



REPORT

Tier 2 Evaluation Report
Release No. 41008331-N00001

Former Satralloy Site
4243 County Road 74
Mingo Junction - Jefferson County

Submitted to:

Cyprus Amax Minerals Company

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Phoenix AZ 85004

Submitted by:

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Distribution List

Bureau of UST Regulations

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TIER 2 EVALUATION SUMMARY

The purpose of this report is to document the Tier 2 Evaluation performed voluntarily by Cyprus Amax Minerals Company (Cyprus) following acquisition of the former Satralloy Site (the "Site") property located at 4243 County Road 74, Mingo Junction, Jefferson County, Ohio.

Ohio Bureau of Underground Storage Tank Regulations (BUSTR) records indicate that a suspected release report was created by BUSTR after conducting a Site visit on April 29, 2009, and discovering that the tanks had been removed in the "late 1990's" (Appendix H). The UST Owner and Operator details described in the Tier 1 Investigation Report Form are those recorded in the BUSTR release file.

BUSTR approved the Tier 1 Investigation Report submitted by Cyprus in correspondence dated April 25, 2023. Included in their approval was a request to re-sample the existing monitoring wells described in the Tier 1 Report. This report summarizes the Tier 2 Evaluation and includes results from a groundwater sampling event completed on June 29, 2023.

WSP re-developed three existing monitoring wells (TW-01 – TW-03) on June 27-28, 2023, and collected groundwater samples on June 29, 2023. No chemicals of concern were reported above Tier 1 groundwater action levels. As noted in the Tier 1 Investigation Report, groundwater encountered during the BUSTR investigation occurs in a discontinuous, shallow, and unconfined water-bearing zone located in the Plant Area underlain by clays and silts. Because these upper water table bearing zones vary in elevation (as demonstrated in the former UST area and other areas of the Site), a more reliable interpretation of groundwater flow direction is the network of monitoring wells screened in the Valley Fill Aquifer located within the narrow, bedrock valleys underlying clays and silts in the Plant Area as shown on Figure 4 (Remedial Investigation Figure 6.2-3).

Tier 2 Evaluation Conclusion

As described in the Tier 2 Evaluation Form and Appendix F, the residential Direct Contact route of exposure is incomplete due to the non-residential land use determination. Commercial exposure pathways are potentially complete; however, all detections of COCs are below applicable non-residential Tier 2 action levels. The release is eligible for a No Further Action status.

WSP USA Inc.



D. Robert Ireson
Assistant Vice President



Lee K. Holder, PE
Assistant Vice President, Environmental Engineer

DRI/LKH



Tier 2 Evaluation Form 2022

Report Date: 09/22/2023

Facility ID – Release No.: 41008331-N00001

Owner/Operator And Facility Data

UST Owner Information:

Company: Catherine Glorious
 Address: 3645 Pennsylvania Avenue
 City, State: Weirton, West Virginia
 Zip: 26062
 Contact Person: N/A
 Contact Phone: N/A
 Email: N/A

Facility Information:

Company: Former Satralloy Site
 Address: 4243 County Road 74
 City, Zip: Mingo Junction, 43938
 County: Jefferson
 Latitude (decimal): 40.3102
 Longitude (dec): -80.6710
 Fire Department: Hillndale Vol. Fire Dept.

UST Operator Information:

Company: Satra Concentrates, Inc
 Address: County Road 74
 City, State: Mingo Junction, Ohio
 Zip: 43938
 Contact Person: N/A
 Contact Phone: N/A
 Email: N/A

Property Owner Information:

Company: Cyprus Amax Minerals Company
 Address: 333 N Central Ave
 City, State: Phoenix AZ
 Zip: 85004
 Contact Person: Barbara Nielsen
 Contact Phone: 602-366-8270
 Email: bnielsen@fmi.com

Tier 1 Conclusions

List the chemicals of concern and exposure pathways which required additional evaluation at the conclusion of the Tier 1 Investigation:

SOIL		GROUNDWATER	
Chemical of Concern	Pathway	Chemical of Concern	Pathway
Benzo (a) Pyrene	Residential Direct Contact		

YES NO

The Tier 1 Investigation determined that groundwater underlying the site is considered drinking water

Source Investigation

SUBSURFACE INVESTIGATION:

Previously installed soil borings and date installed:

No previously installed soil borings for purposes of the Tier Investigation.

Previously installed monitoring wells and date installed:

No previously installed monitoring wells for purposes of the Tier Investigation.

Soil borings installed during this investigation and date installed:

TB-01, TW-01, TW-02, and TW-03 installed May 2014 for Tier 1 Investigation. TB-02, TB-03, TB-04, and TB-05 installed for Tier 1 Delineation. An additional 138 soil borings have been drilled throughout the 330-acre Site unrelated to the Tier 1 Investigation. No additional borings installed following Tier 1.

Monitoring wells installed during this investigation and date installed:

TW-01, TW-02, and TW-03 installed May 2014 for Tier 1 Investigation. An additional 52 monitoring wells have been drilled throughout the 330-acre Site unrelated to the Tier 1 Investigation. No additional monitoring wells installed following Tier 1.

A second round of groundwater sampling was completed on June 29, 2023, after re-developing the monitoring wells on June 27-28, 2023 (see "Current Concentrations" below and Table 2).

SB/MW	Install Date	MW Diameter	Installed With*	Total Depth	Depth to GW	Depth to Bedrock	Screened Interval
TB-01	05-20-2014	--	Sonic	20	10 ft	N/A	--
TB-02	06-10-2014	--	Sonic	32	28 ft	N/A	--
TB-03	06-10-2014	--	Sonic	20	8 ft	N/A	--
TB-04	06-10-2014	--	Sonic	20	8 ft	N/A	--
TB-05	07-10-2022	--	Sonic	12	N/A	N/A	--
TW-01	05-21-2014	2-in	Sonic	40	18 ft	N/A	14.7 – 24.7
TW-02	05-21-2014	2-in	Sonic	40	35 ft	N/A	30.0 – 40
TW-03	05-19-2014	2-in	Sonic	40	37 ft	N/A	29.75 – 39.75

* **HSA/SS** = Hollow stem auger / split spoon, **DP** = Direct push, **HA** = Hand auger

Field Screening

Instrument used: Mini RAE 3000 photoionization detector with 10.6 ev bulb.

Methodology:

A portion of each sample was placed in a disposable, sealable plastic bag and was set aside for a minimum of twenty minutes to allow for volatilization. The tip of the PID was then used to pierce the plastic bag to obtain the headspace reading.

Calibration procedure:

Calibration procedures were based on manufacturer's instructions and the 2-point method utilizing ambient air and 100 parts per million (ppm) isobutylene.

SB/MW#	TB-01	TB-02	TB-03	TB-04	TB-05	TW-01	TW-02	TW-03
Depth	PID/FID (ppm)	PID/FID (ppm)	PID/FID (ppm)	PID/FID (ppm)	PID/FID (ppm)	PID/FID (ppm)	PID/FID (ppm)	PID/FID (ppm)
0-2'	6.3	0.00	1.6	0.0	0.0	0.4	2.6	1.6
2-4'	9.8	0.00	1.2	0.0	0.0	0.5	0.9	1.2
4-6'	440.1	0.00	0.8	0.0	0.1	0.4	1.8	0.8
6-8'	269.1	0.00	1.1	0.0	0.0	0.6	4.5	1.1
8-10'	9.8	0.10	0.4	0.0	0.0	1.3	4.1	0.4
10-12'	19.6	0.20	0.5	0.0	0.0	1.1	3.2	0.5
12-14'	--	0.00	0.8	0.0	--	2.2	2.7	0.8
14-16'	--	0.00	1.5	0.0	--	1.2	1.5	1.2
16-18'	--	0.20	1.5	0.2	--	2.3	1	1.5
18-20'	--	0.10	1.8	0.0	--	--	1.1	1.8
20-22'	--	0.10	--	--	--	--	2.4	1.5
22-24'	--	0.00	--	--	--	--	2	1.6
24-26'	--	0.00	--	--	--	--	2.6	1.2
26-28'	--	0.00	--	--	--	--	2.2	0.8
28-30'	--	--	--	--	--	--	1.6	1.4
30-32'	--	--	--	--	--	--	1.3	1.4
32-34'	--	--	--	--	--	--	2.1	1.1
34-36'	--	--	--	--	--	--	--	1.0
GW Depth	10	28	8-13	8-13	N/A	18	35	37

NOTE: The intervals of samples submitted for analysis should be indicated in **bold**

Contaminant Concentrations In Soil

CHEMICAL OF CONCERN	TIER 2 ACTION LEVEL (ppm)	SOIL CONCENTRATIONS**		
		Location ID	Depth	Conc. (ppm)*
Benzene	0.437	TW-03	18-20	< 0.0061
Toluene	168	TW-03	18-20	< 0.0061
Ethylbenzene	163	TB-01	4-6	0.39
Total Xylenes	260	TB-01	4-6	0.077 J
Naphthalene	1.12	TB-01	4-6	0.31
1,2,4 Trimethyl Benzene	5.89	TB-02	16-18	< 0.0049
MTBE	2.67	TB-01	4-6	< 0.05
1,2 - Dibromoethane (EDB)	0.00177	TB-02	16-18	< 0.0049
1,2 - Dichloroethane (EDC)	0.177	TB-02	16-18	< 0.0049
Benzo (a) Anthracene	58	TB-01	4-6	3
Benzo (a) Pyrene	5.8	TB-01	4-6	2.8
Benzo (b) Fluoranthene	58	TB-01	4-6	4
Benzo (k) Fluoranthene	580	TB-01	4-6	1.5
Chrysene	5800	TB-01	4-6	3.2
Dibenz (a,h) Anthracene	5.8	TB-01	4-6	0.42
Indeno (1,2,3-cd) Pyrene	58	TB-01	4-6	1.5
TPH (C6-C12)	5000	TB-01	4-6	100
TPH (C10-C20)	10000	TB-01	4-6	640
TPH C20-C34	20000	TB-01	4-6	67 J

* Where concentrations are less than detection limits, indicate the detection limit (e.g. < 0.005).

** Should include concentrations from prior assessments.

Contaminant Concentrations In Groundwater

CHEMICAL OF CONCERN	ACTION LEVEL (ppb)	HISTORICAL MAXIMUM**		CURRENT MAXIMUM	
		MW #	Conc. (ppb)*	MW #	Conc. (ppb)*
Benzene	5	TW-03	0.81 J	Multiple	< 1.0
Toluene	820	TW-03	2.5	Multiple	< 1.0
Ethylbenzene	130	TW-01	< 1.0	Multiple	< 1.0
Total Xylenes	260	TW-01	< 2.0	Multiple	< 2.0
Naphthalene	1.4	multiple	< 0.21	Multiple	< 1.0
1,2,4 Trimethyl Benzene	15	--	--	Multiple	< 1.0
MTBE	120	multiple	< 1.0	Multiple	< 1.0
1,2 - Dibromoethane (EDB)	0.05	--	--	Multiple	< 1.0
1,2 - Dichloroethane (EDC)	5	--	--	Multiple	< 1.0
Benzo (a) Anthracene	0.92	multiple	< 0.21	TW-03	< 0.23
Benzo (a) Pyrene	0.2	TW-02	< 0.21	TW-03	< 0.23
Benzo (b) Fluoranthene	0.92	TW-03	0.25	TW-03	< 0.23
Benzo (k) Fluoranthene	9.2	TW-02	< 0.21	TW-03	< 0.23
Chrysene	92	multiple	< 0.21	TW-03	< 0.23
Dibenz (a,h) Anthracene	0.092	multiple	< 0.21	TW-03	< 0.23
Indeno (1,2,3-cd) Pyrene	0.92	multiple	< 0.21	TW-03	< 0.23
Other (List below, add rows as needed):					

* Where concentrations are less than detection limits, indicate the detection limit (e.g. < 0.005).

** Maximum concentrations from prior assessments.

Land Use Determination

LAND USE FOR THE UST SITE SHALL BE CONSIDERED RESIDENTIAL UNLESS EITHER OF THE FOLLOWING APPLIES:

Mark all that apply:

- The current land use for the site and at least 75% of the area within 300 feet of the site property boundaries is non-residential
- The owner/operator has entered into an environmental covenant (EC) with the state fire marshal in accordance with Ohio Revised Code 5301.80 through 5301.92

If either of the above applies, explain (including EC restrictions and date of recording) and provide documentation:

Current land use is illustrated in Appendix F; Figure F-1. Parcel boundaries and land use information was obtained from the Jefferson County Auditor and verified using the auditor's on-line GIS portal July 21, 2023. More than 75% of properties within a 300-ft radius of the Satralloy Site property line have a non-residential land use.

Planning and/or Zoning parcel maps are not available for Cross Creek Township and Jefferson County. However, the non-residential parcels adjacent to the site consists of railroad, landfill, and wildlife recreation properties where future land use change is not expected.

LAND USE DETERMINATION CONCLUSION:

- Land use is considered residential
- Land use is considered non-residential

Site Conceptual Exposure Model

A detailed site conceptual exposure model that clearly describes the conditions under which an exposure to chemical(s) of concern may occur by identifying exposure pathways and points of exposure shall be developed and presented in Appendix M. The exposure pathway evaluation includes a review of the following:

- Receptor identification;
- Media identification;
- Transport mechanisms identification; and
- Routes of exposure identification.

FOLLOWING THE PATHWAY COMPLETENESS EVALUATION, AN EXPOSURE PATHWAY IS CONSIDERED INCOMPLETE IF ANY OF THE FOLLOWING APPLY:

Mark all that apply:

- There is no point of exposure identified pursuant to paragraph (L)(4)(b) of OAC 1301:7-9-13, for a chemical of concern in an identified environmental media
- Site-specific data demonstrates that there is no transport mechanism in the identified environmental media to move the chemical(s) of concern from the source area(s) to the point(s) of exposure
- Site-specific data demonstrates that there are no route(s) of exposure in the identified environmental media to move the chemical(s) of concern from the source area(s) to the point(s) of exposure
- Points of exposure are eliminated by groundwater use restrictions enforceable by a local government and/or regulatory agency, or by an environmental covenant with the state fire marshal
- Points of exposure are eliminated by land use restrictions enforceable by local government and/or regulatory agencies, or by an environmental covenant with the state fire marshal

If any of the above apply, explain and provide documentation:

The residential Direct Contact route of exposure is incomplete due to non-residential land use.

PATHWAY EVALUATION CONCLUSIONS:

The residential Direct Contact pathway is incomplete due to current and anticipated future land use. Commercial exposure pathways are potentially complete; however, all detections of COCs are below applicable non-residential Tier 2 action levels.

Points Of Exposure

WHERE GROUND WATER HAS BEEN DETERMINED TO BE A DRINKING WATER SOURCE IN ACCORDANCE WITH PARAGRAPH (I)(2)(c) OR (I)(2)(e) OF OAC 1301:7-9-13, THE POINT OF EXPOSURE (POE) SHALL BE WHICHEVER OF THE FOLLOWING IS CLOSEST TO THE SOURCE AREA(S):

Mark all that apply:

- A potable well is located on the site
If applicable, all potable wells located on the site are POEs
- The site is located within a Drinking Water Source Protection Area (DWSPA)
If applicable, the property boundary located closest to the source area is a POE
- A DWSPA boundary is located within 300 feet of the site
If applicable, the DWSPA boundary located closest to the source area is a POE

If any of the above apply, explain and indicate the distance(s) from the source area to the POE(s):

N/A, groundwater is not impacted by the UST release.

IF NONE OF THE ABOVE APPLIES AND NONE OF THE FOLLOWING APPLIES, THE POINT OF EXPOSURE SHALL BE THE PROPERTY LINE CLOSEST TO THE SOURCE AREA:

Mark all that apply:

- No potable wells are located within 300 feet of the site based on a physical survey and an ordinance requires a mandatory tie-in to a municipal water system for all properties in the surrounding area
- No potable wells are located within 300 feet of the site based on a physical survey and an ordinance prohibits the installation of potable water wells at all properties within the surrounding area
- No potable wells are located within 300 feet of the site based on a physical survey and 100 percent of the properties within 300 feet of the site are either connected to a municipal water source one is readily available

If any of the above apply, explain and provide documentation:

N/A. Groundwater is classified as drinking water, however there are no groundwater chemicals of concern detected above action levels.

IF THE POINT OF EXPOSURE IS DETERMINED TO BE THE PROPERTY LINE IN ACCORDANCE WITH PARAGRAPH (L)(4)(b)(i)(a)(ii) OR (L)(4)(b)(i)(a)(iv), AND A ROADWAY OR RAILROAD SEPARATES THE SOURCE AREA FROM A PROPERTY WHERE A POTABLE WELL COULD BE INSTALLED, THE POINT OF EXPOSURE MAY BE EXTENDED ACROSS THE ROADWAY OR RAILROAD TO THE CLOSEST PROPERTY LINE OF THAT PROPERTY.

