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# FIELD SAMPLING PLAN ADDENDUM 1

## WEST LAKE LANDFILL SUPERFUND SITE OPERABLE UNIT 1

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**Prepared For:**

The United States Environmental Protection Agency Region VII



**Prepared on Behalf of:**

The West Lake Landfill OU-1 Respondents

**Prepared By:**



301 Plainfield Road, Suite 330  
Syracuse, New York 13212

**In Association With:**



3377 Hollenberg Drive  
Bridgeton, Missouri 63044

**And**



9111 Cross Park Drive, Suite D200  
Knoxville, TN 37923

**REVISED MARCH 4, 2021**

# 1.0 ADDITIONAL BORINGS

## 1.1 Introduction

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This Field Sampling Plan (FSP) Addendum 1 has been prepared on behalf of West Lake Landfill OU-1 Respondents Bridgeton Landfill, LLC, Cotter Corporation (N.S.L.), and the U.S. Department of Energy (DOE) (collectively, Respondents) for the Design Investigation for the selected Amended Remedy for Operable Unit-1 (OU-1) of the West Lake Landfill Superfund Site (Site). EPA approved (with modifications) the FSP, with the associated Design Investigation Work Plan, Quality Assurance Project Plan, and Data Management Plan, in September 2020. The final version of the FSP is dated October 16, 2020.

This Addendum 1 has been prepared in response to the January 7, 2021 letter from EPA directing the Respondents to prepare and submit an addendum to the DIWP and associated FSP and QAPP “with a proposal to perform further investigation based on the data from the ... Enclosure A borings.” In a February 25, 2021 letter, EPA approved with modifications a prior draft of this FSP addendum, but requested additional information concerning the proposed borings locations and evaluation of potential additional boring locations. In addition to proposing locations required by EPA’s January 7, and February 25, 2021 letters, Addendum 1 also proposes modifications to the procedures required by Section 2.2.2 of the OU-1 DIWP FSP for specified perimeter borings.

## 1.2 Summary of Design Investigation Findings

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Recent findings in some of the Design Investigation borings advanced on the perimeter between OU-1 Area 2 and the ISL and CD, and within the ISL and CD themselves, have indicated the presence of radiologically-impacted materials (RIM) south of the estimated Area 2 boundary in locations that were not previously sampled. Samples from these borings were collected in late 2020 according to procedures in the OU-1 Design Investigation Work Plan and associated FSP, QAPP, and DMP. Historically, as set forth in the 2018 ROD Amendment (RODA), “OU-1, which is the subject of [the] Amended Remedy, contains the radiologically contaminated areas and is comprised of the following sub-areas: Radiological Area 1 (Area 1), Radiological Area 2 (Area 2), Buffer Zone and Lot 2A2 of the Crossroads Property.” RODA at page 2. The ISL and CD were historically not believed to contain RIM, and have been managed by EPA as a separate operable unit since 1994. See also RODA at pages 5-6.

Of the six Enclosure A borings, three borings in the ISL and two borings in the CD had laboratory analytical results greater than 7.9 pCi/g of either combined thorium or combined radium. These borings indicate RIM extends beyond the estimated boundary of Area 2 and, as directed by EPA, additional investigation is necessary to determine the extent of RIM. Figure A1-1 shows the locations of the Enclosure A borings that have detections of combined thorium or combined radium above 7.9 pCi/g. Table A1-1 summarizes the radium and thorium data for the Enclosure A and perimeter borings along the south side of Area 2.



Seven perimeter borings along the border between OU-1 Area 2 and the ISL and six perimeter borings along the border between OU-1 Area 2 and the CD had laboratory analytical results greater than 7.9 pCi/g of either combined thorium or combined radium. Figure A1-1 shows the locations of the perimeter borings that have detections of combined thorium or combined radium above 7.9 pCi/g.

## 1.3 Proposed Additional Boring Locations

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### 1.3.1 Enclosure A Borings

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There was no step-out protocol proposed in the FSP for the Enclosure A borings that were located within the ISL and CD. On January 7, 2021, EPA directed the Respondents to propose further investigation in an addendum to the October 2020 DIWP and associated FSP and QAPP based on the data from Enclosure A borings which exceed the definition of RIM. Based on EPA's February 25, 2021 letter and subsequent discussions with EPA concerning the requested additional investigation, 14 borings have been proposed to better define the RIM around the Enclosure A borings.

Six borings are proposed south of borings ISL-EA-159 and ISL-EA-160. These borings are located on relatively flat surfaces on the ISL and are within areas interpreted as disturbed based on the aerial photo analysis described by EPA in Enclosure A of the EPA letter of July 13, 2020 and the EPA letter of February 2, 2021. Two borings are proposed near ISL-EA-154 to evaluate the conditions around that location in areas that appear to be disturbed in the air photo analysis performed by EPA.

At this time, no additional borings are being proposed between the line of additional step-out borings in the ISL and borings ISL-EA-160 and ISL-EA-159. Additional delineation north of these ISL EA borings is necessary; however, the additional investigation in this area will be proposed in consultation with EPA after review of data from the step-out borings proposed in this Addendum.

Six borings are proposed to be located south and east of CD-EA-163 and CD-EA-164 in the CD to investigate potential for RIM in these areas. The five south borings are within areas interpreted as disturbed based on the aerial photo analysis by EPA in Enclosure A of the EPA letter of July 13, 2020 and the EPA letter of February 2, 2021. The east boring, CD-EA-165, is believed to be outside the disturbed area, in order to confirm the absence of RIM in this area. All of these borings are located within or near to the Area #1 historical permit boundary associated with the MDNR permit # 218903 which is depicted on Figure 10 of the DIWP and also included on attached Figure A1-1. Figure A1-1 also displays the locations of these additional borings with respect to current site features, including the access road network and topographic contours, which were considered in selecting the boring locations. Figure A1-2 provides the locations of the borings in a layered pdf along with historic aerial photos. The expected boring depths and sampling details are provided in Table A1-2. If refusal is encountered the boring will be relocated per Sections 2.1.3, 2.1.5, and 2.2.1 of the FSP.

### 1.3.2 OU-1 Area 2 Perimeter Step-Out Borings

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Section 2.2.2 of the FSP contains a protocol for selecting step-out boring locations along the perimeter of OU-1 Areas 1 and 2. This protocol selected the location of a step-out boring that is about 50 feet from the OU-1 perimeter boring that contains RIM in a direction perpendicular to the boundary. Upon review of the field conditions where step-out borings would be positioned based on

this protocol, it was evident that many of these step-outs would be located on steep slopes that would present substantial physical challenges to access, and require significant (and time-consuming) site preparation before borings could even be attempted.

This Addendum 1 proposes a series of step-out borings which are generally further away from the previously estimated OU-1 Area 2 perimeter than the Section 2.2.2 protocol identifies, but which are located on more accessible locations that require substantially less site preparation. These locations are also generally located between the perimeter borings that had combined thorium or combined radium activities greater than 7.9 pCi/g and the Enclosure A borings that had combined thorium or combined radium activities greater than 7.9 pCi/g.

Five step-out borings are proposed in the ISL and four step-out borings are proposed in the CD, about 50 to 130 feet from perimeter boring locations that were found to have greater than 7.9 pCi/g of combined thorium or combined radium. The proposed step-out boring locations are shown on Figure A1-1. This figure shows the boring locations on a December 9, 2020 aerial photo showing the access road network and topographic contours, which were considered in selecting the boring locations. Figure A1-2 provides the locations of the borings in a layered pdf with historic aerial photos. The expected boring depths and sampling details are provided in Table A1-2. If refusal is encountered the boring will be relocated per Sections 2.1.3, 2.1.5, and 2.2.1 of the FSP.

Locations for step-out borings for the following perimeter borings which contain radionuclides above the definition of RIM have not been proposed at this time: A2-PB-147, A2-TH-091, A2-PB-141, and A2-PB-156. The need for and location of step-out borings from A2-PB-147 and A2-TH-092 will be evaluated after consideration of the results from nearby borings proposed in this Addendum. The need for and location of a step-out boring from A2-PB-141 will be evaluated based on the results from A2-PB-157A. The need for, and location of, a step-out boring from A2-PB-156 will be evaluated after consideration of the results from A2-PB-157A and CD-EA-165.

## 1.4 Drilling and Sampling Methods and Protocols

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The FSP standardizes the field procedures to be performed during the Design Investigation activities for OU-1. The work proposed in this Addendum 1 uses those standard methods and protocols provided in the FSP. The specific provisions in the FSP that will be used are described below.

The borings will be advanced using the sonic drilling method described in FSP Section 2.2.1.2. The required depth to advance each boring will be in accordance with the procedures described in FSP Section 2.2.1. In addition, ISL-EA-154B (offset from ISL-EA-154) may be outside the extent of waste. In this case, the boring should be installed to 25 feet BGS. The borings will be abandoned per FSP Section 2.5.3.

