-	-
	P4-IA05-SV01	6/27/2023	-	-	-	-	-	-	-	-	-	-	-	1
	B-36	5/31/2001	DP	6	-	-	-	-	3	-	-	-	-	-
	B-37	5/31/2001	DP	6	-	-	-	-	2	-	-	-	-	-
	IA-5-01	9/25/2008	DP	10	-	-	-	-	5	-	-	-	-	-
	IA-5-02	9/25/2008	DP	10	-	-	-	-	5	-	-	-	-	-
	IA-5-03	9/25/2008	DP	10	-	-	-	-	5	-	-	-	-	-
	HzW-10	7/20/2000	HSA	UNK	-	1	-	1	-	-	-	-	-	-
6	P4-IA06-SB01	6/13/2023	DP	10	1	-	1	-	1	-	-	-	-	-
	P4-IA06-VI01	6/13/2023	DP	4	-	-	-	-	-	-	-	-	-	1
	IA-6-01	10/9/2008	DP	10	-	-	-	-	2	-	-	-	-	-
	IA-6-02	10/9/2008	DP	10	-	-	-	-	2	-	-	-	-	-
	IA-6-03	10/9/2008	DP	10	-	-	-	-	2	-	-	-	-	-
	HzW-11	11/18/2000	HSA	UNK	-	2	-	-	-	-	-	-	-	-
7	P4-IA07-MW01	6/14/2023	DP / HSA	13	1	1	1	1	1	1	-	1	1	-
	P4-IA07-SV01	6/27/2023	-	-	-	-	-	-	-	-	-	-	-	1
	B-03	3/24/2000	DP	10	1	-	-	-	-	-	-	-	-	-
	IA-7-01	11/13/2008	DP	10	-	-	2	-	-	-	1	-	-	-
	IA-7-02	11/13/2008	DP	10	-	-	2	-	-	-	1	-	-	-
8*	N/A	N/A	N/A	N/A	-	-	-	-	-	-	-	-	-	-
	B-15	3/28/2000	DP	4	1	-	1	-	-	-	1	1	-	-
	IA-8-01	11/13/2008	DP	6	1	-	1	-	-	-	1	-	-	-
	IA-8-02	11/13/2008	DP	6	1	-	1	-	-	-	1	-	-	-
	HzW-08	7/20/2000	HSA	UNK	-	4	-	-	-	-	-	-	-	-
9	P4-IA09-SB01	6/13/2023	DP	10	-	-	1	-	1	-	-	-	-	-
	P4-IA09-VI01	6/13/2023	DP	4	-	-	-	-	-	-	-	-	-	1
	B-23	5/24/2000	DP	10	1	-	1	-	1	-	-	-	-	-
	B-24	5/24/2000	DP	12	1	-	1	-	1	-	-	-	-	-
	B-25	5/24/2000	DP	10	1	-	1	-	1	-	-	-	-	-
	B-26	5/24/2000	DP	11	1	-	1	-	1	-	-	-	-	-
	B-27	5/24/2000	DP	8	1	-	1	-	1	-	-	-	-	-
	B-28	5/24/2000	DP	8	1	-	1	-	1	-	-	-	-	-
	B-45	5/24/2000	DP	10	1	-	-	-	2	-	-	-	-	-
	B-46	5/24/2000	DP	10	1	-	-	-	2	-	-	-	-	-
	IA-9-B-01	6/16/2004	DP	8	2	-	1	-	2	-	2	-	-	-
	IA-9-B-02	6/16/2004	DP	4	2	-	1	-	2	-	2	-	-	-
	IA-9-B-03	6/16/2004	DP	8	1	-	2	-	1	-	2	-	-	-
	IA-9-B-04	6/16/2004	DP	8	2	-	2	-	2	-	2	-	-	-
	HzW-06	7/20/2000	HSA	UNK	-	2	-	1	-	1	-	-	-	-
	HzW-13	6/9/2004	HSA	UNK	-	2	-		-	-	-	-	-	-
	HzW-15	11/17/2000	HSA	UNK	-	2	-	1	-	1	-	-	-	-

Table 2: Summary of Sampling and Analysis per Identified Area
Eddy-Kirby Property, Parcels 4 & 5
Cleveland, Ohio

Identified Area	Boring/ Well/ Sample ID	Installation Date	Sample/Drill Method	Total Depth (feet)	*Laboratory Analysis performed by Pace Analytical (CL#0069)*									
					VOC - EPA Method 8260		PAH - EPA Method 8270		RCRA Metals - EPA Method 6010/7470		TPH (C6-34) - EPA Method 8015	PCBs - EPA Method 8082		VOC - Method 8260, Compendium TO-15
					Soil	GW	Soil	GW	Soil	GW	Soil	Soil	GW	Air
	HzW-20	6/1/2001	HSA	UNK	-	2	-	2	-		-	-	-	-
10	P4-IA10-SB01	6/13/2023	DP	10	-	-	1	-	1	-	-	-	-	-
	B-29	5/25/2000	DP	6	1	-	-	-	1	-	-	-	-	-
	IA-10-B-01	6/16/2004	DP	8	1	-	-	-	2	-	-	-	-	-
	IA-10-B-02	6/16/2004	DP	4	1	-	-	-	1	-	-	-	-	-
	HzW-18/MW-18	6/9/2004	HSA	UNK	-	1	-	1	-	5	-	-	-	-
11	P4-IA11-MW01	06/02/2022	DP / HSA	13	1	1	1	1	1	1	-	-	-	-
	B-08	3/24/2000	DP	10	1	-	1	-	-	-	-	-	-	-
	B-13	3/28/2000	DP	5	1	-	1	-	-	-	1	-	-	-
	B-14	3/28/2000	DP	4	1	-	1	-	-	-	1	-	-	-
	B-IA-11-01	6/11/2004	DP	6	2	-	2	-	-	-	2	-	-	-
	B-IA-11-02	6/11/2004	DP	7	2	-	2	-	-	-	2	-	-	-
	HzW-05	7/20/2000	HSA	UNK	-	3	-	4	-	4	-	-	-	-
12	P4-IA12-SB01	6/13/2023	DP	10	1	-	1	-	-	-	1	-	-	-
	B-06	3/24/2000	DP	10	1	-	1	-	-	-	1	-	-	-
	B-07	3/24/2000	DP	10	1	-	1	-	-	-	1	-	-	-
	B-09	3/24/2000	DP	10	1	-	1	-	-	-	1	-	-	-
	B-10	3/28/2000	DP	6	1	-	1	-	-	-	1	-	-	-
	B-11	3/28/2000	DP	6	1	-	1	-	-	-	1	-	-	-
	B-16	3/29/2000	DP	10	1	-	1	-	-	-	1	-	-	-
	B-IA-12-01	6/11/2004	DP	6	2	-	-	-	-	-	2	-	-	-
	HzW-19	6/1/2001	HSA	UNK	-	2	-	3	-	4	-	-	-	-
13*	N/A	N/A	N/A	N/A	-	-	-	-	-	-	-	-	-	-
	B-38	5/30/2001	DP	15	1	-	1	-	-	-	-	-	-	-
	B-39	5/30/2001	DP	16	1	-	1	-	-	-	-	-	-	-
	B-40	5/30/2001	DP	15	1	-	1	-	-	-	-	-	-	-
14	P4-IA14-SB01	6/13/2023	DP	4	1	-	1	-	1	-	-	-	-	-
	P4-IA14-SB02	6/13/2023	DP	4	1	-	1	-	1	-	-	-	-	-
	P4-IA14-SB03	6/19/2023	DP	4	1	-	1	-	1	-	-	-	-	-
	B-41	5/30/2001	DP	4	1	-	1	-	2	-	1	-	-	-
	B-41A	5/30/2001	DP	6	2	-	3	-		-	1	-	-	-
	B-42	5/30/2001	DP	4	1	-	1	-	2	-	1	-	-	-
	B-42A	6/10/2004	DP	4	3	-	3	-	2	-	2	-	-	-
	B-44A	6/10/2004	DP	4	1	-	2	-	2	-	1	-	-	-
	B-IA-14-1	6/10/2004	DP	6	3	-	3	-	3	-	3	-	-	-
	B-IA-14-2	6/10/2004	DP	6	3	-	3	-	3	-	3	-	-	-
	B-IA-14-3	6/10/2004	DP	6	3	-	3	-	3	-	3	-	-	-
	B-IA-14-4	6/10/2004	DP	6	3	-	3	-	3	-	3	-	-	-
	HzW-07	7/20/2000	HSA	UNK	-	2	-	1	-	1	-	-	-	-
	HzW-12	10/9/2000	HSA	UNK	-	2	-	-	-	-	-	-	-	-
	HzW-21	6/8/2004	HSA	UNK	-	3	-	2	-	2	-	-	-	-
General Coverage**	P4-GC-SB01	6/19/2023	DP	10	1	-	1	-	1	-	-	-	-	-
	P4-GC-MW01	6/19/2023	DP / HSA	20	1	1	1	1	1	1	-	-	-	-
Parcel 5														
51	P5-IA51-SB01	6/22/2023	DP	4	-	-	1	-	-	-	1	1	-	-
	P5-IA51-SB02	6/22/2023	DP	4	-	-	1	-	-	-	1	1	-	-

Table 2: Summary of Sampling and Analysis per Identified Area
Eddy-Kirby Property, Parcels 4 & 5
Cleveland, Ohio

Identified Area	Boring/ Well/ Sample ID	Installation Date	Sample/Drill Method	Total Depth (feet)	*Laboratory Analysis performed by Pace Analytical (CL#0069)*									
					VOC - EPA Method 8260		PAH - EPA Method 8270		RCRA Metals - EPA Method 6010/7470		TPH (C6-34) - EPA Method 8015	PCBs - EPA Method 8082		VOC - Method 8260, Compendium TO-15
					Soil	GW	Soil	GW	Soil	GW	Soil	Soil	GW	Air
52	P5-IA52-SB01	6/21/2023	DP	4	-	-	1	-	-	-	1	1	-	-
	P5-IA52-SB02	6/21/2023	DP	4	-	-	1	-	-	-	1	1	-	-
53	P5-IA53-SB01	6/20/2023	DP	10	1	-	1	-	1	-	1	-	-	-
	P5-IA53-MW01	6/20/2023	DP / HSA	19	1	1	1	1	1	1	-	-	-	-
	P5-IA53-SV01	6/20/223	DP	5	-	-	-	-	-	-	-	-	-	1
54	P5-IA54-SB01	6/21/2023	DP	10	1	-	1	-	-	-	1	-	-	-
	P5-IA54-MW01	6/21/2023	DP / HSA	20	1	1	1	1	-	1	1	-	-	-
	P5-IA54-VI01	6/21/2023	DP	4	-	-	-	-	-	-	-	-	-	1
55	P5-IA55-SB01	6/22/2023	DP	10	1	-	1	-	1	-	-	-	-	-
	P5-IA55-VI01	04/13/2022	DP	2	-	-	-	-	-	-	-	-	-	1
56	P5-IA56-SB01	6/22/2023	DP	10	1	-	1	-	1	-	-	-	-	-
	P5-IA56-MW01	6/22/2023	DP / HSA	21	1	1	1	1	1	1	-	-	-	-
	P5-IA56-VI01	6/22/2023	DP	2	-	-	-	-	-	-	-	-	-	1
57	P5-IA57-SB01	6/19/2023	DP	10	1	-	1	-	1	-	1	-	-	-
	P5-IA57-MW01	6/21/2023	DP / HSA	16	1	1	1	1	1	1	1	-	-	-
	P5-IA57-VI01	6/27/2023	-	-	-	-	-	-	-	-	-	-	-	1
General Coverage**	P5-GC-SB01	6/20/2023	DP	10	1	-	1	-	1	-	-	-	-	-
	P5-GC-SB02	6/22/2023	DP	10	1	-	1	-	1	-	-	-	-	-
	P5-GC-SB03	6/22/2023	DP	10	1	-	1	-	1	-	-	-	-	-
	P5-GC-MW01	6/21/2023	DP / HSA	20	1	1	1	1	1	1	-	-	-	-

Notes:
*No direct access to IAs 1, 1A, 8, and 13; Covered by previous assessment and nearby sampling locations
**General coverage samples not assocaited with a particular IA, but intended to fill in gaps from inaccessible IAs, etc.

Table 3: Groundwater Monitoring Well Information
Eddy-Kirby Property, Parcels 4 & 5
Cleveland, Ohio

Well ID	Depth of Well (ft. TOC)	Top of Casing Elevation (AMSL)	Date	Depth to Groundwater, feet (TOC)	Groundwater Elevation (AMSL)
P4-IA01-MW01	12.82	--	6/28/2023	3.93	--
		--	TBD	--	--
P4-IA03-MW01	12.27	--	6/28/2023	7.11	--
		--	TBD	--	--
P4-IA04-MW01	8.17	--	6/28/2023	3.9	--
		--	TBD	--	--
P4-IA07-MW01	12.18	--	6/28/2023	5.2	--
		--	TBD	--	--
P4-IA11-MW01	12.92	--	6/28/2023	6.03	--
		--	TBD	--	--
P4-GC-MW01	19.68	--	6/29/2023	7.44	--
		--	TBD	--	--
P5-IA53-MW01	18.55	--	6/30/2023	11.53	--
		--	TBD	--	--
P5-IA54-MW01	19.85	--	6/29/2023	14.56	--
		--	TBD	--	--
P5-IA56-MW01	20.89	--	6/29/2023	11.09	--
		--	TBD	--	--
P5-IA57-MW01	15.92	--	6/30/2023	10.54	--
		--	TBD	--	--
P5-GC-MW01	19.68	--	6/29/2023	10.46	--
		--	TBD	--	--

Notes:

Survey not completed at this time, therefore no elevations are noted.

Depth to groundwater not calculated at this time.

Table 4A: Summary of VOCs in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

Sample ID (Depth[1])		Applicable Standards			IA-01									IA-01A				
					P4-IA01-SB01 (0-2)	P4-IA01-MW01 (0-2)	HzW-01 (14-15) *	HB-102 (4-6) *	HB-102 (6-8) *	HB-103 (4-6' *	HB-103 (6-8) *	HB-104 (0-2) *	B-104 (6-8) *	HB-101 (0-4) *	HB-101 (6-8) *	HzW-02 (8-10) *	HzW-03 (14-15) *	HB-100 (0-4) *
Collection Date		GDCS Residential Land Use [3]	GDCS Commercial/ Industrial Land Use [4]	GDCS Construction & Excavation Activities [5]	6/14/2023	6/14/2023	3/24/2000	10/3/2007	10/3/2001	10/3/2007	10/3/2007	12/11/2008	12/11/2008	10/3/2007	10/3/2007	3/27/2000	3/24/2000	10/3/2007
Parameter	Units [2]				Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Volatile Organic Compounds - VOCs																		
Acetone	mg/kg	110,000	110,000	110,000	**0.0612 J**	<0.0667	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	mg/kg	6.1	30	62	<0.0177	<0.0167	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzene	mg/kg	28	130	1,200	<0.00142	<0.00133	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	mg/kg	NE	NE	NE	<0.0177	<0.0167	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	mg/kg	7.3	33	300	<0.00355	<0.00334	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	mg/kg	460	910	910	<0.0355	<0.0334	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	mg/kg	17	76	550	<0.0177	<0.0167	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	mg/kg	110 [6]	110 [6]	110 [6]	<0.0177	<0.0167	ND	ND	ND	ND	ND	**0.00786**	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	mg/kg	140 [6]	140 [6]	140 [6]	<0.0177	<0.0167	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	mg/kg	180 [6]	180 [6]	180 [6]	<0.00710	<0.00667	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	mg/kg	16	74	460	<0.00710	<0.00667	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	mg/kg	660	760	760	**0.00039 J**	<0.00334	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	mg/kg	130	800	800	<0.00355	<0.00334	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chloroethane	mg/kg	2,100	2,100	2,100	<0.00710	<0.00667	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	mg/kg	7.9	35	320	<0.00355	<0.00334	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	mg/kg	280	1,200	1,300	<0.0177	<0.0167	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chlorotoluene	mg/kg	NE	NE	NE	<0.00355	<0.00334	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chlorotoluene	mg/kg	NE	NE	NE	<0.00710	<0.00667	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-Chloropropane	mg/kg	0.37	1.6	15	<0.0355	<0.0334	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	mg/kg	0.89	4.2	39	<0.00355	<0.00334	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	mg/kg	59	250 [6]	870 [6]	<0.00710	<0.00667	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	mg/kg	380	380	380	<0.00710	<0.00667	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	mg/kg	NE	NE	NE	<0.00710	<0.00667	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	mg/kg	65	290	2,600	<0.00710	<0.00667	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	mg/kg	850	850	850	<0.00355 J3	<0.00334 J3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	mg/kg	89	390	1,700	<0.00355	<0.00334	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.692**	ND	ND
1,2-Dichloroethane (EDC)	mg/kg	11	52	480	<0.00355	<0.00334	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	mg/kg	360	1,200	360	<0.00355	<0.00334	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	mg/kg	310	2,400	2,400	<0.00355	<0.00334	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.938**	ND	ND
trans-1,2-Dichloroethene	mg/kg	1,900	1,900	1,900	<0.00710	<0.00667	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	mg/kg	39	170	180	<0.00710	<0.00667	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloropropene	mg/kg	NE	NE	NE	<0.00355	<0.00334	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichloropropane	mg/kg	1,500	1,500	1,500	<0.00710	<0.00667	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	mg/kg	NE	NE	NE	<0.00355	<0.00334	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	mg/kg	NE	NE	NE	<0.00710	<0.00667	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,2-Dichloropropane	mg/kg	NE	NE	NE	<0.00355	<0.00334	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	mg/kg	140	480	480	<0.00355	<0.00334	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachloro-1,3-butadiene	mg/kg	17	17	17	<0.0355	<0.0334	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Hexane	mg/kg	140	140	140	<0.00710	<0.00667	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Isopropylbenzene	mg/kg	270	270	270	<0.00355	<0.00334	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p-Isopropyltoluene	mg/kg	160	260 [6]	260 [6]	<0.00710	<0.00667	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Butanone (MEK)	mg/kg	28,000	28,000	28,000	<0.142	<0.133	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	mg/kg	740	3,300	3,300	<0.0355	<0.0334	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	mg/kg	3,400	3,400	3,400	<0.0355	<0.0334	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether (MTBE)	mg/kg	1,100	5,400	8,900	<0.00142	<0.00133	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	mg/kg	96	420	560	**0.0179**	**0.332**	ND	ND	ND	ND	ND	**0.276**	ND	ND	ND	ND	ND	ND
n-Propylbenzene	mg/kg	260 [6]	260 [6]	260 [6]	<0.00710	<0.00667	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	mg/kg	870	870	870	**0.00138 B J**	<0.0167	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	mg/kg	49	230	680	<0.00355	<0.00334	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	mg/kg	15	71	670	<0.00355	<0.00334	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	mg/kg	170	170	170	<0.00355	<0.00334	ND	**0.0137**	ND	**0.0153**	ND	ND	ND	**0.00923**	ND	ND	ND	ND
Toluene	mg/kg	820	820	820	<0.00710	<0.00667	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	mg/kg	NE	NE	NE	<0.0177	<0.0167	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	mg/kg	140	400	400	<0.0177	<0.0167	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	mg/kg	640	640	640	<0.00355	<0.00334	ND	ND	ND	ND	ND	ND	ND	**0.037**	ND	**5.12**	ND	**0.0266**
1,1,2-Trichloroethane	mg/kg	28	130	1,200	<0.00355	<0.00334	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene (TCE)	mg/kg	10	48	17	<0.00142	<0.00133	ND	ND	ND	ND	ND	**0.16**	**2.27**	**0.153**	**3.61**	**38.7**	ND	**0.0954**
Trichlorofluoromethane	mg/kg	1,200	1,200	1,200	<0.00355 J3	<0.00334 J3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	mg/kg	0.1	4.4	19	<0.0177	<0.0167	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	mg/kg	220	220	220	<0.00710	**0.0038 J**	ND	ND	ND	ND	ND	**0.0255**	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	mg/kg	180	180	180	<0.00710	<0.00667	ND	ND	ND	ND	ND	**0.00773**	ND	ND	ND	ND	ND	ND

Table 4A: Summary of VOCs in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

Sample ID (Depth[1])		Applicable Standards			IA-01									IA-01A				
					P4-IA01-SB01 (0-2)	P4-IA01-MW01 (0-2)	HzW-01 (14-15) *	HB-102 (4-6) *	HB-102 (6-8) *	HB-103 (4-6' *	HB-103 (6-8) *	HB-104 (0-2) *	B-104 (6-8) *	HB-101 (0-4) *	HB-101 (6-8) *	HzW-02 (8-10) *	HzW-03 (14-15) *	HB-100 (0-4) *
Collection Date		*GDCS Residential Land Use* [3]	*GDCS Commercial/ Industrial Land Use* [4]	*GDCS Construction & Excavation Activities* [5]	6/14/2023	6/14/2023	3/24/2000	10/3/2007	10/3/2001	10/3/2007	10/3/2007	12/11/2008	12/11/2008	10/3/2007	10/3/2007	3/27/2000	3/24/2000	10/3/2007
Parameter	**Units** [2]				Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Volatile Organic Compounds - VOCs																		
Vinyl chloride	mg/kg	*1.3*	*49*	*280*	<0.00355	<0.00334	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes, Total	mg/kg	*260*	*260*	*260*	<0.00923	<0.00867	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes

1. FT - Feet below grade
2. mg/kg = Milligrams per kilogram - parts per million (ppm)
3. Ohio VAP GDCS Residential Land Use.
4. Ohio VAP GDCS Commercial/Industrial Land Use.
5. Ohio VAP GDCS Construction/Excavation Activities.
6. Supplemental standards from the Ohio VAP CIDARS

NE: No standard established by applicable agency

Bold numbers indicate a concentration above laboratory detection limits.

Bold and shaded numbers indicate a detected concentration above a comparison standard. If exceeding more than one standard, the most strict one is highlighted.

*** :** Samples collected by HzW

ND : No Detections

NT : Not tested

Laboratory Qualifiers:

J - The identification of the analyte is acceptable; the reported value is an estimate.

B - The same analyte is found in the associated blank.

J3 - The associated batch QC was outside the establish quality control range for precision.

J4- The associated batch QC was outside the established quality control range for accuracy.

J5 - The sample matrix interfered with the ability to make any accurate determination; spike value is high.

J6: The sample matrix interfered with the ability to make any accurate determination; spike value is low

J7: Surrogate recovery cannot be used for control limit evaluation due to dilution

O1: The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.

Table 4A: Summary of VOCs in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

Sample ID (Depth[1])		Applicable Standards			IA-01A					IA-02								
					HB-100 (6-8) *	B-105 (4-6) *	B-105 (6-8) *	B-106 (5-7) *	B-106 (3-5) *	P4-IA02-SB01 (4-6)	Duplicate 1 (P4-IA02-SB01)	B-5 (8-10) *	IA-2-01 (0-2)*	IA-2-01 (2-4) *	IA-2-02 (0-4)	IA-2-02 (4-6) *	IA-2-02 (6-8) *	IA-2-03 (0-4) *
Collection Date		GDCS Residential Land Use [3]	GDCS Commercial/ Industrial Land Use [4]	GDCS Construction & Excavation Activities [5]	10/3/2007	12/11/2008	12/11/2008	12/11/2008	12/11/2008	6/14/2023	6/14/2023	3/28/2000	10/9/2008	10/9/2008	10/9/2008	10/9/2008	10/9/2008	10/9/2008
Parameter	Units [2]				Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Volatile Organic Compounds - VOCs																		
Acetone	mg/kg	*110,000*	*110,000*	*110,000*	ND	ND	ND	ND	ND	<0.0756	<0.0767	ND	ND	ND	**0.146**	ND	ND	ND
Acrylonitrile	mg/kg	*6.1*	*30*	*62*	NT	NT	NT	NT	NT	<0.0189	<0.0192	NT	NT	NT	NT	NT	NT	NT
Benzene	mg/kg	*28*	*130*	*1,200*	ND	ND	ND	ND	ND	<0.00151	<0.00153	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	mg/kg	*NE*	*NE*	*NE*	ND	ND	ND	ND	ND	<0.0189	<0.0192	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	mg/kg	*7.3*	*33*	*300*	ND	ND	ND	ND	ND	<0.00378	<0.00383	ND	ND	ND	ND	ND	ND	ND
Bromoform	mg/kg	*460*	*910*	*910*	ND	ND	ND	ND	ND	<0.0378	<0.0383	ND	ND	ND	ND	ND	ND	ND
Bromomethane	mg/kg	*17*	*76*	*550*	ND	ND	ND	ND	ND	<0.0189	<0.0192	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	mg/kg	*110* [6]	*110* [6]	*110* [6]	ND	ND	ND	ND	ND	<0.0189	<0.0192	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	mg/kg	*140* [6]	*140* [6]	*140* [6]	ND	ND	ND	ND	ND	<0.0189	<0.0192	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	mg/kg	*180* [6]	*180* [6]	*180* [6]	ND	ND	ND	ND	ND	<0.00756	<0.00767	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	mg/kg	*16*	*74*	*460*	ND	ND	ND	ND	ND	<0.00756	<0.00767	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	mg/kg	*660*	*760*	*760*	ND	ND	ND	ND	ND	**0.000378 J**	<0.00383	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	mg/kg	*130*	*800*	*800*	NT	NT	NT	NT	NT	<0.00378	<0.00383	NT	NT	NT	NT	NT	NT	NT
Chloroethane	mg/kg	*2,100*	*2,100*	*2,100*	ND	ND	ND	ND	ND	<0.00756	<0.00767	ND	ND	ND	ND	ND	ND	ND
Chloroform	mg/kg	*7.9*	*35*	*320*	ND	ND	ND	ND	ND	<0.00378	<0.00383	ND	ND	ND	ND	ND	ND	ND
Chloromethane	mg/kg	*280*	*1,200*	*1,300*	ND	ND	ND	ND	ND	<0.0189	<0.0192	ND	ND	ND	ND	ND	ND	ND
2-Chlorotoluene	mg/kg	*NE*	*NE*	*NE*	ND	ND	ND	ND	ND	<0.00378	<0.00383	ND	ND	ND	ND	ND	ND	ND
4-Chlorotoluene	mg/kg	*NE*	*NE*	*NE*	ND	ND	ND	ND	ND	<0.00756	<0.00767	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-Chloropropane	mg/kg	*0.37*	*1.6*	*15*	ND	ND	ND	ND	ND	<0.0378	<0.0383	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	mg/kg	*0.89*	*4.2*	*39*	ND	ND	ND	ND	ND	<0.00378	<0.00383	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	mg/kg	*59*	*250* [6]	*870* [6]	ND	ND	ND	ND	ND	<0.00756	<0.00767	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	mg/kg	*380*	*380*	*380*	ND	ND	ND	ND	ND	<0.00756	<0.00767	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	mg/kg	*NE*	*NE*	*NE*	ND	ND	ND	ND	ND	<0.00756	<0.00767	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	mg/kg	*65*	*290*	*2,600*	ND	ND	ND	ND	ND	<0.00756	<0.00767	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	mg/kg	*850*	*850*	*850*	ND	ND	ND	ND	ND	<0.00378 J3	<0.00383 J3	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	mg/kg	*89*	*390*	*1,700*	ND	ND	ND	ND	ND	<0.00378	<0.00383	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane (EDC)	mg/kg	*11*	*52*	*480*	ND	ND	ND	ND	ND	<0.00378	<0.00383	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	mg/kg	*360*	*1,200*	*360*	ND	ND	ND	ND	**2.28**	<0.00378	<0.00383	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	mg/kg	*310*	*2,400*	*2,400*	ND	ND	**0.589**	**4.69**	**7.49**	**0.0114**	**0.0127**	**25.2**	ND	ND	**0.0589**	**0.0114**	ND	**0.0531**
trans-1,2-Dichloroethene	mg/kg	*1,900*	*1,900*	*1,900*	ND	ND	ND	ND	ND	<0.00756	<0.00767	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	mg/kg	*39*	*170*	*180*	ND	ND	ND	ND	ND	<0.00756	<0.00767	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloropropene	mg/kg	*NE*	*NE*	*NE*	ND	ND	ND	ND	ND	<0.00378	<0.00383	ND	ND	ND	ND	ND	ND	ND
1,3-Dichloropropane	mg/kg	*1,500*	*1,500*	*1,500*	ND	ND	ND	ND	ND	<0.00756	<0.00767	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	mg/kg	*NE*	*NE*	*NE*	ND	ND	ND	ND	ND	<0.00378	<0.00383	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	mg/kg	*NE*	*NE*	*NE*	ND	ND	ND	ND	ND	<0.00756	<0.00767	ND	ND	ND	ND	ND	ND	ND
2,2-Dichloropropane	mg/kg	*NE*	*NE*	*NE*	ND	ND	ND	ND	ND	<0.00378	<0.00383	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	mg/kg	*140*	*480*	*480*	ND	ND	ND	ND	ND	<0.00378	<0.00383	ND	ND	ND	ND	**0.00907**	**28.1**	ND
Hexachloro-1,3-butadiene	mg/kg	*17*	*17*	*17*	ND	ND	ND	ND	ND	<0.0378	<0.0383	ND	ND	ND	ND	ND	ND	ND
n-Hexane	mg/kg	*140*	*140*	*140*	NT	NT	NT	NT	NT	<0.00756	<0.00767	NT	NT	NT	NT	NT	NT	NT
Isopropylbenzene	mg/kg	*270*	*270*	*270*	ND	ND	ND	ND	ND	<0.00378	<0.00383	ND	ND	ND	ND	ND	ND	ND
p-Isopropyltoluene	mg/kg	*160*	*260* [6]	*260* [6]	NT	NT	NT	NT	NT	<0.00756	<0.00767	NT	NT	NT	NT	NT	NT	NT
2-Butanone (MEK)	mg/kg	*28,000*	*28,000*	*28,000*	ND	ND	ND	ND	ND	<0.151	<0.153	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	mg/kg	*740*	*3,300*	*3,300*	ND	ND	ND	ND	ND	<0.0378	<0.0383	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	mg/kg	*3,400*	*3,400*	*3,400*	ND	ND	ND	ND	ND	<0.0378	<0.0383	ND	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether (MTBE)	mg/kg	*1,100*	*5,400*	*8,900*	ND	ND	ND	ND	ND	<0.00151	<0.00153	ND	ND	ND	ND	ND	ND	ND
Naphthalene	mg/kg	*96*	*420*	*560*	ND	ND	ND	ND	ND	<0.0189	<0.0192	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	mg/kg	*260* [6]	*260* [6]	*260* [6]	ND	ND	ND	ND	ND	<0.00756	<0.00767	ND	ND	ND	ND	ND	ND	ND
Styrene	mg/kg	*870*	*870*	*870*	ND	ND	ND	ND	ND	**0.00125 B J**	**0.00111 B J**	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	mg/kg	*49*	*230*	*680*	ND	ND	ND	ND	ND	<0.00378	<0.00383	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	mg/kg	*15*	*71*	*670*	ND	ND	ND	ND	ND	<0.00378	<0.00383	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	mg/kg	*170*	*170*	*170*	ND	ND	**0.976**	**51**	**33.9**	<0.00378	<0.00383	**10.9**	ND	ND	ND	**0.0322**	**16.8**	ND
Toluene	mg/kg	*820*	*820*	*820*	ND	ND	ND	ND	ND	<0.00756	<0.00767	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	mg/kg	*NE*	*NE*	*NE*	ND	ND	ND	ND	ND	<0.0189	<0.0192	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	mg/kg	*140*	*400*	*400*	ND	ND	ND	ND	ND	<0.0189	<0.0192	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	mg/kg	*640*	*640*	*640*	**0.916**	**0.357**	**2.33**	**147**	**68.9**	<0.00378	<0.00383	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	mg/kg	*28*	*130*	*1,200*	ND	ND	ND	ND	ND	<0.00378	<0.00383	ND	ND	ND	ND	ND	ND	ND
Trichloroethene (TCE)	mg/kg	*10*	*48*	*17*	**3.72**	**2.21**	**15.2**	**291**	**67.9**	**0.029**	**0.0932**	**518**	**4.4**	**1.24**	**0.0172**	**0.0653**	**115**	**0.0115**
Trichlorofluoromethane	mg/kg	*1,200*	*1,200*	*1,200*	ND	ND	ND	ND	ND	<0.00378 J3	<0.00383 J3	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	mg/kg	*0.1*	*4.4*	*19*	ND	ND	ND	ND	ND	<0.0189	<0.0192	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	mg/kg	*220*	*220*	*220*	ND	ND	ND	ND	**2.4**	<0.00756	<0.00767 J	ND	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	mg/kg	*180*	*180*	*180*	ND	ND	ND	ND	**0.852**	<0.00756	<0.00767	ND	ND	ND	ND	ND	ND	ND

Table 4A: Summary of VOCs in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

					IA-01A					IA-02								
Sample ID (Depth[1])		*Applicable Standards*			**HB-100 (6-8) ***	**B-105 (4-6) ***	**B-105 (6-8) ***	**B-106 (5-7) ***	**B-106 (3-5) ***	**P4-IA02-SB01 (4-6)**	**Duplicate 1 (P4-IA02-SB01)**	**B-5 (8-10) ***	**IA-2-01 (0-2)***	**IA-2-01 (2-4) ***	**IA-2-02 (0-4)**	**IA-2-02 (4-6) ***	**IA-2-02 (6-8) ***	**IA-2-03 (0-4) ***
Collection Date		*GDCS Residential Land Use [3]*	*GDCS Commercial/ Industrial Land Use [4]*	*GDCS Construction & Excavation Activities [5]*	10/3/2007	12/11/2008	12/11/2008	12/11/2008	12/11/2008	6/14/2023	6/14/2023	3/28/2000	10/9/2008	10/9/2008	10/9/2008	10/9/2008	10/9/2008	10/9/2008
Parameter	**Units [2]**				Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Volatile Organic Compounds - VOCs																		
Vinyl chloride	mg/kg	*1.3*	*49*	*280*	ND	ND	ND	ND	ND	<0.00378	<0.00383	ND	ND	ND	ND	ND	ND	ND
Xylenes, Total	mg/kg	*260*	*260*	*260*	ND	ND	ND	ND	ND	<0.00982	<0.00997 J	ND	ND	ND	ND	**0.02641**	**84.9**	ND

Notes

1. FT - Feet below grade
2. mg/kg = Milligrams per kilogram - parts per million (ppm)
3. Ohio VAP GDCS Residential Land Use.
4. Ohio VAP GDCS Commercial/Industrial Land Use.
5. Ohio VAP GDCS Construction/Excavation Activities.
6. Supplemental standards from the Ohio VAP CIDARS

NE: No standard established by applicable agency

Bold numbers indicate a concentration above laboratory detection limits.

Bold and shaded numbers indicate a detected concentration above a comparison standard. If exceeding more than one standard, th

*** :** Samples collected by HzW

ND : No Detections

NT : Not tested

Table 4A: Summary of VOCs in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

Sample ID (Depth[1])		Applicable Standards			IA-02	IA-03							IA-04	IA-05	IA-06	IA-07		
					IA-2-03 (6-8) *	P4-IA03-SB01 (2-4)	P4-IA03-MW01 (0-2)	B-18 (8-10) *	B-19 (10-12) *	B-20 (0-2) *	B-21 (10-12) *	B-22 (8-10) * [6]	P4-IA04-MW01 (2-4)	P4-IA05-SB01 (0-2)	P4-IA06-SB01 (4-6)	P4-IA07-MW01 (0-2)	B-03 (4-6) *	IA-7-01 (0-2) *
Collection Date		*GDCS Residential Land Use* [3]	*GDCS Commercial/ Industrial Land Use* [4]	*GDCS Construction & Excavation Activities* [5]	10/9/2008	6/14/2023	6/14/2023	5/25/2000	5/25/2000	5/25/2000	5/25/2000	5/25/2000	6/14/2023	6/19/2023	6/13/2023	6/14/2023	3/24/2000	11/13/2008
Parameter	**Units** [2]				Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Volatile Organic Compounds - VOCs																		
Acetone	mg/kg	*110,000*	*110,000*	*110,000*	ND	<0.0711	**0.137**	ND	ND	ND	ND	ND	<0.0573	**0.0736**	<0.0769	**0.0497 J**	ND	ND
Acrylonitrile	mg/kg	*6.1*	*30*	*62*	NT	<0.0178	<0.0169	NT	NT	NT	NT	NT	<0.0143	<0.0173	<0.0192	<0.0169	ND	ND
Benzene	mg/kg	*28*	*130*	*1,200*	ND	<0.00142	<0.00135	ND	ND	ND	ND	ND	<0.00115	<0.00138	<0.00154	<0.00135	ND	ND
Bromobenzene	mg/kg	*NE*	*NE*	*NE*	ND	<0.0178	<0.0169	ND	ND	ND	ND	ND	<0.0143	<0.0173	<0.0192	<0.0169	ND	ND
Bromodichloromethane	mg/kg	*7.3*	*33*	*300*	ND	<0.00356	<0.00338	ND	ND	ND	ND	ND	<0.00286	<0.00345	<0.00384	<0.00338	ND	ND
Bromoform	mg/kg	*460*	*910*	*910*	ND	<0.0356	<0.0338	ND	ND	ND	ND	ND	<0.0286	<0.0345	<0.0384	<0.0338	ND	ND
Bromomethane	mg/kg	*17*	*76*	*550*	ND	<0.0178	<0.0169	ND	ND	ND	ND	ND	<0.0143	<0.0173	<0.0192	<0.0169	ND	ND
n-Butylbenzene	mg/kg	*110* [6]	*110* [6]	*110* [6]	ND	<0.0178	<0.0169	ND	ND	ND	ND	ND	<0.0143	<0.0173	<0.0192	<0.0169	ND	ND
sec-Butylbenzene	mg/kg	*140* [6]	*140* [6]	*140* [6]	ND	<0.0178	<0.0169	ND	ND	ND	ND	**0.00633**	<0.0143	<0.0173	<0.0192	<0.0169	ND	ND
tert-Butylbenzene	mg/kg	*180* [6]	*180* [6]	*180* [6]	ND	<0.00711	<0.00677	ND	ND	ND	ND	ND	<0.00573	<0.00690	<0.00769	<0.00676	ND	ND
Carbon tetrachloride	mg/kg	*16*	*74*	*460*	ND	<0.00711	<0.00677	ND	ND	ND	ND	ND	<0.00573	<0.00690	<0.00769	<0.00676	ND	ND
Chlorobenzene	mg/kg	*660*	*760*	*760*	ND	<0.00356	<0.00338	ND	ND	ND	ND	ND	<0.00286	<0.00345	<0.00384	<0.00338	ND	ND
Chlorodibromomethane	mg/kg	*130*	*800*	*800*	NT	<0.00356	<0.00338	NT	NT	NT	NT	NT	<0.00286	<0.00345	<0.00384	<0.00338	NT	NT
Chloroethane	mg/kg	*2,100*	*2,100*	*2,100*	ND	<0.00711	<0.00677	ND	ND	ND	ND	ND	<0.00573	<0.00690	<0.00769	<0.00676	ND	ND
Chloroform	mg/kg	*7.9*	*35*	*320*	ND	<0.00356	<0.00338	ND	ND	ND	ND	ND	<0.00286	<0.00345	<0.00384	<0.00338	ND	ND
Chloromethane	mg/kg	*280*	*1,200*	*1,300*	ND	<0.0178	<0.0169	ND	ND	ND	ND	ND	<0.0143	<0.0173	<0.0192	<0.0169	ND	ND
2-Chlorotoluene	mg/kg	*NE*	*NE*	*NE*	ND	<0.00356	<0.00338	ND	ND	ND	ND	ND	<0.00286	<0.00345	<0.00384	<0.00338	ND	ND
4-Chlorotoluene	mg/kg	*NE*	*NE*	*NE*	ND	<0.00711	<0.00677	ND	ND	ND	ND	ND	<0.00573	<0.00690	<0.00769	<0.00676	ND	ND
1,2-Dibromo-3-Chloropropane	mg/kg	*0.37*	*1.6*	*15*	ND	<0.0356	<0.0338	ND	ND	ND	ND	ND	<0.0286	<0.0345	<0.0384	<0.0338	ND	ND
1,2-Dibromoethane (EDB)	mg/kg	*0.89*	*4.2*	*39*	ND	<0.00356	<0.00338	ND	ND	ND	ND	ND	<0.00286	<0.00345	<0.00384	<0.00338	ND	ND
Dibromomethane	mg/kg	*59*	*250* [6]	*870* [6]	ND	<0.00711	<0.00677	ND	ND	ND	ND	ND	<0.00573	<0.00690	<0.00769	<0.00676	ND	ND
1,2-Dichlorobenzene	mg/kg	*380*	*380*	*380*	ND	**0.00176 J**	<0.00677	ND	ND	ND	ND	ND	<0.00573	<0.00690	<0.00769	<0.00676	ND	ND
1,3-Dichlorobenzene	mg/kg	*NE*	*NE*	*NE*	ND	<0.00711	<0.00677	ND	ND	ND	ND	ND	<0.00573	<0.00690	<0.00769	<0.00676	ND	ND
1,4-Dichlorobenzene	mg/kg	*65*	*290*	*2,600*	ND	**0.00211 J**	<0.00677	ND	ND	ND	ND	ND	<0.00573	<0.00690	<0.00769	<0.00676	ND	ND
Dichlorodifluoromethane	mg/kg	*850*	*850*	*850*	ND	<0.00356 J3	<0.00338 J3	ND	ND	ND	ND	ND	<0.00286 J3	<0.00345	<0.00384 J3	<0.00338 J3	ND	ND
1,1-Dichloroethane	mg/kg	*89*	*390*	*1,700*	ND	<0.00356	<0.00338	ND	ND	ND	ND	ND	<0.00286	<0.00345	<0.00384	<0.00338	ND	ND
1,2-Dichloroethane (EDC)	mg/kg	*11*	*52*	*480*	ND	<0.00356	<0.00338	ND	ND	ND	ND	ND	<0.00286	<0.00345	<0.00384	<0.00338	ND	ND
1,1-Dichloroethene	mg/kg	*360*	*1,200*	*360*	ND	<0.00356	<0.00338	ND	ND	ND	ND	ND	<0.00286	<0.00345	<0.00384	<0.00338	ND	ND
cis-1,2-Dichloroethene	mg/kg	*310*	*2,400*	*2,400*	ND	<0.00356	<0.00338	ND	ND	ND	**8.18**	ND	<0.00286	<0.00345	<0.00384	<0.00338	ND	ND
trans-1,2-Dichloroethene	mg/kg	*1,900*	*1,900*	*1,900*	ND	<0.00711	<0.00677	ND	ND	ND	**0.986**	ND	<0.00573	<0.00690	<0.00769	<0.00676	ND	ND
1,2-Dichloropropane	mg/kg	*39*	*170*	*180*	ND	<0.00711	<0.00677	ND	ND	ND	ND	ND	<0.00573	<0.00690	<0.00769	<0.00676	ND	ND
1,1-Dichloropropene	mg/kg	*NE*	*NE*	*NE*	ND	<0.00356	<0.00338	ND	ND	ND	ND	ND	<0.00286	<0.00345	<0.00384	<0.00338	ND	ND
1,3-Dichloropropane	mg/kg	*1,500*	*1,500*	*1,500*	ND	<0.00711	<0.00677	ND	ND	ND	ND	ND	<0.00573	<0.00690	<0.00769	<0.00676	ND	ND
cis-1,3-Dichloropropene	mg/kg	*NE*	*NE*	*NE*	ND	<0.00356	<0.00338	ND	ND	ND	ND	ND	<0.00286	<0.00345	<0.00384	<0.00338	ND	ND
trans-1,3-Dichloropropene	mg/kg	*NE*	*NE*	*NE*	ND	<0.00711	<0.00677	ND	ND	ND	ND	ND	<0.00573	<0.00690	<0.00769	<0.00676	ND	ND
2,2-Dichloropropane	mg/kg	*NE*	*NE*	*NE*	ND	<0.00356	<0.00338	ND	ND	ND	ND	ND	<0.00286	<0.00345	<0.00384	<0.00338	ND	ND
Ethylbenzene	mg/kg	*140*	*480*	*480*	ND	**0.00236 B J**	**0.00115 B J**	**0.00708**	ND	ND	ND	ND	<0.00286	<0.00345	<0.00384	<0.00338	ND	ND
Hexachloro-1,3-butadiene	mg/kg	*17*	*17*	*17*	ND	<0.0356	<0.0338	ND	ND	ND	ND	ND	<0.0286	<0.0345	<0.0384	<0.0338	ND	ND
n-Hexane	mg/kg	*140*	*140*	*140*	NT	**0.00327 B J**	<0.00677	ND	ND	ND	ND	ND	<0.00573	<0.00690	<0.00769	<0.00676	ND	ND
Isopropylbenzene	mg/kg	*270*	*270*	*270*	ND	**0.00134 J**	<0.00338	ND	ND	ND	ND	ND	<0.00286	<0.00345	<0.00384	<0.00338	ND	ND
p-Isopropyltoluene	mg/kg	*160*	*260* [6]	*260* [6]	NT	**0.0457**	**0.00742**	**0.0115**	ND	ND	ND	ND	<0.00573	<0.00690	<0.00769	<0.00676	ND	ND
2-Butanone (MEK)	mg/kg	*28,000*	*28,000*	*28,000*	ND	<0.142	<0.135	ND	ND	ND	ND	ND	<0.115	<0.138	<0.154	<0.135	ND	ND
Methylene Chloride	mg/kg	*740*	*3,300*	*3,300*	ND	<0.0356	<0.0338	ND	ND	ND	ND	ND	<0.0286	<0.0345	<0.0384	<0.0338	ND	ND
4-Methyl-2-pentanone (MIBK)	mg/kg	*3,400*	*3,400*	*3,400*	ND	<0.0356	<0.0338	ND	ND	ND	ND	ND	<0.0286	<0.0345	<0.0384	<0.0338	ND	ND
Methyl tert-butyl ether (MTBE)	mg/kg	*1,100*	*5,400*	*8,900*	ND	<0.00142	<0.00135	ND	ND	ND	ND	ND	<0.00115	<0.00138	<0.00154	<0.00135	ND	ND
Naphthalene	mg/kg	*96*	*420*	*560*	ND	**1.89**	**0.158**	**0.126**	**0.025**	ND	ND	ND	**0.0529**	**0.0549 J4**	<0.0192	**0.0149 J**	ND	**1.72**
n-Propylbenzene	mg/kg	*260* [6]	*260* [6]	*260* [6]	ND	**0.00165 J**	<0.00677	ND	ND	ND	ND	**0.00686**	<0.00573	<0.00690	<0.00769	<0.00676	ND	ND
Styrene	mg/kg	*870*	*870*	*870*	ND	<0.0178	**0.00125 B J**	ND	ND	ND	ND	ND	**0.00102 B J**	<0.0173	**0.00115 B J**	**0.0012 B J**	ND	ND
1,1,1,2-Tetrachloroethane	mg/kg	*49*	*230*	*680*	ND	<0.00356	<0.00338	ND	ND	ND	ND	ND	<0.00286	<0.00345	<0.00384	<0.00338	ND	ND
1,1,2,2-Tetrachloroethane	mg/kg	*15*	*71*	*670*	ND	<0.00356	<0.00338	ND	ND	ND	ND	ND	<0.00286	<0.00345	<0.00384	<0.00338	ND	ND
Tetrachloroethene (PCE)	mg/kg	*170*	*170*	*170*	**1.99**	<0.00356	<0.00338	ND	ND	ND	ND	ND	**0.00229 J**	<0.00345	<0.00384	<0.00338	ND	ND
Toluene	mg/kg	*820*	*820*	*820*	ND	<0.00711	<0.00677	**0.00522**	ND	ND	ND	**0.00542**	<0.00573	<0.00690	<0.00769	<0.00676	ND	ND
1,2,3-Trichlorobenzene	mg/kg	*NE*	*NE*	*NE*	ND	<0.0178	<0.0169	ND	ND	ND	ND	ND	<0.0143	<0.0173	<0.0192	<0.0169	ND	ND
1,2,4-Trichlorobenzene	mg/kg	*140*	*400*	*400*	ND	<0.0178	<0.0169	ND	ND	ND	ND	ND	<0.0143	<0.0173	<0.0192	<0.0169	ND	ND
1,1,1-Trichloroethane	mg/kg	*640*	*640*	*640*	ND	<0.00356	<0.00338	ND	ND	ND	ND	ND	<0.00286	<0.00345	<0.00384	<0.00338	ND	ND
1,1,2-Trichloroethane	mg/kg	*28*	*130*	*1,200*	ND	<0.00356	<0.00338	ND	ND	ND	ND	ND	<0.00286	<0.00345	<0.00384	<0.00338	ND	ND
Trichloroethene (TCE)	mg/kg	*10*	*48*	*17*	**9.95**	**0.000881 J**	<0.00135	ND	ND	ND	ND	ND	<0.00115	<0.00138	<0.00154	<0.00135	ND	ND
Trichlorofluoromethane	mg/kg	*1,200*	*1,200*	*1,200*	ND	<0.00356 J3	<0.00338 J3	ND	ND	ND	ND	ND	<0.00286 J	<0.00345	<0.00384 J3	<0.00338 J3	ND	ND
1,2,3-Trichloropropane	mg/kg	*0.1*	*4.4*	*19*	ND	<0.0178	<0.0169	ND	ND	ND	ND	ND	<0.0143	<0.0173	<0.0192	<0.0169	ND	ND
1,2,4-Trimethylbenzene	mg/kg	*220*	*220*	*220*	ND	**0.0309**	**0.00582 J**	**0.0367**	**0.00984**	ND	ND	**0.0262**	<0.00573	**0.00711**	<0.00769	<0.00676	**4.75**	ND
1,3,5-Trimethylbenzene	mg/kg	*180*	*180*	*180*	ND	**0.0113**	<0.00677	ND	ND	ND	ND	**0.00939**	<0.00573	<0.00690	<0.00769	<0.00676	**2.92**	ND

Table 4A: Summary of VOCs in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

Sample ID (Depth[1])		Applicable Standards			IA-02	IA-03							IA-04	IA-05	IA-06	IA-07		
					IA-2-03 (6-8) *	P4-IA03-SB01 (2-4)	P4-IA03-MW01 (0-2)	B-18 (8-10) *	B-19 (10-12) *	B-20 (0-2) *	B-21 (10-12) *	B-22 (8-10) * [6]	P4-IA04-MW01 (2-4)	P4-IA05-SB01 (0-2)	P4-IA06-SB01 (4-6)	P4-IA07-MW01 (0-2)	B-03 (4-6) *	IA-7-01 (0-2) *
Collection Date		GDCS Residential Land Use [3]	GDCS Commercial/ Industrial Land Use [4]	GDCS Construction & Excavation Activities [5]	10/9/2008	6/14/2023	6/14/2023	5/25/2000	5/25/2000	5/25/2000	5/25/2000	5/25/2000	6/14/2023	6/19/2023	6/13/2023	6/14/2023	3/24/2000	11/13/2008
Parameter	Units [2]				Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Volatile Organic Compounds - VOCs																		
Vinyl chloride	mg/kg	*1.3*	*49*	*280*	ND	<0.00356	<0.00338	**0.0109**	ND	ND	ND	ND	<0.00286	<0.00345	<0.00384	<0.00338	ND	ND
Xylenes, Total	mg/kg	*260*	*260*	*260*	ND	**0.0313**	**0.0069**	**0.0452**	**0.0109**	ND	ND	**0.02128**	<0.00745	<0.00897	<0.00999	<0.00878	ND	ND

Notes

1. FT - Feet below grade
2. mg/kg = Milligrams per kilogram - parts per million (ppm)
3. Ohio VAP GDCS Residential Land Use.
4. Ohio VAP GDCS Commercial/Industrial Land Use.
5. Ohio VAP GDCS Construction/Excavation Activities.
6. Supplemental standards from the Ohio VAP CIDARS

NE: No standard established by applicable agency

Bold numbers indicate a concentration above laboratory detection limits.