YES NO

The above conditions apply

IF A POINT OF EXPOSURE HAS NOT BEEN IDENTIFIED IN PARAGRAPH (L)(4)(b)(i)(a)(i) THROUGH (L)(4)(b)(i)(a)(iv) OF OAC 1301:7-9-13, THE POINT OF EXPOSURE SHALL BE 300 FEET FROM THE SOURCE AREA(S) OR AN ALTERNATE POINT OF EXPOSURE APPROVED BY THE FIRE MARSHAL.

Mark all that apply:

- The POE is 300 feet from the source area(s) based on the above criteria
- The above criteria have been met and an alternate POE has been approved by the state fire marshal

POINT OF EXPOSURE CONCLUSIONS:

Closest point of exposure: N/A

Distance from the source area(s) to the closest POE: _____

All point of exposure documentation shall be provided in Appendix I. In addition, a site map which depicts the source area(s) and closest point of exposure should be included.

Site-Specific Target Level Development

Fate and transport of chemical(s) of concern above action levels that have potentially complete exposure pathways shall be evaluated by using the BUSTR-Screen groundwater modeling utility and BUSTR’s Tier 2 Spreadsheets. Site-specific target levels (SSTLs) can be developed by replacing default values (specified by the fire marshal) in the algorithms used to develop action levels with site-specific values (documentation must be provided).

BUSTR-SCREEN INFORMATION

Complete the following to depict saturated zone site-specific data used in BUSTR-Screen models:

Parameter	Default Value	Site-Specific value	Pathway(s)	Appendix*
N/A				

* Provide documentation even if the information has been included in previous reports.

Complete the following to depict the predictions and validation of the BUSTR-Screen models:

Chemical of Concern	Point of Demonstration (POD)	MODEL PREDICTIONS			VALIDATION DATA	
		Prediction Date	Predicted POD Concentration	Predicted POE Concentration	Actual POD Sampling Date	Actual POD Concentration

TIER 2 SPREADSHEET INFORMATION

Complete the following to depict vadose zone site-specific data used in Tier 2 Spreadsheets:

Parameter	Default Value	Site-Specific value	Pathway(s)	Appendix*
N/A				

* Provide documentation even if the information has been included in previous reports.

Complete the following to depict SSTLs developed using BUSTR-Screen and Tier 2 Spreadsheets:

Chemical of Concern	Pathway	SSTL (ppm)	Pathway	SSTL (ppm)	Pathway	SSTL (ppm)	Pathway	SSTL (ppm)

Free Product

YES NO

- Free product is currently present
- Free product has been present historically

If yes to either of the above, please complete the following:

Location(s) of free product: _____

Amount recovered to date: _____

Date of last measurable product: _____

IF FREE PRODUCT IS PRESENT DURING THE TIER 2 EVALUATION, A FREE PRODUCT MONITORING PLAN IS REQUIRED TO BE SUBMITTED TO ENSURE THAT THE NEARBY RECEPTORS WILL NOT BE IMPACTED FROM THE RELEASE.

THE FREE PRODUCT MONITORING PLAN MUST BE SUBMITTED IN APPENDIX R OF THIS REPORT, FOR BUSTR APPROVAL.

Remediation System

YES NO

- A remediation system is currently in use at the site
- A remediation system has previously been used at the site but is not currently in use

If yes to either of the above, please complete the following:

Date the system was last used: _____

Describe the remediation system and provide background information:

Tier 2 Decisions

Select one of the following:

- The concentrations of all chemicals of concern are at or below Tier 2 site-specific target levels for all pathways and no monitoring is required pursuant OAC 1301:7-9-13(O). No further action is required.
- The concentrations of all chemicals of concern are at or below Tier 2 site-specific target levels for all pathways and a monitoring plan is required to validate BUSTR-Screen. A monitoring plan prepared in accordance with OAC 1301:7-9-13 is included in Appendix P.
- The concentrations of chemical(s) of concern are above the Tier 2 site-specific target levels for one or more exposure pathways, and the following chemicals of concern and pathways require further evaluation:

SOIL		GROUNDWATER	
Chemical of Concern	Pathways	Chemical of Concern	Pathways

Indicate which one of the following options the owner/operator plans on conducting: (select only one)

- INTERIM RESPONSE ACTION
- REMEDIAL ACTION PLAN
- TIER 3 EVALUATION
- CALIBRATION OF THE BUSTR-SCREEN MODEL

NOTE: A calibration plan must be submitted for approval with this report and included as Appendix Q.

- Free product is present and evaluation of all of the exposure pathways could not be completed. The following table should include the chemical(s) of concern that are above the Tier 2 site-specific target levels for one or more exposure pathways. In addition, exposure pathways that could not be evaluated due to the presence of free product must be clearly identified:

SOIL		GROUNDWATER	
Chemical of Concern	Pathways	Chemical of Concern	Pathways

NOTE:
 FOLLOWING TERMINATION OF THE FREE PRODUCT RECOVERY ACTIVITIES, THE REMAINING PATHWAYS MUST BE EVALUATED AND SUBMITTED TO BUSTR IN A TIER 2 ADDENDUM REPORT.

Form Preparer & Owner / Operator Signature

Form Prepared By:

Name: Bob Ireson

Company: WSP USA Inc.

Street Address: 2 Miranova Place, Suite 450

City, State, Zip: Columbus OH 43215

Phone #: 614-486-1700

Email: Bob.ireson@wsp.com

This Form must be signed by the UST owner/operator. The owner/operator is responsible for ensuring all data is accurate, and the form is legible and complete. This investigation has been completed by a volunteer pursuant to Paragraph (S) of Ohio Administrative Code Chapter 1301:7-9-13. This Form has been signed by the volunteer.

Volunteer Signature: _____

Print Name: Francis McAllister **Date:** _____

Miscellaneous Data**THE FOLLOWING ITEMS MUST BE ATTACHED:**

ADDITIONAL INFORMATION WHICH IS REQUIRED BY OAC 1301:7-9-13 OR ADDITIONAL INFORMATION WHICH CLARIFIES THE INVESTIGATION ACTIVITIES SHALL BE SUBMITTED AS APPENDICES TO THIS REPORT.

TABLES:

Table 1	Soil Concentrations Compared to Action & Delineation Levels
Table 2	Groundwater Concentrations Compared to Action & Delineation Levels
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FIGURES:

Figure 1	Topographic Map
Figure 2	Site Map with Boring and Monitoring Well Locations
Figure 3	Site Map with Soil Boring Locations, Concentrations, and Sample Depths
Figure 4	Site Map with Monitoring Wells and Groundwater Concentrations
Figure 5	Groundwater Contours – Valley Fill Aquifer (<i>from figure 6.2-3 in RI Report</i>)

NOTE:

Aerial photographs and/or satellite imagery should not be used as the base map for these figures due to reproducibility issues.

APPENDIX:

Appendix A	Soil Boring Logs and Monitoring Well Construction Diagrams
Appendix B	Monitoring Well Development & Sampling Forms
Appendix C	Soil Classification Form
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Tables

**Table 1 - Soil Analytical Results Compared to Delineation and Action Levels
Former Satralloy UST Tier Evaluation**

Chemical of Concern	Unit	Delineation Levels	Tier 2 Action Levels	Maximum Concentration	TB-01 (4-6) 5/20/2014	TB-01 (10-12) 5/20/2014	TB-02 (16-18) 10/6/2022	TB-02 (26-28) 10/6/2022	TB-03 (14-16) 10/6/2022	TB-03 (18-20) 10/6/2022	TB-04 (16-18) 10/6/2022	TB-04 (18-20) 10/6/2022	TB-05 (4-6) 10/7/2022	TB-05 (10-12) 10/7/2022	TW-01 (12-14) 5/19/2014	TW-01 (16-18) 5/19/2014	TW-02 (6-8) 5/20/2014	TW-02 (32-34) 5/20/2014	TW-03 (18-20) 5/21/2014	TW-03 (34-36) 5/21/2014
1,2,4-Trimethylbenzene	mg/kg	5.35	5.35	< 0.0049	--	--	< 0.0049	< 0.0040	< 0.0039	< 0.0045	< 0.0048	< 0.0041	< 0.0048	< 0.0045	--	--	--	--	--	--
1,2-Dibromoethane	mg/kg	0.154	0.00177	< 0.0049	--	--	< 0.0049	< 0.0040	< 0.0039	< 0.0045	< 0.0048	< 0.0041	< 0.0048	< 0.0045	--	--	--	--	--	--
1,2-Dichloroethane	mg/kg	1.01	0.177	< 0.0049	--	--	< 0.0049	< 0.0040	< 0.0039	< 0.0045	< 0.0048	< 0.0041	< 0.0048	< 0.0045	--	--	--	--	--	--
Benzene	mg/kg	1.67	0.437	< 0.0061	0.0033 J	< 0.0057	< 0.0049	< 0.0040	< 0.0039	< 0.0045	< 0.0048	< 0.0041	< 0.0048	< 0.0045	< 0.0057	< 0.0056	< 0.0052	< 0.0057	< 0.0061	< 0.0058
Ethylbenzene	mg/kg	406	130	0.39	0.39	0.0014 J	< 0.0049	< 0.0040	< 0.0039	< 0.0045	< 0.0048	< 0.0041	< 0.0048	< 0.0045	< 0.0057	< 0.0056	< 0.0052	< 0.0057	< 0.0061	< 0.0058
Methyl tert-Butyl Ether	mg/kg	150	2.67	< 0.05	< 0.05	< 0.0057	< 0.0049	< 0.0040	< 0.0039	< 0.0045	< 0.0048	< 0.0041	< 0.0048	< 0.0045	< 0.0057	< 0.0056	< 0.0052	< 0.0057	< 0.0061	< 0.0058
Toluene	mg/kg	1240	168	< 0.0061	0.0049 J	< 0.0057	< 0.0049	< 0.0040	< 0.0039	< 0.0045	< 0.0048	< 0.0041	< 0.0048	< 0.0045	< 0.0057	< 0.0056	< 0.0052	< 0.0057	< 0.0061	< 0.0058
Xylenes, Total	mg/kg	42.7	42.7	0.077 J	0.077 J	< 0.011	< 0.0099	< 0.0081	< 0.0079	< 0.0089	< 0.0097	< 0.0083	< 0.0097	< 0.0091	< 0.011	< 0.011	< 0.01	< 0.011	< 0.012	< 0.012
Benzo[a]anthracene	mg/kg	12	12	3	3	0.013	0.01 J	0.019	0.018	< 0.018	0.032 J	0.0053 J	0.028	< 0.019	< 0.0080	< 0.0081	< 0.0078	< 0.0081	< 0.0082	< 0.0079
Benzo[a]pyrene	mg/kg	1.2	1.2	2.8	2.8	0.011	< 0.019	0.017	< 0.017	< 0.018	0.033 J	< 0.017	0.026	< 0.019	< 0.0080	< 0.0081	< 0.0078	< 0.0081	< 0.0082	< 0.0079
Benzo[b]fluoranthene	mg/kg	12	12	4	4	0.017	0.015 J	0.027	0.021	< 0.018	0.053	0.015 J	0.038	< 0.019	< 0.0080	< 0.0081	< 0.0078	< 0.0081	< 0.0082	< 0.0079
Benzo[k]fluoranthene	mg/kg	120	120	1.5	1.5	0.0075 J	< 0.019	< 0.017	< 0.017	< 0.018	< 0.047	< 0.017	0.014 J	< 0.019	< 0.0080	< 0.0081	< 0.0078	< 0.0081	< 0.0082	< 0.0079
Chrysene	mg/kg	1200	1200	3.2	3.2	0.015	0.011 J	0.027	0.03	0.0041 J	0.033 J	0.013 J	0.028	0.0048 J	< 0.0080	< 0.0081	< 0.0078	< 0.0081	< 0.0082	< 0.0079
Dibenz[a,h]anthracene	mg/kg	1.2	1.2	0.42	0.42	< 0.0081	< 0.019	< 0.017	< 0.017	< 0.018	< 0.047	< 0.017	< 0.019	< 0.019	< 0.0080	< 0.0081	< 0.0078	< 0.0081	< 0.0082	< 0.0079
Indeno[1,2,3-cd]pyrene	mg/kg	12	12	1.5	1.5	0.0051 J	< 0.019	< 0.017	< 0.017	< 0.018	< 0.047	< 0.017	0.015 J	< 0.019	< 0.0080	< 0.0081	< 0.0078	< 0.0081	< 0.0082	< 0.0079
Naphthalene	mg/kg	52.7	1.12	0.31	0.31	< 0.0081	0.0085 J	0.23	< 0.017	< 0.018	0.019 J	< 0.017	< 0.019	< 0.019	< 0.0080	< 0.0081	< 0.0078	< 0.0081	< 0.0082	< 0.0079
Acenaphthene	mg/kg	N/A	N/A	0.81	0.81	< 0.0081	< 0.019	< 0.017	< 0.017	< 0.018	< 0.047	< 0.017	< 0.019	< 0.019	< 0.0080	< 0.0081	< 0.0078	< 0.0081	< 0.0082	< 0.0079
Acenaphthylene	mg/kg	N/A	N/A	< 0.052	< 0.052	< 0.0081	< 0.019	< 0.017	< 0.017	< 0.018	< 0.047	< 0.017	< 0.019	< 0.019	< 0.0080	< 0.0081	< 0.0078	< 0.0081	< 0.0082	< 0.0079
Anthracene	mg/kg	N/A	N/A	1.5	1.5	0.0046 J	0.0054 J	< 0.017	< 0.017	< 0.018	0.017 J	< 0.017	0.0088 J	< 0.019	< 0.0080	< 0.0081	< 0.0078	< 0.0081	< 0.0082	< 0.0079
Benzo[g,h,i]perylene	mg/kg	N/A	N/A	1.8	1.8	0.0071 J	< 0.019	0.01 J	< 0.017	< 0.018	< 0.047	0.0085 J	0.016 J	< 0.019	< 0.0080	< 0.0081	< 0.0078	< 0.0081	< 0.0082	< 0.0079
Fluoranthene	mg/kg	N/A	N/A	8.6	8.6	0.035	0.022	0.024	0.023	< 0.018	0.065	0.0070 J	0.065	< 0.019	< 0.0080	< 0.0081	< 0.0078	< 0.0081	< 0.0082	< 0.0079
Fluorene	mg/kg	N/A	N/A	1.3	1.3	0.0043 J	< 0.019	0.0094 J	< 0.017	< 0.018	0.012 J	< 0.017	0.0054 J	< 0.019	< 0.0080	< 0.0081	< 0.0078	< 0.0081	< 0.0082	< 0.0079
Phenanthrene	mg/kg	N/A	N/A	5.6	5.6	0.019	0.027	0.18	0.023	< 0.018	0.06	0.0091 J	0.036	< 0.019	< 0.0080	< 0.0081	< 0.0078	< 0.0081	< 0.0082	< 0.0079
Pyrene	mg/kg	N/A	N/A	6	6	0.026	0.019	0.048	0.04	< 0.018	0.055	0.0098 J	0.048	< 0.019	< 0.0080	< 0.0081	< 0.0078	< 0.0081	< 0.0082	< 0.0079
TPH as C10-C20	mg/kg	2000	10000	640	640	< 21	< 66	< 58	< 60	< 62	110	< 59	170	< 60	< 20	< 20	< 20	< 20	< 20	< 20
TPH as C20-C34	mg/kg	5000	20000	67 J	67 J	< 21	--	--	--	--	--	--	--	--	< 20	< 20	< 20	< 20	< 20	< 20
TPH as C6-C12	mg/kg	1000	5000	100	100	< 0.12	< 0.13	< 0.11	< 0.12	< 0.12	< 0.13	< 0.11	< 0.13	< 0.12	< 0.12H	< 0.12H	< 0.12	< 0.12	< 0.12	< 0.12

Notes:
 J = Estimated value (detection below the method reporting limits)
 -- = No analysis for this parameter (parameter not a regulatory chemical of concern at time of sampling)
 Bold shaded results exceed Delineation Levels
 Shaded Results exceed Tier 1 Evaluation Action Levels applicable to the site.