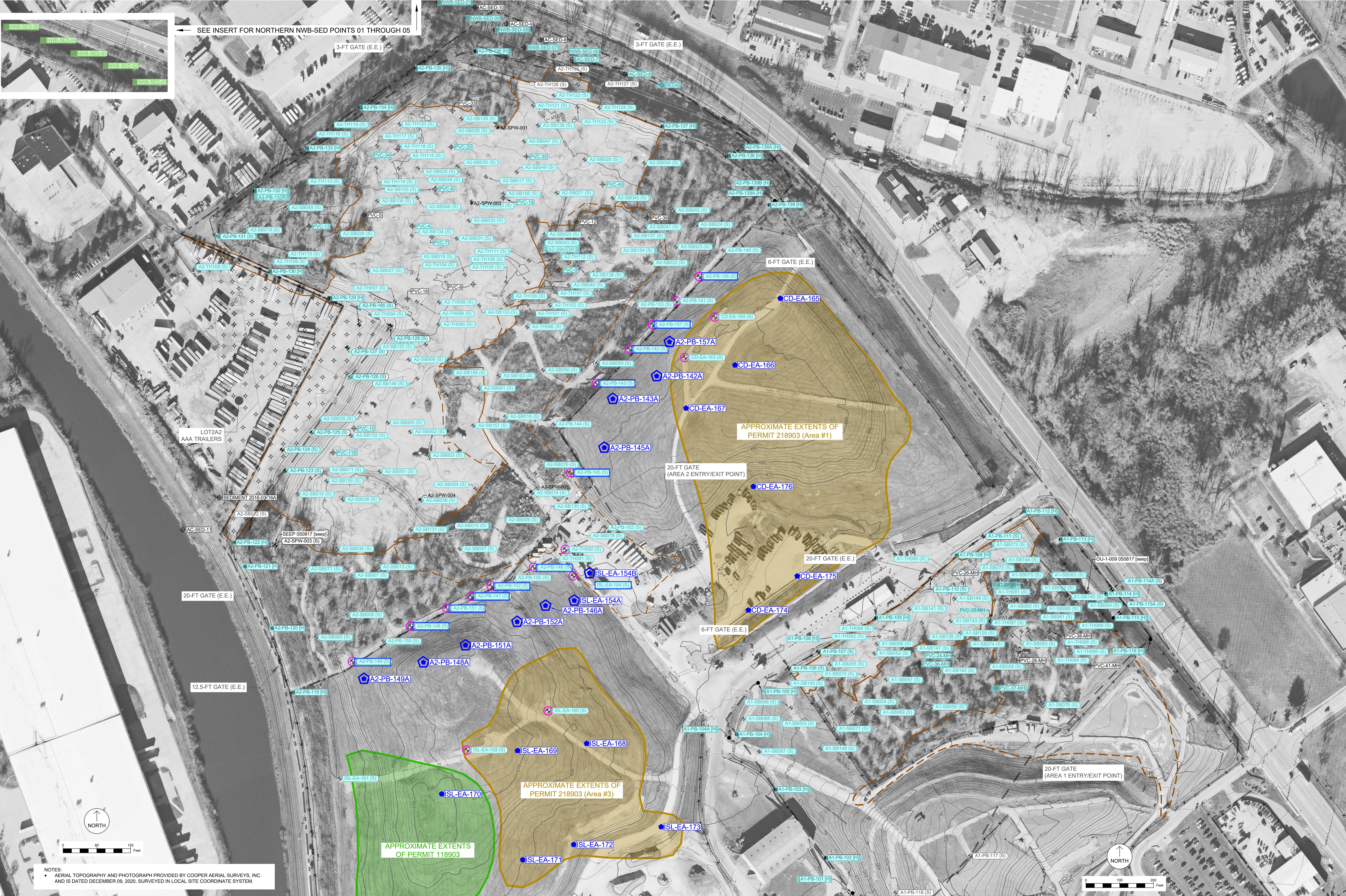
The borings will be sampled following the protocols in Section 2.4.3.1 for the Perimeter Borings in Waste and Enclosure A Borings (“ISL” and “CD” Prefixes) with the exception of ISL-EA-154B, which is expected to be outside of waste and, if so, will follow the protocol of Section 2.4.3.1 Perimeter Borings Outside Waste Mass (“PB” Prefix). The data will be reviewed and discussed with USEPA prior to proposal of additional exploration points in lieu of using the step-out procedure provided in the Perimeter Borings in Waste protocol. In any case, additional investigation will be proposed for each boring identified in this Addendum that is found to contain radionuclides that exceed the definition of RIM (7.9 pCi/g) unless otherwise approved by EPA.

The core samples will be logged and sampled following the procedures in FSP Sections 2.4.1. Radiological analytical samples will be submitted to the laboratory for analysis of the radiological parameters listed in FSP Section 2.4.5.2.

The Area 2 Perimeter Step-Out borings and the two borings proposed adjacent to ISL-EA-154 may be included in the geostatistical model to help define the excavation limits and to improve the geostatistical model accuracy. Downhole gamma logging per FSP Section 2.3.2 will be performed on these borings for use in the geostatistical model. Since ISL-EA-154 was outside of the waste mass in soil, and is located adjacent to the Area 2 perimeter, it is treated as an Area 2 Perimeter Step-Out Boring rather than an Enclosure A boring.

Analytical results from the Enclosure A Borings and Perimeter Borings show activities greater than 7.9 pCi/g for combined thorium or combined radium, but at depths greater than 12 feet below the 2005 topographic surface except for ISL-EA-154. Little to no excavation is expected in the vicinity of borings addressed in this Addendum 1, so geotechnical (FSP Section 2.4.6) or waste acceptance criteria (FSP Section 2.4.7) samples would only be collected if RIM is identified with 20 feet below the 2005 topographic surface.





SEE INSERT FOR NORTHERN NWB-SED POINTS 01 THROUGH 05



NOTES:  
 • AERIAL TOPOGRAPHY AND PHOTOGRAPH PROVIDED BY COOPER AERIAL SURVEYS, INC. AND IS DATED DECEMBER 09, 2020, SURVEYED IN LOCAL SITE COORDINATE SYSTEM.

LEGEND	
	HOLLOW STEM AUGER BORINGS
	SONIC BORINGS
	STAND PIPE
	DIRECT PUSH BORING
	SEDIMENT SAMPLE LOCATION
	SEEP SAMPLE LOCATION
	PERIMETER BORING REQUIRING STEP-OUT (DUE TO ELEVATED ANALYTICAL RESULTS)
	LOCATIONS WITH COMBINED RADIUM OR THORIUM > 7.9 pCi/g
	PROPOSED BORINGS
	ENCLOSURE A ADDITIONAL BORINGS
	PROPERTY BOUNDARY
	AREA 1 & 2 RADIOLOGICALLY IMPACTED MATERIAL (RIM) BOUNDARIES
	LOT 2A2 BUFFER ZONE DECISION UNIT BOUNDARIES
	EXTENT OF NON COMBUSTIBLE COVER (NCC)
	ESTIMATED EXTENT OF INERT FILL

**DRAFT**  
 FOR DISCUSSION  
 PURPOSES ONLY

DRILLING COMPLETED	
	COMPLETED 10/19/20 THROUGH 10/30/20
	COMPLETED 11/02/20 THROUGH 11/15/20
	COMPLETED 11/16/20 THROUGH 11/24/20
	COMPLETED 12/03/20 THROUGH 12/19/20
	COMPLETED 01/05/21 THROUGH 01/13/21
	COMPLETED 01/19/21 THROUGH 01/26/21
	COMPLETED 02/02/21 THROUGH
	COMPLETED THROUGH
	COMPLETED THROUGH

**PARSONS**  
 301 Plainfield Rd. Ste 300, Syracuse, NY, Ph: 315-451-0560  
 Missouri State Certificate of Authority # 2019041541

**FEEZOR ENGINEERING, INC.**  
 Engineering for a Better World  
 406 E Walnut St. Chatham, IL 62629 Ph: 217-483-3118

PROJECT: WEST LAKE LANDFILL SUPERFUND SITE  
 OU-1 REMEDIATION DESIGN  
 BRIDGETON, ST. LOUIS COUNTY, MO

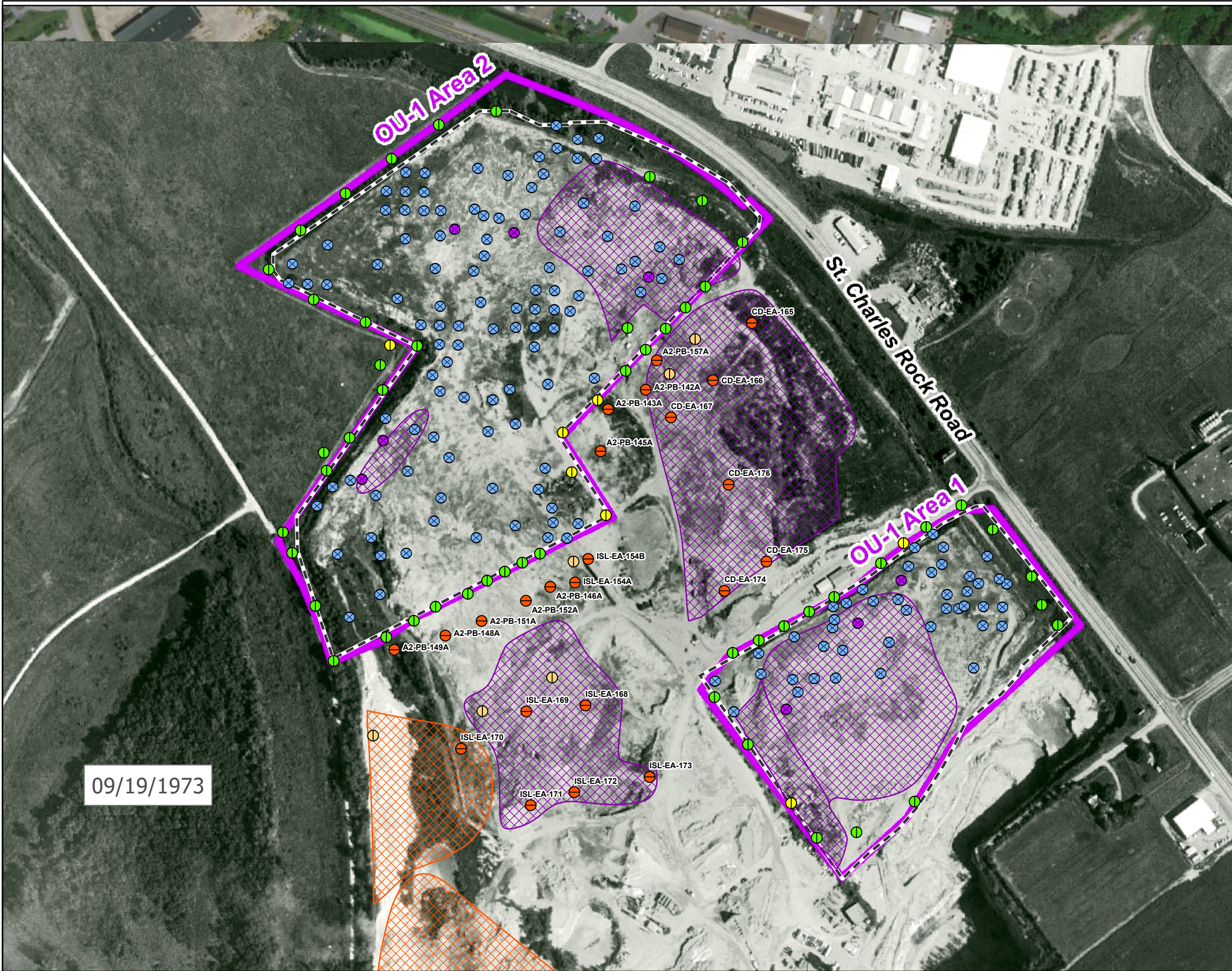
PREPARED FOR: WEST LAKE LANDFILL  
 13570 ST. CHARLES ROCK ROAD  
 BRIDGETON, MISSOURI 63044

**PROPOSED ADDITIONAL BORINGS  
 IN ISL AND CD AREAS**

REVISIONS:	DATE	DSN	APV.

