Further Site Investigation Report

Site:

Former Memorial Park
1301 Highland Street
Hammond, IN 46320

Prepared For:

Hammond Redevelopment Commission
City of Hammond
5925 Calumet Avenue, Suite 315
Hammond, IN 46320

Prepared By:

Amereco, Inc.
Project No. 23.2128.2

January 9, 2024

AMERECO, INC.
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MORE THAN 30 YEARS OF EXCEPTIONAL SERVICE

January 9, 2024

Ms. Anne Taylor
Hammond Redevelopment Commission
City of Hammond
5925 Calumet Avenue, Suite 315
Hammond, IN 46320

Re: Further Site Investigation Report
Former Memorial Park
1301 Highland Street, Hammond, IN 46320
Project #23.2128.2

Dear Ms. Taylor:

Per your authorization, we have performed a Further Site Investigation (FSI) for the property known as the Former Memorial Park, located at 1301 Highland Street, Hammond, Lake County, Indiana 46320 ("Subject Site"). The FSI was conducted in general accordance with the Indiana Department of Environmental Management (IDEM) *Risk-based Closure Guide* (R2), effective July 8, 2022, applicable regulations, industry-accepted practices, and Amereco's professional judgment based on the proposed residential development.

The primary objective of the FSI was to further assess the contaminants of concerns (COCs) that were identified in on-Site surface soils by the previous Phase II Environmental Site Assessment (ESA), dated December 1, 2023, prepared by Amereco (project number 23.2128), to evaluate current and future potential direct contact exposure scenarios. As part of this FSI, 41 on-Site surface soil samples were collected between December 13 and 14, 2023, and submitted for laboratory analysis of arsenic, lead, and/or mercury depending on the previously identified concern.

Based on the findings of the FSI, it is concluded that the representative concentrations from two lots proposed for residential use (Lots 22 and 38) identified lead and arsenic, respectively, in exceedance of currently applicable IDEM R2 Residential Soil Published Levels (RSPLs). All other representative concentrations were below applicable IDEM RSPLs. Therefore, while individual samples may exceed IDEM RSPLs, it is not indicative of a risk to human health and the environment. Remediation can be conducted to further reduce risk. A discussion regarding the conclusions and recommendations obtained from this investigation can be found in Section 4.

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

Respectfully submitted,

Krista Rose
Krista Rose
Project Manager

Zachary Heine, CHMM
VP of Operations

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Appendices

Acronyms

ASTM	American Society for Testing and Materials International
bgs	below ground surface
COC	Contaminants of Concern
CSPL	Commercial Soil Published Level (IDEM R2)
DNR	Department of Natural Resources
ERC	Environmental Restrictive Covenant
ESA	Environmental Site Assessment
FSI	Further Site Investigation
GWPL	Groundwater Published Level (IDEM R2)
HASP	Health and Safety Plan
IDEM	Indiana Department of Environmental Management
PAHs	Polynuclear Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PL	Published Level
R2	Risk-based Closure Guide (IDEM)
RCG	Remediation Closure Guide (IDEM)
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Condition
ROW	Right-of-way
RPG	Remediation Program Guide (IDEM)
RSPL	Residential Soil Published Level (IDEM R2)
SL	Screening Level
EPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VEC	Vapor Encroachment Condition
VFC	Virtual File Cabinet
VOCs	Volatile Organic Compounds
XSPL	Excavation Soil Published Level (IDEM R2)

Executive Summary

Amereco, Inc., d/b/a Amereco Engineering (Amereco) has prepared this Further Site Investigation (FSI) Report on behalf of the City of Hammond, for the Former Memorial Park, located at 1301 Highland Street, Hammond, Lake County, Indiana 46320 ("Subject Site"). The FSI was conducted in general accordance with the Indiana Department of Environmental Management (IDEM) *Risk-based Closure Guide* (R2), effective July 8, 2022, applicable regulations, industry-accepted practices, and Amereco's professional judgment based on the proposed residential development.

The primary objective of the FSI was to further assess the contaminants of concerns (COCs) that were identified in on-Site surface soils by the previous Phase II Environmental Site Assessment (ESA), dated December 1, 2023, prepared by Amereco (project number 23.2128), to evaluate current and future potential direct contact exposure scenarios.

The findings of the previous Phase II ESA did not identify a concern within subsurface soils or volatile organic compounds (VOCs). However, notable surface soil and groundwater concerns were identified. Surface soil concerns were limited to arsenic, lead, and mercury. Based on the findings of the Phase II ESA, it was our professional recommendation that further investigation occur to delineate surface soil concerns and collect additional sampling data to evaluate risk should the Subject Site be developed into residential housing.

Based on the findings of the additional sampling performed on-Site, it is concluded that the representative concentrations from two proposed lots (Lots 22 and 38) identified lead and arsenic, respectively, in exceedance of IDEM R2 Residential Soil Published Levels (RSPLs). All other representative concentrations were below applicable IDEM RSPLs. Therefore, while individual samples may exceed IDEM RSPLs, it is not indicative of a risk to human health and the environment. Remediation can be conducted to further reduce risk. The lots and isolated areas of concern are outlined on **Figure 6**.

1. Background Information

1.1. Regional Location

The Subject Site is located in Section 6, Township 36N, Range 9W of North Township in Lake County, Indiana. The regional topography is relatively flat with a gentle slope northerly towards Lake Michigan. A Site Location Map is provided as **Figure 1** in **Appendix A**. A Site Plan depicting the entire extent of the Subject Site and proposed future development is provided as **Figure 2**.

1.2. Site Location

The Subject Property, known as the Former Memorial Park, located at 1301 Highland Street, Hammond, Lake County, Indiana 46320, consists of one approximately 17.85 acre parcel located north of Highland Street, south of a railroad right of way, and approximately 500-feet east of Columbia Avenue.

The Subject Site is located in an area of mixed use, with residential properties to the west and south, railroad property to the north and southeast, and industrial properties to the southeast. Additionally, the Subject Site borders the Pullman-Standard Historic District to the west and southwest. The Pullman-Standard Historic District comprises approximately 14 blocks of historic single and multi-family worker housing that was constructed between 1916 and 1918.

The Subject Site is currently used as Memorial Park, which includes three baseball fields, two basketball courts, a playground, an asphalt-paved parking lot, mowed open green space, a restroom structure, and a baseball fieldhouse structure. Based on aerial photos reviewed during the Phase I ESA, the restroom structure was built in or before 1949, and the fieldhouse was built in or before 1992.

1.3. Overview of Previous Site Environmental Investigations & Spill History

Phase I ESA, August 24, 2023, Amereco, Inc:
Amereco conducted a Phase I ESA, report dated August 24, 2023 (Project #23.2056), on the Subject Site in accordance with ASTM E1527-21. Amereco's 2023 Phase I ESA identified the following recognized environmental conditions (REC) in connection with the Subject Property:

- Historic Railroad Spurs and Likely Historic Use of Subject Property by Pullman-Standard Railcar Company

Amereco considered the lack of Sanborn Map details from 1915 to 1966 to be a significant data gap for the Phase I ESA. No other previous ESAs or soil and groundwater investigations are known to have been conducted on the Subject Property.

Phase II ESA, December 1, 2023, Amereco, Inc:
Amereco conducted a Phase II ESA, report dated December 1, 2023 (Project #23.2128), on the Subject Site in accordance with ASTM E1903-19. The primary purpose of the Phase II ESA was to assess the REC previously identified by the Phase I ESA.

The Phase II ESA included the advancement and sampling of 5 direct push soil borings, the collection of 50 surface soil samples, the installation and sampling of 5 temporary groundwater monitoring wells, and a ground penetrating radar (GPR) survey. Soil and groundwater sampling occurred between November 2-3, 2023 and the GPR survey occurred on December 2 and 6, 2023. A combination of judgmental and systematic sampling was completed so that sufficient data could be obtained to provide statistical confidence of on-Site conditions. In anticipation of the proposed residential development, the sampling plan was designed to include 1 surface soil sample from each of the 36 proposed single-family

residential lots, and 3 surface soil samples from each of the proposed senior housing and duplex lots and the proposed retention and park areas. However, due to the accuracy differences of GoogleEarth and the Trimble GPS Geo7x 7000 handheld data collector, a surface soil sample was inadvertently not collected from 1 of the proposed single-family lots and 1 of the proposed duplex lots. Thus, 2 surface soil samples, SS-34 and SS-35, were collected from 1 single-family lot and 2 surface samples, SS-15 and SS-19, were collected from 1 duplex lot. Amereco did not believe this deviation impacted the conclusions of the Phase II ESA report.

Soil analytical results from the Phase II ESA did not identify any volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), or RCRA 8 Metal concerns within subsurface soils (i.e., soils deeper than 2-feet bgs). However, arsenic, lead, and mercury were identified in on-Site surface soils (i.e., soils from 0 to 2-feet bgs) at concentrations above applicable IDEM R2 levels. The following table summarizes Phase II ESA soil concentrations identified in exceedance of IDEM R2 Published Levels.

Surface Soil Exceedances – Phase II ESA				
Sample ID (Depth Below Grade)	**Date**	**Arsenic**	**Lead**	**Mercury**
SS-04 (0-2-ft bgs)	11-02-2023	23	96	<0.019
SS-21 (0-2-ft bgs)	11-02-2023	6.6	2,600	0.036
SS-38 (0-2-ft bgs)	11-03-2023	***40***	200	0.067
SS-41 (0-2-ft bgs)	11-03-2023	3.9	32	5.5
IDEM R2 Long Term Residential PL (RSPL)		**10**	**400**	**3**
IDEM R2 Long Term Commercial PL (CSPL)		*30*	*800*	*3*
IDEM R2 Short Term Excavation PL (XSPL)		900	1,000	3

Notes: Values reported in milligrams per kilogram (mg/Kg), <=less than

Groundwater analytical results from the Phase II ESA did not identify any VOC, PAH, or Polychlorinated Biphenyl (PCB) concerns within on-Site groundwater. Total arsenic and total lead concentrations were identified above IDEM R2 PLs in all 5 groundwater samples (GW-01 through GW-05). However, based on analytical results of subsequent dissolved metal analysis of samples GW-01 through GW-05, it was concluded that the total metals identified in the unfiltered groundwater samples in exceedance of regulatory levels were a result of turbidity (solids) in the samples and not representative of on-Site groundwater conditions. The following table summarizes Phase II ESA groundwater concentrations identified in exceedance of IDEM R2 Published Levels.

Groundwater Exceedances – Phase II ESA						
Sample ID	**Date**	**Temporary Well / GW Depth**	**Arsenic, Total**	**Arsenic, Dissolved**	**Lead, Total**	**Lead, Dissolved**
GW-01	11/02/2023	TMW-01 / 3.43-ft bgs	**39**	<4.0	**47**	<2.0
GW-02	11/02/2023	TMW-02 / 3.14-ft bgs	**66**	**16**	**43**	<2.0
GW-03	11/02/2023	TMW-03 / 3.75-ft bgs	**13**	<4.0	**25**	<2.0
GW-04	11/02/2023	TMW-04 / 3.93-ft bgs	**16**	7.3	13	<2.0
GW-05	11/02/2023	TMW-05 / 3.29-ft bgs	**47**	4.4	**120**	<2.0
IDEM R2 Long Term Groundwater PL (GWPL)			**10**	**10**	**15**	**15**

Note: Values reported in micrograms per liter (µg/L), <=less than

Dissolved arsenic was identified in groundwater sample GW-02 at a concentration above the IDEM R2 PL. Therefore, it was and is our professional recommendation that no drinking water wells be installed on the Subject Site without additional investigations. Furthermore, §52.02 of the City of Hammond Code of Ordinances (ord. 8581, passed 7-26-2004), prohibits the use of groundwater as a potable water supply from within the corporate limits of the City.

Based on the calculated Site-specific representative concentrations for arsenic and lead in surface soils, it was determined that the on-Site surface soil does not present an exposure hazard concern based on the current use as a park. Further investigation was recommended to delineate surface soil concerns due to the proposed redevelopment of the Site.

Findings of the on-Site GPR survey, performed by Subsurface Radar Solution, LLC on November 2 and 6, 2023, did not identify any anomalies representative of underground storage tanks (USTs), building foundations, or areas of significant fill material, such as building rubble, on the Subject Property.

2. Further Site Investigation

2.1. Objectives of Further Site Investigation

The primary objective of the FSI was to further assess the COCs (arsenic, lead, and mercury) that were identified in on-Site surface soils by the previous Phase II ESA, dated December 1, 2023, prepared by Amereco (project number 23.2128), to evaluate current and future potential direct contact exposure scenarios.

2.2. Chemical Testing Plan

The chemical testing plan was developed to detect contaminants previously identified in on-Site surface soils. The following table summarizes the sample analyses and corresponding methods:

Target Analytes for Samples		
Sample Analysis	**Media**	**Methodology**
Arsenic	Soil	EPA SW-846 3050B and 6020A
Lead	Soil	EPA SW-846 3050B and 7000B
Mercury	Soil	EPA SW-846 3050B and 7471B

All arsenic and mercury laboratory analyses were conducted by The Sterling Lab, formerly known as STAT Analysis Corporation, 2242 W. Harrison Street, Chicago, IL 60612. All lead laboratory analyses were conducted by Accurate Analytical Testing LLC, 30105 Beverly Road, Romulus, MI 48174. A completed chain of custody accompanied the samples to each laboratory. The chain of custody provides documentation regarding sample collection/handling, which identifies individuals involved in the chain of sample possession and a record of requested analytical parameters. Sample IDs, collection dates, and collection times can be found on the Chain of Custody forms provided in **Appendix E**.