**Table 2 - Groundwater Analytical Results Compared to Delineation and Action Levels
Former Satralloy UST Tier Evaluation**

Chemical of Concern	Unit	Delineation Level	Tier 1 Action Level	Maximum Concentration	TW-01		TW-02		TW-03	
					6/26/2014	6/29/2023	6/25/2014	6/29/2023	6/25/2014	6/29/2023
Benzene	ug/L	417	5	0.81 J	0.13 J	0.14 J	0.14 J	< 1.0	0.81 J	< 1.0
Ethylbenzene	ug/L	41,600	130	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.34 J	< 1.0
Methyl tert-Butyl Ether	ug/L	134,000	120	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	ug/L	217,000	820	2.5	0.36 J	0.39 J	0.39 J	< 1.0	2.5	< 1.0
Xylenes, Total	ug/L	10,000	260	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	1.9 J	< 2.0
1,2,4-Trimethylbenzene	ug/L	5350	5350	< 4.9	--	< 1.0	--	< 1.0	--	< 1.0
1,2-Dibromoethane	ug/L	154	1.77	< 4.9	--	< 1.0	--	< 1.0	--	< 1.0
1,2-Dichloroethane	ug/L	1010	177	< 4.9	--	< 1.0	--	< 1.0	--	< 1.0
Benzo[a]anthracene	ug/L	20,600	0.92	< 0.21	< 0.19	< 0.21	< 0.21	< 0.21	< 0.21	< 0.23
Benzo[a]pyrene	ug/L	18,300	0.2	< 0.21	< 0.19	< 0.21	< 0.21	< 0.21	0.16 J	< 0.23
Benzo[b]fluoranthene	ug/L	162,000	0.92	0.25	< 0.19	< 0.21	< 0.21	< 0.21	0.25	< 0.23
Benzo[k]fluoranthene	ug/L	169,000	9.2	< 0.21	< 0.19	< 0.21	< 0.21	< 0.21	0.15 J	< 0.23
Chrysene	ug/L	681,000	92	< 0.21	< 0.19	< 0.21	< 0.21	< 0.21	< 0.21	< 0.23
Dibenz[a,h]anthracene	ug/L	22,500	0.092	< 0.21	< 0.19	< 0.21	< 0.21	< 0.21	< 0.21	< 0.23
Indeno[1,2,3-cd]pyrene	ug/L	112,000	0.92	< 0.21	< 0.19	< 0.21	< 0.21	< 0.21	< 0.21	< 0.23
Naphthalene	ug/L	1680	1.4	< 0.21	< 0.19	< 0.21	< 0.21	< 1.0	< 0.21	< 1.0
1-Methylnaphthalene	ug/L	N/A	N/A	< 0.21	< 0.19	--	< 0.21	--	< 0.21	--
2-Chloronaphthalene	ug/L	N/A	N/A	< 1.0	< 0.96	--	< 1.0	--	< 1.0	--
2-Methylnaphthalene	ug/L	N/A	N/A	< 0.21	< 0.19	--	< 0.21	--	< 0.21	--
Acenaphthene	ug/L	N/A	N/A	< 0.21	< 0.19	--	< 0.21	--	< 0.21	--
Acenaphthylene	ug/L	N/A	N/A	< 0.21	< 0.19	--	< 0.21	--	< 0.21	--
Anthracene	ug/L	N/A	N/A	< 0.21	< 0.19	--	< 0.21	--	< 0.21	--
Benzo[g,h,i]perylene	ug/L	N/A	N/A	< 0.21	< 0.19	--	< 0.21	--	< 0.21	--
Fluoranthene	ug/L	N/A	N/A	< 0.21	< 0.19	--	< 0.21	--	< 0.21	--
Fluorene	ug/L	N/A	N/A	< 0.21	< 0.19	--	< 0.21	--	< 0.21	--
Phenanthrene	ug/L	N/A	N/A	< 0.21	< 0.19	--	< 0.21	--	< 0.21	--
Pyrene	ug/L	N/A	N/A	< 0.21	< 0.19	--	< 0.21	--	< 0.21	--

Notes:

J = Estimated value (detection below the method reporting limits)

No exceedances of Delineation or Action Levels



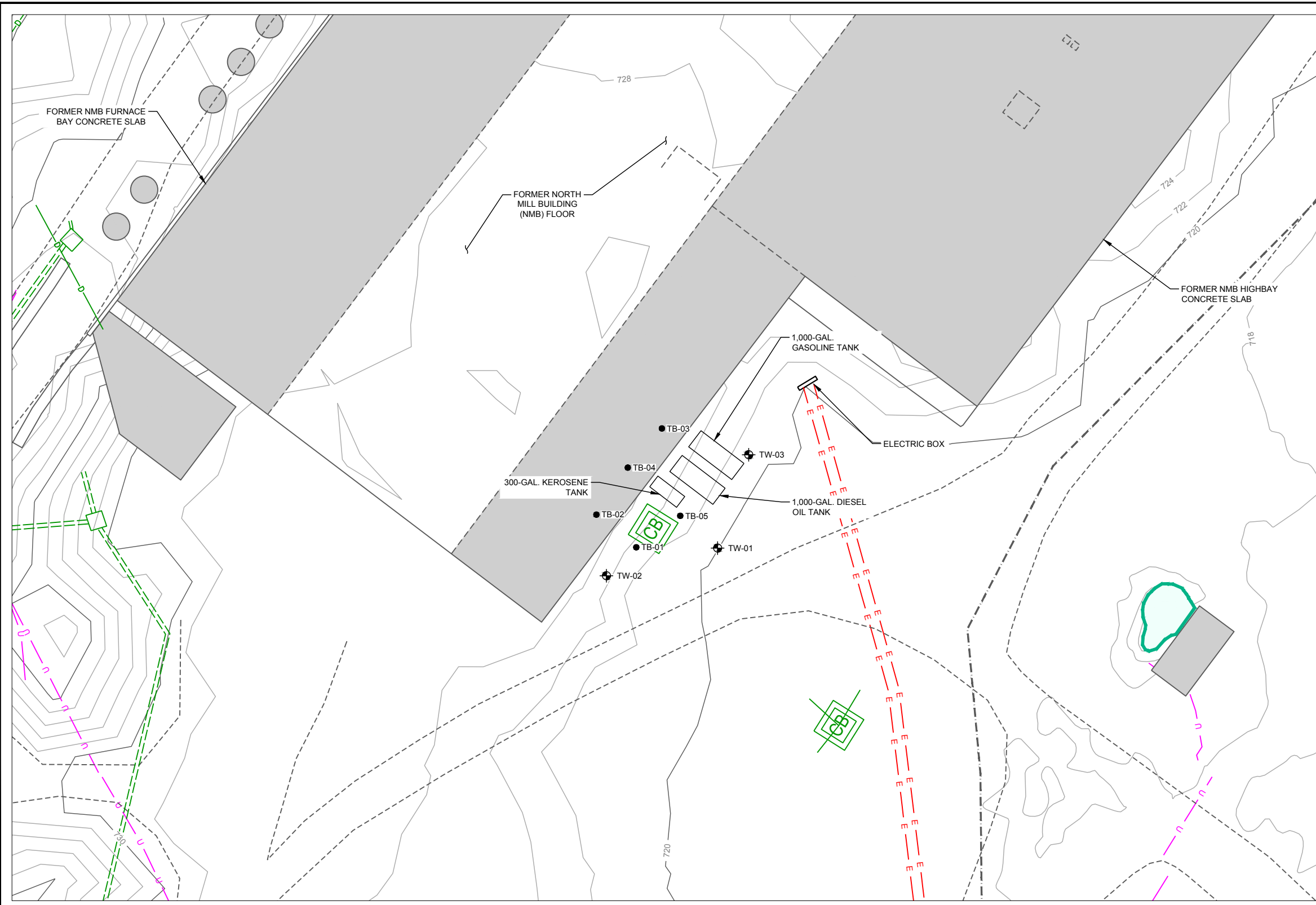
**Table 3 - Monitoring Well Gauging Data
Former Satralloy UST Tier Evaluation**

Well Location	Top of Casing Elevation	Synoptic Gauging Events - Depth to Water and Water Elevation											
		6/2/2014		10/18/2014		5/23/2016		11/2/2021		2/28/2022		6/26/2023	
TW-01	719.624	14.06	705.564	11.49	708.134	11.11	708.514	11.5	708.124	11.83	707.794	10.9	708.724
TW-02	720.153	17.08	703.073	17.35	702.803	16.66	703.493	17.08	703.073	15.98	704.173	17.1	703.053
TW-03	719.904	16.61	703.294	17.81	702.094	17.23	702.674	17.67	702.234	16.51	703.394	17.74	702.164

All measurements in feet; elevations in amsl.

Figures

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LEGEND	
	EXISTING MAJOR CONTOURS (10-FT INTERVAL)
	EXISTING MINOR CONTOURS (2-FT INTERVAL)
	DEMOLITION AS-BUILT SURVEY LIMITS
	EXISTING ON-SITE ACCESS ROAD
	EXISTING CONCRETE PAD
	EXISTING TANK
	EXISTING DRAINAGE DITCH
	EXISTING UNDERGROUND DRAINAGE PIPE
	EXISTING CULVERT / DRAIN PIPE DISCHARGE
	EXISTING UNDERGROUND DRAINAGE PIPE (DIA SHOWN)
	EXISTING ELECTRICAL LINE (SURVEY)
	EXISTING UNKNOWN UTILITY (GPR)
	EXISTING INLET
	EXISTING CATCH BASIN (UNVERIFIED)
	EXISTING CATCH BASIN (VERIFIED)
	JURISDICTIONAL WETLANDS (USACE JURISDICTION)
	TW-01 TEST WELL LOCATION
	TB-01 TEST BOREHOLE LOCATION

NOT FOR CONSTRUCTION



- NOTES**
- BASE TOPOGRAPHY PROVIDED BY JEFFERSON COUNTY, OHIO, ENGINEER'S OFFICE, DATED 2003. TOPOGRAPHY UPDATED USING AS-BUILT SURVEY OF STAGE 1 INTERIM ACTION PROVIDED BY RETTEW, DATED AUGUST 30, 2017, AS-BUILT SURVEY OF NEW HAUL ROAD PROVIDED BY RETTEW, DATED DECEMBER 20, 2021 AND AS-BUILT SURVEY OF STAGE 2 INTERIM ACTION (DEMOLITION) PROVIDED BY RETTEW, DATED OCTOBER 4, 2022.

COORDINATE SYSTEM: NAD83 OHIO STATE PLANE, NORTH ZONE, US FOOT
VERTICAL DATUM: NAVD 88
 - JURISDICTIONAL WETLAND DELINEATION PROVIDED BY WESTLAND RESOURCES, INC., DATED NOVEMBER 14, 2018.
 - SURVEY OF ELECTRICAL UTILITIES PROVIDED BY RETTEW, DATED NOVEMBER 19, 2015.

- GROUND-PENETRATING RADAR (GPR) UTILITY LOCATE OF TELECOMMUNICATION, WATER, DRAINAGE (IN ADDITION TO THOSE PREVIOUSLY SURVEYED), AND UNKNOWN UTILITIES PROVIDED BY GPRS, DATED AUGUST 20, 2021. UTILITIES LOCATED BY GPR ARE APPROXIMATE.
- TW-01, TW-02, TW-03, AND TB-01 LOCATIONS BASED ON SURVEY CONDUCTED BY RETTEW IN 2014. TB-02, TB-03, TB-04, AND TB-05 LOCATIONS BASED ON FIELD MEASUREMENTS CONDUCTED BY GOLDER IN 2022.

CLIENT
CYPRUS AMAX MINERALS COMPANY

PROJECT
FORMER SATRALLOY SITE
TIER 2 EVALUATION
JEFFERSON COUNTY, OHIO

TITLE
SITE PLAN

CONSULTANT	WSP	YYYY-MM-DD	2023-07-31
DESIGNED	JM		
PREPARED	REDMOND		
REVIEWED	BI		
APPROVED	BI		

PROJECT NO. 1239330906 PHASE 900 REV. A FIGURE 2

1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI D

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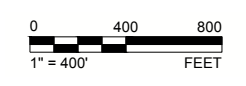


LEGEND	
— 684	GROUNDWATER CONTOUR IN VALLEY FILL AQUIFER
◆	BEDROCK MONITORING WELL
— 690	BEDROCK GROUNDWATER CONTOUR
◆	BEDROCK MONITORING WELL

NOTES

- FIGURE ADAPTED FROM FIGURE 6.2-3 IN THE 2021 SATRALLOY REMEDIAL INVESTIGATION.

NOT FOR CONSTRUCTION



CLIENT
 CYPRUS AMAX MINERALS COMPANY

PROJECT
 FORMER SATRALLOY SITE
 TIER 2 EVALUATION
 JEFFERSON COUNTY, OHIO

TITLE
GROUNDWATER CONTOURS - VALLEY FILL AQUIFER

CONSULTANT	YYYY-MM-DD	2023-07-31
	DESIGNED	JM
	PREPARED	REDMOND
	REVIEWED	LH
	APPROVED	LH

1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM A3S-D

APPENDIX A

**Soil Boring Logs and Monitoring
Well Construction Diagrams**

RECORD OF BOREHOLE: TW-01

CLIENT: Cyprus Amax Minerals Company	START DATE: May 20, 2014	ELEVATION: 720.0 ft (Ground)
PROJECT: Former Satralloy Site	END DATE: May 21, 2014	COORDINATES: N: 239835.2 ft E: 2478574.0 ft
PROJECT NO: 12393309	INCLINATION: 90.0°	COORD SYS: SP OH North FIPS 3401 Ft
LOCATION: Jefferson County OH	CONTRACTOR: Sonic Drilling Services	HORIZ DATUM: NAD83 VERT DATUM: NAVD88
NOTES: Project PN 12393309.450		

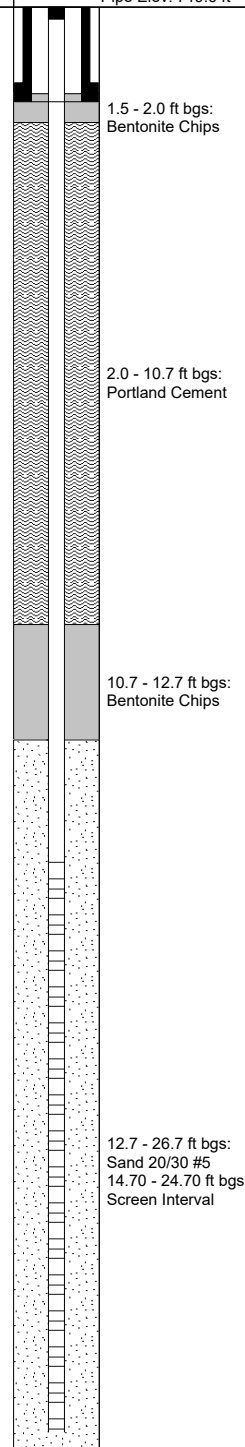
DEPTH (ft)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE			SAMPLES			ENV DATA			ADDITIONAL LAB TESTING	GROUNDWATER OBSERVATIONS	CONSTRUCTION AND INSTALLATION DETAILS	
			DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (ft)	NUMBER	TYPE	REC %	PID ppm					
0			FILL - (GC) CLAYEY SAND and GRAVEL, fine to coarse sand, fine to coarse gravel, cobbles, medium to high plasticity, fines brown-gray, non-cohesive, wet	GC		0.0									Pipe Stickup: -0.38 ft Pipe Elev: 719.6 ft
2.5			(CL) CLAY with gravel, medium to high plasticity, some fine to coarse sand, brown-gray and orange, mottled, stiff, w~PL to w>PL	CL		717.5		62	SC						1.5 - 2.0 ft bgs: Bentonite Chips
9.0			(SC) CLAYEY SAND some fine to coarse SS gravel, fine to medium sand, medium to high plasticity fines, light brown-gray and orange, stiff, cohesive, w~PL to w>PL. Hydrocarbon Odor	SC		711.0									
10.0			(CL) CLAY, medium to high plasticity, some fine to coarse gravel, some fine to coarse sand, trace cobbles, orange and brown-gray, firm to stiff, cohesive, w>PL	CL		710.0									
10.0			(CL) CLAY, medium to high plasticity, some fine to coarse gravel, some fine to coarse sand, trace cobbles, orange and brown-gray, firm to stiff, cohesive, w>PL	CL		10.0									
14.0			(SC) CLAYEY SAND, trace fine to coarse gravel, fine to medium sand, trace coal, orange and brown-gray, stiff, cohesive, w>PL	SC		706.0									
14.5			(CL) CLAY, medium to high plasticity, some fine to coarse gravel, some fine to coarse sand, orange and brown-gray, stiff, cohesive, w>PL	CL		705.5									
14.5			(CL) CLAY, medium to high plasticity, some fine to coarse gravel, some fine to coarse sand, orange and brown-gray, stiff, cohesive, w>PL	CL		14.5									
17.0			(SC) CLAYEY SAND, fine to medium sand, some fine gravel, high plasticity fines, brown and orange, non-cohesive, w>PL, wet	SC		703.0									
17.0			(SC) SAND and CLAY, trace fine to coarse gravel, fine to medium sand, medium plasticity fines, pockets of medium sand, brown and orange and gray, cohesive, stiff w~PL to w>PL	SC		17.0									
18.0			(SC) SAND and CLAY, trace fine to coarse gravel, fine to medium sand, medium plasticity fines, pockets of medium sand, brown and orange and gray, cohesive, stiff w~PL to w>PL	SC		702.0									
18.0			(SC) SAND and CLAY, trace fine to coarse gravel, fine to medium sand, medium plasticity fines, pockets of medium sand, brown and orange and gray, cohesive, stiff w~PL to w>PL	SC		18.0									
24.0			(SC) SAND and CLAY, trace fine to coarse gravel, fine to medium sand, medium plasticity fines, dark gray, cohesive, stiff, w>PL	SC		696.0									
24.0			(SC) SAND and CLAY, trace fine to coarse gravel, fine to medium sand, medium plasticity fines, dark gray, cohesive, stiff, w>PL	SC		24.0									