MARCH 2021  
 DESIGNED BY: PL  
 APPROVED BY: —  
**A1-1**





## Preliminary Draft - for discussion purposes only

This is a layered PDF:  
Use the layer menu on the left side of the Adobe  
interface to turn layers on and off.

- Proposed Additional Borings in ISL and CD Areas
  - ⊗ Proposed Interior Borings
  - Proposed Perimeter Borings
  - Proposed USEPA Interior Borings
  - Proposed USEPA Perimeter Borings
  - Completed and Surveyed DI Borings (Sonic and HSA)
- Permits**
- 218903
  - 118903
  - OU-1 Area Boundary



**PROJECT**  
WEST LAKE LANDFILL SUPERFUND SITE  
OU-1 REMEDIAL DESIGN  
BRIDGETON, ST. LOUIS COUNTY, MO

**PREPARED FOR**  
WEST LAKE LANDFILL  
13570 ST. CHARLES ROCK ROAD  
BRIDGETON, MISSOURI 63044

### Figure A1-2

**PROPOSED ADDITIONAL BORINGS IN ISL  
AND CD AREAS WITH HISTORICAL  
AERIAL PHOTOS**

**PARSONS**  
301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, NY 13212 • 315-451-9560

**FEEZOR ENGINEERING** 406 E WALNUT ST. CHATHAM, IL 62629  
217-483-3118

Plot Date: 3/2/2021  
Plotted By: TS

09/19/1973



TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
A2-PB-119	0	0.5	N	0.776		0.915		0.892		0.729		1.691		1.621	
A2-PB-119	1.5	2	N	0.823		0.977		1		0.837		1.8		1.837	
A2-PB-119	2	4	Y	1.01		0.929		1.01		1.08		1.939		2.09	
A2-PB-119	4	6	Y	1.06		1.12		1.08		0.884		2.18		1.964	
A2-PB-119	6	8	Y	0.854		0.91		0.897		0.779		1.764		1.676	
A2-PB-119	8	10	Y	0.983		1.07		0.958		0.937		2.053		1.895	
A2-PB-119	10	12	Y	1.09		1.05		0.925		1.05		2.14		1.975	
A2-PB-119	12	14	Y	0.893		1.01		0.634		0.825		1.903		1.459	
A2-PB-119	14	16	Y	0.906		0.799		0.902		0.809		1.705		1.711	
A2-PB-119	16	18	Y	0.642		0.812		0.565		0.572		1.454		1.137	
A2-PB-119	18	20	Y	0.392		0.529		0.244		0.427		0.921		0.671	
A2-PB-119	20	22	Y	0.545		0.327		0.509		0.327		0.872		0.836	
A2-PB-119	22	24	Y	0.454		0.522		0.479		0.745		0.976		1.224	
A2-PB-119	24	25	Y	0.567		0.598		0.718		0.656		1.165		1.374	

Notes:  
 U=non-detect  
 J=estimated value

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A2-PB-120	0	1	N	1.06		0.9		0.941		0.752		1.96		1.693	
A2-PB-120	1	2	N	0.922		1.02		1.27		1.01		1.942		2.28	
A2-PB-120	2	4	Y	0.916		1.23		1.11		0.925		2.146		2.035	
A2-PB-120	4	6	Y	0.883		0.884		1.22		1.32	J	1.767		2.54	J
A2-PB-120	6	8	Y	0.819		1.25		0.898		0.943		2.069		1.841	
A2-PB-120	8	10	Y	0.981		1.21		1.38		1.26	J	2.191		2.64	J
A2-PB-120	10	12	Y	0.841		0.867		0.953		0.744		1.708		1.697	
A2-PB-120	12	14	Y	0.912		0.984		1.03		0.908	J	1.896		1.938	J
A2-PB-120	14	16	Y	0.896		0.904		0.824		0.897		1.8		1.721	
A2-PB-120	16	18	Y	0.448		0.507		0.237		0.474		0.955		0.711	
A2-PB-120	18	20	Y	0.424		0.45		0.324		0.639		0.874		0.963	
A2-PB-120	20	22	Y	0.489		0.4		0.509		0.555		0.889		1.064	
A2-PB-120	22	24	Y	0.391		0.492		0.465		0.59		0.883		1.055	

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A2-PB-121	0	4	Y	0.916		1.01		1.68		1.02		1.926		2.7	
A2-PB-121	4	6	Y	1.02		1.03		1.28		1.27		2.05		2.55	
A2-PB-121	6	8	Y	1.14		1.32		1.25		0.557		2.46		1.807	
A2-PB-121	8	10	Y	1.3		1.08		1.53		1.02		2.38		2.55	
A2-PB-121	12	14	Y	1.1		1.21		0.958		0.844		2.31		1.802	
A2-PB-121	14	16	Y	0.781		0.843		0.719		0.917		1.624		1.636	
A2-PB-121	16	18	Y	0.814		0.752		1.41		0.81		1.566		2.22	
A2-PB-121	18	20	Y	0.814		0.944		0.747		0.701		1.758		1.448	
A2-PB-121	20	22	Y	0.92		0.983		0.837		0.693		1.903		1.53	
A2-PB-121	22	24	Y	0.57		0.462		0.657		0.505		1.032		1.162	
A2-PB-121	24	25	Y	0.506		0.713		0.454		0.49		1.219		0.944	

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A2-PB-122	0	1	N	0.707		0.841		1.24		0.668		1.548		1.908	
A2-PB-122	1	2	N	1.09		1.14		0.995		0.955		2.23		1.95	
A2-PB-122	2	4	Y	1.12		1.13		1.76		1.06		2.25		2.82	
A2-PB-122	4	6	Y	1.13		1.3		1.44		1.2		2.43		2.64	
A2-PB-122	6	8	Y	0.984		0.865		1.66		1.54		1.849		3.2	
A2-PB-122	8	10	Y	1.06		1.01		1.54		1.58		2.07		3.12	
A2-PB-122	10	12	Y	0.882		0.918		1.27		1.52		1.8		2.79	
A2-PB-122	12	14	Y	0.783		0.594		0.842		0.749		1.377		1.591	
A2-PB-122	14	16	Y	0.695		0.93		0.819		0.683		1.625		1.502	
A2-PB-122	16	18	Y	0.709		0.696		0.723		0.907		1.405		1.63	
A2-PB-122	18	20	Y	0.626		0.727		0.491		0.508		1.353		0.999	
A2-PB-122	20	22	Y	0.662		0.61		0.771		0.845		1.272		1.616	
A2-PB-122	22	24	Y	0.596		0.613		0.527		0.847	J	1.209		1.374	J
A2-PB-122	24	25	Y	0.899		0.924		1.11		0.837		1.823		1.947	

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A2-PB-123	0	1	N	11.2		1.09		303		1.3		12.29		304.3	
A2-PB-123	1	2	N	3.86		0.988		74.8		1.02		4.848		75.82	
A2-PB-123	2	4	Y	2.25		1.17		38.8		1.67		3.42		40.47	
A2-PB-123	4	6	Y	1.75		1.23		7.19		1.68		2.98		8.87	
A2-PB-123	6	8	Y	1.67		1.36		15.3		1.1		3.03		16.4	
A2-PB-123	8	10	Y	1.13		1.23		1.62		0.979		2.36		2.599	
A2-PB-123	10	12	Y	1.08		1.2		5.64		1.59	J	2.28		7.23	J
A2-PB-123	12	14	Y	0.636		0.915		1.36		0.988		1.551		2.348	
A2-PB-123	14	16	Y	0.979		0.995		0.739		0.893	J	1.974		1.632	J
A2-PB-123	16	18	Y	0.758		0.799		1.08		1.05		1.557		2.13	
A2-PB-123	18	20	Y	0.927		0.979		1.27		1.17		1.906		2.44	
A2-PB-123	20	21	Y	0.529		0.59		0.757		0.603		1.119		1.36	

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A2-PB-124	0	1	N	2.57		1.54		23.5		1.14	J	4.11		24.64	J
A2-PB-124	1	2	N	1.4		1.14		2.19		1.17	J	2.54		3.36	J
A2-PB-124	2	4	Y	1.35		1.79		1.77		1.15		3.14		2.92	
A2-PB-124	4	6	Y	1.06		0.971		1.31		1.09		2.031		2.4	
A2-PB-124	6	8	Y	0.857		1.04		1.28		1.08		1.897		2.36	
A2-PB-124	8	10	Y	0.81		1.08		1.05		0.996		1.89		2.046	
A2-PB-124	10	12	Y	0.852		1.01		1.12		0.873		1.862		1.993	
A2-PB-124	12	14	Y	1.03		1.08		0.936		1.07		2.11		2.006	
A2-PB-124	14	16	Y	0.972		1.06		1.2		0.846		2.032		2.046	
A2-PB-124	16	18	Y	1.04		1.05		0.887		0.936		2.09		1.823	
A2-PB-124	18	20	Y	0.332		0.479		0.536		0.31		0.811		0.846	

