Additional Site Investigation Report

Subject Site:

Former Brickyard Property
Sexton Avenue & Lincoln Avenue
Porter, IN 46304
State Cleanup #000000352

Prepared For:

Micheal Barry, Director of Development
Town of Porter
303 Franklin Street
Porter, IN 46304

Prepared By:

Amereco, Inc.

Project No. 23.2078

December 8, 2023

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December 8, 2023

Michael Barry, Director of Development
Town of Porter
303 Franklin Street
Porter, IN 46304

Re: Additional Site Investigation
Former Brickyard Property
Beam Street & Sexton Avenue
Porter, IN 46304
Project #23.2078

Dear Mr. Barry:

In accordance with your authorization, we have performed an Additional Site Investigation (ASI) on the Former Brickyard Property located at the southwest corner of Beam Street & Sexton Avenue in Porter, Porter County, Indiana 46312, the *property*. The ASI was conducted to further characterize Site conditions and evaluate potential exposure risk prior to redevelopment of the Former Brickyard Property.

ASI activities were conducted between September 18 and 22, 2023 and included the collection of 19 surface soil samples. Soil samples were collected via hand tooling. Soil samples were submitted for laboratory analysis of arsenic and lead. Conclusions pertaining to the current Site conditions can be found in *Section 5.3* and recommendations can be found in *Section 5.4*.

We appreciate the opportunity to provide you this service. If you have any questions or comments regarding this report, or if we can be of any additional service, please call.

Respectfully submitted,

Ross Yeater
Project Manager

Zachary Heine, CHMM
Director of Operations

54 MICHIGAN AVE. • VALPARAISO, IN 46383 • OFFICE (219) 531-0531 • FAX (219) 464-9166

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Appendix

Acronyms

ASI	Additional Site Investigation
ASTM	American Society for Testing and Materials International
bgs	Below Ground Surface
COC	Contaminant(s) of Concern
CSPL	Commercial Soil Published Level
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
GPR	Ground Penetrating Radar
IDEM	Indiana Department of Environmental Management
IDNR	Indiana Department of Natural Resource
LTC	Long Term Commercial
LTR	Long Term Residential
NRCS	Natural Resource and Conservation Service
PAHs/PNAs	Polynuclear Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PID	Photoionization Detector
PL	Published Level
R2	Risk-based Closure Guide
RCG	Remediation Closure Guide
RCRA	Resource and Conservation Recovery Act
REC	Recognized Environmental Condition
RSPL	Residential Soil Published Level
SCP	State Cleanup Program
SMP	Soil Management Plan
STE	Short Term Excavation
TPH	Total Petroleum Hydrocarbons
U.S.	United States
USCS	Unified Soil Classification System
VFC	Virtual File Cabinet
VOCs	Volatile Organic Compounds
XSPL	Excavation Soil Published Level

1. Introduction

Amereco, Inc., d/b/a Amereco Engineering (Amereco) prepared this Additional Site Investigation (ASI) Report on behalf of the Town of Porter for the Former Brickyard Property located at the corner of Sexton Avenue & Lincoln Avenue in Porter, Porter County, Indiana 46304 (Site). This ASI was conducted in accordance with the IDEM *Risk-based Closure Guide* (R2), effective July 8, 2022, and documents the objectives and investigation activities and presents findings and conclusions.

1.1 Purpose

The primary purpose of this ASI was to further evaluate known lead and arsenic impacts to surficial soils (0- to 2-foot below ground surface (bgs) to facilitate the evaluation of remedial options and risk management strategies for safe redevelopment of the Site. The findings and conclusions of this report are intended to be utilized for the development of a Site-specific Soil Management Plan (SMP).

1.2 Scope of Services

The specific scope of work conducted for this ASI included a review of existing available information, field exploration, sampling, contaminant analysis, evaluation of results, and a discussion regarding conclusions and findings.

ASI activities included the advancement of 19 soil borings via a hand auger to a maximum depth of approximately 1-foot bgs, with the collection of one soil sample from each location. Sample locations and laboratory analyses were selected based on a review of historical information described in Section 2.5.

2. Background

2.1 Site Description & Features

The Site consists of a 24.65-acre densely wooded lot located northwest of the intersection of Sexton Avenue and Lincoln Avenue in Porter, Porter County, Indiana 46304. The Site does not have a street address but corresponds to Porter County parcel #64-03-35-177-001.000-026. The Site is bound to the south by a Norfolk Southern railroad, to the west by wooded land and Lake Florence, to the north by West Beam Street, and to the east by Sexton Avenue. A Site Location map is provided as Figure 1 in Appendix A. A Site map depicting the entire extent of the Site is provided as Figure 2.

The Site is generally referred to as the Former Brickyard Property and is located within an area of mixed industrial, commercial, and residential properties. The Site is currently vacant and naturally vegetated except for portions of the Site used for storage by the Town of Porter. The Site is accessible from the northwest corner off of West Beam Street or the southeast off of Sexton Avenue and Lincoln Street.

2.2 Physical Setting,

The Site is located in Section 35, Township 37N, Range 6W of the 2nd Principal Meridian in Porter County, Indiana. The average elevation for the Site is 636-feet above sea level, although numerous berms and depressions are present throughout the Site. The regional groundwater flow for the Site is assumed primarily north towards Lake Michigan, located approximately 2.6-miles away, as identified by the Potentiometric Surface Map of The Unconsolidated Aquifers of Porter County, Indiana. Groundwater flow direction on-Site is estimated to flow west-northwest toward the East Arm Little Calumet River and Lake Michigan beyond. However, previous on-Site investigations have not included groundwater flow modeling and groundwater flow may be impacted by nearby drainage ditches, city utilities, and local bodies of water.

2.3 Site History & Land Use

Based on the historical documentation reviewed, the Chicago Hydraulic Press Brick Company operated at the Site beginning in the early 1890s until its closure in 1925. The north rectangular-shaped portion of the building, labeled “clay sheds” was demolished between 1899 and 1905, as evidenced by historical Sanborn maps. The 1912 and 1922 Sanborn maps show a large rectangular warehouse building connected to a rail spur entering the property from the southeast corner. By 1938, all facility buildings were demolished, as evidenced by historical aerial photographs. The facility was located on the south-central portion of the Site and consisted of a brickmaking plant containing large kilns on the south and west ends of the hydraulic production area near the south-central area of the Site. Two railroad spurs entered the Site from the southeast, one of which ran through a storage building on the east side of the plant and the other along a coal and brick storage shed to the south. A 60-gallon capacity gasoline underground storage tank (UST) was located north of the plant building, just east of a 120,000-gallon water reservoir tank. Additionally, several small above-ground oil tanks and one large in-ground oil tank were located west of the main plant across a ditch. Approximate historical building locations are depicted on Figure 2.

Brick production at the facility ceased in 1925 due to material resource shortages, notably clay, which was reportedly mined from the Site and resulted in significant re-working of surface soils, grade changes, and backfilling with various amounts of gravel, brick, slag, cinders, glass, etc. The majority of the Site has become densely wooded except for several small areas used by the Town of Porter for storage. Several

inches of topsoil sediment have accumulated at the surface since being vacated in 1925. The State Cleanup Program (SCP) ID for the Site is #0000-00-352 and was assigned “inactive” status in 2012 pending initiation of redevelopment by the Town of Porter.

2.4 Adjoining Property Use

Current Use of Adjoining Properties	
Direction	**Use**
North	Yost Elementary School (100 W. Beam St.) Porter Town Office / Porter Fire Department (550 W. Beam St.)
Northeast	Residential
East	Residential
Southeast	Agricultural and Residential
South	Agricultural
Southwest	Agricultural
West	Naturally vegetated easement, Lake Florence
Northwest	I-94 Right-of-Way, followed by Residential

2.5 Summary of Previous Environmental Reports

Phase I ESA – McMahon Associates, Inc. – January 20, 1994

An Environmental Site Assessment (ESA), dated January 20, 1994, was performed on the Site by McMahon Associates, Inc. The ESA did not identify any recognized environmental conditions (RECs) in connection with the Site. It should be noted that approximately 12-inches of snow cover significantly limited the ability of field personnel to observe Site conditions, specifically surface coverage.

Phase I ESA – Weaver Boos Consultants, LLC – July 5, 2006

A Phase I ESA, dated July 5, 2006, was performed on the Site by Weaver Boos Consultants, LLC. The Phase I ESA identified the following RECs in connection with the Site:

- The former presence of oil tanks on the west side of the former kiln area was identified for potential petroleum contamination of soil and/or groundwater.

Phase II ESA – Weaver Boos Consultants, LLC – October 7, 2009

A Preliminary Phase II ESA, dated October 7, 2009, was performed on the Site by Weaver Boos Consultants, LLC on behalf of the Town of Porter. As part of the Phase II ESA, seven soil borings were advanced to approximate depths of 16- to 24-feet bgs. A total of three surface soil, three subsurface soil, and three groundwater samples were collected. Surface soil samples were analyzed for metals, polynuclear aromatic hydrocarbons (PAHs), and total petroleum hydrocarbons – extended range organics (TPH-ERO), subsurface samples were analyzed for PAHs and TPH-ERO, and groundwater samples were analyzed for volatile organic compounds (VOCs) and were compared to then-applicable Risk Integrated System of Closure (RISC) closure levels. The Phase II ESA noted the following conclusions:

- No petroleum impacts were identified in the vicinity of historical on-Site oil storage.

- PAHs, lead, and arsenic were identified in surface soil on the southwest portion of the property above RISC closure levels. Elevated COC concentrations appear to be connected to dark-colored surficial fill, which covers a significant area along the south portion of the Site.
- Site conditions warrant additional characterization upon commencing redevelopment of the Site.

Phase II ESA – Weaver Boos Consultants, LLC – September 12, 2011

A Phase II ESA, dated September 12, 2011, was performed by Weaver Boos Consultants, LLC to further characterize environmental conditions identified in the 2006 Phase I ESA and the 2009 Preliminary Phase II ESA. Nineteen soil borings were advanced and six groundwater samples were collected. Analyses included arsenic, lead, TPH-ERO, and PAHs. The conclusions of the 2011 Phase II ESA were:

- No contaminant conditions warranting immediate action were identified. Contaminants of concern (COCs) appeared to be limited to PAHs, arsenic, and lead in surface soil.
- No groundwater impairments were identified in the Site subsurface, and migration from soil to groundwater was not suspected to be occurring.
- Redevelopment of the approximate 6-acre portion on the south of the property will require mitigation of potential exposure to surface soil contamination for commercial use. Potential exposure to impacted surface soil can be mitigated by excavation and disposal, consolidation, imposing engineered barriers, or a combination of mitigation measures.

Phase II ESA – Amereco, Inc. – July 26, 2021

A Phase II ESA, dated July 26, 2021, was performed by Amereco, Inc. to further characterize Site conditions and evaluate potential exposure risk in anticipation of redevelopment. The scope of the assessment included further characterization of contaminated areas previously identified by Weaver Boos Consultants, LLC, and evaluation of the southeast portion of the Site used for storage of fill material by the Town of Porter. A total of 25 hand auger soil borings were advanced and 28 soil samples were collected. Analyses included VOCs, PAHS, polychlorinated biphenyls (PCBs), and Resource Conservation and Recovery Act (RCRA) 8 metals.

The conclusions of the 2021 Phase II ESA were:

- PAH, arsenic, and lead concentrations were identified in shallow soils (0- to 4-feet bgs) near the former brickmaking facility in exceedance of then-applicable IDEM Remediation Closure Guide (RCG) 2021 screening levels. PAH contamination was limited to minor exceedances of RCG Residential Direct Contact (RDC) screening levels while arsenic and lead concentrations were identified in exceedance of RCG Commercial/Industrial Direct Contact (C/IDC) and Excavation Worker Direct Contact (EDC) screening levels, respectively. Arsenic and lead contamination was generally associated with observed fill material in localized areas of the Site.
- Later uses of the southeast portion of the Site for storage of fill material stockpiles by the Town of Porter were determined not to have significantly impacted the Site.

3. Additional Site Investigation

3.1 Conceptual Site Model & Sampling Plan

This site model considers the potential distribution of contaminants based on their properties, behavior, fate, and transport characteristics. A conceptual site model (CSM) and sampling plan were developed utilizing reports discussed in Section 2.5 of this report.

The preliminary CSM developed for the Site and utilized in preparation of a sampling plan for this ASI identified surficial soils as the primary exposure pathway to Site occupants. Groundwater impacts were not identified during the previous Weaver Boos assessments in 2009 and 2011; therefore, groundwater was not assessed as part of this ASI. Due to the lack of elevated VOC concentrations being identified in previous sampling events at the Site, vapor concerns are not evident. Subsurface soil conditions are similar to those of surface soils; however, as the Site is predominately vacant and there are no pending development plans. Thus, the vapor exposure pathway is not complete.

The sampling plan for this ASI was designed with consideration of known lead and/or arsenic contamination in surface soils originating from historical brickyard operations and fill observed on-Site. Additional soil sampling was conducted during this ASI in the vicinity of previously identified areas of elevated lead and/or arsenic concentrations to further characterize the lateral extents of the impacted areas.

3.2 Surface Soil Sampling

Amereco collected a total of 19 surface soil (0- to 1-foot bgs) samples on September 18 and 22, 2023. Soil samples were collected via hand auger or golf hole cutter to adequately recover representative soils beneath topsoil. Soils were field characterized generally into three categories: sand, clay, or fill (soil containing gravel, brick, slag, cinders, glass, etc.).

In an effort to delineate the lateral extent of contamination, sample locations were spaced approximately 20-lateral feet in each principal direction from locations where elevated lead and/or arsenic concentrations were previously identified. Geographical sample locations were recorded in the field using a Trimble GPS Geo7X 7000 handheld unit.

Disposable nitrile gloves were worn by sampling personnel and were changed between each sample location. All soil samples were collected within minutes of retrieving the sample core from the ground and placed into labeled, laboratory-supplied containers appropriate for the analysis. The following sample containers were utilized based on sample location and the selected analysis:

Sample Collection Information – Surface Soil Samples			
Sample Analysis	**Sample Container**	**Preservative**	**Hold Time**
Arsenic and Lead	1 x 4-oz Plastic Vial	Non-preserved, 4° C	180 days

Following collection, all samples were immediately placed into sealed bags and placed on ice or refrigerated (as necessary) until transported to the laboratory by either Amereco staff or by laboratory courier. The

sampling equipment was decontaminated before use and between each soil boring location using Alconox® detergent and distilled water. Soil sample locations are depicted on Figure 2 and general soil lithology information is provided on tabulated analytical results in Appendix B.

3.3 Chemical Analyses

Laboratory analyses were conducted by Sterling Labs, 2242 W. Harrison Street, Chicago, IL 60612, and Accurate Analytical Testing LLC, 30105 Beverly Road, Romulus MI 48174. The chemical testing plan was developed based on previously identified COCs present in the media collected. A completed chain of custody accompanied each sample shipment to the laboratory. Chains of custody documenting sample collection/handling, sample collection times, individuals involved in the chain of sample possession, and a record of requested analytical parameters can be found in Appendix C. The following table summarizes the sample analysis and corresponding United States Environmental Protection Agency (US EPA) methods:

Target Analytes for Samples		
Sample Analysis	**Media**	**Methodology**
Arsenic and Lead	Soil	SW-846 6020A/SW-846 3050B

4. Soil Analytical Results

Soil analytical results from this ASI, as well as a summary of historical soil analytical results (2009, 2011, and 2021 ESAs) contrasted against applicable IDEM R2 2023 Published Levels (PLs) can be found in Appendix B in tabular format. Analytical results for surface soil samples collected during this ASI are illustrated on Figure 3 and a comprehensive summary of all known arsenic and lead analytical results are illustrated on Figures 5a and 5b. The following table summarizes samples and contaminants identified during this ASI in exceedance of applicable IDEM R2 2023 PLs:

Soil Exceedances – IDEM R2 Published Levels				
Sample ID	**Depth (ft. bgs)**	**Primary Lithology**	**Arsenic**	**Lead**
S23-1	0-1	Clay	**27**	336
S23-2	0-1	Sand	*49*	**497**
S23-3	0-1	Sand	*82*	357
S23-4	0-1	Fill	**24**	198
S23-5	0-1	Fill	**18**	363
S23-9	0-1	Clay	**12**	16.7
S23-10	0-1	Fill	**21**	NA
S23-11	0-1	Fill	**25**	NA
S23-12	0-1	Fill	*51*	NA
S23-13	0-1	Fill	*83*	2,220
S23-14	0-1	Fill	*150*	**409**
S23-15	0-1	Fill	*31*	**421**
S23-16	0-1	Sand	**14**	205
S23-17	0-1	Fill	*62*	**412**
S23-18	0-1	Fill	**45**	*855*
IDEM R2 Long Term Residential (LTR) PL			**10**	**400**
IDEM R2 Long Term Commercial (LTC) PL			*30*	*800*
IDEM R2 Short Term Excavation (STE) PL			900	1000

Notes: Results and IDEM R2 Published Levels in mg/kg or ppm.
NA = Not Analyzed.

5. Discussion of Findings & Conclusions

This ASI was conducted in accordance with the methods and procedures outlined in the IDEM R2. While the ASI sampling plan was intended to evaluate the lateral extents of isolated areas of elevated arsenic and lead concentrations, analytical results revealed that elevated surficial impacts are more prevalent throughout the vicinity of the former brickmaking facility. Therefore, direct contact exposure risk Sitewide was evaluated by spatially grouping all available surface soil sampling points with consideration of proximity to the former facility. Methods for determining risk evaluation areas are described in the following sections.

5.1 Representative Concentrations

Representative concentrations of arsenic and lead were calculated using methods recommended in *Section 3.2.2.1 Determining Representative Concentrations in Soil* of the IDEM R2, utilizing current and historical soil sampling data from impacted areas. Since the contamination appears to be the result of chronic deposition of unsuitable fill over time, and not acute release events associated with single-point sources, this methodology provides an evaluation of risk over an entire decision unit without giving undue weight to the highest (or lowest) observed concentrations.

Based on the findings of this ASI and previous investigations, elevated arsenic and lead concentrations appear to be generally limited to the top 2-feet of soil areas associated with former on-Site operations. Limited subsurface investigations have occurred due to the dense vegetation on-Site; however, based on these findings, elevated concentrations of PAHs appear to be generally limited to subsurface soils (2- to 4-feet bgs) and in areas that are generally free of heavy fill material, primarily on the southeast corner of the Site. Known soil arsenic, lead, and PAH analytical results contrasted against applicable IDEM R2 2023 PLs can be found in Appendix B in tabular format.

The Site has been divided into two areas, which are further subdivided into surface soils and subsurface soils, thus providing four decision units:

1. Soil Decision Unit 1 – Former primary area of operation, including the main brickmaking facility building and immediate surrounding area. Decision Unit 1 is generally defined as the south end of the property where historical brickmaking activities occurred.
    a. Surface Soils (1a) – The surface soil (0- to 2-feet bgs) is a combination of organic, black topsoil and fill (ash, cinders, slag, etc.).
    b. Subsurface Soils (1b) – The subsurface soil (2- to 4-feet bgs) is generally identified as loamy mixtures of clay and sand underlain by fine to medium grained sand, although fill material is present in areas west of the former facility.

2. Soil Decision Unit 2 – Surrounding the former primary area of operation. This area is defined as an area of the Site that was not heavily developed, yet some soil disturbance is suspected given the Site history and varying elevation. Decision Unit 2 generally corresponds to the north area of the Site.
    a. Surface Soils (2a) – The surface soil (0- to 2-feet bgs) is a combination of organic black topsoil, sand, and clays.
    b. Subsurface Soils (2b) – Overall, this area of the Site has little to no evidence of fill materials and consists predominately of native soils.