8140 LC
Sonic Drilling - 6-in Hole Dia.

21May14

Lab: BTEX+PAH/TPH

Lab: BTEX+PAH/TPH



Continued on Next Page

HAMMER TYPE: N/A



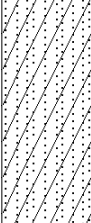

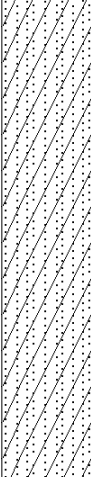


REV: 2023

LOGGED: B. Eustice
CHECKED: Bob Ireson

DATE: May 20, 2014
DATE: Feb 07, 2023

RECORD OF BOREHOLE: TW-01

CLIENT: Cyprus Amax Minerals Company	START DATE: May 20, 2014	ELEVATION: 720.0 ft (Ground)
PROJECT: Former Satralloy Site	END DATE: May 21, 2014	COORDINATES: N: 239835.2 ft E: 2478574.0 ft
PROJECT NO: 12393309	INCLINATION: 90.0°	COORD SYS: SP OH North FIPS 3401 Ft
LOCATION: Jefferson County OH	CONTRACTOR: Sonic Drilling Services	HORZ DATUM: NAD83 VERT DATUM: NAVD88
NOTES: Project PN 12393309.450		

DEPTH (ft)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE			SAMPLES			ENV DATA			ADDITIONAL LAB TESTING	GROUNDWATER OBSERVATIONS	CONSTRUCTION AND INSTALLATION DETAILS
			DESCRIPTION	USCS	STRATA PLOT	ELEV. --- DEPTH (ft)	NUMBER	TYPE	REC %	PID ppm Δ				
26	8140 LC Sonic Drilling - 6-in Hole Dia.		(SC) SAND and CLAY, trace fine to coarse gravel, fine to medium sand, medium plasticity fines, dark gray, cohesive, stiff, w>PL	SC			SC	100						Pipe Stickup: -0.38 ft Pipe Elev: 719.6 ft
27			29											
28														
29			(GC) CLAYEY GRAVEL, some fine to coarse sand, fine to coarse gravel, medium to high plasticity fines, dark gray, cohesive, firm to stiff, w>PL	GC		691.0 29.0								
30			(SC) SANDY CLAY, some fine gravel, fine to medium sand, gray, cohesive, soft, w>PL	SC		690.0 30.0								
31														
32														
33														
34														
35														
36			(SC) SANDY and CLAY, fine to medium sand, trace coarse sand, trace fine gravel, low to medium plasticity fines, gray/brown, cohesive, firm to stiff, w~PL to w>PL	SC		684.0 36.0								
37														
38														
39			(SP) POORLY GRADED SAND with gravel, some plastic fines, fine to coarse sand, fine to coarse gravel, brown and gray, non-cohesive, moist, very dense	SP		681.5 38.5								
40			End of hole at 40.00 ft.			680.0								
41														
42														
43														
44														
45														
46														
47														
48														
49														
50														

Document / Soil-Enviro 3 Well (PID) / Golder - 3 Imperial US / Golder US Auto (common in US) / 2023-03-08

RECORD OF BOREHOLE: TW-02

CLIENT: Cyprus Amax Minerals Company	DATE: May 21, 2014	ELEVATION: 720.4 ft (Ground)
PROJECT: Former Satralloy Site		COORDINATES: N: 239825.0 ft E: 2478533.0 ft
PROJECT NO: 12393309	INCLINATION: 90.0°	COORD SYS: SP OH North FIPS 3401 Ft
LOCATION: Jefferson County OH	CONTRACTOR: Sonic Drilling Services	HORZ DATUM: NAD83 VERT DATUM: NAVD88
NOTES: Project PN 12393309.450		

DEPTH (ft)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE			SAMPLES			ENV DATA			ADDITIONAL LAB TESTING	GROUNDWATER OBSERVATIONS	CONSTRUCTION AND INSTALLATION DETAILS	
			DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (ft)	NUMBER	TYPE	REC %	PID ppm					
0			FILL - (GC) GRAVELLY CLAY, brown, firm large gravel, trace - some sand, non-cohesive, w<PL	GC		0.0									Pipe Stickup: -0.24 ft Pipe Elev: 720.2 ft
1			(CL) CLAY, some gravel, trace sand, gray-brown mottled, cohesive, plastic, w>PL	CL		719.4									
2						715.9									
3			(SP) thin sand seams 4.5-5'	SP		4.5									
4			(CL) CLAY, some gravel, trace sand, coarse angular gravel, reddish brown-gray mottled, stiff, w>PL, high plasticity	CL		715.4									
5						710.4									
6			(CL) CLAY with gravel, reddish brown-gray mottled, stiff, cohesive, w>PL	CL		10.0									
7						709.4									
8			(CL) Gravelly CLAY, loose, very stiff, brown, plastic, w>PL, non-cohesive	CL		11.0									
9						708.4									
10			(CL) CLAY with gravel, brown-gray mottled with red spotting, stiff, cohesive, plastic, w>PL	CL		12.0									
11						706.9									
12			(CL) CLAY, some coarse gravel sand, grayish blue-brown mottled, slightly cohesive, non-plastic	CL		13.5									
13						705.4									
14			(CL) Gravelly CLAY, grayish blue-brown mottled, stiff, cohesive, plastic	CL		15.0									
15															
16															
17															
18															
19															
20															
21															
22															
23															
24															
25															

Continued on Next Page

HAMMER TYPE: N/A



REV:
2023

LOGGED: B. Eustice
CHECKED: Bob Ireson

DATE: May 21, 2014
DATE: Feb 07, 2023

RECORD OF BOREHOLE: TW-02

CLIENT: Cyprus Amax Minerals Company	DATE: May 21, 2014	ELEVATION: 720.4 ft (Ground)
PROJECT: Former Satralloy Site		COORDINATES: N: 239825.0 ft E: 2478533.0 ft
PROJECT NO: 12393309	INCLINATION: 90.0°	COORD SYS: SP OH North FIPS 3401 Ft
LOCATION: Jefferson County OH	CONTRACTOR: Sonic Drilling Services	HORZ DATUM: NAD83 VERT DATUM: NAVD88
NOTES: Project PN 12393309.450		

DEPTH (ft)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE			SAMPLES			ENV DATA			ADDITIONAL LAB TESTING	GROUNDWATER OBSERVATIONS	CONSTRUCTION AND INSTALLATION DETAILS
			DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (ft)	NUMBER	TYPE	REC %	Δ	PPM			
26	8140 LC Sonic Drilling - 6-in Hole Dia.		(CL) Gravelly CLAY, grayish blue-brown mottled, stiff, cohesive, plastic	CL		690.4 30.0		SC	100			Lab: BTEX+/PAH/TPH	21May14	
27														
28														
29														
30														
31	(CL) Clay, some gravel, gray, cohesive, w>PL, stiff, cobbles @33.5'													
32														
33								GS SC	100					
34														
35			(SC) SAND and CLAY, trace gravel, brown, loose, wet, slightly cohesive	SC		685.4 35.0		SC	100					
36														
37														
38			(SC) CLAYEY SAND, trace gravel, gray-brown mottled, very stiff, non-cohesive, non-plastic, w<PL											
39														
40			End of hole at 40.00 ft.											
41														
42														
43														
44														
45														
46														
47														
48														
49														
50														

Document / Soil-Enviro 3 Well (PID) / Golder - 3 Imperial US / Golder US Auto (common in US) / 2023-03-08

RECORD OF BOREHOLE: TW-03

CLIENT: Cyprus Amax Minerals Company	DATE: May 19, 2014	ELEVATION: 720.2 ft (Ground)
PROJECT: Former Satralloy Site		COORDINATES: N: 239869.7 ft E: 2478586.0 ft
PROJECT NO: 12393309	INCLINATION: 90.0°	COORD SYS: SP OH North FIPS 3401 Ft
LOCATION: Jefferson County OH	CONTRACTOR: Sonic Drilling Services	HORZ DATUM: NAD83 VERT DATUM: NAVD88
NOTES: Project PN 12393309.450		

DEPTH (ft)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE			SAMPLES			ENV DATA			ADDITIONAL LAB TESTING	GROUNDWATER OBSERVATIONS	CONSTRUCTION AND INSTALLATION DETAILS		
			DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (ft)	NUMBER	TYPE	REC %	PID ppm						
0			Gravel and wood fragments			0.0										
0.5			Concrete			719.7										
1.5			(GC) CLAYEY GRAVEL, coarse angular gravel	GC		718.7										
5.0			(CL) Sandy CLAY, some gravel, dark gray, cohesive, w~PL, stiff	CL		715.2										
6.0		(CL) Sandy CLAY, some gravel, gray-brown mottled, coarse gravel, fine sand, w~PL, stiff	714.2													
8.0		(CL) Silty CLAY, trace gravel, gray-brown mottled, angular gravel, slightly cohesive, non-plastic, very stiff	712.2													
10.0		(CL) Gravelly sandy CLAY, cohesive, w>PL, stiff to firm, soft 11-12'	710.2													
13.5		(CL) CLAY, some gravel, gray-brown mottled, cohesive, w~PL to w>PL, very stiff	706.7													
16.5		(CL) Sandy CLAY, brown, cohesive, w>PL, loose	703.7													
17.5		(CL) CLAY, some gravel, trace to some fine sand, gray, cohesive, w~PL, stiff	702.7													
20.0		(CL) CLAY, trace fine gravel, cohesive, w>PL, stiff, dark gray and red clay inclusions	700.2													

Continued on Next Page

HAMMER TYPE: N/A




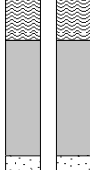
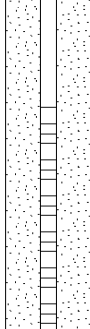
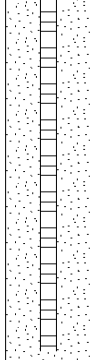
LOGGED: K. Cione
CHECKED: Bob Ireson

DATE: May 19, 2014
DATE: Feb 07, 2023

REV: 2023

RECORD OF BOREHOLE: TW-03

CLIENT: Cyprus Amax Minerals Company	DATE: May 19, 2014	ELEVATION: 720.2 ft (Ground)
PROJECT: Former Satralloy Site		COORDINATES: N: 239869.7 ft E: 2478586.0 ft
PROJECT NO: 12393309	INCLINATION: 90.0°	COORD SYS: SP OH North FIPS 3401 Ft
LOCATION: Jefferson County OH	CONTRACTOR: Sonic Drilling Services	HORIZ DATUM: NAD83 VERT DATUM: NAVD88
NOTES: Project PN 12393309.450		

DEPTH (ft)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE			SAMPLES			ENV DATA			ADDITIONAL LAB TESTING	GROUNDWATER OBSERVATIONS	CONSTRUCTION AND INSTALLATION DETAILS		
			DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (ft)	NUMBER	TYPE	REC %	PID ppm	5			10	15	
26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50	8140 LC	Sonic Drilling - 6-in Hole Dia.	(CL) CLAY, trace fine gravel, cohesive, w>PL, stiff, dark gray and red clay inclusions	CL		685.2 35.0	SC	100	Δ	5	10	15	Lab: BTEX+PAH/TPH	19May14		Pipe Stickup: -0.25 ft Pipe Elev: 719.9 ft
(CL) Silty CLAY, some gravel, gray, cohesive, w>PL, firm			683.2 37.0			SC	100	Δ	5	10	15				25.8 - 27.8 ft bgs: Bentonite Chips	
(SC) CLAYEY SAND, trace to some gravel, gray, fine to medium sand, angular gravel, loose, wet			680.2			SC	100	Δ	5	10	15				27.8 - 40.0 ft bgs: Sand 20/30 #5 29.75 - 39.75 ft bgs: Screen Interval	
End of hole at 40.00 ft.																

Document / Soil-Enviro 3 Well (PID) / Golder - 3 Imperial US / Golder US Auto (common in US) / 2023-03-08

APPENDIX B

**Monitoring Well Development and
Sampling Forms**

West Development
GROUNDWATER LOW FLOW PURGE/SAMPLE FIELD INFORMATION FORM

WSP GOLDR

~~111~~
~~111~~
111X

WELL ID: TW-02 Well Casing Diameter: 2-inch
 Project: Satralley Page: Lot 3
 Project Number: 1239330906.900 Meter/Type/Serial #: YSI Pro Quatro/B22670B
 Depth to Water Prior to Purging [ft-bmp]: 17.1 ft bto Meter Calibrated @: BY ECE IE
 As-Built Construction Well Depth [ft-bmp]: _____ Sampling Date/Time: 6/27/23
 Sounded Well Depth [ft-bmp]: 39.0 Initial TD / 39.1 Final TD Sampler(s): _____
 Depth to Top of Screen [ft-bmp]: FT BTOC Sampling Device: *
 Depth to Top of Pump [ft-bmp]: _____ Purging Technique: Monsoon Pump
 System Volume (1/4" - 10 mL/ft) [mL]: _____ Start Time (purging): _____
 Weather Conditions: Cloudy, 70°

Time	Temperature	pH	Specific Conductance Circle One	Turbidity **	Dissolved Oxygen	Redox Potential Note - Indicate if (+) or (-)	Depth To Water	Volume Purged	Approximate Purge Rate Est.	Observations (sample characteristics, equipment problems, etc.)
hh:mm	°C	std	mS/cm	ntu	mg/l	mV	ft-bmp	liters	ml/min	
10:01	14.3	7.14	0.793	71000	0.6	-72	19.4	---	---	
10:08	14.6	7.3	0.793	71000	0.53	-122.5	23	---	---	
10:14	14.8	7.4	0.804	71000	0.53	-139	25.5	---	---	
10:27	14.8	7.38	0.807	71000	0.42	-130	24	---	---	
10:32	14.5	7.38	0.818	71000	0.38	-148.2	26	---	---	
10:40	14.6	7.4	0.74	71000	0.45	-84.6	30	---	---	
10:52	14.3	7.39	0.820	71000	0.67	-83.7	37	---	---	
10:59	14.0	7.31	0.823	71000	1.43	-82.4	36	---	---	
11:13	13.6	7.42	0.819	161	0.81	-127.7	36	---	---	11:00 onwards pumping 3 liters per minute
11:20	13.6	7.43	0.819	131	0.67	-133.9	36	---	---	
11:27	13.6	7.43	0.819	85.1	0.72	-131.0	36	---	---	
11:31	13.6	7.43	0.750	68.1	0.74	-129.3	36	---	---	
11:35	13.6	7.43	0.720	22	0.72	-130	36	---	---	
11:41	13.6	7.42	0.818	97.2	0.92	-118.8	36	---	---	
11:45	13.6	7.42	0.810	94.0	0.80	-121.3	36	---	---	

Comments: ~80 Gallons Removed From Well - Turbidity bounced b/t 65-135 over last 30 min. of purge
 Over three consecutive readings: pH +/- 0.1 SU - conductivity +/- 3% - temperature +/- 0.5 dC - turbidity +/- 10% (or is less than 5 NTU)

** replace turbidity with TDS if sampled using RPP. Confirm units are correct if using Myron.

06/28/23

Development

WSP GOLDER
 III 11
 III III

GROUNDWATER LOW FLOW PURGE/SAMPLE FIELD INFORMATION FORM

WELL ID: TW-02 Well Casing Diameter: 2-inch
 Project: _____ Page: 2 of 3
 Project Number: 1239330906.900 Meter/Type/Serial #: _____
 Depth to Water Prior to Purging [ft-bmp]: 17.4 Meter Calibrated @: _____
 As-Built Construction Well Depth [ft-bmp]: _____ Sampling Date/Time: _____
 Sounded Well Depth [ft-bmp]: _____ Sampler(s): _____
 Depth to Top of Screen [ft-bmp]: 6/28/23 Sampling Device: _____
 Depth to Top of Pump [ft-bmp]: _____ Purging Technique: _____
 System Volume (1/4" - 10 mL/ft) [mL]: _____ Start Time (purging): _____
 Weather Conditions: _____

Time	Temperature	pH	Specific Conductance	Turbidity	Dissolved Oxygen	Redox Potential	Depth To Water	Volume Purged	Approximate Purge Rate Est.	Observations
hh:mm	°C	std	mS/cm	ntu	mg/l	Note - Indicate if (+) or (-) mV	ft-bmp	liters	ml/min	(sample characteristics, equipment problems, etc.)
8:53	14.3	7.26	0.781	>1000	-0.02	-61.2	21.5			
8:58	14.4	7.26	0.757	7100	-0.15	-81.8	23			
9:03	13.9	7.4	0.697	7000	-0.21	-150	26			
9:08	13.8	7.43	0.69	71000	-0.18	-164.3	30			
9:13	14.0	7.46	0.685	71000	-0.18	-172.2	30.3			
9:18	13.9	7.45	0.68	883	-0.15	-172.1	30.3			
9:23	13.9	7.46	0.68	334	-0.13	-175.8	30.3			
9:28	13.9	7.48	0.68	191	-0.06	-180.8	30.5			
9:33	13.9	7.49	0.679	181	-0.02	-184.4	30.5			
9:38	14.0	7.49	0.678	150	0.003	-187.5	30.5			
9:43	13.8	7.5	0.679	172	-0.05	-189.1	30.5			
9:48	13.9	7.5	0.678	105	-0.09	-190.7	30.5			purging 0.8 gal/min
9:53	14.0	7.51	0.68	60.1	-0.11	-191.5	30.5			
9:58	13.9	7.5	0.679	362	-0.14	-189.7	30.5			
10:03	14.0	7.5	0.68	548	-0.15	-190	30.5			
10:08	13.9	7.51	0.68	372	-0.16	-192.5	30.5			

Comments: ~75 Gallons Removed on 6/28/23 - Total of ~155 gallons purged

Over three consecutive readings: pH +/- 0.1 SU - conductivity +/- 3% - temperature +/- 0.5 dC - turbidity +/- 10% (or is less than 5 NTU)
 ** replace turbidity with TDS if sampled using RPP. Confirm units are correct if using Myron.