2.3. Conceptual Site Model & Sampling Plan

All procedures during this investigation followed those recommended by the IDEM *Risk-Based Closure Guide* (R2), effective July 8, 2022, applicable regulations, industry-accepted practices, and Amereco's professional judgment based on the proposed residential development.

This Site model takes into consideration the potential distributions of contaminants with respect to the properties, behaviors and fate, and transport characteristics of the contaminant being assessed and the proposed residential development. The sampling plan was designed to provide for the collection of potentially contaminated environmental media, if present, at locations and depths where the highest concentrations would likely occur, based on the COCs previously identified during the Phase II ESA.

A combination of judgmental sampling via step-out sampling from Phase II ESA sample locations SS-21, SS-38, and SS-41, all of which are located on three different lots proposed for single-family or duplex housing, and systematic sampling of the area proposed for senior housing, which includes Phase II ESA sample location SS-04, was completed so that sufficient data could be obtained to provide statistical confidence of on-Site conditions for each decision unit. The sampling plan was designed to include at least 10 surface soil samples were collected from each of the lots of concern to statistically evaluate the overall risk of each of the proposed lots. The proposed residential layout follows that which is depicted on the Yield Plan, drafted by American Structurepoint Inc., dated July 11, 2023, and provided to Amereco by the Client.

For the purpose of this report, the lot that includes Phase II ESA parent sample SS-21 will be referred to as “Lot 21”, the lot with parent sample SS-22 will be referred to as “Lot 22”, the lot with parent sample SS-38 will be referred to as “Lot 38”, the lot with parent sample SS-41 will be referred to as “Lot 41”, and the lot with parent samples SS-50 and SS-43 will be referred to as “Lot 50”.

Before mobilization to the Site, Amereco identified step-off locations 20-linear feet north, south, east, and west of Phase II ESA samples SS-21, SS-38, and SS-41. Should the step-off sampling include an adjoining proposed residential lot, as was the case north of SS-21 and south of SS-38, additional sample locations were randomly identified so that each proposed residential lot has 10 sample locations. Thus, Lots 21, 22, 38, 41, and 50 were evaluated during this FSI along with the area proposed for Senior Housing where 4 surface soil sample locations were randomly identified prior to mobilization.

To locate the proposed surface soil sample locations in the field Amereco utilized an Arrow 100® Submeter GNSS Receiver from EOS Positioning Systems to capture real-time GPS positions with submeter accuracy. The locations depicted on **Figures 2 and 3** reflect the GPS coordinates obtained from the Arrow 100® Submeter GNSS Receiver unit.

The following table summarizes the rational and COCs for each of the 41 sample locations:

Sampling Plan – Surface Soil	
Sample ID	**Rationale**
SS-51	Further evaluate proposed senior housing area for arsenic
SS-52	Further evaluate proposed senior housing area for arsenic
SS-53	Further evaluate proposed senior housing area for arsenic
SS-54	Further evaluate proposed senior housing area for arsenic
SS-21A	Further evaluate lead 20-ft east of SS-21, Lot 21
SS-21B	Further evaluate lead 20-ft south of SS-21, Lot 21
SS-21C	Further evaluate lead 20-ft west of SS-21, Lot 21
SS-22A	Further evaluate lead 20-ft north of SS-21, Lot 22
SS-21E	Further evaluate Lot 21 for lead
SS-21F	Further evaluate Lot 21 for lead
SS-21G	Further evaluate Lot 21 for lead
SS-21H	Further evaluate Lot 21 for lead
SS-21I	Further evaluate Lot 21 for lead
SS-21J	Further evaluate Lot 21 for lead
SS-22B	Further evaluate Lot 22 for lead
SS-22C	Further evaluate Lot 22 for lead
SS-22D	Further evaluate Lot 22 for lead
SS-22E	Further evaluate Lot 22 for lead
SS-22F	Further evaluate Lot 22 for lead
SS-22G	Further evaluate Lot 22 for lead
SS-22H	Further evaluate Lot 22 for lead
SS-22I	Further evaluate Lot 22 for lead
SS-41A	Further evaluate mercury 20-ft east of SS-41, Lot 41
SS-41B	Further evaluate mercury 20-ft south of SS-41, Lot 41
SS-41C	Further evaluate mercury 20-ft west of SS-41, Lot 41
SS-41D	Further evaluate mercury 20-ft north of SS-41, Lot 41
SS-41F	Further evaluate Lot 41 for mercury
SS-41G	Further evaluate Lot 41 for mercury
SS-41H	Further evaluate Lot 41 for mercury
SS-41I	Further evaluate Lot 41 for mercury

Sampling Plan – Surface Soil	
Sample ID	**Rationale**
SS-38A	Further evaluate arsenic 20-ft east of SS-38, Lot 38
SS-38B	Further evaluate arsenic 20-ft north of SS-38, Lot 38
SS-41E	Further evaluate mercury and arsenic 20-ft west of SS-38, Lot 41
SS-38C	Further evaluate Lot 38 for arsenic
SS-38D	Further evaluate Lot 38 for arsenic
SS-38E	Further evaluate Lot 38 for arsenic
SS-38F	Further evaluate Lot 38 for arsenic
SS-38G	Further evaluate Lot 38 for arsenic
SS-38H	Further evaluate Lot 38 for arsenic
SS-38I	Further evaluate Lot 38 for arsenic
SS-50A	Further evaluate arsenic 20-ft south of SS-38, Lot 50

2.4. Surface Soil Sampling

As part of this FSI, 41 surface soil samples were collected from the Subject Site between December 13 and 14, 2023. Disposable nitrile gloves were worn by sampling personnel and were changed between each sample location. Surface soil samples were collected utilizing a hand auger from the top 2-feet of soil at each location. The hand auger was decontaminated before use and between each sample location using Alconox® solution and the triple rinse method. Surface soil sampling locations are depicted on **Figures 2 and 3**.

The following sample containers were utilized based on the selected analysis:

Sample Collection Information – Surface Soil Samples			
Sample Analysis	**Sample Container**	**Preservative**	**Hold Time**
Arsenic, Lead,	1 x 4-oz Jar with PTFE Lined Cap	Non-preserved, 4° C	180 days
Mercury	1 x 4-oz Jar with PTFE Lined Cap	Non-preserved, 4° C	28 days

2.5. Site Geology

No soil borings were advanced as part of the FSI. The soil borings previously advanced on-Site during the Phase II ESA primarily identified fine to medium-grained sands to boring termination at 8-feet bgs.

Fill material was observed during this FSI at the following sample locations: SS-21A, SS-21B, SS-21C, SS-21H, SS-22A, SS-22E, and SS-54. Note that fill material, a large metal bolt, slag, and cinders were encountered in sample SS-21 during the Phase II ESA.

All other sample locations primarily consisted of various sands and/or silty sand. A surface soil sample log form summarizing the soil conditions encountered at each sample location during this FSI is included in **Appendix C**.

2.6. Site Hydrogeology

Hydrogeological conditions were not further investigated during the FSI.

During the previous Phase II ESA, on-Site groundwater was encountered at depths ranging from 3.14-feet bgs (TMW-02, near the south boundary) and 3.93-feet bgs (TMW-04, near the northeast boundary).

3. Analytical Results

Analytical data obtained from this investigation are compared against applicable regulatory levels for residential use, as published by IDEM in Table 1 of the R2, updated March 1, 2023 (Nonrule Policy Document WASTE-0046-R2).

In consideration of soil management, IDEM *Remediation Closure Guide* (RCG) 2022 Soil Migration to Groundwater (SMTG) Screening Levels (SLs) are also depicted on the tabulated summaries. Concentrations identified above RCG SMTG SLs render soil removed from the Subject Site as "unclean" material per IDEM's Nonrule Policy Document WASTE-0064-NPD, *Uncontaminated Soil Policy*, effective April 10, 2015.

3.1. Soil Analytical Results

Surface soil analytical results compared against applicable IDEM R2 PLs can be found in **Appendix A** in tabular format. Analytical results from Lots 21 and 22 are summarized on **Figure 3**. Analytical results from Lots 38 and 41 are summarized on **Figure 4**. Analytical results from the areas proposed for senior housing are summarized on **Figure 5**. Phase II ESA parent samples from Lot 21 (SS-21), Lot 22 (SS-22), Lot 38 (SS-38), Lot 41 (SS-41), and from the proposed senior housing area (SS-01, SS-02, SS-04, SS-06, SS-07, and SS-08) are also summarized on the figures and tables.

The tables below summarize samples and contaminants identified during this FSI and the previous Phase II ESA that exceed IDEM R2 PLs.

Surface Soil Exceedances – Residential Duplex Lots 21 and 22					
Sample ID		**Depth Below Grade**	**Arsenic**	**Lead**	**Mercury**
Lot 21	SS-21	0-2 ft bgs	6.6	2,600	0.036
	SS-21A	0-2 ft bgs	NA	71	NA
	SS-21B	0-2 ft bgs	NA	270	NA
	SS-21C	0-2 ft bgs	NA	**406**	NA
	SS-21E	0-2 ft bgs	NA	150	NA
	SS-21F	0-2 ft bgs	NA	<10.9	NA
	SS-21G	0-2 ft bgs	NA	<11.4	NA
	SS-21H	0-2 ft bgs	NA	116	NA
	SS-21I	0-2 ft bgs	NA	24	NA
	SS-21J	0-2 ft bgs	NA	<11.5	NA
Lot 22	SS-22	0-2 ft bgs	2.7	20	< 0.020
	SS-22A	0-2 ft bgs	NA	13,900	NA
	SS-22B	0-2 ft bgs	NA	52.7	NA
	SS-22C	0-2 ft bgs	NA	310	NA
	SS-22D	0-2 ft bgs	NA	53.6	NA
	SS-22E	0-2 ft bgs	NA	452	NA
	SS-22F	0-2 ft bgs	NA	21.8	NA
	SS-22G	0-2 ft bgs	NA	83.9	NA
	SS-22H	0-2 ft bgs	NA	290	NA
	SS-22I	0-2 ft bgs	NA	151	NA
IDEM R2 Long Term Residential PL (RSPL)			**10**	**400**	**3**
IDEM R2 Long Term Commercial PL (CSPL)			*30*	*800*	*3*
IDEM R2 Short Term Excavation PL (XSPL)			900	1,000	3

Notes: Values reported in milligrams per kilogram (mg/Kg), <=less than, NA = Not Analyzed

Surface Soil Exceedances - Single-Family Lots 38 and 41					
Sample ID		**Depth Below Grade**	**Arsenic**	**Lead**	**Mercury**
Lot 38	SS-38	0-2 ft bgs	*40*	200	0.067
	SS-38A	0-2 ft bgs	3.4	NA	NA
	SS-38B	0-2 ft bgs	3.2	NA	NA
	SS-38C	0-2 ft bgs	7.1	NA	NA
	SS-38D	0-2 ft bgs	1.7	NA	NA
	SS-38E	0-2 ft bgs	2.3	NA	NA
	SS-38F	0-2 ft bgs	*49*	NA	NA
	SS-38G	0-2 ft bgs	10	NA	NA
	SS-38H	0-2 ft bgs	5.4	NA	NA
	SS-38I	0-2 ft bgs	< 1.1	NA	NA
Lot 41	SS-41	0-2 ft bgs	3.9	32	5.5
	SS-41A	0-2 ft bgs	NA	NA	0.24
	SS-41B	0-2 ft bgs	NA	NA	< 0.023
	SS-41C	0-2 ft bgs	NA	NA	0.030
	SS-41D	0-2 ft bgs	NA	NA	0.074
	SS-41E	0-2 ft bgs	**11**	NA	< 0.021
	SS-41F	0-2 ft bgs	NA	NA	0.038
	SS-41G	0-2 ft bgs	NA	NA	< 0.019
	SS-41H	0-2 ft bgs	NA	NA	0.037
	SS-41I	0-2 ft bgs	NA	NA	< 0.019
IDEM R2 Long Term Residential PL (RSPL)			**10**	**400**	**3**
IDEM R2 Long Term Commercial PL (CSPL)			*30*	*800*	*3*
IDEM R2 Short Term Excavation PL (XSPL)			900	1,000	3

Notes: Values reported in milligrams per kilogram (mg/Kg), <=less than, NA = Not Analyzed

Surface Soil Exceedances - Senior Housing					
Sample ID		**Depth Below Grade**	**Arsenic**	**Lead**	**Mercury**
Senior Housing	SS-01	0-2 ft bgs	6.8	150	0.043
	SS-02	0-2 ft bgs	4.7	34	0.020
	SS-04	0-2 ft bgs	**23**	96	< 0.019
	SS-06	0-2 ft bgs	2.3	60	< 0.019
	SS-07	0-2 ft bgs	6.1	20	< 0.018
	SS-08	0-2 ft bgs	4.4	170	0.022
	SS-51	0-2 ft bgs	< 1.1	NA	NA
	SS-52	0-2 ft bgs	8.4	NA	NA
	SS-53	0-2 ft bgs	< 0.98	NA	NA
	SS-54	0-2 ft bgs	4.4	NA	NA
IDEM R2 Long Term Residential PL (RSPL)			**10**	**400**	**3**
IDEM R2 Long Term Commercial PL (CSPL)			*30*	*800*	*3*
IDEM R2 Short Term Excavation PL (XSPL)			900	1,000	3

Notes: Values reported in milligrams per kilogram (mg/Kg), <=less than, NA = Not Analyzed

Regarding soil management, in addition to the above IDEM R2 PL exceedances, arsenic was identified in samples SS-21 SS-38C, SS-38G, and SS-52 at concentrations above the IDEM RCG SMTG SL.