Notes:  
 U=non-detect  
 J=estimated value

TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
A2-PB-125	0	1	N	2.43		1.07		45.3		1.19		3.5		46.49	
A2-PB-125	1	2	N	1.32		1.35		9.21		1.49		2.67		10.7	
A2-PB-125	2	4	Y	1.02		1.59		2.13		1.04		2.61		3.17	
A2-PB-125	4	6	Y	1.23		1.13		1.25		1.27		2.36		2.52	
A2-PB-125	6	8	Y	1.01		1.03		2.53		1.21		2.04		3.74	
A2-PB-125	8	10	Y	0.741		0.837		0.993		0.955		1.578		1.948	
A2-PB-125	10	12	Y	0.996		0.951		1.27		1.54		1.947		2.81	
A2-PB-125	12	14	Y	1.04		0.959		2.39		1.46	J	1.999		3.85	J
A2-PB-125	14	16	Y	0.96		1.31		1.62		0.859		2.27		2.479	
A2-PB-125	16	18	Y	0.472		0.428		0.578		0.545		0.9		1.123	
A2-PB-125	18	20	Y	1.07		0.893		0.763		1.24		1.963		2.003	

Notes:  
 U=non-detect  
 J=estimated value

TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
A2-PB-126	0	1	N	1.11		1.09		3.76		1.02		2.2		4.78	
A2-PB-126	1	2	N	1.06		0.956		1.04		0.951		2.016		1.991	
A2-PB-126	2	4	Y	1.05		1.06		0.926		0.883		2.11		1.809	
A2-PB-126	4	6	Y	0.888		0.805		0.941		0.757		1.693		1.698	
A2-PB-126	6	8	Y	0.608		0.781		0.563		0.6		1.389		1.163	
A2-PB-126	8	10	Y	0.615		0.853		0.772		0.553		1.468		1.325	
A2-PB-126	10	12	Y	0.534		0.586		0.723		0.666		1.12		1.389	
A2-PB-126	12	14	Y	0.395		0.514		195		1.02		0.909		196.02	
A2-PB-126	14	16	Y	0.327		0.574		0.511		0.573		0.901		1.084	
A2-PB-126	16	18	Y	0.426		0.519		0.418		0.437		0.945		0.855	
A2-PB-126	18	20	Y	0.307		0.54		0.504		0.311		0.847		0.815	

Notes:  
 U=non-detect  
 J=estimated value

TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
A2-PB-127	0	1	N	1.41		1.44		8.91		1.19	J	2.85		10.1	J
A2-PB-127	1	2	N	1.13		1.27		2.93		0.792	J	2.4		3.722	J
A2-PB-127	2	4	Y	1.08		1.04		1.77		0.913		2.12		2.683	
A2-PB-127	4	6	Y	0.592		0.76		0.766		0.908		1.352		1.674	
A2-PB-127	6	8	Y	0.694		0.727		0.715		0.504		1.421		1.219	
A2-PB-127	8	10	Y	0.868		0.917		1.01		0.77		1.785		1.78	
A2-PB-127	10	12	Y	0.416		0.453		0.66		0.378		0.869		1.038	
A2-PB-127	12	14	Y	0.448		0.545		0.53		0.862	J	0.993		1.392	J
A2-PB-127	14	16	Y	0.414		0.462		0.538		0.625		0.876		1.163	
A2-PB-127	16	17	Y	0.447		0.59		0.464		0.301		1.037		0.765	

Notes:  
 U=non-detect  
 J=estimated value

TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
A2-PB-128-R2	0	1	N	5.29		1.35		124		1.65	J	6.64		125.65	J
A2-PB-128-R2	1	2	N	18.2		0.901		459		2.44		19.101		461.44	
A2-PB-128-R2	2	4	Y	1.82		1.07		28.3		0.902		2.89		29.202	
A2-PB-128-R2	4	6	Y	0.891		0.969		1.29		0.731		1.86		2.021	
A2-PB-128-R2	6	8	Y	0.976		0.702		3.75		0.768		1.678		4.518	
A2-PB-128-R2	8	10	Y	0.656		0.7		1.56		0.56		1.356		2.12	
A2-PB-128-R2	10	12	Y	0.418		0.371		1.26		0.332		0.789		1.592	
A2-PB-128-R2	12	14	Y	0.416		0.309		0.415		0.517		0.725		0.932	
A2-PB-128-R2	14	16	Y	0.357		0.275		0.702		0.392		0.632		1.094	
A2-PB-128-R2	16	18	Y	0.511		0.651	J	0.767		0.708		1.162	J	1.475	
A2-PB-128-R2	18	20	N	0.539		0.689		0.724		0.868		1.228		1.592	

Notes:  
 U=non-detect  
 J=estimated value

TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
A2-PB-129	0	2	Y	0.863		1.1		3.86		1.15		1.963		5.01	
A2-PB-129	2	4	Y	0.769		0.863		1.41		1.06		1.632		2.47	
A2-PB-129	4	6	Y	0.656		0.743		1.19		1.01		1.399		2.2	
A2-PB-129	6	8	Y	0.527		0.534		0.693		0.458		1.061		1.151	
A2-PB-129	8	10	Y	0.476		0.459		0.422		0.399		0.935		0.821	
A2-PB-129	10	12	Y	0.681		0.588		0.792		0.62		1.269		1.412	
A2-PB-129	12	14	Y	0.556		0.673		0.536		0.615		1.229		1.151	
A2-PB-129	14	16	Y	0.752		0.735		0.657		0.953		1.487		1.61	
A2-PB-129	16	18	Y	0.48		0.485		0.541		0.614		0.965		1.155	
A2-PB-129	18	19	Y	0.379		0.421		0.232		0.404		0.8		0.636	

Notes:  
 U=non-detect  
 J=estimated value



TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
A2-PB-130	0	1	N	1.17		1.02		1.29		1.02	J	2.19		2.31	J
A2-PB-130	1	2	N	1.01		0.987		1.18		1.16	J	1.997		2.34	J
A2-PB-130	2	4	Y	0.654		0.888		0.702		0.944		1.542		1.646	
A2-PB-130	4	6	Y	0.986		0.977		1.12		1.01		1.963		2.13	
A2-PB-130	6	8	Y	0.809		0.97		0.786		0.758		1.779		1.544	
A2-PB-130	8	10	Y	0.836		0.83		1.01		0.931		1.666		1.941	
A2-PB-130	10	12	Y	0.613		0.872		0.798		1.05		1.485		1.848	
A2-PB-130	12	14	Y	0.331		0.518		0.252		0.393		0.849		0.645	
A2-PB-130	14	16	Y	0.362		0.576		0.448		0.309		0.938		0.757	
A2-PB-130	16	18	Y	0.419		0.649		0.397		0.541		1.068		0.938	

Notes:  
 U=non-detect  
 J=estimated value

TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
A2-PB-131	0	1	N	2.53		1		16.5		1.15	J	3.53		17.65	J
A2-PB-131	1	2	N	1.16		1.08		1.56		1.16		2.24		2.72	
A2-PB-131	2	4	Y	1.03		0.952		1.89		0.701		1.982		2.591	
A2-PB-131	4	6	Y	0.842		1.14		1.02		1.09	J	1.982		2.11	J
A2-PB-131	6	8	Y	0.944		0.847		1.26		0.951	J	1.791		2.211	J
A2-PB-131	8	10	Y	0.454		0.673		0.594		0.531		1.127		1.125	
A2-PB-131	10	12	Y	0.293		0.539		0.594		0.329		0.832		0.923	
A2-PB-131	12	14	Y	0.383		0.561		0.383		0.315		0.944		0.698	
A2-PB-131	14	16	Y	0.471		0.633		0.54		0.761		1.104		1.301	
A2-PB-131	16	19	Y	0.506		0.571		0.389		0.454		1.077		0.843	

Notes:  
 U=non-detect  
 J=estimated value

TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
A2-PB-132-R	0	2	Y	1.11		1.35		1.79		0.844		2.46		2.634	
A2-PB-132-R	2	4	Y	1.09		1.02		1.22		0.831		2.11		2.051	
A2-PB-132-R	4	6	Y	0.775		1.02		0.62		0.832		1.795		1.452	
A2-PB-132-R	6	8	Y	0.94		0.992		0.891		0.803		1.932		1.694	
A2-PB-132-R	8	10	Y	0.834		0.719		1.12		0.771		1.553		1.891	
A2-PB-132-R	10	12	Y	0.614		0.761		0.514		0.774	J	1.375		1.288	J
A2-PB-132-R	12	14	Y	0.405		0.548		0.6		0.418		0.953		1.018	
A2-PB-132-R	14	16	Y	0.331		0.405		0.357		0.21		0.736		0.567	
A2-PB-132-R	16	18	Y	0.348		0.339		0.6		0.423		0.687		1.023	
A2-PB-132-R	18	20	Y	0.339		0.361		0.449		0.513		0.7		0.962	

Notes:  
U=non-detect  
J=estimated value

TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
A2-PB-133	0	2	Y	0.901		1.37		1.44		0.87		2.271		2.31	
A2-PB-133	2	4	Y	0.814		0.853		0.892		0.657		1.667		1.549	
A2-PB-133	4	6	Y	0.619		0.721		0.43		0.691		1.34		1.121	
A2-PB-133	6	8	Y	0.495		0.56		0.575		0.558		1.055		1.133	
A2-PB-133	8	10	Y	0.541		0.544		0.635		0.818		1.085		1.453	
A2-PB-133	10	12	Y	0.502		0.542		0.649		0.527		1.044		1.176	
A2-PB-133	12	14	Y	0.642		0.775		0.617		0.608		1.417		1.225	
A2-PB-133	14	16	Y	0.317		0.591		0.433		0.383		0.908		0.816	
A2-PB-133	16	18	Y	0.48		0.564		0.368		0.294		1.044		0.662	
A2-PB-133	18	19	Y	0.32		0.236		0.543		0.587		0.556		1.13	