GROUNDWATER LOW FLOW PURGE/SAMPLE FIELD INFORMATION FORM



~~Satralloy RI/FS~~

WELL ID: TW-02 **Well Casing Diameter:** 2-inch
Project: Former Satralloy RI/FS BUSTR **Page:** 1 of 1
Project Number: ~~4200000010~~ 1239330906 **Meter/Type/Serial #:** YSI PROQUATRO B72670B
Sounded Well Depth [ft-bmp]: 39.0 **Meter Calibrated @:** 0800 6/29/23
As-Built Construction Well Depth [ft-bmp]: 39.76 **Sampling Date/Time:** 0915 6/29/23
Depth to Water Prior to Purging [ft-bmp]: 17.65 **Sampler(s):** D.A.M.G.
Depth to Top of Screen [ft-bmp]: 30 **Sampling Device:** Mega Monsoon or QED Bladder Pump (circle)
Depth to Top of Pump [ft-bmp]: 30 **Sample Characteristics:** Clear
System Volume (1/4" - 10 mL/ft) [mL]: _____
Start Time (purging): 0815 **Analytical Parameters:** VOC, PAH
Purging Technique: LOW FLOW
Weather Conditions: 70°F, overcast/fog + haze

Time	Temperature	pH	Specific Conductance <u>Circle One</u>	Turbidity	Dissolved Oxygen	Redox Potential <u>Note - Indicate if (+) or (-)</u>	Depth To Water	Volume Purged <u>gallons [liters]</u>	Approximate Purge Rate <u>[ml/min]</u>	Observations <u>(sample characteristics, equipment problems, etc.)</u>
[hh:mm]	[°C]	[std]	[mS/cm]	[ntu]	[mg/l]	[mV]	[ft-bmp]			
0821	13.5	7.83	0.820	21000	0.07	-17.2	20.9			
0827	13.7	7.35	0.828	351	-0.05	-125.2	19.4	3	500	
0832	13.8	7.45	0.827	89.4	-0.07	-149.6	19.25	4	500	
0836	13.8	7.48	0.827	50.3	-0.04	-162.5	19.4	5	500	
0841	13.8	7.50	0.827	38.0	-0.02	-169.5	19.35	6	500	
0846	13.8	7.52	0.827	31.8	-0.07	-176.8	19.30	7	500	
0850	13.8	7.53	0.827	26.5	-0.11	-180.9	19.20	8	500	
0856	13.9	7.54	0.827	19.2	-0.14	-184.0	19.03	9	500	
0900	14.0	7.54	0.827	17.5	-0.15	-186.6	18.9	10	500	
0907	14.1	7.54	0.827	16.0	-0.16	-187.4	18.9	11	500	
0913	14.0	7.55	0.827	16.8	-0.17	-188.2	18.9	12	500	sample collected

Comments:

Over three consecutive readings: pH +/- 0.1 SU - conductivity +/- 3% - temperature +/- 0.5 dC - turbidity +/- 10% (or is less than 5 NTU)

Reviewed By: _____
Date: _____

GROUNDWATER LOW FLOW PURGE/SAMPLE FIELD INFORMATION FORM

Satralloy RI-FS



WELL ID: TN-03 **Well Casing Diameter:** 2-inch
Project: Former Satralloy RI/FS **Page:** 1 of 1
Project Number: 1239330910 **Meter/Type/Serial #:** YSI pro Quattro B22670B
Sounded Well Depth [ft-bmp]: ~~28.55~~ 39.55 **Meter Calibrated @:** 6/29/23 0800
As-Built Construction Well Depth [ft-bmp]: ~~39.55~~ 39.55 **Sampling Date/Time:** 6/29/23 1130
Depth to Water Prior to Purging [ft-bmp]: 23.35 **Sampler(s):** DA MG
Depth to Top of Screen [ft-bmp]: 29.75 **Sampling Device:** Mega Monsoon or QED Bladder Pump (circle)
Depth to Top of Pump [ft-bmp]: 38.8 **Sample Characteristics:** clear
System Volume (1/4" - 10 mL/ft) [mL]: _____
Start Time (purging): 1017 **Analytical Parameters:** PAH, VOC
Purging Technique: LOW flow
Weather Conditions: 75°F, Overcast/fog/haze

Time	Temperature	pH	Specific Conductance Circle One	Turbidity	Dissolved Oxygen	Redox Potential Note - Indicate if (+) or (-)	Depth To Water	Volume Purged	Approximate Purge Rate	Observations (sample characteristics, equipment problems, etc.)
[hh:mm]	[°C]	[std]	[mS/cm]	[ntu]	[mg/l]	[mV]	[ft-bmp]	[liters]	[ml/min]	
1019	15.8	7.03	0.771	129	0.39	-47.5	24.75		~130	
1023	16.9	7.16	0.703	229	0.43	-78.8	25.25		~130	
1028	18.0	7.17	0.705	222	0.51	-85.1	25.90		~130	
1035	18.16	7.17	0.764	185	0.52	-85.7	26.75		~130	
1040	19.3	7.17	0.763	166	0.55	-85.4	27.01		~130	
1045	19.9	7.15	0.764	159	0.58	-83.7	27.37		~130	
1050	20.3	7.15	0.762	144	0.60	-80.0	27.7		~130	
1055	20.7	7.15	0.763	129	0.58	-77.8	27.8		~130	
1100	20.9	7.14	0.764	118	0.54	-76.4	28.35		~130	
1105	18.11	7.14	0.759	118	0.55	-70.9	29.30		~130	
1110	18.87	7.16	0.759	86.2	0.48	-70.6	29.70		~130	
1115	19.2	7.15	0.761	68.4	0.52	-70.4	30.2		~130	
1121	19.8	7.16	0.761	68.4	0.50	-69.1	30.6		~130	
1122	20.1	7.15	0.760	63.4	0.52	-67.5	30.9		~130	sample collected

Comments:

Over three consecutive readings: pH +/- 0.1 SU - conductivity +/- 3% - temperature +/- 0.5 dC - turbidity +/- 10% (or is less than 5 NTU)

Reviewed By: _____
Date: _____

APPENDIX C

Soil Classification Form



Soil Classification Form 2022

Report Date: March 30, 2023

Facility ID – Release No.: 41008331-N00001

Major Divisions				Typical Description	Soil Class
Coarse Grained Soils More than 50% of material is retained on #200 Sieve	Gravel and Gravelly Soils More than 50% of coarse fraction retained on #4 sieve	Clean Gravels (Little or no fines)	GW	Well-Graded Gravels, Gravel-Sand Mixtures, Little or No Fines	Class 1
			GP	Poorly-Graded Gravels, Gravel-Sand Mixtures, Little or No Fines	
		Gravels with Fines (Appreciable amount of fines)	GM	Silty Gravels, Gravel-Sand-Silt Mixtures	
			GC	Clayey Gravels, Gravel-Sand-Clay Mixtures	
	Sand and Sandy Soils More than 50% of coarse fraction passes through #4 sieve	Clean Sand (Little or no fines)	SW	Well-Graded Sands, Gravelly Sands, Little or No Fines	
			SP	Poorly-Graded Sands, Gravelly Sands, Little or No Fines	
		Sands with Fines (Appreciable amount of fines)	SM	Silty-Sands, Sand-Silt Mixtures	
			SC	Clayey Sands, Sand-Clay Mixtures	
Fine Grained Soils More than 50% of material passes through #200 Sieve	Silts and Clays Liquid limit<50		ML	Inorganic Silt and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sand or Clayey Silts with Slight Plasticity	Class 2
			CL	Inorganic Clays of Low to Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays	
			OL	Organic Silts and Organic Silty Clays of Low Plasticity	
	Silts and Clays Liquid limit>50		MH	Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Soil	Class 3
			CH	Inorganic Clays of High Plasticity, Fat Clays	
			OH	Organic Clays of Medium to Plasticity, Organic Silts	
Highly Organic Soils			PT	Peat, Humus, Swamp Soil with High Organic Contents	

PATHWAY:	Soil to Indoor Air	GW to Indoor Air	Soil to DW Leaching	Soil to Non-DW Leaching
SYMBOL:	1	1	2	2
SOIL CLASS:	GC/SC (Fill)	GC/SC (Fill)	CL	CL

I certify that I have inspected the soils at the above location and am qualified to make the determinations:

Signature: Dakota Andexler

Print Name: Dakota Andexler, Consultant, Geologist

Company: WSP USA Inc.

APPENDIX D

**Laboratory Analytical Reports and
Chains of Custody**

 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Mr. Bob Ireson
WSP USA Inc
1335 Dublin Road
Suite 126-D
Columbus, Ohio 43215
Generated 7/17/2023 3:33:28 PM

JOB DESCRIPTION

Former Satralloy Site BUSTR

JOB NUMBER

240-188043-1

Eurofins Cleveland

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



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Authorized for release by
Kris Brooks, Project Manager II
Kris.Brooks@et.eurofinsus.com
(330)966-9790

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Definitions/Glossary

Client: WSP USA Inc
Project/Site: Former Satralloy Site BUSTR

Job ID: 240-188043-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: WSP USA Inc
Project/Site: Former Satralloy Site BUSTR

Job ID: 240-188043-1

Job ID: 240-188043-1

Laboratory: Eurofins Cleveland

Narrative

**Job Narrative
240-188043-1**

Receipt

The samples were received on 7/6/2023 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.5°C

GC/MS VOA

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC/MS Semi VOA

Method 8270E: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 240-579565.

Method 8270E: The LCS/LCSD associated with samples TW-01 (240-188043-1), TW-02 (240-188043-2), TW-03 (240-188043-3) and FD-1 (240-188043-4) had one acid surrogate recovery above acceptance criteria. Because the associated samples were ND for all target analytes no corrective action was required.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.



Method Summary

Client: WSP USA Inc
Project/Site: Former Satralloy Site BUSTR

Job ID: 240-188043-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CLE
8270E	Semivolatile Organic Compounds (GC/MS)	SW846	EET CLE
3510C LVI	Liquid-Liquid Extraction (Separatory Funnel) LVI	SW846	EET CLE
5030C	Purge and Trap	SW846	EET CLE

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396



Sample Summary

Client: WSP USA Inc
Project/Site: Former Satralloy Site BUSTR

Job ID: 240-188043-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-188043-1	TW-01	Water	06/29/23 09:55	07/06/23 08:00
240-188043-2	TW-02	Water	06/29/23 09:15	07/06/23 08:00
240-188043-3	TW-03	Water	06/29/23 11:30	07/06/23 08:00
240-188043-4	FD-1	Water	06/29/23 00:00	07/06/23 08:00
240-188043-5	TRIP BLANK	Water	06/29/23 00:00	07/06/23 08:00

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: WSP USA Inc
Project/Site: Former Satralloy Site BUSTR

Job ID: 240-188043-1

Client Sample ID: TW-01

Lab Sample ID: 240-188043-1

No Detections.

Client Sample ID: TW-02

Lab Sample ID: 240-188043-2

No Detections.

Client Sample ID: TW-03

Lab Sample ID: 240-188043-3

No Detections.

Client Sample ID: FD-1

Lab Sample ID: 240-188043-4

No Detections.

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-188043-5

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

Eurofins Cleveland

Client Sample Results

Client: WSP USA Inc
 Project/Site: Former Satralloy Site BUSTR

Job ID: 240-188043-1

Client Sample ID: TW-01

Lab Sample ID: 240-188043-1

Date Collected: 06/29/23 09:55

Matrix: Water

Date Received: 07/06/23 08:00

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
EDB	<0.41		1.0	0.41	ug/L			07/13/23 14:34	1
EDC	<0.46		1.0	0.46	ug/L			07/13/23 14:34	1
1,2,4-Trimethylbenzene	<0.52		1.0	0.52	ug/L			07/13/23 14:34	1
Benzene	<0.42		1.0	0.42	ug/L			07/13/23 14:34	1
Ethylbenzene	<0.42		1.0	0.42	ug/L			07/13/23 14:34	1
Methyl tert-butyl ether	<0.47		1.0	0.47	ug/L			07/13/23 14:34	1
Toluene	<0.44		1.0	0.44	ug/L			07/13/23 14:34	1
Xylenes, Total	<0.42		2.0	0.42	ug/L			07/13/23 14:34	1
Naphthalene	<0.80		1.0	0.80	ug/L			07/13/23 14:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		78 - 122		07/13/23 14:34	1
Dibromofluoromethane (Surr)	103		73 - 120		07/13/23 14:34	1
4-Bromofluorobenzene (Surr)	88		56 - 136		07/13/23 14:34	1
1,2-Dichloroethane-d4 (Surr)	105		62 - 137		07/13/23 14:34	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	<0.074		0.22	0.074	ug/L		07/06/23 11:49	07/14/23 16:19	1
Benzo[a]pyrene	<0.19		0.22	0.19	ug/L		07/06/23 11:49	07/14/23 16:19	1
Benzo[b]fluoranthene	<0.17		0.22	0.17	ug/L		07/06/23 11:49	07/14/23 16:19	1
Benzo[k]fluoranthene	<0.15		0.22	0.15	ug/L		07/06/23 11:49	07/14/23 16:19	1
Chrysene	<0.072		0.22	0.072	ug/L		07/06/23 11:49	07/14/23 16:19	1
Dibenz(a,h)anthracene	<0.16		0.22	0.16	ug/L		07/06/23 11:49	07/14/23 16:19	1
Indeno[1,2,3-cd]pyrene	<0.15		0.22	0.15	ug/L		07/06/23 11:49	07/14/23 16:19	1
Naphthalene	<0.12		0.22	0.12	ug/L		07/06/23 11:49	07/14/23 16:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	88		31 - 140	07/06/23 11:49	07/14/23 16:19	1
Phenol-d5 (Surr)	37		18 - 120	07/06/23 11:49	07/14/23 16:19	1
Nitrobenzene-d5 (Surr)	71		13 - 120	07/06/23 11:49	07/14/23 16:19	1
2-Fluorophenol (Surr)	48		12 - 120	07/06/23 11:49	07/14/23 16:19	1
2-Fluorobiphenyl (Surr)	65		23 - 120	07/06/23 11:49	07/14/23 16:19	1
2,4,6-Tribromophenol (Surr)	75		10 - 126	07/06/23 11:49	07/14/23 16:19	1