4. Discussion of Representative Concentrations & Conclusions

4.1. Representative Concentrations

Section 3.2.2.1 Determining Representative Concentrations in Soil of the IDEM R2 allows a calculated upper confidence limit of the mean (95% UCL) to serve as a representative concentration for arsenic and mercury, and the arithmetic average to serve as a representative concentration for lead across decision units with sufficient data.

Following this approach representative concentrations were calculated for arsenic, mercury, and lead in the on-Site surface soils (0-2-ft bgs) decision unit. Amereco used the EPA ProUCL 5.2 program to calculate the 95% UCL and the best applicable statistical test recommended by ProUCL. Concentrations that were identified below laboratory reporting limits (LRLs) were entered as one-half the concentration (i.e., <1.0 was entered as 0.5). ProUCL output data sheets are provided in **Appendix B**. Representative concentrations are summarized in the table below:

Representative Concentrations Summary			
Decision Unit	**COC**	**Representative Concentration (mg/Kg)**	**Default IDEM R2 Residential PL (mg/kg)**
Surface Soils on Lot 21	Lead	365.39	400
Surface Soils on Lot 22	Lead	1,533.50*	400
Surface Soils on Lot 38	Arsenic	33.98*	10
Surface Soils on Lot 41	Mercury	1.596	3
Surface Soils on Senior Housing Area	Arsenic	9.86	10

*Indicates representative concentration exceeds IDEM R2 PL

The Site-specific representative lead concentration of 1,533.50-mg/Kg in surface soils across Lot 22 and the representative arsenic concentration of 33.98-mg/Kg across Lot 38 surface soils are above applicable IDEM R2 RSPLs of 400-mg/Kg and 10-mg/Kg, respectively.

All other lead, arsenic, and/or mercury representative concentrations in surface soils across Lot 21, Lot 41, and the area proposed for Senior Housing are below IDEM R2 RSPLs.

4.2. Conclusions

From a risk perspective, the following conclusions and recommendations have been made about the on-Site surface soil decision units.

<u>Lot 21:</u>
The results of this FSI identified isolated surface soil lead concerns on Lot 21. To date, three samples from Lot 21 have identified lead at concentrations above IDEM R2 PLs established for residential use and excavation workers. The representative lead concentration across Lot 21 decision unit is below the IDEM R2 RSPL. Thus, available analytical data indicates the elevated lead concerns on or near Lot 21 are isolated to the vicinity of surface soil samples SS-21 and SS-21C and SS-22A, all of which are clustered within an approximately 2,000-square foot area and where unsatisfactory fill material was observed.

Lot 22:
The results of this FSI identified isolated surface soil lead concerns on Lot 22 and the representative lead concentration across Lot 22 is above the IDEM R2 RSPL. However, the lead concentration of 13,900-mg/Kg in surface soil sample SS-22A is likely the reason for the elevated representative concentration. When this value is removed from the calculation, the representative lead concentration is satisfactory. To date, sample SS-22A is the only sample from Lot 22 that has identified an elevated lead concentration. Thus, available analytical data indicates the elevated lead concern on Lot 22 is isolated to the vicinity of surface soil sample SS-22A, where fill material was observed. Sample SS-22A was also discussed above under Lot 21.

Lot 38:
The results of this FSI identified isolated surface soil arsenic concerns on Lot 38 and the representative arsenic concentration across Lot 38 is above the IDEM R2 PL for commercial use (CSPL). To date, two samples from Lot 38 have identified arsenic at concentrations above IDEM R2 CSPLs. Thus, available analytical data indicates the elevated arsenic concerns on Lot 38 are isolated to an approximately 20-foot radius around surface soil sample SS-38.

Lot 41:
The results of this FSI identified isolated surface soil mercury concerns on Lot 41. To date, only one sample from Lot 41 has identified mercury at concentrations above IDEM R2 PLs established for residential use and excavation workers. Furthermore, the representative mercury concentration across Lot 41 decision unit is below the IDEM R2 RSPL. Thus, available analytical data indicates the elevated mercury concern on Lot 41 is isolated to an approximately 20-foot radius around surface soil sample SS-41.

Senior Housing Area:
The results of this FSI identified isolated surface soil arsenic concerns on the area proposed for Senior Housing. To date, only one sample from the area has identified arsenic at a concentration above the IDEM R2 PL established for residential use. Studies conducted by the IDEM and USGS indicate it is typical to identify arsenic, a naturally occurring element indigenous to soil formations in Indiana, in non-impacted soils of Northwest Indiana at levels ranging from 7.6 to 13.21-mg/Kg. Except for the arsenic identified in sample SS-04, the on-Site arsenic concentrations are within background levels. Furthermore, the representative arsenic concentration across the decision unit is below the IDEM R2 RSPL. Thus, available analytical data indicates the elevated arsenic concern on the area proposed for Senior Housing is isolated to an approximately 80-foot radius around surface soil sample SS-04.

4.3. Recommendations

Should the Site be developed into residential housing, it is our professional recommendation that corrective actions be conducted to reduce potential exposure pathways for future occupants. The most effective remedial action would be source removal, excavating the unsatisfactory soil and disposing in accordance with local, state and federal rules and regulations. The lots and isolated areas of concern are outlined on **Figure 6**.

Regarding soil management, in addition to the IDEM R2 PL exceedances, arsenic was identified in samples SS-21 SS-38C, SS-38G, and SS-52 at concentrations above the IDEM RCG SMTG SL. The soil within these areas should be managed in accordance with IDEM's Nonrule Policy Document WASTE-0064-NPD, *Uncontaminated Soil Policy*, effective April 10, 2015.

5. References

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Indiana Department of Environmental Management (IDEM), *Risk-Based Closure Guide*, Nonrule Policy Document WASTE-0046-R2, July 8, 2022.

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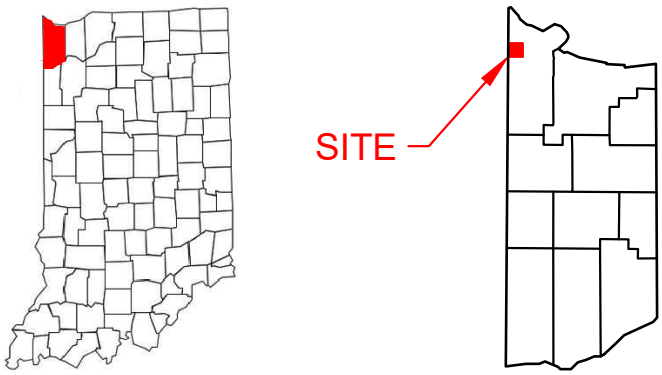
United States Geological Survey, *The National Geochemical Survey*, U.S. Geological Survey Open-File Report 2004-1001, Version 5.0, Updated September 30, 2008, https://mrdata.usgs.gov/geochem/doc/home.htm

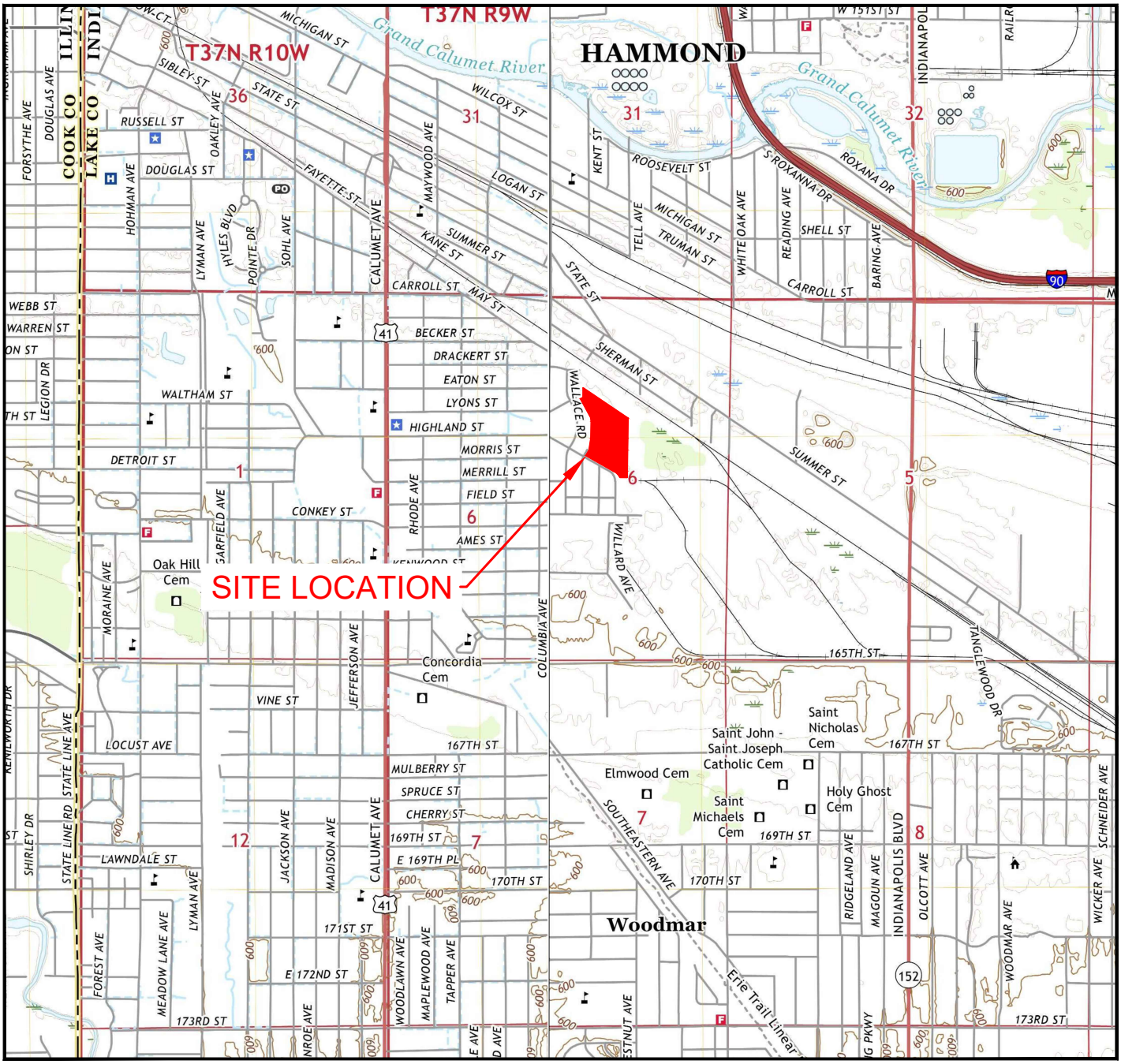
Appendix A

Figures



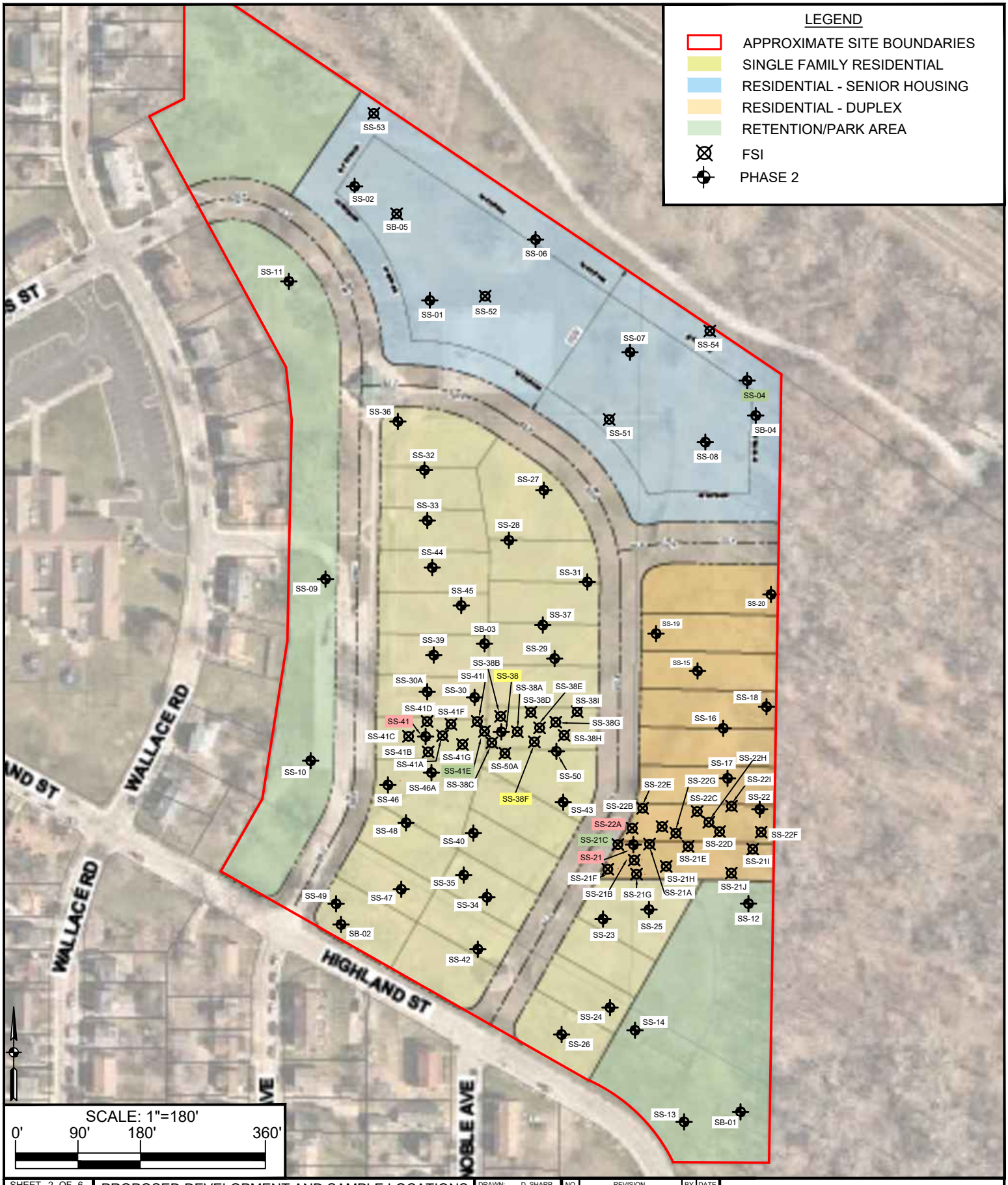
T36N / R9W
LAKE COUNTY
NORTH TOWNSHIP
HAMMOND, INDIANA
46320
NEIGHBORHOOD: 26911

