REVISION 0

NORTH ST. LOUIS COUNTY SITES ANNUAL ENVIRONMENTAL MONITORING DATA AND ANALYSIS REPORT FOR CALENDAR YEAR 2019

ST. LOUIS, MISSOURI

JULY 6, 2020

U.S. Army Corps of Engineers
St. Louis District Office
Formerly Utilized Sites Remedial Action Program

REVISION 0

NORTH ST. LOUIS COUNTY SITES ANNUAL ENVIRONMENTAL MONITORING DATA AND ANALYSIS REPORT FOR CALENDAR YEAR 2019

ST. LOUIS, MISSOURI

JULY 6, 2020

prepared by

U.S. Army Corps of Engineers St. Louis District Office
Formerly Utilized Sites Remedial Action Program

with assistance from

Leidos, Inc.
under Contract No. W912P9-17-D-0014, Delivery Order 0003

TABLE OF CONTENTS

SECTION **PAGE**

TABLE OF CONTENTS (Continued)

TABLE OF CONTENTS (Continued)

LIST OF TABLES

LIST OF TABLES (Continued)

NUMBER **PAGE**

LIST OF FIGURES

LIST OF FIGURES (Continued)

NUMBER

LIST OF APPENDICES

BACK COVER

ACRONYMS AND ABBREVIATIONS

Ac	actinium
AEC	Atomic Energy Commission
Am	americium
amsl	above mean sea level
ARAR	applicable or relevant and appropriate requirement
ATD	alpha track detector
bgs	below ground surface
BMP	best management practice
BOD	biological oxygen demand
BTOC	below top of casing
CEDE	committed effective dose equivalent
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	*Code of Federal Regulations*
COC	contaminant of concern
COD	chemical oxygen demand
Cs	cesium
CSR	*Code of State Regulations*
CWC	Coldwater Creek
CY	calendar year
DCF	dose conversion factor
DHSS	Department of Health and Senior Services
DL	detection limit
DO	dissolved oxygen
DOD	U.S. Department of Defense
DOE	U.S. Department of Energy
DQO	data quality objective
EDE	effective dose equivalent
EE/CA	engineering evaluation/cost analysis
ELAP	Environmental Laboratory Accreditation Program
EM	Engineer Manual
EMDAR	Environmental Monitoring Data and Analysis Report
EMG	*Environmental Monitoring Guide for the St. Louis Sites*
EMICY19	*Environmental Monitoring Implementation Plan for the North St. Louis County Sites for CY 2019*
EMP	Environmental Monitoring Program
FUSRAP	Formerly Utilized Sites Remedial Action Program
Futura	Futura Coatings Company
HISS	Hazelwood Interim Storage Site
HZ	hydrostratigraphic zone
I	Interstate
IA	investigation area
ICP	inductively coupled plasma
ICRP	International Commission on Radiation Protection
K	potassium
KPA	kinetic phosphorescence analysis

ACRONYMS AND ABBREVIATIONS (Continued)

LCL_{95}	95 percent lower confidence limit
MARSSIM	*Multi-Agency Radiation Survey and Site Investigation Manual*
MDA	minimum detectable activity
MDC	minimum detectable concentration
MDL	method detection limit
MDNR	Missouri Department of Natural Resources
MED	Manhattan Engineer District
MSD	Metropolitan St. Louis Sewer District
NAD	normalized absolute difference
NC	North St. Louis County
NCRP	National Council on Radiation Protection and Measurement
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRC	U.S. Nuclear Regulatory Commission
ORNL	Oak Ridge National Laboratory
ORP	oxidation reduction potential
Pa	protactinium
PCB	polychlorinated biphenyl
PDI	pre-design investigation
QA	quality assurance
QAPP	quality assurance program plan
QC	quality control
QSM	*Department of Defense (DoD)/Department of Energy (DOE) Consolidated Quality Systems Manual (QSM) for Environmental Laboratories*
Ra	radium
RA	remedial action
RCRA	Resource Conservation and Recovery Act
RG	remediation goal
RL	reporting limit
RME	reasonably maximally exposed
Rn	radon
ROD	*Record of Decision for the North St. Louis County Sites*
RPD	relative percent difference
S	test statistic
SAG	*Sampling and Analysis Guide for the St. Louis Sites*
SLAPS	St. Louis Airport Site
SLS	St. Louis Sites
SOP	standard operating procedure
SOR	sum of ratios
SS	settleable solid
SU	survey unit
SVP	St. Louis Airport Sites vicinity property (sample prefix designation)
TEDE	total effective dose equivalent
Th	thorium
TLD	thermoluminescent dosimeter
TPH	total petroleum hydrocarbon

ACRONYMS AND ABBREVIATIONS (Continued)

TSS	total suspended solid
U	uranium
UCL	upper confidence limit
UCL_{95}	95 percent upper confidence limit
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
VQ	validation qualifier
VP	vicinity property
WRS	Wilcoxon Rank Sum

UNIT ABBREVIATIONS

Both English and metric units are used in this report. The units used in a specific situation are based on common unit usage or regulatory language (e.g., depths are given in feet, and areas are given in square meters). Units included in the following list are not defined at first use in this report.

°C	degree(s) Celsius (centigrade)
µCi/mL	microcurie(s) per milliliter
µg/L	microgram(s) per liter
µR	microRoentgen(s)
µS/cm	microSiemen(s) per centimeter
Ci	curie(s)
ft	foot/feet
g	gram(s)
L	liter(s)
m	meter(s)
m^2	square meter(s)
mg	milligram(s)
mg/kg	milligram(s) per kilogram
mg/L	milligram(s) per liter
MGD	million gallons per day
mL	milliliter(s)
mL/L/hour	milliliter(s) per liter per hour
mrem	millirem
mrem/pCi	millirem per picocurie
mV	millivolt(s)
NTU	nephelometric turbidity unit
pCi/µg	picocurie(s) per microgram
pCi/g	picocurie(s) per gram
pCi/L	picocurie(s) per liter
pS/cm	picoSiemens per centimeter
s.u.	standard unit
WL	working level
WLM	working level month
yd^3	cubic yard(s)

EXECUTIVE SUMMARY

This annual Environmental Monitoring Data and Analysis Report (EMDAR) for calendar year (CY) 2019 applies to the North St. Louis County (NC) Sites, which are within the St. Louis Sites (SLS) (Figure 1-1) and under the scope of the Formerly Utilized Sites Remedial Action Program (FUSRAP). This EMDAR provides an evaluation of the data collected as part of the implementation of the Environmental Monitoring Program (EMP) for the NC Sites. The NC Sites consist of the St. Louis Airport Site (SLAPS), SLAPS vicinity properties (VPs) (Figure 1-2), and the Latty Avenue Properties (i.e., the Hazelwood Interim Storage Site [HISS], Futura Coatings Company [Futura], and eight Latty Avenue Vicinity Properties [VPs]) (Figure 1-3). Additional environmental data were collected along Coldwater Creek (CWC), which flows adjacent to the SLAPS, near the HISS, and north of U.S. Interstate (I)-270 to the Missouri River. Environmental monitoring of various media at each of the NC Sites is required in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the commitments in the *Record of Decision for the North St. Louis County Sites* (ROD) (USACE 2005).

The purpose of this EMDAR is:

1. to document the environmental monitoring activities, and
2. to assess whether remedial actions (RAs) had a measurable environmental impact by:
    a. reporting the current condition of the NC Sites,
    b. summarizing the data collection effort for CY 2019, and
    c. providing an analysis of the environmental monitoring data to date.

The U.S. Army Corps of Engineers (USACE) St. Louis District collects comprehensive environmental data for decision-making and planning purposes. Environmental monitoring, performed as a Best Management Practice or as a component of RAs, serves as a critical component in the evaluation of the current status and potential future migration of residual contaminants.

All environmental monitoring required through implementation of the *Environmental Monitoring Implementation Plan for the North St. Louis County Sites for CY 2019* (EMICY19) (USACE 2018a) was conducted as planned during CY 2019. The evaluation of environmental monitoring data for all NC Sites demonstrates compliance with ROD (USACE 2005) goals and applicable or relevant and appropriate requirements (ARARs).

RADIOLOGICAL AIR MONITORING

Radiological air data were collected and evaluated at the NC Sites through airborne radioactive particulate, radon (indoor and outdoor), and gamma radiation monitoring, as required in the EMICY19 (USACE 2018a). In addition to being used for environmental monitoring purposes, radiological air data were also used as inputs to calculate the total effective dose equivalent (TEDE) to the reasonably maximally exposed (RME) member of the public for the NC Sites.

Each TEDE calculated for the RME individual at each NC Site was 2.2 mrem or less per year. The calculated TEDEs are compliant with the 100 mrem per year limit provided in 10 *Code of Federal Regulations (CFR)* 20.1301.

The radiological air monitoring results conducted at the NC Sites demonstrate compliance with all ARARs for the NC Sites. The ARARs are described in Tables 2-1 through 2-4 of the EMICY19 (USACE 2018a).

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM MONITORING

Discharge requirements for the NC Sites are currently set by the Missouri Department of Natural Resources (MDNR) National Pollutant Discharge Elimination System (NPDES) ARARs (permit-equivalent) document dated October 2, 1998 (MDNR 1998), and amended in a letter from the MDNR dated February 19, 2002 (MDNR 2002).

The storm-water sampling results for the NC Sites demonstrate compliance with the discharge limits described in Section 2.2.2 of the EMICY19 (USACE 2018a).

EXCAVATION-WATER DISCHARGE MONITORING AT THE NORTH ST. LOUIS COUNTY SITES

CY 2019 was the 18th year excavation water was treated and discharged from the NC Sites. Excavation water discharged from the NC Sites to the sanitary sewer system is subject to the requirements stated in the July 23, 2001, Metropolitan St. Louis Sewer District (MSD) authorization letter (MSD 2001) and the selenium discharge variance letter for the SLAPS dated February 10, 2005 (MSD 2005). This authorization was extended for 2 years through the issuance of a letter dated June 11, 2018, from Mr. Steve Grace to Mr. Bruce Munholand. This authorization expires on July 23, 2020 (MSD 2018a). The selenium discharge variance for the SLAPS was not utilized in CY 2019 (MSD 2005, 2012). There is no longer a requirement to analyze for barium, lead, or selenium after the first two batches from new investigative areas (MSD 2012).

Waste water from the USACE St. Louis District FUSRAP Radioanalytical Laboratory is discharged in accordance with the MSD discharge authorization letter dated February 7, 2018 (MSD 2018b). The special discharge authorization was extended to February 7, 2020.

The data collected at the NC Sites were compared to discharge limits described in Section 2.2.2 of the EMICY19 (USACE 2018a). During CY 2019, no exceedances of the discharge limits occurred at the USACE St. Louis FUSRAP laboratory or the NC Sites.

COLDWATER CREEK MONITORING

The CY 2019 CWC surface-water and sediment sampling events, which were completed in April and October of 2018, evaluated the physical, radiological, and chemical conditions in the creek. During the April and October sampling events, samples were collected at each of the eight surface-water and sediment sampling locations (C002 through C009). These sampling locations are shown on Figure 3-3.

Starting in CY 2019, surface-water samples were collected from CWC on a semi-annual basis during high-flow conditions as a best management practice (BMP) to determine if the creek is being measurably affected by COC migration. The high-flow surface-water sampling events are conducted at an upstream (C002), a midstream (C007), and a downstream (C009) location (Figure 3-3). This sampling is conducted soon after a precipitation event resulting in high-flow conditions.

The data collected were compared to the monitoring guidelines and/or remediation goals (RGs) described in Section 2.2.3 of the EMICY19 (USACE 2018a). The results of the surface-water and sediment sampling conducted in CWC demonstrate compliance with ARARs for the NC Sites.

GROUND-WATER MONITORING

Ground water was sampled during CY 2019 at the NC Sites following a protocol for individual wells and analytes. Ground water was analyzed for various radiological constituents and for inorganic parameters. Static ground-water elevations for all NC Site wells were measured quarterly.

The environmental sampling requirements and ground-water monitoring guidelines for each analyte are consistent with the EMICY19 (USACE 2018a) and were used for comparison and discussion purposes. The ROD ground-water monitoring guidelines (henceforth referred to as ROD guidelines) for assessing ground-water sampling data at the NC Sites (Latty Avenue Properties and the SLAPS and SLAPS VPs) are presented in Section 2.2.4 of the EMICY19 (USACE 2018a) and in Section 4.0 and Appendix F of this EMDAR. For those wells at which an analyte exceeded the ROD guidelines at least once during CY 2019 and sufficient data were available to evaluate trends, Mann-Kendall Trend Tests were completed to assess whether analyte concentrations were increasing or decreasing through time.

LATTY AVENUE PROPERTIES

Ground-water sampling was conducted at seven hydrostratigraphic zone (HZ)-A ground-water monitoring wells at the Latty Avenue Properties during CY 2019. Contaminant of concern (COC) concentrations in two wells (cadmium, molybdenum, and selenium in HISS-10; selenium in HW22) exceeded the ROD guideline in HZ-A ground water at the Latty Avenue Properties during CY 2019. Because a significant degradation of CWC surface water has not occurred and is not anticipated, no findings currently indicate significantly degraded ground-water conditions in HZ-A ground water, as defined by the ROD.

Ground-water samples were collected from one HZ-C well during CY 2019. Concentrations of all inorganic and radiological soil COCs were below the ROD ground-water guidelines in CY 2019 ground-water samples from the HZ-C well HW23.

The Mann-Kendall Trend Test was performed for two COCs in one HZ-A well (molybdenum in HISS-10 and selenium in HISS-10 and HW22) during CY 2019. A statistically significant increasing trend was identified for molybdenum concentrations in HISS-10, and no statistically significant trend was identified for selenium concentrations in HISS-10 and HW22.

Concentrations of all soil COCs were below the NC ROD ground-water criteria in CY 2019 ground-water samples from the HZ-C well HW23. Therefore, a trend analysis was not conducted for HZ-C ground water.

The potentiometric data indicate some mounding of HZ-A ground water at the HISS and Futura. Wells HISS-10 and HISS-17 have the highest potentiometric surface elevations, with lower ground-water elevations measured in the surrounding wells. At the western edge of the HISS and Futura, ground water in HZ-A flows to the west toward CWC.

The potentiometric surface of the HZ-C ground water at the Latty Avenue Properties is not well defined due to the limited data available for the deeper HZs. Based on measured ground-water elevations in the HZ-C monitoring well HW23 at the Latty Avenue Properties and several HZ-C wells located to the southwest at the SLAPS and SLAPS VPs, the flow direction in HZ-C ground water beneath the Latty Avenue Properties is generally toward the east-northeast.

ST. LOUIS AIRPORT SITE AND ST. LOUIS AIRPORT SITE VICINITY PROPERTIES

At the SLAPS and SLAPS VPs, nine ground-water wells were sampled for various parameters during CY 2019. Eight wells, screened in HZ-A, were sampled at the SLAPS and the adjacent SLAPS VP ballfields. Three inorganic analytes (chromium, nickel, and selenium) and one radiological contaminant (total uranium [U]) were detected in HZ-A ground water at concentrations in excess of the ROD guidelines. A comparison of the data indicates that only total U concentrations in PW46 exceeded the ROD guidelines for a period of at least 12 months or when measurement error is taken into account. Because a significant degradation of CWC surface water has not occurred and is not anticipated, no findings currently indicate significantly degraded ground-water conditions in HZ-A ground water, as defined by the ROD. However, because total U levels exceeded the ROD guidelines for a period of at least 12 months, monitoring will continue subject to subsequent CERCLA 5-year reviews.

During CY 2019, one well screened across the deeper HZs (HZ-C through HZ-E) was sampled at the SLAPS and SLAPS VPs. Concentrations of chromium and nickel exceeded ROD ground-water criteria in B53W07D ground water, a deeper HZ well, in CY 2019. Neither of these inorganic soil COCs exceeded their ROD guidelines for a period of at least 12 months in B53W07D. Because no soil COCs have statistically increased in ground water (relative to the well's historical data and accounting for uncertainty) for more than a 12-month period, no findings currently indicate significantly degraded ground-water conditions in HZ-C through HZ-E ground water at the SLAPS and SLAPS VPs.

The Mann-Kendall Trend Test was performed for chromium (B53W09S), nickel (B53W07S and B53W07D), and total U (PW46). No trend was observed for nickel in B53W07S or total U in PW46. Statistically significant increasing trends were observed for chromium concentrations in B53W09S and for nickel concentrations in B53W07D.

Potentiometric surface maps were created from ground-water elevations measured in May and November to illustrate ground-water flow conditions in wet and dry seasons. The potentiometric data indicate ground-water flow northwesterly toward CWC in the HZ-A at the SLAPS. The flow direction in the HZ-C ground water at the SLAPS is generally east or northeast.

1.0 HISTORICAL SITE BACKGROUND AND CURRENT SITE STATUS

1.1 INTRODUCTION

This annual Environmental Monitoring Data and Analysis Report (EMDAR) for calendar year (CY) 2019 applies to the North St. Louis County (NC) Sites, which are within the St. Louis Sites (SLS) (Figure 1-1), and under the scope of the Formerly Utilized Sites Remedial Action Program (FUSRAP). This EMDAR provides an evaluation of the data collected as part of the implementation of the Environmental Monitoring Program (EMP) for the NC Sites. The NC Sites consist of the St. Louis Airport Site (SLAPS), SLAPS vicinity properties (VPs) (Figure 1-2), and the Latty Avenue Properties (i.e., the Hazelwood Interim Storage Site [HISS], the Futura Coatings Company [Futura], and eight Latty Avenue VPs) (Figure 1-3). Additional environmental data were collected along Coldwater Creek (CWC), which flows adjacent to the SLAPS, near the HISS, and north of U.S. Interstate (I)-270 to the Missouri River. Environmental monitoring of various media at each of the NC Sites is required in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the *Record of Decision for the North St. Louis County Sites* (ROD) (USACE 2005).

1.2 PURPOSE

The purpose of this EMDAR is to document the environmental monitoring activities and to assess whether remedial actions (RAs) at the NC Sites had a measurable environmental impact. In addition, this EMDAR serves to enhance the reader's awareness of the current condition of the NC Sites, summarize the data collection efforts for CY 2019, and provide analysis of the CY 2019 environmental monitoring data results. This EMDAR presents the following information:

- Sample collection data for various media at each site and interpretation of CY 2019 EMP results;
- The compliance status of each site with federal and state applicable or relevant and appropriate requirements (ARARs) or other benchmarks (e.g., *Environmental Monitoring Implementation Plan for the North St. Louis County Sites for CY 2019* [EMICY19] [USACE 2018a]);
- Dose assessments for radiological contaminants as appropriate;
- A summary of trends based on changes in contaminant concentration, to support RAs, ensure public safety, and maintain surveillance monitoring requirements at each site; and
- The identification of data gaps and future EMP needs.

1.3 ST. LOUIS SITE PROGRAM AND SITE BACKGROUND

The FUSRAP was executed by the U.S. Atomic Energy Commission (AEC) in 1974 to identify, remediate, or otherwise control sites at which residual radioactivity remains from operations conducted for the Manhattan Engineer District (MED) and AEC during the early years of the nation's atomic energy program. The FUSRAP was continued by the follow-on agencies to the AEC until 1997, when the U.S. Congress transferred responsibility for the FUSRAP to the U.S. Army Corps of Engineers (USACE).

On October 4, 1989, the SLAPS, the HISS, and Futura were placed on the U.S. Environmental Protection Agency (USEPA) National Priorities List (NPL) under the site name "St. Louis

Airport/Hazelwood Interim Storage/Futura Coatings Co." (Comprehensive Environmental Response, Compensation, and Liability Information System [CERCLIS] No. MOD980633176). The three NPL sites have been involved with the following: refinement of uranium ores, production of uranium metal and compounds, uranium recovery from residues and scrap, and the storage and disposal of associated process byproducts.

Detailed descriptions and histories for each site can be found in the *Remedial Investigation Report for the St. Louis Site* (U.S. Department of Energy [DOE] 1994), *Remedial Investigation Addendum for the St. Louis Site* (DOE 1995), *St. Louis Airport Site (SLAPS) Interim Action Engineering Evaluation/Cost Analysis (EE/CA)* (DOE 1997), *Engineering Evaluation/Cost Analysis (EE/CA) and Responsiveness Summary for the St. Louis Airport Site (SLAPS)* (USACE 1998a), *Environmental Evaluation/Cost Analysis (EE/CA) for the Hazelwood Interim Storage Site (HISS)* (USACE 1998b), the *Environmental Monitoring Guide for the St. Louis Sites* (EMG) (USACE 1999a), and the ROD (USACE 2005).

During CY 2019, the following USACE documents were finalized for the NC Sites:

- *CY 2018 Fourth Quarter Laboratory QA/QC Report for the FUSRAP St. Louis Radioanalytical Laboratory & Associated Satellite Laboratories* (January);
- *Pre-Design Investigation Summary Report and Final Status Survey Evaluation for Coldwater Creek (CWC)-Floodplain Properties CWC-94, CWC-96, CWC-98, and Industrial Lane* (May 1);
- *Pre-Design Investigation Summary Report and Final Status Survey Evaluation for Vicinity Properties Seeger-1, Seeger-2, Seeger-3, Seeger-4, Romiss Court, and Jonas Place* (May 9);
- *Pre-Design Investigation Work Plan for Coldwater Creek North of St. Denis Bridge (May 10);*
- *Addendum to the Pre-Design Investigation Work Plan for Coldwater Creek North of St. Denis Bridge; St. Denis Bridge to St. Ferdinand Park (May 28);*
- *Pre-Design Investigation Summary Report and Final Status Survey Evaluation for Vicinity Properties Polson-1, Polson-2, Polson-3, Polson-4, Polson-5, Polson-6, Polson-7, Polson-8, North Interstate 170 Right-of-Way, and Heather Lane (June 11);*
- *North St. Louis County Sites Annual Environmental Monitoring Data and Analysis Report for CY 2018* (June 14);
- *CY 2019 First Quarter Laboratory QA/QC Report for the FUSRAP St. Louis Radioanalytical Laboratory & Associated Satellite Laboratories* (June);
- *CY 2019 Second Quarter Laboratory QA/QC Report for the FUSRAP St. Louis Radioanalytical Laboratory & Associated Satellite Laboratories* (August);
- *Pre-Design Investigation Summary Report and Final Status Survey Evaluation for Coldwater Creek (CWC)-Floodplain Properties CWC-144 through CWC-152 and Washington Street East of CWC* (August 14)*;*
- *Post-Remedial Action Report and Final Status Survey Evaluation for the Coldwater Creek (CWC)-Floodplain Properties CWC-83 through CWC-92 and Chez Vant Court* (September 26);

- *CY 2019 Third Quarter Laboratory QA/QC Report for the FUSRAP St. Louis Radioanalytical Laboratory & Associated Satellite Laboratories* (October);
- *Addendum to the Pre-Design Investigation Work Plan for Coldwater Creek North of St. Denis Bridge: St. Ferdinand Park to Jana School* (October 24); and
- *Environmental Monitoring Implementation Plan for the North St. Louis Sites for Calendar Year 2020* (December 23).

1.3.1 Latty Avenue Properties Calendar Year 2019 Remedial Actions

In CY 2019, RAs were not performed at the Latty Avenue Properties (Figure 1-2). No *Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)* (DOD 2000) Class 1, Class 2, or Class 3 verifications were performed at the Latty Avenue Properties in CY 2019. Verifications are performed to confirm the ROD remediation goals (RGs) were achieved. No characterization/ pre-design investigation (PDI) was performed on Latty Avenue in CY 2019.

1.3.2 St. Louis Airport Site and St. Louis Airport Site Vicinity Properties Calendar Year 2019 Remedial Actions

In CY 2019, RAs were performed at the following SLAPS-related VPs and investigation areas (IAs) (Figure 1-2): Eva Avenue and the IA-09 Ballfields. RAs at Eva Avenue resumed in the third quarter and were completed in the fourth quarter. RAs at IA-09 continued through the fourth quarter. During these RAs, 22,020 yd^3 of contaminated material were shipped from the SLAPS IAs and VPs via railcar to U.S. Ecology, Inc., in Idaho.

During CY 2019, MARSSIM Class 1 verifications were performed at Eva Avenue Properties (survey unit [SU]-1) and IA-09 (SU-06D and SU-16 through SU-20). MARSSIM Class 2 verifications were performed at IA-09 (overburden). MARSSIM Class 3 verifications were performed on CWC structures from St. Ferdinand Park to Jana School. Verifications were performed to confirm that ROD RGs were achieved.

Characterizations/PDIs were performed at the following SLAPS IAs and VPs in CY 2019: CWC and 67 adjacent floodplain properties and structures, VP-38, and the I-170 Right-of-Way.

In CY 2019, no Resource Conservation and Recovery Act (RCRA) hazardous waste was generated or shipped.

Three monitoring wells were decommissioned in CY 2019: B53W13S, B53W18S and B53W19S. B53W13S was decommissioned on November 19, 2019, B53W18S was decommissioned on November 27, 2019, and B53W19S was decommissioned on November 18, 2019.

In accordance with the Metropolitan St. Louis Sewer District (MSD) authorization letter, 4,232,020 gallons of excavation water were discharged from the NC Sites in CY 2019. Since the beginning of the project, 36,816,259 gallons have been treated and released to MSD from the NC Sites.

THIS PAGE INTENTIONALLY LEFT BLANK

2.0 EVALUATION OF RADIOLOGICAL AIR MONITORING DATA

This section documents environmental monitoring activities related to radiological air data. The radiological air monitoring conducted at the NC Sites is part of the EMP. Radiological air data are collected to evaluate the compliance status of each site with ARARs, to evaluate trends, and to perform dose assessments for radiological contaminants as appropriate at each site. Section 2.1 includes a description of the types of radiological air monitoring conducted at the NC Sites, potential sources of the contaminants to be measured (including natural background), and measurement techniques employed during CY 2019.

All radiological air monitoring required through implementation of the EMICY19 (USACE 2018a) was conducted as planned in CY 2019. The evaluations of radiological air monitoring data for all NC Sites demonstrate compliance with ARARs.

A total effective dose equivalent (TEDE) for the reasonably maximally exposed (RME) member of the public at each of the NC Sites was calculated by summing the dose due to gamma radiation, radiological air particulates, and radon, as applicable. The TEDE calculated for the RME individual at each of the NC Sites was less than or equal to 2.2 mrem per year. The calculated TEDE is compliant with the 100 mrem per year limit prescribed in 10 *Code of Federal Regulations (CFR)* 20.1301. Details of the radiological dose assessment (TEDE calculation) are presented in Section 6.0.

2.1 RADIOLOGICAL AIR MEASUREMENTS

The three types of radiological air monitoring conducted at the NC Sites in CY 2019 were gamma radiation, airborne radioactive particulates, and airborne radon. Sections 2.2 and 2.3 provide details of the air monitoring conducted at the Latty Avenue Properties and the SLAPS and SLAPS VPs.

2.1.1 Gamma Radiation

Gamma radiation is emitted from natural, cosmic, and manmade sources. The earth naturally contains gamma radiation-emitting substances, such as the uranium decay series, the thorium decay series, and potassium (K)-40. Cosmic radiation originates in outer space and filters through the atmosphere to the earth. Together, these two sources comprise the majority of natural gamma background radiation. The National Council on Radiation Protection and Measurements (NCRP) estimates that the total naturally occurring background radiation dose equivalent due to gamma exposure is 51 mrem per year, 20 mrem per year of which originates from sources on earth and 31 mrem per year of which originates from cosmic sources (NCRP 2009). The background monitoring location for the NC Sites (Figure 2-1) is reasonably representative of background gamma radiation for the St. Louis metropolitan area (Appendix B, Table B-3).

Gamma radiation was measured at the NC Sites in CY 2019 using thermoluminescent dosimeters (TLDs). TLDs were placed at site boundaries or at locations representative of areas accessible to the public (Figures 2-2 and 2-3) in order to provide input for calculation of TEDE.

The TLDs were placed at the monitoring location approximately 3 to 5 ft above the ground surface inside a housing shelter to represent whole body exposure. The TLDs were collected quarterly and sent to a properly certified, off-site laboratory for analysis (Appendix B, Table B-3).

2.1.2 Airborne Radioactive Particulates

2.1.2.1 Air Sampling

Airborne radioactive particulates result from radionuclides in soil that becomes suspended in the air. The radionuclides in soil normally become airborne as a result of wind erosion of the surface soil or as a result of soil disturbance (e.g., excavation). This airborne radioactive material includes naturally occurring background concentrations (Appendix B, Table B-1), as well as above-background concentrations of radioactive materials present at the NC Sites.

Airborne radioactive particulates were measured at the NC Sites by drawing air through a filter membrane with an air sampling pump placed approximately 3 to 5 ft above the ground (to represent the breathing zone) and then analyzing the material contained on the filter. The results of the analysis, when compared to the amount of air drawn through the filter, were reported as radioactive contaminant concentrations (i.e., µCi/mL). Particulate air monitors were located at excavation and loadout area perimeter locations [Figures 2-2 and 2-3]), as appropriate, to provide input for the National Emissions Standards for Hazardous Air Pollutants (NESHAP) Report and calculation of TEDE to the critical receptor. Air particulate samples were typically collected daily or the first working day after a weekend.

2.1.2.2 Estimation of Emissions in Accordance with the National Emission Standard for Hazardous Air Pollutants

The NC Sites CY 2019 NESHAP report (Appendix A) presents calculation of the effective dose equivalent (EDE) from radionuclide emissions to critical receptors in accordance with the NESHAP. The report is prepared in accordance with the requirements and procedures contained in 40 *CFR* 61, Subpart I.

Emission rates calculated using air sampling data, activity fractions, and other site-specific information were used as inputs to the USEPA CAP88-PC Version 4.1 computer code (USEPA 2020) to demonstrate compliance with the 10 mrem per year ARAR prescribed in 40 *CFR* 61, Subpart I.

CY 2019 monitoring results for the NC Sites demonstrate compliance with the 10 mrem per year ARAR prescribed in 40 *CFR* 61, Subpart I. See Appendix H for further details.

2.1.3 Airborne Radon

Uranium (U)-238 is a naturally occurring radionuclide commonly found in soil and rock. Radon (Rn)-222 is a naturally occurring radioactive gas found in the uranium decay series. A fraction of the radon produced from the radioactive decay of naturally occurring U-238 diffuses from soil and rock into the atmosphere, accounting for natural background airborne radon concentrations. The NCRP estimates the total naturally occurring background radiation dose equivalent due to radon exposure is 230 mrem per year (NCRP 2009). In addition to this natural source, radon is produced from the above-background concentrations of radioactive materials present at the NC Sites.

Outdoor airborne radon concentration is governed by the emission rate and dilution factors, both of which are strongly affected by meteorological conditions. Surface soil is the largest source of radon. Secondary contributors include oceans, natural gas, geothermal fluids, volcanic gases, ventilation from caves and mines, and coal combustion. Radon levels in the atmosphere have been observed to vary with height above the ground, season, time of day, and location. The primary meteorological parameter governing airborne radon concentration is atmospheric stability; however, the largest variations in atmospheric radon occur spatially (USEPA 1987).

Radon alpha track detectors (ATDs) were used at the NC Sites to measure alpha particles emitted from radon and its associated decay products. Radon ATDs were co-located with environmental TLDs approximately 3 to 5 ft above the ground surface (to represent the breathing zone) in housing shelters at the site boundaries or at locations representative of areas accessible to the public (Figures 2-2 and 2-3). Outdoor ATDs were collected approximately every 6 months and sent to a properly certified off-site laboratory for analysis (Appendix B, Table B-2). Recorded radon concentrations are listed in pCi/L and are used to provide input for calculation of TEDE.

At the NC Sites, ATDs were also placed in locations within applicable structures to monitor for indoor radon exposure. The ATDs were placed in areas that represent the highest likely exposure from indoor radon. ATD locations were chosen with consideration given to known radium (Ra)-226 concentrations under applicable buildings and occupancy time at any one location within each building (Figure 2-2). Annual average indoor radon data in each applicable building were compared to the 40 *CFR* 192.12(b)(1) ARAR value of 0.02 working level (WL). In accordance with 40 *CFR* 192.12(b)(1), reasonable effort shall be made to achieve, in each habitable or occupied building, an annual average (or equivalent) radon decay product concentration (including background) not to exceed 0.02 WL. In any case, the radon decay product concentration shall not exceed 0.03 WL. Background indoor radon monitors were not necessary, because the regulatory standard of 0.02 WL includes background. Indoor ATDs were also collected approximately every 6 months and sent to a properly certified off-site laboratory for analysis (Appendix B, Table B-2).

CY 2019 monitoring results for the NC Sites demonstrate compliance with the 0.02 WL ARAR prescribed by 40 *CFR* 192.12(b)(1). See Section 2.2.3 for further details.

2.2 LATTY AVENUE PROPERTIES

Radiological air particulate monitoring was not conducted at Latty Avenue Properties in CY 2019.

2.2.1 Evaluation of Gamma Radiation Data

External gamma radiation exposure from Latty Avenue Properties other than the VP-40A is considered negligible; therefore, environmental TLD monitoring was not conducted at Latty Avenue Properties other than VP-40A in 2019. Gamma radiation monitoring was performed at two locations along the railroad tracks on VP-40A (see Figure 2-2) and at the background location to compare on-site/off-site exposure and to provide input for calculation of TEDE to the critical receptor (Section 6.0) in CY 2019. A summary of TLD monitoring data for CY 2019 at VP-40A is shown in Table 2-1. TLD data are contained in Appendix B, Table B-3, of this EMDAR.

Table 2-1. Summary of VP-40A Gamma Radiation Data for CY 2019

Monitoring Location	Monitoring Station	First Quarter TLD Data		Second Quarter TLD Data		Third Quarter TLD Data		Fourth Quarter TLD Data		CY 2019 Net TLD Data (mrem/year)
		(mrem/quarter)								
		Rpt.	Cor.[a,b]	Rpt.	Cor.[a,b]	Rpt.	Cor.[a,b]	Rpt.	Cor.[a,b]	
VP-40A	FA-2	20	0.0	21.6	4.3	25.6	3.9	25.5	3.2	11.4
	FA-3	17.3	0.0	18.5	0.6	20.3	0.0	21.0	0.0	0.6
Background	BA-1	18.5	---	18.0	---	21.9	---	22.5	---	---

[a] All quarterly data reported from the vendor have been normalized to exactly one quarter's exposure above background.
[b] CY 2019 net TLD data are corrected for background, shelter absorption (s/a = 1.075), and fade.
--- Result calculation not required for background data.
Cor. – Corrected
Rpt. – Reported

2.2.2 Evaluation of Outdoor Airborne Radon Data

Outdoor exposure from Rn-222 from Latty Avenue Properties other than the VP-40A is considered negligible. Therefore, outdoor environmental Rn-222 monitoring was not conducted at Latty Avenue Properties other than VP-40A in 2019. For the Latty Avenue Properties, outdoor airborne radon monitoring was performed using ATDs placed along the railroad tracks on VP-40A. Two detectors were co-located with TLDs and an additional ATD was located just north of the other two ATDs, as identified on Figure 2-2. Background ATDs were used to compare on-site exposure and off-site background exposure. Outdoor airborne radon data was used as an input for calculation of TEDE to the critical receptor (Section 6). A summary of CY 2019 outdoor radon data at VP-40A is shown in Table 2-2. Outdoor ATD data are contained in Appendix B, Table B-2 of this EMDAR.

Table 2-2. Summary of VP-40A Outdoor Airborne Radon (Rn-222) Data for CY 2019

Monitoring Location	Monitoring Station	Average Annual Concentration (pCi/L)		
		01/03/19 to 07/01/19[a] (Uncorrected)	07/01/19 to 01/06/20[a] (Uncorrected)	Average Annual Concentration[b]
VP-40A	FA-1	0.28	0.20	0.04
	FA-2	0.21	0.20	0.00
	FA-3	0.31	0.30	0.11
Background	BA-1	0.20	0.20	---

[a] Detectors were installed and removed on the dates listed. Data are as reported from the vendor (gross data including background).
[b] Results reported from the vendor are typically time-weighted and averaged to estimate an annual average radon above-background concentration (in pCi/L).
--- Average annual concentration calculation not required for background.

2.2.3 Evaluation of Indoor Airborne Radon Data

Indoor radon monitoring was performed at Futura buildings using ATDs placed at several locations in each Futura building at a height of approximately 3 to 5 ft (to represent breathing zone conditions) to measure radon concentrations. The detectors were located as shown on Figure 2-2. The ATDs were installed in January of CY 2019 at each monitoring location, collected for analysis after approximately 6 months of exposure, and replaced with another set that represents radon exposure for the remainder of the year. Recorded radon concentrations (in pCi/L) were converted to a radon WL, and an indoor radon equilibrium factor of 0.4 (NCRP 1988) was applied.

The results (including background) were evaluated based on the criteria contained in 40 *CFR* 192.12(b)(1). The average annual radon concentration was less than the 40 *CFR* 192.12(b)(1) criterion of 0.02 WL in each building (Leidos 2020a). Table 2-3 includes additional details of the data and calculation methodology used to determine the indoor radon WL in the Futura buildings. Indoor ATD data are contained in Appendix B, Table B-2, of this EMDAR.

Table 2-3. Summary of Futura Indoor Airborne Radon (Rn-222) Data for CY 2019

Monitoring Location	Monitoring Station	Average Annual Concentration (pCi/L)				WL[d]
		01/03/19 to 07/01/19[a]	07/01/19 to 01/09/20[a]	Annual Average[b]	Building Average[c]	
Futura Building 1	HF-1	2.38	3.1	2.74	2.93	0.012
	HF-2	6.49	5.2	5.85		
	HF-3	[e]	0.2	0.20		

Table 2-3. Summary of Futura Indoor Airborne Radon (Rn-222) Data for CY 2019 (Continued)

Monitoring Location	Monitoring Station	Average Annual Concentration (pCi/L)				WL[d]
		01/03/19 to 07/01/19[a]	07/01/19 to 01/09/20[a]	Annual Average[b]	Building Average[c]	
Futura Building 2/3	HF-4	0.65	0.6	0.63	0.83	0.003
	HF-5	0.72	0.9	0.81		
	HF-6	0.61	0.9	0.76		
	HF-7	0.75	1.5	1.13		
Futura Building 4	HF-8	[e]	1.2	1.20	1.25	0.005
	HF-9	0.94	1.4	1.17		
	HF-10	1.28	1.5	1.39		

[a] Detectors were installed and removed on the dates listed. Data are as reported from the vendor.
[b] Results reported from the vendor for two periods are averaged to estimate an annual average radon above-background concentration (in pCi/L).
[c] In each building, the average annual result for each monitoring station within the building was used to calculate a building average.
[d] The average annual WL is calculated by dividing the average pCi/L by 100 pCi/L per WL and multiplying by 0.4. The average annual WL must be less than 0.02 (40 *CFR* 192.12(b)).
[e] Detector was missing when it was time to be removed for analysis.

2.3 SLAPS AND SLAPS VICINITY PROPERTIES

Radiological air monitoring was conducted at Eva Avenue, the Ballfields (IA-09), and the SLAPS Loadout Area at the SLAPS and SLAPS VPs in CY 2019.

2.3.1 Evaluation of Gamma Radiation Data

External gamma radiation exposure from the SLAPS VPs is considered negligible; therefore, environmental TLD monitoring was not conducted. Gamma radiation monitoring was performed at the SLAPS in CY 2019 at four site locations surrounding the SLAPS Loadout area (Figure 2-3) and at the background location (Figure 2-1) to compare on-site/off-site exposure and to provide input for calculation of TEDE to the critical receptor (Section 6.0). The EMP uses two TLDs at monitoring station PA-2 (for each monitoring period) to provide additional quality control (QC) of the monitoring data.

A summary of TLD monitoring results for CY 2019 at the SLAPS is shown in Table 2-4. TLD data are contained in Appendix B, Table B-3, of this EMDAR.

Table 2-4. Summary of SLAPS Gamma Radiation Data for CY 2019

Monitoring Location	Monitoring Station	First Quarter TLD Data		Second Quarter TLD Data		Third Quarter TLD Data		Fourth Quarter TLD Data		CY 2019 Net TLD Data (mrem/year)
		(mrem/quarter)								
		Rpt.	Cor.[a,b]	Rpt.	Cor.[a,b]	Rpt.	Cor.[a,b]	Rpt.	Cor.[a,b]	
SLAPS Perimeter	PA-1	16.8	0.0	17.8	0.0	20.7	0.0	22.7	0.2	0.2
	PA-2	21.3	1.9	20.7	3.2	23.1	1.3	26.3	4.0	10.4
	PA-2 dup[c]	20.1	1.0	21.5	4.2	25.6	3.9	25.9	3.6	12.7
	PA-3	19.3	0.0	19.2	1.4	22.3	0.4	23.9	1.5	3.3
	PA-4	22.8	4.1	23.9	7.0	26.9	5.3	28.2	6.0	22.4
Background	BA-1	18.5	---	18.0	---	21.9	---	22.5	---	20.2

[a] All quarterly data reported from the vendor have been normalized to exactly one quarter's exposure.
[b] CY 2019 net TLD data are corrected for background, shelter absorption (s/a = 1.075), and fade.
[c] A QC duplicate is collected at the same time and location, and is analyzed by the same method for evaluating precision in sampling and analysis. Duplicate sample results were not included in calculations.
--- Result calculations are not required.
Cor. – Corrected
Rpt. – Reported

2.3.2 Evaluation of Airborne Radioactive Particulate Data

For the SLAPS and SLAPS VPs, air sampling for particulate radionuclides was conducted at the perimeter of each active excavation and loadout area throughout CY 2019. Air particulate data were used as inputs to the NESHAP report (Appendix A) and calculation of TEDE to the critical receptor (Section 6.0).

A summary of air particulate monitoring data for the SLAPS and SLAPS VPs is shown in Table 2-5. Airborne radioactive particulate data are contained in Appendix B, Table B-4, of this EMDAR.

Table 2-5. Summary of SLAPS Airborne Radioactive Particulate Data for CY 2019

Monitoring Location	Average Concentration (μCi/mL)[a]	
	Gross Alpha	Gross Beta
Eva Avenue	3.41E-15	2.95E-14
Ballfields (IA-09)	3.68E-15	2.86E-14
SLAPS Loadout	3.36E-15	2.73E-14
Background Concentration[b]	3.91E-15	1.98E-14

[a] Average concentration values for the sampling period by location.
[b] These concentrations are provided for informational purposes only.

2.3.3 Evaluation of Outdoor Airborne Radon Data

Exposure to Rn-222 from the SLAPS VPs is considered negligible; therefore, outdoor environmental Rn-222 monitoring was not conducted. Outdoor airborne radon monitoring was performed at the SLAPS using ATDs placed around the loadout area to measure radon emissions from the site. Four detectors were co-located with TLDs, as identified on Figure 2-3. One additional detector was located at monitoring station PA-2 as a QC duplicate. A background ATD was used to compare on-site exposure and off-site background exposure. Outdoor airborne radon data were used as an input for calculation of TEDE to the critical receptor (Section 6.0).

A summary of CY 2019 outdoor radon data at the SLAPS is shown in Table 2-6. Outdoor ATD data are contained in Appendix B, Table B-2, of this EMDAR.

Table 2-6. Summary of SLAPS Outdoor Airborne Radon (Rn-222) Data for CY 2019

Monitoring Location	Monitoring Station	Average Annual Concentration (pCi/L)		
		01/09/18 to 07/03/18[a] (Uncorrected)	07/03/18 to 01/03/19[a] (Uncorrected)	Average Annual Concentration[b]
SLAPS Perimeter	PA-1	0.2	0.2	0.0
	PA-2	0.2	0.2	0.0
	PA-2[c]	0.2	0.2	---
	PA-3	0.2	0.2	0.0
	PA-4	0.2	0.2	0.0
Background	BA-1	0.2	0.2	---

[a] Detectors were installed and removed on the dates listed. Data are as reported from the vendor (gross data including background).
[b] Results reported from vendor for two periods are time-weighted and averaged to estimate an annual average radon above-background concentration (in pCi/L).
[c] A QC duplicate is collected at the same time and location, and is analyzed by the same method for evaluating precision in sampling and analysis.
--- Result calculations are not required.

3.0 EVALUATION OF EXCAVATION-WATER, STORM-WATER, SURFACE-WATER, AND SEDIMENT MONITORING DATA

This section provides a description of the excavation-water, storm-water, surface-water, and sediment monitoring activities conducted at the NC Sites, including the monitoring of CWC, in CY 2019. The results obtained from these monitoring activities are presented and evaluated with respect to historical data and the appropriate discharge limits as described in the EMICY19 (USACE 2018a).

Section 2.2.2 of the EMICY19 outlines the discharge limits for the storm-water and excavation-water discharged at each site (USACE 2018a). The MSD has issued discharge authorization letters for the NC Sites that established discharge-limit-based criteria (MSD 1998, 2001, 2006, 2008, 2010, 2012, 2014, 2016, 2018a). The pollutants addressed for all NC Sites are identified in Table 2-5 of the EMICY19 (USACE 2018a). The pollutants addressed in the National Pollutant Discharge Elimination System (NPDES) permit equivalent for the SLAPS will be applied at all NC Sites and are identified in Table 2-6 of the EMICY19 (USACE 2018a). For cases in which the regulatory authorities have not provided radiological contaminant of concern (COC) discharge limits, the 10 *CFR* 20, Appendix B, water effluent values are used to calculate the sum of ratios (SOR) value for each discharge. Additionally, the SOR aids in the establishment of water management protocols. The Missouri Department of Natural Resources (MDNR) has also issued an ARAR document outlining limits for the storm-water outfalls at the SLAPS (MDNR 1998).

3.1 LABORATORY DISCHARGE, EXCAVATION-WATER, AND STORM-WATER DISCHARGE MONITORING

This section provides a description of the laboratory discharge water, excavation-water, and storm-water monitoring activities conducted at the NC Sites in CY 2019. The monitoring results obtained from these activities are presented and compared with the various authorization letters or permit-equivalent limits as presented in the EMICY19 (USACE 2018a). The purpose of discharge monitoring at the NC Sites is to maintain compliance with the specific discharge requirements for each respective site.

3.1.1 Metropolitan St. Louis Sewer District Special Discharge Approval for the On-Site USACE St. Louis District FUSRAP Radioanalytical Laboratory

The USACE owns the on-site laboratory located at 8945 Latty Avenue in Hazelwood, Missouri. The laboratory operates in accordance with an MSD special discharge approval. The USACE St. Louis FUSRAP laboratory waste-water is discharged to MSD manhole 10K2-075S, which is shown on Figure 3-1. The MSD special discharge approval requires compliance with applicable discharge regulations (Ordinance 8472) (MSD 1991). The current special discharge approval extension was renewed on February 7, 2018, and expires February 7, 2020 (MSD 2018b).

3.1.2 Evaluation of Storm-Water Discharge Monitoring Results

In CY 2019, storm-water monitoring at the SLAPS was conducted to verify compliance with NPDES permit-equivalent requirements. There is one NPDES outfall located at the SLAPS. This outfall has been assigned the station identification PN02 for Outfall 002. PN02 is located at the termination of a drainage feature that conveys storm water along the north side of James S McDonnell Boulevard to CWC (Figure 3-2).

In conjunction with the construction of a sedimentation basin during CY 1998, the MDNR issued discharge sampling requirements for three outfalls (PN01 [now terminated], PN02, and PN03 [now terminated]). The ARAR permit-equivalent document (MDNR 1998) requires monthly monitoring for flow, oil and grease, total petroleum hydrocarbons (TPHs), pH, settleable solids (SSs), and polychlorinated biphenyls (PCBs), as well as total recoverable arsenic, chromium, and cadmium. In addition, effluent monitoring for gross alpha, gross beta, protactinium (Pa)-231, actinium (Ac)-227, total Ra, total thorium (Th), and total U is required for each discharge event. Effluent monitoring for radon is required twice per year, but no monitoring events were performed in CY 2019. As outlined in a letter from the USACE to the MDNR dated November 18, 2003, chemical oxygen demand (COD) monitoring has been modified from quarterly to annually (USACE 2003).

On February 19, 2002, the MDNR issued a letter to the USACE conditionally agreeing with a request to reduce the sampling frequency at PN02 to once per year, effective February of 2002 until the drainage area becomes affected by soil disturbance such as excavation (MDNR 2002). The condition of the agreement is that the MDNR be notified prior to the soil in the area being disturbed. Sampling frequency at PN02 was temporarily reduced to annually, per USACE email on February 8, 2018. On April 19, 2018, USACE notified MDNR that the sampling frequency at PN02 was increased from annually (MDNR 2002) to monthly because remediation resumed at IA-09 (Ballfields). These emails are contained in Appendix C.

During 2019, un-named moving pumping outfalls were not utilized for the management of storm water with regard to sediment control and pumped excavation water. Moving outfalls are necessary to pump excess excavation water, which cannot be contained due to geographic conditions, to CWC. The excess excavation water is pumped to CWC in accordance with agreements made during a March 12, 2007, meeting with Mr. Tom Siegel of the MDNR, and as described in a subsequent letter from the USACE dated April 20, 2007 (USACE 2007). Excavation water sampling is conducted to verify compliance with the NPDES permit-equivalent requirements. The discharge parameters for the un-named outfalls follow the same NPDES parameters as Outfall 002.

Analytical results for the NC Sites are contained in Appendix C, Table C-1. Quarterly summaries of the CY 2019 storm-water monitoring events for the NC Sites are presented in the following subsections. NC Site storm-water monitoring results for CY 2019 are contained in Tables 3-1.

During CY 2019, rainfall data were obtained for the National Weather Service Lambert – St. Louis International Weather Station (Weather Underground, Inc. 2019), which is located adjacent to the NC Sites. Daily flow and rainfall data are contained in Appendix C, Table C-2.

First Quarter

During the first quarter (January, February, and March) of CY 2019, all NPDES sample results were in compliance with permit-equivalent requirements (Table 3-1). During the first quarter, five sampling events were conducted at Outfall PN02.

Second Quarter

During the second quarter (April, May, and June) of CY 2019, all NPDES sample results were in compliance with permit-equivalent requirements (Table 3-2). During the second quarter, four sampling events were conducted at Outfall PN02.

Table 3-1. First Quarter CY 2019 NPDES Sampling Event[a]

Monitoring Parameter	Final Effluent Limitations		Units	Analytical Results				
				Outfall 002				
				Chemical Parameters				
	Daily Maximum	Monthly Average		January	February	March		
Flow	Monitor only	Monitor only	MGD	f	f	f		
Oil and Grease	15	10	mg/L	f	f	f		
TPHs	10	10	mg/L	f	f	f		
pH-Units	6.0-9.0	NA	s.u.	f	f	f		
COD[b]	120	90	mg/L	f	f	f		
SSs[c]	1.5	1.0	mL/L/hour	f	f	f		
Arsenic, Total Recoverable	100	100	µg/L	f	f	f		
Lead, Total Recoverable[d]	190	190	µg/L	f	f	f		
Chromium, Total Recoverable	280	280	µg/L	f	f	f		
Copper, Total Recoverable[d]	84	84	µg/L	f	f	f		
Cadmium, Total Recoverable	94	94	µg/L	f	f	f		
PCBs	No release	No release	µg/L	f	f	f		
Event Sampling Date				Radiological Parameters[g,h,i]				
				Event 1	Event 2	Event 3	Event 4	Event 5
				01/19/19	01/23/19	02/06/19 to 02/07/19	03/09/19	03/30/19
Total U[j,k]	Monitor only	Monitor only	µg/L	-6.E-01	-9.E-01	-3.E-01	-4.E-01	-2.E+00
Total Ra[j,k]	Monitor only	Monitor only	µg/L	-2.E-07	1.E-07	4.E-07	6.E-07	4.E-07
Total Th[j,k]	Monitor only	Monitor only	µg/L	2.E-05	2.E+00	2.E+00	5.E+00	1.E+00
Gross Alpha[j]	Monitor only	Monitor only	pCi/L	-2.E+00	-2.E+00	-3.E+00	5.E+00	-2.E+00
Gross Beta[j]	Monitor only	Monitor only	pCi/L	2.E+00	-2.E-01	3.E+00	-4.E-01	8.E+00
Pa-231[j]	Monitor only	Monitor only	pCi/L	-2.E+01	-2.E+01	-9.E-01	-3.E+01	2.E+00
Ac-227[j]	Monitor only	Monitor only	pCi/L	-1.E+01	-1.E+01	-1.E+01	-1.E+01	-2.E+01
Radon (semi-annual monitoring)	Monitor only	Monitor only	pCi/L	l	l	l	l	l

[a] A rainfall event is defined as a measurable increase in discharge rate from precipitation producing 0.1 inch or more of liquid in a 24-hour period that may also exceed the duration of 24 hours; two events experienced within 48 hours may be reported together.
[b] Per the USACE letter dated November 18, 2003, the COD sampling requirement has been reduced from quarterly to annual sampling (USACE 2003).
[c] Detection limit (DL) = 0.1 mL/L/hour.
[d] Lead and copper sampling are no longer necessary per the ROD.
[e] No sample is required, because no rain events producing measurable flow offsite occurred, and no pumping activities were performed.
[f] No pumping activities occurred, so only radiological samples were collected during natural flow.
[g] Value reported is based on a volume-weighted average of analyte activity concentrations for samples collected during the defined event. Corresponding radiological samples were collected on the same date as chemical samples; however, the radiological results are incorporated into the volume-weighted average for the specified event.
[h] Negative results are less than the laboratory system's background level.
[i] Ra-228 and Th-228 are assumed to be in secular equilibrium with Th-232; therefore, Th-232 results are used to estimate Ra-228 and Th-228 values.
[j] As specified in the permit-equivalent, radionuclides require monitoring only, and limits are not permit-specified.
[k] Total nuclide values (in µg/L) were calculated using the activity concentration values reported by the laboratory and values for specific activity listed in Table 8.4.1 of *The Health Physics and Radiological Health Handbook* (Shleien 1992).
[l] Semi-annual reporting requirement only.
[m] The settleable solid values ranged from 0 to 0.10 with the weighted average of less than 0.1 ml/L/hr.
NA – not applicable

Table 3-2. Second Quarter CY 2019 NPDES Sampling Event[a]

Monitoring Parameter	Final Effluent Limitations		Units	Analytical Results			
				Outfall 002			
	Daily Maximum	Monthly Average		Chemical Parameters			
				April	May	June	
Flow	Monitor only	Monitor only	MGD	[f]	0.031	[e]	
Oil and Grease	15	10	mg/L	[f]	<1.6	[e]	
TPHs	10	10	mg/L	[f]	<2.7	[e]	
pH-Units	6.0-9.0	NA	s.u.	[f]	6.81	[e]	
COD[b]	120	90	mg/L	[f]	52	[e]	
SSs[c]	1.5	1.0	mL/L/hour	[f]	<0.1[m]	[e]	
Arsenic, Total Recoverable	100	100	µg/L	[f]	0.98	[e]	
Lead, Total Recoverable[d]	190	190	µg/L	[f]	[d]	[e]	
Chromium, Total Recoverable	280	280	µg/L	[f]	1.60	[e]	
Copper, Total Recoverable[d]	84	84	µg/L	[f]	[d]	[e]	
Cadmium, Total Recoverable	94	94	µg/L	[f]	<0.27	[e]	
PCBs	No release	No release	µg/L	[f]	<0.11	[e]	
Event Sampling Date				Radiological Parameters[g,h,i]			
				Event 1	Event 2	Event 3	Event 4
				04/18/19	04/24/19	05/01/19 to 05/02/19	05/06/19 to 05/07/19
Total U[j,k]	Monitor only	Monitor only	µg/L	-2.E+00	3.E-01	-2.E-03	2.E+01
Total Ra[j,k]	Monitor only	Monitor only	µg/L	-2.E-07	4.E-07	8.E-07	-8.E-08
Total Th[j,k]	Monitor only	Monitor only	µg/L	4.E+00	4.E-01	4.E+00	2.E+00
Gross Alpha[j]	Monitor only	Monitor only	pCi/L	-1.E+00	5.E+00	1.E+00	1.E+01
Gross Beta[j]	Monitor only	Monitor only	pCi/L	8.E+00	5.E+00	8.E+00	1.E+01
Pa-231[j]	Monitor only	Monitor only	pCi/L	2.E+01	-1.E+01	4.E+01	2.E+01
Ac-227[j]	Monitor only	Monitor only	pCi/L	-2.E+01	-1.E+01	-2.E+01	-1.E+01
Radon (semi-annual monitoring)	Monitor only	Monitor only	pCi/L	[l]	[l]	[l]	[l]

[a] A rainfall event is defined as a measurable increase in discharge rate from precipitation producing 0.1 inch or more of liquid in a 24-hour period that may also exceed the duration of 24 hours; two events experienced within 48 hours may be reported together.
[b] Per the USACE letter dated November 18, 2003, the COD sampling requirement has been reduced from quarterly to annual sampling (USACE 2003).
[c] DL = 0.1 mL/L/hour.
[d] Lead and copper sampling are no longer necessary per the ROD.
[e] No sample is required, because no rain events producing measurable flow offsite occurred, and no pumping activities were performed.
[f] No pumping activities occurred, so only radiological samples were collected during natural flow.
[g] Value reported is based on a volume-weighted average of analyte activity concentrations for samples collected during the defined event. Corresponding radiological samples were collected on the same date as chemical samples; however, the radiological results are incorporated into the volume-weighted average for the specified event.
[h] Negative results are less than the laboratory system's background level.
[i] Ra-228 and Th-228 are assumed to be in secular equilibrium with Th-232; therefore, Th-232 results are used to estimate Ra-228 and Th-228 values.
[j] As specified in the permit-equivalent, radionuclides require monitoring only, and limits are not permit-specified.
[k] Total nuclide values (in µg/L) were calculated using the activity concentration values reported by the laboratory and values for specific activity listed in Table 8.4.1 of *The Health Physics and Radiological Health Handbook* (Shleien 1992).
[l] Semi-annual reporting requirement only.
[m] The settleable solid values ranged from 0 to 0.10 with the weighted average of less than 0.1 ml/L/hr.
NA – not applicable

Third Quarter

During the third quarter (July, August, and September) of CY 2019, all NPDES sample results were in compliance with permit-equivalent requirements (Table 3-3). During the third quarter, two sampling events were conducted at Outfall PN02.

Fourth Quarter

During the fourth quarter (October, November, and December) of CY 2019, all NPDES sample results were in compliance with permit-equivalent requirements (Table 3-4). During the fourth quarter, two sampling events were conducted at Outfall PN02.

3.1.3 Evaluation of Excavation-Water Monitoring Results at the North St. Louis County Sites

On July 23, 2001, the MSD conditionally approved the discharge of treated excavation water to an MSD sanitary sewer manhole located at the SLAPS (MSD 2001). The current extension to the special discharge approval expires on July 23, 2020 (MSD 2018a). The primary condition of the approval requires a treatment system be installed, maintained, and operated to produce an effluent meeting the following standards: MSD ordinances 8472, 10177, and 10082 (MSD 1991, 1994, 1997); the U.S. Nuclear Regulatory Commission (NRC) requirements prescribed in 10 *CFR* 20, Appendix B; and the Missouri Department of Health and Senior Services (DHSS) requirements prescribed in 19 *Code of State Regulations (CSR)* 20-10. In addition, the MSD limits the annual allocation for radioactivity from the NC Sites to the MSD CWC treatment plant. The MSD establishes the maximum volume of excavation water discharge allowed in a 24-hour period and requires that the analytical results of the treated excavation water comply with applicable standards and limits prior to discharge. The evaluation of monitoring data demonstrates that all ARARs have been met. The selenium discharge variance for the SLAPS was not utilized in CY 2019 (MSD 2005, 2008, 2010, 2012, 2014, 2016, 2018a). There is no longer a requirement to analyze for barium, lead, or selenium after the first two batches from new investigative areas (MSD 2012). Analytical results of the treated water are contained in Appendix C, Table C-3.

In CY 2019, approximately 4,232,020 gallons of treated excavation water from 10 treatment batches were released to MSD manhole 10L3-043S (Table 3-5). The discharge location is illustrated on Figure 3-2. Batches of treated excavation water were sampled and analyzed for MSD effluent criteria (Appendix C, Table C-3).

Table 3-3. Third Quarter CY 2019 NPDES Sampling Event[a]

Monitoring Parameter	Final Effluent Limitations		Units	Analytical Results		
				Outfall 002		
				Chemical Parameters		
	Daily Maximum	Monthly Average		July	August	September
Flow	Monitor only	Monitor only	MGD	f	f	e
Oil and Grease	15	10	mg/L	f	f	e
TPHs	10	10	mg/L	f	f	e
pH-Units	6.0-9.0	NA	s.u.	f	f	e
COD[b]	120	90	mg/L	f	f	e
SSs[c]	1.5	1.0	mL/L/hour	f	f	e
Arsenic, Total Recoverable	100	100	µg/L	f	f	e
Lead, Total Recoverable[d]	190	190	µg/L	f	f	e
Chromium, Total Recoverable	280	280	µg/L	f	f	e
Copper, Total Recoverable[d]	84	84	µg/L	f	f	e
Cadmium, Total Recoverable	94	94	µg/L	f	f	e
PCBs	No release	No release	µg/L	f	f	e
Event Sampling Date				Radiological Parameters[g,h,i]		
				Event 1	Event 2	
				07/22/19	08/12/19	
Total U[j,k]	Monitor only	Monitor only	µg/L	-4.E+00	-4.E+00	
Total Ra[j,k]	Monitor only	Monitor only	µg/L	5.E-07	2.E-06	
Total Th[j,k]	Monitor only	Monitor only	µg/L	6.E+00	1.E+01	
Gross Alpha[j]	Monitor only	Monitor only	pCi/L	1.E+00	-9.E+00	
Gross Beta[j]	Monitor only	Monitor only	pCi/L	2.E+01	2.E+01	
Pa-231[j]	Monitor only	Monitor only	pCi/L	-1.E+01	6.E-01	
Ac-227[j]	Monitor only	Monitor only	pCi/L	-2.E+01	-5.E+01	
Radon (semi-annual monitoring)	Monitor only	Monitor only	pCi/L	l	l	

[a] A rainfall event is defined as a measurable increase in discharge rate from precipitation producing 0.1 inch or more of liquid in a 24-hour period that may also exceed the duration of 24 hours; two events experienced within 48 hours may be reported together.
[b] Per the USACE letter dated November 18, 2003, the COD sampling requirement has been reduced from quarterly to annual sampling (USACE 2003).
[c] DL = 0.1 mL/L/hour.
[d] Lead and copper sampling are no longer necessary per the ROD.
[e] No sample is required, because no rain events producing measurable flow offsite occurred, and no pumping activities were performed.
[f] No pumping activities occurred, so only radiological samples were collected during natural flow.
[g] Value reported is based on a volume-weighted average of analyte activity concentrations for samples collected during the defined event. Corresponding radiological samples were collected on the same date as chemical samples; however, the radiological results are incorporated into the volume-weighted average for the specified event.
[h] Negative results are less than the laboratory system's background level.
[i] Ra-228 and Th-228 are assumed to be in secular equilibrium with Th-232; therefore, Th-232 results are used to estimate Ra-228 and Th-228 values.
[j] As specified in the permit-equivalent, radionuclides require monitoring only, and limits are not permit-specified.
[k] Total nuclide values (in µg/L) were calculated using the activity concentration values reported by the laboratory and values for specific activity listed in Table 8.4.1 of *The Health Physics and Radiological Health Handbook* (Shleien 1992).
[l] Semi-annual reporting requirement only.
NA – not applicable

Table 3-4. Fourth Quarter CY 2019 NPDES Sampling Event[a]

Monitoring Parameter	Final Effluent Limitations		Units	Analytical Results		
				Outfall 002		
				Chemical Parameters		
	Daily Maximum	Monthly Average		October	November	December
Flow	Monitor only	Monitor only	MGD	[e]	[e]	[f]
Oil and Grease	15	10	mg/L	[e]	[e]	[f]
TPHs	10	10	mg/L	[e]	[e]	[f]
pH-Units	6.0-9.0	NA	s.u.	[e]	[e]	[f]
COD[b]	120	90	mg/L	[e]	[e]	[f]
SSs[c]	1.5	1.0	mL/L/hour	[e]	[e]	[f]
Arsenic, Total Recoverable	100	100	µg/L	[e]	[e]	[f]
Lead, Total Recoverable[d]	190	190	µg/L	[e]	[e]	[f]
Chromium, Total Recoverable	280	280	µg/L	[e]	[e]	[f]
Copper, Total Recoverable[d]	84	84	µg/L	[e]	[e]	[f]
Cadmium, Total Recoverable	94	94	µg/L	[e]	[e]	[f]
PCBs	No release	No release	µg/L	[e]	[e]	[f]
Event Sampling Date				Radiological Parameters[g,h,i]		
				Event 1	Event 2	
				12/15/18	12/31/18	
Total U[j,k]	Monitor only	Monitor only	µg/L	-2.E+00	-1.E+00	
Total Ra[j,k]	Monitor only	Monitor only	µg/L	2.E-07	4.E-07	
Total Th[j,k]	Monitor only	Monitor only	µg/L	3.E-01	5.E+00	
Gross Alpha[j]	Monitor only	Monitor only	pCi/L	2.E+00	2.E+00	
Gross Beta[j]	Monitor only	Monitor only	pCi/L	5.E+00	2.E+00	
Pa-231[j]	Monitor only	Monitor only	pCi/L	-1.E+01	3.E+01	
Ac-227[j]	Monitor only	Monitor only	pCi/L	-8.E-01	-7.E+00	
Radon (semi-annual monitoring)	Monitor only	Monitor only	pCi/L	[l]	[l]	

[a] A rainfall event is defined as a measurable increase in discharge rate from precipitation producing 0.1 inch or more of liquid in a 24-hour period that may also exceed the duration of 24 hours; two events experienced within 48 hours may be reported together.
[b] Per the USACE letter dated November 18, 2003, the COD sampling requirement has been reduced from quarterly to annual sampling (USACE 2003).
[c] DL = 0.1 mL/L/hour.
[d] Lead and copper sampling are no longer necessary per the ROD.
[e] No sample is required, because no rain events producing measurable flow offsite occurred, and no pumping activities were performed.
[f] No pumping activities occurred in December, so only radiological samples were collected during natural flow.
[g] Value reported is based on a volume-weighted average of analyte activity concentrations for samples collected during the defined event. Corresponding radiological samples were collected on the same date as chemical samples; however, the radiological results are incorporated into the volume-weighted average for the specified event.
[h] Negative results are less than the laboratory system's background level.
[i] Ra-228 and Th-228 are assumed to be in secular equilibrium with Th-232; therefore, Th-232 results are used to estimate Ra-228 and Th-228 values.
[j] As specified in the permit-equivalent, radionuclides require monitoring only, and limits are not permit-specified.
[k] Total nuclide values (in µg/L) were calculated using the activity concentration values reported by the laboratory and values for specific activity listed in Table 8.4.1 of *The Health Physics and Radiological Health Handbook* (Shleien 1992).
[l] Semi-annual reporting requirement only.
NA – not applicable

Table 3-5. Excavation Water Discharged at the NC Sites in CY 2019

Quarter	Number of Discharges	Number of Gallons Discharged[a]	Total Activity (Ci)		
			Thorium[b]	Uranium (KPA)[c]	Radium[d]
1	3	901,224	4.99E-06	1.35E-05	4.21E-06
2	3	2,049,878	1.00E-05	6.05E-05	1.64E-05
3	2	643,297	4.55E-06	5.94E-06	2.35E-06
4	2	637,621	9.16E-06	5.90E-06	2.58E-06
Total	10	4,232,020	2.87E-05	8.59E-05	2.56E-05

[a] Quantities based on actual quarterly discharges from NC Sites.
[b] Calculated value based on the addition of isotopic analyses for Th-228 and Th-230.
[c] Value based on total U results (kinetic phosphorescence analysis [KPA]).
[d] Calculated value based on the addition of isotopic analyses for Ra-226 and Ra-228.

3.2 COLDWATER CREEK MONITORING

RA monitoring of surface water and sediment in CWC is required until the creek has been remediated. The purpose of the monitoring is to document that RAs are having a positive effect on the creek and to provide additional data to assess whether CWC is being measurably affected by COC migration from hydrostratigraphic zone (HZ)-A.

The EMP for CWC evaluates the water quality and the radiological and chemical parameters present in surface water and sediment. Surface water and sediment are monitored for the radiological and chemical parameters specified as List 2 of Table 3-3 of the EMICY19 (USACE 2018a). The water quality parameters are measured for surface water only.

The water quality parameters measured include pH, temperature, dissolved oxygen (DO), specific conductivity, oxidation reduction potential (ORP), and turbidity. The objectives of the EMP are as follows:

- to assess the quality of surface water and sediment in CWC;
- to compare the results with monitoring guidelines and/or ROD RGs as established for these media in the EMICY19 (USACE 2018a); and
- to evaluate/determine if runoff from the SLAPS, the HISS, the SLAPS VPs, and the Latty Avenue Properties affects the quality of surface water and sediment in CWC.

The MDNR has designated CWC as a metropolitan no-discharge stream. Therefore, discharges are prohibited, except as specifically permitted under the water quality standard (10 *CSR* 20-7.031) and non-contaminated storm-water flows (10 *CSR* 20-7.015.1.A.4). CWC, from its crossing of U.S. Highway 67 (i.e., Lindbergh Boulevard) to its mouth at the Missouri River (a distance of roughly 5.5 miles), is a Class C stream. Class C streams may cease flow during dry periods but maintain permanent pools that support aquatic life (10 *CSR* 20-7.031.1.F.6). The upper reach of CWC south of U.S. Highway 67, which includes the SLAPS/HISS reach, is an unclassified water of the state.

Surface-water and sediment samples are collected from CWC on a semi-annual basis as part of the EMP (USACE 2018a). The routine base-flow elevation sampling events are conducted at eight CWC monitoring stations (C002 through C009). Locations of the eight monitoring stations are shown on Figure 3-3. Monitoring station C004, located between the SLAPS and the HISS, is used to monitor the potential water quality impacts from the SLAPS to CWC. Monitoring station C005 is used to monitor water quality downstream from the HISS and the Latty Avenue VPs. Monitoring station C009, located just upstream from the St. Denis Bridge in Coldwater Commons Park, is the farthest downstream monitoring station on CWC.

Starting in CY 2019, additional surface-water samples were collected from CWC on a semi-annual basis during high-flow conditions as a BMP to determine if the creek is being measurably affected by COC migration. These high-flow surface-water sampling events are conducted at upstream (C002), midstream (C007), and downstream (C009) locations (Figure 3-3). This sampling is conducted soon after a precipitation event resulting in high-flow conditions when the surface of CWC measures less than 22.75 ft below the top of the concrete on the north side of the McDonnell Boulevard Bridge. High-flow surface-water samples are collected twice per year over a 1- to 2-day period.

Note that other non-FUSRAP industrial discharges are relatively common along the sampled reaches of CWC; therefore, sample parameters could be influenced by existing industrial sources other than former MED/AEC operations.

3.2.1 Coldwater Creek Surface-Water Monitoring Results

Base-flow elevation sampling of surface water at CWC was conducted at or below base flow elevation during the months of April and October in CY 2019. The base flow elevation for CWC at the McDonnell Boulevard Bridge is 508.2 ft above mean sea level (amsl). The base flow also may be approximated by a depth measurement of 3.2 ft or less at an "average cross section."

In addition to the routine base-flow elevation sampling, CWC surface-water samples were collected during high-flow conditions in May and August of CY 2019. High-flow condition surface-water sampling was conducted soon after precipitation events resulted in high-flow conditions as described previously.

CWC surface-water monitoring included obtaining water quality parameters, as well as obtaining samples for metals and radionuclides listed in Table 3-3 of the EMICY19 (USACE 2018a). Grab samples were collected and analyzed according to the protocol defined in the *Sampling and Analysis Guide for the St. Louis Sites* (SAG) (USACE 2000). In addition, isotopic U results were used to evaluate total U concentrations in surface water for comparison to the 30 µg/L monitoring guideline described in the ROD (USACE 2005).

All surface-water monitoring required through implementation of the EMICY19 was conducted as planned during CY 2019 (USACE 2018a). The evaluation of monitoring data demonstrates that all applicable ARARs have been met. The sample results are contained in Appendix D, Table D-1, of this EMDAR.

<u>Water Quality Parameters</u>

Water quality data are collected as part of the routine performance of surface-water sampling and are used as part of the overall evaluation of water quality. The water quality results for each surface-water monitoring station are summarized in Table 3-6. The average surface-water temperatures during the April and October sampling events were 14.7 and 23.4 °C, respectively. The average surface-water pH values were 6.44 and 6.50, respectively. The average pH values for both the April and October sampling events were within the acceptance range (6.0 to 9.0) and thus provide suitable conditions for aquatic life.

Average DO levels were 9.44 mg/L in April and 7.74 mg/L in October. Specific conductivity values were lower for the October event compared to the April event. The average specific conductivity for the April sampling event was 12.21 µS/cm, and the average specific conductivity for the October sampling event was 0.1 µS/cm. The average ORP value during the April sampling event (180 mV) was lower than that of the October sampling event (224 mV). The average turbidity value during the April sampling event (75.0 NTUs) was less than the October sampling event (41.0 NTUs). Water quality data collected for the high-flow surface-water sampling events was comparable to the data collected from base flow events.

Table 3-6. Water Quality Results for CY 2019 CWC Surface-Water Sampling

Monitoring Parameter	Unit	Monitoring Station								Average
		C002	C003	C004	C005	C006	C007	C008	C009	
First Sampling Event (04/09/19 to 04/10/19)										
Temperature	°C	13.5	14.9	13.9	13.5	14.3	14.9	16.6	16.0	14.7
pH	s.u.	7.13	6.97	6.55	6.31	6.00	6.50	6.16	5.92	6.44
DO	mg/L	8.53	10.01	9.13	10.39	8.85	9.70	9.85	9.06	9.44
Specific Conductivity	µS/cm	0.142	0.143	0.152	0.146	0.153	0.139	0.123	96.7	12.21
ORP	mV	125	156	179	187	197	186	205	207	180
Turbidity	NTU	105.0	83.2	75.6	51.1	64.5	97.0	80.3	41.2	75.0
Second Sampling Event (10/01/19 to 10/02/19)										
Temperature	°C	22.5	22.9	22.2	23.1	24.5	23.9	23.5	24.2	23.4
pH	s.u.	6.94	6.62	6.34	5.83	6.93	6.69	6.51	6.11	6.50
DO	mg/L	8.98	9.10	8.16	7.72	7.38	6.16	7.52	6.93	7.74
Specific Conductivity	µS/cm	0.119	0.123	0.129	0.126	0.126	0.122	0.130	0.121	0.1
ORP	mV	206	213	236	236	215	224	233	229	224
Turbidity	NTU	39.8	11.3	35.2	23.1	118.0	45.6	28.8	25.8	41.0
First High-Flow Water Sampling Event (05/01/19)										
Temperature	°C	15.8	NA	NA	NA	NA	16.0	NA	16.0	NA
pH	s.u.	5.99	NA	NA	NA	NA	6.08	NA	5.87	NA
DO	mg/L	10.13	NA	NA	NA	NA	9.95	NA	9.64	NA
Specific Conductivity	µS/cm	46.0	NA	NA	NA	NA	39.6	NA	35.2	NA
ORP	mV	245	NA	NA	NA	NA	247	NA	251	NA
Turbidity	NTU	108.0	NA	NA	NA	NA	144.0	NA	128.0	NA
Second High-Flow Water Sampling Event (08/27/19)										
Temperature	°C	23.2	NA	NA	NA	NA	22.8	NA	22.8	NA
pH	s.u.	6.15	NA	NA	NA	NA	5.93	NA	5.73	NA
DO	mg/L	9.18	NA	NA	NA	NA	9.00	NA	8.37	NA
Specific Conductivity	µS/cm	43.0	NA	NA	NA	NA	28.7	NA	21.0	NA
ORP	mV	218	NA	NA	NA	NA	217	NA	235	NA
Turbidity	NTU	126.0	NA	NA	NA	NA	103.0	NA	123	NA

Note: Water quality data are used as part of the overall evaluation of water quality, but no ROD-defined monitoring criteria exist.
NA – not applicable (High-flow water samples are only collected for stations C002, C007, and C009.)

Radiological Parameters

The radiological monitoring results for the CY 2019 CWC surface-water sampling events are summarized in Table 3-7. Historically, FUSRAP surface-water analysis has included unfiltered water samples for the following radiological parameters: Ra-226, Ra-228, Th-228, Th-230, Th-232, U-234, U-235, and U-238. Unfiltered surface-water samples from CWC were not analyzed for Ra-228 during CY 2019, because Ra-228 rapidly achieves equilibrium with Th-228, such that their concentrations are equal.

Table 3-7. Radiological Results for CY 2019 CWC Surface-Water Sampling

Monitoring Parameter	Monitoring Stations							
	C002	C003	C004	C005	C006	C007	C008	C009
Radionuclide Concentration (pCi/L)								
First Sampling Event (04/09/19 to 04/10/19)								
Ra-226	<1.34[a]	<1.08[a]	<1.54[a]	<1.27[a]	<1.02[a]	<1.22[a]	<1.43[a]	<1.02[a]
Th-228[b]	<0.36[a]	<0.49[a]	<0.56[a]	<0.43[a]	<0.59[a]	<0.49[a]	<0.38[a]	<0.34[a]
Th-230	<0.39[a]	<0.33[a]	0.52	<0.34[a]	<0.51[a]	<0.46[a]	<0.43[a]	<0.37[a]
Th-232	<0.33[a]	<0.36[a]	<0.35[a]	<0.29[a]	<0.44[a]	<0.31[a]	<0.35[a]	<0.26[a]
U-234	0.57	1.50	<1.22[a]	1.39	0.62	0.84	0.75	0.75
U-235	<0.41[a]	<0.77[a]	<1.51[a]	<1.40[a]	<0.64[a]	<0.60[a]	<0.88[a]	<0.49[a]
U-238	0.69	1.34	<1.06[a]	1.50	0.56	0.59	<0.59[a]	<0.55[a]
Total U[c] (µg/L)	1.94	4.35	2.20	4.27	1.74	2.24	1.88	1.77

Table 3-7. Radiological Results for CY 2019 CWC Surface-Water Sampling (Continued)

Monitoring Parameter	Monitoring Stations							
	C002	C003	C004	C005	C006	C007	C008	C009
Second Sampling Event (10/01/19 to 10/02/19)								
Ra-226	<1.30[a]	<1.33[a]	<1.28[a]	<1.36[a]	<1.00[a]	<1.01[a]	<1.26[a]	<1.47[a]
Th-228[b]	<0.58[a]	<0.46[a]	<0.48[a]	<0.53[a]	<0.47[a]	<0.47[a]	0.46	<0.43[a]
Th-230	<0.41[a]	0.29	<0.35[a]	<0.40[a]	<0.40[a]	<0.34[a]	<0.42[a]	<0.34[a]
Th-232	<0.46[a]	<0.27[a]	<0.35[a]	<0.27[a]	<0.44[a]	<0.32[a]	<0.37[a]	<0.31[a]
U-234	0.69	0.69	0.77	0.46	0.47	0.58	0.50	0.64
U-235	<0.28[a]	<0.25[a]	<0.26[a]	<0.30[a]	<0.31[a]	<0.27[a]	<0.32[a]	<0.27[a]
U-238	0.73	0.95	0.45	0.41	0.53	0.49	0.52	0.40
Total U[c] (µg/L)	2.26	2.42	1.94	1.54	1.48	1.60	1.50	1.57
First High-Flow Water Sampling Event (05/01/19)								
Ra-226	<1.13[a]	NA	NA	NA	NA	<1.32[a]	NA	<1.21[a]
Th-228[b]	<0.54[a]	NA	NA	NA	NA	0.51	NA	<0.29[a]
Th-230	0.68	NA	NA	NA	NA	0.43	NA	0.53
Th-232	<0.40[a]	NA	NA	NA	NA	<0.29[a]	NA	<0.41[a]
U-234	<0.44[a]	NA	NA	NA	NA	<0.62[a]	NA	<0.57[a]
U-235	<0.45[a]	NA	NA	NA	NA	<0.76[a]	NA	<0.72[a]
U-238	<0.50[a]	NA	NA	NA	NA	<0.53[a]	NA	<0.20[a]
Total U[c] (µg/L)	0.66	NA	NA	NA	NA	0.56	NA	0.32
Second High-Flow Water Sampling Event (08/27/19)								
Ra-226	<1.50[a]	NA	NA	NA	NA	<1.27[a]	NA	<0.90[a]
Th-228[b]	<0.45[a]	NA	NA	NA	NA	<0.59[a]	NA	<0.37[a]
Th-230	<0.42[a]	NA	NA	NA	NA	0.43	NA	<0.40[a]
Th-232	<0.38[a]	NA	NA	NA	NA	<0.53[a]	NA	<0.35[a]
U-234	0.76	NA	NA	NA	NA	0.45	NA	0.37
U-235	<0.36[a]	NA	NA	NA	NA	<0.32[a]	NA	<0.38[a]
U-238	0.86	NA	NA	NA	NA	<0.23[a]	NA	0.31
Total U[c] (µg/L)	2.35	NA	NA	NA	NA	0.81	NA	1.16

[a] Reported result is less than the minimum detectable concentration (MDC) and is therefore set equal to the MDC.
[b] Ra-228 rapidly achieves equilibrium with Th-228, such that their concentrations are equal.
[c] Total U is equal to the sum of the concentrations of uranium isotopes (in pCi/L) divided by 0.677, where 0.677 microgram per picocurie is the specific activity for total U, assuming secular equilibrium.
Note: Total U (30 µg/L) is the only ROD monitoring guideline for surface water. Radiological monitoring parameter data are collected to monitor COC migration and to calculate total U.
NA – not applicable (High-flow water samples are collected for only stations C002, C007, and C009.)

Surface-water data for U-234, U-235, and U-238 (reported in pCi/L) were converted to µg/L and compared to the 30 µg/L criterion for total U described in the ROD. The total U concentrations in surface water were significantly less than the 30 µg/L ROD criterion. A summary of the surface-water radiological data collected from CWC since April of 2009 is presented in Table 3-8. The radiological data collected for the high-flow surface-water sampling events was comparable to the data collected from base-flow events.

Chemical Parameters

No chemical-specific ROD monitoring guidelines exist for surface water. Chemical monitoring parameter data are collected to monitor COC migration. The chemical monitoring results for the CY 2019 CWC surface-water sampling events are presented in Table 3-9. The chemical data collected for the high-flow surface-water sampling events was comparable to the data collected from base-flow events.

Table 3-8. Comparison of Historical Radiological Surface-Water Results for CWC

Stations	Radionuclide	Units	04/09	10/09	03/10	10/10	03/11	10/11	03/12	10/12	04/13	10/13	03/14	10/14	03/15	10/15	03/16	10/16	03/17	10/17	04/18	10/18	04/19	10/19
	Total U[a]	µg/L	1.6	3.3	2.4	2.3	2.3	3.8	1.9	2.0	2.43	2.64	4.11	1.53	3.33	2.04	3.15	3.96	3.23	2.40	1.70	1.14	1.94	2.26
	Ra-226	pCi/L	<0.39[b]	<0.48[b]	<0.17[b]	<1.51[b]	<2.14[b]	0.87	<1.47[b]	<1.44[b]	2.15	<2.50[b]	<2.04[b]	<1.30[b]	<1.21[b]	<1.11[b]	<1.35[b]	<1. 25[b]	<1.84[b]	1.33	<1.12[a]	<1.59[a]	<1.34[a]	<1.30[a]
C002	Th-228[c]	pCi/L	<0.59[b]	0.21	0.46	<0.78[b]	<0.52[b]	<0.55[b]	<0.59[b]	<0.45[b]	<0.87[b]	<0.53[b]	<0.55[b]	0.25	<0. 46[b]	<0.51[b]	<0.55[b]	<0.45[b]	<0. 30[b]	<0.42[b]	<0.54[a]	<0.46[a]	<0.36[a]	<0.58[a]
	Th-230	pCi/L	0.69	0.41	0.28	<0.68[b]	<0.52[b]	0.37	0.46	<0.45[b]	1.19	<0.65[b]	0.40	<0.38[b]	<0.46[b]	0.63	0.45	0.37	0.42	<0.42[b]	<0.40[a]	0.45	<0.39[a]	<0.41[a]
	Th-232	pCi/L	<0.59[b]	<0.41[b]	<0.19[b]	<0.68[b]	<0.17[b]	<0.20[b]	<0.42[b]	<0.20[b]	<0.32[b]	<0.24[b]	<0.18[b]	<0.17[b]	<0.21[b]	<0.19[b]	<0.20[b]	<0.20[b]	<0.13[b]	<0.19[b]	<0.45[a]	<0.38[a]	<0.33[a]	<0.46[a]
	Total U[a]	µg/L	3.9	3.4	5.4	2.3	6.0	3.4	2.8	2.8	4.09	1.97	2.49	1.68	1.80	2.95	4.91	1.82	2.91	1.71	2.52	1.87	4.35	2.42
	Ra-226	pCi/L	0.29	<.0.65[b]	<0.54[b]	<1.8[b]	<1.3[a]	<1.3[b]	<1.09[b]	<1.50[b]	1.62	<1.41[b]	<2.03[b]	<0.89[b]	<1.23[b]	<1.63[b]	<1.48[b]	<1.55[b]	<0.38[b]	<0.38[b]	<1.12[a]	<0.96[a]	<1.08[a]	<1.33[a]
C003	Th-228[c]	pCi/L	<0.50[b]	<0.48[b]	<0.63[b]	<0.60[b]	<0.53[a]	<0.50[b]	0.43	<0.54[b]	<0.38[b]	<0.44[b]	<0.26[b]	<0.56[b]	0.43	<0.41[b]	<0.73[b]	<0.54[b]	<0.41[b]	<0.19[b]	<0.61[a]	<0.48[a]	<0.49[a]	<0.46[a]
	Th-230	pCi/L	<0.41[b]	<0.67[b]	0.60	<0.61[b]	0.52	0.48	<0.23[b]	0.70	<0.38[b]	0.70	0.85	0.50	0.36	<0.18[b]	0.39	0.44	<0.29[b]	<0.19[b]	<0.38[a]	<0.36[a]	<0.33[a]	0.29
	Th-232	pCi/L	0.20	<0.48[b]	<0.23[b]	<0.22[b]	<0.43[b]	<0.18[b]	<0.51[b]	<0.20[b]	<0.38[b]	<0.54[b]	<0.26[b]	<0.18[b]	<0.53[b]	<0.50[b]	<0.58[b]	<0.20[b]	<0.29[b]	<0.19[b]	<0.53[a]	<0.30[a]	<0.36[a]	<0.27[a]
	Total U[a]	µg/L	3.4	2.1	6.4	3.0	3.0	2.3	3.4	2.2	1.17	2.48	3.13	1.19	2.48	2.58	2.81	2.61	3.26	1.88	3.32	1.35	2.20	1.94
	Ra-226	pCi/L	0.64	<0.52[b]	<0.49[b]	<1.5[b]	<1.9[b]	0.64	<1.59[b]	<1.98[b]	<1.93[b]	<1.93[b]	1.52	<1.46[b]	<1.22[b]	<1.47[b]	1.7	<1.34[b]	<1.09[b]	<0.40[b]	<1.17[a]	<1.12[a]	<1.54[a]	<1.28[a]
C004	Th-228[c]	pCi/L	<0.51[b]	0.32	0.52	<0.65[b]	<0.52[b]	<0.49[b]	0.65	<0.18[b]	<0.65[b]	<0.18[b]	<0.97[b]	<0.52[b]	<0.55[b]	<0.64[b]	<0.22[b]	<0.62[b]	<0.32[b]	<0.60[b]	<0.63[a]	<0.42[a]	<0.56[a]	<0.48[a]
	Th-230	pCi/L	<0.51[b]	0.83	0.55	0.58	0.43	<0.49[b]	0.65	0.67	<0.65[b]	0.33	0.68	<0.42[b]	<0.48[b]	0.76	0.91	<0.44[b]	0.69	0.50	<0.36[a]	<0.42[a]	0.52	<0.35[a]
	Th-232	pCi/L	<0.51[b]	<0.38[b]	<0.20[b]	<0.24[b]	<0.20[b]	0.25	<0.49[b]	<0.18[b]	<0.29[b]	<0.39[b]	<0.63[b]	<0.42[b]	<0.18[b]	<0.46[b]	<0.49[b]	<0.44[b]	<0.32[b]	<0.15[b]	<0.43[a]	<0.39[a]	<0.35[a]	<0.35[a]
	Total U[a]	µg/L	1.8	3.9	3.1	3.0	2.1	2.6	1.7	1.8	2.31	1.42	2.51	1.14	3.15	2.23	2.99	1.71	3.56	1.83	4.14	2.44	4.27	1.54
	Ra-226	pCi/L	<0.42[b]	<0.40[b]	0.26	<0.64[b]	<1.8[b]	0.68	<1.48[b]	<2.39[b]	<1.60[b]	<1.76[b]	<1.84[b]	<1.19[b]	<1.05[b]	<0.74[b]	<1.81[b]	<1.18[b]	<1.23[b]	<1.32[b]	<1.91[a]	<1.09[a]	<1.27[a]	<1.36[a]
C005	Th-228[c]	pCi/L	0.21	<0.72[b]	0.33	<0.19[b]	<0.39[b]	0.32	<0.44[b]	<0.41[b]	<0.69[b]	<0.42[b]	<0.72[b]	0.37	<0.64[b]	<0.64[b]	<0.79[b]	<0.44[b]	<0.53[b]	<0.64[b]	<0.56[a]	<0.45[a]	<0.43[a]	<0.53[a]
	Th-230	pCi/L	0.41	<0.23[b]	0.27	0.42	<0.39[b]	<0.64[b]	0.44	0.76	0.69	0.63	0.65	<0.55[b]	<0.64[b]	0.69	<0.58[b]	<0.54[b]	<0.53[b]	<0.57[b]	0.56	<0.31[a]	<0.34[a]	<0.40[a]
	Th-232	pCi/L	0.34	<0.23[b]	<0.18[b]	<0.51[b]	<0.18[b]	<0.3[b]	<0.20[b]	<0.41[b]	<0.31[b]	<0.42[b]	<0.23[b]	<0.25[b]	<0.45[b]	<0.38[b]	<0.66[b]	<0.44[b]	<0.48[b]	<0.21[b]	<0.51[a]	<0.34[a]	<0.29[a]	<0.27[a]
	Total U[a]	µg/L	3.2	2.5	2.8	2.6	2.8	1.9	2.8	1.2	1.29	3.11	2.09	1.44	2.77	1.73	4.65	1.68	2.85	1.46[b]	2.29	0.91	1.74	1.48
	Ra-226	pCi/L	5.26	<0.56[b]	<0.42[b]	<0.64[b]	<1.82[b]	<1.26[a]	<2.00[b]	<0.57[b]	<1.20[b]	<1.44[b]	0.95	<1.39[b]	<1.09[b]	<1.67[b]	<0.80[b]	0.98	<1.11[b]	<0.94[b]	<1.21[a]	<0.33[a]	<1.02[a]	<1.00[a]
C006	Th-228[c]	pCi/L	0.56	<0.42[b]	<0.42[b]	<0.19[b]	<0.44[b]	<0.57[b]	<0.24[b]	<0.46[b]	<0.25[b]	<0.17[b]	<0.70[b]	<0.41[b]	<0.20[b]	<0.84[b]	<0.53[b]	<0.45[b]	<0.34[b]	<0.36[b]	<0.50[a]	<0.46[a]	<0.59[a]	<0.47[a]
	Th-230	pCi/L	<0.48[b]	0.50	0.35	0.42	0.45	0.38	<0.54[b]	<0.53[b]	0.74	<0.17[b]	0.53	<0.33[b]	<0.67[b]	<0.62[b]	0.65	0.48	0.26	<0.16[b]	<0.33[a]	0.41	<0.51[a]	<0.40[a]
	Th-232	pCi/L	<0.22[b]	<0.19[b]	<0.42[b]	<0.51[b]	<0.21[b]	<0.26[b]	<0.24[b]	<0.17[b]	<0.25[b]	<0.17[b]	<0.45[b]	<0.15[b]	<0.43[b]	<0.20[b]	<0.43[b]	<0.20[b]	<0.14[b]	<0.36[b]	<0.46[a]	<0.28[a]	<0.44[a]	<0.44[a]
	Total U[a]	µg/L	2.3	3.0	2.5	2.8	2.6	1.6	1.9	1.3	2.15	5.65	2.06	1.84	4.29	1.69	2.39	2.25	3.25	1.59	3.09	0.89	2.24	1.60
	Ra-226	pCi/L	<0.51[b]	0.22	<0.19[b]	<2.24[b]	<1.2[b]	<1.4[b]	<1.53[b]	<1.61[b]	1.42	<2.01[b]	<1.54[b]	<0.98[b]	<1.35[b]	0.61	<1.52[b]	<1.06[b]	<0.85[b]	<1.50[b]	<1.50[a]	<1.13[a]	<1.22[a]	<1.01[a]
C007	Th-228[c]	pCi/L	<0.23[b]	<0.46[b]	<0.47[b]	0.53	<0.43[b]	<0.40[b]	<0.20[b]	<0.37[b]	<0.80[b]	<0.19[b]	<0.42[b]	<0.89[b]	<0.63[b]	<0.42[b]	<0.49[b]	<0.55[b]	<0.35[b]	<0.50[b]	<0.66[a]	<0.65[a]	<0.49[a]	<0.47[a]
	Th-230	pCi/L	0.25	<0.46[b]	0.51	<0.49[b]	0.59	0.40	0.59	0.59	<0.29[b]	0.90	0.67	<0.57[b]	<0.20[b]	<0.42[b]	<0.49[b]	<0.16[b]	<0.44[b]	<0.61[b]	<0.54[a]	<0.40[a]	<0.46[a]	<0.34[a]
	Th-232	pCi/L	<0.23[b]	<0.21[b]	<0.21[b]	<0.40[b]	<0.20[b]	<0.18[b]	<0.19[b]	<0.37[b]	<0.29[b]	<0.51[b]	<0.19[b]	<0.26[b]	<0.45[b]	<0.34[b]	<0.49[b]	<0.16[b]	<0.15[b]	<0.23[b]	<0.44[a]	<0.37[a]	<0.31[a]	<0.32[a]
	Total U[a]	µg/L												1.32	2.82	1.79	3.07	1.71	3.02	1.82	3.60	0.46	1.88	1.50
	Ra-226	pCi/L												<0.83[b]	<1.28[b]	0.61	<0.95[b]	<2.15[b]	<0.95[b]	<1.06[b]	<1.48[a]	<1.21[a]	<1.43[a]	<1.26[a]
C008[d]	Th-228[c]	pCi/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.54[b]	0.64	<0.42[b]	0.50	<0.17[b]	<0.45[b]	<0.58[b]	<0.34[a]	0.37	<0.38[a]	0.46
	Th-230	pCi/L												0.22	<0.50[b]	<0.42[b]	0.47	0.53	<0.39[b]	0.50	0.69	<0.26[a]	<0.43[a]	<0.42[a]
	Th-232	pCi/L												<0.20[b]	<0.40[b]	<0.36[b]	<0.46[b]	<0.48[b]	<0.13[b]	<0.17[b]	<0.47[a]	<0.38[a]	<0.35[a]	<0.37[a]
	Total U[a]	µg/L												1.92	3.53	2.47	1.16	2.17	1.60	1.13	2.05	0.88	1.77	1.57
	Ra-226	pCi/L												<0.90[b]	<1.04[b]	0.81	<1.4[b]	<1.27[b]	<1.02[b]	<1.02[b]	<1.47[a]	<1.05[a]	<1.02[a]	<1.47[a]
C009[d]	Th-228[c]	pCi/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.40[b]	<0.45[b]	<0.46[b]	<0.44[b]	<0.53[b]	0.32	<0.51[b]	<0.51[a]	<0.53[a]	<0.34[a]	<0.43[a]
	Th-230	pCi/L												<0.49[b]	<0.45[b]	<0.51[b]	<0.36[b]	0.86	0.51	0.87	<0.48[a]	<0.40[a]	<0.37[a]	<0.34[a]
	Th-232	pCi/L												<0.18[b]	3.33	2.04	3.15	3.96	<0.34[b]	<0.18[b]	<0.48[a]	<0.45[a]	<0.26[a]	<0.31[a]

[a] Total U is equal to the sum of the concentrations of U isotopes (in pCi/L) divided by 0.677, where 0.677 microgram per picocurie is the specific activity for total U, assuming secular equilibrium.
[b] Reported result is less than the MDC and is therefore set equal to the MDC.
[c] Ra-228 rapidly achieves equilibrium with Th-228, such that their concentrations are equal.
[d] Stations C008 and C009 were established and initially sampled during the second semi-annual event of CY 2014.
Note: Total U (30 µg/L) is the only ROD monitoring guideline for surface water. The other radiological monitoring parameter data are collected to monitor COC migration.
NA – not applicable (No sample was collected during this event, because this station was established in 2014.)