Client Sample Results

Client: WSP USA Inc
 Project/Site: Former Satralloy Site BUSTR

Job ID: 240-188043-1

Client Sample ID: TW-02

Lab Sample ID: 240-188043-2

Date Collected: 06/29/23 09:15

Matrix: Water

Date Received: 07/06/23 08:00

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
EDB	<0.41		1.0	0.41	ug/L			07/13/23 14:58	1
EDC	<0.46		1.0	0.46	ug/L			07/13/23 14:58	1
1,2,4-Trimethylbenzene	<0.52		1.0	0.52	ug/L			07/13/23 14:58	1
Benzene	<0.42		1.0	0.42	ug/L			07/13/23 14:58	1
Ethylbenzene	<0.42		1.0	0.42	ug/L			07/13/23 14:58	1
Methyl tert-butyl ether	<0.47		1.0	0.47	ug/L			07/13/23 14:58	1
Toluene	<0.44		1.0	0.44	ug/L			07/13/23 14:58	1
Xylenes, Total	<0.42		2.0	0.42	ug/L			07/13/23 14:58	1
Naphthalene	<0.80		1.0	0.80	ug/L			07/13/23 14:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		78 - 122		07/13/23 14:58	1
Dibromofluoromethane (Surr)	105		73 - 120		07/13/23 14:58	1
4-Bromofluorobenzene (Surr)	89		56 - 136		07/13/23 14:58	1
1,2-Dichloroethane-d4 (Surr)	108		62 - 137		07/13/23 14:58	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	<0.071		0.21	0.071	ug/L		07/06/23 11:49	07/14/23 16:42	1
Benzo[a]pyrene	<0.18		0.21	0.18	ug/L		07/06/23 11:49	07/14/23 16:42	1
Benzo[b]fluoranthene	<0.16		0.21	0.16	ug/L		07/06/23 11:49	07/14/23 16:42	1
Benzo[k]fluoranthene	<0.15		0.21	0.15	ug/L		07/06/23 11:49	07/14/23 16:42	1
Chrysene	<0.069		0.21	0.069	ug/L		07/06/23 11:49	07/14/23 16:42	1
Dibenz(a,h)anthracene	<0.16		0.21	0.16	ug/L		07/06/23 11:49	07/14/23 16:42	1
Indeno[1,2,3-cd]pyrene	<0.14		0.21	0.14	ug/L		07/06/23 11:49	07/14/23 16:42	1
Naphthalene	<0.11		0.21	0.11	ug/L		07/06/23 11:49	07/14/23 16:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	100		31 - 140	07/06/23 11:49	07/14/23 16:42	1
Phenol-d5 (Surr)	68		18 - 120	07/06/23 11:49	07/14/23 16:42	1
Nitrobenzene-d5 (Surr)	84		13 - 120	07/06/23 11:49	07/14/23 16:42	1
2-Fluorophenol (Surr)	64		12 - 120	07/06/23 11:49	07/14/23 16:42	1
2-Fluorobiphenyl (Surr)	78		23 - 120	07/06/23 11:49	07/14/23 16:42	1
2,4,6-Tribromophenol (Surr)	85		10 - 126	07/06/23 11:49	07/14/23 16:42	1

Client Sample Results

Client: WSP USA Inc
 Project/Site: Former Satralloy Site BUSTR

Job ID: 240-188043-1

Client Sample ID: TW-03

Lab Sample ID: 240-188043-3

Date Collected: 06/29/23 11:30

Matrix: Water

Date Received: 07/06/23 08:00

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
EDB	<0.41		1.0	0.41	ug/L			07/13/23 15:22	1
EDC	<0.46		1.0	0.46	ug/L			07/13/23 15:22	1
1,2,4-Trimethylbenzene	<0.52		1.0	0.52	ug/L			07/13/23 15:22	1
Benzene	<0.42		1.0	0.42	ug/L			07/13/23 15:22	1
Ethylbenzene	<0.42		1.0	0.42	ug/L			07/13/23 15:22	1
Methyl tert-butyl ether	<0.47		1.0	0.47	ug/L			07/13/23 15:22	1
Toluene	<0.44		1.0	0.44	ug/L			07/13/23 15:22	1
Xylenes, Total	<0.42		2.0	0.42	ug/L			07/13/23 15:22	1
Naphthalene	<0.80		1.0	0.80	ug/L			07/13/23 15:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	98		78 - 122		07/13/23 15:22	1
Dibromofluoromethane (Surr)	103		73 - 120		07/13/23 15:22	1
4-Bromofluorobenzene (Surr)	90		56 - 136		07/13/23 15:22	1
1,2-Dichloroethane-d4 (Surr)	108		62 - 137		07/13/23 15:22	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	<0.077		0.23	0.077	ug/L		07/06/23 11:49	07/14/23 17:05	1
Benzo[a]pyrene	<0.20		0.23	0.20	ug/L		07/06/23 11:49	07/14/23 17:05	1
Benzo[b]fluoranthene	<0.18		0.23	0.18	ug/L		07/06/23 11:49	07/14/23 17:05	1
Benzo[k]fluoranthene	<0.16		0.23	0.16	ug/L		07/06/23 11:49	07/14/23 17:05	1
Chrysene	<0.075		0.23	0.075	ug/L		07/06/23 11:49	07/14/23 17:05	1
Dibenz(a,h)anthracene	<0.17		0.23	0.17	ug/L		07/06/23 11:49	07/14/23 17:05	1
Indeno[1,2,3-cd]pyrene	<0.15		0.23	0.15	ug/L		07/06/23 11:49	07/14/23 17:05	1
Naphthalene	<0.12		0.23	0.12	ug/L		07/06/23 11:49	07/14/23 17:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	93		31 - 140	07/06/23 11:49	07/14/23 17:05	1
Phenol-d5 (Surr)	53		18 - 120	07/06/23 11:49	07/14/23 17:05	1
Nitrobenzene-d5 (Surr)	67		13 - 120	07/06/23 11:49	07/14/23 17:05	1
2-Fluorophenol (Surr)	54		12 - 120	07/06/23 11:49	07/14/23 17:05	1
2-Fluorobiphenyl (Surr)	66		23 - 120	07/06/23 11:49	07/14/23 17:05	1
2,4,6-Tribromophenol (Surr)	81		10 - 126	07/06/23 11:49	07/14/23 17:05	1

Client Sample Results

Client: WSP USA Inc
 Project/Site: Former Satralloy Site BUSTR

Job ID: 240-188043-1

Client Sample ID: FD-1

Lab Sample ID: 240-188043-4

Date Collected: 06/29/23 00:00

Matrix: Water

Date Received: 07/06/23 08:00

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
EDB	<0.41		1.0	0.41	ug/L			07/13/23 15:46	1
EDC	<0.46		1.0	0.46	ug/L			07/13/23 15:46	1
1,2,4-Trimethylbenzene	<0.52		1.0	0.52	ug/L			07/13/23 15:46	1
Benzene	<0.42		1.0	0.42	ug/L			07/13/23 15:46	1
Ethylbenzene	<0.42		1.0	0.42	ug/L			07/13/23 15:46	1
Methyl tert-butyl ether	<0.47		1.0	0.47	ug/L			07/13/23 15:46	1
Toluene	<0.44		1.0	0.44	ug/L			07/13/23 15:46	1
Xylenes, Total	<0.42		2.0	0.42	ug/L			07/13/23 15:46	1
Naphthalene	<0.80		1.0	0.80	ug/L			07/13/23 15:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	99		78 - 122		07/13/23 15:46	1
Dibromofluoromethane (Surr)	102		73 - 120		07/13/23 15:46	1
4-Bromofluorobenzene (Surr)	88		56 - 136		07/13/23 15:46	1
1,2-Dichloroethane-d4 (Surr)	107		62 - 137		07/13/23 15:46	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	<0.074		0.22	0.074	ug/L		07/06/23 11:49	07/14/23 17:28	1
Benzo[a]pyrene	<0.19		0.22	0.19	ug/L		07/06/23 11:49	07/14/23 17:28	1
Benzo[b]fluoranthene	<0.17		0.22	0.17	ug/L		07/06/23 11:49	07/14/23 17:28	1
Benzo[k]fluoranthene	<0.15		0.22	0.15	ug/L		07/06/23 11:49	07/14/23 17:28	1
Chrysene	<0.072		0.22	0.072	ug/L		07/06/23 11:49	07/14/23 17:28	1
Dibenz(a,h)anthracene	<0.16		0.22	0.16	ug/L		07/06/23 11:49	07/14/23 17:28	1
Indeno[1,2,3-cd]pyrene	<0.15		0.22	0.15	ug/L		07/06/23 11:49	07/14/23 17:28	1
Naphthalene	<0.12		0.22	0.12	ug/L		07/06/23 11:49	07/14/23 17:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	99		31 - 140	07/06/23 11:49	07/14/23 17:28	1
Phenol-d5 (Surr)	66		18 - 120	07/06/23 11:49	07/14/23 17:28	1
Nitrobenzene-d5 (Surr)	79		13 - 120	07/06/23 11:49	07/14/23 17:28	1
2-Fluorophenol (Surr)	67		12 - 120	07/06/23 11:49	07/14/23 17:28	1
2-Fluorobiphenyl (Surr)	73		23 - 120	07/06/23 11:49	07/14/23 17:28	1
2,4,6-Tribromophenol (Surr)	81		10 - 126	07/06/23 11:49	07/14/23 17:28	1

Client Sample Results

Client: WSP USA Inc
 Project/Site: Former Satralloy Site BUSTR

Job ID: 240-188043-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-188043-5

Date Collected: 06/29/23 00:00

Matrix: Water

Date Received: 07/06/23 08:00

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
EDB	<0.41		1.0	0.41	ug/L			07/13/23 13:22	1
EDC	<0.46		1.0	0.46	ug/L			07/13/23 13:22	1
1,2,4-Trimethylbenzene	<0.52		1.0	0.52	ug/L			07/13/23 13:22	1
Benzene	<0.42		1.0	0.42	ug/L			07/13/23 13:22	1
Ethylbenzene	<0.42		1.0	0.42	ug/L			07/13/23 13:22	1
Methyl tert-butyl ether	<0.47		1.0	0.47	ug/L			07/13/23 13:22	1
Toluene	<0.44		1.0	0.44	ug/L			07/13/23 13:22	1
Xylenes, Total	<0.42		2.0	0.42	ug/L			07/13/23 13:22	1
Naphthalene	<0.80		1.0	0.80	ug/L			07/13/23 13:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	92		78 - 122		07/13/23 13:22	1
Dibromofluoromethane (Surr)	109		73 - 120		07/13/23 13:22	1
4-Bromofluorobenzene (Surr)	88		56 - 136		07/13/23 13:22	1
1,2-Dichloroethane-d4 (Surr)	114		62 - 137		07/13/23 13:22	1

Surrogate Summary

Client: WSP USA Inc
Project/Site: Former Satralloy Site BUSTR

Job ID: 240-188043-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (78-122)	DBFM (73-120)	BFB (56-136)	DCA (62-137)
240-188043-1	TW-01	97	103	88	105
240-188043-2	TW-02	97	105	89	108
240-188043-3	TW-03	98	103	90	108
240-188043-4	FD-1	99	102	88	107
240-188043-5	TRIP BLANK	92	109	88	114
LCS 240-580481/5	Lab Control Sample	101	103	95	102
LCS 240-580489/5	Lab Control Sample	101	103	105	96
MB 240-580481/9	Method Blank	99	105	89	104
MB 240-580489/9	Method Blank	93	109	91	116

Surrogate Legend

TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (31-140)	PHL (18-120)	NBZ (13-120)	2FP (12-120)	FBP (23-120)	TBP (10-126)
240-188043-1	TW-01	88	37	71	48	65	75
240-188043-2	TW-02	100	68	84	64	78	85
240-188043-3	TW-03	93	53	67	54	66	81
240-188043-4	FD-1	99	66	79	67	73	81
LCS 240-579565/9-A	Lab Control Sample	90	73	94	132 S1+	79	88
LCSD 240-579565/10-A	Lab Control Sample Dup	88	75	91	136 S1+	74	85
MB 240-579565/8-A	Method Blank	102	68	86	80	82	80

Surrogate Legend

TPHL = Terphenyl-d14 (Surr)
PHL = Phenol-d5 (Surr)
NBZ = Nitrobenzene-d5 (Surr)
2FP = 2-Fluorophenol (Surr)
FBP = 2-Fluorobiphenyl (Surr)
TBP = 2,4,6-Tribromophenol (Surr)

QC Sample Results

Client: WSP USA Inc
 Project/Site: Former Satralloy Site BUSTR

Job ID: 240-188043-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 240-580481/9
Matrix: Water
Analysis Batch: 580481

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
EDB	<0.41		1.0	0.41	ug/L			07/13/23 12:57	1
EDC	<0.46		1.0	0.46	ug/L			07/13/23 12:57	1
1,2,4-Trimethylbenzene	<0.52		1.0	0.52	ug/L			07/13/23 12:57	1
Benzene	<0.42		1.0	0.42	ug/L			07/13/23 12:57	1
Ethylbenzene	<0.42		1.0	0.42	ug/L			07/13/23 12:57	1
Methyl tert-butyl ether	<0.47		1.0	0.47	ug/L			07/13/23 12:57	1
Toluene	<0.44		1.0	0.44	ug/L			07/13/23 12:57	1
Xylenes, Total	<0.42		2.0	0.42	ug/L			07/13/23 12:57	1
Naphthalene	<0.80		1.0	0.80	ug/L			07/13/23 12:57	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	99		78 - 122		07/13/23 12:57	1
Dibromofluoromethane (Surr)	105		73 - 120		07/13/23 12:57	1
4-Bromofluorobenzene (Surr)	89		56 - 136		07/13/23 12:57	1
1,2-Dichloroethane-d4 (Surr)	104		62 - 137		07/13/23 12:57	1

Lab Sample ID: LCS 240-580481/5
Matrix: Water
Analysis Batch: 580481

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
EDB	20.0	17.9		ug/L		90	71 - 134
EDC	20.0	17.7		ug/L		89	66 - 128
1,2,4-Trimethylbenzene	20.0	15.8		ug/L		79	77 - 129
Benzene	20.0	17.6		ug/L		88	77 - 123
Ethylbenzene	20.0	17.8		ug/L		89	80 - 121
Methyl tert-butyl ether	20.0	17.0		ug/L		85	65 - 126
Toluene	20.0	17.8		ug/L		89	80 - 123
Xylenes, Total	40.0	35.0		ug/L		88	80 - 121
m-Xylene & p-Xylene	20.0	17.8		ug/L		89	80 - 120
o-Xylene	20.0	17.2		ug/L		86	80 - 123
Naphthalene	20.0	13.4		ug/L		67	53 - 138

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	101		78 - 122
Dibromofluoromethane (Surr)	103		73 - 120
4-Bromofluorobenzene (Surr)	95		56 - 136
1,2-Dichloroethane-d4 (Surr)	102		62 - 137

Lab Sample ID: MB 240-580489/9
Matrix: Water
Analysis Batch: 580489

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
EDB	<0.41		1.0	0.41	ug/L			07/13/23 12:58	1
EDC	<0.46		1.0	0.46	ug/L			07/13/23 12:58	1
1,2,4-Trimethylbenzene	<0.52		1.0	0.52	ug/L			07/13/23 12:58	1
Benzene	<0.42		1.0	0.42	ug/L			07/13/23 12:58	1

Eurofins Cleveland

QC Sample Results

Client: WSP USA Inc
Project/Site: Former Satralloy Site BUSTR

Job ID: 240-188043-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-580489/9

Matrix: Water

Analysis Batch: 580489

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Ethylbenzene	<0.42		1.0	0.42	ug/L			07/13/23 12:58	1
Methyl tert-butyl ether	<0.47		1.0	0.47	ug/L			07/13/23 12:58	1
Toluene	<0.44		1.0	0.44	ug/L			07/13/23 12:58	1
Xylenes, Total	<0.42		2.0	0.42	ug/L			07/13/23 12:58	1
Naphthalene	<0.80		1.0	0.80	ug/L			07/13/23 12:58	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	93		78 - 122		07/13/23 12:58	1
Dibromofluoromethane (Surr)	109		73 - 120		07/13/23 12:58	1
4-Bromofluorobenzene (Surr)	91		56 - 136		07/13/23 12:58	1
1,2-Dichloroethane-d4 (Surr)	116		62 - 137		07/13/23 12:58	1

Lab Sample ID: LCS 240-580489/5

Matrix: Water

Analysis Batch: 580489

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
EDB	25.0	25.4		ug/L		101	71 - 134
EDC	25.0	26.6		ug/L		106	66 - 128
1,2,4-Trimethylbenzene	25.0	22.4		ug/L		89	77 - 129
Benzene	25.0	25.3		ug/L		101	77 - 123
Ethylbenzene	25.0	26.8		ug/L		107	80 - 121
Methyl tert-butyl ether	25.0	24.3		ug/L		97	65 - 126
Toluene	25.0	23.8		ug/L		95	80 - 123
Xylenes, Total	50.0	49.8		ug/L		100	80 - 121
m-Xylene & p-Xylene	25.0	27.2		ug/L		109	80 - 120
o-Xylene	25.0	22.6		ug/L		90	80 - 123
Naphthalene	25.0	22.9		ug/L		92	53 - 138

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	101		78 - 122
Dibromofluoromethane (Surr)	103		73 - 120
4-Bromofluorobenzene (Surr)	105		56 - 136
1,2-Dichloroethane-d4 (Surr)	96		62 - 137