N



ADAPTED FROM USGS
HIGHLAND, IN 2019, CALUMET CITY, IL 2018

SHEET 1 OF 6 FIGURE 1	SITE LOCATION MAP FORMER MEMORIAL PARK 1301 HIGHLAND STREET HAMMOND INDIANA	DRAWN: D. SHARP DESIGNED: APPRV'D: DATE: JAN. 3, 2024 PROJECT NUMBER: 23.2128.2	NO. / REVISION / BY / DATE	AMERECO, INC. CONSULTING ENGINEERS-PROJECT MANAGERS 54 MICHIGAN AVENUE VALPARAISO, IN 46383 219-531-0531	



SHEET 2 OF 6

FIGURE 2

PROPOSED DEVELOPMENT AND SAMPLE LOCATIONS

FORMER MEMORIAL PARK

1301 HIGHLAND STREET

HAMMOND INDIANA

DRAWN: D. SHARP
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PROJECT NUMBER: 23.2128.2

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CONSULTING ENGINEERS-PROJECT MANAGERS
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VALPARAISO, IN 46383 219-531-0531

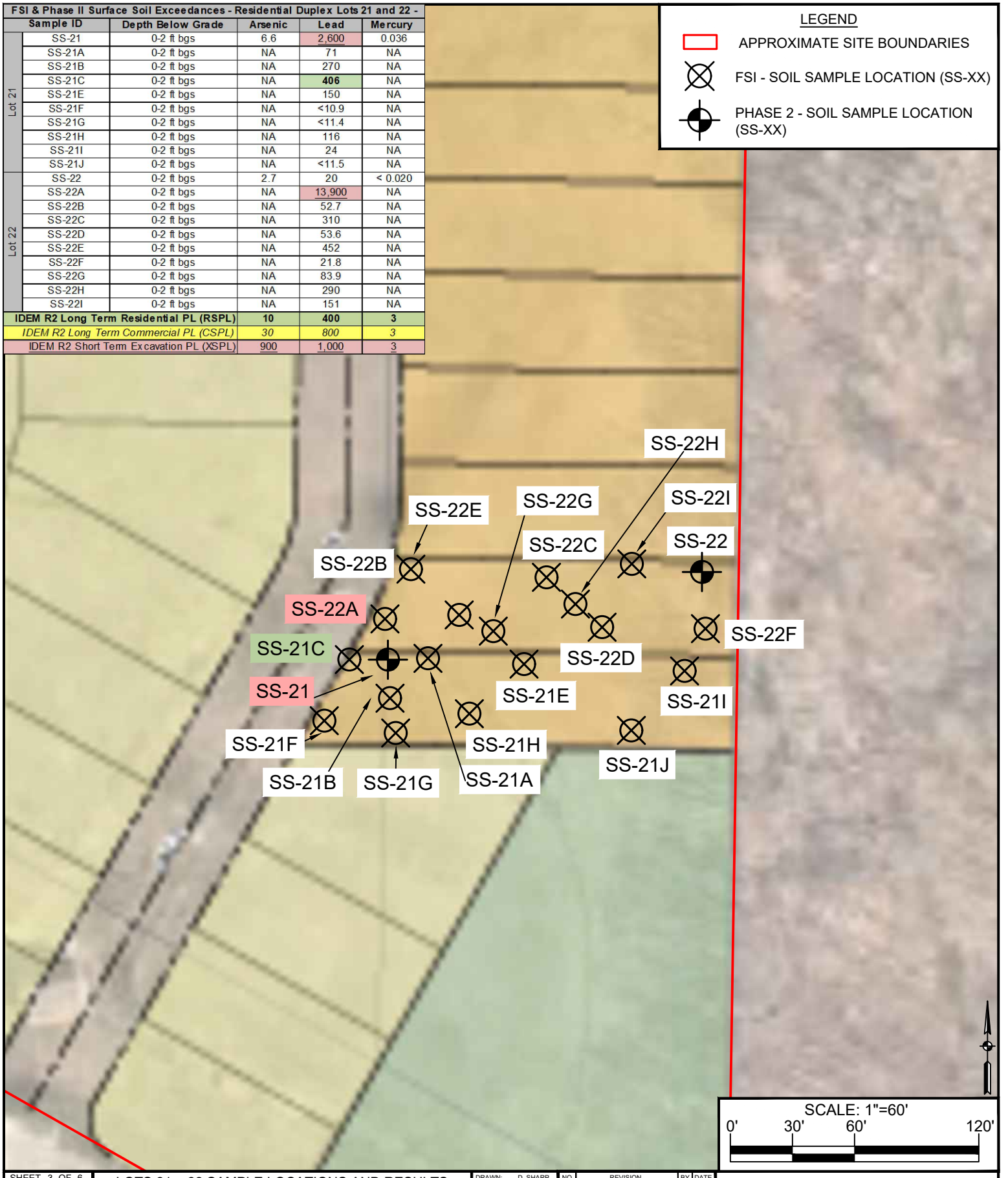
FSI & Phase II Surface Soil Exceedances - Residential Duplex Lots 21 and 22 -					
	Sample ID	Depth Below Grade	Arsenic	Lead	Mercury
Lot 21	SS-21	0-2 ft bgs	6.6	2,600	0.036
	SS-21A	0-2 ft bgs	NA	71	NA
	SS-21B	0-2 ft bgs	NA	270	NA
	SS-21C	0-2 ft bgs	NA	**406**	NA
	SS-21E	0-2 ft bgs	NA	150	NA
	SS-21F	0-2 ft bgs	NA	<10.9	NA
	SS-21G	0-2 ft bgs	NA	<11.4	NA
	SS-21H	0-2 ft bgs	NA	116	NA
	SS-21I	0-2 ft bgs	NA	24	NA
	SS-21J	0-2 ft bgs	NA	<11.5	NA
Lot 22	SS-22	0-2 ft bgs	2.7	20	< 0.020
	SS-22A	0-2 ft bgs	NA	13,900	NA
	SS-22B	0-2 ft bgs	NA	52.7	NA
	SS-22C	0-2 ft bgs	NA	310	NA
	SS-22D	0-2 ft bgs	NA	53.6	NA
	SS-22E	0-2 ft bgs	NA	452	NA
	SS-22F	0-2 ft bgs	NA	21.8	NA
	SS-22G	0-2 ft bgs	NA	83.9	NA
	SS-22H	0-2 ft bgs	NA	290	NA
	SS-22I	0-2 ft bgs	NA	151	NA
IDEM R2 Long Term Residential PL (RSPL)			**10**	**400**	**3**
IDEM R2 Long Term Commercial PL (CSPL)			*30*	*800*	*3*
IDEM R2 Short Term Excavation PL (XSPL)			900	1,000	3

LEGEND

APPROXIMATE SITE BOUNDARIES

FSI - SOIL SAMPLE LOCATION (SS-XX)

PHASE 2 - SOIL SAMPLE LOCATION (SS-XX)



SCALE: 1"=60'

0' 30' 60' 120'

SHEET 3 OF 6

FIGURE 3

LOTS 21 + 22 SAMPLE LOCATIONS AND RESULTS

FORMER MEMORIAL PARK
1301 HIGHLAND STREET
HAMMOND INDIANA

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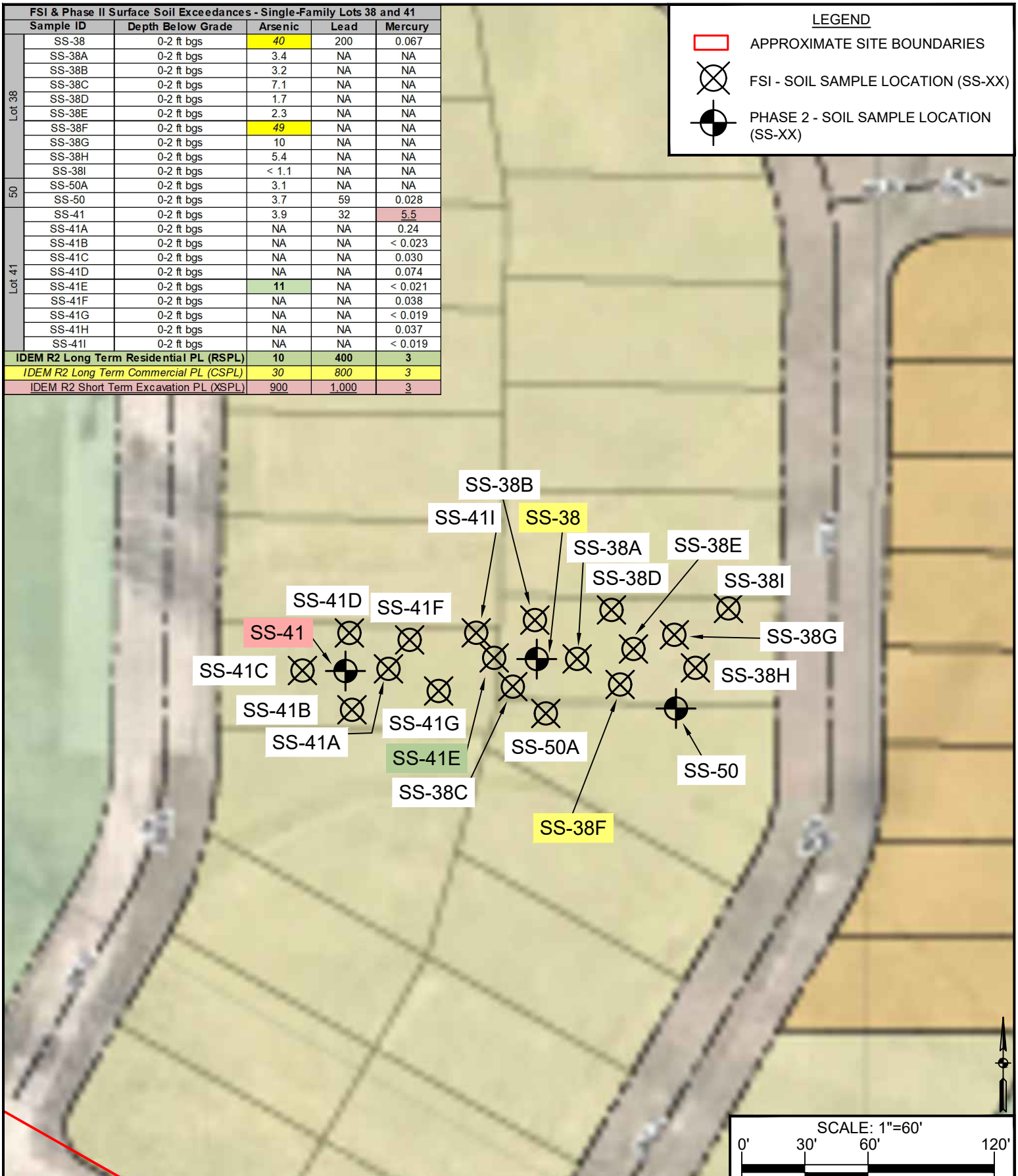
FSI & Phase II Surface Soil Exceedances - Single-Family Lots 38 and 41					
	Sample ID	Depth Below Grade	Arsenic	Lead	Mercury
Lot 38	SS-38	0-2 ft bgs	*40*	200	0.067
	SS-38A	0-2 ft bgs	3.4	NA	NA
	SS-38B	0-2 ft bgs	3.2	NA	NA
	SS-38C	0-2 ft bgs	7.1	NA	NA
	SS-38D	0-2 ft bgs	1.7	NA	NA
	SS-38E	0-2 ft bgs	2.3	NA	NA
	SS-38F	0-2 ft bgs	*49*	NA	NA
	SS-38G	0-2 ft bgs	10	NA	NA
	SS-38H	0-2 ft bgs	5.4	NA	NA
	SS-38I	0-2 ft bgs	< 1.1	NA	NA
50	SS-50A	0-2 ft bgs	3.1	NA	NA
	SS-50	0-2 ft bgs	3.7	59	0.028
Lot 41	SS-41	0-2 ft bgs	3.9	32	5.5
	SS-41A	0-2 ft bgs	NA	NA	0.24
	SS-41B	0-2 ft bgs	NA	NA	< 0.023
	SS-41C	0-2 ft bgs	NA	NA	0.030
	SS-41D	0-2 ft bgs	NA	NA	0.074
	SS-41E	0-2 ft bgs	**11**	NA	< 0.021
	SS-41F	0-2 ft bgs	NA	NA	0.038
	SS-41G	0-2 ft bgs	NA	NA	< 0.019
	SS-41H	0-2 ft bgs	NA	NA	0.037
	SS-41I	0-2 ft bgs	NA	NA	< 0.019
IDEM R2 Long Term Residential PL (RSPL)			**10**	**400**	**3**
IDEM R2 Long Term Commercial PL (CSPL)			*30*	*800*	*3*
IDEM R2 Short Term Excavation PL (XSPL)			900	1,000	3