Notes:  
 U=non-detect  
 J=estimated value

TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
A2-PB-134	0	1	N	0.865		1.17		1.44		1.18		2.035		2.62	
A2-PB-134	1	2	N	0.825		1.29		1.09		1.21		2.115		2.3	
A2-PB-134	2	4	Y	0.885		1.12		1.22		1.3		2.005		2.52	
A2-PB-134	4	6	Y	0.659		0.805		0.794		0.904		1.464		1.698	
A2-PB-134	6	8	Y	0.42		1.03		0.929		0.722		1.45		1.651	
A2-PB-134	8	10	Y	0.732		0.792		0.706		0.944		1.524		1.65	
A2-PB-134	10	12	Y	0.593		0.911		0.78		0.603		1.504		1.383	
A2-PB-134	12	14	Y	0.468		0.746		0.718		0.489		1.214		1.207	
A2-PB-134	14	16	Y	0.434		0.596		0.634		0.49		1.03		1.124	
A2-PB-134	16	18	Y	0.364		0.571		0.257		0.509		0.935		0.766	
A2-PB-134	18	19	Y	0.404		0.456		0.357		0.29		0.86		0.647	

Notes:  
 U=non-detect  
 J=estimated value

TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
A2-PB-135	0	1	N	0.986		1.15		0.861		1.01	J	2.136		1.871	J
A2-PB-135	1	2	N	0.511		0.809		1.04		0.795		1.32		1.835	
A2-PB-135	2	4	Y	0.823		0.669		0.603		0.731		1.492		1.334	
A2-PB-135	4	6	Y	0.601		0.626		0.938		0.6		1.227		1.538	
A2-PB-135	6	8	Y	0.5		0.559		0.55		0.633		1.059		1.183	
A2-PB-135	8	10	Y	0.452		0.784		0.471		0.419		1.236		0.89	
A2-PB-135	10	12	Y	0.416		0.347		0.525		0.341		0.763		0.866	
A2-PB-135	12	14	Y	0.316		0.535		0.547		0.319		0.851		0.866	
A2-PB-135	14	16	Y	0.312		0.49		0.431		0.48		0.802		0.911	
A2-PB-135	16	18	Y	0.332		0.411		0.258		0.578		0.743		0.836	

Notes:  
 U=non-detect  
 J=estimated value

TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
A2-PB-136	0	1	N	1.23		1.28		2.56		1.2	J	2.51		3.76	J
A2-PB-136	1	2	N	0.897		1.19		1.59		1.24	J	2.087		2.83	J
A2-PB-136	2	4	Y	0.956		1		0.922		0.849		1.956		1.771	
A2-PB-136	4	6	Y	1.16		1.16		1.01		1.57		2.32		2.58	
A2-PB-136	6	8	Y	0.57		0.722		0.933		1.01		1.292		1.943	
A2-PB-136	8	10	Y	0.387		0.611		0.969		1.54	J	0.998		2.509	J
A2-PB-136	10	12	Y	1.06		1.28		1.58		1.34		2.34		2.92	
A2-PB-136	12	14	Y	0.631		0.589		0.832		0.572		1.22		1.404	

Notes:  
 U=non-detect  
 J=estimated value

TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
A2-PB-140-R	0	5	Y	1		0.899		1.22		0.753		1.899		1.973	
A2-PB-140-R	5	10	Y	0.828		0.851		1.04		0.851		1.679		1.891	
A2-PB-140-R	10	15	Y	1.15		1.09		1.21		0.893		2.24		2.103	
A2-PB-140-R	20	25	Y	0.618		0.639		0.685		0.715		1.257		1.4	
A2-PB-140-R	25	30	Y	0.853		1.1		0.812		0.831	J	1.953		1.643	J
A2-PB-140-R	30	35	Y	0.67		0.787		0.885		0.915		1.457		1.8	
A2-PB-140-R	30	35	Y	0.872		0.898		0.891		0.654		1.77		1.545	
A2-PB-140-R	35	40	Y	0.224		0.335		0.671		0.313		0.559		0.984	
A2-PB-140-R	40	45	Y	0.596		0.774		0.732		0.595		1.37		1.327	
A2-PB-140-R	45	49	Y	0.477		0.468		0.642		0.525		0.945		1.167	

Notes:  
 U=non-detect  
 J=estimated value



TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
A2-PB-141	0	5	Y	0.906		1.25		1.68		1.16		2.156		2.84	
A2-PB-141	5	10	Y	0.936		0.708		0.623		0.518		1.644		1.141	
A2-PB-141	10	15	Y	1.16		1.3		0.864		0.956		2.46		1.82	
A2-PB-141	15	20	Y	1.11		0.925		1.96		1.04		2.035		3	
A2-PB-141	20	25	Y	3.65		0.62		71.6		1.03		4.27		72.63	
A2-PB-141	25	30	Y	13.1		0.458		355		3.08		13.558		358.08	
A2-PB-141	30	35	Y	0.951		0.998		1.33		0.685		1.949		2.015	
A2-PB-141	30	35	Y	0.881		0.697		1.68		0.834		1.578		2.514	
A2-PB-141	35	40	Y	0.676		0.789		1.3		1.11		1.465		2.41	
A2-PB-141	40	45	Y	0.94		0.781		1.29		0.981		1.721		2.271	
A2-PB-141	45	49	Y	0.859		0.907		0.83		1.02	J	1.766		1.85	J

Notes:  
U=non-detect  
J=estimated value

TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
A2-PB-142	0	5	Y	0.878		0.829		1.27		1.39		1.707		2.66	
A2-PB-142	5	10	Y	0.804		1.06		0.957		0.797		1.864		1.754	
A2-PB-142	10	15	Y	0.742		0.926		1.12		0.654		1.668		1.774	
A2-PB-142	15	20	Y	1.08		1.05		1.67		1.18		2.13		2.85	
A2-PB-142	20	25	Y	1.65		0.453		20.6		0.582		2.103		21.182	
A2-PB-142	25	30	Y	40.7		0.598		1280		4.21	J	41.298		1284.21	J
A2-PB-142	30	30.5	N	127		1.97		1360		5.53	J	128.97		1365.53	J
A2-PB-142	30	35	Y	46.7		0.769		1150		2.68		47.469		1152.68	
A2-PB-142	35	40	Y	1.14		0.564		6.59		0.519		1.704		7.109	
A2-PB-142	35	40	Y	1.2		0.561		12.4		0.435	U	1.761		12.618	
A2-PB-142	40	45	Y	0.522		0.735		0.761		0.692		1.257		1.453	

Notes:  
 U=non-detect  
 J=estimated value

TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
A2-PB-143	0	5	Y	0.814	J	0.884		1.21		0.722	J	1.698	J	1.932	J
A2-PB-143	5	10	Y	0.816		0.821		1.13		0.644		1.637		1.774	
A2-PB-143	5	10	Y	0.873		0.637		1.1		0.577		1.51		1.677	
A2-PB-143	10	15	Y	1.21		0.743		2.65		0.787		1.953		3.437	
A2-PB-143	15	20	Y	0.996		0.256		10.4		0.121	U	1.252		10.4605	
A2-PB-143	20	25	Y	0.929		0.896		2.51		0.662		1.825		3.172	
A2-PB-143	25	30	Y	0.942		0.878		0.898		0.576		1.82		1.474	
A2-PB-143	30	35	Y	0.84		0.829		0.783		0.624	J	1.669		1.407	J
A2-PB-143	35	40	Y	1.23		0.928		0.824		0.905		2.158		1.729	
A2-PB-143	40	45	Y	1.04		0.949		1.09		0.99		1.989		2.08	
A2-PB-143	45	50	Y	0.468		0.523		0.571		0.477		0.991		1.048	
A2-PB-143	50	54	Y	0.366		0.41		0.333		0.245		0.776		0.578	

Notes:  
U=non-detect  
J=estimated value

TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
A2-PB-144	0	5	Y	1.05		0.286		1		0.0343	U	1.336		1.0172	
A2-PB-144	5	10	Y	1.27		0.59		3.66		0.946		1.86		4.606	
A2-PB-144	10	15	Y	1.21		0.717		4.76		0.686		1.927		5.446	
A2-PB-144	15	20	Y	0.579		0.88		1.1		0.773		1.459		1.873	
A2-PB-144	15	20	Y	0.681		0.909		0.948		0.853		1.59		1.801	
A2-PB-144	20	25	Y	0.78		0.553		2.35		0.532		1.333		2.882	
A2-PB-144	25	30	Y	0.808		0.922		1.01		0.748		1.73		1.758	
A2-PB-144	30	35	Y	0.781		0.754		1.04		0.744		1.535		1.784	
A2-PB-144	35	40	Y	0.895		0.872		1.09		0.767		1.767		1.857	
A2-PB-144	40	45	Y	1.09	J	0.954		1.14		1.04	J	2.044	J	2.18	J
A2-PB-144	45	48	Y	0.659		0.786		0.812		0.872		1.445		1.684	

Notes:  
U=non-detect  
J=estimated value

TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226		RADIUM-228		THORIUM-230		THORIUM-232		Combined Radium		Combined Thorium	
				pCi/g		pCi/g		pCi/g		pCi/g		pCi/g		pCi/g	
A2-PB-145	0	5	Y	0.902		0.892		1.75		0.637		1.794		2.387	
A2-PB-145	5	10	Y	1.69		0.893		73.7		1.06		2.583		74.76	
A2-PB-145	10	15	Y	2.51		0.946		79.4		1.32		3.456		80.72	
A2-PB-145	15	20	Y	0.569		0.529		3.55		0.461		1.098		4.011	
A2-PB-145	20	25	Y	0.587		0.728		0.803	J	0.752		1.315		1.555	J
A2-PB-145	20	25	Y	0.828		0.659		1.51	J	0.821		1.487		2.331	J
A2-PB-145	25	30	Y	1.5		0.688		29.6		0.835		2.188		30.435	
A2-PB-145	35	40	Y	1.01		0.818		1.31		0.956		1.828		2.266	
A2-PB-145	40	45	Y	0.379		0.447		0.712		0.594		0.826		1.306	
A2-PB-145	45	47	Y	0.331		0.408		0.58		0.932		0.739		1.512	