The representative arsenic concentrations were calculated as a 95% upper confidence limit (UCL) value generated by using the US EPA ProUCL 5.2.00 software. Representative lead concentrations were

calculated as the arithmetic mean, as IDEM and US EPA published levels for lead are derived using central tendency parameters. Concentration values for samples identified below laboratory reporting limits (LRLs) were entered as one-half the LRL (i.e., <1.8 was entered as 0.9). Amereco used the best applicable statistical tests recommended by ProUCL based on population distribution characteristics. Calculated representative concentration (UCL) values are summarized as follows:

Representative Concentrations Summary					
Decision Unit	**Contaminant of Concern**	**IDEM R2 LTR PL (mg/kg)**	**IDEM R2 LTC PL (mg/kg)**	**IDEM R2 STE PL (mg/Kg)**	**Representative Concentration (mg/Kg)**
Decision Unit 1a – Surface Soils	Arsenic	10	30	900	**38.0**
	Lead	400	800	1,000	341.4
Decision Unit 2a – Subsurface Soils	Arsenic	10	30	900	7.3
	Lead	400	800	1,000	25.4
Decision Unit 1b – Surface Soils	Arsenic	10	30	900	**22.1**
	Lead	400	800	1,000	132.6
Decision Unit 2b – Subsurface Soils	Arsenic	10	30	900	**12.1**
	Lead	400	800	1,000	32.6

The representative arsenic concentrations exceed the IDEM R2 Long Term Commercial (LTC) PL in Decision Unit 1a and the IDEM R2 Long Term Residential (LTR) PL in Decision Units 1b and 2b.

5.1 Conceptual Site Model

Based on the results of this ASI, the extent of arsenic and lead contamination in on-Site soils have been defined. Contaminants primarily exist in surface soils (0- to 2-feet bgs) and subsurface soils (greater than 2-feet bgs) in the vicinity of the former brickmaking facility (Decision Units 1a and 1b). Arsenic and lead concentrations are closely associated with areas of fill material containing varying amounts of fly ash, coal cinders, brick, slag, and other non-native materials. While primarily surficial, some subsurface areas of fill material have been identified at depths greater than 2-feet to the west of the former facility. The fill material has been overlain by a few inches of accumulated organic soil and foliage making up the current forest floor. Subsurface investigations at the Site have been limited due to dense vegetation and topographic elevation changes.

Concentrations of benzo(a)pyrene and bibenz(a,h)anthracene above residential levels have been identified separate from fill material near the southeast corner of the Site, in an area used by the town of Porter for leaf and brush storage. The area was turned into a rough drive by using asphalt millings and gravel, which may be contributing to the observed PAH concentrations. Benzo(a)pyrene concentrations above residential levels have been identified in surface soils west of the former facility and appear to be related to areas of significant fill material impacts.

Groundwater contamination was not assessed during this ASI. However, based on results of previous assessments, depth to groundwater ranges from approximately 11.4- to 16.1-feet bgs and no significant groundwater impacts have been identified. No groundwater sampling has been conducted since the 2011

Weaver Boos Phase II ESA. Furthermore, no evidence currently exists to suggest that surface impacts are migrating to groundwater.

5.3. Conclusions

Based on the findings of this ASI, the following professional opinions and conclusions have been formed regarding current Site conditions.

Two areas of elevated arsenic and lead concentrations were identified to the west of the former facility prior to this ASI. The objective of this ASI was to evaluate the horizontal extent of each area of elevated arsenic and lead on-Site. However, a review of the current ASI sampling data indicated that elevated arsenic and lead concentrations were more widespread. Therefore, four decision units were developed using a combination of historical Site operations, observed Site conditions, and spatially clustered datasets to evaluate the overall lateral distribution of contaminants in each unit. Statistical analyses were performed on arsenic data (95% Upper Confidence Limit (UCL)) and lead data (arithmetic average) to determine representative concentrations across Decision Units.

Overall, elevated concentrations of arsenic are associated with areas of Decision Units 1a and 1b where fill material is observed (slag, cinders, coal, glass, and brick fragments). The horizontal distribution of fill material varies but is generally present around the former brickmaking facility in the center of the Site and along the south property boundary. The vertical distribution also varies due to extensive disruption and reworking of surface soils during brickmaking, but the impact is generally limited to the top 2-feet of soil, as indicated on site investigation soil boring logs and field lithology descriptions. Lateral extents of areas impacted by fill material were estimated using lithology and sampling data in conjunction with topographic features indicating disturbed surface soils.

The representative concentration for arsenic in subsurface Decision Unit 1b in the former facility exceeds residential levels, but the arsenic concentrations for this unit appear to be associated with background levels. The representative lead concentrations for all Decision Units were below the IDEM R2 PL, however, localized “hotspots” exist (i.e., the areas used in designing the sampling plan for this ASI). As discussed above, arsenic contamination is directly associated with fill material, and arsenic concentrations identified in areas free of fill material are likely associated with indigenous background levels.

Therefore, the arsenic direct contact exposure pathway to surface soils within Decision Unit 1a is of greatest risk to future Site occupants. All soil containing fill material within Decision Unit 1a, as depicted on Figure 4, should be treated as exceeding the arsenic IDEM R2 LTC PL. Soils within Decision Units 1b and 2b and free of fill material should be interpreted as falling within the typical background range for arsenic and do not represent a hazard greater than typical indigenous soils of Northwest Indiana.

5.4. Recommendations

Due to the limited use of the Site, future unknown development, and primary exposure risk, it is our professional recommendation that a Soil Management Plan (SMP) be prepared. This document shall ensure proper protection for the current use, while providing minimum guidelines for future Site redevelopment, ensuring safe handling of fill-impacted soils.

Furthermore, evaluation of Site conditions and the SMP are recommended prior to redevelopment to ensure that future use of the Site does not present additional risk to human health and the environment. Additional engineering and/or institutional controls may be necessary to ensure Site impacts do not pose a risk to human health and the environment.

6. References

The following references were used in the preparation of this report:

ASTM International (ASTM), Designation E1527-13, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*.

ASTM International (ASTM), Designation E1903-97, *Standard Guide for Environmental Site Assessments: Phase II Environmental Site Assessment Process*.

ASTM International (ASTM), Designation E2600-15, *Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions*.

Department of Natural Resources (DNR), *Potentiometric Surface Map of The Unconsolidated Aquifers of Porter County*, Indiana, May 2015, https://www.in.gov/dnr/water/files/09_Lake_County_UNC_PSM_map.pdf.

Indiana Department of Environmental Management (IDEM), *Background Lead and Arsenic Surface Soil Levels*, Indianapolis, Indiana, June and July 2017, https://www.in.gov/idem/cleanups/files/tech_guidance_pb_ as_pah_indy.pdf

Indiana Department of Environmental Management (IDEM), *Draft Vapor Intrusion Pilot Program Guidance*, April 26, 2006.

Indiana Department of Environmental Management (IDEM), *Re: Further Site Investigation Request*, February 8, 2012, Virtual File Cabinet Document ID #64962173.

Indiana Department of Environmental Management (IDEM), *Remediation Closure Guide*, July 9, 2012.

Indiana Department of Environmental Management (IDEM), *Remediation Program Guide*, July 9, 2012.

United States Geological Survey (USGS), *Geochemical and Mineralogical Maps for Soils of the Conterminous U.S*, USGS Open-File Report 2014-1082 and USGS Data Series 801, Updated May 16, 2014, https://mrdata.usgs.gov/soilgeochemistry/.

United States Geological Survey (USGS), *The National Geochemical Survey*, U.S. Geological Survey Open-File Report 2004-1001, Version 5.0, Updated September 30, 2008, https://mrdata.usgs.gov/geochem/ doc/home.htm.

United States Environmental Protection Agency (US EPA), ProUCL: Statistical Software for Environmental Applications for Data Sets with and without Nondetect Observations, Version 5.2.00, 2022, https://www.epa.gov/land-research/proucl-software.

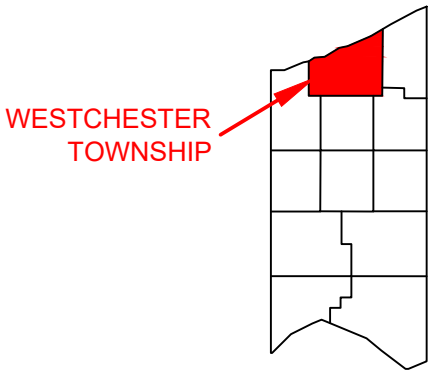
Weaver Boos Consultants, LLC, *Phase I Environmental Site Assessment* – 32-Acre Parcel, Southwest Corner of Beam Street and Sexton Avenue, Porter, IN 46304, Project No. 1991-351-02, July 5, 2006.

Weaver Boos Consultants, LLC, *Preliminary Phase II Environmental Site Assessment* – 32-Acre Property, Sexton Avenue & Lincoln Street, Porter, IN 46304, Project No. 2695351-03, October 7, 2009.

Weaver Boos Consultants, LLC, *Phase II Environmental Site Assessment* – Former Brickyard Property, Sexton Avenue & Lincoln Street, Porter, IN 46304, Project No. 2379351-03, September 12, 2011.

Appendix A

Figures



T 37 N / R 6 W

PORTER COUNTY

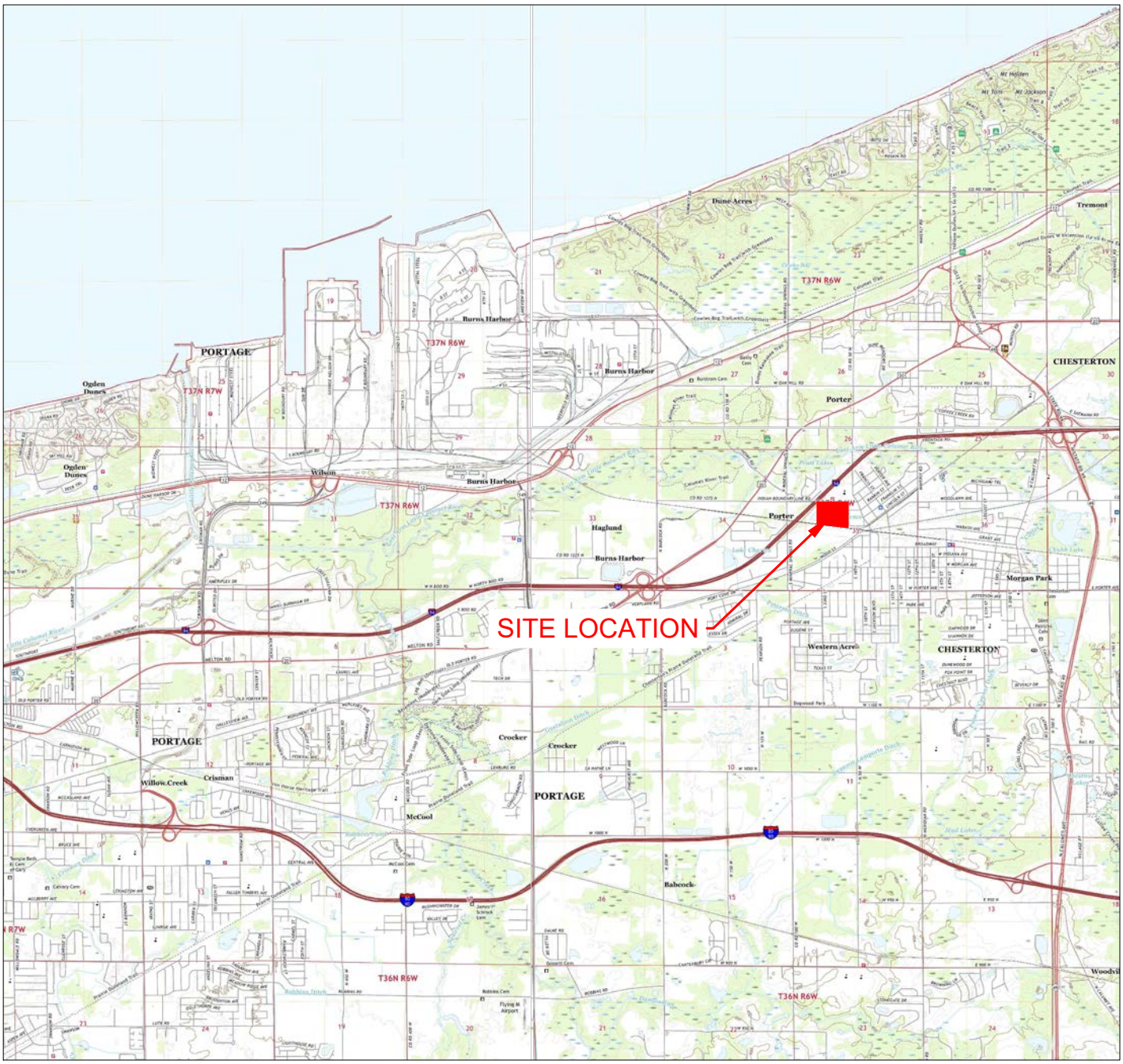
WESTCHESTER TOWNSHIP

PORTER, INDIANA

46304

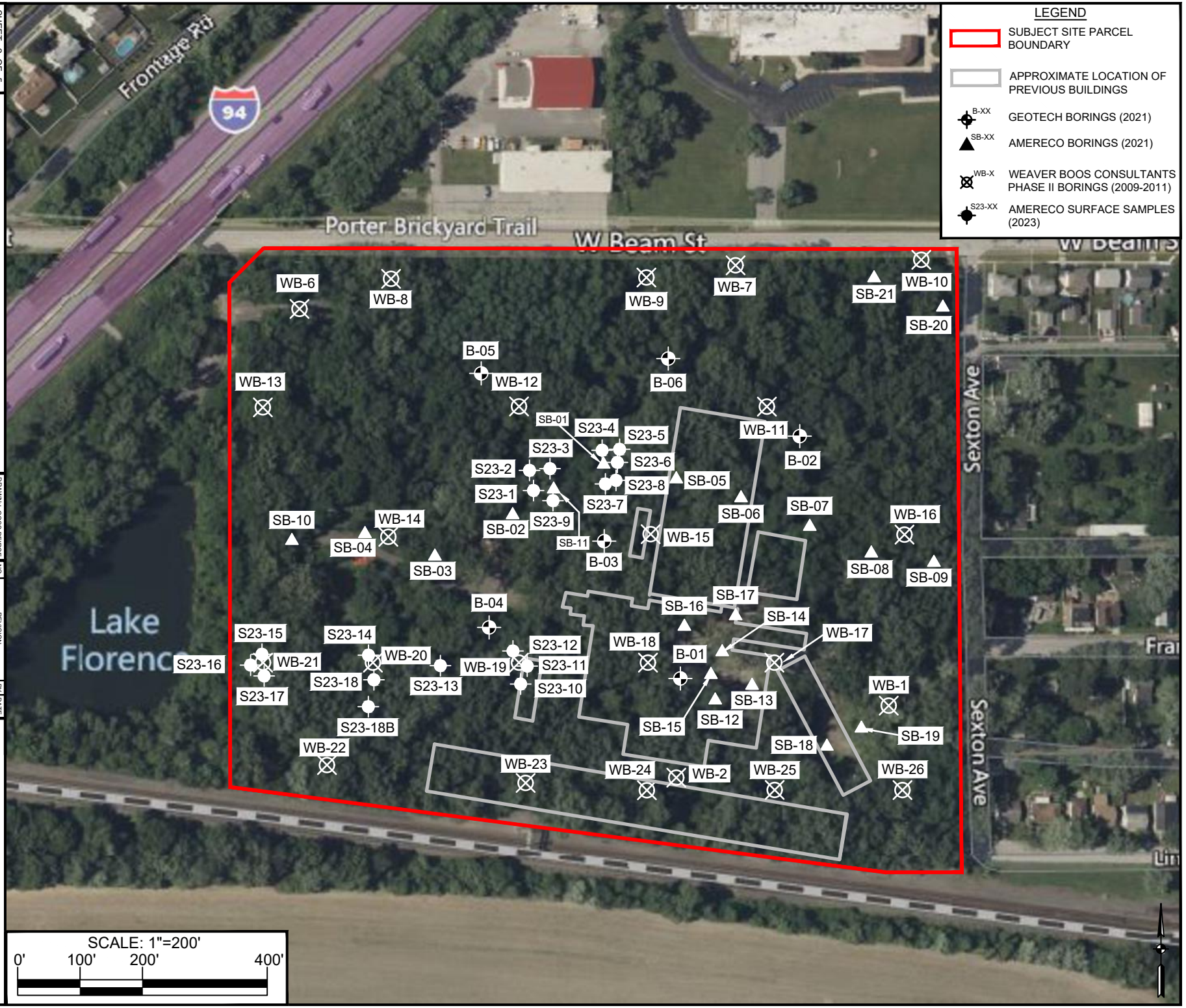
NEIGHBORHOOD: 1156

N



ADAPTED FROM USGS
CHESTERTON, IN 2019

SHEET 1 OF 5	SITE LOCATION MAP	DRAWN: L. GOSS-PEIRCE	NO.	REVISION	BY	DATE	AMERECO, INC.
FIGURE 1	ADDITIONAL SITE INVESTIGATION FORMER BRICKYARD SITE	DESIGNED: R. YEATER APPRV'D: Z. HEINE DATE: DEC. 6, 2023 PROJECT NUMBER: 23.2078					CONSULTING ENGINEERS-PROJECT MANAGERS 54 MICHIGAN AVENUE VALPARAISO, IN 46383 219-531-0531
	PORTER INDIANA						



SHEET 2 OF 5

FIGURE 2

CURRENT & HISTORIC SOIL SAMPLE LOCATIONS

ADDITIONAL SITE INVESTIGATION
FORMER BRICKYARD SITE

PORTER INDIANA

PROJECT NUMBER: 23.2078
DATE: DEC. 6, 2023
APPRVD: Z. HEINE
DESIGNED: R. YEATER
DRAWN: LGOSS-PEIRCE

NO.	REVISION	BY	DATE

AMERECO, INC.
CONSULTING ENGINEERS-PROJECT MANAGERS
54 MICHIGAN AVENUE
VALPARAISO, IN 46383 219-531-0531

FIGURE 3 SHEET 3 OF 5

SOIL ANALYTICAL RESULTS

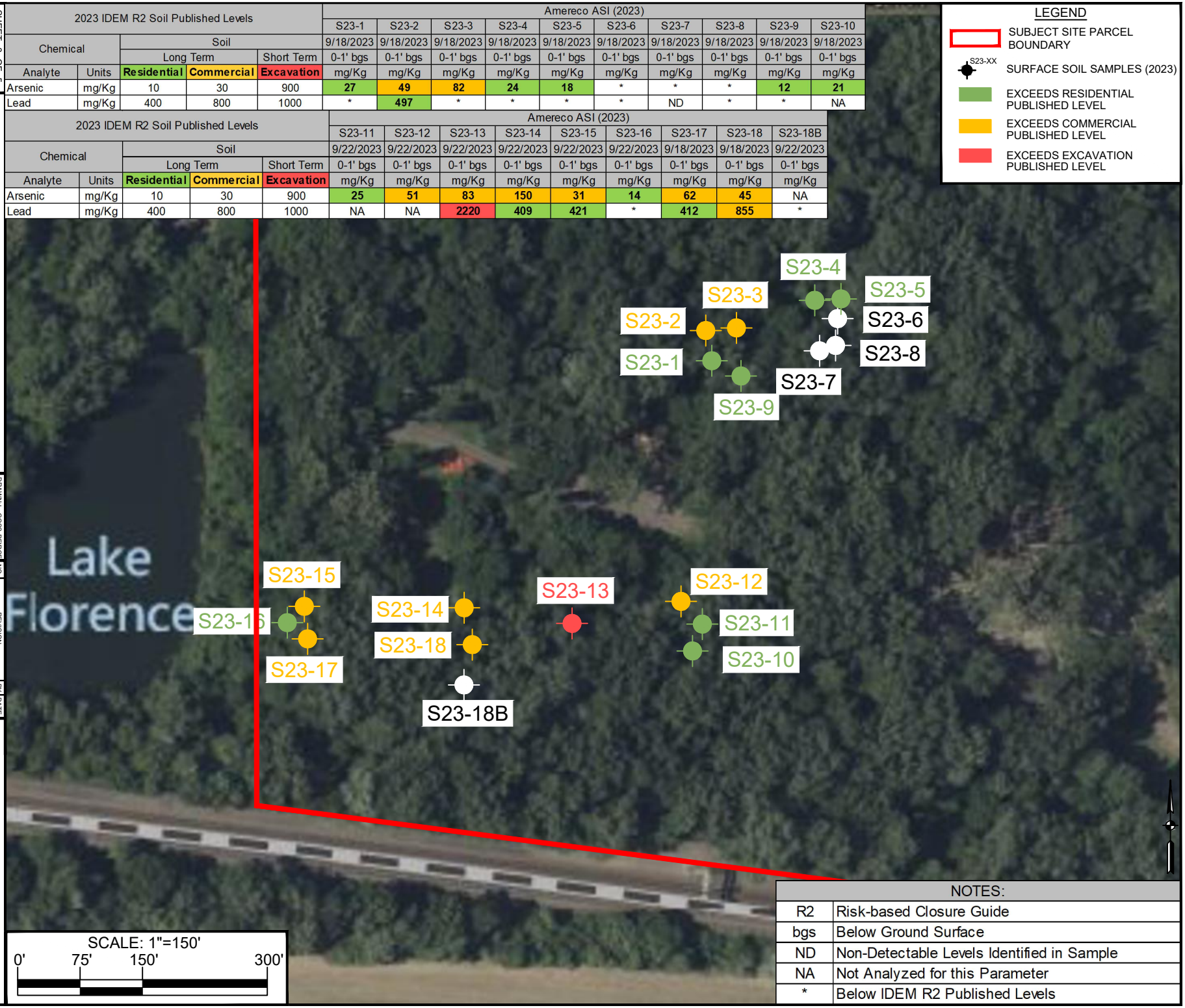
ADDITIONAL SITE INVESTIGATION
FORMER BRICKYARD SITE
PORTER INDIANA

2023 IDEM R2 Soil Published Levels					Amereco ASI (2023)									
					S23-1	S23-2	S23-3	S23-4	S23-5	S23-6	S23-7	S23-8	S23-9	S23-10
Chemical		Soil			9/18/2023	9/18/2023	9/18/2023	9/18/2023	9/18/2023	9/18/2023	9/18/2023	9/18/2023	9/18/2023	9/18/2023
		Long Term		Short Term	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs
Analyte	Units	Residential	Commercial	Excavation	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Arsenic	mg/Kg	10	30	900	27	49	82	24	18	*	*	*	12	21
Lead	mg/Kg	400	800	1000	*	497	*	*	*	*	ND	*	*	NA