Table 3-9. Chemical Results for CY 2019 CWC Surface-Water Sampling

Monitoring Parameter[a]	Monitoring Stations							
	C002	C003	C004	C005	C006	C007	C008	C009
Target Analyte List Metals Concentration (µg/L)								
First Sampling Event (04/09/19 to 04/10/19)								
Antimony	<2.0[b]	<2.0[b]	<2.0[b]	<2.0[b]	<2.0[b]	<2.0[b]	<2.0[b]	<2.0[b]
Arsenic	<4.0[b]	<4.0[b]	<4.0[b]	<4.0[b]	<4.0[b]	<4.0[b]	<4.0[b]	<4.0[b]
Barium	150	180	190	190	180	160	150	120
Cadmium	<0.2[b]	<0.2[b]	<0.2[b]	<0.2[b]	<0.2[b]	<0.2[b]	<0.2[b]	<0.2[b]
Chromium	<4.0[b]	<4.0[b]	<4.0[b]	<4.0[b]	<4.0[b]	<4.0[b]	<4.0[b]	<4.0[b]
Molybdenum	8.8	11	10	11	9.4	9.8	8.1	5.6
Nickel	2.1	2.5	2.9	2.7	2.8	2.7	2.7	2.3
Selenium	<2.0[b]	<2.0[b]	3.0	2.4	3.1	2.8	2.7	2.1
Thallium	<0.9[b]	<0.9[b]	<0.9[b]	<0.9[b]	<0.9[b]	<0.9[b]	<0.9[b]	<0.9[b]
Vanadium	<4.0[b]	<4.0[b]	<4.0[b]	<4.0[b]	<4.0[b]	<4.0[b]	<4.0[b]	<4.0[b]
Second Sampling Event (10/01/19 to 10/02/19)								
Antimony	<2.0[b]	<2.0[b]	<2.0[b]	<2.0[b]	<2.0[b]	<2.0[b]	<2.0[b]	<2.0[b]
Arsenic	<4.0[b]	4.3	4.0	<4.0[b]	<4.0[b]	<4.0[b]	<4.0[b]	<4.0[b]
Barium	110	110	120	130	120	120	130	130
Cadmium	<0.2[b]	<0.2[b]	<0.2[b]	<0.2[b]	<0.2[b]	<0.2[b]	<0.2[b]	<0.2[b]
Chromium	<4.0[b]	<4.0[b]	<4.0[b]	<4.0[b]	<4.0[b]	<4.0[b]	<4.0[b]	<4.0[b]
Molybdenum	11	9.8	10	10	9.0	9.0	8.2	8.9
Nickel	<2.0[b]	2.2	2.6	2.5	2.6	2.7	2.2	2.5
Selenium	2.3	2.1	<2.0[b]	<2.0[b]	2.2	2.1	<2.0[b]	<2.0[b]
Thallium	<0.9[b]	<0.9[b]	<0.9[b]	<0.9[b]	<0.9[b]	<0.9[b]	<0.9[b]	<0.9[b]
Vanadium	<4.0[b]	<4.0[b]	<4.0[b]	<4.0[b]	<4.0[b]	<4.0[b]	<4.0[b]	<4.0[b]
First High-Flow Water Sampling Event (05/01/19)								
Antimony	<2.0[b]	NA	NA	NA	NA	<2.0[b]	NA	<2.0[b]
Arsenic	<4.0[b]	NA	NA	NA	NA	<4.0[b]	NA	<4.0[b]
Barium	77	NA	NA	NA	NA	65	NA	68
Cadmium	<0.2[b]	NA	NA	NA	NA	<0.2[b]	NA	<0.2[b]
Chromium	<4.0[b]	NA	NA	NA	NA	<4.0[b]	NA	<4.0[b]
Molybdenum	6.8	NA	NA	NA	NA	4.9	NA	4.4
Nickel	2.6	NA	NA	NA	NA	2.6	NA	3.1
Selenium	<2.0[b]	NA	NA	NA	NA	2.4	NA	<2.0[b]
Thallium	<0.9[b]	NA	NA	NA	NA	<0.9[b]	NA	<0.9[b]
Vanadium	4.0	NA	NA	NA	NA	4.1	NA	5.5
Second High-Flow Water Sampling Event (08/27/19)								
Antimony	<2.0[b]	NA	NA	NA	NA	<2.0[b]	NA	<2.0[b]
Arsenic	<4.0[b]	NA	NA	NA	NA	<4.0[b]	NA	<4.0[b]
Barium	61	NA	NA	NA	NA	47	NA	47
Cadmium	<0.2[b]	NA	NA	NA	NA	<0.2[b]	NA	<0.2[b]
Chromium	<4.0[b]	NA	NA	NA	NA	<4.0[b]	NA	<4.0[b]
Molybdenum	12	NA	NA	NA	NA	7.4	NA	4.1
Nickel	2.2	NA	NA	NA	NA	2.5	NA	3.4
Selenium	<2.0[b]	NA	NA	NA	NA	<2.0[b]	NA	<2.0[b]
Thallium	<0.9[b]	NA	NA	NA	NA	<0.9[b]	NA	<0.9[b]
Vanadium	4.0	NA	NA	NA	NA	5.2	NA	6.8

[a] No chemical-specific ROD monitoring guidelines exist for surface water.
[b] Reported result is less than the MDC and is therefore set equal to the MDC

3.2.2 Coldwater Creek Sediment Monitoring Results

CY 2019 sediment sampling at CWC was conducted during the months of April and October as part of the EMP. Sediment samples were collected in depositional environments near each of the eight previously described surface-water locations (C002 through C009) (Figure 3-3) and analyzed according to the methods described in the SAG (USACE 2000). Sediment samples collected for the EMP were evaluated for the radiological and metal constituents listed in Table 3-3 of the EMICY19 (USACE 2018a).

All sediment monitoring required through implementation of the EMICY19 was conducted as planned during CY 2019 (USACE 2018a). The evaluation of monitoring data demonstrates that all applicable ARARs have been met. The analytical results from these monitoring activities are contained in Appendix D, Table D-2, of this EMDAR.

Radiological Parameters

The radiological results for CY 2019 CWC sediment sampling events are presented in Table 3-10. The ROD established sediment RGs for Ra-226, Th-230, and U-238 at the NC Sites (USACE 2005). Therefore, sediment sampling results for those radionuclides were compared against their corresponding RGs. Sediment samples from CWC were not analyzed for U-234 during CY 2019, because U-234 is assumed to be in equilibrium with U-238.

Table 3-10. Radiological Results for CY 2019 CWC Sediment Sampling

Monitoring Parameter	RGs[a]	Monitoring Stations							
		C002	C003	C004	C005	C006	C007	C008	C009
Radionuclide Concentration (pCi/g)									
First Sampling Event (04/09/19 to 04/10/19)									
Ac-227	No RG	<0.23[b]	<0.23[b]	<0.18[b]	<0.30[b]	<0.19[b]	<0.24[b]	<0.31[b]	<0.23[b]
Pa-231	No RG	<1.31[b]	<1.13[b]	<0.99[b]	<1.70[b]	<1.77[b]	<1.28[b]	<1.73[b]	<1.21[b]
Ra-226	15	1.36	1.44	1.21	2.20	1.50	1.55	1.53	1.52
Ra-228	No RG	0.57	0.74	0.50	0.91	0.84	0.74	0.89	0.71
Th-228[c]	No RG	0.60	0.65	0.72	1.79	1.27	1.57	1.02	0.87
Th-230[c]	43	1.28	1.54	1.45	2.94	2.71	3.11	2.06	2.15
Th-232[c]	No RG	0.75	0.70	0.72	1.08	1.13	1.08	0.80	0.66
U-235	No RG	<0.40[b]	<0.37[b]	<0.33[b]	<0.53[b]	<0.52	<0.38[b]	<0.49[b]	<0.38[b]
U-238[d]	150	0.95	1.10	0.84	0.76	1.00	1.11	1.20	1.03
Second Sampling Event (10/01/19 to 10/02/19)									
Ac-227	No RG	<0.24[b]	<0.30[b]	<0.30[b]	<0.33[b]	<0.29[b]	0.17	<0.33[b]	0.17
Pa-231	No RG	<0.95[b]	<1.10[b]	<1.05[b]	<1.15[b]	<1.02[b]	<1.03[b]	<1.30[b]	<0.88[b]
Ra-226	15	0.81	1.40	1.35	1.68	1.32	1.19	1.70	1.22
Ra-228	No RG	0.38	0.86	0.78	1.00	0.88	0.54	0.98	0.46
Th-228[c]	No RG	0.33	1.00	0.92	1.02	1.30	0.82	1.28	0.57
Th-230[c]	43	1.68	3.26	1.73	1.70	4.42	2.77	2.79	6.25
Th-232[c]	No RG	0.34	0.69	1.18	1.57	1.14	0.65	0.60	0.55
U-235	No RG	<0.28[b]	<0.37[b]	<0.35[b]	<0.38[b]	<0.37[b]	<0.34[b]	<0.41[b]	<0.29[b]
U-238[d]	150	0.67	1.04	1.06	1.36	1.25	0.75	0.99	0.74

[a] RGs presented in the ROD (USACE 2005).
[b] Reported result is less than the MDC and is therefore set equal to the MDC.
[c] Both gamma spectroscopy and alpha spectroscopy results are produced; alpha spectroscopy results are reported.
[d] U-238 and U-234 are assumed to be in equilibrium.

All sediment data results were below the RGs established by the ROD. The historical radiological sediment sampling data for all monitoring stations since April of 2009 are summarized in Table 3-11.

Table 3-11. Comparison of Historical Radiological Sediment Results for CWC

Station	Radionuclide	Units	03/09	10/09	03/10	10/10	03/11	10/11	03/12	10/12	04/13	10/13	03/14	10/14	03/15	10/15	03/16	10/16	03/17	10/17	04/18	10/18	04/19	10/19
C002	Total U[a]	pCi/g	0.80	0.89	1.3	1.3	1.4	1.1	0.84	1.21	1.49	1.02	0.75	0.90	1.35	1.89	3.89	5.74	5.50	1.55	1.35	1.70	1.98	1.34
	Ra-226	pCi/g	0.75	1.07	0.71	0.95	0.87	0.85	0.89	0.911	0.91	1.01	0.94	0.88	0.78	1.26	1.34	2.01	1.30	1.22	0.98	1.24	1.36	0.81
	Ra-228	pCi/g	0.20	0.24	0.30	0.33	0.27	0.28	0.24	0.372	0.30	0.28	0.26	0.36	0.18	1.01	1.11	1.08	0.89	0.51	0.34	0.61	0.57	0.38
	Th-228	pCi/g	0.50	0.35	0.46	0.44	0.26	0.37	0.37	0.37	0.30	<0.16[c]	<0.26[c]	0.69	<0.18[b]	1.52	1.74	1.61	0.52	0.53	0.32	0.92	0.60	0.33
	Th-230	pCi/g	0.51	1.2	0.67	1.2	1.5	1.1	0.52	0.64	1.06	1.20	0.69	0.55	0.56	1.53	1.99	2.10	2.26	1.26	0.65	1.30	1.28	1.68
	Th-232	pCi/g	0.28	0.31	0.53	0.21	<0.29[c]	0.39	0.35	0.47	0.36	<0.44[c]	0.26	0.55	0.26	1.36	1.39	0.57	0.89	0.41	<0.16[b]	0.62	0.75	0.34
C003	Total U[a]	pCi/g	1.2	2.9	0.72	1.7	1.4	1.5	1.20	1.78	1.80	1.01	0.90	2.04	2.68	0.99	1.22	2.27	1.90	1.44	1.60	1.94	2.20	2.23
	Ra-226	pCi/g	0.79	1.4	0.98	1.1	0.73	1.2	1.07	1.33	1.41	1.03	1.42	1.22	1.00	0.92	1.11	1.41	1.10	1.29	1.04	1.47	1.44	1.40
	Ra-228	pCi/g	0.40	1.0	0.44	0.36	0.39	0.79	0.81	0.78	0.91	0.36	0.91	0.63	0.82	0.22	0.66	0.98	0.76	0.64	0.66	0.81	0.74	0.86
	Th-228	pCi/g	0.64	1.1	0.85	0.42	0.55	1.79	1.69	1.23	1.01	0.94	1.21	0.68	0.84	0.44	1.28	1.35	1.33	1.01	1.14	1.05	0.65	1.00
	Th-230	pCi/g	1.2	1.5	1.0	1.1	0.89	1.9	1.81	1.19	3.92	1.90	1.67	1.04	2.57	0.57	2.55	3.71	2.85	1.29	2.70	1.48	1.54	3.26
	Th-232	pCi/g	0.34	0.73	0.43	0.17	0.64	1.22	1.28	1.18	0.99	<0.35[c]	0.95	0.89	0.84	0.25	0.87	1.14	1.11	0.68	0.95	0.86	0.70	0.69
C004	Total U[a]	pCi/g	2.0	3.3	1.8	2.6	1.8	2.0	2.84	3.09	1.97	2.14	1.84	1.20	1.67	2.14	2.71	2.00	1.74	1.87	1.72	2.07	1.96	2.31
	Ra-226	pCi/g	0.97	1.3	1.3	1.5	1.1	1.3	1.13	1.28	1.16	1.25	1.62	1.36	1.00	1.21	1.39	1.44	1.12	1.14	1.17	1.33	1.21	1.35
	Ra-228	pCi/g	0.73	0.85	0.62	0.81	0.85	0.96	0.85	0.86	0.72	0.62	0.80	0.89	0.90	1.01	0.95	1.03	0.87	0.85	0.71	0.79	0.50	0.78
	Th-228	pCi/g	0.83	1.1	0.90	1.2	1.4	1.3	1.72	1.24	0.74	1.09	0.94	0.73	1.81	1.31	1.64	1.17	1.14	1.19	0.92	0.91	0.72	0.92
	Th-230	pCi/g	1.7	2.0	2.2	1.6	2.7	3.8	2.41	1.28	2.37	2.15	3.11	1.82	1.7	3.02	2.77	2.11	3.27	2.30	1.83	1.50	1.45	1.73
	Th-232	pCi/g	0.82	1.0	0.77	1.0	0.85	1.1	1.45	1.13	0.84	1.42	0.57	1.50	1.32	0.81	1.30	0.94	1.24	1.05	0.86	0.94	0.72	1.18
C005	Total U[a]	pCi/g	1.6	2.8	1.6	3.6	1.8	2.5	4.36	2.5	1.86	1.20	2.10	1.55	1.58	2.44	2.58	2.50	0.98	1.62	2.05	2.10	1.61	2.72
	Ra-226	pCi/g	1.0	1.4	1.5	2.5	1.2	1.5	1.47	1.33	1.28	1.01	1.59	1.62	1.12	1.05	1.44	1.74	1.08	1.60	1.78	1.68	2.20	1.68
	Ra-228	pCi/g	0.31	0.86	0.73	0.88	0.56	0.94	0.92	0.90	0.87	0.47	1.00	0.99	0.94	0.81	1.06	0.99	0.91	0.99	0.92	0.87	0.91	1.00
	Th-228	pCi/g	0.50	1.3	0.92	0.96	0.61	0.61	1.05	1.30	0.64	0.82	1.35	1.19	1.27	1.50	1.70	1.26	1.31	1.25	1.24	1.04	1.79	1.02
	Th-230	pCi/g	4.2	9.6	2.2	19.6	3.9	3.4	4.3	5.42	4.65	3.26	1.53	1.58	2.13	2.28	2.23	1.83	2.48	2.24	1.61	3.50	2.94	1.70
	Th-232	pCi/g	0.50	0.87	0.65	1.1	0.63	0.87	1.01	1.23	1.08	0.49	1.16	0.69	0.88	0.97	1.30	1.43	1.22	0.78	1.10	0.89	1.08	1.57
C006	Total U[a]	pCi/g	2.1	0.75	1.9	2.2	2.0	1.0	2.35	1.97	1.53	1.87	0.19	2.60	2.77	1.70	1.85	2.33	2.80	1.78	2.02	1.49	2.05	2.69
	Ra-226	pCi/g	1.0	1.1	1.7	1.7	1.3	0.90	1.16	1.02	1.13	1.37	1.38	1.36	1.06	1.28	1.27	1.47	1.21	1.19	1.23	1.59	1.50	1.32
	Ra-228	pCi/g	0.82	0.99	0.88	0.88	0.86	0.48	1.06	0.94	0.99	0.91	1.01	1.05	0.85	0.90	0.85	1.14	0.87	0.85	0.79	0.81	0.84	0.88
	Th-228	pCi/g	1.5	1.6	1.0	0.82	1.9	0.54	1.38	1.03	0.97	1.07	0.60	1.18	1.20	0.88	1.49	1.23	1.84	1.21	1.11	1.27	1.27	1.30
	Th-230	pCi/g	2.2	2.6	2.0	4.1	9.7	1.2	3.39	1.78	2.18	1.57	2.30	2.39	1.52	2.12	3.89	2.31	6.62	3.84	2.71	4.52	2.71	4.42
	Th-232	pCi/g	1.1	0.97	0.80	0.71	1.6	0.82	1.00	1.30	1.31	0.88	0.85	1.04	0.74	1.27	0.95	1.45	1.38	1.33	1.06	1.18	1.13	1.14
C007	Total U[a]	pCi/g	1.9	2.6	2.2	1.7	1.9	2.4	2.45	3.08	2.13	1.79	0.49	3.35	1.55	1.32	1.91	1.49	1.52	1.41	1.66	1.91	2.22	1.74
	Ra-226	pCi/g	1.1	1.3	1.4	1.4	1.3	1.4	1.23	1.06	1.32	1.20	1.55	2.12	1.10	1.08	1.14	1.28	0.95	1.33	1.14	1.39	1.55	1.19
	Ra-228	pCi/g	0.77	0.77	0.82	0.73	0.87	0.81	0.89	0.80	0.85	0.54	0.77	1.01	0.87	0.64	0.67	0.59	0.66	0.63	0.69	0.64	0.74	0.54
	Th-228	pCi/g	1.1	0.66	1.0	0.78	1.4	1.3	2.07	0.96	0.86	0.94	0.74	0.80	1.06	1.24	0.47	0.62	1.18	1.29	0.95	1.01	1.57	0.82
	Th-230	pCi/g	3.6	2.3	2.6	4.4	3.3	2.8	3.51	2.73	3.25	4.50	3.19	6.81	3.89	3.91	3.77	4.75	5.79	2.98	3.79	3.29	3.11	2.77
	Th-232	pCi/g	1.00	0.57	1.04	0.72	0.93	0.95	1.14	0.70	0.62	0.69	1.21	0.85	0.66	0.87	1.04	0.87	1.02	0.88	1.01	0.73	1.08	0.65
C008[d]	Total U[a]	pCi/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.60	1.81	1.37	3.24	3.11	1.93	1.73	0.91	-0.17	2.40	2.10
	Ra-226	pCi/g												1.22	1.17	1.23	1.27	1.71	1.13	1.30	1.20	1.70	1.53	1.70
	Ra-228	pCi/g												0.72	0.81	0.76	0.90	1.27	1.06	0.94	0.74	0.88	0.89	0.98
	Th-228	pCi/g												0.82	1.18	0.86	1.16	1.26	1.22	0.99	1.12	1.01	1.02	1.28
	Th-230	pCi/g												2.80	2.48	3.36	2.30	1.93	2.68	1.82	2.11	2.23	2.06	2.79
	Th-232	pCi/g												0.56	1.19	0.55	1.19	1.06	1.26	0.80	0.90	1.18	0.80	0.60

Table 3-11. Comparison of Historical Radiological Sediment Results for CWC (Continued)

Station	Radionuclide	Units	03/09	10/09	03/10	10/10	03/11	10/11	03/12	10/12	04/13	10/13	03/14	10/14	03/15	10/15	03/16	10/16	03/17	10/17	04/18	10/18	04/19	10/19
C009[d]	Total U[a]	pCi/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.79	1.72	1.63	1.10	1.45	1.76	1.89	1.43	1.76	2.15	1.50
	Ra-226	pCi/g												1.43	1.26	1.19	1.43	1.48	1.10	1.27	1.25	1.67	1.52	1.22
	Ra-228	pCi/g												0.80	0.94	0.81	0.83	0.88	0.86	0.64	0.73	0.88	0.71	0.46
	Th-228	pCi/g												0.86	1.16	1.06	1.30	1.26	0.82	0.86	1.25	0.87	0.87	0.57
	Th-230	pCi/g												3.96	2.27	2.99	2.46	3.54	2.95	2.28	2.21	4.60	2.15	6.25
	Th-232	pCi/g												1.06	1.22	0.63	1.26	0.98	0.88	0.53	0.86	0.72	0.66	0.55

[a] Total U is equal to the sum of the concentrations of U isotopes (Office of the Federal Register, NARA 1998).
[b] Both gamma spectroscopy and alpha spectroscopy results were produced; gamma spectroscopy results are reported.
[c] Reported result is less than the MDC and is therefore set equal to the MDC.
[d] Stations C008 and C009 were established and initially sampled during the second semi-annual event of CY 2014.
Note: The sediment RGs for Ra-226, Th-230, and U-238 are 15 pCi/g, 43 pCi/g, and 150 pCi/g, respectively. The other radiological monitoring parameter data are collected to monitor COC migration.
NA – not applicable (No sample was collected during this event, because this station was established in 2014).

Chemical Parameter

Chemical monitoring results for CY 2019 CWC sediment sampling events are presented in Table 3-12.

Table 3-12. Chemical Results for CY 2019 CWC Sediment Sampling

Monitoring Parameter	Monitoring Stations							
	C002	C003	C004	C005	C006	C007	C008	C009
Target Analyte List Metals Concentration (mg/kg)								
First Sampling Event (04/09/18 to 04/10/18)								
Antimony	0.52	0.44	0.73	0.44	0.78	0.48	0.50	0.59
Arsenic	5.2	6.7	6.8	15	6.5	7.4	5.8	6.3
Barium	480	180	130	260	180	180	180	180
Cadmium	0.52	0.84	0.63	0.80	0.71	0.87	0.58	0.69
Chromium	35	26	27	26	31	25	26	33
Molybdenum	2.5	1.3	2.7	0.83	1.0	1.1	1.1	1.7
Nickel	14	19	16	30	20	18	20	18
Selenium	2.1	3.8	2.4	3.8	2.6	2.4	3.3	2.6
Thallium	<0.29[a]	<0.31[a]	<0.25[a]	<0.28[a]	<0.29[a]	<0.28[a]	<0.37[a]	<0.26[a]
Vanadium	18	26	25	42	26	25	26	23
Second Sampling Event (10/09/18)								
Antimony	0.18	<0.19[a]	<0.17[a]	0.28	<0.19[a]	0.22	0.18	33
Arsenic	1.8	2.9	2.7	4.0	2.3	5.2	2.8	4.4
Barium	390	56	71	120	110	110	120	110
Cadmium	0.20	0.26	0.18	0.40	0.17	0.48	0.31	0.51
Chromium	5	10	7.5	12	11	17	14	24
Molybdenum	0.91	0.41	0.36	0.47	0.21	0.67	0.49	0.58
Nickel	4.0	9.7	7.6	13	10	12	12	15
Selenium	0.46	1.9	0.75	1.2	1.2	1.1	1.0	1.1
Thallium	<0.18[a]	<0.19[a]	<0.17[a]	<0.19[a]	<0.19[a]	<0.19[a]	<0.18[a]	<0.19[a]
Vanadium	4.8	14	11	17	14	16	16	15

[a] Reported result is less than the DL and is therefore set equal to the DL.

Note: There are no chemical-specific ROD RGs or monitoring guidelines for sediment. Chemical monitoring parameter data are collected to monitor COC migration.

3.2.3 Impact of FUSRAP Coldwater Creek Remedial Action on Total Uranium Concentrations in Coldwater Creek Surface Water and Sediment

As part of the FUSRAP RA at the SLAPS, sediment and soil were removed from the bed and banks of CWC near monitoring stations C002 and C003 during August of 2004. An evaluation was conducted to determine if the SLAPS RA resulted in increased levels of uranium in CWC. The concentrations of radionuclides in sediment and surface-water samples from various stations along CWC were assessed. Radionuclide data from surface-water and sediment samples collected from March of 2000 to March of 2004 were used to create a baseline for comparison with sample results collected after the RA.

Methodology

Total U results from CY 2019 surface-water and sediment samples from six monitoring stations (C002 through C007) were compared to the 2000 to 2004 dataset for this evaluation. Total U was selected for this evaluation because it is among the most mobile of all the radionuclide COCs present at the SLAPS.

The total U concentration statistics for surface water and sediment at monitoring stations C002 through C007 for 2000 through 2004 are presented in Table 3-13.

Table 3-13. Total Uranium Concentration Statistics for CWC (2000-2004)

Stations[a]	Statistics for Total U in Surface Water March 2000 to March 2004 Data (pCi/L)			Statistics for Total U in Sediment March 2000 to March 2004 Data (pCi/g)		
	UCL_{95}	Mean	LCL_{95}	UCL_{95}	Mean	LCL_{95}
C002	4.2	3.1	1.9	1.7	1.4	1.1
C003	3.8	3.3	2.7	1.9	1.5	1.0
C004	4.5	3.4	2.3	2.3	1.7	1.2
C005	4.1	3.0	1.9	2.8	2.4	2.0
C006	8.2[b]	5.0	[c]	3.0	2.4	1.8
C007	4.7	3.4	0.75	2.5	1.9	1.3

[a] Monitoring stations C008 and C009 were established in 2014.
[b] March 2000 to March 2004 data are gamma distributed. Therefore, approximate gamma upper confidence limit (UCL) is used.
[c] The 95 percent lower confidence limit (LCL_{95}) is not calculated due to gamma-distributed data.

Qualitative trend line graphs of total U results from surface-water and sediment samples collected at monitoring stations C002 through C007 from March of 2000 to October of 2019 are presented on Figures 3-4 and 3-5. The mean, 95 percent upper confidence limit (UCL_{95}), and 95 percent lower confidence limit (LCL_{95}) concentrations of total U calculated from the March 2000 to March 2004 dataset are also shown on Figures 3-4 and 3-5. Surface-water and sediment data for total U from monitoring stations C008 and C009 are also included on Figures 3-4 and 3-5.

Conclusion

The data fit two hypothetical scenarios. First, the post-RA sampling results were not significantly different than the pre-RA sampling results for downstream stations at the SLAPS (C003 through C007), so it is unlikely that total U from the SLAPS RA is causing a significant contribution to CWC. The RA over time should markedly reduce the total U load in CWC if the SLAPS were a significant contributor. While a time lag in the fate downstream could occur, the current total U concentrations are already low. Second, the RA within CWC did not adversely impact concentrations of total U in CWC surface water or sediment. Had the RA contributed adversely, a notable short-term increase in total U concentrations would have been observed.

4.0 EVALUATION OF GROUND-WATER MONITORING DATA

During CY 2019, 17 ground-water monitoring wells were sampled at the NC Sites. Ground water was sampled following protocol for individual wells and analytes, and was analyzed for various radiological constituents and inorganic analytes. Static water levels were measured quarterly at the retained monitoring wells. In addition, field parameters were measured continuously during purging of the wells before sampling. The static water levels and other ground-water field parameter results for CY 2019 sampling are contained in Appendix E, Tables E-1 and E-2. Summary tables providing the NC Sites ground-water analytical sampling results for CY 2019 are contained in Appendix E, Tables E-3 and E-4.

Ground-Water Guidelines

The CY 2019 ground-water monitoring data for the NC Sites are compared to the ROD ground-water monitoring guidelines (henceforth referred to as ROD guidelines) listed in Tables F-1 and F-2 in Appendix F of this EMDAR. The ROD guidelines for the NC Sites are based on requirements specified in the ROD (USACE 2005) and are further explained in Sections 4.1.1 and 4.2.1.

Stratigraphy at the North St. Louis County Sites

The stratigraphic units present at the NC sites are shown in the stratigraphic column presented on Figure 4-1. Fill and topsoil (Unit 1) overlie Pleistocene loess (Unit 2) and glaciolacustrine deposits. The glaciolacustrine sediments consist of Subunit 3T (silty clay), Subunit 3M (moderately to highly plastic clay), Subunit 3B (silty clay), and Unit 4 (clayey and sandy gravel). Beneath these unconsolidated deposits, the bedrock is composed of Mississippian limestone (Unit 6). Stratigraphic Unit 5, Pennsylvanian shale bedrock, is not present at the HISS or Futura, but is found directly overlying Unit 6 under portions of the SLAPS.

4.1 LATTY AVENUE PROPERTIES

The Latty Avenue Properties include the HISS, Futura, and eight Latty Avenue VPs (VPs 01[L] through 06[L], VP-40A, and Parcel 10K530087). The ground-water monitoring wells at the Latty Avenue Properties are located on or immediately adjacent to the HISS and Futura.

Stratigraphy at the Latty Avenue Properties

Four HZs (HZ-A through HZ-C, and HZ-E) have been identified at the Latty Avenue Properties. The shallow ground-water zone, HZ-A, consists of the fine-grained silts and clays of Unit 1, Unit 2, and Subunit 3T. Underlying HZ-A is HZ-B, which consists of a highly impermeable clay (Subunit 3M). HZ-C consists of silty clay, clayey silt, and clayey gravel deposits that comprise the stratigraphic Subunit 3B and Unit 4. The Mississippian limestone bedrock is defined as HZ-E. HZ-E is the protected aquifer for the site. As a result of their very low permeability, Subunits 3M and 3B limit vertical ground-water movement between HZ-A and the deep ground-water zones (HZ-C and HZ-E) at the Latty Avenue Properties.

Summary of Calendar Year 2019 Ground-Water Monitoring Results at the Latty Avenue Properties

Based on an evaluation of the ground-water data at the Latty Avenue Properties, three inorganic soil COCs (cadmium, molybdenum and selenium) were detected at concentrations in excess of the ROD guidelines in HZ-A ground water at the Latty Avenue Properties in CY 2019. Cadmium was detected above its ROD guideline in HZ-A well HISS-10 during the first quarter sampling event. However, cadmium did not exceed its ROD guideline at HISS-10 when measurement error was taken into account. Molybdenum and selenium were detected above their ROD guidelines in HISS-10 during the first-, second-, and fourth-quarter sampling events. Molybdenum was above the ROD guideline in the previous sampling event conducted in the third- and fourth-quarters of CY 2018 at HISS-10. Therefore, molybdenum and selenium concentrations in HISS-10 have exceeded the ROD guideline for more than 12 months. The Mann-Kendall Trend Test results indicate a statistically significant increasing trend for molybdenum in HISS-10. Because a significant degradation of CWC surface water has not occurred and is not anticipated, there is currently no finding of significantly degraded ground-water conditions in HZ-A ground water, as defined by the ROD. However, because molybdenum and selenium levels in HISS-10 have exceeded the ROD guideline for a period of at least 12 months, ground-water monitoring will continue subject to subsequent CERCLA 5-year reviews.

Based on the CY 2019 results for HW23, concentrations of all inorganic and radiological soil COCs were below the ROD ground-water guidelines in HZ-C during CY 2019. Therefore, no findings currently indicate significantly degraded ground-water conditions in HZ-C ground water. An evaluation of potential response actions is therefore not required.

4.1.1 Evaluation of Ground-Water Monitoring Data at the Latty Avenue Properties

The ground-water monitoring data for the Latty Avenue Properties are evaluated against the requirements for ground-water monitoring identified in the ROD (USACE 2005). The ROD specifies two types of ground-water monitoring guidelines: (1) response-action monitoring guidelines and (2) a total U monitoring guideline (which is used for both response-action and long-term monitoring). Response-action monitoring of HZ-A and HZ-C is being conducted to ensure that the RA does not degrade current ground-water conditions. Another purpose of the response-action ground-water monitoring of HZ-C is to document protection of the limestone aquifer (HZ-E) during the RA.

The response-action monitoring guideline is two times the UCL_{95}, based on historical concentrations of the analyte in a particular well before RAs were initiated under the ROD. The response-action monitoring guidelines have been developed for the ROD soil COCs for each of the wells at the Latty Avenue Properties. The methodology for the development of the response-action monitoring guidelines is detailed in Appendix F of this EMDAR. The total U guideline is defined in the ROD to be equal to the total U maximum contaminant level of 30 µg/L (USACE 2005). If total U levels exceed 30 µg/L, monitoring would continue subject to a CERCLA 5-year review.

In addition to the previous requirements, an evaluation of concentration trends over time is conducted for the COCs detected above the ROD guidelines in ground water to support assessment of the effectiveness of the RA in the CERCLA 5-year reviews.

Monitoring Well Network at the Latty Avenue Properties

The CY 2019 EMP well network for the Latty Avenue Properties is shown on Figure 4-2. With the exception of monitoring well HW23, which is screened in HZ-C, the monitoring wells are screened in HZ-A. The screened HZs for the ground-water monitoring wells at the Latty Avenue Properties are identified in Table 4-1. Appendix G provides the well maintenance checklists for the annual inspection of the ground-water monitoring wells at the Latty Avenue Properties, conducted on April 24, 2019.

Table 4-1. Screened HZs for Ground-Water Monitoring Wells at the Latty Avenue Properties in CY 2019

Well ID	Screened HZs
HISS-01	HZ-A
HISS-06A	HZ-A
HISS-10	HZ-A
HISS-11A	HZ-A
HISS-17S	HZ-A
HISS-19S	HZ-A
HW22	HZ-A
HW23	HZ-C

Note: All eight wells were sampled in CY 2019.

Ground-water sampling was conducted at eight ground-water monitoring wells at the Latty Avenue Properties in CY 2019. First-quarter sampling was conducted on February 18, 2019; second-quarter sampling was conducted on May 8 and 9, 2019; third-quarter sampling was conducted on August 6, 2019; and fourth-quarter sampling was conducted on November 8, 2019.

HZ-A Ground Water

Ground-water samples were collected from seven HZ-A wells in CY 2019. A summary table presenting the CY 2019 analytical data for all analytes is included in Appendix E (Table E-3).

For response-action monitoring, the CY 2019 ground-water data were evaluated to determine if ground-water conditions have significantly degraded. Continued monitoring of HZ-A could be required long term if significantly degraded ground-water conditions are found. Based on the ROD, a significantly degraded ground-water condition requires all of the following:

1. that soil COC concentrations have statistically increased in ground water (relative to the well's historical data and accounting for uncertainty) for more than a 12-month period. Significantly increased concentrations are defined as doubling of an individual COC concentration above the upper confidence limit (UCL) of the mean (based on the historical concentration before RA) for a period of 12 months;
2. that the degraded well is close enough to impact CWC; and
3. that a significant degradation of CWC surface water is anticipated.

The CY 2019 results were compared to the guidelines for the soil COCs identified in the ROD (i.e., antimony, arsenic, barium, cadmium, chromium, molybdenum, nickel, selenium, thallium, total U, vanadium, Ra-226, Ra-228, Th-228, Th-230, Th-232, U-234, U-235, and U-238). The ROD guideline for total U (30 µg/L) is used for both response-action and long-term monitoring of ground water at the Latty Avenue Properties. Total U concentrations were compared to the 30 µg/L monitoring guideline. Total U concentrations (in µg/L) were calculated as follows from the isotopic results (in pCi/L) and the specific activities (in pCi/µg) for each radionuclide.

$$TotalU\left(\mu g/L\right) = \left[\frac{U^{234}\left(pCi/L\right)}{6240\left(pCi/\mu g\right)}\right] + \left[\frac{U^{235}\left(pCi/L\right)}{2.16\left(pCi/\mu g\right)}\right] + \left[\frac{U^{238}\left(pCi/L\right)}{0.335\left(pCi/\mu g\right)}\right]$$

Those soil COCs with concentrations above the ROD guidelines in HZ-A ground-water samples at the Latty Avenue Properties during CY 2019 are listed in Table 4-2. Because no ground-water sampling data are available for HISS-11A prior to CY 2011, the ROD guidelines for HISS-11A were developed using the pre-2006 data from the well previously at this location (HISS-11).

Table 4-2. Analytes Exceeding ROD Guidelines in HZ-A Ground Water at the Latty Avenue Properties in CY 2019

Analyte	Units	Station	ROD Guidelines[a]	Minimum Detected	Maximum Detected	Mean Detected	No. Detects > ROD Guidelines[a]	Frequency of Detection
Cadmium	µg/L	HISS-10	1.4	0.32 J	1.5	0.91	1	2/3
Molybdenum	µg/L	HISS-10	5.6	30	36	33.3	3	3/3
Selenium	µg/L	HISS-10	4.8	17	72	53.3	2	3/3
	µg/L	HW22	7.6	20	20	20	1	1/1

[a] ROD guidelines include the response-action monitoring guidelines and the total U monitoring guideline of 30 µg/L. Response-action monitoring guideline = 2 x UCL_{95}, based on historical concentrations before RAs were initiated (USACE 2005). Results are reported to two significant digits.

Three inorganic COCs, cadmium, molybdenum and selenium, were detected above their ROD guidelines in HZ-A ground water at the Latty Avenue Properties in CY 2019. Cadmium was detected in HISS-10 at levels above the ROD guideline of 1.4 µg/L in the first-quarter sample (1.5 µg/L). However, cadmium did not exceed the ROD guideline at HISS-10 when measurement error was taken into account. Molybdenum was detected in HISS-10 at levels above the ROD guideline of 5.6 µg/L in the first-, second-, and fourth-quarter samples (34 µg/L, 30 µg/L and 36 µg/L, respectively). Molybdenum was above the ROD guideline in the previous sampling events conducted in the third quarter and fourth quarter of CY 2018. Therefore, molybdenum concentrations in HISS-10 have exceeded the ROD guideline for more than 12 months. The selenium concentration exceeded the ROD guideline (7.6 µg/L) in HISS-10 in the first-, second-, and fourth-quarter samples (71 µg/L, 72 µg/L and 17 µg/L, respectively). Selenium was above the ROD guideline in the previous sampling events conducted in the third and fourth quarters of CY 2018. Therefore, selenium concentrations in HISS-10 have exceeded the ROD guideline for more than 12 months. In addition, selenium was detected in HW22 at levels above the ROD guideline of 17 µg/L in the fourth-quarter sample (20 µg/L). Selenium was not detected above the ROD guideline in the previous sampling events conducted in the second quarter of CY 2017 Therefore, selenium concentrations in HW22 have not exceeded the ROD guideline for more than 12 months. No radiological soil COCs were detected at concentrations above the ROD guidelines in HZ-A ground water at the Latty Avenue Properties in CY 2019.

In summary, comparison of the data to the ROD guidelines indicates that two COCs, molybdenum and selenium, exceeded the ROD guidelines in HZ-A ground water in CY 2019 when measurement error is taken into account. Because a significant degradation of CWC surface water has not occurred and is not anticipated, no findings currently indicate significantly degraded ground-water conditions in HZ-A ground water, as defined by the ROD. However, because molybdenum and selenium levels in HISS-10 have exceeded the ROD guideline for a period of at least 12 months, ground-water monitoring will continue subject to subsequent CERCLA 5-year reviews.

HZ-C Ground Water

Ground-water samples were collected from one HZ-C well (HW23) in CY 2019. This well was sampled for both radionuclides and inorganics during the second quarter. Concentrations of all inorganic and radiological soil COCs were below the ROD ground-water guidelines in HW23 during CY 2019.

In summary, the CY 2019 HZ-C ground-water data from the Latty Avenue Properties indicate that no analytes were detected at concentrations above ROD ground-water criteria in HZ-C ground water. Therefore, there is currently no finding of significantly degraded ground-water conditions in HZ-C ground water.

4.1.2 Comparison of Historical Ground-Water Data at the Latty Avenue Properties

Ground-water sampling has been conducted at the Latty Avenue Properties from CY 1984 to the present. The most comprehensive ground-water monitoring program, involving sampling from 18 monitoring wells, was conducted at the site in the summer of CY 1997. Results from subsequent sampling events were used to evaluate contaminant trends at the Latty Avenue Properties during the period from the first quarter of CY 1999 to the fourth quarter of CY 2019. Statistical analysis was used to assist with identifying trends for those contaminants that exceeded the ROD guidelines in CY 2019.

Statistical Method and Trend Analysis

Several statistical methods are available to evaluate contaminant trends in ground water. These include the Mann-Kendall Trend Test, the Wilcoxon Rank Sum (WRS) Test, and the Seasonal Kendall Test (USEPA 2000). The latter two tests are applicable to data that may or may not exhibit seasonal behavior, but generally require larger sample sizes than the Mann-Kendall Trend Test. The Mann-Kendall Trend Test was selected for this project because this test can be used with small sample sizes (as few as four data points), and because a seasonal variation in concentrations was not indicated by the time-versus-concentration plots at the NC Sites. The Mann-Kendall Trend Test is a non-parametric test and, as such, is not dependent upon assumptions of distribution, missing data, or irregularly-spaced monitoring periods. In addition, data reported as being less than the detection limit (DL) can be used (Gibbons 1994). The test can assess whether a time-ordered dataset exhibits an increasing or decreasing trend, within a predetermined level of significance. While the Mann-Kendall Trend Test can use as few as four data points, often this is not enough data to detect a trend. Therefore, the test was performed only at those monitoring stations at the NC Sites for which data have been collected for at least six sampling events.

A customized Microsoft Excel® spreadsheet was used to perform the Mann-Kendall Trend Test. The test involves listing the sampling results in chronological order and computing all differences that may be formed between current measurements and earlier measurements. The value of the test statistic (S) is the difference between the number of strictly positive differences and the number of strictly negative differences. If S is a large positive value, then evidence indicates an increasing trend in the data. If S is a large negative value, then evidence indicates a decreasing trend in the data. If no trend exists and all observations are independent, then all rank orderings of the annual statistics are equally likely (USEPA 2000). The results of the Mann-Kendall Trend Test are reported in terms of a p-value or Z-score, depending on sample size, N. If the sample size is less than or equal to 10, then the p-value is computed. If the p value is less than or equal to 0.05, the test concludes that the trend is statistically significant. If the p value is greater than 0.05, the test concludes no evidence of a significant trend exists. For dataset sizes larger than 10, the Z-score is compared to ±1.65, which is the comparison level at a 95 percent confidence level. If the Z-score is greater than 1.65, the test concludes that a significant upward trend exists. If the Z-score is less than –1.65, the test concludes that a significant downward trend exists. For Z-scores between –1.65 and 1.65, no evidence of a significant trend exists.

The results of the Mann-Kendall Trend Test are less reliable for datasets containing a high number of non-detects, particularly if the DL changes over time. For that reason, for datasets in which more than 50 percent of the time-series data are non-detect, the Mann-Kendall Trend Test was not conducted. No general consensus exists regarding the percentage of non-detects that can be handled by the Mann-Kendall Trend Test. However, because the Mann-Kendall Trend Test is a nonparametric test that uses relative magnitudes, not actual values, it is generally valid even in cases in which there are a large number of non-detects.

Only unfiltered data were used, and split and QC sample results were not included in the database for the Mann-Kendall Trend Test. The Mann-Kendall Trend Test is used to evaluate the radiological data and to determine trends without regard to isotopic analysis. In addition, for monitoring wells for which the Mann-Kendall Trend Test has indicated a trend (either upward or downward), another analysis is performed to determine whether the trend is due to inherent error associated with the analytical test method for each sample analysis. This analysis involves graphing the data and the associated error-bar for the specific constituent. The time-versus-concentration plot for molybdenum in HISS-10 is provided on Figure 4-3.

Results of Trend Analysis for Ground Water at the Latty Avenue Properties

For those stations at which an analyte exceeded the ROD guideline at least once during the year and for which sufficient historical data were available to evaluate trends (i.e., at least six samples), statistical trend analysis is conducted to assess whether concentrations of the analyte are increasing (upward trending) or decreasing (downward trending) over time. For the purposes of this trend analysis, a statistically significant trend in concentration is defined as a trend with a confidence level greater than 95 percent. The confidence level denotes the probability that the indicated trend is an actual trend in the data, rather than a result of the random nature of environmental data.

HZ-A Ground Water

The Mann-Kendall Trend Test was performed for those wells in which analytes exceeded the ROD guidelines at least once during CY 2019, for which sufficient data were available (i.e., at least six samples were collected during the period from the first quarter of CY 1999 to the fourth quarter of CY 2019), and at which the percentage of non-detect results is less than or equal to 50 percent. The Mann-Kendall Trend Test was performed using data collected during the period from the first quarter of CY 2002 to the fourth quarter of CY 2019.

Inorganics

The concentration of two inorganic soil COCs, molybdenum and selenium, were above the ROD ground-water criteria in the CY 2019 ground-water samples from HZ-A well HISS-10. In addition, the concentration of selenium was above the ROD ground-water criteria in the CY 2019 ground-water samples from HZ-A well HW22. Therefore, a trend analysis was conducted for molybdenum in HISS-10 and for selenium in HISS-10 and HW22. For molybdenum and selenium in HISS-10, the dataset was restricted to the time period CY 2002 through CY 2019 to meet the Mann-Kendall Trend Test requirement that the dataset have a detection frequency greater than 50 percent. As shown in Table 4-3 and on the time-versus-concentration plot on Figure 4-3, a statistically significant increasing trend in molybdenum concentrations (i.e., a trend with a confidence level greater than 95 percent) was observed for HISS-10 for the CY 2002 through CY 2019 dataset. No trend was identified for selenium in HISS-10 or HW22.

Table 4-3. Results of the Mann-Kendall Trend Test for Analytes Exceeding the ROD Guidelines at the Latty Avenue Properties in CY 2019

Analyte	Station	N[a]	Test Statistics[b]		Trend[d]
			S[c]	Z[c]	
Molybdenum	HISS-10	19	109	3.80	Upward Trend
Selenium	HISS-10	19	43	1.48	No Trend
	HW22	20	-23	-0.72	No Trend

[a] For HW22, N is the number of unfiltered ground-water sample results for a particular analyte for the period between January of 2000 and December of 2019. For HISS-10, the dataset was restricted to January of 2002 to December of 2019 in order to meet the Mann-Kendall Trend Test requirement that the dataset have a detection frequency greater than 50 percent.

[b] Test Statistics: S – the S-Statistic; Z – Z-score, or normalized test statistic (for datasets having N greater than 10).

[c] One-tailed Mann-Kendall Trend Tests were performed at a UCL_{95}.

[d] Trend: If N greater than 10, the Z-score is compared to ±1.65 to determine trend significance.

Radionuclides

Concentrations of all radiological COCs were below the ROD ground-water criteria in ground-water samples from the seven HZ-A wells sampled in CY 2019. Therefore, a trend analysis was not conducted for radiological COCs in HZ-A ground water.

The time-versus-concentration plots shown on Figure 4-4 provide an overview of the temporal and spatial variability in the concentrations of total U in ground water at the Latty Avenue Properties. Total U concentrations were calculated using the isotopic U results measured in pCi/L and converted to µg/L using radionuclide-specific activities. The reported values were used for detected and non-detected isotopic values, except when the value was negative. If the reported value was negative, a value equal to zero was substituted for the result prior to calculating the total U concentration.

HZ-C Ground Water

The Mann-Kendall Trend Test is performed for those wells in which analytes exceeded the ROD guidelines at least once during CY 2019. Concentrations of all soil COCs were below the ROD ground-water criteria in CY 2019 ground-water samples from the HZ-C well HW23 when measurement error was taken into account. Therefore, a trend analysis was not conducted for HZ-C ground water.

4.1.3 Evaluation of the Potentiometric Surface at the Latty Avenue Properties

Ground-water surface elevations were measured at the Latty Avenue Properties in February, May, August, and November of CY 2019. Ground-water elevation contours were drawn using the May 6, 2019, and November 7, 2019, measurements to illustrate ground-water flow conditions in wet and dry seasons, respectively. The potentiometric surface maps, shown on Figures 4-5 through 4-8, were developed for both HZ-A and HZ-C ground-water zones. The ground-water flow direction is interpreted to be perpendicular to the ground-water equipotential contours. The ground-water surface elevations at the Latty Avenue Properties and the SLAPS and SLAPS VPs were mapped on the same figures, because these areas are located in the same ground-water flow regime.

The top of the saturated zone occurs in the low hydraulic conductivity silts and clays of stratigraphic Units 2 and 3T at the Latty Avenue Properties. The potentiometric data indicate some mounding of the HZ-A ground water at the HISS and Futura. Wells HISS-01, HISS-10, and HISS-17S have the highest potentiometric surface elevations, with lower ground-water elevations measured in the surrounding wells. At the western edge of the HISS and Futura, ground water in the HZ-A zone flows to the west toward CWC. The local horizontal gradient for HZ-A ground water at the HISS and Futura ranged from 0.011 ft/ft (May) to 0.017 ft/ft (November) in CY 2019. Based on the CY 2019 water-level measurements, the position of the HZ-A ground-water surface averages approximately 1.7 ft higher in the corresponding shallow wells at the HISS in the wet season (May) than in the dry season (November).

The potentiometric surface of the HZ-C ground water at the Latty Avenue Properties is not well defined due to the limited data available for the deeper HZs. Based on measured ground-water elevations in the HZ-C monitoring well HW23 at the Latty Avenue Properties and several HZ-C wells located to the southwest at the SLAPS and SLAPS VPs, the flow direction in the HZ-C ground water beneath the Latty Avenue Properties was generally toward the east-northeast at an average horizontal gradient of 0.002 ft/ft in both May and November of CY 2019.

4.2 ST. LOUIS AIRPORT SITE AND ST. LOUIS AIRPORT SITE VICINITY PROPERTIES

Ground-water monitoring wells have been installed at the SLAPS and SLAPS VPs to characterize the site stratigraphy, ground-water chemistry, and ground-water migration pathways.

Stratigraphy at the St. Louis Airport Site and St. Louis Airport Site Vicinity Properties

In the vicinity of the SLAPS and the adjacent SLAPS VP ballfields, surficial deposits (Unit 1) include topsoil and anthropogenic fill (rubble, scrap metal, gravel, glass, slag, and concrete) generally less than 14 ft thick (Figures 4-1, 4-9, and 4-10). Unit 2 is comprised of loess and has a thickness of 11 to 30 ft. Unit 3, which is subdivided into Subunits 3T, 3M, and 3B, consists primarily of clay and silt lakebed deposits. Each of these clayey subunits has a thickness of up to 30 ft. Unit 4 consists of clayey gravel with fine to very-fine sand and sandy gravel. This unit is interpreted to be approximately 5 to 15 ft thick and thins eastward and westward of the SLAPS. This unit is absent beneath the eastern part of the SLAPS, where the 3T, 3M, and 3B drape, or onlap, onto shale bedrock. Below Units 3 and 4 are Units 5 and 6, which consist of Pennsylvanian shale/siltstone and Mississippian limestone, respectively. Depth to bedrock ranges from approximately 55 ft on the eastern part of the SLAPS to a maximum of 90 ft toward CWC to the west. The hydrogeologic and geologic setting at the SLAPS and SLAPS VPs is similar to that at the HISS, with one exception. The Pennsylvanian shale bedrock unit (Unit 5), present beneath portions of the SLAPS and SLAPS VPs, is absent beneath the HISS.

Five HZs (HZ-A through HZ-E) are recognized beneath the SLAPS and SLAPS VPs. HZ-A consists of fill (Unit 1) and the Pleistocene, glacially related sediments of stratigraphic Unit 2, and Subunit 3T. Underlying HZ-A is HZ-B, which consists of highly impermeable clay (Subunit 3M). HZ-C consists of the stratigraphic Subunit 3B and Unit 4. The shale (Unit 5) and limestone (Unit 6) bedrock are recognized as HZ-D and HZ-E, respectively. HZ-E is the protected aquifer for the site.

The shallow (HZ-A) ground-water flow is toward CWC under normal flow conditions. Average depths to the ground-water surface at the site range from near the ground surface during the spring months to approximately 10 ft below ground surface (bgs) during the fall months. The dominant flow in HZ-A is through the more permeable Unit 2. Each of the subunits in Unit 3 has lower hydraulic conductivity than Units 1, 2, and 4. Units HZ-B and the Pennsylvanian shale HZ-D limit the passage of ground water vertically beneath the SLAPS and SLAPS VPs. Subunit 3M of HZ-B acts as a vertical barrier to ground-water movement under the western portion of the site. Subunit 3M is a clayey aquitard (unit resisting water passage) that effectively separates the HZ-A ground-water system from the underlying HZ-C and HZ-E. The dominant unit to obtain water in the lower horizon is the sandy, clayey gravel of Unit 4. Unit 4 of HZ-C is used as a surrogate for HZ-E, because water movement within the Mississippian limestone is dependent upon the limestone's joint and solutioned system. In addition, the limestone has exhibited massive characteristics and is very slow to recharge.

Summary of Calendar Year 2019 Ground-Water Monitoring Results at the St. Louis Airport Site and St. Louis Airport Site Vicinity Properties

Three soil COCs (chromium, nickel, and total U) exceeded the ROD guidelines in HZ-A ground water at the SLAPS and SLAPS VPs in CY 2019 when measurement error was taken into account. One radiological soil COC (total U) has exceeded the ROD guideline for a period of at least 12 months. Statistically significant increasing trends were observed for chromium concentrations in B53W09S. The Mann-Kendall Trend Test results indicate no trend for nickel in B53W07S or for total U in PW46.

Because a significant degradation of CWC surface water has not occurred and is not anticipated, no findings currently indicate significantly degraded ground-water conditions in HZ-A ground water, as defined by the ROD. However, because total U levels have exceeded the ROD guidelines for a period of at least 12 months, ground-water monitoring will continue subject to subsequent CERCLA 5-year reviews.

Based on the CY 2019 results for B53W07D, two inorganic soil COCs, chromium and nickel, concentrations exceeded ROD ground-water guidelines in HZ-C during CY 2019. Neither of these inorganic soil COCs exceeded their ROD guidelines for a period of at least 12 months in B53W07D. Because no soil COCs have statistically increased in ground water (relative to the well's historical data and accounting for uncertainty) for more than a 12-month period, no findings currently indicate significantly degraded ground-water conditions in HZ-C through HZ-E ground water at the SLAPS and SLAPS VPs.

4.2.1 Evaluation of Ground-Water Monitoring Data at the St. Louis Airport Site and St. Louis Airport Site Vicinity Properties

The purpose of the ground-water monitoring conducted at the SLAPS and SLAPS VPs is specified in the ROD (USACE 2005). Response-action monitoring is currently being conducted in HZ-A and HZ-C to assess the improvement of water quality due to source removals, and to document the protection of the limestone aquifer (HZ-E) during the RA.

As noted in Section 4.1.1, the ground-water monitoring data at the SLAPS and SLAPS VPs are evaluated against the requirements for ground-water monitoring identified in the ROD (USACE 2005).

In addition to the previously described monitoring, an evaluation of concentration trends is conducted for the COCs detected in excess of the ROD guidelines in ground water to support assessment of the effectiveness of the RA in the CERCLA 5-year reviews.

Monitoring Well Network at the St. Louis Airport Site and St. Louis Airport Site Vicinity Properties

The current EMP well network for the SLAPS and SLAPS VPs is shown on Figure 4-11. A summary of the HZ information for the ground-water monitoring wells located at the SLAPS and SLAPS VPs is provided in Table 4-4. HZ-A is considered the upper (or shallow) zone, while HZ-C, HZ-D, and HZ-E have been considered the lower (or deep) zone. This designation of upper and lower zones is separated at Subunit 3M of HZ-B. A total of 14 wells are screened exclusively across the shallow zone (HZ-A). A total of4 wells are screened exclusively in the lower zone across HZ-C, HZ-D, and/or HZ-E. The remaining well (PW36) is screened across both HZ-B and HZ-C. Appendix G provides the well maintenance checklists for the annual inspection of the ground-water monitoring wells at the SLAPS and SLAPS VPs, conducted in March 2018.

Table 4-4. Ground-Water Monitoring Well Network at the SLAPS and SLAPS VPs in CY 2019

Well ID	Screened HZs			
	HZ-A	HZ-B	HZ-C	HZ-E
B53W01D			X	
B53W01S[a]	X			
B53W06S[a]	X			
B53W07D[a]			X	

Table 4-4. Ground-Water Monitoring Well Network at the SLAPS and SLAPS VPs in CY 2019 (Continued)

Well ID	Screened HZs			
	HZ-A	HZ-B	HZ-C	HZ-E
B53W07S[a]	X			
B53W09S[a]	X			
B53W13S	X			
B53W17S[a]	X			
B53W18S	X			
B53W19S	X			
MW31-98	X			
MW32-98[a]	X			
PW35				X
PW36		X	X	
PW42			X	
PW43[a]	X			
PW44	X			
PW45	X			
PW46[a]	X			

[a] Wells sampled in CY 2019.

During CY 2019, nine ground-water wells were sampled for various parameters at the SLAPS and SLAPS VPs. Ground-water samples collected from these wells were analyzed for both radiological and inorganic constituents. Historically, radiological parameters (Ra-226, Ra-228, Th-228, Th-230, Th-232, U-234, U-235, and U-238) and inorganic constituents have been the main focus of the ground-water sampling. The analytical data for the CY 2019 ground-water sampling at the SLAPS and SLAPS VPs are contained in Appendix E, Table E-4.

In CY 2019, ground-water sampling was conducted on February 19 (first quarter); May 7 and 8 and June 19 (second quarter); August 7 (third quarter); and November 8 (fourth quarter). The CY 2019 results were compared to ROD guidelines for the soil COCs identified in the ROD (i.e., antimony, arsenic, barium, cadmium, chromium, molybdenum, nickel, selenium, thallium, total U, vanadium, Ra-226, Ra-228, Th-228, Th-230, Th-232, U-234, U-235, and U-238).

HZ-A Ground Water

Eight HZ-A wells (B53W01S, B53W06S, B53W07S, B53W09S, B53W17S, MW32-98, PW43, and PW46) were sampled at the SLAPS and SLAPS VPs during CY 2019. Table 4-5 lists those soil COCs exceeding the ROD guidelines in CY 2019 ground-water samples from HZ-A wells at the SLAPS and SLAPS VPs.

Table 4-5. Analytes Exceeding ROD Guidelines in HZ-A Ground Water at the SLAPS and SLAPS VPs in CY 2019

Analyte	Units	Station	ROD Guidelines[a]	Minimum Detected	Maximum Detected	Mean Detected	No. Detects > ROD Guidelines[a]	Frequency of Detection
Chromium	µg/L	B53W09S	9.6	5.7	25	15.35	1	2/2
	µg/L	B53W17S	7.0	12.0[b]	12.0[b]	12.0	1	1/1
Nickel	µg/L	B53W07S	5.2	5.6[b]	24	14.4	2	2/2
	µg/L	PW43	3.6	8.5[b]	8.5[b]	8.5	1	1/1
Selenium	µg/L	B53W07S	5.2	3.4	6.2[b]	4.9	3	3/3

Table 4-5. Analytes Exceeding ROD Guidelines in HZ-A Ground Water at the SLAPS and SLAPS VPs in CY 2019 (Continued)

Analyte	Units	Station	ROD Guidelines[a]	Minimum Detected	Maximum Detected	Mean Detected	No. Detects > ROD Guidelines[a]	Frequency of Detection
U-234	pCi/L	PW46	5,500	385[c]	1242[c]	806[c]	0	3/3
U-235	pCi/L	PW46	290	19.9[c]	88.1[c]	52[c]	0	3/3
U-238	pCi/L	PW46	5,600	409[c]	1,370[c]	865[c]	0	3/3
Total U[d]	µg/L	PW46	30	1,230	4,130	2,607	3	3/3

[a] ROD guidelines = response-action monitoring guideline and total U monitoring guideline. Response-action monitoring guideline = 2 x UCL_{95} (based on historical concentrations before RAs were initiated). Total U monitoring guideline = 30 µg/L (USACE 2005).

[b] The results did not exceed the ROD guideline if the associated measurement errors are taken into account.

[c] The results for U-234, U-235, and U-238 do not exceed the ROD guidelines. The results are provided because they were used in the total U calculation.

[d] Total U values were calculated from isotopic concentrations in pCi/L and converted to µg/L using radionuclide-specific activities with the following formula: total U (µg/L) = U-234 (pCi/L)/6240 + U-235 (pCi/L)/2.16 + U-238 (pCi/L)/0.335.

Three inorganic soil COCs (chromium, nickel, and selenium) were detected in HZ-A ground water at concentrations in excess of the ROD guidelines at the SLAPS and SLAPS VPs during CY 2019. Chromium was detected at concentrations in excess of the ROD guidelines in the HZ-A wells B53W09S and B53W17S during CY 2019. Chromium concentrations exceeded the ROD guideline of 9.6 µg/L in the second-quarter sample from B53W09S (25 µg/L). However, chromium concentrations did not exceed the ROD guideline in the fourth-quarter sample (5.7 µg/L). Therefore, chromium concentrations in B53W09S did not exceed the ROD guideline for more than 12 months. Chromium concentrations exceeded the ROD guideline of 7.0 µg/L in the second-quarter sample from B53W17S (12 µg/L). However, chromium concentrations did not exceed the ROD guideline at B53W17S when measurement error was taken into account.

Nickel was detected at concentrations in excess of the ROD guidelines in two HZ-A wells (B53W07S and PW43) during CY 2019. Nickel concentrations exceeded the ROD guideline of 5.2 µg/L in the first-quarter sample from B53W07S (24 µg/L). The concentration of nickel at B53W07S during the second-quarter sampling event did not exceed the ROD guideline because it was below the DL. Therefore, the nickel concentration at B53W07S has not exceeded the ROD guideline for a period of at least 12 months. Nickel concentrations exceeded the ROD guideline of 3.6 µg/L in the second-quarter sample from PW43 (8.5 µg/L). However, nickel concentrations did not exceed the ROD guideline at PW43 when measurement error was taken into account. The selenium concentration in B53W07S exceeded the ROD guideline of 5.2 µg/L in the third-quarter sample (6.2 µg/L). However, the selenium concentration did not exceed the ROD guideline at B53W07S when measurement error was taken into account.

One radiological soil COC (total U) exceeded the ROD guideline of 30 µg/L in HZ-A ground water at the SLAPS and SLAPS VPs. The total U concentration in PW46 (calculated from the isotopic concentrations) exceeded the 30-µg/L guideline during the first-, second-, and third-quarter CY 2019 sampling events. The total U concentration during CY 2019 in PW46 ranged from 1,230 µg/L (third-quarter sample) to 4,130 µg/L (second-quarter sample). PW46 is an RA evaluation well that was installed at the western edge of the SLAPS in April of 2006. Although no ground-water sampling data are available for PW46 prior to May 18, 2006, data are available for PW38, the previous well at this location. The ROD guidelines for PW46 were developed using pre-2004 data from PW38. Based on the total U data collected from PW38 prior to its decommissioning in November of 2003, the CY 2019 total U concentration at PW46 is lower than the historical concentrations reported at PW38. Based on the statistical evaluation of trends presented in

Section 4.2.2, no statistically significant trend in the concentrations of total U was observed in PW46 during CY 2019.

In summary, two inorganic soil COCs (chromium in B53W09S and nickel in B53W07S) exceeded the ROD guidelines in HZ-A ground water at the SLAPS and SLAPS VPs in CY 2019 when measurement error was taken into account. However, these inorganics did not exceed the ROD guidelines for a period of at least 12 months. In addition, the concentration of total U exceeded the guideline of 30 µg/L in one HZ-A well (PW46) located at the western edge of the SLAPS and has exceeded the ROD guideline for a period of at least 12 months. However, comparison of the CY 2019 concentration with historical well data did not indicate that significant degradation of HZ-A ground water is occurring. Because a significant degradation of CWC surface water has not occurred and is not anticipated, no findings currently indicate significantly degraded ground-water conditions in HZ-A ground water, as defined by the ROD. However, because total U levels have exceeded the ROD guidelines for a period of at least 12 months, monitoring will continue subject to subsequent CERCLA 5-year reviews.

Lower Ground Water (HZ-C Through HZ-E)

Table 4-6 lists those soil COCs exceeding the ROD guidelines in ground-water samples collected from HZ-C wells at the SLAPS and SLAPS VPs in CY 2019. Ground-water samples were collected from one HZ-C well (B53W07D) in CY 2019. This well was sampled for inorganics during the third quarter. Two inorganic soil COCs (chromium and nickel) were detected at concentrations in excess of the ROD ground-water criteria in samples collected from B53W07D in CY 2019. However, chromium and nickel concentrations did not exceed the ROD guidelines in the previous sample collected during the third-quarter of CY 2018. Therefore, chromium and nickel have not exceeded the ROD guidelines for a period of at least 12 months. No findings currently indicate significantly degraded ground-water conditions in CY 2019 HZ-C through HZ-E ground-water data from the SLAPS and SLAPS VPs.

Table 4-6. Analytes Exceeding ROD Guidelines in HZ-C Ground Water at the SLAPS and SLAPS VPs in CY 2019

Analyte	Units	Station	ROD Guidelines[a]	Minimum Detected	Maximum Detected	Mean Detected	No. Detects > ROD Guidelines[a]	Frequency of Detection
Chromium	µg/L	B53W07D	5.6	90	90	90	1	1/1
Nickel	µg/L	B53W07D	12	51	51	51	1	1/1

[a] ROD guidelines = response-action monitoring guideline and total U monitoring guideline. Response-action monitoring guideline = 2 x UCL_{95} (based on historical concentrations before RAs were initiated). Total U monitoring guideline = 30 µg/L (USACE 2005).

4.2.2 Comparison of Historical Ground-Water Data at the St. Louis Airport Site and St. Louis Airport Site Vicinity Properties

Results of ground-water sampling conducted from CY 1998 though CY 2019 indicate that various inorganics and radionuclides have been detected at concentrations in excess of the ROD guidelines in HZ-A ground water at the SLAPS and SLAPS VPs. Statistical analysis was used to identify trends for those contaminants that exceeded these guidelines during CY 2019. As described in Section 4.1.2, the Mann-Kendall Trend Test is the statistical method used to evaluate contaminant trend in ground water. Filtered data, split samples, and field duplicates were not included in the analysis. For datasets in which 50 percent or more of the time-series data are non-detect, the Mann-Kendall Trend Test was not performed.

Results of Trend Analysis at the St. Louis Airport Site and St. Louis Airport Site Vicinity Properties

The evaluation of historical trends for ground water at the SLAPS and SLAPS VPs focuses on those contaminants that exceeded the ROD guidelines in samples collected during CY 2019. For those monitoring wells at which an analyte exceeded these guidelines in one or more samples during CY 2019 and the historical dataset had a detection frequency greater than 50 percent and a sample size of at least six, a statistical trend analysis was conducted to assess whether concentrations of the analyte are increasing (upward trending) or decreasing (downward trending) over time. For the purposes of this EMDAR, a statistically significant trend in concentration is defined as a trend with a confidence level greater than 95 percent. Because the Mann-Kendall Trend Test does not consider the effects of measurement error and does not provide any information concerning the magnitude of trends, time-versus-concentration plots were used to evaluate these factors.

Based on the CY 2019 ground-water monitoring data for the SLAPS and SLAPS VPs, three soil COCs (chromium, nickel, and total U) exceeded the ROD guidelines in HZ-A ground water in CY 2019 when measurement error was taken into account. The Mann-Kendall Trend Test was performed for chromium in B53W09S; nickel in B53W07S; and total U in PW46. Because the majority of the historical results were near or below their DLs, a trend analysis was not performed for chromium in B53W17S. To aid in the evaluation of trends, time-versus-concentration plots for chromium and nickel and for total U are provided on Figures 4-12 and 4-13, respectively.

Two soil COCs exceeded their ROD guidelines in lower ground water (HZ-C through HZ-E) during CY 2019 at the SLAPS and SLAPS VPs: chromium and nickel exceeded their ROD guidelines in HZ-C well B53W07D. The Mann-Kendall Trend Test was performed for nickel in B53W07D. Trend analysis was not performed for chromium in B53W07D because the majority of the historical results were near or below their DLs.

Inorganics

The results of the Mann-Kendall Trend Tests are provided in Table 4-7. As shown in Table 4-7, statistically significant increasing trends were observed for chromium concentrations in B53W09S and for nickel concentrations in B53W07D. Because the Mann-Kendall Trend Test does not consider the effects of measurement error and does not provide any information concerning the magnitude of the trend, time-versus-concentration plots for those soil COCs having statistically significant increasing trends in ground water (provided on Figure 4-12) were used to evaluate these factors. The best-fit trend lines based on the data scatter are also shown on the graphs on this figure.

Table 4-7. Results of Mann-Kendall Trend Test for Analytes with Concentrations Exceeding ROD Guidelines in Ground Water at the SLAPS and SLAPS VPs in CY 2019

Analyte	Station	N[a]	Test Statistics[b]		Trend[d]
			S[c]	Z[c]	
Chromium	B53W09S	33	262	4.05	Upward Trend
Nickel	B53W07D	20	108	3.53	Upward Trend
	B53W07S	11	19	1.48	No Trend
Total U	PW46	22	7	-0.17	No Trend

[a] N is the number of unfiltered ground-water sample results for a particular analyte for the period between January of 1999 and December of 2019. With the exception of total U at PW46, and nickel at B53W07S, the time period is between January of 1999 and December of 2019. For PW46, which was installed in April 2006, the dataset covers the period between May of 2006 and December of 2019. For B53W07S, the dataset covers was restricted to the period between January of 2006 and December of 2019 in order to meet the Mann-Kendall Trend Test requirement that the dataset have a detection frequency greater than 50 percent.

[b] Test Statistics: S – the S-Statistic; Z – Z-score, or normalized test statistic (used if N greater than 10).

[c] One-tailed Mann-Kendall Trend Tests were performed at a 95-percent level of confidence.

[d] Trend: If N is greater than 10, the Z-score is compared to ±1.64 to determine trend significance.

Radionuclides

A statistical evaluation of historical uranium concentrations has been conducted using total U concentrations. Total U values were calculated from isotopic concentrations in pCi/L and converted to µg/L using radionuclide-specific activities. The Mann-Kendall Trend Test was performed for total U in the HZ-A well with concentrations in excess of the 30-µg/L ROD guideline in CY 2019 (PW46). The results of the Mann-Kendall Trend Test are provided in Table 4-7. The Mann-Kendall Trend Test results indicate no trend for total U in PW46. A graph of time-versus-total-U concentrations for PW46 is shown on Figure 4-13. PW46 was installed in April of 2006 near the former location of PW38 and is screened across the same interval. For comparison purposes, the PW38 data collected between March of 2000 and November of 2003 are also shown on the graph of PW46 data on Figure 4-13. As indicated on the graph, total U concentrations in PW46 have decreased from the levels reported at PW38 prior to installation of PW46. Time-versus-concentration graphs for total U for some of the wells sampled in CY 2019 at the SLAPS and SLAPS VPs are provided on Figure 4-14.

4.2.3 Evaluation of Potentiometric Surface at the St. Louis Airport Site and St. Louis Airport Site Vicinity Properties

Ground-water surface elevations were measured from wells at the SLAPS and SLAPS VPs in February, May, August, and November of CY 2019. Ground-water elevation contours were drawn using the May 6, 2019, and November 7, 2019, measurements to provide a comparison of the ground-water flow conditions during periods of high and low ground-water elevations, respectively. The potentiometric surface maps, shown on Figures 4-5 through 4-8, were developed for both HZ-A and HZ-C ground-water zones. The ground-water flow direction is interpreted to be perpendicular to the ground-water equipotential contours.

In May and November of CY 2019, the ground-water flow direction in the HZ-A ground water at the SLAPS and adjacent SLAPS VP ballfields was northwesterly toward CWC (Figures 4-5 and 4-7). In the eastern portion of the SLAPS, the average horizontal hydraulic gradient was 0.005 ft/ft in the wet season (May 6, 2019) and 0.007 ft/ft in the dry season (November 7, 2019). The hydraulic gradient increases near CWC, where the average horizontal gradient ranges from 0.025 ft/ft (May 6, 2019) to 0.028 ft/ft (November 7, 2019). The unconfined HZ-A ground water is interpreted to discharge into CWC, which divides the HZ-A ground-water system south and east of the creek from areas north and west of CWC. Ground-water recharge comes from three primary sources: precipitation, off-site inflow of ground water, and creek bed infiltration during high creek stage. Ground-water discharge could occur by seepage into CWC during low creek stage (DOE 1994). The vertical gradient varies beneath the site and is influenced by stratigraphic heterogeneity and seasonal fluctuations in recharge and evapotranspiration. Based on the CY 2019 water-level measurements, the elevation of the HZ-A ground-water surface averaged approximately 4.4 ft higher in the corresponding shallow wells at the SLAPS and SLAPS VPs in the wet season (May) than in the dry season (November).

A review of the screened intervals in the deep wells indicates that many wells are screened across multiple lithologic units and HZs. Based on this review, the HZ-C (Units 3B and 4) potentiometric surface was determined to be a proper representation of the lower ground-water system. This review reduces the number of data points used to develop the potentiometric surface contours, but results in a higher level of confidence in contouring the HZ-C potentiometric surface.

The potentiometric surface contours for the HZ-C ground water in CY 2019 are illustrated on Figures 4-6 and 4-8. The flow direction in HZ-C is generally east or northeast beneath the

SLAPS and SLAPS VPs, at an average horizontal gradient of 0.0012 ft/ft in May and 0.0014 ft/ft in November of 2019. A comparison of the ground-water elevations from monitoring well pairs indicates that the wells completed in HZ-A exhibit different hydraulic heads from the wells completed in HZ-C. Near CWC, the potentiometric surface of the “confined” aquifer HZ-C averages approximately 5.8 ft higher than the potentiometric surface of the unconfined HZ-A, indicating an upward vertical gradient. The large difference in hydraulic head demonstrates that the HZ-A and HZ-C ground-water zones are distinct ground-water systems with limited hydraulic connection. This is supported by the lithologic data, which indicate that a highly impermeable clay (Subunit 3M of HZ-B) and silty clay (Subunit 3B of HZ-C) separates the HZ-A ground-water system from the underlying ground-water zones. The HZ-C potentiometric surfaces do not appear to be influenced by CWC (the creek’s thalweg is approximately 500 ft amsl) or by seasonal changes. These features are likely a result of the overlying clay layers limiting vertical ground-water movement.

THIS PAGE INTENTIONALLY LEFT BLANK

5.0 ENVIRONMENTAL QUALITY ASSURANCE PROGRAM

5.1 PROGRAM OVERVIEW

The environmental quality assurance (QA) program includes management of the QA/QC programs, plans, and procedures governing environmental monitoring activities at all SLS and at subcontracted vendor laboratories. This section discusses the environmental monitoring standards of the FUSRAP and the goals for these programs, plans, and procedures.

The environmental QA program provides the FUSRAP with reliable, accurate, and precise monitoring data. The program furnishes guidance and directives to detect and prevent problems from the time a sample is collected until the associated data are evaluated. The MDNR conducted site visits on April 9, 2019, May 9, 2010, and August 27, 2019, to observe the environmental monitoring activities. USEPA Region 7 and MDNR regulatory oversight of sampling activities provided an additional level of QA/QC.

Key elements in achieving the goals of this program are maintaining compliance with the QA program; personnel training; compliance assessments; use of QC samples; documentation of field activities and laboratory analyses; and a review of data documents for precision, accuracy, and completeness.

General objectives are as follows:

- To provide data of sufficient quality and quantity to support ongoing remedial efforts, aid in defining potential COCs, meet the requirements of the EMG and the SAG, and support the ROD (USACE 1999a, 2000, 2005);
- To provide data of sufficient quality to meet applicable State of Missouri and federal concerns (e.g., reporting requirements); and
- To ensure samples were collected using approved techniques and are representative of existing site conditions.

5.2 QUALITY ASSURANCE PROGRAM PLAN

The quality assurance program plan (QAPP) for activities performed at the NC Sites is described in Section 3.0 of the SAG. The QAPP provides the organization, objectives, functional activities, and specific QA/QC activities associated with investigations and sampling activities at the NC Sites.

QA/QC procedures are performed in accordance with applicable professional technical standards, USEPA requirements, government regulations and guidelines, and specific project goals and requirements. The QAPP was prepared in accordance with USEPA and USACE guidance documents, including *Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans* (USEPA 1991), *EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations* (USEPA 1994), and Engineer Manual (EM) 200-1-3, *Requirements for the Preparation of Sampling and Analysis Plans* (USACE 2001).

5.3 SAMPLING AND ANALYSIS GUIDE

The SAG summarizes standard operating procedures (SOPs) and data quality requirements for collecting and analyzing environmental data. The SAG integrates protocols and methodologies identified under various USACE and regulatory guidance. It describes administrative procedures for managing environmental data and governs sampling plan preparation, data review, evaluation and validation, database administration, and data archiving. The identified sampling and monitoring structures are delineated in programmatic documents such as the EMG (USACE 1999a) for the NC Sites, which is an upper-tier companion document to the SAG (USACE 2000). The EMICY19 outlines the analyses to be performed at the NC Sites for various media (USACE 2018a).

Flexibility to address non-periodic environmental sampling (e.g., specific studies regarding environmental impacts, well installations, and/or in-situ waste characterizations) was accomplished by the issuance of work descriptions. Environmental monitoring data obtained during these sampling activities were reported to the USEPA Region 7 on a quarterly basis.

5.4 FIELD SAMPLE COLLECTION AND MEASUREMENT

Prior to beginning field sampling, field personnel were trained, as necessary, and participated in a project-specific readiness review. These activities ensured that standard procedures were followed in sample collection and completion of field logbooks, chain-of-custody forms, labels, and custody seals. Documentation of training and readiness were submitted to the project file.

The master field investigation documents are the site field logbooks. The primary purpose of these documents is to record daily field activities; personnel on each sampling team; and any administrative occurrences, conditions, or activities that may have affected the fieldwork or data quality of any environmental samples for a given day. Guidance for documenting specific types of field sampling activities in field logbooks or log sheets is provided in Appendix C of EM 200-1-3, *Requirements for the Preparation of Sampling and Analysis Plans* (USACE 2001).

At any point in the process of sample collection or data and document review, a non-conformance report may be initiated if non-conformances are identified (Leidos 2015a). Data entered into the St. Louis FUSRAP database may be flagged accordingly.

5.5 PERFORMANCE AND SYSTEM AUDITS

Performance and system audits of both field and laboratory activities were conducted to verify that sampling and analysis activities were performed in accordance with the procedures established in the SAG and activity-specific work description or the EMICY19 (USACE 2018a).

5.5.1 Field Assessments

Internal assessments (audit or surveillance) of field activities (sampling and measurements) were conducted by the QA/QC Officer (or designee). Assessments included an examination of field sampling records; field instrument operating records; sample collection, handling, and packaging procedures; and maintenance of QA procedures and chain-of-custody forms. These assessments occurred at the onset of the project to verify that all established procedures were followed (systems audit).

Performance assessments followed the system audits to ensure that deficiencies had been corrected and to verify that QA practices/procedures were being maintained throughout the duration of the project. These assessments involved reviewing field measurement records, instrumentation calibration records, and sample documentation.

External assessments may be conducted at the discretion of the USACE, USEPA Region 7, or the State of Missouri.

5.5.2 Laboratory Audits

The on-site USACE St. Louis FUSRAP laboratory locations are subject to periodic review(s) by the local USACE Chemist to demonstrate compliance with the *Department of Defense/Department of Energy Consolidated Quality Systems Manual for Environmental Laboratories* (QSM) (U.S. Department of Defense [DOD] and DOE 2017). Accordingly, the on-site laboratories participate in blind, third-party performance evaluation studies (performance audits) at least twice per year, with results reported to the local USACE point(s) of contact. In addition, contract laboratories are required to be accredited under the DOD Environmental Laboratory Accreditation Program (ELAP). The DOD ELAP requires an annual audit and re-accreditation every 3 years.

These system audits include examining laboratory documentation of sample receipt, sample log-in, sample storage, chain-of-custody procedures, sample preparation and analysis, and instrument operating records. Performance audits consist of USACE laboratories receiving performance evaluation samples from an outside vendor for an ongoing assessment of laboratory precision and accuracy. The analytical results of the analysis of performance evaluation samples are evaluated by USACE Hazardous, Toxic, and Radioactive Waste – Center of Expertise and/or a local oversight chemist to ensure that laboratories maintain acceptable performance.

Internal performance and system audits of laboratories were conducted by the Laboratory QA Manager as directed in the *Laboratory Quality Assurance Plan for the FUSRAP St. Louis Radioanalytical Laboratory* (USACE 2018b). System audits included an examination of laboratory documentation of sample receipt, sample log-in, sample storage, chain-of-custody procedures, sample preparation and analysis, and instrument operating records against the requirements of the laboratory's SOPs. Internal performance audits were also conducted on a regular basis. Single-blind performance samples were prepared and submitted along with project samples to the laboratory for analysis. The Laboratory QA Manager evaluated the analytical results of these single-blind performance samples to ensure that the laboratory maintained acceptable performance. Quarterly QA/QC reports were generated and provided to the local USACE authority; these reports document the ongoing QC elements and allow further monitoring of quality processes/status. In addition, QA plans and methodology follow the guidance presented in the QSM (DOD and DOE 2017).

5.6 SUBCONTRACTED LABORATORY PROGRAMS

All samples collected during environmental monitoring activities were analyzed by USACE-approved subcontractor laboratories. QA samples collected for ground water and sediment were analyzed by the designated USACE QA laboratory. Each laboratory supporting this work maintained statements of qualifications including organizational structure, QA manual, and SOPs. Additionally, subcontracted laboratories were also required to be an accredited laboratory under the DOD ELAP.

Samples collected during these investigations were analyzed by the USEPA methods contained in *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW-846* (USEPA 1993) and by other documented USEPA or nationally recognized methods. Laboratory SOPs are based on the QSM) (DOD and DOE 2017).

5.7 QUALITY ASSURANCE AND QUALITY CONTROL SAMPLES

The QA and QC samples were analyzed for the purpose of assessing the quality of the sampling effort and the reported analytical data. The QA and QC samples include duplicate samples (–1) and split samples (–2). The equations utilized for accuracy and precision can be found in Section 5.9.

5.7.1 Duplicate Samples

These samples, which measure precision, were collected by the sampling teams and were submitted for analysis to the on-site USACE St. Louis FUSRAP laboratory or contract laboratories. The identity of duplicate samples is held blind to the analysts. The purpose of these samples is to provide activity-specific, field-originated information regarding the homogeneity of the sampled matrix and the consistency of the sampling effort. These samples were collected concurrently with the primary environmental samples and equally represent the medium at a given time and location. Duplicate samples were collected from each medium addressed by this project and were submitted to the contracted laboratories for analysis. One duplicate sample was collected for approximately every 20 field samples of each matrix and analyte across the SLS. Precision is measured by the relative percent difference (RPD) for radiological and by non-radiological analyses or the normalized absolute difference (NAD) for radiological analyses.

The RPDs for non-radiological analyses are presented in Tables 5-1 and 5-2. The RPDs and NADs for radiological analyses are presented in Tables 5-3 through 5-5. The overall precision for CY 2019 environmental monitoring activities was acceptable. See Section 5.9 for the evaluation process.

Table 5-1. Non-Radiological Duplicate Sample Analysis for CY 2019 – Surface and Ground Water

Water Sample Name[a]	Antimony	Arsenic	Barium	Cadmium	Chromium
	RPD[b]	RPD[b]	RPD[b]	RPD[b]	RPD[b]
CWC210944 / CWC210944-1	NC	NC	6.06	NC	NC
CWC216009 / CWC216009-1	NC	4.55	8.70	NC	NC
SVP210066 / SVP210066-1	NC	NC	2.11	NC	NC
Water Sample Name[a]	**Molybdenum**	**Nickel**	**Selenium**	**Thallium**	**Vanadium**
	RPD[b]	**RPD[b]**	**RPD[b]**	**RPD[b]**	**RPD[b]**
CWC210944 / CWC210944-1	1.02	13.79	15.38	NC	NC
CWC216009 / CWC216009-1	2.02	4.65	NC	NC	NC
SVP210066 / SVP210066-1	NC	NC	2.25	NC	NC

[a] Surface/ground-water samples ending in "-1" are duplicate surface/ground-water samples.
[b] RPD criterion for liquid samples is less than or equal to 30 percent.
NC – not calculated (due to one or both concentrations being below DLs)
SVP – St. Louis Airport Sites vicinity property (sample prefix designation)

Table 5-2. Non-Radiological Duplicate Sample Analysis for CY 2019 – Sediment

Soil Sample Name[a]	Antimony	Arsenic	Barium	Cadmium	Chromium
	RPD[b]	RPD[b]	RPD[b]	RPD[b]	RPD[b]
CWC210945 / CWC210945-1	47.62	2.74	5.41	17.50	3.92
CWC216010 / CWC216010-1	NC	23.08	21.78	34.92	**54.78**
Soil Sample Name[a]	**Molybdenum**	**Nickel**	**Selenium**	**Thallium**	**Vanadium**
	RPD[b]	**RPD[b]**	**RPD[b]**	**RPD[b]**	**RPD[b]**
CWC210945 / CWC210945-1	16.67	0.00	8.00	NC	4.08
CWC216010 / CWC216010-1	44.78	39.51	**53.33**	NC	34.31

[a] Sediment samples ending in "-1" are duplicate sediment samples.
[b] RPD criterion for solid matrix samples is less than or equal to 50 percent.
Bold values exceed the control limits. Values not in bold are within control limits.
NC – not calculated (due to one or both concentrations being below DLs)

Table 5-3. Radiological Duplicate Sample Analysis for CY 2019 – Surface and Ground Water

Water Sample Name[a]	Ra-226		Ra-228		Th-228		Th-230	
	RPD[b]	NAD[b]	RPD[b]	NAD[b]	RPD[b]	NAD[b]	RPD[b]	NAD[b]
CWC210944 / CWC210944-1	NC	NA	*	*	NC	NA	NC	NA
CWC216009 / CWC216009-1	NC	NA	*	*	NC	NA	57.59	0.52
SVP210066 / SVP210066-1	NC	NA	*	*	NC	NA	20.53	NA
Water Sample Name[a]	Th-232		U-234		U-235		U-238	
	RPD[b]	NAD[b]	RPD[b]	NAD[b]	RPD[b]	NAD[b]	RPD[b]	NAD[b]
CWC210944 / CWC210944-1	NC	NA	NC	NA	NC	NA	42.97	0.38
CWC216009 / CWC216009-1	NC	NA	13.64	NA	NC	NA	40.05	0.62
SVP210066 / SVP210066-1	NC	NA	6.72	NA	11.61	NA	9.00	NA

[a] Surface/ground-water samples ending in "-1" are duplicate surface/ground-water samples.
[b] RPD criterion for liquid samples is less than or equal to 30 percent. If the RPD is greater than 30 percent, then the NAD shall be less than or equal to 1.96 to remain within the control limits.
* Not calculated, because either parent or duplicate sample was not analyzed.
NA – not applicable (see RPD)
NC – not calculated (due to one or both concentrations being below MDCs)

Table 5-4. Radiological Duplicate Sample Alpha Analysis for CY 2019 – Sediment

Soil Sample Name[a]	Th-228		Th-230		Th-232	
	RPD[b]	NAD[b]	RPD[b]	NAD[b]	RPD[b]	NAD[b]
CWC210945 / CWC210945-1	53.12	0.99	5.93	NA	12.99	NA
CWC216010 / CWC216010-1	43.23	NA	24.50	NA	13.44	NA

[a] Sediment samples ending in "-1" are duplicate sediment samples.
[b] RPD criterion for solid matrix samples is less than or equal to 50 percent. If the RPD is greater than 50 percent, then the NAD shall be less than or equal to 1.96 to remain within the control limits.
NA – not applicable (see RPD)

Table 5-5. Radiological Duplicate Sample Gamma Analysis for CY 2019 – Sediment

Soil Sample Name[a]	Ac-227		Am-241		Cs-137		K-40	
	RPD[b]	NAD[b]	RPD[b]	NAD[b]	RPD[b]	NAD[b]	RPD[b]	NAD[b]
CWC210945 / CWC210945-1	NC	NA	NC	NA	NC	NA	0.77	NA
CWC216010 / CWC216010-1	NC	NA	NC	NA	NC	NA	13.07	NA
Soil Sample Name[a]	Pa-231		Ra-226		Ra-228		Th-228	
	RPD[b]	NAD[b]	RPD[b]	NAD[b]	RPD[b]	NAD[b]	RPD[b]	NAD[b]
CWC210945 / CWC210945-1	NC	NA	1.30	NA	0.27	NA	0.27	NA
CWC216010 / CWC216010-1	NC	NA	6.90	NA	1.99	NA	1.99	NA
Soil Sample Name[a]	Th-230		Th-232		U-235		U-238	
	RPD[b]	NAD[b]	RPD[b]	NAD[b]	RPD[b]	NAD[b]	RPD[b]	NAD[b]
CWC210945 / CWC210945-1	NC	NA	0.27	NA	NC	NA	3.67	NA
CWC216010 / CWC216010-1	NC	NA	1.99	NA	NC	NA	1.90	NA

[a] Sediment samples ending in "-1" are duplicate sediment samples.
[b] RPD criterion for solid matrix samples is less than or equal to 50 percent. If the RPD is greater than 50 percent, then the NAD shall be less than or equal to 1.96 to remain within the control limits.
Am – americium
Cs – cesium
NA – not applicable (see RPD)
NC – not calculated (due to one or both concentrations being below MDCs)

5.7.2 Split Samples

Split samples measure accuracy and were collected by the sampling team and sent to a USACE QA laboratory for analysis to provide an independent assessment of contractor and subcontractor laboratory performance. One split sample was collected for approximately every 20 field samples of each matrix for non-radiological and for radiological analytes across the SLS.

The RPDs for non-radiological analyses are presented in Tables 5-6 and 5-7. The RPDs and NADs for radiological analyses are presented in Tables 5-8 through 5-10. The overall accuracy for the CY 2019 environmental monitoring activities was acceptable. See Section 5.9 for the evaluation process.

Table 5-6. Non-Radiological Split Sample Analysis for CY 2019 – Surface and Ground Water

Water Sample Name[a]	Antimony	Arsenic	Barium	Cadmium	Chromium
	RPD[b]	RPD[b]	RPD[b]	RPD[b]	RPD[b]
CWC210944 / CWC210944-2	NC	NC	26.15	NC	NC
CWC216009 / CWC216009-2	NC	7.39	18.18	NC	NC
SVP210066 / SVP210066-2	NC	NC	3.61	NC	NC
Water Sample Name[a]	**Molybdenum**	**Nickel**	**Selenium**	**Thallium**	**Vanadium**
	RPD[b]	**RPD[b]**	**RPD[b]**	**RPD[b]**	**RPD[b]**
CWC210944 / CWC210944-2	**36.43**	**49.58**	**37.92**	NC	NC
CWC216009 / CWC216009-2	9.18	8.70	**106.04**	NC	NC
SVP210066 / SVP210066-2	NC	NC	29.38	NC	NC

[a] Surface/ground-water samples ending in "-2" are split surface/ground-water samples.
[b] RPD criterion for liquid samples is less than or equal to 30 percent.
Bold values exceed the control limits. Values not in bold are within control limits.
NC – not calculated (due to one or both concentrations being below DLs)

Table 5-7. Non-Radiological Split Sample Analysis for CY 2019 – Sediment

Soil Sample Name[a]	Antimony	Arsenic	Barium	Cadmium	Chromium
	RPD[b]	RPD[b]	RPD[b]	RPD[b]	RPD[b]
CWC210945 / CWC210945-2	49.29	**64.29**	**65.98**	**54.20**	6.95
CWC216010 / CWC216010-2	NC	**73.50**	**93.84**	45.93	30.51
Soil Sample Name[a]	**Molybdenum**	**Nickel**	**Selenium**	**Thallium**	**Vanadium**
	RPD[b]	**RPD[b]**	**RPD[b]**	**RPD[b]**	**RPD[b]**
CWC210945 / CWC210945-2	NC	44.07	**111.39**	NC	**84.09**
CWC216010 / CWC216010-2	NC	**63.86**	**70.75**	NC	22.22

[a] Sediment samples ending in "-2" are split sediment samples.
[b] RPD criterion for solid matrix samples is less than or equal to 50 percent.
Bold values exceed the control limits. Values not in bold are within control limits.
NC – not calculated (due to one or both concentrations being below DLs)

Table 5-8. Radiological Split Sample Analysis for CY 2019 – Surface and Ground Water

Water Sample Name[a]	Ra-226		Ra-228		Th-228		Th-230	
	RPD[b]	NAD[b]	RPD[b]	NAD[b]	RPD[b]	NAD[b]	RPD[b]	NAD[b]
CWC210944 / CWC210944-2	NC	NA	*	*	NC	NA	NC	NA
CWC216009 / CWC216009-2	NC	NA	*	*	NC	NA	NC	NA
SVP210066 / SVP210066-2	NC	NA	*	*	NC	NA	NC	NA
Water Sample Name[a]	**Th-232**		**U-234**		**U-235**		**U-238**	
	RPD[b]	**NAD[b]**	**RPD[b]**	**NAD[b]**	**RPD[b]**	**NAD[b]**	**RPD[b]**	**NAD[b]**
CWC210944 / CWC210944-2	NC	NA	5.37	NA	NC	NA	4.30	NA
CWC216009 / CWC216009-2	NC	NA	1.90	NA	NC	NA	41.12	0.67
SVP210066 / SVP210066-2	NC	NA	29.07	NA	33.61	0.88	21.13	NA

[a] Surface/ground-water samples ending in "-2" are split surface/ground-water samples.
[b] RPD criterion for liquid samples is less than or equal to 30 percent. If the RPD is greater than 30 percent, then the NAD shall be less than or equal to 1.96 to remain within the control limits.
* Not calculated, because either parent or split sample was not analyzed.
NA – not applicable (see RPD)
NC – not calculated (due to one or both concentrations being below MDCs)

Table 5-9. Radiological Split Sample Alpha Analysis for CY 2019 – Sediment

Soil Sample Name[a]	Th-228		Th-230		Th-232	
	RPD[b]	NAD[b]	RPD[b]	NAD[b]	RPD[b]	NAD[b]
CWC210945 / CWC210945-2	54.15	1.14	28.18	NA	46.86	NA
CWC216010 / CWC216010-2	7.26	NA	3.02	NA	3.56	NA

[a] Sediment samples ending in "-2" are split sediment samples.
[b] RPD criterion for solid matrix sample is less than or equal to 50 percent. If the RPD is greater than 50 percent, then the NAD shall be less than or equal to 1.96 to remain within the control limits.
NA – not applicable (see RPD)

Table 5-10. Radiological Split Sample Gamma Analysis for CY 2019 – Sediment

Soil Sample Name[a]	Ac-227		Am-241		Cs-137		K-40	
	RPD[b]	NAD[b]	RPD[b]	NAD[b]	RPD[b]	NAD[b]	RPD[b]	NAD[b]
CWC210945 / CWC210945-2	NC	NA	NC	NA	NC	NA	2.35	NA
CWC216010 / CWC216010-2	NC	NA	NC	NA	NC	NA	28.23	NA
Soil Sample Name[a]	**Pa-231**		**Ra-226**		**Ra-228**		**Th-228**	
	RPD[b]	NAD[b]	RPD[b]	NAD[b]	RPD[b]	NAD[b]	RPD[b]	NAD[b]
CWC210945 / CWC210945-2	NC	NA	29.63	NA	43.26	NA	43.26	NA
CWC216010 / CWC216010-2	NC	NA	6.90	NA	33.37	NA	33.37	NA
Soil Sample Name[a]	**Th-230**		**Th-232**		**U-235**		**U-238**	
	RPD[b]	NAD[b]	RPD[b]	NAD[b]	RPD[b]	NAD[b]	RPD[b]	NAD[b]
CWC210945 / CWC210945-2	*	*	43.26	NA	NC	NA	NC	NA
CWC216010 / CWC216010-2	*	*	33.37	NA	NC	NA	NC	NA

[a] Sediment samples ending in "-2" are split sediment samples.
[b] RPD criterion for solid matrix samples is less than or equal to 50 percent. If the RPD is greater than 50 percent, then the NAD shall be less than or equal to 1.96 to remain within the control limits.
* Not calculated, because either parent or split sample was not analyzed.
NA – not applicable (see RPD)
NC – not calculated (due to one or both concentrations being below MDCs)

5.7.3 Equipment Rinsate Blanks

Equipment rinsate blank samples are typically taken from the rinsate water collected from equipment decontamination activities. These samples consist of analyte-free water that has been rinsed over sampling equipment for the purposes of evaluating the effectiveness of equipment decontamination. All of the monitoring wells have dedicated sampling equipment, rendering decontamination unnecessary. Because decontamination does not apply, equipment rinsate blanks were not employed.