Notes:  
U=non-detect  
J=estimated value

TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226		RADIUM-228		THORIUM-230		THORIUM-232		Combined Radium		Combined Thorium	
				pCi/g		pCi/g		pCi/g		pCi/g		pCi/g		pCi/g	
A2-PB-146	0	5	Y	0.691		0.799		1.11		0.911		1.49		2.021	
A2-PB-146	5	10	Y	0.624		0.376		1.67		0.496		1		2.166	
A2-PB-146	10	15	Y	0.894		0.366		4.06		0.503		1.26		4.563	
A2-PB-146	15	19	Y	1.58		0.812		11.7		0.972		2.392		12.672	
A2-PB-146	19	24	Y	0.986		0.879		6.33		1.05	J	1.865		7.38	J
A2-PB-146	24	29	Y	0.551		0.61		0.526		0.522		1.161		1.048	
A2-PB-146	29	34	Y	0.653		0.67		0.739		0.741		1.323		1.48	
A2-PB-146	34	39	Y	1.16		0.768		1.18		1.06		1.928		2.24	
A2-PB-146	39	44	Y	1.42		1.45		1.4		1.31	J	2.87		2.71	J
A2-PB-146	39	44	Y	1.15		1.26		1.14		1.17		2.41		2.31	
A2-PB-146	44	49	Y	0.88		0.921		1.04		0.897		1.801		1.937	
A2-PB-146	49	54	Y	0.704		0.728		0.806		0.66		1.432		1.466	

Notes:  
 U=non-detect  
 J=estimated value

TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226		RADIUM-228		THORIUM-230		THORIUM-232		Combined Radium		Combined Thorium	
				pCi/g		pCi/g		pCi/g		pCi/g		pCi/g		pCi/g	
A2-PB-147	0	3	Y	0.966		0.784		2.38		0.601		1.75		2.981	
A2-PB-147	3	8	Y	0.71		0.582		1.52		0.597		1.292		2.117	
A2-PB-147	8	13	Y	0.839		1.02		1.04		0.794		1.859		1.834	
A2-PB-147	13	18	Y	0.716		0.413		1.01		0.424		1.129		1.434	
A2-PB-147	18	23	Y	5.16		0.904		143		1.34		6.064		144.34	
A2-PB-147	23	28	Y	1.1		0.837		6.88		0.963		1.937		7.843	
A2-PB-147	28	33	Y	1.21		1.05		1.78		1.34		2.26		3.12	
A2-PB-147	28	33	Y	1.24		1.29		1.8	J	0.819	J	2.53		2.619	J
A2-PB-147	33	38	Y	4.39		1.36		4.1		0.937		5.75		5.037	
A2-PB-147	38	43	Y	0.733		0.617		0.767		0.866		1.35		1.633	
A2-PB-147	43	48	Y	0.844		0.967		1.18		0.81		1.811		1.99	
A2-PB-147	48	53	Y	0.896		0.959		0.816		0.652		1.855		1.468	
A2-PB-147	53	58	Y	1.04		0.892	J	0.84		0.696	J	1.932	J	1.536	J

Notes:  
U=non-detect  
J=estimated value

TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226		RADIUM-228		THORIUM-230		THORIUM-232		Combined Radium		Combined Thorium	
				pCi/g		pCi/g		pCi/g		pCi/g		pCi/g		pCi/g	
A2-PB-148	0	5	Y	0.965		1.17		1.73		0.925		2.135		2.655	
A2-PB-148	5	10	Y	0.678		0.472		0.89		0.359		1.15		1.249	
A2-PB-148	10	15	Y	0.924		0.756		0.959		0.562		1.68		1.521	
A2-PB-148	15	20	Y	1.05		1.26		0.917		1.06		2.31		1.977	
A2-PB-148	20	25	Y	1.04		0.435		14.2		0.514		1.475		14.714	
A2-PB-148	25	30	Y	0.939		0.745		2.29		0.642		1.684		2.932	
A2-PB-148	30	35	Y	0.826		0.901		3.3		1.45		1.727		4.75	
A2-PB-148	35	40	Y	0.607		0.97		0.655		0.477		1.577		1.132	
A2-PB-148	40.7	41.2	N	0.551		0.675		0.818		0.71		1.226		1.528	
A2-PB-148	45	50	Y	0.667		0.4		0.715		0.245		1.067		0.96	
A2-PB-148	50	55	Y	0.357		0.418		1.11		0.612		0.775		1.722	
A2-PB-148	55	60	Y	0.953		1.07		1.34		0.647		2.023		1.987	
A2-PB-148	55	60	Y	1.11		0.877		1.37		0.921		1.987		2.291	
A2-PB-148	60	65	Y	0.696		0.754		1.14		0.555		1.45		1.695	
A2-PB-148	65	70	Y	0.461		0.549		0.706		0.584		1.01		1.29	
A2-PB-148	70	75	Y	0.261		0.39	UJ	0.825		0.645		0.461		1.47	

Notes:  
 U=non-detect  
 J=estimated value



TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
A2-PB-149	0	5	Y	0.486		0.35		0.623		0.217		0.836		0.84	
A2-PB-149	5	10	Y	1.03		1.02		1.1		0.779		2.05		1.879	
A2-PB-149	10	15	Y	0.772		0.764		1.19		0.918		1.536		2.108	
A2-PB-149	15.7	16.2	N	0.639		0.447		1.25		0.559		1.086		1.809	
A2-PB-149	19	24	Y	1.83		1.23		23.7		0.654		3.06		24.354	
A2-PB-149	24	29	Y	1.38		0.786		17.1		0.571		2.166		17.671	
A2-PB-149	29	34	Y	0.852		0.879		1.11		0.664		1.731		1.774	
A2-PB-149	34	39	Y	0.759	J	0.777		0.76		0.492		1.536	J	1.252	
A2-PB-149	39	44	Y	1.16		0.932		14.7	J	1.04		2.092		15.74	J
A2-PB-149	39	44	Y	1		1.21		5.94	J	0.716		2.21		6.656	J
A2-PB-149	49	54	Y	1.05		1		1.23		1.14		2.05		2.37	
A2-PB-149	54	59	Y	0.843		0.831		0.691		0.708		1.674		1.399	

Notes:  
U=non-detect  
J=estimated value

TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
A2-PB-150	0.1	0.7	N	0.909		1.04		0.874		0.742	J	1.949		1.616	J
A2-PB-150	3	8	Y	0.612		0.716		0.771		0.658	J	1.328		1.429	J
A2-PB-150	8	13	Y	1.04		0.852		0.889		0.526		1.892		1.415	
A2-PB-150	13	17	Y	0.884		0.86		1.93		0.711		1.744		2.641	
A2-PB-150	17	22	Y	0.717		0.739		0.9		0.865	J	1.456		1.765	J
A2-PB-150	22	27	Y	1.07		0.907		1.63		0.94		1.977		2.57	
A2-PB-150	27	32	Y	0.97		1.08		1.12		1.11		2.05		2.23	
A2-PB-150	32	37	Y	0.836		0.75		1.16		0.749		1.586		1.909	
A2-PB-150	37	42	Y	0.943		0.815		0.946		0.736		1.758		1.682	
A2-PB-150	42	47	Y	0.676		0.707		0.684		1.17		1.383		1.854	
A2-PB-150	42	47	Y	0.781		0.848		0.79		1.02		1.629		1.81	
A2-PB-150	47	52	Y	1.05		1.41		1.3		0.888		2.46		2.188	
A2-PB-150	52	57	Y	0.683		0.609		0.739		0.903		1.292		1.642	
A2-PB-150	57	61	Y	0.566		0.605		0.426		0.483		1.171		0.909	

Notes:  
U=non-detect  
J=estimated value

TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
A2-PB-151	0	3.2	Y	1.03		0.66		2.47		0.657		1.69		3.127	
A2-PB-151	3.2	8.2	Y	0.663		0.552		0.892		0.391		1.215		1.283	
A2-PB-151	8.2	13.2	Y	0.984		0.783		1.08		0.602		1.767		1.682	
A2-PB-151	13.2	18.2	Y	0.339		0.68		0.262	U	0.32		1.019		0.451	
A2-PB-151	18.2	23.2	Y	2.52		0.483		57.3		0.761		3.003		58.061	
A2-PB-151	23.2	28.2	Y	2.49		0.519		57.1		0.574		3.009		57.674	
A2-PB-151	28.2	33.2	Y	0.989		0.733		3.92		0.528		1.722		4.448	
A2-PB-151	33.4	33.9	N	0.555		0.595		0.88		0.567		1.15		1.447	
A2-PB-151	38.2	43.2	Y	1.06		0.893		0.682		0.997	J	1.953		1.679	J
A2-PB-151	38.2	43.2	Y	1.04		0.809		0.811		0.564		1.849		1.375	
A2-PB-151	43.2	48.2	Y	0.765		0.704		1.12		0.788		1.469		1.908	
A2-PB-151	48.2	53.2	Y	0.954		0.67		0.735		0.738		1.624		1.473	
A2-PB-151	53.2	58.2	Y	1.02		1.01		1.04		1.02		2.03		2.06	

Notes:  
U=non-detect  
J=estimated value

TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
A2-PB-152	0.4	0.9	N	1.03		0.86		0.944		1.09		1.89		2.034	
A2-PB-152	5	10	Y	0.747		1.05		0.787		1.18		1.797		1.967	
A2-PB-152	10	15	Y	0.644		0.634		0.656		0.678		1.278		1.334	
A2-PB-152	15	20	Y	1.97		1.34		3.66		1.3		3.31		4.96	
A2-PB-152	20	25	Y	7.97		0.812		220		1.67	J	8.782		221.67	J
A2-PB-152	25	30	Y	0.716		0.675		1.25		0.475		1.391		1.725	
A2-PB-152	30	35	Y	0.533		0.549		0.674		0.464		1.082		1.138	
A2-PB-152	35	40	Y	0.518		0.587		0.504		0.435		1.105		0.939	
A2-PB-152	40.2	40.7	N	0.626		0.857		0.699		0.711		1.483		1.41	
A2-PB-152	45	50	Y	0.85		0.808		0.885		0.64		1.658		1.525	
A2-PB-152	50	55	Y	0.526		0.422		0.883		0.308		0.948		1.191	
A2-PB-152	55	60	Y	0.623		0.476		0.81		0.487		1.099		1.297	
A2-PB-152	55	60	Y	0.466		0.656		1.07		0.6		1.122		1.67	
A2-PB-152	60	65	Y	0.489		0.602		0.656		1.15	J	1.091		1.806	J