2023 IDEM R2 Soil Published Levels					Amereco ASI (2023)								
					S23-11	S23-12	S23-13	S23-14	S23-15	S23-16	S23-17	S23-18	S23-18B
Chemical		Soil			9/22/2023	9/22/2023	9/22/2023	9/22/2023	9/22/2023	9/22/2023	9/18/2023	9/18/2023	9/22/2023
		Long Term		Short Term	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs
Analyte	Units	Residential	Commercial	Excavation	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Arsenic	mg/Kg	10	30	900	25	51	83	150	31	14	62	45	NA
Lead	mg/Kg	400	800	1000	NA	NA	2220	409	421	*	412	855	*

LEGEND

- SUBJECT SITE PARCEL BOUNDARY
- S23-XX SURFACE SOIL SAMPLES (2023)
- EXCEEDS RESIDENTIAL PUBLISHED LEVEL
- EXCEEDS COMMERCIAL PUBLISHED LEVEL
- EXCEEDS EXCAVATION PUBLISHED LEVEL



SCALE: 1"=150'
0' 75' 150' 300'

NOTES:

R2	Risk-based Closure Guide
bgs	Below Ground Surface
ND	Non-Detectable Levels Identified in Sample
NA	Not Analyzed for this Parameter
*	Below IDEM R2 Published Levels

PROJECT NUMBER: 23.2078
DATE: DEC. 6, 2023
APPRVD:: Z. HEINE
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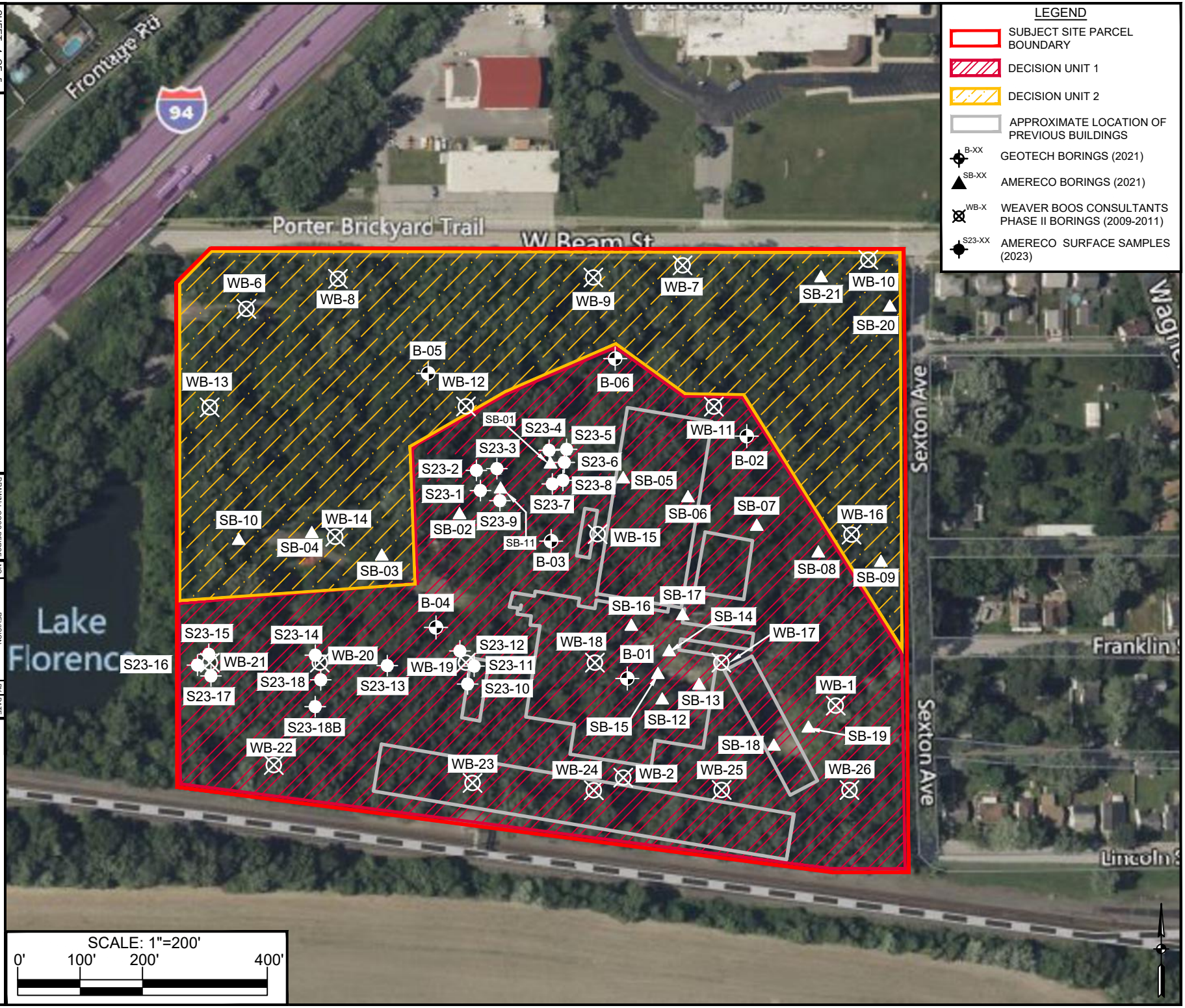
54 MICHIGAN AVENUE
VALPARAISO, IN 46383 219-531-0531



DECISION UNITS

ADDITIONAL SITE INVESTIGATION
FORMER BRICKYARD SITE
PORTER
INDIANA

SHEET 4 OF 5
FIGURE
4

PROJECT NUMBER: 23.2078
DATE: DEC. 6, 2023
APPRVD.: Z. HEINE
DESIGNED: R. YEATER
DRAWN: LGOSS-PEIRCE

NO.	REVISION	BY	DATE

AMERECO, INC.
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54 MICHIGAN AVENUE
VALPARAISO, IN 46383 219-531-0531

FIGURE 5A

SHEET 5 OF 5

REPRESENTATIVE CONCENTRATIONS - SURFACE SOIL

DECISION UNITS "A"
FORMER BRICKYARD SITE
PORTER
INDIANA

PROJECT NUMBER: 23.2078
DATE: OCT. 17, 2023
APPRVD: Z. HEINE
DESIGNED: R. YEATER
DRAWN: L. GOSS-PEIRCE

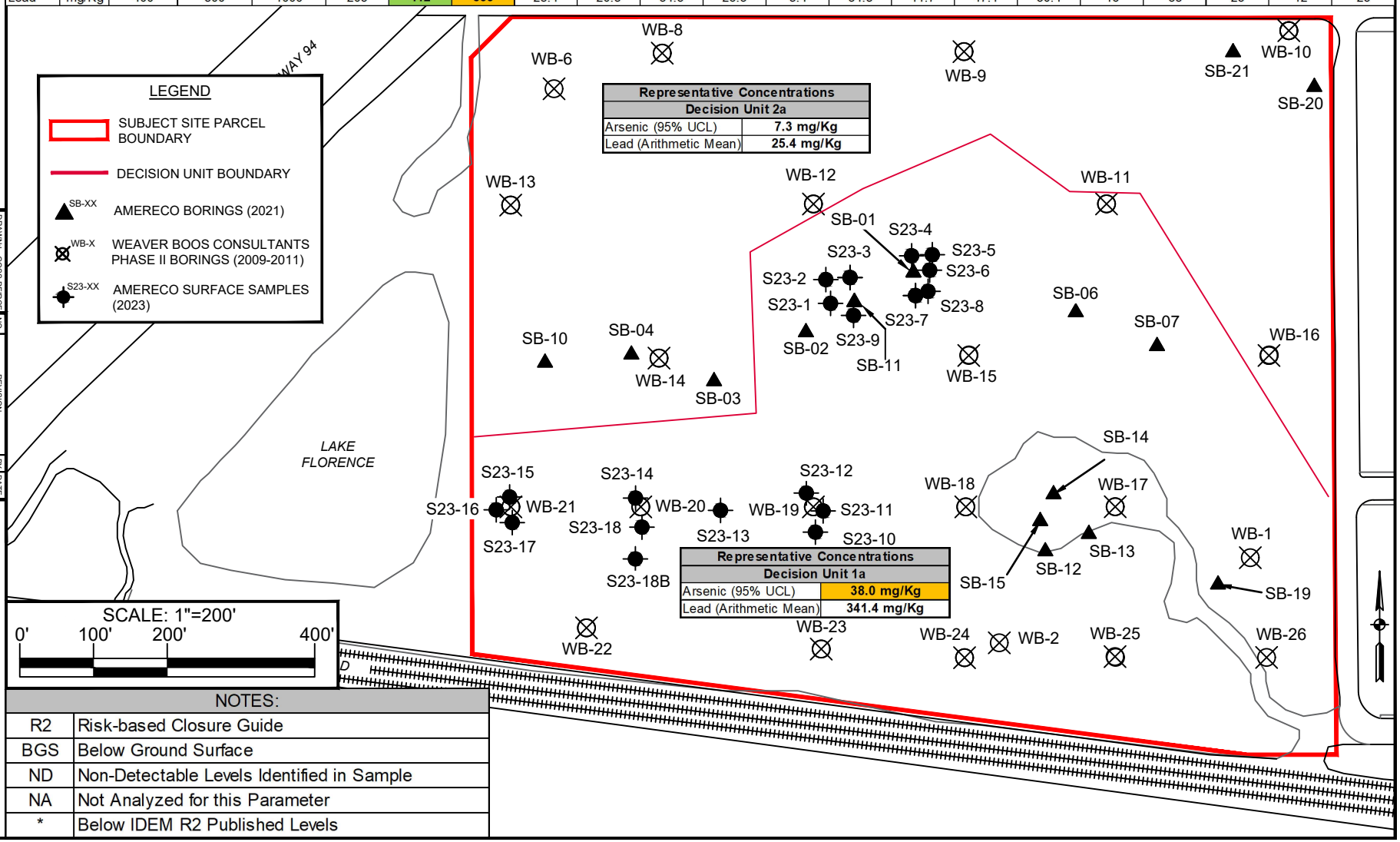
NO.	REVISION	BY	DATE

AMERECO, INC.
CONSULTING ENGINEERS-PROJECT MANAGERS
54 MICHIGAN AVENUE
VALPARAISO, IN 46383 219-531-0531

2023 IDEM R2 Soil Published Levels					Decision Unit 1a - Former Facility																	
					Weaver Boos ESAs													Amereco 2021 ESA					
Chemical		Soil			WB-1	WB-2	WB-11	WB-15	WB-17	WB-18	WB-19	WB-20	WB-21	WB-22	WB-23	WB-24	WB-25	SB-01	SB-02	SB-06	SB-07	SB-11	SB-12
		Long Term		Short Term	9/21/2009	9/18/2009	7/8/2011	7/8/2011	7/12/2011	7/8/2011	7/12/2011	7/8/2011	7/7/2011	7/7/2011	7/7/2011	7/7/2011	7/7/2011	6/10/2021	6/10/2021	6/10/2021	6/10/2021	6/14/2021	6/14/2021
Analyte	Units	Residential	Commercial	Excavation	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-2' bgs	0-1' bgs	0-1' bgs	0-1' bgs	1-2' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0.5-1.0' bgs	0-1' bgs	0-1' bgs	1-2' bgs	0-1' bgs	1-2' bgs
Arsenic	mg/Kg	10	30	900	6.5	**29.5**	**12.1**	**11.4**	**12.3**	**32.4**	**11.2**	**34.6**	**66.4**	**32.8**	**20.2**	**39.2**	**33.5**	**58**	10	**14**	**29**	**26**	4.8
Lead	mg/Kg	400	800	1000	16.6	191	14.8	12.6	119	28.8	**495**	**1450**	**644**	249	182	29.6	64.0	**1000**	28	27	340	**1900**	33

2023 IDEM R2 Soil Published Levels					Decision Unit 1a - Former Facility																	
					Amereco 2021 ESA				Amereco ASI													
Chemical		Soil			SB-13	SB-14	SB-15	SB-19	S23-1	S23-2	S23-3	S23-4	S23-5	S23-6	S23-7	S23-8	S23-9	S23-10	S23-11	S23-12	S23-13	S23-14	S23-15
		Long Term		Short Term	6/14/2021	6/14/2021	6/15/2021	6/15/2021	9/18/2023	9/18/2023	9/18/2023	9/18/2023	9/18/2023	9/18/2023	9/18/2023	9/18/2023	9/18/2023	9/18/2023	9/22/2023	9/22/2023	9/22/2023	9/22/2023	9/22/2023
Analyte	Units	Residential	Commercial	Excavation	1-2' bgs	1-2' bgs	1-2' bgs	1-2' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs
Arsenic	mg/Kg	10	30	900	8.2	4.5	4	6.3	**27**	**49**	**82**	**24**	**18**	9.5	5.5	7.5	**12**	**21**	**25**	**51**	**83**	**150**	**31**
Lead	mg/Kg	400	800	1000	20	29	20	33	336	**497**	357	198	363	46.8	<9.92	16.9	16.7	NA	NA	NA	**2220**	**409**	**421**

2023 IDEM R2 Soil Published Levels					Decision Unit 1a - Former Facility				Decision Unit 2a - Surrounding Former Facility													
					Amereco ASI				Weaver Boos ESAs													
Chemical		Soil			S23-16	S23-17	S23-18	S23-18B	WB-6	WB-8	WB-9	WB-10	WB-12	WB-13	WB-14	WB-16	SB-03	SB-04	SB-10	SB-20	SB-21	
		Long Term		Short Term	9/22/2023	9/18/2023	9/18/2023	9/22/2023	9/21/2009	7/7/2011	7/7/2011	7/8/2011	7/8/2011	7/8/2011	7/8/2011	7/7/2011	6/10/2021	6/10/2021	6/14/2021	6/15/2021	6/15/2021	
Analyte	Units	Residential	Commercial	Excavation	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-1' bgs	0-2' bgs	1-2' bgs	1-2' bgs	0-1.5' bgs	0-2' bgs	
Arsenic	mg/Kg	10	30	900	**14**	**62**	**45**	NA	3.6	9.6	6.5	< 1.8	6.6	8	5.8	7.5	5.2	10	5	2.1	6.6	
Lead	mg/Kg	400	800	1000	205	**412**	**855**	28.4	20.8	34.5	26.3	8.4	34.8	11.7	47.1	30.4	16	38	25	12	25	



NOTES:	
R2	Risk-based Closure Guide
BGS	Below Ground Surface
ND	Non-Detectable Levels Identified in Sample
NA	Not Analyzed for this Parameter
*	Below IDEM R2 Published Levels

FIGURE 5B

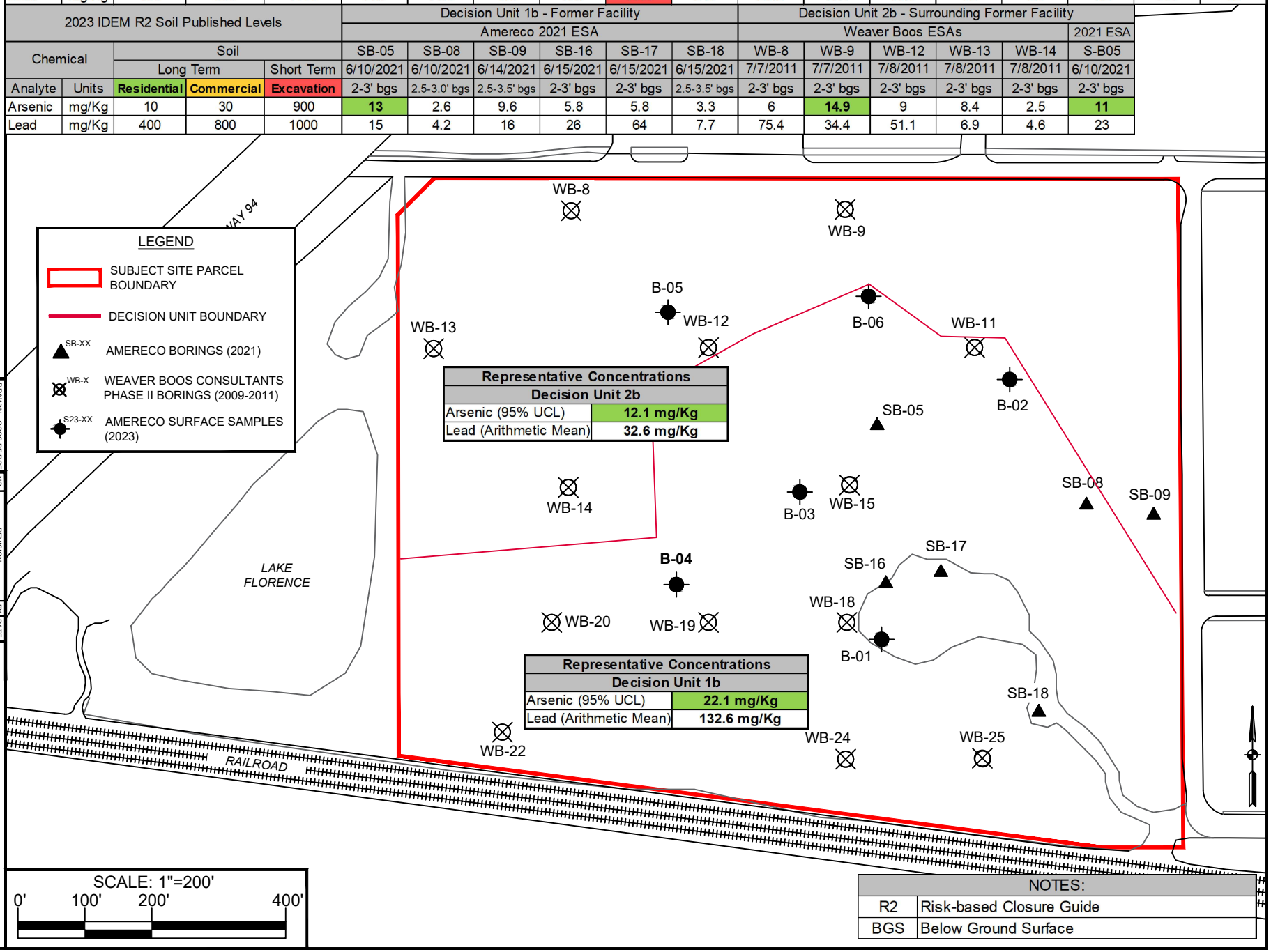
SHEET 5 OF 5

REPRESENTATIVE CONCENTRATIONS - SUBSURFACE SOIL

DECISION UNITS "B"
FORMER BRICKYARD SITE
PORTER
INDIANA

2023 IDEM R2 Soil Published Levels					Decision Unit 1b - Former Facility												
					Weaver Boos ESAs									Amereco 2021 ESA			
Chemical		Soil			WB-11	WB-15	WB-18	WB-19	WB-20	WB-22	WB-24	WB-25	WB-26	S-B01	S-B02	S-B03	S-B04	S-B06
		Long Term		Short Term	7/8/2011	7/8/2011	7/8/2011	7/12/2011	7/8/2011	7/7/2011	7/7/2011	7/7/2011	7/7/2011	6/14/2021	6/14/2021	6/14/2021	6/14/2021	6/14/2021
Analyte	Units	Residential	Commercial	Excavation	2-3' bgs	2-3' bgs	2-3' bgs	2-3' bgs	2-3' bgs	2-3' bgs	2-3' bgs	2-3' bgs	2-3' bgs	3-4' bgs	3-4' bgs	3-4.5' bgs	2-3' bgs	3-4' bgs
Arsenic	mg/Kg	10	30	900	8.9	**10.3**	4.5	**26.4**	**77.6**	**18.3**	7.4	5.5	**11.9**	5.3	1.9	2.7	**40**	**24**
Lead	mg/Kg	400	800	1000	11.7	14.8	8.3	48.7	**1580**	240	25.2	10.1	98.9	32	3.9	4.2	360	82