Sediment samples from CWC are collected from each station using a clean sampling spoon. These spoons are segregated after use and decontaminated at the SLAPS field trailer according to Field Technical Procedure 400, "Equipment Decontamination" (Leidos 2015b). Because the process of collecting sediment occurs below the surface of the water, a rinsate blank would not represent the wetted surface of the sampling spoon at the time of sample collection and would therefore not apply. The CWC surface-water samples are collected using new nitrile gloves and new laboratory sample containers. Equipment rinsate blanks for these samples are also not required, because no potential for contamination exists.

5.8 DATA REVIEW, EVALUATION, AND VALIDATION

All data packages received from the analytical laboratory were reviewed and either evaluated or validated by data management personnel. Data validation is the systematic process of ensuring that the precision and accuracy of the analytical data are adequate for their intended use. Validation was performed in accordance with *Data Verification and Validation* (Leidos 2015c), and/or with project-specific guidelines. General chemical data quality management guidance found in

Engineer Regulation 1110-1-263 (USACE 1998c) was also used when planning for chemical data management and evaluation. Additional details of data review, evaluation, and validation are provided in the *FUSRAP Laboratory Data Management Process for the St. Louis Site* (USACE 1999b). Data assessment guidance to determine the usability of data from hazardous, toxic, and radioactive waste projects is provided in EM 200-1-6 (USACE 1997).

One hundred (100) percent of the data generated from all analytical laboratories was independently reviewed and either evaluated and/or validated. The data review process documents the possible effects on the data from various QC failures; it does not determine data usability, nor does it include assignment of data validation qualifier (VQ) flags. The data evaluation process uses the results of the data review to determine the usability of the data. The process of data evaluation summarizes the potential effects of QA/QC failures on the data, and the USACE Chemist or USACE Health Physicist assesses their impact on the attainment of the project-specific data quality objectives (DQOs). Consistent with the data quality requirements, as defined in the DQOs, approximately 10 percent of all project data were validated.

5.9 PRECISION, ACCURACY, REPRESENTATIVENESS, COMPARABILITY, COMPLETENESS, AND SENSITIVITY

The data evaluation process considers precision, accuracy, representativeness, completeness, comparability, and sensitivity. This section provides detail to the particular parameters and how the data were evaluated for each, with discussion and tables to present the associated data. An evaluation of the overall precision, accuracy, representativeness, completeness, comparability, and sensitivity of the CY 2019 environmental monitoring activities was acceptable and complete.

Accuracy and precision can be measured by the RPD or the NAD using the following equations:

$$RPD = \left(\frac{[S - D]}{\frac{S+D}{2}} \right) x\ 100$$

$$NAD = \frac{|S - D|}{\sqrt{U_S^2 + U_D^2}}$$

where:

S	=	parent sample result
D	=	duplicate/split sample result
U_S	=	parent sample uncertainty
U_D	=	duplicate/split sample uncertainty

The RPD is calculated for all samples for which a detectable result is reported for both the parent and the QA field split or field duplicate. For surface and ground-water radiological samples, when the RPD is greater than 30 percent, the NAD is used to determine the accuracy or precision of the method. NAD accounts for uncertainty in the results; RPD does not. The NAD should be equal to or less than a value of 1.96. The RPD criterion for sediment samples is equal to 50 percent. Neither equation is used when the analyte in one or both of the samples is not detected. In cases in which neither equation can be used, the comparison is counted as acceptable in the overall number of comparisons.

Precision is a measure of mutual agreement among individual measurements performed under the same laboratory controls. To evaluate for precision, a field duplicate is submitted to the same laboratory as the original sample to be analyzed under the same laboratory conditions.

The RPD and NAD between the two results was calculated and used as an indication of the precision of the analyses performed (Tables 5-1 through 5-5). Sample collection precision was measured in the laboratory by the analyses of duplicates. With the exception of a few outliers, which were qualified accordingly, the overall precision for the CY 2019 environmental monitoring activities was acceptable.

Accuracy provides a gauge or measure of the agreement between an observed result and the true value for an analysis. The RPD and NAD between the two results was calculated and used as an indication of the accuracy of the analyses performed (Tables 5-6 through 5-10). For this EMDAR, accuracy is measured through the use of the field split samples through a comparison of the prime laboratory results versus the results of an independent laboratory. The overall accuracy for CY 2019 environmental monitoring activities was acceptable.

Representativeness expresses the degree to which data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition. Representativeness is a qualitative parameter that depends upon the proper design of the sampling program and proper laboratory protocols. Representativeness is satisfied through proper design of the sampling network, use of proper sampling techniques, following proper analytical procedures, and not exceeding holding times of the samples.

Representativeness was determined by assessing the combined aspects of the QA program, QC measures, and data evaluations. The network design was developed from the EMICY19, the sampling protocol from the SAG has been followed, and analytical procedures were conducted within the bounds of the QAPP. The overall representativeness of the CY 2019 environmental monitoring activities was acceptable.

Comparability expresses the confidence with which one dataset can be compared with another. The extent to which analytical data will be comparable depends upon the similarity of sampling and analytical methods, as well as sample-to-sample and historical comparability. Standardized and consistent procedures used to obtain analytical data are expected to provide comparable results. For example, post-CY 1997 analytical data may not be directly comparable to data collected before CY 1997, because of differences in DQOs. Additionally, some sample media (e.g., storm-water and radiological monitoring) have values that are primarily useful in the present, thus the comparison to historical data is not as relevant. However, the overall comparability of the applicable environmental monitoring data met the project DQOs.

Completeness is a measure of the amount of valid data obtained from a measurement system compared to the amount expected to be obtained under normal conditions. Laboratories are expected to provide data meeting QC acceptance criteria for all samples tested. For the CY 2019 environmental monitoring activities, the data completeness was 100 percent (St. Louis FUSRAP DQO for completeness is 90 percent).

Sensitivity is the determination of minimum detectable concentration (MDC) values that allows the investigation to assess the relative confidence that can be placed in an analytical result in comparison to the magnitude or level of analyte concentration observed. For this EMDAR, MDC is a term generically used to represent both the method detection limit (MDL) for non-radiologicals and the minimum detectable activity (MDA) for radiological analytes. The closer a measured value to the MDC, the less confidence and more variation the measurement will have. Project sensitivity goals were expressed as quantitation level goals in the SAG. These levels were achieved or exceeded throughout the analytical process.

The MDC is reported for each result obtained by laboratory analysis. These very low MDCs are achieved through the use of gamma spectroscopy for all radionuclides of concern, with additional analyses from alpha spectroscopy for thorium and from inductively coupled plasma (ICP) for metals. Variations in MDCs for the same radiological analyte reflect variability in the detection efficiencies and conversion factors due to factors such as individual sample aliquot, sample density, and variations in analyte background radioactivity for gamma and alpha spectroscopy at the laboratory. Variations in MDLs for the same non-radiological analyte reflect variability in calibrations between laboratories, dilutions, and analytical methods. In order to complete the data evaluation (i.e., precision, accuracy, representativeness, and comparability), analytical results that exceed the MDC of the analyte are desired.

5.10 DATA QUALITY ASSESSMENT SUMMARY

The overall quality of the data meets the established project objectives. Through proper implementation of the project data review, evaluation, validation, and assessment process, project information has been determined to be acceptable for use.

Data, as presented, have been qualified as usable, but estimated when necessary. Data that have been estimated have concentrations/activities that are below the quantitation limit or are indicative of accuracy, precision, or sensitivity less than desired but adequate for interpretation.

These data can withstand scientific scrutiny, are appropriate for the intended purpose, and are technically defensible. The environmental information presented has an established confidence, which allows utilization for the project objectives and provides data for future needs.

5.11 RESULTS FOR PARENT SAMPLES AND THE ASSOCIATED DUPLICATE AND SPLIT SAMPLES

Summaries of the QA parent sample results and associated duplicate and/or split sample results are presented in Tables 5-11 through 5-14.

Table 5-11. Non-Radiological Parent Samples and Associated Duplicate and Split Samples (Surface and Ground Water) for CY 2019

Water Sample Name[a]	Antimony[b]			Arsenic[b]			Barium[b]			Cadmium[b]			Chromium[b]		
	Result	DL	VQ	Result	DL	VQ	Result	DL	VQ	Result	DL	VQ	Result	DL	VQ
CWC210944	2.00	2.00	U	4.00	4.00	U	160.00	0.90	=	0.20	0.20	U	4.00	4.00	U
CWC210944-1	2.00	2.00	U	4.00	4.00	U	170.00	0.90	=	0.20	0.20	U	4.00	4.00	U
CWC210944-2	0.68	0.50	=	1.98	0.50	=	123.00	1.50	=	0.30	0.30	U	1.50	1.00	=
CWC216009	2.00	2.00	U	4.30	4.00	=	110.00	0.90	=	0.20	0.20	U	4.00	4.00	U
CWC216009-1	2.00	2.00	U	4.50	4.00	=	120.00	0.90	=	0.20	0.20	U	4.00	4.00	U
CWC216009-2	0.90	0.50	=	4.63	0.50	=	132.00	1.50	=	0.30	0.30	U	1.34	1.00	=
SVP210066	2.00	2.00	U	4.00	4.00	U	48.00	0.90	=	0.20	0.20	U	4.00	4.00	U
SVP210066-1	2.00	2.00	U	4.00	4.00	U	47.00	0.90	=	0.20	0.20	U	4.00	4.00	U
SVP210066-2	0.50	0.50	U	2.10	0.50	=	46.30	1.50	=	0.30	0.30	U	1.25	1.00	=
Water Sample Name[a]	**Molybdenum[b]**			**Nickel[b]**			**Selenium[b]**			**Thallium[b]**			**Vanadium[b]**		
	Result	**DL**	**VQ**	**Result**	**DL**	**VQ**	**Result**	**DL**	**VQ**	**Result**	**DL**	**VQ**	**Result**	**DL**	**VQ**
CWC210944	9.80	2.00	=	2.70	2.00	=	2.80	2.00	J	0.90	0.90	U	4.00	4.00	U
CWC210944-1	9.90	2.00	=	3.10	2.00	=	2.40	2.00	J	0.90	0.90	U	4.00	4.00	U
CWC210944-2	6.78	5.00	=	4.48	2.00	=	4.11	0.50	=	0.10	0.10	U	0.98	0.50	=
CWC216009	9.80	2.00	=	2.20	2.00	J	2.10	2.00	=	0.90	0.90	U	4.00	4.00	U
CWC216009-1	10.00	2.00	=	2.10	2.00	J	2.00	2.00	U	0.90	0.90	U	4.00	4.00	U
CWC216009-2	8.94	5.00	=	2.40	2.00	=	6.84	0.50	=	0.10	0.10	U	3.49	0.50	J
SVP210066	2.00	2.00	U	2.00	2.00	U	90.00	2.00	=	0.90	0.90	U	4.00	4.00	U
SVP210066-1	2.00	2.00	U	2.00	2.00	U	88.00	2.00	=	0.90	0.90	U	4.00	4.00	U
SVP210066-2	5.00	5.00	U	5.71	2.00	=	121.00	0.50	=	0.16	0.10	=	0.62	0.50	=

[a] Samples ending in “-1” are duplicate samples. Samples ending in “-2” are split samples.
[b] Result values are expressed in µg/L.
VQ symbols indicate: “=” for positively identified results, “U” for not detected, and “J” analyte was identified as estimated quantity.

Table 5-12. Non-Radiological Parent Samples and Associated Duplicate and Split Samples (Sediment) for CY 2019

Soil Sample Name[a]	Antimony[b]			Arsenic[b]			Barium[b]			Cadmium[b]			Chromium[b]		
	Result	DL	VQ	Result	DL	VQ	Result	DL	VQ	Result	DL	VQ	Result	DL	VQ
CWC210945	0.48	0.28	J	7.40	0.56	=	180.00	0.70	=	0.87	0.03	=	25.00	0.63	=
CWC210945-1	0.78	0.27	J	7.20	0.54	=	190.00	0.68	=	0.73	0.03	=	26.00	0.61	=
CWC210945-2	0.79	0.11	=	3.80	0.20	=	90.70	4.04	=	0.50	0.07	=	26.80	0.27	=
CWC216010	0.19	0.19	U	2.90	0.38	=	56.00	0.48	=	0.26	0.02	=	10.00	2.20	=
CWC216010-1	0.19	0.19	U	2.30	0.38	=	45.00	0.47	=	0.37	0.02	=	5.70	2.10	=
CWC216010-2	0.58	0.12	=	6.27	0.22	=	155.00	2.21	=	0.42	0.07	=	13.60	0.29	=
Soil Sample Name[a]	**Molybdenum[b]**			**Nickel[b]**			**Selenium[b]**			**Thallium[b]**			**Vanadium[b]**		
	Result	**DL**	**VQ**	**Result**	**DL**	**VQ**	**Result**	**DL**	**VQ**	**Result**	**DL**	**VQ**	**Result**	**DL**	**VQ**
CWC210945	1.10	0.28	=	18.00	0.28	=	2.40	0.45	=	0.28	0.28	U	25.00	0.56	=
CWC210945-1	1.30	0.27	=	18.00	0.27	=	2.60	0.43	=	0.27	0.27	U	24.00	0.54	=
CWC210945-2	1.58	1.58	U	11.50	0.54	=	0.68	0.14	=	0.10	0.03	=	10.20	0.34	=
CWC216010	0.41	0.19	=	9.70	0.19	=	1.90	0.31	=	0.19	0.19	U	14.00	1.90	=
CWC216010-1	0.26	0.19	=	6.50	0.19	=	1.10	0.30	=	0.19	0.19	U	9.90	1.90	=
CWC216010-2	1.74	1.74	U	18.80	5.88	=	3.98	0.15	=	0.13	0.03	=	17.50	0.37	=

[a] Samples ending in “-1” are duplicate samples. Samples ending in “-2” are split samples.
[b] Result values are expressed in mg/kg.
VQ symbols indicate: “=” for positively identified results, “U” for not detected, and “J” analyte was identified as estimated quantity.

Table 5-13. Radiological Parent Samples and Associated Duplicate and Split Samples (Surface and Ground Water) for CY 2019

Water Sample Name[a]	Ra-226[b]				Ra-228[b]				Th-228[b]				Th-230[b]			
	Result	Error	MDC	VQ	Result	Error	MDC	VQ	Result	Error	MDC	VQ	Result	Error	MDC	VQ
CWC210944	0.19	0.49	1.22	UJ	*	*	*	*	0.11	0.21	0.49	UJ	0.12	0.21	0.46	UJ
CWC210944-1	0.29	0.55	1.22	UJ	*	*	*	*	0.06	0.21	0.54	UJ	0.17	0.20	0.26	UJ
CWC210944-2	-0.06	0.29	0.70	UJ	*	*	*	*	0.36	0.26	0.29	J	-0.05	0.20	0.35	UJ
CWC216009	0.45	0.66	1.33	UJ	*	*	*	*	0.36	0.32	0.46	UJ	0.29	0.27	0.27	J
CWC216009-1	0.58	0.72	1.24	UJ	*	*	*	*	0.08	0.22	0.54	UJ	0.53	0.37	0.31	J
CWC216009-2	0.35	0.14	0.15	J	*	*	*	*	0.20	0.17	0.20	J	-0.04	0.17	0.29	UJ
SVP210066	0.35	0.56	1.26	UJ	*	*	*	*	0.09	0.19	0.43	UJ	0.87	0.50	0.43	J
SVP210066-1	1.15	1.15	2.01	UJ	*	*	*	*	0.06	0.19	0.51	UJ	0.71	0.45	0.47	J
SVP210066-2	0.03	0.07	0.13	UJ	*	*	*	*	0.07	0.23	0.43	UJ	0.03	0.25	0.41	UJ
Water Sample Name[a]	**Th-232[b]**				**U-234[b]**				**U-235[b]**				**U-238[b]**			
	Result	Error	MDC	VQ	Result	Error	MDC	VQ	Result	Error	MDC	VQ	Result	Error	MDC	VQ
CWC210944	0.04	0.12	0.31	UJ	0.84	0.49	0.35	J	0.08	0.23	0.60	UJ	0.59	0.42	0.48	J
CWC210944-1	-0.02	0.12	0.33	UJ	0.51	0.56	0.72	UJ	0.17	0.48	1.24	UJ	0.92	0.74	0.72	J
CWC210944-2	0.01	0.07	0.19	UJ	0.80	0.28	0.10	=	0.02	0.06	0.13	UJ	0.62	0.24	0.07	=
CWC216009	0.05	0.12	0.27	UJ	0.69	0.35	0.21	J	-0.01	0.10	0.25	UJ	0.95	0.41	0.25	=
CWC216009-1	0.11	0.17	0.31	UJ	0.60	0.30	0.27	=	0.07	0.14	0.34	UJ	0.63	0.31	0.27	=
CWC216009-2	0.03	0.07	0.12	UJ	0.68	0.27	0.12	=	0.03	0.06	0.09	UJ	0.62	0.26	0.12	=
SVP210066	0.11	0.19	0.37	UJ	791.00	107.00	0.56	=	49.50	7.92	0.56	=	817.00	111.00	0.51	=
SVP210066-1	0.12	0.18	0.28	UJ	846.00	115.00	0.39	=	55.60	8.81	0.48	=	894.00	122.00	0.46	=
SVP210066-2	0.01	0.09	0.24	UJ	1060.00	114.00	7.97	=	69.50	21.20	7.19	=	1010.00	109.00	7.37	=

[a] Samples ending in "-1" are duplicate samples. Samples ending in "-2" are split samples.
[b] Result values are expressed in pCi/L. Negative results are less than the laboratory system's background level.
* Not available, because sample was not analyzed.
VQ symbols indicate: "=" for positively identified results, "J" analyte was identified as estimated quantity, and "UJ" analyte was not detected and had QC deficiencies.

Table 5-14. Radiological Parent Samples and Associated Duplicate and Split Samples (Sediment) for CY 2019

Soil Sample Name[a]	Th-228[b,c]				Th-230[b,c]				Th-232[b,c]			
	Result	**Error**	**MDC**	**VQ**	**Result**	**Error**	**MDC**	**VQ**	**Result**	**Error**	**MDC**	**VQ**
CWC210945	1.57	0.55	0.21	=	3.11	0.88	0.16	=	1.08	0.43	0.13	=
CWC210945-1	0.91	0.37	0.20	=	3.30	0.85	0.16	=	1.23	0.45	0.22	=
CWC210945-2	0.90	0.20	0.08	=	4.13	0.53	0.06	=	0.67	0.17	0.03	=
CWC216010	1.00	0.35	0.10	=	3.26	0.77	0.11	=	0.69	0.28	0.11	=
CWC216010-1	1.55	0.55	0.23	=	4.17	1.10	0.18	=	0.79	0.37	0.25	=
CWC216010-2	0.93	0.20	0.11	=	3.36	0.44	0.12	=	0.66	0.16	0.06	=
Soil Sample Name[a]	**Ac-227[c]**				**Am-241[c]**				**Cs-137[c]**			
	Result	**Error**	**MDC**	**VQ**	**Result**	**Error**	**MDC**	**VQ**	**Result**	**Error**	**MDC**	**VQ**
CWC210945	-2.11	0.39	0.24	UJ	-0.05	0.04	0.07	UJ	0.02	0.01	0.02	UJ
CWC210945-1	-1.21	0.24	0.22	UJ	0.05	0.04	0.07	UJ	0.00	0.02	0.03	UJ
CWC210945-2	0.24	0.43	1.44	UJ	0.03	0.21	0.29	UJ	0.03	0.16	0.29	UJ
CWC216010	-0.01	0.18	0.30	UJ	-0.02	0.04	0.06	UJ	0.00	0.02	0.03	UJ
CWC216010-1	0.10	0.41	0.73	UJ	-0.02	0.10	0.17	UJ	0.01	0.04	0.08	UJ
CWC216010-2	0.23	1.29	1.66	UJ	0.17	0.28	0.38	UJ	0.07	0.12	0.21	UJ
Soil Sample Name[a]	**K-40[c]**				**Pa-231[c]**				**Ra-226[c]**			
	Result	**Error**	**MDC**	**VQ**	**Result**	**Error**	**MDC**	**VQ**	**Result**	**Error**	**MDC**	**VQ**
CWC210945	12.90	1.75	0.31	=	0.43	0.74	1.28	UJ	1.55	0.41	0.08	=
CWC210945-1	13.00	1.74	0.26	=	-0.45	0.70	1.14	UJ	1.53	0.40	0.06	=
CWC210945-2	12.60	2.67	1.14	=	0.67	2.33	8.21	UJ	1.15	0.28	0.19	=
CWC216010	14.30	1.90	0.26	=	-0.14	0.66	1.10	UJ	1.40	0.36	0.07	=
CWC216010-1	16.30	2.51	0.80	=	-0.02	1.45	2.49	UJ	1.50	0.45	0.16	=
CWC216010-2	19.00	3.15	0.86	=	1.30	3.95	8.88	UJ	1.50	0.30	0.16	=
Soil Sample Name[a]	**Ra-228[c]**				**Th-228[c]**				**Th-230[c]**			
	Result	**Error**	**MDC**	**VQ**	**Result**	**Error**	**MDC**	**VQ**	**Result**	**Error**	**MDC**	**VQ**
CWC210945	0.74	0.11	0.07	=	0.74	0.11	0.07	=	2.25	3.93	6.60	UJ
CWC210945-1	0.74	0.09	0.07	=	0.74	0.09	0.07	=	-0.24	1.52	6.31	UJ
CWC210945-2	1.15	0.31	0.30	=	1.15	0.31	0.30	=	*	*	*	*
CWC216010	0.86	0.11	0.06	=	0.86	0.11	0.06	=	1.26	3.74	6.24	UJ
CWC216010-1	0.85	0.15	0.15	=	0.85	0.15	0.15	=	-1.12	8.19	13.70	UJ
CWC216010-2	1.21	0.46	0.44	J	1.21	0.46	0.44	J	*	*	*	*
Soil Sample Name[a]	**Th-232[c]**				**U-235[c]**				**U-238[c]**			
	Result	**Error**	**MDC**	**VQ**	**Result**	**Error**	**MDC**	**VQ**	**Result**	**Error**	**MDC**	**VQ**
CWC210945	0.74	0.11	0.07	=	-0.07	0.23	0.38	UJ	1.11	0.20	0.35	=
CWC210945-1	0.74	0.09	0.07	=	0.06	0.22	0.37	UJ	1.07	0.21	0.33	=
CWC210945-2	1.15	0.31	0.30	=	-0.01	0.47	1.02	UJ	0.94	0.74	1.32	UJ
CWC216010	0.86	0.11	0.06	=	0.15	0.22	0.37	UJ	1.04	0.21	0.27	=
CWC216010-1	0.85	0.15	0.15	=	0.21	0.47	0.81	UJ	1.06	0.30	0.74	=
CWC216010-2	1.21	0.46	0.44	J	0.34	0.38	1.23	UJ	1.15	1.19	3.40	UJ

[a] Samples ending in "-1" are duplicate samples. Samples ending in "-2" are split samples.
[b] Results from alpha spectroscopy.
[c] Result values are expressed in pCi/g.
* Not available, because sample was not analyzed.
VQ symbols indicate: "=" for positively identified results, "J" analyte was identified as estimated quantity, and "UJ" analyte was not detected and had QC deficiencies.

6.0 RADIOLOGICAL DOSE ASSESSMENT

This section evaluates the cumulative dose to a hypothetically impacted individual from exposure to radiological contaminants at the NC Sites and documents dose trends. The regulatory dose limit for members of the public is 100 mrem per year, as stated in 10 *CFR* 20.1301. Although 10 *CFR* 20.1301 is not an ARAR for the NC Sites, the USACE has provided this evaluation to assess public exposures from St. Louis FUSRAP cleanup operations. Compliance with the dose limit in §20.1301 can be demonstrated in one of the two following methods (§20.1302(b)(1) and (2)):

1. Demonstrating by measurement or calculation that the TEDE to the individual likely to receive the highest dose from FUSRAP cleanup operations at the NC Sites does not exceed the annual dose limit (i.e., 100 mrem per year); or
2. Demonstrating that: (*i*) the annual average concentration of radioactive material released in gaseous and liquid effluents at the boundary of the unrestricted area does not exceed the values specified in Table 2 of Appendix B to 10 *CFR* 20; and (*ii*) if an individual were continuously present in an unrestricted area, the dose from external sources would not exceed 2 mrem per hour.

The USACE has elected to demonstrate compliance by calculation of the TEDE to a hypothetical individual likely to receive the highest dose from FUSRAP cleanup operations at the NC Sites (method 1). This section describes the methodology employed for this evaluation.

Dose calculations are presented for hypothetical maximally exposed individuals at the Latty Avenue Properties, SLAPS, SLAPS VPs, and CWC. The monitoring data used in the dose calculations are reported in the respective environmental monitoring sections of this EMDAR.

Dose calculations related to airborne emissions, as required by 40 *CFR* 61, Subpart I, *National Emission Standards for Emissions of Radionuclides Other Than Radon From Federal Facilities Other Than Nuclear Regulatory Commission Licensees and Not Covered By Subpart H,* are presented in Appendix A (the "North St. Louis County FUSRAP Sites 2019 Radionuclide Emissions NESHAP Report Submitted in Accordance with Requirements of 40 *CFR* 61, Subpart I").

6.1 SUMMARY OF ASSESSMENT RESULTS AND DOSE TRENDS

In 2017, a small area was identified along the railroad tracks on VP-40A where the external radiation levels are slightly above background levels. This area is currently classified as inaccessible and is known to have radiological contamination in excess of ROD RGs. Although the average external gamma radiation levels do not exceed the monitoring threshold of 20 µR per hour in the ROD, monitoring was started.

The TEDE from Latty Avenue Properties to a hypothetical maximally exposed individual from all complete/applicable pathways combined was calculated to be approximately 2.2 mrem per year, estimated for an individual who works full time at a location approximately 75 m east of VP-40A on the Futura property.

The TEDE from the SLAPS to a hypothetical maximally exposed individual from all complete/applicable pathways combined was less than 0.1 mrem per year, estimated for an individual who works full time at a location approximately 500 m west-southwest from the center of the SLAPS Loadout area. Because of the proximity of the IA-09 ballfields excavation area, the dose from airborne particulates modeled from the IA-09 ballfields excavation area is included for the business receptor located 485 m west-southwest of the IA-09 ballfield excavation area.

The TEDE from the SLAPS VPs to a hypothetical maximally exposed individual from all complete/applicable pathways combined was 0.1 mrem per year, estimated for a resident who lives full time at a location approximately 205 m east and 780 m northeast from the center of the Eva Avenue and IA-09 Ballfield excavation areas respectively.

The TEDE from CWC to a hypothetical maximally exposed individual from all complete/applicable pathways combined was 0.1 mrem per year, estimated for a resident youth (10-year-old child) spending time as a recreational user of CWC.

Annual dose trends from CY 2000 to CY 2019 at applicable NC Sites are documented on Figure 6-1. A comparison of the maximum annual dose from CY 2000 to CY 2019 at each of the applicable NC Sites to the annual average natural background dose of approximately 620 mrem per year is provided on Figure 6-2.

6.2 PATHWAY ANALYSIS

The six complete pathways for exposure to NC Site radiological contaminants evaluated by the St. Louis FUSRAP EMP are listed in Table 6-1. These pathways are used to identify data gaps in the EMP and to estimate potential radiological exposures from the site. Of the six complete pathways, four were applicable in CY 2019 and were thus incorporated into radiological dose estimates.

Table 6-1. Complete Radiological Exposure Pathways for the NC Sites

Exposure Pathway	Pathway Description	Applicable to CY 2019 Dose Estimate	
		NC Sites	**CWC**
Liquid A	Ingestion of ground water from local wells down-gradient from the site.	NA	NA
Liquid B	Ingestion of fish inhabiting CWC.	NC	NA
Liquid C	Ingestion of surface water[a] and sediments.	NC	Y[b]
Airborne A	Inhalation of particulates dispersed through wind erosion and RAs.	Y	NC
Airborne B	Inhalation of Rn-222 and decay products emitted from contaminated soils/wastes.	Y	NC
External	Direct gamma radiation from contaminated soils/wastes.	Y	NA

[a] Surface water includes storm-water run-off from NC Sites, MSD discharges, and the water in CWC.
[b] The pathway is only applicable to a recreational receptor (youth) exposed to contaminants present in CWC water and sediments. Data from NC Sites storm-water discharges and MSD discharges are not applicable to the hypothetical recreational receptor; therefore, those data are not evaluated in this section.

NA – not applicable for the site
NC – not a complete pathway for the respective site
Y – applicable for the site

In developing specific elements of the St. Louis FUSRAP EMP, potential exposure pathways of the radioactive materials present on site are reviewed to determine which pathways are complete. Evaluation of each exposure pathway is based on hypothetical sources, release mechanisms, types, probable environmental fates of contaminants, and the locations and activities of potential receptors. Pathways are then reviewed to determine whether a link exists between one or more radiological contaminant sources, or between one or more environmental transport processes, to an exposure point at which human receptors are present. If a link exists, the pathway is termed complete. Each complete pathway was reviewed to determine if a potential for exposure was present in CY 2019. If a potential for exposure was possible, the pathway is termed applicable. Only applicable pathways are considered in estimates of dose.

The pathways applicable to the CY 2019 dose estimates for NC Sites, including CWC, are shown in Table 6-1. The incomplete pathways were not considered in the dose assessment and are only listed in Table 6-1 because they were complete for at least one receptor location. The pathways listed as not applicable were listed as such in CY 2019 for the following reasons:

- Liquid A is not applicable, because the aquifer is of naturally low quality and is not known to be used for any domestic purpose in the vicinity of the NC Sites (DOE 1994).
- Liquid B is not applicable at CWC or for the SLAPS transient receptor, because the receptor would be unlikely to catch and eat a game fish. A survey was conducted, and 97 percent of the fish collected at CWC during the survey were fathead minnows (Parker and Szlemp 1987).
- The dose equivalent from CWC to the receptor from contaminants in the water/sediment was estimated using the Microshield Version 5.03 computer-modeling program. The scenario used was a youth playing in the creek bed (1 ft of water shielding and dry) for 52 hours per year. The highest estimated whole body dose to the youth was 0.3 microrem per year. The gamma dose rate emitted from the contaminants is indistinguishable from background gamma radiation. Therefore, the external gamma pathway (from contaminants in the creek water/sediment) is not applicable for the CWC receptor.

6.3 EXPOSURE SCENARIOS

Dose calculations were performed for maximally exposed individuals at critical receptor locations for applicable exposure pathways (see Table 6-1) to assess dose due to radiological releases from the NC Sites. First, conditions were set to determine the TEDE to a maximally exposed individual at each of the main site locations on which excavation and loadout activities occurred (i.e., Latty Avenue Properties, the SLAPS, and the SLAPS VPs). A second dose equivalent for CWC was calculated. A third set of dose equivalent calculations was performed to meet NESHAP requirements (Appendix A). These dose equivalent calculations were also used for purposes of TEDE calculation.

The scenarios and models used to evaluate these radiological exposures are conservative but appropriate. Although radiation doses can be calculated or measured for individuals, it is not appropriate to predict the health risk to a single individual using the methods prescribed herein. Dose equivalents to a single individual are estimated by hypothesizing a maximally exposed individual and placing this individual in a reasonable but conservative scenario. This method is acceptable when the magnitude of the dose to a hypothetical maximally exposed individual is small, as is the case for the NC Sites. This methodology provides for reasonable estimates of potential exposure to the public and maintains a conservative approach. The scenarios and resulting estimated doses are outlined in Section 6.4.

All ingestion calculations were performed using the methodology described in International Commission on Radiation Protection (ICRP) Reports 26 and 30 for a 50-year committed effective dose equivalent (CEDE). The 50-year CEDE conversion factors were obtained from *Federal Guidance Report* 11 (USEPA 1989a) and *Calculation of Slope Factors and Dose Coefficients* (ORNL 2014).

6.4 DETERMINATION OF TOTAL EFFECTIVE DOSE EQUIVALENT FOR EXPOSURE SCENARIOS

The TEDE for the exposure scenarios was calculated using CY 2019 monitoring data. Calculations for dose scenarios are provided in Appendix H. Dose equivalent estimates are well below the standards set by the NRC for annual public exposure and the USEPA NESHAP limits.

The CY 2019 TEDE for a hypothetical maximally exposed individual near the Latty Avenue Properties, SLAPS, SLAPS VPs, and CWC is 2.2 mrem per year, less than 0.1 mrem per year, 0.1 mrem per year, and 0.1 mrem per year, respectively. In comparison, the annual average exposure to natural background radiation in the United States results in a TEDE of approximately 620 mrem per year (NCRP 2009). Assumptions are detailed in the following sections.

6.4.1 Radiation Dose Equivalent from Latty Avenue Properties to a Maximally Exposed Individual

The Latty Avenue Properties contributing to dose include the monitored area on VP-40A in CY 2019. This section discusses the estimated TEDE to a hypothetical maximally exposed individual assumed to be located approximately 75 m east from the area identified as having the highest external gamma radiation level on VP-40A. No private residences are adjacent to the site. Therefore, all calculations of dose equivalent due to the applicable pathway assume a realistic residence time that is less than 100 percent. A full-time-employee business receptor was considered the maximally exposed individual for the Latty Avenue Properties.

The exposure scenario assumptions are as follows:

- Exposure to external gamma radiation and radon from VP-40A sources occurs to the maximally exposed individual while working full time outside at the receptor location (i.e., Futura) located approximately 75 m east from the area identified as having the highest external gamma level on VP-40A Exposure time is 2,000 hours per year (Leidos 2020b).
- Exposure from external gamma radiation was calculated using environmental TLD monitoring data at the perimeter between the source and the receptor. The site is assumed to represent a line-source to the receptor (Leidos 2020b).
- Exposure from Rn-222 (and decay chain isotopes) was calculated using a dispersion factor and Rn-222 (ATD) monitoring data at the site perimeter between the source and the receptor (Leidos 2020b).

Based on the exposure scenario and assumptions described previously, a maximally exposed individual working outside at the Futura facility located 75 m east from the monitored area on VP-40A identified as having the highest external gamma level would have received less than 0.1 mrem per year from external gamma, and 2.2 mrem per year from Rn-222, for a TEDE of 2.2 mrem per year (Leidos 2020b).

6.4.2 Radiation Dose Equivalent from St. Louis Airport Site to a Maximally Exposed Individual

The SLAPS area contributing to dose (i.e., those areas at which waste handling activities occurred in CY 2019) is the SLAPS Loadout area. This section discusses the estimated TEDE to a hypothetical maximally exposed individual assumed to be located approximately 500 m west-southwest from the center of the SLAPS Loadout area and to receive a radiation dose by the exposure pathways identified previously. Because of the proximity of the IA-09 ballfields excavation area, the dose from airborne particulates modeled from the IA-09 ballfields excavation area is included for the business receptor. The hypothetical maximally exposed is assumed to be located 485 m west to southwest from the ballfields excavation area. No private residences are adjacent to the site. Therefore, all calculations of dose equivalence due to the applicable pathways assume a realistic residence time that is less than 100 percent. A full-time-employee business receptor was considered the maximally exposed individual for the SLAPS.

The exposure scenario assumptions are as follows:

- Exposure to radiation from all SLAPS sources occurs to the maximally exposed individual while working full time outside at the receptor location facility located approximately 500 m west-southwest from the center of the SLAPS Loadout area and 485 m west-southwest of the ballfields. Exposure time is 2,000 hours per year (Leidos 2020c).
- Exposure from external gamma radiation was calculated using environmental TLD monitoring data at the perimeter between the source and the receptor. The site is assumed to represent a line-source to the receptor (Leidos 2020c).
- Exposure from airborne radioactive particulates was calculated using soil concentration data and air particulate monitoring data to determine a source term and then running the CAP88-PC computer code to calculate dose to the receptor (Leidos 2020c).
- Exposure from Rn-222 (and decay chain isotopes) was calculated using ATD monitoring data at the site locations representative of areas accessible to the public between the source and the receptor. The results at all ATD locations were 0.0 pCi/L, exposure to the receptor from radon (and decay chain isotopes) and did not require estimation using a dispersion factor (Leidos 2020c)

Based on the exposure scenario and assumptions described previously, a maximally exposed individual working outside at the receptor facility 500 m west-southwest of the center of the SLAPS Loadout and 485 m west-southwest of the ballfields excavation area would have received less than 0.1 mrem per year from external gamma, less than 0.1 mrem per year from airborne radioactive particulates, and 0.0 mrem per year from Rn-222, for a TEDE of less than 0.1 mrem per year (Leidos 2020c).

6.4.3 Radiation Dose Equivalent from St. Louis Airport Site Vicinity Properties to a Maximally Exposed Individual

The SLAPS VPs contributing to dose (i.e., those properties at which RA occurred in CY 2019) include the following: Eva Avenue and the Ballfields (IA-09). This section discusses the estimated TEDE to a hypothetical maximally exposed individual assumed to frequent the perimeter of the SLAPS VPs and to receive a radiation dose by the exposure pathways identified previously. Because radiation dose due to radon and external gamma radiation are considered negligible at the SLAPS VPs, the estimated TEDE only includes dose from exposure to airborne radioactive particulates that are assumed to be released during active excavations. A private residence is located approximately 70 m east and 780 m northeast of the Eva Avenue and Ballfield excavations, respectively; therefore, a residential receptor was considered the maximally exposed individual for the SLAPS VPs.

The exposure scenario assumptions are as follows:

- Exposure to radiation from all SLAPS VP sources occurs to the maximally exposed individual while living full time at the residence receptor location located approximately 205 m east and 780 m northeast of the Eva Avenue and Ballfield excavations, respectively. Exposure time is 8,760 hours per year (Leidos 2020c).
- Exposure from airborne radioactive particulates was calculated using soil concentration data and air particulate monitoring data to determine a source term and then running the CAP88-PC modeling code to calculate dose to the receptor (Leidos 2020c).

Based on the exposure scenario and assumptions described previously, a maximally exposed individual living at the residence receptor location 205 m east and 780 m northeast of the Eva Avenue and Ballfield excavations, respectively would have received 0.1 mrem per year from airborne radioactive particulates for a TEDE of 0.1 mrem per year (Leidos 2020c).

6.4.4 Radiation Dose Equivalent from Coldwater Creek to a Maximally Exposed Individual

This section describes the estimated TEDE to a hypothetical maximally exposed individual assumed to frequent CWC and receive a radiation dose by the exposure pathways identified previously. The assumed scenario is for a recreational user. Therefore, all calculations of dose equivalent due to the applicable pathway assume a realistic residence time that is less than 100 percent. A youth spending time as a recreational user of CWC is considered the maximally exposed individual for CWC.

The exposure scenario assumptions are as follows:

- The youth spends 2 hours at CWC during each visit, and visits once every 2 weeks. It is likely that this activity would be greater in summer and less in winter, but the yearly average is 26 visits (Leidos 2020d).
- The soil/sediment ingestion rate is 50 mg per day, and the water ingestion rate is 2 L per day (USEPA 1989b; 2020d).
- The UCL_{95} of the mean radionuclide concentrations in CWC surface-water/sediment samples collected in CY 2019 were assumed to be present in the water/sediment ingested by the maximally exposed individual (Leidos 2020d).
- Dose equivalent conversion factors for ingestion (for a 10-year-old child) are as follows: total U, 2.63E-04 mrem/pCi; Ra-226, 2.97E-03 mrem/pCi; Ra-228, 1.45E-02 mrem/pCi; Th-228, 5.07E-04 mrem/pCi; Th-230, 9.10E-04 mrem/pCi; and Th-232, 1.07E-03 mrem/pCi (ORNL 2014; Leidos 2020d).

Based on the exposure scenario and assumptions described herein, a maximally exposed individual using CWC for recreational purposes would have received less than 0.1 mrem per year from soil/sediment ingestion and 0.1 mrem per year from water ingestion, for a TEDE of approximately 0.1 mrem per year (Leidos 2020d).

7.0 REFERENCES

Cember, H. 1996. *Introduction to Health Physics,* McGraw-Hill, New York, NY. 1996.

DOD 2000. U.S. Department of Defense, U.S. Department of Energy, U.S. Environmental Protection Agency, and U.S. Nuclear Regulatory Commission. *Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM).* NUREG-1575. EPA 402-R-97-016. Revision 1. August 2000.

DOD and DOE 2017. U.S. Department of Defense and U.S. Department of Energy. *Department of Defense (DoD)/Department of Energy (DOE) Consolidated Quality Systems Manual (QSM) for Environmental Laboratories*. DOD Quality Systems Manual Version 5.1 and DOE Quality Systems for Analytical Services Version 3.1. 2017.

DOE 1994. U.S. Department of Energy, Oak Ridge National Laboratory. *Remedial Investigation Report for the St. Louis Site,* St. Louis, Missouri. DOE/OR/21949-280. January 1994.

DOE 1995. U.S. Department of Energy, Oak Ridge Operations Office. *Remedial Investigation Addendum for the St. Louis Site,* St. Louis, Missouri. DOE/OR/21950-132. Final. September 1995.

DOE 1997. U.S. Department of Energy. *St. Louis Airport Site (SLAPS) Interim Action Engineering Evaluation/Cost Analysis (EE/CA),* St. Louis, Missouri. DOE/OR/21950-12026. September 1997.

Gibbons, Robert D. 1994. *Statistical Methods for Groundwater Monitoring*, John Wiley and Sons, Inc., New York. 1994.

Leidos 2015a. Leidos, Inc. Environmental Science & Engineering Operation, Standard Operating Procedure. "Control of Nonconforming Items," ESE A15.1, Revision 0, January 31, 2015.

Leidos 2015b. Leidos, Inc. Environmental Science & Engineering Operation, Standard Operating Procedure. "Equipment Decontamination," FTP-400, Revision 0, January 31, 2015.

Leidos 2015c. Leidos, Inc. *Data Verification and Validation.* Environmental Science & Engineering Operation. Standard Operating Procedure. ESE DM-05. Revision 0. January 31, 2015.

Leidos 2020a. Leidos, Inc. *Radon Working Levels (WL) at FUTURA.* Calculations Package. March, 2020.

Leidos 2020b. Leidos, Inc. *Total Effective Dose Equivalent (TEDE) to the Hypothetically Maximally Exposed Individual at Latty Avenue Properties.* March 2020.

Leidos 2020c. Leidos, Inc. *Total Effective Dose Equivalent (TEDE) to the Hypothetically Maximally Exposed Individual at SLAPS/SLAPS VPs.* Calculations Package. March 2020.

Leidos 2020d. Leidos, Inc. *Total Effective Dose Equivalent (TEDE) to the Hypothetically Maximally Exposed Individual at Coldwater Creek.* Calculations Package. March 2020.

MDNR 1998. Missouri Department of Natural Resources. Letter dated October 2, 1998. From Philip A. Schroeder, Permit Section Chief, to Sharon Cotner, USACE FUSRAP Project Manager. Subject: St. Louis Airport Site (SLAPS), St. Louis, Missouri.

MDNR 2002. Missouri Department of Natural Resources. Letter dated February 19, 2002. From Matthew Sikes to Sharon Cotner, USACE FUSRAP Project Manager. Subject: Reduce Sampling at SLAPS Outfall 002.

MSD 1991. Metropolitan St. Louis Sewer District. Ordinance No. 8472. Adopted August 14, 1991.

MSD 1994. Metropolitan St. Louis Sewer District. Ordinance No. 10177. Adopted November 9, 1994.

MSD 1997. Metropolitan St. Louis Sewer District. Ordinance No. 10082. Adopted May 8, 1997.

MSD 1998. Metropolitan St. Louis Sewer District. Letter dated October 30, 1998. From Bruce H. Litzsinger, Civil Engineer, to Ken Axetel, International Technology Corporation.

MSD 2001. Metropolitan St. Louis Sewer District. Letter dated July 23, 2001. From Bruce H. Litzsinger, Civil Engineer, to Sharon Cotner, USACE FUSRAP Project Manager. Subject: St. Louis Airport Site, File: SD – St. Louis Airport FUSRAP Site, 110 McDonnell.

MSD 2005. Metropolitan St. Louis Sewer District. Letter dated February 10, 2005. From Roland Biehl, Environmental Assistant Engineer, to Sharon Cotner, USACE FUSRAP Project Manager. Subject: St. Louis Airport Site File: SD, St. Louis Airport FUSRAP Site, 110 McDonnell.

MSD 2006. Metropolitan St. Louis Sewer District. Letter dated June 19, 2006. From Roland A. Biehl, Environmental Assistant Engineer, to Sharon Cotner, USACE FUSRAP Project Manager. Subject: FUSRAP St. Louis Airport Site, File: SD, St. Louis Airport FUSRAP Site, 9012138501, SP801.

MSD 2008. Metropolitan St. Louis Sewer District. Letter dated May 22, 2008. From Steve Grace, Environmental Assistant Engineer, to Sharon Cotner, USACE FUSRAP Project Manager. Subject: FUSRAP St. Louis Airport Site, File: SD, St. Louis Airport FUSRAP Site, 9012138501, SP801.

MSD 2010. Metropolitan St. Louis Sewer District. Letter dated May 10, 2010. From Steve Grace, Environmental Assistant Engineer, to Sharon Cotner, USACE FUSRAP Project Manager. Subject: FUSRAP St. Louis Airport Site, File: SD, St. Louis Airport FUSRAP Site, 9012138501, SP801.

MSD 2012. Metropolitan St. Louis Sewer District. Letter dated May 24, 2012. From Steve Grace, Environmental Assistant Engineer, to Sharon Cotner, USACE FUSRAP Project Manager. Subject: FUSRAP St. Louis Airport Site, File: SD, St. Louis Airport FUSRAP Site, 9012138501, SP801.

MSD 2014. Metropolitan St. Louis Sewer District. Letter dated June 23, 2014. From Steve Grace, Environmental Assistant Engineer, to Sharon Cotner, USACE FUSRAP Project Manager. Subject: FUSRAP St. Louis Airport Site, File: SD, St. Louis Airport FUSRAP Site, 9012138501, SP801.

MSD 2016. Metropolitan St. Louis Sewer District. Letter dated June 18, 2016. From Steve Grace, Environmental Assistant Engineer, to Bruce Munholand, USACE FUSRAP Project Manager. Subject: FUSRAP St. Louis Airport Site, File: SD, St. Louis Airport FUSRAP Site, 9012138501, SP801.

MSD 2018a. Metropolitan St. Louis Sewer District. Letter dated June 11, 2018. From Steve Grace, Environmental Assistant Engineer, to Bruce Munholand, USACE FUSRAP Project Manager. Subject: FUSRAP St. Louis Airport Site, File: SD, St. Louis Airport FUSRAP Site, 9012138501, SP801.

MSD 2018b. Metropolitan St. Louis Sewer District. Letter dated February 7, 2018. From Steve Grace, Environmental Assistant Engineer, to Bruce Munholand, USACE FUSRAP Project Manager. Subject: SD, Hazelwood Interim Storage Site, SOUR057900, 8945 Latty Avenue, Berkeley, Missouri.

NCRP 1988. National Council on Radiation Protection and Measurements. *Measurement of Radon and Radon Daughters in Air*, NCRP Report No. 97. November 1988.

NCRP 2009. National Council on Radiation Protection and Measurements. *Ionizing Radiation Exposure of the Population of the United States*, NCRP Report No. 160. March 3, 2009.

Office of the Federal Register, NARA 1998. National Archives and Records Administration. "National Primary Drinking Water Regulations: Disinfectants and Disinfection Byproducts; Final Rule." *Federal Register.* Volume 63, No. 241, 40 *CFR* 9, 141, and 142. December 16, 1998.

ORNL 2014. Oak Ridge National Laboratory. *Calculation of Slope Factors and Dose Coefficients,* by Michael Bellamy, Lauren Finklea, Fred Dolislager, and Keith Eckerman, published July 2014, Oak Ridge National Laboratory, Center for Radiation Protection Knowledge. ORNL/TM-2013/00. September 2014.

Parker, M. A., and R. Szlemp 1987. *Final Fish and Wildlife Coordination Act Report,* Coldwater Creek Flood Control Project, St. Louis County, Missouri, Final, May 1987. Published as Appendix D of *Coldwater Creek, Missouri, Feasibility Report and Environmental Impact Statement,* U.S. Army Corps of Engineers, St. Louis District, Lower Mississippi Valley Division, May 1987.

Shleien, Bernard, ed. 1992. *The Health Physics and Radiological Health Handbook.* Silver Spring, MD: Scinta Inc. 1992.

USACE 1997. U.S. Army Corps of Engineers. *Engineering and Design – Chemical Data Quality Management for Hazardous, Toxic, and Radioactive Waste (HTRW) Projects.* Engineer Manual, EM-200-1-6. October 1997.

USACE 1998a. U.S. Army Corps of Engineers. *Engineering Evaluation/Cost Analysis (EE/CA) and Responsiveness Summary for the St. Louis Airport Site (SLAPS)*, St. Louis, Missouri. Final. May 1998.

USACE 1998b. U.S. Army Corps of Engineers. *Engineering Evaluation/Cost Analysis (EE/CA) for the Hazelwood Interim Storage Site (HISS),* St. Louis, Missouri. Final. October 1998.

USACE 1998c. U.S. Army Corps of Engineers. *Engineering and Design – Chemical Data Quality Management for Hazardous, Toxic, and Radioactive Waste Activities.* Engineer Regulation ER-1110-1-263. April 1998.

USACE 1999a. U.S. Army Corps of Engineers. *Environmental Monitoring Guide for the St. Louis Sites,* St. Louis, Missouri. Final. December 1999.

USACE 1999b. U.S. Army Corps of Engineers. *FUSRAP Laboratory Data Management Process for the St. Louis Site,* St. Louis, Missouri. June 1999.

USACE 2000. U.S. Army Corps of Engineers, St. Louis District. *Sampling and Analysis Guide for the St. Louis Site.* Final. October 1999.

USACE 2001. U.S. Army Corps of Engineers. *Requirements for the Preparation of Sampling and Analysis Plans,* Engineer Manual, EM 200-1-3. February 1, 2001.

USACE 2003. U.S. Army Corps of Engineers. Letter dated November 18, 2003. From Sharon Cotner, USACE FUSRAP Project Manager, to Phillip A. Schroeder, Permit Section Chief, MDNR.

USACE 2005. U.S. Army Corps of Engineers, St. Louis District. *Record of Decision for the North St. Louis County Sites,* St. Louis, Missouri. Final. September 2, 2005.

USACE 2007. U.S. Army Corps of Engineers. Letter dated April 20, 2007. From Sharon Cotner, USACE FUSRAP Project Manager, to Thomas Siegel, Permit and Engineering Chief, MDNR. Subject: Sediment Control and Pumped Excavation Water Outfall Vicinity Properties 08(c) and 40A.

USACE 2018a. U.S. Army Corps of Engineers. *Environmental Monitoring Implementation Plan for the North St. Louis County Sites for Calendar Year 2019.* St. Louis, Missouri. Revision 0. December 20, 2018.

USACE 2018b. U.S. Army Corps of Engineers. *Laboratory Quality Assurance Plan for the FUSRAP St. Louis Radioanalytical Laboratory.* St. Louis, Missouri. Revision 11. February 2018.

USEPA 1987. U.S. Environmental Protection Agency. *Environmental Radon.* Volume 35, New York. 1987.

USEPA 1989a. U.S. Environmental Protection Agency. "Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion and Ingestion," *Federal Guidance Report* No. 11. September 1989.

USEPA 1989b. U.S. Environmental Protection Agency. *Exposure Factor Handbook.* EPA/600/8-89/043, Office of Health and Environmental Assessment, Washington D.C. July 1989.

USEPA 1989c. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. *Risk Assessment Guidance for Superfund Volume 1 Human Health Evaluation Manual* (*Part A).*USEPA/5401/1-89/002. December 1989.

USEPA 1991. U.S. Environmental Protection Agency. *Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans.* QAMS-005/80. 1991.

USEPA 1992. U.S. Environmental Protection Agency. *Supplemental Guidance to RAGS: Calculating the Concentration Term.* Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-081. May 1992.

USEPA 1993. U.S. Environmental Protection Agency. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846*, Third Edition, Revision 1, Updates 1, 2, and 3. 1993.

USEPA 1994. U.S. Environmental Protection Agency. *EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations.* EPA QA/R-5. January 1994.

USEPA 2000. U.S. Environmental Protection Agency. *Guidance for Data Quality Assessment - Practical Methods for Data Analysis.* EPA QA/G-9, QA00 Update. July 2000.

USEPA 2013. U.S. Environmental Protection Agency. ProUCL Version 5.0, Developed by Lockheed Martin for National Exposure Research Laboratory, April. Available online: www.epa.gov/nerlesd1/tsc/software.htm. September 19, 2013.

USEPA 2020. U.S. Environmental Protection Agency. CAP88-PC Version 4.1 Computer Code, March 2020.

Weather Underground, Inc. 2019. Weather, National Weather Service, Lambert – St. Louis International Weather Station, Precipitation. Available online: http://www. wunderground.com. Accessed as needed in CY 2019.

10 *CFR* 20, *Standards for Protection Against Radiation.*

10 *CFR* 20.1301, *Dose Limits For Individual Members Of The Public*.

10 *CFR* 20.1302, *Compliance With Dose Limits For Individual Members Of The Public*.

10 *CSR* 20-7.015, *Effluent Regulations.*

10 *CSR* 20-7.031, *Water Quality Standards.*

19 *CSR* 20-10, *Protection Against Ionizing Radiation.*

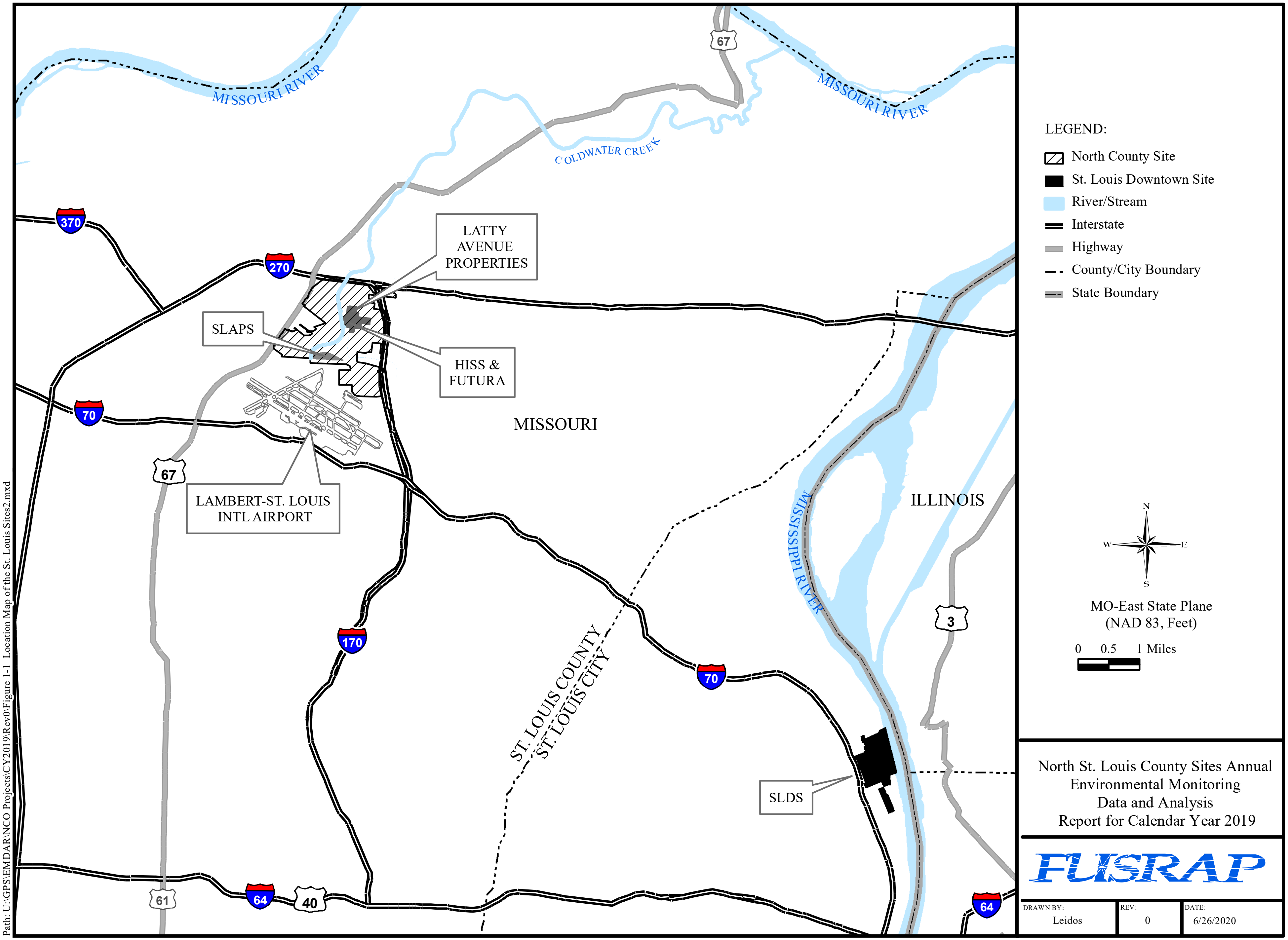
40 *CFR* 61, Subpart I, *National Emission Standards for Radionuclide Emissions from Federal Facilities Other than Nuclear Regulatory Commission Licenses and Not Covered by Subpart H.*

40 *CFR* 192, *Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings.*

THIS PAGE INTENTIONALLY LEFT BLANK

FIGURES

THIS PAGE INTENTIONALLY LEFT BLANK



Path: U:\GPS\EMDAR\NCO Projects\CY2019\Rev0\Figure 1-1 Location Map of the St. Louis Sites2.mxd

Figure 1-1. Location Map of the St. Louis Sites

Path: U:\GPS\EMDAR\NCO Projects\CY2019\Rev0\Figure 1-2 Plan View of the SLAPS and SLAPS VPs2.mxd

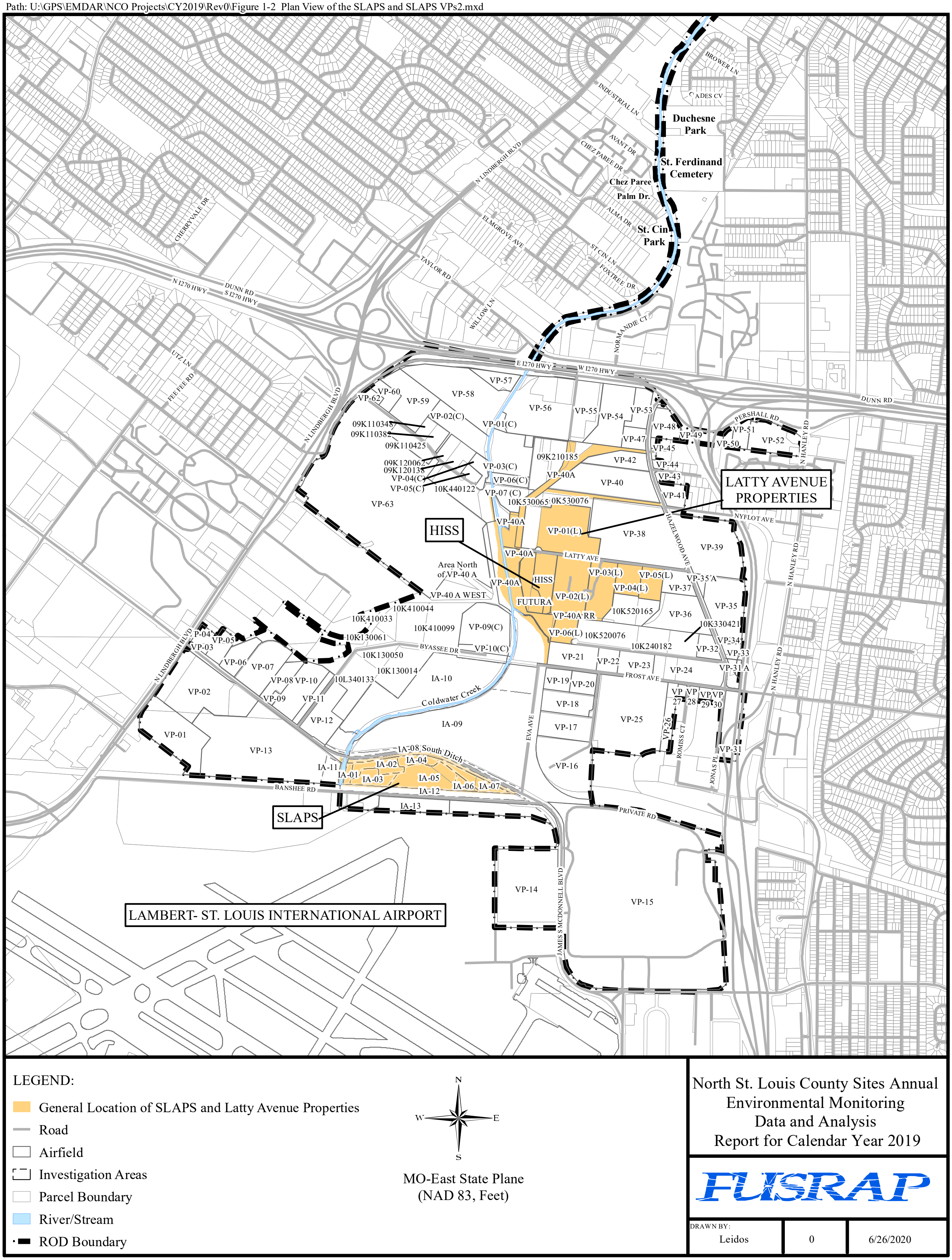
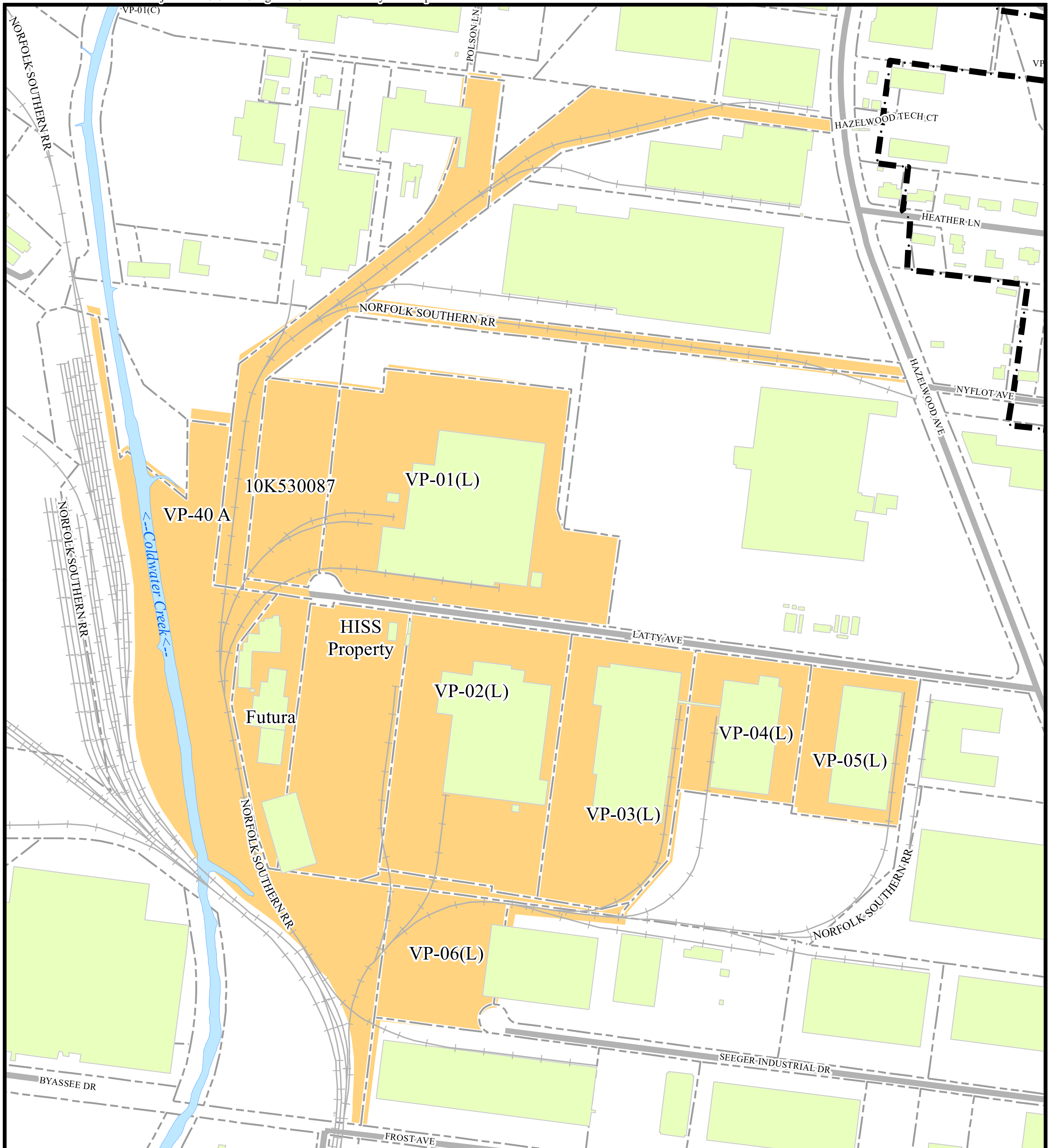


Figure 1-2. Plan View of the SLAPS, SLAPS VPs, and Latty Avenue Properties

Path: U:\GPS\EMDAR\NCO Projects\CY2019\Rev0\Figure 1-3 Plan View Latty Ave Properties.mxd



LEGEND:

- Latty Avenue Property
- Road
- Railroad
- Parcel Boundary
- Coldwater Creek
- ROD Boundary
- Building

MO-East State Plane
(NAD 83, Feet)

North St. Louis County Sites Annual Environmental Monitoring Data and Analysis Report for Calendar Year 2019

FUSRAP

DRAWN BY:		
Leidos	0	6/26/2020

Figure 1-3. Plan View of the Latty Avenue Propeties including HISS and Futura

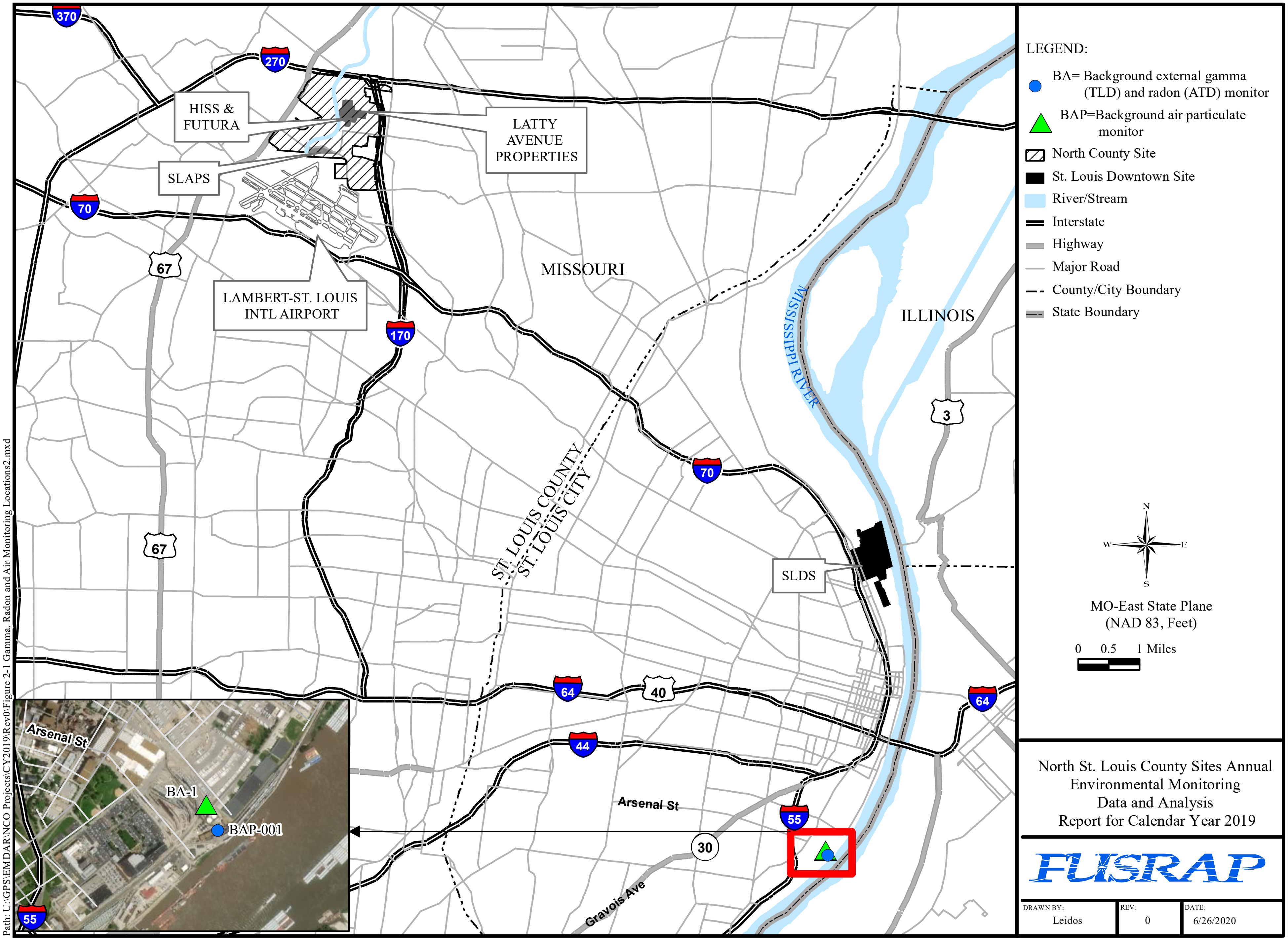


Figure 2-1. Gamma Radiation, Radon, and Particulate Air Monitoring at St. Louis Background Location - USACE Service Base

Path: U:\GPS\EMDAR\NCO Projects\CY2019\Rev0\Figure 2-2 Gamma Radiation, Rn, and Particulate Air Monitoring Locations at the Latty Avenue Properties.mxd

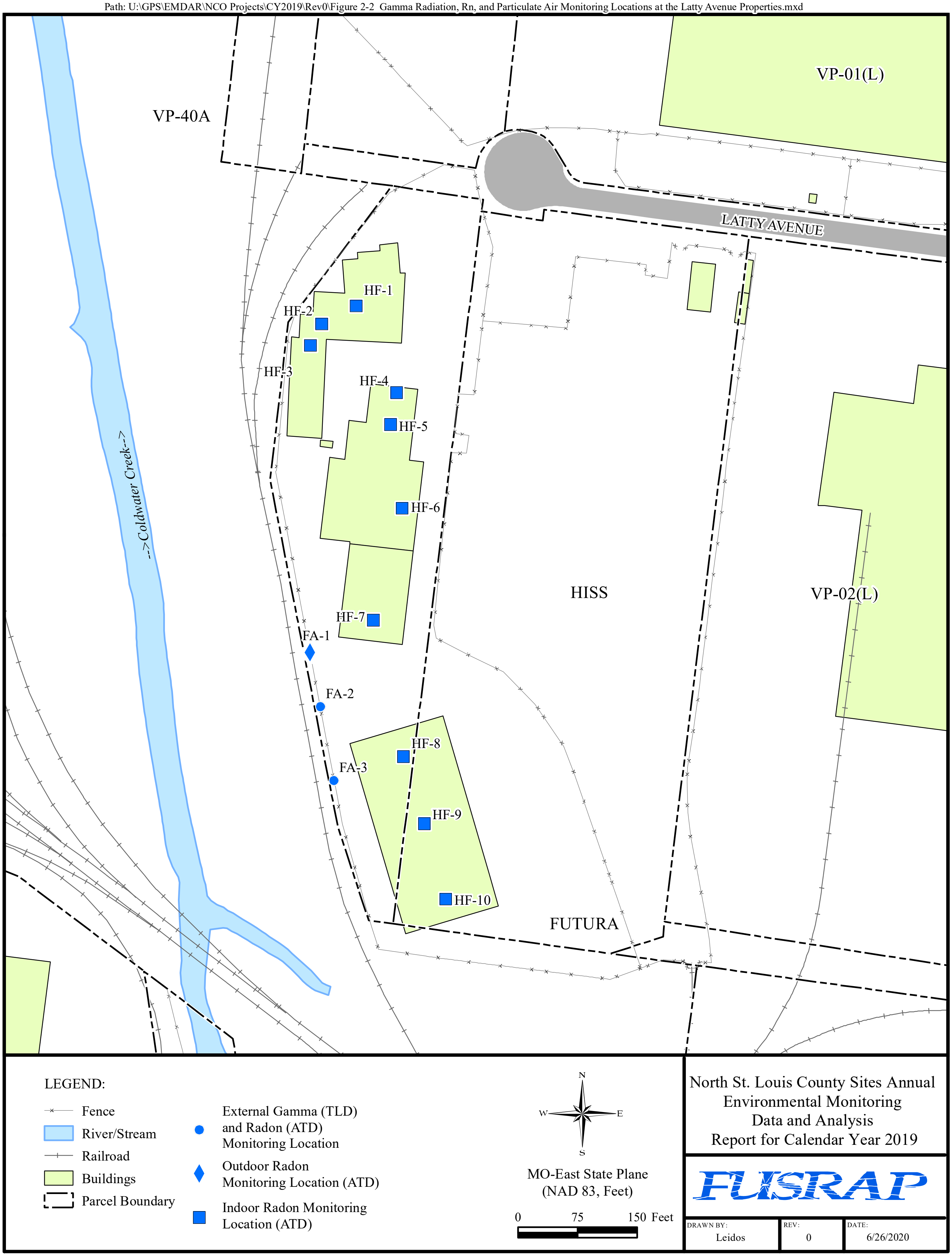


Figure 2-2. Gamma Radiation and Radon Monitoring Locations at the Latty Avenue Properties

Path: U:\GPS\EMDAR\NCO Projects\CY2019\Rev0\Figure 2-3 Gamma Radiation, Rn, and Particulate Air Monitoring Locations at the SLAPS and SLAPS VPs.mxd

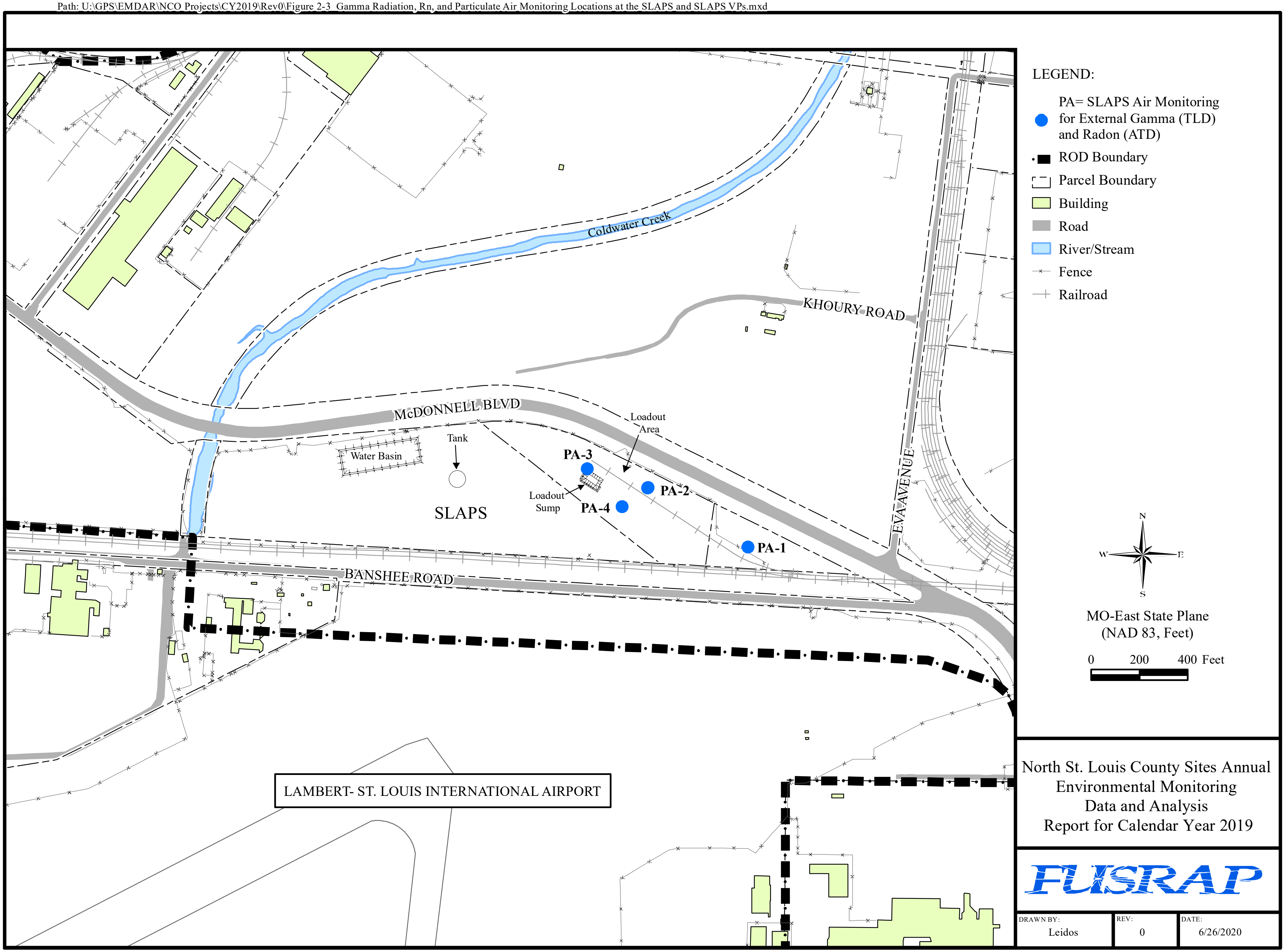


Figure 2-3. Gamma Radiation and Radon Monitoring Locations at the SLAPS

Path: U:\GPS\EMDAR\NCO Projects\CY2019\Rev0\Figure 3-1 MSD Discharge Point for Waste Water from the HISS Labratory.mxd

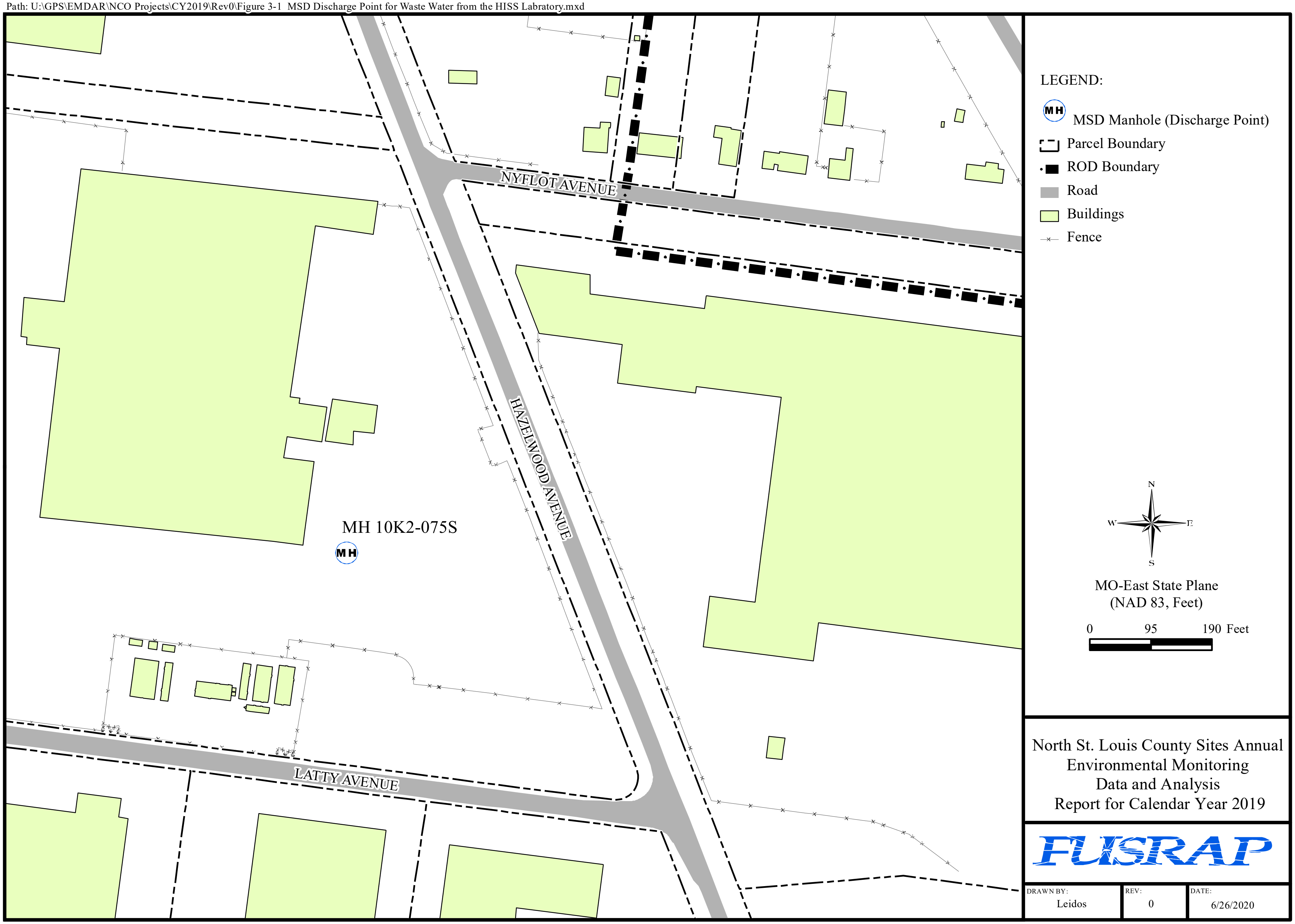
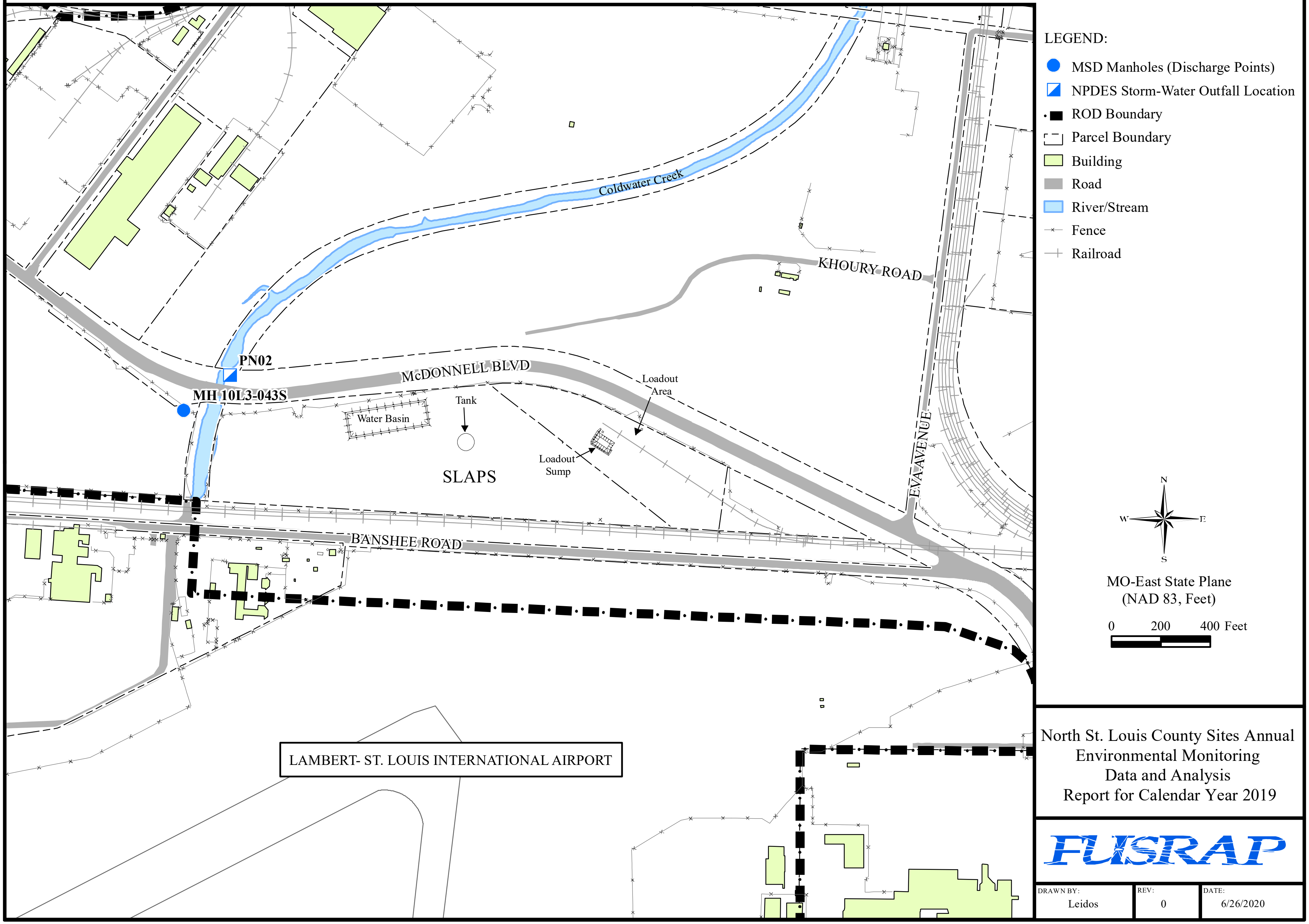


Figure 3-1. MSD Discharge Point for Waste Water from the USACE St. Louis FUSRAP Laboratory

Path: U:\GPS\EMDAR\NCO Projects\CY2019\Rev0\Figure 3-2 Storm-Water Outfall and MSD Excavation-Water Discharge Points at the SLAPS.mxd

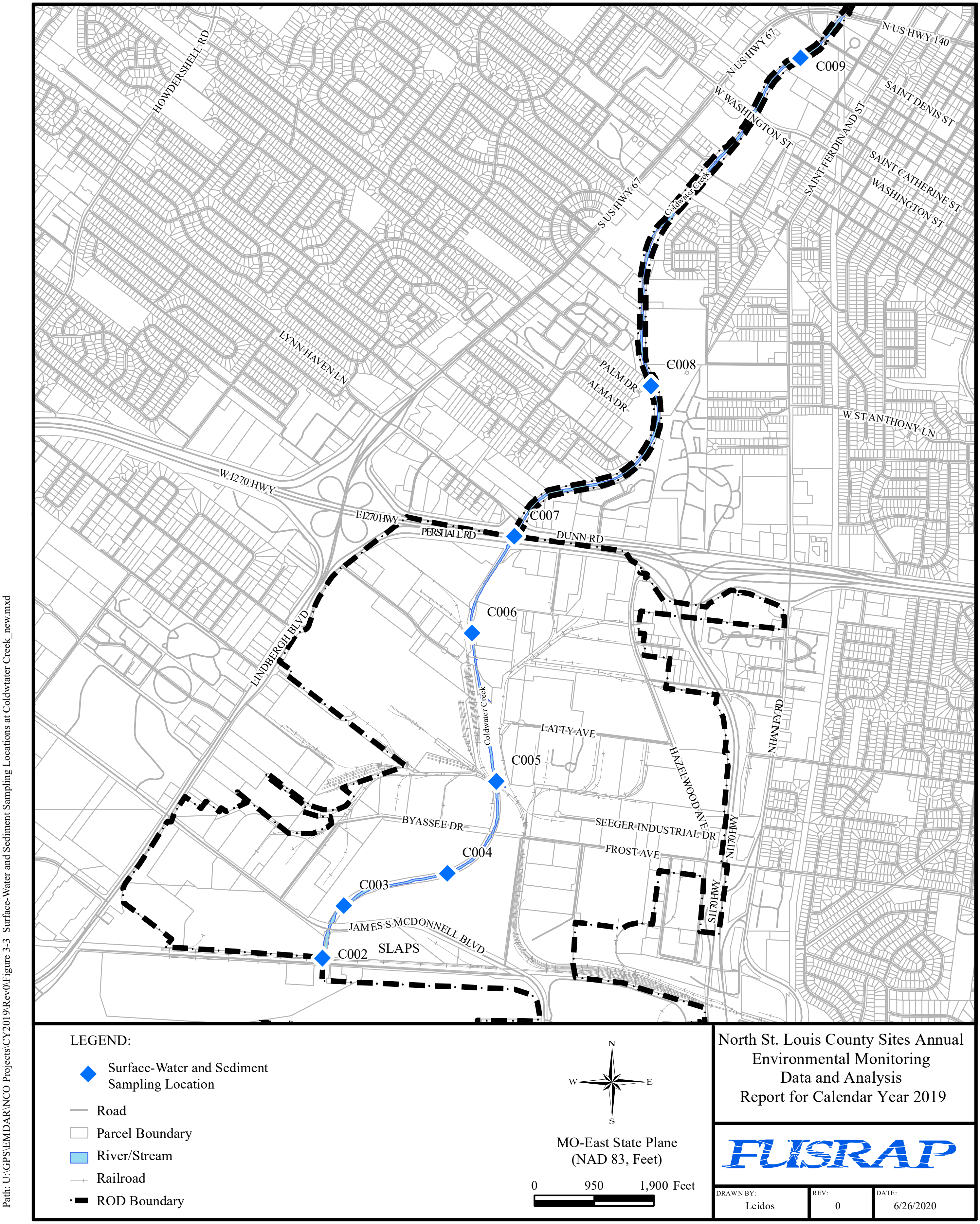


North St. Louis County Sites Annual Environmental Monitoring Data and Analysis Report for Calendar Year 2019

FUSRAP

DRAWN BY:	REV:	DATE:
Leidos	0	6/26/2020

Figure 3-2. Storm-Water Outfall and MSD Excavation-Water Discharge Points at the SLAPS



North St. Louis County Sites Annual Environmental Monitoring Data and Analysis Report for Calendar Year 2019

FUSRAP

DRAWN BY:	REV:	DATE:
Leidos	0	6/26/2020

Figure 3-3. Surface-Water and Sediment Sampling Locations at Coldwater Creek

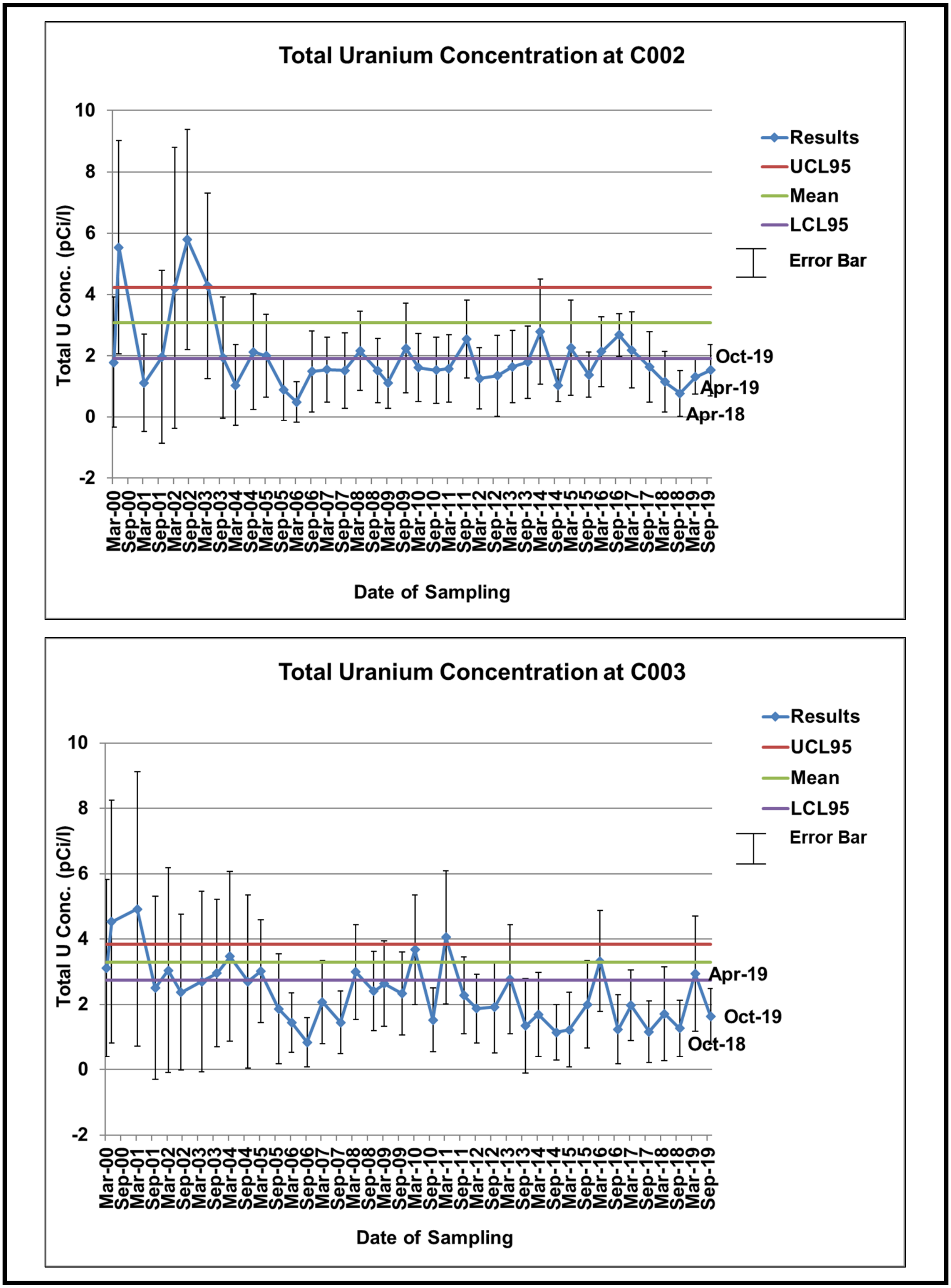
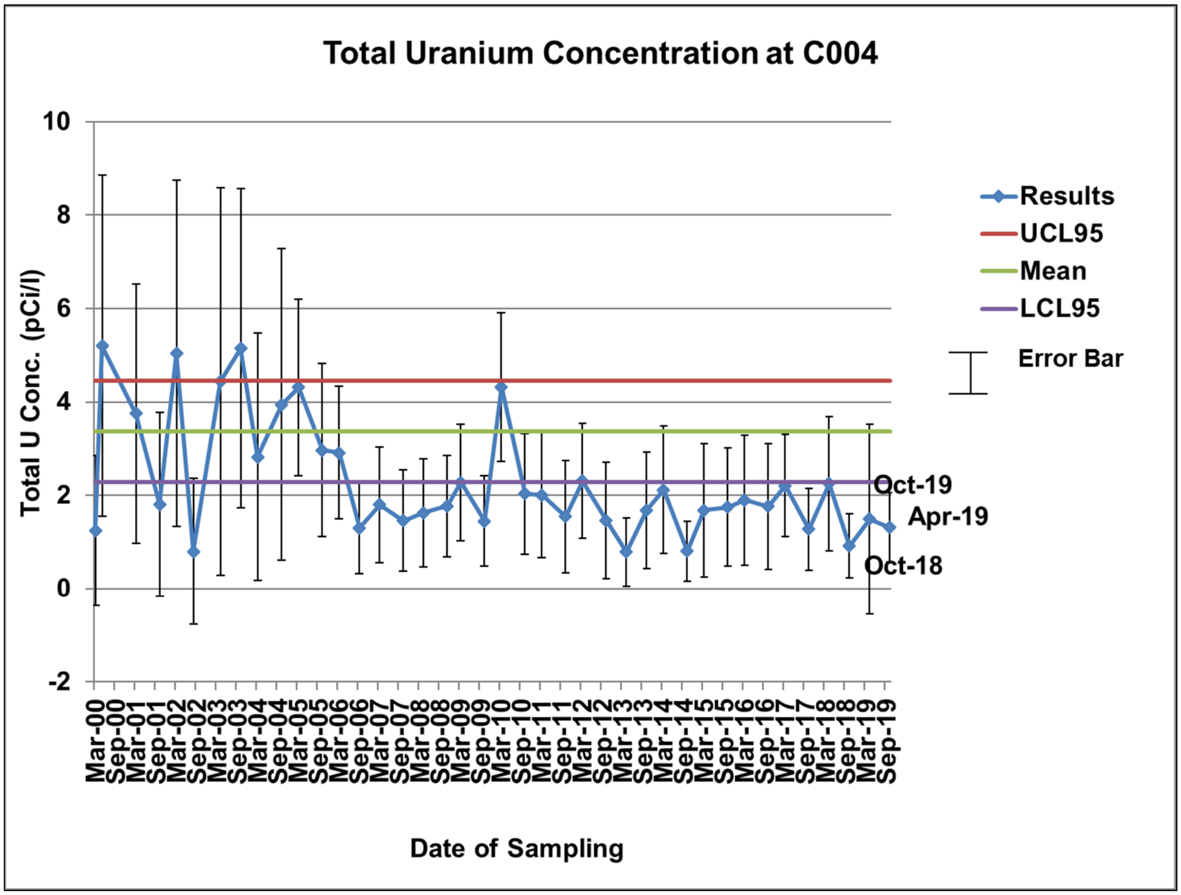