Notes:  
 U=non-detect  
 J=estimated value

TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
A2-PB-153	0	5	Y	0.917		1.3		0.825		1.14		2.217		1.965	
A2-PB-153	5	10	Y	0.704		0.718		0.961		0.628	J	1.422		1.589	J
A2-PB-153	10	15	Y	3.05		1.47		66.6		2.15		4.52		68.75	
A2-PB-153	15	20	Y	18		0.946		514		6.6		18.946		520.6	
A2-PB-153	20	25	Y	3.97		0.659		62.7		1.21	J	4.629		63.91	J
A2-PB-153	25	30	Y	1.88		0.663		57.7		1.17		2.543		58.87	
A2-PB-153	25	30	Y	1.91		0.487		66.9		1.15		2.397		68.05	
A2-PB-153	30	35	Y	0.377		0.186		0.528		0.304		0.563		0.832	
A2-PB-153	35	40	Y	0.56		0.568		0.445		0.383		1.128		0.828	

Notes:  
 U=non-detect  
 J=estimated value

TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
A2-PB-155	0	5	Y	0.924		0.858		2.16		0.747	J	1.782		2.907	J
A2-PB-155	5	10	Y	0.628		0.512		1.54		0.509		1.14		2.049	
A2-PB-155	10	15	Y	0.954		0.52		2.86		0.546		1.474		3.406	
A2-PB-155	15	20	Y	1.58		0.723		3.93		0.669		2.303		4.599	
A2-PB-155	20	25	Y	0.844		0.573		1.11		0.461		1.417		1.571	
A2-PB-155	25	30	Y	0.622		0.786		0.627		0.648		1.408		1.275	
A2-PB-155	30	35	Y	0.73		0.947		0.515		0.855		1.677		1.37	
A2-PB-155	35	40	Y	0.664		0.665		0.879		0.75		1.329		1.629	
A2-PB-155	35	40	Y	0.746		0.806		1.02		0.727		1.552		1.747	
A2-PB-155	40	45	Y	0.882		0.699		0.933		0.846		1.581		1.779	
A2-PB-155	45	50	Y	0.941		0.951		0.974		1.08	J	1.892		2.054	J
A2-PB-155	50	55	Y	0.629		0.696		1.11		0.536		1.325		1.646	
A2-PB-155	55.2	55.8	N	1.33		0.985		1.76		0.858		2.315		2.618	
A2-PB-155	60	65	Y	0.155		0.303		0.351		0.343		0.458		0.694	

Notes:  
U=non-detect  
J=estimated value

TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
A2-PB-156	0	5	Y	0.875		0.797		1.52		0.727		1.672		2.247	
A2-PB-156	5	10	Y	1.03		1.1		0.824		0.912		2.13		1.736	
A2-PB-156	5	10	Y	1.08		1.1		1.37		1.28		2.18		2.65	
A2-PB-156	10	15	Y	2.27		0.743		33.4		0.722		3.013		34.122	
A2-PB-156	15	20	Y	2.11		0.823		31.5		0.49		2.933		31.99	
A2-PB-156	20	25	Y	2.17		0.865		33.7		0.566		3.035		34.266	
A2-PB-156	25	30	Y	0.847		0.562		0.792		0.929		1.409		1.721	
A2-PB-156	30	35	Y	1.25		1.53		1.38		1.03		2.78		2.41	
A2-PB-156	35	40	Y	0.924		0.984		1.1		0.891		1.908		1.991	
A2-PB-156	40	44	Y	0.605		0.637		0.516		0.716		1.242		1.232	

Notes:  
U=non-detect  
J=estimated value

TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
A2-PB-157	0	5	Y	0.993		1.01		0.745		1.04	J	2.003		1.785	J
A2-PB-157	5	10	Y	0.967		0.927		1.34		1.15		1.894		2.49	
A2-PB-157	10	15	Y	0.864		1.13		1.2		0.766		1.994		1.966	
A2-PB-157	15	20	Y	9.45		0.662		310		1.37		10.112		311.37	
A2-PB-157	19	19.3	N	152		2.66		3380		21.6		154.66		3401.6	
A2-PB-157	20	25	Y	8.4		1.01		273		1.39		9.41		274.39	
A2-PB-157	20.5	21	N	189		2.24		392		1.89		191.24		393.89	
A2-PB-157	25	30	Y	6.84		1.1		190		1.04	J	7.94		191.04	J
A2-PB-157	25	30	Y	7.12		0.606		184		0.562	J	7.726		184.562	J
A2-PB-157	30	35	Y	1.05		0.545		4.32		0.75		1.595		5.07	
A2-PB-157	35	40	Y	0.644		0.579		0.756		0.939		1.223		1.695	
A2-PB-157	40	45	Y	0.664		0.738		0.997		1.09	J	1.402		2.087	J
A2-PB-157	45	48	Y	0.436		0.471		0.544		0.51		0.907		1.054	

Notes:  
 U=non-detect  
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TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
A2-PB-162	0	5	Y	0.681		0.762		0.996		0.848	J	1.443		1.844	J
A2-PB-162	5	10	Y	1.61		0.855		1.83		0.863		2.465		2.693	
A2-PB-162	10	15	Y	1.05		0.772		1.37		0.79		1.822		2.16	
A2-PB-162	15	20	Y	1.09		0.885		1.67		0.728		1.975		2.398	
A2-PB-162	20	25	Y	1.02		0.685		1.68		0.759		1.705		2.439	
A2-PB-162	20	25	Y	1		0.878		1.26		0.473		1.878		1.733	
A2-PB-162	25	30	Y	0.789		1.11		1.82		0.865	J	1.899		2.685	J
A2-PB-162	30	35	Y	0.796		0.956		2.95		1.03		1.752		3.98	
A2-PB-162	35	40	Y	0.845		0.887		0.938		1.01		1.732		1.948	
A2-PB-162	40	45	Y	1.24		1.27		0.991		0.975		2.51		1.966	
A2-PB-162	45	50	Y	0.481		0.574		0.43		0.486		1.055		0.916	
A2-PB-162	50	52	Y	0.31		0.358		0.386		0.281		0.668		0.667	

Notes:  
 U=non-detect  
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TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
A2-PB-165	0	1	N	7.81		1.22		153		1.65	J	9.03		154.65	J
A2-PB-165	1	2	N	2.11		0.968		36.7		1.01		3.078		37.71	
A2-PB-165	2	4	Y	0.78		0.716		4.04		0.949		1.496		4.989	
A2-PB-165	4	6	Y	0.718		0.998		0.853		0.986		1.716		1.839	
A2-PB-165	6	8	Y	0.661		0.666		5.78		0.483		1.327		6.263	
A2-PB-165	8	10	Y	0.424	J	0.482		0.337		0.38		0.906	J	0.717	
A2-PB-165	10	12	Y	0.552		0.653		1.33		0.603		1.205		1.933	
A2-PB-165	12	14	Y	0.5		0.579		0.882		0.507		1.079		1.389	
A2-PB-165	14	16	Y	0.474		0.55		0.204		0.347		1.024		0.551	
A2-PB-165	16	17	Y	0.285		0.459		0.42		0.554		0.744		0.974	

Notes:  
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TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
CD-EA-163	0	5	Y	0.797		0.709		1.09		0.68		1.506		1.77	
CD-EA-163	5	10	Y	0.902		0.731		1.17		0.684		1.633		1.854	
CD-EA-163	10	15	Y	0.873		1.07		0.864		0.689		1.943		1.553	
CD-EA-163	15	20	Y	0.837		1.01		1.03		0.94	J	1.847		1.97	J
CD-EA-163	20	25	Y	0.945		1.11		1.22		0.903		2.055		2.123	
CD-EA-163	25	30	Y	0.935		0.779		1.3		0.608		1.714		1.908	
CD-EA-163	25	30	Y	0.8		0.714		1.02		0.582		1.514		1.602	
CD-EA-163	30	35	Y	0.697		0.526		0.954		0.245		1.223		1.199	
CD-EA-163	35	40	Y	1.05		1.02		1.41		0.889		2.07		2.299	
CD-EA-163	40	45	Y	0.647		0.635		1.27		0.48		1.282		1.75	
CD-EA-163	45	50	Y	1.02		0.255		24.9		0.408		1.275		25.308	
CD-EA-163	50	55	Y	0.725		0.615		1.34		0.491		1.34		1.831	
CD-EA-163	55	58.5	Y	0.889		0.934		1.54		0.752		1.823		2.292	

Notes:  
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TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
CD-EA-164	0	5	Y	0.978		1.22		1.36		0.816	J	2.198		2.176	J
CD-EA-164	5	10	Y	0.978		0.742		1.1		0.771		1.72		1.871	
CD-EA-164	10	15	Y	0.843		0.605		1.07		0.463		1.448		1.533	
CD-EA-164	15	20	Y	0.802		0.922		1.22		0.496		1.724		1.716	
CD-EA-164	20	25	Y	0.581		0.564		1.05		0.519		1.145		1.569	
CD-EA-164	25	30	Y	0.83		0.941		1.16		0.72		1.771		1.88	
CD-EA-164	25	30	Y	0.809		0.847		1.24		0.935		1.656		2.175	
CD-EA-164	30	35	Y	1.49		1.32		1.99		1.19		2.81		3.18	
CD-EA-164	35	40	Y	0.736		0.465		0.602		0.453		1.201		1.055	
CD-EA-164	40	45	Y	1.05		0.836		2.49		0.559		1.886		3.049	
CD-EA-164	45	50	Y	3.21		0.53		64		0.372		3.74		64.372	
CD-EA-164	50	55	Y	12.8		1.07		500		1.17		13.87		501.17	
CD-EA-164	55	59	Y	0.996		1.2		1.64		1.07		2.196		2.71	