2023 IDEM R2 Soil Published Levels					Decision Unit 1b - Former Facility						Decision Unit 2b - Surrounding Former Facility					
					Amereco 2021 ESA						Weaver Boos ESAs					2021 ESA
Chemical		Soil			SB-05	SB-08	SB-09	SB-16	SB-17	SB-18	WB-8	WB-9	WB-12	WB-13	WB-14	S-B05
		Long Term		Short Term	6/10/2021	6/10/2021	6/14/2021	6/15/2021	6/15/2021	6/15/2021	7/7/2011	7/7/2011	7/8/2011	7/8/2011	7/8/2011	6/10/2021
Analyte	Units	Residential	Commercial	Excavation	2-3' bgs	2.5-3.0' bgs	2.5-3.5' bgs	2-3' bgs	2-3' bgs	2.5-3.5' bgs	2-3' bgs	2-3' bgs	2-3' bgs	2-3' bgs	2-3' bgs	2-3' bgs
Arsenic	mg/Kg	10	30	900	**13**	2.6	9.6	5.8	5.8	3.3	6	**14.9**	9	8.4	2.5	**11**
Lead	mg/Kg	400	800	1000	15	4.2	16	26	64	7.7	75.4	34.4	51.1	6.9	4.6	23



SCALE: 1"=200'
0' 100' 200' 400'

NOTES:	
R2	Risk-based Closure Guide
BGS	Below Ground Surface

NO.	REVISION	BY	DATE

DRAWN: L. GOSS-PEIRCE
DESIGNED: R. YEATER
APPRVD: Z. HEINE
DATE: OCT. 17, 2023
PROJECT NUMBER: 23.2078

AMERECO, INC.
CONSULTING ENGINEERS-PROJECT MANAGERS
54 MICHIGAN AVENUE
VALPARAISO, IN 46383 219-531-0531

Appendix B

Tabulated Sample Results

Representative Concentration Summaries

Comprehensive Sample Summaries

ProUCL Output Datasheets

GPS Location Coordinate Data

Surface Soil Analytical Results (ASI)
Arsenic and Lead

Sample ID:	Date Collected:	Sample Depth (ft bgs.):	Primary Lithology:	Chemical CASRN / Unit	Arsenic 7440-38-2	Lead 7439-92-1
S23-1	9/18/2023	0-1'	Clay	mg/Kg	**27**	336
S23-2	9/18/2023	0-1'	Sand	mg/Kg	**49**	**497**
S23-3	9/18/2023	0-1'	Sand	mg/Kg	**82**	357
S23-4	9/18/2023	0-1'	Fill	mg/Kg	**24**	198
S23-5	9/18/2023	0-1'	Fill	mg/Kg	**18**	363
S23-6	9/18/2023	0-1'	Clay	mg/Kg	9.5	46.8
S23-7	9/18/2023	0-1'	Sand	mg/Kg	5.5	<9.92
S23-8	9/18/2023	0-1'	Sand	mg/Kg	7.5	16.9
S23-9	9/18/2023	0-1'	Clay	mg/Kg	**12**	16.7
S23-10	9/18/2023	0-1'	Fill	mg/Kg	**21**	NA
S23-11	9/22/2023	0-1'	Fill	mg/Kg	**25**	NA
S23-12	9/22/2023	0-1'	Fill	mg/Kg	**51**	NA
S23-13	9/22/2023	0-1'	Fill	mg/Kg	**83**	**2220**
S23-14	9/22/2023	0-1'	Fill	mg/Kg	**150**	**409**
S23-15	9/22/2023	0-1'	Fill	mg/Kg	**31**	**421**
S23-16	9/22/2023	0-1'	Sand	mg/Kg	**14**	205
S23-17	9/18/2023	0-1'	Fill	mg/Kg	**62**	**412**
S23-18	9/18/2023	0-1'	Fill	mg/Kg	**45**	**855**
(S23)S3-18B	9/22/2023	0-1'	Sand	mg/Kg	NA	28.4
IDEM R2 2023 PLs - Long Term Residential					**10**	**400**
IDEM R2 2023 PLs - Long Term Commercial					**30**	**800**
IDEM R2 2023 PLs - Short Term Excavation					**900**	**1000**

IDEM = Indiana Department of Environmental Management

Published Levels (PLs) are per Table 1 of IDEM's Risk-based Closure Guide (R2), July 8, 2022

Screening Levels (SLs) are per Table A-6 of IDEM's Remediation Closure Guide (RCG)

All analytical and IDEM PLs are reported in milligrams per kilogram (mg/Kg) unless otherwise stated.

Bolded/Shaded values have detected results exceeding IDEM 2023 PLs

NA = Not Analyzed

bgs = below ground surface

Representative Concentrations
Decision Units 1a and 2a

Decision Unit 1a				
Date	Sample ID	Depth Below Grade (ft.)	Arsenic (mg/Kg)	Lead (mg/Kg)
9/21/2009	WB-1	0-1'	6.5	16.6
9/18/2009	WB-2	0-1'	**29.5**	191
7/8/2011	WB-11	0-1'	**12.1**	14.8
7/8/2011	WB-15	0-1'	**11.4**	12.6
7/12/2011	WB-17	0-2'	**12.3**	119
7/8/2011	WB-18	0-1'	**32.4**	28.8
7/12/2011	WB-19	0-1'	**11.2**	**495**
7/8/2011	WB-20	0-1'	**34.6**	**1450**
7/7/2011	WB-21	1-2'	**66.4**	**644**
7/7/2011	WB-22	0-1'	**32.8**	249
7/7/2011	WB-23	0-1'	**20.2**	182
7/7/2011	WB-24	0-1'	**39.2**	29.6
7/7/2011	WB-25	0-1'	**33.5**	64.0
6/10/2021	SB-01	0.5-1.0'	**58**	**1000**
6/10/2021	SB-02	0-1'	**10**	28
6/10/2021	SB-06	0-1'	**14**	27
6/10/2021	SB-07	1-2'	**29**	340
6/14/2021	SB-11	0-1'	**26**	**1900**
6/14/2021	SB-12	1-2'	4.8	33
6/14/2021	SB-13	1-2'	8.2	20
6/14/2021	SB-14	1-2'	4.5	29
6/15/2021	SB-15	1-2'	4	20
6/15/2021	SB-19	1-2'	6.3	33
9/18/2023	S23-1	0-1'	**27**	336
9/18/2023	S23-2	0-1'	**49**	**497**
9/18/2023	S23-3	0-1'	**82**	357
9/18/2023	S23-4	0-1'	**24**	198
9/18/2023	S23-5	0-1'	**18**	363
9/18/2023	S23-6	0-1'	9.5	46.8
9/18/2023	S23-7	0-1'	5.5	*4.96*
9/18/2023	S23-8	0-1'	7.5	16.9
9/18/2023	S23-9	0-1'	**12**	16.7
9/18/2023	S23-10	0-1'	**21**	NA
9/22/2023	S23-11	0-1'	**25**	NA
9/22/2023	S23-12	0-1'	**51**	NA
9/22/2023	S23-13	0-1'	**83**	**2220**
9/22/2023	S23-14	0-1'	**150**	**409**
9/22/2023	S23-15	0-1'	**31**	**421**
9/22/2023	S23-16	0-1'	**14**	205
9/18/2023	S23-17	0-1'	**62**	**412**
9/18/2023	S23-18	0-1'	**45**	**855**
9/22/2023	S23-18B	0-1'	NA	28.4
Representative Concentrations			**38.0**	**341.4**
IDEM R2 2023 Long Term Residential PL			**10**	**400**
IDEM R2 2023 Long Term Commercial PL			**30**	**800**
IDEM R2 2023 Short Term Excavation PL			**900**	**1000**

Decision Unit 2a				
Date	Sample ID	Depth Below Grade (ft.)	Arsenic (mg/Kg)	Lead (mg/Kg)
9/21/2009	WB-6	0-1'	3.6	20.8
7/7/2011	WB-8	0-1'	9.6	34.5
7/7/2011	WB-9	0-1'	6.5	26.3
7/7/2011	WB-10	1-2'	*0.9*	8.4
7/8/2011	WB-12	0-1'	6.6	34.8
7/8/2011	WB-13	0-1'	8	11.7
7/8/2011	WB-14	0-1'	5.8	47.1
7/7/2011	WB-16	0-1'	7.5	30.4
6/10/2021	SB-03	0-2'	5.2	16
6/10/2021	SB-04	1-2'	10	38
6/14/2021	SB-10	1-2'	5	25
6/15/2021	SB-20	0-1.5'	2.1	12
6/15/2021	SB-21	0-2'	6.6	25
Representative Concentrations			**7.3**	**25.4**
IDEM R2 2023 Long Term Residential PL			**10**	**400**
IDEM R2 2023 Long Term Commercial PL			**30**	**800**
IDEM R2 2023 Short Term Excavation PL			**900**	**1000**

Published Levels (PLs) are per Table 1 of IDEM's Risk-based Closure Guide (R2), July 8, 2022.

All values are reported in milligrams per kilogram (mg/Kg) unless otherwise stated.

Bolded/Shaded values have detected results exceeding IDEM levels.

Italicized values were entered as one-half the laboratory reporting limit (LRL)

NA = Not analyed for this parameter

Representative Concentrations
Decision Units 1b and 2b

Decision Unit 1b				
Date	**Sample ID**	**Depth Below Grade (ft.)**	**Arsenic (mg/Kg)**	**Lead (mg/Kg)**
7/8/2011	WB-11	2-3'	8.9	11.7
7/8/2011	WB-15	2-3'	**10.3**	14.8
7/8/2011	WB-18	2-3'	4.5	8.3
7/12/2011	WB-19	2-3'	**26.4**	48.7
7/8/2011	WB-20	2-3'	**77.6**	**1580**
7/7/2011	WB-22	2-3'	**18.3**	240
7/7/2011	WB-24	2-3'	7.4	25.2
7/7/2011	WB-25	2-3'	5.5	10.1
7/7/2011	WB-26	2-3'	**11.9**	98.9
6/14/2021	S-B01	3-4'	5.3	32
6/14/2021	S-B02	3-4'	1.9	3.9
6/14/2021	S-B03	3-4.5'	2.7	4.2
6/14/2021	S-B04	2-3'	**40**	360
6/14/2021	S-B06	3-4'	**24**	82
6/10/2021	SB-05	2-3'	**13**	15
6/10/2021	SB-08	2.5-3.0'	2.6	4.2
6/14/2021	SB-09	2.5-3.5'	9.6	16
6/15/2021	SB-16	2-3'	5.8	26
6/15/2021	SB-17	2-3'	5.8	64
6/15/2021	SB-18	2.5-3.5'	3.3	7.7
Representative Concentrations			**22.1**	**132.6**
IDEM R2 2023 Long Term Residential PL			**10**	**400**
IDEM R2 2023 Long Term Commercial PL			**30**	**800**
IDEM R2 2023 Short Term Excavation PL			**900**	**1000**

Decision Unit 2b				
Date	**Sample ID**	**Depth Below Grade (ft.)**	**Arsenic (mg/Kg)**	**Lead (mg/Kg)**
7/7/2011	WB-8	2-3'	6	75.4
7/7/2011	WB-9	2-3'	**14.9**	34.4
7/8/2011	WB-12	2-3'	9	51.1
7/8/2011	WB-13	2-3'	8.4	6.9
7/8/2011	WB-14	2-3'	2.5	4.6
6/10/2021	S-B05	2-3'	**11**	23
Representative Concentrations			**12.1**	**32.6**
IDEM R2 2023 Long Term Residential PL			**10**	**400**
IDEM R2 2023 Long Term Commercial PL			**30**	**800**
IDEM R2 2023 Short Term Excavation PL			**900**	**1000**

Published Levels (PLs) are per Table 1 of IDEM's Risk-based Closure Guide (R2), July 8, 2022.
All values are reported in milligrams per kilogram (mg/Kg) unless otherwise stated.
Bolded/Shaded values have detected results exceeding IDEM levels.

Soil Analytical Summary - Surface
Select Contaminants of Concern

Sample ID :	Date Collected :	Sample Depth (ft.):	Primary Lithology:	Chemical	Benz(a)anthracene	Benzo(a)pyrene	Dibenz(a,h)anthracene	Naphthalene	Arsenic	Lead
				CASRN / Unit	56-55-3	50-32-8	53-70-3	91-20-3	7440-38-2	7439-92-1
WB-1	9/21/2009	0-1'	Sand	mg/Kg	< 28.7	< 28.7	< 28.7	0.0567	**6.5**	16.6
WB-2	9/18/2009	0-1'	Sand	mg/Kg	**4.15**	**3.34**	1.02	**1.7**	**29.5**	191
WB-6	9/21/2009	0-1'	Sand	mg/Kg	< 26.9	< 26.9	< 26.9	< 26.9	3.6	20.8
WB-8	7/7/2011	0-1'	Clay	mg/Kg	0.0664	0.0652	< 0.0360	< 0.0360	**9.6**	34.5
WB-9	7/7/2011	0-1'	Clay	mg/Kg	0.0524	0.0647	< 0.0305	< 0.0305	**6.5**	26.3
WB-10	7/7/2011	0-1'	Sand	mg/Kg	0.217	0.178	0.0531	< 0.0258	< 1.8	8.4
WB-11	7/8/2011	0-1'	Clay	mg/Kg	< 0.0295	< 0.0295	< 0.0295	< 0.0295	**12.1**	14.8
WB-12	7/8/2011	0-1'	Clay	mg/Kg	0.0349	0.0365	< 0.0311	< 0.0311	**6.6**	34.8
WB-13	7/8/2011	0-1'	Clay	mg/Kg	< 0.0306	< 0.0306	< 0.0306	< 0.0306	**8**	11.7
WB-14	7/8/2011	0-1'	Clay	mg/Kg	0.312	0.322	0.0938	0.0401	5.8	47.1
WB-15	7/8/2011	0-1'	Clay	mg/Kg	< 0.0305	< 0.0305	< 0.0305	< 0.0305	**11.4**	12.6
WB-16	7/7/2011	0-1'	Clay	mg/Kg	0.0372	0.0441	< 0.0299	0.0732	**7.5**	30.4
WB-17	7/12/2011	0-2'	Clay	mg/Kg	0.98	1.07	0.338	**0.273**	**12.3**	119
WB-18	7/8/2011	0-1'	Fill	mg/Kg	< 0.0321	< 0.0321	< 0.0321	< 0.0321	**32.4**	28.8
WB-19	7/12/2011	0-1'	Fill	mg/Kg	0.37	0.442	0.142	**0.352**	**11.2**	**495**
WB-20	7/8/2011	0-1'	Fill	mg/Kg	0.984	0.939	0.28	**0.452**	**34.6**	**1450**
WB-21	7/7/2011	1-2'	Fill	mg/Kg	0.81	0.708	0.237	**0.73**	**66.4**	**644**
WB-22	7/7/2011	0-1'	Fill	mg/Kg	0.936	0.75	0.238	**1.03**	**32.8**	249
WB-23	7/7/2011	0-1'	Fill	mg/Kg	0.674	0.618	0.185	**0.548**	**20.2**	182
WB-24	7/7/2011	0-1'	Fill	mg/Kg	0.15	0.142	0.0394	0.0526	**39.2**	29.6
WB-25	7/7/2011	0-1'	Clay	mg/Kg	0.22	0.181	0.0554	**0.438**	**33.5**	64.0
S-01 (SB-01)	6/10/2021	0.5-1.0'	Fill	mg/Kg	**3.5**	**3.9**	1.3	**0.19**	**58**	**1000**
S-02 (SB-02)	6/10/2021	0-1'	Clay	mg/Kg	< 0.038	< 0.038	< 0.038	< 0.038	10	28
S-03 (SB-03)	6/10/2021	0-2'	Clay	mg/Kg	0.045	< 0.039	< 0.039	< 0.039	5.2	16
S-04 (SB-04)	6/10/2021	1-2'	Clay	mg/Kg	0.041	0.042	< 0.040	< 0.040	10	38
S-06 (SB-06)	6/10/2021	0-1'	Sand	mg/Kg	< 0.040	< 0.040	< 0.040	< 0.040	**14**	27
S-07 (SB-07)	6/10/2021	1-2'	Fill	mg/Kg	0.89	1.0	0.37	**0.12**	**29**	**340**
S-10 (SB-10)	6/14/2021	1-2'	Sand	mg/Kg	0.17	0.21	0.095	< 0.035	5.0	25
S-11 (SB-11)	6/14/2021	0-1'	Fill	mg/Kg	**2.7**	**2.5**	0.82	**0.37**	**26**	**1900**
S-12 (SB-12)	6/14/2021	1-2'	Clay	mg/Kg	0.33	0.39	0.19	< 0.036	4.8	33
S-13 (SB-13)	6/14/2021	1-2'	Clay	mg/Kg	0.29	0.30	0.13	< 0.038	**8.2**	20
S-14 (SB-14)	6/14/2021	1-2'	Sand	mg/Kg	0.44	0.50	0.21	< 0.037	4.5	29
S-15 (SB-15)	6/15/2021	1-2'	Clay	mg/Kg	0.52	0.60	0.23	< 0.038	4.0	20
S-19 (SB-19)	6/15/2021	1-2'	Clay	mg/Kg	0.070	0.10	0.065	< 0.037	**6.3**	33
S-20 (SB-20)	6/15/2021	0-1.5'	Sand	mg/Kg	0.045	0.059	< 0.034	< 0.034	2.1	12
S-21 (SB-21)	6/15/2021	0-2'	Sand	mg/Kg	0.21	0.20	0.083	< 0.038	**6.6**	25
S23-1	9/18/2023	0-1'	Clay	mg/Kg	NA	NA	NA	NA	**27**	**336**
S23-2	9/18/2023	0-1'	Sand	mg/Kg	NA	NA	NA	NA	**49**	**497**
S23-3	9/18/2023	0-1'	Sand	mg/Kg	NA	NA	NA	NA	**82**	**357**
S23-4	9/18/2023	0-1'	Fill	mg/Kg	NA	NA	NA	NA	**24**	198
S23-5	9/18/2023	0-1'	Fill	mg/Kg	NA	NA	NA	NA	**18**	**363**
S23-6	9/18/2023	0-1'	Clay	mg/Kg	NA	NA	NA	NA	**9.5**	46.8
S23-7	9/18/2023	0-1'	Sand	mg/Kg	NA	NA	NA	NA	5.5	<9.92
S23-8	9/18/2023	0-1'	Sand	mg/Kg	NA	NA	NA	NA	**7.5**	16.9
IDEM RCG 2022 SLs - Soil Migration to Groundwater					**2.1**	**4.7**	**19**	**0.079**	**5.9**	**270**
IDEM R2 2023 PLs - Long Term Residential					**20**	**2**	**2**	**30**	**10**	**400**
IDEM R2 2023 PLs - Long Term Commercial					**200**	**20**	**20**	**90**	**30**	**800**
IDEM R2 2023 PLs - Short Term Excavation					**10000**	**500**	**1000**	**3000**	**900**	**1000**