Figure 3-4. Total U Concentration Statistics in Surface Water Versus Sampling Data



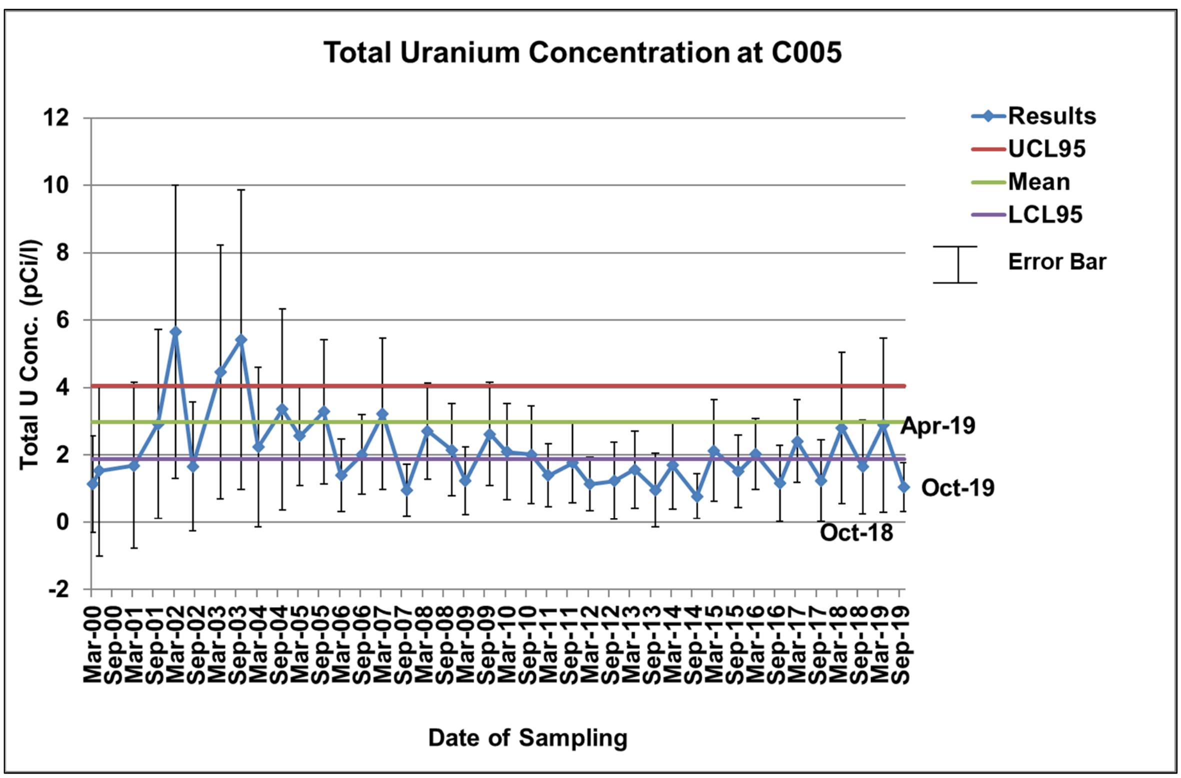
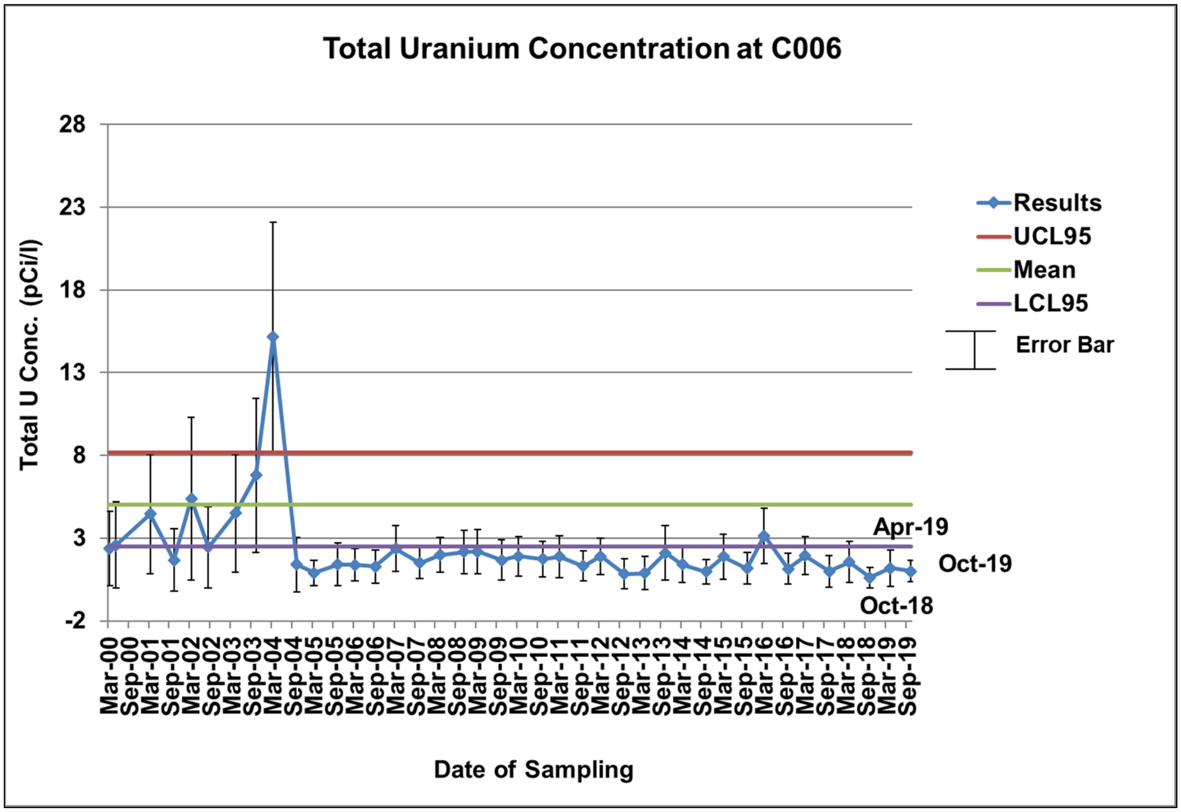


Figure 3-4. Total U Concentration Statistics in Surface Water Versus Sampling Data (Continued)



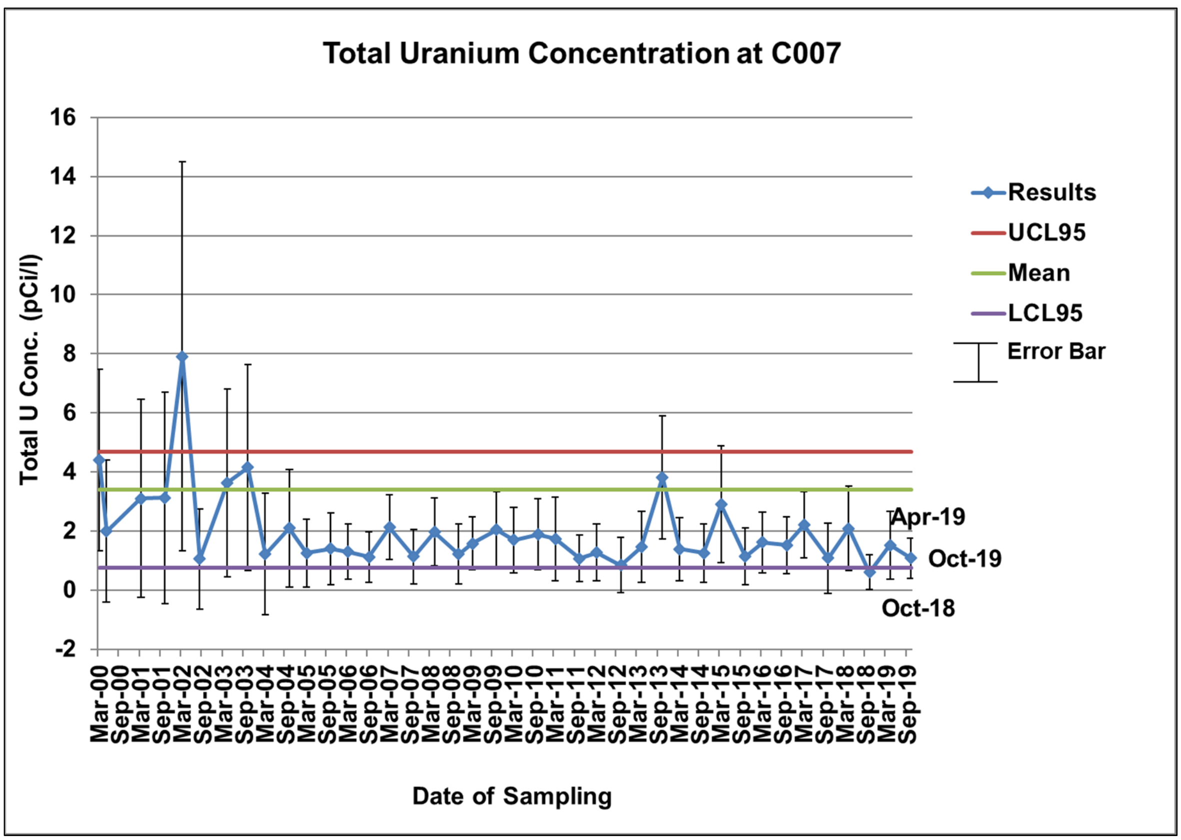
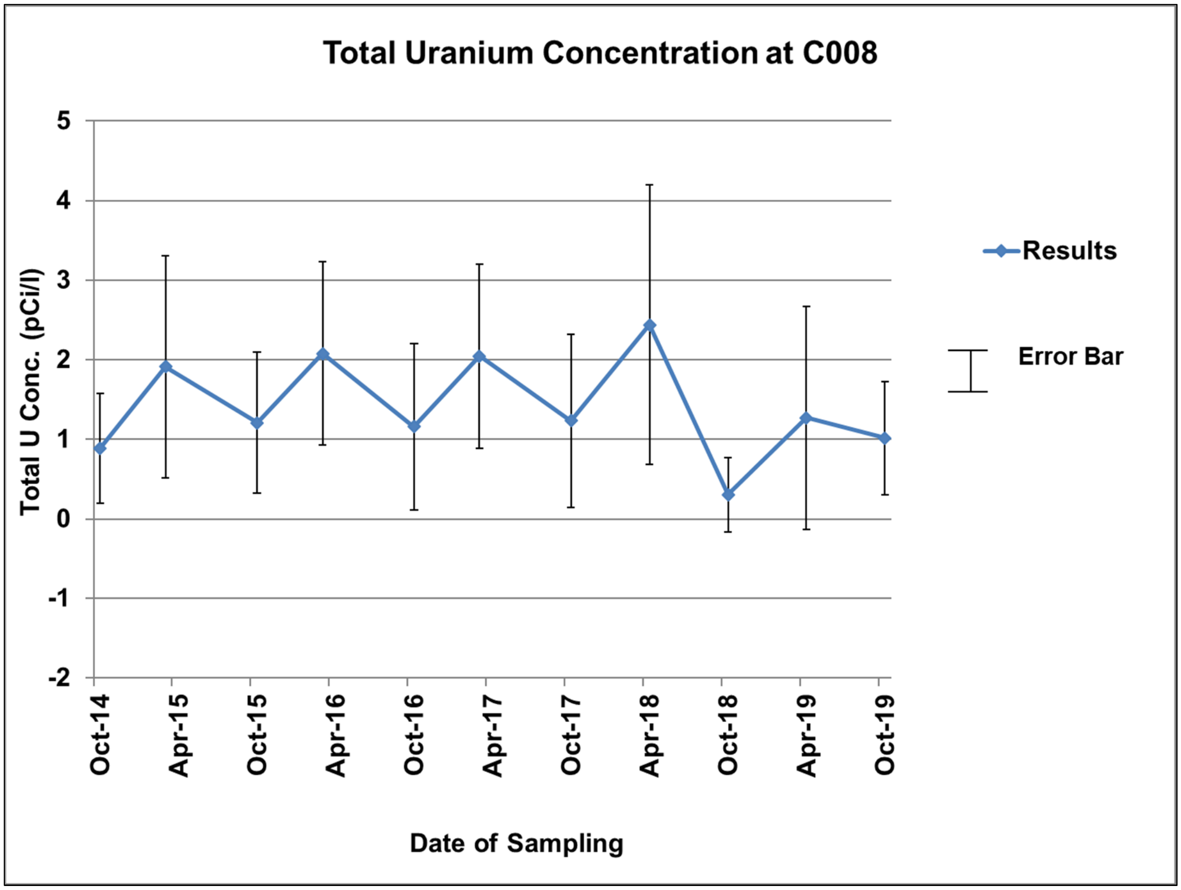


Figure 3-4. Total U Concentration Statistics in Surface Water Versus Sampling Data (Continued)



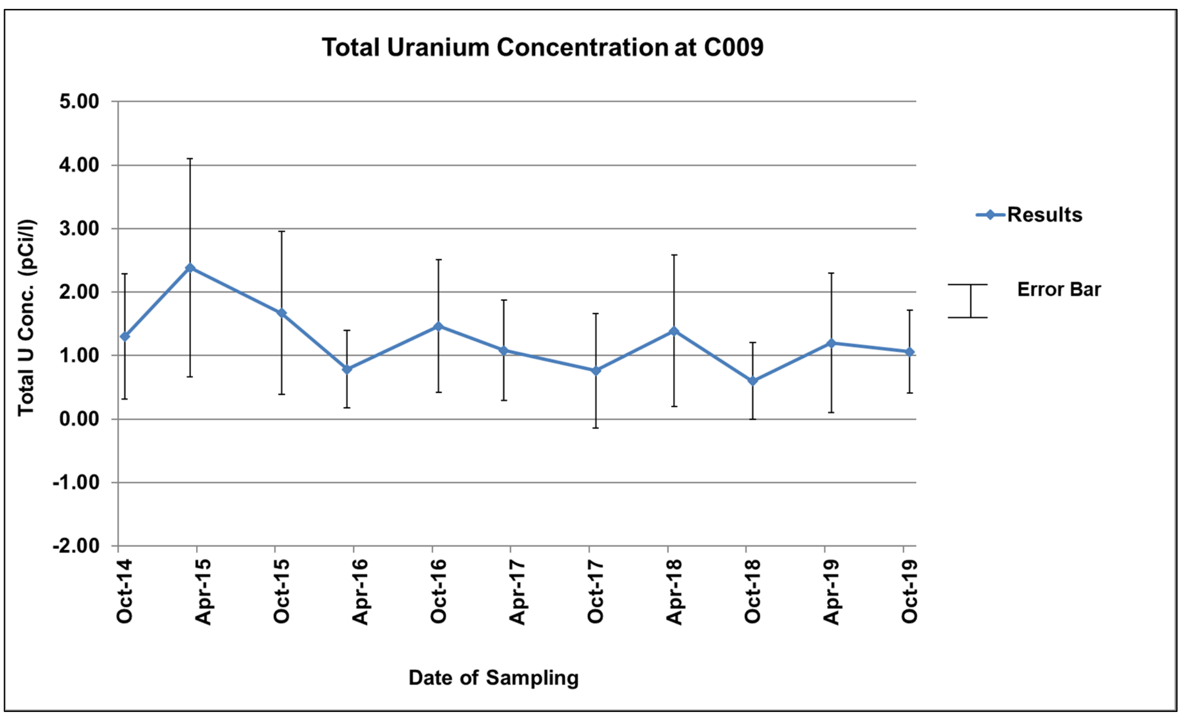
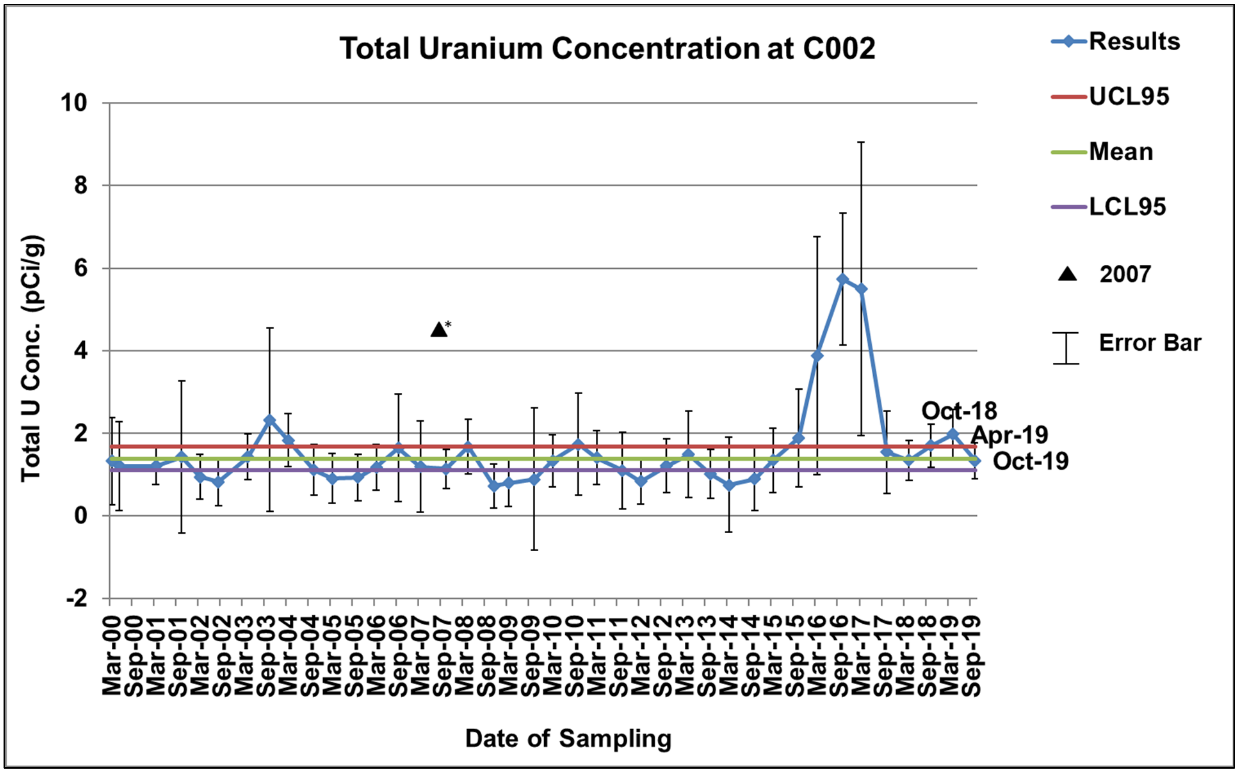
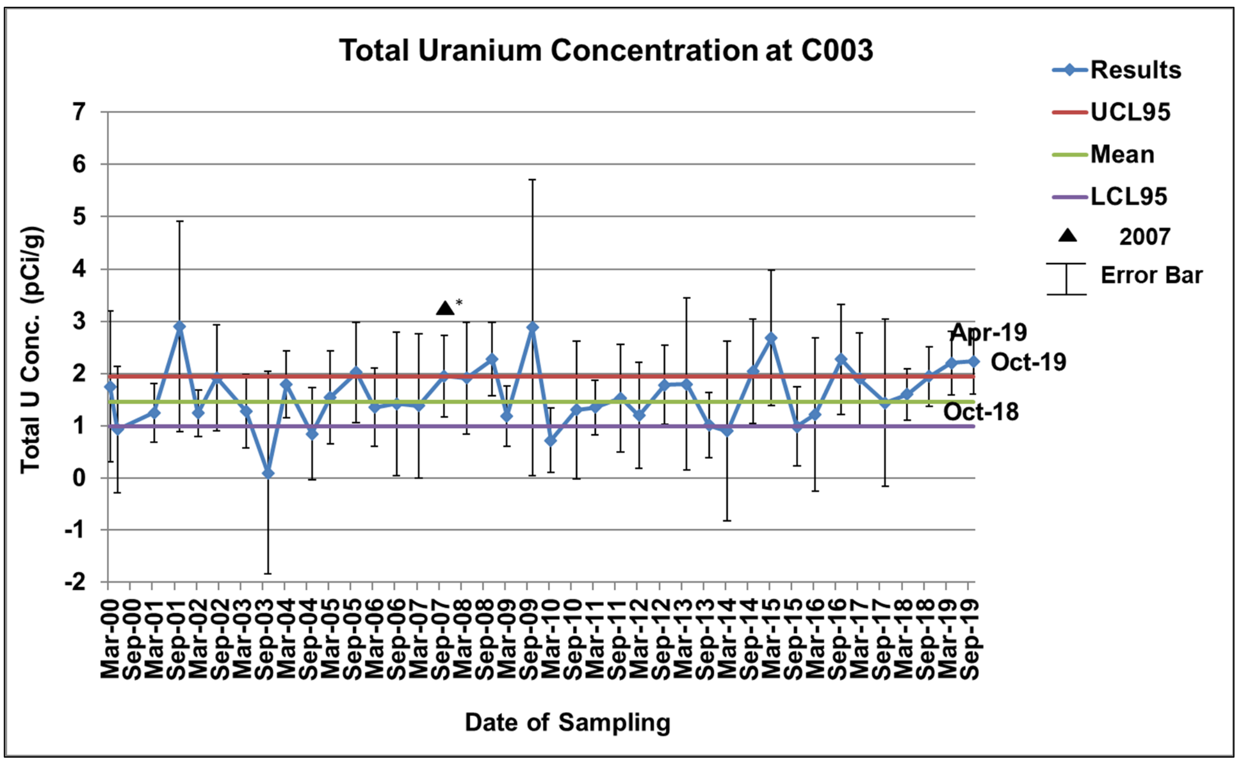


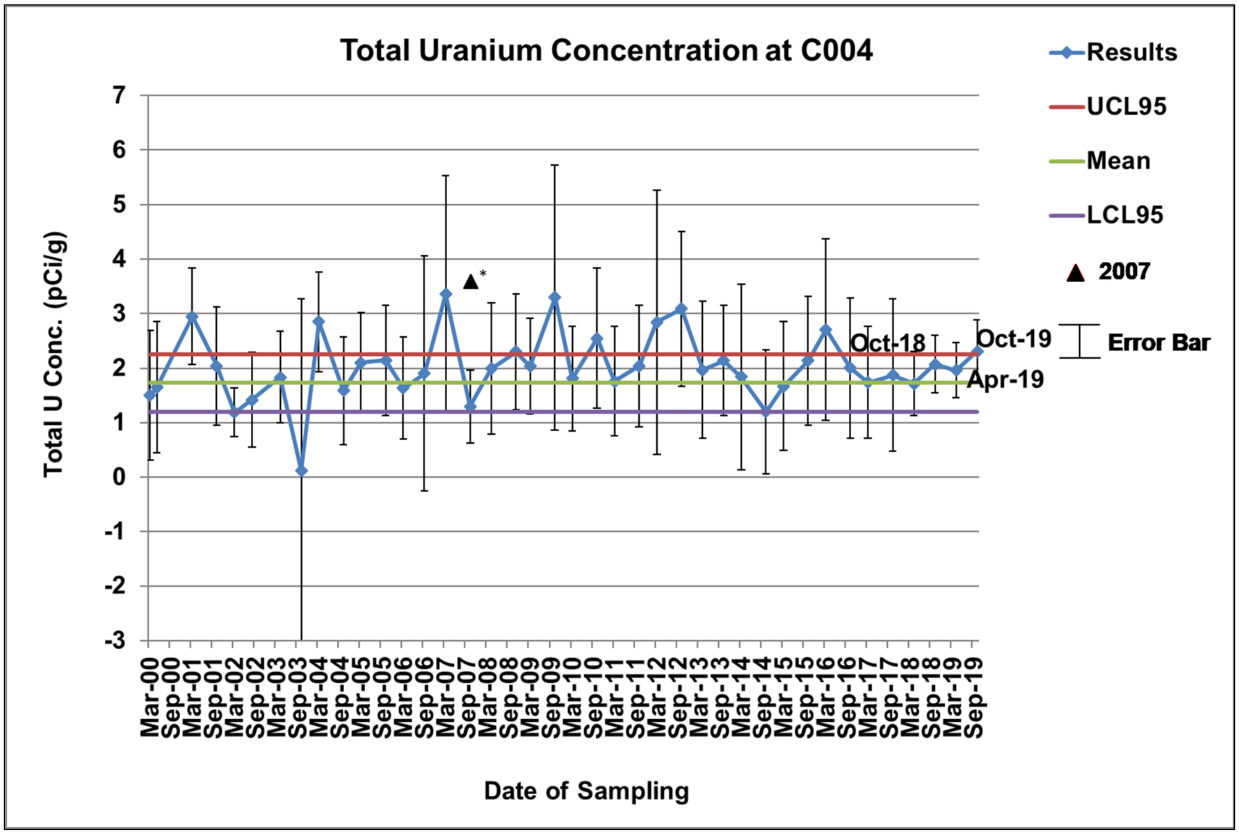
Figure 3-4. Total U Concentration Statistics in Surface Water Versus Sampling Data (Continued)

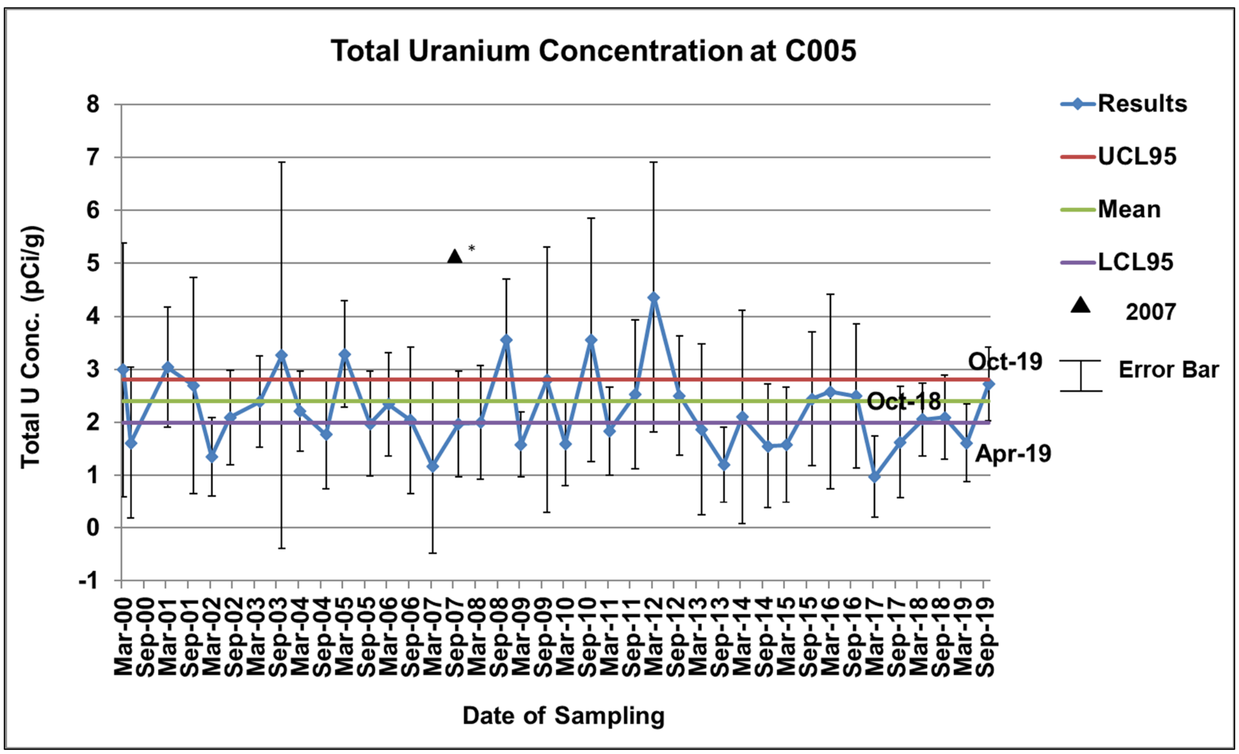




* The October 2007 value was incorrectly graphed in previous reports due to the alpha and gamma results being added together, artificially increasing the value. The charts in this figure have been corrected.

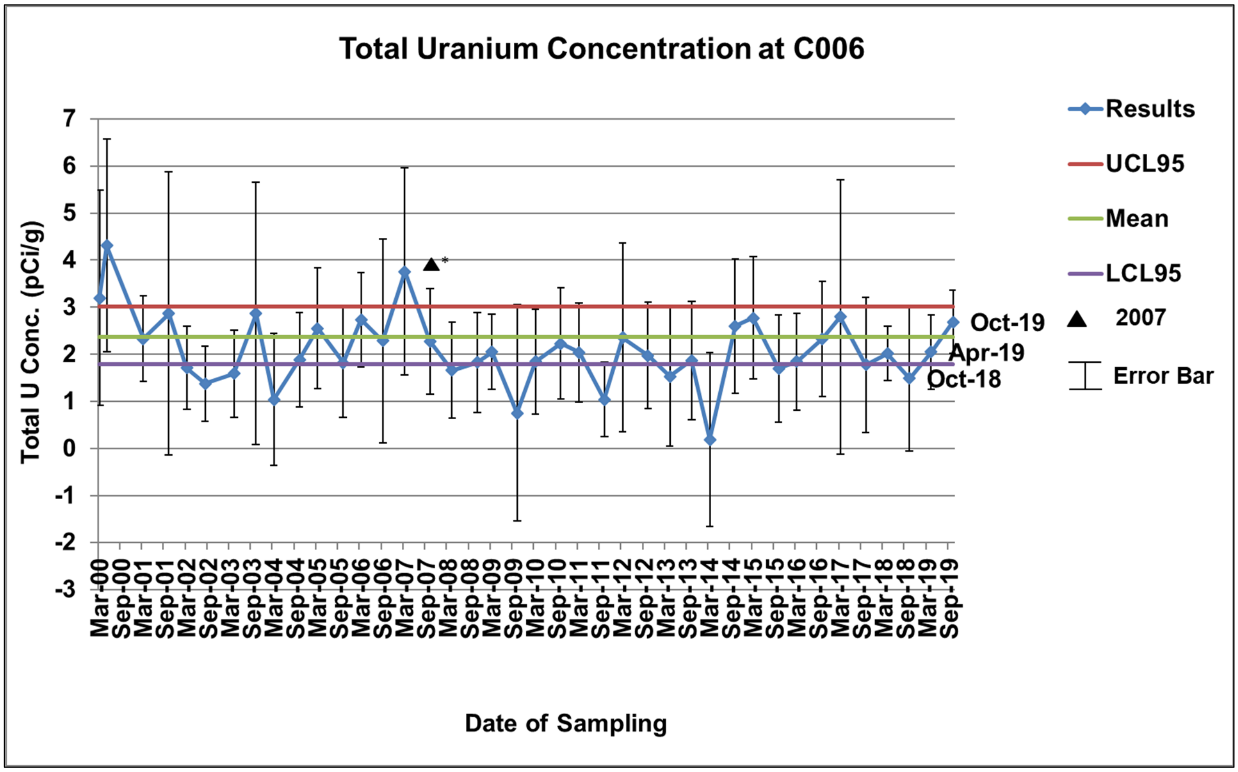
Figure 3-5. Total U Concentration Statistics in Sediment Versus Sampling Date

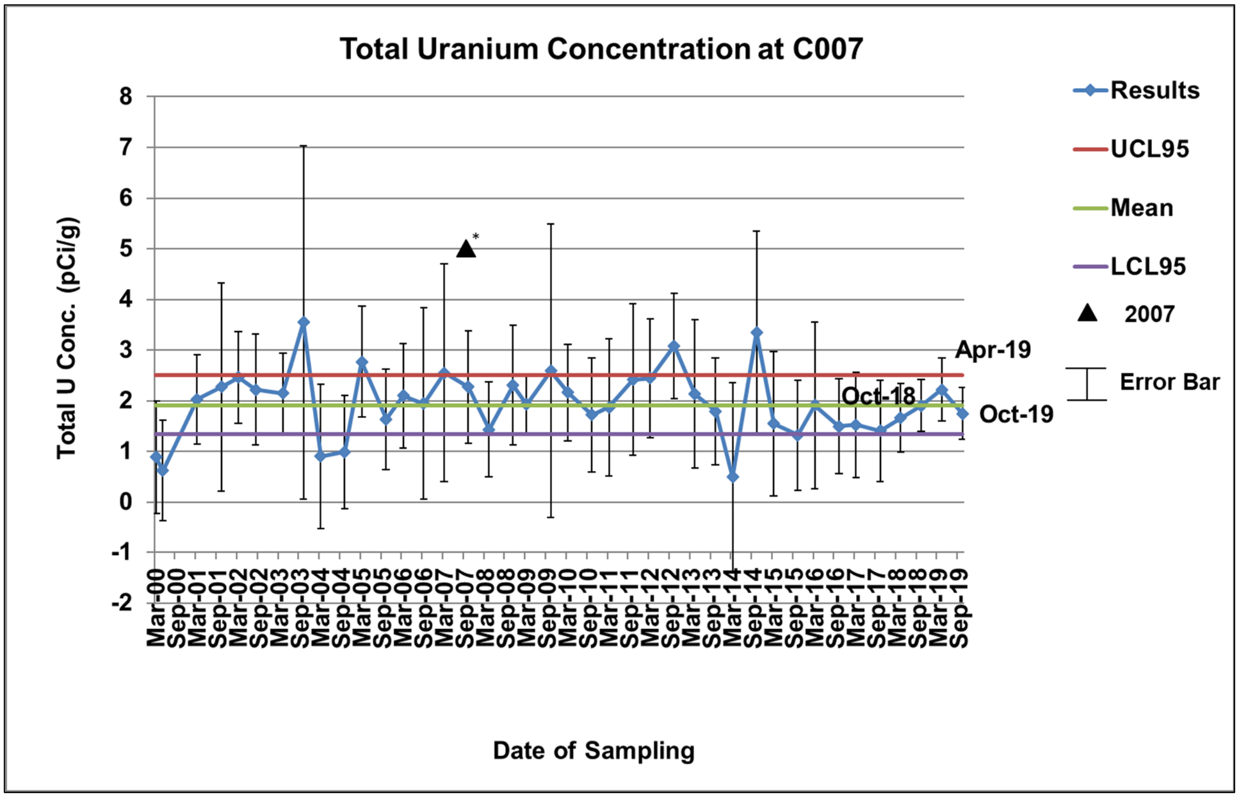




* The October 2007 value was incorrectly graphed in previous reports due to the alpha and gamma results being added together, artificially increasing the value. The charts in this figure have been corrected.

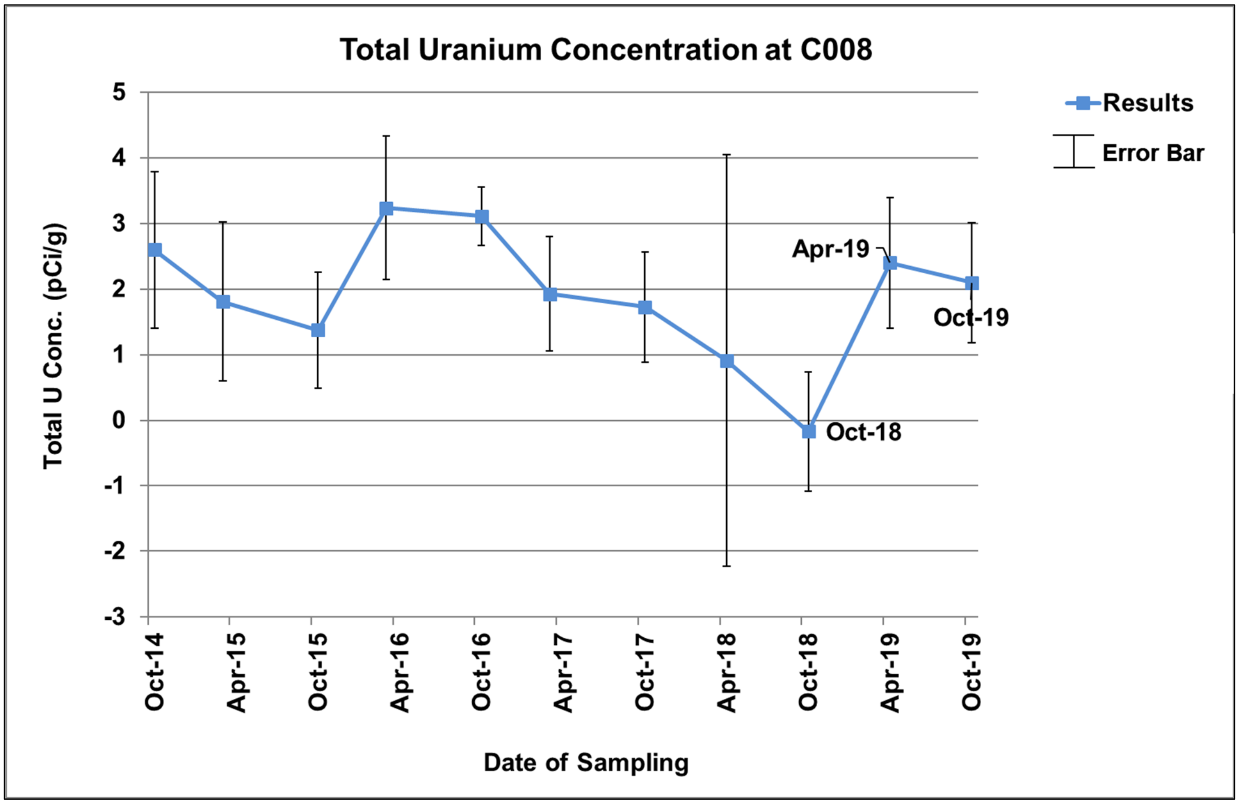
Figure 3-5. Total U Concentration Statistics in Sediment Versus Sampling Date (Continued)





* The October 2007 value was incorrectly graphed in previous reports due to the alpha and gamma results being added together, artificially increasing the value. The charts in this figure have been corrected.

Figure 3-5. Total U Concentration Statistics in Sediment Versus Sampling Date (Continued)



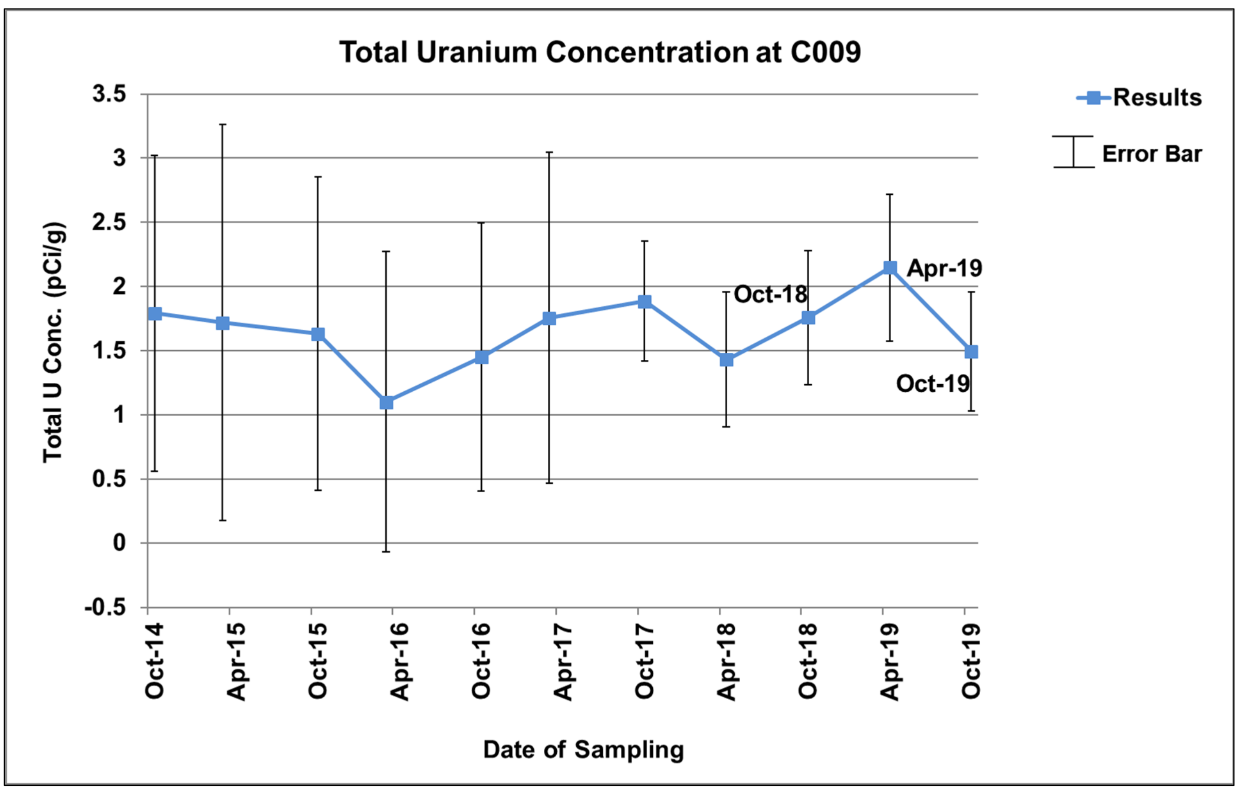


Figure 3-5. Total U Concentration Statistics in Sediment Versus Sampling Date (Continued)

Zone	Period	Epoch	Stratigraphy	Thickness (ft.)	Description
Hydrostratigraphic zone (HZ)-A	Quaternary	Holocene	FILL/TOPSOIL	0-14	**UNIT 1** Fill - Sand, silt, clay, concrete, rubble. Topsoil - Organic silts, clayey silts, wood, fine sand.
		Pleistocene	LOESS (CLAYEY SILT)	11-32	**UNIT 2** Clayey silts, fine sands, commonly mottled with iron oxide staining. Scattered roots and organic material, and a few fossils.
			GLACIOLACUSTRINE SERIES: SILTY CLAY	19-75 (3) 9-27 (3T)	**UNIT 3** Silty clay with scattered organic blebs and peat stringers. Moderate plasticity. Moist to saturated (3T).
Hydrostratigraphic zone (HZ)-B			VARVED CLAY	0-8	Alternating layers of dark and light clay as much as 1/16 inch thick (3M).
			CLAY	0-26	Dense, stiff, moist, highly plastic clay (3M).
Hydrostratigraphic zone (HZ)-C			SILTY CLAY	10-29	Similar to upper silty clay. Probable unconformable contact with highly plastic clay (3B).
			BASAL CLAYEY AND SANDY GRAVEL	0-6	**UNIT 4** Glacial clayey gravels, sands, and sandy gravels. Mostly chert.
Hydrostratigraphic zone (HZ)-D	Pennsylvanian		CHEROKEE (?) GROUP (UNDIFFERENTIATED)	0-35	**UNIT 5** BEDROCK: Interbedded silty clay/shale, lignite/coal, sandstone, and siltstone. Erosionally truncated by glaciolacustrine sequences. (Absent at the HISS).
Hydrostratigraphic zone (HZ)-E	Mississippian		STE. GENEVIEVE ST. LOUIS LIMESTONES	10+	**UNIT 6** BEDROCK: Hard, white to olive, well cemented, sandy limestone with interbedded shale laminations.

FUSRAP

North St. Louis County Sites
Annual Environmental Monitoring Data and
Analysis Report for Calendar Year 2019

DRAWN BY:	REV. NO./DATE:	FILE:	NOT TO SCALE
C.Kaple	0 – 06/19/2020		

Figure 4-1. Generalized Stratigraphic Column for the NC Sites

Path: U:\GPS\EMDAR\NCO Projects\CY2019\Rev0\Figure 4-2_Existing Monitoring Well Locations at the Latty Avenue Properties2.mxd

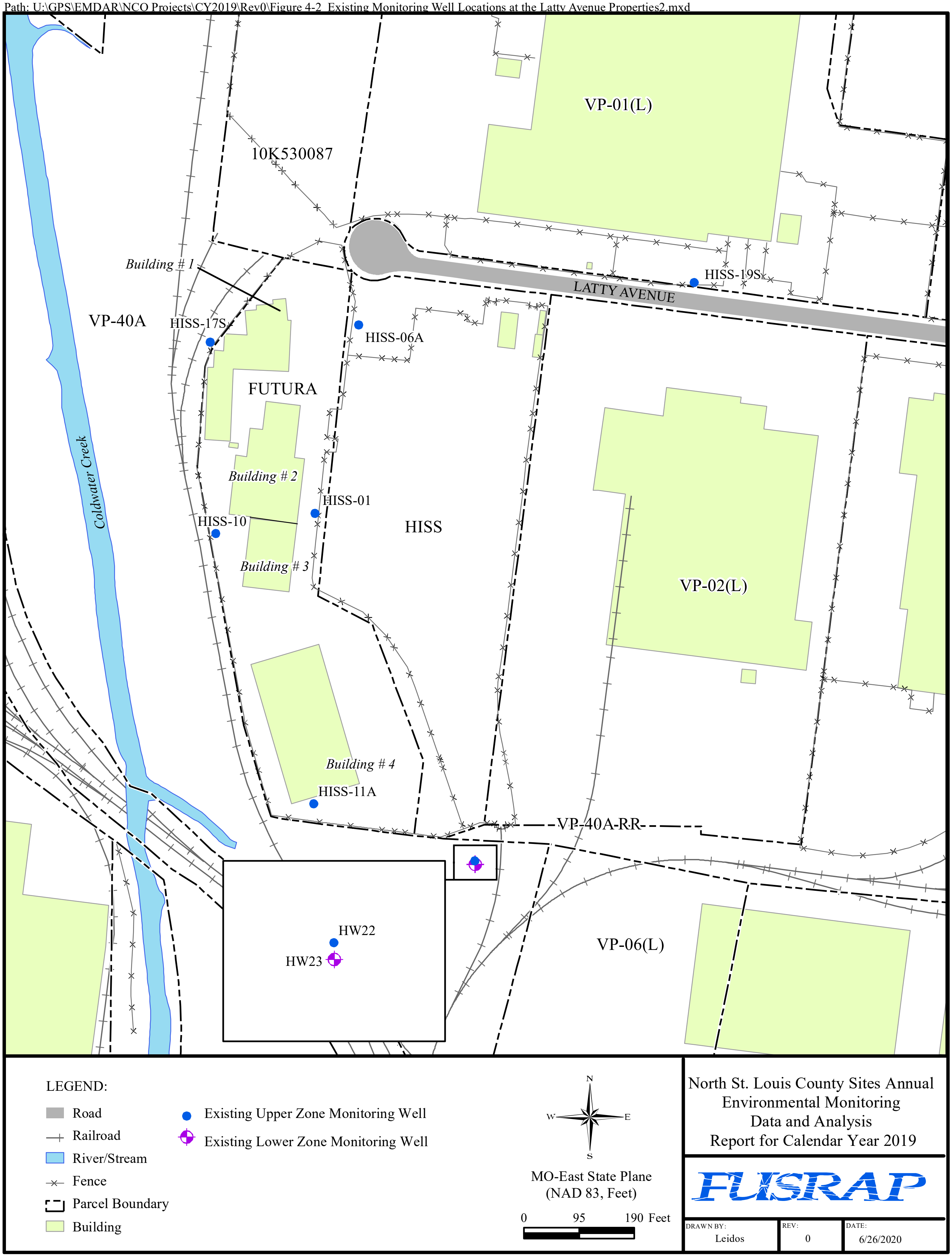
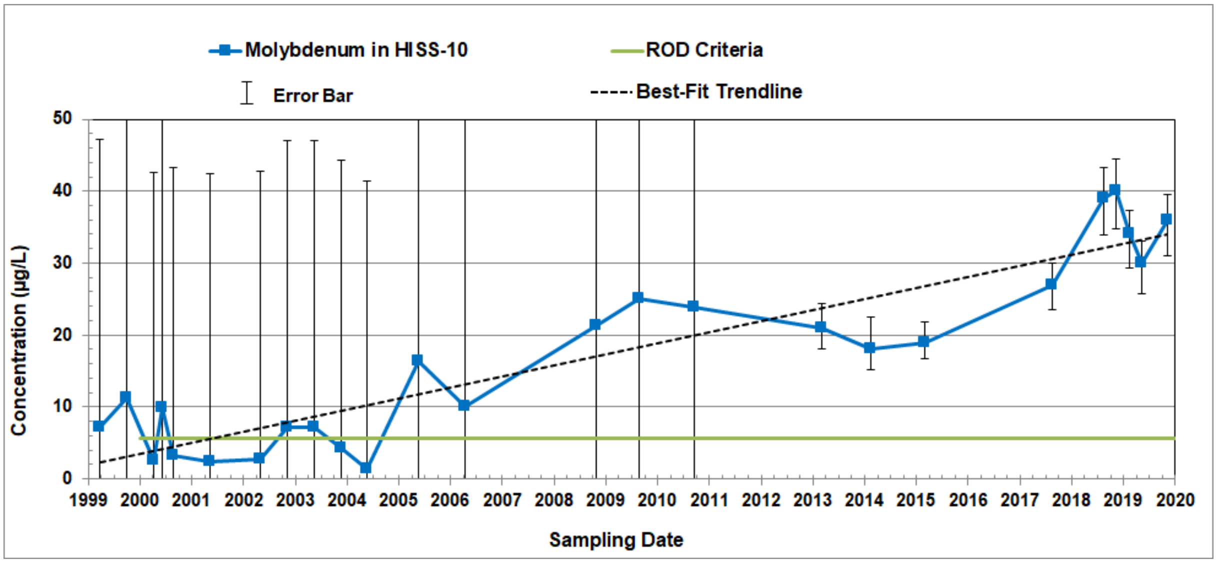


Figure 4-2. Existing Monitoring Well Locations at the Latty Avenue Properties



Notes:

For molybdemum results less than 3 times the reporting limit (RL), the error bar represents ± RL. The RL for molybdenum changed from 40 µg/L to 5 µg/L in CY 2011.

For molybdenum results exceeding 3 times the RL, the error bar represents the upper and lower control limits on the control spike samples.

Molybdenum error bars for 2003 and earlier are based on laboratory control limits for 2003. Error bars for 2004 and later are based on laboratory control limits reported for the respective years.

Figure 4-3. Time-Versus-Concentration Plot for Molybdenum in HISS-10 at the HISS

Path: U:\GPS\EMDAR\NCO Projects\CY2019\Rev0\Figure 4-4 Selenium Concentrations in Unfiltered HZ-A Ground Water at the Latty Avenue Properties.mxd

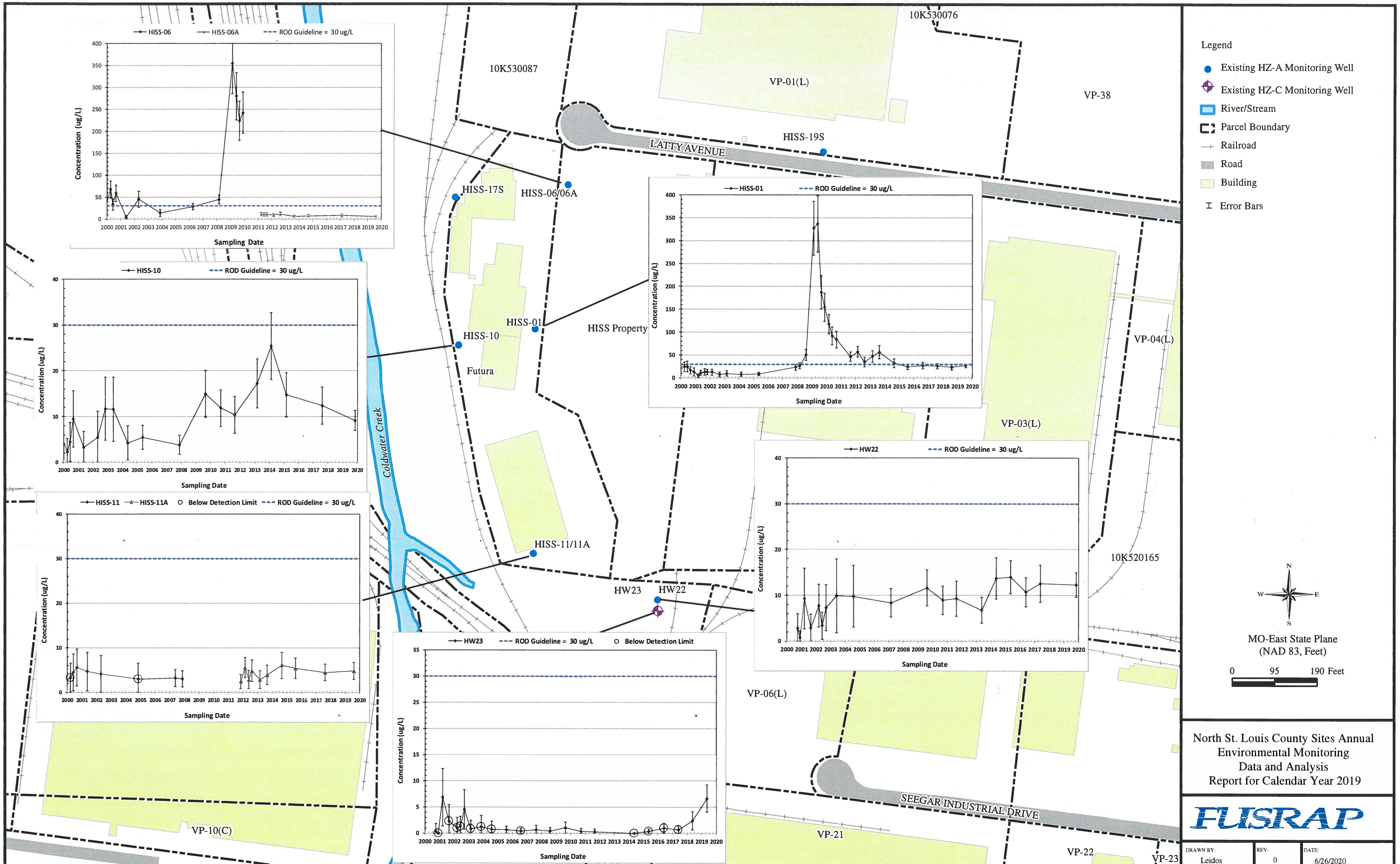


Figure 4-4. Total U Concentrations in Unfiltered Ground Water at the Latty Avenue Properties

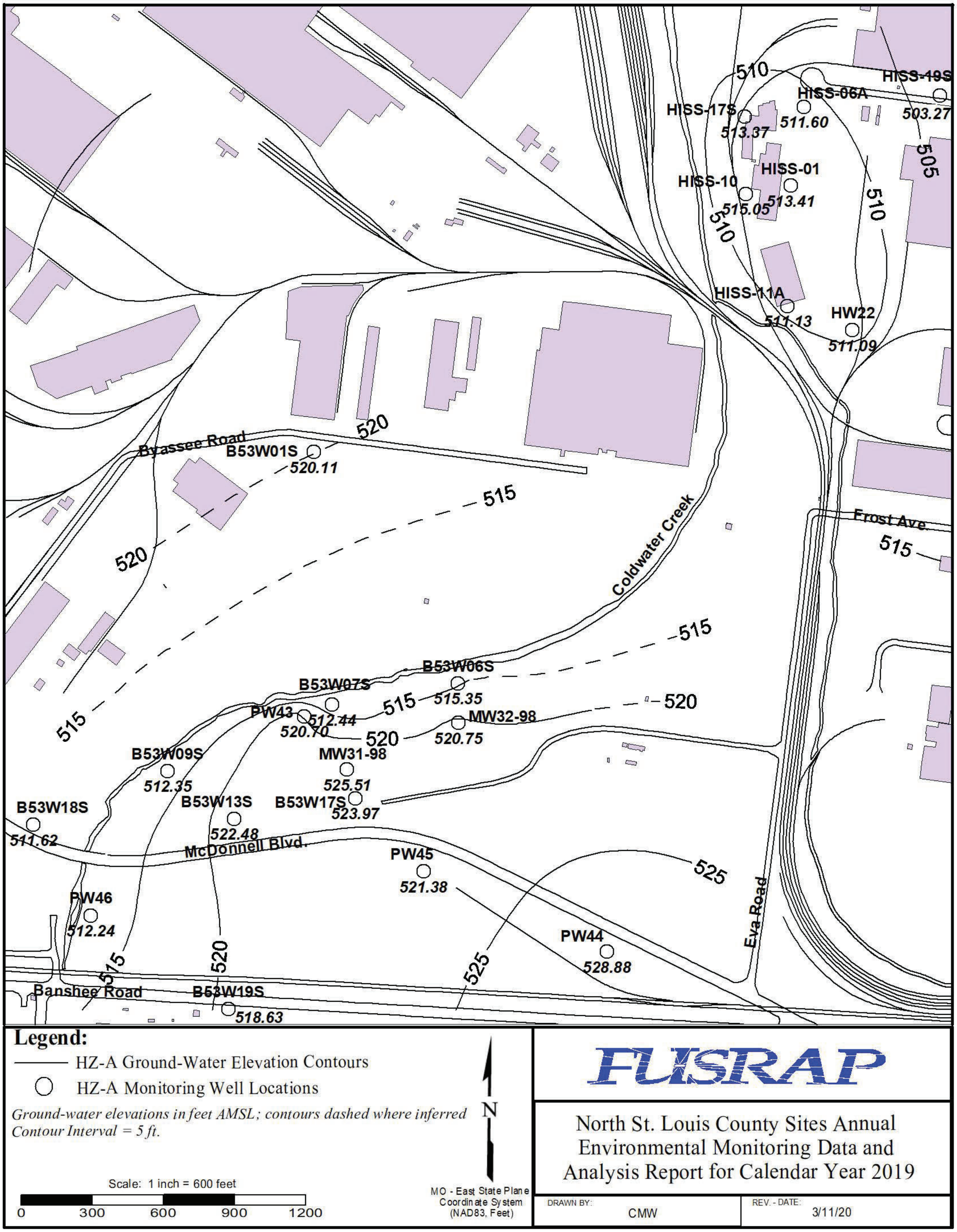


Figure 4-5. HZ-A Potentiometric Surface at the Latty Avenue Properties and the SLAPS and SLAPS VPs (May 6, 2019)

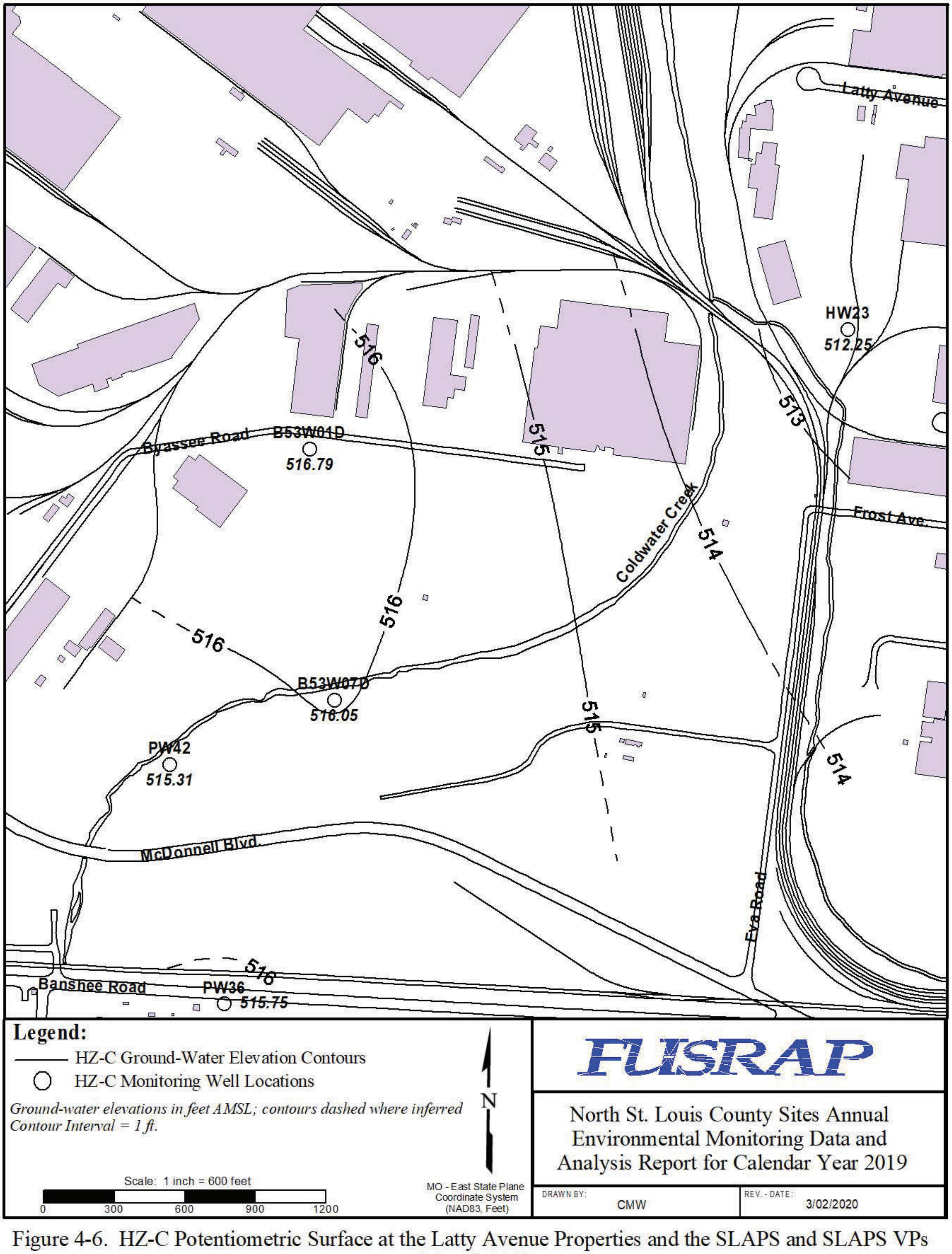


Figure 4-6. HZ-C Potentiometric Surface at the Latty Avenue Properties and the SLAPS and SLAPS VPs (May 6, 2019)

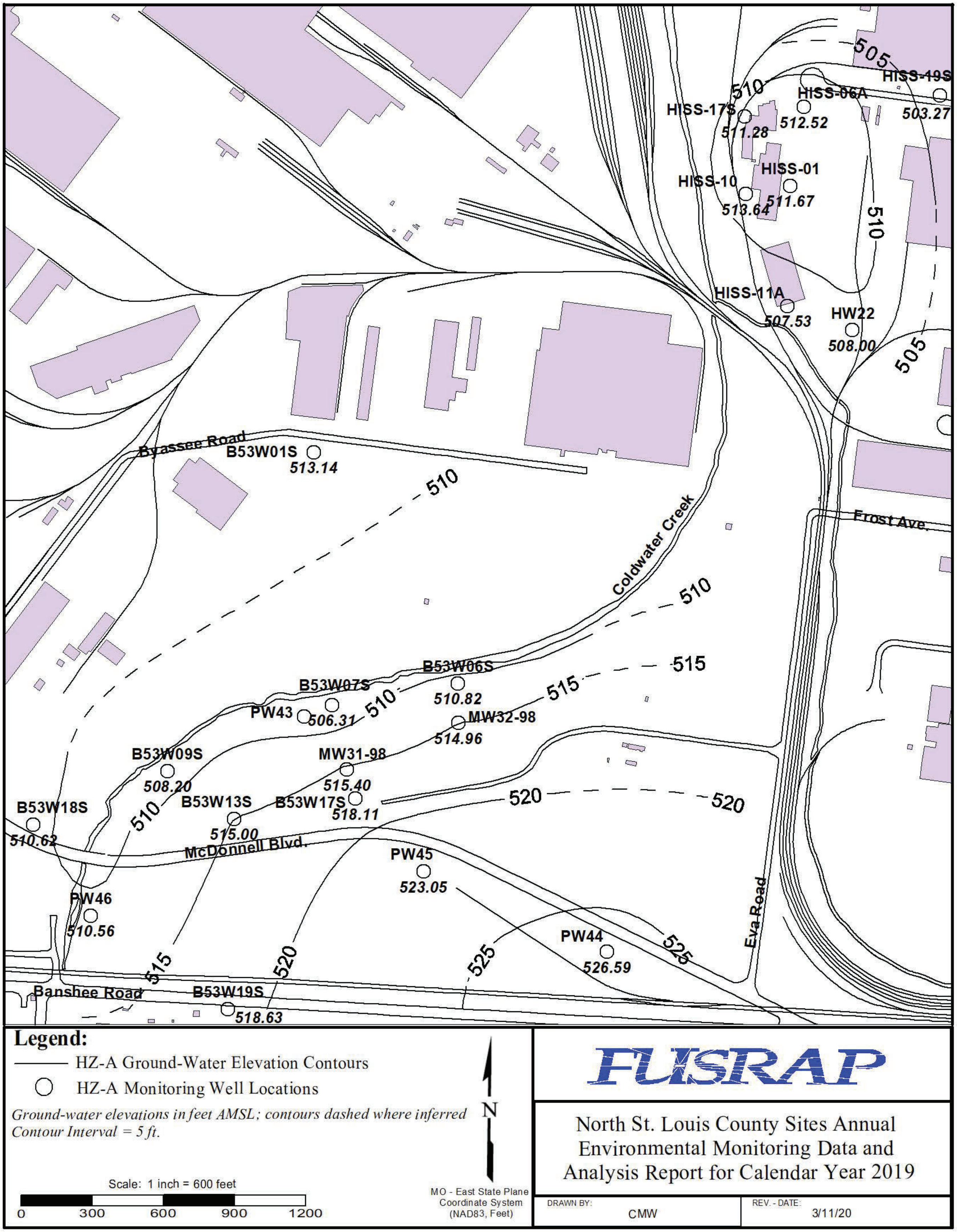


Figure 4-7. HZ-A Potentiometric Surface at the Latty Avenue Properties and the SLAPS and SLAPS VPs (November 7, 2019)

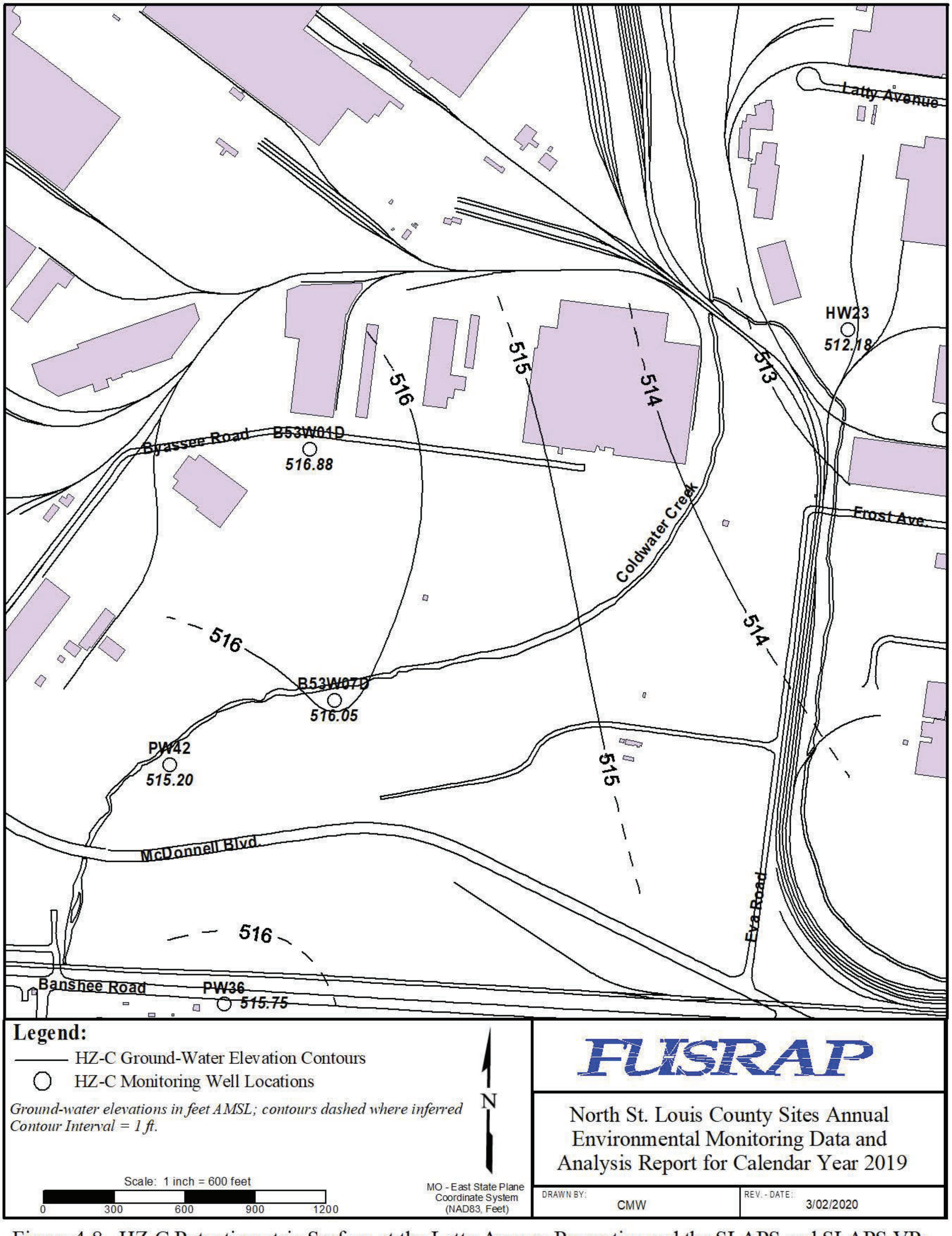
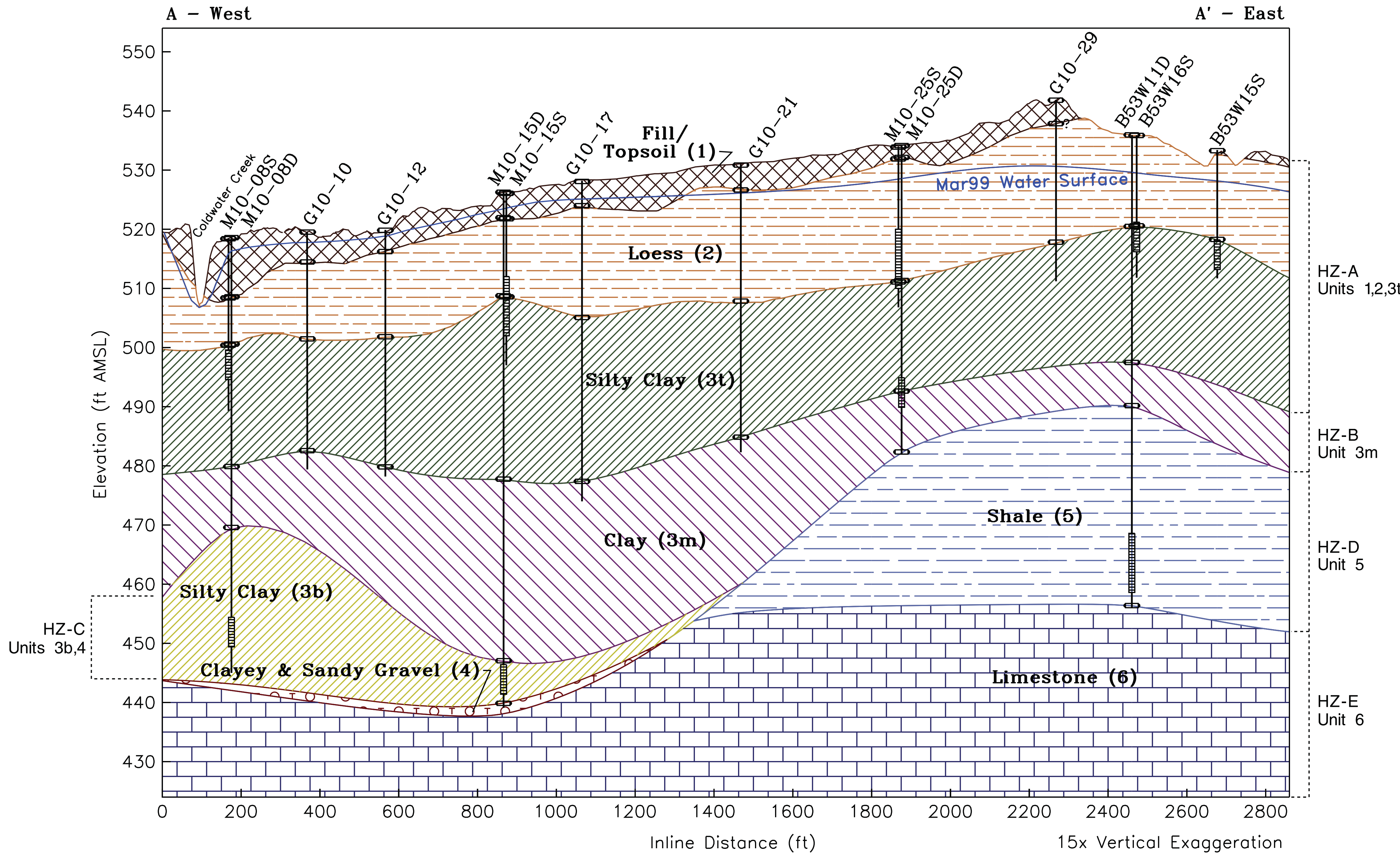


Figure 4-8. HZ-C Potentiometric Surface at the Latty Avenue Properties and the SLAPS and SLAPS VPs (November 7, 2019)



Notes

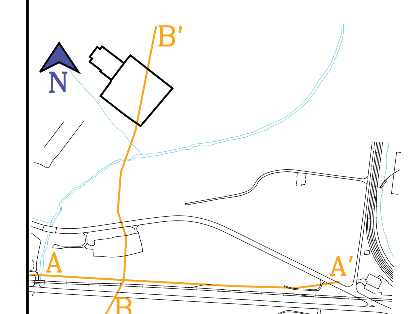
Geologic data used in the cross section collected through 2000.

Legend

Borehole pick

Well screen

Cross Section Location Map



FUSRAP

North St. Louis County Sites
Annual Environmental Monitoring
Data and Analysis Report for
Calendar Year 2019

Drawn By: N. Voorhies

Date: 08/29/2000, revised 01/28/2020

File: SLAPSGlg05ExtendedAAS.sho

Figure 4-9. Geologic Cross-Section A-A' at the SLAPS

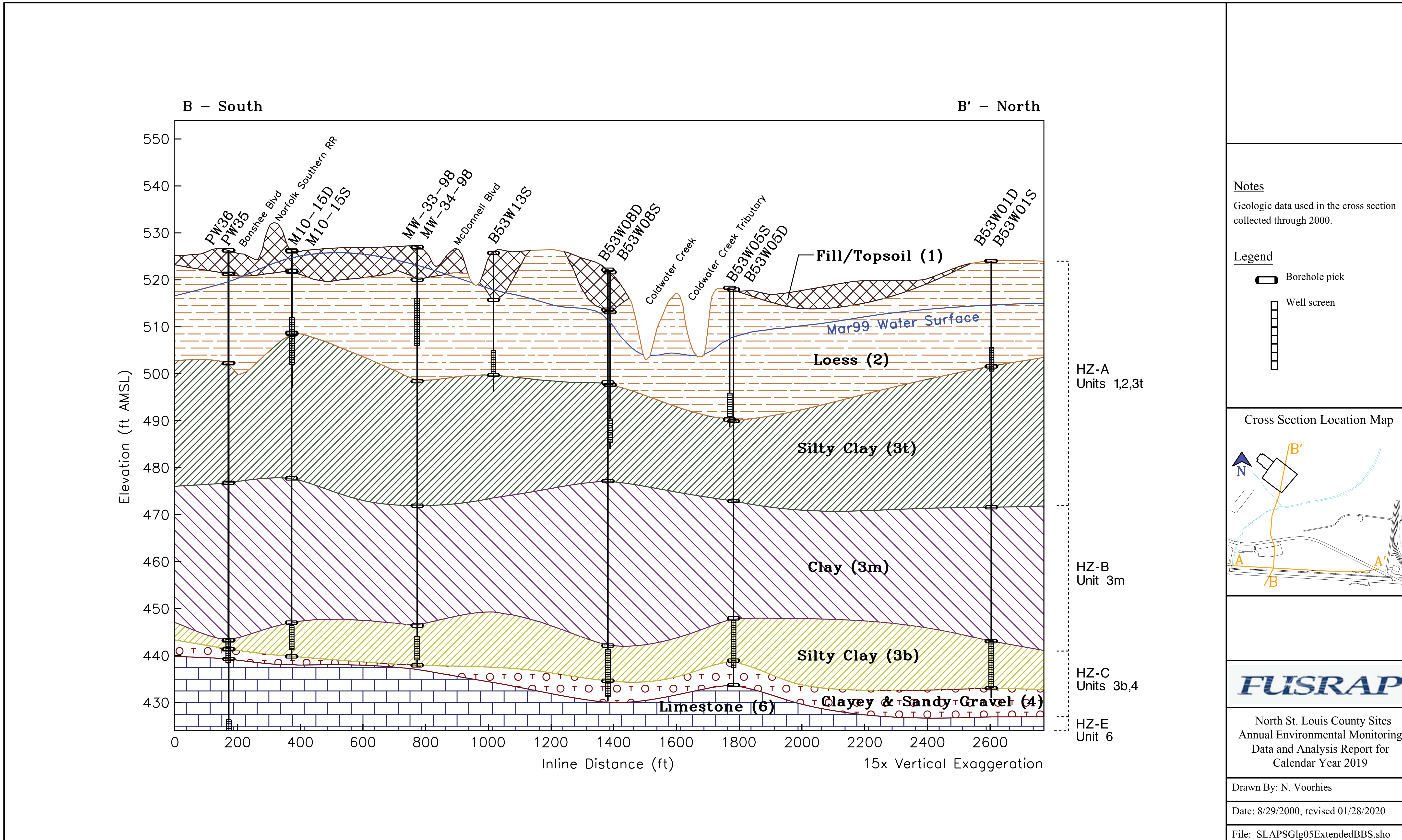


Figure 4-10. Geologic Cross-Section B-B' at the SLAPS and SLAPS VPs

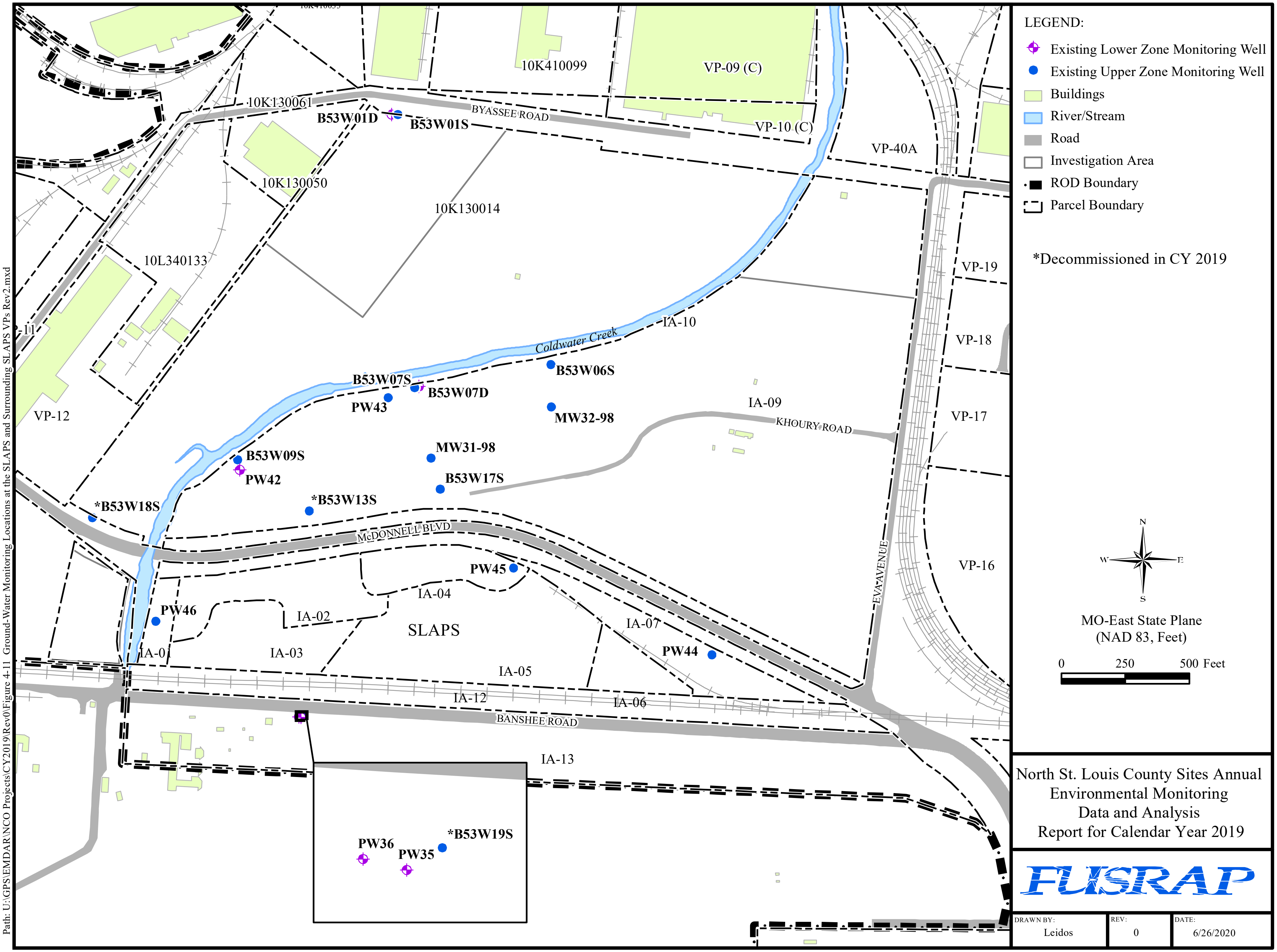
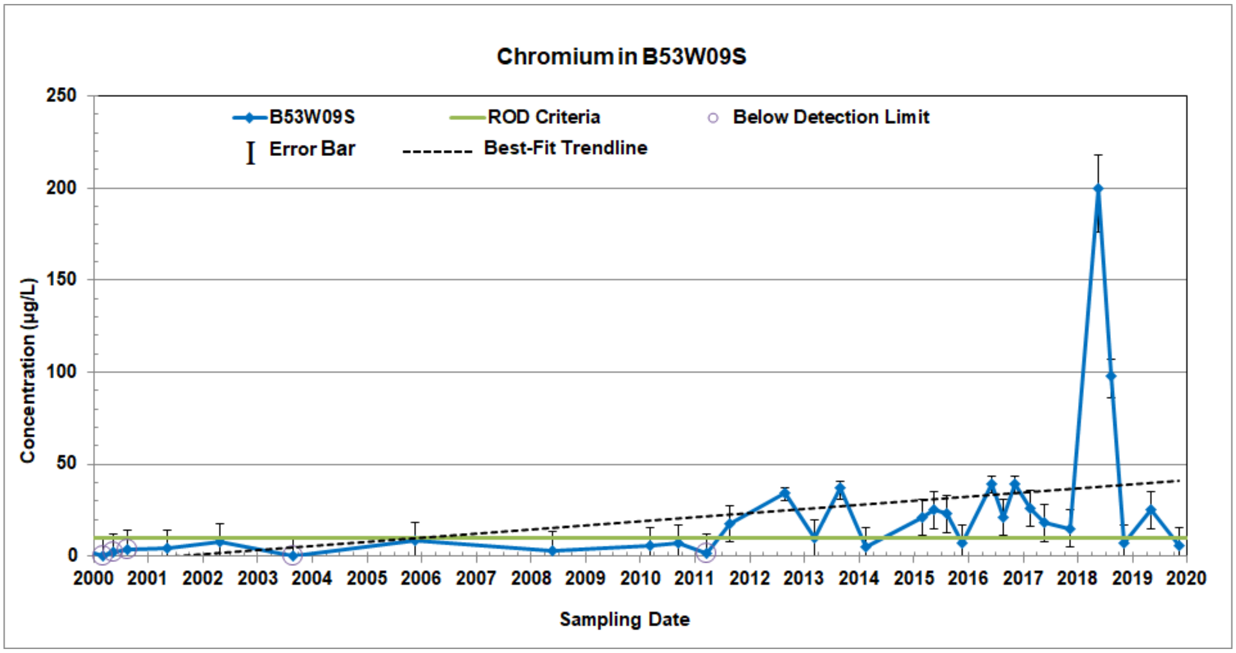
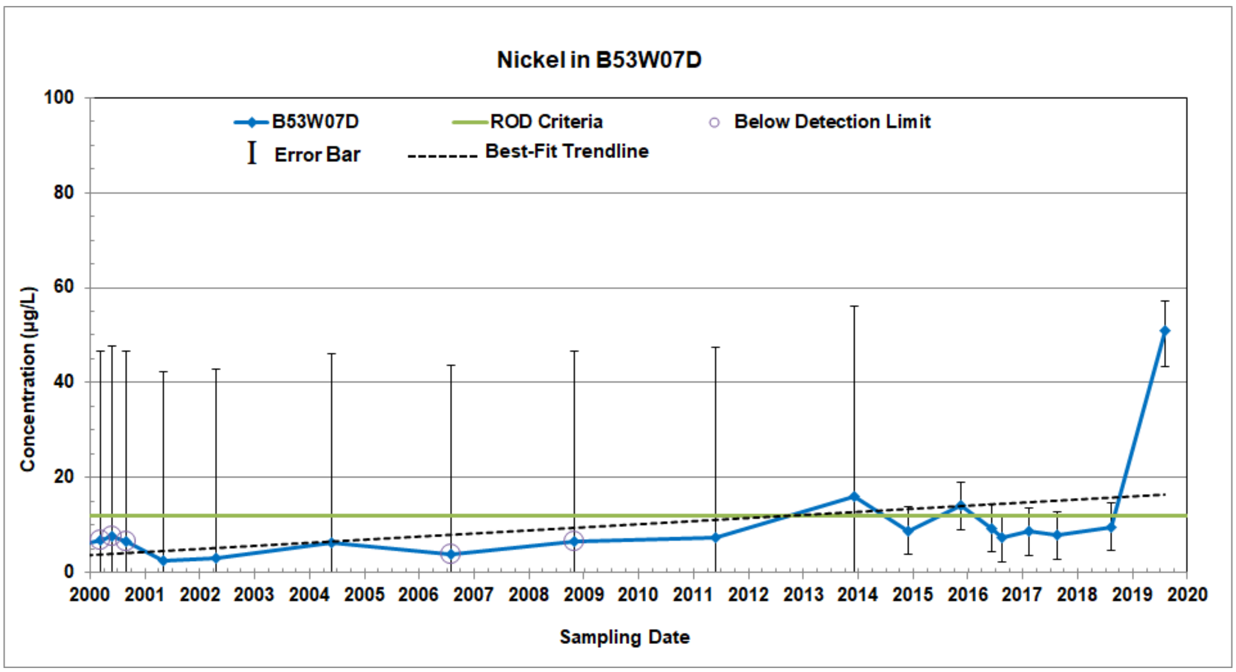


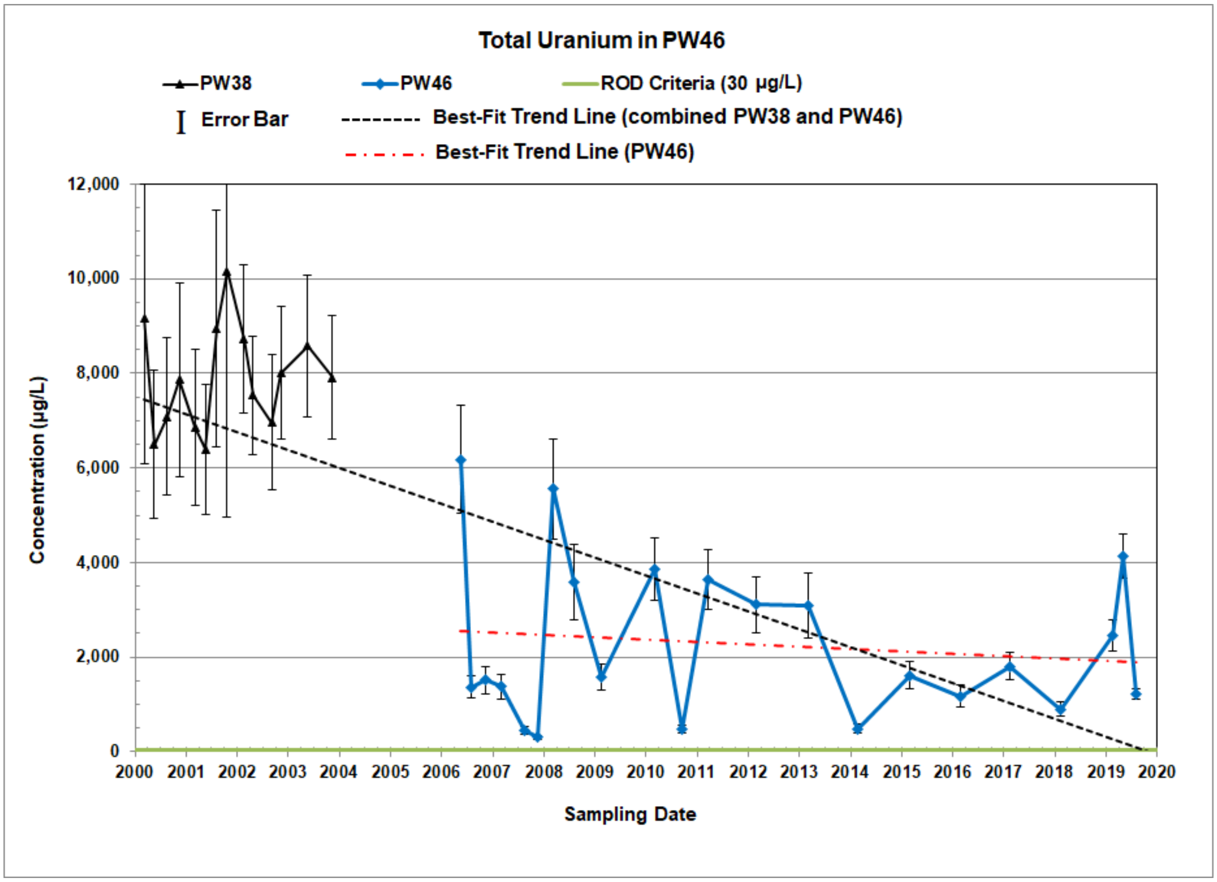
Figure 4-11. Existing Ground-Water Monitoring Locations at the SLAPS and SLAPS VPs





Notes:
For results less than 3 times the RL, the error bar represents ± RL. For results exceeding 3 times the RL, the error bar represents the upper and lower control limits on the control spike samples. The RL for nickel changed from 40 µg/L to 5 µg/L in 2014.
For results reported below the DL (nondetect), the value plotted is half the DL.

Figure 4-12. Time-Versus-Concentration Graphs for Chromium in Ground Water at B53W09S and for Nickel in Ground Water at B53W07D



Note:
For total U, the error bar represents ± the sum of the measurement errors for U-234, U-235, and U-238, converted to µg/L.