Bold and shaded numbers indicate a detected concentration above a comparison standard. If exceeding more than one standard, th

*** :** Samples collected by HzW

ND : No Detections

NT : Not tested

Table 4A: Summary of VOCs in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

					IA-07			IA-08			IA-09							
Sample ID (Depth[1])		*Applicable Standards*			**IA-7-01 (2-4) ***	**IA-7-02 (0-2) ***	**IA-7-02 (2-4) ***	**B-15 (0-2) ***	**IA-8-01 (0-2) ***	**IA-8-02 (0-2)***	**P4-IA09-SB01 (0-2)**	**B-23 (8-10) ***	**B-24 (8-10) ***	**B-25 (0-2) ***	**B-26 (4-6) ***	**B-27 (4-6) ***	**B-28 (2-4) ***	**B-45 (0-2) ***
Collection Date		*GDCS Residential Land Use [3]*	*GDCS Commercial/ Industrial Land Use [4]*	*GDCS Construction & Excavation Activities [5]*	11/13/2008	11/13/2008	11/13/2008	3/28/2000	11/13/2008	11/13/2008	6/13/2023	5/24/2000	5/24/2000	5/24/2000	5/24/2000	5/24/2000	5/24/2000	5/30/2001
Parameter	**Units [2]**				Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Volatile Organic Compounds - VOCs																		
Acetone	mg/kg	*110,000*	*110,000*	*110,000*	ND	ND	ND	ND	ND	ND	**0.0713**	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	mg/kg	*6.1*	*30*	*62*	ND	ND	ND	ND	ND	ND	<0.0162	ND	ND	ND	ND	ND	ND	ND
Benzene	mg/kg	*28*	*130*	*1,200*	ND	ND	ND	ND	ND	ND	<0.00130	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	mg/kg	*NE*	*NE*	*NE*	ND	ND	ND	ND	ND	ND	<0.0162	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	mg/kg	*7.3*	*33*	*300*	ND	ND	ND	ND	ND	ND	<0.00325	ND	ND	ND	ND	ND	ND	ND
Bromoform	mg/kg	*460*	*910*	*910*	ND	ND	ND	ND	ND	ND	<0.0325	ND	ND	ND	ND	ND	ND	ND
Bromomethane	mg/kg	*17*	*76*	*550*	ND	ND	ND	ND	ND	ND	<0.0162	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	mg/kg	*110 [6]*	*110 [6]*	*110 [6]*	ND	ND	ND	ND	ND	ND	<0.0162	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	mg/kg	*140 [6]*	*140 [6]*	*140 [6]*	ND	ND	ND	ND	ND	ND	<0.0162	ND	ND	**4.56**	ND	ND	ND	ND
tert-Butylbenzene	mg/kg	*180 [6]*	*180 [6]*	*180 [6]*	ND	ND	ND	ND	ND	ND	<0.00649	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	mg/kg	*16*	*74*	*460*	ND	ND	ND	ND	ND	ND	<0.00649	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	mg/kg	*660*	*760*	*760*	ND	ND	ND	ND	ND	ND	<0.00325	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	mg/kg	*130*	*800*	*800*	NT	NT	ND	ND	ND	ND	<0.00325	ND	ND	ND	ND	ND	ND	ND
Chloroethane	mg/kg	*2,100*	*2,100*	*2,100*	ND	ND	ND	ND	ND	ND	<0.00649	ND	ND	ND	ND	ND	ND	ND
Chloroform	mg/kg	*7.9*	*35*	*320*	ND	ND	ND	ND	ND	ND	<0.00325	ND	ND	ND	ND	ND	ND	ND
Chloromethane	mg/kg	*280*	*1,200*	*1,300*	ND	ND	ND	ND	ND	ND	<0.0162	ND	ND	ND	ND	ND	ND	ND
2-Chlorotoluene	mg/kg	*NE*	*NE*	*NE*	ND	ND	ND	ND	ND	ND	<0.00325	ND	ND	ND	ND	ND	ND	ND
4-Chlorotoluene	mg/kg	*NE*	*NE*	*NE*	ND	ND	ND	ND	ND	ND	<0.00649	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-Chloropropane	mg/kg	*0.37*	*1.6*	*15*	ND	ND	ND	ND	ND	ND	<0.0325	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	mg/kg	*0.89*	*4.2*	*39*	ND	ND	ND	ND	ND	ND	<0.00325	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	mg/kg	*59*	*250 [6]*	*870 [6]*	ND	ND	ND	ND	ND	ND	<0.00649	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	mg/kg	*380*	*380*	*380*	ND	ND	ND	ND	ND	ND	<0.00649	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	mg/kg	*NE*	*NE*	*NE*	ND	ND	ND	ND	ND	ND	<0.00649	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	mg/kg	*65*	*290*	*2,600*	ND	ND	ND	ND	ND	ND	<0.00649	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	mg/kg	*850*	*850*	*850*	ND	ND	ND	ND	ND	ND	<0.00325 J3	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	mg/kg	*89*	*390*	*1,700*	ND	ND	ND	ND	ND	ND	<0.00325	**0.0148**	**0.0707**	ND	ND	**1.82**	ND	ND
1,2-Dichloroethane (EDC)	mg/kg	*11*	*52*	*480*	ND	ND	ND	ND	ND	ND	<0.00325	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	mg/kg	*360*	*1,200*	*360*	ND	ND	ND	ND	ND	ND	<0.00325	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	mg/kg	*310*	*2,400*	*2,400*	ND	ND	ND	ND	ND	ND	<0.00325	ND	ND	ND	ND	**29.9**	ND	ND
trans-1,2-Dichloroethene	mg/kg	*1,900*	*1,900*	*1,900*	ND	ND	ND	ND	ND	ND	<0.00649	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	mg/kg	*39*	*170*	*180*	ND	ND	ND	ND	ND	ND	<0.00649	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloropropene	mg/kg	*NE*	*NE*	*NE*	ND	ND	ND	ND	ND	ND	<0.00325	ND	ND	ND	ND	ND	ND	ND
1,3-Dichloropropane	mg/kg	*1,500*	*1,500*	*1,500*	ND	ND	ND	ND	ND	ND	<0.00649	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	mg/kg	*NE*	*NE*	*NE*	ND	ND	ND	ND	ND	ND	<0.00325	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	mg/kg	*NE*	*NE*	*NE*	ND	ND	ND	ND	ND	ND	<0.00649	ND	ND	ND	ND	ND	ND	ND
2,2-Dichloropropane	mg/kg	*NE*	*NE*	*NE*	ND	ND	ND	ND	ND	ND	<0.00325	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	mg/kg	*140*	*480*	*480*	ND	ND	ND	ND	ND	ND	**0.00571 B**	**0.00602**	ND	ND	**4,010**	**2.16**	**2.96**	ND
Hexachloro-1,3-butadiene	mg/kg	*17*	*17*	*17*	ND	ND	ND	ND	ND	ND	<0.0325	ND	ND	ND	ND	ND	ND	ND
n-Hexane	mg/kg	*140*	*140*	*140*	ND	ND	ND	ND	ND	ND	<0.00649	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	mg/kg	*270*	*270*	*270*	ND	ND	ND	ND	ND	ND	<0.00325	ND	ND	ND	**453**	ND	**1.27**	ND
p-Isopropyltoluene	mg/kg	*160*	*260 [6]*	*260 [6]*	ND	ND	ND	ND	ND	ND	<0.00649	ND	ND	**23.7**	ND	ND	ND	ND
2-Butanone (MEK)	mg/kg	*28,000*	*28,000*	*28,000*	ND	ND	ND	ND	ND	ND	<0.130	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	mg/kg	*740*	*3,300*	*3,300*	ND	ND	ND	ND	ND	ND	<0.0325	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	mg/kg	*3,400*	*3,400*	*3,400*	ND	ND	ND	ND	ND	ND	<0.0325	ND	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether (MTBE)	mg/kg	*1,100*	*5,400*	*8,900*	ND	ND	ND	ND	ND	ND	<0.00130	ND	ND	ND	ND	ND	ND	ND
Naphthalene	mg/kg	*96*	*420*	*560*	**0.145**	**0.0285**	ND	ND	ND	ND	**0.0171**	ND	ND	**1.62**	ND	ND	**0.673**	ND
n-Propylbenzene	mg/kg	*260 [6]*	*260 [6]*	*260 [6]*	ND	ND	ND	ND	ND	ND	**0.00156 J**	ND	ND	ND	ND	ND	ND	ND
Styrene	mg/kg	*870*	*870*	*870*	ND	ND	ND	ND	ND	ND	**0.00117 B J**	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	mg/kg	*49*	*230*	*680*	ND	ND	ND	ND	ND	ND	<0.00325	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	mg/kg	*15*	*71*	*670*	ND	ND	ND	ND	ND	ND	<0.00325	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	mg/kg	*170*	*170*	*170*	**0.0194**	**0.00714**	ND	ND	ND	ND	<0.00325	ND	ND	**8.13**	ND	ND	ND	**0.00522**
Toluene	mg/kg	*820*	*820*	*820*	ND	ND	ND	ND	ND	ND	**0.00283 J**	**0.00554**	ND	ND	**204**	ND	ND	ND
1,2,3-Trichlorobenzene	mg/kg	*NE*	*NE*	*NE*	ND	ND	ND	ND	ND	ND	<0.0162	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	mg/kg	*140*	*400*	*400*	ND	ND	ND	ND	ND	ND	<0.0162	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	mg/kg	*640*	*640*	*640*	ND	ND	ND	ND	ND	ND	<0.00325	ND	**0.48**	**1.94**	ND	**337**	**1.77**	ND
1,1,2-Trichloroethane	mg/kg	*28*	*130*	*1,200*	ND	ND	ND	ND	ND	ND	<0.00325	ND	ND	ND	ND	ND	ND	ND
Trichloroethene (TCE)	mg/kg	*10*	*48*	*17*	ND	ND	ND	**0.0128**	ND	ND	<0.00130	ND	ND	ND	ND	**16.1**	ND	ND
Trichlorofluoromethane	mg/kg	*1,200*	*1,200*	*1,200*	ND	ND	ND	ND	ND	ND	<0.00325 J3	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	mg/kg	*0.1*	*4.4*	*19*	ND	ND	ND	ND	ND	ND	<0.0162	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	mg/kg	*220*	*220*	*220*	ND	ND	ND	ND	ND	ND	**0.00439 J**	ND	ND	**26.3**	ND	**2.06**	**3.26**	ND
1,3,5-Trimethylbenzene	mg/kg	*180*	*180*	*180*	ND	ND	ND	ND	ND	ND	<0.00649	ND	ND	**31.6**	ND	**1.13**	**1.56**	ND

Table 4A: Summary of VOCs in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

					IA-07			IA-08			IA-09							
Sample ID (Depth[1])		*Applicable Standards*			**IA-7-01 (2-4) ***	**IA-7-02 (0-2) ***	**IA-7-02 (2-4) ***	**B-15 (0-2) ***	**IA-8-01 (0-2) ***	**IA-8-02 (0-2)***	**P4-IA09-SB01 (0-2)**	**B-23 (8-10) ***	**B-24 (8-10) ***	**B-25 (0-2) ***	**B-26 (4-6) ***	**B-27 (4-6) ***	**B-28 (2-4) ***	**B-45 (0-2) ***
Collection Date		*GDCS Residential Land Use [3]*	*GDCS Commercial/ Industrial Land Use [4]*	*GDCS Construction & Excavation Activities [5]*	11/13/2008	11/13/2008	11/13/2008	3/28/2000	11/13/2008	11/13/2008	6/13/2023	5/24/2000	5/24/2000	5/24/2000	5/24/2000	5/24/2000	5/24/2000	5/30/2001
Parameter	**Units [2]**				Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Volatile Organic Compounds - VOCs																		
Vinyl chloride	mg/kg	*1.3*	*49*	*280*	ND	ND	ND	ND	ND	ND	<0.00325	ND	ND	ND	ND	ND	ND	ND
Xylenes, Total	mg/kg	*260*	*260*	*260*	ND	ND	ND	ND	ND	ND	**0.0325**	**0.02596**	ND	ND	**20,260**	**0.00885**	**87.50**	ND

Notes

1. FT - Feet below grade
2. mg/kg = Milligrams per kilogram - parts per million (ppm)
3. Ohio VAP GDCS Residential Land Use.
4. Ohio VAP GDCS Commercial/Industrial Land Use.
5. Ohio VAP GDCS Construction/Excavation Activities.
6. Supplemental standards from the Ohio VAP CIDARS

NE: No standard established by applicable agency

Bold numbers indicate a concentration above laboratory detection limits.

Bold and shaded numbers indicate a detected concentration above a comparison standard. If exceeding more than one standard, th

*** :** Samples collected by HzW

ND : No Detections

NT : Not tested

Table 4A: Summary of VOCs in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

Sample ID (Depth[1])		Applicable Standards			IA-09								IA-10				IA-11	
					B-46 (2-4) *	IA-9-B-01 (0-2) *	IA-9-B-01 (4-6) *	IA-9-B-02 (0-2) *	IA-9-B-02 (2-4) *	IA-9-B-03 (4-6) *	IA-9-B-04 (0-2) *	IA-9-B-04- (6-8) *	B-29 (2-4) *	IA-10-B-01 (0-2) *	IA-10-B-01 (6-8)	B-IA-10-02 (0-2) *	P4-IA11-MW01 (0-2)	B-08 (8-10) *
Collection Date		*GDCS Residential Land Use* [3]	*GDCS Commercial/ Industrial Land Use* [4]	*GDCS Construction & Excavation Activities* [5]	5/30/2001	6/16/2004	6/16/2004	6/16/2004	6/16/2004	6/16/2024	6/16/2004	6/16/2004	5/25/2000	6/16/2004	6/16/2004	6/11/2004	6/13/2023	3/24/2000
Parameter	**Units** [2]				Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Volatile Organic Compounds - VOCs																		
Acetone	mg/kg	*110,000*	*110,000*	*110,000*	ND	ND	ND	ND	ND	ND	ND	ND	**0.581**	ND	ND	ND	<0.0694	ND
Acrylonitrile	mg/kg	*6.1*	*30*	*62*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.0174	ND
Benzene	mg/kg	*28*	*130*	*1,200*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.00111 J**	ND
Bromobenzene	mg/kg	*NE*	*NE*	*NE*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.0174	ND
Bromodichloromethane	mg/kg	*7.3*	*33*	*300*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00347	ND
Bromoform	mg/kg	*460*	*910*	*910*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.0347	ND
Bromomethane	mg/kg	*17*	*76*	*550*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.0174	ND
n-Butylbenzene	mg/kg	*110* [6]	*110* [6]	*110* [6]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.0174	ND
sec-Butylbenzene	mg/kg	*140* [6]	*140* [6]	*140* [6]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.0174	ND
tert-Butylbenzene	mg/kg	*180* [6]	*180* [6]	*180* [6]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00694	ND
Carbon tetrachloride	mg/kg	*16*	*74*	*460*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00694	ND
Chlorobenzene	mg/kg	*660*	*760*	*760*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00347	ND
Chlorodibromomethane	mg/kg	*130*	*800*	*800*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00347	ND
Chloroethane	mg/kg	*2,100*	*2,100*	*2,100*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00694	ND
Chloroform	mg/kg	*7.9*	*35*	*320*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00347	ND
Chloromethane	mg/kg	*280*	*1,200*	*1,300*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.0174	ND
2-Chlorotoluene	mg/kg	*NE*	*NE*	*NE*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00347	ND
4-Chlorotoluene	mg/kg	*NE*	*NE*	*NE*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00694	ND
1,2-Dibromo-3-Chloropropane	mg/kg	*0.37*	*1.6*	*15*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.0347	ND
1,2-Dibromoethane (EDB)	mg/kg	*0.89*	*4.2*	*39*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00347	ND
Dibromomethane	mg/kg	*59*	*250* [6]	*870* [6]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00694	ND
1,2-Dichlorobenzene	mg/kg	*380*	*380*	*380*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00694	ND
1,3-Dichlorobenzene	mg/kg	*NE*	*NE*	*NE*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00694	ND
1,4-Dichlorobenzene	mg/kg	*65*	*290*	*2,600*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00694	ND
Dichlorodifluoromethane	mg/kg	*850*	*850*	*850*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00347 J3	ND
1,1-Dichloroethane	mg/kg	*89*	*390*	*1,700*	ND	**0.00523**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00347	ND
1,2-Dichloroethane (EDC)	mg/kg	*11*	*52*	*480*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00347	ND
1,1-Dichloroethene	mg/kg	*360*	*1,200*	*360*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00347	ND
cis-1,2-Dichloroethene	mg/kg	*310*	*2,400*	*2,400*	ND	**0.026**	**0.729**	ND	ND	ND	ND	ND	ND	ND	ND	**1.15**	**0.0229**	ND
trans-1,2-Dichloroethene	mg/kg	*1,900*	*1,900*	*1,900*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.00185 J**	ND
1,2-Dichloropropane	mg/kg	*39*	*170*	*180*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00694	ND
1,1-Dichloropropene	mg/kg	*NE*	*NE*	*NE*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00347	ND
1,3-Dichloropropane	mg/kg	*1,500*	*1,500*	*1,500*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00694	ND
cis-1,3-Dichloropropene	mg/kg	*NE*	*NE*	*NE*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00347	ND
trans-1,3-Dichloropropene	mg/kg	*NE*	*NE*	*NE*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00694	ND
2,2-Dichloropropane	mg/kg	*NE*	*NE*	*NE*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00347	ND
Ethylbenzene	mg/kg	*140*	*480*	*480*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.00511 B**	ND
Hexachloro-1,3-butadiene	mg/kg	*17*	*17*	*17*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.0347	ND
n-Hexane	mg/kg	*140*	*140*	*140*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.00546 B J**	ND
Isopropylbenzene	mg/kg	*270*	*270*	*270*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.00407**	ND
p-Isopropyltoluene	mg/kg	*160*	*260* [6]	*260* [6]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00694	ND
2-Butanone (MEK)	mg/kg	*28,000*	*28,000*	*28,000*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.139	ND
Methylene Chloride	mg/kg	*740*	*3,300*	*3,300*	ND	ND	**0.665**	ND	**0.0357**	ND	ND	**0.00901**	ND	**0.0104**	ND	**1.34**	**0.0111**	ND
4-Methyl-2-pentanone (MIBK)	mg/kg	*3,400*	*3,400*	*3,400*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.0347	ND
Methyl tert-butyl ether (MTBE)	mg/kg	*1,100*	*5,400*	*8,900*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00139	ND
Naphthalene	mg/kg	*96*	*420*	*560*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.0406**	ND
n-Propylbenzene	mg/kg	*260* [6]	*260* [6]	*260* [6]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.00511**	ND
Styrene	mg/kg	*870*	*870*	*870*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.00139**	ND
1,1,1,2-Tetrachloroethane	mg/kg	*49*	*230*	*680*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00347	ND
1,1,2,2-Tetrachloroethane	mg/kg	*15*	*71*	*670*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00347	ND
Tetrachloroethene (PCE)	mg/kg	*170*	*170*	*170*	**0.0745**	ND	ND	ND	ND	**0.00911**	ND	ND	ND	ND	ND	ND	<0.00347	ND
Toluene	mg/kg	*820*	*820*	*820*	ND	**0.00645**	**0.926**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.00778**	ND
1,2,3-Trichlorobenzene	mg/kg	*NE*	*NE*	*NE*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.0174	ND
1,2,4-Trichlorobenzene	mg/kg	*140*	*400*	*400*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.0174	ND
1,1,1-Trichloroethane	mg/kg	*640*	*640*	*640*	ND	ND	ND	ND	ND	ND	**0.0204**	ND	ND	ND	ND	**0.958**	<0.00347	ND
1,1,2-Trichloroethane	mg/kg	*28*	*130*	*1,200*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00347	ND
Trichloroethene (TCE)	mg/kg	*10*	*48*	*17*	ND	ND	ND	ND	ND	ND	**0.0076**	ND	ND	ND	ND	**20**	**0.00157**	ND
Trichlorofluoromethane	mg/kg	*1,200*	*1,200*	*1,200*	ND	**0.0291**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00347 J3	ND
1,2,3-Trichloropropane	mg/kg	*0.1*	*4.4*	*19*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.0174	ND
1,2,4-Trimethylbenzene	mg/kg	*220*	*220*	*220*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.0242**	ND
1,3,5-Trimethylbenzene	mg/kg	*180*	*180*	*180*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.0066 J**	ND

Table 4A: Summary of VOCs in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

					IA-09								IA-10				IA-11	
Sample ID (Depth[1])		*Applicable Standards*			**B-46 (2-4) ***	**IA-9-B-01 (0-2) ***	**IA-9-B-01 (4-6) ***	**IA-9-B-02 (0-2) ***	**IA-9-B-02 (2-4) ***	**IA-9-B-03 (4-6) ***	**IA-9-B-04 (0-2) ***	**IA-9-B-04-(6-8) ***	**B-29 (2-4) ***	**IA-10-B-01 (0-2) ***	**IA-10-B-01 (6-8)**	**B-IA-10-02 (0-2) ***	**P4-IA11-MW01 (0-2)**	**B-08 (8-10) ***
Collection Date		*GDCS Residential Land Use [3]*	*GDCS Commercial/ Industrial Land Use [4]*	*GDCS Construction & Excavation Activities [5]*	5/30/2001	6/16/2004	6/16/2004	6/16/2004	6/16/2004	6/16/2024	6/16/2004	6/16/2004	5/25/2000	6/16/2004	6/16/2004	6/11/2004	6/13/2023	3/24/2000
Parameter	**Units [2]**				Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Volatile Organic Compounds - VOCs																		
Vinyl chloride	mg/kg	*1.3*	*49*	*280*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00347	ND
Xylenes, Total	mg/kg	*260*	*260*	*260*	ND	ND	**0.866**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.0375**	ND

Notes

1. FT - Feet below grade
2. mg/kg = Milligrams per kilogram - parts per million (ppm)
3. Ohio VAP GDCS Residential Land Use.
4. Ohio VAP GDCS Commercial/Industrial Land Use.
5. Ohio VAP GDCS Construction/Excavation Activities.
6. Supplemental standards from the Ohio VAP CIDARS

NE: No standard established by applicable agency

Bold numbers indicate a concentration above laboratory detection limits.

Bold and shaded numbers indicate a detected concentration above a comparison standard. If exceeding more than one standard, th

*** :** Samples collected by HzW

ND : No Detections

NT : Not tested

Table 4A: Summary of VOCs in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

					IA-11						IA-12							
Sample ID (Depth[1])		*Applicable Standards*			**B-13 (4-5) ***	**B-14 (4-6) ***	**B-IA-11-01 (0-2) ***	**B-IA-11-01 (4-6) ***	**B-IA-11-02 (0-2) ***	**B-IA-11-02 (6-7) ***	**P4-IA12-SB01 (4-6)**	**B-06 (8-10) ***	**B-07 (8-10) ***	**B-09 (8-10) ***	**B-10 (4-6) ***	**B-11 (4-6) ***	**B-16 (8-10 ***	**B-IA-12-02 (0-2) ***
Collection Date		*GDCS Residential Land Use [3]*	*GDCS Commercial/ Industrial Land Use [4]*	*GDCS Construction & Excavation Activities [5]*	3/28/2000	3/28/2000	6/11/2004	6/11/2004	6/11/2004	6/11/2004	6/13/2023	3/24/2000	3/24/2000	3/24/2000	3/28/2000	3/28/2000	3/29/2000	6/11/2004
Parameter	**Units [2]**				Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Volatile Organic Compounds - VOCs																		
Acetone	mg/kg	*110,000*	*110,000*	*110,000*	ND	ND	NT	NT	NT	NT	**0.129**	ND	ND	ND	ND	ND	ND	NT
Acrylonitrile	mg/kg	*6.1*	*30*	*62*	ND	ND	NT	NT	NT	NT	<0.0174	ND	ND	ND	ND	ND	ND	NT
Benzene	mg/kg	*28*	*130*	*1,200*	ND	ND	NT	NT	NT	NT	<0.00140	ND	ND	ND	ND	ND	ND	NT
Bromobenzene	mg/kg	*NE*	*NE*	*NE*	ND	ND	NT	NT	NT	NT	<0.0174	ND	ND	ND	ND	ND	ND	NT
Bromodichloromethane	mg/kg	*7.3*	*33*	*300*	ND	ND	NT	NT	NT	NT	<0.00349	ND	ND	ND	ND	ND	ND	NT
Bromoform	mg/kg	*460*	*910*	*910*	ND	ND	NT	NT	NT	NT	<0.0349	ND	ND	ND	ND	ND	ND	NT
Bromomethane	mg/kg	*17*	*76*	*550*	ND	ND	NT	NT	NT	NT	<0.0174	ND	ND	ND	ND	ND	ND	NT
n-Butylbenzene	mg/kg	*110 [6]*	*110 [6]*	*110 [6]*	ND	ND	NT	NT	NT	NT	**0.0871**	ND	ND	ND	ND	ND	ND	NT
sec-Butylbenzene	mg/kg	*140 [6]*	*140 [6]*	*140 [6]*	ND	ND	NT	NT	NT	NT	**0.0656**	ND	ND	ND	ND	ND	ND	NT
tert-Butylbenzene	mg/kg	*180 [6]*	*180 [6]*	*180 [6]*	ND	ND	NT	NT	NT	NT	<0.00698	ND	ND	ND	ND	ND	ND	NT
Carbon tetrachloride	mg/kg	*16*	*74*	*460*	ND	ND	NT	NT	NT	NT	<0.00698	ND	ND	ND	ND	ND	ND	NT
Chlorobenzene	mg/kg	*660*	*760*	*760*	ND	ND	NT	NT	NT	NT	<0.00349	ND	ND	ND	ND	ND	ND	NT
Chlorodibromomethane	mg/kg	*130*	*800*	*800*	ND	ND	NT	NT	NT	NT	<0.00349	ND	ND	ND	ND	ND	ND	NT
Chloroethane	mg/kg	*2,100*	*2,100*	*2,100*	ND	ND	NT	NT	NT	NT	<0.00698	ND	ND	ND	ND	ND	ND	NT
Chloroform	mg/kg	*7.9*	*35*	*320*	ND	ND	NT	NT	NT	NT	<0.00349	ND	ND	ND	ND	ND	ND	NT
Chloromethane	mg/kg	*280*	*1,200*	*1,300*	ND	ND	NT	NT	NT	NT	<0.0174	ND	ND	ND	ND	ND	ND	NT
2-Chlorotoluene	mg/kg	*NE*	*NE*	*NE*	ND	ND	NT	NT	NT	NT	<0.00349	ND	ND	ND	ND	ND	ND	NT
4-Chlorotoluene	mg/kg	*NE*	*NE*	*NE*	ND	ND	NT	NT	NT	NT	<0.00698	ND	ND	ND	ND	ND	ND	NT
1,2-Dibromo-3-Chloropropane	mg/kg	*0.37*	*1.6*	*15*	ND	ND	NT	NT	NT	NT	<0.0349	ND	ND	ND	ND	ND	ND	NT
1,2-Dibromoethane (EDB)	mg/kg	*0.89*	*4.2*	*39*	ND	ND	NT	NT	NT	NT	<0.00349	ND	ND	ND	ND	ND	ND	NT
Dibromomethane	mg/kg	*59*	*250 [6]*	*870 [6]*	ND	ND	NT	NT	NT	NT	<0.00698	ND	ND	ND	ND	ND	ND	NT
1,2-Dichlorobenzene	mg/kg	*380*	*380*	*380*	ND	ND	NT	NT	NT	NT	**0.00506 J**	ND	ND	ND	ND	ND	ND	NT
1,3-Dichlorobenzene	mg/kg	*NE*	*NE*	*NE*	ND	ND	NT	NT	NT	NT	<0.00698	ND	ND	ND	ND	ND	ND	NT
1,4-Dichlorobenzene	mg/kg	*65*	*290*	*2,600*	ND	ND	NT	NT	NT	NT	**0.00146 J**	ND	ND	ND	ND	ND	ND	NT
Dichlorodifluoromethane	mg/kg	*850*	*850*	*850*	ND	ND	NT	NT	NT	NT	<0.00349 J3	ND	ND	ND	ND	ND	ND	NT
1,1-Dichloroethane	mg/kg	*89*	*390*	*1,700*	ND	ND	NT	NT	NT	NT	<0.00349	ND	ND	ND	ND	ND	ND	NT
1,2-Dichloroethane (EDC)	mg/kg	*11*	*52*	*480*	ND	ND	NT	NT	NT	NT	<0.00349	ND	ND	ND	ND	ND	ND	NT
1,1-Dichloroethene	mg/kg	*360*	*1,200*	*360*	ND	ND	NT	NT	NT	NT	<0.00349	ND	ND	ND	ND	ND	ND	NT
cis-1,2-Dichloroethene	mg/kg	*310*	*2,400*	*2,400*	ND	ND	NT	NT	NT	NT	**0.388**	ND	ND	ND	ND	ND	ND	NT
trans-1,2-Dichloroethene	mg/kg	*1,900*	*1,900*	*1,900*	ND	ND	NT	NT	NT	NT	<0.00698	ND	ND	ND	ND	ND	ND	NT
1,2-Dichloropropane	mg/kg	*39*	*170*	*180*	ND	ND	NT	NT	NT	NT	<0.00698	ND	ND	ND	ND	ND	ND	NT
1,1-Dichloropropene	mg/kg	*NE*	*NE*	*NE*	ND	ND	NT	NT	NT	NT	<0.00349	ND	ND	ND	ND	ND	ND	NT
1,3-Dichloropropane	mg/kg	*1,500*	*1,500*	*1,500*	ND	ND	NT	NT	NT	NT	<0.00698	ND	ND	ND	ND	ND	ND	NT
cis-1,3-Dichloropropene	mg/kg	*NE*	*NE*	*NE*	ND	ND	NT	NT	NT	NT	<0.00349	ND	ND	ND	ND	ND	ND	NT
trans-1,3-Dichloropropene	mg/kg	*NE*	*NE*	*NE*	ND	ND	NT	NT	NT	NT	<0.00698	ND	ND	ND	ND	ND	ND	NT
2,2-Dichloropropane	mg/kg	*NE*	*NE*	*NE*	ND	ND	NT	NT	NT	NT	<0.00349	ND	ND	ND	ND	ND	ND	NT
Ethylbenzene	mg/kg	*140*	*480*	*480*	ND	ND	NT	NT	NT	NT	**0.0522**	ND	ND	ND	ND	**0.693**	ND	NT
Hexachloro-1,3-butadiene	mg/kg	*17*	*17*	*17*	ND	ND	NT	NT	NT	NT	**0.0449**	ND	ND	ND	ND	ND	ND	NT
n-Hexane	mg/kg	*140*	*140*	*140*	ND	ND	NT	NT	NT	NT	<0.00698	ND	ND	ND	ND	ND	ND	NT
Isopropylbenzene	mg/kg	*270*	*270*	*270*	ND	ND	NT	NT	NT	NT	**0.0137**	ND	ND	ND	ND	ND	ND	NT
p-Isopropyltoluene	mg/kg	*160*	*260 [6]*	*260 [6]*	ND	ND	NT	NT	NT	NT	**0.0893**	ND	ND	ND	ND	ND	ND	NT
2-Butanone (MEK)	mg/kg	*28,000*	*28,000*	*28,000*	ND	ND	NT	NT	NT	NT	<0.140	ND	ND	ND	ND	ND	ND	NT
Methylene Chloride	mg/kg	*740*	*3,300*	*3,300*	ND	ND	NT	NT	NT	NT	<0.0349	ND	ND	ND	ND	ND	ND	NT
4-Methyl-2-pentanone (MIBK)	mg/kg	*3,400*	*3,400*	*3,400*	ND	ND	NT	NT	NT	NT	<0.0349	ND	ND	ND	ND	ND	ND	NT
Methyl tert-butyl ether (MTBE)	mg/kg	*1,100*	*5,400*	*8,900*	ND	ND	ND	ND	ND	ND	<0.00140	ND	ND	ND	ND	ND	ND	ND
Naphthalene	mg/kg	*96*	*420*	*560*	ND	ND	NT	NT	NT	NT	**0.0107 J**	ND	ND	ND	ND	ND	ND	NT
n-Propylbenzene	mg/kg	*260 [6]*	*260 [6]*	*260 [6]*	ND	ND	NT	NT	NT	NT	**0.0193**	ND	ND	ND	ND	ND	ND	NT
Styrene	mg/kg	*870*	*870*	*870*	ND	ND	NT	NT	NT	NT	**0.00105 B J**	ND	ND	ND	ND	ND	ND	NT
1,1,1,2-Tetrachloroethane	mg/kg	*49*	*230*	*680*	ND	ND	NT	NT	NT	NT	<0.00349	ND	ND	ND	ND	ND	ND	NT
1,1,2,2-Tetrachloroethane	mg/kg	*15*	*71*	*670*	ND	ND	NT	NT	NT	NT	**0.109**	ND	ND	ND	ND	ND	ND	NT
Tetrachloroethene (PCE)	mg/kg	*170*	*170*	*170*	**0.0633**	ND	NT	NT	NT	NT	**0.0198**	ND	ND	ND	ND	ND	ND	NT
Toluene	mg/kg	*820*	*820*	*820*	ND	ND	NT	NT	NT	NT	**0.0269**	ND	ND	ND	ND	ND	ND	NT
1,2,3-Trichlorobenzene	mg/kg	*NE*	*NE*	*NE*	ND	ND	NT	NT	NT	NT	<0.0174	ND	ND	ND	ND	ND	ND	NT
1,2,4-Trichlorobenzene	mg/kg	*140*	*400*	*400*	ND	ND	NT	NT	NT	NT	<0.0174	ND	ND	ND	ND	ND	ND	NT
1,1,1-Trichloroethane	mg/kg	*640*	*640*	*640*	ND	ND	NT	NT	NT	NT	<0.00349	ND	ND	ND	ND	ND	ND	NT
1,1,2-Trichloroethane	mg/kg	*28*	*130*	*1,200*	ND	ND	NT	NT	NT	NT	<0.00349	ND	ND	ND	ND	ND	ND	NT
Trichloroethene (TCE)	mg/kg	*10*	*48*	*17*	ND	ND	NT	NT	NT	NT	**0.00393**	ND	ND	ND	ND	ND	ND	NT
Trichlorofluoromethane	mg/kg	*1,200*	*1,200*	*1,200*	**0.0152**	ND	NT	NT	NT	NT	<0.00349 J3	ND	ND	ND	ND	ND	ND	NT
1,2,3-Trichloropropane	mg/kg	*0.1*	*4.4*	*19*	ND	ND	NT	NT	NT	NT	<0.0174	ND	ND	ND	ND	ND	ND	NT
1,2,4-Trimethylbenzene	mg/kg	*220*	*220*	*220*	ND	ND	NT	NT	NT	NT	**0.251**	ND	ND	ND	**0.98**	ND	ND	NT
1,3,5-Trimethylbenzene	mg/kg	*180*	*180*	*180*	ND	ND	NT	NT	NT	NT	**0.0868**	ND	ND	ND	ND	ND	ND	NT

Table 4A: Summary of VOCs in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

					IA-11						IA-12							
Sample ID (Depth[1])		*Applicable Standards*			**B-13 (4-5) ***	**B-14 (4-6) ***	**B-IA-11-01 (0-2) ***	**B-IA-11-01 (4-6) ***	**B-IA-11-02 (0-2) ***	**B-IA-11-02 (6-7) ***	**P4-IA12-SB01 (4-6)**	**B-06 (8-10) ***	**B-07 (8-10) ***	**B-09 (8-10) ***	**B-10 (4-6) ***	**B-11 (4-6) ***	**B-16 (8-10 ***	**B-IA-12-02 (0-2) ***
Collection Date		*GDCS Residential Land Use [3]*	*GDCS Commercial/ Industrial Land Use [4]*	*GDCS Construction & Excavation Activities [5]*	3/28/2000	3/28/2000	6/11/2004	6/11/2004	6/11/2004	6/11/2004	6/13/2023	3/24/2000	3/24/2000	3/24/2000	3/28/2000	3/28/2000	3/29/2000	6/11/2004
Parameter	**Units [2]**				Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Volatile Organic Compounds - VOCs																		
Vinyl chloride	mg/kg	*1.3*	*49*	*280*	ND	ND	NT	NT	NT	NT	<0.00349	ND	ND	ND	ND	ND	ND	NT
Xylenes, Total	mg/kg	*260*	*260*	*260*	ND	**1.81**	NT	NT	NT	NT	**0.324**	ND	ND	ND	**6.36**	**4.17**	ND	NT

Notes

1. FT - Feet below grade
2. mg/kg = Milligrams per kilogram - parts per million (ppm)
3. Ohio VAP GDCS Residential Land Use.
4. Ohio VAP GDCS Commercial/Industrial Land Use.
5. Ohio VAP GDCS Construction/Excavation Activities.
6. Supplemental standards from the Ohio VAP CIDARS

NE: No standard established by applicable agency

Bold numbers indicate a concentration above laboratory detection limits.

Bold and shaded numbers indicate a detected concentration above a comparison standard. If exceeding more than one standard, th

*** :** Samples collected by HzW

ND : No Detections

NT : Not tested

Table 4A: Summary of VOCs in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

					IA-12	IA-13			IA-14									
Sample ID (Depth[1])		*Applicable Standards*			**B-IA-12-01 (4-6) ***	**B-38 (13-15) ***	**B-39 (14-16) ***	**B-40 (13-15) ***	**P4-IA14-SB01 (0-2)**	**P4-IA14-SB02 (2-4)**	**P4-IA14-SB03 (0-2)**	**B-41 (2-4) ***	**B-41A (0-2) ***	**B-41A (2-4) ***	**B-41A (4-6) ***	**B-42 (2-4) ***	**B-42A (0-2) ***	**B-42A (2-4) ***
Collection Date		*GDCS Residential Land Use [3]*	*GDCS Commercial/ Industrial Land Use [4]*	*GDCS Construction & Excavation Activities [5]*	6/11/2004	5/30/2001	5/30/2001	5/30/2001	6/13/2023	6/13/2023	6/19/2023	5/30/2001	6/10/2004	6/10/2004	6/10/2004	5/30/2001	6/10/2004	6/10/2004
Parameter	**Units [2]**				Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Volatile Organic Compounds - VOCs																		
Acetone	mg/kg	*110,000*	*110,000*	*110,000*	NT	NT	NT	NT	<0.0745	<0.0697	<0.0635	NT	NT	NT	NT	NT	NT	NT
Acrylonitrile	mg/kg	*6.1*	*30*	*62*	NT	NT	NT	NT	<0.0186	<0.0174	<0.0159	NT	NT	NT	NT	NT	NT	NT
Benzene	mg/kg	*28*	*130*	*1,200*	NT	ND	ND	ND	**0.00119 J**	**0.000898 J**	<0.00127	ND	NT	NT	NT	ND	NT	NT
Bromobenzene	mg/kg	*NE*	*NE*	*NE*	NT	NT	NT	NT	<0.0186	<0.0174	<0.0159	NT	NT	NT	NT	NT	NT	NT
Bromodichloromethane	mg/kg	*7.3*	*33*	*300*	NT	NT	NT	NT	<0.00373	<0.00349	<0.00317	NT	NT	NT	NT	NT	NT	NT
Bromoform	mg/kg	*460*	*910*	*910*	NT	NT	NT	NT	<0.0373	<0.0349	<0.0317	NT	NT	NT	NT	NT	NT	NT
Bromomethane	mg/kg	*17*	*76*	*550*	NT	NT	NT	NT	<0.0186	<0.0174	<0.0159	NT	NT	NT	NT	NT	NT	NT
n-Butylbenzene	mg/kg	*110 [6]*	*110 [6]*	*110 [6]*	NT	NT	NT	NT	<0.0186	<0.0174	<0.0159	NT	NT	NT	NT	NT	NT	NT
sec-Butylbenzene	mg/kg	*140 [6]*	*140 [6]*	*140 [6]*	NT	NT	NT	NT	<0.0186	<0.0174	<0.0159	NT	NT	NT	NT	NT	NT	NT
tert-Butylbenzene	mg/kg	*180 [6]*	*180 [6]*	*180 [6]*	NT	NT	NT	NT	<0.00745	<0.00697	<0.00635	NT	NT	NT	NT	NT	NT	NT
Carbon tetrachloride	mg/kg	*16*	*74*	*460*	NT	NT	NT	NT	<0.00745	<0.00697	<0.00635	NT	NT	NT	NT	NT	NT	NT
Chlorobenzene	mg/kg	*660*	*760*	*760*	NT	NT	NT	NT	<0.00373	<0.00349	<0.00317	NT	NT	NT	NT	NT	NT	NT
Chlorodibromomethane	mg/kg	*130*	*800*	*800*	NT	NT	NT	NT	<0.00373	<0.00349	<0.00317	NT	NT	NT	NT	NT	NT	NT
Chloroethane	mg/kg	*2,100*	*2,100*	*2,100*	NT	NT	NT	NT	<0.00745	<0.00697	<0.00635	NT	NT	NT	NT	NT	NT	NT
Chloroform	mg/kg	*7.9*	*35*	*320*	NT	NT	NT	NT	<0.00373	<0.00349	<0.00317	NT	NT	NT	NT	NT	NT	NT
Chloromethane	mg/kg	*280*	*1,200*	*1,300*	NT	NT	NT	NT	<0.0186	<0.0174	<0.0159	NT	NT	NT	NT	NT	NT	NT
2-Chlorotoluene	mg/kg	*NE*	*NE*	*NE*	NT	NT	NT	NT	<0.00373	<0.00349	<0.00317	NT	NT	NT	NT	NT	NT	NT
4-Chlorotoluene	mg/kg	*NE*	*NE*	*NE*	NT	NT	NT	NT	<0.00745	<0.00697	<0.00635	NT	NT	NT	NT	NT	NT	NT
1,2-Dibromo-3-Chloropropane	mg/kg	*0.37*	*1.6*	*15*	NT	NT	NT	NT	<0.0373	<0.0349	<0.0317	NT	NT	NT	NT	NT	NT	NT
1,2-Dibromoethane (EDB)	mg/kg	*0.89*	*4.2*	*39*	NT	NT	NT	NT	<0.00373	<0.00349	<0.00317	NT	NT	NT	NT	NT	NT	NT
Dibromomethane	mg/kg	*59*	*250 [6]*	*870 [6]*	NT	NT	NT	NT	<0.00745	<0.00697	<0.00635	NT	NT	NT	NT	NT	NT	NT
1,2-Dichlorobenzene	mg/kg	*380*	*380*	*380*	NT	NT	NT	NT	<0.00745	<0.00697	<0.00635	NT	NT	NT	NT	NT	NT	NT
1,3-Dichlorobenzene	mg/kg	*NE*	*NE*	*NE*	NT	NT	NT	NT	<0.00745	<0.00697	<0.00635	NT	NT	NT	NT	NT	NT	NT
1,4-Dichlorobenzene	mg/kg	*65*	*290*	*2,600*	NT	NT	NT	NT	<0.00745	<0.00697	<0.00635	NT	NT	NT	NT	NT	NT	NT
Dichlorodifluoromethane	mg/kg	*850*	*850*	*850*	NT	NT	NT	NT	<0.00373 J3	<0.00349 J3	<0.00317	NT	NT	NT	NT	NT	NT	NT
1,1-Dichloroethane	mg/kg	*89*	*390*	*1,700*	NT	NT	NT	NT	<0.00373	<0.00349	<0.00317	NT	NT	NT	NT	NT	NT	NT
1,2-Dichloroethane (EDC)	mg/kg	*11*	*52*	*480*	NT	NT	NT	NT	<0.00373	<0.00349	<0.00317	NT	NT	NT	NT	NT	NT	NT
1,1-Dichloroethene	mg/kg	*360*	*1,200*	*360*	NT	NT	NT	NT	<0.00373	<0.00349	<0.00317	NT	NT	NT	NT	NT	NT	NT
cis-1,2-Dichloroethene	mg/kg	*310*	*2,400*	*2,400*	NT	NT	NT	NT	**0.00149 J**	<0.00349	<0.00317	NT	NT	NT	NT	NT	NT	NT
trans-1,2-Dichloroethene	mg/kg	*1,900*	*1,900*	*1,900*	NT	NT	NT	NT	<0.00745	<0.00697	<0.00635	NT	NT	NT	NT	NT	NT	NT
1,2-Dichloropropane	mg/kg	*39*	*170*	*180*	NT	NT	NT	NT	<0.00745	<0.00697	<0.00635	NT	NT	NT	NT	NT	NT	NT
1,1-Dichloropropene	mg/kg	*NE*	*NE*	*NE*	NT	NT	NT	NT	<0.00373	<0.00349	<0.00317	NT	NT	NT	NT	NT	NT	NT
1,3-Dichloropropane	mg/kg	*1,500*	*1,500*	*1,500*	NT	NT	NT	NT	<0.00745	<0.00697	<0.00635	NT	NT	NT	NT	NT	NT	NT
cis-1,3-Dichloropropene	mg/kg	*NE*	*NE*	*NE*	NT	NT	NT	NT	<0.00373	<0.00349	<0.00317	NT	NT	NT	NT	NT	NT	NT
trans-1,3-Dichloropropene	mg/kg	*NE*	*NE*	*NE*	NT	NT	NT	NT	<0.00745	<0.00697	<0.00635	NT	NT	NT	NT	NT	NT	NT
2,2-Dichloropropane	mg/kg	*NE*	*NE*	*NE*	NT	NT	NT	NT	<0.00373	<0.00349	<0.00317	NT	NT	NT	NT	NT	NT	NT
Ethylbenzene	mg/kg	*140*	*480*	*480*	NT	ND	ND	ND	**0.0025 B J**	**0.00279 B J**	<0.00317	**19.5**	NT	NT	NT	ND	NT	NT
Hexachloro-1,3-butadiene	mg/kg	*17*	*17*	*17*	NT	NT	NT	NT	<0.0373	<0.0349	<0.0317	NT	NT	NT	NT	NT	NT	NT
n-Hexane	mg/kg	*140*	*140*	*140*	NT	NT	NT	NT	<0.00745	<0.00697	<0.00635	NT	NT	NT	NT	NT	NT	NT
Isopropylbenzene	mg/kg	*270*	*270*	*270*	NT	NT	NT	NT	<0.00373	**0.00166 J**	<0.00317	NT	NT	NT	NT	NT	NT	NT
p-Isopropyltoluene	mg/kg	*160*	*260 [6]*	*260 [6]*	NT	NT	NT	NT	<0.00745	<0.00697	<0.00635	NT	NT	NT	NT	NT	NT	NT
2-Butanone (MEK)	mg/kg	*28,000*	*28,000*	*28,000*	NT	NT	NT	NT	<0.149	<0.139	<0.127	NT	NT	NT	NT	NT	NT	NT
Methylene Chloride	mg/kg	*740*	*3,300*	*3,300*	NT	NT	NT	NT	<0.0373	<0.0349	<0.0317	NT	NT	NT	NT	NT	NT	NT
4-Methyl-2-pentanone (MIBK)	mg/kg	*3,400*	*3,400*	*3,400*	NT	NT	NT	NT	<0.0373	<0.0349	<0.0317	NT	NT	NT	NT	NT	NT	NT
Methyl tert-butyl ether (MTBE)	mg/kg	*1,100*	*5,400*	*8,900*	ND	ND	ND	ND	**0.0025**	<0.00139	<0.00127	NT	ND	ND	ND	ND	ND	ND
Naphthalene	mg/kg	*96*	*420*	*560*	NT	NT	NT	NT	**0.0192**	**0.275**	<0.0159 J4	NT	NT	NT	NT	NT	NT	NT
n-Propylbenzene	mg/kg	*260 [6]*	*260 [6]*	*260 [6]*	NT	NT	NT	NT	**0.0028 J**	**0.00166 J**	<0.00635	NT	NT	NT	NT	NT	NT	NT
Styrene	mg/kg	*870*	*870*	*870*	NT	NT	NT	NT	**0.00156 B J**	**0.00128 B J**	<0.0159	NT	NT	NT	NT	NT	NT	NT
1,1,1,2-Tetrachloroethane	mg/kg	*49*	*230*	*680*	NT	NT	NT	NT	<0.00373	<0.00349	<0.00317	NT	NT	NT	NT	NT	NT	NT
1,1,2,2-Tetrachloroethane	mg/kg	*15*	*71*	*670*	NT	NT	NT	NT	<0.00373	<0.00349	<0.00317	NT	NT	NT	NT	NT	NT	NT
Tetrachloroethene (PCE)	mg/kg	*170*	*170*	*170*	NT	NT	NT	NT	<0.00373	**0.0254**	<0.00317	NT	NT	NT	NT	NT	NT	NT
Toluene	mg/kg	*820*	*820*	*820*	NT	ND	ND	ND	**0.00603 J**	**0.00386 J**	<0.00635	ND	NT	NT	NT	ND	NT	NT
1,2,3-Trichlorobenzene	mg/kg	*NE*	*NE*	*NE*	NT	NT	NT	NT	<0.0186	<0.0174	<0.0159	NT	NT	NT	NT	NT	NT	NT
1,2,4-Trichlorobenzene	mg/kg	*140*	*400*	*400*	NT	NT	NT	NT	<0.0186	<0.0174	<0.0159	NT	NT	NT	NT	NT	NT	NT
1,1,1-Trichloroethane	mg/kg	*640*	*640*	*640*	NT	NT	NT	NT	<0.00373	<0.00349	<0.00317	NT	NT	NT	NT	NT	NT	NT
1,1,2-Trichloroethane	mg/kg	*28*	*130*	*1,200*	NT	NT	NT	NT	<0.00373	<0.00349	<0.00317	NT	NT	NT	NT	NT	NT	NT
Trichloroethene (TCE)	mg/kg	*10*	*48*	*17*	NT	NT	NT	NT	<0.00149	<0.00139	<0.00127	NT	NT	NT	NT	NT	NT	NT
Trichlorofluoromethane	mg/kg	*1,200*	*1,200*	*1,200*	NT	NT	NT	NT	<0.00373 J3	<0.00349 J3	<0.00317	NT	NT	NT	NT	NT	NT	NT
1,2,3-Trichloropropane	mg/kg	*0.1*	*4.4*	*19*	NT	NT	NT	NT	<0.0186	<0.0174	<0.0159	NT	NT	NT	NT	NT	NT	NT
1,2,4-Trimethylbenzene	mg/kg	*220*	*220*	*220*	NT	NT	NT	NT	**0.00805**	**0.00372 J**	<0.00635	NT	NT	NT	NT	NT	NT	NT
1,3,5-Trimethylbenzene	mg/kg	*180*	*180*	*180*	NT	NT	NT	NT	<0.00745	<0.00697	<0.00635	NT	NT	NT	NT	NT	NT	NT

Table 4A: Summary of VOCs in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

					IA-12	IA-13			IA-14									
Sample ID (Depth[1])		*Applicable Standards*			**B-IA-12-01 (4-6) ***	**B-38 (13-15) ***	**B-39 (14-16) ***	**B-40 (13-15) ***	**P4-IA14-SB01 (0-2)**	**P4-IA14-SB02 (2-4)**	**P4-IA14-SB03 (0-2)**	**B-41 (2-4) ***	**B-41A (0-2) ***	**B-41A (2-4) ***	**B-41A (4-6) ***	**B-42 (2-4) ***	**B-42A (0-2) ***	**B-42A (2-4) ***
Collection Date		*GDCS Residential Land Use [3]*	*GDCS Commercial/ Industrial Land Use [4]*	*GDCS Construction & Excavation Activities [5]*	6/11/2004	5/30/2001	5/30/2001	5/30/2001	6/13/2023	6/13/2023	6/19/2023	5/30/2001	6/10/2004	6/10/2004	6/10/2004	5/30/2001	6/10/2004	6/10/2004
Parameter	**Units [2]**				Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Volatile Organic Compounds - VOCs																		
Vinyl chloride	mg/kg	*1.3*	*49*	*280*	NT	NT	NT	NT	<0.00373	<0.00349	<0.00317	NT	NT	NT	NT	NT	NT	NT
Xylenes, Total	mg/kg	*260*	*260*	*260*	NT	ND	ND	ND	**0.0192**	**0.00926**	<0.00825	**78.5**	NT	NT	NT	**0.0735**	NT	NT

Notes

1. FT - Feet below grade
2. mg/kg = Milligrams per kilogram - parts per million (ppm)
3. Ohio VAP GDCS Residential Land Use.
4. Ohio VAP GDCS Commercial/Industrial Land Use.
5. Ohio VAP GDCS Construction/Excavation Activities.
6. Supplemental standards from the Ohio VAP CIDARS

NE: No standard established by applicable agency

Bold numbers indicate a concentration above laboratory detection limits.