Soil Analytical Summary - Surface
Select Contaminants of Concern

				Chemical	Benz(a)anthracene	Benzo(a)pyrene	Dibenz(a,h)anthracene	Naphthalene	Arsenic	Lead
Sample ID :	Date Collected :	Sample Depth (ft.):	Primary Lithology:	CASRN / Unit	56-55-3	50-32-8	53-70-3	91-20-3	7440-38-2	7439-92-1
S23-9	9/18/2023	0-1'	Clay	mg/Kg	NA	NA	NA	NA	**12**	16.7
S23-10	9/18/2023	0-1'	Fill	mg/Kg	NA	NA	NA	NA	**21**	NA
S23-11	9/22/2023	0-1'	Fill	mg/Kg	NA	NA	NA	NA	**25**	NA
S23-12	9/22/2023	0-1'	Fill	mg/Kg	NA	NA	NA	NA	**51**	NA
S23-13	9/22/2023	0-1'	Fill	mg/Kg	NA	NA	NA	NA	**83**	**2220**
S23-14	9/22/2023	0-1'	Fill	mg/Kg	NA	NA	NA	NA	**150**	**409**
S23-15	9/22/2023	0-1'	Fill	mg/Kg	NA	NA	NA	NA	**31**	**421**
S23-16	9/22/2023	0-1'	Sand	mg/Kg	NA	NA	NA	NA	**14**	205
S23-17	9/18/2023	0-1'	Fill	mg/Kg	NA	NA	NA	NA	**62**	**412**
S23-18	9/18/2023	0-1'	Fill	mg/Kg	NA	NA	NA	NA	**45**	**855**
(S23)S3-18B	9/22/2023	0-1'	Sand	mg/Kg	NA	NA	NA	NA	NA	28.4
IDEM RCG 2022 SLs - Soil Migration to Groundwater					**2.1**	**4.7**	**19**	**0.079**	**5.9**	**270**
IDEM R2 2023 PLs - Long Term Residential					**20**	**2**	**2**	**30**	**10**	**400**
IDEM R2 2023 PLs - Long Term Commercial					**200**	**20**	**20**	**90**	**30**	**800**
IDEM R2 2023 PLs - Short Term Excavation					**10000**	**500**	**1000**	**3000**	**900**	**1000**

IDEM = Indiana Department of Environmental Management

Published Levels (PLs) are per Table 1 of IDEM's Risk-based Closure Guide (R2), July 8, 2022

Screening Levels (SLs) are per Table A-6 of IDEM's Remediation Closure Guide (RCG)

All analytical and IDEM PLs are reported in milligrams per kilogram (mg/Kg) unless otherwise stated.

Bolded/Shaded values have detected results exceeding IDEM 2023 PLs

NA = Not Analyzed

Soil Analytical Summary - Subsurface
Select Contaminants of Concern

Sample ID :	Date Collected :	Sample Depth (ft.):	Primary Lithology:	Chemical	Benz(a)anthracene	Benzo(a)pyrene	Dibenz(a,h)anthracene	Naphthalene	Arsenic	Lead
				CASRN / Unit	56-55-3	50-32-8	53-70-3	91-20-3	7440-38-2	7439-92-1
WB-8	7/7/2011	2-3'	Sand	mg/Kg	0.039	0.0406	< 0.0305	< 0.0305	**6**	75.4
WB-9	7/7/2011	2-3'	Clay	mg/Kg	0.0608	0.0638	< 0.0308	< 0.0308	**14.9**	34.4
WB-11	7/8/2011	2-3'	Clay	mg/Kg	< 0.0966	< 0.0296	< 0.0966	< 0.0296	**8.9**	11.7
WB-12	7/8/2011	2-3'	Clay	mg/Kg	< 0.0298	0.0424	< 0.0298	< 0.0298	**9**	51.1
WB-13	7/8/2011	2-3'	Clay	mg/Kg	< 0.0302	< 0.0302	< 0.0302	< 0.0302	**8.4**	6.9
WB-14	7/8/2011	2-3'	Sand	mg/Kg	< 0.0264	< 0.0264	< 0.0264	< 0.0264	2.5	4.6
WB-15	7/8/2011	2-3'	Clay	mg/Kg	< 0.0291	< 0.0291	< 0.0291	< 0.0291	**10.3**	14.8
WB-18	7/8/2011	2-3'	Clay	mg/Kg	< 0.0306	< 0.0306	< 0.0306	< 0.0306	4.5	8.3
WB-19	7/12/2011	2-3'	Clay	mg/Kg	0.0328	< 0.0323	< 0.0323	0.0398	**26.4**	48.7
WB-20	7/8/2011	2-3'	Fill	mg/Kg	0.189	0.175	0.0498	**0.0897**	**77.6**	**1580**
WB-22	7/7/2011	2-3'	Clay	mg/Kg	**2.42**	1.92	0.53	**0.736**	**18.3**	240
WB-24	7/7/2011	2-3'	Sand	mg/Kg	0.0978	0.0881	< 0.0318	**0.198**	**7.4**	25.2
WB-25	7/7/2011	2-3'	Sand	mg/Kg	0.0415	0.0495	0.0519	< 0.0301	5.5	10.1
WB-26	7/7/2011	2-3'	Sand	mg/Kg	0.235	0.242	0.071	**0.12**	**11.9**	98.9
S-B05	6/10/2021	2-3'	Clay	mg/Kg	< 0.041	< 0.041	< 0.041	< 0.041	**11**	23
S-B01	6/14/2021	3-4'	Sand	mg/Kg	**2.3**	**2.3**	0.83	< 0.35	5.3	32
S-B02	6/14/2021	3-4'	Sand	mg/Kg	< 0.034	< 0.034	< 0.034	< 0.034	1.9	3.9
S-B04	6/14/2021	2-3'	Fill	mg/Kg	1.2	1.4	0.45	**0.18**	**40**	**360**
S-B03	6/14/2021	3-4.5'	Sand	mg/Kg	< 0.037	< 0.037	< 0.037	< 0.037	2.7	4.2
S-B06	6/14/2021	3-4'	Fill	mg/Kg	0.32	0.36	0.11	0.10	**24**	82
S-05 (SB-05)	6/10/2021	2-3'	Sand	mg/Kg	< 0.041	< 0.041	< 0.041	< 0.041	**13**	15
S-08 (SB-08)	6/10/2021	2.5-3.0'	Sand	mg/Kg	< 0.035	< 0.035	< 0.035	< 0.035	2.6	4.2
S-09 (SB-09)	6/14/2021	2.5-3.5'	Sand	mg/Kg	< 0.046	< 0.046	< 0.046	< 0.046	**9.6**	16
S-16 (SB-16)	6/15/2021	2-3'	Sand	mg/Kg	0.28	0.31	0.13	0.057	5.8	26
S-17 (SB-17)	6/15/2021	2-3'	Fill	mg/Kg	**3.4**	**5.5**	**2.1**	**0.26**	5.8	64
S-18 (SB-18)	6/15/2021	2.5-3.5'	Sand	mg/Kg	0.046	0.051	< 0.038	< 0.038	3.3	7.7
S-22	Duplicate of S-18			mg/Kg	< 0.038	< 0.038	< 0.038	< 0.038	3.9	7.7
IDEM RCG 2022 SLs - Soil Migration to Groundwater					**2.1**	**4.7**	**19**	**0.079**	**5.9**	**270**
IDEM R2 2023 PLs - Long Term Residential					**20**	**2**	**2**	**30**	**10**	**400**
IDEM R2 2023 PLs - Long Term Commercial					**200**	**20**	**20**	**90**	**30**	**800**
IDEM R2 2023 PLs - Short Term Excavation					**10000**	**500**	**1000**	**3000**	**900**	**1000**

IDEM = Indiana Department of Environmental Management

Published Levels (PLs) are per Table 1 of IDEM's Risk-based Closure Guide (R2), July 8, 2022

Screening Levels (SLs) are per Table A-6 of IDEM's Remediation Closure Guide (RCG)

All analytical and IDEM PLs are reported in milligrams per kilogram (mg/Kg) unless otherwise stated.

Bolded/Shaded values have detected results exceeding IDEM 2023 PLs

UCL Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	ProUCL 5.2 12/8/2023 8:04:34 AM
From File	UCL Data Sets - Arsenic.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Arsenic - Decision Unit 1a

General Statistics

Total Number of Observations	41	Number of Distinct Observations	40
		Number of Missing Observations	0
Minimum	4	Mean	29.84
Maximum	150	Median	24
SD	28.4	Std. Error of Mean	4.435
Coefficient of Variation	0.952	Skewness	2.278

Normal GOF Test

Shapiro Wilk Test Statistic	0.785	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.92	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.19	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.16	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	37.31	95% Adjusted-CLT UCL (Chen-1995)	38.82
		95% Modified-t UCL (Johnson-1978)	37.57

Gamma GOF Test

A-D Test Statistic	0.408	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.767	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.115	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.141	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.472	k star (bias corrected MLE)	1.38
Theta hat (MLE)	20.27	Theta star (bias corrected MLE)	21.62
nu hat (MLE)	120.7	nu star (bias corrected)	113.2
MLE Mean (bias corrected)	29.84	MLE Sd (bias corrected)	25.4
		Approximate Chi Square Value (0.05)	89.63
Adjusted Level of Significance	0.0441	Adjusted Chi Square Value	88.86

Assuming Gamma Distribution

95% Approximate Gamma UCL	37.68	95% Adjusted Gamma UCL	38.01

Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.974	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.95	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.0827	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.126	Data appear Lognormal at 10% Significance Level	
Data appear Lognormal at 10% Significance Level			

Lognormal Statistics			
Minimum of Logged Data	1.386	Mean of logged Data	3.019
Maximum of Logged Data	5.011	SD of logged Data	0.895

Assuming Lognormal Distribution			
95% H-UCL	41.96	90% Chebyshev (MVUE) UCL	44.55
95% Chebyshev (MVUE) UCL	51.07	97.5% Chebyshev (MVUE) UCL	60.12
99% Chebyshev (MVUE) UCL	77.91		

Nonparametric Distribution Free UCL Statistics
Data appear to follow a Discernible Distribution

Nonparametric Distribution Free UCLs			
95% CLT UCL	37.13	95% BCA Bootstrap UCL	38.52
95% Standard Bootstrap UCL	37.15	95% Bootstrap-t UCL	40.41
95% Hall's Bootstrap UCL	42.64	95% Percentile Bootstrap UCL	37.71
90% Chebyshev(Mean, Sd) UCL	43.14	95% Chebyshev(Mean, Sd) UCL	49.17
97.5% Chebyshev(Mean, Sd) UCL	57.54	99% Chebyshev(Mean, Sd) UCL	73.97

Suggested UCL to Use			
95% Adjusted Gamma UCL	38.01		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

UCL Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	ProUCL 5.2 12/8/2023 8:05:02 AM
From File	UCL Data Sets - Arsenic.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Arsenic - Decision Unit 2a

General Statistics

Total Number of Observations	13	Number of Distinct Observations	12
		Number of Missing Observations	0
Minimum	0.9	Mean	5.954
Maximum	10	Median	6.5
SD	2.659	Std. Error of Mean	0.737
Coefficient of Variation	0.447	Skewness	-0.383

Normal GOF Test

Shapiro Wilk Test Statistic	0.967	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.814	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.129	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.271	Data appear Normal at 1% Significance Level

Data appear Normal at 1% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	7.268	95% Adjusted-CLT UCL (Chen-1995)	7.083
		95% Modified-t UCL (Johnson-1978)	7.255

Gamma GOF Test

A-D Test Statistic	0.619	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.738	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.216	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.238	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.484	k star (bias corrected MLE)	2.731
Theta hat (MLE)	1.709	Theta star (bias corrected MLE)	2.18
nu hat (MLE)	90.58	nu star (bias corrected)	71.01
MLE Mean (bias corrected)	5.954	MLE Sd (bias corrected)	3.603
		Approximate Chi Square Value (0.05)	52.61
Adjusted Level of Significance	0.0301	Adjusted Chi Square Value	50.36

Assuming Gamma Distribution

95% Approximate Gamma UCL	8.036	95% Adjusted Gamma UCL	8.396

Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.82	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.889	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.255	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.215	Data Not Lognormal at 10% Significance Level	
Data Not Lognormal at 10% Significance Level			

Lognormal Statistics			
Minimum of Logged Data	-0.105	Mean of logged Data	1.634
Maximum of Logged Data	2.303	SD of logged Data	0.667

Assuming Lognormal Distribution			
95% H-UCL	10	90% Chebyshev (MVUE) UCL	9.897
95% Chebyshev (MVUE) UCL	11.54	97.5% Chebyshev (MVUE) UCL	13.82
99% Chebyshev (MVUE) UCL	18.3		

Nonparametric Distribution Free UCL Statistics
Data appear to follow a Discernible Distribution

Nonparametric Distribution Free UCLs			
95% CLT UCL	7.167	95% BCA Bootstrap UCL	7.085
95% Standard Bootstrap UCL	7.114	95% Bootstrap-t UCL	7.175
95% Hall's Bootstrap UCL	7.134	95% Percentile Bootstrap UCL	7.146
90% Chebyshev(Mean, Sd) UCL	8.166	95% Chebyshev(Mean, Sd) UCL	9.168
97.5% Chebyshev(Mean, Sd) UCL	10.56	99% Chebyshev(Mean, Sd) UCL	13.29

Suggested UCL to Use			
95% Student's-t UCL	7.268		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.

UCL Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	ProUCL 5.2 12/8/2023 8:09:07 AM
From File	UCL Data Sets - Arsenic.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Arsenic - Decision Unit 1b

General Statistics

Total Number of Observations	20	Number of Distinct Observations	19
		Number of Missing Observations	0
Minimum	1.9	Mean	14.24
Maximum	77.6	Median	8.15
SD	17.76	Std. Error of Mean	3.971
Coefficient of Variation	1.247	Skewness	2.755

Normal GOF Test

Shapiro Wilk Test Statistic	0.657	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.868	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.278	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.223	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	21.11	95% Adjusted-CLT UCL (Chen-1995)	23.38
		95% Modified-t UCL (Johnson-1978)	21.51

Gamma GOF Test

A-D Test Statistic	0.691	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.765	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.164	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.199	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.167	k star (bias corrected MLE)	1.025
Theta hat (MLE)	12.2	Theta star (bias corrected MLE)	13.89
nu hat (MLE)	46.68	nu star (bias corrected)	41.01
MLE Mean (bias corrected)	14.24	MLE Sd (bias corrected)	14.06
		Approximate Chi Square Value (0.05)	27.33
Adjusted Level of Significance	0.038	Adjusted Chi Square Value	26.45

Assuming Gamma Distribution

95% Approximate Gamma UCL	21.36	95% Adjusted Gamma UCL	22.08

Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.972	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.92	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.116	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.176	Data appear Lognormal at 10% Significance Level	
Data appear Lognormal at 10% Significance Level			

Lognormal Statistics			
Minimum of Logged Data	0.642	Mean of logged Data	2.17
Maximum of Logged Data	4.352	SD of logged Data	0.961

Assuming Lognormal Distribution			
95% H-UCL	24.54	90% Chebyshev (MVUE) UCL	23.12
95% Chebyshev (MVUE) UCL	27.49	97.5% Chebyshev (MVUE) UCL	33.57
99% Chebyshev (MVUE) UCL	45.49		

Nonparametric Distribution Free UCL Statistics
Data appear to follow a Discernible Distribution

Nonparametric Distribution Free UCLs			
95% CLT UCL	20.77	95% BCA Bootstrap UCL	23.44
95% Standard Bootstrap UCL	20.69	95% Bootstrap-t UCL	28.13
95% Hall's Bootstrap UCL	47.88	95% Percentile Bootstrap UCL	21.5
90% Chebyshev(Mean, Sd) UCL	26.15	95% Chebyshev(Mean, Sd) UCL	31.55
97.5% Chebyshev(Mean, Sd) UCL	39.04	99% Chebyshev(Mean, Sd) UCL	53.75

Suggested UCL to Use			
95% Adjusted Gamma UCL	22.08		

The calculated UCLs are based on assumptions that the data were collected in a random and unbiased manner.

Please verify the data were collected from random locations.

If the data were collected using judgmental or other non-random methods,

then contact a statistician to correctly calculate UCLs.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

UCL Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	ProUCL 5.2 12/7/2023 1:30:56 PM
From File	UCL Data Sets - Arsenic.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Arsenic - Decision Unit 2b

General Statistics

Total Number of Observations	6	Number of Distinct Observations	6
		Number of Missing Observations	0
Minimum	2.5	Mean	8.633
Maximum	14.9	Median	8.7
SD	4.234	Std. Error of Mean	1.728
Coefficient of Variation	0.49	Skewness	0.0412

Note: Sample size is small (e.g., <10), if data are collected using incremental sampling methodology (ISM) approach,
refer also to ITRC Tech Reg Guide on ISM (ITRC 2020 and ITRC 2012) for additional guidance,
but note that ITRC may recommend the t-UCL or the Chebyshev UCL for small sample sizes (n < 7).
The Chebyshev UCL often results in gross overestimates of the mean.
Refer to the ProUCL 5.2 Technical Guide for a discussion of the Chebyshev UCL.