Figure 4-13. Time-Versus-Concentration Graphs for Total U in Ground Water at PW46

Path: U:\GPS\EMDAR\NCO Projects\CY2019\Rev0\Figure 4-14 Selenium Concentrations in Ground Water at the SLAPS and SLAPS VPs.mxd

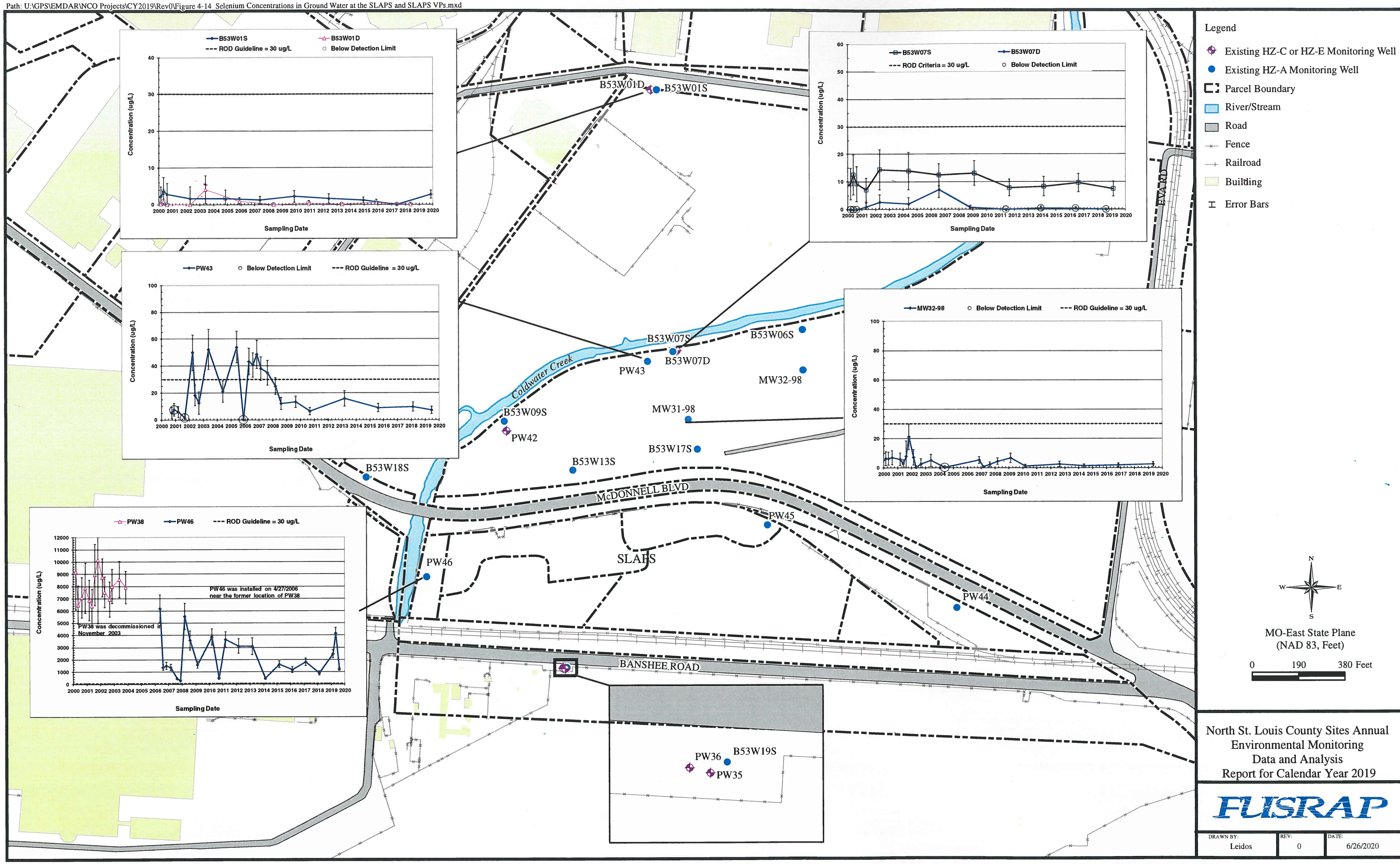


Figure 4-14. Total U Concentrations in Unfiltered Ground Water at the SLAPS and SLAPS VPs

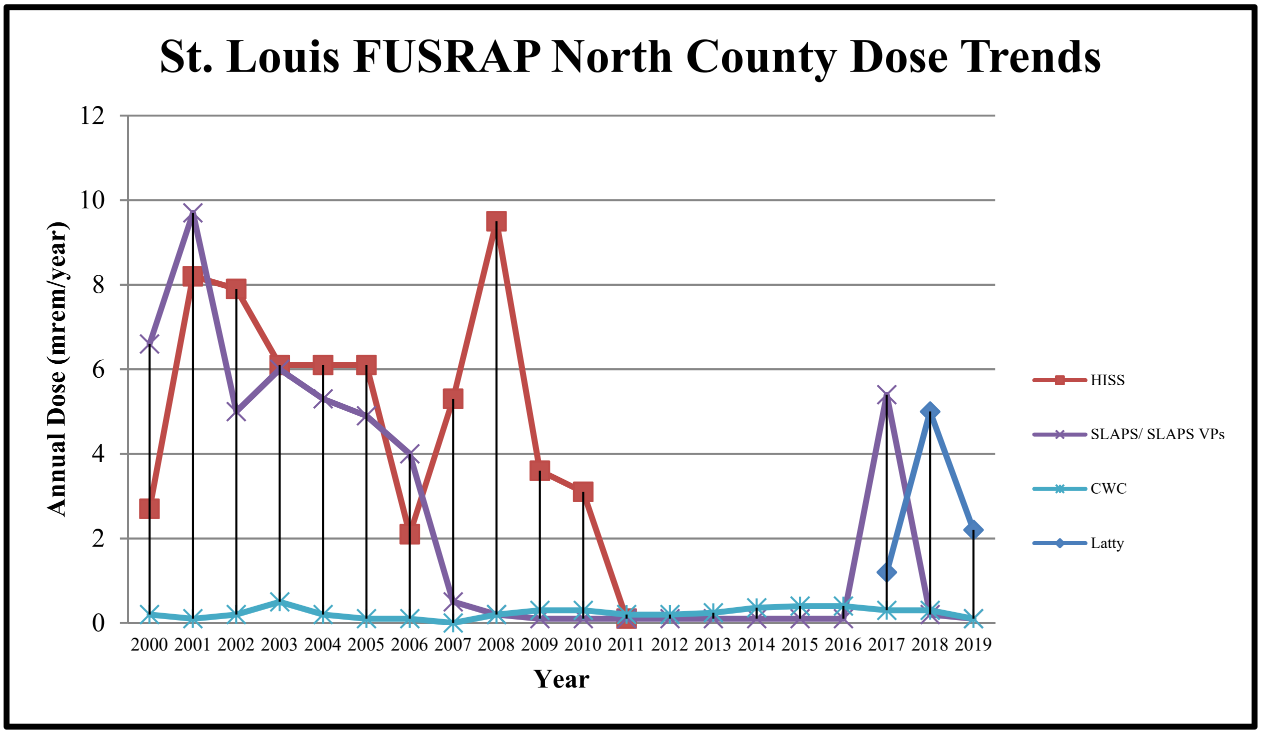


Figure 6-1. St. Louis FUSRAP NC Sites Dose Trends

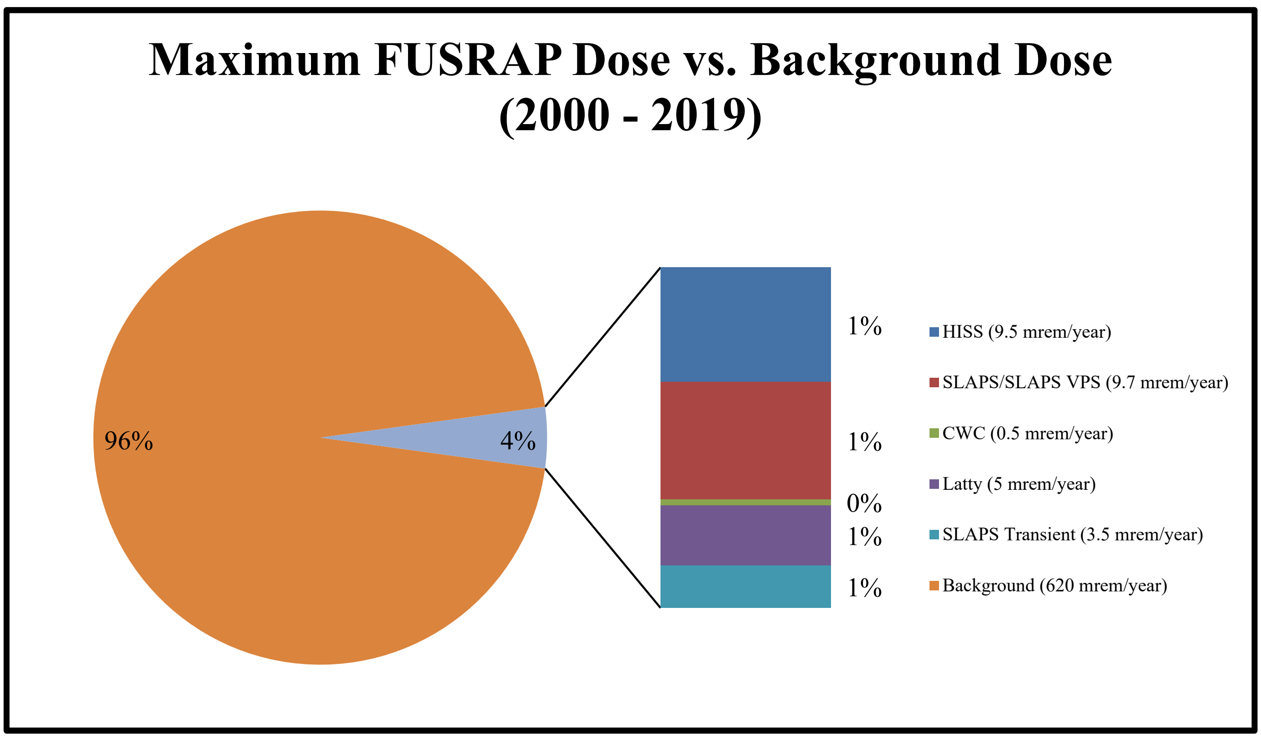


Figure 6-2. St. Louis FUSRAP NC Sites Maximum Dose Versus Background Dose

APPENDIX A

NORTH ST. LOUIS COUNTY FUSRAP SITES
2019 RADIONUCLIDE EMISSIONS NESHAP REPORT
SUBMITTED IN ACCORDANCE WITH REQUIREMENTS OF 40 *CFR* 61, SUBPART I

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

SECTION **PAGE**

TABLE OF CONTENTS (Continued)

LIST OF TABLES

LIST OF FIGURES

LIST OF ATTACHMENTS

ACRONYMS AND ABBREVIATIONS

Ac	actinium
AEC	Atomic Energy Commission
BNI	Bechtel National Inc.
CFR	*Code of Federal Regulations*
CWC	Coldwater Creek
CY	calendar year
DOE	U.S. Department of Energy
EDE	effective dose equivalent
FUSRAP	Formerly Utilized Sites Remedial Action Program
Futura	Futura Coatings Company
GIS	geographic information system
HEPA	high efficiency particulate air
HISS	Hazelwood Interim Storage Site
IA	investigation area
IAAAP	Iowa Army Ammunition Plant
MED	Manhattan Engineer District
NC	North St. Louis County
NESHAP	National Emission Standard for Hazardous Air Pollutants
Pa	protactinium
Ra	radium
RA	remedial action
SLAPS	St. Louis Airport Site
SLDS	St. Louis Downtown Site
STLAA	St. Louis Airport Authority
SU	survey unit
Th	thorium
U	uranium
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
VP	vicinity property

UNIT ABBREVIATIONS

Both English and metric units are used in this report. The units used in a specific situation are based on common unit usage or regulatory language (e.g., depths are given in feet, and areas are given in square meters). Units included in the following list are not defined at first use in this report.

°C	degrees Celsius (centigrade)
$\mu Ci/cm^3$	microcurie(s) per cubic centimeter
µCi/mL	microcurie(s) per milliliter
Ci	curie(s)
cm	centimeter(s)
cm^3	cubic centimeter(s)
g	gram(s)
kg	kilogram(s)
m	meter(s)
m^2	square meter(s)
m^3	cubic meter(s)
mL	milliliter(s)
mrem	millirem
pCi/g	picocurie(s) per gram
yd^3	cubic yard(s)

EXECUTIVE SUMMARY AND DECLARATION STATEMENT

This report presents the results of National Emission Standard for Hazardous Air Pollutants (NESHAP) calculations for the St. Louis Formerly Utilized Sites Remedial Action Program (FUSRAP) North St. Louis County (NC) Sites for calendar year (CY) 2019. The NESHAP requires the calculation of the effective dose equivalent (EDE) from radionuclide emissions to critical receptors. The report follows the requirements and procedures contained in 40 *Code of Federal Regulations (CFR)* 61, Subpart I, *National Emission Standards for Radionuclide Emissions from Federal Facilities Other Than Nuclear Regulatory Commission Licensees and Not Covered by Subpart H.*

This report describes evaluations of sites at which a reasonable potential exists for radionuclide emissions due to St. Louis FUSRAP activities. These sites include the following: Eva Avenue, the investigation area (IA)-09 Ballfields, and the St. Louis Airport Site (SLAPS) Loadout area. This report also evaluates radionuclide emissions from the U.S. Army Corps of Engineers (USACE) St. Louis District FUSRAP Radioanalytical Laboratory operations. Emissions from the sites and laboratory were evaluated for the entire CY 2019 to provide a conservative estimate of total emissions.

The NESHAP standard of EDE to a critical receptor from radionuclide emissions is 10 mrem per year. None of the sites exceeded this standard. The EDEs from radionuclide emissions at the sites were calculated using soil characterization data, air particulate monitoring data, and the U.S. Environmental Protection Agency (USEPA) CAP88-PC modeling code, which resulted in an EDE of less than 0.1 mrem per year from the SLAPS and 0.1 mrem per year from the SLAPS vicinity properties (VPs). The EDE from the laboratory emissions was calculated using the methodology prescribed in 40 *CFR* 61, Appendix D, *Methods for Estimating Radionuclide Emissions,* soil characterization data, and the USEPA CAP88-PC modeling code (USEPA 2020), resulting in an EDE of less than 0.1 mrem per year.

Evaluations for the SLAPS, the SLAPS VPs, and the USACE St. Louis FUSRAP laboratory resulted in an EDE of less than 10 percent of the dose standard prescribed in 40 *CFR* 61.102. These sites are exempt from the reporting requirements of 40 *CFR* 61.104(a).

DECLARATION STATEMENT – 40 *CFR* 61.104(a)(xvi)

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment. See 18 *U.S. Code* 1001.

______________________________ ____________

Signature Date

Office: U.S. Army Corps of Engineers, St. Louis District Office
Address: 114 James S McDonnell Boulevard
Hazelwood, MO 63042
Contact: Jon Rankins

THIS PAGE INTENTIONALLY LEFT BLANK

1.0 PURPOSE

This NESHAP report contains the EDE calculations from radionuclide emissions (exclusive of radon) to critical receptors from the NC Sites at which a reasonable potential existed for radionuclide emissions due to St. Louis FUSRAP activities. These sites include the following: Eva Avenue, IA-09 Ballfields, the SLAPS Loadout area, and the USACE St. Louis FUSRAP laboratory. The air emissions from the laboratory include fume hood stack releases of particulate radionuclides from sample preparation and separation activities. The air emissions from the other sites are ground releases of particulate radionuclides in soil as a result of windblown action and remedial action (RA) in the form of excavation and off-site disposal of soil.

THIS PAGE INTENTIONALLY LEFT BLANK

2.0 METHOD

Emission rates for the NC Sites were modeled using guidance documents (i.e., *A Guide for Determining Compliance with the Clean Air Act Standards for Radionuclide Emissions from NRC-Licensed and Non-DOE Federal Facilities* [USEPA 1989]) referenced in 40 *CFR* 61, Appendix E, *Compliance Procedures Methods for Determining Compliance with Subpart I*, and were measured by collection of environmental air samples. Emission rates for the laboratory were modeled using guidance in 40 *CFR* 61, Appendix D, *Methods for Estimating Radionuclide Emissions.* Emission rates were input into the USEPA computer code CAP88-PC, along with appropriate meteorological data and distances to critical receptors[1], to obtain the EDE from the air emissions.

Although 40 *CFR* 61.103 requires the use of the USEPA computer code COMPLY, USEPA no longer supplies technical support for COMPLY. However, the USEPA lists both COMPLY and CAP88-PC as atmospheric models for assessing dose and risk from radioactive air emissions (USEPA 2020). The USEPA continues to maintain and update the CAP88-PC modeling program and has updated it as recently as March 2020. In previous FUSRAP NESHAP reports, both COMPLY and CAP88-PC results have been compared. This comparison indicated that CAP88-PC is a comparable and conservative method of demonstrating compliance with 40 *CFR* 61, Subpart I. For these reasons, CAP88-PC was used in this report to demonstrate compliance with the NESHAP.

2.1 EMISSION RATE

Two methods were used to determine particulate radionuclide emission rates from the sites: (1) 40 *CFR* 61 Appendix D, *Methods for Estimating Radionuclide Emissions,* and (2) environmental air samples collected from the perimeter of a site.

For method one, emissions from laboratory fume hood exhaust during soil sample grinding operations and the dissolution of soil and water samples were evaluated using data from soil samples analyzed during CY 2019.

For method two, emissions during excavations and waste loadout were evaluated using air sampling data at the excavation and waste loadout perimeters.

2.2 EFFECTIVE DOSE EQUIVALENT

The EDE to critical receptors[1] is obtained using USEPA computer code CAP88-PC, Version 4.1 (USEPA 2020). CAP88-PC uses a Gaussian plume equation to estimate the dispersion of radionuclides and is referenced by the USEPA to demonstrate compliance with the NESHAP emissions criterion in 40 *CFR* 61. An area ground release at a height of 1 m is modeled for the sites, and a stack release at a height of 3 m is modeled for the laboratory.

The EDE is calculated by combining doses from ingestion, inhalation, air immersion, and external ground surface. CAP88-PC contains historical weather data libraries for major airports across the country, and the results can be modeled for receptors at multiple distances from the emissions source.

[1] "Critical receptors," as used in this report, are the locations for the nearest residence, farm, business, and school.

THIS PAGE INTENTIONALLY LEFT BLANK

3.0 METEOROLOGICAL DATA

Meteorological data were obtained from the CAP88-PC code for the Lambert – St. Louis International Airport (wind file 13994.WND). Data in the file were accumulated from 1988 through 1992.

- Average Annual Wind Velocity: 4.446 m per second
- Average Annual Precipitation Rate: 111 cm per year
- Average Annual Air Temperature: 14.18 °C

Wind speed frequency data were obtained from Lambert – St. Louis International Airport (see Table A-1).

Table A-1. St. Louis Wind Speed Frequency

Wind Speed Group (Knots)	Frequency (Percent)
0 – 3	10
4 – 7	29
8 – 12	36
13 – 18	21
19 – 24	3
25 – 31	1

Knot = 1.151 miles per hour

Wind direction frequency data were obtained from the CAP88-PC wind file, 13994.WND (see Table A-2).

Table A-2. St. Louis Wind Rose Frequency

Wind Direction		Wind Frequency (Percent)	Wind Direction		Wind Frequency (Percent)
Wind Toward	Wind From		Wind Toward	Wind From	
North	South	13.1	South	North	5.6
North-Northwest	South-Southeast	7.4	South-Southeast	North-Northwest	4.3
Northwest	Southeast	6.8	Southeast	Northwest	6.1
West-Northwest	East-Southeast	6.9	East-Southeast	West-Northwest	8.7
West	East	5.5	East	West	9.0
West-Southwest	East-Northeast	2.8	East-Northeast	West-Southwest	6.8
Southwest	Northeast	3.1	Northeast	Southwest	5.4
South-Southwest	North-Northeast	3.7	North-Northeast	South-Southwest	5.0

THIS PAGE INTENTIONALLY LEFT BLANK

4.0 LATTY AVENUE PROPERTIES UNDER ACTIVE REMEDIATION

4.1 SITE HISTORY

In 1966, Continental Mining and Milling Company of Chicago, Illinois, purchased the wastes stored at the SLAPS and began moving them to a property at 9200 Latty Avenue (known as the Futrua Coatings Company [Futura] since 1979) for storage. In 1967, the Commercial Discount Corporation of Chicago, Illinois, purchased the residues, dried the materials, and shipped much of the material to Canon City, Colorado. Cotter Corporation purchased the remaining residues in 1969 and dried and shipped more material to Canon City during 1970. In 1973, the remaining undried material was shipped to Canon City, and leached barium sulfate was mixed with soil and transported to a St. Louis County landfill. During these activities, improper storage, handling, and transportation of materials caused the spread of materials along haul routes and to the adjacent VPs.

In 1979, the owner of the 9200 Latty Avenue property excavated approximately 13,000 yd^3 from the western half of the property prior to constructing a manufacturing facility. The material excavated at this time was stockpiled on the eastern half of the property at 9170 Latty Avenue, which has been known as the Hazelwood Interim Storage Site (HISS) since 1979. In 1984, Bechtel National Inc. (BNI) performed removal actions, including clearing, cleanup, and excavation of the property at 9200 Latty Avenue and the surrounding VPs. This action created approximately 14,000 yd^3 of additional contaminated soil, which was stockpiled at the HISS.

In 1986, the U.S. Department of Energy (DOE) provided radiological support to the cities of Hazelwood and Berkeley, Missouri, for a drainage and road improvement project. Soil with constituents in excess of DOE RA guidelines was excavated and stored at the HISS. This action resulted in an additional 4,600 yd^3 of material being placed at the HISS in a supplemental storage pile.

In 1996, the owner of the property to the east of the HISS, General Investment Funds Real Estate Holding Company, in consultation with the DOE, made commercial parking and drainage improvements on the property. This action resulted in the stockpiling of approximately 8,000 yd^3 of soil and debris in two interim storage piles located in the southwestern portion of the Latty Avenue VP-02(L). These piles were referred to as the Eastern Piles.

In 2000 and 2001, the USACE removed the Main, Supplemental, and Eastern Piles and shipped the material by rail to properly permitted disposal facilities. The ground surface on which the piles were previously located was covered by a layer of plastic and approximately 6 inches of gravel.

Beginning in 2001, pre-design investigation surveys and sampling were performed on the Latty Avenue Properties to determine soil areas and building surfaces requiring remediation or decontamination. The USACE remediated contaminated areas, decontaminated building surfaces, and performed final status surveys between 2007 and 2012. No additional remediation activities on Latty Avenue Properties occurred between 2013 and 2017. A small area on Futura was remediated in 2018 and no remediation activities occurred on Latty Avenue Properties in 2019.

4.2 MATERIAL HANDLING AND PROCESSING FOR CALENDAR YEAR 2019

During CY 2019, no excavations were conducted on Latty Avenue Properties; therefore, radioactive particulate emissions were considered negligible, air sampling for particulate radionuclides was not conducted, and NESHAP calculations for these properties were not required.

THIS PAGE INTENTIONALLY LEFT BLANK

5.0 ST. LOUIS AIRPORT SITE AND ST. LOUIS AIRPORT SITE VICINITY PROPERTIES UNDER ACTIVE REMEDIATION

5.1 SITE HISTORY

The Manhattan Engineer District (MED) acquired the SLAPS in 1946 to store uranium-bearing residuals generated at the St. Louis Downtown Site (SLDS) from 1946 through 1966. In 1966, these residuals were purchased by Continental Mining and Milling Company of Chicago, removed from the SLAPS, and placed in storage at 9200 Latty Avenue (known as Futura since 1979) under an Atomic Energy Commission (AEC) license. After most of the residuals were removed, site structures were demolished and buried on the property, along with approximately 60 truckloads of scrap metal and a vehicle that had become contaminated. In 1973, the U.S. Congress and the City of St. Louis agreed to transfer ownership from the AEC to the St. Louis Airport Authority (STLAA). The USACE conducted cleanup operations on the SLAPS from 1998 through 2007. Although remediation concluded at the SLAPS in 2007, a small portion of the site is still used to conduct waste storage and loadout activities.

5.2 MATERIAL HANDLING AND PROCESSING FOR CALENDAR YEAR 2019

During CY 2019, excavations were conducted on Eva Avenue and the IA-09 Ballfields, and waste loadout activities were conducted at the SLAPS Loadout facility. Air particulate samples were collected around excavation perimeters during active excavation on the SLAPS VPs and around the SLAPS Loadout area throughout CY 2019. Analytical results of air particulate samples were used to determine windblown in situ emissions.

5.3 SOURCE DESCRIPTION – RADIONUCLIDE SOIL CONCENTRATIONS

The radionuclide-specific concentrations on Eva Avenue, the IA-09 Ballfields, and the SLAPS Loadout facility were determined by using air particulate data and radionuclide-specific activity fractions estimated from 2019 railcar waste characterization data collected by the remedial action contractor. Attachment A-1 of this NESHAP report contains Table A-1-6, a summary table of the radionuclide concentrations used to calculate the emission rate from each site.

5.4 LIST OF ASSUMED AIR RELEASES FOR CALENDAR YEAR 2019

Ground releases of particulate radionuclides in soil, as a result of windblown action and RA in the form of excavation of soil for Eva Avenue, the IA-09 Ballfield Properties, are assumed for the particulate radionuclide emission determinations from the SLAPS VPs at which excavations occurred in CY 2019. Other SLAPS VPs do not contribute to the emission determinations for periods of inactivity due to the low activity and vegetative cover.

Ground releases of particulate radionuclides as a result of windblown action during waste loadout activities are assumed for the particulate radionuclide emission determinations from the SLAPS Loadout facility.

5.5 DISTANCES TO CRITICAL RECEPTORS

The distances to critical receptors are shown on Figures A-2 and A-3 and presented in Table A-3. Distances and directions to critical receptors are determined using tools in a geographic information system (GIS).

Table A-3. SLAPS and SLAPS VPs Critical Receptors for CY 2019

Sources	Nearest Residence		Farm		Business		School	
	Distance (m)	Direction	Distance (m)	Direction	Distance (m)[a]	Direction	Distance (m)	Direction
Eva Avenue	205	East	1,050	Northeast	100	East	2,045	East-Southeast
IA-09 Ballfields	780	Northeast	1,675	Northeast	485	West-Southwest	2,500	East
SLAPS Loadout	770	Northeast	1,710	Northeast	500	West-Southwest	2,580	East

[a] Distance from business receptor to fenceline is 160 m. Distance from business receptor to center of source from the SLAPS Loadout is 500 m for emissions determination.

5.6 EMISSIONS DETERMINATION

5.6.1 Measured Airborne Radioactive Particulate Emissions

Particulate air samples were collected from around the perimeter of active excavations and the SLAPS Loadout area to measure the radionuclide emissions. The sample results provide the basis for determining the radionuclide emission rates during all of CY 2019. The average gross alpha and gross beta concentrations (in µCi/mL) were determined for each monitoring location for CY 2019. The site average concentrations are presented in Table A-4.

Table A-4. SLAPS and SLAPS VPs Average Gross Alpha and Beta Airborne Particulate Emissions for CY 2019

Monitoring Location	Average Concentration (µCi/mL)[a]	
	Gross Alpha	Gross Beta
Eva Avenue	3.41E-15	2.95E-14
IA-09 Ballfields	3.68E-15	2.86E-14
SLAPS Loadout	3.36E-15	2.73E-14
Background Concentration[b]	3.91E-15	1.98E-14

[a] Average concentration values for the sampling period by location.

[b] These concentrations are provided for informational purposes only. As a conservative approach, background values were not subtracted from the gross average concentration during the determination of EDE.

Radionuclide-specific activity fractions are determined from the average radionuclide concentration data established using 2019 railcar data from the excavated areas for the SLAPS VPs and for the SLAPS Loadout facility. The product of each radionuclide activity fraction and the gross concentration provide the radionuclide emission concentration as measured in µCi/cm^3. The gross average concentration (in µCi/cm^3) is converted to a release (emission) rate (in Ci per year) using Equations 1 and 2.

A Guide for Determining Compliance with the Clean Air Act Standards for Radionuclide Emissions from NRC-Licensed and Non-DOE Federal Facilities (USEPA 1989) includes Equation 1 for determination of the effective diameter of a non-circular stack or vent.

$$D = (1.3\ A)^{1/2} \qquad \textit{Equation 1}$$

where:

D = the effective diameter of the release (in m)

A = the area of the stack, vent, or release point (in m^2)

Table A-5 provides the effective surface area available for release of airborne radionuclides normalized to 1 year and the effective diameter for the SLAPS and excavated SLAPS VPs. Calculation of the effective surface area is contained in Attachment A-1 of this NESHAP report.

Table A-5. SLAPS and SLAPS VPs Excavation Effective Areas and Effective Diameters for CY 2019

Location	Effective Area (m^2)	Effective Diameters (m)
Eva Avenue	19	5
IA-09 Ballfields	2,773	60
SLAPS Loadout	600	28

The average annual wind speed for the Lambert – St. Louis International Airport is provided in CAP88-PC as 4.446 m per second. Conversion of this wind speed to a flow rate through stacks with the listed effective diameters for each area is completed using Equation 2.

$$F = V \pi (D)^2 / 4 \qquad \textit{Equation 2}$$

where:

- V = the wind velocity (in m per minute) = 266.76 m per minute
- F = the flow rate (in m^3 per minute)
- π = a mathematical constant
- D = the effective diameter of the release (in m) determined using Equation 13 from *A Guide for Determining Compliance with the Clean Air Act Standards for Radionuclide Emissions from NRC-Licensed and Non-DOE Federal Facilities* (USEPA 1989)

Converting the velocity of emissions from the sites to an effective flow rate results in the following site release flow rates for the SLAPS and SLAPS VPs, as listed in Table A-6. The product of the flow rate, the activity fraction associated with each radionuclide, and the appropriate conversion factors provide the site emission rate for each radionuclide, as contained in Table A-7. Attachment A-1 of this NESHAP report contains flow rate and average radionuclide concentration data.

Table A-6. SLAPS and SLAPS VPs Site Release Flow Rates for CY 2019

Location	Site Release Flow Rate (m^3/minute)
Eva Avenue	5.1E+03
IA-09 Ballfields	7.6E+05
SLAPS Loadout	1.6E+05

5.6.2 St. Louis Airport Site and St. Louis Airport Site Vicinity Properties Total Airborne Radioactive Particulate Emission Rates

The total CY 2019 emission/release rates input into the USEPA codes for the SLAPS and SLAPS VPs are shown in Table A-7 and are based on the measured emission rates from the air samples collected from the perimeter of the excavation or loadout area as appropriate.

Table A-7. SLAPS and SLAPS VPs Total Airborne Radioactive Particulate Emission Rates for CY 2019

Radionuclide	Emission (Ci/year)[a]		
	Eva Avenue	IA-09 Ballfields	SLAPS Loadout
Uranium [U]-238	5.9E-07	1.0E-04	2.0E-05
U-235	9.7E-08	5.6E-06	2.2E-06
U-234	5.9E-07	1.0E-04	2.0E-05
Radium [Ra]-226	9.5E-07	1.4E-04	2.9E-05

Table A-7. SLAPS and SLAPS VPs Total Airborne Radioactive Particulate Emission Rates for CY 2019 (Continued)

Radionuclide	Emission (Ci/year)[a]		
	Eva Avenue	IA-09 Ballfields	SLAPS Loadout
Thorium [Th]-232	3.9E-07	8.9E-05	1.5E-05
Th-230	5.5E-06	8.2E-04	1.7E-04
Th-228	3.9E-07	8.9E-05	1.5E-05
Ra-224	3.9E-07	8.9E-05	1.5E-05
Th-234	2.3E-05	3.0E-03	6.5E-04
Protactinium [Pa]-234m	2.3E-05	3.0E-03	6.5E-04
Th-231	3.7E-06	1.6E-04	7.3E-05
Ra-228	1.5E-05	2.6E-03	4.9E-04
Actinium [Ac]-228	1.5E-05	2.6E-03	4.9E-04
Pa-231	9.7E-08	5.6E-06	2.2E-06
Ac-227	9.7E-08	5.6E-06	2.2E-06

[a] Release rate based on a 365-day period at a respective flow rate (as presented in Table A-12) as determined from the average annual wind speed (4.446 m per second) and the effective site area (as presented in Table A-11) for each location.

5.7 CAP88-PC RESULTS

The CAP88-PC report is contained in Attachment A-2 of this NESHAP report. The effective area factor input was taken from Table A-5. Results show compliance with the 10 mrem per year criterion for all critical receptors. The results are summarized in Table A-8.

Table A-8. SLAPS and SLAPS VPs CAP88-PC Results for Critical Receptors for CY 2019

Source	Dose (mrem/year)			
	Nearest Residence[a]	Farm[a]	Business[b]	School[b]
Eva Avenue	<0.1	<0.1	<0.1	<0.1
IA-09 Ballfields	<0.1	< 0.1	<0.1	<0.1
SLAPS Loadout[c]	<0.1	<0.1	<0.1	<0.1

[a] Occupancy factor is 100 percent for the nearest residence and farm.
[b] Corrected for the 23 percent occupancy factor (40 hours per week for 50 weeks per year).
[c] Distance from the business receptor to the fenceline is 160 m. Distance from the business receptor to the center of the source is 500 m for emissions determination.

6.0 U.S. ARMY CORPS OF ENGINEERS ST. LOUIS DISTRICT FUSRAP RADIOANALYTICAL LABORATORY

6.1 SITE DESCRIPTION

The USACE St. Louis FUSRAP laboratory is located on VP-38. VP-38 is a SLAPS VP owned by SuperValue Inc. in early 2019 and was sold to HP-A Hazelwood, LLC, in March of 2019. The USACE St. Louis FUSRAP laboratory is bounded to the north, east, and west by the VP-38 property and bounded to the south by Latty Avenue. The laboratory site covers approximately 4,047 m^2 of VP-38.

6.2 LIST OF ASSUMED AIR RELEASES FOR CALENDAR YEAR 2019

Emissions from the USACE St. Louis FUSRAP laboratory operations are assumed for the particulate radionuclide emission determinations from the laboratory site. No active excavations occurred on VP-38 during CY 2019.

6.3 EFFLUENT CONTROLS

The effluent controls at the USACE St. Louis FUSRAP laboratory during operations include performing all radioanalytical activities in fume hoods that exhaust to the outside air after passing through a high efficiency particulate air (HEPA) filter.

6.4 DISTANCES TO CRITICAL RECEPTORS

The distances to critical receptors are shown on Figure A-1 and listed in Table A-9. Distances and directions to critical receptors are determined using tools in a GIS.

Table A-9. Laboratory Critical Receptors for CY 2019

Receptor	Distance (m)	Direction from Site
Nearest Residence	300	Northeast
Farm	310	Northeast
Business	110	South
School	1,830	Southeast

6.5 EMISSIONS DETERMINATIONS

6.5.1 Stack Emissions from U.S. Army Corps of Engineers St. Louis District FUSRAP Radioanalytical Laboratory Operations

Two potential sources of emissions from laboratory operations exist:

1. The drying and grinding operations for soil samples, and
2. The dissolution of soil and water samples.

To obtain an estimate of the emissions these operations can cause, the methodology in 40 *CFR* 61, Appendix D, *Methods for Estimating Radionuclide Emissions,* was utilized. For the drying and grinding operations, a factor of 0.001 (applicable to liquids and powders) was applied to the entire annual laboratory inventory to determine the emissions for the year. For the dissolution operation; however, only 5 g of any sample are used. Because the dissolution involved heating samples to near boiling temperatures, no adjustment was made to the dissolution inventory to determine the emissions (a factor of 1.0, as specified in 40 *CFR* 61, Appendix D). To account for the small aliquot utilized, the annual inventory was adjusted by a factor of 0.005 (the ratio of the 5-g aliquot to the 1-kg sample mass) to estimate emissions. The two emission sources were then summed to determine the total laboratory source term.

Note that no credit is taken for emission controls during the drying and grinding operations, although 40 *CFR* 61, Appendix D, allows for credit to be taken for the HEPA filters installed on the grinder equipment. The calculated source term therefore provides a conservative basis on which to determine compliance with USEPA guidance in 40 *CFR* 61.

To determine whether the laboratory complies with the 10 mrem per year limit specified in 40 *CFR* 61, Subpart I, the annual inventory handled by the laboratory had to be determined. The actual number of samples handled by the laboratory was reported as shown in Table A-10. With these data, the following equation was used to calculate laboratory emissions from the operations conducted in CY 2019.

$$\text{Emission Rate (Ci/year)} = C * [N_1 * F_1 * N_2 * F_2] * 1{,}000 \text{ g/sample} * 1E\text{-}12 \text{ (Ci/pCi)}$$

where:

- C = the concentration of a radionuclide of concern in a sample type (in pCi/g)
- N_1 = the number of samples involved in a drying and grinding operation
- N_2 = the number of samples involved in a separations operation
- F = the appropriate correction factor (i.e., 0.001 for drying and grinding [F_1] or 0.005 for dissolution [F_2])

Table A-10. Laboratory Annual Sample Inventory for CY 2019

Site	Type	Gamma Spectroscopy[a]	Isotopic Ra[a,b]	Isotopic Th[a,b]	Isotopic U[a,b]	Total Drying and Grinding[a,c]	Total Separations[a,d]
Latty Avenue Properties	Soil	137	---	137	---	137	137
Latty Avenue Properties	Water	---	8	8	8	0	24
Iowa Army Ammunitions Plant (IAAAP)	Soil	946	---	---	954	432	954
IAAAP	Water	---	---	---	20	0	20
SLAPS	Soil	---	---	---	---	1	0
SLAPS	Water	1	6	6	4	1	16
SLAPS VPs	Soil	4,221	---	4,271	----	4,221	4,271
SLAPS VPs	Water	16	76	76	4	16	156
Coldwater Creek (CWC)	Sediment (soil)	18	---	18	---	18	18
CWC	Water	24	24	24	---	24	48
SLDS	Soil	559	---	599	---	559	599
SLDS	Water	---	154	154	25	0	333
		Latty Avenue Properties			**Total**	137	161
		IAAAP			**Total**	432	974
		SLAPS, SLAPS VPs, and CWC			**Total**	4,281	4,509
		SLDS			**Total**	559	932
					Grand Total	5,409	6,576

[a] Data obtained from St. Louis FUSRAP database for samples analyzed in 2019.
[b] Assumes isotopic Ra, Th, and U occur in separate and distinct processes.
[c] Assumes all soil samples went through a drying and grinding process.
[d] Assumes all soil and water samples for isotopic Ra, Th, and U went through a separations process.
Notes: CWC samples use SLAPS characterization data to determine release rates.
--- not applicable

6.5.2 Laboratory Total Airborne Radioactive Particulate Emission Rates

The USACE St. Louis FUSRAP laboratory total CY 2019 emission rate was input into the USEPA CAP88-PC code. The total emission rates are shown in Table A-11 as the calculated emissions from laboratory operations. The result was then used to calculate total dose to the hypothetical maximally exposed receptor. Calculation of emission rates is contained in Attachment A-1 of this NESHAP report.

Table A-11. Laboratory Total Airborne Radioactive Particulate Emission Rates for CY 2019

Radionuclide	Emission (Ci/year)[a]
U-238	1.6E-07
U-235	8.4E-09
U-234	1.3E-07
Ra-226	6.3E-08
Th-232	3.6E-08
Th-230	1.6E-07
Th-228	4.0E-08
Ra-224	4.0E-08
Th-234	1.6E-07
Pa-234m	1.6E-07
Th-231	8.4E-09
Ra-228	3.4E-08
Ac-228	3.4E-08
Pa-231	9.8E-09
Ac-227	6.8E-09

[a] Total emission rate is the sum of individual emission rates determined using the calculation in Section 6.5.1 of this NESHAP report.

6.6 CAP88-PC RESULTS

The CAP88-PC report is contained in Attachment A-2 of this NESHAP report. The stack factor input was 3 m high and 0.3 m in diameter. This evaluation demonstrates that all USACE St. Louis FUSRAP laboratory critical receptors receive less than 10 percent of the dose standard prescribed in 40 *CFR* 61.102; therefore, the laboratory is exempt from the reporting requirement of 40 *CFR* 61.104(a). The results are summarized in Table A-12.

Table A-12. Laboratory CAP88-PC Results for Critical Receptors for CY 2019

Receptor	Distance (m)	Direction from Site	Dose (mrem/year)
Nearest Residence[a]	300	Northeast	<0.1
Farm[a]	310	Northeast	<0.1
Business[b]	110	South	<0.1
School[b]	1,830	Southeast	<0.1

[a] Occupancy factor is 100 percent for the nearest residence and farm.
[b] Corrected for the 23 percent occupancy factor (40 hours per week for 50 weeks per year).

THIS PAGE INTENTIONALLY LEFT BLANK

7.0 REFERENCES

USEPA 1989. U.S. Environmental Protection Agency, Office of Radiation Programs, Washington, D.C. *A Guide for Determining Compliance with the Clean Air Act Standards for Radionuclide Emissions from NRC-Licensed and Non-DOE Federal Facilities*. EPA 520/1-89-002. October 1989.

USEPA 2020. U.S. Environmental Protection Agency. CAP88-PC Version 4.1 Computer Code, U.S. Environmental Protection Agency. March 2020.

18 *U.S. Code* 1001. *U.S. Code,* Title 18, Crimes and Criminal Procedure; Part I, Crimes; Chapter 47, Fraud and False Statements; Section 1001, Statements or entries generally.

40 *CFR* 61, Subpart I. *National Emission Standards for Radionuclide Emissions From Federal Facilities Other Than Nuclear Regulatory Commission Licensees and Not Covered by Subpart H*.

40 *CFR* 61, Appendix D. *Methods for Estimating Radionuclide Emissions.*

40 *CFR* 61, Appendix E. *Compliance Procedures Methods for Determining Compliance with Subpart I.*

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX A

FIGURES

THIS PAGE INTENTIONALLY LEFT BLANK

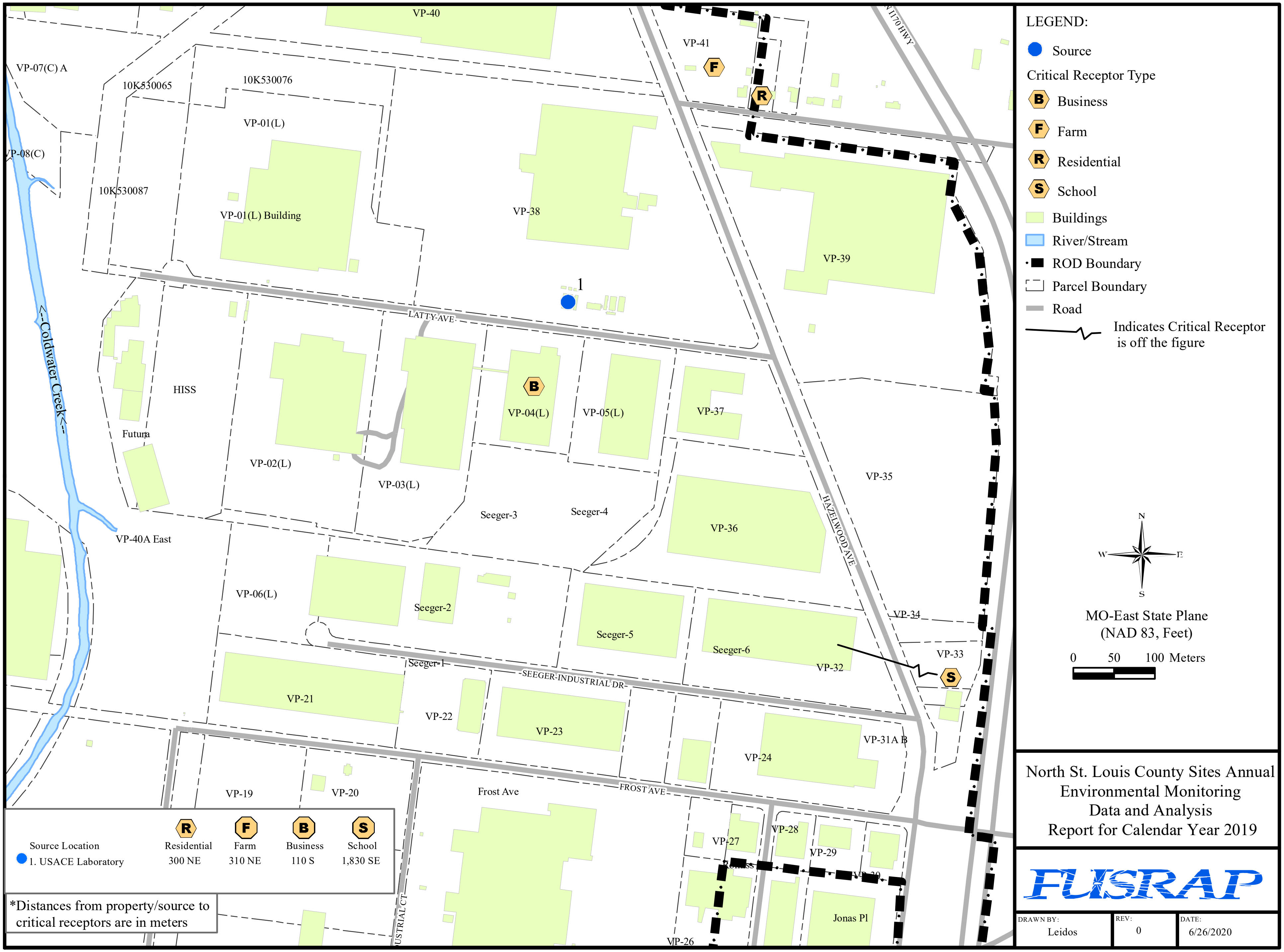
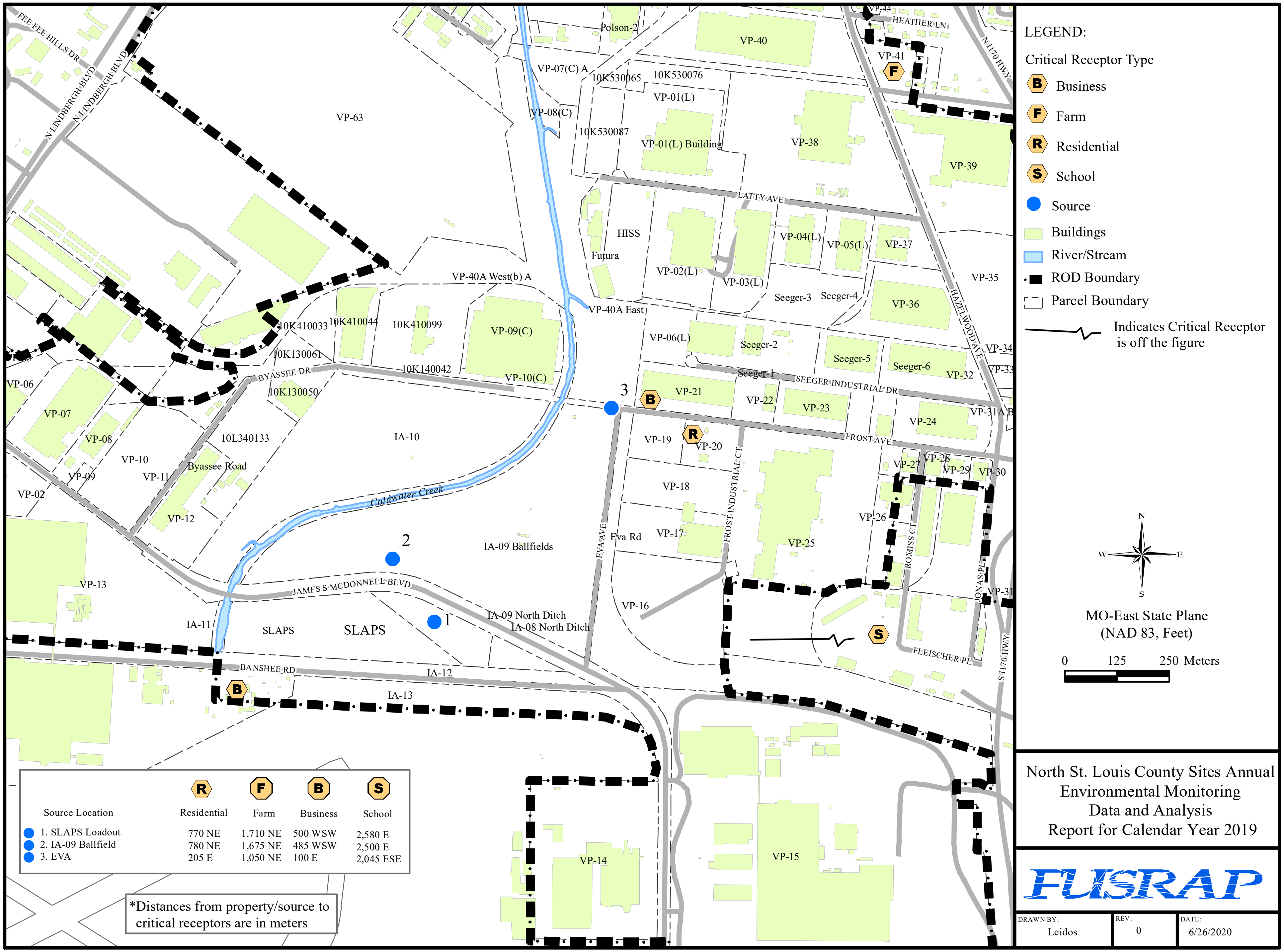


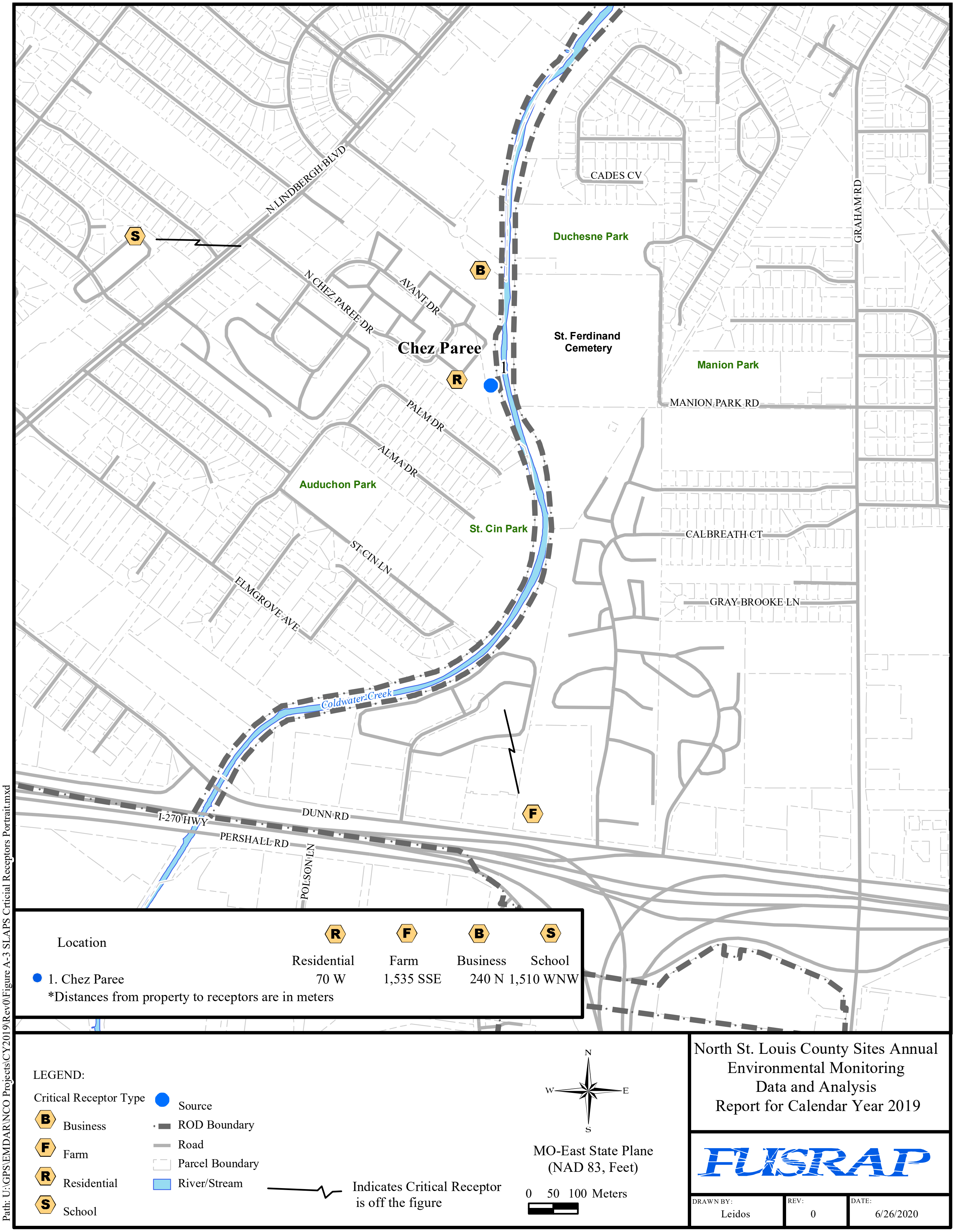
Figure A-1. Latty Avenue Properties and USACE St. Louis FUSRAP Laboratory Critical Receptors

Path: U:\GPS\EMDAR\NCO Projects\CY2019\Rev0\Figure A-1 Latty Avenue Properties and USACE FUSRAP Lab Critical Receptors.mxd



Path: U:\GPS\EMDAR\NCO Projects\CY2019\Rev0\Figure A-2 SLAPS and SLAPS VPs Critical Receptors South2.mxd

Figure A-2. SLAPS and SLAPS VPs Critical Receptors - South



Path: U:\GPS\EMDAR\NCO Projects\CY2019\Rev0\Figure A-3 SLAPS Crticial Receptors Portrait.mxd

Figure A-3. SLAPS and SLAPS VPs Critical Receptors - North

ATTACHMENT A-1

CALCULATED EMISSION RATES FROM NORTH ST. LOUIS COUNTY SITE PROPERTIES

THIS PAGE INTENTIONALLY LEFT BLANK

Table A-1-1. SLAPS and SLAPS VPs Soil Radionuclide Concentrations for CY 2019

Property	Eva Avenue[a]	IA-09 Ballfields[a]	SLAPS Loadout[a]
Radionuclide	Average Concentration (pCi/g)		
U-238	0.67	0.75	0.71
U-235	0.11	0.04	0.08
U-234	0.67	0.75	0.71
Ra-226	1.07	1.01	1.04
Ra-228	0.44	0.64	0.54
Th-232	0.44	0.64	0.54
Th-230	6.17	5.90	6.04
Th-228	0.44	0.64	0.54
Pa-231	0.11	0.04	0.08
Ac-227	0.11	0.04	0.08

[a] Soil radionuclide concentrations derived from the average soil radionuclide concentrations from the 2019 railcar concentrations.

Table A-1-2. SLAPS and SLAPS VPs Average Gross Alpha and Beta Airborne Particulate Emissions for CY 2019

Location	Average Concentration (µCi/mL) for Location[a]	
	Gross Alpha	Gross Beta
Eva Avenue	3.41E-15	2.95E-14
Ballfields (IA-09)	3.68E-15	2.86E-14
SLAPS Loadout	3.36E-15	2.73E-14
Background Concentration[b]	3.91E-15	1.98E-14

[a] Average concentration values for the sampling period by location.
[b] These concentrations are provided for informational purposes only.

Table A-1-3. SLAPS and SLAPS VPs Excavation Data for CY 2019

Location	Area (m^2)	Excavation Start Date[a]	Excavation End Date[a]
Eva Avenue – Survey Unit (SU)-1A	271	09/23/19	10/17/19
Ballfields - Phase 2B, SU-16	1,572	01/02/19	01/28/19
Ballfields - Phase 2B, SU-17	1,994	01/02/19	04/11/19
Ballfields - Phase 2B, SU-18A	1,312	01/02/19	04/11/19
Ballfields - Phase 2B, SU-18B	26	01/02/19	04/10/19
Ballfields - Phase 2B, SU-19	1,320	01/02/19	06/05/19
Ballfields - Phase 3, SU-20	1,499	07/15/19	10/01/19
Ballfields - Phase 3, SU-21	2,118	07/15/19	12/09/19
SLAPS Loadout	600	01/02/19	12/31/19

[a] Open/close dates set to start or stop at calendar year boundary.

Table A-1-4. SLAPS and SLAPS VPs Average Surface Area and Flow Rate per Location for CY 2019

Location	Total Days	Surface Area × Total Days	Average Surface Area/Year (A) (m^2)	Diameter of Stack D = $(1.3\ A)^{1/2}$ (m)	Flow Rate $F = V\ \pi\ [(D)^2/4]*60$ (m^3/minute)
Eva Avenue					
Eva Avenue SU-1A	25				
	Total	6,775	19	5	**5.1E+03**
IA-09 Ballfields					
Ballfields - Phase 2B, SU-16	27	42,457			
Ballfields - Phase 2B, SU-17	100	199,400			
Ballfields - Phase 2B, SU-18A	100	131,200			
Ballfields - Phase 2B, SU-18B	99	2,574			
Ballfields - Phase 2B, SU-19	155	204,600			
Ballfields - Phase 3, SU-20	79	118,421			
Ballfields - Phase 3, SU-21	148	313,464			
	Total	1,012,116	2,773	60	**7.6E+05**
SLAPS Loadout					
SLAPS Loadout	365	219,000	---	---	---
	Total	219,000	600	28	**1.6E+05**

Note: --- not applicable

Table A-1-5. SLAPS and SLAPS VPs Airborne Radioactive Particulate Emissions Based on Site Perimeter Air Samples for CY 2019

Property	Eva Avenue			IA-09 Ballfields			SLAPS Loadout		
Radionuclide	Activity Fraction[a]	Emission Conc. (µCi/cm^3)[b]	Release Rate (Ci/year)[c]	Activity Fraction[a]	Emission Conc. (µCi/cm^3)[b]	Release Rate (Ci/year)[c]	Activity Fraction[a]	Emission Conc. (µCi/cm^3)[b]	Release Rate (Ci/year)[c]
U-238[a]	0.07	2.2E-16	5.9E-07	0.07	2.6E-16	1.0E-04	0.07	2.3E-16	2.0E-05
U-235[a]	0.011	3.7E-17	9.7E-08	0.004	1.4E-17	5.6E-06	0.01	2.6E-17	2.2E-06
U-234	0.07	2.2E-16	5.9E-07	0.07	2.6E-16	1.0E-04	0.07	2.3E-16	2.0E-05
Ra-226[a]	0.10	3.6E-16	9.5E-07	0.10	3.6E-16	1.4E-04	0.10	3.4E-16	2.9E-05
Th-232[a]	0.04	1.5E-16	3.9E-07	0.06	2.3E-16	8.9E-05	0.05	1.8E-16	1.5E-05
Th-230[a]	0.60	2.1E-15	5.5E-06	0.56	2.1E-15	8.2E-04	0.58	2.0E-15	1.7E-04
Th-228[a]	0.04	1.5E-16	3.9E-07	0.06	2.3E-16	8.9E-05	0.05	1.8E-16	1.5E-05
Ra-224[d]	0.04	1.5E-16	3.9E-07	0.06	2.3E-16	8.9E-05	0.05	1.8E-16	1.5E-05
Th-234[d]	0.29	8.5E-15	2.3E-05	0.27	7.6E-15	3.0E-03	0.28	7.5E-15	6.5E-04
Pa-234m[d]	0.29	8.5E-15	2.3E-05	0.27	7.6E-15	3.0E-03	0.28	7.5E-15	6.5E-04
Th-231[d]	0.05	1.4E-15	3.7E-06	0.01	4.1E-16	1.6E-04	0.03	8.5E-16	7.3E-05
Ra-228[a]	0.19	5.6E-15	1.5E-05	0.23	6.5E-15	2.6E-03	0.21	5.7E-15	4.9E-04
Ac-228[d]	0.19	5.6E-15	1.5E-05	0.23	6.5E-15	2.6E-03	0.21	5.7E-15	4.9E-04
Pa-231[a,d]	0.011	3.7E-17	9.7E-08	0.004	1.4E-17	5.6E-06	0.01	2.6E-17	2.2E-06
Ac-227[a,d]	0.011	3.7E-17	9.7E-08	0.004	1.4E-17	5.6E-06	0.01	2.6E-17	2.2E-06

[a] Average soil concentrations are presented in Table A-1-1.
[b] Emission concentration is equal to the activity fraction * the gross alpha or gross beta airborne particulate concentrations listed in Table A-1-2.
[c] Release rate based on 365-day period at measured flow rate (Table A-1-4) for each site as determined from the average annual wind speed (4.446 m per second) and calculated site area (Table A-1-4). (Note: 1 mL = 1 cm^3.)
[d] If sample data were not available, the radionuclide was assumed to be in secular equilibrium with the parent radionuclide.

Table A-1-6. USACE St. Louis FUSRAP Laboratory Analyses for CY 2019

Site	Type	Gamma Spectroscopy	Isotopic Ra[a]	Isotopic Th[a]	Isotopic U[a]	Total Drying and Grinding[b]	Total Separations[c]
Latty VP's	soil	137	---	137	---	137	137
Latty VP's	water	---	8	8	8	0	24
IAAAP	soil	946	---	---	954	432	954
IAAAP	water	---	---	---	20	0	20
SLAPS	soil	---	---	---	---	1	0
SLAPS	water	1	6	6	4	1	16
SLAPS VPs	soil	4,221	---	4,271	---	4,221	4,271
SLAPS VPs	water	16	76	76	4	16	156
CWC	sediment (soil)	18	---	18	---	18	18
CWC	water	24	24	24	---	24	48
SLDS	soil	559	---	599	---	559	599
SLDS	water	---	154	154	25	0	333
		Latty Avenue Properties			**Total**	137	161
		IAAAP			**Total**	432	974
		SLAPS, SLAPS VPs, and CWC			**Total**	4,281	4,509
		SLDS			**Total**	559	932
					Grand Total	5,409	6,576

[a] Assumes isotopic Ra, Th, and U occur in separate and distinct processes.
[b] Assumes all soil samples went through a drying and grinding process.
[c] Assumes all soil and water samples for isotopic Ra, Th, and U went through a separations process.
Notes: Data provided by the USACE St. Louis FUSRAP laboratory for CY 2019.
--- not applicable

Table A-1-7. SLDS Property Laboratory Samples for CY 2019

Radionuclide	Average (pCi/g)	No. Samples (Drying and Grinding)	No. Samples (Separations)	Emission Rate (Ci/year)[a]
U-238[b]	17.4	559	932	9.1E-08
U-235[b]	1.0	559	932	5.3E-09
U-234[bc]	17.4	559	932	9.1E-08
Ra-226[b]	3.6	559	932	1.9E-08
Th-232[b]	1.0	559	932	5.0E-09
Th-230[b]	7.6	559	932	4.0E-08
Th-228[b]	1.0	559	932	5.4E-09
Ra-224[c]	1.0	559	932	5.4E-09
Th-234[c]	17.4	559	932	9.1E-08
Pa-234m[c]	17.4	559	932	9.1E-08
Th-231[c]	1.0	559	932	5.3E-09
Ra-228[b]	0.8	559	932	4.4E-09
Ac-228[c]	0.8	559	932	4.4E-09
Pa-231[c]	1.0	559	932	5.3E-09
Ac-227[c]	1.0	559	932	5.3E-09

[a] Emission Rate = (0.001 * Avg * No. Samples [drying and grinding] + 0.005 * Avg * No. Samples [separations]) * (1,000 g * 1E-12Ci/pCi).
[b] Average soil concentration from all data analyzed at the USACE St. Louis FUSRAP laboratory during 2019.
[c] When data were not available, the radionuclide was assumed to be in secular equilibrium with the parent radionuclide.

Table A-1-8. SLAPS and SLAPS VPs Laboratory Samples for CY 2019

Radionuclide	Average (pCi/g)	No. Samples (Drying and Grinding)	No. Samples (Separations)	Emission Rate (Ci/year)[a]
U-238[b]	1.1	4,281	4,509	3.1E-08
U-235[b]	0.1	4,281	4,509	2.1E-09
U-234[b,c]	1.1	4,281	4,509	3.1E-08
Ra-226[b]	1.4	4,281	4,509	3.7E-08
Th-232[b]	1.0	4,281	4,509	2.6E-08
Th-230[b]	4.3	4,281	4,509	1.1E-07
Th-228[b]	1.1	4,281	4,509	2.8E-08
Ra-224[c]	1.1	4,281	4,509	2.8E-08
Th-234[c]	1.1	4,281	4,509	3.1E-08
Pa-234m[c]	1.1	4,281	4,509	3.1E-08
Th-231[c]	0.1	4,281	4,509	2.1E-09
Ra-228[b]	0.9	4,281	4,509	2.4E-08
Ac-228[c]	0.9	4,281	4,509	2.4E-08
Pa-231[c]	0.1	4,281	4,509	3.8E-09
Ac-227[c]	0.1	4,281	4,509	1.4E-09

[a] Emission Rate = (0.001 * Avg * No. Samples [drying and grinding] + 0.005 * Avg * No. Samples [separations]) * (1,000 g * 1E-12Ci/pCi).
[b] Average soil concentration from all data analyzed at the USACE St. Louis FUSRAP laboratory during 2019.
[c] When data were not available, the radionuclide was assumed to be in secular equilibrium with the parent radionuclide.

Table A-1-9. Latty Avenue Property Laboratory Samples for CY 2019

Radionuclide	Average (pCi/g)	No. Samples (Drying and Grinding)	No. Samples[a] (Separations)	Emission Rate (Ci/year)[a]
U-238[b]	1.1	137	161	1.1E-09
U-235[b]	0.1	137	161	9.3E-11
U-234[bc]	1.1	137	161	1.1E-09
Ra-226[b]	1.4	137	161	1.3E-09
Th-232[b]	0.9	137	161	8.8E-10
Th-230[b]	3.3	137	161	3.1E-09
Th-228[b]	1.0	137	161	9.7E-10
Ra-224[c]	1.0	137	161	9.7E-10
Th-234[c]	1.1	137	161	1.1E-09
Pa-234m[c]	1.1	137	161	1.1E-09
Th-231[c]	0.1	137	161	9.3E-11
Ra-228[b]	0.8	137	161	8.0E-10
Ac-228[c]	0.8	137	161	8.0E-10
Pa-231[b]	0.2	137	161	1.8E-10
Ac-227[b]	0.0	137	161	2.0E-11

[a] Emission Rate = (0.001 * Avg * No. Samples [drying and grinding] + 0.005 * Avg * No. Samples [separations]) * (1,000 g * 1E-12Ci/pCi).
[b] Average soil concentration from all data analyzed at the USACE St. Louis FUSRAP laboratory during 2019.
[c] When data were not available, the radionuclide was assumed to be in secular equilibrium with the parent radionuclide.

Table A-1-10. Iowa Army Ammunition Plant Laboratory Samples for CY 2019

Radionuclide	Average (pCi/g)	No. Samples (Drying and Grinding)	No. Samples (Separations)	Emission Rate (Ci/year)[a]
U-238[b]	7.2	432	974	3.8E-08
U-235[b]	0.2	432	974	9.4E-10
U-234[c]	1.2	432	974	6.5E-09
Ra-226[b]	1.0	432	974	5.4E-09
Th-232[b]	0.9	432	974	4.8E-09
Th-230[b]	1.3	432	974	6.7E-09
Th-228[b]	0.9	432	974	4.8E-09
Ra-224[c]	0.9	432	974	4.8E-09
Th-234[c]	7.2	432	974	3.8E-08
Pa-234m[c]	7.2	432	974	3.8E-08
Th-231[c]	0.2	432	974	9.4E-10
Ra-228[b]	0.9	432	974	4.8E-09
Ac-228[c]	0.9	432	974	4.8E-09
Pa-231[c]	0.1	432	974	5.3E-10
Ac-227[c]	0.0	432	974	1.6E-10

[a] Emission Rate = (0.001 * Avg * No. Samples [drying and grinding]+ 0.005 * Avg * No. Samples [separations]) * (1,000 g * 1E-12Ci/pCi).
[b] Average soil concentration from all IAAAP data analyzed at the USACE St. Louis FUSRAP laboratory during 2019.
[c] When data were not available, the radionuclide was assumed to be in secular equilibrium with the parent radionuclide.

Table A-1-11. Total Laboratory Airborne Radioactive Particulate Emission Rate for CY 2019

Radionuclide	Emission Rate (Ci/year)				
	SLDS	SLAPS and SLAPS VPs	Latty Avenue Properties	IAAAP	Total Across Laboratory[a]
U-238	9.1E-08	3.1E-08	1.1E-09	3.8E-08	1.6E-07
U-235	5.3E-09	2.1E-09	9.3E-11	9.4E-10	8.4E-09
U-234	9.1E-08	3.1E-08	1.1E-09	6.5E-09	1.3E-07
Ra-226	1.9E-08	3.7E-08	1.3E-09	5.4E-09	6.3E-08
Th-232	5.0E-09	2.6E-08	8.8E-10	4.8E-09	3.6E-08
Th-230	4.0E-08	1.1E-07	3.1E-09	6.7E-09	1.6E-07
Th-228	5.4E-09	2.8E-08	9.7E-10	4.8E-09	4.0E-08
Ra-224	5.4E-09	2.8E-08	9.7E-10	4.8E-09	4.0E-08
Th-234	9.1E-08	3.1E-08	1.1E-09	3.8E-08	1.6E-07
Pa-234m	9.1E-08	3.1E-08	1.1E-09	3.8E-08	1.6E-07
Th-231	5.3E-09	2.1E-09	9.3E-11	9.4E-10	8.4E-09
Ra-228	4.4E-09	2.4E-08	8.0E-10	4.8E-09	3.4E-08
Ac-228	4.4E-09	2.4E-08	8.0E-10	4.8E-09	3.4E-08
Pa-231	5.3E-09	3.8E-09	1.8E-10	5.3E-10	9.8E-09
Ac-227	5.3E-09	1.4E-09	2.0E-11	1.6E-10	6.8E-09

[a] Total emission rate is the sum of the SLDS, SLAPS and SLAPS VPs, and IAAAP emission rates.

ATTACHMENT A-2

CAP88-PC RUNS FOR NORTH ST. LOUIS COUNTY SITE PROPERTIES

THIS PAGE INTENTIONALLY LEFT BLANK

CAP88-PC RUNS FOR THE SLAPS AND SLAPS VICINITY PROPERTIES

THIS PAGE INTENTIONALLY LEFT BLANK

CAP88 OUTPUT RESULTS

EVA AVENUE

CAP88-PC

Version 4.1

Clean Air Act Assessment Package - 1988

```
D O S E   A N D   R I S K   S U M M A R I E S

                        Non-Radon Individual Assessment
                             Thu Mar 12 14:13:40 2020



         Facility:  Eva Avenue
          Address:
             City:  St. Louis
            State:  MO          Zip:  63042


    Source Category:  Area
        Source Type:  Area
      Emission Year:  2019
     DOSE Age Group:  Adult

           Comments:  Air


       Dataset Name:  Eva Avenue.
       Dataset Date:  Mar 12, 2020 02:13 PM
          Wind File:  C:\Users\finkenbinec\Documents\CAP88\Wind Files\13994.WND
```

Thu Mar 12 14:13:40 2020 SUMMARY
Page 1

ORGAN DOSE EQUIVALENT SUMMARY

Organ	Selected Individual (mrem)
Adrenals	7.78E-03
UB_Wall	8.50E-03
Bone_Sur	5.02E-01
Brain	8.14E-03
Breasts	8.80E-03
St_Wall	8.22E-03
SI_Wall	8.18E-03
ULI_Wall	8.58E-03
LLI_Wall	9.47E-03
Kidneys	2.01E-02
Liver	2.52E-02
Muscle	9.03E-03
Ovaries	1.10E-02
Pancreas	7.85E-03
R_Marrow	3.65E-02
Skin	5.27E-02
Spleen	8.26E-03
Testes	1.20E-02
Thymus	8.17E-03
Thyroid	8.43E-03
GB_Wall	7.87E-03
Ht_Wall	8.13E-03
Uterus	8.08E-03
ET_Reg	5.16E-02
Lung	1.52E-01
Effectiv	3.60E-02

PATHWAY EFFECTIVE DOSE EQUIVALENT SUMMARY

Pathway	Selected Individual (mrem)
INGESTION	3.16E-03
INHALATION	2.58E-02
AIR IMMERSION	4.60E-07
GROUND SURFACE	7.09E-03
INTERNAL	2.89E-02
EXTERNAL	7.09E-03
TOTAL	3.60E-02

Thu Mar 12 14:13:40 2020

SUMMARY
Page 2

NUCLIDE EFFECTIVE DOSE EQUIVALENT SUMMARY

Nuclide	Selected Individual (mrem)
U-238	1.63E-04
Th-234	2.89E-05
Pa-234m	6.46E-05
Pa-234	1.27E-06
U-234	7.66E-03
Th-230	8.86E-03
Ra-226	4.32E-04
Rn-222	3.41E-07
Po-218	6.10E-12
Pb-214	2.23E-04
At-218	2.29E-11
Bi-214	1.30E-03
Rn-218	1.33E-13
Po-214	7.21E-08
Tl-210	5.08E-07
Pb-210	1.09E-06
Bi-210	1.76E-05
Hg-206	1.42E-12
Po-210	4.55E-09
Tl-206	4.11E-11
U-235	4.17E-05
Th-231	1.44E-06
Pa-231	1.07E-03
Ac-227	8.09E-04
Th-227	9.91E-06
Fr-223	9.33E-08
Ra-223	1.11E-05
Rn-219	4.80E-06
At-219	0.00E+00
Bi-215	2.16E-11
Po-215	1.47E-08
Pb-211	9.42E-06
Bi-211	3.88E-06
Tl-207	4.88E-06
Po-211	1.87E-09
Th-232	1.16E-03
Ra-228	7.08E-03
Ac-228	2.13E-03
Th-228	1.56E-03
Ra-224	1.23E-04
Rn-220	1.45E-06
Po-216	3.49E-08
Pb-212	3.18E-04
Bi-212	3.71E-04
Po-212	0.00E+00
Tl-208	2.56E-03
TOTAL	3.60E-02

Thu Mar 12 14:13:40 2020 SUMMARY
Page 3

CANCER RISK SUMMARY

Cancer	Selected Individual Total Lifetime Fatal Cancer Risk
Esophagu	8.72E-11
Stomach	3.32E-10
Colon	9.45E-10
Liver	4.20E-10
LUNG	1.80E-08
Bone	5.42E-10
Skin	5.25E-11
Breast	3.74E-10
Ovary	1.52E-10
Bladder	2.08E-10
Kidneys	1.15E-10
Thyroid	2.63E-11
Leukemia	5.05E-10
Residual	1.23E-09
Total	2.30E-08
TOTAL	2.30E-08

PATHWAY RISK SUMMARY

Pathway	Selected Individual Total Lifetime Fatal Cancer Risk
INGESTION	1.16E-09
INHALATION	1.81E-08
AIR IMMERSION	2.47E-13
GROUND SURFACE	3.71E-09
INTERNAL	1.92E-08
EXTERNAL	3.71E-09
TOTAL	2.30E-08

Thu Mar 12 14:13:40 2020 SUMMARY
Page 4

NUCLIDE RISK SUMMARY

Nuclide	Selected Individual Total Lifetime Fatal Cancer Risk
U-238	1.69E-10
Th-234	3.04E-11
Pa-234m	1.13E-11
Pa-234	6.92E-13
U-234	8.06E-09
Th-230	4.76E-09
Ra-226	3.77E-10
Rn-222	1.86E-13
Po-218	2.72E-18
Pb-214	1.19E-10
At-218	2.82E-18
Bi-214	6.88E-10
Rn-218	7.26E-20
Po-214	3.96E-14
Tl-210	2.71E-13
Pb-210	4.87E-13
Bi-210	1.95E-12
Hg-206	6.30E-19
Po-210	2.50E-15
Tl-206	4.62E-18
U-235	3.71E-11
Th-231	7.51E-13
Pa-231	1.05E-10
Ac-227	2.23E-10
Th-227	5.37E-12
Fr-223	3.48E-14
Ra-223	5.98E-12
Rn-219	2.63E-12
At-219	0.00E+00
Bi-215	9.63E-18
Po-215	8.03E-15
Pb-211	3.37E-12
Bi-211	2.12E-12
Tl-207	6.27E-13
Po-211	1.02E-15
Th-232	5.13E-10
Ra-228	3.27E-09
Ac-228	1.14E-09
Th-228	1.59E-09
Ra-224	1.32E-10
Rn-220	7.92E-13
Po-216	1.92E-14
Pb-212	1.73E-10
Bi-212	1.43E-10
Po-212	0.00E+00
Tl-208	1.39E-09
TOTAL	2.30E-08

Thu Mar 12 14:13:40 2020 SUMMARY
Page 5

INDIVIDUAL EFFECTIVE DOSE EQUIVALENT (mrem)
(All Radionuclides and Pathways)

Direction	Distance (m) 100	205	1050	2045	
N	3.6E-02	1.2E-02	2.8E-03	2.5E-03	
NNW	2.0E-02	7.1E-03	2.6E-03	2.4E-03	
NW	2.3E-02	8.0E-03	2.6E-03	2.4E-03	
WNW	2.7E-02	9.3E-03	2.7E-03	2.4E-03	
W	2.1E-02	7.5E-03	2.6E-03	2.4E-03	
WSW	1.1E-02	4.8E-03	2.5E-03	2.4E-03	
SW	1.5E-02	5.9E-03	2.5E-03	2.4E-03	
SSW	1.8E-02	6.7E-03	2.5E-03	2.4E-03	
S	1.6E-02	6.2E-03	2.5E-03	2.4E-03	
SSE	1.2E-02	5.0E-03	2.5E-03	2.4E-03	
SE	1.6E-02	6.2E-03	2.5E-03	2.4E-03	
ESE	2.6E-02	9.0E-03	2.7E-03	2.4E-03	School
E	3.4E-02	1.1E-02	2.8E-03	2.5E-03	Business(100), Resident(205)
ENE	2.9E-02	9.6E-03	2.7E-03	2.5E-03	
NE	1.8E-02	6.8E-03	2.6E-03	2.4E-03	Farm
NNE	1.6E-02	6.0E-03	2.5E-03	2.4E-03	

Note: Highlighted EDE values (mrem) are applicable to the critical receptors as defined in the 2019 Radionuclide Emissions NESHAP Report (Appendix A) taking into account the distance and direction from the applicable site to each receptor. The highlighted value assumes 100 percent occupancy.

Thu Mar 12 14:13:40 2020 SUMMARY
Page 6

INDIVIDUAL LIFETIME RISK (deaths)
(All Radionuclides and Pathways)

	Distance (m)			
Direction	100	205	1050	2045
N	2.3E-08	7.0E-09	1.2E-09	9.6E-10
NNW	1.2E-08	4.0E-09	1.0E-09	9.2E-10
NW	1.4E-08	4.6E-09	1.0E-09	9.2E-10
WNW	1.7E-08	5.4E-09	1.1E-09	9.4E-10
W	1.3E-08	4.3E-09	1.0E-09	9.2E-10
WSW	6.8E-09	2.5E-09	9.4E-10	8.9E-10
SW	9.3E-09	3.2E-09	9.7E-10	9.0E-10
SSW	1.1E-08	3.8E-09	1.0E-09	9.1E-10
S	9.9E-09	3.4E-09	9.9E-10	9.1E-10
SSE	7.2E-09	2.6E-09	9.5E-10	8.9E-10
SE	1.0E-08	3.4E-09	9.9E-10	9.1E-10
ESE	1.7E-08	5.2E-09	1.1E-09	9.3E-10
E	2.2E-08	6.7E-09	1.1E-09	9.5E-10
ENE	1.8E-08	5.7E-09	1.1E-09	9.4E-10
NE	1.1E-08	3.8E-09	1.0E-09	9.1E-10
NNE	9.7E-09	3.3E-09	9.8E-10	9.0E-10

CAP88 OUTPUT RESULTS

IA-09 BALLFIELDS

CAP88-PC

Version 4.1

Clean Air Act Assessment Package – 1988

```
D O S E   A N D   R I S K   S U M M A R I E S

                        Non-Radon Individual Assessment
                             Thu Mar 12 14:23:16 2020



         Facility:  IA-09 Ballfields
          Address:
             City:  St. Louis
            State:  MO          Zip:  63042


    Source Category:  Area
        Source Type:  Area
      Emission Year:  2019
     DOSE Age Group:  Adult

           Comments:  Air


       Dataset Name:  IA-09 Ballfields
       Dataset Date:  Mar 12, 2020 02:23 PM
          Wind File:  C:\Users\finkenbinec\Documents\CAP88\Wind Files\13994.WND
```

Thu Mar 12 14:23:16 2020 SUMMARY
Page 1

ORGAN DOSE EQUIVALENT SUMMARY

Organ	Selected Individual (mrem)
Adrenals	7.31E-02
UB_Wall	8.04E-02
Bone_Sur	4.20E+00
Brain	7.68E-02
Breasts	8.31E-02
St_Wall	7.75E-02
SI_Wall	7.70E-02
ULI_Wall	8.03E-02
LLI_Wall	8.74E-02
Kidneys	1.43E-01
Liver	1.97E-01
Muscle	8.56E-02
Ovaries	9.87E-02
Pancreas	7.39E-02
R_Marrow	3.34E-01
Skin	5.21E-01
Spleen	7.80E-02
Testes	1.09E-01
Thymus	7.70E-02
Thyroid	7.97E-02
GB_Wall	7.40E-02
Ht_Wall	7.67E-02
Uterus	7.62E-02
ET_Reg	3.61E-01
Lung	9.09E-01
Effectiv	2.67E-01

PATHWAY EFFECTIVE DOSE EQUIVALENT SUMMARY

Pathway	Selected Individual (mrem)
INGESTION	3.46E-02
INHALATION	1.61E-01
AIR IMMERSION	4.31E-06
GROUND SURFACE	7.19E-02
INTERNAL	1.96E-01
EXTERNAL	7.19E-02
TOTAL	2.67E-01

Thu Mar 12 14:23:16 2020 SUMMARY
Page 2

NUCLIDE EFFECTIVE DOSE EQUIVALENT SUMMARY

Nuclide	Selected Individual (mrem)
U-238	1.53E-03
Th-234	2.30E-04
Pa-234m	6.35E-04
Pa-234	1.25E-05
U-234	1.84E-03
Th-230	7.30E-02
Ra-226	3.76E-03
Rn-222	2.97E-06
Po-218	5.31E-11
Pb-214	1.94E-03
At-218	2.00E-10
Bi-214	1.13E-02
Rn-218	1.16E-12
Po-214	6.29E-07
Tl-210	4.43E-06
Pb-210	9.48E-06
Bi-210	1.53E-04
Hg-206	1.24E-11
Po-210	3.97E-08
Tl-206	3.58E-10
U-235	1.36E-04
Th-231	4.81E-06
Pa-231	3.40E-03
Ac-227	2.57E-03
Th-227	3.38E-05
Fr-223	3.19E-07
Ra-223	3.78E-05
Rn-219	1.64E-05
At-219	0.00E+00
Bi-215	7.36E-11
Po-215	5.00E-08
Pb-211	3.21E-05
Bi-211	1.32E-05
Tl-207	1.67E-05
Po-211	6.38E-09
Th-232	1.46E-02
Ra-228	7.38E-02
Ac-228	2.26E-02
Th-228	1.96E-02
Ra-224	1.50E-03
Rn-220	1.54E-05
Po-216	3.72E-07
Pb-212	3.38E-03
Bi-212	3.95E-03
Po-212	0.00E+00
Tl-208	2.73E-02
TOTAL	2.67E-01

Thu Mar 12 14:23:16 2020 SUMMARY

Page 3

CANCER RISK SUMMARY

Cancer	Selected Individual Total Lifetime Fatal Cancer Risk
Esophagu	8.55E-10
Stomach	3.33E-09
Colon	9.31E-09
Liver	3.73E-09
LUNG	9.74E-08
Bone	5.27E-09
Skin	5.23E-10
Breast	3.76E-09
Ovary	1.46E-09
Bladder	2.03E-09
Kidneys	8.84E-10
Thyroid	2.63E-10
Leukemia	5.12E-09
Residual	1.23E-08
Total	1.46E-07
TOTAL	1.46E-07

PATHWAY RISK SUMMARY

Pathway	Selected Individual Total Lifetime Fatal Cancer Risk
INGESTION	1.29E-08
INHALATION	9.57E-08
AIR IMMERSION	2.32E-12
GROUND SURFACE	3.77E-08
INTERNAL	1.09E-07
EXTERNAL	3.77E-08
TOTAL	1.46E-07

Thu Mar 12 14:23:16 2020 SUMMARY
Page 4

NUCLIDE RISK SUMMARY

Nuclide	Selected Individual Total Lifetime Fatal Cancer Risk
U-238	1.58E-09
Th-234	2.39E-10
Pa-234m	1.11E-10
Pa-234	6.80E-12
U-234	1.93E-09
Th-230	3.91E-08
Ra-226	3.14E-09
Rn-222	1.62E-12
Po-218	2.37E-17
Pb-214	1.04E-09
At-218	2.46E-17
Bi-214	5.99E-09
Rn-218	6.33E-19
Po-214	3.45E-13
Tl-210	2.37E-12
Pb-210	4.25E-12
Bi-210	1.70E-11
Hg-206	5.49E-18
Po-210	2.18E-14
Tl-206	4.02E-17
U-235	1.20E-10
Th-231	2.41E-12
Pa-231	3.33E-10
Ac-227	7.08E-10
Th-227	1.83E-11
Fr-223	1.19E-13
Ra-223	2.04E-11
Rn-219	8.96E-12
At-219	0.00E+00
Bi-215	3.28E-17
Po-215	2.74E-14
Pb-211	1.15E-11
Bi-211	7.23E-12
Tl-207	2.14E-12
Po-211	3.49E-15
Th-232	6.44E-09
Ra-228	3.36E-08
Ac-228	1.21E-08
Th-228	1.99E-08
Ra-224	1.63E-09
Rn-220	8.43E-12
Po-216	2.04E-13
Pb-212	1.84E-09
Bi-212	1.52E-09
Po-212	0.00E+00
Tl-208	1.48E-08
TOTAL	1.46E-07

Thu Mar 12 14:23:16 2020 SUMMARY
Page 5

INDIVIDUAL EFFECTIVE DOSE EQUIVALENT (mrem)
(All Radionuclides and Pathways)

Direction	Distance (m) 485	780	1675	2500	
N	2.7E-01	1.3E-01	5.4E-02	4.1E-02	
NNW	1.5E-01	7.8E-02	4.1E-02	3.4E-02	
NW	1.7E-01	8.6E-02	4.3E-02	3.5E-02	
WNW	2.0E-01	9.9E-02	4.6E-02	3.7E-02	
W	1.6E-01	8.2E-02	4.1E-02	3.4E-02	
WSW	9.1E-02	5.3E-02	3.4E-02	3.1E-02	Business
SW	1.2E-01	6.4E-02	3.7E-02	3.2E-02	
SSW	1.4E-01	7.2E-02	3.9E-02	3.3E-02	
S	1.3E-01	6.8E-02	3.8E-02	3.3E-02	
SSE	9.6E-02	5.6E-02	3.5E-02	3.1E-02	
SE	1.3E-01	6.9E-02	3.8E-02	3.3E-02	
ESE	2.0E-01	9.8E-02	4.6E-02	3.7E-02	
E	2.5E-01	1.2E-01	5.1E-02	3.9E-02	School
ENE	2.1E-01	1.0E-01	4.7E-02	3.7E-02	
NE	1.4E-01	7.3E-02	3.9E-02	3.3E-02	Resident(780); Farm(1675)
NNE	1.2E-01	6.6E-02	3.8E-02	3.2E-02	

Note: Highlighted EDE values (mrem) are applicable to the critical receptors as defined in the 2019 Radionuclide Emissions NESHAP Report (Appendix A) taking into account the distance and direction from the applicable site to each receptor. The highlighted value assumes 100 percent occupancy.

Thu Mar 12 14:23:16 2020 SUMMARY
Page 6

INDIVIDUAL LIFETIME RISK (deaths)
(All Radionuclides and Pathways)

	Distance (m)			
Direction	485	780	1675	2500
N	1.5E-07	6.6E-08	2.5E-08	1.8E-08
NNW	8.0E-08	3.9E-08	1.8E-08	1.4E-08
NW	9.2E-08	4.4E-08	1.9E-08	1.5E-08
WNW	1.1E-07	5.1E-08	2.1E-08	1.6E-08
W	8.5E-08	4.1E-08	1.8E-08	1.4E-08
WSW	4.6E-08	2.5E-08	1.4E-08	1.2E-08
SW	6.1E-08	3.1E-08	1.6E-08	1.3E-08
SSW	7.3E-08	3.6E-08	1.7E-08	1.4E-08
S	6.6E-08	3.3E-08	1.6E-08	1.3E-08
SSE	4.9E-08	2.6E-08	1.4E-08	1.2E-08
SE	6.7E-08	3.4E-08	1.6E-08	1.3E-08
ESE	1.1E-07	5.0E-08	2.1E-08	1.6E-08
E	1.4E-07	6.2E-08	2.4E-08	1.7E-08
ENE	1.1E-07	5.3E-08	2.1E-08	1.6E-08
NE	7.4E-08	3.6E-08	1.7E-08	1.4E-08
NNE	6.4E-08	3.2E-08	1.6E-08	1.3E-08

CAP88 OUTPUT RESULTS

SLAPS Loadout

CAP88-PC

Version 4.1

Clean Air Act Assessment Package - 1988

D O S E   A N D   R I S K   S U M M A R I E S

Non-Radon Individual Assessment
Thu Mar 12 14:35:59 2020

```
      Facility:  SLAPS Loadout
       Address:
          City:  St. Louis
         State:  MO          Zip:  63042

Source Category:  Area
    Source Type:  Area
  Emission Year:  2019
 DOSE Age Group:  Adult

       Comments:  Air

   Dataset Name:  SLAPS Loadout 20
   Dataset Date:  Mar 12, 2020 02:35 PM
      Wind File:  C:\Users\finkenbinec\Documents\CAP88\Wind Files\13994.WND
```

Thu Mar 12 14:35:59 2020

SUMMARY
Page 1

ORGAN DOSE EQUIVALENT SUMMARY

Organ	Selected Individual (mrem)
Adrenals	1.33E-02
UB_Wall	1.46E-02
Bone_Sur	8.24E-01
Brain	1.40E-02
Breasts	1.51E-02
St_Wall	1.41E-02
SI_Wall	1.40E-02
ULI_Wall	1.46E-02
LLI_Wall	1.60E-02
Kidneys	2.67E-02
Liver	3.93E-02
Muscle	1.56E-02
Ovaries	1.85E-02
Pancreas	1.35E-02
R_Marrow	6.28E-02
Skin	9.49E-02
Spleen	1.42E-02
Testes	2.04E-02
Thymus	1.40E-02
Thyroid	1.45E-02
GB_Wall	1.35E-02
Ht_Wall	1.40E-02
Uterus	1.39E-02
ET_Reg	6.63E-02
Lung	1.65E-01
Effectiv	4.98E-02

PATHWAY EFFECTIVE DOSE EQUIVALENT SUMMARY

Pathway	Selected Individual (mrem)
INGESTION	6.35E-03
INHALATION	3.05E-02
AIR IMMERSION	7.72E-07
GROUND SURFACE	1.29E-02
INTERNAL	3.68E-02
EXTERNAL	1.29E-02
TOTAL	4.98E-02

Thu Mar 12 14:35:59 2020 SUMMARY
Page 2

NUCLIDE EFFECTIVE DOSE EQUIVALENT SUMMARY

Nuclide	Selected Individual (mrem)
U-238	2.89E-04
Th-234	4.65E-05
Pa-234m	1.21E-04
Pa-234	2.38E-06
U-234	3.48E-04
Th-230	1.43E-02
Ra-226	7.39E-04
Rn-222	5.83E-07
Po-218	1.04E-11
Pb-214	3.81E-04
At-218	3.92E-11
Bi-214	2.22E-03
Rn-218	2.27E-13
Po-214	1.23E-07
Tl-210	8.69E-07
Pb-210	1.86E-06
Bi-210	3.01E-05
Hg-206	2.43E-12
Po-210	7.78E-09
Tl-206	7.02E-11
U-235	5.06E-05
Th-231	1.80E-06
Pa-231	1.26E-03
Ac-227	9.53E-04
Th-227	1.26E-05
Fr-223	1.19E-07
Ra-223	1.41E-05
Rn-219	6.09E-06
At-219	0.00E+00
Bi-215	2.74E-11
Po-215	1.86E-08
Pb-211	1.20E-05
Bi-211	4.93E-06
Tl-207	6.19E-06
Po-211	2.37E-09
Th-232	2.32E-03
Ra-228	1.32E-02
Ac-228	3.98E-03
Th-228	3.12E-03
Ra-224	2.42E-04
Rn-220	2.70E-06
Po-216	6.52E-08
Pb-212	5.93E-04
Bi-212	6.92E-04
Po-212	0.00E+00
Tl-208	4.78E-03
TOTAL	4.98E-02

Thu Mar 12 14:35:59 2020 SUMMARY
Page 3

CANCER RISK SUMMARY

Cancer	Selected Individual Total Lifetime Fatal Cancer Risk
Esophagu	1.55E-10
Stomach	6.03E-10
Colon	1.69E-09
Liver	7.15E-10
LUNG	1.77E-08
Bone	9.89E-10
Skin	9.52E-11
Breast	6.78E-10
Ovary	2.69E-10
Bladder	3.68E-10
Kidneys	1.62E-10
Thyroid	4.76E-11
Leukemia	9.27E-10
Residual	2.23E-09
Total	2.66E-08
TOTAL	2.66E-08

PATHWAY RISK SUMMARY

Pathway	Selected Individual Total Lifetime Fatal Cancer Risk
INGESTION	2.36E-09
INHALATION	1.75E-08
AIR IMMERSION	4.16E-13
GROUND SURFACE	6.78E-09
INTERNAL	1.99E-08
EXTERNAL	6.78E-09
TOTAL	2.66E-08

Thu Mar 12 14:35:59 2020 SUMMARY
Page 4

NUCLIDE RISK SUMMARY

Nuclide	Selected Individual Total Lifetime Fatal Cancer Risk
U-238	2.99E-10
Th-234	4.87E-11
Pa-234m	2.12E-11
Pa-234	1.29E-12
U-234	3.65E-10
Th-230	7.65E-09
Ra-226	6.17E-10
Rn-222	3.18E-13
Po-218	4.65E-18
Pb-214	2.04E-10
At-218	4.83E-18
Bi-214	1.18E-09
Rn-218	1.24E-19
Po-214	6.77E-14
Tl-210	4.64E-13
Pb-210	8.33E-13
Bi-210	3.33E-12
Hg-206	1.08E-18
Po-210	4.27E-15
Tl-206	7.89E-18
U-235	4.44E-11
Th-231	9.17E-13
Pa-231	1.24E-10
Ac-227	2.63E-10
Th-227	6.82E-12
Fr-223	4.43E-14
Ra-223	7.59E-12
Rn-219	3.33E-12
At-219	0.00E+00
Bi-215	1.22E-17
Po-215	1.02E-14
Pb-211	4.27E-12
Bi-211	2.69E-12
Tl-207	7.96E-13
Po-211	1.30E-15
Th-232	1.03E-09
Ra-228	6.03E-09
Ac-228	2.12E-09
Th-228	3.17E-09
Ra-224	2.61E-10
Rn-220	1.48E-12
Po-216	3.58E-14
Pb-212	3.23E-10
Bi-212	2.67E-10
Po-212	0.00E+00
Tl-208	2.60E-09
TOTAL	2.66E-08

Thu Mar 12 14:35:59 2020 SUMMARY
Page 5

INDIVIDUAL EFFECTIVE DOSE EQUIVALENT (mrem)
(All Radionuclides and Pathways)

	Distance (m)				
Direction	500	770	1710	2580	
N	5.0E-02	2.5E-02	1.0E-02	7.6E-03	
NNW	2.8E-02	1.5E-02	7.6E-03	6.3E-03	
NW	3.2E-02	1.7E-02	8.0E-03	6.5E-03	
WNW	3.8E-02	2.0E-02	8.6E-03	6.8E-03	
W	3.0E-02	1.6E-02	7.7E-03	6.4E-03	
WSW	1.7E-02	1.0E-02	6.3E-03	5.7E-03	Business
SW	2.2E-02	1.2E-02	6.8E-03	5.9E-03	
SSW	2.6E-02	1.4E-02	7.3E-03	6.1E-03	
S	2.3E-02	1.3E-02	7.1E-03	6.0E-03	
SSE	1.8E-02	1.1E-02	6.5E-03	5.7E-03	
SE	2.4E-02	1.3E-02	7.1E-03	6.1E-03	
ESE	3.7E-02	1.9E-02	8.6E-03	6.8E-03	
E	4.7E-02	2.3E-02	9.5E-03	7.3E-03	School
ENE	3.9E-02	2.0E-02	8.7E-03	6.9E-03	
NE	2.6E-02	1.4E-02	7.3E-03	6.2E-03	Resident(770);Farm(1710)
NNE	2.3E-02	1.3E-02	7.0E-03	6.0E-03	

Note: Highlighted EDE values (mrem) are applicable to the critical receptors as defined in the 2019 Radionuclide Emissions NESHAP Report (Appendix A) taking into account the distance and direction from the applicable site to each receptor. The highlighted value assumes 100 percent occupancy.