LEGEND

APPROXIMATE SITE BOUNDARIES

FSI - SOIL SAMPLE LOCATION (SS-XX)

PHASE 2 - SOIL SAMPLE LOCATION (SS-XX)



SHEET 4 OF 6

FIGURE 4

LOTS 38 + 41 SAMPLE LOCATIONS AND RESULTS

FORMER MEMORIAL PARK
1301 HIGHLAND STREET

HAMMOND INDIANA

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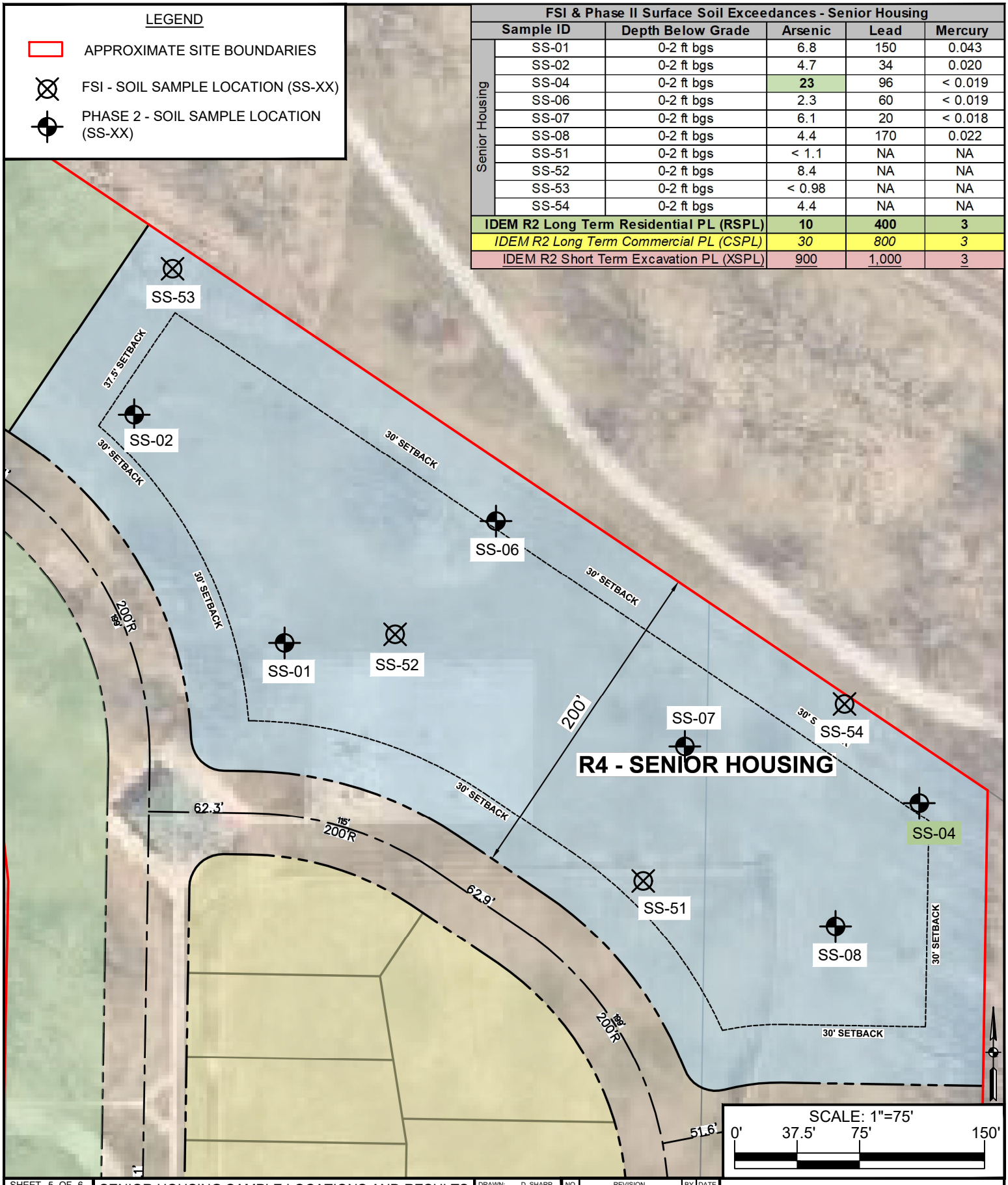
VALPARAISO, IN 46383 219-531-0531



FSI & Phase II Surface Soil Exceedances - Senior Housing					
	Sample ID	Depth Below Grade	Arsenic	Lead	Mercury
Senior Housing	SS-01	0-2 ft bgs	6.8	150	0.043
	SS-02	0-2 ft bgs	4.7	34	0.020
	SS-04	0-2 ft bgs	**23**	96	< 0.019
	SS-06	0-2 ft bgs	2.3	60	< 0.019
	SS-07	0-2 ft bgs	6.1	20	< 0.018
	SS-08	0-2 ft bgs	4.4	170	0.022
	SS-51	0-2 ft bgs	< 1.1	NA	NA
	SS-52	0-2 ft bgs	8.4	NA	NA
	SS-53	0-2 ft bgs	< 0.98	NA	NA
	SS-54	0-2 ft bgs	4.4	NA	NA
IDEM R2 Long Term Residential PL (RSPL)			**10**	**400**	**3**
IDEM R2 Long Term Commercial PL (CSPL)			*30*	*800*	*3*
IDEM R2 Short Term Excavation PL (XSPL)			900	1,000	3

SHEET 5 OF 6

FIGURE 5

SENIOR HOUSING SAMPLE LOCATIONS AND RESULTS

FORMER MEMORIAL PARK
1301 HIGHLAND STREET
HAMMOND INDIANA

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PROJECT NUMBER: 23.2128.2

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VALPARAISO, IN 46383 219-531-0531

SHEET 6 OF 6

FIGURE 6

PROPOSED DEVELOPMENT AREAS OF CONCERN

FORMER MEMORIAL PARK

1301 HIGHLAND STREET

HAMMOND INDIANA

DRAWN:	D. SHARP
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PROJECT NUMBER:	23.2128.2

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Appendix B

Tabulated Sample Results
And
ProUCL Output Data Sheets

Surface Soil Sample Summary

						Laboratory ID :	23110176-031	9025487	9025488	9025489
						Customer Sample ID :	SS-21	SS-21A	SS-21B	SS-21C
						Date Collected :	11/02/2023	12/13/2023	12/13/2023	12/13/2023
			IDEM R2 PLs 2023			2022 IDEM	Lot 21	Lot 21	Lot 21	Lot 21
Chemical			Long Term		Short Term	RCG	0-2-ft bgs	0-2-ft bgs	0-2-ft bgs	0-2-ft bgs
Name		CASRN	Residential	Commercial	Excavation	Soil MTG	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Metal	Arsenic	7440-38-2	10	30	900	5.90	6.6	NA	NA	NA
	Lead	7439-92-1	400	800	1,000	270	**2,600**	71	270	**406**
	Mercury	7439-97-6	3.00	3.00	3.00	2.10	0.036	NA	NA	NA

						Laboratory ID :	9025491	9025492	9025493	9025494
						Customer Sample ID :	SS-21E	SS-21F	SS-21G	SS-21H
						Date Collected :	12/13/2023	12/13/2023	12/13/2023	12/13/2023
			IDEM R2 PLs 2023			2022 IDEM	Lot 21	Lot 21	Lot 21	Lot 21
Chemical			Long Term		Short Term	RCG	0-2-ft bgs	0-2-ft bgs	0-2-ft bgs	0-2-ft bgs
Name		CASRN	Residential	Commercial	Excavation	Soil MTG	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Metal	Arsenic	7440-38-2	10	30	900	5.90	NA	NA	NA	NA
	Lead	7439-92-1	400	800	1,000	270	150	<10.9	<11.4	116
	Mercury	7439-97-6	3.00	3.00	3.00	2.10	NA	NA	NA	NA

						Laboratory ID :	9025495	9025496	23110176-032	9025490
						Customer Sample ID :	SS-21I	SS-21J	SS-22	SS-22A
						Date Collected :	12/13/2023	12/13/2023	11/02/2023	12/13/2023
			IDEM R2 PLs 2023			2022 IDEM	Lot 21	Lot 21	Lot 22	Lot 22
Chemical			Long Term		Short Term	RCG	0-2-ft bgs	0-2-ft bgs	0-2-ft bgs	0-2-ft bgs
Name		CASRN	Residential	Commercial	Excavation	Soil MTG	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Metal	Arsenic	7440-38-2	10	30	900	5.90	NA	NA	2.7	NA
	Lead	7439-92-1	400	800	1,000	270	24	<11.5	20	**13,900**
	Mercury	7439-97-6	3.00	3.00	3.00	2.10	NA	NA	< 0.020	NA

FSI
1301 Highland Street
Hammond, IN 46320
Project No. 23.2128.2

Amereco, Inc.
54 Michigan Avenue
Valparaiso, IN 46383
(219) 531-0531

Surface Soil Sample Summary

						Laboratory ID :	9039245	9039246	9039247	9039248
						Customer Sample ID :	SS-22B	SS-22C	SS-22D	SS-22E
						Date Collected :	12/14/2023	12/14/2023	12/14/2023	12/14/2023
			IDEM R2 PLs 2023			2022 IDEM	Lot 22	Lot 22	Lot 22	Lot 22
Chemical			Long Term		Short Term	RCG	0-2-ft bgs	0-2-ft bgs	0-2-ft bgs	0-2-ft bgs
Name		CASRN	Residential	Commercial	Excavation	Soil MTG	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Metal	Arsenic	7440-38-2	10	30	900	5.90	NA	NA	NA	NA
	Lead	7439-92-1	400	800	1,000	270	52.7	310	53.6	452
	Mercury	7439-97-6	3.00	3.00	3.00	2.10	NA	NA	NA	NA

						Laboratory ID :	9039249	9039250	9039251	9039252
						Customer Sample ID :	SS-22F	SS-22G	SS-22H	SS-22I
						Date Collected :	12/14/2023	12/14/2023	12/14/2023	12/14/2023
			IDEM R2 PLs 2023			2022 IDEM	Lot 22	Lot 22	Lot 22	Lot 22
Chemical			Long Term		Short Term	RCG	0-2-ft bgs	0-2-ft bgs	0-2-ft bgs	0-2-ft bgs
Name		CASRN	Residential	Commercial	Excavation	Soil MTG	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Metal	Arsenic	7440-38-2	10	30	900	5.90	NA	NA	NA	NA
	Lead	7439-92-1	400	800	1,000	270	21.8	83.9	290	151
	Mercury	7439-97-6	3.00	3.00	3.00	2.10	NA	NA	NA	NA

						Laboratory ID :	23110176-048	23120443-010	23120443-012	23120443-013
						Customer Sample ID :	SS-38	SS-38A	SS-38B	SS-38C
						Date Collected :	11/03/2023	12/13/2023	12/13/2023	12/13/2023
			IDEM R2 PLs 2023			2022 IDEM	Lot 38	Lot 38	Lot 38	Lot 38
Chemical			Long Term		Short Term	RCG	0-2-ft bgs	0-2-ft bgs	0-2-ft bgs	0-2-ft bgs
Name		CASRN	Residential	Commercial	Excavation	Soil MTG	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Metal	Arsenic	7440-38-2	10	30	900	5.90	**40**	3.4	3.2	7.1
	Lead	7439-92-1	400	800	1,000	270	200	NA	NA	NA
	Mercury	7439-97-6	3.00	3.00	3.00	2.10	0.067	NA	NA	NA

Surface Soil Sample Summary

						Laboratory ID :	23120443-014	23120443-015	23120443-016	23120443-017
						Customer Sample ID :	SS-38D	SS-38E	SS-38F	SS-38G
						Date Collected :	12/13/2023	12/13/2023	12/13/2023	12/13/2023
			IDEM R2 PLs 2023			2022 IDEM	Lot 38	Lot 38	Lot 38	Lot 38
Chemical			Long Term		Short Term	RCG	0-2-ft bgs	0-2-ft bgs	0-2-ft bgs	0-2-ft bgs
Name		CASRN	Residential	Commercial	Excavation	Soil MTG	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Metal	Arsenic	7440-38-2	10	30	900	5.90	1.7	2.3	**49**	10
	Lead	7439-92-1	400	800	1,000	270	NA	NA	NA	NA
	Mercury	7439-97-6	3.00	3.00	3.00	2.10	NA	NA	NA	NA

						Laboratory ID :	23120443-018	23120443-019	23120443-011	23110176-060
						Customer Sample ID :	SS-38H	SS-38I	SS-50A	SS-50
						Date Collected :	12/13/2023	12/13/2023	12/13/2023	11/03/2023
			IDEM R2 PLs 2023			2022 IDEM	Lot 38	Lot 38	Lot 50	Lot 50
Chemical			Long Term		Short Term	RCG	0-2-ft bgs	0-2-ft bgs	0-2-ft bgs	0-2-ft bgs
Name		CASRN	Residential	Commercial	Excavation	Soil MTG	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Metal	Arsenic	7440-38-2	10	30	900	5.90	5.4	< 1.1	3.1	3.7
	Lead	7439-92-1	400	800	1,000	270	NA	NA	NA	59
	Mercury	7439-97-6	3.00	3.00	3.00	2.10	NA	NA	NA	0.028