Normal GOF Test

Shapiro Wilk Test Statistic	0.992	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.713	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.145	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.373	Data appear Normal at 1% Significance Level

Data appear Normal at 1% Significance Level

Note GOF tests may be unreliable for small sample sizes

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	12.12	95% Adjusted-CLT UCL (Chen-1995)	11.51
		95% Modified-t UCL (Johnson-1978)	12.12

Gamma GOF Test

A-D Test Statistic	0.257	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.7	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.213	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.334	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Note GOF tests may be unreliable for small sample sizes

Gamma Statistics

k hat (MLE)	3.904	k star (bias corrected MLE)	2.063

Theta hat (MLE)	2.211	Theta star (bias corrected MLE)	4.185
nu hat (MLE)	46.85	nu star (bias corrected)	24.76
MLE Mean (bias corrected)	8.633	MLE Sd (bias corrected)	6.011
		Approximate Chi Square Value (0.05)	14.43
Adjusted Level of Significance	0.0122	Adjusted Chi Square Value	11.68
Assuming Gamma Distribution			
95% Approximate Gamma UCL	14.82	95% Adjusted Gamma UCL	18.3
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.913	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.826	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.235	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.298	Data appear Lognormal at 10% Significance Level	
Data appear Lognormal at 10% Significance Level			
Note GOF tests may be unreliable for small sample sizes			
Lognormal Statistics			
Minimum of Logged Data	0.916	Mean of logged Data	2.022
Maximum of Logged Data	2.701	SD of logged Data	0.62
Assuming Lognormal Distribution			
95% H-UCL	20.71	90% Chebyshev (MVUE) UCL	15.52
95% Chebyshev (MVUE) UCL	18.55	97.5% Chebyshev (MVUE) UCL	22.75
99% Chebyshev (MVUE) UCL	31.01		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution			
Nonparametric Distribution Free UCLs			
95% CLT UCL	11.48	95% BCA Bootstrap UCL	11.3
95% Standard Bootstrap UCL	11.27	95% Bootstrap-t UCL	12.09
95% Hall's Bootstrap UCL	12.32	95% Percentile Bootstrap UCL	11.35
90% Chebyshev(Mean, Sd) UCL	13.82	95% Chebyshev(Mean, Sd) UCL	16.17
97.5% Chebyshev(Mean, Sd) UCL	19.43	99% Chebyshev(Mean, Sd) UCL	25.83
Suggested UCL to Use			
95% Student's-t UCL	12.12		
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

ASI Sample Locations - State Plane Coordinates - September 2023 (Zone 1302)

Sample ID	Northing	Easting
S23-01	2319305.53	2953636.09
S23-02	2319337.80	2953629.65
S23-03	2319340.61	2953662.92
S23-04	2319370.07	2953746.11
S23-05	2319371.58	2953774.09
S23-06	2319350.56	2953770.53
S23-07	2319316.12	2953751.30
S23-08	2319321.87	2953768.31
S23-09	2319289.23	2953667.26
S23-10	2318986.68	2953610.47
S23-11	2318979.56	2953644.16
S23-12	2318955.25	2953619.72
S23-13	2318976.60	2953520.53
S23-14	2318963.93	2953383.53
S23-15	2318967.46	2953207.70
S23-16	2318988.86	2953186.81
S23-17	2319008.35	2953204.33
S23-18	2319002.18	2953380.25

Appendix C

Laboratory Reports

2242 West Harrison St., Suite 200, Chicago, IL 60612-3766
Tel: (312) 733-0551 Fax: (312) 733-2386 Info@TheSterlingLab.com

September 27, 2023

Amereco Inc.
54 Michigan Avenue
Valparaiso, IN 46383
Telephone: (219) 531-0531
Fax: (219) 464-9166

Analytical Report for Work Order: 23090607 Revision 0

RE: 23.2078, Brickyard Property, Porter, IN. 46304

Dear Amereco Inc.:

Sterling Labs received 18 samples for the referenced project on 9/20/2023 1:20:00 PM. The analytical results are presented in the following report.

All analyses were performed in accordance with methods as referenced on the analytical report and were performed within established holding time criteria. All Quality Control criteria met TNI or laboratory specifications except when noted in the Case Narrative, Analytical Report or Sample Receipt Checklist. If required, an estimate of uncertainty for the analyses can be provided. A listing of accredited methods/parameters can also be provided.

Thank you for the opportunity to serve you and I look forward to working with you in the future. If you have any questions regarding the enclosed materials, please contact me at (312) 733-0551.

Sincerely,

Justice Kwateng
Project Manager

Date: September 27, 2023

Customer: Amereco Inc.
Project: 23.2078, Brickyard Property, Porter, IN. 46304
Work Order: 23090607 Revision 0

Work Order Sample Summary

Lab Sample ID	Customer Sample ID	Tag Number	Collection Date	Date Received
23090607-001A	S23-1		9/18/2023 10:16:00 AM	9/20/2023
23090607-002A	S23-2		9/18/2023 10:28:00 AM	9/20/2023
23090607-003A	S23-3		9/18/2023 10:34:00 AM	9/20/2023
23090607-004A	S23-4		9/18/2023 10:50:00 AM	9/20/2023
23090607-005A	S23-5		9/18/2023 10:57:00 AM	9/20/2023
23090607-006A	S23-6		9/18/2023 10:43:00 AM	9/20/2023
23090607-007A	S23-7		9/18/2023 11:02:00 AM	9/20/2023
23090607-008A	S23-8		9/18/2023 11:11:00 AM	9/20/2023
23090607-009A	S23-9		9/18/2023 11:25:00 AM	9/20/2023
23090607-010A	S23-10		9/18/2023 11:10:00 AM	9/20/2023
23090607-011A	S23-11		9/18/2023 11:15:00 AM	9/20/2023
23090607-012A	S23-12		9/18/2023 11:20:00 AM	9/20/2023
23090607-013A	S23-13		9/18/2023 11:01:00 AM	9/20/2023
23090607-014A	S23-14		9/18/2023 12:09:00 PM	9/20/2023
23090607-015A	S23-15		9/18/2023 12:34:00 PM	9/20/2023
23090607-016A	S23-16		9/18/2023 12:48:00 PM	9/20/2023
23090607-017A	S23-17		9/18/2023 12:41:00 PM	9/20/2023
23090607-018A	S23-18		9/18/2023 12:23:00 PM	9/20/2023

sterling labs
2242 West Harrison St., Suite 200, Chicago, IL 60612-3766
Tel: (312) 733-0551 Fax: (312) 733-2386 Info@TheSterlingLab.com

Date Reported: September 27, 2023
Date Printed: September 27, 2023

Analytical Results

Customer: Amereco Inc.
Project: 23.2078, Brickyard Property, Porter, IN. 46304 **Work Order:** 23090607 Revision 0

Lab ID: 23090607-001 **Collection Date:** 9/18/2023 10:16:00 AM
Customer Sample ID: S23-1 **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **9/26/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Arsenic	27	1.1		mg/Kg-dry	10	9/26/2023
Percent Moisture	**D2974**			Prep Date: **9/25/2023**		Analyst: **EPD**
Percent Moisture	18.2	0.2	*	wt%	1	9/26/2023

Lab ID: 23090607-002 **Collection Date:** 9/18/2023 10:28:00 AM
Customer Sample ID: S23-2 **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **9/26/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Arsenic	49	1.2		mg/Kg-dry	10	9/26/2023
Percent Moisture	**D2974**			Prep Date: **9/25/2023**		Analyst: **EPD**
Percent Moisture	15.2	0.2	*	wt%	1	9/26/2023

Lab ID: 23090607-003 **Collection Date:** 9/18/2023 10:34:00 AM
Customer Sample ID: S23-3 **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **9/26/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Arsenic	82	1.1		mg/Kg-dry	10	9/26/2023
Percent Moisture	**D2974**			Prep Date: **9/25/2023**		Analyst: **EPD**
Percent Moisture	15.5	0.2	*	wt%	1	9/26/2023

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
HT - Sample received past holding time
* - Non-accredited parameter
RL - Reporting / Quantitation Limit for the analysis
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
H - Holding time exceeded

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Date Reported: September 27, 2023
Date Printed: September 27, 2023

Analytical Results

Customer: Amereco Inc.
Project: 23.2078, Brickyard Property, Porter, IN. 46304 **Work Order:** 23090607 Revision 0

Lab ID: 23090607-004 **Collection Date:** 9/18/2023 10:50:00 AM
Customer Sample ID: S23-4 **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS **SW6020A (SW3050B)** Prep Date: **9/26/2023** Analyst: **MDS**						
IEPA ELAP 100445						
Arsenic	24	1.0		mg/Kg-dry	10	9/26/2023
Percent Moisture **D2974** Prep Date: **9/25/2023** Analyst: **EPD**						
Percent Moisture	12.4	0.2	*	wt%	1	9/26/2023

Lab ID: 23090607-005 **Collection Date:** 9/18/2023 10:57:00 AM
Customer Sample ID: S23-5 **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS **SW6020A (SW3050B)** Prep Date: **9/26/2023** Analyst: **MDS**						
IEPA ELAP 100445						
Arsenic	18	1.1		mg/Kg-dry	10	9/26/2023
Percent Moisture **D2974** Prep Date: **9/25/2023** Analyst: **EPD**						
Percent Moisture	11.4	0.2	*	wt%	1	9/26/2023

Lab ID: 23090607-006 **Collection Date:** 9/18/2023 10:43:00 AM
Customer Sample ID: S23-6 **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS **SW6020A (SW3050B)** Prep Date: **9/26/2023** Analyst: **MDS**						
IEPA ELAP 100445						
Arsenic	9.5	1.1		mg/Kg-dry	10	9/26/2023
Percent Moisture **D2974** Prep Date: **9/25/2023** Analyst: **EPD**						
Percent Moisture	16.6	0.2	*	wt%	1	9/26/2023

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
HT - Sample received past holding time
* - Non-accredited parameter
RL - Reporting / Quantitation Limit for the analysis
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
H - Holding time exceeded

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Date Reported: September 27, 2023
Date Printed: September 27, 2023

Analytical Results

Customer: Amereco Inc.
Project: 23.2078, Brickyard Property, Porter, IN. 46304 **Work Order:** 23090607 Revision 0

Lab ID: 23090607-007 **Collection Date:** 9/18/2023 11:02:00 AM
Customer Sample ID: S23-7 **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS **SW6020A (SW3050B)** Prep Date: **9/26/2023** Analyst: **MDS**						
IEPA ELAP 100445						
Arsenic	5.5	1.1		mg/Kg-dry	10	9/26/2023
Percent Moisture **D2974** Prep Date: **9/25/2023** Analyst: **EPD**						
Percent Moisture	10.9	0.2	*	wt%	1	9/26/2023

Lab ID: 23090607-008 **Collection Date:** 9/18/2023 11:11:00 AM
Customer Sample ID: S23-8 **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS **SW6020A (SW3050B)** Prep Date: **9/26/2023** Analyst: **MDS**						
IEPA ELAP 100445						
Arsenic	7.5	1.1		mg/Kg-dry	10	9/26/2023
Percent Moisture **D2974** Prep Date: **9/25/2023** Analyst: **EPD**						
Percent Moisture	14.9	0.2	*	wt%	1	9/26/2023

Lab ID: 23090607-009 **Collection Date:** 9/18/2023 11:25:00 AM
Customer Sample ID: S23-9 **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS **SW6020A (SW3050B)** Prep Date: **9/26/2023** Analyst: **MDS**						
IEPA ELAP 100445						
Arsenic	12	1.1		mg/Kg-dry	10	9/26/2023
Percent Moisture **D2974** Prep Date: **9/25/2023** Analyst: **EPD**						
Percent Moisture	14.8	0.2	*	wt%	1	9/26/2023

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
HT - Sample received past holding time
* - Non-accredited parameter
RL - Reporting / Quantitation Limit for the analysis
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
H - Holding time exceeded

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Date Reported: September 27, 2023
Date Printed: September 27, 2023

Analytical Results

Customer: Amereco Inc.
Project: 23.2078, Brickyard Property, Porter, IN. 46304 **Work Order:** 23090607 Revision 0

Lab ID: 23090607-010 **Collection Date:** 9/18/2023 11:10:00 AM
Customer Sample ID: S23-10 **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **9/26/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Arsenic	21	1.2		mg/Kg-dry	10	9/26/2023
Percent Moisture	**D2974**			Prep Date: **9/25/2023**		Analyst: **EPD**
Percent Moisture	20.1	0.2	*	wt%	1	9/26/2023

Lab ID: 23090607-017 **Collection Date:** 9/18/2023 12:41:00 PM
Customer Sample ID: S23-17 **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **9/26/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Arsenic	62	1.2		mg/Kg-dry	10	9/26/2023
Percent Moisture	**D2974**			Prep Date: **9/25/2023**		Analyst: **EPD**
Percent Moisture	18.8	0.2	*	wt%	1	9/26/2023

Lab ID: 23090607-018 **Collection Date:** 9/18/2023 12:23:00 PM
Customer Sample ID: S23-18 **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **9/26/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Arsenic	45	1.1		mg/Kg-dry	10	9/26/2023
Percent Moisture	**D2974**			Prep Date: **9/25/2023**		Analyst: **EPD**
Percent Moisture	8.3	0.2	*	wt%	1	9/26/2023

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
HT - Sample received past holding time
* - Non-accredited parameter
RL - Reporting / Quantitation Limit for the analysis
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
H - Holding time exceeded

STAT Analysis

2242 W. Harrison Suite 200, Chicago, Illinois 60612 Phone: (312) 733-0551 Fax: (312) 733-2386
e-mail address: STATinfo@STATAnalysis.com

CHAIN OF CUSTODY RECORD

№ 938847 Page : 1 of 1

Company: Amereco Engineering
Project Number: 23.2078 Client Tracking No.:
Project Name: Brickyard Property
Project Location: Porter, IN 46304
Sampler(s): R. Yeater, D. Pollock
Report To: Zack Heine Phone: 219.531.0531
Fax:
QC Level: 1 ___ 2 X 3 ___ 4 ___ e-mail: labresults@amerecoeng.com

Quote No.:
P.O. No.: 091823.1
Turn Around Time (Days): 1 2 3 4 (5) 7 10
Results Needed: / / am/pm

Client Sample Number/Description:	Date Taken	Time Taken	Matrix	Comp.	Grab	Preserv.	No. of Containers	Arsenic	Additional Information:	Lab No.:
S23-1	9-18-23	10:16	S		X	A	1	X		001
S23-2		10:28			X		1	X		002
S23-3		10:34			X		1	X		003
S23-4		10:50			X		1	X		004
S23-5		10:57			X		1	X		005
S23-6		10:43			X		1	X		006
S23-7		11:02			X		1	X		007
S23-8		11:11			X		1	X		008
S23-9		11:25			X		1	X		009
S23-10		11:10			X		1	X		010
S23-11		11:15			X		1	X		011
S23-12		11:20			X		1	X		012
S23-13		11:01			X		1	X		013
S23-14		12:09			X		1	X		014
S23-15		12:34			X		1	X		015
S23-16		12:48			X		1	X		016
S23-17		12:41			X		1	X		017
S23-18		12:23			X		1	X		018

Relinquished by: (Signature) Date/Time: 9-19-23
Received by: (Signature) UPS Date/Time:
Relinquished by: (Signature) 1Z0949F6039487295 7 Date/Time:
Received by: (Signature) Date/Time: 9-20-2023 13:20
Relinquished by: (Signature) Date/Time:
Received by: (Signature) Date/Time:

Comments:

Preservation Code: A = None B = HNO_3 C = NaOH D = H_2SO_4 E = HCl F = 5035/EnCore G = Other

Laboratory Work Order No.: 23090607

Received on Ice: Yes ☐ No ☒

Temperature: Ambient °C

sterling labs

Sample Receipt Checklist

Customer: AMERECO

Work Order Number 23090607

Date and Time Received: 9/20/2023 1:20:00 PM

Received by: JMH

Checklist completed by: _____ 9-20-2023
Signature / Date

Reviewed by: _____ 9/21/2023
Initials / Date

Matrix:

Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels/containers?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container or Temp Blank temperature in compliance?	Yes ☑	No ☐	Temperature Ambient °C
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☐	No ☐
Water - Samples pH checked?	Yes ☐	No ☐	Checked by: _____
Water - Samples properly preserved?	Yes ☐	No ☐	pH Adjusted? _____

Any No response must be detailed in the comments section below.

Comments: _____

Customer / Person contacted: _____ Date contacted: _____ Contacted by: _____

Response: _____

Project - Brickyard #23.2078 - Sample Hold Request

Daniel Pollock <dpollock@amerecoeng.com>

Thu 9/21/2023 11:31 AM

To:Justice Kwateng <jkwateng@TheSterlingLab.com>;Craig Chawla <cchawla@TheSterlingLab.com>
Cc:Zack Heine <zheine@amerecoeng.com>;Ross Yeater <ryeater@amerecoeng.com>

Justice and Craig,

We shipped some samples to you for analysis. Project # 23.2078, P.O. #091823.1, Project – Brickyard Property.

I'm not sure if you have received them yet but we would like to place a hold on the analysis for a few of them. Please hold the analysis of the following samples:

- S23-11
- S23-12
- S23-13
- S23-14
- S23-15
- S23-16

Thank you,

-Daniel

Daniel Pollock
Project Manager
Amereco Engineering
54 Michigan Ave.
Valparaiso, IN 46383
219.531.0531

Customer: Amereco Inc.
Work Order: 23090607
Project: 23.2078, Brickyard Property, Porter, IN. 46304

Analytical QC Summary Report
Metals
BatchID: 153359

Prep Batch Summary

Sample ID	Matrix	pH	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
IMBS1 9/26/23			1.072	0	0	50	46.642	9/26/2023	9/26/2023
ILCSS1 9/26/23			1.039	0	0	50	48.123	9/26/2023	9/26/2023
23090607-001A	Soil		1.142	0	0	50	43.783	9/26/2023	9/26/2023
23090607-002A	Soil		1.021	0	0	50	48.972	9/26/2023	9/26/2023
23090607-003A	Soil		1.03	0	0	50	48.544	9/26/2023	9/26/2023
23090607-004A	Soil		1.094	0	0	50	45.704	9/26/2023	9/26/2023
23090607-005A	Soil		1.072	0	0	50	46.642	9/26/2023	9/26/2023
23090607-006A	Soil		1.115	0	0	50	44.843	9/26/2023	9/26/2023
23090607-007A	Soil		1.035	0	0	50	48.309	9/26/2023	9/26/2023
23090607-008A	Soil		1.118	0	0	50	44.723	9/26/2023	9/26/2023
23090607-009A	Soil		1.031	0	0	50	48.497	9/26/2023	9/26/2023
23090607-010A	Soil		1.051	0	0	50	47.574	9/26/2023	9/26/2023
23090607-011A	Soil		1.183	0	0	50	42.265	9/26/2023	9/26/2023
23090607-012A	Soil		1.195	0	0	50	41.841	9/26/2023	9/26/2023
23090607-013A	Soil		1.055	0	0	50	47.393	9/26/2023	9/26/2023
23090607-014A	Soil		1.143	0	0	50	43.745	9/26/2023	9/26/2023
23090607-015A	Soil		1.138	0	0	50	43.937	9/26/2023	9/26/2023
23090607-016A	Soil		1.098	0	0	50	45.537	9/26/2023	9/26/2023
23090607-017A	Soil		1.042	0	0	50	47.985	9/26/2023	9/26/2023
23090607-018A	Soil		1.02	0	0	50	49.020	9/26/2023	9/26/2023
23090699-001B	Soil		1.039	0	0	50	48.123	9/26/2023	9/26/2023
23090565-009B	Soil		1.153	0	0	50	43.365	9/26/2023	9/26/2023
23090607-007AMS	Soil		1.011	0	0	50	49.456	9/26/2023	9/26/2023
23090607-007AMSD	Soil		1.011	0	0	50	49.456	9/26/2023	9/26/2023

QC Summary

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:
IMBS1 9/26/23	**ZZZZZ**	**MBLK**	**mg/Kg**	**SW6020A**	**9/26/2023**	**9/26/2023**	**ICPMS-4_230926B**	**5949101**

Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	ND	0.47									

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:
ILCSS1 9/26/23	**ZZZZZ**	**LCS**	**mg/Kg**	**SW6020A**	**9/26/2023**	**9/26/2023**	**ICPMS-4_230926B**	**5949102**

Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	25.53	0.48	24.06	0	106	80	120	0	0		

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:
23090607-007AMS	**S23-7**	**MS**	**mg/Kg-dry**	**SW6020A**	**9/26/2023**	**9/26/2023**	**ICPMS-4_230926B**	**5949118**

Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	33.8	1.1	27.75	5.455	102	75	125	0	0		

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:
23090607-007AMSD	**S23-7**	**MSD**	**mg/Kg-dry**	**SW6020A**	**9/26/2023**	**9/26/2023**	**ICPMS-4_230926B**	**5949119**

Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	33.65	1.1	27.75	5.455	102	75	125	33.8	0.454	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
* - Non Accredited Parameter
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
H/HT - Holding Time Exceeded
B - Analyte detected in the associated Method Blank
E - Value above quantitation range

Customer: Amereco Inc.
Work Order: 23090607
Project: 23.2078, Brickyard Property, Porter, IN. 46304