Thu Mar 12 14:35:59 2020 SUMMARY
Page 6

INDIVIDUAL LIFETIME RISK (deaths)
(All Radionuclides and Pathways)

	Distance (m)			
Direction	500	770	1710	2580
N	2.7E-08	1.3E-08	4.7E-09	3.3E-09
NNW	1.5E-08	7.6E-09	3.3E-09	2.6E-09
NW	1.7E-08	8.5E-09	3.5E-09	2.7E-09
WNW	2.0E-08	9.9E-09	3.9E-09	2.9E-09
W	1.6E-08	7.9E-09	3.4E-09	2.6E-09
WSW	8.4E-09	4.8E-09	2.6E-09	2.2E-09
SW	1.1E-08	6.0E-09	2.9E-09	2.4E-09
SSW	1.3E-08	6.9E-09	3.1E-09	2.5E-09
S	1.2E-08	6.4E-09	3.0E-09	2.4E-09
SSE	9.0E-09	5.1E-09	2.7E-09	2.3E-09
SE	1.2E-08	6.5E-09	3.0E-09	2.5E-09
ESE	2.0E-08	9.7E-09	3.8E-09	2.9E-09
E	2.5E-08	1.2E-08	4.4E-09	3.1E-09
ENE	2.1E-08	1.0E-08	3.9E-09	2.9E-09
NE	1.3E-08	7.0E-09	3.2E-09	2.5E-09
NNE	1.2E-08	6.2E-09	3.0E-09	2.4E-09

THIS PAGE INTENTIONLLY LEFT BLANK

CAP88-PC RUNS FOR THE USACE ST. LOUIS FUSRAP LABORATORY

THIS PAGE INTENTIONLLY LEFT BLANK

CAP88 OUTPUT RESULTS

USACE Laboratory

CAP88-PC

Version 4.1

Clean Air Act Assessment Package - 1988

D O S E   A N D   R I S K   S U M M A R I E S

Non-Radon Individual Assessment
Mon Mar 23 15:09:58 2020

```
Facility:  USACE Laboratory
 Address:
    City:  St. Louis
   State:  MO          Zip:  63042

Source Category:  Area
    Source Type:  Stack
  Emission Year:  2019
 DOSE Age Group:  Adult

       Comments:  Air

   Dataset Name:  USACE Laboratory
   Dataset Date:  Mar 23, 2020 03:09 PM
      Wind File:  C:\Users\finkenbinec\Documents\CAP88\Wind Files\13994.WND
```

Mon Mar 23 15:09:58 2020 SUMMARY
Page 1

ORGAN DOSE EQUIVALENT SUMMARY

Organ	Selected Individual (mrem)
Adrenals	9.73E-05
UB_Wall	1.07E-04
Bone_Sur	7.85E-03
Brain	1.02E-04
Breasts	1.11E-04
St_Wall	1.03E-04
SI_Wall	1.02E-04
ULI_Wall	1.07E-04
LLI_Wall	1.16E-04
Kidneys	2.24E-04
Liver	3.90E-04
Muscle	1.14E-04
Ovaries	1.55E-04
Pancreas	9.80E-05
R_Marrow	4.15E-04
Skin	1.35E-03
Spleen	1.04E-04
Testes	1.70E-04
Thymus	1.02E-04
Thyroid	1.06E-04
GB_Wall	9.86E-05
Ht_Wall	1.02E-04
Uterus	1.01E-04
ET_Reg	7.72E-04
Lung	2.32E-03
Effectiv	5.26E-04

PATHWAY EFFECTIVE DOSE EQUIVALENT SUMMARY

Pathway	Selected Individual (mrem)
INGESTION	1.40E-05
INHALATION	4.12E-04
AIR IMMERSION	6.28E-10
GROUND SURFACE	1.00E-04
INTERNAL	4.26E-04
EXTERNAL	1.00E-04
TOTAL	5.26E-04

Mon Mar 23 15:09:58 2020 SUMMARY
Page 2

NUCLIDE EFFECTIVE DOSE EQUIVALENT SUMMARY

Nuclide	Selected Individual (mrem)
U-238	2.26E-05
Th-234	7.05E-07
Pa-234m	8.44E-06
Pa-234	1.66E-07
U-234	2.22E-05
Th-230	1.32E-04
Ra-226	1.50E-05
Rn-222	1.13E-08
Po-218	2.02E-13
Pb-214	7.37E-06
At-218	7.58E-13
Bi-214	4.31E-05
Rn-218	4.39E-15
Po-214	2.39E-09
Tl-210	1.68E-08
Pb-210	3.62E-08
Bi-210	5.85E-07
Hg-206	4.72E-14
Po-210	1.52E-10
Tl-206	1.37E-12
U-235	1.86E-06
Th-231	6.03E-08
Pa-231	5.46E-05
Ac-227	2.90E-05
Th-227	4.49E-07
Fr-223	4.23E-09
Ra-223	5.02E-07
Rn-219	2.17E-07
At-219	0.00E+00
Bi-215	9.77E-13
Po-215	6.64E-10
Pb-211	4.27E-07
Bi-211	1.76E-07
Tl-207	2.21E-07
Po-211	8.46E-11
Th-232	5.46E-05
Ra-228	8.26E-06
Ac-228	1.41E-05
Th-228	8.17E-05
Ra-224	5.38E-06
Rn-220	1.01E-08
Po-216	2.44E-10
Pb-212	2.22E-06
Bi-212	2.60E-06
Po-212	0.00E+00
Tl-208	1.79E-05
TOTAL	5.26E-04

Mon Mar 23 15:09:58 2020 SUMMARY
Page 3

CANCER RISK SUMMARY

Cancer	Selected Individual Total Lifetime Fatal Cancer Risk
Esophagu	1.01E-12
Stomach	3.73E-12
Colon	1.02E-11
Liver	4.81E-12
LUNG	2.56E-10
Bone	4.84E-12
Skin	1.33E-12
Breast	4.60E-12
Ovary	1.82E-12
Bladder	2.44E-12
Kidneys	1.01E-12
Thyroid	3.04E-13
Leukemia	5.82E-12
Residual	1.41E-11
Total	3.12E-10
TOTAL	3.12E-10

PATHWAY RISK SUMMARY

Pathway	Selected Individual Total Lifetime Fatal Cancer Risk
INGESTION	3.89E-12
INHALATION	2.58E-10
AIR IMMERSION	3.28E-16
GROUND SURFACE	4.97E-11
INTERNAL	2.62E-10
EXTERNAL	4.97E-11
TOTAL	3.12E-10

Mon Mar 23 15:09:58 2020 SUMMARY
Page 4

NUCLIDE RISK SUMMARY

Nuclide	Selected Individual Total Lifetime Fatal Cancer Risk
U-238	2.35E-11
Th-234	4.21E-13
Pa-234m	1.48E-12
Pa-234	9.04E-14
U-234	2.33E-11
Th-230	7.08E-11
Ra-226	1.29E-11
Rn-222	6.16E-15
Po-218	9.01E-20
Pb-214	3.94E-12
At-218	9.34E-20
Bi-214	2.28E-11
Rn-218	2.40E-21
Po-214	1.31E-15
Tl-210	8.98E-15
Pb-210	1.62E-14
Bi-210	6.48E-14
Hg-206	2.09E-20
Po-210	8.32E-17
Tl-206	1.54E-19
U-235	1.65E-12
Th-231	2.76E-14
Pa-231	5.35E-12
Ac-227	7.99E-12
Th-227	2.43E-13
Fr-223	1.58E-15
Ra-223	2.71E-13
Rn-219	1.19E-13
At-219	0.00E+00
Bi-215	4.36E-19
Po-215	3.64E-16
Pb-211	1.53E-13
Bi-211	9.60E-14
Tl-207	2.84E-14
Po-211	4.64E-17
Th-232	2.42E-11
Ra-228	3.79E-12
Ac-228	7.48E-12
Th-228	8.30E-11
Ra-224	6.33E-12
Rn-220	5.54E-15
Po-216	1.34E-16
Pb-212	1.21E-12
Bi-212	1.00E-12
Po-212	0.00E+00
Tl-208	9.75E-12
TOTAL	3.12E-10

Mon Mar 23 15:09:58 2020 SUMMARY
Page 5

INDIVIDUAL EFFECTIVE DOSE EQUIVALENT (mrem)
(All Radionuclides and Pathways)

	Distance (m)				
Direction	110	300	310	1830	
N	5.3E-04	1.4E-04	1.3E-04	1.6E-05	
NNW	2.9E-04	7.6E-05	7.2E-05	1.3E-05	
NW	3.0E-04	8.7E-05	8.3E-05	1.4E-05	
WNW	3.5E-04	1.0E-04	9.8E-05	1.4E-05	
W	2.8E-04	8.1E-05	7.7E-05	1.3E-05	
WSW	1.4E-04	4.4E-05	4.2E-05	1.2E-05	
SW	1.8E-04	5.8E-05	5.5E-05	1.2E-05	
SSW	2.1E-04	6.9E-05	6.6E-05	1.3E-05	
S	2.3E-04	6.3E-05	6.0E-05	1.3E-05	Business
SSE	1.7E-04	4.7E-05	4.5E-05	1.2E-05	
SE	2.4E-04	6.4E-05	6.1E-05	1.3E-05	School
ESE	3.5E-04	1.0E-04	9.6E-05	1.4E-05	
E	4.2E-04	1.3E-04	1.2E-04	1.5E-05	
ENE	3.3E-04	1.1E-04	1.0E-04	1.4E-05	
NE	2.4E-04	7.0E-05	6.7E-05	1.3E-05	Resident(300); Farm(310)
NNE	2.1E-04	6.1E-05	5.8E-05	1.2E-05	

Note: Highlighted EDE values (mrem) are applicable to the critical receptors as defined in the 2019 Radionuclide Emissions NESHAP Report (Appendix A) taking into account the distance and direction from the applicable site to each receptor. The highlighted value assumes 100 percent occupancy.

Mon Mar 23 15:09:58 2020 SUMMARY
Page 6

INDIVIDUAL LIFETIME RISK (deaths)
(All Radionuclides and Pathways)

	Distance (m)			
Direction	110	300	310	1830
N	3.1E-10	7.9E-11	7.5E-11	6.1E-12
NNW	1.7E-10	4.2E-11	4.0E-11	4.6E-12
NW	1.7E-10	4.9E-11	4.6E-11	4.8E-12
WNW	2.0E-10	5.8E-11	5.6E-11	5.2E-12
W	1.6E-10	4.5E-11	4.3E-11	4.7E-12
WSW	8.3E-11	2.3E-11	2.2E-11	3.8E-12
SW	1.0E-10	3.1E-11	3.0E-11	4.1E-12
SSW	1.3E-10	3.8E-11	3.6E-11	4.4E-12
S	1.4E-10	3.4E-11	3.3E-11	4.2E-12
SSE	9.9E-11	2.5E-11	2.4E-11	3.8E-12
SE	1.4E-10	3.5E-11	3.3E-11	4.3E-12
ESE	2.1E-10	5.7E-11	5.4E-11	5.2E-12
E	2.5E-10	7.4E-11	7.0E-11	5.9E-12
ENE	2.0E-10	6.1E-11	5.8E-11	5.3E-12
NE	1.4E-10	3.9E-11	3.7E-11	4.4E-12
NNE	1.2E-10	3.3E-11	3.1E-11	4.2E-12

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX B

ENVIRONMENTAL THERMOLUMINESCENT DOSIMETER, ALPHA TRACK DETECTOR, AND PERIMETER AIR DATA

(On the CD-ROM on the Back Cover of this Report)

THIS PAGE INTENTIONALLY LEFT BLANK

Table B-1. Background Air Particulate Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
BKG209169	BAP-001	01/07/19	Gross Alpha/Beta	Gross Alpha	8.811E-15	1.631E-15	4.75E-16	µCi/mL			Background Air (Particulate Air)-Environmental Monitoring
BKG209169	BAP-001	01/07/19	Gross Alpha/Beta	Gross Beta	3.056E-14	3.151E-15	9.84E-16	µCi/mL			Background Air (Particulate Air)-Environmental Monitoring
BKG209169	BAP-001	01/07/19	Gross Alpha/Beta	Gross Alpha	8.109E-15	1.558E-15	4.75E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209169	BAP-001	01/07/19	Gross Alpha/Beta	Gross Beta	3.004E-14	3.113E-15	9.84E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209170	BAP-001	01/14/19	Gross Alpha/Beta	Gross Alpha	4.48E-15	1.158E-15	4.97E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209170	BAP-001	01/14/19	Gross Alpha/Beta	Gross Beta	2.279E-14	2.623E-15	1.03E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209171	BAP-001	01/22/19	Gross Alpha/Beta	Gross Alpha	3.845E-15	1.002E-15	4.33E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209171	BAP-001	01/22/19	Gross Alpha/Beta	Gross Beta	1.631E-14	2.019E-15	8.98E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209172	BAP-001	01/28/19	Gross Alpha/Beta	Gross Alpha	6.687E-15	1.544E-15	5.85E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209172	BAP-001	01/28/19	Gross Alpha/Beta	Gross Beta	2.37E-14	2.854E-15	1.212E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209173	BAP-001	02/04/19	Gross Alpha/Beta	Gross Alpha	4.574E-15	1.158E-15	4.86E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209173	BAP-001	02/04/19	Gross Alpha/Beta	Gross Beta	2.301E-14	2.618E-15	1.007E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209174	BAP-001	02/10/19	Gross Alpha/Beta	Gross Alpha	2.179E-15	8.6E-16	5.58E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209174	BAP-001	02/10/19	Gross Alpha/Beta	Gross Beta	1.454E-14	2.104E-15	1.156E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209175	BAP-001	02/19/19	Gross Alpha/Beta	Gross Alpha	4.593E-15	1.118E-15	4.5E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209175	BAP-001	02/19/19	Gross Alpha/Beta	Gross Beta	2.748E-14	2.877E-15	9.31E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209176	BAP-001	02/25/19	Gross Alpha/Beta	Gross Alpha	5.176E-15	1.293E-15	5.35E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209176	BAP-001	02/25/19	Gross Alpha/Beta	Gross Beta	3.467E-14	3.566E-15	1.108E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209177	BAP-001	03/04/19	Gross Alpha/Beta	Gross Alpha	2.792E-15	8.89E-16	4.72E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209177	BAP-001	03/04/19	Gross Alpha/Beta	Gross Beta	2.329E-14	2.612E-15	9.77E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209178	BAP-001	03/11/19	Gross Alpha/Beta	Gross Alpha	2.756E-15	8.87E-16	4.76E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209178	BAP-001	03/11/19	Gross Alpha/Beta	Gross Beta	1.909E-14	2.308E-15	9.87E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209179	BAP-001	03/18/19	Gross Alpha/Beta	Gross Alpha	1.54E-15	6.72E-16	4.76E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209179	BAP-001	03/18/19	Gross Alpha/Beta	Gross Beta	1.664E-14	2.122E-15	9.87E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209180	BAP-001	03/25/19	Gross Alpha/Beta	Gross Alpha	1.157E-15	5.9E-16	4.76E-16	µCi/mL	J	T04, T20	Background Air (Particulate Air)-Environmental Monitoring
BKG209180	BAP-001	03/25/19	Gross Alpha/Beta	Gross Beta	1.933E-14	2.326E-15	9.87E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209181	BAP-001	04/01/19	Gross Alpha/Beta	Gross Alpha	3.981E-15	1.1E-15	5.48E-16	µCi/mL			Background Air (Particulate Air)-Environmental Monitoring
BKG209181	BAP-001	04/01/19	Gross Alpha/Beta	Gross Beta	1.117E-14	1.743E-15	1.343E-15	µCi/mL			Background Air (Particulate Air)-Environmental Monitoring
BKG209181	BAP-001	04/01/19	Gross Alpha/Beta	Gross Alpha	4.047E-15	1.109E-15	5.48E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209181	BAP-001	04/01/19	Gross Alpha/Beta	Gross Beta	1.342E-14	1.921E-15	1.343E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209182	BAP-001	04/08/19	Gross Alpha/Beta	Gross Alpha	6.042E-15	1.362E-15	5.49E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209182	BAP-001	04/08/19	Gross Alpha/Beta	Gross Beta	1.644E-14	2.157E-15	1.346E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209183	BAP-001	04/15/19	Gross Alpha/Beta	Gross Alpha	3.379E-15	1.013E-15	5.46E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209183	BAP-001	04/15/19	Gross Alpha/Beta	Gross Beta	1.038E-14	1.677E-15	1.339E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209185	BAP-001	04/29/19	Gross Alpha/Beta	Gross Alpha	3.842E-15	1.13E-15	5.98E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209185	BAP-001	04/29/19	Gross Alpha/Beta	Gross Beta	1.461E-14	2.093E-15	1.466E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209186	BAP-001	05/06/19	Gross Alpha/Beta	Gross Alpha	2.661E-15	9.18E-16	5.61E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209186	BAP-001	05/06/19	Gross Alpha/Beta	Gross Beta	1.25E-14	1.87E-15	1.377E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209187	BAP-001	05/13/19	Gross Alpha/Beta	Gross Alpha	3.019E-15	9.44E-16	5.29E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209187	BAP-001	05/13/19	Gross Alpha/Beta	Gross Beta	1.174E-14	1.76E-15	1.298E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209188	BAP-001	05/20/19	Gross Alpha/Beta	Gross Alpha	4.883E-15	1.249E-15	5.76E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209188	BAP-001	05/20/19	Gross Alpha/Beta	Gross Beta	1.725E-14	2.263E-15	1.412E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring

Table B-1. Background Air Particulate Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
BKG209189	BAP-001	05/28/19	Gross Alpha/Beta	Gross Alpha	2.428E-15	7.86E-16	4.54E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209189	BAP-001	05/28/19	Gross Alpha/Beta	Gross Beta	1.174E-14	1.641E-15	1.114E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209190	BAP-001	06/03/19	Gross Alpha/Beta	Gross Alpha	1.851E-15	8.51E-16	6.58E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209190	BAP-001	06/03/19	Gross Alpha/Beta	Gross Beta	1.23E-14	2.004E-15	1.614E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209191	BAP-001	06/11/19	Gross Alpha/Beta	Gross Alpha	1.949E-15	7.35E-16	4.85E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209191	BAP-001	06/11/19	Gross Alpha/Beta	Gross Beta	1.559E-14	1.987E-15	1.19E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209192	BAP-001	06/17/19	Gross Alpha/Beta	Gross Alpha	1.12E-15	6.88E-16	6.48E-16	µCi/mL	J	T04, T20	Background Air (Particulate Air)-Environmental Monitoring
BKG209192	BAP-001	06/17/19	Gross Alpha/Beta	Gross Beta	1.836E-14	2.466E-15	1.59E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209193	BAP-001	06/24/19	Gross Alpha/Beta	Gross Alpha	7.52E-16	5.36E-16	5.5E-16	µCi/mL	J	T04, T20	Background Air (Particulate Air)-Environmental Monitoring
BKG209193	BAP-001	06/24/19	Gross Alpha/Beta	Gross Beta	1.353E-14	1.934E-15	1.349E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209194	BAP-001	07/01/19	Gross Alpha/Beta	Gross Alpha	5.15E-15	1.318E-15	7.21E-16	µCi/mL			Background Air (Particulate Air)-Environmental Monitoring
BKG209194	BAP-001	07/01/19	Gross Alpha/Beta	Gross Beta	1.639E-14	2.216E-15	1.427E-15	µCi/mL			Background Air (Particulate Air)-Environmental Monitoring
BKG209194	BAP-001	07/01/19	Gross Alpha/Beta	Gross Alpha	5.429E-15	1.352E-15	7.21E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209194	BAP-001	07/01/19	Gross Alpha/Beta	Gross Beta	1.553E-14	2.151E-15	1.427E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209195	BAP-001	07/08/19	Gross Alpha/Beta	Gross Alpha	5.14E-15	1.264E-15	6.66E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209195	BAP-001	07/08/19	Gross Alpha/Beta	Gross Beta	1.864E-14	2.312E-15	1.318E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209196	BAP-001	07/15/19	Gross Alpha/Beta	Gross Alpha	5.77E-15	1.36E-15	6.87E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209196	BAP-001	07/15/19	Gross Alpha/Beta	Gross Beta	1.45E-14	2.027E-15	1.36E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209197	BAP-001	07/22/19	Gross Alpha/Beta	Gross Alpha	2.46E-15	9.2E-16	6.89E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209197	BAP-001	07/22/19	Gross Alpha/Beta	Gross Beta	7.603E-15	1.48E-15	1.363E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209198	BAP-001	07/29/19	Gross Alpha/Beta	Gross Alpha	5.155E-15	1.302E-15	7.03E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209198	BAP-001	07/29/19	Gross Alpha/Beta	Gross Beta	1.794E-14	2.309E-15	1.391E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209199	BAP-001	08/05/19	Gross Alpha/Beta	Gross Alpha	5.45E-15	1.316E-15	6.81E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209199	BAP-001	08/05/19	Gross Alpha/Beta	Gross Beta	1.956E-14	2.401E-15	1.347E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209200	BAP-001	08/12/19	Gross Alpha/Beta	Gross Alpha	5.675E-15	1.346E-15	6.84E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209200	BAP-001	08/12/19	Gross Alpha/Beta	Gross Beta	2.34E-14	2.691E-15	1.353E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209201	BAP-001	08/19/19	Gross Alpha/Beta	Gross Alpha	3.164E-15	1.033E-15	6.98E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209201	BAP-001	08/19/19	Gross Alpha/Beta	Gross Beta	1.62E-14	2.17E-15	1.381E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209202	BAP-001	08/26/19	Gross Alpha/Beta	Gross Alpha	3.3E-15	1.041E-15	6.84E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209202	BAP-001	08/26/19	Gross Alpha/Beta	Gross Beta	1.83E-14	2.311E-15	1.353E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209203	BAP-001	09/03/19	Gross Alpha/Beta	Gross Alpha	3.088E-15	9.53E-16	6.15E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209203	BAP-001	09/03/19	Gross Alpha/Beta	Gross Beta	2.343E-14	2.597E-15	1.218E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209204	BAP-001	09/09/19	Gross Alpha/Beta	Gross Alpha	3.322E-15	1.125E-15	7.82E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209204	BAP-001	09/09/19	Gross Alpha/Beta	Gross Beta	2.604E-14	3.025E-15	1.548E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209205	BAP-001	09/16/19	Gross Alpha/Beta	Gross Alpha	3.349E-15	1.056E-15	6.94E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209205	BAP-001	09/16/19	Gross Alpha/Beta	Gross Beta	3.018E-14	3.203E-15	1.374E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209206	BAP-001	09/23/19	Gross Alpha/Beta	Gross Alpha	3.234E-15	1.031E-15	6.84E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209206	BAP-001	09/23/19	Gross Alpha/Beta	Gross Beta	3.504E-14	3.54E-15	1.353E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209207	BAP-001	09/30/19	Gross Alpha/Beta	Gross Alpha	1.381E-15	7.53E-16	7.16E-16	µCi/mL	J	T04, T20	Background Air (Particulate Air)-Environmental Monitoring
BKG209207	BAP-001	09/30/19	Gross Alpha/Beta	Gross Beta	2.24E-14	2.661E-15	1.416E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209208	BAP-001	10/07/19	Gross Alpha/Beta	Gross Alpha	5.314E-15	1.245E-15	4.96E-16	µCi/mL			Background Air (Particulate Air)-Environmental Monitoring
BKG209208	BAP-001	10/07/19	Gross Alpha/Beta	Gross Beta	1.913E-14	2.356E-15	1.275E-15	µCi/mL			Background Air (Particulate Air)-Environmental Monitoring

Table B-1. Background Air Particulate Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
BKG209208	BAP-001	10/07/19	Gross Alpha/Beta	Gross Alpha	5.638E-15	1.284E-15	4.96E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209208	BAP-001	10/07/19	Gross Alpha/Beta	Gross Beta	1.542E-14	2.075E-15	1.275E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209209	BAP-001	10/15/19	Gross Alpha/Beta	Gross Alpha	5.583E-15	1.239E-15	4.65E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209209	BAP-001	10/15/19	Gross Alpha/Beta	Gross Beta	2.206E-14	2.515E-15	1.194E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209210	BAP-001	10/22/19	Gross Alpha/Beta	Gross Alpha	6.805E-15	1.415E-15	4.91E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209210	BAP-001	10/22/19	Gross Alpha/Beta	Gross Beta	2.334E-14	2.66E-15	1.263E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209211	BAP-001	10/28/19	Gross Alpha/Beta	Gross Alpha	5.26E-15	1.356E-15	6.01E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209211	BAP-001	10/28/19	Gross Alpha/Beta	Gross Beta	1.989E-14	2.607E-15	1.545E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209212	BAP-001	11/05/19	Gross Alpha/Beta	Gross Alpha	4.221E-15	1.018E-15	4.2E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209212	BAP-001	11/05/19	Gross Alpha/Beta	Gross Beta	1.749E-14	2.091E-15	1.079E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209213	BAP-001	11/12/19	Gross Alpha/Beta	Gross Alpha	5.157E-15	1.229E-15	5E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209213	BAP-001	11/12/19	Gross Alpha/Beta	Gross Beta	1.961E-14	2.399E-15	1.285E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209214	BAP-001	11/18/19	Gross Alpha/Beta	Gross Alpha	4.023E-15	1.208E-15	6.29E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209214	BAP-001	11/18/19	Gross Alpha/Beta	Gross Beta	2.796E-14	3.263E-15	1.617E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209215	BAP-001	11/25/19	Gross Alpha/Beta	Gross Alpha	3.344E-15	9.94E-16	5.12E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209215	BAP-001	11/25/19	Gross Alpha/Beta	Gross Beta	1.911E-14	2.384E-15	1.317E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209216	BAP-001	12/02/19	Gross Alpha/Beta	Gross Alpha	2.395E-15	8.28E-16	4.96E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209216	BAP-001	12/02/19	Gross Alpha/Beta	Gross Beta	1.475E-14	2.024E-15	1.275E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209217	BAP-001	12/09/19	Gross Alpha/Beta	Gross Alpha	2.702E-15	9.09E-16	5.31E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209217	BAP-001	12/09/19	Gross Alpha/Beta	Gross Beta	2.226E-14	2.655E-15	1.365E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209218	BAP-001	12/17/19	Gross Alpha/Beta	Gross Alpha	2.927E-15	8.54E-16	4.31E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209218	BAP-001	12/17/19	Gross Alpha/Beta	Gross Beta	2.4E-14	2.593E-15	1.108E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209219	BAP-001	12/23/19	Gross Alpha/Beta	Gross Alpha	2.125E-15	8.81E-16	6.27E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209219	BAP-001	12/23/19	Gross Alpha/Beta	Gross Beta	2.941E-14	3.367E-15	1.612E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209220	BAP-001	12/30/19	Gross Alpha/Beta	Gross Alpha	1.79E-15	7.28E-16	5.09E-16	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring
BKG209220	BAP-001	12/30/19	Gross Alpha/Beta	Gross Beta	2.693E-14	2.957E-15	1.307E-15	µCi/mL	=		Background Air (Particulate Air)-Environmental Monitoring

VQs:

= - Indicates that the data met all QA/QC requirements, and that the parameter has been positively identified and the associated concentration value is accurate.

J - Indicates that the parameter was positively identified; the associated numerical value is the approximate concentration of the parameter in the sample.

UJ - Indicates that the parameter was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Validation Reason Code:

T04 - Radionuclide Quantitation: Professional judgment was used to qualify the data.

T06 - Radionuclide Quantitation: Analytical result is less than both the associated counting uncertainty and MDA.

T20 - Radionuclide Quantitation: Analytical result is greater than the associated MDA, with uncertainty 50 to 100 percent of the result.

Table B-2. NC Sites Ra-222 Results for CY 2019

Sample Name	Station Name	Collect Date	Method Type	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event Name
HIS215149	BA-1	07/01/19	Radiological	Ra-222	0.2	0	0.2	pCi/L	UJ	Y01	Environmental Monitoring (Alpha Tracks)-1st Semiannual 2019
HIS219887	BA-1	01/06/20	Radiological	Ra-222	0.2	0	0.2	pCi/L	UJ	Y01	Environmental Monitoring (Alpha Tracks)-2nd Semiannual 2019
HIS215150	HF-1	07/01/19	Radiological	Ra-222	2.38	0	0.2	pCi/L	J	Y01	Environmental Monitoring (Alpha Tracks)-1st Semiannual 2019
HIS219888	HF-1	01/06/20	Radiological	Ra-222	3.1	0	0.2	pCi/L	J	Y01	Environmental Monitoring (Alpha Tracks)-2nd Semiannual 2019
HIS215151	HF-2	07/01/19	Radiological	Ra-222	6.49	0	0.2	pCi/L	J	Y01	Environmental Monitoring (Alpha Tracks)-1st Semiannual 2019
HIS219889	HF-2	01/06/20	Radiological	Ra-222	5.2	0	0.2	pCi/L	J	Y01	Environmental Monitoring (Alpha Tracks)-2nd Semiannual 2019
HIS219890	HF-3	01/06/20	Radiological	Ra-222	0.2	0	0.2	pCi/L	J	Y01	Environmental Monitoring (Alpha Tracks)-2nd Semiannual 2019
HIS215152	HF-4	07/01/19	Radiological	Ra-222	0.65	0	0.2	pCi/L	J	Y01	Environmental Monitoring (Alpha Tracks)-1st Semiannual 2019
HIS219891	HF-4	01/06/20	Radiological	Ra-222	0.6	0	0.2	pCi/L	J	Y01	Environmental Monitoring (Alpha Tracks)-2nd Semiannual 2019
HIS215153	HF-5	07/01/19	Radiological	Ra-222	0.72	0	0.2	pCi/L	J	Y01	Environmental Monitoring (Alpha Tracks)-1st Semiannual 2019
HIS219892	HF-5	01/06/20	Radiological	Ra-222	0.9	0	0.2	pCi/L	J	Y01	Environmental Monitoring (Alpha Tracks)-2nd Semiannual 2019
HIS215154	HF-6	07/01/19	Radiological	Ra-222	0.61	0	0.2	pCi/L	J	Y01	Environmental Monitoring (Alpha Tracks)-1st Semiannual 2019
HIS219893	HF-6	01/06/20	Radiological	Ra-222	0.9	0	0.2	pCi/L	J	Y01	Environmental Monitoring (Alpha Tracks)-2nd Semiannual 2019
HIS215155	HF-7	07/01/19	Radiological	Ra-222	0.75	0	0.2	pCi/L	J	Y01	Environmental Monitoring (Alpha Tracks)-1st Semiannual 2019
HIS219894	HF-7	01/06/20	Radiological	Ra-222	1.5	0	0.2	pCi/L	J	Y01	Environmental Monitoring (Alpha Tracks)-2nd Semiannual 2019
HIS219895	HF-8	01/06/20	Radiological	Ra-222	1.2	0	0.2	pCi/L	J	Y01	Environmental Monitoring (Alpha Tracks)-2nd Semiannual 2019
HIS215156	HF-9	07/01/19	Radiological	Ra-222	0.94	0	0.2	pCi/L	J	Y01	Environmental Monitoring (Alpha Tracks)-1st Semiannual 2019
HIS219896	HF-9	01/06/20	Radiological	Ra-222	1.4	0	0.2	pCi/L	J	Y01	Environmental Monitoring (Alpha Tracks)-2nd Semiannual 2019
HIS215157	HF-10	07/01/19	Radiological	Ra-222	1.28	0	0.2	pCi/L	J	Y01	Environmental Monitoring (Alpha Tracks)-1st Semiannual 2019
HIS219897	HF-10	01/06/20	Radiological	Ra-222	1.5	0	0.2	pCi/L	J	Y01	Environmental Monitoring (Alpha Tracks)-2nd Semiannual 2019
SLA215161	PA-1	07/01/19	Radiological	Ra-222	0.2	0	0.2	pCi/L	UJ	Y01	Environmental Monitoring (Alpha Tracks)-1st Semiannual 2019
SLA219901	PA-1	01/06/20	Radiological	Ra-222	0.2	0	0.2	pCi/L	UJ	Y01	Environmental Monitoring (Alpha Tracks)-2nd Semiannual 2019
SLA215162	PA-2	07/01/19	Radiological	Ra-222	0.21	0	0.2	pCi/L	J	Y01	Environmental Monitoring (Alpha Tracks)-1st Semiannual 2019
SLA219902	PA-2	01/06/20	Radiological	Ra-222	0.2	0	0.2	pCi/L	UJ	Y01	Environmental Monitoring (Alpha Tracks)-2nd Semiannual 2019
SLA215162-1	PA-2dup	07/01/19	Radiological	Ra-222	0.2	0	0.2	pCi/L	UJ	Y01	Environmental Monitoring (Alpha Tracks)-1st Semiannual 2019
SLA219902-1	PA-2dup	01/06/20	Radiological	Ra-222	0.2	0	0.2	pCi/L	UJ	Y01	Environmental Monitoring (Alpha Tracks)-2nd Semiannual 2019
SLA215163	PA-3	07/01/19	Radiological	Ra-222	0.2	0	0.2	pCi/L	UJ	Y01	Environmental Monitoring (Alpha Tracks)-1st Semiannual 2019
SLA219903	PA-3	01/06/20	Radiological	Ra-222	0.2	0	0.2	pCi/L	UJ	Y01	Environmental Monitoring (Alpha Tracks)-2nd Semiannual 2019
SLA215164	PA-4	07/01/19	Radiological	Ra-222	0.2	0	0.2	pCi/L	UJ	Y01	Environmental Monitoring (Alpha Tracks)-1st Semiannual 2019
SLA219904	PA-4	01/06/20	Radiological	Ra-222	0.2	0	0.2	pCi/L	UJ	Y01	Environmental Monitoring (Alpha Tracks)-2nd Semiannual 2019
HIS215158	FA-1	07/01/19	Radiological	Ra-222	0.28	0	0.2	pCi/L	J	Y01	Environmental Monitoring (Alpha Tracks)-1st Semiannual 2019
HIS219898	FA-1	01/06/20	Radiological	Ra-222	0.2	0	0.2	pCi/L	J	Y01	Environmental Monitoring (Alpha Tracks)-2nd Semiannual 2019
HIS215159	FA-2	07/01/19	Radiological	Ra-222	0.21	0	0.2	pCi/L	J	Y01	Environmental Monitoring (Alpha Tracks)-1st Semiannual 2019
HIS219899	FA-2	01/06/20	Radiological	Ra-222	0.2	0	0.2	pCi/L	J	Y01	Environmental Monitoring (Alpha Tracks)-2nd Semiannual 2019
HIS215160	FA-3	07/01/19	Radiological	Ra-222	0.31	0	0.2	pCi/L	J	Y01	Environmental Monitoring (Alpha Tracks)-1st Semiannual 2019
HIS219900	FA-3	01/06/20	Radiological	Ra-222	0.3	0	0.2	pCi/L	J	Y01	Environmental Monitoring (Alpha Tracks)-2nd Semiannual 2019

Note: The ATDs at stations HF-3 and HF-8 were missing when collecting ATDs after the 1st monitoring period.

VQs:

J - Indicates that the parameter was positively identified; the associated numerical value is the approximate concentration of the parameter in the sample.

UJ - Indicates that the parameter was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Validation Reason Code:

Y01 - FUSRAP Only: Not enough supporting documentation to perform validation.

Table B-3. NC Sites External Gamma Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
HIS211288	BA-1	04/09/19	Radiological	External gamma radiation	18.5	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-1Q2019
HIS211289	BA-1	07/01/19	Radiological	External gamma radiation	18	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-2Q2019
HIS211290	BA-1	10/03/19	Radiological	External gamma radiation	21.9	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-3Q2019
HIS215172	BA-1	01/06/20	Radiological	External gamma radiation	22.5	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-4Q2019
HIS211289	FA-2	04/09/19	Radiological	External gamma radiation	20	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-1Q2019
HIS215173	FA-2	07/01/19	Radiological	External gamma radiation	21.6	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-2Q2019
HIS217425	FA-2	10/03/19	Radiological	External gamma radiation	25.6	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-3Q2019
HIS219913	FA-2	01/06/20	Radiological	External gamma radiation	25.5	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-4Q2019
HIS211290	FA-3	04/09/19	Radiological	External gamma radiation	17.3	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-1Q2019
HIS215174	FA-3	07/01/19	Radiological	External gamma radiation	18.5	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-2Q2019
HIS217426	FA-3	10/03/19	Radiological	External gamma radiation	20.3	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-3Q2019
HIS219914	FA-3	01/06/20	Radiological	External gamma radiation	21	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-4Q2019
SLA211284	PA-1	04/09/19	Radiological	External gamma radiation	16.8	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-1Q2019
SLA215175	PA-1	07/01/19	Radiological	External gamma radiation	17.8	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-2Q2019
SLA217427	PA-1	10/03/19	Radiological	External gamma radiation	20.7	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-3Q2019
SLA219915	PA-1	01/06/20	Radiological	External gamma radiation	22.7	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-4Q2019
SLA211285	PA-2	04/09/19	Radiological	External gamma radiation	21.3	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-1Q2019
SLA215176	PA-2	07/01/19	Radiological	External gamma radiation	20.7	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-2Q2019
SLA217428	PA-2	10/03/19	Radiological	External gamma radiation	23.1	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-3Q2019
SLA219916	PA-2	01/06/20	Radiological	External gamma radiation	26.3	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-4Q2019
SLA211285-1	PA-2dup	04/09/19	Radiological	External gamma radiation	20.1	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-1Q2019
SLA215176-1	PA-2dup	07/01/19	Radiological	External gamma radiation	21.5	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-2Q2019
SLA217428-1	PA-2dup	10/03/19	Radiological	External gamma radiation	25.6	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-3Q2019
SLA219916-1	PA-2dup	01/06/20	Radiological	External gamma radiation	25.9	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-4Q2019
SLA211286	PA-3	04/09/19	Radiological	External gamma radiation	19.3	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-1Q2019
SLA215177	PA-3	07/01/19	Radiological	External gamma radiation	19.2	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-2Q2019
SLA217429	PA-3	10/03/19	Radiological	External gamma radiation	22.3	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-3Q2019
SLA219917	PA-3	01/06/20	Radiological	External gamma radiation	23.9	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-4Q2019
SLA211287	PA-4	04/09/19	Radiological	External gamma radiation	22.8	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-1Q2019
SLA215178	PA-4	07/01/19	Radiological	External gamma radiation	23.9	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-2Q2019
SLA217430	PA-4	10/03/19	Radiological	External gamma radiation	26.9	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-3Q2019
SLA219918	PA-4	01/06/20	Radiological	External gamma radiation	28.2	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-4Q2019

VQs:

J - Indicates that the parameter was positively identified; the associated numerical value is the approximate concentration of the parameter in the sample.

Validation Reason Code:

Y01 - FUSRAP Only: Not enough supporting documentation to perform validation.