Bold and shaded numbers indicate a detected concentration above a comparison standard. If exceeding more than one standard, th

*** :** Samples collected by HzW

ND : No Detections

NT : Not tested

Table 4A: Summary of VOCs in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

Sample ID (Depth[1])		Applicable Standards			IA-14													
					B-42A (4-6) *	B-44A (0-2) *	B-IA-14-1 (0-2) *	B-IA 14-1 (2-4) *	B-IA 14-1 (4-6) *	B-IA 14-2 (0-2) *	B-IA 14-2 (2-4) *	B-IA 14-2 (4-6) *	B-IA 14-3 (0-2) *	B-IA 14-3 (2-4) *	B- IA 14-3 (4-6) *	B-IA 14-4 (0-2) *	B-IA 14-4 (2-4) *	B-IA 14-4 (4-6) *
Collection Date		*GDCS Residential Land Use* [3]	*GDCS Commercial/ Industrial Land Use* [4]	*GDCS Construction & Excavation Activities* [5]	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004
Parameter	**Units** [2]				Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Volatile Organic Compounds - VOCs																		
Acetone	mg/kg	*110,000*	*110,000*	*110,000*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Acrylonitrile	mg/kg	*6.1*	*30*	*62*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzene	mg/kg	*28*	*130*	*1,200*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Bromobenzene	mg/kg	*NE*	*NE*	*NE*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Bromodichloromethane	mg/kg	*7.3*	*33*	*300*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Bromoform	mg/kg	*460*	*910*	*910*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Bromomethane	mg/kg	*17*	*76*	*550*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
n-Butylbenzene	mg/kg	*110* [6]	*110* [6]	*110* [6]	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
sec-Butylbenzene	mg/kg	*140* [6]	*140* [6]	*140* [6]	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
tert-Butylbenzene	mg/kg	*180* [6]	*180* [6]	*180* [6]	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Carbon tetrachloride	mg/kg	*16*	*74*	*460*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chlorobenzene	mg/kg	*660*	*760*	*760*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chlorodibromomethane	mg/kg	*130*	*800*	*800*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chloroethane	mg/kg	*2,100*	*2,100*	*2,100*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chloroform	mg/kg	*7.9*	*35*	*320*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chloromethane	mg/kg	*280*	*1,200*	*1,300*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Chlorotoluene	mg/kg	*NE*	*NE*	*NE*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
4-Chlorotoluene	mg/kg	*NE*	*NE*	*NE*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dibromo-3-Chloropropane	mg/kg	*0.37*	*1.6*	*15*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dibromoethane (EDB)	mg/kg	*0.89*	*4.2*	*39*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibromomethane	mg/kg	*59*	*250* [6]	*870* [6]	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dichlorobenzene	mg/kg	*380*	*380*	*380*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,3-Dichlorobenzene	mg/kg	*NE*	*NE*	*NE*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,4-Dichlorobenzene	mg/kg	*65*	*290*	*2,600*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dichlorodifluoromethane	mg/kg	*850*	*850*	*850*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1-Dichloroethane	mg/kg	*89*	*390*	*1,700*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dichloroethane (EDC)	mg/kg	*11*	*52*	*480*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1-Dichloroethene	mg/kg	*360*	*1,200*	*360*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
cis-1,2-Dichloroethene	mg/kg	*310*	*2,400*	*2,400*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
trans-1,2-Dichloroethene	mg/kg	*1,900*	*1,900*	*1,900*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dichloropropane	mg/kg	*39*	*170*	*180*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1-Dichloropropene	mg/kg	*NE*	*NE*	*NE*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,3-Dichloropropane	mg/kg	*1,500*	*1,500*	*1,500*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
cis-1,3-Dichloropropene	mg/kg	*NE*	*NE*	*NE*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
trans-1,3-Dichloropropene	mg/kg	*NE*	*NE*	*NE*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2,2-Dichloropropane	mg/kg	*NE*	*NE*	*NE*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Ethylbenzene	mg/kg	*140*	*480*	*480*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Hexachloro-1,3-butadiene	mg/kg	*17*	*17*	*17*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
n-Hexane	mg/kg	*140*	*140*	*140*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Isopropylbenzene	mg/kg	*270*	*270*	*270*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
p-Isopropyltoluene	mg/kg	*160*	*260* [6]	*260* [6]	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Butanone (MEK)	mg/kg	*28,000*	*28,000*	*28,000*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Methylene Chloride	mg/kg	*740*	*3,300*	*3,300*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
4-Methyl-2-pentanone (MIBK)	mg/kg	*3,400*	*3,400*	*3,400*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Methyl tert-butyl ether (MTBE)	mg/kg	*1,100*	*5,400*	*8,900*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	mg/kg	*96*	*420*	*560*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
n-Propylbenzene	mg/kg	*260* [6]	*260* [6]	*260* [6]	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Styrene	mg/kg	*870*	*870*	*870*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1,1,2-Tetrachloroethane	mg/kg	*49*	*230*	*680*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1,2,2-Tetrachloroethane	mg/kg	*15*	*71*	*670*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Tetrachloroethene (PCE)	mg/kg	*170*	*170*	*170*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Toluene	mg/kg	*820*	*820*	*820*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2,3-Trichlorobenzene	mg/kg	*NE*	*NE*	*NE*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2,4-Trichlorobenzene	mg/kg	*140*	*400*	*400*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1,1-Trichloroethane	mg/kg	*640*	*640*	*640*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1,2-Trichloroethane	mg/kg	*28*	*130*	*1,200*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Trichloroethene (TCE)	mg/kg	*10*	*48*	*17*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Trichlorofluoromethane	mg/kg	*1,200*	*1,200*	*1,200*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2,3-Trichloropropane	mg/kg	*0.1*	*4.4*	*19*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2,4-Trimethylbenzene	mg/kg	*220*	*220*	*220*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,3,5-Trimethylbenzene	mg/kg	*180*	*180*	*180*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Table 4A: Summary of VOCs in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

					IA-14													
Sample ID (Depth[1])		***Applicable Standards***			**B-42A (4-6) ***	**B-44A (0-2) ***	**B-IA-14-1 (0-2) ***	**B-IA 14-1 (2-4) ***	**B-IA 14-1 (4-6) ***	**B-IA 14-2 (0-2) ***	**B-IA 14-2 (2-4) ***	**B-IA 14-2 (4-6) ***	**B-IA 14-3 (0-2) ***	**B-IA 14-3 (2-4) ***	**B- IA 14-3 (4-6) ***	**B-IA 14-4 (0-2) ***	**B-IA 14-4 (2-4) ***	**B-IA 14-4 (4-6) ***
Collection Date		***GDCS Residential Land Use*** [3]	***GDCS Commercial/ Industrial Land Use*** [4]	***GDCS Construction & Excavation Activities*** [5]	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004
Parameter	**Units** [2]				Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Volatile Organic Compounds - VOCs																		
Vinyl chloride	mg/kg	*1.3*	*49*	*280*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Xylenes, Total	mg/kg	*260*	*260*	*260*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Notes

1. FT - Feet below grade
2. mg/kg = Milligrams per kilogram - parts per million (ppm)
3. Ohio VAP GDCS Residential Land Use.
4. Ohio VAP GDCS Commercial/Industrial Land Use.
5. Ohio VAP GDCS Construction/Excavation Activities.
6. Supplemental standards from the Ohio VAP CIDARS

NE: No standard established by applicable agency

Bold numbers indicate a concentration above laboratory detection limits.

Bold and shaded numbers indicate a detected concentration above a comparison standard. If exceeding more than one standard, th

*** :** Samples collected by HzW

ND : No Detections

NT : Not tested

Table 4A: Summary of VOCs in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

					General Coverage		IA-53		IA-54		IA-55		IA56	IA57		General Coverage		
Sample ID (Depth[1])		*Applicable Standards*			P4-GC-SB01 (0-2)	P4-GC-MW01 (2-4)	P5-IA53-SB01 (2-4)	P5-IA53-MW01 (4-6)	P5-IA54-SB01 (2-4)	P5-IA54-MW01 (14-16)	P5-IA55-SB01 (4-6)	P5-IA56-SB01 (2-4)	P5-IA56-MW01 (6-8)	P5-IA57-SB01 (2-4)	P5-IA57-MW01 (2-4)	P5-GC-SB01 (2-4)	P5-GC-SB02 (2-4)	P5-GC-SB03 (6-8)
Collection Date		*GDCS Residential Land Use [3]*	*GDCS Commercial/ Industrial Land Use [4]*	*GDCS Construction & Excavation Activities [5]*	6/19/2023	6/19/2023	6/20/2023	6/20/2023	6/21/2023	6/21/2023	6/22/2023	6/22/2023	6/21/2023	6/19/2023	6/20/2023	6/20/2023	6/22/2023	6/22/2023
Parameter	**Units [2]**				Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Volatile Organic Compounds - VOCs																		
Acetone	mg/kg	*110,000*	*110,000*	*110,000*	<0.299	<0.0653	<0.0696	<0.0643	<0.0578	<5.75	<0.0746	**0.0662 J**	<0.0704	<0.0695	<0.0583	<0.0592	<0.0737	<0.0760
Acrylonitrile	mg/kg	*6.1*	*30*	*62*	<0.0749	<0.0163	<0.0174	<0.0161	<0.0144	<1.44	<0.0186 J3	<0.0169 J3	<0.0176	<0.0174	<0.0146	<0.0148	<0.0184 J3	<0.0190 J3
Benzene	mg/kg	*28*	*130*	*1,200*	**0.00374 J**	<0.00131	<0.00139	<0.00129	<0.00116	<0.115	<0.00149	<0.00135	<0.00141	<0.00139	<0.00117	<0.00118	<0.00147	<0.00152
Bromobenzene	mg/kg	*NE*	*NE*	*NE*	<0.0749	<0.0163	<0.0174	<0.0161	<0.0144	<1.44	<0.0186	<0.0169	<0.0176	<0.0174	<0.0146	<0.0148	<0.0184	<0.0190
Bromodichloromethane	mg/kg	*7.3*	*33*	*300*	<0.0150	<0.00327	<0.00348	<0.00322	<0.00289	<0.288	<0.00373	<0.00337	<0.00352	<0.00348	<0.00291	<0.00296	<0.00368	<0.00380
Bromoform	mg/kg	*460*	*910*	*910*	<0.150	<0.0327	<0.0348	<0.0322	<0.0289	<2.88	<0.0373	<0.0337	<0.0352	<0.0348	<0.0291	<0.0296	<0.0368	<0.0380
Bromomethane	mg/kg	*17*	*76*	*550*	<0.0749	<0.0163	<0.0174	<0.0161	<0.0144	<1.44	<0.0186	<0.0169	<0.0176	<0.0174	<0.0146	<0.0148	<0.0184	<0.0190
n-Butylbenzene	mg/kg	*110 [6]*	*110 [6]*	*110 [6]*	**0.0521 J**	<0.0163	<0.0174	<0.0161	<0.0144	**8.21**	<0.0186	<0.0169	<0.0176	<0.0174	<0.0146	<0.0148	<0.0184	<0.0190
sec-Butylbenzene	mg/kg	*140 [6]*	*140 [6]*	*140 [6]*	**0.0325 J**	<0.0163	<0.0174	<0.0161	<0.0144	**7.93**	<0.0186	<0.0169	<0.0176	<0.0174	<0.0146	<0.0148	<0.0184	<0.0190
tert-Butylbenzene	mg/kg	*180 [6]*	*180 [6]*	*180 [6]*	<0.0299	<0.00653	<0.00696	<0.00643	<0.00578	**0.446**	<0.00746	<0.00674	<0.00704	<0.00695	<0.00583	<0.00592	<0.00737	<0.00760
Carbon tetrachloride	mg/kg	*16*	*74*	*460*	<0.0299	<0.00653	<0.00696	<0.00643	<0.00578	<0.575	<0.00746	<0.00674	<0.00704	<0.00695	<0.00583	<0.00592	<0.00737	<0.00760
Chlorobenzene	mg/kg	*660*	*760*	*760*	<0.0150	<0.00327	<0.00348	<0.00322	<0.00289	<0.288	<0.00373	<0.00337	<0.00352	<0.00348	<0.00291	<0.00296	<0.00368	<0.00380
Chlorodibromomethane	mg/kg	*130*	*800*	*800*	<0.0150	<0.00327	<0.00348	<0.00322	<0.00289	<0.288	<0.00373	<0.00337	<0.00352	<0.00348	<0.00291	<0.00296	<0.00368	<0.00380
Chloroethane	mg/kg	*2,100*	*2,100*	*2,100*	<0.0299	<0.00653	<0.00696	<0.00643	<0.00578	<0.575	<0.00746 J3	<0.00674 J3	<0.00704	<0.00695	<0.00583	<0.00592	<0.00737 J3	<0.00760 J3
Chloroform	mg/kg	*7.9*	*35*	*320*	<0.0150	<0.00327	<0.00348	<0.00322	<0.00289	<0.288	<0.00373	<0.00337	<0.00352	<0.00348	<0.00291	<0.00296	<0.00368	<0.00380
Chloromethane	mg/kg	*280*	*1,200*	*1,300*	<0.0749	<0.0163	<0.0174	<0.0161	<0.0144	<1.44	<0.0186	<0.0169	<0.0176	<0.0174	<0.0146	<0.0148	<0.0184	<0.0190
2-Chlorotoluene	mg/kg	*NE*	*NE*	*NE*	<0.0150	<0.00327	<0.00348	<0.00322	<0.00289	<0.288	<0.00373	<0.00337	<0.00352	<0.00348	<0.00291	<0.00296	<0.00368	<0.00380
4-Chlorotoluene	mg/kg	*NE*	*NE*	*NE*	<0.0299	<0.00653	<0.00696	<0.00643	<0.00578	<0.575	<0.00746	<0.00674	<0.00704	<0.00695	<0.00583	<0.00592	<0.00737	<0.00760
1,2-Dibromo-3-Chloropropane	mg/kg	*0.37*	*1.6*	*15*	<0.150	<0.0327	<0.0348	<0.0322	<0.0289	<2.88	<0.0373	<0.0337	<0.0352	<0.0348	<0.0291	<0.0296	<0.0368	<0.0380
1,2-Dibromoethane (EDB)	mg/kg	*0.89*	*4.2*	*39*	<0.0150	<0.00327	<0.00348	<0.00322	<0.00289	<0.288	<0.00373	<0.00337	<0.00352	<0.00348	<0.00291	<0.00296	<0.00368	<0.00380
Dibromomethane	mg/kg	*59*	*250 [6]*	*870 [6]*	<0.0299	<0.00653	<0.00696	<0.00643	<0.00578	<0.575	<0.00746	<0.00674	<0.00704	<0.00695	<0.00583	<0.00592	<0.00737	<0.00760
1,2-Dichlorobenzene	mg/kg	*380*	*380*	*380*	<0.0299	<0.00653	<0.00696	<0.00643	<0.00578	<0.575	<0.00746	<0.00674	<0.00704	<0.00695	<0.00583	<0.00592	<0.00737	<0.00760
1,3-Dichlorobenzene	mg/kg	*NE*	*NE*	*NE*	<0.0299	<0.00653	<0.00696	<0.00643	<0.00578	<0.575	<0.00746	<0.00674	<0.00704	<0.00695	<0.00583	<0.00592	<0.00737	<0.00760
1,4-Dichlorobenzene	mg/kg	*65*	*290*	*2,600*	<0.0299	<0.00653	<0.00696	<0.00643	<0.00578	<0.575	<0.00746	<0.00674	<0.00704	<0.00695	<0.00583	<0.00592	<0.00737	<0.00760
Dichlorodifluoromethane	mg/kg	*850*	*850*	*850*	<0.0150	<0.00327	<0.00348	<0.00322	<0.00289	<0.288	<0.00373	<0.00337	<0.00352	<0.00348	<0.00291	<0.00296	<0.00368	<0.00380
1,1-Dichloroethane	mg/kg	*89*	*390*	*1,700*	<0.0150	<0.00327	<0.00348	<0.00322	<0.00289	<0.288	<0.00373	<0.00337	<0.00352	<0.00348	<0.00291	<0.00296	<0.00368	<0.00380
1,2-Dichloroethane (EDC)	mg/kg	*11*	*52*	*480*	<0.0150	<0.00327	<0.00348	<0.00322	<0.00289	<0.288	<0.00373	<0.00337	<0.00352	<0.00348	<0.00291	<0.00296	**0.000958 J**	<0.00380
1,1-Dichloroethene	mg/kg	*360*	*1,200*	*360*	<0.0150	<0.00327	<0.00348	<0.00322	<0.00289	<0.288	<0.00373	<0.00337	<0.00352	<0.00348	<0.00291	<0.00296	<0.00368	<0.00380
cis-1,2-Dichloroethene	mg/kg	*310*	*2,400*	*2,400*	<0.0150	<0.00327	<0.00348	<0.00322	<0.00289	<0.288	<0.00373	<0.00337	<0.00352	<0.00348	<0.00291	<0.00296	<0.00368	<0.00380
trans-1,2-Dichloroethene	mg/kg	*1,900*	*1,900*	*1,900*	<0.0299	<0.00653	<0.00696	<0.00643	<0.00578	<0.575	<0.00746	<0.00674	<0.00704	<0.00695	<0.00583	<0.00592	<0.00737	<0.00760
1,2-Dichloropropane	mg/kg	*39*	*170*	*180*	<0.0299	<0.00653	<0.00696	<0.00643	<0.00578	<0.575	<0.00746 J4	<0.00674 J4	<0.00704	<0.00695	<0.00583	<0.00592	<0.00737 J4	<0.00760 J4
1,1-Dichloropropene	mg/kg	*NE*	*NE*	*NE*	<0.0150	<0.00327	<0.00348	<0.00322	<0.00289	<0.288	<0.00373 J4	<0.00337 J4	<0.00352	<0.00348	<0.00291	<0.00296 J4	<0.00368 J4	<0.00380 J4
1,3-Dichloropropane	mg/kg	*1,500*	*1,500*	*1,500*	<0.0299	<0.00653	<0.00696	<0.00643	<0.00578	<0.575	<0.00746	<0.00674	<0.00704	<0.00695	<0.00583	<0.00592	<0.00737	<0.00760
cis-1,3-Dichloropropene	mg/kg	*NE*	*NE*	*NE*	<0.0150 J4	<0.00327 J4	<0.00348	<0.00322	<0.00289	<0.288 J4	<0.00373 J4	<0.00337 J4	<0.00352 J4	<0.00348	<0.00291	<0.00296 J4	<0.00368 J4	<0.00380 J4
trans-1,3-Dichloropropene	mg/kg	*NE*	*NE*	*NE*	<0.0299	<0.00653	<0.00696	<0.00643	<0.00578	<0.575	<0.00746	<0.00674	<0.00704	<0.00695	<0.00583	<0.00592 J4	<0.00737	<0.00760
2,2-Dichloropropane	mg/kg	*NE*	*NE*	*NE*	<0.0150	<0.00327	<0.00348	<0.00322	<0.00289	<0.288	<0.00373 J3	<0.00337 J3	<0.00352	<0.00348	<0.00291	<0.00296	<0.00368 J3	<0.00380 J3
Ethylbenzene	mg/kg	*140*	*480*	*480*	**0.0265 B**	<0.00327	<0.00348	<0.00322	<0.00289	**1.55**	<0.00373	<0.00337	<0.00352	**0.00261 B J**	<0.00291	<0.00296	<0.00368	<0.00380
Hexachloro-1,3-butadiene	mg/kg	*17*	*17*	*17*	<0.150	<0.0327	<0.0348 J4	<0.0322 J4	<0.0289 J4	<2.88	<0.0373	<0.0337	<0.0352	<0.0348	<0.0291 J4	<0.0296	<0.0368	<0.0380
n-Hexane	mg/kg	*140*	*140*	*140*	<0.0299	<0.00653	<0.00696	<0.00643	<0.00578	<0.575	<0.00746	<0.00674	<0.00704	<0.00695	<0.00583	<0.00592	**0.00413 J**	**0.0041 J**
Isopropylbenzene	mg/kg	*270*	*270*	*270*	**0.0217**	<0.00327	<0.00348	<0.00322	<0.00289	**2.39**	<0.00373	<0.00337	<0.00352	<0.00348	<0.00291	<0.00296	<0.00368	<0.00380
p-Isopropyltoluene	mg/kg	*160*	*260 [6]*	*260 [6]*	**0.0445**	<0.00653	<0.00696	<0.00643	<0.00578	**10.4**	<0.00746	<0.00674	<0.00704	<0.00695	<0.00583	<0.00592	<0.00737	<0.00760
2-Butanone (MEK)	mg/kg	*28,000*	*28,000*	*28,000*	<0.599	<0.131	<0.139	<0.129	<0.116	<11.5	<0.149	<0.135	<0.141	<0.139	<0.117	<0.118	<0.147	<0.152
Methylene Chloride	mg/kg	*740*	*3,300*	*3,300*	<0.150	<0.0327	<0.0348	<0.0322	<0.0289	<2.88	<0.0373	<0.0337	<0.0352	<0.0348	<0.0291	<0.0296	<0.0368	<0.0380
4-Methyl-2-pentanone (MIBK)	mg/kg	*3,400*	*3,400*	*3,400*	<0.150	<0.0327	<0.0348	<0.0322	<0.0289	<2.88	<0.0373	<0.0337	<0.0352	<0.0348	<0.0291	<0.0296	<0.0368	<0.0380
Methyl tert-butyl ether (MTBE)	mg/kg	*1,100*	*5,400*	*8,900*	<0.00599	<0.00131	<0.00139	<0.00129	<0.00116	<0.115	<0.00149	<0.00135	<0.00141	<0.00139	<0.00117	<0.00118	<0.00147	<0.00152
Naphthalene	mg/kg	*96*	*420*	*560*	**15.3 E**	**0.0489 B**	<0.0174	**0.0333**	**0.0144 J**	**1.8 J4**	<0.0186	<0.0169	**0.0163 J**	**0.02**	**0.00738 J**	<0.0148 J4	**0.0102 J**	<0.0190
n-Propylbenzene	mg/kg	*260 [6]*	*260 [6]*	*260 [6]*	**0.0244**	<0.00653	<0.00696	<0.00643	<0.00578	**7.18**	<0.00746	<0.00674	<0.00704	<0.00695	<0.00583	<0.00592	<0.00737	<0.00760
Styrene	mg/kg	*870*	*870*	*870*	<0.0749	<0.0163	<0.0174	<0.0161	<0.0144	<1.44	**0.00761**	<0.0169	<0.0176	<0.0174	<0.0146	<0.0148	**0.00741 J**	**0.00742 J**
1,1,1,2-Tetrachloroethane	mg/kg	*49*	*230*	*680*	<0.0150	<0.00327	<0.00348	<0.00322	<0.00289	<0.288	<0.00373	<0.00337	<0.00352	<0.00348	<0.00291	<0.00296	<0.00368	<0.00380
1,1,2,2-Tetrachloroethane	mg/kg	*15*	*71*	*670*	<0.0150	<0.00327	<0.00348	<0.00322	<0.00289	<0.288	<0.00373	<0.00337	<0.00352	<0.00348	<0.00291	<0.00296	<0.00368	<0.00380
Tetrachloroethene (PCE)	mg/kg	*170*	*170*	*170*	<0.0150	<0.00327	<0.00348	<0.00322	<0.00289	**0.176 J**	<0.00373	**0.0341**	**0.0184**	<0.00348	**0.00198 J**	<0.00296	**0.00236 J**	<0.00380
Toluene	mg/kg	*820*	*820*	*820*	**0.0549**	**0.00405 J**	<0.00696	<0.00643	<0.00578	<0.575	<0.00746	**0.00179 J**	**0.00817**	**0.00285 J**	**0.00216 J**	<0.00592	<0.00737	<0.00760
1,2,3-Trichlorobenzene	mg/kg	*NE*	*NE*	*NE*	<0.0749	<0.0163	<0.0174 J4	<0.0161 J4	<0.0144 J4	<1.44	<0.0186	<0.0169	<0.0176	<0.0174	<0.0146 J4	<0.0148	<0.0184	<0.0190
1,2,4-Trichlorobenzene	mg/kg	*140*	*400*	*400*	<0.0749	<0.0163	<0.0174 J4	<0.0161	<0.0144 J4	<1.44	<0.0186	<0.0169	<0.0176	<0.0174	<0.0146 J4	<0.0148	<0.0184	<0.0190
1,1,1-Trichloroethane	mg/kg	*640*	*640*	*640*	<0.0150	<0.00327	<0.00348	<0.00322	<0.00289	<0.288	<0.00373	<0.00337	<0.00352	<0.00348	<0.00291	<0.00296	<0.00368	<0.00380
1,1,2-Trichloroethane	mg/kg	*28*	*130*	*1,200*	<0.0150	<0.00327	<0.00348	<0.00322	<0.00289	<0.288	<0.00373	<0.00337	<0.00352	<0.00348	<0.00291	<0.00296	<0.00368	<0.00380
Trichloroethene (TCE)	mg/kg	*10*	*48*	*17*	<0.00599	<0.00131	<0.00139	<0.00129	<0.00116	<0.115	<0.00149	<0.00135	**0.00469**	<0.00139	<0.00117	<0.00118	<0.00147	<0.00152
Trichlorofluoromethane	mg/kg	*1,200*	*1,200*	*1,200*	<0.0150	<0.00327	<0.00348	<0.00322	<0.00289	<0.288	<0.00373	<0.00337	<0.00352	<0.00348	<0.00291	<0.00296	<0.00368	<0.00380
1,2,3-Trichloropropane	mg/kg	*0.1*	*4.4*	*19*	<0.0749	<0.0163	<0.0174	<0.0161	<0.0144	<1.44	<0.0186	<0.0169	<0.0176	<0.0174	<0.0146	<0.0148	<0.0184	<0.0190
1,2,4-Trimethylbenzene	mg/kg	*220*	*220*	*220*	**0.269**	**0.00549 J**	<0.00696	**0.00225 J**	<0.00578	**69.2**	<0.00746	<0.00674	**0.017**	<0.00695	**0.00216 J**	<0.00592	<0.00737	<0.00760
1,3,5-Trimethylbenzene	mg/kg	*180*	*180*	*180*	**0.0648**	<0.00653	<0.00696	<0.00643	<0.00578	**4.72**	<0.00746	<0.00674	<0.00704	<0.00695	<0.00583	<0.00592	<0.00737	<0.00760

Table 4A: Summary of VOCs in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

					General Coverage		IA-53		IA-54		IA-55		IA56	IA57		General Coverage		
Sample ID (Depth[1])		*Applicable Standards*			**P4-GC-SB01 (0-2)**	**P4-GC-MW01 (2-4)**	**P5-IA53-SB01 (2-4)**	**P5-IA53-MW01 (4-6)**	**P5-IA54-SB01 (2-4)**	**P5-IA54-MW01 (14-16)**	**P5-IA55-SB01 (4-6)**	**P5-IA56-SB01 (2-4)**	**P5-IA56-MW01 (6-8)**	**P5-IA57-SB01 (2-4)**	**P5-IA57-MW01 (2-4)**	**P5-GC-SB01 (2-4)**	**P5-GC-SB02 (2-4)**	**P5-GC-SB03 (6-8)**
Collection Date		*GDCS Residential Land Use [3]*	*GDCS Commercial/ Industrial Land Use [4]*	*GDCS Construction & Excavation Activities [5]*	6/19/2023	6/19/2023	6/20/2023	6/20/2023	6/21/2023	6/21/2023	6/22/2023	6/22/2023	6/21/2023	6/19/2023	6/20/2023	6/20/2023	6/22/2023	6/22/2023
Parameter	**Units [2]**				Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Volatile Organic Compounds - VOCs																		
Vinyl chloride	mg/kg	*1.3*	*49*	*280*	<0.0150	<0.00327	<0.00348	<0.00322	<0.00289	<0.288	<0.00373	<0.00337	<0.00352	<0.00348	<0.00291	<0.00296	<0.00368	<0.00380
Xylenes, Total	mg/kg	*260*	*260*	*260*	**0.168**	**0.00412**	<0.00904	**0.00119 J**	<0.00751	**2.75**	<0.00970	<0.00876	**0.0282**	**0.235**	**0.00651 J**	<0.00770	<0.00958	**0.00141 J**

Notes

1. FT - Feet below grade
2. mg/kg = Milligrams per kilogram - parts per million (ppm)
3. Ohio VAP GDCS Residential Land Use.
4. Ohio VAP GDCS Commercial/Industrial Land Use.
5. Ohio VAP GDCS Construction/Excavation Activities.
6. Supplemental standards from the Ohio VAP CIDARS

NE: No standard established by applicable agency

Bold numbers indicate a concentration above laboratory detection limits.

Bold and shaded numbers indicate a detected concentration above a comparison standard. If exceeding more than one standard, th

*** :** Samples collected by HzW

ND : No Detections

NT : Not tested

Table 4A: Summary of VOCs in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

Sample ID (Depth[1])		Applicable Standards			General Coverage
					P5-GC-MW01 (8-10)
Collection Date		GDCS Residential Land Use [3]	GDCS Commercial/ Industrial Land Use [4]	GDCS Construction & Excavation Activities [5]	6/21/2023
Parameter	Units [2]				Value
Volatile Organic Compounds - VOCs					
Acetone	mg/kg	*110,000*	*110,000*	*110,000*	<0.0826
Acrylonitrile	mg/kg	*6.1*	*30*	*62*	<0.0206
Benzene	mg/kg	*28*	*130*	*1,200*	<0.00165
Bromobenzene	mg/kg	*NE*	*NE*	*NE*	<0.0206
Bromodichloromethane	mg/kg	*7.3*	*33*	*300*	<0.00413
Bromoform	mg/kg	*460*	*910*	*910*	<0.0413
Bromomethane	mg/kg	*17*	*76*	*550*	<0.0206
n-Butylbenzene	mg/kg	*110* [6]	*110* [6]	*110* [6]	<0.0206
sec-Butylbenzene	mg/kg	*140* [6]	*140* [6]	*140* [6]	<0.0206
tert-Butylbenzene	mg/kg	*180* [6]	*180* [6]	*180* [6]	<0.00826
Carbon tetrachloride	mg/kg	*16*	*74*	*460*	<0.00826
Chlorobenzene	mg/kg	*660*	*760*	*760*	<0.00413
Chlorodibromomethane	mg/kg	*130*	*800*	*800*	<0.00413
Chloroethane	mg/kg	*2,100*	*2,100*	*2,100*	<0.00826
Chloroform	mg/kg	*7.9*	*35*	*320*	<0.00413
Chloromethane	mg/kg	*280*	*1,200*	*1,300*	<0.0206
2-Chlorotoluene	mg/kg	*NE*	*NE*	*NE*	<0.00413
4-Chlorotoluene	mg/kg	*NE*	*NE*	*NE*	<0.00826
1,2-Dibromo-3-Chloropropane	mg/kg	*0.37*	*1.6*	*15*	<0.0413
1,2-Dibromoethane (EDB)	mg/kg	*0.89*	*4.2*	*39*	<0.00413
Dibromomethane	mg/kg	*59*	*250* [6]	*870* [6]	<0.00826
1,2-Dichlorobenzene	mg/kg	*380*	*380*	*380*	<0.00826
1,3-Dichlorobenzene	mg/kg	*NE*	*NE*	*NE*	<0.00826
1,4-Dichlorobenzene	mg/kg	*65*	*290*	*2,600*	<0.00826
Dichlorodifluoromethane	mg/kg	*850*	*850*	*850*	<0.00413
1,1-Dichloroethane	mg/kg	*89*	*390*	*1,700*	<0.00413
1,2-Dichloroethane (EDC)	mg/kg	*11*	*52*	*480*	<0.00413
1,1-Dichloroethene	mg/kg	*360*	*1,200*	*360*	<0.00413
cis-1,2-Dichloroethene	mg/kg	*310*	*2,400*	*2,400*	<0.00413
trans-1,2-Dichloroethene	mg/kg	*1,900*	*1,900*	*1,900*	<0.00826
1,2-Dichloropropane	mg/kg	*39*	*170*	*180*	<0.00826
1,1-Dichloropropene	mg/kg	*NE*	*NE*	*NE*	<0.00413
1,3-Dichloropropane	mg/kg	*1,500*	*1,500*	*1,500*	<0.00826
cis-1,3-Dichloropropene	mg/kg	*NE*	*NE*	*NE*	<0.00413 J4
trans-1,3-Dichloropropene	mg/kg	*NE*	*NE*	*NE*	<0.00826
2,2-Dichloropropane	mg/kg	*NE*	*NE*	*NE*	<0.00413
Ethylbenzene	mg/kg	*140*	*480*	*480*	<0.00413
Hexachloro-1,3-butadiene	mg/kg	*17*	*17*	*17*	<0.0413
n-Hexane	mg/kg	*140*	*140*	*140*	<0.00826
Isopropylbenzene	mg/kg	*270*	*270*	*270*	<0.00413
p-Isopropyltoluene	mg/kg	*160*	*260* [6]	*260* [6]	<0.00826
2-Butanone (MEK)	mg/kg	*28,000*	*28,000*	*28,000*	<0.165
Methylene Chloride	mg/kg	*740*	*3,300*	*3,300*	<0.0413
4-Methyl-2-pentanone (MIBK)	mg/kg	*3,400*	*3,400*	*3,400*	<0.0413
Methyl tert-butyl ether (MTBE)	mg/kg	*1,100*	*5,400*	*8,900*	<0.00165
Naphthalene	mg/kg	*96*	*420*	*560*	<0.0206 J4
n-Propylbenzene	mg/kg	*260* [6]	*260* [6]	*260* [6]	<0.00826
Styrene	mg/kg	*870*	*870*	*870*	<0.0206
1,1,1,2-Tetrachloroethane	mg/kg	*49*	*230*	*680*	<0.00413
1,1,2,2-Tetrachloroethane	mg/kg	*15*	*71*	*670*	<0.00413
Tetrachloroethene (PCE)	mg/kg	*170*	*170*	*170*	<0.00413
Toluene	mg/kg	*820*	*820*	*820*	<0.00826
1,2,3-Trichlorobenzene	mg/kg	*NE*	*NE*	*NE*	<0.0206
1,2,4-Trichlorobenzene	mg/kg	*140*	*400*	*400*	<0.0206
1,1,1-Trichloroethane	mg/kg	*640*	*640*	*640*	<0.00413
1,1,2-Trichloroethane	mg/kg	*28*	*130*	*1,200*	<0.00413
Trichloroethene (TCE)	mg/kg	*10*	*48*	*17*	<0.00165
Trichlorofluoromethane	mg/kg	*1,200*	*1,200*	*1,200*	<0.00413
1,2,3-Trichloropropane	mg/kg	*0.1*	*4.4*	*19*	<0.0206
1,2,4-Trimethylbenzene	mg/kg	*220*	*220*	*220*	<0.00826
1,3,5-Trimethylbenzene	mg/kg	*180*	*180*	*180*	<0.00826

Table 4A: Summary of VOCs in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

Sample ID (Depth[1])		*Applicable Standards*			General Coverage P5-GC-MW01 (8-10)
Collection Date		*GDCS Residential Land Use* [3]	*GDCS Commercial/ Industrial Land Use* [4]	*GDCS Construction & Excavation Activities* [5]	6/21/2023
Parameter	Units [2]				Value
Volatile Organic Compounds - VOCs					
Vinyl chloride	mg/kg	*1.3*	*49*	*280*	<0.00413
Xylenes, Total	mg/kg	*260*	*260*	*260*	<0.0107

Notes

1. FT - Feet below grade
2. mg/kg = Milligrams per kilogram - parts per million (ppm)
3. Ohio VAP GDCS Residential Land Use.
4. Ohio VAP GDCS Commercial/Industrial Land Use.
5. Ohio VAP GDCS Construction/Excavation Activities.
6. Supplemental standards from the Ohio VAP CIDARS

NE: No standard established by applicable agency

Bold numbers indicate a concentration above laboratory detection limits.

Bold and shaded numbers indicate a detected concentration above a comparison standard. If exceeding more than one standard, th

*** :** Samples collected by HzW

ND : No Detections

NT : Not tested

Table 4B: Summary of PAHs and TPHs in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

					IA-01									IA-01A						
Sample ID (Depth[1])		*Applicable Standards*			**P4-IA01-SB01 (0-2)**	**P4-IA01-MW01 (0-2)**	**HzW-01 (14-15) * [6]**	**HB-102 (4-6) * [6]**	**HB-102 (6-8) * [6]**	**HB-103 (4-6) * [6]**	**HB-103 (6-8) * [6]**	**B-104 (0-2) * [6]**	**B-104 (6-8) * [6]**	**HB-101 (0-4) * [6]**	**HB-101 (6-8) * [6]**	**HzW-02 (8-10) * [6]**	**HzW-03 (14-15) * [6]**	**HB-100 (0-4) *[6]**	**HB-100 (6-8) * [6]**	**B-105 (4-6) * [6]**
Collection Date		*GDCS Residential Land Use [3]*	*Commercial/ Industrial Land Use [4]*	*Construction/ Excavation Activities [5]*	6/14/2023	6/14/2023	3/24/2000	10/3/2007	10/3/2007	10/3/2007	10/3/2007	12/11/2008	12/11/2008	10/3/2007	10/3/2007	3/27/2000	3/24/2000	10/3/2007	10/3/2007	12/11/2008
Parameter	**Units [2]**				Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Polynuclear Aromatic Hydrocarbons-PAHs																				
Anthracene	mg/kg	*36,000*	*670,000*	*1,000,000*	**0.0198**	**1.17**	ND	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT
Acenaphthene	mg/kg	*7,200*	*1,000,000*	*290,000*	**0.0326**	**0.845**	ND	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT
Acenaphthylene	mg/kg	*7,200*	*130,000 [5]*	*290,000 [5]*	**0.00487 J**	**0.135**	ND	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT
Benzo(a)anthracene	mg/kg	*23*	*610*	*9,600*	**0.0343**	**1.58**	ND	ND	ND	ND	ND	**0.033**	**0.012**	ND	ND	ND	ND	**0.661**	ND	ND
Benzo(a)pyrene	mg/kg	*2.3*	*62*	*230*	**0.0457**	**0.673**	ND	ND	ND	ND	ND	**0.026**	ND	ND	ND	ND	ND	**0.286**	ND	ND
Benzo(b)fluoranthene	mg/kg	*23*	*620*	*10,000*	**0.0615**	**0.719**	ND	ND	ND	ND	ND	**0.033**	ND	ND	ND	ND	ND	**0.563**	ND	ND
Benzo(g,h,i)perylene	mg/kg	*3,600*	*67,000 [5]*	*430,000 [5]*	**0.0277**	**0.239**	ND	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT
Benzo(k)fluoranthene	mg/kg	*230*	*6,200*	*100,000*	**0.0203**	<0.00700	ND	ND	ND	ND	ND	**0.012**	ND	ND	ND	ND	ND	**0.291**	ND	ND
Chrysene	mg/kg	*2,300*	*62,000*	*1,000,000*	**0.0279**	**1.86**	ND	ND	ND	ND	ND	**0.034**	**0.015**	ND	ND	ND	ND	**0.61**	ND	ND
Dibenz(a,h)anthracene	mg/kg	*2.3*	*62*	*1,000*	**0.00637 J**	**0.118**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	mg/kg	*4,800*	*89,000*	*170,000*	**0.0938**	**3.2**	ND	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT
Fluorene	mg/kg	*4,800*	*89,000*	*580,000*	**0.0979**	**1.56**	ND	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT
Indeno(1,2,3-cd)pyrene	mg/kg	*23*	*620*	*10,000*	**0.0333**	**0.295**	ND	ND	ND	ND	ND	**0.019**	**0.023**	ND	ND	ND	ND	**0.371**	ND	ND
Naphthalene	mg/kg	*96*	*420*	*560*	**0.184**	**3.72**	ND	ND	ND	ND	ND	**0.099**	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	mg/kg	*36,000*	*670,000 [5]*	*1,000,000 [5]*	**0.162**	**5.5**	ND	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT
Pyrene	mg/kg	*3,600*	*67,000*	*430,000*	**0.0748**	**1.98**	ND	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT
1-Methylnaphthalene	mg/kg	*350*	*390*	*390*	**0.0515**	**0.693**	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT
2-Methylnaphthalene	mg/kg	*480*	*8,900*	*5,800*	**0.112**	**1.23**	ND	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT
Total Petroleum Hydrocarbons-TPHs																				
C6-C12 Hydrocarbons	mg/kg	*10,000*	*10,000*	*10,000*	**0.0498 J**	**0.861**	NT	ND	ND	ND	ND	**750**	**690**	ND	**1.66**	NT	NT	**88.2**	**1.37**	**8,800**
C10-C20 Hydrocarbons	mg/kg	*10,000*	*10,000*	*10,000*	**84.6**	**401**	NT	ND	**10.2**	ND	**9.93**	**7**	**9.6**	ND	**5.53**	NT	NT	**40.1**	**5.07**	ND
C20-C34 Hydrocarbons	mg/kg	*20,000*	*20,000*	*20,000*	**468**	**5040**	NT	ND	**10.9**	**7.8**	**9.27**	**26**	**25**	**4.13**	**6.95**	NT	NT	**222**	**8.07**	**3.4**
C6-C7 Hydrocarbons	--	*No Current Standards*			NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C7-C16 Hydrocarbons	--				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C16-C32 Hydrocarbons	--				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Notes

1. FT - Feet below grade
2. mg/kg = Milligrams per kilogram - parts per million (ppm)
3. Ohio VAP GDCS Commercial/Industrial Land Use.
4. Ohio VAP GDCS Construction/Excavation Activities.
5. Supplemental standards from the Ohio VAP CIDARS
6. Samples analyzed for SVOCs by SW8270B
7. TPH T/R by E418.1

NE: No standard established by applicable agency; **NT**: Parameter not analyzed for this sample.
ND : No Detections
Bold numbers indicate a concentration above laboratory detection limits.
Bold and shaded numbers indicate a detected concentration above a comparison standard.
If exceeding more than one standard, the most strict one is highlighted.

Laboratory Qualifiers:
B- The same analytre is found in the associted blank.
J - The identification of the analyte is acceptable; the reported value is an estimate.
J1 - Surrogate recovery limites have been exceeded; values are outside upper control limits.
J2 - Surrogate recovery limits have been exceeded; values are outside lower control limits.
B - The same analyte is found in the associated blank.
J3 - The associated batch QC was outside the establish quality control range for precision.
J4- The associated batch QC was outside the established quality control range for accuracy.
J5 - The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6: The sample matrix interfered with the ability to make any accurate determination; spike value is low
J7: Surrogate recovery cannot be used for control limit evaluation due to dilution
O1: The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
V: The sample concentration is too high to evaluate accurate spike recoveries.

Table 4B: Summary of PAHs and TPHs in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

					IA-01A			IA-02									IA-03			
Sample ID (Depth[1])		*Applicable Standards*			**B-105 (6-8) * [6]**	**B-106 (3-5) * [6]**	**B-106 (5-7) * [6]**	**P4-IA02-SB01 (4-6)**	**Duplicate 1 (P4-IA02-SB01)**	**IA-2-01 (0-2) * [6]**	**IA-2-01 (2-4) * [6]**	**IA-2-02 (0-4) * [6]**	**IA-2-02 (4-6) * [6]**	**IA-2-02 (6-8) * [6]**	**IA-2-03 (0-4) * [6]**	**IA-02-03 (6-8)* [6]**	**P4-IA03-SB01 (2-4)**	**P4-IA03-MW01 (0-2)**	**B-18 (8-10) * [6]**	**B-19 (10-12) * [6]**
Collection Date		*GDCS Residential Land Use [3]*	*Commercial/ Industrial Land Use [4]*	*Construction/ Excavation Activities [5]*	12/11/2008	12/11/2008	12/11/2008	6/14/2023	6/14/2023	10/9/2008	10/9/2008	10/9/2008	10/9/2008	10/9/2008	10/9/2008	10/9/2008	6/14/2023	6/14/2023	5/25/2000	5/25/2000
Parameter	**Units [2]**				Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Polynuclear Aromatic Hydrocarbons-PAHs																				
Anthracene	mg/kg	*36,000*	*670,000*	*1,000,000*	NT	NT	NT	<0.00753	<0.00760	ND	ND	ND	ND	ND	ND	ND	**1.03**	**0.815**	ND	ND
Acenaphthene	mg/kg	*7,200*	*1,000,000*	*290,000*	NT	NT	NT	<0.00753	<0.00760	ND	ND	ND	ND	ND	ND	ND	**0.28**	**0.394**	ND	ND
Acenaphthylene	mg/kg	*7,200*	*130,000 [5]*	*290,000 [5]*	NT	NT	NT	<0.00753	<0.00760	ND	ND	ND	ND	ND	ND	ND	**0.27**	**0.0576**	ND	ND
Benzo(a)anthracene	mg/kg	*23*	*610*	*9,600*	ND	ND	ND	<0.00753	<0.00760	ND	ND	ND	ND	ND	ND	ND	**1.51**	**1.14**	ND	ND
Benzo(a)pyrene	mg/kg	*2.3*	*62*	*230*	ND	ND	ND	<0.00753	<0.00760	ND	ND	ND	ND	ND	ND	ND	**0.888**	**0.621**	ND	ND
Benzo(b)fluoranthene	mg/kg	*23*	*620*	*10,000*	ND	ND	**0.092**	<0.00753	<0.00760	ND	ND	ND	ND	ND	ND	ND	**1.05**	**0.78**	ND	ND
Benzo(g,h,i)perylene	mg/kg	*3,600*	*67,000 [5]*	*430,000 [5]*	NT	NT	NT	<0.00753	<0.00760	ND	ND	ND	ND	ND	ND	ND	**0.43**	**0.286**	ND	ND
Benzo(k)fluoranthene	mg/kg	*230*	*6,200*	*100,000*	ND	ND	ND	<0.00753	<0.00760	ND	ND	ND	ND	ND	ND	ND	**0.411**	**0.289**	ND	ND
Chrysene	mg/kg	*2,300*	*62,000*	*1,000,000*	ND	ND	**0.12**	<0.00753	<0.00760	ND	ND	**0.225**	ND	ND	ND	ND	**2.19**	**1.21**	ND	ND
Dibenz(a,h)anthracene	mg/kg	*2.3*	*62*	*1,000*	ND	ND	ND	<0.00753	<0.00760	ND	ND	ND	ND	ND	ND	ND	**0.118**	**0.0796**	ND	ND
Fluoranthene	mg/kg	*4,800*	*89,000*	*170,000*	NT	NT	NT	<0.00753	<0.00760	ND	ND	**0.663**	ND	ND	ND	ND	**3.91**	**3.58**	ND	ND
Fluorene	mg/kg	*4,800*	*89,000*	*580,000*	NT	NT	NT	<0.00753	<0.00760	ND	ND	ND	ND	ND	ND	ND	**1.55**	**1.13**	ND	ND
Indeno(1,2,3-cd)pyrene	mg/kg	*23*	*620*	*10,000*	ND	**0.0097**	**0.06**	<0.00753	<0.00760	ND	ND	ND	ND	ND	ND	ND	**0.529**	**0.365**	ND	ND
Naphthalene	mg/kg	*96*	*420*	*560*	ND	ND	**0.27**	<0.0251	<0.0253	ND	ND	ND	ND	ND	ND	ND	**0.99**	**0.68**	ND	ND
Phenanthrene	mg/kg	*36,000*	*670,000 [5]*	*1,000,000 [5]*	NT	NT	NT	<0.00753	<0.00760	ND	ND	**0.339**	ND	ND	ND	ND	**5.75**	**4.68**	ND	ND
Pyrene	mg/kg	*3,600*	*67,000*	*430,000*	NT	NT	NT	<0.00753	<0.00760	ND	ND	**0.474**	ND	ND	ND	ND	**2.97**	**2.49**	ND	ND
1-Methylnaphthalene	mg/kg	*350*	*390*	*390*	NT	NT	NT	<0.0251	<0.0253	ND	ND	ND	ND	ND	ND	ND	**0.362**	**0.244**	ND	ND
2-Methylnaphthalene	mg/kg	*480*	*8,900*	*5,800*	NT	NT	NT	<0.0251	<0.0253	ND	ND	ND	ND	**0.313**	ND	ND	**0.387**	**0.358**	ND	ND
Total Petroleum Hydrocarbons-TPHs																				
C6-C12 Hydrocarbons	mg/kg	*10,000*	*10,000*	*10,000*	**1,100**	**17,000**	**1,100,000**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT		
C10-C20 Hydrocarbons	mg/kg	*10,000*	*10,000*	*10,000*	**2.1**	**370**	**990**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT		
C20-C34 Hydrocarbons	mg/kg	*20,000*	*20,000*	*20,000*	**4.4**	**3,200**	**4,000**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**74,900 [7]**	**7,580 [7]**
C6-C7 Hydrocarbons	--	*No Current Standards*			NT	NT	NT	NT	NT	**2.2**	ND	ND	**1.12**	**772**	ND	**15.7**	NT	NT		
C7-C16 Hydrocarbons	--				NT	NT	NT	NT	NT	**81.9**	ND	**14.3**	**6.63**	**211**	ND	ND	NT	NT		
C16-C32 Hydrocarbons	--				NT	NT	NT	NT	NT	**20.9**	ND	**248**	**57.7**	**1,120**	ND	ND	NT	NT		

Notes

1. FT - Feet below grade
2. mg/kg = Milligrams per kilogram - parts per million (ppm)
3. Ohio VAP GDCS Commercial/Industrial Land Use.
4. Ohio VAP GDCS Construction/Excavation Activities.
5. Supplemental standards from the Ohio VAP CIDARS
6. Samples analyzed for SVOCs by SW8270B
7. TPH T/R by E418.1

NE: No standard established by applicable agency; **NT**: Parameter not analyzed for this sample.
ND : No Detections
Bold numbers indicate a concentration above laboratory detection limits.
Bold and shaded numbers indicate a detected concentration above a comparison standard.
If exceeding more than one standard, the most strict one is highlighted.