Analytical QC Summary Report
Wet Chemistry
BatchID: R202161

Analytical Run Summary

SeqNo	Sample ID	Type	Test Code	Batch	DF	Date Analyzed
5947804	PMMBLK1 9/25/23	MBLK	PMOIST	R202161	1	09/26/2023
5947805	PMLCSS1 9/25/23	LCS	PMOIST	R202161	1	09/26/2023
5947806	PMLCSW1 9/25/23	LCS	PMOIST	R202161	1	09/26/2023
5947807	23090580-004B	SAMP	PMOIST	R202161	1	09/26/2023
5947808	23090683-001A	SAMP	PMOIST	R202161	1	09/26/2023
5947809	23090569-001A	SAMP	PMOIST	R202161	1	09/26/2023
5947810	23090646-001A	SAMP	PMOIST	R202161	1	09/26/2023
5947811	23090646-002A	SAMP	PMOIST	R202161	1	09/26/2023
5947812	23090649-001B	SAMP	PMOIST	R202161	1	09/26/2023
5947813	23090649-001BDUP	DUP	PMOIST	R202161	1	09/26/2023
5947814	23090649-002B	SAMP	PMOIST	R202161	1	09/26/2023
5947815	23090650-001B	SAMP	PMOIST	R202161	1	09/26/2023
5947816	23090652-001B	SAMP	PMOIST	R202161	1	09/26/2023
5947817	23090592-001B	SAMP	PMOIST	R202161	1	09/26/2023
5947818	23090592-002B	SAMP	PMOIST	R202161	1	09/26/2023
5947819	23090592-003B	SAMP	PMOIST	R202161	1	09/26/2023
5947820	23090592-004B	SAMP	PMOIST	R202161	1	09/26/2023
5947821	23090607-001A	SAMP	PMOIST	R202161	1	09/26/2023
5947822	23090607-002A	SAMP	PMOIST	R202161	1	09/26/2023
5947823	23090607-003A	SAMP	PMOIST	R202161	1	09/26/2023
5947824	23090607-004A	SAMP	PMOIST	R202161	1	09/26/2023
5947825	23090607-005A	SAMP	PMOIST	R202161	1	09/26/2023
5947826	23090607-006A	SAMP	PMOIST	R202161	1	09/26/2023
5947827	23090607-007A	SAMP	PMOIST	R202161	1	09/26/2023
5948951	23090569-001A	SAMP	PSOLID	R202161	1	09/27/2023

QC Summary

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:
PMMBLK1 9/25/23	**ZZZZZ**	**MBLK**	**wt%**	**D2974**	**9/25/2023**	**9/26/2023**	**BALANCE_230925A**	**5947804**

Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Percent Moisture	ND	0.200									*

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:
PMLCSS1 9/25/23	**ZZZZZ**	**LCS**	**wt%**	**D2974**	**9/25/2023**	**9/26/2023**	**BALANCE_230925A**	**5947805**

Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Percent Moisture	4.92	0.200	5	0	98.4	80	120	0	0		*

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:
PMLCSW1 9/25/23	**ZZZZZ**	**LCS**	**wt%**	**D2974**	**9/25/2023**	**9/26/2023**	**BALANCE_230925A**	**5947806**

Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Percent Moisture	99.82	0.200	99.8	0	100	80	120	0	0		*

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:
23090649-001BDUP	**ZZZZZ**	**DUP**	**wt%**	**D2974**	**9/25/2023**	**9/26/2023**	**BALANCE_230925A**	**5947813**

Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Percent Moisture	15.64	0.200	0	0	0	0	0	16	2.28	20	*

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
* - Non Accredited Parameter
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
H/HT - Holding Time Exceeded
B - Analyte detected in the associated Method Blank
E - Value above quantitation range

Customer: Amereco Inc.
Work Order: 23090607
Project: 23.2078, Brickyard Property, Porter, IN. 46304

Analytical QC Summary Report
Wet Chemistry
BatchID: R202162

Analytical Run Summary

SeqNo	Sample ID	Type	Test Code	Batch	DF	Date Analyzed
5947828	PMMBLK2 9/25/23	MBLK	PMOIST	R202162	1	09/26/2023
5947829	PMLCSS2 9/25/23	LCS	PMOIST	R202162	1	09/26/2023
5947830	PMLCSW2 9/25/23	LCS	PMOIST	R202162	1	09/26/2023
5947831	23090607-008A	SAMP	PMOIST	R202162	1	09/26/2023
5947832	23090607-008ADUP	DUP	PMOIST	R202162	1	09/26/2023
5947833	23090607-009A	SAMP	PMOIST	R202162	1	09/26/2023
5947834	23090607-010A	SAMP	PMOIST	R202162	1	09/26/2023
5947835	23090607-011A	SAMP	PMOIST	R202162	1	09/26/2023
5947836	23090607-012A	SAMP	PMOIST	R202162	1	09/26/2023
5947837	23090607-013A	SAMP	PMOIST	R202162	1	09/26/2023
5947838	23090607-014A	SAMP	PMOIST	R202162	1	09/26/2023
5947839	23090607-015A	SAMP	PMOIST	R202162	1	09/26/2023
5947840	23090607-016A	SAMP	PMOIST	R202162	1	09/26/2023
5947841	23090607-017A	SAMP	PMOIST	R202162	1	09/26/2023
5947842	23090607-018A	SAMP	PMOIST	R202162	1	09/26/2023
5947843	23090664-001B	SAMP	PMOIST	R202162	1	09/26/2023
5947844	23090664-002B	SAMP	PMOIST	R202162	1	09/26/2023
5947845	23090664-003B	SAMP	PMOIST	R202162	1	09/26/2023
5947846	23090664-004B	SAMP	PMOIST	R202162	1	09/26/2023
5947847	23090664-005B	SAMP	PMOIST	R202162	1	09/26/2023
5947848	23090664-006B	SAMP	PMOIST	R202162	1	09/26/2023
5947849	23090608-001B	SAMP	PMOIST	R202162	1	09/26/2023
5947850	23090608-002B	SAMP	PMOIST	R202162	1	09/26/2023
5948952	23090608-001B	SAMP	PSOLID	R202162	1	09/27/2023
5948953	23090608-002B	SAMP	PSOLID	R202162	1	09/27/2023

QC Summary

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:
PMMBLK2 9/25/23	**ZZZZZ**	**MBLK**	**wt%**	**D2974**	**9/25/2023**	**9/26/2023**	**BALANCE_230925B**	**5947828**

Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Percent Moisture	ND	0.200									*

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:
PMLCSS2 9/25/23	**ZZZZZ**	**LCS**	**wt%**	**D2974**	**9/25/2023**	**9/26/2023**	**BALANCE_230925B**	**5947829**

Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Percent Moisture	4.7	0.200	5	0	94	80	120	0	0		*

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:
PMLCSW2 9/25/23	**ZZZZZ**	**LCS**	**wt%**	**D2974**	**9/25/2023**	**9/26/2023**	**BALANCE_230925B**	**5947830**

Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Percent Moisture	99.81	0.200	99.8	0	100	80	120	0	0		*

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:
23090607-008ADUP	**S23-8**	**DUP**	**wt%**	**D2974**	**9/25/2023**	**9/26/2023**	**BALANCE_230925B**	**5947832**

Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Percent Moisture	14.59	0.200	0	0	0	0	0	14.93	2.30	20	*

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
* - Non Accredited Parameter
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
H/HT - Holding Time Exceeded
B - Analyte detected in the associated Method Blank
E - Value above quantitation range

ACCURATE ANALYTICAL TESTING LLC

30105 Beverly Road
Romulus, MI 48174
Ph: 734-629-8161; Fax: 734-629-8431

REVISED REPORT

Certificate of Analysis: Lead In Soil by EPA SW-846 7000B and 3050B Method*

Client : Amereco Engineering
54 Michigan Avenue
Valparaiso, IN 46383
Attn : Zach Heine **Email :** labresults@amerecoeng.com
Phone : 219-531-0531 **Fax :**

Client Project : 23.2078

Project Location : BRICKYARD PROPERTY PORTER IN

AAT Project : 952901
Sampling Date : 09/18/2023
Date Received : 09/20/2023
Date Analyzed : 09/21/2023
Date Reported : 09/22/2023

Lab Sample ID	Client Code	Sample Description	Results Lead µg/g (PPM)	Calculated RL µg/g *
8765855	S23-1	1016	336	10.1
8765856	S23-2	1028	497	9.75
8765857	S23-3	1034	357	10.5
8765858	S23-4	1050	198	10.0
8765859	S23-5	1057	363	10.4
8765860	S23-6	1043	46.8	10.3
8765861	S23-7	1102	<9.92	9.92
8765862	S23-8	1111	16.9	10.3
8765863	S23-9	1125	16.7	10.3
8765868	S23-17	1241	412	10.1
8765869	S23-18	1223	855	9.82

13, 14, 15, 16 removed from report per client email 9-21

Analyst Signature

Nathan Ditty

*RL= Reporting Limit * For true values assume (3) significant figures. The method and batch QC are acceptable unless otherwise stated. Current EPA/HUD Interim Standard for soil samples are: 400 PPM (parts per million) for play area's, 1200 PPM for building Perimters and 1000 PPM for California Building Perimeters. AAT internal sop S204. The laboratory operates in accord with ISO 17025 guidelines and holds limited scopes of accreditation under AIHA-LAP and NY State DOH ELAP programs. These results are submitted pursuant to AAT LLC current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. Analytical results relate to the samples as received by the lab. AAT will not assume any liability or responsibility for the manner in which the results are used or interpreted. Reproduction of this document other than in its entirety is not permitted. AAT does not blank correct reported values. Sample data apply only to items analyzed. Samples are stored for 15 days following report date. *= Validated modified method

AIHA LAP- Lab ID #100986, NY State DOH ELAP -Lab ID #11864, State of Ohio- Lab ID # 10042

Date Printed: 09/22/2023 9:20AM AAT Project: 952901

ACCURATE ANALYTICAL TESTING LLC

30105 Beverly Road
Romulus, MI 48174
Ph: 734-629-8161; Fax: 734-629-8431

To : Amereco Engineering
54 Michigan Avenue
Valparaiso, IN 46383

Attn : Zach Heine **Email :** labresults@amerecoeng.com
Phone : 219-531-0531

Project Location : BRICKYARD PROPERTY PORTER IN

AAT Project : 952901
Client Project : 23.2078
Date Reported : 09/22/2023

Sample	Client Code	Analysis Requested	Completed	Analyst
8765855	S23-1	Lead Soil	09/21/2023	Nathan Ditty
8765856	S23-2	Lead Soil	09/21/2023	Nathan Ditty
8765857	S23-3	Lead Soil	09/21/2023	Nathan Ditty
8765858	S23-4	Lead Soil	09/21/2023	Nathan Ditty
8765859	S23-5	Lead Soil	09/21/2023	Nathan Ditty
8765860	S23-6	Lead Soil	09/21/2023	Nathan Ditty
8765861	S23-7	Lead Soil	09/21/2023	Nathan Ditty
8765862	S23-8	Lead Soil	09/21/2023	Nathan Ditty
8765863	S23-9	Lead Soil	09/21/2023	Nathan Ditty
8765868	S23-17	Lead Soil	09/21/2023	Nathan Ditty
8765869	S23-18	Lead Soil	09/21/2023	Nathan Ditty

Reviewed By Elyse Bidle
Quality Assurance Coordinator

Revision History

Job #	Sample	Revision Date	Revised By	Comment
952901	0	09/22/2023	Lauren Groff	+unclear coc

ACCURATE ANALYTICAL TESTING LLC
30105 Beverly Road
Romulus, MI 48174
(734) 699-LABS (5227)
FAX: (734) 699-8407
www.accurate-test.com

AIHA LAP, LLC ACCREDITED LABORATORY ENVIRONMENTAL LEAD

SUBMITTING COMPANY
Amereco Engineering
54 Michigan Avenue
Valparaiso, IN 46383

CONTACT INFORMATION
Zack Heine
Phone:(219)-531-0531
Cell:
Fax:
Email:labresults@amerecoeng.com

PO # 091823.1

PROJECT NUMBER 23.2078 Sampling Date: 9-18-2023
PROJECT ADDRESS Brickyard Property, Porter IN
SAMPLE START TIME ____ SAMPLE END TIME ____

REQUESTED ANALYSIS LEAD
SINGLE WIPE DUST ( )
~~COMPOSITE~~ Grab SOIL (X)
PAINT CHIP % By Wt. ( ) mg/cm^2 ( )

Request Turnaround time (please check one)
SAME DAY ( ) 24 Hour ( )
48 Hour ( ) 3 days (X)

LAB ID	Client SAMPLE ID	Room	Substrate	~~Side~~ Time	WS, WT, F	WIPE AREA (e.g. 12 X 12)
9205855	S23-1		Soil	10:16	—	X
	S23-2			10:28	—	X
	S23-3			10:34	—	X
	S23-4			10:50	—	X
	S23-5			10:57	—	X
	S23-6			10:43	—	X
	S23-7			11:02	—	X
	S23-8			11:11	—	X
	S23-9			11:25	—	X
	S23-13			11:[illegible]01	—	X
	S23-14			12:09	—	X
	S23-15			12:34	—	X
	S23-16			12:48	—	X
	S23-17		↓	12:41	—	X

CLIENT COMMENTS
Risk Assessor: R.Yeater / D.Pollock
Samples shipped

SAMPLE CONDITION

SEALS INTACT	Y	N
PRESERVATIVES	Y	N
CONTAINERS LABELED	Y	N

LAB REMARKS
2911

LAB PROJECT NUMBER: AS2401

SAMPLES RELINQUISHED BY	SAMPLES RECEIVED BY	TIME		
			AM	PM
			AM	PM
		SEP 20 2023	10 AM	PM

By submitting samples to AAT, the client agrees to AAT's terms and conditions.

ACCURATE
ANALYTICAL TESTING LLC
30105 Beverly Road
Romulus, MI 48174
(734) 699-LABS (5227)
FAX: (734) 699-8407
www.accurate-test.com

AIHA LAP, LLC ACCREDITED LABORATORY ENVIRONMENTAL LEAD

SUBMITTING COMPANY
Amereco Engineering
54 Michigan Avenue
Valparaiso, IN 46383

CONTACT INFORMATION
Zack Heine
Phone:(219)-531-0531
Cell:
Fax:
Email:labresults@amerecoeng.com

PO # 091823.1

PROJECT NUMBER 23.2078 Sampling Date: 9-18-2023
PROJECT ADDRESS Brickyard Property, Porter, IN
SAMPLE START TIME ____ SAMPLE END TIME ____

REQUESTED ANALYSIS **LEAD**
SINGLE WIPE DUST ( )
~~COMPOSITE~~ Grab SOIL (X)
PAINT CHIP % By Wt. ( ) mg/cm^2 ( )

Request Turnaround time (please check one)
SAME DAY ( ) 24 Hour ( )
48 Hour ( ) 3 days (X)

LAB ID	Client SAMPLE ID	Room	Substrate	~~Side~~ Time	WS, WT, F	WIPE AREA (e.g. 12 X 12)
	S23-18		Soil	12:23	—	X
						X
						X
						X
						X
						X
						X
						X
						X
						X
						X
						X
						X
						X
						X

CLIENT COMMENTS
Risk Assessor: R. Yoder, D. Pollock
Samples shipped

SAMPLE CONDITION

SEALS INTACT	Y	N
PRESERVATIVES	Y	N
CONTAINERS LABELED	Y	N

LAB REMARKS

LAB PROJECT NUMBER

SAMPLES RELINQUISHED BY	SAMPLES RECEIVED BY	TIME		
			AM	PM
			AM	PM
		SEP 20 2023	10 AM	PM

By submitting samples to AAT, the client agrees to AAT's terms and conditions.

ACCURATE ANALYTICAL TESTING LLC

30105 Beverly Road
Romulus, MI 48174
Ph: 734-629-8161; Fax: 734-629-8431

Certificate of Analysis: Lead In Soil by EPA SW-846 7000B and 3050B Method*

Client : Amereco Engineering
54 Michigan Avenue
Valparaiso, IN 46383
Attn : Zach Heine **Email :** labresults@amerecoeng.com
Phone : 219-531-0531 **Fax :**
Client Project : 23.2078
Project Location : BRICKYARD

AAT Project : 954696
Sampling Date : 09/22/2023
Date Received : 09/25/2023
Date Analyzed : 09/27/2023
Date Reported : 09/27/2023

Lab Sample ID	Client Code	Sample Description	Results Lead µg/g (PPM)	Calculated RL µg/g *
8775692	S23-13	SOIL 749	2220	10.1
8775693	S23-14	SOIL 805	409	9.94
8775694	S23-15	SOIL 825	421	10.2
8775695	S23-16	SOIL 837	205	9.96
8775696	S3-18B	SOIL 905	28.4	10.1

Analyst Signature

Nathan Ditty

*RL= Reporting Limit * For true values assume (3) significant figures. The method and batch QC are acceptable unless otherwise stated. Current EPA/HUD Interim Standard for soil samples are: 400 PPM (parts per million) for play area's, 1200 PPM for building Perimters and 1000 PPM for California Building Perimeters. AAT internal sop S204. The laboratory operates in accord with ISO 17025 guidelines and holds limited scopes of accreditation under AIHA-LAP and NY State DOH ELAP programs. These results are submitted pursuant to AAT LLC current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. Analytical results relate to the samples as received by the lab. AAT will not assume any liability or responsibility for the manner in which the results are used or interpreted. Reproduction of this document other than in its entirety is not permitted. AAT does not blank correct reported values. Sample data apply only to items analyzed. Samples are stored for 15 days following report date. *= Validated modified method

AIHA LAP- Lab ID #100986, NY State DOH ELAP -Lab ID #11864, State of Ohio- Lab ID # 10042

Date Printed: 09/27/2023 1:34PM AAT Project: 954696

ACCURATE ANALYTICAL TESTING LLC

30105 Beverly Road
Romulus, MI 48174
Ph: 734-629-8161; Fax: 734-629-8431

To : Amereco Engineering
54 Michigan Avenue
Valparaiso, IN 46383

Attn : Zach Heine

Email : labresults@amerecoeng.com
Phone : 219-531-0531

Project Location : BRICKYARD

AAT Project : 954696
Client Project : 23.2078
Date Reported : 09/27/2023

Sample	Client Code	Analysis Requested	Completed	Analyst
8775692	S23-13	Lead Soil	09/27/2023	Nathan Ditty
8775693	S23-14	Lead Soil	09/27/2023	Nathan Ditty
8775694	S23-15	Lead Soil	09/27/2023	Nathan Ditty
8775695	S23-16	Lead Soil	09/27/2023	Nathan Ditty
8775696	S3-18B	Lead Soil	09/27/2023	Nathan Ditty

Reviewed By Elyse Bidle
Quality Assurance Coordinator

ACCURATE
ANALYTICAL TESTING LLC
30105 Beverly Road
Romulus, MI 48174
FAX: (734) 699-8407
(734) 699-LABS (5227)
www.accurate-test.com

AIHA LAP, LLC ACCREDITED LABORATORY ENVIRONMENTAL LAP LAP #100688

SUBMITTING COMPANY
Amereco Engineering
54 Michigan Avenue
Valparaiso, IN 46383

CONTACT INFORMATION
Zack Heine
Phone:(219)-531-0531
Cell:
Fax:
Email:labresults@amerecoeng.com

PO # 092023.1

PROJECT NUMBER 23.2078 **Sampling Date:** 9.22.23
PROJECT ADDRESS Bricklyard
SAMPLE START TIME — **SAMPLE END TIME** —

REQUESTED ANALYSIS LEAD
SINGLE WIPE DUST ( )
COMPOSITE SOIL (X)
PAINT CHIP % By Wt. ( ) mg/cm^2( )

Request Turnaround time (please check one)
SAME DAY ( ) 24 Hour ( )
48 Hour ( ) 3 days (X)

Time

LAB ID	Client SAMPLE ID	Room	~~Substrate~~	Side	WS, WT, F	WIPE AREA (e.g. 12 X 12)
8 Rec'd 9/25	S23-13	Soil	7:49			X
	S23-14	Soil	8:05			X
	S23-15	Soil	8:25			X
	S23-16	Soil	8:37			X
	S23-18B	Soil	9:05			X
						X
						X
						X
						X
						X
						X
						X
						X
						X
						X

CLIENT COMMENTS
Risk Assessor: —
Samples shipped

SAMPLE CONDITION
SEALS INTACT Y N
PRESERVATIVES Y N
CONTAINERS LABELED Y N

LAB REMARKS
2911

LAB PROJECT NUMBER 4S4U9LP

SAMPLES RELINQUISHED BY	SAMPLES RECEIVED BY	TIME		
	~~Rebecca Davis~~ Accurate Analytical Testing SEP 25 2023	4:30	AM	PM
			AM	PM
			AM	PM

By submitting samples to AAT, the client agrees to AAT's terms and conditions.