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP205551	BALLFIELDS	01/02/19	Gross Alpha/Beta	Gross Beta	4.158E-14	1.572E-14	1.934E-14	µCi/mL			Ballfields (General Area)-Perimeter Air
SVP205551	BALLFIELDS	01/02/19	Gross Alpha/Beta	Gross Alpha	5.783E-15	9.56E-15	1.219E-14	µCi/mL			Ballfields (General Area)-Perimeter Air
SVP205551	BALLFIELDS	01/02/19	Gross Alpha/Beta	Gross Beta	5.094E-14	1.675E-14	1.934E-14	µCi/mL	=		Ballfields (General Area)-Perimeter Air
SVP205551	BALLFIELDS	01/02/19	Gross Alpha/Beta	Gross Alpha	8.262E-15	1.019E-14	1.219E-14	µCi/mL	UJ	T06	Ballfields (General Area)-Perimeter Air
SVP205552	BALLFIELDS	01/02/19	Gross Alpha/Beta	Gross Beta	3.924E-14	1.546E-14	1.934E-14	µCi/mL	=		Ballfields (General Area)-Perimeter Air
SVP205552	BALLFIELDS	01/02/19	Gross Alpha/Beta	Gross Alpha	8.26E-16	8.165E-15	1.219E-14	µCi/mL	UJ	T06	Ballfields (General Area)-Perimeter Air
SVP205553	BALLFIELDS	01/02/19	Gross Alpha/Beta	Gross Beta	3.346E-14	1.469E-14	1.916E-14	µCi/mL	=		Ballfields (General Area)-Perimeter Air
SVP205553	BALLFIELDS	01/02/19	Gross Alpha/Beta	Gross Alpha	-1.637E-15	7.305E-15	1.207E-14	µCi/mL	UJ	T06	Ballfields (General Area)-Perimeter Air
SVP205554	BALLFIELDS	01/03/19	Gross Alpha/Beta	Gross Beta	3.81E-14	1.522E-14	1.916E-14	µCi/mL	=		Ballfields (General Area)-Perimeter Air
SVP205554	BALLFIELDS	01/03/19	Gross Alpha/Beta	Gross Alpha	-1.637E-15	7.305E-15	1.207E-14	µCi/mL	UJ	T06	Ballfields (General Area)-Perimeter Air
SVP205555	BALLFIELDS	01/03/19	Gross Alpha/Beta	Gross Beta	3.115E-14	1.442E-14	1.916E-14	µCi/mL	=		Ballfields (General Area)-Perimeter Air
SVP205555	BALLFIELDS	01/03/19	Gross Alpha/Beta	Gross Alpha	-1.637E-15	7.305E-15	1.207E-14	µCi/mL	UJ	T06	Ballfields (General Area)-Perimeter Air
SVP205556	BALLFIELDS	01/03/19	Gross Alpha/Beta	Gross Beta	4.216E-14	1.573E-14	1.925E-14	µCi/mL	=		Ballfields (General Area)-Perimeter Air
SVP205556	BALLFIELDS	01/03/19	Gross Alpha/Beta	Gross Alpha	4.522E-15	9.186E-15	1.213E-14	µCi/mL	UJ	T06	Ballfields (General Area)-Perimeter Air
SVP205557	BALLFIELDS	01/07/19	Gross Alpha/Beta	Gross Beta	3.346E-14	1.469E-14	1.916E-14	µCi/mL	=		Ballfields (General Area)-Perimeter Air
SVP205557	BALLFIELDS	01/07/19	Gross Alpha/Beta	Gross Alpha	-1.637E-15	7.305E-15	1.207E-14	µCi/mL	UJ	T06	Ballfields (General Area)-Perimeter Air
SVP205558	BALLFIELDS	01/07/19	Gross Alpha/Beta	Gross Beta	3.887E-14	1.531E-14	1.916E-14	µCi/mL	=		Ballfields (General Area)-Perimeter Air
SVP205558	BALLFIELDS	01/07/19	Gross Alpha/Beta	Gross Alpha	2.046E-15	8.453E-15	1.207E-14	µCi/mL	UJ	T06	Ballfields (General Area)-Perimeter Air
SVP205559	BALLFIELDS	01/07/19	Gross Alpha/Beta	Gross Beta	5.972E-14	1.757E-14	1.916E-14	µCi/mL	=		Ballfields (General Area)-Perimeter Air
SVP205559	BALLFIELDS	01/07/19	Gross Alpha/Beta	Gross Alpha	5.728E-15	9.469E-15	1.207E-14	µCi/mL	UJ	T06	Ballfields (General Area)-Perimeter Air
SVP205560	BALLFIELDS	01/08/19	Gross Alpha/Beta	Gross Beta	2.244E-14	1.327E-14	1.898E-14	µCi/mL	J	T04, T20	Ballfields (General Area)-Perimeter Air
SVP205560	BALLFIELDS	01/08/19	Gross Alpha/Beta	Gross Alpha	-4.05E-16	7.633E-15	1.196E-14	µCi/mL	UJ	T06	Ballfields (General Area)-Perimeter Air
SVP205561	BALLFIELDS	01/08/19	Gross Alpha/Beta	Gross Alpha	-1.685E-15	7.52E-15	1.243E-14	µCi/mL	UJ	T06	Ballfields (General Area)-Perimeter Air
SVP205561	BALLFIELDS	01/08/19	Gross Alpha/Beta	Gross Beta	1.696E-14	1.299E-14	1.972E-14	µCi/mL	UJ	T04, T05	Ballfields (General Area)-Perimeter Air
SVP205562	BALLFIELDS	01/08/19	Gross Alpha/Beta	Gross Alpha	-2.837E-15	6.817E-15	1.196E-14	µCi/mL	UJ	T06	Ballfields (General Area)-Perimeter Air
SVP205562	BALLFIELDS	01/08/19	Gross Alpha/Beta	Gross Beta	1.173E-14	1.19E-14	1.898E-14	µCi/mL	UJ	T06	Ballfields (General Area)-Perimeter Air
SVP205563	BALLFIELDS	01/09/19	Gross Alpha/Beta	Gross Beta	2.167E-14	1.318E-14	1.898E-14	µCi/mL	J	T04, T20	Ballfields (General Area)-Perimeter Air
SVP205563	BALLFIELDS	01/09/19	Gross Alpha/Beta	Gross Alpha	2.027E-15	8.373E-15	1.196E-14	µCi/mL	UJ	T06	Ballfields (General Area)-Perimeter Air
SVP205564	BALLFIELDS	01/09/19	Gross Alpha/Beta	Gross Alpha	4.588E-15	9.32E-15	1.231E-14	µCi/mL	UJ	T06	Ballfields (General Area)-Perimeter Air
SVP205564	BALLFIELDS	01/09/19	Gross Alpha/Beta	Gross Beta	1.207E-14	1.224E-14	1.953E-14	µCi/mL	UJ	T06	Ballfields (General Area)-Perimeter Air
SVP205565	BALLFIELDS	01/09/19	Gross Alpha/Beta	Gross Beta	3.097E-14	1.461E-14	1.953E-14	µCi/mL	=		Ballfields (General Area)-Perimeter Air
SVP205565	BALLFIELDS	01/09/19	Gross Alpha/Beta	Gross Alpha	7.091E-15	9.976E-15	1.231E-14	µCi/mL	UJ	T06	Ballfields (General Area)-Perimeter Air
SVP205566	BALLFIELDS	01/10/19	Gross Alpha/Beta	Gross Beta	3.766E-14	1.712E-14	2.26E-14	µCi/mL	=		Ballfields (General Area)-Perimeter Air
SVP205566	BALLFIELDS	01/10/19	Gross Alpha/Beta	Gross Alpha	9.65E-16	9.542E-15	1.424E-14	µCi/mL	UJ	T06	Ballfields (General Area)-Perimeter Air
SVP205567	BALLFIELDS	01/10/19	Gross Alpha/Beta	Gross Beta	5.497E-14	1.908E-14	2.26E-14	µCi/mL	=		Ballfields (General Area)-Perimeter Air
SVP205567	BALLFIELDS	01/10/19	Gross Alpha/Beta	Gross Alpha	-4.83E-16	9.091E-15	1.424E-14	µCi/mL	UJ	T06	Ballfields (General Area)-Perimeter Air
SVP205568	BALLFIELDS	01/10/19	Gross Alpha/Beta	Gross Beta	3.492E-14	1.68E-14	2.26E-14	µCi/mL	=		Ballfields (General Area)-Perimeter Air
SVP205568	BALLFIELDS	01/10/19	Gross Alpha/Beta	Gross Alpha	-1.931E-15	8.618E-15	1.424E-14	µCi/mL	UJ	T06	Ballfields (General Area)-Perimeter Air
SVP205569	BALLFIELDS	01/15/19	Gross Alpha/Beta	Gross Alpha	-1.652E-15	7.375E-15	1.219E-14	µCi/mL	UJ	T06	Ballfields (General Area)-Perimeter Air
SVP205569	BALLFIELDS	01/15/19	Gross Alpha/Beta	Gross Beta	1.118E-14	1.202E-14	1.934E-14	µCi/mL	UJ	T06	Ballfields (General Area)-Perimeter Air
SVP205570	BALLFIELDS	01/15/19	Gross Alpha/Beta	Gross Alpha	-1.652E-15	7.375E-15	1.219E-14	µCi/mL	UJ	T06	Ballfields (General Area)-Perimeter Air
SVP205570	BALLFIELDS	01/15/19	Gross Alpha/Beta	Gross Beta	3.379E-15	1.094E-14	1.934E-14	µCi/mL	UJ	T06	Ballfields (General Area)-Perimeter Air
SVP215655	EVA ROAD	09/23/19	Gross Alpha/Beta	Gross Alpha	1.16E-16	4.922E-15	1.034E-14	µCi/mL	UJ	T06	Eva Road (General Area)-Perimeter Air
SVP215655	EVA ROAD	09/23/19	Gross Alpha/Beta	Gross Beta	5.889E-15	1.377E-14	2.195E-14	µCi/mL	UJ	T06	Eva Road (General Area)-Perimeter Air
SVP215656	EVA ROAD	09/23/19	Gross Alpha/Beta	Gross Alpha	4.283E-15	6.89E-15	1.034E-14	µCi/mL	UJ	T06	Eva Road (General Area)-Perimeter Air
SVP215656	EVA ROAD	09/23/19	Gross Alpha/Beta	Gross Beta	1.495E-14	1.494E-14	2.195E-14	µCi/mL	UJ	T04, T05	Eva Road (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP215657	EVA ROAD	09/24/19	Gross Alpha/Beta	Gross Beta	3.591E-14	1.716E-14	2.148E-14	µCi/mL	=		Eva Road (General Area)-Perimeter Air
SVP215657	EVA ROAD	09/24/19	Gross Alpha/Beta	Gross Alpha	2.832E-15	6.166E-15	1.012E-14	µCi/mL	UJ	T06	Eva Road (General Area)-Perimeter Air
SVP215658	EVA ROAD	09/24/19	Gross Alpha/Beta	Gross Alpha	1.235E-14	9.509E-15	1.012E-14	µCi/mL	J	T04, T20	Eva Road (General Area)-Perimeter Air
SVP215658	EVA ROAD	09/24/19	Gross Alpha/Beta	Gross Beta	3.059E-14	1.655E-14	2.148E-14	µCi/mL	J	T04, T20	Eva Road (General Area)-Perimeter Air
SVP215659	EVA ROAD	09/25/19	Gross Alpha/Beta	Gross Beta	5.945E-14	1.944E-14	2.103E-14	µCi/mL	=		Eva Road (General Area)-Perimeter Air
SVP215659	EVA ROAD	09/25/19	Gross Alpha/Beta	Gross Alpha	1.442E-15	5.415E-15	9.909E-15	µCi/mL	UJ	T06	Eva Road (General Area)-Perimeter Air
SVP215660	EVA ROAD	09/25/19	Gross Alpha/Beta	Gross Beta	4.122E-14	1.748E-14	2.103E-14	µCi/mL	=		Eva Road (General Area)-Perimeter Air
SVP215660	EVA ROAD	09/25/19	Gross Alpha/Beta	Gross Alpha	9.425E-15	8.499E-15	9.909E-15	µCi/mL	UJ	T04, T05	Eva Road (General Area)-Perimeter Air
SVP215661	EVA ROAD	09/26/19	Gross Alpha/Beta	Gross Beta	3.63E-14	1.735E-14	2.171E-14	µCi/mL	=		Eva Road (General Area)-Perimeter Air
SVP215661	EVA ROAD	09/26/19	Gross Alpha/Beta	Gross Alpha	2.863E-15	6.233E-15	1.023E-14	µCi/mL	UJ	T06	Eva Road (General Area)-Perimeter Air
SVP215662	EVA ROAD	09/26/19	Gross Alpha/Beta	Gross Alpha	-1.26E-15	4.02E-15	1.023E-14	µCi/mL	UJ	T06	Eva Road (General Area)-Perimeter Air
SVP215662	EVA ROAD	09/26/19	Gross Alpha/Beta	Gross Beta	1.12E-14	1.432E-14	2.171E-14	µCi/mL	UJ	T06	Eva Road (General Area)-Perimeter Air
SVP215663	EVA ROAD	09/30/19	Gross Alpha/Beta	Gross Beta	3.026E-14	1.637E-14	2.125E-14	µCi/mL	J	T04, T20	Eva Road (General Area)-Perimeter Air
SVP215663	EVA ROAD	09/30/19	Gross Alpha/Beta	Gross Alpha	9.526E-15	8.589E-15	1.001E-14	µCi/mL	UJ	T04, T05	Eva Road (General Area)-Perimeter Air
SVP215664	EVA ROAD	09/30/19	Gross Alpha/Beta	Gross Beta	4.079E-14	1.757E-14	2.125E-14	µCi/mL	=		Eva Road (General Area)-Perimeter Air
SVP215664	EVA ROAD	09/30/19	Gross Alpha/Beta	Gross Alpha	6.836E-15	7.687E-15	1.001E-14	µCi/mL	UJ	T06	Eva Road (General Area)-Perimeter Air
SVP215683	EVA ROAD	10/01/19	Gross Alpha/Beta	Gross Beta	2.673E-14	1.817E-14	2.22E-14	µCi/mL	J	T04, T20	Eva Road (General Area)-Perimeter Air
SVP215683	EVA ROAD	10/01/19	Gross Alpha/Beta	Gross Alpha	-4.63E-16	5.734E-15	1.244E-14	µCi/mL	UJ	T06	Eva Road (General Area)-Perimeter Air
SVP215684	EVA ROAD	10/01/19	Gross Alpha/Beta	Gross Beta	3.035E-14	1.856E-14	2.22E-14	µCi/mL	J	T04, T20	Eva Road (General Area)-Perimeter Air
SVP215684	EVA ROAD	10/01/19	Gross Alpha/Beta	Gross Alpha	2.315E-15	6.953E-15	1.244E-14	µCi/mL	UJ	T06	Eva Road (General Area)-Perimeter Air
SVP215685	EVA ROAD	10/02/19	Gross Alpha/Beta	Gross Beta	3.728E-14	1.879E-14	2.149E-14	µCi/mL	J	T04, T20	Eva Road (General Area)-Perimeter Air
SVP215685	EVA ROAD	10/02/19	Gross Alpha/Beta	Gross Alpha	3.586E-15	7.251E-15	1.205E-14	µCi/mL	UJ	T06	Eva Road (General Area)-Perimeter Air
SVP215686	EVA ROAD	10/02/19	Gross Alpha/Beta	Gross Beta	4.78E-14	1.986E-14	2.149E-14	µCi/mL	=		Eva Road (General Area)-Perimeter Air
SVP215686	EVA ROAD	10/02/19	Gross Alpha/Beta	Gross Alpha	3.586E-15	7.251E-15	1.205E-14	µCi/mL	UJ	T06	Eva Road (General Area)-Perimeter Air
SVP215687	EVA ROAD	10/03/19	Gross Alpha/Beta	Gross Alpha	-2.107E-15	5.707E-15	1.416E-14	µCi/mL	UJ	T06	Eva Road (General Area)-Perimeter Air
SVP215687	EVA ROAD	10/03/19	Gross Alpha/Beta	Gross Beta	1.546E-15	1.743E-14	2.525E-14	µCi/mL	UJ	T06	Eva Road (General Area)-Perimeter Air
SVP215688	EVA ROAD	10/03/19	Gross Alpha/Beta	Gross Alpha	-8.26E-16	1.023E-14	2.22E-14	µCi/mL	UJ	T06	Eva Road (General Area)-Perimeter Air
SVP215688	EVA ROAD	10/03/19	Gross Alpha/Beta	Gross Beta	2.183E-14	2.959E-14	3.961E-14	µCi/mL	UJ	T06	Eva Road (General Area)-Perimeter Air
SVP205571	IA-09	01/15/19	Gross Alpha/Beta	Gross Beta	2.191E-14	1.399E-14	1.984E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP205571	IA-09	01/15/19	Gross Alpha/Beta	Gross Alpha	1.356E-15	6.739E-15	1.187E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP205571	IA-09	01/15/19	Gross Alpha/Beta	Gross Alpha	5.11E-15	8.02E-15	1.187E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP205571	IA-09	01/15/19	Gross Alpha/Beta	Gross Beta	1.561E-14	1.322E-14	1.984E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP205572	IA-09	01/16/19	Gross Alpha/Beta	Gross Beta	2.536E-14	1.418E-14	1.946E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP205572	IA-09	01/16/19	Gross Alpha/Beta	Gross Alpha	5.012E-15	7.867E-15	1.164E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP205573	IA-09	01/16/19	Gross Alpha/Beta	Gross Beta	3.2E-14	1.484E-14	1.928E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP205573	IA-09	01/16/19	Gross Alpha/Beta	Gross Alpha	1.01E-16	6.08E-15	1.153E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP205574	IA-09	01/16/19	Gross Alpha/Beta	Gross Beta	2.564E-14	1.401E-14	1.91E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP205574	IA-09	01/16/19	Gross Alpha/Beta	Gross Alpha	7.328E-15	8.447E-15	1.142E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP205575	IA-09	01/17/19	Gross Alpha/Beta	Gross Beta	2.38E-14	1.615E-14	2.322E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP205575	IA-09	01/17/19	Gross Alpha/Beta	Gross Alpha	1.587E-15	7.888E-15	1.389E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP205576	IA-09	01/17/19	Gross Alpha/Beta	Gross Beta	2.473E-14	1.626E-14	2.322E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP205576	IA-09	01/17/19	Gross Alpha/Beta	Gross Alpha	4.516E-15	8.914E-15	1.389E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP205577	IA-09	01/17/19	Gross Alpha/Beta	Gross Alpha	1.22E-16	7.323E-15	1.389E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP205577	IA-09	01/17/19	Gross Alpha/Beta	Gross Beta	1.828E-14	1.547E-14	2.322E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP205578	IA-09	01/22/19	Gross Alpha/Beta	Gross Alpha	-1.147E-15	5.735E-15	1.187E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP205578	IA-09	01/22/19	Gross Alpha/Beta	Gross Beta	1.483E-14	1.312E-14	1.984E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP205579	IA-09	01/22/19	Gross Alpha/Beta	Gross Beta	2.27E-14	1.408E-14	1.984E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP205579	IA-09	01/22/19	Gross Alpha/Beta	Gross Alpha	1.356E-15	6.739E-15	1.187E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209839	IA-09	01/22/19	Gross Alpha/Beta	Gross Beta	2.451E-14	1.441E-14	2.004E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209839	IA-09	01/22/19	Gross Alpha/Beta	Gross Alpha	-2.422E-15	5.213E-15	1.198E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209840	IA-09	01/23/19	Gross Alpha/Beta	Gross Alpha	3.749E-15	7.401E-15	1.153E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209840	IA-09	01/23/19	Gross Alpha/Beta	Gross Beta	1.747E-14	1.313E-14	1.928E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209841	IA-09	01/23/19	Gross Alpha/Beta	Gross Alpha	1.33E-15	6.611E-15	1.164E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209841	IA-09	01/23/19	Gross Alpha/Beta	Gross Beta	1.454E-14	1.287E-14	1.946E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209842	IA-09	01/23/19	Gross Alpha/Beta	Gross Alpha	1.02E-16	6.138E-15	1.164E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209842	IA-09	01/23/19	Gross Alpha/Beta	Gross Beta	1.223E-14	1.258E-14	1.946E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209843	IA-09	01/29/19	Gross Alpha/Beta	Gross Alpha	6.552E-15	8.658E-15	1.222E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209843	IA-09	01/29/19	Gross Alpha/Beta	Gross Beta	5.541E-15	1.225E-14	2.044E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209844	IA-09	01/29/19	Gross Alpha/Beta	Gross Beta	2.176E-14	1.431E-14	2.044E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209844	IA-09	01/29/19	Gross Alpha/Beta	Gross Alpha	1.396E-15	6.942E-15	1.222E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209845	IA-09	01/29/19	Gross Alpha/Beta	Gross Beta	2.095E-14	1.421E-14	2.044E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209845	IA-09	01/29/19	Gross Alpha/Beta	Gross Alpha	7.841E-15	9.038E-15	1.222E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209846	IA-09	02/04/19	Gross Alpha/Beta	Gross Beta	4.458E-14	1.677E-14	1.913E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP209846	IA-09	02/04/19	Gross Alpha/Beta	Gross Alpha	8.424E-15	7.818E-15	1.003E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP209846	IA-09	02/04/19	Gross Alpha/Beta	Gross Alpha	1.348E-14	9.338E-15	1.003E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209846	IA-09	02/04/19	Gross Alpha/Beta	Gross Beta	3.822E-14	1.607E-14	1.913E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP209847	IA-09	02/04/19	Gross Alpha/Beta	Gross Beta	2.948E-14	1.509E-14	1.913E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209847	IA-09	02/04/19	Gross Alpha/Beta	Gross Alpha	2.106E-15	5.374E-15	1.003E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209848	IA-09	02/04/19	Gross Alpha/Beta	Gross Beta	3.186E-14	1.536E-14	1.913E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP209848	IA-09	02/04/19	Gross Alpha/Beta	Gross Alpha	5.897E-15	6.941E-15	1.003E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209849	IA-09	02/05/19	Gross Alpha/Beta	Gross Beta	7.002E-14	1.94E-14	1.913E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP209849	IA-09	02/05/19	Gross Alpha/Beta	Gross Alpha	5.897E-15	6.941E-15	1.003E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209850	IA-09	02/05/19	Gross Alpha/Beta	Gross Beta	5.73E-14	1.811E-14	1.913E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP209850	IA-09	02/05/19	Gross Alpha/Beta	Gross Alpha	2.106E-15	5.374E-15	1.003E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209851	IA-09	02/05/19	Gross Alpha/Beta	Gross Beta	3.028E-14	1.518E-14	1.913E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209851	IA-09	02/05/19	Gross Alpha/Beta	Gross Alpha	3.37E-15	5.941E-15	1.003E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209852	IA-09	02/11/19	Gross Alpha/Beta	Gross Alpha	2.106E-15	5.374E-15	1.003E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209852	IA-09	02/11/19	Gross Alpha/Beta	Gross Beta	1.597E-14	1.348E-14	1.913E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209853	IA-09	02/11/19	Gross Alpha/Beta	Gross Alpha	-4.21E-16	4.011E-15	1.003E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209853	IA-09	02/11/19	Gross Alpha/Beta	Gross Beta	8.016E-15	1.247E-14	1.913E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209854	IA-09	02/11/19	Gross Alpha/Beta	Gross Beta	2.153E-14	1.416E-14	1.913E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209854	IA-09	02/11/19	Gross Alpha/Beta	Gross Alpha	3.37E-15	5.941E-15	1.003E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209855	IA-09	02/12/19	Gross Alpha/Beta	Gross Alpha	4.588E-15	6.397E-15	9.932E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209855	IA-09	02/12/19	Gross Alpha/Beta	Gross Beta	1.581E-14	1.335E-14	1.895E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209856	IA-09	02/12/19	Gross Alpha/Beta	Gross Alpha	2.086E-15	5.322E-15	9.932E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209856	IA-09	02/12/19	Gross Alpha/Beta	Gross Beta	-8.594E-15	1.003E-14	1.895E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209857	IA-09	02/12/19	Gross Alpha/Beta	Gross Alpha	8.34E-16	4.695E-15	9.932E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209857	IA-09	02/12/19	Gross Alpha/Beta	Gross Beta	1.64E-15	1.151E-14	1.895E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209858	IA-09	02/13/19	Gross Alpha/Beta	Gross Beta	5.174E-14	1.753E-14	1.913E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP209858	IA-09	02/13/19	Gross Alpha/Beta	Gross Alpha	3.37E-15	5.941E-15	1.003E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209859	IA-09	02/13/19	Gross Alpha/Beta	Gross Beta	4.776E-14	1.711E-14	1.913E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP209859	IA-09	02/13/19	Gross Alpha/Beta	Gross Alpha	7.16E-15	7.392E-15	1.003E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP209860	IA-09	02/13/19	Gross Alpha/Beta	Gross Beta	6.764E-14	1.916E-14	1.913E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP209860	IA-09	02/13/19	Gross Alpha/Beta	Gross Alpha	8.424E-15	7.818E-15	1.003E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209861	IA-09	02/14/19	Gross Alpha/Beta	Gross Beta	3.447E-14	1.601E-14	1.971E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP209861	IA-09	02/14/19	Gross Alpha/Beta	Gross Alpha	4.774E-15	6.656E-15	1.033E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209862	IA-09	02/14/19	Gross Alpha/Beta	Gross Alpha	5.763E-15	8.036E-15	1.248E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209862	IA-09	02/14/19	Gross Alpha/Beta	Gross Beta	6.015E-15	1.499E-14	2.38E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209863	IA-09	02/14/19	Gross Alpha/Beta	Gross Beta	2.71E-14	1.517E-14	1.971E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209863	IA-09	02/14/19	Gross Alpha/Beta	Gross Alpha	3.472E-15	6.121E-15	1.033E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209864	IA-09	02/19/19	Gross Alpha/Beta	Gross Beta	3.671E-14	1.568E-14	1.877E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP209864	IA-09	02/19/19	Gross Alpha/Beta	Gross Alpha	8.26E-16	4.65E-15	9.836E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209865	IA-09	02/19/19	Gross Alpha/Beta	Gross Beta	2.074E-14	1.406E-14	1.913E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209865	IA-09	02/19/19	Gross Alpha/Beta	Gross Alpha	-1.685E-15	3.116E-15	1.003E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209866	IA-09	02/19/19	Gross Alpha/Beta	Gross Alpha	4.475E-15	7.114E-15	1.075E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP209866	IA-09	02/19/19	Gross Alpha/Beta	Gross Beta	1.239E-14	1.539E-14	2.404E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP209866	IA-09	02/19/19	Gross Alpha/Beta	Gross Alpha	5.46E-16	5.47E-15	1.075E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209866	IA-09	02/19/19	Gross Alpha/Beta	Gross Beta	2.332E-14	1.66E-14	2.404E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209867	IA-09	02/20/19	Gross Alpha/Beta	Gross Alpha	-7.79E-16	4.897E-15	1.096E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209867	IA-09	02/20/19	Gross Alpha/Beta	Gross Beta	8.353E-15	1.52E-14	2.452E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209868	IA-09	02/20/19	Gross Alpha/Beta	Gross Alpha	-7.71E-16	4.849E-15	1.086E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209868	IA-09	02/20/19	Gross Alpha/Beta	Gross Beta	1.506E-14	1.582E-14	2.428E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209869	IA-09	02/20/19	Gross Alpha/Beta	Gross Alpha	5.56E-16	5.578E-15	1.096E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209869	IA-09	02/20/19	Gross Alpha/Beta	Gross Beta	1.349E-14	1.579E-14	2.452E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209870	IA-09	02/21/19	Gross Alpha/Beta	Gross Beta	4.005E-14	1.863E-14	2.452E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP209870	IA-09	02/21/19	Gross Alpha/Beta	Gross Alpha	5.56E-16	5.578E-15	1.096E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209871	IA-09	02/21/19	Gross Alpha/Beta	Gross Beta	7.603E-14	2.215E-14	2.452E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP209871	IA-09	02/21/19	Gross Alpha/Beta	Gross Alpha	7.234E-15	8.187E-15	1.096E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209872	IA-09	02/21/19	Gross Alpha/Beta	Gross Beta	7.004E-14	2.159E-14	2.452E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP209872	IA-09	02/21/19	Gross Alpha/Beta	Gross Alpha	5.56E-16	5.578E-15	1.096E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209873	IA-09	02/25/19	Gross Alpha/Beta	Gross Beta	6.087E-14	2.056E-14	2.428E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP209873	IA-09	02/25/19	Gross Alpha/Beta	Gross Alpha	5.51E-16	5.524E-15	1.086E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209874	IA-09	02/25/19	Gross Alpha/Beta	Gross Beta	6.257E-14	2.073E-14	2.428E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP209874	IA-09	02/25/19	Gross Alpha/Beta	Gross Alpha	-7.71E-16	4.849E-15	1.086E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209875	IA-09	02/25/19	Gross Alpha/Beta	Gross Beta	3.033E-14	1.748E-14	2.428E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209875	IA-09	02/25/19	Gross Alpha/Beta	Gross Alpha	7.163E-15	8.107E-15	1.086E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209876	IA-09	02/26/19	Gross Alpha/Beta	Gross Beta	4.984E-14	1.948E-14	2.428E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP209876	IA-09	02/26/19	Gross Alpha/Beta	Gross Alpha	8.486E-15	8.534E-15	1.086E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209877	IA-09	02/26/19	Gross Alpha/Beta	Gross Beta	2.439E-14	1.685E-14	2.428E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209877	IA-09	02/26/19	Gross Alpha/Beta	Gross Alpha	4.518E-15	7.183E-15	1.086E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209878	IA-09	02/26/19	Gross Alpha/Beta	Gross Beta	2.863E-14	1.73E-14	2.428E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209878	IA-09	02/26/19	Gross Alpha/Beta	Gross Alpha	1.873E-15	6.125E-15	1.086E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209879	IA-09	02/27/19	Gross Alpha/Beta	Gross Beta	3.118E-14	1.757E-14	2.428E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209879	IA-09	02/27/19	Gross Alpha/Beta	Gross Alpha	8.486E-15	8.534E-15	1.086E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209880	IA-09	02/27/19	Gross Alpha/Beta	Gross Alpha	1.245E-14	9.706E-15	1.086E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209880	IA-09	02/27/19	Gross Alpha/Beta	Gross Beta	3.372E-14	1.784E-14	2.428E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209881	IA-09	02/27/19	Gross Alpha/Beta	Gross Beta	3.32E-14	1.792E-14	2.452E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209881	IA-09	02/27/19	Gross Alpha/Beta	Gross Alpha	1.892E-15	6.185E-15	1.096E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP209882	IA-09	02/28/19	Gross Alpha/Beta	Gross Alpha	7.147E-15	2.337E-14	4.142E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209882	IA-09	02/28/19	Gross Alpha/Beta	Gross Beta	4.45E-14	5.891E-14	9.262E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209883	IA-09	02/28/19	Gross Alpha/Beta	Gross Alpha	-7.988E-15	1.551E-14	4.142E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209883	IA-09	02/28/19	Gross Alpha/Beta	Gross Beta	4.127E-14	5.854E-14	9.262E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209884	IA-09	02/28/19	Gross Alpha/Beta	Gross Alpha	7.147E-15	2.337E-14	4.142E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209884	IA-09	02/28/19	Gross Alpha/Beta	Gross Beta	4.127E-14	5.854E-14	9.262E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209888	IA-09	03/04/19	Gross Alpha/Beta	Gross Alpha	4.665E-15	6.537E-15	8.829E-15	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP209888	IA-09	03/04/19	Gross Alpha/Beta	Gross Beta	1.427E-14	1.361E-14	1.941E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP209888	IA-09	03/04/19	Gross Alpha/Beta	Gross Beta	2.082E-14	1.442E-14	1.941E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209888	IA-09	03/04/19	Gross Alpha/Beta	Gross Alpha	7.59E-16	4.721E-15	8.829E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209889	IA-09	03/04/19	Gross Alpha/Beta	Gross Beta	3.683E-14	1.615E-14	1.922E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP209889	IA-09	03/04/19	Gross Alpha/Beta	Gross Alpha	7.196E-15	7.437E-15	8.741E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209890	IA-09	03/04/19	Gross Alpha/Beta	Gross Beta	2.409E-14	1.481E-14	1.941E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209890	IA-09	03/04/19	Gross Alpha/Beta	Gross Alpha	4.665E-15	6.537E-15	8.829E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209891	IA-09	03/05/19	Gross Alpha/Beta	Gross Beta	2.473E-14	1.442E-14	1.866E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209891	IA-09	03/05/19	Gross Alpha/Beta	Gross Alpha	4.484E-15	6.283E-15	8.486E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209892	IA-09	03/05/19	Gross Alpha/Beta	Gross Alpha	-5.21E-16	3.785E-15	8.486E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209892	IA-09	03/05/19	Gross Alpha/Beta	Gross Beta	1.056E-14	1.268E-14	1.866E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209893	IA-09	03/05/19	Gross Alpha/Beta	Gross Beta	2.552E-14	1.451E-14	1.866E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209893	IA-09	03/05/19	Gross Alpha/Beta	Gross Alpha	4.484E-15	6.283E-15	8.486E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209894	IA-09	03/06/19	Gross Alpha/Beta	Gross Beta	3.213E-14	1.539E-14	1.884E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP209894	IA-09	03/06/19	Gross Alpha/Beta	Gross Alpha	3.264E-15	5.815E-15	8.57E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209895	IA-09	03/06/19	Gross Alpha/Beta	Gross Beta	2.259E-14	1.428E-14	1.884E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209895	IA-09	03/06/19	Gross Alpha/Beta	Gross Alpha	7.055E-15	7.291E-15	8.57E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209896	IA-09	03/06/19	Gross Alpha/Beta	Gross Beta	2.418E-14	1.447E-14	1.884E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209896	IA-09	03/06/19	Gross Alpha/Beta	Gross Alpha	5.792E-15	6.834E-15	8.57E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209897	IA-09	03/11/19	Gross Alpha/Beta	Gross Beta	4.28E-14	1.623E-14	1.83E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP209897	IA-09	03/11/19	Gross Alpha/Beta	Gross Alpha	3.171E-15	5.649E-15	8.325E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209898	IA-09	03/11/19	Gross Alpha/Beta	Gross Beta	4.789E-14	1.689E-14	1.848E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP209898	IA-09	03/11/19	Gross Alpha/Beta	Gross Alpha	5.68E-15	6.702E-15	8.405E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209899	IA-09	03/11/19	Gross Alpha/Beta	Gross Beta	4.897E-14	1.689E-14	1.83E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP209899	IA-09	03/11/19	Gross Alpha/Beta	Gross Alpha	-1.739E-15	2.788E-15	8.325E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209900	IA-09	03/12/19	Gross Alpha/Beta	Gross Alpha	9.221E-15	7.825E-15	8.246E-15	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209900	IA-09	03/12/19	Gross Alpha/Beta	Gross Beta	2.862E-14	1.454E-14	1.813E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209901	IA-09	03/12/19	Gross Alpha/Beta	Gross Beta	3.816E-14	1.572E-14	1.83E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP209901	IA-09	03/12/19	Gross Alpha/Beta	Gross Alpha	5.626E-15	6.638E-15	8.325E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209902	IA-09	03/12/19	Gross Alpha/Beta	Gross Beta	3.092E-14	1.481E-14	1.813E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP209902	IA-09	03/12/19	Gross Alpha/Beta	Gross Alpha	4.357E-15	6.105E-15	8.246E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209903	IA-09	03/13/19	Gross Alpha/Beta	Gross Beta	4.087E-14	1.613E-14	1.848E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP209903	IA-09	03/13/19	Gross Alpha/Beta	Gross Alpha	4.441E-15	6.222E-15	8.405E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209904	IA-09	03/13/19	Gross Alpha/Beta	Gross Beta	2.917E-14	1.482E-14	1.848E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209904	IA-09	03/13/19	Gross Alpha/Beta	Gross Alpha	6.92E-15	7.151E-15	8.405E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209905	IA-09	03/13/19	Gross Alpha/Beta	Gross Alpha	1.074E-14	8.44E-15	8.486E-15	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209905	IA-09	03/13/19	Gross Alpha/Beta	Gross Beta	3.575E-14	1.568E-14	1.866E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP209906	IA-09	03/18/19	Gross Alpha/Beta	Gross Beta	2.637E-14	1.442E-14	1.976E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP209906	IA-09	03/18/19	Gross Alpha/Beta	Gross Alpha	-3.054E-15	1.88E-15	1.015E-14	µCi/mL			IA-09 (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP209906	IA-09	03/18/19	Gross Alpha/Beta	Gross Alpha	-3.054E-15	1.88E-15	1.015E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209906	IA-09	03/18/19	Gross Alpha/Beta	Gross Beta	1.921E-14	1.355E-14	1.976E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209907	IA-09	03/18/19	Gross Alpha/Beta	Gross Beta	2.16E-14	1.385E-14	1.976E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209907	IA-09	03/18/19	Gross Alpha/Beta	Gross Alpha	-1.79E-15	3.145E-15	1.015E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209908	IA-09	03/18/19	Gross Alpha/Beta	Gross Alpha	-5.27E-16	4.033E-15	1.015E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209908	IA-09	03/18/19	Gross Alpha/Beta	Gross Beta	1.683E-14	1.326E-14	1.976E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209909	IA-09	03/19/19	Gross Alpha/Beta	Gross Beta	2.637E-14	1.442E-14	1.976E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209909	IA-09	03/19/19	Gross Alpha/Beta	Gross Alpha	7.37E-16	4.759E-15	1.015E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209910	IA-09	03/19/19	Gross Alpha/Beta	Gross Alpha	-5.27E-16	4.033E-15	1.015E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209910	IA-09	03/19/19	Gross Alpha/Beta	Gross Beta	1.762E-14	1.336E-14	1.976E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209911	IA-09	03/19/19	Gross Alpha/Beta	Gross Alpha	-5.11E-16	3.918E-15	9.856E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209911	IA-09	03/19/19	Gross Alpha/Beta	Gross Beta	1.635E-14	1.288E-14	1.919E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209912	IA-09	03/20/19	Gross Alpha/Beta	Gross Beta	2.796E-14	1.461E-14	1.976E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209912	IA-09	03/20/19	Gross Alpha/Beta	Gross Alpha	-1.79E-15	3.145E-15	1.015E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209913	IA-09	03/20/19	Gross Alpha/Beta	Gross Beta	2.796E-14	1.461E-14	1.976E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209913	IA-09	03/20/19	Gross Alpha/Beta	Gross Alpha	4.528E-15	6.474E-15	1.015E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209914	IA-09	03/20/19	Gross Alpha/Beta	Gross Alpha	2.001E-15	5.39E-15	1.015E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209914	IA-09	03/20/19	Gross Alpha/Beta	Gross Beta	1.603E-14	1.316E-14	1.976E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209915	IA-09	03/21/19	Gross Alpha/Beta	Gross Beta	3.471E-14	1.71E-14	1.944E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP209915	IA-09	03/21/19	Gross Alpha/Beta	Gross Alpha	9.48E-16	5.188E-15	9.91E-15	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP209915	IA-09	03/21/19	Gross Alpha/Beta	Gross Beta	2.04E-14	1.56E-14	1.944E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209915	IA-09	03/21/19	Gross Alpha/Beta	Gross Alpha	9.793E-15	8.489E-15	9.91E-15	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209916	IA-09	03/21/19	Gross Alpha/Beta	Gross Beta	3.233E-14	1.686E-14	1.944E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209916	IA-09	03/21/19	Gross Alpha/Beta	Gross Alpha	3.475E-15	6.304E-15	9.91E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209917	IA-09	03/21/19	Gross Alpha/Beta	Gross Beta	2.199E-14	1.577E-14	1.944E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209917	IA-09	03/21/19	Gross Alpha/Beta	Gross Alpha	6.002E-15	7.254E-15	9.91E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209918	IA-09	03/25/19	Gross Alpha/Beta	Gross Alpha	3.441E-15	6.243E-15	9.814E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209918	IA-09	03/25/19	Gross Alpha/Beta	Gross Beta	1.784E-14	1.519E-14	1.925E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209919	IA-09	03/25/19	Gross Alpha/Beta	Gross Alpha	-3.13E-16	4.486E-15	9.814E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209919	IA-09	03/25/19	Gross Alpha/Beta	Gross Beta	1.627E-14	1.501E-14	1.925E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209920	IA-09	03/25/19	Gross Alpha/Beta	Gross Alpha	4.517E-15	6.478E-15	9.447E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209920	IA-09	03/25/19	Gross Alpha/Beta	Gross Beta	1.718E-14	1.462E-14	1.853E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209921	IA-09	03/28/19	Gross Alpha/Beta	Gross Beta	2.921E-14	1.694E-14	2.003E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209921	IA-09	03/28/19	Gross Alpha/Beta	Gross Alpha	9.76E-16	5.345E-15	1.021E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209922	IA-09	03/26/19	Gross Alpha/Beta	Gross Alpha	-3.04E-16	4.359E-15	9.536E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209922	IA-09	03/26/19	Gross Alpha/Beta	Gross Beta	9.689E-15	1.391E-14	1.871E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209923	IA-09	03/28/19	Gross Alpha/Beta	Gross Beta	2.02E-14	1.598E-14	2.003E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209923	IA-09	03/28/19	Gross Alpha/Beta	Gross Alpha	-3.25E-16	4.667E-15	1.021E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209924	IA-09	03/26/19	Gross Alpha/Beta	Gross Alpha	-3.04E-16	4.359E-15	9.536E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209924	IA-09	03/26/19	Gross Alpha/Beta	Gross Beta	6.63E-15	1.356E-14	1.871E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209925	IA-09	03/26/19	Gross Alpha/Beta	Gross Beta	2.269E-14	1.534E-14	1.871E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209925	IA-09	03/26/19	Gross Alpha/Beta	Gross Alpha	-3.04E-16	4.359E-15	9.536E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209926	IA-09	03/27/19	Gross Alpha/Beta	Gross Alpha	-1.534E-15	3.654E-15	9.627E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209926	IA-09	03/27/19	Gross Alpha/Beta	Gross Beta	5.148E-15	1.351E-14	1.888E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209927	IA-09	03/27/19	Gross Alpha/Beta	Gross Beta	2.269E-14	1.534E-14	1.871E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209927	IA-09	03/27/19	Gross Alpha/Beta	Gross Alpha	-1.52E-15	3.619E-15	9.536E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP209928	IA-09	03/27/19	Gross Alpha/Beta	Gross Alpha	2.128E-15	5.554E-15	9.536E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209928	IA-09	03/27/19	Gross Alpha/Beta	Gross Beta	1.581E-14	1.459E-14	1.871E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209929	IA-09	03/28/19	Gross Alpha/Beta	Gross Beta	2.512E-14	1.651E-14	2.003E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209929	IA-09	03/28/19	Gross Alpha/Beta	Gross Alpha	-3.25E-16	4.667E-15	1.021E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209930	IA-09	04/01/19	Gross Alpha/Beta	Gross Beta	2.008E-14	1.291E-14	1.84E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP209930	IA-09	04/01/19	Gross Alpha/Beta	Gross Alpha	3.408E-15	5.803E-15	9.719E-15	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP209930	IA-09	04/01/19	Gross Alpha/Beta	Gross Beta	2.008E-14	1.291E-14	1.84E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209930	IA-09	04/01/19	Gross Alpha/Beta	Gross Alpha	3.408E-15	5.803E-15	9.719E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209931	IA-09	04/01/19	Gross Alpha/Beta	Gross Beta	2.164E-14	1.311E-14	1.84E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209931	IA-09	04/01/19	Gross Alpha/Beta	Gross Alpha	-1.549E-15	3.009E-15	9.719E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209932	IA-09	04/01/19	Gross Alpha/Beta	Gross Beta	4.114E-14	1.566E-14	1.877E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP209932	IA-09	04/01/19	Gross Alpha/Beta	Gross Alpha	9.793E-15	8.206E-15	9.91E-15	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209933	IA-09	04/02/19	Gross Alpha/Beta	Gross Beta	2.682E-14	1.462E-14	1.994E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209933	IA-09	04/02/19	Gross Alpha/Beta	Gross Alpha	3.692E-15	6.287E-15	1.053E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209934	IA-09	04/02/19	Gross Alpha/Beta	Gross Beta	3.949E-14	1.615E-14	1.994E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP209934	IA-09	04/02/19	Gross Alpha/Beta	Gross Alpha	6.377E-15	7.353E-15	1.053E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209935	IA-09	04/02/19	Gross Alpha/Beta	Gross Beta	2.175E-14	1.398E-14	1.994E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209935	IA-09	04/02/19	Gross Alpha/Beta	Gross Alpha	3.692E-15	6.287E-15	1.053E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209936	IA-09	04/03/19	Gross Alpha/Beta	Gross Beta	2.529E-14	1.346E-14	1.823E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209936	IA-09	04/03/19	Gross Alpha/Beta	Gross Alpha	4.603E-15	6.254E-15	9.627E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209937	IA-09	04/03/19	Gross Alpha/Beta	Gross Beta	2.046E-14	1.276E-14	1.806E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209937	IA-09	04/03/19	Gross Alpha/Beta	Gross Alpha	-3.04E-16	3.824E-15	9.536E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209938	IA-09	04/03/19	Gross Alpha/Beta	Gross Beta	3.347E-14	1.435E-14	1.806E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP209938	IA-09	04/03/19	Gross Alpha/Beta	Gross Alpha	6.992E-15	7.095E-15	9.536E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209939	IA-09	04/04/19	Gross Alpha/Beta	Gross Alpha	-1.193E-15	1.501E-14	3.744E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209939	IA-09	04/04/19	Gross Alpha/Beta	Gross Beta	2.928E-14	4.323E-14	7.089E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209940	IA-09	04/04/19	Gross Alpha/Beta	Gross Alpha	8.354E-15	2.02E-14	3.744E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209940	IA-09	04/04/19	Gross Alpha/Beta	Gross Beta	5.331E-14	4.656E-14	7.089E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209941	IA-09	04/04/19	Gross Alpha/Beta	Gross Alpha	1.79E-14	2.432E-14	3.744E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209941	IA-09	04/04/19	Gross Alpha/Beta	Gross Beta	2.027E-14	4.194E-14	7.089E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209942	IA-09	04/08/19	Gross Alpha/Beta	Gross Beta	2.297E-14	1.318E-14	1.823E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209942	IA-09	04/08/19	Gross Alpha/Beta	Gross Alpha	-3.07E-16	3.86E-15	9.627E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209943	IA-09	04/08/19	Gross Alpha/Beta	Gross Alpha	4.603E-15	6.254E-15	9.627E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209943	IA-09	04/08/19	Gross Alpha/Beta	Gross Beta	1.216E-14	1.176E-14	1.823E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209944	IA-09	04/08/19	Gross Alpha/Beta	Gross Alpha	9.21E-16	4.575E-15	9.627E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209944	IA-09	04/08/19	Gross Alpha/Beta	Gross Beta	1.757E-14	1.248E-14	1.823E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209945	IA-09	04/09/19	Gross Alpha/Beta	Gross Alpha	-3.07E-16	3.86E-15	9.627E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209945	IA-09	04/09/19	Gross Alpha/Beta	Gross Beta	9.074E-15	1.134E-14	1.823E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209946	IA-09	04/09/19	Gross Alpha/Beta	Gross Alpha	4.603E-15	6.254E-15	9.627E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209946	IA-09	04/09/19	Gross Alpha/Beta	Gross Beta	1.294E-14	1.187E-14	1.823E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209947	IA-09	04/09/19	Gross Alpha/Beta	Gross Alpha	-1.534E-15	2.981E-15	9.627E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209947	IA-09	04/09/19	Gross Alpha/Beta	Gross Beta	9.846E-15	1.144E-14	1.823E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209948	IA-09	04/10/19	Gross Alpha/Beta	Gross Alpha	4.618E-15	6.869E-15	9.331E-15	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP209948	IA-09	04/10/19	Gross Alpha/Beta	Gross Beta	1.37E-14	1.375E-14	1.782E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP209948	IA-09	04/10/19	Gross Alpha/Beta	Gross Alpha	8.231E-15	8.05E-15	9.331E-15	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209948	IA-09	04/10/19	Gross Alpha/Beta	Gross Beta	1.067E-14	1.34E-14	1.782E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP209949	IA-09	04/10/19	Gross Alpha/Beta	Gross Alpha	-2.61E-15	3.505E-15	9.331E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209949	IA-09	04/10/19	Gross Alpha/Beta	Gross Beta	6.883E-15	1.295E-14	1.782E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209950	IA-09	04/10/19	Gross Alpha/Beta	Gross Alpha	-1.405E-15	4.25E-15	9.331E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209950	IA-09	04/10/19	Gross Alpha/Beta	Gross Beta	1.143E-14	1.349E-14	1.782E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209951	IA-09	04/11/19	Gross Alpha/Beta	Gross Beta	2.1E-14	1.642E-14	2.05E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209951	IA-09	04/11/19	Gross Alpha/Beta	Gross Alpha	-2.31E-16	5.62E-15	1.074E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209952	IA-09	04/11/19	Gross Alpha/Beta	Gross Alpha	2.441E-15	1.325E-14	2.269E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209952	IA-09	04/11/19	Gross Alpha/Beta	Gross Beta	2.043E-14	3.193E-14	4.333E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209953	IA-09	04/11/19	Gross Alpha/Beta	Gross Alpha	-4.21E-16	1.025E-14	1.958E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209953	IA-09	04/11/19	Gross Alpha/Beta	Gross Beta	1.921E-14	2.774E-14	3.738E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209954	IA-09	04/15/19	Gross Alpha/Beta	Gross Alpha	7.16E-15	1.349E-14	1.958E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209954	IA-09	04/15/19	Gross Alpha/Beta	Gross Beta	2.557E-14	2.848E-14	3.738E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209955	IA-09	04/15/19	Gross Alpha/Beta	Gross Alpha	2.487E-15	6.71E-15	1.051E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209955	IA-09	04/15/19	Gross Alpha/Beta	Gross Beta	1.8E-14	1.578E-14	2.007E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209956	IA-09	04/15/19	Gross Alpha/Beta	Gross Alpha	3.844E-15	7.241E-15	1.051E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209956	IA-09	04/15/19	Gross Alpha/Beta	Gross Beta	1.885E-14	1.588E-14	2.007E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209957	IA-09	04/16/19	Gross Alpha/Beta	Gross Alpha	5.429E-15	8.076E-15	1.097E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209957	IA-09	04/16/19	Gross Alpha/Beta	Gross Beta	1.611E-14	1.617E-14	2.095E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209958	IA-09	04/16/19	Gross Alpha/Beta	Gross Alpha	1.18E-15	6.405E-15	1.097E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209958	IA-09	04/16/19	Gross Alpha/Beta	Gross Beta	1.522E-14	1.607E-14	2.095E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209959	IA-09	04/16/19	Gross Alpha/Beta	Gross Beta	2.324E-14	1.698E-14	2.095E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209959	IA-09	04/16/19	Gross Alpha/Beta	Gross Alpha	1.18E-15	6.405E-15	1.097E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209960	IA-09	04/17/19	Gross Alpha/Beta	Gross Beta	2.801E-14	1.766E-14	2.118E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209960	IA-09	04/17/19	Gross Alpha/Beta	Gross Alpha	6.922E-15	8.659E-15	1.109E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209961	IA-09	04/17/19	Gross Alpha/Beta	Gross Beta	2.801E-14	1.766E-14	2.118E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209961	IA-09	04/17/19	Gross Alpha/Beta	Gross Alpha	9.786E-15	9.571E-15	1.109E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209962	IA-09	04/17/19	Gross Alpha/Beta	Gross Beta	2.53E-14	1.737E-14	2.118E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209962	IA-09	04/17/19	Gross Alpha/Beta	Gross Alpha	1.193E-15	6.476E-15	1.109E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209963	IA-09	04/22/19	Gross Alpha/Beta	Gross Beta	2.71E-14	1.756E-14	2.118E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209963	IA-09	04/22/19	Gross Alpha/Beta	Gross Alpha	1.193E-15	6.476E-15	1.109E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209964	IA-09	04/22/19	Gross Alpha/Beta	Gross Alpha	3.844E-15	7.241E-15	1.051E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209964	IA-09	04/22/19	Gross Alpha/Beta	Gross Beta	1.031E-14	1.489E-14	2.007E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209965	IA-09	04/22/19	Gross Alpha/Beta	Gross Beta	2.312E-14	1.636E-14	2.007E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209965	IA-09	04/22/19	Gross Alpha/Beta	Gross Alpha	1.131E-15	6.135E-15	1.051E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209966	IA-09	04/23/19	Gross Alpha/Beta	Gross Alpha	-2.29E-16	5.56E-15	1.062E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209966	IA-09	04/23/19	Gross Alpha/Beta	Gross Beta	1.56E-14	1.565E-14	2.028E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209967	IA-09	04/23/19	Gross Alpha/Beta	Gross Alpha	1.143E-15	6.2E-15	1.062E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209967	IA-09	04/23/19	Gross Alpha/Beta	Gross Beta	3.522E-15	1.422E-14	2.028E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209968	IA-09	04/23/19	Gross Alpha/Beta	Gross Alpha	1.143E-15	6.2E-15	1.062E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP209968	IA-09	04/23/19	Gross Alpha/Beta	Gross Beta	1.387E-14	1.545E-14	2.028E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP209968	IA-09	04/23/19	Gross Alpha/Beta	Gross Alpha	-2.29E-16	5.56E-15	1.062E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209968	IA-09	04/23/19	Gross Alpha/Beta	Gross Beta	1.646E-14	1.575E-14	2.028E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209969	IA-09	04/24/19	Gross Alpha/Beta	Gross Alpha	4.103E-15	7.729E-15	1.122E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209969	IA-09	04/24/19	Gross Alpha/Beta	Gross Beta	2.809E-15	1.491E-14	2.142E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209970	IA-09	04/24/19	Gross Alpha/Beta	Gross Alpha	1.207E-15	6.549E-15	1.122E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209970	IA-09	04/24/19	Gross Alpha/Beta	Gross Beta	1.83E-14	1.674E-14	2.142E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP209971	IA-09	04/24/19	Gross Alpha/Beta	Gross Beta	2.285E-14	1.726E-14	2.142E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209971	IA-09	04/24/19	Gross Alpha/Beta	Gross Alpha	1.207E-15	6.549E-15	1.122E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209972	IA-09	04/25/19	Gross Alpha/Beta	Gross Beta	2.985E-14	1.99E-14	2.413E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209972	IA-09	04/25/19	Gross Alpha/Beta	Gross Alpha	6.254E-15	9.303E-15	1.264E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209973	IA-09	04/25/19	Gross Alpha/Beta	Gross Beta	2.575E-14	1.944E-14	2.413E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209973	IA-09	04/25/19	Gross Alpha/Beta	Gross Alpha	4.623E-15	8.707E-15	1.264E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209974	IA-09	04/25/19	Gross Alpha/Beta	Gross Alpha	-2.72E-16	6.616E-15	1.264E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209974	IA-09	04/25/19	Gross Alpha/Beta	Gross Beta	-9.41E-16	1.628E-14	2.413E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209975	IA-09	04/29/19	Gross Alpha/Beta	Gross Alpha	2.597E-15	7.005E-15	1.097E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209975	IA-09	04/29/19	Gross Alpha/Beta	Gross Beta	1.7E-14	1.627E-14	2.095E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209976	IA-09	04/29/19	Gross Alpha/Beta	Gross Alpha	-1.652E-15	4.998E-15	1.097E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209976	IA-09	04/29/19	Gross Alpha/Beta	Gross Beta	1.166E-14	1.565E-14	2.095E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209977	IA-09	04/29/19	Gross Alpha/Beta	Gross Beta	2.413E-14	1.708E-14	2.095E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209977	IA-09	04/29/19	Gross Alpha/Beta	Gross Alpha	2.597E-15	7.005E-15	1.097E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209978	IA-09	04/30/19	Gross Alpha/Beta	Gross Alpha	-1.928E-15	5.831E-15	1.28E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209978	IA-09	04/30/19	Gross Alpha/Beta	Gross Beta	1.984E-14	1.898E-14	2.444E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209979	IA-09	04/30/19	Gross Alpha/Beta	Gross Alpha	6.334E-15	9.422E-15	1.28E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209979	IA-09	04/30/19	Gross Alpha/Beta	Gross Beta	1.048E-14	1.789E-14	2.444E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209980	IA-09	04/30/19	Gross Alpha/Beta	Gross Beta	3.231E-14	2.038E-14	2.444E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209980	IA-09	04/30/19	Gross Alpha/Beta	Gross Alpha	-2.75E-16	6.701E-15	1.28E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209981	IA-09	05/08/19	Gross Alpha/Beta	Gross Beta	3.524E-14	1.677E-14	2.017E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP209981	IA-09	05/08/19	Gross Alpha/Beta	Gross Alpha	0	4.2E-15	1.046E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP209981	IA-09	05/08/19	Gross Alpha/Beta	Gross Beta	4.745E-14	1.813E-14	2.017E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP209981	IA-09	05/08/19	Gross Alpha/Beta	Gross Alpha	6.929E-15	7.502E-15	1.046E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209982	IA-09	05/08/19	Gross Alpha/Beta	Gross Beta	3.141E-14	1.62E-14	1.996E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209982	IA-09	05/08/19	Gross Alpha/Beta	Gross Alpha	6.856E-15	7.422E-15	1.035E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209983	IA-09	05/08/19	Gross Alpha/Beta	Gross Beta	3.96E-14	1.727E-14	2.017E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP209983	IA-09	05/08/19	Gross Alpha/Beta	Gross Alpha	8.315E-15	8.004E-15	1.046E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209984	IA-09	05/09/19	Gross Alpha/Beta	Gross Beta	2.02E-14	1.486E-14	1.996E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209984	IA-09	05/09/19	Gross Alpha/Beta	Gross Alpha	1.371E-15	4.98E-15	1.035E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209985	IA-09	05/09/19	Gross Alpha/Beta	Gross Alpha	1.371E-15	4.98E-15	1.035E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209985	IA-09	05/09/19	Gross Alpha/Beta	Gross Beta	9.848E-15	1.355E-14	1.996E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209986	IA-09	05/09/19	Gross Alpha/Beta	Gross Alpha	8.227E-15	7.919E-15	1.035E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209986	IA-09	05/09/19	Gross Alpha/Beta	Gross Beta	1.589E-14	1.433E-14	1.996E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209987	IA-09	05/13/19	Gross Alpha/Beta	Gross Alpha	-1.239E-15	2.823E-15	9.355E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209987	IA-09	05/13/19	Gross Alpha/Beta	Gross Beta	1.436E-14	1.295E-14	1.804E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209988	IA-09	05/13/19	Gross Alpha/Beta	Gross Beta	3.585E-14	1.538E-14	1.786E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP209988	IA-09	05/13/19	Gross Alpha/Beta	Gross Alpha	1.228E-15	4.458E-15	9.266E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209989	IA-09	05/13/19	Gross Alpha/Beta	Gross Alpha	-1.228E-15	2.796E-15	9.266E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209989	IA-09	05/13/19	Gross Alpha/Beta	Gross Beta	-1.223E-15	1.076E-14	1.786E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209990	IA-09	05/14/19	Gross Alpha/Beta	Gross Alpha	2.432E-15	5.043E-15	9.179E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209990	IA-09	05/14/19	Gross Alpha/Beta	Gross Beta	6.438E-15	1.172E-14	1.77E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209991	IA-09	05/14/19	Gross Alpha/Beta	Gross Alpha	1.216E-15	4.416E-15	9.179E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209991	IA-09	05/14/19	Gross Alpha/Beta	Gross Beta	1.638E-14	1.299E-14	1.77E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209992	IA-09	05/14/19	Gross Alpha/Beta	Gross Alpha	2.432E-15	5.043E-15	9.179E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209992	IA-09	05/14/19	Gross Alpha/Beta	Gross Beta	1.332E-14	1.261E-14	1.77E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP209993	IA-09	05/15/19	Gross Alpha/Beta	Gross Alpha	1.251E-15	4.545E-15	9.446E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209993	IA-09	05/15/19	Gross Alpha/Beta	Gross Beta	1.45E-14	1.308E-14	1.821E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209994	IA-09	05/15/19	Gross Alpha/Beta	Gross Beta	1.844E-14	1.356E-14	1.821E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP209994	IA-09	05/15/19	Gross Alpha/Beta	Gross Alpha	6.257E-15	6.774E-15	9.446E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209995	IA-09	05/15/19	Gross Alpha/Beta	Gross Alpha	0	3.792E-15	9.446E-15	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP209995	IA-09	05/15/19	Gross Alpha/Beta	Gross Beta	2.69E-15	1.152E-14	1.821E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP209995	IA-09	05/15/19	Gross Alpha/Beta	Gross Alpha	5.005E-15	6.289E-15	9.446E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209995	IA-09	05/15/19	Gross Alpha/Beta	Gross Beta	1.902E-15	1.141E-14	1.821E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209996	IA-09	05/16/19	Gross Alpha/Beta	Gross Alpha	-2.455E-15	1.347E-15	9.266E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209996	IA-09	05/16/19	Gross Alpha/Beta	Gross Beta	1.499E-14	1.292E-14	1.786E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP209997	IA-09	05/16/19	Gross Alpha/Beta	Gross Beta	3.044E-14	1.477E-14	1.786E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP209997	IA-09	05/16/19	Gross Alpha/Beta	Gross Alpha	4.91E-15	6.169E-15	9.266E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209998	IA-09	05/16/19	Gross Alpha/Beta	Gross Alpha	4.91E-15	6.169E-15	9.266E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209998	IA-09	05/16/19	Gross Alpha/Beta	Gross Beta	1.191E-14	1.253E-14	1.786E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209999	IA-09	05/20/19	Gross Alpha/Beta	Gross Alpha	2.527E-15	5.241E-15	9.539E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP209999	IA-09	05/20/19	Gross Alpha/Beta	Gross Beta	9.871E-15	1.259E-14	1.839E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210000	IA-09	05/20/19	Gross Alpha/Beta	Gross Alpha	0	3.83E-15	9.539E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210000	IA-09	05/20/19	Gross Alpha/Beta	Gross Beta	4.306E-15	1.185E-14	1.839E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210001	IA-09	05/20/19	Gross Alpha/Beta	Gross Alpha	0	3.83E-15	9.539E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210001	IA-09	05/20/19	Gross Alpha/Beta	Gross Beta	-3.644E-15	1.073E-14	1.839E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210002	IA-09	06/18/19	Gross Alpha/Beta	Gross Alpha	4.48E-16	2.023E-14	4.594E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP210002	IA-09	06/18/19	Gross Alpha/Beta	Gross Beta	-8.45E-16	5.365E-14	8.345E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP210002	IA-09	06/18/19	Gross Alpha/Beta	Gross Alpha	-1.566E-14	8.011E-15	4.594E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210002	IA-09	06/18/19	Gross Alpha/Beta	Gross Beta	3.97E-14	5.86E-14	8.345E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210003	IA-09	06/19/19	Gross Alpha/Beta	Gross Beta	4.253E-14	3.032E-14	3.927E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP210003	IA-09	06/19/19	Gross Alpha/Beta	Gross Alpha	2.11E-16	9.518E-15	2.162E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210004	IA-09	06/20/19	Gross Alpha/Beta	Gross Alpha	7.792E-15	1.294E-14	2.162E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210004	IA-09	06/20/19	Gross Alpha/Beta	Gross Beta	1.391E-14	2.7E-14	3.927E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210005	IA-09	06/24/19	Gross Alpha/Beta	Gross Alpha	2.738E-15	1.078E-14	2.162E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210005	IA-09	06/24/19	Gross Alpha/Beta	Gross Beta	3.299E-14	2.924E-14	3.927E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP210006	IA-09	06/25/19	Gross Alpha/Beta	Gross Alpha	5.265E-15	1.191E-14	2.162E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210006	IA-09	06/25/19	Gross Alpha/Beta	Gross Beta	2.663E-14	2.851E-14	3.927E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210007	IA-09	06/26/19	Gross Alpha/Beta	Gross Alpha	5.265E-15	1.191E-14	2.162E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210007	IA-09	06/26/19	Gross Alpha/Beta	Gross Beta	3.617E-14	2.96E-14	3.927E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP210008	IA-09	06/27/19	Gross Alpha/Beta	Gross Beta	5.207E-14	3.137E-14	3.927E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP210008	IA-09	06/27/19	Gross Alpha/Beta	Gross Alpha	1.79E-14	1.646E-14	2.162E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP210009	IA-09	07/01/19	Gross Alpha/Beta	Gross Beta	5.132E-14	2.423E-14	3.262E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP210009	IA-09	07/01/19	Gross Alpha/Beta	Gross Alpha	6.843E-15	9.425E-15	1.503E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP210009	IA-09	07/01/19	Gross Alpha/Beta	Gross Beta	4.614E-14	2.373E-14	3.262E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP210009	IA-09	07/01/19	Gross Alpha/Beta	Gross Alpha	5.233E-15	8.853E-15	1.503E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210010	IA-09	07/02/19	Gross Alpha/Beta	Gross Alpha	5.17E-15	8.748E-15	1.485E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210010	IA-09	07/02/19	Gross Alpha/Beta	Gross Beta	2.613E-14	2.152E-14	3.223E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP210011	IA-09	07/03/19	Gross Alpha/Beta	Gross Alpha	7.281E-15	1.003E-14	1.6E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210011	IA-09	07/03/19	Gross Alpha/Beta	Gross Beta	3.034E-14	2.34E-14	3.471E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP210012	IA-09	07/08/19	Gross Alpha/Beta	Gross Alpha	3.04E-16	5.181E-15	1.134E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210012	IA-09	07/08/19	Gross Alpha/Beta	Gross Beta	2.073E-14	1.651E-14	2.461E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP210013	IA-09	07/09/19	Gross Alpha/Beta	Gross Beta	4.122E-14	2.082E-14	2.85E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP210013	IA-09	07/09/19	Gross Alpha/Beta	Gross Alpha	8.792E-15	9.156E-15	1.313E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210014	IA-09	07/10/19	Gross Alpha/Beta	Gross Alpha	2.685E-15	6.108E-15	1.114E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210014	IA-09	07/10/19	Gross Alpha/Beta	Gross Beta	2.19E-14	1.637E-14	2.417E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP210015	IA-09	07/11/19	Gross Alpha/Beta	Gross Alpha	1.498E-15	5.646E-15	1.119E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210015	IA-09	07/11/19	Gross Alpha/Beta	Gross Beta	1.274E-14	1.55E-14	2.428E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210016	IA-09	07/15/19	Gross Alpha/Beta	Gross Alpha	1.551E-14	2.624E-14	4.456E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210016	IA-09	07/15/19	Gross Alpha/Beta	Gross Beta	1.537E-15	5.651E-14	9.669E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210017	IA-09	07/15/19	Gross Alpha/Beta	Gross Alpha	2.042E-14	1.759E-14	2.311E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP210017	IA-09	07/15/19	Gross Alpha/Beta	Gross Beta	1.673E-14	3.101E-14	5.013E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210018	IA-09	07/15/19	Gross Alpha/Beta	Gross Alpha	4.12E-14	3.291E-14	4.159E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP210018	IA-09	07/15/19	Gross Alpha/Beta	Gross Beta	5.02E-14	5.791E-14	9.024E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210019	IA-09	07/16/19	Gross Alpha/Beta	Gross Alpha	1.547E-15	5.829E-15	1.155E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210019	IA-09	07/16/19	Gross Alpha/Beta	Gross Beta	3.586E-15	1.5E-14	2.507E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210020	IA-09	07/16/19	Gross Alpha/Beta	Gross Alpha	3.09E-16	5.277E-15	1.155E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210020	IA-09	07/16/19	Gross Alpha/Beta	Gross Beta	2.112E-14	1.682E-14	2.507E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP210021	IA-09	07/16/19	Gross Alpha/Beta	Gross Alpha	5.259E-15	7.243E-15	1.155E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210021	IA-09	07/16/19	Gross Alpha/Beta	Gross Beta	1.634E-14	1.633E-14	2.507E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP210022	IA-09	07/17/19	Gross Alpha/Beta	Gross Alpha	2.145E-14	1.253E-14	1.313E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP210022	IA-09	07/17/19	Gross Alpha/Beta	Gross Beta	1.766E-14	1.847E-14	2.85E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210023	IA-09	07/17/19	Gross Alpha/Beta	Gross Alpha	5.978E-15	8.235E-15	1.313E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210023	IA-09	07/17/19	Gross Alpha/Beta	Gross Beta	2.491E-14	1.921E-14	2.85E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP210024	IA-09	07/17/19	Gross Alpha/Beta	Gross Alpha	4.572E-15	7.735E-15	1.313E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210024	IA-09	07/17/19	Gross Alpha/Beta	Gross Beta	2.038E-14	1.875E-14	2.85E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP210025	IA-09	07/18/19	Gross Alpha/Beta	Gross Alpha	7.16E-15	8.474E-15	1.114E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP210025	IA-09	07/18/19	Gross Alpha/Beta	Gross Beta	1.45E-14	1.569E-14	2.054E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP210025	IA-09	07/18/19	Gross Alpha/Beta	Gross Alpha	1.79E-15	6.538E-15	1.114E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210025	IA-09	07/18/19	Gross Alpha/Beta	Gross Beta	1.957E-14	1.625E-14	2.054E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP210026	IA-09	07/18/19	Gross Alpha/Beta	Gross Alpha	1.79E-15	6.538E-15	1.114E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210026	IA-09	07/18/19	Gross Alpha/Beta	Gross Beta	1.872E-14	1.616E-14	2.054E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP210027	IA-09	07/18/19	Gross Alpha/Beta	Gross Alpha	1.79E-15	6.538E-15	1.114E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210027	IA-09	07/18/19	Gross Alpha/Beta	Gross Beta	1.957E-14	1.625E-14	2.054E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP210028	IA-09	07/22/19	Gross Alpha/Beta	Gross Alpha	-3.522E-15	7.233E-15	1.753E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210028	IA-09	07/22/19	Gross Alpha/Beta	Gross Beta	2.415E-14	2.484E-14	3.233E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210029	IA-09	07/22/19	Gross Alpha/Beta	Gross Alpha	-3.522E-15	7.233E-15	1.753E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210029	IA-09	07/22/19	Gross Alpha/Beta	Gross Beta	3.08E-14	2.558E-14	3.233E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP210030	IA-09	07/22/19	Gross Alpha/Beta	Gross Beta	4.01E-14	2.659E-14	3.233E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP210030	IA-09	07/22/19	Gross Alpha/Beta	Gross Alpha	-3.522E-15	7.233E-15	1.753E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210031	IA-09	07/23/19	Gross Alpha/Beta	Gross Alpha	-2.215E-15	4.548E-15	1.103E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210031	IA-09	07/23/19	Gross Alpha/Beta	Gross Beta	1.351E-14	1.544E-14	2.033E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210032	IA-09	07/23/19	Gross Alpha/Beta	Gross Beta	2.773E-14	1.699E-14	2.033E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP210032	IA-09	07/23/19	Gross Alpha/Beta	Gross Alpha	3.1E-15	6.997E-15	1.103E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210033	IA-09	07/23/19	Gross Alpha/Beta	Gross Beta	2.438E-14	1.663E-14	2.033E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP210033	IA-09	07/23/19	Gross Alpha/Beta	Gross Alpha	-3.543E-15	3.696E-15	1.103E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210034	IA-09	07/24/19	Gross Alpha/Beta	Gross Beta	2.49E-14	1.698E-14	2.076E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP210034	IA-09	07/24/19	Gross Alpha/Beta	Gross Alpha	1.809E-15	6.607E-15	1.126E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP210035	IA-09	07/24/19	Gross Alpha/Beta	Gross Beta	3.77E-14	1.833E-14	2.076E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP210035	IA-09	07/24/19	Gross Alpha/Beta	Gross Alpha	4.522E-15	7.645E-15	1.126E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210036	IA-09	07/24/19	Gross Alpha/Beta	Gross Alpha	7.236E-15	8.563E-15	1.126E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210036	IA-09	07/24/19	Gross Alpha/Beta	Gross Beta	1.209E-14	1.557E-14	2.076E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210037	IA-09	07/25/19	Gross Alpha/Beta	Gross Beta	2.843E-14	1.587E-14	1.86E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP210037	IA-09	07/25/19	Gross Alpha/Beta	Gross Alpha	6.485E-15	7.675E-15	1.009E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP210038	IA-09	07/25/19	Gross Alpha/Beta	Gross Beta	3.488E-14	1.666E-14	1.878E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP210038	IA-09	07/25/19	Gross Alpha/Beta	Gross Alpha	6.547E-15	7.748E-15	1.019E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215584	IA-09	07/25/19	Gross Alpha/Beta	Gross Beta	3.04E-14	1.517E-14	1.829E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP215584	IA-09	07/25/19	Gross Alpha/Beta	Gross Alpha	5.764E-15	6.6E-15	9.238E-15	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP215584	IA-09	07/25/19	Gross Alpha/Beta	Gross Alpha	1.53E-14	9.488E-15	9.238E-15	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215584	IA-09	07/25/19	Gross Alpha/Beta	Gross Beta	4.907E-14	1.719E-14	1.829E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215585	IA-09	07/30/19	Gross Alpha/Beta	Gross Alpha	2.414E-15	5.669E-15	1.02E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215585	IA-09	07/30/19	Gross Alpha/Beta	Gross Beta	1.124E-14	1.41E-14	2.019E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215586	IA-09	07/30/19	Gross Alpha/Beta	Gross Beta	3.443E-14	1.684E-14	2.019E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215586	IA-09	07/30/19	Gross Alpha/Beta	Gross Alpha	3.731E-15	6.254E-15	1.02E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215587	IA-09	07/30/19	Gross Alpha/Beta	Gross Alpha	1.295E-14	9.401E-15	1.02E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215587	IA-09	07/30/19	Gross Alpha/Beta	Gross Beta	2.068E-14	1.526E-14	2.019E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215588	IA-09	07/31/19	Gross Alpha/Beta	Gross Alpha	9.169E-15	7.658E-15	9.067E-15	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215588	IA-09	07/31/19	Gross Alpha/Beta	Gross Beta	2.144E-14	1.392E-14	1.795E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215589	IA-09	07/31/19	Gross Alpha/Beta	Gross Beta	2.678E-14	1.454E-14	1.795E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215589	IA-09	07/31/19	Gross Alpha/Beta	Gross Alpha	6.828E-15	6.893E-15	9.067E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215590	IA-09	07/31/19	Gross Alpha/Beta	Gross Beta	2.449E-14	1.428E-14	1.795E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215590	IA-09	07/31/19	Gross Alpha/Beta	Gross Alpha	4.487E-15	6.035E-15	9.067E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215591	IA-09	08/01/19	Gross Alpha/Beta	Gross Alpha	2.186E-15	5.134E-15	9.238E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215591	IA-09	08/01/19	Gross Alpha/Beta	Gross Beta	1.718E-14	1.363E-14	1.829E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215592	IA-09	08/01/19	Gross Alpha/Beta	Gross Beta	2.441E-14	1.46E-14	1.846E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215592	IA-09	08/01/19	Gross Alpha/Beta	Gross Alpha	2.207E-15	5.183E-15	9.326E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215593	IA-09	08/01/19	Gross Alpha/Beta	Gross Beta	1.97E-14	1.405E-14	1.846E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215593	IA-09	08/01/19	Gross Alpha/Beta	Gross Alpha	4.615E-15	6.208E-15	9.326E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215594	IA-09	08/05/19	Gross Alpha/Beta	Gross Beta	2.703E-14	1.468E-14	1.812E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215594	IA-09	08/05/19	Gross Alpha/Beta	Gross Alpha	4.529E-15	6.092E-15	9.152E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215595	IA-09	08/05/19	Gross Alpha/Beta	Gross Beta	4.481E-14	1.826E-14	2.062E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215595	IA-09	08/05/19	Gross Alpha/Beta	Gross Alpha	9.189E-15	8.37E-15	1.042E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215596	IA-09	08/05/19	Gross Alpha/Beta	Gross Beta	4.393E-14	1.817E-14	2.062E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215596	IA-09	08/05/19	Gross Alpha/Beta	Gross Alpha	3.81E-15	6.387E-15	1.042E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215597	IA-09	08/08/19	Gross Alpha/Beta	Gross Beta	2.264E-14	1.563E-14	2.041E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215597	IA-09	08/08/19	Gross Alpha/Beta	Gross Alpha	1.109E-15	5.071E-15	1.031E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215598	IA-09	08/08/19	Gross Alpha/Beta	Gross Alpha	2.439E-15	5.729E-15	1.031E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215598	IA-09	08/08/19	Gross Alpha/Beta	Gross Beta	1.656E-14	1.49E-14	2.041E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215599	IA-09	08/08/19	Gross Alpha/Beta	Gross Beta	4.433E-14	1.807E-14	2.041E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215599	IA-09	08/08/19	Gross Alpha/Beta	Gross Alpha	3.77E-15	6.32E-15	1.031E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215600	IA-09	08/13/19	Gross Alpha/Beta	Gross Alpha	-2.184E-15	7.748E-15	1.214E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP215600	IA-09	08/13/19	Gross Alpha/Beta	Gross Beta	2.025E-14	1.82E-14	2.663E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP215600	IA-09	08/13/19	Gross Alpha/Beta	Gross Alpha	9.608E-15	1.106E-14	1.214E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215600	IA-09	08/13/19	Gross Alpha/Beta	Gross Beta	1.434E-14	1.762E-14	2.663E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP215601	IA-09	08/13/19	Gross Alpha/Beta	Gross Beta	4.556E-14	2.061E-14	2.663E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215601	IA-09	08/13/19	Gross Alpha/Beta	Gross Alpha	8.297E-15	1.074E-14	1.214E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215602	IA-09	08/13/19	Gross Alpha/Beta	Gross Alpha	3.057E-15	9.355E-15	1.214E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215602	IA-09	08/13/19	Gross Alpha/Beta	Gross Beta	2.362E-14	1.853E-14	2.663E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215603	IA-09	08/14/19	Gross Alpha/Beta	Gross Beta	3.7E-14	1.905E-14	2.538E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215603	IA-09	08/14/19	Gross Alpha/Beta	Gross Alpha	5.412E-15	9.597E-15	1.157E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215604	IA-09	08/14/19	Gross Alpha/Beta	Gross Alpha	7.91E-15	1.023E-14	1.157E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215604	IA-09	08/14/19	Gross Alpha/Beta	Gross Beta	1.85E-14	1.727E-14	2.538E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215605	IA-09	08/14/19	Gross Alpha/Beta	Gross Alpha	2.914E-15	8.918E-15	1.157E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215605	IA-09	08/14/19	Gross Alpha/Beta	Gross Beta	2.252E-14	1.767E-14	2.538E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215606	IA-09	08/15/19	Gross Alpha/Beta	Gross Alpha	1.303E-14	1.152E-14	1.168E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215606	IA-09	08/15/19	Gross Alpha/Beta	Gross Beta	3.41E-14	1.892E-14	2.562E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215607	IA-09	08/15/19	Gross Alpha/Beta	Gross Alpha	1.681E-14	1.234E-14	1.168E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215607	IA-09	08/15/19	Gross Alpha/Beta	Gross Beta	3.004E-14	1.854E-14	2.562E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215608	IA-09	08/15/19	Gross Alpha/Beta	Gross Alpha	2.942E-15	9.002E-15	1.168E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215608	IA-09	08/15/19	Gross Alpha/Beta	Gross Beta	2.273E-14	1.783E-14	2.562E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215609	IA-09	08/19/19	Gross Alpha/Beta	Gross Alpha	1.327E-14	1.267E-14	1.317E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215609	IA-09	08/19/19	Gross Alpha/Beta	Gross Beta	3.204E-14	2.073E-14	2.889E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215610	IA-09	08/19/19	Gross Alpha/Beta	Gross Alpha	1.469E-14	1.299E-14	1.317E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215610	IA-09	08/19/19	Gross Alpha/Beta	Gross Beta	2.838E-14	2.038E-14	2.889E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215611	IA-09	08/19/19	Gross Alpha/Beta	Gross Alpha	1.327E-14	1.267E-14	1.317E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215611	IA-09	08/19/19	Gross Alpha/Beta	Gross Beta	4.303E-14	2.177E-14	2.889E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215612	IA-09	08/21/19	Gross Alpha/Beta	Gross Alpha	7.273E-15	1.083E-14	1.263E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215612	IA-09	08/21/19	Gross Alpha/Beta	Gross Beta	2.283E-14	1.912E-14	2.771E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215613	IA-09	08/21/19	Gross Alpha/Beta	Gross Alpha	3.215E-15	9.837E-15	1.276E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215613	IA-09	08/21/19	Gross Alpha/Beta	Gross Beta	2.218E-14	1.923E-14	2.8E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215614	IA-09	08/21/19	Gross Alpha/Beta	Gross Alpha	1.424E-14	1.259E-14	1.276E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215614	IA-09	08/21/19	Gross Alpha/Beta	Gross Beta	2.573E-14	1.957E-14	2.8E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215615	IA-09	08/27/19	Gross Alpha/Beta	Gross Beta	6.147E-14	2.274E-14	2.771E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215615	IA-09	08/27/19	Gross Alpha/Beta	Gross Alpha	8.636E-15	1.117E-14	1.263E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215616	IA-09	08/27/19	Gross Alpha/Beta	Gross Alpha	1.273E-14	1.215E-14	1.263E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215616	IA-09	08/27/19	Gross Alpha/Beta	Gross Beta	3.776E-14	2.055E-14	2.771E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215617	IA-09	08/27/19	Gross Alpha/Beta	Gross Beta	4.303E-14	2.105E-14	2.771E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215617	IA-09	08/27/19	Gross Alpha/Beta	Gross Alpha	1.136E-14	1.183E-14	1.263E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215618	IA-09	08/28/19	Gross Alpha/Beta	Gross Alpha	1.735E-14	1.347E-14	1.303E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215618	IA-09	08/28/19	Gross Alpha/Beta	Gross Beta	3.352E-14	2.068E-14	2.859E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215619	IA-09	08/28/19	Gross Alpha/Beta	Gross Alpha	3.282E-15	1.004E-14	1.303E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215619	IA-09	08/28/19	Gross Alpha/Beta	Gross Beta	1.812E-14	1.919E-14	2.859E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215620	IA-09	08/28/19	Gross Alpha/Beta	Gross Alpha	-2.22E-16	7.041E-15	1.29E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP215620	IA-09	08/28/19	Gross Alpha/Beta	Gross Beta	1.41E-14	1.903E-14	2.132E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP215620	IA-09	08/28/19	Gross Alpha/Beta	Gross Alpha	1.109E-15	7.528E-15	1.29E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215620	IA-09	08/28/19	Gross Alpha/Beta	Gross Beta	2.105E-14	1.968E-14	2.132E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215621	IA-09	08/29/19	Gross Alpha/Beta	Gross Alpha	-2.795E-15	5.772E-15	1.251E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215621	IA-09	08/29/19	Gross Alpha/Beta	Gross Beta	1.367E-14	1.845E-14	2.067E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215622	IA-09	08/29/19	Gross Alpha/Beta	Gross Beta	3.47E-14	2.04E-14	2.067E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215622	IA-09	08/29/19	Gross Alpha/Beta	Gross Alpha	1.075E-15	7.297E-15	1.251E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP215623	IA-09	08/29/19	Gross Alpha/Beta	Gross Beta	2.461E-14	1.947E-14	2.067E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215623	IA-09	08/29/19	Gross Alpha/Beta	Gross Alpha	1.075E-15	7.297E-15	1.251E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215624	IA-09	09/03/19	Gross Alpha/Beta	Gross Beta	5.685E-14	2.267E-14	2.785E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP215624	IA-09	09/03/19	Gross Alpha/Beta	Gross Alpha	1.009E-14	9.193E-15	1.167E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP215624	IA-09	09/03/19	Gross Alpha/Beta	Gross Alpha	-6.4E-17	4.227E-15	8.037E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215624	IA-09	09/03/19	Gross Alpha/Beta	Gross Beta	-5.241E-15	1.352E-14	2.061E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215625	IA-09	09/03/19	Gross Alpha/Beta	Gross Beta	4.064E-14	2.199E-14	2.877E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215625	IA-09	09/03/19	Gross Alpha/Beta	Gross Alpha	-3.48E-16	7.815E-15	1.359E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215626	IA-09	09/03/19	Gross Alpha/Beta	Gross Beta	4.333E-14	2.224E-14	2.877E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215626	IA-09	09/03/19	Gross Alpha/Beta	Gross Alpha	-3.48E-16	7.815E-15	1.359E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215627	IA-09	09/04/19	Gross Alpha/Beta	Gross Beta	3.925E-14	2.206E-14	2.908E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215627	IA-09	09/04/19	Gross Alpha/Beta	Gross Alpha	5.275E-15	9.703E-15	1.374E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215628	IA-09	09/04/19	Gross Alpha/Beta	Gross Beta	4.288E-14	2.239E-14	2.908E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215628	IA-09	09/04/19	Gross Alpha/Beta	Gross Alpha	2.462E-15	8.844E-15	1.374E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215629	IA-09	09/04/19	Gross Alpha/Beta	Gross Beta	5.647E-14	2.36E-14	2.908E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215629	IA-09	09/04/19	Gross Alpha/Beta	Gross Alpha	1.231E-14	1.159E-14	1.374E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215630	IA-09	09/05/19	Gross Alpha/Beta	Gross Beta	3.654E-14	2.181E-14	2.908E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215630	IA-09	09/05/19	Gross Alpha/Beta	Gross Alpha	8.088E-15	1.05E-14	1.374E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215631	IA-09	09/05/19	Gross Alpha/Beta	Gross Alpha	5.275E-15	9.703E-15	1.374E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215631	IA-09	09/05/19	Gross Alpha/Beta	Gross Beta	2.657E-14	2.09E-14	2.908E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215632	IA-09	09/05/19	Gross Alpha/Beta	Gross Alpha	1.055E-15	8.384E-15	1.374E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215632	IA-09	09/05/19	Gross Alpha/Beta	Gross Beta	2.657E-14	2.09E-14	2.908E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215633	IA-09	09/09/19	Gross Alpha/Beta	Gross Beta	5.676E-14	2.403E-14	2.97E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215633	IA-09	09/09/19	Gross Alpha/Beta	Gross Alpha	8.262E-15	1.072E-14	1.403E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215634	IA-09	09/09/19	Gross Alpha/Beta	Gross Beta	7.619E-14	2.573E-14	2.97E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215634	IA-09	09/09/19	Gross Alpha/Beta	Gross Alpha	1.401E-14	1.219E-14	1.403E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215635	IA-09	09/09/19	Gross Alpha/Beta	Gross Beta	4.935E-14	2.337E-14	2.97E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215635	IA-09	09/09/19	Gross Alpha/Beta	Gross Alpha	1.078E-15	8.564E-15	1.403E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215636	IA-09	09/10/19	Gross Alpha/Beta	Gross Alpha	1.545E-14	1.253E-14	1.403E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215636	IA-09	09/10/19	Gross Alpha/Beta	Gross Beta	6.046E-14	2.435E-14	2.97E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215637	IA-09	09/10/19	Gross Alpha/Beta	Gross Beta	5.12E-14	2.353E-14	2.97E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215637	IA-09	09/10/19	Gross Alpha/Beta	Gross Alpha	-1.796E-15	7.539E-15	1.403E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215638	IA-09	09/10/19	Gross Alpha/Beta	Gross Beta	5.861E-14	2.419E-14	2.97E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215638	IA-09	09/10/19	Gross Alpha/Beta	Gross Alpha	1.257E-14	1.184E-14	1.403E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215639	IA-09	09/11/19	Gross Alpha/Beta	Gross Beta	4.813E-14	2.389E-14	3.069E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215639	IA-09	09/11/19	Gross Alpha/Beta	Gross Alpha	4.083E-15	9.799E-15	1.45E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215640	IA-09	09/11/19	Gross Alpha/Beta	Gross Beta	5.556E-14	2.352E-14	2.908E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215640	IA-09	09/11/19	Gross Alpha/Beta	Gross Alpha	5.275E-15	9.703E-15	1.374E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215641	IA-09	09/11/19	Gross Alpha/Beta	Gross Beta	4.909E-14	2.398E-14	3.069E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215641	IA-09	09/11/19	Gross Alpha/Beta	Gross Alpha	2.598E-15	9.336E-15	1.45E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215642	IA-09	09/12/19	Gross Alpha/Beta	Gross Beta	5.953E-14	2.427E-14	2.97E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215642	IA-09	09/12/19	Gross Alpha/Beta	Gross Alpha	3.951E-15	9.483E-15	1.403E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215643	IA-09	09/12/19	Gross Alpha/Beta	Gross Beta	4.195E-14	2.27E-14	2.97E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215643	IA-09	09/12/19	Gross Alpha/Beta	Gross Alpha	-3.59E-16	8.067E-15	1.403E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215644	IA-09	09/12/19	Gross Alpha/Beta	Gross Beta	5.49E-14	2.386E-14	2.97E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP215644	IA-09	09/12/19	Gross Alpha/Beta	Gross Alpha	5.388E-15	9.912E-15	1.403E-14	µCi/mL			IA-09 (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP215644	IA-09	09/12/19	Gross Alpha/Beta	Gross Beta	6.138E-14	2.444E-14	2.97E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215644	IA-09	09/12/19	Gross Alpha/Beta	Gross Alpha	1.401E-14	1.219E-14	1.403E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215645	IA-09	09/16/19	Gross Alpha/Beta	Gross Beta	7.989E-14	2.604E-14	2.97E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215645	IA-09	09/16/19	Gross Alpha/Beta	Gross Alpha	2.515E-15	9.035E-15	1.403E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215646	IA-09	09/16/19	Gross Alpha/Beta	Gross Beta	7.804E-14	2.589E-14	2.97E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215646	IA-09	09/16/19	Gross Alpha/Beta	Gross Alpha	3.951E-15	9.483E-15	1.403E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215647	IA-09	09/16/19	Gross Alpha/Beta	Gross Beta	6.416E-14	2.468E-14	2.97E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215647	IA-09	09/16/19	Gross Alpha/Beta	Gross Alpha	6.825E-15	1.032E-14	1.403E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215648	IA-09	09/17/19	Gross Alpha/Beta	Gross Beta	7.786E-14	2.629E-14	3.035E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215648	IA-09	09/17/19	Gross Alpha/Beta	Gross Alpha	9.912E-15	1.135E-14	1.434E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215649	IA-09	09/17/19	Gross Alpha/Beta	Gross Alpha	2.166E-14	1.413E-14	1.434E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215649	IA-09	09/17/19	Gross Alpha/Beta	Gross Beta	8.637E-14	2.702E-14	3.035E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215650	IA-09	09/17/19	Gross Alpha/Beta	Gross Alpha	2.694E-14	1.501E-14	1.403E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215650	IA-09	09/17/19	Gross Alpha/Beta	Gross Beta	8.637E-14	2.66E-14	2.97E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215651	IA-09	09/18/19	Gross Alpha/Beta	Gross Beta	4.239E-14	2.337E-14	3.069E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215651	IA-09	09/18/19	Gross Alpha/Beta	Gross Alpha	1.299E-14	1.223E-14	1.45E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215652	IA-09	09/18/19	Gross Alpha/Beta	Gross Beta	4.717E-14	2.38E-14	3.069E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215652	IA-09	09/18/19	Gross Alpha/Beta	Gross Alpha	8.538E-15	1.108E-14	1.45E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215653	IA-09	09/19/19	Gross Alpha/Beta	Gross Beta	5.578E-14	2.457E-14	3.069E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215653	IA-09	09/19/19	Gross Alpha/Beta	Gross Alpha	7.053E-15	1.067E-14	1.45E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215654	IA-09	09/23/19	Gross Alpha/Beta	Gross Alpha	4.052E-15	8.822E-15	1.448E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP215654	IA-09	09/23/19	Gross Alpha/Beta	Gross Beta	4.44E-15	1.876E-14	3.073E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP215654	IA-09	09/23/19	Gross Alpha/Beta	Gross Alpha	1.183E-14	1.179E-14	1.448E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215654	IA-09	09/23/19	Gross Alpha/Beta	Gross Beta	1.839E-14	2.06E-14	3.073E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215665	IA-09	10/01/19	Gross Alpha/Beta	Gross Alpha	-7.265E-15	4.917E-15	1.952E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP215665	IA-09	10/01/19	Gross Alpha/Beta	Gross Beta	3.056E-14	2.728E-14	3.483E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP215665	IA-09	10/01/19	Gross Alpha/Beta	Gross Alpha	-2.906E-15	7.872E-15	1.952E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215665	IA-09	10/01/19	Gross Alpha/Beta	Gross Beta	1.919E-14	2.602E-14	3.483E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215666	IA-09	10/01/19	Gross Alpha/Beta	Gross Alpha	-7.26E-16	8.996E-15	1.952E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215666	IA-09	10/01/19	Gross Alpha/Beta	Gross Beta	3.554E-15	2.421E-14	3.483E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215667	IA-09	10/02/19	Gross Alpha/Beta	Gross Alpha	6.412E-15	8.374E-15	1.231E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215667	IA-09	10/02/19	Gross Alpha/Beta	Gross Beta	1.031E-14	1.62E-14	2.196E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215668	IA-09	10/02/19	Gross Alpha/Beta	Gross Beta	3.719E-14	1.911E-14	2.196E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215668	IA-09	10/02/19	Gross Alpha/Beta	Gross Alpha	1.053E-14	9.649E-15	1.231E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215669	IA-09	10/03/19	Gross Alpha/Beta	Gross Alpha	-2.007E-15	5.435E-15	1.348E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215669	IA-09	10/03/19	Gross Alpha/Beta	Gross Beta	-8.343E-15	1.541E-14	2.405E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215670	IA-09	10/03/19	Gross Alpha/Beta	Gross Alpha	-5.02E-16	6.212E-15	1.348E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215670	IA-09	10/03/19	Gross Alpha/Beta	Gross Beta	5.398E-15	1.706E-14	2.405E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215671	IA-09	10/07/19	Gross Alpha/Beta	Gross Alpha	-3.39E-15	4.374E-15	1.302E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215671	IA-09	10/07/19	Gross Alpha/Beta	Gross Beta	4.265E-15	1.636E-14	2.322E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215672	IA-09	10/07/19	Gross Alpha/Beta	Gross Beta	2.606E-14	1.881E-14	2.322E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215672	IA-09	10/07/19	Gross Alpha/Beta	Gross Alpha	-4.84E-16	5.997E-15	1.302E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215673	IA-09	10/08/19	Gross Alpha/Beta	Gross Alpha	-4.682E-15	3.169E-15	1.258E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215673	IA-09	10/08/19	Gross Alpha/Beta	Gross Beta	2.061E-14	1.768E-14	2.244E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215674	IA-09	10/08/19	Gross Alpha/Beta	Gross Beta	3.802E-14	1.953E-14	2.244E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215674	IA-09	10/08/19	Gross Alpha/Beta	Gross Alpha	-4.68E-16	5.797E-15	1.258E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP215675	IA-09	10/09/19	Gross Alpha/Beta	Gross Alpha	7.959E-15	9.014E-15	1.258E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215675	IA-09	10/09/19	Gross Alpha/Beta	Gross Beta	1.328E-14	1.687E-14	2.244E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215676	IA-09	10/09/19	Gross Alpha/Beta	Gross Beta	3.893E-14	1.962E-14	2.244E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215676	IA-09	10/09/19	Gross Alpha/Beta	Gross Alpha	5.15E-15	8.081E-15	1.258E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215677	IA-09	10/10/19	Gross Alpha/Beta	Gross Alpha	-4.682E-15	3.169E-15	1.258E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215677	IA-09	10/10/19	Gross Alpha/Beta	Gross Beta	1.328E-14	1.687E-14	2.244E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215678	IA-09	10/10/19	Gross Alpha/Beta	Gross Beta	4.168E-14	1.991E-14	2.244E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215678	IA-09	10/10/19	Gross Alpha/Beta	Gross Alpha	3.745E-15	7.573E-15	1.258E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215689	IA-09	10/14/19	Gross Alpha/Beta	Gross Beta	3.54E-14	2.049E-14	2.858E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP215689	IA-09	10/14/19	Gross Alpha/Beta	Gross Alpha	7.819E-15	9.188E-15	1.417E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP215689	IA-09	10/14/19	Gross Alpha/Beta	Gross Beta	6.012E-14	2.284E-14	2.858E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215689	IA-09	10/14/19	Gross Alpha/Beta	Gross Alpha	7.11E-16	6.612E-15	1.417E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215690	IA-09	10/14/19	Gross Alpha/Beta	Gross Beta	4.089E-14	2.102E-14	2.858E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215690	IA-09	10/14/19	Gross Alpha/Beta	Gross Alpha	7.819E-15	9.188E-15	1.417E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215691	IA-09	10/15/19	Gross Alpha/Beta	Gross Beta	4.512E-14	2.239E-14	3.019E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215691	IA-09	10/15/19	Gross Alpha/Beta	Gross Alpha	2.252E-15	7.603E-15	1.497E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215692	IA-09	10/15/19	Gross Alpha/Beta	Gross Beta	4.222E-14	2.211E-14	3.019E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215692	IA-09	10/15/19	Gross Alpha/Beta	Gross Alpha	7.51E-16	6.983E-15	1.497E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215693	IA-09	10/16/19	Gross Alpha/Beta	Gross Beta	4.459E-14	2.175E-14	2.92E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215693	IA-09	10/16/19	Gross Alpha/Beta	Gross Alpha	7.26E-16	6.756E-15	1.448E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215694	IA-09	10/16/19	Gross Alpha/Beta	Gross Alpha	-3.631E-15	4.514E-15	1.448E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215694	IA-09	10/16/19	Gross Alpha/Beta	Gross Beta	2.401E-14	1.973E-14	2.92E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215695	IA-09	10/16/19	Gross Alpha/Beta	Gross Alpha	-2.179E-15	5.365E-15	1.448E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215695	IA-09	10/16/19	Gross Alpha/Beta	Gross Beta	2.682E-14	2.001E-14	2.92E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215696	IA-09	10/17/19	Gross Alpha/Beta	Gross Beta	2.695E-14	1.752E-14	2.499E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215696	IA-09	10/17/19	Gross Alpha/Beta	Gross Alpha	1.865E-15	6.295E-15	1.239E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215697	IA-09	10/17/19	Gross Alpha/Beta	Gross Alpha	-5.89E-16	4.944E-15	1.174E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215697	IA-09	10/17/19	Gross Alpha/Beta	Gross Beta	1.567E-14	1.561E-14	2.367E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215698	IA-09	10/17/19	Gross Alpha/Beta	Gross Alpha	1.839E-15	6.208E-15	1.222E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215698	IA-09	10/17/19	Gross Alpha/Beta	Gross Beta	1.474E-14	1.609E-14	2.465E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215699	IA-09	10/21/19	Gross Alpha/Beta	Gross Alpha	1.856E-15	6.265E-15	1.234E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215699	IA-09	10/21/19	Gross Alpha/Beta	Gross Beta	1.567E-14	1.632E-14	2.488E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215700	IA-09	10/21/19	Gross Alpha/Beta	Gross Beta	2.762E-14	1.752E-14	2.488E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215700	IA-09	10/21/19	Gross Alpha/Beta	Gross Alpha	-3.093E-15	3.846E-15	1.234E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215701	IA-09	10/21/19	Gross Alpha/Beta	Gross Alpha	6.24E-16	5.809E-15	1.245E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215701	IA-09	10/21/19	Gross Alpha/Beta	Gross Beta	1.18E-14	1.606E-14	2.511E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215707	IA-09	10/22/19	Gross Alpha/Beta	Gross Alpha	-2.748E-15	5.796E-15	1.313E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP215707	IA-09	10/22/19	Gross Alpha/Beta	Gross Beta	7.842E-15	1.626E-14	2.307E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP215707	IA-09	10/22/19	Gross Alpha/Beta	Gross Beta	3.742E-14	1.942E-14	2.307E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215707	IA-09	10/22/19	Gross Alpha/Beta	Gross Alpha	2.748E-15	7.988E-15	1.313E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215708	IA-09	10/22/19	Gross Alpha/Beta	Gross Alpha	0	6.72E-15	1.265E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215708	IA-09	10/22/19	Gross Alpha/Beta	Gross Beta	1.273E-14	1.625E-14	2.222E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215709	IA-09	10/22/19	Gross Alpha/Beta	Gross Alpha	0	6.828E-15	1.285E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215709	IA-09	10/22/19	Gross Alpha/Beta	Gross Beta	1.118E-14	1.631E-14	2.258E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP215710	IA-09	10/23/19	Gross Alpha/Beta	Gross Alpha	5.496E-15	8.889E-15	1.313E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215710	IA-09	10/23/19	Gross Alpha/Beta	Gross Beta	2.218E-14	1.783E-14	2.307E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215711	IA-09	10/23/19	Gross Alpha/Beta	Gross Beta	2.756E-14	1.84E-14	2.307E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215711	IA-09	10/23/19	Gross Alpha/Beta	Gross Alpha	0	6.976E-15	1.313E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215712	IA-09	10/23/19	Gross Alpha/Beta	Gross Alpha	-5.437E-15	4.267E-15	1.299E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215712	IA-09	10/23/19	Gross Alpha/Beta	Gross Beta	4.211E-15	1.569E-14	2.282E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215713	IA-09	10/24/19	Gross Alpha/Beta	Gross Alpha	-1.367E-15	6.378E-15	1.306E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215713	IA-09	10/24/19	Gross Alpha/Beta	Gross Beta	1.315E-14	1.677E-14	2.294E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215714	IA-09	10/24/19	Gross Alpha/Beta	Gross Alpha	-1.359E-15	6.344E-15	1.299E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215714	IA-09	10/24/19	Gross Alpha/Beta	Gross Beta	9.53E-15	1.629E-14	2.282E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215715	IA-09	10/24/19	Gross Alpha/Beta	Gross Alpha	-2.69E-15	5.673E-15	1.285E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215715	IA-09	10/24/19	Gross Alpha/Beta	Gross Beta	1.206E-14	1.641E-14	2.258E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215716	IA-09	10/28/19	Gross Alpha/Beta	Gross Beta	4.685E-14	2.342E-14	2.756E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215716	IA-09	10/28/19	Gross Alpha/Beta	Gross Alpha	3.283E-15	9.544E-15	1.569E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215717	IA-09	10/28/19	Gross Alpha/Beta	Gross Beta	5.541E-14	2.428E-14	2.756E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215717	IA-09	10/28/19	Gross Alpha/Beta	Gross Alpha	1.478E-14	1.294E-14	1.569E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215718	IA-09	10/28/19	Gross Alpha/Beta	Gross Beta	4.47E-14	2.32E-14	2.756E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215718	IA-09	10/28/19	Gross Alpha/Beta	Gross Alpha	-3.283E-15	6.926E-15	1.569E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215719	IA-09	10/30/19	Gross Alpha/Beta	Gross Alpha	1.859E-15	1.015E-14	1.776E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215719	IA-09	10/30/19	Gross Alpha/Beta	Gross Beta	1.061E-14	2.201E-14	3.121E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215720	IA-09	10/30/19	Gross Alpha/Beta	Gross Alpha	7.547E-15	1.221E-14	1.803E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215720	IA-09	10/30/19	Gross Alpha/Beta	Gross Beta	4.615E-15	2.163E-14	3.168E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215721	IA-09	10/30/19	Gross Alpha/Beta	Gross Alpha	-3.718E-15	7.842E-15	1.776E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215721	IA-09	10/30/19	Gross Alpha/Beta	Gross Beta	-1.849E-14	1.855E-14	3.121E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215722	IA-09	10/31/19	Gross Alpha/Beta	Gross Alpha	-2.718E-15	5.734E-15	1.299E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215722	IA-09	10/31/19	Gross Alpha/Beta	Gross Beta	1.751E-14	1.717E-14	2.282E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215723	IA-09	10/31/19	Gross Alpha/Beta	Gross Alpha	4.034E-15	8.27E-15	1.285E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215723	IA-09	10/31/19	Gross Alpha/Beta	Gross Beta	2.171E-14	1.745E-14	2.258E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215724	IA-09	10/31/19	Gross Alpha/Beta	Gross Alpha	0	6.828E-15	1.285E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215724	IA-09	10/31/19	Gross Alpha/Beta	Gross Beta	1.82E-14	1.708E-14	2.258E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215725	IA-09	11/04/19	Gross Alpha/Beta	Gross Beta	3.567E-14	1.851E-14	2.199E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215725	IA-09	11/04/19	Gross Alpha/Beta	Gross Alpha	0	6.651E-15	1.252E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215726	IA-09	11/04/19	Gross Alpha/Beta	Gross Beta	2.444E-14	1.727E-14	2.188E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215726	IA-09	11/04/19	Gross Alpha/Beta	Gross Alpha	-1.303E-15	6.082E-15	1.245E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215727	IA-09	11/04/19	Gross Alpha/Beta	Gross Beta	4.52E-14	2.091E-14	2.894E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP215727	IA-09	11/04/19	Gross Alpha/Beta	Gross Alpha	6.96E-16	7.746E-15	1.268E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP215727	IA-09	11/04/19	Gross Alpha/Beta	Gross Beta	5.326E-14	2.168E-14	2.894E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215727	IA-09	11/04/19	Gross Alpha/Beta	Gross Alpha	1.183E-14	1.108E-14	1.268E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215728	IA-09	11/05/19	Gross Alpha/Beta	Gross Alpha	3.631E-15	9.07E-15	1.324E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215728	IA-09	11/05/19	Gross Alpha/Beta	Gross Beta	1.162E-14	1.824E-14	3.019E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215729	IA-09	11/05/19	Gross Alpha/Beta	Gross Alpha	-7.34E-16	7.625E-15	1.338E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215729	IA-09	11/05/19	Gross Alpha/Beta	Gross Beta	1.458E-14	1.874E-14	3.053E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215730	IA-09	11/05/19	Gross Alpha/Beta	Gross Alpha	3.631E-15	9.07E-15	1.324E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215730	IA-09	11/05/19	Gross Alpha/Beta	Gross Beta	9.744E-15	1.804E-14	3.019E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP215731	IA-09	11/06/19	Gross Alpha/Beta	Gross Beta	3.781E-14	2.091E-14	3.019E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215731	IA-09	11/06/19	Gross Alpha/Beta	Gross Alpha	3.631E-15	9.07E-15	1.324E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215732	IA-09	11/06/19	Gross Alpha/Beta	Gross Beta	3.219E-14	2.035E-14	3.019E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215732	IA-09	11/06/19	Gross Alpha/Beta	Gross Alpha	3.631E-15	9.07E-15	1.324E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215733	IA-09	11/06/19	Gross Alpha/Beta	Gross Beta	3.538E-14	2.086E-14	3.053E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215733	IA-09	11/06/19	Gross Alpha/Beta	Gross Alpha	5.14E-15	9.632E-15	1.338E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215734	IA-09	11/12/19	Gross Alpha/Beta	Gross Alpha	3.782E-15	1.491E-14	2.298E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215734	IA-09	11/12/19	Gross Alpha/Beta	Gross Beta	6.77E-16	2.956E-14	5.241E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215735	IA-09	11/12/19	Gross Alpha/Beta	Gross Alpha	1.237E-15	1.377E-14	2.255E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215735	IA-09	11/12/19	Gross Alpha/Beta	Gross Beta	1.341E-14	3.04E-14	5.144E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215736	IA-09	11/12/19	Gross Alpha/Beta	Gross Alpha	1.237E-15	1.377E-14	2.255E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215736	IA-09	11/12/19	Gross Alpha/Beta	Gross Beta	1.182E-14	3.023E-14	5.144E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215737	IA-09	11/13/19	Gross Alpha/Beta	Gross Alpha	-3.51E-15	9.151E-15	1.748E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP215737	IA-09	11/13/19	Gross Alpha/Beta	Gross Beta	2.222E-14	1.926E-14	3.087E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP215737	IA-09	11/13/19	Gross Alpha/Beta	Gross Alpha	9.562E-15	1.265E-14	1.748E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215737	IA-09	11/13/19	Gross Alpha/Beta	Gross Beta	2.596E-14	1.964E-14	3.087E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215738	IA-09	11/13/19	Gross Alpha/Beta	Gross Alpha	2.377E-15	1.12E-14	1.807E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215738	IA-09	11/13/19	Gross Alpha/Beta	Gross Beta	1.91E-14	1.951E-14	3.191E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215739	IA-09	11/13/19	Gross Alpha/Beta	Gross Alpha	-6.12E-16	1.014E-14	1.767E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215739	IA-09	11/13/19	Gross Alpha/Beta	Gross Beta	3.546E-15	1.747E-14	3.121E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215740	IA-09	11/14/19	Gross Alpha/Beta	Gross Alpha	8.66E-16	1.067E-14	1.787E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215740	IA-09	11/14/19	Gross Alpha/Beta	Gross Beta	1.889E-14	1.929E-14	3.155E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215741	IA-09	11/14/19	Gross Alpha/Beta	Gross Alpha	-6.15E-16	1.02E-14	1.777E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215741	IA-09	11/14/19	Gross Alpha/Beta	Gross Beta	2.639E-14	1.997E-14	3.138E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215742	IA-09	11/14/19	Gross Alpha/Beta	Gross Beta	3.304E-14	2.064E-14	3.138E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215742	IA-09	11/14/19	Gross Alpha/Beta	Gross Alpha	8.61E-16	1.061E-14	1.777E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215743	IA-09	11/18/19	Gross Alpha/Beta	Gross Alpha	-5.99E-16	9.921E-15	1.729E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215743	IA-09	11/18/19	Gross Alpha/Beta	Gross Beta	1.18E-14	1.799E-14	3.053E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215744	IA-09	11/18/19	Gross Alpha/Beta	Gross Alpha	-6.415E-15	8.186E-15	1.748E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215744	IA-09	11/18/19	Gross Alpha/Beta	Gross Beta	2.409E-14	1.945E-14	3.087E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215745	IA-09	11/18/19	Gross Alpha/Beta	Gross Alpha	3.673E-15	1.098E-14	1.71E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215745	IA-09	11/18/19	Gross Alpha/Beta	Gross Beta	1.259E-14	1.79E-14	3.021E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215754	IA-09	11/19/19	Gross Alpha/Beta	Gross Beta	3.479E-14	1.625E-14	2.182E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP215754	IA-09	11/19/19	Gross Alpha/Beta	Gross Alpha	2.772E-15	6.516E-15	1.138E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP215754	IA-09	11/19/19	Gross Alpha/Beta	Gross Beta	4E-14	1.685E-14	2.182E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215754	IA-09	11/19/19	Gross Alpha/Beta	Gross Alpha	1.11E-16	5.316E-15	1.138E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215755	IA-09	11/19/19	Gross Alpha/Beta	Gross Alpha	1.1E-16	5.261E-15	1.126E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215755	IA-09	11/19/19	Gross Alpha/Beta	Gross Beta	1.553E-14	1.375E-14	2.159E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215756	IA-09	11/19/19	Gross Alpha/Beta	Gross Beta	3.218E-14	1.594E-14	2.182E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215756	IA-09	11/19/19	Gross Alpha/Beta	Gross Alpha	2.772E-15	6.516E-15	1.138E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215757	IA-09	11/20/19	Gross Alpha/Beta	Gross Beta	3.357E-14	1.598E-14	2.159E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215757	IA-09	11/20/19	Gross Alpha/Beta	Gross Alpha	1.426E-15	5.884E-15	1.126E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215758	IA-09	11/20/19	Gross Alpha/Beta	Gross Beta	3.392E-14	1.615E-14	2.182E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215758	IA-09	11/20/19	Gross Alpha/Beta	Gross Alpha	1.442E-15	5.946E-15	1.138E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP215759	IA-09	11/20/19	Gross Alpha/Beta	Gross Alpha	2.772E-15	6.516E-15	1.138E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215759	IA-09	11/20/19	Gross Alpha/Beta	Gross Beta	2.003E-14	1.445E-14	2.182E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215760	IA-09	11/21/19	Gross Alpha/Beta	Gross Beta	5.172E-14	1.871E-14	2.278E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215760	IA-09	11/21/19	Gross Alpha/Beta	Gross Alpha	7.061E-15	8.345E-15	1.188E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215761	IA-09	11/21/19	Gross Alpha/Beta	Gross Beta	3.994E-14	1.739E-14	2.278E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215761	IA-09	11/21/19	Gross Alpha/Beta	Gross Alpha	2.894E-15	6.803E-15	1.188E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215762	IA-09	11/21/19	Gross Alpha/Beta	Gross Beta	3.994E-14	1.739E-14	2.278E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215762	IA-09	11/21/19	Gross Alpha/Beta	Gross Alpha	1.505E-15	6.207E-15	1.188E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215763	IA-09	11/25/19	Gross Alpha/Beta	Gross Beta	3.234E-14	1.636E-14	2.253E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215763	IA-09	11/25/19	Gross Alpha/Beta	Gross Alpha	-4.008E-15	2.749E-15	1.175E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215764	IA-09	11/25/19	Gross Alpha/Beta	Gross Alpha	-3.335E-15	3.057E-15	7.664E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215764	IA-09	11/25/19	Gross Alpha/Beta	Gross Beta	-5.995E-15	8.112E-15	1.581E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215765	IA-09	11/25/19	Gross Alpha/Beta	Gross Beta	4.399E-14	1.771E-14	2.253E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215765	IA-09	11/25/19	Gross Alpha/Beta	Gross Alpha	1.111E-14	9.546E-15	1.175E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215766	IA-09	11/26/19	Gross Alpha/Beta	Gross Beta	5.026E-14	1.841E-14	2.253E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215766	IA-09	11/26/19	Gross Alpha/Beta	Gross Alpha	8.359E-15	8.705E-15	1.175E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215767	IA-09	11/26/19	Gross Alpha/Beta	Gross Alpha	1.401E-14	1.044E-14	1.188E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215767	IA-09	11/26/19	Gross Alpha/Beta	Gross Beta	4.085E-14	1.749E-14	2.278E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215768	IA-09	11/26/19	Gross Alpha/Beta	Gross Beta	5.625E-14	1.921E-14	2.278E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215768	IA-09	11/26/19	Gross Alpha/Beta	Gross Alpha	5.672E-15	7.863E-15	1.188E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215769	IA-09	11/27/19	Gross Alpha/Beta	Gross Alpha	1.778E-15	7.336E-15	1.404E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215769	IA-09	11/27/19	Gross Alpha/Beta	Gross Beta	3.302E-15	1.495E-14	2.692E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215770	IA-09	12/03/19	Gross Alpha/Beta	Gross Alpha	-4.265E-15	4.464E-15	8.201E-15	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP215770	IA-09	12/03/19	Gross Alpha/Beta	Gross Beta	-3.888E-15	1.14E-14	1.503E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP215770	IA-09	12/03/19	Gross Alpha/Beta	Gross Beta	2.211E-14	1.685E-14	2.167E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215770	IA-09	12/03/19	Gross Alpha/Beta	Gross Alpha	8.817E-15	9.695E-15	1.263E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215771	IA-09	12/03/19	Gross Alpha/Beta	Gross Alpha	-1.446E-15	1.152E-14	2.277E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215771	IA-09	12/03/19	Gross Alpha/Beta	Gross Beta	-2.156E-15	2.538E-14	3.909E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215772	IA-09	12/03/19	Gross Alpha/Beta	Gross Beta	4.182E-14	1.899E-14	2.167E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215772	IA-09	12/03/19	Gross Alpha/Beta	Gross Alpha	4.695E-15	8.431E-15	1.263E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215773	IA-09	12/04/19	Gross Alpha/Beta	Gross Beta	3.196E-14	1.794E-14	2.167E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215773	IA-09	12/04/19	Gross Alpha/Beta	Gross Alpha	-8.02E-16	6.385E-15	1.263E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215774	IA-09	12/04/19	Gross Alpha/Beta	Gross Beta	2.748E-14	1.745E-14	2.167E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215774	IA-09	12/04/19	Gross Alpha/Beta	Gross Alpha	8.817E-15	9.695E-15	1.263E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215775	IA-09	12/04/19	Gross Alpha/Beta	Gross Alpha	5.73E-16	6.951E-15	1.263E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215775	IA-09	12/04/19	Gross Alpha/Beta	Gross Beta	2.121E-14	1.675E-14	2.167E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215776	IA-09	12/05/19	Gross Alpha/Beta	Gross Alpha	-8.1E-16	6.455E-15	1.276E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215776	IA-09	12/05/19	Gross Alpha/Beta	Gross Beta	2.054E-14	1.683E-14	2.191E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215777	IA-09	12/05/19	Gross Alpha/Beta	Gross Beta	2.748E-14	1.745E-14	2.167E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215777	IA-09	12/05/19	Gross Alpha/Beta	Gross Alpha	1.947E-15	7.476E-15	1.263E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215778	IA-09	12/05/19	Gross Alpha/Beta	Gross Beta	4.003E-14	1.88E-14	2.167E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215778	IA-09	12/05/19	Gross Alpha/Beta	Gross Alpha	5.73E-16	6.951E-15	1.263E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215779	IA-09	12/09/19	Gross Alpha/Beta	Gross Beta	5.258E-14	2.011E-14	2.167E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215779	IA-09	12/09/19	Gross Alpha/Beta	Gross Alpha	1.947E-15	7.476E-15	1.263E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP215780	IA-09	12/09/19	Gross Alpha/Beta	Gross Beta	6.96E-14	2.18E-14	2.167E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215780	IA-09	12/09/19	Gross Alpha/Beta	Gross Alpha	-8.02E-16	6.385E-15	1.263E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215781	IA-09	12/09/19	Gross Alpha/Beta	Gross Beta	4.006E-14	1.85E-14	2.121E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215781	IA-09	12/09/19	Gross Alpha/Beta	Gross Alpha	3.25E-15	7.797E-15	1.236E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215782	IA-09	12/10/19	Gross Alpha/Beta	Gross Beta	2.405E-14	1.772E-14	2.266E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215782	IA-09	12/10/19	Gross Alpha/Beta	Gross Alpha	3.471E-15	8.329E-15	1.32E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215783	IA-09	12/10/19	Gross Alpha/Beta	Gross Beta	3.675E-14	1.894E-14	2.24E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215783	IA-09	12/10/19	Gross Alpha/Beta	Gross Alpha	-2.249E-15	5.959E-15	1.305E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215784	IA-09	12/10/19	Gross Alpha/Beta	Gross Alpha	2.035E-15	7.816E-15	1.32E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215784	IA-09	12/10/19	Gross Alpha/Beta	Gross Beta	2.03E-14	1.73E-14	2.266E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215785	IA-09	12/11/19	Gross Alpha/Beta	Gross Beta	4.219E-14	2.11E-14	2.888E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP215785	IA-09	12/11/19	Gross Alpha/Beta	Gross Alpha	8.174E-15	8.87E-15	1.262E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP215785	IA-09	12/11/19	Gross Alpha/Beta	Gross Alpha	8.174E-15	8.87E-15	1.262E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215785	IA-09	12/11/19	Gross Alpha/Beta	Gross Beta	2.754E-14	1.966E-14	2.888E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215786	IA-09	12/11/19	Gross Alpha/Beta	Gross Alpha	-3.52E-16	5.408E-15	1.249E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215786	IA-09	12/11/19	Gross Alpha/Beta	Gross Beta	2.816E-14	1.955E-14	2.857E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215787	IA-09	12/11/19	Gross Alpha/Beta	Gross Beta	4.127E-14	2.101E-14	2.888E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215787	IA-09	12/11/19	Gross Alpha/Beta	Gross Alpha	3.909E-15	7.361E-15	1.262E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215788	IA-09	12/12/19	Gross Alpha/Beta	Gross Alpha	4.298E-15	8.093E-15	1.388E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215788	IA-09	12/12/19	Gross Alpha/Beta	Gross Beta	2.625E-14	2.121E-14	3.175E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215789	IA-09	12/12/19	Gross Alpha/Beta	Gross Beta	3.35E-14	2.205E-14	3.194E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215789	IA-09	12/12/19	Gross Alpha/Beta	Gross Alpha	4.323E-15	8.141E-15	1.396E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215790	IA-09	12/12/19	Gross Alpha/Beta	Gross Alpha	-4.03E-16	6.189E-15	1.43E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215790	IA-09	12/12/19	Gross Alpha/Beta	Gross Beta	2.186E-14	2.133E-14	3.271E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215791	IA-09	12/17/19	Gross Alpha/Beta	Gross Alpha	1.222E-14	1.81E-14	2.894E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215791	IA-09	12/17/19	Gross Alpha/Beta	Gross Beta	2.326E-14	4.099E-14	6.621E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215792	IA-09	12/17/19	Gross Alpha/Beta	Gross Alpha	-4.074E-15	1.07E-14	2.894E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215792	IA-09	12/17/19	Gross Alpha/Beta	Gross Beta	6.524E-14	4.529E-14	6.621E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215793	IA-09	12/17/19	Gross Alpha/Beta	Gross Alpha	-4.283E-15	1.125E-14	3.043E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215793	IA-09	12/17/19	Gross Alpha/Beta	Gross Beta	3.328E-14	4.402E-14	6.96E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215794	IA-09	12/18/19	Gross Alpha/Beta	Gross Beta	6.088E-14	2.324E-14	2.951E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215794	IA-09	12/18/19	Gross Alpha/Beta	Gross Alpha	2.542E-15	6.935E-15	1.29E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215795	IA-09	12/18/19	Gross Alpha/Beta	Gross Beta	5.652E-14	2.265E-14	2.919E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215795	IA-09	12/18/19	Gross Alpha/Beta	Gross Alpha	3.951E-15	7.441E-15	1.276E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215796	IA-09	12/18/19	Gross Alpha/Beta	Gross Beta	5.409E-14	2.224E-14	2.888E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215796	IA-09	12/18/19	Gross Alpha/Beta	Gross Alpha	1.066E-15	6.161E-15	1.262E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215797	IA-09	12/19/19	Gross Alpha/Beta	Gross Beta	5.624E-14	2.226E-14	2.857E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215797	IA-09	12/19/19	Gross Alpha/Beta	Gross Alpha	6.682E-15	8.308E-15	1.249E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215798	IA-09	12/19/19	Gross Alpha/Beta	Gross Beta	4.912E-14	2.195E-14	2.919E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215798	IA-09	12/19/19	Gross Alpha/Beta	Gross Alpha	5.388E-15	7.98E-15	1.276E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215799	IA-09	12/19/19	Gross Alpha/Beta	Gross Beta	6.556E-14	2.368E-14	2.951E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215799	IA-09	12/19/19	Gross Alpha/Beta	Gross Alpha	8.352E-15	9.063E-15	1.29E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215800	IA-09	12/23/19	Gross Alpha/Beta	Gross Beta	4.492E-14	1.814E-14	2.168E-14	µCi/mL			IA-09 (General Area)-Perimeter Air
SVP215800	IA-09	12/23/19	Gross Alpha/Beta	Gross Alpha	9.628E-15	8.554E-15	1.012E-14	µCi/mL			IA-09 (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP215800	IA-09	12/23/19	Gross Alpha/Beta	Gross Beta	5.201E-14	1.891E-14	2.168E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215800	IA-09	12/23/19	Gross Alpha/Beta	Gross Alpha	6.909E-15	7.628E-15	1.012E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215801	IA-09	12/23/19	Gross Alpha/Beta	Gross Beta	5.76E-14	1.936E-14	2.145E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215801	IA-09	12/23/19	Gross Alpha/Beta	Gross Alpha	2.802E-15	5.922E-15	1.001E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215802	IA-09	12/23/19	Gross Alpha/Beta	Gross Beta	3.251E-14	1.675E-14	2.168E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215802	IA-09	12/23/19	Gross Alpha/Beta	Gross Alpha	5.55E-15	7.121E-15	1.012E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215803	IA-09	12/24/19	Gross Alpha/Beta	Gross Alpha	3.027E-15	6.398E-15	1.082E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215803	IA-09	12/24/19	Gross Alpha/Beta	Gross Beta	1.864E-14	1.598E-14	2.317E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215804	IA-09	12/24/19	Gross Alpha/Beta	Gross Alpha	7.386E-15	8.154E-15	1.082E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215804	IA-09	12/24/19	Gross Alpha/Beta	Gross Beta	2.148E-14	1.633E-14	2.317E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215805	IA-09	12/24/19	Gross Alpha/Beta	Gross Alpha	7.386E-15	8.154E-15	1.082E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215805	IA-09	12/24/19	Gross Alpha/Beta	Gross Beta	1.39E-14	1.538E-14	2.317E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215806	IA-09	12/26/19	Gross Alpha/Beta	Gross Beta	3.428E-14	1.695E-14	2.168E-14	µCi/mL	=		IA-09 (General Area)-Perimeter Air
SVP215806	IA-09	12/26/19	Gross Alpha/Beta	Gross Alpha	1.473E-15	5.33E-15	1.012E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215807	IA-09	12/26/19	Gross Alpha/Beta	Gross Beta	2.479E-14	1.598E-14	2.192E-14	µCi/mL	J	T04, T20	IA-09 (General Area)-Perimeter Air
SVP215807	IA-09	12/26/19	Gross Alpha/Beta	Gross Alpha	5.611E-15	7.199E-15	1.023E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215808	IA-09	12/26/19	Gross Alpha/Beta	Gross Alpha	8.45E-15	8.282E-15	1.034E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215808	IA-09	12/26/19	Gross Alpha/Beta	Gross Beta	1.691E-14	1.516E-14	2.216E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215809	IA-09	12/30/19	Gross Alpha/Beta	Gross Alpha	5.672E-15	7.278E-15	1.034E-14	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215809	IA-09	12/30/19	Gross Alpha/Beta	Gross Beta	1.601E-14	1.505E-14	2.216E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SVP215810	IA-09	12/30/19	Gross Alpha/Beta	Gross Alpha	1.256E-15	4.548E-15	8.636E-15	µCi/mL	UJ	T06	IA-09 (General Area)-Perimeter Air
SVP215810	IA-09	12/30/19	Gross Alpha/Beta	Gross Beta	1.715E-14	1.303E-14	1.85E-14	µCi/mL	UJ	T04, T05	IA-09 (General Area)-Perimeter Air