Table 4B: Summary of PAHs and TPHs in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

Sample ID (Depth[1])		Applicable Standards			IA-03			IA-04	IA-05	IA-06	IA-07					IA-08			IA-09	
					B-20 (0-2) * [6]	B-21 (10-12) * [6]	B-22 (8-10) *	P4-IA04-MW01 (2-4)	P4-IA05-SB01 (0-5)	P4-IA06-SB01 (4-6)	P4-IA07-MW01 (2-4)	IA-7-01 (0-2) *	IA-7-01 (2-4) *	IA-7-02 (0-2) *	IA-7-02 (2-4) *	B-15 (0-2) *	IA-8-01 (0-2) *	IA-8-02 (0-2) *	P4-IA09-SB01 (0-2)	B-23 (8-10) *
Collection Date		*GDCS Residential Land Use* [3]	*Commercial/ Industrial Land Use* [4]	*Construction/ Excavation Activities* [5]	5/25/2000	5/25/2000	5/25/2000	6/14/2023	6/19/2023	6/13/2023	6/14/2023	11/13/2008	11/13/2008	11/13/2008	11/13/2008	3/28/2000	11/13/2008	11/13/2008	6/13/2023	5/24/2000
Parameter	**Units** [2]				Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Polynuclear Aromatic Hydrocarbons-PAHs																				
Anthracene	mg/kg	*36,000*	*670,000*	*1,000,000*	ND	ND	ND	**0.0211**	**0.00992**	<0.00761	<0.00705	NT	NT	NT	NT	ND	ND	ND	**0.0742**	ND
Acenaphthene	mg/kg	*7,200*	*1,000,000*	*290,000*	ND	ND	ND	**0.0051 J**	**0.0107**	<0.00761	<0.00705	NT	NT	NT	NT	ND	ND	ND	**0.0179**	ND
Acenaphthylene	mg/kg	*7,200*	*130,000* [5]	*290,000* [5]	ND	ND	ND	**0.0034 J**	<0.00714	<0.00761	<0.00705	NT	NT	NT	NT	ND	ND	ND	**0.0427**	ND
Benzo(a)anthracene	mg/kg	*23*	*610*	*9,600*	ND	ND	ND	**0.0537**	**0.0106**	<0.00761	<0.00705	NT	NT	NT	NT	**0.48**	ND	ND	**0.16**	ND
Benzo(a)pyrene	mg/kg	*2.3*	*62*	*230*	ND	ND	ND	**0.0368**	**0.00739**	<0.00761	<0.00705	NT	NT	NT	NT	**0.605**	ND	ND	**0.323**	ND
Benzo(b)fluoranthene	mg/kg	*23*	*620*	*10,000*	ND	ND	ND	**0.071**	**0.0145**	<0.00761	<0.00705	NT	NT	NT	NT	**0.517**	ND	ND	**0.423**	ND
Benzo(g,h,i)perylene	mg/kg	*3,600*	*67,000* [5]	*430,000* [5]	ND	ND	ND	**0.042**	**0.00452 J**	<0.00761	<0.00705	NT	NT	NT	NT	**0.321**	ND	ND	**0.236**	ND
Benzo(k)fluoranthene	mg/kg	*230*	*6,200*	*100,000*	ND	ND	ND	**0.0246**	**0.0058 J**	<0.00761	<0.00705	NT	NT	NT	NT	ND	ND	ND	**0.122**	ND
Chrysene	mg/kg	*2,300*	*62,000*	*1,000,000*	ND	ND	ND	**0.0533**	**0.00906**	<0.00761	<0.00705	NT	NT	NT	NT	**0.667**	ND	ND	**0.441**	ND
Dibenz(a,h)anthracene	mg/kg	*2.3*	*62*	*1,000*	ND	ND	ND	**0.00829**	<0.00714	<0.00761	<0.00705	NT	NT	NT	NT	ND	ND	ND	**0.0537**	ND
Fluoranthene	mg/kg	*4,800*	*89,000*	*170,000*	ND	ND	ND	**0.171**	**0.0426**	<0.00761	**0.00507 J**	NT	NT	NT	NT	**0.303**	ND	**0.447**	**0.306**	ND
Fluorene	mg/kg	*4,800*	*89,000*	*580,000*	ND	ND	ND	**0.00465 J**	**0.0113**	<0.00761	<0.00705	NT	NT	NT	NT	ND	ND	ND	**0.0302**	ND
Indeno(1,2,3-cd)pyrene	mg/kg	*23*	*620*	*10,000*	ND	ND	ND	**0.0428**	**0.00571 J**	<0.00761	<0.00705	NT	NT	NT	NT	**0.326**	ND	ND	**0.275**	ND
Naphthalene	mg/kg	*96*	*420*	*560*	ND	ND	ND	**0.0102 J**	**0.0525**	<0.0254	<0.0235	NT	NT	NT	NT	ND	ND	ND	**0.0871**	ND
Phenanthrene	mg/kg	*36,000*	*670,000* [5]	*1,000,000* [5]	ND	ND	ND	**0.174**	**0.0562**	<0.00761	**0.0049 J**	NT	NT	NT	NT	ND	ND	**0.249**	**0.231**	ND
Pyrene	mg/kg	*3,600*	*67,000*	*430,000*	ND	ND	ND	**0.113**	**0.0311**	<0.00761	**0.00402 J**	NT	NT	NT	NT	**0.606**	ND	**0.336**	**0.668**	ND
1-Methylnaphthalene	mg/kg	*350*	*390*	*390*	ND	ND	ND	<0.0214	**0.0146 J**	<0.0254	<0.0235	NT	NT	NT	NT	ND	ND	ND	**0.0526**	ND
2-Methylnaphthalene	mg/kg	*480*	*8,900*	*5,800*	ND	ND	ND	**0.00555 J**	**0.0333**	<0.0254	<0.0235	NT	NT	NT	NT	ND	ND	ND	**0.0807**	ND
Total Petroleum Hydrocarbons-TPHs																				
C6-C12 Hydrocarbons	mg/kg	*10,000*	*10,000*	*10,000*	**120** [7]	**7.41** [7]	**12,900** [7]	NT	NT	NT	NT	NT	NT	NT	NT	**122** [7]	NT	NT	NT	NT
C10-C20 Hydrocarbons	mg/kg	*10,000*	*10,000*	*10,000*				NT	NT	NT	NT	NT	NT	NT	NT		NT	NT	NT	NT
C20-C34 Hydrocarbons	mg/kg	*20,000*	*20,000*	*20,000*				NT	NT	NT	NT	NT	NT	NT	NT		NT	NT	NT	NT
C6-C7 Hydrocarbons	--	*No Current Standards*						NT	NT	NT	NT	ND	ND	ND	ND		NT	NT	NT	NT
C7-C16 Hydrocarbons	--							NT	NT	NT	NT	**6.67**	**5.6**	**31.8**	ND		**6.33**	ND	NT	NT
C16-C32 Hydrocarbons	--							NT	NT	NT	NT	**197**	**116**	**1,940**	ND		**294**	**5.6**	NT	NT

Notes

1. FT - Feet below grade
2. mg/kg = Milligrams per kilogram - parts per million (ppm)
3. Ohio VAP GDCS Commercial/Industrial Land Use.
4. Ohio VAP GDCS Construction/Excavation Activities.
5. Supplemental standards from the Ohio VAP CIDARS
6. Samples analyzed for SVOCs by SW8270B
7. TPH T/R by E418.1

NE: No standard established by applicable agency; **NT**: Parameter not analyzed for this sample.
ND : No Detections
Bold numbers indicate a concentration above laboratory detection limits.
Bold and shaded numbers indicate a detected concentration above a comparison standard.
If exceeding more than one standard, the most strict one is highlighted.

Table 4B: Summary of PAHs and TPHs in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

Sample ID (Depth[1])		*Applicable Standards*			IA-09													IA-10	IA-11	
					B-24 (8-10) *	B-25 (0-2) *	B-26 (4-6) *	B-27 (4-6) *	B-28 (2-4) *	IA-9-B-01 (0-2) *	IA-9-B-01 (4-6) *	IA-9-B-02 (0-2) *	IA-9-B-02 (2-4) *	IA-9-B-03 (2-4) *	IA-9-B-03 (4-6) *	IA-9-B-04 (0-2) *	IA-9-B-04 (6-8) *	P4-IA10-SB01 (2-4)	P4-IA11-MW01 (0-2)	B-08 (8-10) * [6]
Collection Date		*GDCS Residential Land Use [3]*	*Commercial/ Industrial Land Use [4]*	*Construction/ Excavation Activities [5]*	5/24/2000	5/24/2000	5/24/2000	5/24/2000	5/24/2000	6/16/2004	6/16/2004	6/16/2004	6/16/2004	6/16/2004	6/16/2004	6/16/2004	6/16/2004	6/13/2023	6/13/2023	3/24/2000
Parameter	**Units [2]**				Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Polynuclear Aromatic Hydrocarbons-PAHs																				
Anthracene	mg/kg	*36,000*	*670,000*	*1,000,000*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.267**	**0.221**	ND
Acenaphthene	mg/kg	*7,200*	*1,000,000*	*290,000*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.128**	**0.129**	ND
Acenaphthylene	mg/kg	*7,200*	*130,000 [5]*	*290,000 [5]*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.0172**	<0.00717	ND
Benzo(a)anthracene	mg/kg	*23*	*610*	*9,600*	ND	ND	ND	ND	ND	ND	ND	ND	ND	**20.5**	ND	ND	ND	**0.56**	**0.718**	ND
Benzo(a)pyrene	mg/kg	*2.3*	*62*	*230*	ND	ND	ND	ND	ND	ND	ND	ND	ND	**3.1**	ND	ND	ND	**0.524**	**0.67**	ND
Benzo(b)fluoranthene	mg/kg	*23*	*620*	*10,000*	ND	ND	ND	ND	ND	ND	ND	ND	ND	**4.58**	ND	ND	ND	**0.602**	**0.761**	ND
Benzo(g,h,i)perylene	mg/kg	*3,600*	*67,000 [5]*	*430,000 [5]*	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2.44**	ND	ND	ND	**0.286**	**0.377**	ND
Benzo(k)fluoranthene	mg/kg	*230*	*6,200*	*100,000*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.224**	**0.269**	ND
Chrysene	mg/kg	*2,300*	*62,000*	*1,000,000*	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2.73**	ND	ND	ND	**0.445**	**0.631**	ND
Dibenz(a,h)anthracene	mg/kg	*2.3*	*62*	*1,000*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.0695**	**0.0828**	ND
Fluoranthene	mg/kg	*4,800*	*89,000*	*170,000*	ND	ND	ND	ND	ND	ND	ND	ND	ND	**6.83**	ND	ND	ND	**1.32**	**1.73**	ND
Fluorene	mg/kg	*4,800*	*89,000*	*580,000*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.129**	**0.0969**	ND
Indeno(1,2,3-cd)pyrene	mg/kg	*23*	*620*	*10,000*	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2.63**	ND	ND	ND	**0.35**	**0.44**	ND
Naphthalene	mg/kg	*96*	*420*	*560*	ND	**3.3**	ND	ND	ND	ND	ND	ND	ND	**2.92**	ND	ND	ND	**0.198**	**0.228**	ND
Phenanthrene	mg/kg	*36,000*	*670,000 [5]*	*1,000,000 [5]*	ND	**0.554**	ND	ND	ND	ND	ND	ND	ND	**5.95**	ND	ND	ND	**1.13**	**1.3**	ND
Pyrene	mg/kg	*3,600*	*67,000*	*430,000*	ND	ND	ND	ND	ND	ND	**4.15**	ND	ND	**5.24**	ND	ND	ND	**0.998**	**1.46**	ND
1-Methylnaphthalene	mg/kg	*350*	*390*	*390*	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	ND	ND	**0.14**	**0.252**	ND
2-Methylnaphthalene	mg/kg	*480*	*8,900*	*5,800*	ND	**2.13**	ND	ND	ND	ND	ND	ND	NT	NT	ND	ND	ND	**0.204**	**0.351**	ND
Total Petroleum Hydrocarbons-TPHs																				
C6-C12 Hydrocarbons	mg/kg	*10,000*	*10,000*	*10,000*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C10-C20 Hydrocarbons	mg/kg	*10,000*	*10,000*	*10,000*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C20-C34 Hydrocarbons	mg/kg	*20,000*	*20,000*	*20,000*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C6-C7 Hydrocarbons	--	*No Current Standards*			NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND [7]
C7-C16 Hydrocarbons	--				NT	NT	NT	NT	NT	**81.6**	**1,780**	**122**	**104**	**38.60**	**5.14**	**37.50**	**4.18**	NT	NT	
C16-C32 Hydrocarbons	--				NT	NT	NT	NT	NT	**4,090**	**39,100**	**10,600**	**13,300**	**297**	**39.80**	**1,020.00**	**12.40**	NT	NT	

Notes

1. FT - Feet below grade
2. mg/kg = Milligrams per kilogram - parts per million (ppm)
3. Ohio VAP GDCS Commercial/Industrial Land Use.
4. Ohio VAP GDCS Construction/Excavation Activities.
5. Supplemental standards from the Ohio VAP CIDARS
6. Samples analyzed for SVOCs by SW8270B
7. TPH T/R by E418.1

NE: No standard established by applicable agency; **NT**: Parameter not analyzed for this sample.
ND : No Detections
Bold numbers indicate a concentration above laboratory detection limits.
Bold and shaded numbers indicate a detected concentration above a comparison standard.
If exceeding more than one standard, the most strict one is highlighted.

Table 4B: Summary of PAHs and TPHs in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

					IA-11						IA12									IA-13
Sample ID (Depth[1])		*Applicable Standards*			**B-13 (4-5) * [6]**	**B-14 (4-6) * [6]**	**B-IA-11-01 (0-2) ***	**B-IA-11-01 (4-6) ***	**B-IA-11-02 (0-2) ***	**B-IA-11-02 (6-7) ***	**P4-IA12-SB01 (4-6)**	**B-06 (8-10) * [6]**	**B-07 (8-10) * [6]**	**B-09 (8-10) * [6]**	**B-10 (4-6) * [6]**	**B-11 (4-6) * [6]**	**B-16 (8-10) * [6]**	**B-IA-12-01 (0-2) ***	**B-IA-12-01 (4-6) ***	**B-38 (13-15) ***
Collection Date		***GDCS Residential Land Use*** [3]	***Commercial/ Industrial Land Use*** [4]	***Construction/ Excavation Activities*** [5]	3/28/2000	3/28/2000	6/11/2004	6/11/2004	6/11/2004	6/11/2004	6/13/2023	3/24/2000	3/24/2000	3/24/2000	3/28/2000	3/28/2000	3/29/2000	6/11/2004	6/11/2004	5/30/2001
Parameter	**Units** [2]				Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Polynuclear Aromatic Hydrocarbons-PAHs																				
Anthracene	mg/kg	*36,000*	*670,000*	*1,000,000*	**0.267**	ND	NT	NT	ND	ND	**2.47**	ND	ND	ND	ND	**4.29**	ND	NT	NT	ND
Acenaphthene	mg/kg	*7,200*	*1,000,000*	*290,000*	ND	ND	NT	NT	ND	ND	**0.117**	ND	ND	ND	ND	**1.49**	ND	NT	NT	ND
Acenaphthylene	mg/kg	*7,200*	*130,000* [5]	*290,000* [5]	ND	ND	NT	NT	ND	ND	<0.00719	ND	ND	ND	ND	ND	ND	NT	NT	ND
Benzo(a)anthracene	mg/kg	*23*	*610*	*9,600*	**0.921**	ND	NT	NT	ND	ND	**0.285**	ND	ND	ND	ND	ND	ND	NT	NT	ND
Benzo(a)pyrene	mg/kg	*2.3*	*62*	*230*	**1.23**	ND	NT	NT	ND	ND	<0.719	ND	ND	ND	ND	**6.27**	**0.228**	NT	NT	ND
Benzo(b)fluoranthene	mg/kg	*23*	*620*	*10,000*	**1.54**	ND	NT	NT	**1.3**	ND	**0.236 J**	ND	ND	ND	ND	**7.39**	**0.232**	NT	NT	ND
Benzo(g,h,i)perylene	mg/kg	*3,600*	*67,000* [5]	*430,000* [5]	**0.974**	ND	NT	NT	ND	ND	<0.719	ND	ND	ND	ND	**2.78**	ND	NT	NT	ND
Benzo(k)fluoranthene	mg/kg	*230*	*6,200*	*100,000*	**0.757**	ND	NT	NT	ND	ND	<0.719	ND	ND	ND	ND	**2.89**	ND	NT	NT	ND
Chrysene	mg/kg	*2,300*	*62,000*	*1,000,000*	**1.23**	ND	NT	NT	ND	ND	**0.44**	ND	ND	ND	ND	ND	ND	NT	NT	ND
Dibenz(a,h)anthracene	mg/kg	*2.3*	*62*	*1,000*	ND	ND	NT	NT	ND	ND	<0.719	ND	ND	ND	ND	**0.65**	ND	NT	NT	ND
Fluoranthene	mg/kg	*4,800*	*89,000*	*170,000*	**2.22**	ND	NT	NT	**1.86**	ND	**0.435**	ND	**0.266**	ND	ND	**13.4**	**0.377**	NT	NT	ND
Fluorene	mg/kg	*4,800*	*89,000*	*580,000*	ND	ND	NT	NT	ND	ND	**0.225**	ND	ND	ND	ND	**1.69**	ND	NT	NT	ND
Indeno(1,2,3-cd)pyrene	mg/kg	*23*	*620*	*10,000*	**0.779**	ND	NT	NT	ND	ND	<0.719	ND	ND	ND	ND	**3.3**	ND	NT	NT	ND
Naphthalene	mg/kg	*96*	*420*	*560*	ND	ND	NT	NT	ND	ND	**0.069**	ND	ND	ND	ND	**0.266**	ND	NT	NT	ND
Phenanthrene	mg/kg	*36,000*	*670,000* [5]	*1,000,000* [5]	**1.59**	ND	NT	NT	**1.59**	ND	<0.00719	ND	**0.283**	ND	ND	**14.7**	ND	NT	NT	ND
Pyrene	mg/kg	*3,600*	*67,000*	*430,000*	**1.91**	ND	NT	NT	**1.55**	ND	**0.768**	ND	**0.227**	ND	ND	**15.8**	**0.277**	NT	NT	ND
1-Methylnaphthalene	mg/kg	*350*	*390*	*390*	ND	ND	NT	NT	ND	ND	**0.141**	ND	ND	ND	ND	ND	ND	NT	NT	ND
2-Methylnaphthalene	mg/kg	*480*	*8,900*	*5,800*	ND	ND	NT	NT	ND	ND	<0.0240	ND	ND	ND	ND	ND	ND	NT	NT	ND
Total Petroleum Hydrocarbons-TPHs																				
C6-C12 Hydrocarbons	mg/kg	*10,000*	*10,000*	*10,000*	NT	NT	NT	NT	NT	NT	**41.2**	NT	NT	NT	NT	NT	NT	NT	NT	NT
C10-C20 Hydrocarbons	mg/kg	*10,000*	*10,000*	*10,000*	NT	NT	NT	NT	NT	NT	**1750**	NT	NT	NT	NT	NT	NT	NT	NT	NT
C20-C34 Hydrocarbons	mg/kg	*20,000*	*20,000*	*20,000*	NT	NT	NT	NT	NT	NT	**7940**	NT	NT	NT	NT	NT	NT	NT	NT	NT
C6-C7 Hydrocarbons	--	*No Current Standards*			**712** [7]	**9430** [7]	ND	ND	ND	ND	NT	ND [7]	ND [7]	ND [7]	**17,700** [7]	**2,090** [7]	**61.1** [7]	ND	ND	NT
C7-C16 Hydrocarbons	--						**21**	**19.9**	**28.2**	**203**	NT							**150**	**71.5**	NT
C16-C32 Hydrocarbons	--						**488**	**178**	**461**	**926**	NT							**13,200**	**4,350**	NT

Notes

1. FT - Feet below grade
2. mg/kg = Milligrams per kilogram - parts per million (ppm)
3. Ohio VAP GDCS Commercial/Industrial Land Use.
4. Ohio VAP GDCS Construction/Excavation Activities.
5. Supplemental standards from the Ohio VAP CIDARS
6. Samples analyzed for SVOCs by SW8270B
7. TPH T/R by E418.1

NE: No standard established by applicable agency; **NT**: Parameter not analyzed for this sample.
ND : No Detections
Bold numbers indicate a concentration above laboratory detection limits.
Bold and shaded numbers indicate a detected concentration above a comparison standard.
If exceeding more than one standard, the most strict one is highlighted.

Table 4B: Summary of PAHs and TPHs in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

					IA-13		IA-14												
Sample ID (Depth[1])		***Applicable Standards***			**B-39 (14-16) ***	**B-40 (13-15) ***	**P4-IA14-SB01 (0-2)**	**P4-IA14-SB02 (2-4)**	**P4-IA14-SB03 (0-2)**	**B-41 (0-2) ***	**B-41A (0-2) ***	**B-41A (2-4) ***	**B-41A (4-6) ***	**B-42 (0-2) ***	**B-42A (0-2) ***	**B-42A (2-4) ***	**B-42A (4-6) ***	**B-43 (0-2) ***	**B-44 (0-2) ***	**B-44A (0-2) ***
Collection Date		***GDCS Residential Land Use [3]***	***Commercial/ Industrial Land Use [4]***	***Construction/ Excavation Activities [5]***	5/30/2001	5/30/2001	6/13/2023	6/13/2023	6/19/2023	5/30/2001	6/10/2004	6/10/2004	6/10/2004	5/30/2001	6/10/2004	6/10/2004	6/10/2004	5/30/2001	5/30/2001	6/10/2004
Parameter	**Units [2]**				Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Polynuclear Aromatic Hydrocarbons-PAHs																				
Anthracene	mg/kg	*36,000*	*670,000*	*1,000,000*	ND	ND	**0.722**	**5.46**	**0.504**	ND	NT	NT	NT	ND	NT	NT	NT	ND	ND	NT
Acenaphthene	mg/kg	*7,200*	*1,000,000*	*290,000*	ND	ND	**0.183**	**2.38**	**0.112**	ND	NT	NT	NT	ND	NT	NT	NT	ND	ND	NT
Acenaphthylene	mg/kg	*7,200*	*130,000 [5]*	*290,000 [5]*	ND	ND	**0.357**	**1.53**	**0.574**	ND	NT	NT	NT	ND	NT	NT	NT	ND	ND	NT
Benzo(a)anthracene	mg/kg	*23*	*610*	*9,600*	ND	ND	**2.58**	**11.3**	**2.63**	ND	NT	NT	NT	ND	NT	NT	NT	ND	ND	NT
Benzo(a)pyrene	mg/kg	*2.3*	*62*	*230*	ND	ND	**2.86**	**11.2**	**2.12**	ND	NT	NT	NT	ND	NT	NT	NT	ND	ND	NT
Benzo(b)fluoranthene	mg/kg	*23*	*620*	*10,000*	ND	ND	**3.13**	**13.5**	**2.72**	ND	NT	NT	NT	ND	NT	NT	NT	ND	ND	NT
Benzo(g,h,i)perylene	mg/kg	*3,600*	*67,000 [5]*	*430,000 [5]*	ND	ND	**1.73**	**4.42**	**1.12**	ND	NT	NT	NT	ND	NT	NT	NT	ND	ND	NT
Benzo(k)fluoranthene	mg/kg	*230*	*6,200*	*100,000*	ND	ND	**1.22**	**3.34**	**1.25**	ND	NT	NT	NT	ND	NT	NT	NT	ND	ND	NT
Chrysene	mg/kg	*2,300*	*62,000*	*1,000,000*	ND	ND	**2.14**	**9.22**	**1.71**	ND	NT	NT	NT	ND	NT	NT	NT	ND	ND	NT
Dibenz(a,h)anthracene	mg/kg	*2.3*	*62*	*1,000*	ND	ND	**0.421**	**1.21**	**0.322**	ND	NT	NT	NT	ND	NT	NT	NT	ND	ND	NT
Fluoranthene	mg/kg	*4,800*	*89,000*	*170,000*	ND	ND	**5.69**	**29.2**	**3.57**	ND	NT	NT	NT	ND	NT	NT	NT	ND	ND	NT
Fluorene	mg/kg	*4,800*	*89,000*	*580,000*	ND	ND	**0.233**	**2.95**	**0.0941**	ND	NT	NT	NT	ND	NT	NT	NT	ND	ND	NT
Indeno(1,2,3-cd)pyrene	mg/kg	*23*	*620*	*10,000*	ND	ND	**2.13**	**8.38**	**1.53**	ND	NT	NT	NT	ND	NT	NT	NT	ND	ND	NT
Naphthalene	mg/kg	*96*	*420*	*560*	ND	ND	**1.05**	**2.34**	**0.167**	ND	NT	NT	NT	ND	NT	NT	NT	ND	ND	NT
Phenanthrene	mg/kg	*36,000*	*670,000 [5]*	*1,000,000 [5]*	ND	ND	**2.6**	**23.1**	**1.36**	ND	NT	NT	NT	ND	NT	NT	NT	ND	ND	NT
Pyrene	mg/kg	*3,600*	*67,000*	*430,000*	ND	ND	**4.1**	**18.8**	**2.89**	ND	NT	NT	NT	ND	NT	NT	NT	ND	ND	NT
1-Methylnaphthalene	mg/kg	*350*	*390*	*390*	ND	ND	**0.933**	**0.897**	**0.143**	ND	NT	NT	NT	ND	NT	NT	NT	ND	ND	NT
2-Methylnaphthalene	mg/kg	*480*	*8,900*	*5,800*	ND	ND	**1.29**	**1.39**	**0.208**	ND	NT	NT	NT	ND	NT	NT	NT	ND	ND	NT
Total Petroleum Hydrocarbons-TPHs																				
C6-C12 Hydrocarbons	mg/kg	*10,000*	*10,000*	*10,000*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C10-C20 Hydrocarbons	mg/kg	*10,000*	*10,000*	*10,000*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C20-C34 Hydrocarbons	mg/kg	*20,000*	*20,000*	*20,000*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C6-C7 Hydrocarbons	--	*No Current Standards*			NT	NT	NT	NT	NT	**61,200 [7]**	ND	ND	ND	**43,800 [7]**	ND	ND	ND	**65.3 [7]**	**1,470 [7]**	ND
C7-C16 Hydrocarbons	--				NT	NT	NT	NT	NT		**346**	**11.8**	**14.3**		**322**	**326**	**411**			**30.9**
C16-C32 Hydrocarbons	--				NT	NT	NT	NT	NT		**27,500**	**141**	**55**		**19,400**	**28,800**	**27,200**			**8,890**

Notes

1. FT - Feet below grade
2. mg/kg = Milligrams per kilogram - parts per million (ppm)
3. Ohio VAP GDCS Commercial/Industrial Land Use.
4. Ohio VAP GDCS Construction/Excavation Activities.
5. Supplemental standards from the Ohio VAP CIDARS
6. Samples analyzed for SVOCs by SW8270B
7. TPH T/R by E418.1

NE: No standard established by applicable agency; **NT**: Parameter not analyzed for this sample.
ND : No Detections
Bold numbers indicate a concentration above laboratory detection limits.
Bold and shaded numbers indicate a detected concentration above a comparison standard.
If exceeding more than one standard, the most strict one is highlighted.

Table 4B: Summary of PAHs and TPHs in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

Sample ID (Depth[1])		Applicable Standards			IA-14												General Coverage		IA-51	
					B-IA-14-01 (0-2) *	B-IA 14-1 (2-4) *	B-IA 14-1 (4-6) *	B-IA 14-2 (0-2) *	B-IA 14-2 (2-4) *	B-IA 14-2 (4-6) *	B-IA 14-3 (0-2) *	B-IA 14-3 (2-4) *	B-IA 14-3 (4-6) *	B-IA 14-4 (0-2) *	B-IA 14-4 (2-4) *	B-IA 14-4 (4-6) *	P4-GC-SB01 (0-2)	P4-GC-MW01 (2-4)	P5-IA51-SB01 (2-4)	P5-IA51-SB02 (2-4)
Collection Date		*GDCS Residential Land Use* [3]	*Commercial/ Industrial Land Use* [4]	*Construction/ Excavation Activities* [5]	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/19/2023	6/19/2023	6/22/2023	6/22/2023
Parameter	**Units** [2]				Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Polynuclear Aromatic Hydrocarbons-PAHs																				
Anthracene	mg/kg	*36,000*	*670,000*	*1,000,000*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**1.51**	<0.00692	**1.71**	**5**
Acenaphthene	mg/kg	*7,200*	*1,000,000*	*290,000*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**1.13**	**0.0166**	**0.681**	**2.08**
Acenaphthylene	mg/kg	*7,200*	*130,000* [5]	*290,000* [5]	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**0.248**	**0.00587 J**	**0.13**	**0.327**
Benzo(a)anthracene	mg/kg	*23*	*610*	*9,600*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**1.61**	**0.0688**	**5.32**	**20.2**
Benzo(a)pyrene	mg/kg	*2.3*	*62*	*230*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**0.969**	**0.036**	**5.33**	**17.3**
Benzo(b)fluoranthene	mg/kg	*23*	*620*	*10,000*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**1.11**	**0.0881**	**6.03**	**19.9**
Benzo(g,h,i)perylene	mg/kg	*3,600*	*67,000* [5]	*430,000* [5]	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**0.382**	**0.0521**	**3.57**	**9.06**
Benzo(k)fluoranthene	mg/kg	*230*	*6,200*	*100,000*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**0.439**	**0.028**	**2.3**	**7.27**
Chrysene	mg/kg	*2,300*	*62,000*	*1,000,000*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**1.14**	**0.113**	**5.17**	**18.2**
Dibenz(a,h)anthracene	mg/kg	*2.3*	*62*	*1,000*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**0.1**	**0.00709**	**0.798**	**3.58**
Fluoranthene	mg/kg	*4,800*	*89,000*	*170,000*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**5.56**	**0.368**	**12.1**	**44.9**
Fluorene	mg/kg	*4,800*	*89,000*	*580,000*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**2.22**	**0.0261**	**0.566**	**1.78**
Indeno(1,2,3-cd)pyrene	mg/kg	*23*	*620*	*10,000*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**0.516**	**0.0489**	**4.6**	**12.8**
Naphthalene	mg/kg	*96*	*420*	*560*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**5.97**	**0.0726**	**0.237**	**1.15**
Phenanthrene	mg/kg	*36,000*	*670,000* [5]	*1,000,000* [5]	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**9.23**	**0.446**	**5.72**	**18.5**
Pyrene	mg/kg	*3,600*	*67,000*	*430,000*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**4.06**	**0.255**	**8.07**	**31.7**
1-Methylnaphthalene	mg/kg	*350*	*390*	*390*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**1.75**	**0.0297**	**0.194**	**0.511**
2-Methylnaphthalene	mg/kg	*480*	*8,900*	*5,800*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**3.26**	**0.0468**	**0.23**	**0.682**
Total Petroleum Hydrocarbons-TPHs																				
C6-C12 Hydrocarbons	mg/kg	*10,000*	*10,000*	*10,000*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**0.118**	<0.115
C10-C20 Hydrocarbons	mg/kg	*10,000*	*10,000*	*10,000*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**44.2 J**	**396 V**
C20-C34 Hydrocarbons	mg/kg	*20,000*	*20,000*	*20,000*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**468**	**1720 V**
C6-C7 Hydrocarbons	--	*No Current Standards*			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT
C7-C16 Hydrocarbons	--				**49.2**	**15**	**17.8**	**19.1**	**10.8**	**10.3**	**297**	**50.4**	**8.31**	**517**	**298**	**9.16**	NT	NT	NT	NT
C16-C32 Hydrocarbons	--				**2,060**	**95.4**	**64.4**	**565.0**	**57.1**	**39.7**	**27,400.0**	**4,780.0**	**62.9**	**50,800.0**	**27,900.0**	**80.3**	NT	NT	NT	NT

Notes

1. FT - Feet below grade
2. mg/kg = Milligrams per kilogram - parts per million (ppm)
3. Ohio VAP GDCS Commercial/Industrial Land Use.
4. Ohio VAP GDCS Construction/Excavation Activities.
5. Supplemental standards from the Ohio VAP CIDARS
6. Samples analyzed for SVOCs by SW8270B
7. TPH T/R by E418.1

NE: No standard established by applicable agency; **NT**: Parameter not analyzed for this sample.
ND : No Detections
Bold numbers indicate a concentration above laboratory detection limits.
Bold and shaded numbers indicate a detected concentration above a comparison standard.
If exceeding more than one standard, the most strict one is highlighted.

Table 4B: Summary of PAHs and TPHs in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

Sample ID (Depth[1])		Applicable Standards			IA-52		IA-53		IA-54		IA-55	IA-56		IA-57		General Coverage			
					P5-IA52-SB01 (2-4)	P5-IA52-SB02 (2-4)	P5-IA53-SB01 (2-4)	P5-IA53-MW01 (4-6)	P5-IA54-SB01 (2-4)	P5-IA54-MW01 (14-16)	P5-IA55-SB01 (4-6)	P5-IA56-SB01 (2-4)	P5-IA56-MW01 (6-8)	P5-IA57-SB01 (2-4)	P5-IA57-MW01 (2-4)	P5-GC-SB01 (2-4)	P5-GC-SB02 (2-4)	P5-GC-SB03 (6-8)	P5-GC-MW01 (8-10)
Collection Date		*GDCS Residential Land Use* [3]	*Commercial/ Industrial Land Use* [4]	*Construction/ Excavation Activities* [5]	6/21/2023	6/21/2023	6/20/2023	6/20/2023	6/21/2023	6/21/2023	6/22/2023	6/22/2023	6/21/2023	6/19/2023	6/20/2023	6/20/2023	6/22/2023	6/22/2023	6/21/2023
Parameter	**Units** [2]				Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Polynuclear Aromatic Hydrocarbons-PAHs																			
Anthracene	mg/kg	*36,000*	*670,000*	*1,000,000*	<0.00706	<0.00716	**0.152**	**0.761**	**0.144**	**0.468**	<0.00747	**1.67**	**0.141**	**0.0477**	**0.534**	<0.00655	**0.355**	**0.0109**	<0.00795
Acenaphthene	mg/kg	*7,200*	*1,000,000*	*290,000*	**0.141**	<0.00716	**0.0614**	**0.423**	**0.0405**	**1.4**	<0.00747	**1.42**	**0.0113**	**0.0227**	**0.157**	<0.00655	**0.2**	**0.00472 J**	<0.00795
Acenaphthylene	mg/kg	*7,200*	*130,000* [5]	*290,000* [5]	<0.00706	<0.00716	**0.0228**	**0.0518**	**0.0176**	<0.00731	<0.00747	**0.224**	**0.00696 J**	**0.00354 J**	**0.0519 J**	<0.00655	**0.0159**	<0.00756	<0.00795
Benzo(a)anthracene	mg/kg	*23*	*610*	*9,600*	**0.0657**	**0.008**	**0.728**	**1.89**	**0.779**	**0.16**	<0.00747	**4.78**	**0.17**	**0.124**	**2.96**	**0.0178**	**0.904**	**0.0334**	<0.00795
Benzo(a)pyrene	mg/kg	*2.3*	*62*	*230*	**0.0452**	**0.00635 J**	**0.571**	**1.51**	**0.719**	**0.0937**	<0.00747	**3.22**	**0.118**	**0.0975**	**2.74**	**0.0194**	**0.832**	**0.035**	<0.00795
Benzo(b)fluoranthene	mg/kg	*23*	*620*	*10,000*	**0.0571**	**0.00843**	**0.619**	**1.67**	**0.828**	**0.046**	<0.00747	**3.69**	**0.148**	**0.105**	**3.19**	**0.0276**	**1.02**	**0.0494**	<0.00795
Benzo(g,h,i)perylene	mg/kg	*3,600*	*67,000* [5]	*430,000* [5]	**0.0205**	**0.00458 J**	**0.347**	**0.856**	**0.385**	**0.0764**	<0.00747	**2.14**	**0.084**	**0.0464**	**1.72**	**0.0146**	**0.477**	**0.0235**	<0.00795
Benzo(k)fluoranthene	mg/kg	*230*	*6,200*	*100,000*	**0.0204**	**0.0028 J**	**0.23**	**0.617**	**0.313**	<0.00731	<0.00747	**1.46**	**0.0492**	**0.0434**	**1.04**	**0.00973**	**0.34**	**0.016**	<0.00795
Chrysene	mg/kg	*2,300*	*62,000*	*1,000,000*	**0.0437**	**0.00655 J**	**0.718**	**1.69**	**0.542**	**0.191**	<0.00747	**3.84**	**0.112**	**0.0923**	**2.73**	**0.0199**	**0.771**	**0.0377**	<0.00795
Dibenz(a,h)anthracene	mg/kg	*2.3*	*62*	*1,000*	**0.00614 J**	<0.00716	**0.0876**	**0.214**	**0.0928**	**0.0132**	<0.00747	**0.431**	**0.0154**	**0.0118**	**0.373**	**0.00309 J**	**0.117**	**0.00514 J**	<0.00795
Fluoranthene	mg/kg	*4,800*	*89,000*	*170,000*	**0.169**	**0.0124**	**1.22**	**3.79**	**1.47**	**0.328**	**0.00301 J**	**11.6**	**0.476**	**0.264**	**6.52**	**0.0284**	**2.08**	**0.0738**	<0.00795
Fluorene	mg/kg	*4,800*	*89,000*	*580,000*	**0.119**	<0.00716	**0.0598**	**0.413**	**0.0424**	**2.12**	<0.00747	**1.13**	**0.0225**	**0.0183**	**0.128**	<0.00655	**0.159**	**0.00608 J**	<0.00795
Indeno(1,2,3-cd)pyrene	mg/kg	*23*	*620*	*10,000*	**0.0294**	**0.00505 J**	**0.367**	**1.04**	**0.523**	**0.0249**	<0.00747	**2.55**	**0.105**	**0.0645**	**1.99**	**0.015**	**0.592**	**0.0273**	<0.00795
Naphthalene	mg/kg	*96*	*420*	*560*	**0.0189 J**	**0.0722**	**0.0252**	**0.297**	**0.0128 J**	**10.3**	<0.0249	**1.15**	**0.0747**	**0.0166 J**	**0.125 J**	<0.0218	**0.0655**	**0.0521**	<0.0265
Phenanthrene	mg/kg	*36,000*	*670,000* [5]	*1,000,000* [5]	**0.557**	**0.033**	**0.472**	**2.89**	**0.582**	**4.35**	<0.00747	**9.99**	**0.289**	**0.197**	**1.78**	**0.00743**	**1.87**	**0.0533**	<0.00795
Pyrene	mg/kg	*3,600*	*67,000*	*430,000*	**0.155**	**0.0119**	**1.22**	**3.03**	**1.15**	**1.23**	**0.00289 J**	**10.4**	**0.343**	**0.185**	**5.06**	**0.0282**	**1.87**	**0.0737**	<0.00795
1-Methylnaphthalene	mg/kg	*350*	*390*	*390*	**0.161**	**0.0648**	**0.0239 J**	**0.149**	**0.013 J**	**16.7**	<0.0249	**0.489**	**0.072**	**0.0192 J**	**0.134 J**	<0.0218	**0.0388**	**0.0416**	<0.0265
2-Methylnaphthalene	mg/kg	*480*	*8,900*	*5,800*	**0.0322**	**0.097**	**0.0181 J**	**0.197**	**0.0161 J**	**14.1**	<0.0249	**0.818**	**0.108**	**0.0213 J**	**0.159 J**	<0.0218	**0.0403**	**0.0515**	<0.0265
Total Petroleum Hydrocarbons-TPHs																			
C6-C12 Hydrocarbons	mg/kg	*10,000*	*10,000*	*10,000*	**0.258**	<0.119	**0.104 J**	**0.139**	**0.126**	**2580**	NT	NT	NT	**0.0901 J**	**0.0759 J**	NT	NT	NT	NT
C10-C20 Hydrocarbons	mg/kg	*10,000*	*10,000*	*10,000*	**15.8**	**8.84**	**55.6 J**	**62.7**	**22.4**	**7700**	NT	NT	NT	<239	<1080	NT	NT	NT	NT
C20-C34 Hydrocarbons	mg/kg	*20,000*	*20,000*	*20,000*	**8.62**	**16.2**	**325**	**163**	**179**	**6450**	NT	NT	NT	**97.7 J**	**809 J**	NT	NT	NT	NT
C6-C7 Hydrocarbons	--	*No Current Standards*			NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C7-C16 Hydrocarbons	--				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C16-C32 Hydrocarbons	--				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Notes

1. FT - Feet below grade
2. mg/kg = Milligrams per kilogram - parts per million (ppm)
3. Ohio VAP GDCS Commercial/Industrial Land Use.
4. Ohio VAP GDCS Construction/Excavation Activities.
5. Supplemental standards from the Ohio VAP CIDARS
6. Samples analyzed for SVOCs by SW8270B
7. TPH T/R by E418.1

NE: No standard established by applicable agency; **NT**: Parameter not analyzed for this sample.
ND : No Detections
Bold numbers indicate a concentration above laboratory detection limits.
Bold and shaded numbers indicate a detected concentration above a comparison standard.
If exceeding more than one standard, the most strict one is highlighted.

Table 4C: Summary of PCBs and RCRA 8 Metals in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

						IA-02		IA-03				IA-04								
Sample ID (Depth[1])		*VAP Standards*				**P4-IA02-SB01 (4-6)**	**Duplicate 1 (P4-IA02-SB01)**	**P4-IA03-SB01 (2-4)**	**P4-IA03-MW01 (0-2)**	**B-30 (0-2) ***	**B-30 (2-4) ***	**P4-IA04-MW01 (2-4)**	**B-34 (0-2) ***	**B-31 (2-4) ***	**B-34 (4-6) ***	**B-34 (6-8) ***	**B-34 (8-10) ***	**B-35 (0-2) ***	**B-35 (2-4) ***	**B-35 (4-6) ***
Collection Date		*GDCS Residential Land Use [3]*	*Commercial/ Industrial Land Use [4]*	*Construction/ Excavation Activities Land Use [5]*	*Cuyahoga County Background Levels [6]*	6/14/2023	6/14/2023	6/14/2023	6/14/2023	12/5/2000	12/5/2000	6/14/2023	5/31/2001	5/31/2001	5/31/2001	5/31/2001	5/31/2001	5/31/2001	5/31/2001	5/31/2001
Parameter	**Units [2]**					Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Resource Conservation and Recovery Act (RCRA) 8 Metals																				
Arsenic	mg/kg	*14*	*100*	*760*	*24*	**13.1**	**19.6**	**4.99**	**5.34**	**10.6**	**9.35**	**4.94**	**20.2**	**14.7**	**18**	**18.8**	ND	**9.67**	**18.4**	**6.97**
Barium	mg/kg	*30,000*	*760,000*	*350,000*	*98.9*	**101**	**112**	**53.4**	**77.6**	**218**	**89.6**	**35.3**	**75.6**	**26.1**	**36.8**	**23.3**	**19.9**	**43.8**	**51.9**	**50.3**
Cadmium	mg/kg	*140*	*3,300*	*710*	*0.834*	**0.153 J**	**0.0612 J**	**0.123 J**	**0.111 J**	ND	ND	**0.285 J**	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	mg/kg	*27*	*240*	*1,300*	*21.1*	**21.2**	**18.7**	**9.33**	**13.6**	**9.63**	**5.65**	**10.2**	**9.44**	**13.4**	**12.9**	**6.83**	**6.23**	**6.86**	**14.8**	**11.9**
Lead	mg/kg	*400*	*800*	*400*	*51.7*	**12.8**	**19.6**	**16.1**	**14.3**	**10.5**	**13.4**	**7.5**	**23.1**	**10.7**	**17.3**	**8.13**	**7.77**	**29.5**	**14.6**	**9.67**
Selenium	mg/kg	*780*	*23,000*	*12,000*	*0.943*	<2.51	<2.53	<2.42	**1.39**	ND	ND	<2.14	ND	ND	ND	ND	ND	ND	ND	ND
Silver	mg/kg	*780*	*23,000*	*12,000*	*NA*	<1.26	<1.27	<1.21	<1.18	ND	ND	<1.07	ND	ND	ND	ND	ND	ND	ND	ND
Mercury	mg/kg	*3.1*	*3.1*	*3.1*	*0.097*	**0.0466 J**	**0.0378 J**	**0.0385 J**	**0.0521 J**	ND	ND	**0.0307 J**	ND	ND	ND	ND	ND	ND	ND	ND
Polychlorinated Biphenyls-PCBs																				
PCB 1016	mg/kg	*8.2*	*150*	*290*	*NA*	<0.0427	<0.0430	<0.0823	<0.0800	NT	NT	NT	ND	NT	NT	NT	NT	ND	NT	NT
PCB 1221	mg/kg	*3.9*	*22*	*300*	*NA*	<0.0427	<0.0430	<0.0823	<0.0800	NT	NT	NT	ND	NT	NT	NT	NT	ND	NT	NT
PCB 1232	mg/kg	*3.4*	*18*	*230*	*NA*	<0.0427	<0.0430	<0.0823	<0.0800	NT	NT	NT	ND	NT	NT	NT	NT	ND	NT	NT
PCB 1242	mg/kg	*4.6*	*27*	*400*	*NA*	<0.0427	<0.0430	<0.0823	<0.0800	NT	NT	NT	ND	NT	NT	NT	NT	ND	NT	NT
PCB 1248	mg/kg	*4.5*	*26*	*390*	*NA*	<0.0213	<0.0215	<0.0411	<0.0400	NT	NT	NT	ND	NT	NT	NT	NT	ND	NT	NT
PCB 1254	mg/kg	*2.3*	*28*	*84*	*NA*	<0.0213	<0.0215	<0.0411	<0.0400	NT	NT	NT	ND	NT	NT	NT	NT	ND	NT	NT
PCB 1260	mg/kg	*4.8*	*28*	*450*	*NA*	<0.0213	<0.0215	<0.0411	<0.0400	NT	NT	NT	ND	NT	NT	NT	NT	ND	NT	NT

Notes

1. FT - Feet below grade
2. mg/kg = Milligrams per kilogram - parts per million (ppm)
3. Ohio VAP GDCS Residential Land Use.
4. Ohio VAP GDCS Commercial/Industrial Land Use.
5. Ohio VAP GDCS Construction/Excavation Activities.
6. Ohio EPA Division of Environmental Reponse and Revitalization Background Metal Soil Concentrations for Cuyahoga County, Ohio

NE: No standard established by applicable agency; **NT**: Parameter not analyzed for this sample; **ND**: No Detections

Bold numbers indicate a concentration above laboratory detection limits.

Bold and shaded numbers indicate a detected concentration above a comparison standard.

* : Samples collected by HzW

ł : Boring locations excavated and removed from the Property by HzW

Laboratory Qualifiers:

J: The identification of the analyte is acceptable; the reported value is an estimate.

B: The same analyte is found in the associated blank.

E: The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)

J3: The associated batch QC was outside the established quality control range for precision.

J4: The associated batch QC was outside the established quality control range for accuracy

J6: The sample matrix interfered with the ability to make any accurate determination; spike value is low

J7: Surrogate recovery cannot be used for control limit evaluation due to dilution

O1: The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.

Table 4C: Summary of PCBs and RCRA 8 Metals in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

Sample ID (Depth[1])		VAP Standards				IA-04													
						B-35 (6-8) *	B-35 (8-10) *	IA-4-01 (0-2) *	IA-4-01 (2-4) *	IA-4-01 (4-6) *	IA-4-01 (6-8) *	IA-4-01 (8-10) *	IA-4-02 (0-2) *	IA-4-02 (2-4) *	IA-4-02 (4-6) *	IA-4-02 (6-8) *	IA-4-02 (8-10) *	IA-4-03 (0-2) *	IA-4-03 (2-4) *	IA-4-03 (4-6) *
Collection Date		*GDCS Residential Land Use* [3]	*Commercial/ Industrial Land Use* [4]	*Construction/ Excavation Activities Land Use* [5]	*Cuyahoga County Background Levels* [6]	5/31/2001	5/31/2001	9/25/2008	9/25/2008	9/25/2008	9/25/2008	9/25/2008	9/25/2008	9/25/2008	9/25/2008	9/25/2008	9/25/2008	9/25/2008	9/25/2008	9/25/2008
Parameter	**Units** [2]					Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Resource Conservation and Recovery Act (RCRA) 8 Metals																				
Arsenic	mg/kg	*14*	*100*	*760*	*24*	**19.1**	ND	**6.06**	**12.5**	**9.01**	**9.07**	ND	ND	**20.6**	ND	**12.2**	ND	**6.89**	**16.9**	**8.13**
Barium	mg/kg	*30,000*	*760,000*	*350,000*	*98.9*	**60.9**	**11.6**	**36**	**53.7**	**64.2**	**49.5**	**13.8**	**36.5**	**72.5**	**30.2**	**40.7**	**33**	**45.11**	**95.1**	**44.5**
Cadmium	mg/kg	*140*	*3,300*	*710*	*0.834*	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.903**	ND	ND	ND	ND	ND
Chromium	mg/kg	*27*	*240*	*1,300*	*21.1*	**17.4**	**3.62**	**10.5**	**23.7**	**14.9**	**14.7**	**6.32**	**10.5**	**17.7**	**13.7**	**12.8**	**8.94**	**7.35**	**14.3**	**14.5**
Lead	mg/kg	*400*	*800*	*400*	*51.7*	**11.8**	**3.25**	**14**	**8.79**	**9.33**	**9.71**	**5.74**	**12.8**	**15.4**	**6.96**	**11.2**	**6.55**	**20**	**20.6**	**9.49**
Selenium	mg/kg	*780*	*23,000*	*12,000*	*0.943*	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT
Silver	mg/kg	*780*	*23,000*	*12,000*	*NA*	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT
Mercury	mg/kg	*3.1*	*3.1*	*3.1*	*0.097*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.114**	ND	ND
Polychlorinated Biphenyls-PCBs																				
PCB 1016	mg/kg	*8.2*	*150*	*290*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1221	mg/kg	*3.9*	*22*	*300*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1232	mg/kg	*3.4*	*18*	*230*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1242	mg/kg	*4.6*	*27*	*400*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1248	mg/kg	*4.5*	*26*	*390*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1254	mg/kg	*2.3*	*28*	*84*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1260	mg/kg	*4.8*	*28*	*450*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Notes

1. FT - Feet below grade
2. mg/kg = Milligrams per kilogram - parts per million (ppm)
3. Ohio VAP GDCS Residential Land Use.
4. Ohio VAP GDCS Commercial/Industrial Land Use.
5. Ohio VAP GDCS Construction/Excavation Activities.
6. Ohio EPA Division of Environmental Reponse and Revitalization Background Metal Soil Concentrations for Cuyahoga County, Ohio

NE: No standard established by applicable agency; **NT**: Parameter not analyzed for this sample; **ND**: No Detections

Bold numbers indicate a concentration above laboratory detection limits.