						Laboratory ID :	23110176-051	23120443-001	23120443-002	23120443-003
						Customer Sample ID :	SS-41	SS-41A	SS-41B	SS-41C
						Date Collected :	11/03/2023	12/13/2023	12/13/2023	12/13/2023
			IDEM R2 PLs 2023			2022 IDEM	Lot 41	Lot 41	Lot 41	Lot 41
Chemical			Long Term		Short Term	RCG	0-2-ft bgs	0-2-ft bgs	0-2-ft bgs	0-2-ft bgs
Name		CASRN	Residential	Commercial	Excavation	Soil MTG	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Metal	Arsenic	7440-38-2	10	30	900	5.90	3.9	NA	NA	NA
	Lead	7439-92-1	400	800	1,000	270	32	NA	NA	NA
	Mercury	7439-97-6	3.00	3.00	3.00	2.10	**5.50**	0.240	< 0.023	0.030

FSI
1301 Highland Street
Hammond, IN 46320
Project No. 23.2128.2

Amereco, Inc.
54 Michigan Avenue
Valparaiso, IN 46383
(219) 531-0531

Surface Soil Sample Summary

						Laboratory ID :	23120443-004	23120443-005	23120443-006	23120443-007
						Customer Sample ID :	SS-41D	SS-41E	SS-41F	SS-41G
						Date Collected :	12/13/2023	12/13/2023	12/13/2023	12/13/2023
			IDEM R2 PLs 2023			2022 IDEM	Lot 41	Lot 41	Lot 41	Lot 41
Chemical			Long Term		Short Term	RCG	0-2-ft bgs	0-2-ft bgs	0-2-ft bgs	0-2-ft bgs
Name		CASRN	Residential	Commercial	Excavation	Soil MTG	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Metal	Arsenic	7440-38-2	10	30	900	5.90	NA	**11**	NA	NA
	Lead	7439-92-1	400	800	1,000	270	NA	NA	NA	NA
	Mercury	7439-97-6	3.00	3.00	3.00	2.10	0.074	< 0.021	0.038	< 0.019

						Laboratory ID :	23120443-008	23120443-009	23120443-020	23120443-021
						Customer Sample ID :	SS-41H	SS-41I	SS-51	SS-52
						Date Collected :	12/13/2023	12/13/2023	12/13/2023	12/13/2023
			IDEM R2 PLs 2023			2022 IDEM	Lot 41	Lot 41	Senior Housing	Senior Housing
Chemical			Long Term		Short Term	RCG	0-2-ft bgs	0-2-ft bgs	0-2-ft bgs	0-2-ft bgs
Name		CASRN	Residential	Commercial	Excavation	Soil MTG	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Metal	Arsenic	7440-38-2	10	30	900	5.90	NA	NA	< 1.1	8.4
	Lead	7439-92-1	400	800	1,000	270	NA	NA	NA	NA
	Mercury	7439-97-6	3.00	3.00	3.00	2.10	0.037	< 0.019	NA	NA

						Laboratory ID :	23120443-022	23120443-023
						Customer Sample ID :	SS-53	SS-54
						Date Collected :	12/13/2023	12/13/2023
			IDEM R2 PLs 2023			2022 IDEM	Senior Housing	Senior Housing
Chemical			Long Term		Short Term	RCG	0-2-ft bgs	0-2-ft bgs
Name		CASRN	Residential	Commercial	Excavation	Soil MTG	mg/Kg	mg/Kg
Metal	Arsenic	7440-38-2	10	30	900	5.90	< 0.98	4.4
	Lead	7439-92-1	400	800	1,000	270	NA	NA
	Mercury	7439-97-6	3.00	3.00	3.00	2.10	NA	NA

bgs = Below ground surface
NA = Not Analyzed
IDEM = Indiana Department of Environmental Management
Published Levels (PLs) are per Table 1 of IDEM's Risk-based Closure Guide (R2), as updated for 2023
All values are reported in milligrams per kilogram (mg/Kg)
Bolded and shaded results exceed IDEM R2 2023 PLs
Blue shaded values have detected results exceeding IDEM RCG Soil MTG 2022 levels

Surface Soil Representative Concentrations - Lead

	Sample ID	Date Collected	Lead
Lot 21	SS-21	11/02/23	2,600
	SS-21A	12/13/23	71
	SS-21B	12/13/23	270
	SS-21C	12/13/23	406
	SS-21E	12/13/23	150
	SS-21F	12/13/23	5.45
	SS-21G	12/13/23	5.70
	SS-21H	12/13/23	116
	SS-21I	12/13/23	24
	SS-21J	12/13/23	5.75
		Calculated Average:	365.39
Lot 22	SS-22	11/02/23	20
	SS-22A	12/13/23	13,900
	SS-22B	12/14/23	52.70
	SS-22C	12/14/23	310
	SS-22D	12/14/23	53.60
	SS-22E	12/14/23	452
	SS-22F	12/14/23	21.80
	SS-22G	12/14/23	83.90
	SS-22H	12/14/23	290
	SS-22I	12/14/23	151
		Calculated Average:	**1,533.50**
		IDEM Residential Soil PL:	**400**
		IDEM Commercial Soil PL:	**800**
		IDEM Excavation Soil PL:	**1,000**

IDEM = Indiana Department of Environmental Management.

Published Levels (PLs) are per Table 1 of IDEM's Risk-based Closure Guide (R2), as updated for 2023.

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

Bolded and shaded results exceed IDEM R2 2023 PLs.

UCL Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	ProUCL 5.2 1/4/2024 1:10:10 PM
From File	ProUCL input_b.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Surface Soil - Arsenic - Lot 38

General Statistics

Total Number of Observations	10	Number of Distinct Observations	10
		Number of Missing Observations	0
Minimum	0.55	Mean	12.27
Maximum	49	Median	4.4
SD	17.34	Std. Error of Mean	5.484
Coefficient of Variation	1.414	Skewness	1.737

Normal GOF Test

Shapiro Wilk Test Statistic	0.671	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.781	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.352	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.304	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	22.32	95% Adjusted-CLT UCL (Chen-1995)	24.5
		95% Modified-t UCL (Johnson-1978)	22.82

Gamma GOF Test

A-D Test Statistic	0.611	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.76	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.207	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.277	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.718	k star (bias corrected MLE)	0.569
Theta hat (MLE)	17.08	Theta star (bias corrected MLE)	21.54
nu hat (MLE)	14.36	nu star (bias corrected)	11.39
MLE Mean (bias corrected)	12.27	MLE Sd (bias corrected)	16.25
		Approximate Chi Square Value (0.05)	4.827
Adjusted Level of Significance	0.0267	Adjusted Chi Square Value	4.11

Assuming Gamma Distribution

95% Approximate Gamma UCL	28.94	95% Adjusted Gamma UCL	33.98

Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.958	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.869	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.129	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.241	Data appear Lognormal at 10% Significance Level	
Data appear Lognormal at 10% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	-0.598	Mean of logged Data	1.668
Maximum of Logged Data	3.892	SD of logged Data	1.378
Assuming Lognormal Distribution			
95% H-UCL	83.24	90% Chebyshev (MVUE) UCL	28.06
95% Chebyshev (MVUE) UCL	35.44	97.5% Chebyshev (MVUE) UCL	45.67
99% Chebyshev (MVUE) UCL	65.78		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution			
Nonparametric Distribution Free UCLs			
95% CLT UCL	21.29	95% BCA Bootstrap UCL	24.85
95% Standard Bootstrap UCL	20.95	95% Bootstrap-t UCL	60.38
95% Hall's Bootstrap UCL	76.52	95% Percentile Bootstrap UCL	21.67
90% Chebyshev(Mean, Sd) UCL	28.72	95% Chebyshev(Mean, Sd) UCL	36.17
97.5% Chebyshev(Mean, Sd) UCL	46.51	99% Chebyshev(Mean, Sd) UCL	66.83
Suggested UCL to Use			
95% Adjusted Gamma UCL	33.98		
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 1/4/2024 1:10:40 PM
From File	ProUCL input_c.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Surface Soil - Mercury - Lot 41

General Statistics

Total Number of Observations	10	Number of Distinct Observations	9
		Number of Missing Observations	0
Minimum	0.0095	Mean	0.596
Maximum	5.5	Median	0.0335
SD	1.724	Std. Error of Mean	0.545
Coefficient of Variation	2.893	Skewness	3.153

Normal GOF Test

Shapiro Wilk Test Statistic	0.393	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.781	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.482	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.304	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	1.596	95% Adjusted-CLT UCL (Chen-1995)	2.074
		95% Modified-t UCL (Johnson-1978)	1.686

Gamma GOF Test

A-D Test Statistic	1.793	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.824	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.364	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.29	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.274	k star (bias corrected MLE)	0.258
Theta hat (MLE)	2.177	Theta star (bias corrected MLE)	2.307
nu hat (MLE)	5.477	nu star (bias corrected)	5.167
MLE Mean (bias corrected)	0.596	MLE Sd (bias corrected)	1.173
		Approximate Chi Square Value (0.05)	1.23
Adjusted Level of Significance	0.0267	Adjusted Chi Square Value	0.931

Assuming Gamma Distribution

95% Approximate Gamma UCL	2.503	95% Adjusted Gamma UCL	3.306

Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.794	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.869	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.24	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.241	Data appear Lognormal at 10% Significance Level	
Data appear Approximate Lognormal at 10% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	-4.656	Mean of logged Data	-3.073
Maximum of Logged Data	1.705	SD of logged Data	1.977
Assuming Lognormal Distribution			
95% H-UCL	11.04	90% Chebyshev (MVUE) UCL	0.638
95% Chebyshev (MVUE) UCL	0.828	97.5% Chebyshev (MVUE) UCL	1.093
99% Chebyshev (MVUE) UCL	1.612		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution			
Nonparametric Distribution Free UCLs			
95% CLT UCL	1.493	95% BCA Bootstrap UCL	2.244
95% Standard Bootstrap UCL	1.446	95% Bootstrap-t UCL	48.85
95% Hall's Bootstrap UCL	24.55	95% Percentile Bootstrap UCL	1.67
90% Chebyshev(Mean, Sd) UCL	2.232	95% Chebyshev(Mean, Sd) UCL	2.973
97.5% Chebyshev(Mean, Sd) UCL	4.002	99% Chebyshev(Mean, Sd) UCL	6.022
Suggested UCL to Use			
95% Student's-t UCL	1.596		
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 1/4/2024 1:12:19 PM
From File	ProUCL input_d.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Surface Soil - Senior Housing - Arsenic

General Statistics

Total Number of Observations	10	Number of Distinct Observations	9
		Number of Missing Observations	0
Minimum	0.49	Mean	6.114
Maximum	23	Median	4.55
SD	6.462	Std. Error of Mean	2.044
Coefficient of Variation	1.057	Skewness	2.269

Normal GOF Test

Shapiro Wilk Test Statistic	0.741	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.781	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.262	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.304	Data appear Normal at 1% Significance Level

Data appear Approximate Normal at 1% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	9.86	95% Adjusted-CLT UCL (Chen-1995)	11.04
		95% Modified-t UCL (Johnson-1978)	10.1

Gamma GOF Test

A-D Test Statistic	0.401	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.746	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.198	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.273	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.121	k star (bias corrected MLE)	0.851
Theta hat (MLE)	5.456	Theta star (bias corrected MLE)	7.183
nu hat (MLE)	22.41	nu star (bias corrected)	17.02
MLE Mean (bias corrected)	6.114	MLE Sd (bias corrected)	6.627
		Approximate Chi Square Value (0.05)	8.689
Adjusted Level of Significance	0.0267	Adjusted Chi Square Value	7.675

Assuming Gamma Distribution

95% Approximate Gamma UCL	11.98	95% Adjusted Gamma UCL	13.56

Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.9	**Shapiro Wilk Lognormal GOF Test**	
10% Shapiro Wilk Critical Value	0.869	Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.26	**Lilliefors Lognormal GOF Test**	
10% Lilliefors Critical Value	0.241	Data Not Lognormal at 10% Significance Level	
Data appear Approximate Lognormal at 10% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	-0.713	Mean of logged Data	1.302
Maximum of Logged Data	3.135	SD of logged Data	1.188
Assuming Lognormal Distribution			
95% H-UCL	29.77	90% Chebyshev (MVUE) UCL	14.7
95% Chebyshev (MVUE) UCL	18.32	97.5% Chebyshev (MVUE) UCL	23.34
99% Chebyshev (MVUE) UCL	33.2		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution			
Nonparametric Distribution Free UCLs			
95% CLT UCL	9.475	95% BCA Bootstrap UCL	10.71
95% Standard Bootstrap UCL	9.267	95% Bootstrap-t UCL	13.39
95% Hall's Bootstrap UCL	24.86	95% Percentile Bootstrap UCL	9.558
90% Chebyshev(Mean, Sd) UCL	12.24	95% Chebyshev(Mean, Sd) UCL	15.02
97.5% Chebyshev(Mean, Sd) UCL	18.88	99% Chebyshev(Mean, Sd) UCL	26.45
Suggested UCL to Use			
95% Student's-t UCL	9.86		
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.			
When a data set follows an approximate distribution passing only one of the GOF tests,			
it is suggested to use a UCL based upon a distribution passing both GOF tests in ProUCL			
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.			

Appendix C

Surface Soil Sample Log Form

AMERECO, INC.