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-579565/8-A

Matrix: Water

Analysis Batch: 580608

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 579565

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzo[a]anthracene	0.143	J	0.20	0.068	ug/L		07/06/23 10:20	07/14/23 10:35	1
Benzo[a]pyrene	<0.17		0.20	0.17	ug/L		07/06/23 10:20	07/14/23 10:35	1
Benzo[b]fluoranthene	<0.15		0.20	0.15	ug/L		07/06/23 10:20	07/14/23 10:35	1
Benzo[k]fluoranthene	<0.14		0.20	0.14	ug/L		07/06/23 10:20	07/14/23 10:35	1
Chrysene	0.124	J	0.20	0.066	ug/L		07/06/23 10:20	07/14/23 10:35	1
Dibenz(a,h)anthracene	<0.15		0.20	0.15	ug/L		07/06/23 10:20	07/14/23 10:35	1

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QC Sample Results

Client: WSP USA Inc
Project/Site: Former Satralloy Site BUSTR

Job ID: 240-188043-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-579565/8-A
Matrix: Water
Analysis Batch: 580608

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 579565

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Indeno[1,2,3-cd]pyrene	<0.14		0.20	0.14	ug/L		07/06/23 10:20	07/14/23 10:35	1
Naphthalene	<0.11		0.20	0.11	ug/L		07/06/23 10:20	07/14/23 10:35	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Terphenyl-d14 (Surr)	102		31 - 140	07/06/23 10:20	07/14/23 10:35	1
Phenol-d5 (Surr)	68		18 - 120	07/06/23 10:20	07/14/23 10:35	1
Nitrobenzene-d5 (Surr)	86		13 - 120	07/06/23 10:20	07/14/23 10:35	1
2-Fluorophenol (Surr)	80		12 - 120	07/06/23 10:20	07/14/23 10:35	1
2-Fluorobiphenyl (Surr)	82		23 - 120	07/06/23 10:20	07/14/23 10:35	1
2,4,6-Tribromophenol (Surr)	80		10 - 126	07/06/23 10:20	07/14/23 10:35	1

Lab Sample ID: LCS 240-579565/9-A
Matrix: Water
Analysis Batch: 580608

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 579565

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Benzo[a]anthracene	32.0	28.3		ug/L		89	61 - 120
Benzo[a]pyrene	32.0	26.9		ug/L		84	56 - 131
Benzo[b]fluoranthene	32.0	28.1		ug/L		88	57 - 130
Benzo[k]fluoranthene	32.0	28.1		ug/L		88	53 - 137
Chrysene	32.0	26.8		ug/L		84	57 - 120
Dibenz(a,h)anthracene	32.0	27.7		ug/L		87	58 - 120
Indeno[1,2,3-cd]pyrene	32.0	26.7		ug/L		83	59 - 122
Naphthalene	32.0	25.1		ug/L		78	46 - 120

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	90		31 - 140
Phenol-d5 (Surr)	73		18 - 120
Nitrobenzene-d5 (Surr)	94		13 - 120
2-Fluorophenol (Surr)	132	S1+	12 - 120
2-Fluorobiphenyl (Surr)	79		23 - 120
2,4,6-Tribromophenol (Surr)	88		10 - 126

Lab Sample ID: LCSD 240-579565/10-A
Matrix: Water
Analysis Batch: 580608

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 579565

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
		Result	Qualifier						
Benzo[a]anthracene	32.0	27.8		ug/L		87	61 - 120	2	35
Benzo[a]pyrene	32.0	25.9		ug/L		81	56 - 131	4	35
Benzo[b]fluoranthene	32.0	28.1		ug/L		88	57 - 130	0	35
Benzo[k]fluoranthene	32.0	27.4		ug/L		86	53 - 137	3	35
Chrysene	32.0	26.2		ug/L		82	57 - 120	2	35
Dibenz(a,h)anthracene	32.0	27.4		ug/L		86	58 - 120	1	35
Indeno[1,2,3-cd]pyrene	32.0	26.6		ug/L		83	59 - 122	0	35
Naphthalene	32.0	23.8		ug/L		74	46 - 120	5	35

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QC Sample Results

Client: WSP USA Inc
Project/Site: Former Satralloy Site BUSTR

Job ID: 240-188043-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 240-579565/10-A

Matrix: Water

Analysis Batch: 580608

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 579565

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	88		31 - 140
Phenol-d5 (Surr)	75		18 - 120
Nitrobenzene-d5 (Surr)	91		13 - 120
2-Fluorophenol (Surr)	136	S1+	12 - 120
2-Fluorobiphenyl (Surr)	74		23 - 120
2,4,6-Tribromophenol (Surr)	85		10 - 126

QC Association Summary

Client: WSP USA Inc
 Project/Site: Former Satralloy Site BUSTR

Job ID: 240-188043-1

GC/MS VOA

Analysis Batch: 580481

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-188043-1	TW-01	Total/NA	Water	8260D	
240-188043-2	TW-02	Total/NA	Water	8260D	
240-188043-3	TW-03	Total/NA	Water	8260D	
240-188043-4	FD-1	Total/NA	Water	8260D	
MB 240-580481/9	Method Blank	Total/NA	Water	8260D	
LCS 240-580481/5	Lab Control Sample	Total/NA	Water	8260D	

Analysis Batch: 580489

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-188043-5	TRIP BLANK	Total/NA	Water	8260D	
MB 240-580489/9	Method Blank	Total/NA	Water	8260D	
LCS 240-580489/5	Lab Control Sample	Total/NA	Water	8260D	

GC/MS Semi VOA

Prep Batch: 579565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-188043-1	TW-01	Total/NA	Water	3510C LVI	
240-188043-2	TW-02	Total/NA	Water	3510C LVI	
240-188043-3	TW-03	Total/NA	Water	3510C LVI	
240-188043-4	FD-1	Total/NA	Water	3510C LVI	
MB 240-579565/8-A	Method Blank	Total/NA	Water	3510C LVI	
LCS 240-579565/9-A	Lab Control Sample	Total/NA	Water	3510C LVI	
LCSD 240-579565/10-A	Lab Control Sample Dup	Total/NA	Water	3510C LVI	

Analysis Batch: 580608

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-188043-1	TW-01	Total/NA	Water	8270E	579565
240-188043-2	TW-02	Total/NA	Water	8270E	579565
240-188043-3	TW-03	Total/NA	Water	8270E	579565
240-188043-4	FD-1	Total/NA	Water	8270E	579565
MB 240-579565/8-A	Method Blank	Total/NA	Water	8270E	579565
LCS 240-579565/9-A	Lab Control Sample	Total/NA	Water	8270E	579565
LCSD 240-579565/10-A	Lab Control Sample Dup	Total/NA	Water	8270E	579565

Lab Chronicle

Client: WSP USA Inc
 Project/Site: Former Satralloy Site BUSTR

Job ID: 240-188043-1

Client Sample ID: TW-01

Lab Sample ID: 240-188043-1

Date Collected: 06/29/23 09:55

Matrix: Water

Date Received: 07/06/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	580481	MRL	EET CLE	07/13/23 14:34
Total/NA	Prep	3510C LVI			579565	MDH	EET CLE	07/06/23 11:49
Total/NA	Analysis	8270E		1	580608	MRU	EET CLE	07/14/23 16:19

Client Sample ID: TW-02

Lab Sample ID: 240-188043-2

Date Collected: 06/29/23 09:15

Matrix: Water

Date Received: 07/06/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	580481	MRL	EET CLE	07/13/23 14:58
Total/NA	Prep	3510C LVI			579565	MDH	EET CLE	07/06/23 11:49
Total/NA	Analysis	8270E		1	580608	MRU	EET CLE	07/14/23 16:42

Client Sample ID: TW-03

Lab Sample ID: 240-188043-3

Date Collected: 06/29/23 11:30

Matrix: Water

Date Received: 07/06/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	580481	MRL	EET CLE	07/13/23 15:22
Total/NA	Prep	3510C LVI			579565	MDH	EET CLE	07/06/23 11:49
Total/NA	Analysis	8270E		1	580608	MRU	EET CLE	07/14/23 17:05

Client Sample ID: FD-1

Lab Sample ID: 240-188043-4

Date Collected: 06/29/23 00:00

Matrix: Water

Date Received: 07/06/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	580481	MRL	EET CLE	07/13/23 15:46
Total/NA	Prep	3510C LVI			579565	MDH	EET CLE	07/06/23 11:49
Total/NA	Analysis	8270E		1	580608	MRU	EET CLE	07/14/23 17:28

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-188043-5

Date Collected: 06/29/23 00:00

Matrix: Water

Date Received: 07/06/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	580489	CDG	EET CLE	07/13/23 13:22

Laboratory References:

EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Accreditation/Certification Summary

Client: WSP USA Inc

Job ID: 240-188043-1

Project/Site: Former Satralloy Site BUSTR

Laboratory: Eurofins Cleveland

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-27-24
Georgia	State	4062	02-27-24
Illinois	NELAP	200004	07-31-23
Iowa	State	421	06-01-25
Kentucky (UST)	State	112225	02-28-24
Kentucky (WW)	State	KY98016	12-31-23
Michigan	State	9135	02-27-24
Minnesota	NELAP	039-999-348	12-31-23
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	07-01-24
New York	NELAP	10975	04-02-24
Ohio	State	8303	02-27-24
Ohio VAP	State	ORELAP 4062	02-27-24
Oregon	NELAP	4062	02-27-24
Pennsylvania	NELAP	68-00340	08-31-24
Texas	NELAP	T104704517-22-17	08-31-23
Virginia	NELAP	460175	09-14-23
West Virginia DEP	State	210	12-31-23



Client Information		Lab PM Brooks, Kns M		Camer Tracking No(s)		COC No 240-107514-38385.1					
Mr. Bob Ireson		E-Mail Kris Brooks@et.eurofins.com		State of Origin		Page Page 1 of 1					
Company WSP USA Inc		FWSID		Analysis Requested		Job #					
Address 1335 Dublin Road Suite 126-D		Due Date Requested:		Total Number of Containers		Preservation Codes:					
City Columbus		TAT Requested (days): STANDAVE		Field Filtered Sample (Yes or No)		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:					
State, Zip OH, 43215		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No		Perform MS/MSD (Yes or No)		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecylhydrate U - Acetone V - MCAA W - pH 4.5 Y - Trizma Z - other (specify)					
Phone 123-9330910		PO # 123-9330910		8270E - PAH		Special Instructions/Note:					
Email bob.ireson@wsp.com		WO #		8260D - TCL VOCs +1,2,4-TMB, EDC, EDB							
Project Name Former Satralloy Site BUSTR		Project # 24009044		A N							
Site		SSOW#		870E - PAH							
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=wastewater, BT=tissue, A=air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270E - PAH	8260D - TCL VOCs +1,2,4-TMB, EDC, EDB	870E - PAH	Total Number of Containers	Special Instructions/Note:
TW-01	6/29/23	0955	C	Water	N	X	X	X	X	5	
TW-02	6/29/23	0915	C	Water	N	X	X	X	X	5	
TW-03	6/29/23	1138	C	Water	N	X	X	X	X	5	
FD-1	6/29/23	-	C	Water	N	X	X	X	X	5	
Trip Blank	6/29/23	-	-	Water	N	X	X	X	X	2	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)											
Empty Kit Relinquished by: _____ Date: _____ Relinquished by: Gina Rivera Date/Time: 6/30/23 1625 Company: WSP Relinquished by: Gina Rivera Date/Time: 6-30-23 1730 euro Company: euro Relinquished by: _____ Date/Time: _____ Company: _____											
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No Cooler Temperature(s) °C and Other Remarks:											



2.6/45



**Eurofins – Cleveland Sample Receipt Form/Narrative
Barberton Facility**

Login # : _____

Client WSP Site Name _____ Cooler unpacked by: Nancy Byer
 Cooler Received on 7-6-23 Opened on 7-6-23
 FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

Eurofins Cooler # ES ~~Foam Box~~ Client Cooler Box Other _____
 Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
 COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN # 22 (CF -0.1 °C) Observed Cooler Temp. 4.6 °C Corrected Cooler Temp. 4.5 °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1
 - Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 - Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA
 - Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)? Yes No
10. Were correct bottle(s) used for the test(s) indicated? Yes No
11. Sufficient quantity received to perform indicated analyses? Yes No
12. Are these work share samples and all listed on the COC? Yes No
- If yes, Questions 13-17 have been checked at the originating laboratory.
13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# 10BDH4321
14. Were VOAs on the COC? Yes No
15. Were air bubbles >6 mm in any VOA vials? Yes No NA **●** ← Larger than this. 62225
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 62225 Yes No
17. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:
 VOAs
 Oil and Grease
 TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____
 Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page Samples processed by: _____

19. SAMPLE CONDITION
 Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION
 Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____
 VOA Sample Preservation - Date/Time VOAs Frozen: _____

APPENDIX E

Laboratory Summary Forms



LABORATORY ANALYSIS QA/QC SUMMARY FORM

(To be included with each laboratory chemical analysis report)

240-188043-1

SAMPLE RECEIPT

Was the chain of custody present for all samples?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Sampler name included?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Sampler signature included?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Sample date included?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Sample time included?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
List the preservation method(s):	HCL, ICE	
List the cooler temperature upon receipt:	4.5 °F <input type="checkbox"/>	°C <input checked="" type="checkbox"/>
Was headspace present in any sample vials?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/> NA <input type="checkbox"/>
Were the soil sample containers filled?	Yes <input type="checkbox"/>	No <input type="checkbox"/> NA <input type="checkbox"/>
Were sample containers tightly sealed?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Were the correct laboratory containers used?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

SAMPLE ANALYSIS

Were all analysis performed using SW-846 & ASTM methods? If not, identify the other methods used:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Were dates of sample extraction provided?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Were the matrix spike results within the control limit range established by the USEPA?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Were surrogate recoveries within the control limit range established by the USEPA?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Were control samples used to establish appropriate control limits for precision and bias?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Were instrument blanks, calibration standards, and method blanks submitted/analyzed?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Were matrix spike samples analyzed and either matrix spike duplicates or matrix duplicate samples analyzed?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Were the following QC samples used for each analytical batch:		
Lab control samples	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Method blanks	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Matrix spikes	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Matrix spike duplicates or matrix duplicates	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Were there any problems noted with surrogate recovery, % recovery, or % RSD? If so, list sample IDs:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Were there any data qualifiers noted by the lab? If so, list sample IDs:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

LAB CERTIFICATION

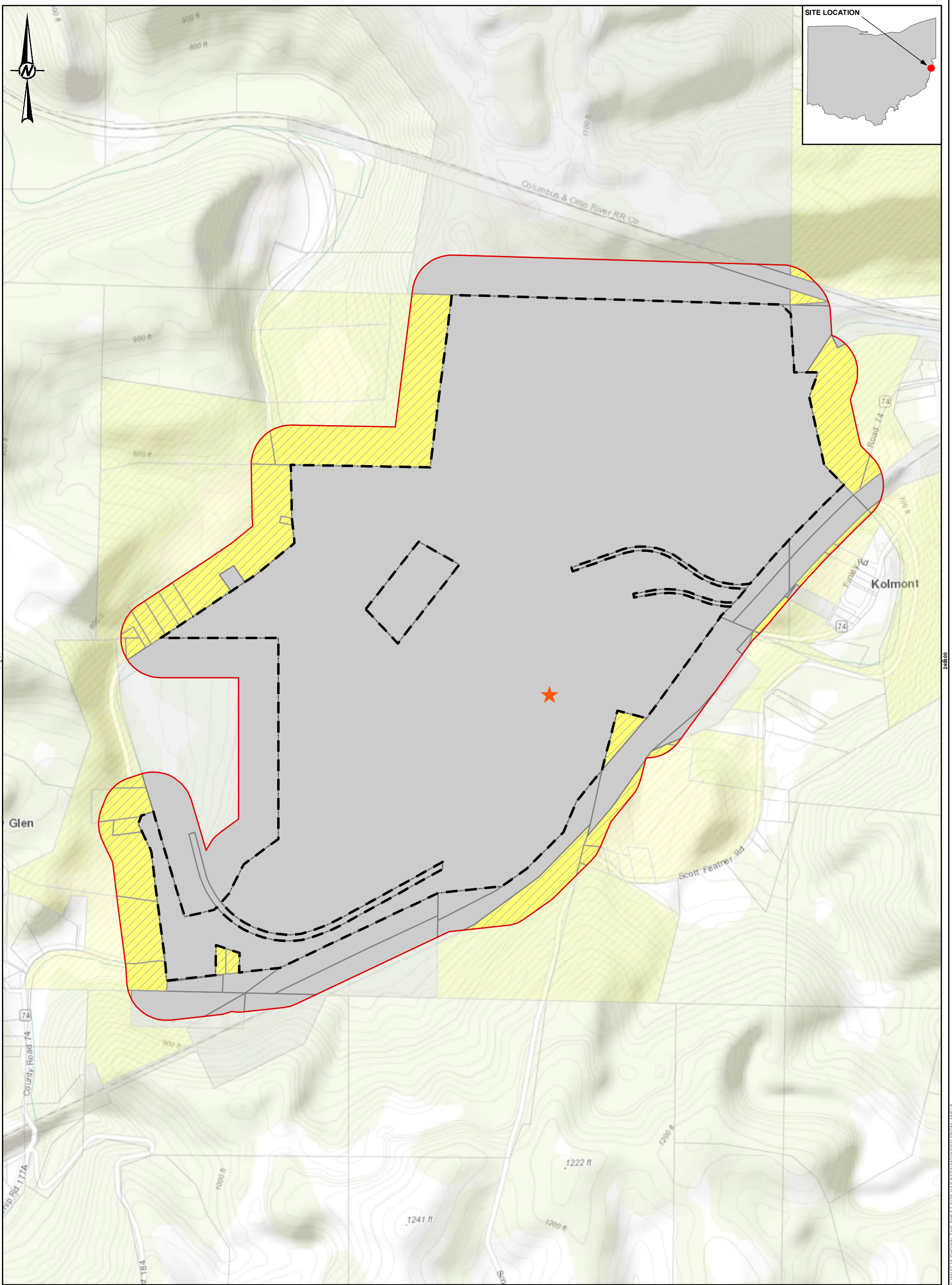
Is the laboratory affiliated with the sampling company?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Check lab certification that applies:	<input type="checkbox"/> Ohio EPA DDGW <input checked="" type="checkbox"/> Ohio EPA VAP <input checked="" type="checkbox"/> NELAP <input type="checkbox"/> A2LA <input type="checkbox"/> Other (list):	