Bold and shaded numbers indicate a detected concentration above a comparison standard.

* : Samples collected by HzW

ł : Boring locations excavated and removed from the Property by HzW

Laboratory Qualifiers:

J: The identification of the analyte is acceptable; the reported value is an estimate.

B: The same analyte is found in the associated blank.

E: The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)

J3: The associated batch QC was outside the established quality control range for precision.

J4: The associated batch QC was outside the established quality control range for accuracy

J6: The sample matrix interfered with the ability to make any accurate determination; spike value is low

J7: Surrogate recovery cannot be used for control limit evaluation due to dilution

O1: The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.

Table 4C: Summary of PCBs and RCRA 8 Metals in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

								IA-05												IA-05
Sample ID (Depth[1])		*VAP Standards*				IA-4-03 (6-8) *	IA-4-03 (8-10) *	P4-IA05-SB01 (0-2)	B-36 (0-2) *	B-36 (2-4) *	B-36 (4-6) *	B-37 (0-2) *	B-37 (2-4) *	IA-5-01 (0-2) *	IA-5-01 (2-4) *	IA-5-01 (4-6) *	IA-5-01 (6-8) *	IA-5-01 (8-10) *	IA-5-02 (0-2) *	IA-5-02 (2-4) *
Collection Date		*GDCS Residential Land Use [3]*	*Commercial/ Industrial Land Use [4]*	*Construction/ Excavation Activities Land Use [5]*	*Cuyahoga County Background Levels [6]*	9/25/2008	9/25/2008	6/19/2023	5/31/2001	5/31/2001	5/31/2001	5/31/2001	5/31/2001	9/25/2008	9/25/2008	9/25/2008	9/25/2008	9/25/2008	9/25/2008	9/25/2008
Parameter	**Units [2]**					Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Resource Conservation and Recovery Act (RCRA) 8 Metals																				
Arsenic	mg/kg	*14*	*100*	*760*	*24*	**8.92**	**5.09**	**2.59**	**5.98**	**33.9**	**23.8**	ND	ND	**12.5**	**10.2**	**15.3**	**15.2**	**8.9**	**9.57**	**11.5**
Barium	mg/kg	*30,000*	*760,000*	*350,000*	*98.9*	**29.8**	**31.7**	**35.3**	**39.4**	**59.7**	**81.4**	**34.8**	**20.8**	**49.5**	**62.7**	**54.9**	**78.8**	**17.2**	**67.8**	**51.5**
Cadmium	mg/kg	*140*	*3,300*	*710*	*0.834*	ND	ND	**0.0811 J**	ND	**3.56**	**1.62**	ND	ND	ND	**0.556**	ND	**0.655**	ND	ND	ND
Chromium	mg/kg	*27*	*240*	*1,300*	*21.1*	**7.98**	**8.07**	**6.65**	**8.97**	**16.1**	**15.5**	**6.23**	**6.7**	**16.3**	**12.4**	**14.7**	**16.8**	**7.84**	**11.9**	**14.6**
Lead	mg/kg	*400*	*800*	*400*	*51.7*	**7.23**	**6.33**	**26.3**	**57.9**	**65.3**	**15.7**	**21.6**	**7.59**	**11.8**	**16**	**9.47**	**13.9**	**8.8**	**80.2**	**101**
Selenium	mg/kg	*780*	*23,000*	*12,000*	*0.943*	NT	NT	<2.38	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT
Silver	mg/kg	*780*	*23,000*	*12,000*	*NA*	NT	NT	<1.19	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT
Mercury	mg/kg	*3.1*	*3.1*	*3.1*	*0.097*	ND	ND	**0.0217 J**	ND	ND	ND	**0.199**	ND	ND	ND	ND	ND	ND	ND	ND
Polychlorinated Biphenyls-PCBs																				
PCB 1016	mg/kg	*8.2*	*150*	*290*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1221	mg/kg	*3.9*	*22*	*300*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1232	mg/kg	*3.4*	*18*	*230*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1242	mg/kg	*4.6*	*27*	*400*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1248	mg/kg	*4.5*	*26*	*390*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1254	mg/kg	*2.3*	*28*	*84*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1260	mg/kg	*4.8*	*28*	*450*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Notes

1. FT - Feet below grade
2. mg/kg = Milligrams per kilogram - parts per million (ppm)
3. Ohio VAP GDCS Residential Land Use.
4. Ohio VAP GDCS Commercial/Industrial Land Use.
5. Ohio VAP GDCS Construction/Excavation Activities.
6. Ohio EPA Division of Environmental Reponse and Revitalization Background Metal Soil Concentrations for Cuyahoga County, Ohio

NE: No standard established by applicable agency; **NT**: Parameter not analyzed for this sample; **ND**: No Detections

Bold numbers indicate a concentration above laboratory detection limits.

Bold and shaded numbers indicate a detected concentration above a comparison standard.

* : Samples collected by HzW

ł : Boring locations excavated and removed from the Property by HzW

Laboratory Qualifiers:

J: The identification of the analyte is acceptable; the reported value is an estimate.

B: The same analyte is found in the associated blank.

E: The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)

J3: The associated batch QC was outside the established quality control range for precision.

J4: The associated batch QC was outside the established quality control range for accuracy

J6: The sample matrix interfered with the ability to make any accurate determination; spike value is low

J7: Surrogate recovery cannot be used for control limit evaluation due to dilution

O1: The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.

Table 4C: Summary of PCBs and RCRA 8 Metals in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

Sample ID (Depth[1])		VAP Standards				IA-5-02 (4-6) *	IA-5-02 (6-8) *	IA-5-02 (8-10) *	IA-5-03 (0-2) *	IA-5-03 (2-4) *	IA-5-03 (4-6) *	IA-05 IA-5-03 (6-8) *	IA-05 IA-5-03 (8-10) *	IA-06 P4-IA06-SB01 (4-6)	IA-06 IA-6-01 (0-2) *	IA-06 IA-6-01 (2-4) *	IA-06 IA-6-02 (0-2) *	IA-06 IA-6-02 (2-4) *	IA-06 IA-6-03 (0-2) *	IA-06 IA-6-03 (2-4) *
Collection Date		*GDCS Residential Land Use* [3]	*Commercial/ Industrial Land Use* [4]	*Construction/ Excavation Activities Land Use* [5]	*Cuyahoga County Background Levels* [6]	9/25/2008	9/25/2008	9/25/2008	9/25/2008	9/25/2008	9/25/2008	9/25/2008	9/25/2008	6/13/2023	10/9/2008	10/9/2008	10/9/2008	10/9/2008	10/9/2008	10/3/2008
Parameter	**Units** [2]					Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Resource Conservation and Recovery Act (RCRA) 8 Metals																				
Arsenic	mg/kg	*14*	*100*	*760*	*24*	**15.2**	**9.4**	**7.45**	**5.86**	**6.39**	**9.25**	**9.25**	ND	**21**	**10.3**	**11.2**	ND	**10.2**	**5.31**	**5.11**
Barium	mg/kg	*30,000*	*760,000*	*350,000*	*98.9*	**92**	**45.6**	**60.8**	**50.1**	**19.6**	**64**	**60.4**	**19.6**	**101**	**38.2**	**79.6**	**38.9**	**45.2**	**33.4**	**24.6**
Cadmium	mg/kg	*140*	*3,300*	*710*	*0.834*	ND	ND	ND	**1.18**	ND	**0.632**	**0.724**	ND	**0.353 J**	ND	ND	ND	ND	ND	ND
Chromium	mg/kg	*27*	*240*	*1,300*	*21.1*	**13.4**	**12.1**	**9.7**	**7.8**	**8.88**	**16.9**	**17.8**	**9.45**	**22.8**	**11.3**	**20.3**	**6.93**	**13.5**	**6.87**	**6.33**
Lead	mg/kg	*400*	*800*	*400*	*51.7*	**49**	**65.8**	**149**	**40.4**	**6.93**	**12.8**	**13.6**	**8.18**	**14.2**	**18.7**	**10.3**	**16.8**	**10.4**	**8.72**	**6.06**
Selenium	mg/kg	*780*	*23,000*	*12,000*	*0.943*	NT	NT	NT	NT	NT	NT	NT	NT	**1.08 J**	ND	ND	ND	ND	ND	ND
Silver	mg/kg	*780*	*23,000*	*12,000*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	<1.27	ND	ND	ND	ND	ND	ND
Mercury	mg/kg	*3.1*	*3.1*	*3.1*	*0.097*	ND	ND	**0.125**	**0.212**	ND	ND	ND	ND	**0.0528**	ND	ND	ND	ND	ND	ND
Polychlorinated Biphenyls-PCBs																				
PCB 1016	mg/kg	*8.2*	*150*	*290*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1221	mg/kg	*3.9*	*22*	*300*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1232	mg/kg	*3.4*	*18*	*230*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1242	mg/kg	*4.6*	*27*	*400*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1248	mg/kg	*4.5*	*26*	*390*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1254	mg/kg	*2.3*	*28*	*84*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1260	mg/kg	*4.8*	*28*	*450*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Notes

1. FT - Feet below grade
2. mg/kg = Milligrams per kilogram - parts per million (ppm)
3. Ohio VAP GDCS Residential Land Use.
4. Ohio VAP GDCS Commercial/Industrial Land Use.
5. Ohio VAP GDCS Construction/Excavation Activities.
6. Ohio EPA Division of Environmental Reponse and Revitalization Background Metal Soil Concentrations for Cuyahoga County, Ohio

NE: No standard established by applicable agency; **NT**: Parameter not analyzed for this sample; **ND**: No Detections

Bold numbers indicate a concentration above laboratory detection limits.

Bold and shaded numbers indicate a detected concentration above a comparison standard.

* : Samples collected by HzW

ł : Boring locations excavated and removed from the Property by HzW

Laboratory Qualifiers:

J: The identification of the analyte is acceptable; the reported value is an estimate.

B: The same analyte is found in the associated blank.

E: The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)

J3: The associated batch QC was outside the established quality control range for precision.

J4: The associated batch QC was outside the established quality control range for accuracy

J6: The sample matrix interfered with the ability to make any accurate determination; spike value is low

J7: Surrogate recovery cannot be used for control limit evaluation due to dilution

O1: The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.

Table 4C: Summary of PCBs and RCRA 8 Metals in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

Sample ID (Depth[1])		VAP Standards				IA-07	IA-08	IA-09											IA-09	
						P4-IA07-MW01 (0-2)	B-15 (0-2) *	P4-IA09-SB01 (0-2)	B-23 (8-10) *	B-24 (8-10) *	B-25 (0-2) *	B-26 (4-6) * ł	B-27 (4-6) *	B-28 (2-4) *	B-45 (0-2) *	B-45 (2-4) *	B-46 (0-2) *	B-46 (2-4) *	IA-9-B-01 (0-2) *	IA-9-B-01 (4-6) *
Collection Date		*GDCS Residential Land Use* [3]	*Commercial/ Industrial Land Use* [4]	*Construction/ Excavation Activities Land Use* [5]	*Cuyahoga County Background Levels* [6]	6/14/2023	3/28/2000	6/13/2023	5/24/2000	5/24/2000	5/24/2000	5/24/2000	5/24/2000	5/24/2000	5/30/2001	5/30/2001	5/30/2001	5/30/2001	6/16/2004	6/16/2004
Parameter	**Units** [2]					Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Resource Conservation and Recovery Act (RCRA) 8 Metals																				
Arsenic	mg/kg	*14*	*100*	*760*	*24*	**11.6**	NT	**8.64**	ND	ND	ND	**53.7**	ND	**22ł**	**29.1**	ND	**11.9**	**9.28**	**35.2**	**25**
Barium	mg/kg	*30,000*	*760,000*	*350,000*	*98.9*	**116**	NT	**656**	**6.08**	**12.5**	**62.4**	**6,570**	**3.89**	**276ł**	**206.00**	**42.90**	**71.10**	**49.70**	**1,390.00**	**601.00**
Cadmium	mg/kg	*140*	*3,300*	*710*	*0.834*	**0.383 J**	NT	**1.22**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	mg/kg	*27*	*240*	*1,300*	*21.1*	**18.5**	NT	**24.6**	**1.83**	**14.8**	**4.91**	**25.1**	**18.8**	**117**	**5.63**	**10.1**	**8.84**	**3.61**	**1,160**	**25.60**
Lead	mg/kg	*400*	*800*	*400*	*51.7*	**17.8**	NT	**88.1**	**3.78**	**3.02**	**8.36**	**181**	ND	**478ł**	**15.3**	**19.8**	**16.1**	**4.18**	**361**	**97.1**
Selenium	mg/kg	*780*	*23,000*	*12,000*	*0.943*	**1.01J**	NT	<2.30	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	mg/kg	*780*	*23,000*	*12,000*	*NA*	<1.17	NT	<1.15	ND	ND	ND	ND	ND	ND	**1.83**	ND	ND	0.618	ND	ND
Mercury	mg/kg	*3.1*	*3.1*	*3.1*	*0.097*	**0.052**	NT	**0.11**	ND	ND	ND	ND	ND	**0.105**	ND	ND	ND	ND	NT	NT
Polychlorinated Biphenyls-PCBs																				
PCB 1016	mg/kg	*8.2*	*150*	*290*	*NA*	<0.0399	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1221	mg/kg	*3.9*	*22*	*300*	*NA*	<0.0399	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1232	mg/kg	*3.4*	*18*	*230*	*NA*	<0.0399	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1242	mg/kg	*4.6*	*27*	*400*	*NA*	<0.0399	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1248	mg/kg	*4.5*	*26*	*390*	*NA*	<0.0200	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1254	mg/kg	*2.3*	*28*	*84*	*NA*	<0.0200	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1260	mg/kg	*4.8*	*28*	*450*	*NA*	<0.0200	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Notes

1. FT - Feet below grade
2. mg/kg = Milligrams per kilogram - parts per million (ppm)
3. Ohio VAP GDCS Residential Land Use.
4. Ohio VAP GDCS Commercial/Industrial Land Use.
5. Ohio VAP GDCS Construction/Excavation Activities.
6. Ohio EPA Division of Environmental Reponse and Revitalization Background Metal Soil Concentrations for Cuyahoga County, Ohio

NE: No standard established by applicable agency; **NT**: Parameter not analyzed for this sample; **ND**: No Detections

Bold numbers indicate a concentration above laboratory detection limits.

Bold and shaded numbers indicate a detected concentration above a comparison standard.

* : Samples collected by HzW

ł : Boring locations excavated and removed from the Property by HzW

Laboratory Qualifiers:

J: The identification of the analyte is acceptable; the reported value is an estimate.

B: The same analyte is found in the associated blank.

E: The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)

J3: The associated batch QC was outside the established quality control range for precision.

J4: The associated batch QC was outside the established quality control range for accuracy

J6: The sample matrix interfered with the ability to make any accurate determination; spike value is low

J7: Surrogate recovery cannot be used for control limit evaluation due to dilution

O1: The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.

Table 4C: Summary of PCBs and RCRA 8 Metals in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

											IA-10					IA-11				
Sample ID (Depth[1])		*VAP Standards*				**IA-9-B-02 (0-2) * ł**	**IA-9-B-02 (2-4) ***	**IA-9-B-03 (4-6) ***	**IA-9-B-04 (0-2) * ł**	**IA-9-B-04 (6-8) ***	**P4-IA10-SB01 (2-4)**	**B-29 (2-4) ***	**IA-10-B-01 (0-2) ***	**IA-10-B-01 (6-8) ***	**B-IA-10-02 (0-2) ***	**P4-IA11-MW01 (0-2)**	**B-13 (4-5) ***	**B-14 (4-6) ***	**B-IA-11-01 (0-2) ***	**B-IA-11-01 (4-6) ***
Collection Date		*GDCS Residential Land Use [3]*	*Commercial/ Industrial Land Use [4]*	*Construction/ Excavation Activities Land Use [5]*	*Cuyahoga County Background Levels [6]*	6/16/2004	6/16/2004	6/16/2004	6/16/2004	6/16/2004	6/13/2023	5/25/2000	6/16/2004	6/16/2004	6/11/2004	6/13/2023	3/28/2000	3/28/2000	6/11/2004	6/11/2004
Parameter	**Units [2]**					Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Resource Conservation and Recovery Act (RCRA) 8 Metals																				
Arsenic	mg/kg	*14*	*100*	*760*	*24*	**15.1**	ND	**8.75**	**20.6**	**15.4**	**9.5**	ND	13.5	**43.4**	**24**	**7.22**	**20.9**	**7.64**	**10.2**	**11.5**
Barium	mg/kg	*30,000*	*760,000*	*350,000*	*98.9*	**74.80**	**12.10**	**60.80**	**1,930.00**	**47.70**	**1,060**	**3,800**	**578**	**65**	**888**	**160**	**2,110**	**5,110**	**443**	**370**
Cadmium	mg/kg	*140*	*3,300*	*710*	*0.834*	ND	ND	ND	0.541	ND	**3.01**	**3.95**	ND	0.901	ND	**0.222 J**	0.693	**1.52**	ND	ND
Chromium	mg/kg	*27*	*240*	*1,300*	*21.1*	**33.30**	**18.70**	**13.90**	**109.00**	**25.90**	**58.7**	**453**	**28.5**	**13.8**	**366**	**18.9**	**554**	**69.7**	**34.7**	**13**
Lead	mg/kg	*400*	*800*	*400*	*51.7*	**389**	**49.9**	**12.5**	**546**	**9.23**	**2530**	**652**	**235**	**16.7**	**358**	**17.6**	**316**	**414**	**82.2**	**24.9**
Selenium	mg/kg	*780*	*23,000*	*12,000*	*0.943*	ND	ND	ND	ND	ND	**2.29**	ND	ND	ND	ND	<2.39	ND	ND	ND	ND
Silver	mg/kg	*780*	*23,000*	*12,000*	*NA*	ND	ND	ND	ND	ND	**4.43**	**1.6**	ND	ND	ND	<1.19	**1.63**	**1.03**	ND	ND
Mercury	mg/kg	*3.1*	*3.1*	*3.1*	*0.097*	NT	NT	NT	NT	NT	**0.543**	ND	NT	NT	NT	**0.0583**	ND	ND	NT	NT
Polychlorinated Biphenyls-PCBs																				
PCB 1016	mg/kg	*8.2*	*150*	*290*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1221	mg/kg	*3.9*	*22*	*300*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1232	mg/kg	*3.4*	*18*	*230*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1242	mg/kg	*4.6*	*27*	*400*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1248	mg/kg	*4.5*	*26*	*390*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1254	mg/kg	*2.3*	*28*	*84*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1260	mg/kg	*4.8*	*28*	*450*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Notes

1. FT - Feet below grade
2. mg/kg = Milligrams per kilogram - parts per million (ppm)
3. Ohio VAP GDCS Residential Land Use.
4. Ohio VAP GDCS Commercial/Industrial Land Use.
5. Ohio VAP GDCS Construction/Excavation Activities.
6. Ohio EPA Division of Environmental Reponse and Revitalization Background Metal Soil Concentrations for Cuyahoga County, Ohio

NE: No standard established by applicable agency; **NT**: Parameter not analyzed for this sample; **ND**: No Detections

Bold numbers indicate a concentration above laboratory detection limits.

Bold and shaded numbers indicate a detected concentration above a comparison standard.

* : Samples collected by HzW

ł : Boring locations excavated and removed from the Property by HzW

Laboratory Qualifiers:

J: The identification of the analyte is acceptable; the reported value is an estimate.

B: The same analyte is found in the associated blank.

E: The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)

J3: The associated batch QC was outside the established quality control range for precision.

J4: The associated batch QC was outside the established quality control range for accuracy

J6: The sample matrix interfered with the ability to make any accurate determination; spike value is low

J7: Surrogate recovery cannot be used for control limit evaluation due to dilution

O1: The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.

Table 4C: Summary of PCBs and RCRA 8 Metals in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

						IA-14													
Sample ID (Depth[1])		*VAP Standards*				**B-IA-11-02 (0-2) ***	**B-IA-11-02 (6-7) ***	**P4-IA14-SB01 (0-2)**	**P4-IA14-SB02 (2-4)**	**P4-IA14-SB03 (0-2)**	**B-41 (0-2) * ł**	**B-41 (2-4) ***	**B-42 (0-2) * ł**	**B-42 (2-4) ***	**B-42A (2-4) ***	**B-42A (4-6) ***	**B-43 (2-4) ***	**B-44 (0-2) ***	**B-IA-14-1 (0-2) * ł**	**B-IA 14 -1 (2-4) ***
Collection Date		*GDCS Residential Land Use [3]*	*Commercial/ Industrial Land Use [4]*	*Construction/ Excavation Activities Land Use [5]*	*Cuyahoga County Background Levels [6]*	6/11/2004	6/11/2004	6/13/2023	6/13/2023	6/19/2023	5/30/2001	5/30/2001	5/30/2001	5/30/2001	6/10/2004	6/10/2004	5/30/2001	5/30/2001	6/10/2004	6/10/2004
Parameter	**Units [2]**					Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Resource Conservation and Recovery Act (RCRA) 8 Metals																				
Arsenic	mg/kg	*14*	*100*	*760*	*24*	**20.7**	**17.8**	NT	NT	NT	**5.46**	ND	**29.7**	**10.1**	**15.1**	**22.9**	**5.76**	**39.1**	**81.9**	**8.76**
Barium	mg/kg	*30,000*	*760,000*	*350,000*	*98.9*	**768**	**1,450**	NT	NT	NT	**164**	**65**	**149**	**43.2**	**2,550**	**419**	**6.65**	**16.60**	**120.00**	**18.50**
Cadmium	mg/kg	*140*	*3,300*	*710*	*0.834*	ND	ND	NT	NT	NT	**2.44**	ND	**2.51**	ND	**1.97**	**0.775**	ND	ND	**1.95**	ND
Chromium	mg/kg	*27*	*240*	*1,300*	*21.1*	**394**	**380**	NT	NT	NT	**46.1**	**9.39**	**265**	**6.99**	**334**	**546**	**37.6**	**5.64**	**23.9**	**10.2**
Lead	mg/kg	*400*	*800*	*400*	*51.7*	**475**	**273**	**305**	**57.4**	**384**	**522**	**73.1**	**1,540**	**25**	**14,200**	**325**	**7.04**	**46.00**	**919.00**	**10.30**
Selenium	mg/kg	*780*	*23,000*	*12,000*	*0.943*	ND	ND	NT	NT	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	mg/kg	*780*	*23,000*	*12,000*	*NA*	ND	ND	NT	NT	NT	ND	ND	**1.67**	ND	ND	ND	ND	ND	ND	ND
Mercury	mg/kg	*3.1*	*3.1*	*3.1*	*0.097*	NT	NT	NT	NT	NT	ND	ND	ND	ND	NT	NT	ND	ND	NT	NT
Polychlorinated Biphenyls-PCBs																				
PCB 1016	mg/kg	*8.2*	*150*	*290*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1221	mg/kg	*3.9*	*22*	*300*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1232	mg/kg	*3.4*	*18*	*230*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1242	mg/kg	*4.6*	*27*	*400*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1248	mg/kg	*4.5*	*26*	*390*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1254	mg/kg	*2.3*	*28*	*84*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1260	mg/kg	*4.8*	*28*	*450*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Notes

1. FT - Feet below grade
2. mg/kg = Milligrams per kilogram - parts per million (ppm)
3. Ohio VAP GDCS Residential Land Use.
4. Ohio VAP GDCS Commercial/Industrial Land Use.
5. Ohio VAP GDCS Construction/Excavation Activities.
6. Ohio EPA Division of Environmental Reponse and Revitalization Background Metal Soil Concentrations for Cuyahoga County, Ohio

NE: No standard established by applicable agency; **NT**: Parameter not analyzed for this sample; **ND**: No Detections

Bold numbers indicate a concentration above laboratory detection limits.

Bold and shaded numbers indicate a detected concentration above a comparison standard.

* : Samples collected by HzW

ł : Boring locations excavated and removed from the Property by HzW

Laboratory Qualifiers:

J: The identification of the analyte is acceptable; the reported value is an estimate.

B: The same analyte is found in the associated blank.

E: The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)

J3: The associated batch QC was outside the established quality control range for precision.

J4: The associated batch QC was outside the established quality control range for accuracy

J6: The sample matrix interfered with the ability to make any accurate determination; spike value is low

J7: Surrogate recovery cannot be used for control limit evaluation due to dilution

O1: The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.

Table 4C: Summary of PCBs and RCRA 8 Metals in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

						IA-14										General Coverage		IA-51		IA-
Sample ID (Depth[1])		*VAP Standards*				**B-IA 14-1 (4-6) ***	**B-IA 14-2 (0-2) ***	**B-IA 14-2 (2-4) ***	**B-IA 14-2 (4-6) ***	**B-IA 14-3 (0-2) * ǂ**	**B-IA 14-3 (2-4) ***	**B-IA 14-3 (4-6) ***	**B-IA 14-4 (0-2) * ǂ**	**B-IA 14-4 (2-4) ***	**B-IA 14-4 (4-6) ***	**P4-GC-SB01 (0-2)**	**P4-GC-MW01 (2-4)**	**P5-IA51-SB01 (2-4)**	**P5-IA51-SB02 (2-4)**	**P5-IA52-SB01 (2-4)**
Collection Date		***GDCS Residential Land Use*** [3]	***Commercial/ Industrial Land Use*** [4]	***Construction/ Excavation Activities Land Use*** [5]	***Cuyahoga County Background Levels*** [6]	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/10/2004	6/19/2023	6/19/2023	6/22/2023	6/22/2023	6/21/2023
Parameter	**Units** [2]					Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Resource Conservation and Recovery Act (RCRA) 8 Metals																				
Arsenic	mg/kg	*14*	*100*	*760*	*24*	**13.8**	ND	ND	ND	**16.1**	ND	ND	**89.8**	**6.64**	**6.29**	**6.27**	**8.55**	NT	NT	NT
Barium	mg/kg	*30,000*	*760,000*	*350,000*	*98.9*	**39.60**	**16.70**	**6.70**	**7.21**	**41.70**	**5.94**	**12.90**	**211.00**	**25.90**	**19.40**	**52.5**	**73.1**	NT	NT	NT
Cadmium	mg/kg	*140*	*3,300*	*710*	*0.834*	ND	ND	ND	ND	**0.802**	ND	ND	ND	ND	ND	**0.42 J**	**0.17 J**	NT	NT	NT
Chromium	mg/kg	*27*	*240*	*1,300*	*21.1*	**10.1**	**6.8**	**4.52**	**3.47**	**12.2**	**3.3**	**3.37**	**50.8**	**9**	**7.62**	**8.9**	**8.76**	NT	NT	NT
Lead	mg/kg	*400*	*800*	*400*	*51.7*	**8.29**	**16.50**	**5.42**	**3.91**	**364.00**	**3.85**	**4.23**	**678.00**	**43.20**	**15.00**	**26.3**	**21.4 O1**	NT	NT	NT
Selenium	mg/kg	*780*	*23,000*	*12,000*	*0.943*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<2.50 J3 J6	<2.31	NT	NT	NT
Silver	mg/kg	*780*	*23,000*	*12,000*	*NA*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<1.25	<1.15	NT	NT	NT
Mercury	mg/kg	*3.1*	*3.1*	*3.1*	*0.097*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**0.0844**	**0.0314 J**	NT	NT	NT
Polychlorinated Biphenyls-PCBs																				
PCB 1016	mg/kg	*8.2*	*150*	*290*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<0.0383	<0.0393	<0.0400
PCB 1221	mg/kg	*3.9*	*22*	*300*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<0.0383	<0.0393	<0.0400
PCB 1232	mg/kg	*3.4*	*18*	*230*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<0.0383	<0.0393	<0.0400
PCB 1242	mg/kg	*4.6*	*27*	*400*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<0.0383	<0.0393	<0.0400
PCB 1248	mg/kg	*4.5*	*26*	*390*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<0.0192	<0.0196	<0.0200
PCB 1254	mg/kg	*2.3*	*28*	*84*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<0.0192	<0.0196	<0.0200
PCB 1260	mg/kg	*4.8*	*28*	*450*	*NA*	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	**0.076**	**0.532**	<0.0200

Notes

1. FT - Feet below grade
2. mg/kg = Milligrams per kilogram - parts per million (ppm)
3. Ohio VAP GDCS Residential Land Use.
4. Ohio VAP GDCS Commercial/Industrial Land Use.
5. Ohio VAP GDCS Construction/Excavation Activities.
6. Ohio EPA Division of Environmental Reponse and Revitalization Background Metal Soil Concentrations for Cuyahoga County, Ohio

NE: No standard established by applicable agency; **NT**: Parameter not analyzed for this sample; **ND**: No Detections

Bold numbers indicate a concentration above laboratory detection limits.

Bold and shaded numbers indicate a detected concentration above a comparison standard.

* : Samples collected by HzW

ǂ : Boring locations excavated and removed from the Property by HzW

Laboratory Qualifiers:

J: The identification of the analyte is acceptable; the reported value is an estimate.

B: The same analyte is found in the associated blank.

E: The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)

J3: The associated batch QC was outside the established quality control range for precision.

J4: The associated batch QC was outside the established quality control range for accuracy

J6: The sample matrix interfered with the ability to make any accurate determination; spike value is low

J7: Surrogate recovery cannot be used for control limit evaluation due to dilution

O1: The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.

Table 4C: Summary of PCBs and RCRA 8 Metals in Soil
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

						IA-52	IA-53		IA-55	IA-56		IA-57		General Coverage			
Sample ID (Depth[1])		*VAP Standards*				**P5-IA52-SB02 (2-4)**	**P5-IA53-SB01 (2-4)**	**P5-IA53-MW01 (4-6)**	**P5-IA55-SB01 (4-6)**	**P5-IA56-SB01 (2-4)**	**P5-IA56-MW01 (6-8)**	**P5-IA57-SB01 (2-4)**	**P5-IA57-MW01 (2-4)**	**P5-GC-SB01 (2-4)**	**P5-GC-SB02 (2-4)**	**P5-GC-SB03 (6-8)**	**P5-GC-MW01 (8-10)**
Collection Date		*GDCS Residential Land Use [3]*	*Commercial/ Industrial Land Use [4]*	*Construction/ Excavation Activities Land Use [5]*	*Cuyahoga County Background Levels [6]*	6/21/2023	6/20/2023	6/20/2023	6/22/2023	6/22/2023	6/21/2023	6/19/2023	6/20/2023	6/20/2023	6/22/2023	6/22/2023	6/21/2023
Parameter	**Units [2]**					Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Resource Conservation and Recovery Act (RCRA) 8 Metals																	
Arsenic	mg/kg	*14*	*100*	*760*	*24*	NT	**5.02**	**7.51**	**6.6**	**5.56**	**11.9**	**5.07**	**7.6**	**6.36**	**7.61**	**6.34**	**3.68**
Barium	mg/kg	*30,000*	*760,000*	*350,000*	*98.9*	NT	**40.6**	**75**	**58.5**	**89.5**	**86.2**	**33.9**	**133**	**24.4**	**38.1**	**68.5**	**14.5**
Cadmium	mg/kg	*140*	*3,300*	*710*	*0.834*	NT	**0.399 J**	**0.278 J**	**0.355 J**	**0.285 J**	**0.261**	**0.171 J**	**0.76**	**0.261 J**	**0.383 J**	**0.221 J**	**0.144**
Chromium	mg/kg	*27*	*240*	*1,300*	*21.1*	NT	**9.3**	**26**	**14.8**	**8.52**	**19**	**6.83**	**49.9**	**8.08**	**19.3**	**12.9**	**8.19**
Lead	mg/kg	*400*	*800*	*400*	*51.7*	NT	**64.2**	**74.1**	**10.5**	**26.2**	**253**	**26**	**404**	**14.2**	**177**	**119**	**7.23**
Selenium	mg/kg	*780*	*23,000*	*12,000*	*0.943*	NT	<2.39	<2.29	<2.49	<2.22	<2.41	<2.39	<2.17	<2.18	<2.47	<2.52	<2.65
Silver	mg/kg	*780*	*23,000*	*12,000*	*NA*	NT	<1.20	<1.14	<1.25	<1.11	<1.20	<1.19	<1.08	<1.09	<1.24	<1.26	<1.32
Mercury	mg/kg	*3.1*	*3.1*	*3.1*	*0.097*	NT	**0.0792**	**0.0473**	**0.0365 J**	**0.0306 J**	**0.0538**	**0.0976**	**0.0396 J**	**0.024 J**	**0.0851**	**0.0414 J**	<0.0530
Polychlorinated Biphenyls-PCBs																	
PCB 1016	mg/kg	*8.2*	*150*	*290*	*NA*	<0.0406	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1221	mg/kg	*3.9*	*22*	*300*	*NA*	<0.0406	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1232	mg/kg	*3.4*	*18*	*230*	*NA*	<0.0406	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1242	mg/kg	*4.6*	*27*	*400*	*NA*	<0.0406	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1248	mg/kg	*4.5*	*26*	*390*	*NA*	<0.0203	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1254	mg/kg	*2.3*	*28*	*84*	*NA*	<0.0203	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1260	mg/kg	*4.8*	*28*	*450*	*NA*	<0.0203	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Notes

1. FT - Feet below grade
2. mg/kg = Milligrams per kilogram - parts per million (ppm)
3. Ohio VAP GDCS Residential Land Use.
4. Ohio VAP GDCS Commercial/Industrial Land Use.
5. Ohio VAP GDCS Construction/Excavation Activities.
6. Ohio EPA Division of Environmental Reponse and Revitalization Background Metal Soil Concentrations for Cuyahoga County, Ohio

NE: No standard established by applicable agency; **NT**: Parameter not analyzed for this sample; **ND**: No Detections

Bold numbers indicate a concentration above laboratory detection limits.

Bold and shaded numbers indicate a detected concentration above a comparison standard.

* : Samples collected by HzW

ł : Boring locations excavated and removed from the Property by HzW

Laboratory Qualifiers:

J: The identification of the analyte is acceptable; the reported value is an estimate.

B: The same analyte is found in the associated blank.

E: The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)

J3: The associated batch QC was outside the established quality control range for precision.

J4: The associated batch QC was outside the established quality control range for accuracy

J6: The sample matrix interfered with the ability to make any accurate determination; spike value is low

J7: Surrogate recovery cannot be used for control limit evaluation due to dilution

O1: The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.

Table 5A: Summary of VOCs in Groundwater
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

				IA-01												IA-01A			
Sample ID		**VAP Standard**	**US EPA**	**P4-IA01-MW01**	**HzW-01 ***	**HzW-01 ***	**HzW-04 * [4]**	**HzW-04 * [4]**	**MW-1 * [4]**	**MW-1 * [4]**	**MW-2P* [4]**	**MW-3 * [4]**	**MW-3 * [4]**	**MW-3P * [4]**	**MW-3P * [4]**	**HzW-02 ***	**HzW-02 ***	**HzW-02 ***	**HzW-03 ***
Collection Date				6/28/2023	3/31/2000	6/8/2004	7/20/2000	6/8/2004	3/31/2000	3/14/2001	6/8/2004	3/31/2000	3/14/2001	7/1/2004	7/8/2004	3/31/2000	10/5/2000	11/2/2000	3/31/2000
Parameter	**Units [1]**	**UPUS [2]**	**VISL [3]**	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds - VOCs																			
Acetone	mg/l	14	40,200	<0.0500 J4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrolein	mg/l	0.000042	0.007	<0.0500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	mg/l	0.00052	0.144	<0.0100 J4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	mg/l	0.005	0.03	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	mg/l	NE	1.68	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	mg/l	0.08	0.017	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	mg/l	0.08	2.77	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	mg/l	0.0075	0.027	<0.00500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	mg/l	1	NIT	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	mg/l	2	NIT	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	mg/l	0.69	NIT	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	mg/l	0.005	0.008	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	mg/l	0.1	0.883	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	mg/l	0.08	NIT	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	mg/l	21	NIT	<0.00500	ND	ND	ND	**0.0139**	ND	ND	ND	ND	ND	**0.0087**	**0.00996**	ND	ND	ND	ND
Chloroform	mg/l	0.08	0.015	<0.00500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	mg/l	0.19	0.368	<0.00250	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chlorotoluene	mg/l	NE	NIT	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chlorotoluene	mg/l	NE	NIT	<0.00100 J4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-Chloropropane	mg/l	0.0002	0.001	<0.00500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	mg/l	0.00005	0.004	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	mg/l	0.0083	0.244	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	mg/l	0.6	6.54	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	mg/l	NE	NIT	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	mg/l	0.075	0.064	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	mg/l	3.6	0.01	<0.00500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	mg/l	0.028	0.135	<0.00100	ND	ND	ND	**0.0195**	ND	ND	ND	ND	ND	**0.00875**	**0.0051**	**0.0519**	**0.471**	**0.341**	ND
1,2-Dichloroethane (EDC)	mg/l	0.005	0.043	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	**0.00542**	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	mg/l	0.007	0.32	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.0103**	**0.0527**	**0.0383**	ND
cis-1,2-Dichloroethene	mg/l	0.07	NIT	**0.000759 J**	ND	ND	**0.0143**	**0.00945**	ND	ND	ND	**0.0163**	**0.0306**	**0.00852**	**0.013**	**0.0799**	**0.466**	**0.29**	**0.0423**
trans-1,2-Dichloroethene	mg/l	0.1	0.191	**0.000798 J**	ND	ND	**0.0198**	**0.0152**	ND	ND	ND	**0.017**	ND	**0.0204**	**0.0358**	ND	**0.0215**	ND	**0.00846**
1,2-Dichloropropane	mg/l	0.005	0.071	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloropropene	mg/l	NE	NIT	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichloropropane	mg/l	0.37	NIT	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	mg/l	NE	0.1	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	mg/l	NE	0.1	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,2-Dichloropropane	mg/l	NE	NIT	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	mg/l	0.7	0.077	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachloro-1,3-butadiene	mg/l	0.0014	0.008	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Hexane	mg/l	1.5	0.018	<0.0100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	mg/l	0.45	2.42	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p-Isopropyltoluene	mg/l	0.18	NIT	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	mg/l	5.6	4,300	<0.0100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	mg/l	0.005	8.1	<0.00500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	mg/l	6.3	1,190	<0.0100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether (MTBE)	mg/l	0.14	7.86	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	mg/l	0.0017	0.127	<0.00500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	mg/l	0.66	5.9	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	mg/l	0.1	22.2	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	mg/l	0.0057	0.092	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	mg/l	0.00076	0.075	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	mg/l	0.005	0.122	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	mg/l	1	39.2	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table 5A: Summary of VOCs in Groundwater
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

				IA-01												IA-01A			
Sample ID		**VAP Standard**	**US EPA**	**P4-IA01-MW01**	**HzW-01 ***	**HzW-01 ***	**HzW-04 * [4]**	**HzW-04 * [4]**	**MW-1 * [4]**	**MW-1 * [4]**	**MW-2P* [4]**	**MW-3 * [4]**	**MW-3 * [4]**	**MW-3P * [4]**	**MW-3P * [4]**	**HzW-02 ***	**HzW-02 ***	**HzW-02 ***	**HzW-03 ***
Collection Date				6/28/2023	3/31/2000	6/8/2004	7/20/2000	6/8/2004	3/31/2000	3/14/2001	6/8/2004	3/31/2000	3/14/2001	7/1/2004	7/8/2004	3/31/2000	10/5/2000	11/2/2000	3/31/2000
Parameter	**Units [1]**	**UPUS [2]**	**VISL[3]**	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
1,2,3-Trichlorobenzene	mg/l	NE	NIT	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	mg/l	0.07	0.103	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	mg/l	0.2	0.0773	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.0575**	**0.521**	**0.296**	**0.0226**
1,1,2-Trichloroethane	mg/l	0.005	0.013	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	mg/l	0.005	0.010	<0.00100	ND	ND	**0.0134**	ND	ND	ND	ND	ND	ND	ND	ND	**0.268**	**1.66**	**0.999**	**0.0183**
Trichlorofluoromethane	mg/l	5.2	NIT	<0.00500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	mg/l	0.0000075	0.052	<0.00250	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	mg/l	0.056	0.626	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	mg/l	0.06	0.439	<0.00100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	mg/l	0.002	0.002	<0.00100	ND	ND	ND	ND	ND	ND	ND	**0.00857**	**0.0048**	ND	ND	ND	ND	ND	ND
Xylenes, Total	mg/l	10	0.856	<0.00300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes

1. mg/l = Milligrams per liter - parts per million (ppm).
2. Ohio EPA Generic Unrestricted Potable Use Standards (UPUS)
3. USEPA VISL for Residential Land Use
4. Monitoring wells adjacent to IAs due to access issues.
5. IA09 and IA14 overlap.

* : Wells installed by and samples collected by HzW

NSV: Not sufficiently volatile; **NIT**: No inhalation toxicity.

NE: No standard established by applicable agency; **NT**: Parameter not analyzed for this sample; **ND**: No Detections

Bold numbers indicate a concentration above laboratory detection limits.

Bold and shaded numbers indicate a concentration above a comparison standard. If exceeding more than one standard, the most strict one is highlighted.

Laboratory Qualifiers:

J - The identification of the analyte is acceptable; the reported value is an estimate.

J3 - The associated batch QC was outside the establish quality control range for precision.

J4 - The associated batch QC was outside the established quality control range for accuracy.

Table 5A: Summary of VOCs in Groundwater
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

				IA-01A				IA-02										IA-03	
Sample ID		**VAP Standard**	**US EPA**	**HzW-03 ***	**HzW-03 ***	**MW-2 * [4]**	**MW-2 * [4]**	**WP-3 ***	**WP-3 ***	**WP-03 ***	**WP-03 ***	**WP-03 ***	**WP-03 ***	**WP-03 ***	**WP-3 ***	**WP-03 ***	**WP-3 ***	**P4-IA03-MW01**	**HzW-09 * [4]**
Collection Date				6/8/2004	7/1/2004	3/29/2000	3/14/2001	3/29/2000	10/5/2000	11/2/2000	6/10/2004	10/11/2007	11/8/2007	12/18/2007	1/15/2008	4/2/2008	8/18/2008	6/28/2023	7/20/2000
Parameter	**Units [1]**	**UPUS [2]**	**VISL[3]**	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds - VOCs																			
Acetone	mg/l	14	40,200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.0500 J4	ND
Acrolein	mg/l	0.000042	0.007	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.0500	ND
Acrylonitrile	mg/l	0.00052	0.144	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.0100 J4	ND
Benzene	mg/l	0.005	0.03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	ND
Bromobenzene	mg/l	NE	1.68	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.00100	ND
Bromodichloromethane	mg/l	0.08	0.017	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	ND
Bromoform	mg/l	0.08	2.77	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	ND
Bromomethane	mg/l	0.0075	0.027	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND
n-Butylbenzene	mg/l	1	NIT	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.00100	ND
sec-Butylbenzene	mg/l	2	NIT	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.00100	ND
tert-Butylbenzene	mg/l	0.69	NIT	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.00100	ND
Carbon tetrachloride	mg/l	0.005	0.008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	ND
Chlorobenzene	mg/l	0.1	0.883	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	ND
Chlorodibromomethane	mg/l	0.08	NIT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	ND
Chloroethane	mg/l	21	NIT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND
Chloroform	mg/l	0.08	0.015	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND
Chloromethane	mg/l	0.19	0.368	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00250	ND
2-Chlorotoluene	mg/l	NE	NIT	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.00100	ND
4-Chlorotoluene	mg/l	NE	NIT	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.00100	ND
1,2-Dibromo-3-Chloropropane	mg/l	0.0002	0.001	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.00500	ND
1,2-Dibromoethane (EDB)	mg/l	0.00005	0.004	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.00100	ND
Dibromomethane	mg/l	0.0083	0.244	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.00100	ND
1,2-Dichlorobenzene	mg/l	0.6	6.54	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.00100	ND
1,3-Dichlorobenzene	mg/l	NE	NIT	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.00100	ND
1,4-Dichlorobenzene	mg/l	0.075	0.064	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.00100	ND
Dichlorodifluoromethane	mg/l	3.6	0.01	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.00500	ND
1,1-Dichloroethane	mg/l	0.028	0.135	**0.00588**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	ND
1,2-Dichloroethane (EDC)	mg/l	0.005	0.043	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.000494 J**	ND
1,1-Dichloroethene	mg/l	0.007	0.32	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	ND
cis-1,2-Dichloroethene	mg/l	0.07	NIT	**0.0325**	**0.037**	ND	ND	**3.53**	**3.32**	**28.4**	**28.1**	**40**	**63**	**25**	**20**	**16**	**22**	**0.019**	ND
trans-1,2-Dichloroethene	mg/l	0.1	0.191	**0.00777**	**0.00637**	ND	ND	ND	**1.14**	**1.22**	ND	ND	**2.5**	ND	ND	ND	ND	**0.0323**	ND
1,2-Dichloropropane	mg/l	0.005	0.071	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	ND
1,1-Dichloropropene	mg/l	NE	NIT	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.00100	ND
1,3-Dichloropropane	mg/l	0.37	NIT	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.00100	ND
cis-1,3-Dichloropropene	mg/l	NE	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	ND
trans-1,3-Dichloropropene	mg/l	NE	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	ND
2,2-Dichloropropane	mg/l	NE	NIT	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.00100	ND
Ethylbenzene	mg/l	0.7	0.077	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	ND
Hexachloro-1,3-butadiene	mg/l	0.0014	0.008	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.00100	ND
n-Hexane	mg/l	1.5	0.018	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.0100	ND
Isopropylbenzene	mg/l	0.45	2.42	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.00100	ND
p-Isopropyltoluene	mg/l	0.18	NIT	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.00100	ND
2-Butanone (MEK)	mg/l	5.6	4,300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.0100	ND
Methylene Chloride	mg/l	0.005	8.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND
4-Methyl-2-pentanone (MIBK)	mg/l	6.3	1,190	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.0100	ND
Methyl tert-butyl ether (MTBE)	mg/l	0.14	7.86	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.00100	ND
Naphthalene	mg/l	0.0017	0.127	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.00500	ND
n-Propylbenzene	mg/l	0.66	5.9	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.00100	ND
Styrene	mg/l	0.1	22.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	ND
1,1,1,2-Tetrachloroethane	mg/l	0.0057	0.092	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.00100	ND
1,1,2,2-Tetrachloroethane	mg/l	0.00076	0.075	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	ND
Tetrachloroethene	mg/l	0.005	0.122	ND	ND	ND	ND	ND	**0.837**	**0.559**	ND	ND	ND	ND	ND	ND	ND	<0.00100	ND
Toluene	mg/l	1	39.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	ND

Table 5A: Summary of VOCs in Groundwater
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

				IA-01A				IA-02										IA-03	
Sample ID		**VAP Standard**	**US EPA**	**HzW-03 ***	**HzW-03 ***	**MW-2 * [4]**	**MW-2 * [4]**	**WP-3 ***	**WP-3 ***	**WP-03 ***	**WP-03 ***	**WP-03 ***	**WP-03 ***	**WP-03 ***	**WP-3 ***	**WP-03 ***	**WP-3 ***	**P4-IA03-MW01**	**HzW-09 * [4]**
Collection Date				6/8/2004	7/1/2004	3/29/2000	3/14/2001	3/29/2000	10/5/2000	11/2/2000	6/10/2004	10/11/2007	11/8/2007	12/18/2007	1/15/2008	4/2/2008	8/18/2008	6/28/2023	7/20/2000
Parameter	**Units [1]**	**UPUS [2]**	**VISL[3]**	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
1,2,3-Trichlorobenzene	mg/l	NE	NIT	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.00100	ND
1,2,4-Trichlorobenzene	mg/l	0.07	0.103	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.00100	ND
1,1,1-Trichloroethane	mg/l	0.2	0.0773	**0.0247**	**0.0136**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	ND
1,1,2-Trichloroethane	mg/l	0.005	0.013	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	ND
Trichloroethene	mg/l	0.005	0.010	**0.0247**	**0.0263**	ND	ND	**36.8**	**88.9**	**81**	**37.2**	**5.8**	**16**	**87**	**93**	**64**	**51**	<0.00100	ND
Trichlorofluoromethane	mg/l	5.2	NIT	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.00500	ND
1,2,3-Trichloropropane	mg/l	0.0000075	0.052	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.00250	ND
1,2,4-Trimethylbenzene	mg/l	0.056	0.626	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.00100	ND
1,3,5-Trimethylbenzene	mg/l	0.06	0.439	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	<0.00100	ND
Vinyl chloride	mg/l	0.002	0.002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.0049**	ND
Xylenes, Total	mg/l	10	0.856	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00300	ND

Notes

1. mg/l = Milligrams per liter - parts per million (ppm).
2. Ohio EPA Generic Unrestricted Potable Use Standards (UPUS)
3. USEPA VISL for Residential Land Use
4. Monitoring wells adjacent to IAs due to access issues.
5. IA09 and IA14 overlap.

* : Wells installed by and samples collected by HzW

NSV: Not sufficiently volatile; **NIT**: No inhalation toxicity.

NE: No standard established by applicable agency; **NT**: Parameter not analyzed for this sample; **ND**: No Detect

Bold numbers indicate a concentration above laboratory detection limits.

Bold and shaded numbers indicate a concentration above a comparison standard. If exceeding more than one s

Laboratory Qualifiers:

J - The identification of the analyte is acceptable; the reported value is an estimate.

J3 - The associated batch QC was outside the establish quality control range for precision.

J4 - The associated batch QC was outside the established quality control range for accuracy.