[redacted]

Consulting ◘ Engineering ◘ Project Management
54 Michigan Avenue
Valparaiso, IN 46383
(219) 531-0531
Fax: (219) 464-9166

SURFACE SOIL SAMPLE LOG FORM

Client: Hammond Redevelopment Commission
City of Hammond
5925 Calumet Avenue, Suite 315
Hammond, IN 46320

Project: Former Memorial Park
1301 Highland Street
Hammond, IN 46320

Project No. 23.2128.2

Date(s) Sampled: 12/13/2023 and 12/14/2023

****

SAMPLE ID	MATRIX	LOCATION and DESCRIPTION
SS-21A	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Fill material
SS-21B	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Fill material
SS-21C	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Fill material
SS-21E	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Silty sand
SS-21F	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Sand
SS-21G	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Sand
SS-21H	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Fill material
SS-21I	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Sand
SS-21J	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Sand
SS-22A	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Fill material
SS-22B	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Silt
SS-22C	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Silty sand
SS-22D	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Sand
SS-22E	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Trace fill material underlain with silty sand
SS-22F	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Silty sand

Consulting ◘ Engineering ◘ Project Management
54 Michigan Avenue
Valparaiso, IN 46383
(219) 531-0531
Fax: (219) 464-9166

SAMPLE ID	MATRIX	LOCATION and DESCRIPTION
SS-22G	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Silty sand
SS-22H	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Silty sand
SS-22I	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Silty sand
SS-38A	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Sand
SS-50A	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Sand
SS-38B	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Sand
SS-38C	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Silty sand
SS-38D	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Sand
SS-38E	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Sand
SS-38F	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Sand
SS-38G	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Sand
SS-38H	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Sand
SS-38I	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Sand
SS-41A	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Sand
SS-41B	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Sand
SS-41C	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Silty sand
SS-41D	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Sand
SS-41E	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Silt
SS-41F	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Silty sand
SS-41G	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Sand
SS-41H	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Silty sand

AMERECO, INC.

[redacted]

Consulting ◘ Engineering ◘ Project Management
54 Michigan Avenue
Valparaiso, IN 46383
(219) 531-0531
Fax: (219) 464-9166

SAMPLE ID	MATRIX	LOCATION and DESCRIPTION
SS-41I	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Sand
SS-51	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Sand
SS-52	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Silty sand
SS-53	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Silty sand
SS-54	Soil	Soil Sample Collected From 0-2-feet bgs, Cool to 4°C ±2° Fill material to approximately 0-1.5-feet bgs underlain by silty sand

bgs = below ground surface

Analyzed by: Sterling Labs (arsenic and mercury) and Accurate Analytical Testing (lead)

Ref Number: Sterling 23120443 and AAT 985027

Sampled by: Ross Yeater

Appendix D

Laboratory Reports

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

December 23, 2023

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

Analytical Report for Work Order: 23120443 Revision 0

RE: 23.2128.2, Former Memorial Park, Hammond, IN.

Dear Amereco Inc.:

Sterling Labs received 23 samples for the referenced project on 12/15/2023 10:05:00 AM. The analytical results are presented in the following report.

All analyses were performed in accordance with the requirements of 35 IAC Part 186 / TNI standards. Analyses were performed in accordance with methods as referenced on the analytical report. Those analytical results expressed on a dry weight basis are also noted on the analytical report.

All analyses were performed within established holding time criteria, and all Quality Control criteria met EPA or laboratory specifications except when noted in the Case Narrative or Analytical Report. 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,

Craig Chawla
Project Manager

Date: December 23, 2023

Customer: Amereco Inc.
Project: 23.2128.2, Former Memorial Park, Hammond, IN.
Work Order: 23120443 Revision 0

Work Order Sample Summary

Lab Sample ID	Customer Sample ID	Tag Number	Collection Date	Date Received
23120443-001A	SS-41A		12/13/2023 10:35:00 AM	12/15/2023
23120443-002A	SS-41B		12/13/2023 10:46:00 AM	12/15/2023
23120443-003A	SS-41C		12/13/2023 10:55:00 AM	12/15/2023
23120443-004A	SS-41D		12/13/2023 11:18:00 AM	12/15/2023
23120443-005A	SS-41E		12/13/2023 12:18:00 PM	12/15/2023
23120443-006A	SS-41F		12/13/2023 11:44:00 AM	12/15/2023
23120443-007A	SS-41G		12/13/2023 11:58:00 AM	12/15/2023
23120443-008A	SS-41H		12/13/2023 11:34:00 AM	12/15/2023
23120443-009A	SS-41I		12/13/2023 12:10:00 PM	12/15/2023
23120443-010A	SS-38A		12/13/2023 1:00:00 PM	12/15/2023
23120443-011A	SS-50A		12/13/2023 12:41:00 PM	12/15/2023
23120443-012A	SS-38B		12/13/2023 12:54:00 PM	12/15/2023
23120443-013A	SS-38C		12/13/2023 12:30:00 PM	12/15/2023
23120443-014A	SS-38D		12/13/2023 1:28:00 PM	12/15/2023
23120443-015A	SS-38E		12/13/2023 1:21:00 PM	12/15/2023
23120443-016A	SS-38F		12/13/2023 1:10:00 PM	12/15/2023
23120443-017A	SS-38G		12/13/2023 1:46:00 PM	12/15/2023
23120443-018A	SS-38H		12/13/2023 1:36:00 PM	12/15/2023
23120443-019A	SS-38I		12/13/2023 1:54:00 PM	12/15/2023
23120443-020A	SS-51		12/13/2023 3:39:00 PM	12/15/2023
23120443-021A	SS-52		12/13/2023 3:57:00 PM	12/15/2023
23120443-022A	SS-53		12/13/2023 4:04:00 PM	12/15/2023
23120443-023A	SS-54		12/13/2023 3:49:00 PM	12/15/2023

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: December 23, 2023
Date Printed: December 23, 2023

Analytical Results

Customer: Amereco Inc.
Project: 23.2128.2, Former Memorial Park, Hammond, IN. **Work Order:** 23120443 Revision 0

Lab ID: 23120443-001 **Collection Date:** 12/13/2023 10:35:00 AM
Customer Sample ID: SS-41A **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Mercury	**SW7471B**			Prep Date: **12/22/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Mercury	0.24	0.018		mg/Kg-dry	1	12/22/2023
Percent Moisture	**D2974**			Prep Date: **12/21/2023**		Analyst: **EPD**
Percent Moisture	10.9	0.2	*	wt%	1	12/22/2023

Lab ID: 23120443-002 **Collection Date:** 12/13/2023 10:46:00 AM
Customer Sample ID: SS-41B **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Mercury	**SW7471B**			Prep Date: **12/22/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Mercury	ND	0.023		mg/Kg-dry	1	12/22/2023
Percent Moisture	**D2974**			Prep Date: **12/21/2023**		Analyst: **EPD**
Percent Moisture	13.8	0.2	*	wt%	1	12/22/2023

Lab ID: 23120443-003 **Collection Date:** 12/13/2023 10:55:00 AM
Customer Sample ID: SS-41C **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Mercury	**SW7471B**			Prep Date: **12/22/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Mercury	0.030	0.022		mg/Kg-dry	1	12/22/2023
Percent Moisture	**D2974**			Prep Date: **12/21/2023**		Analyst: **EPD**
Percent Moisture	15.0	0.2	*	wt%	1	12/22/2023

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: December 23, 2023
Date Printed: December 23, 2023

Analytical Results

Customer: Amereco Inc.
Project: 23.2128.2, Former Memorial Park, Hammond, IN. **Work Order:** 23120443 Revision 0

Lab ID: 23120443-004 **Collection Date:** 12/13/2023 11:18:00 AM
Customer Sample ID: SS-41D **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Mercury	**SW7471B**			Prep Date: **12/22/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Mercury	0.074	0.018		mg/Kg-dry	1	12/22/2023
Percent Moisture	**D2974**			Prep Date: **12/21/2023**		Analyst: **EPD**
Percent Moisture	11.6	0.2	*	wt%	1	12/22/2023

Lab ID: 23120443-005 **Collection Date:** 12/13/2023 12:18:00 PM
Customer Sample ID: SS-41E **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/22/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Arsenic	11	1.1		mg/Kg-dry	10	12/22/2023
Mercury	**SW7471B**			Prep Date: **12/22/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Mercury	ND	0.021		mg/Kg-dry	1	12/22/2023
Percent Moisture	**D2974**			Prep Date: **12/21/2023**		Analyst: **EPD**
Percent Moisture	14.2	0.2	*	wt%	1	12/22/2023

Lab ID: 23120443-006 **Collection Date:** 12/13/2023 11:44:00 AM
Customer Sample ID: SS-41F **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Mercury	**SW7471B**			Prep Date: **12/22/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Mercury	0.038	0.022		mg/Kg-dry	1	12/22/2023
Percent Moisture	**D2974**			Prep Date: **12/21/2023**		Analyst: **EPD**
Percent Moisture	20.6	0.2	*	wt%	1	12/22/2023

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: December 23, 2023
Date Printed: December 23, 2023

Analytical Results

Customer: Amereco Inc.
Project: 23.2128.2, Former Memorial Park, Hammond, IN. **Work Order:** 23120443 Revision 0

Lab ID: 23120443-007 **Collection Date:** 12/13/2023 11:58:00 AM
Customer Sample ID: SS-41G **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Mercury	**SW7471B**			Prep Date: **12/22/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Mercury	ND	0.019		mg/Kg-dry	1	12/22/2023
Percent Moisture	**D2974**			Prep Date: **12/21/2023**		Analyst: **EPD**
Percent Moisture	11.0	0.2	*	wt%	1	12/22/2023

Lab ID: 23120443-008 **Collection Date:** 12/13/2023 11:34:00 AM
Customer Sample ID: SS-41H **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Mercury	**SW7471B**			Prep Date: **12/22/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Mercury	0.037	0.018		mg/Kg-dry	1	12/22/2023
Percent Moisture	**D2974**			Prep Date: **12/21/2023**		Analyst: **EPD**
Percent Moisture	8.9	0.2	*	wt%	1	12/22/2023

Lab ID: 23120443-009 **Collection Date:** 12/13/2023 12:10:00 PM
Customer Sample ID: SS-41I **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Mercury	**SW7471B**			Prep Date: **12/22/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Mercury	ND	0.019		mg/Kg-dry	1	12/22/2023
Percent Moisture	**D2974**			Prep Date: **12/21/2023**		Analyst: **EPD**
Percent Moisture	8.2	0.2	*	wt%	1	12/22/2023

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: December 23, 2023
Date Printed: December 23, 2023

Analytical Results

Customer: Amereco Inc.
Project: 23.2128.2, Former Memorial Park, Hammond, IN. **Work Order:** 23120443 Revision 0

Lab ID: 23120443-010 **Collection Date:** 12/13/2023 1:00:00 PM
Customer Sample ID: SS-38A **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/22/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Arsenic	3.4	1.1		mg/Kg-dry	10	12/22/2023
Percent Moisture	**D2974**			Prep Date: **12/21/2023**		Analyst: **EPD**
Percent Moisture	9.7	0.2	*	wt%	1	12/22/2023

Lab ID: 23120443-011 **Collection Date:** 12/13/2023 12:41:00 PM
Customer Sample ID: SS-50A **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/22/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Arsenic	3.1	1.0		mg/Kg-dry	10	12/22/2023
Percent Moisture	**D2974**			Prep Date: **12/21/2023**		Analyst: **EPD**
Percent Moisture	14.0	0.2	*	wt%	1	12/22/2023

Lab ID: 23120443-012 **Collection Date:** 12/13/2023 12:54:00 PM
Customer Sample ID: SS-38B **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/22/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Arsenic	3.2	1.0		mg/Kg-dry	10	12/22/2023
Percent Moisture	**D2974**			Prep Date: **12/21/2023**		Analyst: **EPD**
Percent Moisture	7.3	0.2	*	wt%	1	12/22/2023

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: December 23, 2023
Date Printed: December 23, 2023

Analytical Results

Customer: Amereco Inc.
Project: 23.2128.2, Former Memorial Park, Hammond, IN. **Work Order:** 23120443 Revision 0

Lab ID: 23120443-013 **Collection Date:** 12/13/2023 12:30:00 PM
Customer Sample ID: SS-38C **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/22/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Arsenic	7.1	1.2		mg/Kg-dry	10	12/22/2023
Percent Moisture	**D2974**			Prep Date: **12/21/2023**		Analyst: **EPD**
Percent Moisture	20.7	0.2	*	wt%	1	12/22/2023

Lab ID: 23120443-014 **Collection Date:** 12/13/2023 1:28:00 PM
Customer Sample ID: SS-38D **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/22/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Arsenic	1.7	1.0		mg/Kg-dry	10	12/22/2023
Percent Moisture	**D2974**			Prep Date: **12/21/2023**		Analyst: **EPD**
Percent Moisture	5.6	0.2	*	wt%	1	12/22/2023

Lab ID: 23120443-015 **Collection Date:** 12/13/2023 1:21:00 PM
Customer Sample ID: SS-38E **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/22/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Arsenic	2.3	0.95		mg/Kg-dry	10	12/22/2023
Percent Moisture	**D2974**			Prep Date: **12/21/2023**		Analyst: **EPD**
Percent Moisture	6.7	0.2	*	wt%	1	12/22/2023

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: December 23, 2023
Date Printed: December 23, 2023

Analytical Results

Customer: Amereco Inc.
Project: 23.2128.2, Former Memorial Park, Hammond, IN. **Work Order:** 23120443 Revision 0