COMPLETED BY

Print Name of Lab Representative and Title: Kris Brooks Project Manager	Signature <i>Kris Brooks</i>	Date 7/25/23
---	---------------------------------	-----------------

APPENDIX F

Land Use



- LEGEND**
- Location of former UST System
 - Site Boundary
 - Buffer Limits (300ft beyond site boundary)
 - Non-Residential
 - Residential

DRAFT



NOTE(S)

1. APPROXIMATELY 14% OF LAND WITHIN THE 300 FT BUFFER AREA IS RESIDENTIAL.

REFERENCE(S)

1. SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP, GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

CLIENT
CYPRUS AMAX MINERALS COMPANY

PROJECT
**FORMER SATRALLOY SITE
TIER 2 EVALUATION, JEFFERSON COOUNTY, OHIO**

CONSULTANT

YYYY-MM-DD 7/24/2023

TITLE

CURRENT PROPERTY USE



DESIGNED DTD

PREPARED DTD

REVIEWED BI

APPROVED BI

PROJECT NO.
GL1239330906

CONTROL

-

REV.

-

FIGURE
F-1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSIBS

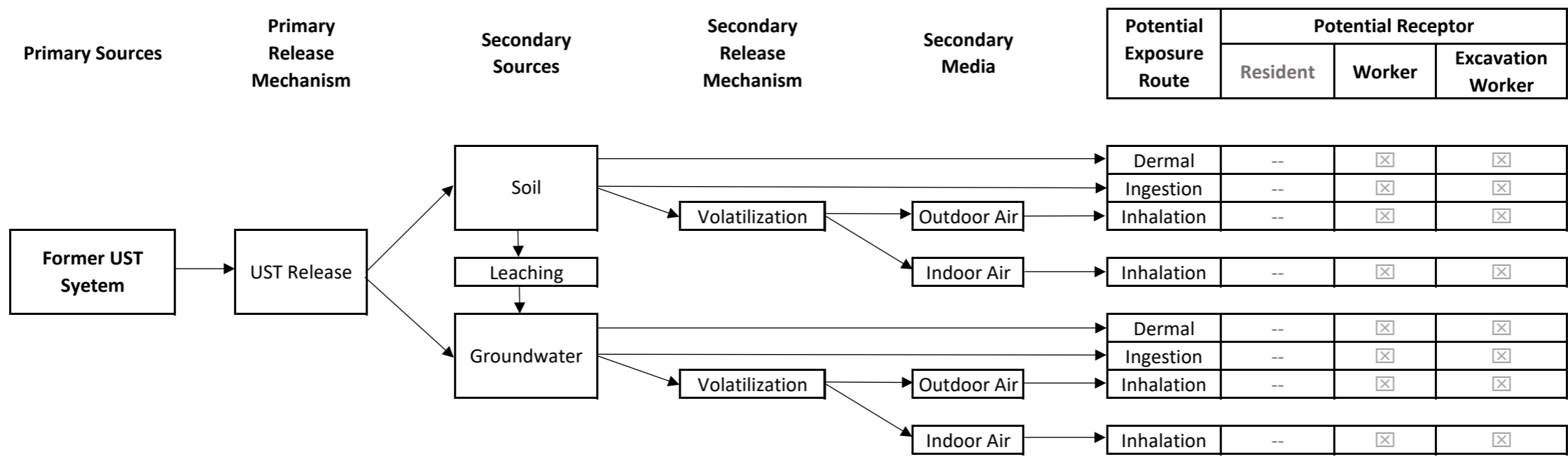
Table G-1 - Property Use Summary for Parcels located within 300 feet of the Property Line

FID	OBJECTID	District	Book	Page	Index #	Source	Parcel ID	Acreage	Property Class	Residential	Acres within 300 ft.
0	61845	3	03-0800	004A0	2-C-1	S08T06R02-TAX MAP - 405.PDF	03-01516-001	16.453	Cash - grain or general farm	Yes	0.697972587
1	61155							0	Blank (assumed residential)	Yes	0.106167393
2	60661	3	03-0800	3500	40-A	S08T06R02-TAX MAP - 405.PDF	03-01032-000	5.649	Industrial - vacant	No	5.649665581
3	37344	3	00-0000	0	22	S02T06R02-TAX MAP - 406.PDF	03-00000-000	2.35	Railroad (blank)	No	2.777039335
4	37346	3	00-0000	0	6	S02T06R02-TAX MAP - 406.PDF	03-00000-000	1.11	Railroad (blank)	No	1.511206752
5	37351	3	03-0800	600	3	S08T06R02-TAX MAP - 405.PDF	03-02115-000	33.183	Cash - grain or general farm	Yes	9.406538146
6	37353	3	03-02A0	019A0	16-H	S02T06R02-TAX MAP - 406.PDF	03-02788-000	50.017	Other agricultural use	Yes	0.061146187
7	37570	3	03-0900	1200	1	S09T06R02-TAX MAP - 398.PDF	03-03930-000	450.863	Industrial vacant land	No	0.230801233
8	37686	4	04-0700	0	0	S31T06R02-TAX MAP - 408.PDF	04-00000-000	0	Railroad (blank)	No	0.475219816
9	37687	4	04-0700	0	0	S31T06R02-TAX MAP - 408.PDF	04-00000-000	0	Railroad (blank)	No	1.170384367
10	37688	4	04-0700	0	0	S31T06R02-TAX MAP - 408.PDF	04-00000-000	0	Railroad (blank)	No	3.07413858
11	37689	3	03-0700	042A0	2	S07T06R02-TAX MAP - 412.PDF	03-02811-000	33	Agricultural vacant land	Yes	0.021727712
12	37695	3	00-0000	0	11	S08T06R02-TAX MAP - 405.PDF	03-00000-000	1	Railroad (blank)	No	0.982076945
13	37699	3	00-0000	0	12	S08T06R02-TAX MAP - 405.PDF	03-00000-000	1	Railroad (blank)	No	1.048741811
14	37705	3	03-0800	014B0	7-D	S08T06R02-TAX MAP - 405.PDF	03-03201-002	6.01	Agricultural vacant land	Yes	1.481946562
15	37706	3	03-0800	1900	9-A	S08T06R02-TAX MAP - 405.PDF	03-00236-000	0.434	Residential vacant land	Yes	0.396921719
16	37707	3	03-0800	1800	9-D	S08T06R02-TAX MAP - 405.PDF	03-00281-000	0.527	Residential vacant land	Yes	0.36778598
17	37714	3	00-0000	0	0	S08T06R02-TAX MAP - 405.PDF	03-00000-000	4.2	Railroad (blank)	No	4.025171127
18	37718	3	00-0000	0	13	S08T06R02-TAX MAP - 405.PDF	03-00000-000	5.9	Railroad (blank)	No	5.229690778
19	37720	3	00-0000	0	40-A	S08T06R02-TAX MAP - 405.PDF	03-00000-000	1.225	Railroad (blank)	No	1.203653907
20	37722	3	03-0800	014A0	7-C	S08T06R02-TAX MAP - 405.PDF	03-03201-001	7.943	Residential vacant land	Yes	3.327330745
21	37723	3	03-0800	2800	28	S08T06R02-TAX MAP - 405.PDF	03-02812-000	16.25	Agricultural vacant land	Yes	0.063611741
22	37729	3	03-0800	3200	27-D	S08T06R02-TAX MAP - 405.PDF	03-00068-000	0.658	Residential	Yes	0.329809116
23	37733	3	03-0800	1700	10	S08T06R02-TAX MAP - 405.PDF	03-06038-000	2.744	Industrial vacant land	No	2.730413922
24	37736	3	03-0800	2700	20	S08T06R02-TAX MAP - 405.PDF	03-02780-000	16.156	Agricultural land	Yes	3.972708331
25	37740	3	03-0800	1600	7-A	S08T06R02-TAX MAP - 405.PDF	03-01996-000	0.537	Cash - grain or general farm	Yes	0.538354624
26	37745	3	03-0800	016A0	7-B	S08T06R02-TAX MAP - 405.PDF	03-03202-000	2.355	Single family dwelling	Yes	1.825546258
27	37751	3	00-0000	0	0	S08T06R02-TAX MAP - 405.PDF	03-00000-000	4.63	Railroad (blank)	No	4.697060137
28	37754	3	03-0800	3300	27	S08T06R02-TAX MAP - 405.PDF	03-01162-000	18.901	Cash - grain or general farm	Yes	1.489029998
29	37757	3	03-0800	4800	29-A	S08T06R02-TAX MAP - 405.PDF	03-00059-000	5.2437	Mobile home stamp	Yes	0.045882335
30	37760	3	03-0800	3400	25	S08SW 11_24_08.PDF	03-20097-000	1.23	Residential vacant land	Yes	1.225339837
31	37769	3	00-0000	0	26	S08T06R02-TAX MAP - 405.PDF	03-00000-000	3.12	Railroad (blank)	No	0.482078611
32	37774	3	03-0800	1400	7	S14T06R02-TAX MAP - 404.PDF	03-03201-000	20.7375	Cash - grain or general farm	Yes	4.125721947
33	37775	3	03-0800	1300	5-A	S08T06R02-TAX MAP - 405.PDF	03-02113-000	0.216	Residential homes/dwellings	Yes	0.084794785
34	37777	3	03-0800	012A0	5	S08T06R02-TAX MAP - 405.PDF	03-00124-000	0.544	Residential homes/dwellings	Yes	0.384410567
35	37778	3	03-0800	1500	8-A	S08T06R02-TAX MAP - 405.PDF	03-01050-000	39.5	Other agricultural use - park (Wildlife Association)	No	25.23808211
36	37781	3	00-0000	0	0	S08T06R02-TAX MAP - 405.PDF	03-00000-000	0.19	Railroad (blank)	No	0.155971472
37	37782	3	03-0800	4400	29	S08T06R02-TAX MAP - 405.PDF	03-01371-000	2.85	Other residential structures	Yes	0.060485057
38	37783	3	03-0800	1100	3-D	S08T06R02-TAX MAP - 405.PDF	03-00123-000	0.176	Residential homes/dwellings	Yes	0.163074957
39	37785	3	00-0000	0	0	S08T06R02-TAX MAP - 405.PDF	03-00000-000	9.15	Railroad (blank)	No	9.873091372
40	37788	3	03-02A0	200	5	S02T06R02-TAX MAP - 406.PDF	03-00892-000	2.958	Residential land	Yes	0.000107059
41	37789	3	03-02A0	300	5-J	S02T06R02-TAX MAP - 406.PDF	03-01163-000	2.982	Residential land	Yes	0.36207184
42	37790	3	03-0800	1000	3-E	S08T06R02-TAX MAP - 405.PDF	03-01308-000	1	Residential homes/dwellings	Yes	0.87312556
43	37792	3	00-0000	0	40-B	S08T06R02-TAX MAP - 405.PDF	03-00000-000	0.525	Railroad (blank)	No	0.525148462
44	37793	3	03-0800	900	3-C	S08T06R02-TAX MAP - 405.PDF	03-01104-000	1	Residential homes/dwellings	Yes	0.860437718
45	37795	3	03-02A0	400	7	S02T06R02-TAX MAP - 406.PDF	03-03393-000	1	Church (commercial land)	No	0.080034612
46	37796	3	00-0000	0	0	S02T06R02-TAX MAP - 406.PDF	03-00000-000	0	Railroad (blank)	No	0.034758871
47	37799	3	03-0800	006A0	3-F	S08T06R02-TAX MAP - 405.PDF	03-02115-001	1	Residential homes/dwellings	Yes	0.86075747
48	37802	3	03-0800	700	3-B	S08T06R02-TAX MAP - 405.PDF	03-06034-000	0.44	Industrial	No	0.437063978
49	37803	3	00-0000	0	0	S08T06R02-TAX MAP - 405.PDF	03-00000-000	2.4	Railroad (blank)	No	1.882861578
50	37804	3	03-02A0	1000	5-G-1	S02T06R02-TAX MAP - 406.PDF	03-03952-000	2.361	Single family dwelling	Yes	0.300490875
51	37805	3	03-02A0	200	5	S02T06R02-TAX MAP - 406.PDF	03-00892-000	2.958	Other residential structures	Yes	0.00370222
52	37807	3	00-0000	0	40-C	S08T06R02-TAX MAP - 405.PDF	03-00000-000	1	Railroad (blank)	No	0.981846594
53	37809	3	03-02A0	1400	5-K	S02T06R02-TAX MAP - 406.PDF	03-00312-000	0.457	Residential vacant	Yes	0.084531778
54	37810	3	00-0000	0	23	S08T06R02-TAX MAP - 405.PDF	03-00000-000	1.78	Railroad (blank)	No	1.624506991
55	37814	3	03-02A0	1700	5-F	S02T06R02-TAX MAP - 406.PDF	03-02863-000	1.223	Single family dwelling	Yes	0.321879507
56	38381	3	03-0900	1200	1	S09T06R02-TAX MAP - 398.PDF	03-03930-000	450.863	Industrial vacant land	No	17.91097871
57	38400	3	00-0000	0	0	S09T06R02-TAX MAP - 398.PDF	03-00000-000	0	Railroad (blank)	No	1.712060306
58	38412	3	03-03A0	200	8	S03T06R02-TAX MAP - 399.PDF	03-03203-000	60.064	Cash - grain or general farm	Yes	0.22013037
59	38930	3	00-0000	0	0	S02T06R02-TAX MAP - 406.PDF	03-00000-000	8.33	Railroad (blank)	No	0.773897178
60	38931	3	03-02A0	2300	16-C	S02T06R02-TAX MAP - 406.PDF	03-02128-000	2.217	Mobile home	Yes	0.402439376
61	38950	3	03-02A0	2200	16-G	S02T06R02-TAX MAP - 406.PDF	03-02787-000	13.295	Agricultural vacant land	Yes	7.453297679
62	38960	3	00-0000	0	1	S02T06R02-TAX MAP - 406.PDF	03-00000-000	13.521	Railroad (blank)	No	2.906609475
63	38963	3	00-0000	0	0	S08T06R02-TAX MAP - 405.PDF	03-00000-000	0	Railroad (blank)	No	0.053771187
64	38964	3	00-0000	0	9	S03T06R02-TAX MAP - 399.PDF	03-00000-000	2.75	Railroad (blank)	No	0.091241749
65	38965	3	03-0800	3600	40	S08T06R02-TAX MAP - 405.PDF	03-01003-000	326.777	Manufacturing and Assembly	No	318.9861774
66	38967	3	03-0800	400	2-C	S08T06R02-TAX MAP - 405.PDF	03-01516-000	40.923	Cash - grain or general farm	Yes	15.27112191
67	38970	3	03-03A0	200	8	S03T06R02-TAX MAP - 399.PDF	03-03203-000	60.064	Cash - grain or general farm	Yes	0.400451894

APPENDIX G

**Site Conceptual Exposure Model
(UST Area)**

**Conceptual Site Model - Former Satralloy Site UST System
Sources, Exposure Pathways, and Potential Receptors
July 24, 2023**



LEGEND:

- No Potential Receptor
- ☒ Potentially Completed Pathway - COC Below Tier 2 Action Levels
- ☒ Potentially Completed Pathway - COC Above Tier 2 Action Levels