Table 5A: Summary of VOCs in Groundwater
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

				IA-03													
Sample ID		**VAP Standard**	**US EPA**	**HzW-09 * [4]**	**HMW-09 * [4]**	**HMW-09 * [4]**	**HMW-9R * [4]**	**HMW-9R * [4]**	**MW-9R * [4]**	**MW-9R * [4]**	**HMW-9R * [4]**	**HzW-14 * [4]**	**HzW-14 * [4]**	**HzW-17 * [4]**	**HzW-17 * [4]**	**HMW-17 * [4]**	**HMW-17 * [4]**
Collection Date				6/9/2004	7/5/2007	10/10/2007	11/8/2007	12/18/2007	1/15/2008	4/2/2008	8/18/2008	11/2/2000	6/10/2004	12/21/2000	1/4/2001	7/5/2007	10/10/2007
Parameter	**Units [1]**	**UPUS [2]**	**VISL[3]**	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds - VOCs																	
Acetone	mg/l	14	40,200	ND	ND	**0.015**	**0.024**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrolein	mg/l	0.000042	0.007	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
Acrylonitrile	mg/l	0.00052	0.144	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
Benzene	mg/l	0.005	0.03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	mg/l	NE	1.68	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
Bromodichloromethane	mg/l	0.08	0.017	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	mg/l	0.08	2.77	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	mg/l	0.0075	0.027	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	mg/l	1	NIT	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
sec-Butylbenzene	mg/l	2	NIT	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
tert-Butylbenzene	mg/l	0.69	NIT	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
Carbon tetrachloride	mg/l	0.005	0.008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	mg/l	0.1	0.883	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	mg/l	0.08	NIT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	mg/l	21	NIT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	mg/l	0.08	0.015	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	mg/l	0.19	0.368	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chlorotoluene	mg/l	NE	NIT	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
4-Chlorotoluene	mg/l	NE	NIT	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
1,2-Dibromo-3-Chloropropane	mg/l	0.0002	0.001	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
1,2-Dibromoethane (EDB)	mg/l	0.00005	0.004	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
Dibromomethane	mg/l	0.0083	0.244	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
1,2-Dichlorobenzene	mg/l	0.6	6.54	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
1,3-Dichlorobenzene	mg/l	NE	NIT	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
1,4-Dichlorobenzene	mg/l	0.075	0.064	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
Dichlorodifluoromethane	mg/l	3.6	0.01	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
1,1-Dichloroethane	mg/l	0.028	0.135	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane (EDC)	mg/l	0.005	0.043	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	mg/l	0.007	0.32	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	mg/l	0.07	NIT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**8.28**	**7.34**	**6.6**	**8.5**
trans-1,2-Dichloroethene	mg/l	0.1	0.191	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.436**	**0.366**	ND	**0.25**
1,2-Dichloropropane	mg/l	0.005	0.071	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloropropene	mg/l	NE	NIT	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
1,3-Dichloropropane	mg/l	0.37	NIT	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
cis-1,3-Dichloropropene	mg/l	NE	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	mg/l	NE	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,2-Dichloropropane	mg/l	NE	NIT	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
Ethylbenzene	mg/l	0.7	0.077	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachloro-1,3-butadiene	mg/l	0.0014	0.008	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
n-Hexane	mg/l	1.5	0.018	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
Isopropylbenzene	mg/l	0.45	2.42	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
p-Isopropyltoluene	mg/l	0.18	NIT	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
2-Butanone (MEK)	mg/l	5.6	4,300	ND	ND	**0.036**	**0.024**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	mg/l	0.005	8.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	mg/l	6.3	1,190	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether (MTBE)	mg/l	0.14	7.86	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
Naphthalene	mg/l	0.0017	0.127	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
n-Propylbenzene	mg/l	0.66	5.9	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
Styrene	mg/l	0.1	22.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	mg/l	0.0057	0.092	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
1,1,2,2-Tetrachloroethane	mg/l	0.00076	0.075	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	mg/l	0.005	0.122	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	mg/l	1	39.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table 5A: Summary of VOCs in Groundwater
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

				IA-03													
Sample ID		**VAP Standard**	**US EPA**	**HzW-09 * [4]**	**HMW-09 * [4]**	**HMW-09 * [4]**	**HMW-9R * [4]**	**HMW-9R * [4]**	**MW-9R * [4]**	**MW-9R * [4]**	**HMW-9R * [4]**	**HzW-14 * [4]**	**HzW-14 * [4]**	**HzW-17 * [4]**	**HzW-17 * [4]**	**HMW-17 * [4]**	**HMW-17 * [4]**
Collection Date				6/9/2004	7/5/2007	10/10/2007	11/8/2007	12/18/2007	1/15/2008	4/2/2008	8/18/2008	11/2/2000	6/10/2004	12/21/2000	1/4/2001	7/5/2007	10/10/2007
Parameter	**Units [1]**	**UPUS [2]**	**VISL[3]**	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
1,2,3-Trichlorobenzene	mg/l	NE	NIT	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
1,2,4-Trichlorobenzene	mg/l	0.07	0.103	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
1,1,1-Trichloroethane	mg/l	0.2	0.0773	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	mg/l	0.005	0.013	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	mg/l	0.005	0.010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.435**	**0.374**	ND	ND
Trichlorofluoromethane	mg/l	5.2	NIT	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
1,2,3-Trichloropropane	mg/l	0.0000075	0.052	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
1,2,4-Trimethylbenzene	mg/l	0.056	0.626	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
1,3,5-Trimethylbenzene	mg/l	0.06	0.439	ND	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT
Vinyl chloride	mg/l	0.002	0.002	ND	ND	ND	ND	ND	ND	ND	**0.0016**	ND	ND	ND	ND	ND	ND
Xylenes, Total	mg/l	10	0.856	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1.36**	**0.985**	ND	**0.47**

Notes

1. mg/l = Milligrams per liter - parts per million (ppm).
2. Ohio EPA Generic Unrestricted Potable Use Standards (UPUS)
3. USEPA VISL for Residential Land Use
4. Monitoring wells adjacent to IAs due to access issues.
5. IA09 and IA14 overlap.

* : Wells installed by and samples collected by HzW

NSV: Not sufficiently volatile; **NIT**: No inhalation toxicity.

NE: No standard established by applicable agency; **NT**: Parameter not analyzed for this sample; **ND**: No Detect

Bold numbers indicate a concentration above laboratory detection limits.

Bold and shaded numbers indicate a concentration above a comparison standard. If exceeding more than one s

Laboratory Qualifiers:

J - The identification of the analyte is acceptable; the reported value is an estimate.

J3 - The associated batch QC was outside the establish quality control range for precision.

J4 - The associated batch QC was outside the established quality control range for accuracy.

Table 5A: Summary of VOCs in Groundwater
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

				IA-03					IA-04	IA-05		IA-06		IA-07	IA-08		
Sample ID		**VAP Standard**	**US EPA**	**HMW-17 * [4]**	**HMW-17 * [4]**	**MW-17 * [4]**	**HMW-17 * [4]**	**HMW-17 * [4]**	**P4-IA04-MW01**	**HzW-10 * [4]**	**HzW-10 * [4]**	**HzW-11 * [4]**	**HzW-11 * [4]**	**P4-IA07-MW01**	**HzW-08 * [4]**	**HzW-8 * [4]**	**HzW-8 * [4]**
Collection Date				11/8/2007	12/18/2007	1/15/2008	4/2/2008	8/18/2008	6/28/2023	7/20/2000	6/9/2004	10/19/200	6/8/2004	6/28/2023	7/20/2000	10/19/2000	11/2/2000
Parameter	**Units [1]**	**UPUS [2]**	**VISL[3]**	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds - VOCs																	
Acetone	mg/l	14	40,200	ND	ND	ND	ND	ND	<0.0500 J4	ND	ND	ND	ND	<0.0500 J4	ND	ND	ND
Acrolein	mg/l	0.000042	0.007	NT	NT	NT	NT	NT	<0.0500	ND	ND	ND	ND	<0.0500	ND	ND	ND
Acrylonitrile	mg/l	0.00052	0.144	NT	NT	NT	NT	NT	<0.0100 J4	ND	ND	ND	ND	<0.0100 J4	ND	ND	ND
Benzene	mg/l	0.005	0.03	ND	ND	ND	ND	ND	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
Bromobenzene	mg/l	NE	1.68	NT	NT	NT	NT	NT	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
Bromodichloromethane	mg/l	0.08	0.017	ND	ND	ND	ND	ND	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
Bromoform	mg/l	0.08	2.77	ND	ND	ND	ND	ND	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
Bromomethane	mg/l	0.0075	0.027	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND	ND	<0.00500	ND	ND	ND
n-Butylbenzene	mg/l	1	NIT	NT	NT	NT	NT	NT	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
sec-Butylbenzene	mg/l	2	NIT	NT	NT	NT	NT	NT	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
tert-Butylbenzene	mg/l	0.69	NIT	NT	NT	NT	NT	NT	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
Carbon tetrachloride	mg/l	0.005	0.008	ND	ND	ND	ND	ND	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
Chlorobenzene	mg/l	0.1	0.883	ND	ND	ND	ND	ND	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
Chlorodibromomethane	mg/l	0.08	NIT	ND	ND	ND	ND	ND	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
Chloroethane	mg/l	21	NIT	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND	ND	<0.00500	ND	ND	ND
Chloroform	mg/l	0.08	0.015	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND	ND	<0.00500	ND	ND	ND
Chloromethane	mg/l	0.19	0.368	ND	ND	ND	ND	ND	<0.00250	ND	ND	ND	ND	<0.00250	ND	ND	ND
2-Chlorotoluene	mg/l	NE	NIT	NT	NT	NT	NT	NT	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
4-Chlorotoluene	mg/l	NE	NIT	NT	NT	NT	NT	NT	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
1,2-Dibromo-3-Chloropropane	mg/l	0.0002	0.001	NT	NT	NT	NT	NT	<0.00500	ND	ND	ND	ND	<0.00500	ND	ND	ND
1,2-Dibromoethane (EDB)	mg/l	0.00005	0.004	NT	NT	NT	NT	NT	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
Dibromomethane	mg/l	0.0083	0.244	NT	NT	NT	NT	NT	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
1,2-Dichlorobenzene	mg/l	0.6	6.54	NT	NT	NT	NT	NT	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
1,3-Dichlorobenzene	mg/l	NE	NIT	NT	NT	NT	NT	NT	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
1,4-Dichlorobenzene	mg/l	0.075	0.064	NT	NT	NT	NT	NT	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
Dichlorodifluoromethane	mg/l	3.6	0.01	NT	NT	NT	NT	NT	<0.00500	ND	ND	ND	ND	<0.00500	ND	ND	ND
1,1-Dichloroethane	mg/l	0.028	0.135	ND	ND	ND	ND	ND	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
1,2-Dichloroethane (EDC)	mg/l	0.005	0.043	ND	ND	ND	ND	ND	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
1,1-Dichloroethene	mg/l	0.007	0.32	ND	ND	ND	ND	ND	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
cis-1,2-Dichloroethene	mg/l	0.07	NIT	**7.3**	**4.1**	**3.4**	**3.8**	ND	<0.00100	ND	ND	ND	ND	<0.00100	**0.0155**	**0.00526**	**0.00502**
trans-1,2-Dichloroethene	mg/l	0.1	0.191	**ND**	**0.18**	**0.18**	ND	ND	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
1,2-Dichloropropane	mg/l	0.005	0.071	ND	ND	ND	ND	ND	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
1,1-Dichloropropene	mg/l	NE	NIT	NT	NT	NT	NT	NT	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
1,3-Dichloropropane	mg/l	0.37	NIT	NT	NT	NT	NT	NT	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
cis-1,3-Dichloropropene	mg/l	NE	0.1	ND	ND	ND	ND	ND	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
trans-1,3-Dichloropropene	mg/l	NE	0.1	ND	ND	ND	ND	ND	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
2,2-Dichloropropane	mg/l	NE	NIT	NT	NT	NT	NT	NT	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
Ethylbenzene	mg/l	0.7	0.077	ND	ND	ND	ND	ND	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
Hexachloro-1,3-butadiene	mg/l	0.0014	0.008	NT	NT	NT	NT	NT	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
n-Hexane	mg/l	1.5	0.018	NT	NT	NT	NT	NT	<0.0100	ND	ND	ND	ND	<0.0100	ND	ND	ND
Isopropylbenzene	mg/l	0.45	2.42	NT	NT	NT	NT	NT	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
p-Isopropyltoluene	mg/l	0.18	NIT	NT	NT	NT	NT	NT	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
2-Butanone (MEK)	mg/l	5.6	4,300	ND	ND	ND	ND	ND	<0.0100	ND	ND	ND	ND	<0.0100	ND	ND	ND
Methylene Chloride	mg/l	0.005	8.1	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND	ND	<0.00500	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	mg/l	6.3	1,190	ND	ND	ND	ND	ND	<0.0100	ND	ND	ND	ND	<0.0100	ND	ND	ND
Methyl tert-butyl ether (MTBE)	mg/l	0.14	7.86	NT	NT	NT	NT	NT	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
Naphthalene	mg/l	0.0017	0.127	NT	NT	NT	NT	NT	<0.00500	ND	ND	ND	ND	<0.00500	ND	ND	ND
n-Propylbenzene	mg/l	0.66	5.9	NT	NT	NT	NT	NT	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
Styrene	mg/l	0.1	22.2	ND	ND	ND	ND	ND	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
1,1,1,2-Tetrachloroethane	mg/l	0.0057	0.092	NT	NT	NT	NT	NT	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
1,1,2,2-Tetrachloroethane	mg/l	0.00076	0.075	ND	ND	ND	ND	ND	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
Tetrachloroethene	mg/l	0.005	0.122	ND	ND	ND	ND	ND	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
Toluene	mg/l	1	39.2	ND	ND	ND	ND	ND	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND

Table 5A: Summary of VOCs in Groundwater
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

				IA-03					IA-04	IA-05		IA-06		IA-07	IA-08		
Sample ID		**VAP Standard**	**US EPA**	**HMW-17 * [4]**	**HMW-17 * [4]**	**MW-17 * [4]**	**HMW-17 * [4]**	**HMW-17 * [4]**	**P4-IA04-MW01**	**HzW-10 * [4]**	**HzW-10 * [4]**	**HzW-11 * [4]**	**HzW-11 * [4]**	**P4-IA07-MW01**	**HzW-08 * [4]**	**HzW-8 * [4]**	**HzW-8 * [4]**
Collection Date				11/8/2007	12/18/2007	1/15/2008	4/2/2008	8/18/2008	6/28/2023	7/20/2000	6/9/2004	10/19/200	6/8/2004	6/28/2023	7/20/2000	10/19/2000	11/2/2000
Parameter	**Units [1]**	**UPUS [2]**	**VISL[3]**	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
1,2,3-Trichlorobenzene	mg/l	NE	NIT	NT	NT	NT	NT	NT	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
1,2,4-Trichlorobenzene	mg/l	0.07	0.103	NT	NT	NT	NT	NT	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
1,1,1-Trichloroethane	mg/l	0.2	0.0773	ND	ND	ND	ND	ND	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
1,1,2-Trichloroethane	mg/l	0.005	0.013	ND	ND	ND	ND	ND	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
Trichloroethene	mg/l	0.005	0.010	ND	ND	ND	ND	ND	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
Trichlorofluoromethane	mg/l	5.2	NIT	NT	NT	NT	NT	NT	**0.000631 J**	ND	ND	ND	ND	<0.00500	ND	ND	ND
1,2,3-Trichloropropane	mg/l	0.0000075	0.052	NT	NT	NT	NT	NT	<0.00250	ND	ND	ND	ND	<0.00250	ND	ND	ND
1,2,4-Trimethylbenzene	mg/l	0.056	0.626	NT	NT	NT	NT	NT	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
1,3,5-Trimethylbenzene	mg/l	0.06	0.439	NT	NT	NT	NT	NT	<0.00100 J4	ND	ND	ND	ND	<0.00100	ND	ND	ND
Vinyl chloride	mg/l	0.002	0.002	ND	ND	ND	ND	ND	<0.00100	ND	ND	ND	ND	<0.00100	ND	ND	ND
Xylenes, Total	mg/l	10	0.856	**1.4**	**2.7**	**4**	**13**	**4**	<0.00300	ND	ND	ND	ND	<0.00300	ND	ND	ND

Notes

1. mg/l = Milligrams per liter - parts per million (ppm).
2. Ohio EPA Generic Unrestricted Potable Use Standards (UPUS)
3. USEPA VISL for Residential Land Use
4. Monitoring wells adjacent to IAs due to access issues.
5. IA09 and IA14 overlap.

* : Wells installed by and samples collected by HzW

NSV: Not sufficiently volatile; **NIT**: No inhalation toxicity.

NE: No standard established by applicable agency; **NT**: Parameter not analyzed for this sample; **ND**: No Detect

Bold numbers indicate a concentration above laboratory detection limits.

Bold and shaded numbers indicate a concentration above a comparison standard. If exceeding more than one s

Laboratory Qualifiers:

J - The identification of the analyte is acceptable; the reported value is an estimate.

J3 - The associated batch QC was outside the establish quality control range for precision.

J4 - The associated batch QC was outside the established quality control range for accuracy.

Table 5A: Summary of VOCs in Groundwater
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

					IA-09								IA-10	IA-11			IA-
Sample ID		**VAP Standard**	**US EPA**	**HzW-8 * [4]**	**HzW-06 * [4]**	**HzW-06 * [4]**	**HzW-13 * [4]**	**HzW-13 * [4]**	**HzW-15 * [4 5]**	**HzW-15 * [4 5]**	**HzW-20 * [4 5]**	**HzW-20 * [4 5]**	**HzW-18 * [4]**	**P4-IA11-MW01**	**HzW-05 * [4]**	**HzW-05 * [4]**	**HzW-19 * [4]**
Collection Date				6/9/2004	7/20/2000	6/9/2004	10/19/2000	11/2/2000	11/17/2000	12/5/2000	6/1/2001	6/9/2004	6/9/2004	6/28/2023	7/20/2000	6/9/2004	6/1/2001
Parameter	**Units [1]**	**UPUS [2]**	**VISL[3]**	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds - VOCs																	
Acetone	mg/l	14	40,200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.250 J3	ND	ND	ND
Acrolein	mg/l	0.000042	0.007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.250 J4	ND	ND	ND
Acrylonitrile	mg/l	0.00052	0.144	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.0500	ND	ND	ND
Benzene	mg/l	0.005	0.03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
Bromobenzene	mg/l	NE	1.68	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
Bromodichloromethane	mg/l	0.08	0.017	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
Bromoform	mg/l	0.08	2.77	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
Bromomethane	mg/l	0.0075	0.027	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.0250	ND	ND	ND
n-Butylbenzene	mg/l	1	NIT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
sec-Butylbenzene	mg/l	2	NIT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
tert-Butylbenzene	mg/l	0.69	NIT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
Carbon tetrachloride	mg/l	0.005	0.008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
Chlorobenzene	mg/l	0.1	0.883	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
Chlorodibromomethane	mg/l	0.08	NIT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
Chloroethane	mg/l	21	NIT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.0250	ND	ND	ND
Chloroform	mg/l	0.08	0.015	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.0250	ND	ND	ND
Chloromethane	mg/l	0.19	0.368	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.0125	ND	ND	ND
2-Chlorotoluene	mg/l	NE	NIT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
4-Chlorotoluene	mg/l	NE	NIT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
1,2-Dibromo-3-Chloropropane	mg/l	0.0002	0.001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.0250	ND	ND	ND
1,2-Dibromoethane (EDB)	mg/l	0.00005	0.004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
Dibromomethane	mg/l	0.0083	0.244	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
1,2-Dichlorobenzene	mg/l	0.6	6.54	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
1,3-Dichlorobenzene	mg/l	NE	NIT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
1,4-Dichlorobenzene	mg/l	0.075	0.064	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
Dichlorodifluoromethane	mg/l	3.6	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.0250	ND	ND	ND
1,1-Dichloroethane	mg/l	0.028	0.135	ND	ND	ND	**0.00517**	ND	**0.0594**	**0.0521**	ND	ND	ND	**0.0399**	ND	ND	ND
1,2-Dichloroethane (EDC)	mg/l	0.005	0.043	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
1,1-Dichloroethene	mg/l	0.007	0.32	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
cis-1,2-Dichloroethene	mg/l	0.07	NIT	ND	ND	ND	ND	ND	**0.146**	**0.121**	ND	ND	ND	**0.15**	ND	ND	ND
trans-1,2-Dichloroethene	mg/l	0.1	0.191	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.00766**	ND	ND	ND
1,2-Dichloropropane	mg/l	0.005	0.071	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
1,1-Dichloropropene	mg/l	NE	NIT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
1,3-Dichloropropane	mg/l	0.37	NIT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
cis-1,3-Dichloropropene	mg/l	NE	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
trans-1,3-Dichloropropene	mg/l	NE	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
2,2-Dichloropropane	mg/l	NE	NIT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
Ethylbenzene	mg/l	0.7	0.077	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
Hexachloro-1,3-butadiene	mg/l	0.0014	0.008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
n-Hexane	mg/l	1.5	0.018	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.0500	ND	ND	ND
Isopropylbenzene	mg/l	0.45	2.42	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
p-Isopropyltoluene	mg/l	0.18	NIT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
2-Butanone (MEK)	mg/l	5.6	4,300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.0500	ND	ND	ND
Methylene Chloride	mg/l	0.005	8.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.0250	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	mg/l	6.3	1,190	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.0500	ND	ND	ND
Methyl tert-butyl ether (MTBE)	mg/l	0.14	7.86	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
Naphthalene	mg/l	0.0017	0.127	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.0250	ND	ND	ND
n-Propylbenzene	mg/l	0.66	5.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
Styrene	mg/l	0.1	22.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
1,1,1,2-Tetrachloroethane	mg/l	0.0057	0.092	ND	ND	ND	ND	ND	**0.0952**	ND	ND	ND	ND	<0.00500	ND	ND	ND
1,1,2,2-Tetrachloroethane	mg/l	0.00076	0.075	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
Tetrachloroethene	mg/l	0.005	0.122	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
Toluene	mg/l	1	39.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND

Table 5A: Summary of VOCs in Groundwater
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

					IA-09								IA-10	IA-11			IA-
Sample ID		**VAP Standard**	**US EPA**	**HzW-8 * [4]**	**HzW-06 * [4]**	**HzW-06 * [4]**	**HzW-13 * [4]**	**HzW-13 * [4]**	**HzW-15 * [4 5]**	**HzW-15 * [4 5]**	**HzW-20 * [4 5]**	**HzW-20 * [4 5]**	**HzW-18 * [4]**	**P4-IA11-MW01**	**HzW-05 * [4]**	**HzW-05 * [4]**	**HzW-19 * [4]**
Collection Date				6/9/2004	7/20/2000	6/9/2004	10/19/2000	11/2/2000	11/17/2000	12/5/2000	6/1/2001	6/9/2004	6/9/2004	6/28/2023	7/20/2000	6/9/2004	6/1/2001
Parameter	**Units [1]**	**UPUS [2]**	**VISL[3]**	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
1,2,3-Trichlorobenzene	mg/l	NE	NIT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
1,2,4-Trichlorobenzene	mg/l	0.07	0.103	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
1,1,1-Trichloroethane	mg/l	0.2	0.0773	ND	**0.0341**	**0.0264**	ND	ND	ND	**0.064**	ND	ND	ND	**0.00169 J**	ND	ND	ND
1,1,2-Trichloroethane	mg/l	0.005	0.013	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
Trichloroethene	mg/l	0.005	0.010	ND	ND	ND	ND	ND	**0.0207**	**0.0264**	ND	ND	ND	**0.00196 J**	ND	ND	ND
Trichlorofluoromethane	mg/l	5.2	NIT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.0250	ND	ND	ND
1,2,3-Trichloropropane	mg/l	0.0000075	0.052	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.0125	ND	ND	ND
1,2,4-Trimethylbenzene	mg/l	0.056	0.626	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
1,3,5-Trimethylbenzene	mg/l	0.06	0.439	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	ND	ND	ND
Vinyl chloride	mg/l	0.002	0.002	ND	ND	ND	ND	ND	**0.0753**	**0.047**	ND	ND	ND	**0.00895**	ND	ND	ND
Xylenes, Total	mg/l	10	0.856	ND	ND	ND	ND	ND	**0.00518**	ND	ND	ND	ND	<0.0150	ND	ND	ND

Notes

1. mg/l = Milligrams per liter - parts per million (ppm).
2. Ohio EPA Generic Unrestricted Potable Use Standards (UPUS)
3. USEPA VISL for Residential Land Use
4. Monitoring wells adjacent to IAs due to access issues.
5. IA09 and IA14 overlap.

* : Wells installed by and samples collected by HzW

NSV: Not sufficiently volatile; **NIT**: No inhalation toxicity.

NE: No standard established by applicable agency; **NT**: Parameter not analyzed for this sample; **ND**: No Detect

Bold numbers indicate a concentration above laboratory detection limits.

Bold and shaded numbers indicate a concentration above a comparison standard. If exceeding more than one s

Laboratory Qualifiers:

J - The identification of the analyte is acceptable; the reported value is an estimate.

J3 - The associated batch QC was outside the establish quality control range for precision.

J4 - The associated batch QC was outside the established quality control range for accuracy.

Table 5A: Summary of VOCs in Groundwater
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

				12	IA-14							General Coverage		IA-53	IA-54	IA-56	IA-57
Sample ID		**VAP Standard**	**US EPA**	**HzW-19 * [4]**	**HzW-07 * [4]**	**HzW-07 * [4]**	**HzW-12 * [4]**	**HzW-12 * [4]**	**HzW-21 * [4]**	**HzW-21 * [4]**	**HMW-21 * [4]**	**P4-GC-MW01**	**Duplicate 3 (P4-GC-MW01)**	**P5-IA53-MW01**	**P5-IA54-MW01**	**P5-IA56-MW01**	**P5-IA57-MW01**
Collection Date				6/9/2004	7/20/2000	6/9/2004	10/9/2000	11/2/2000	6/1/2001	6/8/2004	7/5/2007	6/29/2023	6/29/2023	6/30/2023	6/29/2023	6/29/2023	6/30/2023
Parameter	**Units [1]**	**UPUS [2]**	**VISL [3]**	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds - VOCs																	
Acetone	mg/l	14	40,200	ND	ND	ND	ND	ND	ND	ND	ND	<0.0500 J4	<0.0500 J4	<0.0500 J4	**0.012 J**	<0.0500 J4	<0.0500 J4
Acrolein	mg/l	0.000042	0.007	ND	ND	ND	ND	ND	ND	ND	NT	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Acrylonitrile	mg/l	0.00052	0.144	ND	ND	ND	ND	ND	ND	ND	NT	<0.0100 J4	<0.0100 J4	<0.0100 J4	<0.0100 J4	<0.0100 J4	<0.0100 J4
Benzene	mg/l	0.005	0.03	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	<0.00100	<0.00100	**0.000207 J**	<0.00100	<0.00100
Bromobenzene	mg/l	NE	1.68	ND	ND	ND	ND	ND	ND	ND	NT	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Bromodichloromethane	mg/l	0.08	0.017	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Bromoform	mg/l	0.08	2.77	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Bromomethane	mg/l	0.0075	0.027	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
n-Butylbenzene	mg/l	1	NIT	ND	ND	ND	ND	ND	ND	ND	NT	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
sec-Butylbenzene	mg/l	2	NIT	ND	ND	ND	ND	ND	ND	ND	NT	<0.00100	<0.00100	<0.00100	**0.00172**	<0.00100	<0.00100
tert-Butylbenzene	mg/l	0.69	NIT	ND	ND	ND	ND	ND	ND	ND	NT	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Carbon tetrachloride	mg/l	0.005	0.008	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Chlorobenzene	mg/l	0.1	0.883	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Chlorodibromomethane	mg/l	0.08	NIT	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Chloroethane	mg/l	21	NIT	ND	ND	**0.00567**	**0.0156**	**0.0122**	ND	ND	ND	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Chloroform	mg/l	0.08	0.015	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Chloromethane	mg/l	0.19	0.368	ND	ND	ND	ND	ND	ND	ND	ND	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250
2-Chlorotoluene	mg/l	NE	NIT	ND	ND	ND	ND	ND	ND	ND	NT	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
4-Chlorotoluene	mg/l	NE	NIT	ND	ND	ND	ND	ND	ND	ND	NT	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-Dibromo-3-Chloropropane	mg/l	0.0002	0.001	ND	ND	ND	ND	ND	ND	ND	NT	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2-Dibromoethane (EDB)	mg/l	0.00005	0.004	ND	ND	ND	ND	ND	ND	ND	NT	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Dibromomethane	mg/l	0.0083	0.244	ND	ND	ND	ND	ND	ND	ND	NT	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-Dichlorobenzene	mg/l	0.6	6.54	ND	ND	ND	ND	ND	ND	ND	NT	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,3-Dichlorobenzene	mg/l	NE	NIT	ND	ND	ND	ND	ND	ND	ND	NT	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,4-Dichlorobenzene	mg/l	0.075	0.064	ND	ND	ND	ND	ND	ND	ND	NT	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Dichlorodifluoromethane	mg/l	3.6	0.01	ND	ND	ND	ND	ND	ND	ND	NT	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,1-Dichloroethane	mg/l	0.028	0.135	ND	**0.219**	**0.103**	**0.00779**	**0.00703**	ND	ND	ND	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-Dichloroethane (EDC)	mg/l	0.005	0.043	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-Dichloroethene	mg/l	0.007	0.32	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,2-Dichloroethene	mg/l	0.07	NIT	ND	ND	ND	**0.272**	**0.0237**	ND	ND	ND	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,2-Dichloroethene	mg/l	0.1	0.191	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-Dichloropropane	mg/l	0.005	0.071	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-Dichloropropene	mg/l	NE	NIT	ND	ND	ND	ND	ND	ND	ND	NT	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,3-Dichloropropane	mg/l	0.37	NIT	ND	ND	ND	ND	ND	ND	ND	NT	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,3-Dichloropropene	mg/l	NE	0.1	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,3-Dichloropropene	mg/l	NE	0.1	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
2,2-Dichloropropane	mg/l	NE	NIT	ND	ND	ND	ND	ND	ND	ND	NT	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Ethylbenzene	mg/l	0.7	0.077	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	<0.00100	<0.00100	**0.00595**	<0.00100	<0.00100
Hexachloro-1,3-butadiene	mg/l	0.0014	0.008	ND	ND	ND	ND	ND	ND	ND	NT	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
n-Hexane	mg/l	1.5	0.018	ND	ND	ND	ND	ND	ND	ND	NT	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Isopropylbenzene	mg/l	0.45	2.42	ND	ND	ND	ND	ND	ND	ND	NT	<0.00100	<0.00100	<0.00100	**0.00521**	<0.00100	<0.00100
p-Isopropyltoluene	mg/l	0.18	NIT	ND	ND	ND	ND	ND	ND	ND	NT	<0.00100	<0.00100	<0.00100	**0.00437**	<0.00100	<0.00100
2-Butanone (MEK)	mg/l	5.6	4,300	ND	ND	ND	ND	ND	ND	ND	ND	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Methylene Chloride	mg/l	0.005	8.1	ND	ND	ND	ND	ND	ND	ND	ND	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-Methyl-2-pentanone (MIBK)	mg/l	6.3	1,190	ND	ND	ND	ND	ND	ND	ND	ND	<0.0100	<0.0100	<0.0100	**0.0332**	<0.0100	<0.0100
Methyl tert-butyl ether (MTBE)	mg/l	0.14	7.86	ND	ND	ND	ND	ND	ND	ND	NT	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Naphthalene	mg/l	0.0017	0.127	ND	ND	ND	ND	ND	ND	ND	NT	<0.00500	<0.00500	<0.00500	**0.00113 J**	<0.00500	<0.00500
n-Propylbenzene	mg/l	0.66	5.9	ND	ND	ND	ND	ND	ND	ND	NT	<0.00100	<0.00100	<0.00100	**0.00909**	<0.00100	<0.00100
Styrene	mg/l	0.1	22.2	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,1,2-Tetrachloroethane	mg/l	0.0057	0.092	ND	ND	ND	ND	ND	ND	ND	NT	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,2,2-Tetrachloroethane	mg/l	0.00076	0.075	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Tetrachloroethene	mg/l	0.005	0.122	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	<0.00100	<0.00100	**0.00285**	<0.00100	<0.00100
Toluene	mg/l	1	39.2	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100

Table 5A: Summary of VOCs in Groundwater
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

				12	IA-14							General Coverage		IA-53	IA-54	IA-56	IA-57
Sample ID		**VAP Standard**	**US EPA**	**HzW-19 * [4]**	**HzW-07 * [4]**	**HzW-07 * [4]**	**HzW-12 * [4]**	**HzW-12 * [4]**	**HzW-21 * [4]**	**HzW-21 * [4]**	**HMW-21 * [4]**	**P4-GC-MW01**	**Duplicate 3 (P4-GC-MW01)**	**P5-IA53-MW01**	**P5-IA54-MW01**	**P5-IA56-MW01**	**P5-IA57-MW01**
Collection Date				6/9/2004	7/20/2000	6/9/2004	10/9/2000	11/2/2000	6/1/2001	6/8/2004	7/5/2007	6/29/2023	6/29/2023	6/30/2023	6/29/2023	6/29/2023	6/30/2023
Parameter	**Units [1]**	**UPUS [2]**	**VISL[3]**	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
1,2,3-Trichlorobenzene	mg/l	NE	NIT	ND	ND	ND	ND	ND	ND	ND	NT	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2,4-Trichlorobenzene	mg/l	0.07	0.103	ND	ND	ND	ND	ND	ND	ND	NT	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,1-Trichloroethane	mg/l	0.2	0.0773	ND	**0.0686**	**0.0427**	ND	ND	ND	ND	ND	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,2-Trichloroethane	mg/l	0.005	0.013	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Trichloroethene	mg/l	0.005	0.010	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	<0.00100	<0.00100	**0.000237 J**	<0.00100	<0.00100
Trichlorofluoromethane	mg/l	5.2	NIT	ND	ND	ND	ND	ND	ND	ND	NT	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,3-Trichloropropane	mg/l	0.0000075	0.052	ND	ND	ND	ND	ND	ND	ND	NT	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250
1,2,4-Trimethylbenzene	mg/l	0.056	0.626	ND	ND	ND	ND	ND	ND	ND	NT	<0.00100	<0.00100	<0.00100	**0.00279**	<0.00100	<0.00100
1,3,5-Trimethylbenzene	mg/l	0.06	0.439	ND	ND	ND	ND	ND	ND	ND	NT	<0.00100	<0.00100	<0.00100	**0.00138**	<0.00100	<0.00100
Vinyl chloride	mg/l	0.002	0.002	ND	ND	ND	ND	ND	ND	ND	ND	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Xylenes, Total	mg/l	10	0.856	ND	ND	ND	ND	ND	ND	ND	ND	<0.00300	<0.00300	<0.00300	**0.0154**	<0.00300	<0.00300

Notes

1. mg/l = Milligrams per liter - parts per million (ppm).
2. Ohio EPA Generic Unrestricted Potable Use Standards (UPUS)
3. USEPA VISL for Residential Land Use
4. Monitoring wells adjacent to IAs due to access issues.
5. IA09 and IA14 overlap.

* : Wells installed by and samples collected by HzW

NSV: Not sufficiently volatile; **NIT**: No inhalation toxicity.

NE: No standard established by applicable agency; **NT**: Parameter not analyzed for this sample; **ND**: No Detect

Bold numbers indicate a concentration above laboratory detection limits.

Bold and shaded numbers indicate a concentration above a comparison standard. If exceeding more than one s

Laboratory Qualifiers:

J - The identification of the analyte is acceptable; the reported value is an estimate.

J3 - The associated batch QC was outside the establish quality control range for precision.

J4 - The associated batch QC was outside the established quality control range for accuracy.

Table 5A: Summary of VOCs in Groundwater
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

Sample ID		VAP Standard	US EPA	General Coverage	QA/QC			
				P5-GC-MW01	Field Blank	Field Blank 2	Trip Blank	Equipment Blank
Collection Date				6/29/2023	6/29/2023	6/30/2023	6/29/2023	6/29/2023
Parameter	Units [1]	UPUS [2]	VISL [3]	Result	Result	Result	Result	Result
Volatile Organic Compounds - VOCs								
Acetone	mg/l	14	40,200	<0.0500 J4	<0.0500 J4	<0.0500 J4	<0.0500 J4	<0.0500 J4
Acrolein	mg/l	0.000042	0.007	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Acrylonitrile	mg/l	0.00052	0.144	<0.0100 J4	<0.0100 J4	<0.0100 J4	<0.0100 J4	<0.0100 J4
Benzene	mg/l	0.005	0.03	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Bromobenzene	mg/l	NE	1.68	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Bromodichloromethane	mg/l	0.08	0.017	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Bromoform	mg/l	0.08	2.77	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Bromomethane	mg/l	0.0075	0.027	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
n-Butylbenzene	mg/l	1	NIT	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
sec-Butylbenzene	mg/l	2	NIT	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
tert-Butylbenzene	mg/l	0.69	NIT	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Carbon tetrachloride	mg/l	0.005	0.008	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Chlorobenzene	mg/l	0.1	0.883	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Chlorodibromomethane	mg/l	0.08	NIT	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Chloroethane	mg/l	21	NIT	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Chloroform	mg/l	0.08	0.015	<0.00500	<0.00500	**0.000353 J**	<0.00500	<0.00500
Chloromethane	mg/l	0.19	0.368	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250
2-Chlorotoluene	mg/l	NE	NIT	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
4-Chlorotoluene	mg/l	NE	NIT	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-Dibromo-3-Chloropropane	mg/l	0.0002	0.001	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2-Dibromoethane (EDB)	mg/l	0.00005	0.004	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Dibromomethane	mg/l	0.0083	0.244	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-Dichlorobenzene	mg/l	0.6	6.54	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,3-Dichlorobenzene	mg/l	NE	NIT	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,4-Dichlorobenzene	mg/l	0.075	0.064	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Dichlorodifluoromethane	mg/l	3.6	0.01	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,1-Dichloroethane	mg/l	0.028	0.135	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-Dichloroethane (EDC)	mg/l	0.005	0.043	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-Dichloroethene	mg/l	0.007	0.32	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,2-Dichloroethene	mg/l	0.07	NIT	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,2-Dichloroethene	mg/l	0.1	0.191	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-Dichloropropane	mg/l	0.005	0.071	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-Dichloropropene	mg/l	NE	NIT	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,3-Dichloropropane	mg/l	0.37	NIT	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,3-Dichloropropene	mg/l	NE	0.1	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,3-Dichloropropene	mg/l	NE	0.1	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
2,2-Dichloropropane	mg/l	NE	NIT	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Ethylbenzene	mg/l	0.7	0.077	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Hexachloro-1,3-butadiene	mg/l	0.0014	0.008	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
n-Hexane	mg/l	1.5	0.018	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Isopropylbenzene	mg/l	0.45	2.42	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
p-Isopropyltoluene	mg/l	0.18	NIT	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
2-Butanone (MEK)	mg/l	5.6	4,300	<0.0100	**0.00323**	<0.0100	<0.0100	<0.0100
Methylene Chloride	mg/l	0.005	8.1	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-Methyl-2-pentanone (MIBK)	mg/l	6.3	1,190	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Methyl tert-butyl ether (MTBE)	mg/l	0.14	7.86	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Naphthalene	mg/l	0.0017	0.127	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
n-Propylbenzene	mg/l	0.66	5.9	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Styrene	mg/l	0.1	22.2	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,1,2-Tetrachloroethane	mg/l	0.0057	0.092	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,2,2-Tetrachloroethane	mg/l	0.00076	0.075	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Tetrachloroethene	mg/l	0.005	0.122	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Toluene	mg/l	1	39.2	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100

Table 5A: Summary of VOCs in Groundwater
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

				General Coverage	QA/QC			
Sample ID		**VAP Standard**	**US EPA**	**P5-GC-MW01**	**Field Blank**	**Field Blank 2**	**Trip Blank**	**Equipment Blank**
Collection Date				6/29/2023	6/29/2023	6/30/2023	6/29/2023	6/29/2023
Parameter	**Units [1]**	**UPUS [2]**	**VISL[3]**	Result	Result	Result	Result	Result
1,2,3-Trichlorobenzene	mg/l	NE	NIT	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2,4-Trichlorobenzene	mg/l	0.07	0.103	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,1-Trichloroethane	mg/l	0.2	0.0773	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,2-Trichloroethane	mg/l	0.005	0.013	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Trichloroethene	mg/l	0.005	0.010	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Trichlorofluoromethane	mg/l	5.2	NIT	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,3-Trichloropropane	mg/l	0.0000075	0.052	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250
1,2,4-Trimethylbenzene	mg/l	0.056	0.626	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,3,5-Trimethylbenzene	mg/l	0.06	0.439	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Vinyl chloride	mg/l	0.002	0.002	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Xylenes, Total	mg/l	10	0.856	<0.00300	<0.00300	<0.00300	<0.00300	<0.00300

Notes

1. mg/l = Milligrams per liter - parts per million (ppm).
2. Ohio EPA Generic Unrestricted Potable Use Standards (UPUS)
3. USEPA VISL for Residential Land Use
4. Monitoring wells adjacent to IAs due to access issues.
5. IA09 and IA14 overlap.

* : Wells installed by and samples collected by HzW

NSV: Not sufficiently volatile; **NIT**: No inhalation toxicity.

NE: No standard established by applicable agency; **NT**: Parameter not analyzed for this sample; **ND**: No Detect

Bold numbers indicate a concentration above laboratory detection limits.

Bold and shaded numbers indicate a concentration above a comparison standard. If exceeding more than one s

Laboratory Qualifiers:

J - The identification of the analyte is acceptable; the reported value is an estimate.

J3 - The associated batch QC was outside the establish quality control range for precision.

J4 - The associated batch QC was outside the established quality control range for accuracy.

Table 5B: Summary of PAHs, RCRA Metals, and PCBs in Groundwater
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

				IA-01										IA-01A		
Sample ID		**VAP Standard**	**US EPA**	**P4-IA01-MW01**	**HzW -01 * [4]**	**HzW-01 * [4]**	**HzW-01 * [4]**	**HzW-04 * [4 5]**	**HzW-04 * [4 5]**	**MW-1 * [4 5]**	**MW-1 * [5]**	**MW-3 * [4 5]**	**MW-3 * [4 5]**	**HzW-02 * [4]**	**HzW-03 * [4]**	**HzW-03 * [4]**
Collection Date				6/28/2023	3/31/2000	10/5/2000	6/8/2004	7/20/2000	6/8/2004	3/31/2000	3/14/2001	3/31/2000	3/14/2001	3/31/2000	3/31/2000	6/8/2004
Parameter	**Units [1]**	**UPUS [2]**	**VISL[3]**	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Polynuclear Aromatic Hydrocarbons-PAHs																
Anthracene	mg/l	1.8	NIT	**0.0000445 J**	ND	ND	ND	ND	ND	ND	NT	ND	NT	ND	ND	ND
Acenaphthene	mg/l	0.530	NIT	<0.0000500	ND	ND	ND	ND	ND	ND	NT	ND	NT	ND	ND	ND
Acenaphthylene	mg/l	0.520	NIT	<0.0000500	ND	ND	ND	ND	ND	ND	NT	ND	NT	ND	ND	ND
Benzo(a)anthracene	mg/l	0.003	NSV	**0.0000234**	ND	ND	ND	ND	ND	ND	NT	ND	NT	ND	ND	ND
Benzo(a)pyrene	mg/l	0.200	NSV	<0.0000500	ND	ND	ND	ND	ND	ND	NT	ND	NT	ND	ND	ND
Benzo(b)fluoranthene	mg/l	2.5	NSV	**0.0000266**	ND	ND	ND	ND	ND	ND	NT	ND	NT	ND	ND	ND
Benzo(g,h,i)perylene	mg/l	0.60	NSV	<0.0000500	ND	ND	ND	ND	ND	ND	NT	ND	NT	ND	ND	ND
Benzo(k)fluoranthene	mg/l	0.025	NSV	<0.0000500	ND	ND	ND	ND	ND	ND	NT	ND	NT	ND	ND	ND
Chrysene	mg/l	0.250	NSV	<0.0000500	ND	ND	ND	ND	ND	ND	NT	ND	NT	ND	ND	ND
Dibenz(a,h)anthracene	mg/l	0.025	NSV	<0.0000500	ND	ND	ND	ND	ND	ND	NT	ND	NT	ND	ND	ND
Fluoranthene	mg/l	0.80	NSV	**0.0000516**	ND	ND	ND	ND	ND	ND	NT	ND	NT	ND	ND	ND
Fluorene	mg/l	0.29	NSV	<0.0000500	ND	ND	ND	ND	ND	ND	NT	ND	NT	ND	ND	ND
Indeno(1,2,3-cd)pyrene	mg/l	0.0025	NSV	<0.0000500	ND	ND	ND	ND	ND	ND	NT	ND	NT	ND	ND	ND
Naphthalene	mg/l	0.0017	0.127	<0.000250	ND	ND	ND	ND	ND	ND	NT	ND	NT	ND	ND	ND
Phenanthrene	mg/l	4.8	NIT	**0.0000342**	ND	ND	ND	ND	ND	ND	NT	ND	NT	ND	ND	ND
Pyrene	mg/l	0.02	NIT	**0.0000506**	ND	ND	ND	ND	ND	ND	NT	ND	NT	ND	ND	ND
1-Methylnaphthalene	mg/l	0.011	NIT	<0.000250	ND	ND	ND	ND	ND	ND	NT	ND	NT	ND	ND	ND
2-Methylnaphthalene	mg/l	0.036	NIT	<0.000250	ND	ND	ND	ND	ND	ND	NT	ND	NT	ND	ND	ND
2-Chloronaphthalene	mg/l	0.750	NIT	<0.000250	ND	ND	ND	ND	ND	ND	NT	ND	NT	ND	ND	ND
Resource Conservation & Recovery Act (RCRA) 8 Metals																
Arsenic	mg/l	0.010	NIT	NT	NT	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT
Barium	mg/l	2.000	NIT	NT	NT	NT	NT	NT	0.0788	NT	NT	NT	NT	NT	NT	NT
Cadmium	mg/l	0.005	NIT	NT	NT	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT
Chromium	mg/l	0.100	NIT	NT	NT	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT
Lead	mg/l	0.015	NIT	NT	NT	NT	NT	NT	ND	NT	**0.0236**	NT	**0.0405**	NT	NT	NT
Selenium	mg/l	0.050	NIT	NT	NT	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT
Silver	mg/l	0.094	NIT	NT	NT	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT
Polychlorinated Biphenyls-PCBs																
PCB 1016	mg/l	0.0014	NIT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1221	mg/l	0.000047	NIT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1232	mg/l	0.000047	NIT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1242	mg/l	0.00008	NIT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1248	mg/l	0.00008	NIT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1254	mg/l	0.00008	NIT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1260	mg/l	0.00008	NIT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Notes:

1. mg/l = Milligrams per liter - parts per million (ppm).
2. Ohio EPA Generic Unrestricted Potable Use Standards (UPUS)
3. USEPA VISL For Residential Land Use
4. Samples anaylzed for SVOCs by SW8270B
5. Monitoring well adjacent to IAs due to access issues.
6. IA09 and IA14 overlap.

* : Wells installed by and samples collected by HzW

NSV: Not sufficiently volatile; **NIT**: No inhalation toxicity.

NE: No standard established by applicable agency; **NT**: Parameter not analyzed for this sample; **ND**: No Detections

Bold numbers indicate a concentration above laboratory detection limits.

Bold and shaded numbers indicate a concentration above a comparison standard. If exceeding more than one standard, the most strict one is highlighted.

Laboratory Qualifiers:

J - The identification of the analyte is acceptable; the reported value is an estimate.

Table 5B: Summary of PAHs, RCRA Metals, and PCBs in Groundwater
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

Sample ID		VAP Standard	US EPA	IA-01A		IA-03								IA-04	IA-05	IA
				MW-2 * [4,5]	MW-2 * [5]	P4-IA03-MW01	HzW-14 * [4]	HzW-14 * [4]	HzW-14 * [4]	HzW-14 * [4]	HzW-14 * [4,5]	HzW-14 * [4,5]	HzW-17 * [5]	P4-IA04-MW01	HzW-10 * [4,5]	HzW-11 * [4,5]
Collection Date				3/29/2000	3/14/2001	6/28/2023	10/19/2000	11/2/2000	12/21/2000	1/4/2001	6/10/2004	7/1/2004	6/8/2004	6/28/2023	6/9/2004	11/8/2000
Parameter	Units [1]	UPUS [2]	VISL [3]	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Polynuclear Aromatic Hydrocarbons-PAHs																
Anthracene	mg/l	1.8	NIT	ND	NT	**0.0000776**	NT	NT	NT	NT	ND	NT	NT	**0.0000451 J**	ND	ND
Acenaphthene	mg/l	0.530	NIT	ND	NT	**0.000167**	NT	NT	NT	NT	ND	NT	NT	<0.0000500	ND	ND
Acenaphthylene	mg/l	0.520	NIT	ND	NT	**0.0000753**	NT	NT	NT	NT	ND	NT	NT	<0.0000500	ND	ND
Benzo(a)anthracene	mg/l	0.003	NSV	ND	NT	**0.0000575**	NT	NT	NT	NT	ND	NT	NT	<0.0000500	ND	ND
Benzo(a)pyrene	mg/l	0.200	NSV	ND	NT	**0.0000324**	NT	NT	NT	NT	ND	NT	NT	<0.0000500	ND	ND
Benzo(b)fluoranthene	mg/l	2.5	NSV	ND	NT	**0.000056**	NT	NT	NT	NT	ND	NT	NT	<0.0000500	ND	ND
Benzo(g,h,i)perylene	mg/l	0.60	NSV	ND	NT	<0.0000500	NT	NT	NT	NT	ND	NT	NT	<0.0000500	ND	ND
Benzo(k)fluoranthene	mg/l	0.025	NSV	ND	NT	**0.0000213**	NT	NT	NT	NT	ND	NT	NT	<0.0000500	ND	ND
Chrysene	mg/l	0.250	NSV	ND	NT	**0.0000516**	NT	NT	NT	NT	ND	NT	NT	<0.0000500	ND	ND
Dibenz(a,h)anthracene	mg/l	0.025	NSV	ND	NT	<0.0000500	NT	NT	NT	NT	ND	NT	NT	<0.0000500	ND	ND
Fluoranthene	mg/l	0.80	NSV	ND	NT	**0.000245**	NT	NT	NT	NT	ND	NT	NT	<0.000100	ND	ND
Fluorene	mg/l	0.29	NSV	ND	NT	**0.000264**	NT	NT	NT	NT	ND	NT	NT	<0.0000500	ND	ND
Indeno(1,2,3-cd)pyrene	mg/l	0.0025	NSV	ND	NT	<0.0000500	NT	NT	NT	NT	ND	NT	NT	<0.0000500	ND	ND
Naphthalene	mg/l	0.0017	0.127	ND	NT	**0.000205**	NT	NT	NT	NT	ND	NT	NT	<0.000250	ND	ND
Phenanthrene	mg/l	4.8	NIT	ND	NT	**0.000303**	NT	NT	NT	NT	ND	NT	NT	<0.0000500	ND	ND
Pyrene	mg/l	0.02	NIT	ND	NT	**0.000242**	NT	NT	NT	NT	ND	NT	NT	<0.0000500	ND	ND
1-Methylnaphthalene	mg/l	0.011	NIT	ND	NT	**0.000104**	NT	NT	NT	NT	ND	NT	NT	<0.000250	ND	ND
2-Methylnaphthalene	mg/l	0.036	NIT	ND	NT	<0.000250	NT	NT	NT	NT	ND	NT	NT	<0.000250	ND	ND
2-Chloronaphthalene	mg/l	0.750	NIT	ND	NT	<0.000250	NT	NT	NT	NT	ND	NT	NT	<0.000250	ND	ND
Resource Conservation & Recovery Act (RCRA) 8 Metals																
Arsenic	mg/l	0.010	NIT	NT	NT	**0.0087 J**	ND	ND	ND	ND	ND	ND	ND	<0.0100	NT	NT
Barium	mg/l	2.000	NIT	NT	NT	**0.158**	**0.0545**	**0.29**	**0.253**	**0.203**	**0.0932**	**0.0999**	**0.155**	**0.0526**	NT	NT
Cadmium	mg/l	0.005	NIT	NT	NT	<0.00200	ND	ND	ND	ND	ND	ND	ND	<0.00200	NT	NT
Chromium	mg/l	0.100	NIT	NT	NT	<0.0100	ND	ND	**0.0113**	ND	ND	ND	ND	**0.00714 J**	NT	NT
Lead	mg/l	0.015	NIT	NT	**0.0477**	**0.00417 J**	ND	**0.134**	**0.0952**	**0.0789**	ND	ND	ND	**0.0136**	NT	NT
Selenium	mg/l	0.050	NIT	NT	NT	<0.0100	ND	ND	ND	ND	ND	ND	ND	**0.0168**	NT	NT
Silver	mg/l	0.094	NIT	NT	NT	<0.00500	ND	ND	ND	ND	ND	ND	ND	<0.00500	NT	NT
Polychlorinated Biphenyls-PCBs																
PCB 1016	mg/l	0.0014	NIT	NT	NT	<0.000500	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1221	mg/l	0.000047	NIT	NT	NT	<0.000500	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1232	mg/l	0.000047	NIT	NT	NT	<0.000500	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1242	mg/l	0.00008	NIT	NT	NT	<0.000500	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1248	mg/l	0.00008	NIT	NT	NT	<0.000500	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1254	mg/l	0.00008	NIT	NT	NT	<0.000500	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1260	mg/l	0.00008	NIT	NT	NT	<0.000500	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Notes:

1. mg/l = Milligrams per liter - parts per million (ppm).
2. Ohio EPA Generic Unrestricted Potable Use Standards (UPUS)
3. USEPA VISL For Residential Land Use
4. Samples anaylzed for SVOCs by SW8270B
5. Monitoring well adjacent to IAs due to access issues.
6. IA09 and IA14 overlap.