Lab ID: 23120443-016 **Collection Date:** 12/13/2023 1:10:00 PM
Customer Sample ID: SS-38F **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/22/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Arsenic	49	1.2		mg/Kg-dry	10	12/22/2023
Percent Moisture	**D2974**			Prep Date: **12/21/2023**		Analyst: **EPD**
Percent Moisture	18.1	0.2	*	wt%	1	12/22/2023

Lab ID: 23120443-017 **Collection Date:** 12/13/2023 1:46:00 PM
Customer Sample ID: SS-38G **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/22/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Arsenic	10	1.1		mg/Kg-dry	10	12/22/2023
Percent Moisture	**D2974**			Prep Date: **12/21/2023**		Analyst: **EPD**
Percent Moisture	14.5	0.2	*	wt%	1	12/22/2023

Lab ID: 23120443-018 **Collection Date:** 12/13/2023 1:36:00 PM
Customer Sample ID: SS-38H **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/22/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Arsenic	5.4	1.1		mg/Kg-dry	10	12/22/2023
Percent Moisture	**D2974**			Prep Date: **12/21/2023**		Analyst: **EPD**
Percent Moisture	11.6	0.2	*	wt%	1	12/22/2023

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: December 23, 2023
Date Printed: December 23, 2023

Analytical Results

Customer: Amereco Inc.
Project: 23.2128.2, Former Memorial Park, Hammond, IN. **Work Order:** 23120443 Revision 0

Lab ID: 23120443-019 **Collection Date:** 12/13/2023 1:54:00 PM
Customer Sample ID: SS-38I **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/22/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Arsenic	ND	1.1		mg/Kg-dry	10	12/22/2023
Percent Moisture	**D2974**			Prep Date: **12/21/2023**		Analyst: **EPD**
Percent Moisture	12.3	0.2	*	wt%	1	12/22/2023

Lab ID: 23120443-020 **Collection Date:** 12/13/2023 3:39:00 PM
Customer Sample ID: SS-51 **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/22/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Arsenic	ND	1.1		mg/Kg-dry	10	12/22/2023
Percent Moisture	**D2974**			Prep Date: **12/21/2023**		Analyst: **EPD**
Percent Moisture	16.9	0.2	*	wt%	1	12/22/2023

Lab ID: 23120443-021 **Collection Date:** 12/13/2023 3:57:00 PM
Customer Sample ID: SS-52 **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/22/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Arsenic	8.4	1.1		mg/Kg-dry	10	12/22/2023
Percent Moisture	**D2974**			Prep Date: **12/21/2023**		Analyst: **EPD**
Percent Moisture	20.2	0.2	*	wt%	1	12/22/2023

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: December 23, 2023
Date Printed: December 23, 2023

Analytical Results

Customer: Amereco Inc.
Project: 23.2128.2, Former Memorial Park, Hammond, IN. **Work Order:** 23120443 Revision 0

Lab ID: 23120443-022 **Collection Date:** 12/13/2023 4:04:00 PM
Customer Sample ID: SS-53 **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/22/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Arsenic	ND	0.98		mg/Kg-dry	10	12/22/2023
Percent Moisture	**D2974**			Prep Date: **12/21/2023**		Analyst: **EPD**
Percent Moisture	14.8	0.2	*	wt%	1	12/22/2023

Lab ID: 23120443-023 **Collection Date:** 12/13/2023 3:49:00 PM
Customer Sample ID: SS-54 **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/22/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Arsenic	4.4	1.1		mg/Kg-dry	10	12/22/2023
Percent Moisture	**D2974**			Prep Date: **12/21/2023**		Analyst: **EPD**
Percent Moisture	17.3	0.2	*	wt%	1	12/22/2023

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 Corporation
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: 232901 **Page :** 1 of 2

Company: Amereco Engineering
Project Number: 23.2128.2 Client Tracking No.:
Project Name: Former Memorial Park
Project Location: Hammond, IN
Sampler(s): Ross Yeater
Report To: labresults@amerecoeng.com Phone: 219.531.0531
Fax:
QC Level: 1 ___ 2 X 3 ___ 4 ___ e-mail:

Quote No.:
P.O. No.: 121423.1
Turn Around Time (Days): 1 2 3 4 (5-7) 10
Results Needed: 12 /22 /2023 am/pm

Client Sample Number/Description:	Date Taken	Time Taken	Matrix	Comp.	Grab	Preserv.	No. of Containers	Mercury	Arsenic	Additional Information:	Lab No.:
SS-41A	12-13-23	10:35	Soil		X	A	1	X			001
SS-41B		10:46						X			002
SS-41C		10:55						X			003
SS-41D		11:18						X			004
SS-41E		12:18						X	X		005
SS-41F		11:44						X			006
SS-41G		11:58						X			007
SS-41H		11:34						X			008
SS-41I		12:10						X			009
SS-38A		13:00							X		010
SS-50A		12:41							X		011
SS-38B		12:54							X		012
SS-38C		12:30							X		013
SS-38D		13:28							X		014
SS-38E		13:21							X		015
SS-38F		13:10							X		016
SS-38G		13:46							X		017
SS-38H		13:36							X		018
SS-38I		13:54							X		019
SS-51		15:39							X		020

Relinquished by: (Signature) Date/Time: 12/15/23/1005
Received by: (Signature) Date/Time: 12/15/23 1005
Relinquished by: (Signature) Date/Time:
Received by: (Signature) Date/Time:
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.: 23120443

Received on Ice: Yes ☑ No ☐

Temperature: 4.7 °C

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:** 936602 **Page :** 2 of 2

Company: Amereco Engineering
Project Number: 23.2128.2 Client Tracking No.:
Project Name: Former Memorial Park
Project Location: Hammond, IN
Sampler(s): Ross Yeater
Report To: labresults@amerecoeng.com Phone: 219.531.0531
Fax:
QC Level: 1 ___ 2 X 3 ___ 4 ___ e-mail:

Quote No.:
P.O. No.: 121423.1
Turn Around Time (Days): 1 2 3 4 (5-7) 10
Results Needed: 12 / 22 / 2023 am/pm

Client Sample Number/Description:	Date Taken	Time Taken	Matrix	Comp.	Grab	Preserv.	No. of Containers	Arsenic	Additional Information:	Lab No.:
SS-52	15:57	12/13/23	Soil		X	A	1	X		021
SS-53	16:04	"	"		X	A	1	X		022
SS-54	15:49	"	"		X	A	1	X		023

Relinquished by: (Signature) Date/Time: 12/15/23/0855
Received by: (Signature) Date/Time: 12/15/23 1005
Relinquished by: (Signature) Date/Time:
Received by: (Signature) Date/Time:
Relinquished by: (Signature) Date/Time:
Received by: (Signature) Date/Time:

Comments:

Laboratory Work Order No.: 23120443

Received on Ice: Yes ✓ No

Temperature: 4.7 °C

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

sterling labs

Sample Receipt Checklist

Customer: AMERECO

Date and Time Received: 12/15/2023 10:05:00 AM

Work Order Number 23120443

Received by: JMH

Checklist completed by: _____ 12-15-2023
Signature / Date

Reviewed by: JMH 12/15/2023
Initials / Date

Matrix: Carrier name Client Delivered

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 4.7 °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: _____

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 : 23.2128.2

Project Location : 1301 HIGHLAND STREET HAMMOND

AAT Project : 983090
Sampling Date : 12/13/2023
Date Received : 12/15/2023
Date Analyzed : 12/19/2023
Date Reported : 12/19/2023

Lab Sample ID	Client Code	Sample Description	Results Lead µg/g (PPM)	Calculated RL µg/g *
9025487	SS-21A		71.3	9.19
9025488	SS-21B		270	10.8
9025489	SS-21C		406	9.75
9025490	SS-22A		13900	11.6
9025491	SS-21E		150	10.0
9025492	SS-21F		<10.9	10.9
9025493	SS-21G		<11.4	11.4
9025494	SS-21H		116	8.91
9025495	SS-21I		23.7	9.60
9025496	SS-21J		<11.5	11.5

Analyst Signature

Bryan Maxwell

*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: 12/19/2023 4:22PM AAT Project: 983090

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 : 1301 HIGHLAND STREET HAMMOND

AAT Project : 983090
Client Project : 23.2128.2
Date Reported : 12/19/2023

Sample	Client Code	Analysis Requested	Completed	Analyst
9025487	SS-21A	Lead Soil	12/19/2023	Bryan Maxwell
9025488	SS-21B	Lead Soil	12/19/2023	Bryan Maxwell
9025489	SS-21C	Lead Soil	12/19/2023	Bryan Maxwell
9025490	SS-22A	Lead Soil	12/19/2023	Bryan Maxwell
9025491	SS-21E	Lead Soil	12/19/2023	Bryan Maxwell
9025492	SS-21F	Lead Soil	12/19/2023	Bryan Maxwell
9025493	SS-21G	Lead Soil	12/19/2023	Bryan Maxwell
9025494	SS-21H	Lead Soil	12/19/2023	Bryan Maxwell
9025495	SS-21I	Lead Soil	12/19/2023	Bryan Maxwell
9025496	SS-21J	Lead Soil	12/19/2023	Bryan Maxwell

Reviewed By Elyse Bidle
Quality Assurance Coordinator

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 ISO/IEC 17025:2005 www.aihaccreditation.org LAP #100956

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 # 121423.3

PROJECT NUMBER 23.2128.2 Sampling Date: 12-13-2023
PROJECT ADDRESS 1301 Highland Street, Hammond
SAMPLE START TIME – SAMPLE END TIME –

REQUESTED ANALYSIS LEAD
SINGLE WIPE DUST ( )
~~COMPOSITE~~ Grab SOIL ( )
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~~ Date	WIPE AREA (e.g. 12 X 12)
083040	SS-21A		Soil	15:03	12-13-23	X
	SS-21B			15:22		X
	SS-21C			14:50		X
	SS-22A			14:54		X
	SS-21E			14:04		X
	SS-21F			14:39		X
	SS-21G			15:26		X
	SS-21H			15:13		X
	SS-21I			14:25		X
	SS-21J			14:12		X
						X
						X
						X
						X

CLIENT COMMENTS
~~Risk Assessor~~ Sampler: R. Yeater
Samples shipped

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

LAB REMARKS
2911

LAB PROJECT NUMBER 083040

SAMPLES RELINQUISHED BY	SAMPLES RECEIVED BY	TIME		
		17:00	AM	PM
			AM	PM
	DEC 15 2023		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 : 23.2128.2

Project Location : 1301 HIGHLAND STREET HAMMOND

AAT Project : 985027
Sampling Date : 12/14/2023
Date Received : 12/22/2023
Date Analyzed : 12/26/2023
Date Reported : 12/26/2023

Lab Sample ID	Client Code	Sample Description	Results Lead µg/g (PPM)	Calculated RL µg/g *
9039245	SS-22B	SOIL 1028	52.7	10.2
9039246	SS-22C	SOIL 959	310	10.7
9039247	SS-22D	SOIL 938	53.6	9.58
9039248	SS-22E	SOIL 1014	452	10.1
9039249	SS-22F	SOIL 926	21.8	10.1
9039250	SS-22G	SOIL 1006	83.9	10.5
9039251	SS-22H	SOIL 951	290	10.4
9039252	SS-22I	SOIL 946	151	10.1

Analyst Signature

Bryan Maxwell

*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: 12/26/2023 6:22PM AAT Project: 985027

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 : 1301 HIGHLAND STREET HAMMOND

AAT Project : 985027
Client Project : 23.2128.2
Date Reported : 12/26/2023

Sample	Client Code	Analysis Requested	Completed	Analyst
9039245	SS-22B	Lead Soil	12/26/2023	Bryan Maxwell
9039246	SS-22C	Lead Soil	12/26/2023	Bryan Maxwell
9039247	SS-22D	Lead Soil	12/26/2023	Bryan Maxwell
9039248	SS-22E	Lead Soil	12/26/2023	Bryan Maxwell
9039249	SS-22F	Lead Soil	12/26/2023	Bryan Maxwell
9039250	SS-22G	Lead Soil	12/26/2023	Bryan Maxwell
9039251	SS-22H	Lead Soil	12/26/2023	Bryan Maxwell
9039252	SS-22I	Lead Soil	12/26/2023	Bryan Maxwell

Reviewed By Elyse Bidle
Quality Assurance Coordinator

ACCURATE
ANALYTICAL TESTING LLC
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AIHA LAP, LLC
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ISO/IEC 17025:2005
www.aihaaccreditedlabs.org
LAP #100956

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 # 122123.1

PROJECT NUMBER 23.2126.2 Sampling Date: 12/14/2023
PROJECT ADDRESS 1301 Highland Street, Hammond
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~~ Date	WIPE AREA (e.g. 12 X 12)
9039245	SS-22B	—	Soil	10:28	12-14-23	X
	SS-22C	—		9:59		X
	SS-22D	—		9:38		X
	SS-22E	—		10:14		X
	SS-22F	—		9:26		X
	SS-22G	—		10:06		X
	SS-22H	—		9:51		X
	SS-22I	—		9:46		X
						X
						X
						X
						X
						X
						X

CLIENT COMMENTS
~~Sampler~~ ~~Risk Assessor~~: Ross Yeater
Samples shipped

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

LAB REMARKS
29/1

LAB PROJECT NUMBER 985027

SAMPLES RELINQUISHED BY	SAMPLES RECEIVED BY	TIME		
		16:00	AM	PM
	J. Masey 12-22-23		AM	PM
			AM	PM

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