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TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
ISL-EA-154	0	5	Y	0.924		0.25		1.28		0.363	U	1.174		1.462	
ISL-EA-154	5	10	Y	3.48		0.864		57		0.954		4.344		57.954	
ISL-EA-154	10	15	Y	1.43		0.967		9.68		0.721		2.397		10.401	
ISL-EA-154	10	15	Y	1.01		1.17		2.73		0.891		2.18		3.621	
ISL-EA-154	15	20	Y	1.26		1.1		5.29		0.825		2.36		6.115	
ISL-EA-154	20	25	Y	0.927		0.99		2.54		0.89		1.917		3.43	

Notes:  
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TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
ISL-EA-159	0	5	Y	0.882		1.12		1.14	J	0.798		2.002		1.938	J
ISL-EA-159	5	10	Y	0.988		1.08		1.39	J	0.781		2.068		2.171	J
ISL-EA-159	10	15	Y	0.741		0.994		1.54		0.727		1.735		2.267	
ISL-EA-159	15	20	Y	0.71		0.701		1.11	J	0.676		1.411		1.786	J
ISL-EA-159	25	30	Y	0.652		0.767		0.847	J	0.726		1.419		1.573	J
ISL-EA-159	30	35	Y	0.518		0.581		0.797	J	0.85		1.099		1.647	J
ISL-EA-159	35.5	36.05	N	0.823		0.279		1.48		0.471		1.102		1.951	
ISL-EA-159	40	45	Y	0.612		0.347		0.656	J	0.301		0.959		0.957	J
ISL-EA-159	45	50	Y	1.02		0.869		6.56		0.43		1.889		6.99	
ISL-EA-159	50	55	Y	1.24		0.669		6.43		0.563		1.909		6.993	
ISL-EA-159	55	60	Y	0.961		1.1		3.82		0.73		2.061		4.55	
ISL-EA-159	60	65	Y	1.69		1.02		22.7		0.723		2.71		23.423	
ISL-EA-159	60	65	Y	1.29		0.843		16.3		0.774		2.133		17.074	
ISL-EA-159	65	70	Y	1.27		1.16		4.76		0.843		2.43		5.603	
ISL-EA-159	70	75	Y	1.25		1.25		3.24		1.02		2.5		4.26	
ISL-EA-159	75	80	Y	3.58		0.519		148		0.846		4.099		148.846	
ISL-EA-159	80	85	Y	0.604		0.67		1.1	J	0.664		1.274		1.764	J
ISL-EA-159	85	90	Y	0.705		0.843		0.765	J	0.626		1.548		1.391	J
ISL-EA-159	90	95	Y	0.37		0.489		0.514	J	0.39	J	0.859		0.904	J
ISL-EA-159	95	100	Y	0.25		0.482		0.433	J	0.545		0.732		0.978	J

Notes:  
U=non-detect  
J=estimated value

TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
ISL-EA-160	0	5	Y	0.849		0.503		0.722		0.325		1.352		1.047	
ISL-EA-160	5	10	Y	0.772		0.625		1.39		0.615		1.397		2.005	
ISL-EA-160	10	15	Y	0.788		0.929		0.691		0.672		1.717		1.363	
ISL-EA-160	15	20	Y	0.805		0.876		0.882		0.346		1.681		1.228	
ISL-EA-160	25	30	Y	0.715		0.549		0.96		0.491		1.264		1.451	
ISL-EA-160	25	30	Y	0.79		0.536		0.887		0.59		1.326		1.477	
ISL-EA-160	30	35	Y	0.705		0.766		0.895		0.562		1.471		1.457	
ISL-EA-160	35.2	35.7	N	0.501		0.514		2.12		0.252		1.015		2.372	
ISL-EA-160	40	45	Y	0.558		0.321		1.01		0.324		0.879		1.334	
ISL-EA-160	45	50	Y	1.34		0.546		16.2		0.496		1.886		16.696	
ISL-EA-160	50	55	Y	0.729		0.51		6.27		0.345		1.239		6.615	
ISL-EA-160	55	60	Y	1.07		0.921		12.9		0.6		1.991		13.5	
ISL-EA-160	60	65	Y	1.93		0.466		75.5		0.566		2.396		76.066	
ISL-EA-160	65	70	Y	1.37		0.602		38.4		0.565		1.972		38.965	
ISL-EA-160	70	75	Y	0.966		1		1.25		0.864		1.966		2.114	
ISL-EA-160	75	80	Y	0.546		0.374		0.724		0.408		0.92		1.132	
ISL-EA-160	80	85	Y	0.22		0.439		0.5		0.365		0.659		0.865	
ISL-EA-160	85	90	Y	0.303		0.287		0.268		0.151		0.59		0.419	

Notes:  
U=non-detect  
J=estimated value

TABLE A1-1 ANALYTICAL DATA FOR ISL, CD AND AREA 2 PERIMETER BORINGS

Location ID	START DEPTH BGS	END DEPTH BGS	COMPOSITE (Y/N)	RADIUM-226 pCi/g		RADIUM-228 pCi/g		THORIUM-230 pCi/g		THORIUM-232 pCi/g		Combined Radium pCi/g		Combined Thorium pCi/g	
ISL-EA-161	0	5	Y	1.12		1.32		1.11		1.14		2.44		2.25	
ISL-EA-161	5	10	Y	1.13		1.06		1.72		0.904		2.19		2.624	
ISL-EA-161	10	15	Y	0.681		0.232		0.868		0.181	U	0.913		0.9585	
ISL-EA-161	10	15	Y	0.81		0.203		0.834		-0.137	U	1.013		0.7655	
ISL-EA-161	15	20	Y	0.612		0.5		2.18		0.262	U	1.112		2.311	
ISL-EA-161	20	25	Y	1.05		0.858		1.29		0.775		1.908		2.065	
ISL-EA-161	25	30	Y	1.09		1.36		1.36		1.14		2.45		2.5	
ISL-EA-161	30	35	Y	0.6		0.675		1.17		0.705		1.275		1.875	
ISL-EA-161	35	40	Y	0.972		1.3		0.817		1.02		2.272		1.837	
ISL-EA-161	40	45	Y	0.5		0.813		0.514		0.597		1.313		1.111	
ISL-EA-161	45	48	Y	0.37		0.612		0.308		0.79		0.982		1.098	

Notes:  
U=non-detect  
J=estimated value



**TABLE A1-2 PROPOSED ADDITIONAL BORING SAMPLE COLLECTION DETAIL**

Area	Easting (Local Site Coordinates)	Northing (Local Site Coordinates)	Location ID	Interior & Thorium-Driven Borings	Hybrid Borings	Perimeter Borings Within Waste	Perimeter Borings Outside Waste	Enclosure A Borings	Waste Characterization Samples	Standpipe Well Installation	Estimated Total Boring Depth (feet B2005GS)	Total Laboratory Analytical Samples	Total Geotechnical Samples	Core Scan Interval (feet B2005GS)	Downhole Gamma Interval (feet B2005GS)	Random Start Percentages (quarters)
CD	515416	1070071	A2-PB-142A			X					60	20		0 - 60	0 - 25	100
CD	515286	1070004	A2-PB-143A			X					60	20		0 - 60	0 - 25	75
CD	515260	1069860	A2-PB-145A			X					60	20		0 - 60	0 - 60	75
ISL	515086	1069391	A2-PB-146A			X					80	26		0 - 80	0 - 80	25
ISL	514724	1069223	A2-PB-148A			X					100	32		0 - 100	0 - 100	75
ISL	514548	1069174	A2-PB-149A			X					60	20		0 - 60	0 - 60	25
ISL	514849	1069274	A2-PB-151A			X					100	32		0 - 100	0 - 100	50
ISL	515002	1069343	A2-PB-152A			X					80	26		0 - 80	0 - 80	25
CD	515454	1070173	A2-PB-157A			X					60	20		0 - 60	0 - 60	75
ISL	515172	1069406	ISL-EA-154A					X			80	26		0 - 80	0 - 80	50
ISL	515217	1069487	ISL-EA-154B						X		25	14		0 - 25	0 - 25	50
CD	515782	1070302	CD-EA-165					X			60	20		0 - 60	0 - 25	25
CD	515648	1070104	CD-EA-166					X			60	20		0 - 60	0 - 25	75
CD	515503	1069976	CD-EA-167					X			60	20		0 - 60	0 - 25	100
ISL	515208	1068982	ISL-EA-168					X			100	32		0 - 100	0 - 25	100
ISL	515003	1068961	ISL-EA-169					X			100	32		0 - 100	0 - 25	50
ISL	514779	1068833	ISL-EA-170					X			100	32		0 - 100	0 - 25	25
ISL	515019	1068638	ISL-EA-171					X			100	32		0 - 100	0 - 25	50
ISL	515170	1068683	ISL-EA-172					X			80	26		0 - 80	0 - 25	25
ISL	515429	1068735	ISL-EA-173					X			60	20		0 - 60	0 - 25	100
CD	515687	1069378	CD-EA-174					X			40	15		0 - 40	0 - 25	75
CD	515832	1069479	CD-EA-175					X			40	15		0 - 40	0 - 25	25
CD	515702	1069744	CD-EA-176					X			40	15		0 - 40	0 - 25	75
<b>TOTAL BORING/ SAMPLE COUNT</b>	-	-	<b>23</b>			<b>9</b>	<b>1</b>	<b>13</b>			-	<b>535</b>		-	-	-

**Notes:**

- Total depth of perimeter borings proposed within waste will ultimately be determined in the field based on observations of waste thickness. Borings will be installed through the full extent of waste and 5-feet into native soils.
- Sample counts do not include replicate samples which will be collected at a frequency of 1 pair (2 samples) per 20 normal samples for interior/thorium borings, and at a frequency of 1 per boring in perimeter borings.
- Sample counts do not include follow-up samples that may be collected as a result of step-outs, or from resampling due to replicate failure.
- All sample counts are estimates and may vary based on field conditions (e.g. core recovery).