* : Wells installed by and samples collected by HzW

NSV: Not sufficiently volatile; **NIT**: No inhalation toxicity.

NE: No standard established by applicable agency; **NT**: Parameter not analyzed for this sample; **ND**: No Detections

Bold numbers indicate a concentration above laboratory detection limits.

Bold and shaded numbers indicate a concentration above a comparison standard. If exceeding more than one standard, the most st

Laboratory Qualifiers:

J - The identification of the analyte is acceptable; the reported value is an estimate.

Table 5B: Summary of PAHs, RCRA Metals, and PCBs in Groundwater
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

				06	IA-07	IA-09				IA-10						
Sample ID		**VAP Standard**	**US EPA**	**HzW-11 * [4 5]**	**P4-IA07-MW01**	**HzW-06 * [4 5 6]**	**HzW-15 * [5 6]**	**HzW-20 * [4 5 6]**	**HzW-20 * [4 5 6]**	**MW-18 * [5]**	**MW-18 * [5]**	**MW-18 * [5]**	**HzW-18 * [4 5]**	**HzW-18 * [4 5]**	**HzW-18 * [4 5]**	**P4-IA11-MW01**
Collection Date				6/8/2004	6/28/2023	7/20/2000	6/11/2004	6/1/2001	6/9/2004	2/16/2001	3/2/2001	3/15/2001	6/9/2004	7/1/2004	7/8/2004	6/29/2023
Parameter	**Units [1]**	**UPUS [2]**	**VISL[3]**	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Polynuclear Aromatic Hydrocarbons-PAHs																
Anthracene	mg/l	1.8	NIT	ND	<0.0000500	ND	NT	ND	ND	NT	NT	NT	ND	NT	NT	<0.0000500
Acenaphthene	mg/l	0.530	NIT	ND	<0.0000500	ND	NT	ND	ND	NT	NT	NT	ND	NT	NT	<0.0000500
Acenaphthylene	mg/l	0.520	NIT	ND	<0.0000500	ND	NT	ND	ND	NT	NT	NT	ND	NT	NT	<0.0000500
Benzo(a)anthracene	mg/l	0.003	NSV	ND	<0.0000500	ND	NT	ND	ND	NT	NT	NT	ND	NT	NT	<0.0000500
Benzo(a)pyrene	mg/l	0.200	NSV	ND	<0.0000500	ND	NT	ND	ND	NT	NT	NT	ND	NT	NT	<0.0000500
Benzo(b)fluoranthene	mg/l	2.5	NSV	ND	<0.0000500	ND	NT	ND	ND	NT	NT	NT	ND	NT	NT	<0.0000500
Benzo(g,h,i)perylene	mg/l	0.60	NSV	ND	<0.0000500	ND	NT	ND	ND	NT	NT	NT	ND	NT	NT	<0.0000500
Benzo(k)fluoranthene	mg/l	0.025	NSV	ND	<0.0000500	ND	NT	ND	ND	NT	NT	NT	ND	NT	NT	<0.0000500
Chrysene	mg/l	0.250	NSV	ND	<0.0000500	ND	NT	ND	ND	NT	NT	NT	ND	NT	NT	<0.0000500
Dibenz(a,h)anthracene	mg/l	0.025	NSV	ND	<0.0000500	ND	NT	ND	ND	NT	NT	NT	ND	NT	NT	<0.0000500
Fluoranthene	mg/l	0.80	NSV	ND	**0.0000523**	ND	NT	ND	ND	NT	NT	NT	ND	NT	NT	<0.000100
Fluorene	mg/l	0.29	NSV	ND	<0.0000500	ND	NT	ND	ND	NT	NT	NT	ND	NT	NT	<0.0000500
Indeno(1,2,3-cd)pyrene	mg/l	0.0025	NSV	ND	<0.0000500	ND	NT	ND	ND	NT	NT	NT	ND	NT	NT	<0.0000500
Naphthalene	mg/l	0.0017	0.127	ND	<0.000250	ND	NT	ND	ND	NT	NT	NT	ND	NT	NT	<0.000250
Phenanthrene	mg/l	4.8	NIT	ND	**0.0000255**	ND	NT	ND	ND	NT	NT	NT	ND	NT	NT	<0.0000500
Pyrene	mg/l	0.02	NIT	ND	**0.0000601**	ND	NT	ND	ND	NT	NT	NT	ND	NT	NT	<0.0000500
1-Methylnaphthalene	mg/l	0.011	NIT	ND	<0.000250	ND	NT	ND	ND	NT	NT	NT	ND	NT	NT	<0.000250
2-Methylnaphthalene	mg/l	0.036	NIT	ND	<0.000250	ND	NT	ND	ND	NT	NT	NT	ND	NT	NT	<0.000250
2-Chloronaphthalene	mg/l	0.750	NIT	ND	<0.000250	ND	NT	ND	ND	NT	NT	NT	ND	NT	NT	<0.000250
Resource Conservation & Recovery Act (RCRA) 8 Metals																
Arsenic	mg/l	0.010	NIT	NT	**0.00864 J**	ND	ND	NT	NT	ND	ND	ND	NT	ND	ND	<0.0100
Barium	mg/l	2.000	NIT	NT	**0.154**	**0.0382**	**0.124**	NT	NT	**5.35**	**4.56**	**52.2**	NT	**0.135**	**0.137**	**0.112**
Cadmium	mg/l	0.005	NIT	NT	**0.00063 J**	ND	ND	NT	NT	ND	ND	ND	NT	ND	ND	**0.000809 J**
Chromium	mg/l	0.100	NIT	NT	**0.00152 J**	**0.0106**	ND	NT	NT	**0.005**	ND	ND	NT	ND	ND	**0.0023 J**
Lead	mg/l	0.015	NIT	NT	**0.00713**	ND	ND	NT	NT	**0.0161**	ND	ND	NT	ND	ND	<0.00600
Selenium	mg/l	0.050	NIT	NT	<0.0100	ND	ND	NT	NT	ND	ND	ND	NT	ND	ND	<0.0100
Silver	mg/l	0.094	NIT	NT	<0.00500	ND	ND	NT	NT	ND	ND	ND	NT	ND	ND	<0.00500
Polychlorinated Biphenyls-PCBs																
PCB 1016	mg/l	0.0014	NIT	NT	<0.000500	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1221	mg/l	0.000047	NIT	NT	<0.000500	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1232	mg/l	0.000047	NIT	NT	<0.000500	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1242	mg/l	0.00008	NIT	NT	<0.000500	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1248	mg/l	0.00008	NIT	NT	<0.000500	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1254	mg/l	0.00008	NIT	NT	<0.000500	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1260	mg/l	0.00008	NIT	NT	<0.000500	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Notes:

1. mg/l = Milligrams per liter - parts per million (ppm).
2. Ohio EPA Generic Unrestricted Potable Use Standards (UPUS)
3. USEPA VISL For Residential Land Use
4. Samples anaylzed for SVOCs by SW8270B
5. Monitoring well adjacent to IAs due to access issues.
6. IA09 and IA14 overlap.

* : Wells installed by and samples collected by HzW

NSV: Not sufficiently volatile; **NIT**: No inhalation toxicity.

NE: No standard established by applicable agency; **NT**: Parameter not analyzed for this sample; **ND**: No Detections

Bold numbers indicate a concentration above laboratory detection limits.

Bold and shaded numbers indicate a concentration above a comparison standard. If exceeding more than one standard, the most st

Laboratory Qualifiers:

J - The identification of the analyte is acceptable; the reported value is an estimate.

Table 5B: Summary of PAHs, RCRA Metals, and PCBs in Groundwater
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

Sample ID		VAP Standard	US EPA	IA-11		IA-11		IA-12				IA-14			General Coverage	
				HzW-05 * [4,5]	HzW-05 * [4,5]	HzW-05 * [4,5]	HzW-05 * [4,5]	HzW-19 * [4,5]	HzW-19 * [4,5]	HzW-19 * [4,5]	HzW-19 * [4,5]	HzW-07 * [4,5]	HzW-21 * [4]	HzW-21 * [4]	P4-GC-MW01	Duplicate 3 (P4-GC-MW01)
Collection Date				7/20/2000	11/2/2000	6/16/2001	6/9/2004	6/1/2001	6/16/2001	6/9/2004	7/1/2004	7/20/2000	6/1/2001	6/8/2004	6/29/2023	6/29/2023
Parameter	Units [1]	UPUS [2]	VISL [3]	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Polynuclear Aromatic Hydrocarbons-PAHs																
Anthracene	mg/l	1.8	NIT	ND	NT	NT	ND	ND	ND	ND	NT	ND	ND	ND	<0.0000500	<0.0000500
Acenaphthene	mg/l	0.530	NIT	ND	NT	NT	ND	ND	ND	ND	NT	ND	ND	ND	<0.0000500	<0.0000500
Acenaphthylene	mg/l	0.520	NIT	ND	NT	NT	ND	ND	ND	ND	NT	ND	ND	ND	<0.0000500	<0.0000500
Benzo(a)anthracene	mg/l	0.003	NSV	ND	NT	NT	ND	ND	ND	ND	NT	ND	ND	ND	<0.0000500	<0.0000500
Benzo(a)pyrene	mg/l	0.200	NSV	ND	NT	NT	ND	ND	ND	ND	NT	ND	ND	ND	<0.0000500	<0.0000500
Benzo(b)fluoranthene	mg/l	2.5	NSV	ND	NT	NT	ND	ND	ND	ND	NT	ND	ND	ND	<0.0000500	<0.0000500
Benzo(g,h,i)perylene	mg/l	0.60	NSV	ND	NT	NT	ND	ND	ND	ND	NT	ND	ND	ND	<0.0000500	<0.0000500
Benzo(k)fluoranthene	mg/l	0.025	NSV	ND	NT	NT	ND	ND	ND	ND	NT	ND	ND	ND	<0.0000500	<0.0000500
Chrysene	mg/l	0.250	NSV	ND	NT	NT	ND	ND	ND	ND	NT	ND	ND	ND	<0.0000500	<0.0000500
Dibenz(a,h)anthracene	mg/l	0.025	NSV	ND	NT	NT	ND	ND	ND	ND	NT	ND	ND	ND	<0.0000500	<0.0000500
Fluoranthene	mg/l	0.80	NSV	ND	NT	NT	ND	ND	ND	ND	NT	ND	ND	ND	<0.000100	<0.000100
Fluorene	mg/l	0.29	NSV	ND	NT	NT	ND	ND	ND	ND	NT	ND	ND	ND	<0.0000500	<0.0000500
Indeno(1,2,3-cd)pyrene	mg/l	0.0025	NSV	ND	NT	NT	ND	ND	ND	ND	NT	ND	ND	ND	<0.0000500	<0.0000500
Naphthalene	mg/l	0.0017	0.127	ND	NT	NT	ND	ND	ND	ND	NT	ND	ND	ND	<0.000250	<0.000250
Phenanthrene	mg/l	4.8	NIT	ND	NT	NT	ND	ND	ND	ND	NT	ND	ND	ND	**0.0000465**	**0.0000392**
Pyrene	mg/l	0.02	NIT	ND	NT	NT	ND	ND	ND	ND	NT	ND	ND	ND	**0.0000278**	**0.000021**
1-Methylnaphthalene	mg/l	0.011	NIT	ND	NT	NT	ND	ND	ND	ND	NT	ND	ND	ND	<0.000250	<0.000250
2-Methylnaphthalene	mg/l	0.036	NIT	ND	NT	NT	ND	ND	ND	ND	NT	ND	ND	ND	<0.000250	<0.000250
2-Chloronaphthalene	mg/l	0.750	NIT	ND	NT	NT	ND	ND	ND	ND	NT	ND	ND	ND	<0.000250	<0.000250
Resource Conservation & Recovery Act (RCRA) 8 Metals																
Arsenic	mg/l	0.010	NIT	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	<0.0100	<0.0100
Barium	mg/l	2.000	NIT	**0.276**	**0.424**	**0.255**	**0.139**	**0.239**	**0.162**	**0.22**	**0.244**	**0.0545**	NT	NT	**0.071**	**0.0724**
Cadmium	mg/l	0.005	NIT	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	**0.000643 J**	**0.000576 J**
Chromium	mg/l	0.100	NIT	ND	ND	ND	ND	**0.0065**	ND	ND	ND	ND	NT	NT	<0.0100	**0.00161 J**
Lead	mg/l	0.015	NIT	ND	**0.0502**	ND	ND	**0.0686**	**0.0272**	ND	ND	ND	NT	NT	<0.00600	<0.00600
Selenium	mg/l	0.050	NIT	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	<0.0100	<0.0100
Silver	mg/l	0.094	NIT	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	<0.00500	<0.00500
Polychlorinated Biphenyls-PCBs																
PCB 1016	mg/l	0.0014	NIT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1221	mg/l	0.000047	NIT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1232	mg/l	0.000047	NIT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1242	mg/l	0.00008	NIT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1248	mg/l	0.00008	NIT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1254	mg/l	0.00008	NIT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCB 1260	mg/l	0.00008	NIT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Notes:

1. mg/l = Milligrams per liter - parts per million (ppm).
2. Ohio EPA Generic Unrestricted Potable Use Standards (UPUS)
3. USEPA VISL For Residential Land Use
4. Samples anaylzed for SVOCs by SW8270B
5. Monitoring well adjacent to IAs due to access issues.
6. IA09 and IA14 overlap.

* : Wells installed by and samples collected by HzW

NSV: Not sufficiently volatile; **NIT**: No inhalation toxicity.

NE: No standard established by applicable agency; **NT**: Parameter not analyzed for this sample; **ND**: No Detections

Bold numbers indicate a concentration above laboratory detection limits.

Bold and shaded numbers indicate a concentration above a comparison standard. If exceeding more than one standard, the most st

Laboratory Qualifiers:

J - The identification of the analyte is acceptable; the reported value is an estimate.

Table 5B: Summary of PAHs, RCRA Metals, and PCBs in Groundwater
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

				IA-53	IA-54	IA-56	IA-57	General Coverage	QA/QC
Sample ID		**VAP Standard**	**US EPA**	**P5-IA53-MW01**	**P5-IA54-MW01**	**P5-IA56-MW01**	**P5-IA57-MW01**	**P5-GC-MW01**	**Equipment Blank**
Collection Date				6/30/2023	6/29/2023	6/29/2023	6/30/2023	6/29/2023	6/29/2023
Parameter	**Units [1]**	**UPUS [2]**	**VISL[3]**	Result	Result	Result	Result	Result	Result
Polynuclear Aromatic Hydrocarbons-PAHs									
Anthracene	mg/l	1.8	NIT	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500
Acenaphthene	mg/l	0.530	NIT	<0.0000500	**0.000924**	<0.0000500	<0.0000500	<0.0000500	<0.0000500
Acenaphthylene	mg/l	0.520	NIT	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500
Benzo(a)anthracene	mg/l	0.003	NSV	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500
Benzo(a)pyrene	mg/l	0.200	NSV	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500
Benzo(b)fluoranthene	mg/l	2.5	NSV	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500
Benzo(g,h,i)perylene	mg/l	0.60	NSV	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500
Benzo(k)fluoranthene	mg/l	0.025	NSV	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500
Chrysene	mg/l	0.250	NSV	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500
Dibenz(a,h)anthracene	mg/l	0.025	NSV	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500
Fluoranthene	mg/l	0.80	NSV	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100
Fluorene	mg/l	0.29	NSV	<0.0000500	**0.00191**	<0.0000500	<0.0000500	<0.0000500	<0.0000500
Indeno(1,2,3-cd)pyrene	mg/l	0.0025	NSV	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500
Naphthalene	mg/l	0.0017	0.127	<0.000250	**0.000786**	<0.000250	<0.000250	<0.000250	<0.000250
Phenanthrene	mg/l	4.8	NIT	<0.0000500	**0.000833**	<0.0000500	<0.0000500	<0.0000500	<0.0000500
Pyrene	mg/l	0.02	NIT	<0.0000500	**0.000431**	**0.0000173**	<0.0000500	<0.0000500	<0.0000500
1-Methylnaphthalene	mg/l	0.011	NIT	<0.000250	**0.0118**	<0.000250	<0.000250	<0.000250	<0.000250
2-Methylnaphthalene	mg/l	0.036	NIT	<0.000250	**0.000192**	<0.000250	<0.000250	<0.000250	<0.000250
2-Chloronaphthalene	mg/l	0.750	NIT	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250
Resource Conservation & Recovery Act (RCRA) 8 Metals									
Arsenic	mg/l	0.010	NIT	**0.00615 J**	NT	**0.00837 J**	**0.0104**	**0.00736 J**	<0.0100
Barium	mg/l	2.000	NIT	**0.083**	NT	**0.0298**	**0.108**	**0.192**	**0.0012 J**
Cadmium	mg/l	0.005	NIT	<0.00200	NT	<0.00200	<0.00200	<0.00200	<0.00200
Chromium	mg/l	0.100	NIT	**0.00303 J**	NT	**0.00263 J**	**0.00199 J**	**0.00384 J**	<0.0100
Lead	mg/l	0.015	NIT	<0.00600	NT	<0.00600	<0.00600	**0.00425 J**	<0.00600
Selenium	mg/l	0.050	NIT	<0.0100	NT	<0.0100	<0.0100	<0.0100	<0.0100
Silver	mg/l	0.094	NIT	<0.00500	NT	<0.00500	<0.00500	<0.00500	<0.00500
Polychlorinated Biphenyls-PCBs									
PCB 1016	mg/l	0.0014	NIT	NT	NT	NT	NT	NT	<0.000555
PCB 1221	mg/l	0.000047	NIT	NT	NT	NT	NT	NT	<0.000555
PCB 1232	mg/l	0.000047	NIT	NT	NT	NT	NT	NT	<0.000555
PCB 1242	mg/l	0.00008	NIT	NT	NT	NT	NT	NT	<0.000555
PCB 1248	mg/l	0.00008	NIT	NT	NT	NT	NT	NT	<0.000555
PCB 1254	mg/l	0.00008	NIT	NT	NT	NT	NT	NT	<0.000555
PCB 1260	mg/l	0.00008	NIT	NT	NT	NT	NT	NT	<0.000555

Notes:

1. mg/l = Milligrams per liter - parts per million (ppm).
2. Ohio EPA Generic Unrestricted Potable Use Standards (UPUS)
3. USEPA VISL For Residential Land Use
4. Samples anaylzed for SVOCs by SW8270B
5. Monitoring well adjacent to IAs due to access issues.
6. IA09 and IA14 overlap.

* : Wells installed by and samples collected by HzW

NSV: Not sufficiently volatile; **NIT**: No inhalation toxicity.

NE: No standard established by applicable agency; **NT**: Parameter not analyzed for this sample; **ND**: No Detections

Bold numbers indicate a concentration above laboratory detection limits.

Bold and shaded numbers indicate a concentration above a comparison standard. If exceeding more than one standard, the most st

Laboratory Qualifiers:

J - The identification of the analyte is acceptable; the reported value is an estimate.

Table 6A: Summary of VOCs in Sub-Slab Soil Vapor
Kriby and Eddy Parcels, Cleveland, Cuyahoga County, Ohio

				IA-02					IA-03						IA-04	IA-05	IA-07	IA-57	
Sample ID		*Ohio VAP Indoor Air Standard Residential Land Use with Applied Attenuation Factor of 0.03* [2]	*Ohio VAP Indoor Air Standard Commercial/Industrial Land Use with Applied Attenuation Factor of 0.03* [3]	P4-IA02-SV01	01 *	02 *	3 *	4*	P4-IA03-SV01	5*	6 *	7 *	8 *	9 *	P4-IA04-SV01	P4-IA05-SV01	P4-IA07-SV01	P5-IA57-SV01	P5-DUP01
Collection Date				6/27/2023	8/15/2008	8/15/2008	8/15/2008	8/15/2008	6/27/2023	8/15/2008	8/15/2008	8/15/2008	8/15/2008	8/15/2008	6/27/2023	6/27/2023	6/27/2023	6/27/2023	6/27/2023
Parameter	**Units** [1]			Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds - VOCs																			
Acetone	ug/m3	*1,066,667*	*4,666,667*	**43.7**	<5,900	<120,000	**810**	**3,100**	**38.5**	**2,100**	<1,200	**2,300**	**2,300**	**1,000**	**70.1**	**8.6**	**29.2**	<2970	<2,970
Allyl Chloride	ug/m3	*33*	*146*	<0.626	**<1,300** [5 6]	**<25,000** [5 6]	<25	**<250** [5 6]	<0.626	**<130** [5]	**<250** [5 6]	<25	**<250** [5 6]	**<130** [5 6]	<0.626	<0.626	<0.626	**<626** [5 6]	**<626** [5]
Benzene	ug/m3	*120*	*533*	**1.52**	**<1,300** [5 6]	**<26,000** [5 6]	**26**	**320**	**1.37**	**130**	**<260** [5 6]	**57**	**<260** [5 6]	**320**	**1.47**	<0.639	**3.9**	**10,800**	**10,400**
Benzyl Chloride	ug/m3	*19*	*83.3*	<1.04	**<2,100** [5 6]	**<42,000** [5 6]	**<42** [5]	**<420** [5 6]	<1.04	**<210** [5 6]	**<420** [5 6]	**<42** [5]	**<420** [5 6]	**<210** [5 6]	<1.04	<1.04	<1.04	**<1040** [5 6]	**<1040** [5 6]
Bromodichloromethane	ug/m3	*25*	*110*	<1.34	**<2,700** [5 6]	**<54,000** [5 6]	**<54** [5]	**600**	<1.34	**<270** [5 6]	**<540** [5 6]	**<54** [5]	**<540** [5 6]	**<270** [5 6]	<1.34	<1.34	<1.34	**<1340** [5 6]	**<1340** [5 6]
Bromoform	ug/m3	*867*	*3,667*	<6.21	**<12,000** [5 6]	**<250,000** [5 6]	<250	**<2,500** [5]	<6.21	**<1,200** [5]	**<2,500** [5]	<250	**<2,500** [5]	**<1,200** [5]	<6.21	<6.21	<6.21	**<6210** [5 6]	**<6210** [5 6]
Bromomethane	ug/m3	*173*	*733*	<0.776	**<1,600** [5 6]	**<31,000** [5 6]	<31	**<310** [5]	<0.776	<160	**<310** [5]	<31	**<310** [5]	<160	<0.776	<0.776	<0.776	**<776** [5 6]	**<776** [5 6]
Carbon Disulfide	ug/m3	*24,333*	*103,333*	**0.688**	<1,200	<25,000	**56**	**1,100**	<0.622	**5,300**	**900**	**110**	<250	<120	**2**	<0.622	<0.622	<622	<622
Carbon Tetrachloride	ug/m3	*160*	*680*	<1.26	**<2,500** [5 6]	**<50,000** [5 6]	<50	**<500** [5]	<1.26	**<250** [5]	**<500** [5]	<50	**<500** [5]	**<250** [5]	<1.26	<1.26	<1.26	**<1260** [5 6]	**<1260** [5 6]
Chlorobenzene	ug/m3	*1,733*	*7,333*	<0.924	**<1,800** [5]	**<37,000b** [5 6]	<37	<370	<0.924	<180	<370	<37	<370	<180	<0.924	<0.924	<0.924	<924	<924
Chloroethane	ug/m3	*333,333*	*1,466,667*	<0.528	<1,100	<21,000	<21	<210	<0.528	<110	<210	<21	<210	<110	<0.528	<0.528	<0.528	<528	<528
Chloroform	ug/m3	*41*	*180*	**11.4**	**<1,900** [5 6]	**<39,000** [5 6]	**68**	**2,000**	<0.973	**<190** [5 6]	**<390** [5 6]	<39	**<390** [5 6]	**<190** [5 6]	<0.973	<0.973	<0.973	**<973** [5 6]	**<973** [5 6]
Chloromethane	ug/m3	*3,133*	*13,000*	<0.413	<830	**<17,000** [5 6]	<17	<170	<0.413	<83	<170	<17	<170	<83	<0.413	<0.413	<0.413	<413	<413
Chlorodibromomethane	ug/m3	*NE*	*NE*	<1.70	<3,400	<68,000	<68	<680	<1.70	<340	<680	<68	<680	<340	<1.70	<1.70	<1.70	<1700	<1700
1,2-Dibromoethane	ug/m3	*1.57*	*6.67*	<1.54	**<3,100** [5 6]	**<62,000** [5 6]	**<62** [5 6]	**<620** [5 6]	<1.54	**<310** [5 6]	**<620** [5 6]	**<62** [5 6]	**<620** [5 6]	**<310** [5 6]	<1.54	<1.54	<1.54	**<1540** [5 6]	**<1540** [5 6]
1,2-Dichlorobenzene	ug/m3	*7,000*	*29,333*	<1.20	<2,400	**<48,000** [5 6]	<48	<480	<1.20	<240	<480	<48	<480	<240	<1.20	<1.20	<1.20	<1200	<1200
1,3-Dichlorobenzene	ug/m3	*NE*	*NE*	<1.20	<2,400	<48,000	<48	<480	<1.20	<240	<480	<48	<480	<240	<1.20	<1.20	<1.20	<1200	<1200
1,4-Dichlorobenzene	ug/m3	*86.7*	*367*	<1.20	**<2,400** [5 6]	**<48,000** [5 6]	<48	**<480** [5 6]	<1.20	**<240** [5]	**<480** [5 6]	<48	**<480** [5 6]	**<240** [5]	<1.20	<1.20	<1.20	**<1200** [5 6]	**<1200** [5 6]
1,2-Dichloroethane	ug/m3	*36*	*157*	<0.810	**<1,600** [5 6]	**<32,000** [5 6]	<32	**<320** [5 6]	<0.810	**<160** [5 6]	**<620** [5 6]	<32	**<320** [5 6]	**<160** [5 6]	<0.810	<0.810	<0.810	**<810** [5 6]	**<810** [5 6]
1,1-Dichloroethane	ug/m3	*600*	*2,567*	**2.77**	**<1,600** [5]	**<32,000** [5 6]	<32	<320	<0.802	<160	<320	<32	<320	<160	<0.802	<0.802	<0.802	**<802** [5]	**<802** [5]
1,1-Dichloroethene	ug/m3	*7,000*	*29,333*	<0.793	<1,600	**<32,000** [5 6]	<32	<320	<0.793	<160	<320	<32	<320	<160	<0.793	<0.793	<0.793	<793	<793
Cis-1,2-Dichloroethene	ug/m3	*NE*	*NE*	**33**	**290,000**	**91,000**	**230**	<320	<0.793	<160	<320	**190**	<320	<160	**1.37**	<0.793	<0.793	<793	<793
Trans-1,2-Dichloroethene	ug/m3	*NE*	*NE*	**7.21**	**5,900**	**79,000**	**67**	<360	<0.793	<160	<320	<32	<320	<180	**2.56**	**2.91**	<0.793	<793	<793
1,2-Dichloropropane	ug/m3	*140*	*600*	<0.924	**<1,800** [5 6]	**<37,000** [5 6]	<37	**<370** [5]	<0.924	**<180** [5]	**<370** [5]	<37	**<370** [5]	<180	<0.924	<0.924	<0.924	**<924** [5 6]	**<924** [5 6]
Cis-1,3-Dichloropropene	ug/m3	*NE*	*NE*	<0.908	<1,800	<36,000	<36	<360	<0.908	<180	<360	<36	<360	<180	<0.908	<0.908	<0.908	<908	<908
Trans-1,3-Dichloropropene	ug/m3	*NE*	*NE*	<0.908	<1,800	<36,000	<36	<360	<0.908	<180	<360	<36	<360	<180	<0.908	<0.908	<0.908	<908	<908
1,4-Dioxane	ug/m3	*186*	*833*	<0.721	**<1,400** [5 6]	**<29,000** [5 6]	<29	**<290** [5]	<0.721	<140	**<290** [5]	<29	**<290** [5]	<140	<0.721	<0.721	<0.721	**<721** [5]	**<721** [5]
Ethanol	ug/m3	*NE*	*NE*	**79.9**	<2,400	<48,000	**130**	<480	**39.4**	**1,300**	**1,000**	**340**	**1,200**	**1,700**	**55.4**	**10.6**	**56.2**	**5370 B**	<4710
Ethyl Acetate	ug/m3	*2,433*	*10,333*	<0.720	NT	NT	NT	NT	<0.720	NT	NT	NT	NT	NT	<0.720	<0.720	<0.720	<720	<720
Ethylbenzene	ug/m3	*366*	*1,633*	**1.71**	**<1,700** [5 6]	**<35,000** [5 6]	<35	<350	**2.08**	<170	<350	**52**	<350	**520**	**2.74**	<0.867	**16**	**8,020**	**7,670**
Trichlorofluoromethane	ug/m3	*NE*	*NE*	**1.31**	<2,200	<45,000	<45	<450	**1.24**	<220	<450	<45	<450	<220	**2.88**	**4.15**	**4.12**	<1120	<1120
Dichlorodifluoromethane	ug/m3	*NE*	*NE*	**1.84**	<2,000	<40,000	<40	<400	**1.88**	<200	<400	<40	<400	<200	**1.91**	**1.36**	**1.6**	<989 J3	<989 J3
Hexachloro-1,3-Butadiene	ug/m3	*43.3*	*187*	<6.73	**<13,000** [5 6]	**<270,000** [5 6]	**<270** [5 6]	**<2,700** [5 6]	<6.73	**<1,300** [5 6]	**<2,700** [5 6]	**<270** [5 6]	**<2,700** [5 6]	**<1,300** [5 6]	<6.73	<6.73	<6.73	**<6730** [5 6]	**<6730** [5 6]
N-Hexane	ug/m3	*24,333*	*103,333*	**3.01**	<1,400	**<28,000** [5]	**880**	<280	**3.29**	**810**	**850**	**600**	**740**	**990**	<2.22	<2.22	<2.22	**86,700**	**84,600**
Isopropylbenzene	ug/m3	*14,000*	*60,000*	**1.11**	<2,000	**<39,000** [5]	<39	<390	<0.983	<200	<390	<39	<390	<200	<0.983	<0.983	<0.983	**1,680**	**1,620**
Methylene Chloride	ug/m3	*21,000*	*86,667*	<0.694	<1,400	**<28,000** [5]	<28	<280	<0.694	<140	<280	<28	<280	**170**	<0.694	<0.694	<0.694	<694	<694
Methyl Butyl Ketone	ug/m3	*NE*	*NE*	<5.11	<10,000	<200,000	<50	<2,000	<5.11	<1,000	<2,000	<200	<2,000	<1,000	<5.11	<5.11	<5.11	<5110	<5110
2-Butanone (MEK)	ug/m3	*173,333*	*733,333*	**8.55**	<7,400	<150,000	<50	<1,500	**8.64**	<740	<1,500	**170**	<1,500	<740	**12.9**	<3.69	**3.98**	<3690	<3690
4-Methyl-2-Pentanone (MIBK)	ug/m3	*103,333*	*433,333*	<5.12	<10,000	**<200,000** [5]	<50	<2,000	<5.12	<1,000	<2,000	<200	<2,000	<1,000	<5.12	<5.12	<5.12	<5120	<5120
Methyl Methacrylate	ug/m3	*24,333*	*103,333*	<0.819	<1,600	**<33,000** [5]	<30	<330	<0.819	<160	<330	<33	<330	<160	<0.819	<0.819	<0.819	<819	<819
Methyl Tert-Butyl Ether (MTBE)	ug/m3	*3,666*	*15,667*	<0.721	<1,400	**<29,000** [5 6]	<29	<290	<0.721	<140	<290	<29	<290	<140	<0.721	<0.721	<0.721	<721	<721
Naphthalene	ug/m3	*28.0*	*120*	**5.11**	**<1,300** [5 6]	**<130,000** [5 6]	**<130** [5 6]	**<250** [5 6]	**110**	**<660** [5 6]	**<1,300** [5 6]	**<130** [5 6]	**<1,300** [5 6]	**<660** [5 6]	**451**	<3.30	**4,480**	**<3300** [5 6]	**<3300** [5 6]
Styrene	ug/m3	*33,333*	*146,667*	<0.851	<1,700	**<34,000** [5]	<34	<340	<0.851	<170	<280	<34	<340	<140	<0.851	<0.851	**2.34**	<851	<851
1,1,2,2-Tetrachloroethane	ug/m3	*16*	*70*	<1.37	**<2,700** [5 6]	**<55,000** [5 6]	**<55** [5]	**<550** [5 6]	<1.37	**<270** [5 6]	**<550** [5 6]	**<55** [5]	**<550** [5 6]	**<270** [5 6]	<1.37	<1.37	<1.37	**<1370** [5 6]	**<1370** [5 6]
Tetrachloroethene	ug/m3	*1,400*	*5,800*	**28.1**	**4,600**	<54,000 [5 6]	**260**	<540	<1.36	<270	<540	**110**	<540	<270	**28.7**	**69.9**	**399**	<1360	<1360
Toluene	ug/m3	*173,333*	*733,333*	**6.25**	<1,500	<30,000	**120**	<300	**6.78**	**940**	**680**	**290**	**640**	**3,500**	**6.18**	<1.88	**53.1**	<1880	<1880
1,2,4-Trichlorobenzene	ug/m3	*70*	*293*	<4.66	**<9,300** [5 6]	**<190,000** [5 6]	**<190** [5]	**<1,900** [5 6]	<4.66	**<930** [5 6]	**<390** [5 6]	**<190** [5]	**<1,900** [5 6]	**<930** [5 6]	<4.66	<4.66	<4.66	**<4660** [5 6]	**<4660** [5 6]
1,1,1-Trichloroethane	ug/m3	*173,333*	*733,333*	**43**	<2,200	<44,000	**500**	<440	<1.09	<220	<440	<44	<440	<220	**5.55**	**2.59**	**2.57**	<1090	<1090
1,1,2-Trichloroethane	ug/m3	*60*	*257*	<1.09	**<2,200** [5 6]	**<44,000** [5 6]	<44	**<440** [5 6]	<1.09	**<220** [5]	**<440** [5 6]	<44	**<440** [5 6]	**<220** [5]	<1.09	<1.09	<1.09	**<1090** [5 6]	**<1090** [5 6]
Trichloroethene	ug/m3	*70*	*290*	**6640**	**270,000**	**4,800,000**	**17,000**	**<430** [5 6]	**1.17**	**1,400**	**4,100**	**1,200**	**1,200**	**1,000**	**298**	**34.2**	**60.5**	**<1070** [5 6]	**<1070** [5 6]

Table 6A: Summary of VOCs in Sub-Slab Soil Vapor
Kriby and Eddy Parcels, Cleveland, Cuyahoga County, Ohio

				IA-02					IA-03						IA-04	IA-05	IA-07	IA-57	
Sample ID		*Ohio VAP Indoor Air Standard Residential Land Use with Applied Attenuation Factor of 0.03* [2]	*Ohio VAP Indoor Air Standard Commercial/Industrial Land Use with Applied Attenuation Factor of 0.03* [3]	P4-IA02-SV01	01 *	02 *	3 *	4*	P4-IA03-SV01	5*	6 *	7 *	8 *	9 *	P4-IA04-SV01	P4-IA05-SV01	P4-IA07-SV01	P5-IA57-SV01	P5-DUP01
Collection Date				6/27/2023	8/15/2008	8/15/2008	8/15/2008	8/15/2008	6/27/2023	8/15/2008	8/15/2008	8/15/2008	8/15/2008	8/15/2008	6/27/2023	6/27/2023	6/27/2023	6/27/2023	6/27/2023
Parameter	**Units** [1]			Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Vinyl Acetate	ug/m3	*7,000*	*29,333*	<0.704	<1,400	**<28,000** [5]	<28	<280	<0.704	<140	<280	<28	<280	<140	<0.704	<0.704	<0.704	<704	<704
Vinyl Chloride	ug/m3	*56*	*930*	<0.511	**1,200**	**<20,000** [5 6]	<20	**<200** [5]	<0.511	**<100** [5]	**<200** [5]	<20	**<200** [5]	**<100** [5]	<0.511	<0.511	<0.511	**<511** [5]	**<511** [5]
m&p-Xylene	ug/m3	*3,333*	*14,667*	**7.59**	**<3,500** [5]	**<69,000** [5 6]	**91**	<690	**4.42**	<350	<690	**130**	<690	**1,500**	**5.77**	<1.73	**75.9**	**10,100**	**9,840**
o-Xylene	ug/m3			**3.69**	<1,700	**<35,000** [5]	<35	<350	**2.61**	<170	<350	**42**	<350	**480**	**3.38**	<0.867	**39.7**	**1,390**	**1,390**
1,2,4-Trimethylbenzene	ug/m3	*2,100*	*8,667*	**16.7**	<2,000	**<39,000** [5 6]	**41**	<390	**3.77**	<200	<390	<39	<390	**220**	**21.1**	<0.982	**128**	**6,180**	**5,740**
1,3,5-Trimethylbenzene	ug/m2	*2,100*	*8,667*	**5.06**	<2,000	**<39,000** [5 6]	<39	<390	**1.35**	<200	<390	<39	<390	<200	**4.77**	<0.982	**56.4**	<982	<982

Notes

1. µg/m3 = micrograms per cubic meter.
2. Ohio VAP Generic Indoor Air Standards due to Vapor Intrusion (Residential Land Use Category) with applied Attenuation Factor of 0.03.
3. Ohio VAP Generic Indoor Air Standards due to Vapor Intrusion (Commercial Land Use Category) with applied Attenuation Factor of 0.03.
4. Ambient Air Sample - Taken in the breating zone inside of structure.
5. Reporting limits exceed Ohio VAP Generic Indoor Air Standards due to Vapor Intrusion (Residential land Use Category) with applied Attenuation Factor of 0.03 in **bold**.
6. Reporting limits exceed Ohio VAP Generic Indoor Air Standards due to Vapor Intrusion (Commercial Land Use Catergory) with applied Attenuation Factor of 0.03nin **bold**.

* : Samples collected by HzW

NE: No established regulatory limits

Bold numbers indicate a concentration above detection limits.

Bold and shaded numbers indicate a concentration above a comparison standard. If exceeding more than one standard, the most strict one is highlighted.

ND - Parameter not detected above method detection limit

Laboratory Qualifier:

B: The same analyte is found in the associated blank.

J3: The associated batch QC was outside the established quality control range for precision.

Table 6B: Summary of VOCs in Soil Gas
Kriby and Eddy Parcels, Cleveland, Cuyahoga County, Ohio

Sample ID		*Ohio VAP Indoor Air Standard Residential Land Use with Applied Attenuation Factor of 0.03* [2]	*Ohio VAP Indoor Air Standard Commercial/Industrial Land Use with Applied Attenuation Factor of 0.03* [3]	IA-06	IA-09	IA-53	IA-54	IA-55	IA-56
				P4-IA06-VI01	P4-IA09-VI01	P5-IA53-VI01	P5-IA54-VI01	P5-IA55-VI01	P5-IA56-VI01
Collection Date				6/27/2023	6/27/2023	6/27/2023	6/27/2023	6/27/2023	6/27/2023
Parameter	**Units** [1]			Result	Result	Result	Result	Result	Result
Volatile Organic Compounds - VOCs									
Acetone	ug/m3	*1,066,667*	*4,666,667*	**9.89**	**3.97**	**10.8**	**5.13**	<2.97	<2.97
Allyl Chloride	ug/m3	*33*	*146*	<0.626	<0.626	<0.626	<0.626	<0.626	<0.626
Benzene	ug/m3	*120*	*533*	**1.23**	<0.639	**8.34**	**2.48**	**3.96**	**1.73**
Benzyl Chloride	ug/m3	*19*	*83.3*	<1.04	<1.04	<1.04	<1.04	<1.04	<1.04
Bromodichloromethane	ug/m3	*25*	*110*	<1.34	<1.34	<1.34	<1.34	<1.34	<1.34
Bromoform	ug/m3	*867*	*3,667*	<6.21	<6.21	<6.21	<6.21	<6.21	<6.21
Bromomethane	ug/m3	*173*	*733*	<0.776	<0.776	<0.776	<0.776	<0.776	<0.776
Carbon Disulfide	ug/m3	*24,333*	*103,333*	**3.21**	**21.7**	**113**	**17.4**	**45.4**	**6.01**
Carbon Tetrachloride	ug/m3	*160*	*680*	<1.26	<1.26	<1.26	<1.26	<1.26	**1.7**
Chlorobenzene	ug/m3	*1,733*	*7,333*	<0.924	<0.924	<0.924	<0.924	<0.924	<0.924
Chloroethane	ug/m3	*333,333*	*1,466,667*	<0.528	<0.528	<0.528	<0.528	<0.528	<0.528
Chloroform	ug/m3	*41*	*180*	<0.973	<0.973	<0.973	<0.973	**2.22**	**4.87**
Chloromethane	ug/m3	*3,133*	*13,000*	**0.907**	<0.413	**1.09**	<0.413	<0.413	**0.483**
Chlorodibromomethane	ug/m3	*NE*	*NE*	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70
1,2-Dibromoethane	ug/m3	*1.57*	*6.67*	<1.54	<1.54	<1.54	<1.54	<1.54	<1.54
1,2-Dichlorobenzene	ug/m3	*7,000*	*29,333*	<1.20	<1.20	<1.20	<1.20	<1.20	<1.20
1,3-Dichlorobenzene	ug/m3	*NE*	*NE*	<1.20	<1.20	<1.20	<1.20	<1.20	<1.20
1,4-Dichlorobenzene	ug/m3	*86.7*	*367*	<1.20	<1.20	<1.20	<1.20	<1.20	<1.20
1,2-Dichloroethane	ug/m3	*36*	*157*	<0.810	<0.810	<0.810	<0.810	<0.810	<0.810
1,1-Dichloroethane	ug/m3	*600*	*2,567*	<0.802	<0.802	**0.886**	<0.802	<0.802	<0.802
1,1-Dichloroethene	ug/m3	*7,000*	*29,333*	<0.793	<0.793	<0.793	<0.793	<0.793	<0.793
Cis-1,2-Dichloroethene	ug/m3	*NE*	*NE*	<0.793	**2.52**	**3.79**	<0.793	<0.793	**1.15**
Trans-1,2-Dichloroethene	ug/m3	*NE*	*NE*	<0.793	<0.793	**0.86**	<0.793	<0.793	<0.793
1,2-Dichloropropane	ug/m3	*140*	*600*	<0.924	<0.924	<0.924	<0.924	<0.924	<0.924
Cis-1,3-Dichloropropene	ug/m3	*NE*	*NE*	<0.908	<0.908	<0.908	<0.908	<0.908	<0.908
Trans-1,3-Dichloropropene	ug/m3	*NE*	*NE*	<0.908	<0.908	<0.908	<0.908	<0.908	<0.908
1,4-Dioxane	ug/m3	*186*	*833*	<0.721	<0.721	<0.721	<0.721	<0.721	<0.721
Ethanol	ug/m3	*NE*	*NE*	**4.86**	<4.71	**29.2**	**7.66**	<4.71	<4.71
Ethyl Acetate	ug/m3	*2,433*	*10,333*	<0.720	<0.720	<0.720	**1.56**	<0.720	<0.720
Ethylbenzene	ug/m3	*366*	*1,633*	<0.867	<0.867	**3.24**	**1.28**	**2.14**	<0.867
Trichlorofluoromethane	ug/m3	*NE*	*NE*	**1.16**	<1.12	<1.12	**2.45**	**9.44**	**2.48**
Dichlorodifluoromethane	ug/m3	*NE*	*NE*	**9.35**	**1.34**	**2.11 J3**	**2.5 J3**	**2.13**	**1.85**
Hexachloro-1,3-Butadiene	ug/m3	*43.3*	*187*	<6.73	<6.73	<6.73	<6.73	<6.73	<6.73
N-Hexane	ug/m3	*24,333*	*103,333*	<2.22	<2.22	**26.4**	<2.22	**27.2**	<2.22
Isopropylbenzene	ug/m3	*14,000*	*60,000*	<0.983	<0.983	**1.31**	<0.983	**1.1**	<0.983
Methylene Chloride	ug/m3	*21,000*	*86,667*	**1.59**	<0.694	<0.694	<0.694	<0.694	<0.694
Methyl Butyl Ketone	ug/m3	*NE*	*NE*	<5.11	<5.11	<5.11	<5.11	<5.11	<5.11
2-Butanone (MEK)	ug/m3	*173,333*	*733,333*	<3.69	<3.69	<3.69	<3.69	<3.69	<3.69
4-Methyl-2-Pentanone (MIBK)	ug/m3	*103,333*	*433,333*	<5.12	<5.12	<5.12	<5.12	<5.12	<5.12
Methyl Methacrylate	ug/m3	*24,333*	*103,333*	<0.819	<0.819	<0.819	<0.819	<0.819	<0.819
Methyl Tert-Butyl Ether (MTBE)	ug/m3	*3,666*	*15,667*	<0.721	<0.721	<0.721	<0.721	<0.721	<0.721
Naphthalene	ug/m3	*28.0*	*120*	<3.30	**29.5**	<3.30	<3.30	**254**	<3.30
Styrene	ug/m3	*33,333*	*146,667*	<0.851	<0.851	**4.72**	**4.68**	<0.851	<0.851
1,1,2,2-Tetrachloroethane	ug/m3	*16*	*70*	<1.37	<1.37	<1.37	<1.37	<1.37	<1.37
Tetrachloroethene	ug/m3	*1,400*	*5,800*	**3.01**	**13,200**	**7.47**	**11.2**	**451**	**658**
Toluene	ug/m3	*173,333*	*733,333*	<1.88	**2.4**	**9.45**	**5.54**	**6.22**	<1.88
1,2,4-Trichlorobenzene	ug/m3	*70*	*293*	<4.66	<4.66	<4.66	<4.66	<4.66	<4.66
1,1,1-Trichloroethane	ug/m3	*173,333*	*733,333*	<1.09	**29.4**	<1.09	<1.09	**1.52**	**17.1**
1,1,2-Trichloroethane	ug/m3	*60*	*257*	<1.09	<1.09	<1.09	<1.09	<1.09	<1.09
Trichloroethene	ug/m3	*70*	*290*	<1.07	**168**	**6.32**	**1.1**	**111**	**43.3**

Table 6B: Summary of VOCs in Soil Gas
Kriby and Eddy Parcels, Cleveland, Cuyahoga County, Ohio

				IA-06	IA-09	IA-53	IA-54	IA-55	IA-56
Sample ID		***Ohio VAP Indoor Air Standard Residential Land Use with Applied Attenuation Factor of 0.03*** [2]	***Ohio VAP Indoor Air Standard Commercial/Industrial Land Use with Applied Attenuation Factor of 0.03*** [3]	**P4-IA06-VI01**	**P4-IA09-VI01**	**P5-IA53-VI01**	**P5-IA54-VI01**	**P5-IA55-VI01**	**P5-IA56-VI01**
Collection Date				6/27/2023	6/27/2023	6/27/2023	6/27/2023	6/27/2023	6/27/2023
Parameter	**Units** [1]			Result	Result	Result	Result	Result	Result
Volatile Organic Compounds - VOCs									
Vinyl Acetate	ug/m3	*7,000*	*29,333*	<0.704	<0.704	<0.704	<0.704	<0.704	<0.704
Vinyl Chloride	ug/m3	*56*	*930*	<0.511	<0.511	**0.603**	<0.511	<0.511	<0.511
m&p-Xylene	ug/m3	*3,333*	*14,667*	<1.73	<1.73	**7.72**	**2.22**	**7.33**	<1.73
o-Xylene	ug/m3			<0.867	<0.867	**4.16**	**2.29**	**3.62**	<0.867
1,2,4-Trimethylbenzene	ug/m3	*2,100*	*8,667*	<0.982	<0.982	**3.62**	<0.982	**10.2**	<0.982
1,3,5-Trimethylbenzene	ug/m2	*2,100*	*8,667*	<0.982	<0.982	**1.19**	<0.982	**3.98**	<0.982

Notes

1. µg/m3 = micrograms per cubic meter.
2. Ohio VAP Generic Indoor Air Standards due to Vapor Intrusion (Residential Land Use Category) with applied Attenuation Factor of 0.03.
3. Ohio VAP Generic Indoor Air Standards due to Vapor Intrusion (Commercial Land Use Category) with applied Attenuation Factor of 0.03.

NE: No established regulatory limits

B: The same analytre is found in the associted blank.

Bold numbers indicate a concentration above detection limits.