2242 West Harrison St., Suite 200, Chicago, IL 60612-3766
Tel: (312) 733-0551 Fax: (312) 733-2386 Info@TheSterlingLab.com

October 02, 2023

Amereco Inc.
54 Michigan Avenue
Valparaiso, IN 46383
Telephone: (219) 531-0531
Fax: (219) 464-9166

Analytical Report for Work Order: 23090689 Revision 0

RE: 23.2078, Brickyard, Porter, IN

Dear Amereco Inc.:

Sterling Labs received 6 samples for the referenced project on 9/25/2023 1:14:00 PM. The analytical results are presented in the following report.

All analyses were performed in accordance with methods as referenced on the analytical report and were performed within established holding time criteria. All Quality Control criteria met TNI or laboratory specifications except when noted in the Case Narrative, Analytical Report or Sample Receipt Checklist. If required, an estimate of uncertainty for the analyses can be provided. A listing of accredited methods/parameters can also be provided.

Thank you for the opportunity to serve you and I look forward to working with you in the future. If you have any questions regarding the enclosed materials, please contact me at (312) 733-0551.

Sincerely,

Justice Kwateng
Project Manager

Date: October 02, 2023

Customer: Amereco Inc.
Project: 23.2078, Brickyard, Porter, IN
Work Order: 23090689 Revision 0

Work Order Sample Summary

Lab Sample ID	Customer Sample ID	Tag Number	Collection Date	Date Received
23090689-001A	S23-11		9/22/2023 7:25:00 AM	9/25/2023
23090689-002A	S23-12		9/22/2023 7:36:00 AM	9/25/2023
23090689-003A	S23-13		9/22/2023 7:49:00 AM	9/25/2023
23090689-004A	S23-14		9/22/2023 8:05:00 AM	9/25/2023
23090689-005A	S23-15		9/22/2023 8:25:00 AM	9/25/2023
23090689-006A	S23-16		9/22/2023 8:37:00 AM	9/25/2023

Date: October 02, 2023

Customer: Amereco Inc.
Project: 23.2078, Brickyard, Porter, IN
Work Order: 23090689 Revision 0

Case Narrative

Please refer to Analytical QC Summary Report for QC outliers.

QC - Quality Control
MB - Method Blank
LCS(D) - Lab Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
RPD - Relative Percent Difference

VOC - Volatile Organic Compound
SVOC - Semi-Volatile Organic Compound
PNA/PAH - Polynuclear Aromatic Hydrocarbon
PCB - Polychlorinated Biphenyls

sterling labs
2242 West Harrison St., Suite 200, Chicago, IL 60612-3766
Tel: (312) 733-0551 Fax: (312) 733-2386 Info@TheSterlingLab.com

Date Reported: October 02, 2023
Date Printed: October 02, 2023

Analytical Results

Customer: Amereco Inc.
Project: 23.2078, Brickyard, Porter, IN **Work Order:** 23090689 Revision 0

Lab ID: 23090689-001 **Collection Date:** 9/22/2023 7:25:00 AM
Customer Sample ID: S23-11 **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS **SW6020A (SW3050B)** Prep Date: **9/28/2023** Analyst: **MDS**						
IEPA ELAP 100445						
Arsenic	25	1.0		mg/Kg-dry	10	9/29/2023
Percent Moisture **D2974** Prep Date: **9/26/2023** Analyst: **EPD**						
Percent Moisture	10.3	0.2	*	wt%	1	9/27/2023

Lab ID: 23090689-002 **Collection Date:** 9/22/2023 7:36:00 AM
Customer Sample ID: S23-12 **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS **SW6020A (SW3050B)** Prep Date: **9/28/2023** Analyst: **MDS**						
IEPA ELAP 100445						
Arsenic	51	1.1		mg/Kg-dry	10	9/29/2023
Percent Moisture **D2974** Prep Date: **9/26/2023** Analyst: **EPD**						
Percent Moisture	14.4	0.2	*	wt%	1	9/27/2023

Lab ID: 23090689-003 **Collection Date:** 9/22/2023 7:49:00 AM
Customer Sample ID: S23-13 **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS **SW6020A (SW3050B)** Prep Date: **9/28/2023** Analyst: **MDS**						
IEPA ELAP 100445						
Arsenic	83	1.2		mg/Kg-dry	10	9/29/2023
Percent Moisture **D2974** Prep Date: **9/26/2023** Analyst: **EPD**						
Percent Moisture	16.4	0.2	*	wt%	1	9/27/2023

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
HT - Sample received past holding time
* - Non-accredited parameter
RL - Reporting / Quantitation Limit for the analysis
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
H - Holding time exceeded

2242 West Harrison St., Suite 200, Chicago, IL 60612-3766
Tel: (312) 733-0551 Fax: (312) 733-2386 Info@TheSterlingLab.com

Date Reported: October 02, 2023
Date Printed: October 02, 2023

Analytical Results

Customer: Amereco Inc.
Project: 23.2078, Brickyard, Porter, IN **Work Order:** 23090689 Revision 0

Lab ID: 23090689-004 **Collection Date:** 9/22/2023 8:05:00 AM
Customer Sample ID: S23-14 **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **9/28/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Arsenic	150	1.1		mg/Kg-dry	10	9/29/2023
Percent Moisture	**D2974**			Prep Date: **9/26/2023**		Analyst: **EPD**
Percent Moisture	14.4	0.2	*	wt%	1	9/27/2023

Lab ID: 23090689-005 **Collection Date:** 9/22/2023 8:25:00 AM
Customer Sample ID: S23-15 **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **9/29/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Arsenic	31	1.1		mg/Kg-dry	10	9/30/2023
Percent Moisture	**D2974**			Prep Date: **9/26/2023**		Analyst: **EPD**
Percent Moisture	17.5	0.2	*	wt%	1	9/27/2023

Lab ID: 23090689-006 **Collection Date:** 9/22/2023 8:37:00 AM
Customer Sample ID: S23-16 **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **9/28/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Arsenic	14	1.1		mg/Kg-dry	10	9/29/2023
Percent Moisture	**D2974**			Prep Date: **9/26/2023**		Analyst: **EPD**
Percent Moisture	20.5	0.2	*	wt%	1	9/27/2023

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
HT - Sample received past holding time
* - Non-accredited parameter
RL - Reporting / Quantitation Limit for the analysis
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
H - Holding time exceeded

STAT Analysis
2242 W. Harrison Suite 200, Chicago, Illinois 60612 Phone: (312) 733-0551 Fax: (312) 733-2386
e-mail address: STATinfo@STATAnalysis.com

CHAIN OF CUSTODY RECORD **Nº:** 937504 **Page :** 1 **of** 1

Company: Amereco, eng
Project Number: 23, 2078 Client Tracking No.:
Project Name: Brickyard
Project Location: Porter, IN
Sampler(s): Daniel Pollock
Report To: Zack Heim Phone: 219.531.0531
Fax:
QC Level: 1 ___ 2 X 3 ___ 4 ___ e-mail: labresults@amerecorp.com

Quote No.:
P.O. No.: G92223.1
Turn Around Time (Days): 1 2 3 4 (5-7) 10
Results Needed: / / am/pm

Client Sample Number/Description:	Date Taken	Time Taken	Matrix	Comp.	Grab	Preserv.	No. of Containers	Gasoline	Additional Information:	Lab No.:
S23-11	9.22.23	Ba. 7:25	So.1		x	A	1	X		001
S23-12	"	7:36	"		"	"	"	X		002
S23-13	"	7:49	"		"	"	"	X		003
S23-14	"	8:05	"		"	"	"	X		004
S23-15	"	8:25	"		"	"	"	X		005
S23-16	"	8:37	"		"	"	"	X		006
$										

Relinquished by: (Signature) Date/Time: 9.22.23 / 4:30
Received by: (Signature) UPS Date/Time:
Relinquished by: (Signature) 1Z0Y49F60390566572 Date/Time: 9/25/23 13.14
Received by: (Signature) Date/Time: 9/25/23 13.14
Relinquished by: (Signature) Date/Time:
Received by: (Signature) Date/Time:

Comments:

Preservation Code: A = None B = HNO_3 C = NaOH D = H_2SO_4 E = HCl F = 5035/EnCore G = Other

Laboratory Work Order No.: 23090689

Received on Ice: Yes ☐ No ☑

Temperature: Ambient °C

sterling labs

Sample Receipt Checklist

Customer: **AMERECO**

Work Order Number **23090689**

Date and Time Received: **9/25/2023 1:14:00 PM**

Received by: JMH

Checklist completed by: _____ 9/25/2023
Signature / Date

Reviewed by: JK 9/26/2023
Initials / Date

Matrix:

Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑	
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels/containers?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Container or Temp Blank temperature in compliance?	Yes ☑	No ☐	Temperature Ambient °C	
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☐	No ☐	
Water - Samples pH checked?	Yes ☐	No ☐	Checked by: _____	
Water - Samples properly preserved?	Yes ☐	No ☐	pH Adjusted? _____	

Any No response must be detailed in the comments section below.

Comments: _____

Customer / Person contacted: _____ Date contacted: _____ Contacted by: _____

Response: _____

Customer: Amereco Inc.
Work Order: 23090689
Project: 23.2078, Brickyard, Porter, IN

Analytical QC Summary Report
Metals
BatchID: 153419

Prep Batch Summary

Sample ID	Matrix	pH	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
IMBS3 9/28/23			1.047	0	0	50	47.755	9/28/2023	9/28/2023
ILCSS3 9/28/23			1.083	0	0	50	46.168	9/28/2023	9/28/2023
23090772-003B	Soil		1.041	0	0	50	48.031	9/28/2023	9/28/2023
23090772-004B	Soil		1.163	0	0	50	42.992	9/28/2023	9/28/2023
23090772-005B	Soil		1.055	0	0	50	47.393	9/28/2023	9/28/2023
23090772-006B	Soil		1.1	0	0	50	45.455	9/28/2023	9/28/2023
23090739-001A	Soil		1.105	0	0	50	45.249	9/28/2023	9/28/2023
23090739-002A	Soil		1.163	0	0	50	42.992	9/28/2023	9/28/2023
23090739-003A	Soil		1.144	0	0	50	43.706	9/28/2023	9/28/2023
23090739-004A	Soil		1.169	0	0	50	42.772	9/28/2023	9/28/2023
23090739-005A	Soil		1.017	0	0	50	49.164	9/28/2023	9/28/2023
23090739-006A	Soil		1.136	0	0	50	44.014	9/28/2023	9/28/2023
23090739-007A	Soil		1.074	0	0	50	46.555	9/28/2023	9/28/2023
23090739-008A	Soil		1.016	0	0	50	49.213	9/28/2023	9/28/2023
23090689-001A	Soil		1.119	0	0	50	44.683	9/28/2023	9/28/2023
23090689-002A	Soil		1.093	0	0	50	45.746	9/28/2023	9/28/2023
23090689-003A	Soil		1.03	0	0	50	48.544	9/28/2023	9/28/2023
23090689-004A	Soil		1.06	0	0	50	47.170	9/28/2023	9/28/2023
23090689-005A	Soil		1.017	0	0	50	49.164	9/28/2023	9/28/2023
23090689-006A	Soil		1.167	0	0	50	42.845	9/28/2023	9/28/2023
23090689-005AMS	Soil		1.052	0	0	50	47.529	9/28/2023	9/28/2023
23090689-005AMSD	Soil		1.048	0	0	50	47.710	9/28/2023	9/28/2023
23090739-009B	Soil		1.145	0	0	50	43.668	9/28/2023	9/28/2023
23090739-010B	Soil		1.134	0	0	50	44.092	9/28/2023	9/28/2023

QC Summary

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:
IMBS3 9/28/23	**ZZZZZ**	**MBLK**	**mg/Kg**	**SW6020A**	**9/28/2023**	**9/28/2023**	**ICPMS-3_230928A**	**5951121**

Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	ND	0.48									

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:
ILCSS3 9/28/23	**ZZZZZ**	**LCS**	**mg/Kg**	**SW6020A**	**9/28/2023**	**9/28/2023**	**ICPMS-3_230928A**	**5951122**

Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	23.95	0.46	23.08	0	104	80	120	0	0		

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:
23090689-005AMS	**S23-15**	**MS**	**mg/Kg-dry**	**SW6020A**	**9/28/2023**	**9/28/2023**	**ICPMS-3_230928A**	**5951125**

Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	58.43	1.2	28.81	75.19	-58.2	75	125	0	0		S

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:
23090689-005AMSD	**S23-15**	**MSD**	**mg/Kg-dry**	**SW6020A**	**9/28/2023**	**9/28/2023**	**ICPMS-3_230928A**	**5951129**

Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	55.48	1.2	28.92	75.19	-68.1	75	125	58.43	5.18	20	S

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
* - Non Accredited Parameter
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
H/HT - Holding Time Exceeded
B - Analyte detected in the associated Method Blank
E - Value above quantitation range

Customer: Amereco Inc.
Work Order: 23090689
Project: 23.2078, Brickyard, Porter, IN

Analytical QC Summary Report
Metals
BatchID: 153456

Prep Batch Summary

Sample ID	Matrix	pH	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
IMBS2 9/29/23			1.1	0	0	50	45.455	9/29/2023	9/29/2023
ILCSS2 9/29/23			1.1	0	0	50	45.455	9/29/2023	9/29/2023
23090689-005A	Soil		1.137	0	0	50	43.975	9/29/2023	9/29/2023
23090689-005AMS	Soil		1.191	0	0	50	41.982	9/29/2023	9/29/2023
23090689-005AMSD	Soil		1.11	0	0	50	45.045	9/29/2023	9/29/2023
23090735-007B	Soil		1.104	0	0	50	45.290	9/29/2023	9/29/2023
23090735-008B	Soil		1.104	0	0	50	45.290	9/29/2023	9/29/2023
23090735-009B	Soil		1.105	0	0	50	45.249	9/29/2023	9/29/2023
23090797-001A	Solid		0.233	0	0	50	214.592	9/29/2023	9/29/2023
23090797-002A	Solid		0.131	0	0	50	381.679	9/29/2023	9/29/2023
23090797-003A	Solid		0.075	0	0	50	666.667	9/29/2023	9/29/2023
23090797-004A	Solid		1.104	0	0	50	45.290	9/29/2023	9/29/2023
23090797-005A	Solid		0.894	0	0	50	55.928	9/29/2023	9/29/2023
23090797-006A	Solid		0.528	0	0	50	94.697	9/29/2023	9/29/2023
23090735-007BMS	Soil		1.104	0	0	50	45.290	9/29/2023	9/29/2023
23090735-007BMSD	Soil		1.103	0	0	50	45.331	9/29/2023	9/29/2023
IMDLS1A 9/29/23			1	0	0	50	50.000	9/29/2023	9/29/2023
IMDLS1B 9/29/23			1	0	0	50	50.000	9/29/2023	9/29/2023
IMDLS2A 9/29/23			1	0	0	50	50.000	9/29/2023	9/29/2023
IMDLS2B 9/29/23			1	0	0	50	50.000	9/29/2023	9/29/2023

QC Summary

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:
IMBS2 9/29/23	**ZZZZZ**	**MBLK**	**mg/Kg**	**SW6020A**	**9/29/2023**	**9/30/2023**	**ICPMS-3_230930A**	**5953001**

Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	ND	0.45									

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:
ILCSS2 9/29/23	**ZZZZZ**	**LCS**	**mg/Kg**	**SW6020A**	**9/29/2023**	**9/30/2023**	**ICPMS-3_230930A**	**5953002**

Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	24.11	0.45	22.73	0	106	80	120	0	0		

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:
23090689-005AMS	**S23-15**	**MS**	**mg/Kg-dry**	**SW6020A**	**9/29/2023**	**9/30/2023**	**ICPMS-4_230930A**	**5953130**

Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	50.56	1.0	25.44	30.9	77.3	75	125	0	0		

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:
23090689-005AMSD	**S23-15**	**MSD**	**mg/Kg-dry**	**SW6020A**	**9/29/2023**	**9/30/2023**	**ICPMS-4_230930A**	**5953131**

Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	60.63	1.1	27.3	30.9	109	75	125	50.56	18.1	20	

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B - Analyte detected in the associated Method Blank
E - Value above quantitation range

Customer: Amereco Inc.
Work Order: 23090689
Project: 23.2078, Brickyard, Porter, IN

Analytical QC Summary Report
Wet Chemistry
BatchID: R202207

Analytical Run Summary

SeqNo	Sample ID	Type	Test Code	Batch	DF	Date Analyzed
5948905	PMMBLK3 9/26/23	MBLK	PMOIST	R202207	1	09/27/2023
5948906	PMLCSS3 9/26/23	LCS	PMOIST	R202207	1	09/27/2023
5948907	PMLCSW3 9/26/23	LCS	PMOIST	R202207	1	09/27/2023
5948908	23090724-001B	SAMP	PMOIST	R202207	1	09/27/2023
5948909	23090644-001B	SAMP	PMOIST	R202207	1	09/27/2023
5948910	23090644-002B	SAMP	PMOIST	R202207	1	09/27/2023
5948911	23090644-002BDUP	DUP	PMOIST	R202207	1	09/27/2023
5948912	23090644-003B	SAMP	PMOIST	R202207	1	09/27/2023
5948913	23090644-004B	SAMP	PMOIST	R202207	1	09/27/2023
5948914	23090684-001B	SAMP	PMOIST	R202207	1	09/27/2023
5948915	23090688-001A	SAMP	PMOIST	R202207	1	09/27/2023
5948916	23090689-001A	SAMP	PMOIST	R202207	1	09/27/2023
5948917	23090689-002A	SAMP	PMOIST	R202207	1	09/27/2023
5948918	23090689-003A	SAMP	PMOIST	R202207	1	09/27/2023
5948919	23090689-004A	SAMP	PMOIST	R202207	1	09/27/2023
5948920	23090689-005A	SAMP	PMOIST	R202207	1	09/27/2023
5948921	23090689-006A	SAMP	PMOIST	R202207	1	09/27/2023
5948922	23090692-001B	SAMP	PMOIST	R202207	1	09/27/2023
5948923	23090692-002B	SAMP	PMOIST	R202207	1	09/27/2023
5948924	23090692-004B	SAMP	PMOIST	R202207	1	09/27/2023
5948925	23090692-005B	SAMP	PMOIST	R202207	1	09/27/2023
5948926	23090692-006B	SAMP	PMOIST	R202207	1	09/27/2023
5948927	23090692-007B	SAMP	PMOIST	R202207	1	09/27/2023
5948928	23090692-008B	SAMP	PMOIST	R202207	1	09/27/2023
5948929	23090684-001B	SAMP	PSOLID	R202207	1	09/27/2023

QC Summary

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:
PMMBLK3 9/26/23	**ZZZZZ**	**MBLK**	**wt%**	**D2974**	**9/26/2023**	**9/27/2023**	**BALANCE_230926D**	**5948905**

Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Percent Moisture	ND	0.200									*

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:
PMLCSS3 9/26/23	**ZZZZZ**	**LCS**	**wt%**	**D2974**	**9/26/2023**	**9/27/2023**	**BALANCE_230926D**	**5948906**

Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Percent Moisture	4.46	0.200	5	0	89.2	80	120	0	0		*

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:
PMLCSW3 9/26/23	**ZZZZZ**	**LCS**	**wt%**	**D2974**	**9/26/2023**	**9/27/2023**	**BALANCE_230926D**	**5948907**

Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Percent Moisture	99.82	0.200	99.8	0	100	80	120	0	0		*

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:
23090644-002BDUP	**ZZZZZ**	**DUP**	**wt%**	**D2974**	**9/26/2023**	**9/27/2023**	**BALANCE_230926D**	**5948911**

Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Percent Moisture	19.57	0.200	0	0	0	0	0	19.38	0.976	20	*

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