Bold and shaded numbers indicate a concentration above a comparison standard. If exceeding more than one standard, the most strict one is highlighted.

Table 7A: Soil Direct Contact Risk for Residnetial Land Use
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

Chemical of Concern		Applicable Standards: VAP GDCS Restricted Residential Land Use [1], Non-Carcinogens \ (2' bgs [4])	Applicable Standards: VAP GDCS Restricted Residential Land Use [2], Carcinogens (2' bgs [4])	Exposure Point Concentration	Non-Cancer Hazard Quotient [3]	Cancer Risk Ratio [3]
VOCs						
Acetone	mg/kg	120,000	NC	**0.581**	***0.0000048***	-
sec-Butylbenzene	mg/kg	16,000	NC	**4.56**	***0.0002850***	-
1,1-Dichloroethane	mg/kg	31,000	89	**0.00523**	***0.0000002***	-
cis-1,2-Dichloroethene	mg/kg	310	NC	**1.15**	***0.0037097***	-
Isopropylbenzene	mg/kg	4,600	NC	**0.0217**	***0.0000047***	-
p-Isopropyltoluene	mg/kg	2,100	*NC*	**23.7**	***0.0112857***	-
Methylene Chloride	mg/kg	740	*1,200*	**1.34**	***0.0018108***	***0.0011167***
Methyl tert-butyl ether (MTBE)	mg/kg	39,000	*1,100*	**0.0025**	***0.0000001***	-
Naphthalene	mg/kg	320	*96*	**1.72**	***0.0053750***	-
n-Propylbenzene	mg/kg	7,500	*NC*	**0.0244**	***0.0000033***	-
Styrene	mg/kg	14,000	*NC*	**0.00139**	***0.0000001***	-
Tetrachloroethene (PCE)	mg/kg	190	*580*	**8.13**	***0.0427895***	***0.0140172***
Toluene	mg/kg	10,000	*NC*	**0.0549**	***0.0000055***	-
1,1,1-Trichloroethane	mg/kg	20,000	*NC*	**1.94**	***0.0000970***	-
Trichloroethene (TCE)	mg/kg	10	*24*	**20**	***2.0000000***	***0.8333333***
Trichlorofluoromethane	mg/kg	47,000	*NC*	**0.0291**	***0.0000006***	-
1,2,4-Trimethylbenzene	mg/kg	690	*NC*	**26.3**	***0.0381159***	-
1,3,5-Trimethylbenzene	mg/kg	620	*NC*	**31.6**	***0.0509677***	-
Xylenes, Total	mg/kg	1,300	*NC*	**1.81**	***0.0013923***	-
PAHs						
Acenaphthene	mg/kg	7,200	*NC*	**2.38**	***0.0003306***	-
Acenaphthylene	mg/kg	7,200	*NC*	**1.53**	***0.0002125***	-
Benzo(a)anthracene	mg/kg	NA	23	**11.3**	-	***0.4913043***
Benzo(a)pyrene	mg/kg	36	2.3	**11.2**	***0.3111111***	***4.8695652***
Benzo(b)fluoranthene	mg/kg	NA	23	**13.5**	-	***0.5869565***
Benzo(g,h,i)perylene	mg/kg	3,600	NC	**4.42**	***0.0012278***	-
Benzo(k)fluoranthene	mg/kg	NA	230	**3.34**	-	***0.0145217***
Chrysene	mg/kg	NA	2,300	**9.22**	-	***0.0040087***
Dibenz(a,h)anthracene	mg/kg	NA	2.3	**1.21**	-	***0.5260870***
Fluoranthene	mg/kg	4,800	NC	**29.2**	***0.0060833***	-
Fluorene	mg/kg	4,800	NC	**2.95**	***0.0006146***	-
Indeno(1,2,3-cd)pyrene	mg/kg	NA	1,300	**8.38**	-	***0.0064462***
Naphthalene	mg/kg	320	*96*	**5.97**	***0.0186563***	***0.0621875***
Phenanthrene	mg/kg	36,000	NC	**23.1**	***0.0006417***	-
Pyrene	mg/kg	3,600	NC	**18.8**	***0.0052222***	-
1-Methylnaphthalene	mg/kg	8,400	350	**1.75**	***0.0002083***	***0.0050000***
2-Methylnaphthalene	mg/kg	480	NC	**3.26**	***0.0067917***	-
RCRA Metals						
Arsenic	mg/kg	70	14	**89.8**	**1.282857143**	**6.41428571**
Barium	mg/kg	30,000	NC	**1,930**	***0.0643333***	-
Cadmium	mg/kg	140	30,000	**2.51**	***0.0179286***	***0.0000837***
Chromium	mg/kg	NA	NC	**1,160**	-	-
Lead	mg/kg	NA	NC	**1,540**	-	-
Selenium	mg/kg	780	NC	**1.39**	***0.0017821***	-
Silver	mg/kg	780	NC	**1.83**	***0.0023462***	-
Mercury	mg/kg	9.9	NC	**0.212**	***0.0214141***	-
		Direct Contact Cumulative Risk Ratio			3.89761	13.82891

Notes

NC = Non Carcinogenic

1. Ohio VAP GDCS Commercial/Industrial Land Use for Single Chemical Non-Carcinogens
2. Ohio VAP GDCS Commercial/Industrial Land Use for Single Chemical Carcinogens
3. Cumulative multiple chemical adjustment calculation.
4. Residential Land Use 10' below ground surface maximum.

Table 7B: Soil Direct Contact Risk for Commercial/Industrial Land use
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

Chemical of Concern		Applicable Standards				
		VAP GDCS Commercial/Indtustrial Land Use [1], Non-Carcinogens (2' bgs [4])	VAP GDCS Commercial/Industrial Land Use [2], Carcinogens (2' bgs [4])	Exposure Point Concentration	Non-Cancer Hazard Quotient [3]	Cancer Risk Ratio [3]
VOCs, PAHs, Metals						
Acetone	mg/kg	1,000,000	NC	**0.581**	***0.0000006***	-
sec-Butylbenzene	mg/kg	470,000	NC	**4.56**	***0.0000097***	-
1,1-Dichloroethane	mg/kg	930,000	390	**0.00523**	***0.0000000***	-
cis-1,2-Dichloroethene	mg/kg	9,300	NC	**1.15**	***0.0001237***	-
Isopropylbenzene	mg/kg	26,000	NC	**0.0217**	***0.0000008***	-
p-Isopropyltoluene	mg/kg	9,300	*NC*	**23.7**	***0.0025484***	-
Methylene Chloride	mg/kg	9,500	*33,000*	**1.34**	***0.0001411***	***0.0000406***
Methyl tert-butyl ether (MTBE)	mg/kg	160,000	*5,400*	**0.0025**	***0.0000000***	-
Naphthalene	mg/kg	1,500	*420*	**1.72**	***0.0011467***	-
n-Propylbenzene	mg/kg	59,000	*NC*	**0.0244**	***0.0000004***	-
Styrene	mg/kg	93,000	*NC*	**0.00139**	***0.0000000***	-
Tetrachloroethene (PCE)	mg/kg	1,000	*2,700*	**8.13**	***0.0081300***	***0.0030111***
Toluene	mg/kg	140,000	*NC*	**0.0549**	***0.0000004***	-
1,1,1-Trichloroethane	mg/kg	90,000	*NC*	**1.94**	***0.0000216***	-
Trichloroethene (TCE)	mg/kg	48	*160*	**20**	***0.4166667***	***0.1250000***
Trichlorofluoromethane	mg/kg	1,000,000	*NC*	**0.0291**	***0.0000000***	-
1,2,4-Trimethylbenzene	mg/kg	4,700	*NC*	**26.3**	***0.0055957***	-
1,3,5-Trimethylbenzene	mg/kg	4,000	*NC*	**31.6**	***0.0079000***	-
Xylenes, Total	mg/kg	5,600	*NC*	**1.81**	***0.0003232***	-
Anthracene	mg/kg	670,000	*NA*	**5.46**	***0.0000081***	-
Acenaphthene	mg/kg	1,000,000	*NC*	**2.38**	***0.0000024***	-
Acenaphthylene	mg/kg	130,000	*NC*	**1.53**	***0.0000118***	-
Benzo(a)anthracene	mg/kg	NA	610	**11.3**	-	***0.0185246***
Benzo(a)pyrene	mg/kg	640	62	**11.2**	***0.0175000***	***0.1806452***
Benzo(b)fluoranthene	mg/kg	NA	620	**13.5**	-	***0.0217742***
Benzo(g,h,i)perylene	mg/kg	67,000	NC	**4.42**	***0.0000660***	-
Benzo(k)fluoranthene	mg/kg	NA	6,200	**3.34**	-	***0.0005387***
Chrysene	mg/kg	NA	62,000	**9.22**	-	***0.0001487***
Dibenz(a,h)anthracene	mg/kg	NA	62.0	**1.21**	-	***0.0195161***
Fluoranthene	mg/kg	89,000	NC	**29.2**	***0.0003281***	-
Fluorene	mg/kg	89,000	NC	**2.95**	***0.0000331***	-
Indeno(1,2,3-cd)pyrene	mg/kg	NA	620	**8.38**	-	***0.0135161***
Naphthalene	mg/kg	1,500	*420*	**5.97**	***0.0039800***	***0.0142143***
Phenanthrene	mg/kg	670,000	NC	**23.1**	***0.0000345***	-
Pyrene	mg/kg	67,000	NC	**18.8**	***0.0002806***	-
1-Methylnaphthalene	mg/kg	160,000	2,100	**1.75**	***0.0000109***	***0.0008333***
2-Methylnaphthalene	mg/kg	8,900	NA	**3.26**	***0.0003663***	-
Arsenic	mg/kg	1,600	100	**90**	***0.0561250***	***0.8980000***
Barium	mg/kg	760,000	CN	**1,930**	***0.0025395***	-
Cadmium	mg/kg	3,300	130,000	**656**	***0.1987879***	***0.0050462***
Chromium	mg/kg	NA	NC	**1,160**	-	-
Lead	mg/kg	NA	NC	**1,540**	-	-
Selenium	mg/kg	23,000	NC	**1.39**	***0.0000604***	-
Silver	mg/kg	23,000	NC	**1.83**	***0.0000796***	-
Mercury	mg/kg	92	NC	**0.212**	***0.0023043***	-
Notes		*Direct Contact Cumulative Risk Ratio*			0.72513	1.30081

NC = Non Carcinogenic

1. Ohio VAP GDCS Commercial/Industrial Land Use for Single Chemical Non-Carcinogens
2. Ohio VAP GDCS Commercial/Industrial Land Use for Single Chemical Carcinogens
3. Cumulative multiple chemical adjustment calculation.
4. Residential Land Use 10' below ground surface maximum.

Table 7C: Soil Direct Contact Risk for Commercial/Industrial Land use
Eddy-Kirby Parcels, Cleveland, Cuyahoga County, Ohio

Chemical of Concern		Applicable Standards		Exposure Point Concentration	Non-Cancer Hazard Quotient [3]	Cancer Risk Ratio [3]
		VAP GDCS Construction/Excavation Activities [1], Non-Carcinogens (10' bgs [4])	VAP GDCS Construction/ Excavations Activities [2], Carcinogens (10' bgs [4])			
VOCs						
Acetone	mg/kg	1,000,000	NC	**0.581**	***0.0000006***	-
n-Butylbenzene	mg/kg	240,000	NC	**0.0871**	***0.0000004***	-
sec-Butylbenzene	mg/kg	240,000	NC	**4.56**	***0.0000190***	-
1,1-Dichloroethane	mg/kg	1,000,000	3,600	**1.82**	***0.0000018***	***0.0005056***
1,1-Dichloroethene	mg/kg	360	NC	**2.28**	***0.0063333***	-
cis-1,2-Dichloroethene	mg/kg	49,000	*NC*	**29.9**	***0.0006102***	-
Ethylbenzene	mg/kg	190,000	*6,100*	**4010**	***0.0211053***	***0.6573770***
Hexachloro-1,3-butadiene	mg/kg	2,400	*1,300*	**0.0449**	***0.0000187***	***0.0000345***
Isopropylbenzene	mg/kg	88,000	*NC*	**453**	***0.0051477***	-
p-Isopropyltoluene	mg/kg	10,000	*NC*	**23.7**	***0.0023700***	-
Methylene Chloride	mg/kg	8,600	*360,000*	**1.34**	***0.0001558***	***0.0000037***
Methyl tert-butyl ether (MTBE)	mg/kg	46,000	*50,000*	**0.0025**	***0.0000001***	***0.0000001***
Naphthalene	mg/kg	560	*3,800*	**1.89**	***0.0033750***	***0.0004974***
n-Propylbenzene	mg/kg	24,000	*NC*	**0.0244**	***0.0000010***	-
Styrene	mg/kg	110,000	*NC*	**0.00761**	***0.0000001***	-
1,1,2,2-Tetrachloroethane	mg/kg	120,000	*670*	**0.109**	***0.0000009***	***0.0001627***
Tetrachloroethene (PCE)	mg/kg	380	*25,000*	**51**	***0.1342105***	***0.0020400***
Toluene	mg/kg	82,000	*NC*	**204**	***0.0024878***	-
1,1,1-Trichloroethane	mg/kg	33,000	*NC*	**337**	***0.0102121***	-
Trichloroethene (TCE)	mg/kg	17	*1,500*	**518**	***30.4705882***	***0.3453333***
Trichlorofluoromethane	mg/kg	730,000	*NC*	**0.0291**	***0.0000000***	-
1,2,4-Trimethylbenzene	mg/kg	6,000	*NC*	**26.3**	***0.0043833***	-
1,3,5-Trimethylbenzene	mg/kg	5,000	*NC*	**31.6**	***0.0063200***	-
Vinyl chloride	mg/kg	280	*490*	**0.0109**	***0.0000389***	***0.0000222***
Xylenes, Total	mg/kg	6,200	*NC*	**20260**	***3.2677419***	-
PAHs						
Anthracene	mg/kg	1,000,000	*NC*	**5.46**	***0.0000055***	-
Acenaphthene	mg/kg	290,000	*NC*	**2.38**	***0.0000082***	-
Acenaphthylene	mg/kg	290,000	*NC*	**1.53**	***0.0000053***	-
Benzo(a)anthracene	mg/kg	NA	9,600	**20.5**	-	***0.0021354***
Benzo(a)pyrene	mg/kg	230	1,000	**17.3**	***0.0752174***	***0.0173000***
Benzo(b)fluoranthene	mg/kg	NA	10,000	**19.9**	-	***0.0019900***
Benzo(g,h,i)perylene	mg/kg	430,000	NC	**9.06**	***0.0000211***	-
Benzo(k)fluoranthene	mg/kg	NA	100,000	**7.27**	-	***0.0000727***
Chrysene	mg/kg	NA	1,000,000	**18.2**	-	***0.0000182***
Dibenz(a,h)anthracene	mg/kg	NA	1,000.0	**3.58**	-	***0.0035800***
Fluoranthene	mg/kg	170,000	NC	**44.9**	***0.0002641***	-
Fluorene	mg/kg	580,000	NC	**2.95**	***0.0000051***	-
Indeno(1,2,3-cd)pyrene	mg/kg	NA	10,000	**12.8**	-	***0.0012800***
Naphthalene	mg/kg	560	*3,800*	**5.97**	***0.0106607***	***0.0015711***
Phenanthrene	mg/kg	1,000,000	NC	**23.1**	***0.0000231***	-
Pyrene	mg/kg	430,000	NC	**31.7**	***0.0000737***	-
1-Methylnaphthalene	mg/kg	100,000	35,000	**1.75**	***0.0000175***	***0.0000500***
2-Methylnaphthalene	mg/kg	5,800	NC	**3.26**	***0.0005621***	-
RCRA Metals						
Arsenic	mg/kg	760	1,400	**89.8**	***0.1181579***	***0.0641429***
Barium	mg/kg	350,000	NC	**6570**	***0.0187714***	-
Cadmium	mg/kg	710	95,000	**3.95**	***0.0055634***	***0.0000416***
Chromium	mg/kg	NA	NC	**1160**	-	-
Lead	mg/kg	NA	NC	**14200**	-	-
Selenium	mg/kg	12,000	NC	**2.29**	***0.0001908***	-
Silver	mg/kg	12,000	NC	**4.43**		
Mercury	mg/kg	36	NC	**0.543**	***0.0150833***	-
Arcolor 1260	mg/kg	NA	450	**0.532**	-	***0.0011822***
		Direct Contact Cumulative Risk Ratio			34.17975	1.09934

Notes

NC = Non Carcinogenic

1. Ohio VAP GDCS Commercial/Industrial Land Use for Single Chemical Non-Carcinogens
2. Ohio VAP GDCS Commercial/Industrial Land Use for Single Chemical Carcinogens
3. Cumulative multiple chemical adjustment calculation.
4. Residential Land Use 10' below ground surface maximum.

Virginia Department of Environmental Quality

VURAM

Virginia Unified Risk Assessment Model

VERSION: 3.2.1

Construction Worker Quantitative Risk Assessment Report

Site Name: Kirby - Eddy Construction Excavation Inhalation

Program: Voluntary Remediation Program

Contact Depth to Groundwater: Direct Less than 15ft

By submitting this report to the Virginia DEQ, the user confirms that VURAM's default exposure parameters have not been altered, unless a complete unaltered VURAM analysis is provided and all modifications are detailed explicitly in an accompanying narrative or documentation that shows DEQ's prior concurrence with specific changes.

Chemical Specific Notes displayed as applicable

All Report Pages are Required for Risk Assessment Submission

Risk Based Performance Criteria

Default Hazard Index	Default Risk Individual Chemical	Default Cumulative Risk-All Chemicals
1	1.00E-05	1.00E-05

Contact Depth to Groundwater: Direct Less than 15ft

Groundwater

Analyte: **Dichloroethane, 1,1-**
CAS: **75-34-3**

Concentration µg/L :	4.71E-01
RfDo:	2.00E+00
RfCi:	
SFO:	5.70E-03
IUR:	1.60E-06
Mutagen:	
VOC:	Y

Calculated Hazard/Risk

Non-Cancer Adult		Cancer	
Ingestion:	2.10E-08	Ingestion:	3.28E-12
Dermal:		Dermal:	
Inhalation:		Inhalation:	5.10E-09
Total:	**2.10E-08**	**Total:**	**5.11E-09**

% Contribution to Media Risk 0.00% 0.22%

Analyte: **Dichloroethane, 1,2-**
CAS: **107-06-2**

Concentration µg/L :	5.42E-03
RfDo:	2.00E-02
RfCi:	7.00E-02
SFO:	9.10E-02
IUR:	2.60E-05
Mutagen:	
VOC:	Y

Calculated Hazard/Risk

Non-Cancer Adult		Cancer	
Ingestion:	2.42E-08	Ingestion:	6.03E-13
Dermal:		Dermal:	
Inhalation:	3.68E-05	Inhalation:	9.18E-10
Total:	**3.68E-05**	**Total:**	**9.19E-10**

% Contribution to Media Risk 0.00% 0.04%

Analyte: **Dichloroethylene, 1,1-**
CAS: **75-35-4**

Concentration µg/L :	5.27E-02
RfDo:	9.00E-03
RfCi:	2.00E-01
SFO:	
IUR:	
Mutagen:	
VOC:	Y

Calculated Hazard/Risk

Non-Cancer Adult		Cancer	
Ingestion:	5.23E-07	Ingestion:	
Dermal:		Dermal:	
Inhalation:	1.33E-04	Inhalation:	
Total:	**1.33E-04**	**Total:**	**0.00E+00**

% Contribution to Media Risk 0.00% 0.00%

Risk Based Performance Criteria

Default Hazard Index	Default Risk Individual Chemical	Default Cumulative Risk-All Chemicals
1	1.00E-05	1.00E-05

Contact Depth to Groundwater: Direct Less than 15ft

Groundwater

Analyte: **Dichloroethylene, cis-1,2-**
CAS: **156-59-2**

Concentration µg/L :	6.30E+01
RfDo:	2.00E-02
RfCi:	
SFO:	
IUR:	
Mutagen:	
VOC:	Y

Calculated Hazard/Risk

Non-Cancer Adult		Cancer	
Ingestion:	2.81E-04	Ingestion:	
Dermal:		Dermal:	
Inhalation:		Inhalation:	
Total:	**2.81E-04**	**Total:**	**0.00E+00**

% Contribution to Media Risk 0.00% 0.00%

Analyte: **Dichloroethylene, trans-1,2-**
CAS: **156-60-5**

Concentration µg/L :	2.50E+00
RfDo:	2.00E-01
RfCi:	7.93E-01
SFO:	
IUR:	
Mutagen:	
VOC:	Y

Calculated Hazard/Risk

Non-Cancer Adult		Cancer	
Ingestion:	1.12E-06	Ingestion:	
Dermal:		Dermal:	
Inhalation:	1.58E-03	Inhalation:	
Total:	**1.58E-03**	**Total:**	**0.00E+00**

% Contribution to Media Risk 0.01% 0.00%

Analyte: **Methylnaphthalene, 1-**
CAS: **90-12-0**

Concentration µg/L :	1.18E-02
RfDo:	7.00E-02
RfCi:	1.04E+00
SFO:	2.90E-02
IUR:	
Mutagen:	
VOC:	Y

Calculated Hazard/Risk

Non-Cancer Adult		Cancer	
Ingestion:	1.51E-08	Ingestion:	4.19E-13
Dermal:		Dermal:	
Inhalation:		Inhalation:	
Total:	**1.51E-08**	**Total:**	**4.19E-13**

% Contribution to Media Risk 0.00% 0.00%

Risk Based Performance Criteria

Default Hazard Index	Default Risk Individual Chemical	Default Cumulative Risk-All Chemicals
1	1.00E-05	1.00E-05

Contact Depth to Groundwater: Direct Less than 15ft

Groundwater

Analyte: **Tetrachloroethane, 1,1,1,2-**
CAS: **630-20-6**

Concentration µg/L :	9.52E-02
RfDo:	9.00E-02
RfCi:	
SFO:	2.60E-02
IUR:	7.40E-06
Mutagen:	
VOC:	Y

Calculated Hazard/Risk

Non-Cancer Adult		Cancer	
Ingestion:	9.44E-08	Ingestion:	3.03E-12
Dermal:		Dermal:	
Inhalation:		Inhalation:	3.62E-09
Total:	**9.44E-08**	**Total:**	**3.63E-09**

% Contribution to Media Risk 0.00% 0.16%

Analyte: **Tetrachloroethylene**
CAS: **127-18-4**

Concentration µg/L :	8.37E-01
RfDo:	8.00E-03
RfCi:	4.07E-02
SFO:	2.10E-03
IUR:	2.60E-07
Mutagen:	
VOC:	Y

Calculated Hazard/Risk

Non-Cancer Adult		Cancer	
Ingestion:	9.34E-06	Ingestion:	2.15E-12
Dermal:		Dermal:	
Inhalation:	7.91E-03	Inhalation:	1.15E-09
Total:	**7.92E-03**	**Total:**	**1.15E-09**

% Contribution to Media Risk 0.04% 0.05%

Analyte: **Trichloroethane, 1,1,1-**
CAS: **71-55-6**

Concentration µg/L :	5.21E-01
RfDo:	7.00E+00
RfCi:	5.00E+00
SFO:	
IUR:	
Mutagen:	
VOC:	Y

Calculated Hazard/Risk

Non-Cancer Adult		Cancer	
Ingestion:	6.65E-09	Ingestion:	
Dermal:		Dermal:	
Inhalation:	4.47E-05	Inhalation:	
Total:	**4.47E-05**	**Total:**	**0.00E+00**

% Contribution to Media Risk 0.00% 0.00%

Risk Based Performance Criteria

Default Hazard Index	Default Risk Individual Chemical	Default Cumulative Risk-All Chemicals
1	1.00E-05	1.00E-05

Contact Depth to Groundwater: Direct Less than 15ft

Groundwater

Analyte: **Trichloroethylene**
CAS: **79-01-6**

Concentration µg/L :	9.30E+01
RfDo:	5.00E-04
RfCi:	2.15E-03
SFO:	4.60E-02
IUR:	4.10E-06
Mutagen:	Y
VOC:	Y

Calculated Hazard/Risk

Non-Cancer Adult		Cancer	
Ingestion:	1.66E-02	Ingestion:	5.23E-09
Dermal:		Dermal:	
Inhalation:	1.86E+01	Inhalation:	2.25E-06
Total:	**1.87E+01**	**Total:**	**2.26E-06**

% Contribution to Media Risk 99.86% 99.40%

Exceeds Hazard!

Analyte: **Vinyl Chloride**
CAS: **75-01-4**

Concentration µg/L :	7.53E-02
RfDo:	3.00E-03
RfCi:	8.00E-02
SFO:	7.20E-01
IUR:	4.40E-06
Mutagen:	Y
VOC:	Y

Calculated Hazard/Risk

Non-Cancer Adult		Cancer	
Ingestion:	2.24E-06	Ingestion:	6.63E-11
Dermal:		Dermal:	
Inhalation:	5.90E-04	Inhalation:	2.85E-09
Total:	**5.92E-04**	**Total:**	**2.91E-09**

% Contribution to Media Risk 0.00% 0.13%

Analyte: **Xylenes**
CAS: **1330-20-7**

Concentration µg/L :	1.30E+01
RfDo:	4.00E-01
RfCi:	4.00E-01
SFO:	
IUR:	
Mutagen:	
VOC:	Y

Calculated Hazard/Risk

Non-Cancer Adult		Cancer	
Ingestion:	2.90E-06	Ingestion:	
Dermal:		Dermal:	
Inhalation:	1.55E-02	Inhalation:	
Total:	**1.55E-02**	**Total:**	**0.00E+00**

% Contribution to Media Risk 0.08% 0.00%

Risk Based Performance Criteria

Default Hazard Index	Default Risk Individual Chemical	Default Cumulative Risk-All Chemicals
1	1.00E-05	1.00E-05

Contact Depth to Groundwater: Direct Less than 15ft

Groundwater

Total Calculated Hazard Index/Risk for Groundwater

Non-Cancer Adult		Cancer	
Ingestion:	1.69E-02	Ingestion:	5.31E-09
Dermal:	0.00E+00	Dermal:	0.00E+00
Inhalation:	1.87E+01	Inhalation:	2.26E-06
Total:	**1.87E+01**	**Total:**	**2.27E-06**

Risk Based Performance Criteria

Default Hazard Index	Default Risk Individual Chemical	Default Cumulative Risk-All Chemicals
1	1.00E-05	1.00E-05

Contact Depth to Groundwater: Direct Less than 15ft

Air

Analyte: **Benzene**
CAS: **71-43-2**

Concentration µg/m3:	1.08E+04
RfDo:	
RfCi:	8.00E-02
SFO:	
IUR:	7.80E-06
Mutagen:	
VOC:	Y

Calculated Hazard/Risk

Non-Cancer Adult		Cancer	
Ingestion:		Ingestion:	
Dermal:		Dermal:	
Inhalation:	1.44E-01	Inhalation:	1.23E-06
Total:	**1.44E-01**	**Total:**	**1.23E-06**

% Contribution to Media Risk 0.01% 0.55%

Analyte: **Bromodichloromethane**
CAS: **75-27-4**

Concentration µg/m3:	6.00E+02
RfDo:	
RfCi:	2.00E-02
SFO:	
IUR:	3.70E-05
Mutagen:	
VOC:	Y

Calculated Hazard/Risk

Non-Cancer Adult		Cancer	
Ingestion:		Ingestion:	
Dermal:		Dermal:	
Inhalation:	2.01E-02	Inhalation:	2.04E-07
Total:	**2.01E-02**	**Total:**	**2.04E-07**

% Contribution to Media Risk 0.00% 0.09%

Analyte: **Chloroform**
CAS: **67-66-3**

Concentration µg/m3:	2.00E+03
RfDo:	
RfCi:	2.44E-01
SFO:	
IUR:	2.30E-05
Mutagen:	
VOC:	Y

Calculated Hazard/Risk

Non-Cancer Adult		Cancer	
Ingestion:		Ingestion:	
Dermal:		Dermal:	
Inhalation:	7.51E-03	Inhalation:	5.78E-07
Total:	**7.51E-03**	**Total:**	**5.78E-07**

% Contribution to Media Risk 0.00% 0.26%

Risk Based Performance Criteria

Default Hazard Index	Default Risk Individual Chemical	Default Cumulative Risk-All Chemicals
1	1.00E-05	1.00E-05

Contact Depth to Groundwater: Direct Less than 15ft

Air

Analyte: **Ethylbenzene**
CAS: **100-41-4**

Concentration µg/m3:	8.02E+03
RfDo:	
RfCi:	9.00E+00
SFO:	
IUR:	2.50E-06
Mutagen:	
VOC:	Y

Calculated Hazard/Risk

Non-Cancer Adult		Cancer	
Ingestion:		Ingestion:	
Dermal:		Dermal:	
Inhalation:	7.27E-04	Inhalation:	2.24E-07
Total:	**7.27E-04**	**Total:**	**2.24E-07**

% Contribution to Media Risk 0.00% 0.10%

Analyte: **Hexane, N-**
CAS: **110-54-3**

Concentration µg/m3:	8.67E+04
RfDo:	
RfCi:	2.00E+00
SFO:	
IUR:	
Mutagen:	
VOC:	Y

Calculated Hazard/Risk

Non-Cancer Adult		Cancer	
Ingestion:		Ingestion:	
Dermal:		Dermal:	
Inhalation:	3.78E-02	Inhalation:	
Total:	**3.78E-02**	**Total:**	**0.00E+00**

% Contribution to Media Risk 0.00% 0.00%

Analyte: **Naphthalene**
CAS: **91-20-3**

Concentration µg/m3:	4.48E+03
RfDo:	
RfCi:	3.00E-03
SFO:	
IUR:	3.40E-05
Mutagen:	
VOC:	Y

Calculated Hazard/Risk

Non-Cancer Adult		Cancer	
Ingestion:		Ingestion:	
Dermal:		Dermal:	
Inhalation:	1.08E+00	Inhalation:	1.50E-06
Total:	**1.08E+00**	**Total:**	**1.50E-06**

% Contribution to Media Risk 0.06% 0.67%

Exceeds Hazard!

Risk Based Performance Criteria

Default Hazard Index	Default Risk Individual Chemical	Default Cumulative Risk-All Chemicals
1	1.00E-05	1.00E-05

Contact Depth to Groundwater: Direct Less than 15ft

Air

Analyte: **Tetrachloroethylene**
CAS: **127-18-4**

Concentration µg/m3:	4.60E+03
RfDo:	
RfCi:	4.07E-02
SFO:	
IUR:	2.60E-07
Mutagen:	
VOC:	Y

Calculated Hazard/Risk

Non-Cancer Adult		Cancer	
Ingestion:		Ingestion:	
Dermal:		Dermal:	
Inhalation:	6.80E-02	Inhalation:	9.86E-09
Total:	**6.80E-02**	**Total:**	**9.86E-09**

% Contribution to Media Risk 0.00% 0.00%

Analyte: **Trichloroethylene**
CAS: **79-01-6**

Concentration µg/m3:	4.80E+06
RfDo:	
RfCi:	2.15E-03
SFO:	
IUR:	4.10E-06
Mutagen:	Y
VOC:	Y

Calculated Hazard/Risk

Non-Cancer Adult		Cancer	
Ingestion:		Ingestion:	
Dermal:		Dermal:	
Inhalation:	1.83E+03	Inhalation:	2.21E-04
Total:	**1.83E+03**	**Total:**	**2.21E-04**

% Contribution to Media Risk 99.92% 98.29%

Exceeds Hazard! ***Exceeds Risk!***

Analyte: **Vinyl Chloride**
CAS: **75-01-4**

Concentration µg/m3:	1.20E+03
RfDo:	
RfCi:	8.00E-02
SFO:	
IUR:	4.40E-06
Mutagen:	Y
VOC:	Y

Calculated Hazard/Risk

Non-Cancer Adult		Cancer	
Ingestion:		Ingestion:	
Dermal:		Dermal:	
Inhalation:	1.92E-02	Inhalation:	9.24E-08
Total:	**1.92E-02**	**Total:**	**9.24E-08**

% Contribution to Media Risk 0.00% 0.04%

Risk Based Performance Criteria

Default Hazard Index	Default Risk Individual Chemical	Default Cumulative Risk-All Chemicals
1	1.00E-05	1.00E-05

Contact Depth to Groundwater: Direct Less than 15ft

Air

Analyte: **Xylenes**

CAS: **1330-20-7**

Concentration µg/m3:	1.63E+04
RfDo:	
RfCi:	4.00E-01
SFO:	
IUR:	
Mutagen:	
VOC:	Y

Calculated Hazard/Risk

Non-Cancer Adult		Cancer	
Ingestion:		Ingestion:	
Dermal:		Dermal:	
Inhalation:	3.32E-02	Inhalation:	
Total:	**3.32E-02**	**Total:**	**0.00E+00**

% Contribution to Media Risk 0.00% 0.00%

Total Calculated Hazard Index/Risk for Air

Non-Cancer Adult		Cancer	
Ingestion:	0.00E+00	Ingestion:	0.00E+00
Dermal:	0.00E+00	Dermal:	0.00E+00
Inhalation:	1.83E+03	Inhalation:	2.24E-04
Total:	**1.83E+03**	**Total:**	**2.24E-04**

Risk Based Performance Criteria

Default Hazard Index	Default Risk Individual Chemical	Default Cumulative Risk-All Chemicals
1	1.00E-05	1.00E-05

Contact Depth to Groundwater: Direct Less than 15ft

Report Summary

Hazard/risk values of zero (0.00+00) are reflective of non-calculated values. Hazard/risk for zero value analytes must be evaluated outside of quantitative risk assessment.

Hazard/Risk Summary for Groundwater

Analyte	CAS	Hazard	Risk
Dichloroethane, 1,1-	75-34-3	2.10E-08	5.11E-09
Dichloroethane, 1,2-	107-06-2	3.68E-05	9.19E-10
Dichloroethylene, 1,1-	75-35-4	1.33E-04	0.00E+00
Dichloroethylene, cis-1,2-	156-59-2	2.81E-04	0.00E+00
Dichloroethylene, trans-1,2-	156-60-5	1.58E-03	0.00E+00
Methylnaphthalene, 1-	90-12-0	1.51E-08	4.19E-13
Tetrachloroethane, 1,1,1,2-	630-20-6	9.44E-08	3.63E-09
Tetrachloroethylene	127-18-4	7.92E-03	1.15E-09
Trichloroethane, 1,1,1-	71-55-6	4.47E-05	0.00E+00
Trichloroethylene	79-01-6	1.87E+01	2.26E-06
Vinyl Chloride	75-01-4	5.92E-04	2.91E-09
Xylenes	1330-20-7	1.55E-02	0.00E+00

Hazard/Risk Summary for Air

Analyte	CAS	Hazard	Risk
Benzene	71-43-2	1.44E-01	1.23E-06
Bromodichloromethane	75-27-4	2.01E-02	2.04E-07
Chloroform	67-66-3	7.51E-03	5.78E-07
Ethylbenzene	100-41-4	7.27E-04	2.24E-07
Hexane, N-	110-54-3	3.78E-02	0.00E+00
Naphthalene	91-20-3	1.08E+00	1.50E-06
Tetrachloroethylene	127-18-4	6.80E-02	9.86E-09
Trichloroethylene	79-01-6	1.83E+03	2.21E-04
Vinyl Chloride	75-01-4	1.92E-02	9.24E-08
Xylenes	1330-20-7	3.32E-02	0.00E+00

Total Hazard Index/Risk for All Media

Risk Based Performance Criteria

Default Hazard Index	Default Risk Individual Chemical	Default Cumulative Risk-All Chemicals
1	1.00E-05	1.00E-05

Contact Depth to Groundwater: Direct Less than 15ft

Non-Cancer Adult		Cancer	
Ingestion:	1.69E-02	Ingestion:	5.31E-09
Dermal:	0.00E+00	Dermal:	0.00E+00
Inhalation:	1.85E+03	Inhalation:	2.27E-04
Total:	**1.85E+03**	**Total:**	**2.27E-04**
Exceeds Hazard Index!		***Exceeds Cumulative Risk!***	

Construction Exposure Default Values

Symbol	Description	Value	Units
A	Construction Worker Soil Inhalation Dispersion Constant - Philadelphia	14.0111	(unitless)
AFcw	Construction Worker Soil Adherence Factor	0.3	(mg/cm2)
As	Areal extent of the site or contamination	0.5	(acres)
ATcw	Construction Worker Averaging Time: 365 x LT	25550	(days)
ATcw	Construction Worker Averaging Time	365	(days/yr)
ATcw-a	Construction Worker Averaging Time: EWcw x 7 x EDcw	350	(days)
B	Construction Worker Soil Inhalation Dispersion Constant - Philadelphia	19.6154	(unitless)
BWcw	Construction Worker Body Weight	80	(kg)
C	Construction Worker Soil Inhalation Dispersion Constant - Philadelphia	225.3397	(unitless)
DWcw	Construction Worker Days Worked	5	(days/week)
EDcw	Construction Worker Exposure Duration	1	(yrs)
EFcw	Construction Worker Exposure Frequency	250	(days/yrs)
EFcw-a	Construction Worker Air Exposure Frequency	250	(days/yr)
EFcw-s	Construction Worker Soil Exposure Frequency	250	(days/yr)
EFcw-vrp	Construction Worker Soil Exposure Frequency - VRP ONLY - Virginia DEQ	125	(days/yr)
ETcw	Construction Worker Exposure Time	8	(hrs/day)
ETcw-s	Construction Worker Soil Exposure Time	8	(hrs/day)
EWcw	Construction Worker Weeks Worked	50	(weeks/yr)
F(x)	Function Dependent on 0.886 × (Ut/Um)	0.194	(unitless)

Risk Based Performance Criteria

Default Hazard Index	Default Risk Individual Chemical	Default Cumulative Risk-All Chemicals
1	1.00E-05	1.00E-05

Contact Depth to Groundwater: Direct Less than 15ft

Fd	Dispersion Correction Factor	0.185	(unitless)
IRcw	Construction Worker Soil Ingestion Rate	330	(mg/day)
n	Total soil porosity: 1-(ρb/ρs)	0.433962264150943	(unitless)
PEFsc	Particulate Emission Factor Subchronic - Virginia DEQ calculated	1266503136.97919	(m3/kg)
Q/C	Inverse of the ratio of the 1-h geometric mean concentration to the emission flux along a straight road segment bisecting a square site - Virginia DEQ calculated	87.3689772162309	(g/m2-s per kg/m)
SAcw	Construction Worker Surface Area	3527	(cm2/day)
Tc	Total time over which construction occurs: EDcw*EWcw*7days/wk*24hrs/day*3600s/hr	30240000	(s)
TR-ACH	Trench Air Changes per Hour - Virginia DEQ	2	(h)-1
TR-ACvad	Trench Advection Coefficient Groundwater greater than 15ft - Virginia DEQ	0.25	(cm3/cm3)
TR-CF1	Trench Conversion Factor-1	0.001	(L/cm3)
TR-CF2	Trench Conversion Factor-2	10000	(cm2/m2)
TR-CF3	Trench Conversion Factor-3	3600	(s/hr)
TR-CF4	Trench Conversion Factor-4	1000000	(cm3/m3)
TR-D-dir	Trench Depth - groundwater less Than 15ft - Virginia DEQ	2.44	(m)
TR-D-ind	Trench Depth - groundwater greater than 15ft - Virginia DEQ	4.57	(m)
TR-Dsg	Trench - Depth to soil gas vapor source - Virginia DEQ	1	(cm)
TR-EFcw	Trench Construction Worker Exposure Frequency - Virginia DEQ	125	(days/yr)
TR-ETcw	Trench Construction Worker Exposure Time - Virginia DEQ	4	(hrs/day)
TR-EVcw	Trench Construction Worker Events - Virginia DEQ	1	(events/day)
TR-F	Trench Fraction of floor through which contaminant can enter - Virginia DEQ	1	(unitless)
TR-HV	Trench Thickness of Vadose Zone - groundwater greater than 15 ft - Virginia DEQ	30	(cm)
TR-IRcw	Trench Construction Worker Groundwater Ingestion Rate - Virginia DEQ	0.02	(L/day)
TR-KGH2O	Trench Gas-phase mass transfer coefficient of water vapor at 25deg C - Virginia DEQ	0.833	(cm/s)
TR-KLO2	Trench Liquid-phase mass transfer coefficient of oxygen at 25deg C - Virginia DEQ	0.002	(cm/s)
TR-L	Trench Length - Virginia DEQ	2.44	(m)
TR-Lgw	Trench Depth to groundwater - Virginia DEQ	488	(cm)

Risk Based Performance Criteria

Default Hazard Index	Default Risk Individual Chemical	Default Cumulative Risk-All Chemicals
1	1.00E-05	1.00E-05

Contact Depth to Groundwater: Direct Less than 15ft

TR-MWH2O	Trench Molecular Weight of Water - Virginia DEQ	18	(unitless)
TR-MWO2	Trench Molecular Weight of Oxygen - Virginia DEQ	32	(unitless)
TR-Porvad	Trench Porosity in Vadose Zone - groundwater greater than 15ft - Virginia DEQ	0.44	(cm3/cm3)
TR-R	Trench Ideal Gas Constant - Virginia DEQ	0.000082	(atm-m3/mol-K)
TR-Temp-F	Trench Temperature Fahrenheit - Virginia DEQ	77	(F)
TR-Temp-K	Trench Temperature - Virginia DEQ	298	(K)
TR-W	Trench Width - Virginia DEQ	0.91	(m)
TR-W/D	Trench Width to Depth Ratio - Virginia DEQ	0.38	(unitless)
Um	Mean Annual Wind Speed	4.69	(m/s)
Ut	Equivalent Threshold Value of Wind Speed at 7m	11.32	(m/s)
V	V Fraction of Vegetative Cover	0.5	(unitless)
Θa	Air filled soil porosity: n-Θw	0.133962264150943	(unitless)
Θw	Water filled soil porosity	0.3	(unitless)
ρb	Dry soil bulk density	1.5	(kg/L)
ρs	Soil particle density	2.65	(kg/L)

END OF REPORT

Table 9A: Sub-Slab Vapor & Soil Gas Risk for Residential Land Use Activities
Kriby and Eddy Parcels, Cleveland, Cuyahoga County, Ohio

Chemical of Concern		*Applicable Standards*				
		VAP GDCS Indoor Air Residential Land Use [1], Non-Carcinogens	*VAP GDCS Indoor Air Resiendential Land Use [2], Carcinogens*	*Exposure Point Concentration*	*Non-Cancer Hazard Quotient [3]*	*Cancer Risk Ratio [3]*
Volatile Organic Compounds - VOCs						
Acetone	ug/m3	1,066,667	NC	**3,100**	***0.0029063***	**-**
Benzene	ug/m3	*1,033*	120	**10,800**	***10.4516129***	***90***
Bromodichloromethane	ug/m3	*NA*	25.33333333	**600**	**-**	**-**
Carbon Disulfide	ug/m3	*24,333*	NC	**5,300**	***0.2178082***	**-**
Carbon Tetrachloride	ug/m3	*3,333*	156.6666667	**1.7**	***0.0005100***	***0.0108511***
Chloromethane	ug/m3	*3,133*	NC	**1.09**	***0.0003479***	**-**
1,1-Dichloroethane	ug/m3	*NA*	*600*	**2.77**	**-**	***0.0046167***
Cis-1,2-Dichloroethene	ug/m3	*NA*	*NC*	**290,000**	**-**	**-**
Trans-1,2-Dichloroethene	ug/m3	*NA*	*NC*	**79,000**	**-**	**-**
Ethanol	ug/m3	*NSV/NIT*	*NSV/NIT*	**1,700**	**-**	**-**
Ethyl Acetate	ug/m3	*2,433*	*NC*	**1.56**	***0.0006411***	**-**
Ethylbenzene	ug/m3	*33,333*	*367*	**8,020**	***0.2406000***	***21.8727273***
Trichlorofluoromethane	ug/m3	*NA*	*NC*	**9.44**	**-**	**-**
Dichlorodifluoromethane	ug/m3	*NA*	*NC*	**9.35**	**-**	**-**
N-Hexane	ug/m3	*24,333*	*NC*	**86,700**	***3.5630137***	**-**
Isopropylbenzene	ug/m3	*14,000*	*NC*	**1,680**	***0.1200000***	**-**
Methylene Chloride	ug/m3	*21,000*	*33,333*	**170**	***0.0080952***	***0.0051000***
2-Butanone (MEK)	ug/m3	*173,333*	*NC*	**170**	***0.0009808***	**-**
Naphthalene	ug/m3	*103.3333333*	*27.67*	**4,480**	***43.3548387***	***161.928***
Styrene	ug/m3	*33,333*	*NA*	**4.72**	***0.0001416***	**-**
Tetrachloroethene	ug/m3	*1,400*	*3666.666667*	**13,200**	***9.4285714***	***3.6000000***
Toluene	ug/m4	*173,333*	*NC*	**3,500**	***0.0201923***	
1,1,1-Trichloroethane	ug/m3	*173,333*	*NC*	**500**	***0.0028846***	**-**
Trichloroethene	ug/m3	67	*160*	**4,800,000**	***72000.00***	***30000***
Vinyl Chloride	ug/m3	3,333	*56.66666667*	**1,200**	***0.3600000***	***21.1764706***
Xylene	ug/m3	3,333	*NC*	**11,940**	***3.5820000***	**-**
1,2,4-Trimethylbenzene	ug/m3	2,100	NC	**6,180**	***2.9428571***	**-**
1,3,5-Trimethylbenzene	ug/m3	2,100	NC	**56.4**	***0.0268571***	**-**
Notes		*Inhalation Cumulative Risk Ratio*			72074.32486	30298.59748
NC = Non Carcinogenic						

1. Ohio VAP GDCS Residential Land Use for Single Chemical Non-Carcinogens with applied attenuation factor of 0.03
2. Ohio VAP GDCS Residential Land Use for Single Chemical Carcinogens with applied attenuation factor of 0.03.
3. Cumulative multiple chemical adjustment calculation.

Table 9B: Sub-Slab Vapor and Soil Gas Risk for Commercial/Industrial Land Use Activities
Kriby and Eddy Parcels, Cleveland, Cuyahoga County, Ohio

Chemical of Concern		Applicable Standards				
		VAP GDCS Indoor Air Commercial/Industrial Land Use [1], Non-Carcinogens	*VAP GDCS Indoor Air Commercial/Industrial Land Use [2], Carcinogens*	*Exposure Point Concentration*	*Non-Cancer Hazard Quotient [3]*	*Cancer Risk Ratio [3]*
Volatile Organic Compounds - VOCs						
Acetone	ug/m3	4,666,667	NC	**3,100**	***0.0006643***	-
Benzene	ug/m3	*4,333*	533	**10,800**	***2.4924994***	***20.2626642***
Carbon Disulfide	ug/m3	*103,333*	NC	**600**	***0.0058065***	-
Carbon Tetrachloride	ug/m3	*14,667*	667	**5,300**	***0.3613554***	***7.9460270***
Chloroform	ug/m3	*14,333*	177	**1.7**	***0.0001186***	***0.0096045***
Chloromethane	ug/m3	*13,000*	NC	**1.09**	***0.0000838***	-
1,1-Dichloroethane	ug/m3	*NA*	*2,567*	**2.77**	-	***0.0010791***
Cis-1,2-Dichloroethene	ug/m3	*NIT*	*NC*	**290,000**	-	-
Trans-1,2-Dichloroethene	ug/m3	*NA*	*NC*	**79,000**	-	-
Ethanol	ug/m3	*NSV/NIT*	*NSV/NIT*	**1,700**	-	-
Ethyl Acetate	ug/m3	*10,333*	*NC*	**1.56**	***0.0001510***	-
Ethylbenzene	ug/m3	*146,667*	*1,633*	**8,020**	***0.0546817***	***4.9112064***
Trichlorofluoromethane	ug/m3	*NA*	*NC*	**9.44**	-	-
Dichlorodifluoromethane	ug/m3	*NA*	*NC*	**9.35**	-	-
N-Hexane	ug/m3	*103,333*	*NC*	**86,700**	***0.8390350***	-
Isopropylbenzene	ug/m3	*60,000*	*NC*	**1,680**	***0.0280000***	-
Methylene Chloride	ug/m3	*86,666*	*400,000*	**170**	***0.0019616***	***0.0004250***
2-Butanone (MEK)	ug/m3	*733,333*	*NC*	**170**	***0.0002318***	-
Naphthalene	ug/m3	*433*	*120*	**4,480**	***10.3464203***	***37.333***
Styrene	ug/m3	*146,667*	*NC*	**4.72**	***0.0000322***	-
Tetrachloroethene	ug/m3	*6,000*	*15,667*	**13,200**	***2.2000000***	***0.8425353***
Toluene	ug/m3	*733,333*	*NC*	**3,500**	***0.0047727***	-
1,1,1-Trichloroethane	ug/m3	733,333	*NC*	**500**	***0.0006818***	-
Trichloroethene	ug/m3	293	*1,000*	**4,800,000**	***16382.25***	***4800***
m&p-Xylene	ug/m3	14,667	*NC*	**1,200**	***0.0818163***	-
o-Xylene	ug/m3	14,667	NC	**11,940**	***0.8140724***	-
1,2,4-Trimethylbenzene	ug/m3	8,667	NC	**6,180**	***0.7130495***	-
1,3,5-Trimethylbenzene	ug/m3	8,667	NC	**56.4**	***0.0065074***	-
Notes		*Inhaltion Cumulative Risk Ratio*			16400.20450	4871.30687

NC = Non Carcinogenic

1. Ohio VAP GDCS Indoor Air Residential Land Use for Single Chemical Non-Carcinogens with applied attenuation factor of 0.03
2. Ohio VAP GDCS Indoor Air Residential Land Use for Single Chemical Carcinogens with applied attenuation factor of 0.03.
3. Cumulative multiple chemical adjustment calculation.

Table 10: Summary of Complete Exposure Pathways
Eddy-Kirby Property, Parcels 4 & 5
Cleveland, Ohio

Affected Medium	COCs	Further Evaluation Required	Potential Receptor	Further Evaluation Conducted
SOILS				
Direct Contact	Detectable concentrations of PAHs, TPH, and Metals	Yes	Residential and Construction/Excavation Workers	PSRA
GROUNDWATER				
Potable	Concentrations of PAHs, VOCs, Metals above UPUS, VOCs above VISL	No	Class A in a USD	USD/Groundwater Use Restriction
Vapor intrusion to Indoor Air from Soil Vapor	Detectable concentrations of VOCs above standards	Yes	Resdiential	PRSA
Trench Related ExposuresDermal Contact	Groundwater <10 feet on Parcel 4	Yes	Class A in a USD	PRSA
Trench Inhalation	Concentrations of COCs above UPUS and VISL	Yes	Construction/Excavation	PRSA
SUB-SLAB VAPOR				
Vapor intrusion to Indoor Air	Concentrations of VOCs above standards	No	Residential and Construction/Excavation Workers	Remedy
INDOOR AIR				
Vapor intrusion to Indoor Air	No concentrations of VOCs above standards	No	Residential	None