SLA209397	LOADOUT	05/02/19	Gross Alpha/Beta	Gross Alpha	7.7E-15	8.801E-15	1.306E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA209397	LOADOUT	05/02/19	Gross Alpha/Beta	Gross Beta	1.831E-14	1.858E-14	2.871E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA209397	LOADOUT	05/02/19	Gross Alpha/Beta	Gross Beta	3.021E-14	1.979E-14	2.871E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209397	LOADOUT	05/02/19	Gross Alpha/Beta	Gross Alpha	4.857E-15	7.818E-15	1.306E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209398	LOADOUT	05/02/19	Gross Alpha/Beta	Gross Alpha	-2.275E-15	4.588E-15	1.32E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209398	LOADOUT	05/02/19	Gross Alpha/Beta	Gross Beta	2.036E-14	1.897E-14	2.902E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209399	LOADOUT	05/01/19	Gross Alpha/Beta	Gross Alpha	5.621E-15	7.451E-15	1.169E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209399	LOADOUT	05/01/19	Gross Alpha/Beta	Gross Beta	1.229E-14	1.62E-14	2.57E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209400	LOADOUT	05/01/19	Gross Alpha/Beta	Gross Alpha	5.3E-16	5.427E-15	1.169E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209400	LOADOUT	05/01/19	Gross Alpha/Beta	Gross Beta	1.229E-14	1.62E-14	2.57E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209401	LOADOUT	05/06/19	Gross Alpha/Beta	Gross Alpha	-7.29E-16	4.704E-15	1.148E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209401	LOADOUT	05/06/19	Gross Alpha/Beta	Gross Beta	1.206E-14	1.59E-14	2.522E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209402	LOADOUT	05/06/19	Gross Alpha/Beta	Gross Beta	2.815E-14	1.754E-14	2.522E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209402	LOADOUT	05/06/19	Gross Alpha/Beta	Gross Alpha	-7.29E-16	4.704E-15	1.148E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209403	LOADOUT	05/07/19	Gross Alpha/Beta	Gross Alpha	-1.959E-15	3.951E-15	1.137E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209403	LOADOUT	05/07/19	Gross Alpha/Beta	Gross Beta	5.578E-15	1.508E-14	2.499E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209404	LOADOUT	05/07/19	Gross Alpha/Beta	Gross Alpha	1.041E-14	8.795E-15	1.137E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209404	LOADOUT	05/07/19	Gross Alpha/Beta	Gross Beta	2.231E-14	1.682E-14	2.499E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209405	LOADOUT	05/08/19	Gross Alpha/Beta	Gross Alpha	4.307E-15	6.933E-15	1.158E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209405	LOADOUT	05/08/19	Gross Alpha/Beta	Gross Beta	2.111E-14	1.697E-14	2.546E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209406	LOADOUT	05/08/19	Gross Alpha/Beta	Gross Alpha	3.076E-15	6.516E-15	1.169E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209406	LOADOUT	05/08/19	Gross Alpha/Beta	Gross Beta	2.295E-14	1.73E-14	2.57E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA209407	LOADOUT	05/08/19	Gross Alpha/Beta	Gross Beta	5.163E-14	2.766E-14	3.855E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209407	LOADOUT	05/08/19	Gross Alpha/Beta	Gross Alpha	6.523E-15	1.05E-14	1.754E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209408	LOADOUT	05/08/19	Gross Alpha/Beta	Gross Alpha	8.432E-15	1.118E-14	1.754E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209408	LOADOUT	05/08/19	Gross Alpha/Beta	Gross Beta	3.565E-14	2.608E-14	3.855E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209409	LOADOUT	05/08/19	Gross Alpha/Beta	Gross Beta	4.864E-14	2.77E-14	3.911E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209409	LOADOUT	05/08/19	Gross Alpha/Beta	Gross Alpha	6.617E-15	1.065E-14	1.78E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209410	LOADOUT	05/09/19	Gross Alpha/Beta	Gross Alpha	-7.15E-16	4.618E-15	1.127E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209410	LOADOUT	05/09/19	Gross Alpha/Beta	Gross Beta	1.026E-14	1.544E-14	2.476E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209411	LOADOUT	05/09/19	Gross Alpha/Beta	Gross Alpha	4.189E-15	6.742E-15	1.127E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209411	LOADOUT	05/09/19	Gross Alpha/Beta	Gross Beta	8.685E-15	1.528E-14	2.476E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209412	LOADOUT	05/13/19	Gross Alpha/Beta	Gross Alpha	3.018E-15	6.394E-15	1.148E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209412	LOADOUT	05/13/19	Gross Alpha/Beta	Gross Beta	1.769E-14	1.649E-14	2.522E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209413	LOADOUT	05/13/19	Gross Alpha/Beta	Gross Alpha	-7.29E-16	4.704E-15	1.148E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209413	LOADOUT	05/13/19	Gross Alpha/Beta	Gross Beta	3.217E-15	1.496E-14	2.522E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209414	LOADOUT	05/14/19	Gross Alpha/Beta	Gross Beta	3.158E-14	1.761E-14	2.476E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209414	LOADOUT	05/14/19	Gross Alpha/Beta	Gross Alpha	4.189E-15	6.742E-15	1.127E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209415	LOADOUT	05/14/19	Gross Alpha/Beta	Gross Alpha	2.963E-15	6.277E-15	1.127E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209415	LOADOUT	05/14/19	Gross Alpha/Beta	Gross Beta	1.579E-15	1.451E-14	2.476E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209416	LOADOUT	05/14/19	Gross Alpha/Beta	Gross Alpha	-4.932E-15	4.76E-15	1.754E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209416	LOADOUT	05/14/19	Gross Alpha/Beta	Gross Beta	8.606E-15	2.326E-14	3.855E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209228	SLAPS LOADOUT	01/02/19	Gross Alpha/Beta	Gross Beta	4.623E-14	2.244E-14	2.503E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA209228	SLAPS LOADOUT	01/02/19	Gross Alpha/Beta	Gross Alpha	3.853E-15	7.374E-15	1.069E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA209228	SLAPS LOADOUT	01/02/19	Gross Alpha/Beta	Gross Alpha	1.26E-14	9.939E-15	1.069E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209228	SLAPS LOADOUT	01/02/19	Gross Alpha/Beta	Gross Beta	6.547E-14	2.399E-14	2.503E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209229	SLAPS LOADOUT	01/02/19	Gross Alpha/Beta	Gross Alpha	6.352E-15	8.185E-15	1.069E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209229	SLAPS LOADOUT	01/02/19	Gross Alpha/Beta	Gross Beta	2.378E-14	2.058E-14	2.503E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209230	SLAPS LOADOUT	01/03/19	Gross Alpha/Beta	Gross Beta	2.995E-14	2.145E-14	2.55E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209230	SLAPS LOADOUT	01/03/19	Gross Alpha/Beta	Gross Alpha	5.198E-15	7.935E-15	1.089E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209231	SLAPS LOADOUT	01/03/19	Gross Alpha/Beta	Gross Beta	2.754E-14	2.073E-14	2.48E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209231	SLAPS LOADOUT	01/03/19	Gross Alpha/Beta	Gross Alpha	5.056E-15	7.719E-15	1.059E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209232	SLAPS LOADOUT	01/07/19	Gross Alpha/Beta	Gross Beta	3.34E-14	2.138E-14	2.503E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209232	SLAPS LOADOUT	01/07/19	Gross Alpha/Beta	Gross Alpha	1.354E-15	6.467E-15	1.069E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209233	SLAPS LOADOUT	01/07/19	Gross Alpha/Beta	Gross Beta	2.754E-14	2.073E-14	2.48E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209233	SLAPS LOADOUT	01/07/19	Gross Alpha/Beta	Gross Alpha	1.341E-15	6.409E-15	1.059E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209234	SLAPS LOADOUT	01/08/19	Gross Alpha/Beta	Gross Alpha	1.04E-16	5.964E-15	1.069E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209234	SLAPS LOADOUT	01/08/19	Gross Alpha/Beta	Gross Beta	1.336E-14	1.971E-14	2.503E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209235	SLAPS LOADOUT	01/08/19	Gross Alpha/Beta	Gross Alpha	-1.146E-15	5.416E-15	1.069E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209235	SLAPS LOADOUT	01/08/19	Gross Alpha/Beta	Gross Beta	2.378E-14	2.058E-14	2.503E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209236	SLAPS LOADOUT	01/09/19	Gross Alpha/Beta	Gross Beta	3.158E-14	2.158E-14	2.55E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209236	SLAPS LOADOUT	01/09/19	Gross Alpha/Beta	Gross Alpha	1.379E-15	6.588E-15	1.089E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209237	SLAPS LOADOUT	01/09/19	Gross Alpha/Beta	Gross Alpha	2.628E-15	6.999E-15	1.079E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209237	SLAPS LOADOUT	01/09/19	Gross Alpha/Beta	Gross Beta	2.481E-14	2.084E-14	2.526E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209238	SLAPS LOADOUT	01/10/19	Gross Alpha/Beta	Gross Beta	3.787E-14	2.158E-14	2.48E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209238	SLAPS LOADOUT	01/10/19	Gross Alpha/Beta	Gross Alpha	2.58E-15	6.872E-15	1.059E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA209239	SLAPS LOADOUT	01/10/19	Gross Alpha/Beta	Gross Beta	4.463E-14	2.231E-14	2.503E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209239	SLAPS LOADOUT	01/10/19	Gross Alpha/Beta	Gross Alpha	1.01E-14	9.275E-15	1.069E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209240	SLAPS LOADOUT	01/15/19	Gross Alpha/Beta	Gross Alpha	2.628E-15	6.999E-15	1.079E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209240	SLAPS LOADOUT	01/15/19	Gross Alpha/Beta	Gross Beta	-1.888E-15	1.858E-14	2.526E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209241	SLAPS LOADOUT	01/15/19	Gross Alpha/Beta	Gross Alpha	2.603E-15	6.935E-15	1.069E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209241	SLAPS LOADOUT	01/15/19	Gross Alpha/Beta	Gross Beta	5.345E-15	1.903E-14	2.503E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209242	SLAPS LOADOUT	01/16/19	Gross Alpha/Beta	Gross Beta	2.779E-14	2.092E-14	2.503E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209242	SLAPS LOADOUT	01/16/19	Gross Alpha/Beta	Gross Alpha	2.603E-15	6.935E-15	1.069E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209243	SLAPS LOADOUT	01/16/19	Gross Alpha/Beta	Gross Alpha	1.354E-15	6.467E-15	1.069E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209243	SLAPS LOADOUT	01/16/19	Gross Alpha/Beta	Gross Beta	1.817E-14	2.011E-14	2.503E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209244	SLAPS LOADOUT	01/17/19	Gross Alpha/Beta	Gross Beta	2.165E-14	1.343E-14	1.892E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA209244	SLAPS LOADOUT	01/17/19	Gross Alpha/Beta	Gross Alpha	7.26E-15	8.369E-15	1.132E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA209244	SLAPS LOADOUT	01/17/19	Gross Alpha/Beta	Gross Alpha	1.293E-15	6.427E-15	1.132E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209244	SLAPS LOADOUT	01/17/19	Gross Alpha/Beta	Gross Beta	1.639E-14	1.279E-14	1.892E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209245	SLAPS LOADOUT	01/17/19	Gross Alpha/Beta	Gross Alpha	9.9E-17	5.912E-15	1.121E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209245	SLAPS LOADOUT	01/17/19	Gross Alpha/Beta	Gross Beta	1.699E-14	1.277E-14	1.875E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209246	SLAPS LOADOUT	01/22/19	Gross Alpha/Beta	Gross Beta	2.999E-14	1.472E-14	1.946E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209246	SLAPS LOADOUT	01/22/19	Gross Alpha/Beta	Gross Alpha	1.33E-15	6.611E-15	1.164E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209247	SLAPS LOADOUT	01/22/19	Gross Alpha/Beta	Gross Alpha	2.582E-15	7.122E-15	1.175E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209247	SLAPS LOADOUT	01/22/19	Gross Alpha/Beta	Gross Beta	1.858E-14	1.348E-14	1.965E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209248	SLAPS LOADOUT	01/23/19	Gross Alpha/Beta	Gross Beta	2.54E-14	1.388E-14	1.892E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209248	SLAPS LOADOUT	01/23/19	Gross Alpha/Beta	Gross Alpha	3.68E-15	7.264E-15	1.132E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209249	SLAPS LOADOUT	01/23/19	Gross Alpha/Beta	Gross Alpha	1.269E-15	6.31E-15	1.111E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209249	SLAPS LOADOUT	01/23/19	Gross Alpha/Beta	Gross Beta	1.093E-14	1.191E-14	1.858E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209250	SLAPS LOADOUT	01/24/19	Gross Alpha/Beta	Gross Beta	3.141E-14	1.457E-14	1.892E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209250	SLAPS LOADOUT	01/24/19	Gross Alpha/Beta	Gross Alpha	3.68E-15	7.264E-15	1.132E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209251	SLAPS LOADOUT	01/24/19	Gross Alpha/Beta	Gross Alpha	1.203E-14	9.657E-15	1.132E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209251	SLAPS LOADOUT	01/24/19	Gross Alpha/Beta	Gross Beta	4.192E-14	1.573E-14	1.892E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209252	SLAPS LOADOUT	01/28/19	Gross Alpha/Beta	Gross Alpha	1.05E-16	6.318E-15	1.198E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209252	SLAPS LOADOUT	01/28/19	Gross Alpha/Beta	Gross Beta	1.736E-14	1.355E-14	2.004E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209253	SLAPS LOADOUT	01/28/19	Gross Alpha/Beta	Gross Beta	3.485E-14	1.561E-14	2.004E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209253	SLAPS LOADOUT	01/28/19	Gross Alpha/Beta	Gross Alpha	5.16E-15	8.099E-15	1.198E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209254	SLAPS LOADOUT	01/29/19	Gross Alpha/Beta	Gross Beta	4.353E-14	1.634E-14	1.965E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209254	SLAPS LOADOUT	01/29/19	Gross Alpha/Beta	Gross Alpha	1.343E-15	6.675E-15	1.175E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209255	SLAPS LOADOUT	01/29/19	Gross Alpha/Beta	Gross Beta	2.716E-14	1.45E-14	1.965E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209255	SLAPS LOADOUT	01/29/19	Gross Alpha/Beta	Gross Alpha	3.821E-15	7.543E-15	1.175E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209256	SLAPS LOADOUT	01/31/19	Gross Alpha/Beta	Gross Alpha	5.161E-15	1.019E-14	1.587E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209256	SLAPS LOADOUT	01/31/19	Gross Alpha/Beta	Gross Beta	2.089E-14	1.768E-14	2.654E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209257	SLAPS LOADOUT	01/31/19	Gross Alpha/Beta	Gross Alpha	5.095E-15	1.006E-14	1.567E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209257	SLAPS LOADOUT	01/31/19	Gross Alpha/Beta	Gross Beta	1.646E-14	1.693E-14	2.62E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209258	SLAPS LOADOUT	02/04/19	Gross Alpha/Beta	Gross Beta	1.901E-14	1.423E-14	1.845E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA209258	SLAPS LOADOUT	02/04/19	Gross Alpha/Beta	Gross Alpha	1.606E-15	6.221E-15	1.217E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA209258	SLAPS LOADOUT	02/04/19	Gross Alpha/Beta	Gross Beta	3.568E-14	1.604E-14	1.845E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209258	SLAPS LOADOUT	02/04/19	Gross Alpha/Beta	Gross Alpha	4.02E-16	5.735E-15	1.217E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA209259	SLAPS LOADOUT	02/04/19	Gross Alpha/Beta	Gross Beta	3.066E-14	1.562E-14	1.862E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209259	SLAPS LOADOUT	02/04/19	Gross Alpha/Beta	Gross Alpha	-8.11E-16	5.254E-15	1.229E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209260	SLAPS LOADOUT	02/04/19	Gross Alpha/Beta	Gross Alpha	3.807E-15	9.039E-15	1.648E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209260	SLAPS LOADOUT	02/04/19	Gross Alpha/Beta	Gross Beta	1.959E-14	1.856E-14	2.498E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209261	SLAPS LOADOUT	02/04/19	Gross Alpha/Beta	Gross Alpha	2.203E-15	8.534E-15	1.67E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209261	SLAPS LOADOUT	02/04/19	Gross Alpha/Beta	Gross Beta	7.364E-15	1.732E-14	2.53E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209262	SLAPS LOADOUT	02/04/19	Gross Alpha/Beta	Gross Beta	3.19E-14	1.996E-14	2.498E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209262	SLAPS LOADOUT	02/04/19	Gross Alpha/Beta	Gross Alpha	2.175E-15	8.426E-15	1.648E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209263	SLAPS LOADOUT	02/05/19	Gross Alpha/Beta	Gross Alpha	-1.935E-15	4.449E-15	1.173E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209263	SLAPS LOADOUT	02/05/19	Gross Alpha/Beta	Gross Beta	1.686E-14	1.355E-14	1.778E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209264	SLAPS LOADOUT	02/05/19	Gross Alpha/Beta	Gross Beta	4.243E-14	1.63E-14	1.778E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209264	SLAPS LOADOUT	02/05/19	Gross Alpha/Beta	Gross Alpha	9.676E-15	8.611E-15	1.173E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209265	SLAPS LOADOUT	02/06/19	Gross Alpha/Beta	Gross Alpha	-7.81E-16	5.063E-15	1.184E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209265	SLAPS LOADOUT	02/06/19	Gross Alpha/Beta	Gross Beta	8.17E-15	1.264E-14	1.794E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209266	SLAPS LOADOUT	02/06/19	Gross Alpha/Beta	Gross Alpha	3.91E-16	5.579E-15	1.184E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209266	SLAPS LOADOUT	02/06/19	Gross Alpha/Beta	Gross Beta	5.959E-15	1.237E-14	1.794E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209267	SLAPS LOADOUT	02/06/19	Gross Alpha/Beta	Gross Alpha	-8.77E-16	5.683E-15	1.329E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209267	SLAPS LOADOUT	02/06/19	Gross Alpha/Beta	Gross Beta	6.688E-15	1.389E-14	2.014E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209268	SLAPS LOADOUT	02/06/19	Gross Alpha/Beta	Gross Alpha	-2.192E-15	5.039E-15	1.329E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209268	SLAPS LOADOUT	02/06/19	Gross Alpha/Beta	Gross Beta	1.91E-14	1.534E-14	2.014E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209269	SLAPS LOADOUT	02/06/19	Gross Alpha/Beta	Gross Alpha	-4.822E-15	3.412E-15	1.329E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209269	SLAPS LOADOUT	02/06/19	Gross Alpha/Beta	Gross Beta	5.861E-15	1.378E-14	2.014E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209270	SLAPS LOADOUT	02/07/19	Gross Alpha/Beta	Gross Alpha	-4.296E-15	3.04E-15	1.184E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209270	SLAPS LOADOUT	02/07/19	Gross Alpha/Beta	Gross Beta	2.273E-15	1.192E-14	1.794E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209271	SLAPS LOADOUT	02/07/19	Gross Alpha/Beta	Gross Alpha	-7.81E-16	5.063E-15	1.184E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209271	SLAPS LOADOUT	02/07/19	Gross Alpha/Beta	Gross Beta	7.99E-16	1.173E-14	1.794E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209272	SLAPS LOADOUT	02/07/19	Gross Alpha/Beta	Gross Alpha	-9.045E-15	1.11E-14	3.427E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209272	SLAPS LOADOUT	02/07/19	Gross Alpha/Beta	Gross Beta	2.365E-14	3.658E-14	5.194E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209273	SLAPS LOADOUT	02/07/19	Gross Alpha/Beta	Gross Alpha	1.131E-15	1.615E-14	3.427E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209273	SLAPS LOADOUT	02/07/19	Gross Alpha/Beta	Gross Beta	-1.049E-14	3.232E-14	5.194E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209274	SLAPS LOADOUT	02/07/19	Gross Alpha/Beta	Gross Alpha	1.131E-15	1.615E-14	3.427E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209274	SLAPS LOADOUT	02/07/19	Gross Alpha/Beta	Gross Beta	-1.049E-14	3.232E-14	5.194E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209275	SLAPS LOADOUT	02/11/19	Gross Alpha/Beta	Gross Alpha	6.485E-15	7.955E-15	1.229E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209275	SLAPS LOADOUT	02/11/19	Gross Alpha/Beta	Gross Beta	1.613E-14	1.401E-14	1.862E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209276	SLAPS LOADOUT	02/11/19	Gross Alpha/Beta	Gross Beta	2.378E-14	1.487E-14	1.862E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209276	SLAPS LOADOUT	02/11/19	Gross Alpha/Beta	Gross Alpha	-2.027E-15	4.659E-15	1.229E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209277	SLAPS LOADOUT	02/11/19	Gross Alpha/Beta	Gross Alpha	-3.255E-15	7.482E-15	1.973E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209277	SLAPS LOADOUT	02/11/19	Gross Alpha/Beta	Gross Beta	9.931E-15	2.062E-14	2.99E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209278	SLAPS LOADOUT	02/11/19	Gross Alpha/Beta	Gross Alpha	2.604E-15	1.009E-14	1.973E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA209278	SLAPS LOADOUT	02/11/19	Gross Alpha/Beta	Gross Beta	2.56E-15	1.971E-14	2.99E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA209278	SLAPS LOADOUT	02/11/19	Gross Alpha/Beta	Gross Alpha	2.604E-15	1.009E-14	1.973E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209278	SLAPS LOADOUT	02/11/19	Gross Alpha/Beta	Gross Beta	2.836E-14	2.278E-14	2.99E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209279	SLAPS LOADOUT	02/11/19	Gross Alpha/Beta	Gross Alpha	-1.282E-15	8.312E-15	1.944E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209279	SLAPS LOADOUT	02/11/19	Gross Alpha/Beta	Gross Beta	1.704E-14	2.118E-14	2.946E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA209280	SLAPS LOADOUT	02/12/19	Gross Alpha/Beta	Gross Beta	2.859E-14	1.517E-14	1.828E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209280	SLAPS LOADOUT	02/12/19	Gross Alpha/Beta	Gross Alpha	-1.989E-15	4.572E-15	1.206E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209281	SLAPS LOADOUT	02/12/19	Gross Alpha/Beta	Gross Beta	2.164E-14	1.43E-14	1.811E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209281	SLAPS LOADOUT	02/12/19	Gross Alpha/Beta	Gross Alpha	6.306E-15	7.736E-15	1.195E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209282	SLAPS LOADOUT	02/13/19	Gross Alpha/Beta	Gross Beta	5.461E-14	1.763E-14	1.794E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209282	SLAPS LOADOUT	02/13/19	Gross Alpha/Beta	Gross Alpha	6.249E-15	7.666E-15	1.184E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209283	SLAPS LOADOUT	02/13/19	Gross Alpha/Beta	Gross Beta	7.57E-14	2.566E-14	2.667E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209283	SLAPS LOADOUT	02/13/19	Gross Alpha/Beta	Gross Alpha	5.806E-15	1.026E-14	1.76E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209284	SLAPS LOADOUT	02/13/19	Gross Alpha/Beta	Gross Beta	5.344E-14	2.292E-14	2.597E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209284	SLAPS LOADOUT	02/13/19	Gross Alpha/Beta	Gross Alpha	-2.827E-15	6.498E-15	1.713E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209285	SLAPS LOADOUT	02/13/19	Gross Alpha/Beta	Gross Beta	4.673E-14	1.73E-14	1.862E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209285	SLAPS LOADOUT	02/13/19	Gross Alpha/Beta	Gross Alpha	1.621E-15	6.28E-15	1.229E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209286	SLAPS LOADOUT	02/13/19	Gross Alpha/Beta	Gross Beta	9.489E-14	2.832E-14	2.78E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209286	SLAPS LOADOUT	02/13/19	Gross Alpha/Beta	Gross Alpha	6.05E-16	8.643E-15	1.834E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209287	SLAPS LOADOUT	02/14/19	Gross Alpha/Beta	Gross Beta	1.995E-14	1.445E-14	1.862E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209287	SLAPS LOADOUT	02/14/19	Gross Alpha/Beta	Gross Alpha	2.837E-15	6.736E-15	1.229E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209288	SLAPS LOADOUT	02/14/19	Gross Alpha/Beta	Gross Beta	2.837E-14	1.538E-14	1.862E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209288	SLAPS LOADOUT	02/14/19	Gross Alpha/Beta	Gross Alpha	1.621E-15	6.28E-15	1.229E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209289	SLAPS LOADOUT	02/19/19	Gross Alpha/Beta	Gross Beta	2.907E-14	1.511E-14	1.811E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209289	SLAPS LOADOUT	02/19/19	Gross Alpha/Beta	Gross Alpha	-7.88E-16	5.109E-15	1.195E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209290	SLAPS LOADOUT	02/19/19	Gross Alpha/Beta	Gross Beta	2.559E-14	1.485E-14	1.828E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209290	SLAPS LOADOUT	02/19/19	Gross Alpha/Beta	Gross Alpha	-1.989E-15	4.572E-15	1.206E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209291	SLAPS LOADOUT	02/20/19	Gross Alpha/Beta	Gross Alpha	-3.125E-15	3.833E-15	1.184E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209291	SLAPS LOADOUT	02/20/19	Gross Alpha/Beta	Gross Beta	5.221E-15	1.228E-14	1.794E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209292	SLAPS LOADOUT	02/20/19	Gross Alpha/Beta	Gross Alpha	-1.971E-15	4.531E-15	1.195E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209292	SLAPS LOADOUT	02/20/19	Gross Alpha/Beta	Gross Beta	6.013E-15	1.248E-14	1.811E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209293	SLAPS LOADOUT	02/21/19	Gross Alpha/Beta	Gross Beta	8.334E-14	2.025E-14	1.778E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209293	SLAPS LOADOUT	02/21/19	Gross Alpha/Beta	Gross Alpha	3.87E-16	5.528E-15	1.173E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209294	SLAPS LOADOUT	02/21/19	Gross Alpha/Beta	Gross Beta	6.581E-14	1.861E-14	1.778E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209294	SLAPS LOADOUT	02/21/19	Gross Alpha/Beta	Gross Alpha	2.709E-15	6.433E-15	1.173E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209295	SLAPS LOADOUT	02/25/19	Gross Alpha/Beta	Gross Beta	6.208E-14	1.827E-14	1.764E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA209295	SLAPS LOADOUT	02/25/19	Gross Alpha/Beta	Gross Alpha	-5.02E-16	2.996E-15	8.169E-15	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA209295	SLAPS LOADOUT	02/25/19	Gross Alpha/Beta	Gross Beta	6.208E-14	1.827E-14	1.764E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209295	SLAPS LOADOUT	02/25/19	Gross Alpha/Beta	Gross Alpha	6.725E-15	6.634E-15	8.169E-15	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209296	SLAPS LOADOUT	02/25/19	Gross Alpha/Beta	Gross Alpha	1.263E-14	8.499E-15	8.093E-15	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209296	SLAPS LOADOUT	02/25/19	Gross Alpha/Beta	Gross Beta	5.55E-14	1.75E-14	1.748E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209297	SLAPS LOADOUT	02/26/19	Gross Alpha/Beta	Gross Beta	5.905E-14	1.797E-14	1.764E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209297	SLAPS LOADOUT	02/26/19	Gross Alpha/Beta	Gross Alpha	5.521E-15	6.176E-15	8.169E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209298	SLAPS LOADOUT	02/26/19	Gross Alpha/Beta	Gross Beta	3.713E-14	1.548E-14	1.732E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209298	SLAPS LOADOUT	02/26/19	Gross Alpha/Beta	Gross Alpha	5.42E-15	6.062E-15	8.019E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209299	SLAPS LOADOUT	02/27/19	Gross Alpha/Beta	Gross Beta	3.764E-14	1.503E-14	1.656E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209299	SLAPS LOADOUT	02/27/19	Gross Alpha/Beta	Gross Alpha	6.313E-15	6.227E-15	7.667E-15	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209300	SLAPS LOADOUT	02/27/19	Gross Alpha/Beta	Gross Beta	3.693E-14	1.495E-14	1.656E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209300	SLAPS LOADOUT	02/27/19	Gross Alpha/Beta	Gross Alpha	6.313E-15	6.227E-15	7.667E-15	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA209301	SLAPS LOADOUT	02/28/19	Gross Alpha/Beta	Gross Beta	4.81E-14	3.474E-14	4.494E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209301	SLAPS LOADOUT	02/28/19	Gross Alpha/Beta	Gross Alpha	-4.347E-15	4.546E-15	2.081E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209302	SLAPS LOADOUT	02/28/19	Gross Alpha/Beta	Gross Beta	6.741E-14	3.697E-14	4.494E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209302	SLAPS LOADOUT	02/28/19	Gross Alpha/Beta	Gross Alpha	4.859E-15	1.156E-14	2.081E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209303	SLAPS LOADOUT	03/04/19	Gross Alpha/Beta	Gross Beta	3.134E-14	1.706E-14	1.949E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA209303	SLAPS LOADOUT	03/04/19	Gross Alpha/Beta	Gross Beta	3.134E-14	1.706E-14	1.949E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA209303	SLAPS LOADOUT	03/04/19	Gross Alpha/Beta	Gross Alpha	1.05E-16	4.316E-15	9.41E-15	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA209303	SLAPS LOADOUT	03/04/19	Gross Alpha/Beta	Gross Alpha	1.05E-16	4.316E-15	9.41E-15	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA209303	SLAPS LOADOUT	03/04/19	Gross Alpha/Beta	Gross Beta	3.849E-14	1.779E-14	1.949E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209303	SLAPS LOADOUT	03/04/19	Gross Alpha/Beta	Gross Beta	3.849E-14	1.779E-14	1.949E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209303	SLAPS LOADOUT	03/04/19	Gross Alpha/Beta	Gross Alpha	1.05E-16	4.316E-15	9.41E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209303	SLAPS LOADOUT	03/04/19	Gross Alpha/Beta	Gross Alpha	1.05E-16	4.316E-15	9.41E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209304	SLAPS LOADOUT	03/04/19	Gross Alpha/Beta	Gross Beta	2.839E-14	1.65E-14	1.912E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209304	SLAPS LOADOUT	03/04/19	Gross Alpha/Beta	Gross Beta	2.839E-14	1.65E-14	1.912E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209304	SLAPS LOADOUT	03/04/19	Gross Alpha/Beta	Gross Alpha	2.582E-15	5.499E-15	9.229E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209304	SLAPS LOADOUT	03/04/19	Gross Alpha/Beta	Gross Alpha	2.582E-15	5.499E-15	9.229E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209305	SLAPS LOADOUT	03/05/19	Gross Alpha/Beta	Gross Beta	3.168E-14	1.658E-14	1.876E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209305	SLAPS LOADOUT	03/05/19	Gross Alpha/Beta	Gross Beta	3.168E-14	1.658E-14	1.876E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209305	SLAPS LOADOUT	03/05/19	Gross Alpha/Beta	Gross Alpha	2.533E-15	5.395E-15	9.055E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209305	SLAPS LOADOUT	03/05/19	Gross Alpha/Beta	Gross Alpha	2.533E-15	5.395E-15	9.055E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209306	SLAPS LOADOUT	03/05/19	Gross Alpha/Beta	Gross Beta	2.48E-14	1.587E-14	1.876E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209306	SLAPS LOADOUT	03/05/19	Gross Alpha/Beta	Gross Beta	2.48E-14	1.587E-14	1.876E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209306	SLAPS LOADOUT	03/05/19	Gross Alpha/Beta	Gross Alpha	6.181E-15	6.856E-15	9.055E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209306	SLAPS LOADOUT	03/05/19	Gross Alpha/Beta	Gross Alpha	6.181E-15	6.856E-15	9.055E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209307	SLAPS LOADOUT	03/05/19	Gross Alpha/Beta	Gross Alpha	9.334E-15	9.186E-15	1.143E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209307	SLAPS LOADOUT	03/05/19	Gross Alpha/Beta	Gross Alpha	9.334E-15	9.186E-15	1.143E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209307	SLAPS LOADOUT	03/05/19	Gross Alpha/Beta	Gross Beta	1.295E-14	1.806E-14	2.367E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209307	SLAPS LOADOUT	03/05/19	Gross Alpha/Beta	Gross Beta	1.295E-14	1.806E-14	2.367E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209308	SLAPS LOADOUT	03/05/19	Gross Alpha/Beta	Gross Alpha	6.265E-15	8.082E-15	1.143E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209308	SLAPS LOADOUT	03/05/19	Gross Alpha/Beta	Gross Alpha	6.265E-15	8.082E-15	1.143E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209308	SLAPS LOADOUT	03/05/19	Gross Alpha/Beta	Gross Beta	1.392E-14	1.817E-14	2.367E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209308	SLAPS LOADOUT	03/05/19	Gross Alpha/Beta	Gross Beta	1.392E-14	1.817E-14	2.367E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209309	SLAPS LOADOUT	03/05/19	Gross Alpha/Beta	Gross Beta	3.129E-14	2.002E-14	2.367E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209309	SLAPS LOADOUT	03/05/19	Gross Alpha/Beta	Gross Beta	3.129E-14	2.002E-14	2.367E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209309	SLAPS LOADOUT	03/05/19	Gross Alpha/Beta	Gross Alpha	1.662E-15	6.074E-15	1.143E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209309	SLAPS LOADOUT	03/05/19	Gross Alpha/Beta	Gross Alpha	1.662E-15	6.074E-15	1.143E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209310	SLAPS LOADOUT	03/06/19	Gross Alpha/Beta	Gross Beta	2.786E-14	1.618E-14	1.876E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209310	SLAPS LOADOUT	03/06/19	Gross Alpha/Beta	Gross Beta	2.786E-14	1.618E-14	1.876E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209310	SLAPS LOADOUT	03/06/19	Gross Alpha/Beta	Gross Alpha	3.749E-15	5.921E-15	9.055E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209310	SLAPS LOADOUT	03/06/19	Gross Alpha/Beta	Gross Alpha	3.749E-15	5.921E-15	9.055E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209311	SLAPS LOADOUT	03/06/19	Gross Alpha/Beta	Gross Alpha	1.305E-15	4.769E-15	8.97E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209311	SLAPS LOADOUT	03/06/19	Gross Alpha/Beta	Gross Alpha	1.305E-15	4.769E-15	8.97E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209311	SLAPS LOADOUT	03/06/19	Gross Alpha/Beta	Gross Beta	9.409E-15	1.409E-14	1.858E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209311	SLAPS LOADOUT	03/06/19	Gross Alpha/Beta	Gross Beta	9.409E-15	1.409E-14	1.858E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA209312	SLAPS LOADOUT	03/07/19	Gross Alpha/Beta	Gross Beta	3.015E-14	1.642E-14	1.876E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209312	SLAPS LOADOUT	03/07/19	Gross Alpha/Beta	Gross Beta	3.015E-14	1.642E-14	1.876E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209312	SLAPS LOADOUT	03/07/19	Gross Alpha/Beta	Gross Alpha	7.397E-15	7.279E-15	9.055E-15	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209312	SLAPS LOADOUT	03/07/19	Gross Alpha/Beta	Gross Alpha	7.397E-15	7.279E-15	9.055E-15	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209313	SLAPS LOADOUT	03/07/19	Gross Alpha/Beta	Gross Alpha	6.123E-15	6.792E-15	8.97E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209313	SLAPS LOADOUT	03/07/19	Gross Alpha/Beta	Gross Alpha	6.123E-15	6.792E-15	8.97E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209313	SLAPS LOADOUT	03/07/19	Gross Alpha/Beta	Gross Beta	1.547E-14	1.476E-14	1.858E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209313	SLAPS LOADOUT	03/07/19	Gross Alpha/Beta	Gross Beta	1.547E-14	1.476E-14	1.858E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209314	SLAPS LOADOUT	03/07/19	Gross Alpha/Beta	Gross Beta	3.139E-14	2.18E-14	2.616E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209314	SLAPS LOADOUT	03/07/19	Gross Alpha/Beta	Gross Beta	3.139E-14	2.18E-14	2.616E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209314	SLAPS LOADOUT	03/07/19	Gross Alpha/Beta	Gross Alpha	1.837E-15	6.714E-15	1.263E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209314	SLAPS LOADOUT	03/07/19	Gross Alpha/Beta	Gross Alpha	1.837E-15	6.714E-15	1.263E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209315	SLAPS LOADOUT	03/07/19	Gross Alpha/Beta	Gross Alpha	5.229E-15	8.258E-15	1.263E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209315	SLAPS LOADOUT	03/07/19	Gross Alpha/Beta	Gross Alpha	5.229E-15	8.258E-15	1.263E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209315	SLAPS LOADOUT	03/07/19	Gross Alpha/Beta	Gross Beta	2.392E-14	2.101E-14	2.616E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209315	SLAPS LOADOUT	03/07/19	Gross Alpha/Beta	Gross Beta	2.392E-14	2.101E-14	2.616E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209316	SLAPS LOADOUT	03/07/19	Gross Alpha/Beta	Gross Alpha	1.41E-16	5.793E-15	1.263E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209316	SLAPS LOADOUT	03/07/19	Gross Alpha/Beta	Gross Alpha	1.41E-16	5.793E-15	1.263E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209316	SLAPS LOADOUT	03/07/19	Gross Alpha/Beta	Gross Beta	2.578E-15	1.864E-14	2.616E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209316	SLAPS LOADOUT	03/07/19	Gross Alpha/Beta	Gross Beta	2.578E-15	1.864E-14	2.616E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209317	SLAPS LOADOUT	03/11/19	Gross Alpha/Beta	Gross Beta	2.736E-14	1.666E-14	1.949E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209317	SLAPS LOADOUT	03/11/19	Gross Alpha/Beta	Gross Beta	2.736E-14	1.666E-14	1.949E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209317	SLAPS LOADOUT	03/11/19	Gross Alpha/Beta	Gross Alpha	6.423E-15	7.124E-15	9.41E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209317	SLAPS LOADOUT	03/11/19	Gross Alpha/Beta	Gross Alpha	6.423E-15	7.124E-15	9.41E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209318	SLAPS LOADOUT	03/11/19	Gross Alpha/Beta	Gross Beta	3.147E-14	1.75E-14	2.008E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209318	SLAPS LOADOUT	03/11/19	Gross Alpha/Beta	Gross Beta	3.147E-14	1.75E-14	2.008E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209318	SLAPS LOADOUT	03/11/19	Gross Alpha/Beta	Gross Alpha	4.014E-15	6.34E-15	9.695E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209318	SLAPS LOADOUT	03/11/19	Gross Alpha/Beta	Gross Alpha	4.014E-15	6.34E-15	9.695E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209319	SLAPS LOADOUT	03/12/19	Gross Alpha/Beta	Gross Beta	2.272E-14	1.578E-14	1.894E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209319	SLAPS LOADOUT	03/12/19	Gross Alpha/Beta	Gross Beta	2.272E-14	1.578E-14	1.894E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209319	SLAPS LOADOUT	03/12/19	Gross Alpha/Beta	Gross Alpha	1.02E-16	4.193E-15	9.141E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209319	SLAPS LOADOUT	03/12/19	Gross Alpha/Beta	Gross Alpha	1.02E-16	4.193E-15	9.141E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209320	SLAPS LOADOUT	03/12/19	Gross Alpha/Beta	Gross Beta	4.392E-14	1.78E-14	1.876E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209320	SLAPS LOADOUT	03/12/19	Gross Alpha/Beta	Gross Beta	4.392E-14	1.78E-14	1.876E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209320	SLAPS LOADOUT	03/12/19	Gross Alpha/Beta	Gross Alpha	3.749E-15	5.921E-15	9.055E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209320	SLAPS LOADOUT	03/12/19	Gross Alpha/Beta	Gross Alpha	3.749E-15	5.921E-15	9.055E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209321	SLAPS LOADOUT	03/13/19	Gross Alpha/Beta	Gross Beta	3.11E-14	1.627E-14	1.841E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209321	SLAPS LOADOUT	03/13/19	Gross Alpha/Beta	Gross Beta	3.11E-14	1.627E-14	1.841E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209321	SLAPS LOADOUT	03/13/19	Gross Alpha/Beta	Gross Alpha	4.873E-15	6.286E-15	8.887E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209321	SLAPS LOADOUT	03/13/19	Gross Alpha/Beta	Gross Alpha	4.873E-15	6.286E-15	8.887E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209322	SLAPS LOADOUT	03/13/19	Gross Alpha/Beta	Gross Beta	3.899E-14	1.694E-14	1.824E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209322	SLAPS LOADOUT	03/13/19	Gross Alpha/Beta	Gross Beta	3.899E-14	1.694E-14	1.824E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209322	SLAPS LOADOUT	03/13/19	Gross Alpha/Beta	Gross Alpha	2.463E-15	5.247E-15	8.806E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209322	SLAPS LOADOUT	03/13/19	Gross Alpha/Beta	Gross Alpha	2.463E-15	5.247E-15	8.806E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA209323	SLAPS LOADOUT	03/13/19	Gross Alpha/Beta	Gross Alpha	-1.624E-15	1.081E-14	2.558E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA209323	SLAPS LOADOUT	03/13/19	Gross Alpha/Beta	Gross Beta	4.617E-14	3.727E-14	5.631E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA209323	SLAPS LOADOUT	03/13/19	Gross Alpha/Beta	Gross Beta	6.947E-14	3.961E-14	5.631E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209323	SLAPS LOADOUT	03/13/19	Gross Alpha/Beta	Gross Alpha	-7.192E-15	7.421E-15	2.558E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209324	SLAPS LOADOUT	03/14/19	Gross Alpha/Beta	Gross Alpha	3.047E-15	6.563E-15	1.158E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209324	SLAPS LOADOUT	03/14/19	Gross Alpha/Beta	Gross Beta	1.928E-14	1.671E-14	2.55E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209325	SLAPS LOADOUT	03/14/19	Gross Alpha/Beta	Gross Alpha	-3.257E-15	3.361E-15	1.158E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209325	SLAPS LOADOUT	03/14/19	Gross Alpha/Beta	Gross Beta	2.415E-14	1.721E-14	2.55E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209326	SLAPS LOADOUT	03/18/19	Gross Alpha/Beta	Gross Beta	2.06E-14	1.362E-14	1.957E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA209326	SLAPS LOADOUT	03/18/19	Gross Alpha/Beta	Gross Alpha	4.484E-15	6.411E-15	1.005E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA209326	SLAPS LOADOUT	03/18/19	Gross Alpha/Beta	Gross Alpha	5.735E-15	6.886E-15	1.005E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209326	SLAPS LOADOUT	03/18/19	Gross Alpha/Beta	Gross Beta	1.745E-14	1.323E-14	1.957E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209327	SLAPS LOADOUT	03/18/19	Gross Alpha/Beta	Gross Beta	2.508E-14	1.405E-14	1.938E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209327	SLAPS LOADOUT	03/18/19	Gross Alpha/Beta	Gross Alpha	-5.16E-16	3.955E-15	9.951E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209328	SLAPS LOADOUT	03/18/19	Gross Alpha/Beta	Gross Alpha	7.672E-15	9.212E-15	1.344E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209328	SLAPS LOADOUT	03/18/19	Gross Alpha/Beta	Gross Beta	1.808E-14	1.702E-14	2.617E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209329	SLAPS LOADOUT	03/18/19	Gross Alpha/Beta	Gross Alpha	4.381E-15	7.994E-15	1.362E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209329	SLAPS LOADOUT	03/18/19	Gross Alpha/Beta	Gross Beta	2.365E-14	1.792E-14	2.652E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209330	SLAPS LOADOUT	03/18/19	Gross Alpha/Beta	Gross Alpha	2.616E-15	7.049E-15	1.327E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209330	SLAPS LOADOUT	03/18/19	Gross Alpha/Beta	Gross Beta	6.411E-15	1.528E-14	2.584E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209331	SLAPS LOADOUT	03/19/19	Gross Alpha/Beta	Gross Alpha	9.878E-15	7.85E-15	9.24E-15	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209331	SLAPS LOADOUT	03/19/19	Gross Alpha/Beta	Gross Beta	1.026E-14	1.142E-14	1.799E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209332	SLAPS LOADOUT	03/19/19	Gross Alpha/Beta	Gross Alpha	1.839E-15	4.953E-15	9.323E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209332	SLAPS LOADOUT	03/19/19	Gross Alpha/Beta	Gross Beta	1.4E-14	1.2E-14	1.816E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209333	SLAPS LOADOUT	03/20/19	Gross Alpha/Beta	Gross Alpha	4.316E-15	6.171E-15	9.672E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209333	SLAPS LOADOUT	03/20/19	Gross Alpha/Beta	Gross Beta	5.431E-15	1.124E-14	1.884E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209334	SLAPS LOADOUT	03/20/19	Gross Alpha/Beta	Gross Beta	2.115E-14	1.317E-14	1.866E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209334	SLAPS LOADOUT	03/20/19	Gross Alpha/Beta	Gross Alpha	6.663E-15	6.993E-15	9.582E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209335	SLAPS LOADOUT	03/21/19	Gross Alpha/Beta	Gross Beta	3.366E-14	1.601E-14	1.803E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA209335	SLAPS LOADOUT	03/21/19	Gross Alpha/Beta	Gross Alpha	4.394E-15	6.301E-15	9.189E-15	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA209335	SLAPS LOADOUT	03/21/19	Gross Alpha/Beta	Gross Beta	3.735E-14	1.639E-14	1.803E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209335	SLAPS LOADOUT	03/21/19	Gross Alpha/Beta	Gross Alpha	3.222E-15	5.845E-15	9.189E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209336	SLAPS LOADOUT	03/21/19	Gross Alpha/Beta	Gross Alpha	-1.465E-15	3.488E-15	9.189E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209336	SLAPS LOADOUT	03/21/19	Gross Alpha/Beta	Gross Beta	1.45E-14	1.398E-14	1.803E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209337	SLAPS LOADOUT	03/25/19	Gross Alpha/Beta	Gross Beta	2.077E-14	1.489E-14	1.836E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209337	SLAPS LOADOUT	03/25/19	Gross Alpha/Beta	Gross Alpha	4.475E-15	6.418E-15	9.359E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209338	SLAPS LOADOUT	03/26/19	Gross Alpha/Beta	Gross Alpha	-2.93E-16	4.201E-15	9.189E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209338	SLAPS LOADOUT	03/26/19	Gross Alpha/Beta	Gross Beta	1.45E-14	1.398E-14	1.803E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209339	SLAPS LOADOUT	03/27/19	Gross Alpha/Beta	Gross Beta	2.505E-14	1.523E-14	1.819E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209339	SLAPS LOADOUT	03/27/19	Gross Alpha/Beta	Gross Alpha	4.434E-15	6.359E-15	9.273E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209340	SLAPS LOADOUT	03/27/19	Gross Alpha/Beta	Gross Alpha	-2.93E-16	4.201E-15	9.189E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209340	SLAPS LOADOUT	03/27/19	Gross Alpha/Beta	Gross Beta	1.155E-14	1.365E-14	1.803E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209341	SLAPS LOADOUT	03/28/19	Gross Alpha/Beta	Gross Alpha	3.252E-15	5.899E-15	9.273E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209341	SLAPS LOADOUT	03/28/19	Gross Alpha/Beta	Gross Beta	1.389E-14	1.402E-14	1.819E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA209342	SLAPS LOADOUT	03/28/19	Gross Alpha/Beta	Gross Beta	2.422E-14	1.55E-14	1.871E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209342	SLAPS LOADOUT	03/28/19	Gross Alpha/Beta	Gross Alpha	9.12E-16	4.992E-15	9.536E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209343	SLAPS LOADOUT	03/26/19	Gross Alpha/Beta	Gross Beta	1.875E-14	1.433E-14	1.786E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209343	SLAPS LOADOUT	03/26/19	Gross Alpha/Beta	Gross Alpha	8.71E-16	4.767E-15	9.106E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209344	SLAPS LOADOUT	03/25/19	Gross Alpha/Beta	Gross Beta	2.476E-14	1.543E-14	1.853E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209344	SLAPS LOADOUT	03/25/19	Gross Alpha/Beta	Gross Alpha	9.335E-15	8.093E-15	9.447E-15	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209345	SLAPS LOADOUT	04/01/19	Gross Alpha/Beta	Gross Beta	2.436E-14	1.297E-14	1.756E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA209345	SLAPS LOADOUT	04/01/19	Gross Alpha/Beta	Gross Alpha	4.434E-15	6.024E-15	9.273E-15	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA209345	SLAPS LOADOUT	04/01/19	Gross Alpha/Beta	Gross Beta	2.213E-14	1.269E-14	1.756E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209345	SLAPS LOADOUT	04/01/19	Gross Alpha/Beta	Gross Alpha	6.799E-15	6.899E-15	9.273E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209346	SLAPS LOADOUT	04/01/19	Gross Alpha/Beta	Gross Beta	2.267E-14	1.267E-14	1.74E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209346	SLAPS LOADOUT	04/01/19	Gross Alpha/Beta	Gross Alpha	3.222E-15	5.486E-15	9.189E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209347	SLAPS LOADOUT	04/02/19	Gross Alpha/Beta	Gross Beta	2.069E-14	1.373E-14	1.973E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209347	SLAPS LOADOUT	04/02/19	Gross Alpha/Beta	Gross Alpha	9.97E-16	4.952E-15	1.042E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209348	SLAPS LOADOUT	04/02/19	Gross Alpha/Beta	Gross Beta	3.051E-14	1.52E-14	2.015E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209348	SLAPS LOADOUT	04/02/19	Gross Alpha/Beta	Gross Alpha	-3.39E-16	4.266E-15	1.064E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209349	SLAPS LOADOUT	04/02/19	Gross Alpha/Beta	Gross Beta	3.463E-14	1.936E-14	2.658E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209349	SLAPS LOADOUT	04/02/19	Gross Alpha/Beta	Gross Alpha	-2.238E-15	4.347E-15	1.404E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209350	SLAPS LOADOUT	04/02/19	Gross Alpha/Beta	Gross Beta	3.638E-14	1.937E-14	2.622E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209350	SLAPS LOADOUT	04/02/19	Gross Alpha/Beta	Gross Alpha	-2.207E-15	4.287E-15	1.385E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209351	SLAPS LOADOUT	04/02/19	Gross Alpha/Beta	Gross Alpha	1.722E-14	1.253E-14	1.385E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209351	SLAPS LOADOUT	04/02/19	Gross Alpha/Beta	Gross Beta	3.082E-14	1.867E-14	2.622E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209352	SLAPS LOADOUT	04/03/19	Gross Alpha/Beta	Gross Beta	2.123E-14	1.286E-14	1.806E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209352	SLAPS LOADOUT	04/03/19	Gross Alpha/Beta	Gross Alpha	5.776E-15	6.659E-15	9.536E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209353	SLAPS LOADOUT	04/03/19	Gross Alpha/Beta	Gross Beta	3.741E-14	1.443E-14	1.74E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209353	SLAPS LOADOUT	04/03/19	Gross Alpha/Beta	Gross Alpha	3.222E-15	5.486E-15	9.189E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209354	SLAPS LOADOUT	04/08/19	Gross Alpha/Beta	Gross Alpha	8.79E-16	4.367E-15	9.189E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209354	SLAPS LOADOUT	04/08/19	Gross Alpha/Beta	Gross Beta	1.235E-14	1.133E-14	1.74E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209355	SLAPS LOADOUT	04/08/19	Gross Alpha/Beta	Gross Beta	2.362E-14	1.288E-14	1.756E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209355	SLAPS LOADOUT	04/08/19	Gross Alpha/Beta	Gross Alpha	3.252E-15	5.537E-15	9.273E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209356	SLAPS LOADOUT	04/09/19	Gross Alpha/Beta	Gross Alpha	-2.9E-16	3.652E-15	9.106E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209356	SLAPS LOADOUT	04/09/19	Gross Alpha/Beta	Gross Beta	2.739E-15	9.878E-15	1.724E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209357	SLAPS LOADOUT	04/09/19	Gross Alpha/Beta	Gross Alpha	3.771E-15	6.42E-15	1.075E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209357	SLAPS LOADOUT	04/09/19	Gross Alpha/Beta	Gross Beta	1.359E-14	1.314E-14	2.036E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209358	SLAPS LOADOUT	04/09/19	Gross Alpha/Beta	Gross Beta	3.676E-14	2.293E-14	3.244E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209358	SLAPS LOADOUT	04/09/19	Gross Alpha/Beta	Gross Alpha	-5.46E-16	6.87E-15	1.713E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209359	SLAPS LOADOUT	04/09/19	Gross Alpha/Beta	Gross Alpha	-5.46E-16	6.87E-15	1.713E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209359	SLAPS LOADOUT	04/09/19	Gross Alpha/Beta	Gross Beta	2.714E-14	2.167E-14	3.244E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209360	SLAPS LOADOUT	04/09/19	Gross Alpha/Beta	Gross Alpha	-2.685E-15	5.216E-15	1.685E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209360	SLAPS LOADOUT	04/09/19	Gross Alpha/Beta	Gross Beta	2.804E-14	2.149E-14	3.19E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209361	SLAPS LOADOUT	04/10/19	Gross Alpha/Beta	Gross Alpha	3.282E-15	5.512E-15	9.359E-15	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA209361	SLAPS LOADOUT	04/10/19	Gross Alpha/Beta	Gross Beta	8.446E-15	1.124E-14	1.844E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA209361	SLAPS LOADOUT	04/10/19	Gross Alpha/Beta	Gross Alpha	6.862E-15	6.902E-15	9.359E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209361	SLAPS LOADOUT	04/10/19	Gross Alpha/Beta	Gross Beta	1.821E-14	1.253E-14	1.844E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA209362	SLAPS LOADOUT	04/10/19	Gross Alpha/Beta	Gross Alpha	3.282E-15	5.512E-15	9.359E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209362	SLAPS LOADOUT	04/10/19	Gross Alpha/Beta	Gross Beta	5.443E-15	1.082E-14	1.844E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209363	SLAPS LOADOUT	04/11/19	Gross Alpha/Beta	Gross Beta	3.958E-14	1.537E-14	1.897E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209363	SLAPS LOADOUT	04/11/19	Gross Alpha/Beta	Gross Alpha	8.286E-15	7.518E-15	9.627E-15	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209364	SLAPS LOADOUT	04/11/19	Gross Alpha/Beta	Gross Alpha	2.233E-15	5.309E-15	1.001E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209364	SLAPS LOADOUT	04/11/19	Gross Alpha/Beta	Gross Beta	9.032E-15	1.202E-14	1.972E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209365	SLAPS LOADOUT	04/15/19	Gross Alpha/Beta	Gross Alpha	2.069E-15	4.92E-15	9.273E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209365	SLAPS LOADOUT	04/15/19	Gross Alpha/Beta	Gross Beta	8.369E-15	1.114E-14	1.827E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209366	SLAPS LOADOUT	04/15/19	Gross Alpha/Beta	Gross Alpha	2.032E-15	4.831E-15	9.106E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209366	SLAPS LOADOUT	04/15/19	Gross Alpha/Beta	Gross Beta	5.296E-15	1.053E-14	1.795E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209367	SLAPS LOADOUT	04/15/19	Gross Alpha/Beta	Gross Beta	2.255E-14	1.412E-14	2.033E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209367	SLAPS LOADOUT	04/15/19	Gross Alpha/Beta	Gross Alpha	9.86E-16	4.796E-15	1.031E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209368	SLAPS LOADOUT	04/15/19	Gross Alpha/Beta	Gross Alpha	4.932E-15	6.623E-15	1.031E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209368	SLAPS LOADOUT	04/15/19	Gross Alpha/Beta	Gross Beta	1.841E-14	1.359E-14	2.033E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209369	SLAPS LOADOUT	04/15/19	Gross Alpha/Beta	Gross Alpha	-3.29E-16	4.01E-15	1.031E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209369	SLAPS LOADOUT	04/15/19	Gross Alpha/Beta	Gross Beta	1.676E-14	1.338E-14	2.033E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209370	SLAPS LOADOUT	04/16/19	Gross Alpha/Beta	Gross Beta	2.62E-14	1.371E-14	1.879E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209370	SLAPS LOADOUT	04/16/19	Gross Alpha/Beta	Gross Alpha	5.776E-15	6.593E-15	9.536E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209371	SLAPS LOADOUT	04/16/19	Gross Alpha/Beta	Gross Beta	1.932E-14	1.286E-14	1.879E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209371	SLAPS LOADOUT	04/16/19	Gross Alpha/Beta	Gross Alpha	2.128E-15	5.059E-15	9.536E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209372	SLAPS LOADOUT	04/17/19	Gross Alpha/Beta	Gross Alpha	-2.685E-15	1.371E-15	9.359E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209372	SLAPS LOADOUT	04/17/19	Gross Alpha/Beta	Gross Beta	1.07E-14	1.155E-14	1.844E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209373	SLAPS LOADOUT	04/17/19	Gross Alpha/Beta	Gross Beta	3.022E-14	1.399E-14	1.844E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA209373	SLAPS LOADOUT	04/17/19	Gross Alpha/Beta	Gross Alpha	9.249E-15	7.695E-15	9.359E-15	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209374	SLAPS LOADOUT	04/18/19	Gross Alpha/Beta	Gross Alpha	3.811E-15	6.401E-15	1.087E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209374	SLAPS LOADOUT	04/18/19	Gross Alpha/Beta	Gross Beta	1.33E-14	1.353E-14	2.142E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209375	SLAPS LOADOUT	04/18/19	Gross Alpha/Beta	Gross Alpha	-1.696E-15	3.124E-15	1.064E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209375	SLAPS LOADOUT	04/18/19	Gross Alpha/Beta	Gross Beta	1.302E-14	1.324E-14	2.097E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209376	SLAPS LOADOUT	04/18/19	Gross Alpha/Beta	Gross Alpha	-5.11E-16	6.238E-15	1.605E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209376	SLAPS LOADOUT	04/18/19	Gross Alpha/Beta	Gross Beta	1.319E-14	1.909E-14	3.162E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209377	SLAPS LOADOUT	04/18/19	Gross Alpha/Beta	Gross Alpha	-2.599E-15	4.788E-15	1.63E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209377	SLAPS LOADOUT	04/18/19	Gross Alpha/Beta	Gross Beta	4.25E-15	1.81E-14	3.213E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209378	SLAPS LOADOUT	04/18/19	Gross Alpha/Beta	Gross Alpha	3.698E-15	8.791E-15	1.657E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209378	SLAPS LOADOUT	04/18/19	Gross Alpha/Beta	Gross Beta	4.32E-15	1.84E-14	3.265E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209379	SLAPS LOADOUT	04/22/19	Gross Alpha/Beta	Gross Beta	2.065E-14	1.293E-14	1.862E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209379	SLAPS LOADOUT	04/22/19	Gross Alpha/Beta	Gross Alpha	-3.01E-16	3.673E-15	9.447E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209380	SLAPS LOADOUT	04/22/19	Gross Alpha/Beta	Gross Alpha	3.313E-15	5.563E-15	9.447E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209380	SLAPS LOADOUT	04/22/19	Gross Alpha/Beta	Gross Beta	-7.389E-15	8.966E-15	1.862E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209381	SLAPS LOADOUT	04/23/19	Gross Alpha/Beta	Gross Alpha	9.85E-16	5.347E-15	9.16E-15	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA209381	SLAPS LOADOUT	04/23/19	Gross Alpha/Beta	Gross Beta	7.501E-15	1.28E-14	1.749E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA209381	SLAPS LOADOUT	04/23/19	Gross Alpha/Beta	Gross Beta	2.089E-14	1.434E-14	1.749E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209381	SLAPS LOADOUT	04/23/19	Gross Alpha/Beta	Gross Alpha	2.168E-15	5.848E-15	9.16E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209382	SLAPS LOADOUT	04/23/19	Gross Alpha/Beta	Gross Beta	2.962E-14	1.551E-14	1.782E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209382	SLAPS LOADOUT	04/23/19	Gross Alpha/Beta	Gross Alpha	1.004E-15	5.447E-15	9.331E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA209383	SLAPS LOADOUT	04/24/19	Gross Alpha/Beta	Gross Alpha	3.413E-15	6.429E-15	9.331E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209383	SLAPS LOADOUT	04/24/19	Gross Alpha/Beta	Gross Beta	1.522E-14	1.393E-14	1.782E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209384	SLAPS LOADOUT	04/24/19	Gross Alpha/Beta	Gross Alpha	3.35E-15	6.311E-15	9.16E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209384	SLAPS LOADOUT	04/24/19	Gross Alpha/Beta	Gross Beta	9.733E-15	1.307E-14	1.749E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209385	SLAPS LOADOUT	04/24/19	Gross Alpha/Beta	Gross Alpha	3.151E-15	8.499E-15	1.331E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209385	SLAPS LOADOUT	04/24/19	Gross Alpha/Beta	Gross Beta	1.306E-14	1.886E-14	2.542E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209386	SLAPS LOADOUT	04/24/19	Gross Alpha/Beta	Gross Alpha	6.677E-15	9.932E-15	1.349E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209386	SLAPS LOADOUT	04/24/19	Gross Alpha/Beta	Gross Beta	2.201E-14	2.013E-14	2.576E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209387	SLAPS LOADOUT	04/24/19	Gross Alpha/Beta	Gross Alpha	3.193E-15	8.614E-15	1.349E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209387	SLAPS LOADOUT	04/24/19	Gross Alpha/Beta	Gross Beta	2.31E-14	2.026E-14	2.576E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209388	SLAPS LOADOUT	04/25/19	Gross Alpha/Beta	Gross Beta	2.451E-14	1.85E-14	2.297E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209388	SLAPS LOADOUT	04/25/19	Gross Alpha/Beta	Gross Alpha	1.294E-15	7.022E-15	1.203E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209389	SLAPS LOADOUT	04/25/19	Gross Alpha/Beta	Gross Alpha	2.847E-15	7.68E-15	1.203E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209389	SLAPS LOADOUT	04/25/19	Gross Alpha/Beta	Gross Beta	1.278E-14	1.716E-14	2.297E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209390	SLAPS LOADOUT	04/29/19	Gross Alpha/Beta	Gross Alpha	-1.405E-15	4.25E-15	9.331E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209390	SLAPS LOADOUT	04/29/19	Gross Alpha/Beta	Gross Beta	1.522E-14	1.393E-14	1.782E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209391	SLAPS LOADOUT	04/29/19	Gross Alpha/Beta	Gross Alpha	9.95E-16	5.397E-15	9.245E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209391	SLAPS LOADOUT	04/29/19	Gross Alpha/Beta	Gross Beta	1.508E-14	1.38E-14	1.765E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209392	SLAPS LOADOUT	04/29/19	Gross Alpha/Beta	Gross Beta	2.852E-14	2.018E-14	2.476E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209392	SLAPS LOADOUT	04/29/19	Gross Alpha/Beta	Gross Alpha	1.395E-15	7.569E-15	1.297E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209393	SLAPS LOADOUT	04/29/19	Gross Alpha/Beta	Gross Alpha	1.413E-15	7.669E-15	1.314E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209393	SLAPS LOADOUT	04/29/19	Gross Alpha/Beta	Gross Beta	1.289E-14	1.861E-14	2.509E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209394	SLAPS LOADOUT	04/29/19	Gross Alpha/Beta	Gross Alpha	1.413E-15	7.669E-15	1.314E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209394	SLAPS LOADOUT	04/29/19	Gross Alpha/Beta	Gross Beta	1.289E-14	1.861E-14	2.509E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209395	SLAPS LOADOUT	04/30/19	Gross Alpha/Beta	Gross Alpha	-2.15E-16	5.227E-15	9.984E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209395	SLAPS LOADOUT	04/30/19	Gross Alpha/Beta	Gross Beta	1.71E-14	1.499E-14	1.907E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209396	SLAPS LOADOUT	04/30/19	Gross Alpha/Beta	Gross Alpha	2.363E-15	6.374E-15	9.984E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209396	SLAPS LOADOUT	04/30/19	Gross Alpha/Beta	Gross Beta	9.798E-15	1.415E-14	1.907E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209417	SLAPS LOADOUT	05/14/19	Gross Alpha/Beta	Gross Alpha	1.688E-15	7.15E-15	1.408E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA209417	SLAPS LOADOUT	05/14/19	Gross Alpha/Beta	Gross Beta	1.409E-14	1.926E-14	2.785E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA209417	SLAPS LOADOUT	05/14/19	Gross Alpha/Beta	Gross Alpha	7.212E-15	9.593E-15	1.408E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209417	SLAPS LOADOUT	05/14/19	Gross Alpha/Beta	Gross Beta	2.22E-14	2.025E-14	2.785E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209418	SLAPS LOADOUT	05/14/19	Gross Alpha/Beta	Gross Alpha	-3.836E-15	3.239E-15	1.408E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209418	SLAPS LOADOUT	05/14/19	Gross Alpha/Beta	Gross Beta	8.302E-15	1.854E-14	2.785E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209419	SLAPS LOADOUT	05/15/19	Gross Alpha/Beta	Gross Beta	2.76E-14	2.064E-14	2.746E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209419	SLAPS LOADOUT	05/15/19	Gross Alpha/Beta	Gross Alpha	3.479E-15	7.932E-15	1.389E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209420	SLAPS LOADOUT	05/15/19	Gross Alpha/Beta	Gross Beta	3.147E-14	2.134E-14	2.785E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209420	SLAPS LOADOUT	05/15/19	Gross Alpha/Beta	Gross Alpha	1.688E-15	7.15E-15	1.408E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209421	SLAPS LOADOUT	05/15/19	Gross Alpha/Beta	Gross Alpha	1.074E-14	1.078E-14	1.389E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA209421	SLAPS LOADOUT	05/15/19	Gross Alpha/Beta	Gross Beta	2.075E-14	1.983E-14	2.746E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA209422	SLAPS LOADOUT	05/15/19	Gross Alpha/Beta	Gross Beta	1.814E-14	1.357E-14	1.805E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA209422	SLAPS LOADOUT	05/15/19	Gross Alpha/Beta	Gross Alpha	7.061E-15	7.084E-15	9.128E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212422	SLAPS LOADOUT	05/15/19	Gross Alpha/Beta	Gross Beta	1.849E-14	1.383E-14	1.839E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212422	SLAPS LOADOUT	05/15/19	Gross Alpha/Beta	Gross Alpha	-1.01E-16	4.046E-15	9.3E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA212423	SLAPS LOADOUT	05/16/19	Gross Alpha/Beta	Gross Beta	2.467E-14	1.422E-14	1.789E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212423	SLAPS LOADOUT	05/16/19	Gross Alpha/Beta	Gross Alpha	2.266E-15	5.167E-15	9.044E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212424	SLAPS LOADOUT	05/16/19	Gross Alpha/Beta	Gross Beta	3.953E-14	1.606E-14	1.822E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212424	SLAPS LOADOUT	05/16/19	Gross Alpha/Beta	Gross Alpha	-1.305E-15	3.205E-15	9.213E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212425	SLAPS LOADOUT	05/20/19	Gross Alpha/Beta	Gross Alpha	2.246E-15	5.12E-15	8.962E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212425	SLAPS LOADOUT	05/20/19	Gross Alpha/Beta	Gross Beta	1.044E-14	1.244E-14	1.773E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212426	SLAPS LOADOUT	05/20/19	Gross Alpha/Beta	Gross Alpha	3.418E-15	5.633E-15	8.962E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212426	SLAPS LOADOUT	05/20/19	Gross Alpha/Beta	Gross Beta	2.334E-15	1.142E-14	1.773E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212427	SLAPS LOADOUT	05/21/19	Gross Alpha/Beta	Gross Alpha	-2.51E-15	2.119E-15	9.213E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212427	SLAPS LOADOUT	05/21/19	Gross Alpha/Beta	Gross Beta	6.189E-15	1.222E-14	1.822E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212428	SLAPS LOADOUT	05/21/19	Gross Alpha/Beta	Gross Alpha	-9.9E-17	3.935E-15	9.044E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212428	SLAPS LOADOUT	05/21/19	Gross Alpha/Beta	Gross Beta	-5.083E-15	1.052E-14	1.789E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212429	SLAPS LOADOUT	05/22/19	Gross Alpha/Beta	Gross Alpha	1.125E-15	4.766E-15	9.389E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212429	SLAPS LOADOUT	05/22/19	Gross Alpha/Beta	Gross Beta	1.171E-14	1.313E-14	1.857E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212430	SLAPS LOADOUT	05/22/19	Gross Alpha/Beta	Gross Alpha	9.37E-16	5.58E-15	1.109E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA212430	SLAPS LOADOUT	05/22/19	Gross Alpha/Beta	Gross Beta	2.205E-14	1.686E-14	2.515E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA212430	SLAPS LOADOUT	05/22/19	Gross Alpha/Beta	Gross Beta	3.009E-14	1.766E-14	2.515E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212430	SLAPS LOADOUT	05/22/19	Gross Alpha/Beta	Gross Alpha	-1.561E-15	4.321E-15	1.109E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212431	SLAPS LOADOUT	05/23/19	Gross Alpha/Beta	Gross Alpha	-2.837E-15	3.563E-15	1.119E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212431	SLAPS LOADOUT	05/23/19	Gross Alpha/Beta	Gross Beta	1.982E-14	1.677E-14	2.539E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212432	SLAPS LOADOUT	05/23/19	Gross Alpha/Beta	Gross Alpha	4.64E-15	7.003E-15	1.099E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212432	SLAPS LOADOUT	05/23/19	Gross Alpha/Beta	Gross Beta	1.468E-14	1.596E-14	2.492E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212433	SLAPS LOADOUT	05/23/19	Gross Alpha/Beta	Gross Alpha	-5.76E-16	9.205E-15	2.046E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212433	SLAPS LOADOUT	05/23/19	Gross Alpha/Beta	Gross Beta	2.102E-15	2.702E-14	4.64E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212434	SLAPS LOADOUT	05/23/19	Gross Alpha/Beta	Gross Alpha	1.094E-14	1.384E-14	2.046E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212434	SLAPS LOADOUT	05/23/19	Gross Alpha/Beta	Gross Beta	1.397E-14	2.831E-14	4.64E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212435	SLAPS LOADOUT	05/23/19	Gross Alpha/Beta	Gross Alpha	6.447E-15	1.241E-14	2.082E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212435	SLAPS LOADOUT	05/23/19	Gross Alpha/Beta	Gross Beta	-3.9E-15	2.682E-14	4.721E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212436	SLAPS LOADOUT	05/28/19	Gross Alpha/Beta	Gross Alpha	3.5E-15	6.734E-15	1.13E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA212436	SLAPS LOADOUT	05/28/19	Gross Alpha/Beta	Gross Beta	1.346E-14	1.624E-14	2.563E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA212436	SLAPS LOADOUT	05/28/19	Gross Alpha/Beta	Gross Beta	2.739E-14	1.767E-14	2.563E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212436	SLAPS LOADOUT	05/28/19	Gross Alpha/Beta	Gross Alpha	3.5E-15	6.734E-15	1.13E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212437	SLAPS LOADOUT	05/28/19	Gross Alpha/Beta	Gross Beta	4.05E-14	1.896E-14	2.563E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212437	SLAPS LOADOUT	05/28/19	Gross Alpha/Beta	Gross Alpha	7.318E-15	8.061E-15	1.13E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212438	SLAPS LOADOUT	05/29/19	Gross Alpha/Beta	Gross Alpha	9.73E-16	5.797E-15	1.152E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212438	SLAPS LOADOUT	05/29/19	Gross Alpha/Beta	Gross Beta	7.868E-15	1.594E-14	2.613E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212439	SLAPS LOADOUT	05/29/19	Gross Alpha/Beta	Gross Alpha	2.249E-15	6.292E-15	1.141E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212439	SLAPS LOADOUT	05/29/19	Gross Alpha/Beta	Gross Beta	1.938E-14	1.7E-14	2.588E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212440	SLAPS LOADOUT	05/29/19	Gross Alpha/Beta	Gross Alpha	4.252E-15	1.19E-14	2.157E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212440	SLAPS LOADOUT	05/29/19	Gross Alpha/Beta	Gross Beta	2.217E-15	2.849E-14	4.893E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212441	SLAPS LOADOUT	05/29/19	Gross Alpha/Beta	Gross Alpha	1.397E-14	1.539E-14	2.157E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212441	SLAPS LOADOUT	05/29/19	Gross Alpha/Beta	Gross Beta	4.29E-14	3.279E-14	4.893E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212442	SLAPS LOADOUT	05/29/19	Gross Alpha/Beta	Gross Alpha	1.822E-15	1.086E-14	2.157E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212442	SLAPS LOADOUT	05/29/19	Gross Alpha/Beta	Gross Beta	2.217E-15	2.849E-14	4.893E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA212443	SLAPS LOADOUT	05/30/19	Gross Alpha/Beta	Gross Alpha	-1.532E-15	4.242E-15	1.089E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212443	SLAPS LOADOUT	05/30/19	Gross Alpha/Beta	Gross Beta	1.138E-14	1.548E-14	2.469E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212444	SLAPS LOADOUT	05/30/19	Gross Alpha/Beta	Gross Alpha	7.049E-15	7.765E-15	1.089E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212444	SLAPS LOADOUT	05/30/19	Gross Alpha/Beta	Gross Beta	2.165E-14	1.655E-14	2.469E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212445	SLAPS LOADOUT	06/03/19	Gross Alpha/Beta	Gross Alpha	9.19E-16	5.478E-15	1.089E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212445	SLAPS LOADOUT	06/03/19	Gross Alpha/Beta	Gross Beta	2.007E-14	1.638E-14	2.469E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212446	SLAPS LOADOUT	06/03/19	Gross Alpha/Beta	Gross Alpha	5.011E-15	7.563E-15	1.187E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212446	SLAPS LOADOUT	06/03/19	Gross Alpha/Beta	Gross Beta	1.671E-14	1.733E-14	2.691E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212447	SLAPS LOADOUT	06/04/19	Gross Alpha/Beta	Gross Beta	2.607E-14	1.726E-14	2.515E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212447	SLAPS LOADOUT	06/04/19	Gross Alpha/Beta	Gross Alpha	3.434E-15	6.608E-15	1.109E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212448	SLAPS LOADOUT	06/04/19	Gross Alpha/Beta	Gross Alpha	-3.09E-16	4.944E-15	1.099E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212448	SLAPS LOADOUT	06/04/19	Gross Alpha/Beta	Gross Beta	2.025E-14	1.654E-14	2.492E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212449	SLAPS LOADOUT	06/05/19	Gross Alpha/Beta	Gross Alpha	7.181E-15	7.91E-15	1.109E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212449	SLAPS LOADOUT	06/05/19	Gross Alpha/Beta	Gross Beta	9.986E-15	1.56E-14	2.515E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212450	SLAPS LOADOUT	06/05/19	Gross Alpha/Beta	Gross Alpha	2.186E-15	6.115E-15	1.109E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212450	SLAPS LOADOUT	06/05/19	Gross Alpha/Beta	Gross Beta	1.481E-14	1.611E-14	2.515E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212451	SLAPS LOADOUT	06/06/19	Gross Alpha/Beta	Gross Beta	3.444E-14	1.823E-14	2.539E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212451	SLAPS LOADOUT	06/06/19	Gross Alpha/Beta	Gross Alpha	2.206E-15	6.173E-15	1.119E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212452	SLAPS LOADOUT	06/06/19	Gross Alpha/Beta	Gross Alpha	9.37E-16	5.58E-15	1.109E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212452	SLAPS LOADOUT	06/06/19	Gross Alpha/Beta	Gross Beta	1.32E-14	1.594E-14	2.515E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212453	SLAPS LOADOUT	06/10/19	Gross Alpha/Beta	Gross Alpha	4.728E-15	7.135E-15	1.119E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212453	SLAPS LOADOUT	06/10/19	Gross Alpha/Beta	Gross Beta	2.774E-15	1.496E-14	2.539E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212454	SLAPS LOADOUT	06/10/19	Gross Alpha/Beta	Gross Alpha	4.728E-15	7.135E-15	1.119E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212454	SLAPS LOADOUT	06/10/19	Gross Alpha/Beta	Gross Beta	1.901E-14	1.668E-14	2.539E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212455	SLAPS LOADOUT	06/11/19	Gross Alpha/Beta	Gross Alpha	3.467E-15	6.671E-15	1.119E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212455	SLAPS LOADOUT	06/11/19	Gross Alpha/Beta	Gross Beta	2.388E-14	1.718E-14	2.539E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212456	SLAPS LOADOUT	06/11/19	Gross Alpha/Beta	Gross Alpha	-3.12E-16	4.99E-15	1.109E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212456	SLAPS LOADOUT	06/11/19	Gross Alpha/Beta	Gross Beta	-1.273E-15	1.438E-14	2.515E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212457	SLAPS LOADOUT	06/12/19	Gross Alpha/Beta	Gross Alpha	-1.124E-15	4.83E-15	1.049E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA212457	SLAPS LOADOUT	06/12/19	Gross Alpha/Beta	Gross Beta	1.053E-14	1.523E-14	2.405E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA212457	SLAPS LOADOUT	06/12/19	Gross Alpha/Beta	Gross Alpha	1.02E-16	5.416E-15	1.049E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212457	SLAPS LOADOUT	06/12/19	Gross Alpha/Beta	Gross Beta	1.053E-14	1.523E-14	2.405E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212458	SLAPS LOADOUT	06/12/19	Gross Alpha/Beta	Gross Beta	2.869E-14	1.752E-14	2.473E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212458	SLAPS LOADOUT	06/12/19	Gross Alpha/Beta	Gross Alpha	6.408E-15	7.937E-15	1.078E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212459	SLAPS LOADOUT	06/13/19	Gross Alpha/Beta	Gross Alpha	7.18E-15	1.049E-14	1.504E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212459	SLAPS LOADOUT	06/13/19	Gross Alpha/Beta	Gross Beta	2.982E-14	2.339E-14	3.449E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212460	SLAPS LOADOUT	06/13/19	Gross Alpha/Beta	Gross Alpha	2.086E-14	1.507E-14	1.61E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212460	SLAPS LOADOUT	06/13/19	Gross Alpha/Beta	Gross Beta	2.828E-14	2.466E-14	3.691E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212461	SLAPS LOADOUT	06/13/19	Gross Alpha/Beta	Gross Alpha	-3.557E-15	6.304E-15	1.588E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212461	SLAPS LOADOUT	06/13/19	Gross Alpha/Beta	Gross Beta	3.387E-14	2.494E-14	3.64E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212462	SLAPS LOADOUT	06/13/19	Gross Alpha/Beta	Gross Alpha	2.88E-14	1.714E-14	1.633E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212462	SLAPS LOADOUT	06/13/19	Gross Alpha/Beta	Gross Beta	5.696E-14	2.787E-14	3.744E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212463	SLAPS LOADOUT	06/13/19	Gross Alpha/Beta	Gross Alpha	1.53E-16	8.087E-15	1.566E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212463	SLAPS LOADOUT	06/13/19	Gross Alpha/Beta	Gross Beta	1.69E-14	2.287E-14	3.59E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA212464	SLAPS LOADOUT	06/17/19	Gross Alpha/Beta	Gross Beta	2.783E-14	1.831E-14	2.621E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212464	SLAPS LOADOUT	06/17/19	Gross Alpha/Beta	Gross Alpha	6.793E-15	8.414E-15	1.143E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212465	SLAPS LOADOUT	06/17/19	Gross Alpha/Beta	Gross Alpha	5.457E-15	7.973E-15	1.143E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212465	SLAPS LOADOUT	06/17/19	Gross Alpha/Beta	Gross Beta	-5.74E-16	1.528E-14	2.621E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212466	SLAPS LOADOUT	06/18/19	Gross Alpha/Beta	Gross Alpha	2.784E-15	7.013E-15	1.143E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212466	SLAPS LOADOUT	06/18/19	Gross Alpha/Beta	Gross Beta	1.664E-14	1.715E-14	2.621E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212467	SLAPS LOADOUT	06/18/19	Gross Alpha/Beta	Gross Beta	4.699E-14	1.945E-14	2.496E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212467	SLAPS LOADOUT	06/18/19	Gross Alpha/Beta	Gross Alpha	5.197E-15	7.593E-15	1.089E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212468	SLAPS LOADOUT	06/19/19	Gross Alpha/Beta	Gross Beta	3.843E-14	1.848E-14	2.473E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212468	SLAPS LOADOUT	06/19/19	Gross Alpha/Beta	Gross Alpha	-2.416E-15	4.282E-15	1.078E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212469	SLAPS LOADOUT	06/19/19	Gross Alpha/Beta	Gross Alpha	2.729E-15	6.875E-15	1.121E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212469	SLAPS LOADOUT	06/19/19	Gross Alpha/Beta	Gross Beta	1.041E-14	1.619E-14	2.57E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212470	SLAPS LOADOUT	06/20/19	Gross Alpha/Beta	Gross Alpha	1.03E-16	5.467E-15	1.058E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212470	SLAPS LOADOUT	06/20/19	Gross Alpha/Beta	Gross Beta	1.222E-14	1.554E-14	2.427E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212471	SLAPS LOADOUT	06/20/19	Gross Alpha/Beta	Gross Alpha	7.669E-15	8.333E-15	1.078E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212471	SLAPS LOADOUT	06/20/19	Gross Alpha/Beta	Gross Beta	2.138E-14	1.677E-14	2.473E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212472	SLAPS LOADOUT	06/20/19	Gross Alpha/Beta	Gross Alpha	7.18E-15	1.049E-14	1.504E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212472	SLAPS LOADOUT	06/20/19	Gross Alpha/Beta	Gross Beta	1.623E-14	2.197E-14	3.449E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212473	SLAPS LOADOUT	06/20/19	Gross Alpha/Beta	Gross Alpha	3.569E-15	8.991E-15	1.466E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212473	SLAPS LOADOUT	06/20/19	Gross Alpha/Beta	Gross Beta	1.471E-15	1.984E-14	3.36E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212474	SLAPS LOADOUT	06/20/19	Gross Alpha/Beta	Gross Alpha	3.569E-15	8.991E-15	1.466E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212474	SLAPS LOADOUT	06/20/19	Gross Alpha/Beta	Gross Beta	1.912E-14	2.176E-14	3.36E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212475	SLAPS LOADOUT	06/24/19	Gross Alpha/Beta	Gross Alpha	-2.372E-15	4.203E-15	1.058E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212475	SLAPS LOADOUT	06/24/19	Gross Alpha/Beta	Gross Beta	2.178E-14	1.654E-14	2.427E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212476	SLAPS LOADOUT	06/24/19	Gross Alpha/Beta	Gross Beta	3.373E-14	1.775E-14	2.427E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212476	SLAPS LOADOUT	06/24/19	Gross Alpha/Beta	Gross Alpha	1.03E-16	5.467E-15	1.058E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212477	SLAPS LOADOUT	06/24/19	Gross Alpha/Beta	Gross Beta	2.519E-14	1.965E-14	2.395E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA212477	SLAPS LOADOUT	06/24/19	Gross Alpha/Beta	Gross Alpha	8.606E-15	9.328E-15	1.362E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA212477	SLAPS LOADOUT	06/24/19	Gross Alpha/Beta	Gross Beta	3.237E-14	2.044E-14	2.395E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212477	SLAPS LOADOUT	06/24/19	Gross Alpha/Beta	Gross Alpha	-1.183E-15	4.773E-15	1.362E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212478	SLAPS LOADOUT	06/24/19	Gross Alpha/Beta	Gross Alpha	2.054E-15	6.557E-15	1.345E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212478	SLAPS LOADOUT	06/24/19	Gross Alpha/Beta	Gross Beta	2.183E-14	1.907E-14	2.366E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212479	SLAPS LOADOUT	06/24/19	Gross Alpha/Beta	Gross Alpha	-1.198E-15	4.834E-15	1.379E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212479	SLAPS LOADOUT	06/24/19	Gross Alpha/Beta	Gross Beta	1.823E-14	1.909E-14	2.426E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212480	SLAPS LOADOUT	06/25/19	Gross Alpha/Beta	Gross Alpha	3.572E-15	7.002E-15	1.222E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA212480	SLAPS LOADOUT	06/25/19	Gross Alpha/Beta	Gross Beta	4.668E-15	1.519E-14	2.516E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA212480	SLAPS LOADOUT	06/25/19	Gross Alpha/Beta	Gross Alpha	-2.731E-15	4.15E-15	1.222E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212480	SLAPS LOADOUT	06/25/19	Gross Alpha/Beta	Gross Beta	-1.015E-15	1.456E-14	2.516E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212481	SLAPS LOADOUT	06/25/19	Gross Alpha/Beta	Gross Alpha	-1.485E-15	4.9E-15	1.234E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212481	SLAPS LOADOUT	06/25/19	Gross Alpha/Beta	Gross Beta	6.352E-15	1.551E-14	2.54E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212482	SLAPS LOADOUT	06/26/19	Gross Alpha/Beta	Gross Alpha	-2.656E-15	4.036E-15	1.189E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212482	SLAPS LOADOUT	06/26/19	Gross Alpha/Beta	Gross Beta	2.27E-14	1.667E-14	2.447E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212483	SLAPS LOADOUT	06/26/19	Gross Alpha/Beta	Gross Beta	3.877E-14	1.867E-14	2.516E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212483	SLAPS LOADOUT	06/26/19	Gross Alpha/Beta	Gross Alpha	4.833E-15	7.446E-15	1.222E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA212484	SLAPS LOADOUT	06/27/19	Gross Alpha/Beta	Gross Alpha	-1.43E-15	4.72E-15	1.189E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212484	SLAPS LOADOUT	06/27/19	Gross Alpha/Beta	Gross Beta	2.349E-14	1.675E-14	2.447E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212485	SLAPS LOADOUT	06/27/19	Gross Alpha/Beta	Gross Beta	2.451E-14	1.653E-14	2.392E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212485	SLAPS LOADOUT	06/27/19	Gross Alpha/Beta	Gross Alpha	-1.398E-15	4.614E-15	1.162E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212486	SLAPS LOADOUT	07/01/19	Gross Alpha/Beta	Gross Alpha	8.512E-15	6.461E-15	3.29E-15	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA212486	SLAPS LOADOUT	07/01/19	Gross Alpha/Beta	Gross Beta	8.797E-14	1.752E-14	2.07E-15	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA212486	SLAPS LOADOUT	07/01/19	Gross Alpha/Beta	Gross Beta	8.491E-14	1.717E-14	2.07E-15	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212486	SLAPS LOADOUT	07/01/19	Gross Alpha/Beta	Gross Alpha	2.432E-15	3.443E-15	3.29E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212487	SLAPS LOADOUT	07/01/19	Gross Alpha/Beta	Gross Alpha	2.148E-14	1.052E-14	3.419E-15	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212487	SLAPS LOADOUT	07/01/19	Gross Alpha/Beta	Gross Beta	7.314E-14	1.608E-14	2.151E-15	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212488	SLAPS LOADOUT	07/02/19	Gross Alpha/Beta	Gross Alpha	9.46E-15	6.721E-15	3.2E-15	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212488	SLAPS LOADOUT	07/02/19	Gross Alpha/Beta	Gross Beta	6.1E-14	1.413E-14	2.013E-15	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212489	SLAPS LOADOUT	07/02/19	Gross Alpha/Beta	Gross Alpha	6.023E-15	5.403E-15	3.26E-15	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212489	SLAPS LOADOUT	07/02/19	Gross Alpha/Beta	Gross Beta	5.532E-14	1.351E-14	2.051E-15	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212490	SLAPS LOADOUT	07/02/19	Gross Alpha/Beta	Gross Alpha	2.324E-14	1.411E-14	5.718E-15	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212490	SLAPS LOADOUT	07/02/19	Gross Alpha/Beta	Gross Beta	7.577E-14	2.076E-14	3.597E-15	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212491	SLAPS LOADOUT	07/02/19	Gross Alpha/Beta	Gross Alpha	6.138E-15	7.1E-15	5.536E-15	µCi/mL	UJ	T02	SLAPS Loadout (General Area)-Perimeter Air
SLA212491	SLAPS LOADOUT	07/02/19	Gross Alpha/Beta	Gross Beta	8.881E-14	2.226E-14	3.483E-15	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212492	SLAPS LOADOUT	07/02/19	Gross Alpha/Beta	Gross Alpha	1.208E-14	9.901E-15	5.45E-15	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212492	SLAPS LOADOUT	07/02/19	Gross Alpha/Beta	Gross Beta	5.321E-14	1.684E-14	3.428E-15	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212493	SLAPS LOADOUT	07/03/19	Gross Alpha/Beta	Gross Alpha	6.023E-15	5.403E-15	3.26E-15	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212493	SLAPS LOADOUT	07/03/19	Gross Alpha/Beta	Gross Beta	5.456E-14	1.341E-14	2.051E-15	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212494	SLAPS LOADOUT	07/08/19	Gross Alpha/Beta	Gross Alpha	8.354E-15	6.341E-15	3.229E-15	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212494	SLAPS LOADOUT	07/08/19	Gross Alpha/Beta	Gross Beta	5.105E-14	1.289E-14	2.032E-15	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212495	SLAPS LOADOUT	07/08/19	Gross Alpha/Beta	Gross Alpha	9.727E-15	6.911E-15	3.29E-15	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212495	SLAPS LOADOUT	07/08/19	Gross Alpha/Beta	Gross Beta	6.196E-14	1.443E-14	2.07E-15	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212496	SLAPS LOADOUT	07/09/19	Gross Alpha/Beta	Gross Alpha	6.08E-15	5.454E-15	3.29E-15	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212496	SLAPS LOADOUT	07/09/19	Gross Alpha/Beta	Gross Beta	5.355E-14	1.333E-14	2.07E-15	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212497	SLAPS LOADOUT	07/09/19	Gross Alpha/Beta	Gross Alpha	1.551E-14	8.672E-15	3.229E-15	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212497	SLAPS LOADOUT	07/09/19	Gross Alpha/Beta	Gross Beta	7.658E-14	1.608E-14	2.032E-15	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212498	SLAPS LOADOUT	07/10/19	Gross Alpha/Beta	Gross Alpha	8.432E-15	6.4E-15	3.26E-15	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212498	SLAPS LOADOUT	07/10/19	Gross Alpha/Beta	Gross Beta	5.002E-14	1.28E-14	2.051E-15	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212499	SLAPS LOADOUT	07/10/19	Gross Alpha/Beta	Gross Alpha	9.637E-15	6.846E-15	3.26E-15	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212499	SLAPS LOADOUT	07/10/19	Gross Alpha/Beta	Gross Beta	5.002E-14	1.28E-14	2.051E-15	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212500	SLAPS LOADOUT	07/10/19	Gross Alpha/Beta	Gross Alpha	8.432E-15	6.4E-15	3.26E-15	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212500	SLAPS LOADOUT	07/10/19	Gross Alpha/Beta	Gross Beta	5.987E-14	1.41E-14	2.051E-15	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212501	SLAPS LOADOUT	07/10/19	Gross Alpha/Beta	Gross Alpha	1.273E-14	9.044E-15	4.306E-15	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212501	SLAPS LOADOUT	07/10/19	Gross Alpha/Beta	Gross Beta	8.008E-14	1.876E-14	2.709E-15	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212502	SLAPS LOADOUT	07/10/19	Gross Alpha/Beta	Gross Alpha	9.547E-15	7.823E-15	4.306E-15	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212502	SLAPS LOADOUT	07/10/19	Gross Alpha/Beta	Gross Beta	7.007E-14	1.745E-14	2.709E-15	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212503	SLAPS LOADOUT	07/10/19	Gross Alpha/Beta	Gross Alpha	1.729E-14	1.049E-14	4.253E-15	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212503	SLAPS LOADOUT	07/10/19	Gross Alpha/Beta	Gross Beta	8.702E-14	1.952E-14	2.676E-15	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212504	SLAPS LOADOUT	07/11/19	Gross Alpha/Beta	Gross Alpha	8.675E-15	6.585E-15	3.354E-15	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212504	SLAPS LOADOUT	07/11/19	Gross Alpha/Beta	Gross Beta	6.315E-14	1.471E-14	2.11E-15	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA212505	SLAPS LOADOUT	07/11/19	Gross Alpha/Beta	Gross Alpha	6.138E-15	5.506E-15	3.322E-15	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212505	SLAPS LOADOUT	07/11/19	Gross Alpha/Beta	Gross Beta	4.402E-14	1.206E-14	2.09E-15	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212506	SLAPS LOADOUT	07/15/19	Gross Alpha/Beta	Gross Alpha	5.568E-15	1.033E-14	1.688E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA212506	SLAPS LOADOUT	07/15/19	Gross Alpha/Beta	Gross Beta	2.259E-14	2.085E-14	3.351E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA212506	SLAPS LOADOUT	07/15/19	Gross Alpha/Beta	Gross Alpha	-1.114E-15	7.875E-15	1.688E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212506	SLAPS LOADOUT	07/15/19	Gross Alpha/Beta	Gross Beta	1.721E-14	2.026E-14	3.351E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212507	SLAPS LOADOUT	07/15/19	Gross Alpha/Beta	Gross Alpha	-2.784E-15	7.133E-15	1.688E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212507	SLAPS LOADOUT	07/15/19	Gross Alpha/Beta	Gross Beta	2.044E-14	2.061E-14	3.351E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212508	SLAPS LOADOUT	07/15/19	Gross Alpha/Beta	Gross Alpha	3.636E-15	1.5E-14	2.755E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212508	SLAPS LOADOUT	07/15/19	Gross Alpha/Beta	Gross Beta	4.039E-14	3.441E-14	5.471E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212509	SLAPS LOADOUT	07/15/19	Gross Alpha/Beta	Gross Alpha	-7.273E-15	1.03E-14	2.755E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212509	SLAPS LOADOUT	07/15/19	Gross Alpha/Beta	Gross Beta	8.781E-15	3.09E-14	5.471E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212510	SLAPS LOADOUT	07/15/19	Gross Alpha/Beta	Gross Alpha	-7.273E-15	1.03E-14	2.755E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212510	SLAPS LOADOUT	07/15/19	Gross Alpha/Beta	Gross Beta	1.756E-15	3.008E-14	5.471E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212511	SLAPS LOADOUT	07/16/19	Gross Alpha/Beta	Gross Alpha	4.163E-15	7.727E-15	1.262E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212511	SLAPS LOADOUT	07/16/19	Gross Alpha/Beta	Gross Beta	2.332E-14	1.627E-14	2.505E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212512	SLAPS LOADOUT	07/16/19	Gross Alpha/Beta	Gross Alpha	-8.25E-16	5.833E-15	1.25E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212512	SLAPS LOADOUT	07/16/19	Gross Alpha/Beta	Gross Beta	7.97E-16	1.365E-14	2.482E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212513	SLAPS LOADOUT	07/17/19	Gross Alpha/Beta	Gross Alpha	2.887E-15	7.241E-15	1.25E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212513	SLAPS LOADOUT	07/17/19	Gross Alpha/Beta	Gross Beta	0	1.355E-14	2.482E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212514	SLAPS LOADOUT	07/17/19	Gross Alpha/Beta	Gross Beta	3.458E-14	1.744E-14	2.505E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212514	SLAPS LOADOUT	07/17/19	Gross Alpha/Beta	Gross Alpha	4.16E-16	6.395E-15	1.262E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212515	SLAPS LOADOUT	07/18/19	Gross Alpha/Beta	Gross Alpha	4.12E-16	6.336E-15	1.25E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212515	SLAPS LOADOUT	07/18/19	Gross Alpha/Beta	Gross Beta	3.984E-15	1.402E-14	2.482E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212516	SLAPS LOADOUT	07/18/19	Gross Alpha/Beta	Gross Alpha	1.665E-15	6.867E-15	1.262E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212516	SLAPS LOADOUT	07/18/19	Gross Alpha/Beta	Gross Beta	4.826E-15	1.424E-14	2.505E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212517	SLAPS LOADOUT	07/22/19	Gross Alpha/Beta	Gross Alpha	-5.833E-15	5.102E-15	1.607E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212517	SLAPS LOADOUT	07/22/19	Gross Alpha/Beta	Gross Beta	2.356E-14	2.007E-14	3.191E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212518	SLAPS LOADOUT	07/22/19	Gross Alpha/Beta	Gross Alpha	-4.242E-15	6.007E-15	1.607E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212518	SLAPS LOADOUT	07/22/19	Gross Alpha/Beta	Gross Beta	2.664E-14	2.04E-14	3.191E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212519	SLAPS LOADOUT	07/23/19	Gross Alpha/Beta	Gross Alpha	1.605E-15	6.619E-15	1.216E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212519	SLAPS LOADOUT	07/23/19	Gross Alpha/Beta	Gross Beta	1.241E-14	1.46E-14	2.415E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212520	SLAPS LOADOUT	07/23/19	Gross Alpha/Beta	Gross Alpha	-8.17E-16	5.78E-15	1.239E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212520	SLAPS LOADOUT	07/23/19	Gross Alpha/Beta	Gross Beta	1.974E-14	1.564E-14	2.459E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212521	SLAPS LOADOUT	07/24/19	Gross Alpha/Beta	Gross Alpha	-4.537E-15	3.968E-15	1.25E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212521	SLAPS LOADOUT	07/24/19	Gross Alpha/Beta	Gross Beta	1.673E-14	1.544E-14	2.482E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212522	SLAPS LOADOUT	07/24/19	Gross Alpha/Beta	Gross Beta	3.208E-14	1.681E-14	2.437E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212522	SLAPS LOADOUT	07/24/19	Gross Alpha/Beta	Gross Alpha	6.479E-15	8.271E-15	1.227E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212523	SLAPS LOADOUT	07/24/19	Gross Alpha/Beta	Gross Alpha	1.463E-14	1.472E-14	2.015E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212523	SLAPS LOADOUT	07/24/19	Gross Alpha/Beta	Gross Beta	2.826E-14	2.503E-14	4.001E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212524	SLAPS LOADOUT	07/24/19	Gross Alpha/Beta	Gross Alpha	6.648E-15	1.234E-14	2.015E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212524	SLAPS LOADOUT	07/24/19	Gross Alpha/Beta	Gross Beta	2.44E-14	2.461E-14	4.001E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212525	SLAPS LOADOUT	07/24/19	Gross Alpha/Beta	Gross Beta	4.624E-14	2.693E-14	4.001E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212525	SLAPS LOADOUT	07/24/19	Gross Alpha/Beta	Gross Alpha	6.648E-15	1.234E-14	2.015E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA212526	SLAPS LOADOUT	07/25/19	Gross Alpha/Beta	Gross Alpha	9.8E-17	4.482E-15	8.725E-15	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA212526	SLAPS LOADOUT	07/25/19	Gross Alpha/Beta	Gross Beta	4.669E-15	1.072E-14	1.809E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA212526	SLAPS LOADOUT	07/25/19	Gross Alpha/Beta	Gross Alpha	3.613E-15	6.052E-15	8.725E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212526	SLAPS LOADOUT	07/25/19	Gross Alpha/Beta	Gross Beta	1.794E-14	1.247E-14	1.809E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212527	SLAPS LOADOUT	07/25/19	Gross Alpha/Beta	Gross Beta	3.085E-14	1.442E-14	1.877E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212527	SLAPS LOADOUT	07/25/19	Gross Alpha/Beta	Gross Alpha	1.01E-16	4.651E-15	9.055E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212528	SLAPS LOADOUT	07/29/19	Gross Alpha/Beta	Gross Alpha	2.712E-15	6.196E-15	9.695E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212528	SLAPS LOADOUT	07/29/19	Gross Alpha/Beta	Gross Beta	1.911E-14	1.376E-14	2.01E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212529	SLAPS LOADOUT	07/29/19	Gross Alpha/Beta	Gross Alpha	1.454E-15	5.796E-15	9.998E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212529	SLAPS LOADOUT	07/29/19	Gross Alpha/Beta	Gross Beta	1.126E-14	1.309E-14	2.073E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212530	SLAPS LOADOUT	07/29/19	Gross Alpha/Beta	Gross Alpha	1.624E-15	6.47E-15	1.116E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212530	SLAPS LOADOUT	07/29/19	Gross Alpha/Beta	Gross Beta	3.143E-15	1.332E-14	2.314E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212531	SLAPS LOADOUT	07/29/19	Gross Alpha/Beta	Gross Alpha	6.192E-15	8.403E-15	1.129E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212531	SLAPS LOADOUT	07/29/19	Gross Alpha/Beta	Gross Beta	2.321E-14	1.614E-14	2.341E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212532	SLAPS LOADOUT	07/29/19	Gross Alpha/Beta	Gross Alpha	1.074E-14	9.928E-15	1.129E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212532	SLAPS LOADOUT	07/29/19	Gross Alpha/Beta	Gross Beta	3.18E-16	1.306E-14	2.341E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212533	SLAPS LOADOUT	07/30/19	Gross Alpha/Beta	Gross Alpha	7.193E-15	7.366E-15	8.806E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212533	SLAPS LOADOUT	07/30/19	Gross Alpha/Beta	Gross Beta	1.661E-14	1.24E-14	1.826E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212534	SLAPS LOADOUT	07/30/19	Gross Alpha/Beta	Gross Beta	1.907E-14	1.243E-14	1.777E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212534	SLAPS LOADOUT	07/30/19	Gross Alpha/Beta	Gross Alpha	1.247E-15	4.968E-15	8.57E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212535	SLAPS LOADOUT	07/31/19	Gross Alpha/Beta	Gross Alpha	1.192E-14	8.778E-15	8.806E-15	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212535	SLAPS LOADOUT	07/31/19	Gross Alpha/Beta	Gross Beta	2.182E-14	1.305E-14	1.826E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212536	SLAPS LOADOUT	07/31/19	Gross Alpha/Beta	Gross Alpha	1.258E-15	5.013E-15	8.647E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212536	SLAPS LOADOUT	07/31/19	Gross Alpha/Beta	Gross Beta	1.193E-14	1.161E-14	1.793E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212537	SLAPS LOADOUT	08/01/19	Gross Alpha/Beta	Gross Beta	2.033E-14	1.286E-14	1.826E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212537	SLAPS LOADOUT	08/01/19	Gross Alpha/Beta	Gross Alpha	4.828E-15	6.553E-15	8.806E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212538	SLAPS LOADOUT	08/01/19	Gross Alpha/Beta	Gross Beta	2.457E-14	1.329E-14	1.809E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212538	SLAPS LOADOUT	08/01/19	Gross Alpha/Beta	Gross Alpha	5.956E-15	6.907E-15	8.725E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212539	SLAPS LOADOUT	08/06/19	Gross Alpha/Beta	Gross Alpha	1.456E-14	9.585E-15	8.97E-15	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212539	SLAPS LOADOUT	08/06/19	Gross Alpha/Beta	Gross Beta	4.269E-14	1.566E-14	1.86E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212540	SLAPS LOADOUT	08/06/19	Gross Alpha/Beta	Gross Beta	5.178E-14	1.664E-14	1.86E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212540	SLAPS LOADOUT	08/06/19	Gross Alpha/Beta	Gross Alpha	8.532E-15	7.887E-15	8.97E-15	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212541	SLAPS LOADOUT	08/06/19	Gross Alpha/Beta	Gross Beta	3.153E-14	1.836E-14	2.551E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212541	SLAPS LOADOUT	08/06/19	Gross Alpha/Beta	Gross Alpha	6.747E-15	9.157E-15	1.231E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212542	SLAPS LOADOUT	08/06/19	Gross Alpha/Beta	Gross Beta	4.242E-14	1.947E-14	2.519E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212542	SLAPS LOADOUT	08/06/19	Gross Alpha/Beta	Gross Alpha	1.156E-14	1.068E-14	1.215E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212543	SLAPS LOADOUT	08/06/19	Gross Alpha/Beta	Gross Alpha	1.79E-15	7.133E-15	1.231E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212543	SLAPS LOADOUT	08/06/19	Gross Alpha/Beta	Gross Beta	1.074E-14	1.569E-14	2.551E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212544	SLAPS LOADOUT	08/05/19	Gross Alpha/Beta	Gross Beta	2.413E-14	1.305E-14	1.777E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212544	SLAPS LOADOUT	08/05/19	Gross Alpha/Beta	Gross Alpha	2.397E-15	5.477E-15	8.57E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212545	SLAPS LOADOUT	08/05/19	Gross Alpha/Beta	Gross Alpha	4.828E-15	6.553E-15	8.806E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212545	SLAPS LOADOUT	08/05/19	Gross Alpha/Beta	Gross Beta	1.215E-14	1.183E-14	1.826E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212546	SLAPS LOADOUT	08/07/19	Gross Alpha/Beta	Gross Alpha	1.498E-14	1.163E-14	1.125E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA212546	SLAPS LOADOUT	08/07/19	Gross Alpha/Beta	Gross Beta	3.677E-14	1.86E-14	2.469E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA212546	SLAPS LOADOUT	08/07/19	Gross Alpha/Beta	Gross Beta	4.851E-14	1.969E-14	2.469E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212546	SLAPS LOADOUT	08/07/19	Gross Alpha/Beta	Gross Alpha	5.264E-15	9.335E-15	1.125E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212547	SLAPS LOADOUT	08/07/19	Gross Alpha/Beta	Gross Alpha	4.087E-15	9.093E-15	1.136E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212547	SLAPS LOADOUT	08/07/19	Gross Alpha/Beta	Gross Beta	4.737E-15	1.561E-14	2.492E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212548	SLAPS LOADOUT	08/07/19	Gross Alpha/Beta	Gross Alpha	7.747E-15	3.982E-14	5.382E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212548	SLAPS LOADOUT	08/07/19	Gross Alpha/Beta	Gross Beta	8.98E-14	8.073E-14	1.181E-13	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212549	SLAPS LOADOUT	08/07/19	Gross Alpha/Beta	Gross Alpha	9.354E-15	2.805E-14	3.492E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212549	SLAPS LOADOUT	08/07/19	Gross Alpha/Beta	Gross Beta	5.45E-14	5.923E-14	7.89E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212550	SLAPS LOADOUT	08/07/19	Gross Alpha/Beta	Gross Alpha	5.374E-14	3.807E-14	3.796E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212550	SLAPS LOADOUT	08/07/19	Gross Alpha/Beta	Gross Beta	1.565E-13	7.054E-14	8.576E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212551	SLAPS LOADOUT	08/08/19	Gross Alpha/Beta	Gross Alpha	9.943E-15	1.035E-14	1.105E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212551	SLAPS LOADOUT	08/08/19	Gross Alpha/Beta	Gross Beta	1.537E-14	1.627E-14	2.425E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212552	SLAPS LOADOUT	08/08/19	Gross Alpha/Beta	Gross Beta	2.559E-14	1.741E-14	2.447E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212552	SLAPS LOADOUT	08/08/19	Gross Alpha/Beta	Gross Alpha	5.217E-15	9.251E-15	1.115E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212553	SLAPS LOADOUT	08/08/19	Gross Alpha/Beta	Gross Alpha	4.654E-15	1.424E-14	1.848E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212553	SLAPS LOADOUT	08/08/19	Gross Alpha/Beta	Gross Beta	3.725E-14	2.834E-14	4.054E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212554	SLAPS LOADOUT	08/08/19	Gross Alpha/Beta	Gross Alpha	8.643E-15	1.533E-14	1.848E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212554	SLAPS LOADOUT	08/08/19	Gross Alpha/Beta	Gross Beta	3.211E-14	2.784E-14	4.054E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212555	SLAPS LOADOUT	08/08/19	Gross Alpha/Beta	Gross Alpha	-1.33E-15	1.245E-14	1.848E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212555	SLAPS LOADOUT	08/08/19	Gross Alpha/Beta	Gross Beta	1.413E-14	2.605E-14	4.054E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212556	SLAPS LOADOUT	08/12/19	Gross Alpha/Beta	Gross Alpha	3.668E-15	1.123E-14	1.456E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212556	SLAPS LOADOUT	08/12/19	Gross Alpha/Beta	Gross Beta	3.037E-14	2.244E-14	3.195E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212557	SLAPS LOADOUT	08/12/19	Gross Alpha/Beta	Gross Alpha	8.385E-15	1.249E-14	1.456E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212557	SLAPS LOADOUT	08/12/19	Gross Alpha/Beta	Gross Beta	1.012E-15	1.949E-14	3.195E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212558	SLAPS LOADOUT	08/12/19	Gross Alpha/Beta	Gross Alpha	9.28E-15	2.065E-14	2.579E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212558	SLAPS LOADOUT	08/12/19	Gross Alpha/Beta	Gross Beta	4.841E-14	3.921E-14	5.658E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212559	SLAPS LOADOUT	08/12/19	Gross Alpha/Beta	Gross Alpha	6.496E-15	1.988E-14	2.579E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212559	SLAPS LOADOUT	08/12/19	Gross Alpha/Beta	Gross Beta	2.869E-14	3.726E-14	5.658E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212560	SLAPS LOADOUT	08/12/19	Gross Alpha/Beta	Gross Alpha	6.496E-15	1.988E-14	2.579E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212560	SLAPS LOADOUT	08/12/19	Gross Alpha/Beta	Gross Beta	3.944E-14	3.833E-14	5.658E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212561	SLAPS LOADOUT	08/13/19	Gross Alpha/Beta	Gross Alpha	-8.25E-16	7.724E-15	1.146E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212561	SLAPS LOADOUT	08/13/19	Gross Alpha/Beta	Gross Beta	1.833E-14	1.711E-14	2.515E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212562	SLAPS LOADOUT	08/13/19	Gross Alpha/Beta	Gross Beta	3.619E-14	1.897E-14	2.538E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212562	SLAPS LOADOUT	08/13/19	Gross Alpha/Beta	Gross Alpha	9.159E-15	1.054E-14	1.157E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212563	SLAPS LOADOUT	08/14/19	Gross Alpha/Beta	Gross Beta	3.028E-14	1.827E-14	2.515E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212563	SLAPS LOADOUT	08/14/19	Gross Alpha/Beta	Gross Alpha	5.362E-15	9.508E-15	1.146E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212564	SLAPS LOADOUT	08/14/19	Gross Alpha/Beta	Gross Alpha	6.599E-15	9.829E-15	1.146E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212564	SLAPS LOADOUT	08/14/19	Gross Alpha/Beta	Gross Beta	1.833E-14	1.711E-14	2.515E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212565	SLAPS LOADOUT	08/15/19	Gross Alpha/Beta	Gross Beta	2.763E-14	1.788E-14	2.492E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212565	SLAPS LOADOUT	08/15/19	Gross Alpha/Beta	Gross Alpha	4.09E-16	8.036E-15	1.136E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212566	SLAPS LOADOUT	08/15/19	Gross Alpha/Beta	Gross Beta	3.801E-14	1.895E-14	1.858E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA212566	SLAPS LOADOUT	08/15/19	Gross Alpha/Beta	Gross Alpha	-1.93E-16	6.137E-15	1.124E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA212566	SLAPS LOADOUT	08/15/19	Gross Alpha/Beta	Gross Beta	2.969E-14	1.82E-14	1.858E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212566	SLAPS LOADOUT	08/15/19	Gross Alpha/Beta	Gross Alpha	3.286E-15	7.338E-15	1.124E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA212567	SLAPS LOADOUT	08/19/19	Gross Alpha/Beta	Gross Beta	1.983E-14	1.369E-14	1.884E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212567	SLAPS LOADOUT	08/19/19	Gross Alpha/Beta	Gross Alpha	8.447E-15	7.617E-15	8.881E-15	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212568	SLAPS LOADOUT	08/19/19	Gross Alpha/Beta	Gross Alpha	2.532E-15	5.513E-15	9.051E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212568	SLAPS LOADOUT	08/19/19	Gross Alpha/Beta	Gross Beta	7.531E-15	1.236E-14	1.921E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212569	SLAPS LOADOUT	08/20/19	Gross Alpha/Beta	Gross Beta	3.494E-14	1.555E-14	1.902E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212569	SLAPS LOADOUT	08/20/19	Gross Alpha/Beta	Gross Alpha	6.12E-15	6.882E-15	8.965E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212570	SLAPS LOADOUT	08/20/19	Gross Alpha/Beta	Gross Alpha	1.01E-16	4.307E-15	9.051E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212570	SLAPS LOADOUT	08/20/19	Gross Alpha/Beta	Gross Beta	1.784E-14	1.367E-14	1.921E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212571	SLAPS LOADOUT	08/20/19	Gross Alpha/Beta	Gross Alpha	1.88E-16	7.999E-15	1.681E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212571	SLAPS LOADOUT	08/20/19	Gross Alpha/Beta	Gross Beta	3.46E-14	2.556E-14	3.567E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212572	SLAPS LOADOUT	08/20/19	Gross Alpha/Beta	Gross Beta	3.607E-14	2.574E-14	3.567E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212572	SLAPS LOADOUT	08/20/19	Gross Alpha/Beta	Gross Alpha	2.445E-15	9.186E-15	1.681E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212573	SLAPS LOADOUT	08/20/19	Gross Alpha/Beta	Gross Alpha	6.96E-15	1.12E-14	1.681E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212573	SLAPS LOADOUT	08/20/19	Gross Alpha/Beta	Gross Beta	1.546E-14	2.315E-14	3.567E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212574	SLAPS LOADOUT	08/21/19	Gross Alpha/Beta	Gross Alpha	1.053E-14	8.113E-15	8.636E-15	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212574	SLAPS LOADOUT	08/21/19	Gross Alpha/Beta	Gross Beta	2.912E-14	1.447E-14	1.833E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212575	SLAPS LOADOUT	08/21/19	Gross Alpha/Beta	Gross Beta	2.882E-14	1.404E-14	1.768E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212575	SLAPS LOADOUT	08/21/19	Gross Alpha/Beta	Gross Alpha	5.687E-15	6.395E-15	8.33E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212576	SLAPS LOADOUT	08/22/19	Gross Alpha/Beta	Gross Beta	4.077E-14	1.63E-14	1.886E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212576	SLAPS LOADOUT	08/22/19	Gross Alpha/Beta	Gross Alpha	5.565E-15	6.421E-15	9.465E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212577	SLAPS LOADOUT	08/22/19	Gross Alpha/Beta	Gross Beta	1.983E-14	1.369E-14	1.884E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212577	SLAPS LOADOUT	08/22/19	Gross Alpha/Beta	Gross Alpha	6.062E-15	6.817E-15	8.881E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212578	SLAPS LOADOUT	08/26/19	Gross Alpha/Beta	Gross Beta	1.888E-14	1.347E-14	1.867E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212578	SLAPS LOADOUT	08/26/19	Gross Alpha/Beta	Gross Alpha	3.643E-15	5.86E-15	8.798E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212579	SLAPS LOADOUT	08/26/19	Gross Alpha/Beta	Gross Alpha	3.643E-15	5.86E-15	8.798E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212579	SLAPS LOADOUT	08/26/19	Gross Alpha/Beta	Gross Beta	8.091E-15	1.212E-14	1.867E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212580	SLAPS LOADOUT	08/26/19	Gross Alpha/Beta	Gross Alpha	8.603E-15	1.127E-14	1.569E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212580	SLAPS LOADOUT	08/26/19	Gross Alpha/Beta	Gross Beta	2.13E-14	2.249E-14	3.329E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212581	SLAPS LOADOUT	08/26/19	Gross Alpha/Beta	Gross Alpha	1.282E-14	1.277E-14	1.569E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212581	SLAPS LOADOUT	08/26/19	Gross Alpha/Beta	Gross Beta	2.13E-14	2.249E-14	3.329E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212582	SLAPS LOADOUT	08/26/19	Gross Alpha/Beta	Gross Alpha	2.282E-15	8.574E-15	1.569E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212582	SLAPS LOADOUT	08/26/19	Gross Alpha/Beta	Gross Beta	1.168E-14	2.125E-14	3.329E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212583	SLAPS LOADOUT	08/27/19	Gross Alpha/Beta	Gross Beta	3.442E-14	1.507E-14	1.833E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212583	SLAPS LOADOUT	08/27/19	Gross Alpha/Beta	Gross Alpha	7.055E-15	7.029E-15	8.636E-15	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212584	SLAPS LOADOUT	08/27/19	Gross Alpha/Beta	Gross Beta	3.397E-14	1.512E-14	1.85E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212584	SLAPS LOADOUT	08/27/19	Gross Alpha/Beta	Gross Alpha	4.779E-15	6.263E-15	8.716E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212585	SLAPS LOADOUT	08/28/19	Gross Alpha/Beta	Gross Alpha	1.28E-15	4.808E-15	8.798E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212585	SLAPS LOADOUT	08/28/19	Gross Alpha/Beta	Gross Beta	9.632E-15	1.232E-14	1.867E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212586	SLAPS LOADOUT	08/28/19	Gross Alpha/Beta	Gross Beta	3.185E-14	1.441E-14	1.806E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA212586	SLAPS LOADOUT	08/28/19	Gross Alpha/Beta	Gross Alpha	3.938E-15	5.329E-15	8.42E-15	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA212586	SLAPS LOADOUT	08/28/19	Gross Alpha/Beta	Gross Alpha	3.94E-16	3.403E-15	8.42E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212586	SLAPS LOADOUT	08/28/19	Gross Alpha/Beta	Gross Beta	1.49E-14	1.231E-14	1.806E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212587	SLAPS LOADOUT	08/28/19	Gross Alpha/Beta	Gross Alpha	9.763E-15	8.786E-15	1.099E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212587	SLAPS LOADOUT	08/28/19	Gross Alpha/Beta	Gross Beta	1.14E-14	1.498E-14	2.357E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA212588	SLAPS LOADOUT	08/28/19	Gross Alpha/Beta	Gross Alpha	5.2E-16	4.495E-15	1.112E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212588	SLAPS LOADOUT	08/28/19	Gross Alpha/Beta	Gross Beta	1.764E-14	1.599E-14	2.386E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212589	SLAPS LOADOUT	08/28/19	Gross Alpha/Beta	Gross Beta	2.417E-14	1.651E-14	2.329E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212589	SLAPS LOADOUT	08/28/19	Gross Alpha/Beta	Gross Alpha	5.08E-16	4.387E-15	1.085E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212590	SLAPS LOADOUT	08/29/19	Gross Alpha/Beta	Gross Beta	2.904E-14	1.418E-14	1.823E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212590	SLAPS LOADOUT	08/29/19	Gross Alpha/Beta	Gross Alpha	2.783E-15	4.818E-15	8.499E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212591	SLAPS LOADOUT	08/29/19	Gross Alpha/Beta	Gross Beta	2.748E-14	1.399E-14	1.823E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212591	SLAPS LOADOUT	08/29/19	Gross Alpha/Beta	Gross Alpha	3.975E-15	5.38E-15	8.499E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212592	SLAPS LOADOUT	09/03/19	Gross Alpha/Beta	Gross Alpha	3.9E-16	3.371E-15	8.342E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212592	SLAPS LOADOUT	09/03/19	Gross Alpha/Beta	Gross Beta	2.545E-15	1.051E-14	1.79E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212593	SLAPS LOADOUT	09/03/19	Gross Alpha/Beta	Gross Beta	4.589E-14	1.552E-14	1.726E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212593	SLAPS LOADOUT	09/03/19	Gross Alpha/Beta	Gross Alpha	3.762E-15	5.091E-15	8.044E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212594	SLAPS LOADOUT	09/04/19	Gross Alpha/Beta	Gross Beta	3.461E-14	1.463E-14	1.79E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212594	SLAPS LOADOUT	09/04/19	Gross Alpha/Beta	Gross Alpha	7.413E-15	6.671E-15	8.342E-15	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212595	SLAPS LOADOUT	09/04/19	Gross Alpha/Beta	Gross Beta	2.068E-14	1.286E-14	1.773E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212595	SLAPS LOADOUT	09/04/19	Gross Alpha/Beta	Gross Alpha	3.866E-15	5.231E-15	8.265E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212596	SLAPS LOADOUT	09/04/19	Gross Alpha/Beta	Gross Beta	6.071E-14	2.415E-14	2.885E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212596	SLAPS LOADOUT	09/04/19	Gross Alpha/Beta	Gross Alpha	1.006E-14	1.006E-14	1.345E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212597	SLAPS LOADOUT	09/04/19	Gross Alpha/Beta	Gross Beta	4.989E-14	2.342E-14	2.973E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212597	SLAPS LOADOUT	09/04/19	Gross Alpha/Beta	Gross Alpha	8.427E-15	9.603E-15	1.386E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212598	SLAPS LOADOUT	09/04/19	Gross Alpha/Beta	Gross Alpha	1.324E-14	1.092E-14	1.287E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212598	SLAPS LOADOUT	09/04/19	Gross Alpha/Beta	Gross Beta	4.633E-14	2.175E-14	2.761E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212599	SLAPS LOADOUT	09/05/19	Gross Alpha/Beta	Gross Alpha	3.8E-16	3.28E-15	8.116E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212599	SLAPS LOADOUT	09/05/19	Gross Alpha/Beta	Gross Beta	6.19E-15	1.076E-14	1.741E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212600	SLAPS LOADOUT	09/05/19	Gross Alpha/Beta	Gross Beta	4.329E-14	1.514E-14	1.71E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA212600	SLAPS LOADOUT	09/05/19	Gross Alpha/Beta	Gross Alpha	1.492E-15	3.924E-15	7.973E-15	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA212600	SLAPS LOADOUT	09/05/19	Gross Alpha/Beta	Gross Beta	3.818E-14	1.457E-14	1.71E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212600	SLAPS LOADOUT	09/05/19	Gross Alpha/Beta	Gross Alpha	3.729E-15	5.046E-15	7.973E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212601	SLAPS LOADOUT	09/09/19	Gross Alpha/Beta	Gross Beta	4E-14	1.486E-14	1.726E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212601	SLAPS LOADOUT	09/09/19	Gross Alpha/Beta	Gross Alpha	3.762E-15	5.091E-15	8.044E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212602	SLAPS LOADOUT	09/09/19	Gross Alpha/Beta	Gross Beta	6.357E-14	1.88E-14	1.952E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212602	SLAPS LOADOUT	09/09/19	Gross Alpha/Beta	Gross Alpha	8.087E-15	7.278E-15	9.1E-15	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212603	SLAPS LOADOUT	09/10/19	Gross Alpha/Beta	Gross Beta	5.342E-14	1.682E-14	1.806E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212603	SLAPS LOADOUT	09/10/19	Gross Alpha/Beta	Gross Alpha	1.575E-15	4.144E-15	8.42E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212604	SLAPS LOADOUT	09/10/19	Gross Alpha/Beta	Gross Beta	5.244E-14	1.652E-14	1.773E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212604	SLAPS LOADOUT	09/10/19	Gross Alpha/Beta	Gross Alpha	3.866E-15	5.231E-15	8.265E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212605	SLAPS LOADOUT	09/11/19	Gross Alpha/Beta	Gross Beta	4.892E-14	1.711E-14	1.933E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212605	SLAPS LOADOUT	09/11/19	Gross Alpha/Beta	Gross Alpha	5.478E-15	6.242E-15	9.009E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212606	SLAPS LOADOUT	09/11/19	Gross Alpha/Beta	Gross Alpha	9.27E-15	7.642E-15	9.009E-15	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212606	SLAPS LOADOUT	09/11/19	Gross Alpha/Beta	Gross Beta	6.129E-14	1.844E-14	1.933E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212607	SLAPS LOADOUT	09/12/19	Gross Alpha/Beta	Gross Beta	2.648E-14	1.348E-14	1.757E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA212607	SLAPS LOADOUT	09/12/19	Gross Alpha/Beta	Gross Alpha	6.129E-15	6.127E-15	8.19E-15	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA212607	SLAPS LOADOUT	09/12/19	Gross Alpha/Beta	Gross Beta	4.747E-14	1.588E-14	1.757E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212607	SLAPS LOADOUT	09/12/19	Gross Alpha/Beta	Gross Alpha	6.129E-15	6.127E-15	8.19E-15	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA212608	SLAPS LOADOUT	09/12/19	Gross Alpha/Beta	Gross Beta	3.398E-14	1.437E-14	1.757E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212608	SLAPS LOADOUT	09/12/19	Gross Alpha/Beta	Gross Alpha	6.129E-15	6.127E-15	8.19E-15	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212609	SLAPS LOADOUT	09/12/19	Gross Alpha/Beta	Gross Beta	5.6E-14	2.081E-14	2.416E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212609	SLAPS LOADOUT	09/12/19	Gross Alpha/Beta	Gross Alpha	1.001E-14	9.006E-15	1.126E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212610	SLAPS LOADOUT	09/12/19	Gross Alpha/Beta	Gross Beta	2.817E-14	1.752E-14	2.416E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212610	SLAPS LOADOUT	09/12/19	Gross Alpha/Beta	Gross Alpha	5.27E-16	4.551E-15	1.126E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212611	SLAPS LOADOUT	09/12/19	Gross Alpha/Beta	Gross Beta	4.569E-14	1.963E-14	2.416E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212611	SLAPS LOADOUT	09/12/19	Gross Alpha/Beta	Gross Alpha	2.107E-15	5.543E-15	1.126E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212612	SLAPS LOADOUT	09/16/19	Gross Alpha/Beta	Gross Beta	6.093E-14	1.772E-14	1.823E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212612	SLAPS LOADOUT	09/16/19	Gross Alpha/Beta	Gross Alpha	2.783E-15	4.818E-15	8.499E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212613	SLAPS LOADOUT	09/16/19	Gross Alpha/Beta	Gross Beta	5.444E-14	1.715E-14	1.841E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212613	SLAPS LOADOUT	09/16/19	Gross Alpha/Beta	Gross Alpha	4.013E-15	5.431E-15	8.58E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212614	SLAPS LOADOUT	09/17/19	Gross Alpha/Beta	Gross Beta	8.271E-14	2.004E-14	1.841E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212614	SLAPS LOADOUT	09/17/19	Gross Alpha/Beta	Gross Alpha	4.01E-16	3.468E-15	8.58E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212615	SLAPS LOADOUT	09/17/19	Gross Alpha/Beta	Gross Beta	6.652E-14	1.82E-14	1.806E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212615	SLAPS LOADOUT	09/17/19	Gross Alpha/Beta	Gross Alpha	3.938E-15	5.329E-15	8.42E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212616	SLAPS LOADOUT	09/18/19	Gross Alpha/Beta	Gross Alpha	9.845E-15	7.53E-15	8.42E-15	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA212616	SLAPS LOADOUT	09/18/19	Gross Alpha/Beta	Gross Beta	4.033E-14	1.539E-14	1.806E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212617	SLAPS LOADOUT	09/18/19	Gross Alpha/Beta	Gross Beta	6.807E-14	1.835E-14	1.806E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212617	SLAPS LOADOUT	09/18/19	Gross Alpha/Beta	Gross Alpha	1.575E-15	4.144E-15	8.42E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212618	SLAPS LOADOUT	09/19/19	Gross Alpha/Beta	Gross Beta	6.262E-14	2.072E-14	2.538E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA212618	SLAPS LOADOUT	09/19/19	Gross Alpha/Beta	Gross Alpha	4.949E-15	9.005E-15	1.282E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA212618	SLAPS LOADOUT	09/19/19	Gross Alpha/Beta	Gross Beta	5.863E-14	2.036E-14	2.538E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212618	SLAPS LOADOUT	09/19/19	Gross Alpha/Beta	Gross Alpha	1.237E-14	1.088E-14	1.282E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA212619	SLAPS LOADOUT	09/19/19	Gross Alpha/Beta	Gross Beta	6.023E-14	2.05E-14	2.538E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA212619	SLAPS LOADOUT	09/19/19	Gross Alpha/Beta	Gross Alpha	3.712E-15	8.655E-15	1.282E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212620	SLAPS LOADOUT	09/23/19	Gross Alpha/Beta	Gross Alpha	1.215E-15	7.769E-15	1.259E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212620	SLAPS LOADOUT	09/23/19	Gross Alpha/Beta	Gross Beta	1.141E-14	1.547E-14	2.492E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212621	SLAPS LOADOUT	09/23/19	Gross Alpha/Beta	Gross Alpha	-1.261E-15	7.23E-15	1.306E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA212621	SLAPS LOADOUT	09/23/19	Gross Alpha/Beta	Gross Beta	1.509E-14	1.64E-14	2.586E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216688	SLAPS LOADOUT	09/24/19	Gross Alpha/Beta	Gross Alpha	5.043E-15	9.175E-15	1.306E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216688	SLAPS LOADOUT	09/24/19	Gross Alpha/Beta	Gross Beta	2.321E-14	1.723E-14	2.586E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216689	SLAPS LOADOUT	09/24/19	Gross Alpha/Beta	Gross Alpha	-3.259E-15	8.762E-15	1.689E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216689	SLAPS LOADOUT	09/24/19	Gross Alpha/Beta	Gross Beta	1.95E-14	2.12E-14	3.342E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216690	SLAPS LOADOUT	09/24/19	Gross Alpha/Beta	Gross Alpha	-1.61E-15	9.234E-15	1.669E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216690	SLAPS LOADOUT	09/24/19	Gross Alpha/Beta	Gross Beta	1.097E-14	2.007E-14	3.302E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216691	SLAPS LOADOUT	09/24/19	Gross Alpha/Beta	Gross Alpha	3.182E-15	1.066E-14	1.649E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216691	SLAPS LOADOUT	09/24/19	Gross Alpha/Beta	Gross Beta	2.928E-14	2.174E-14	3.263E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216692	SLAPS LOADOUT	09/25/19	Gross Alpha/Beta	Gross Beta	3.376E-14	1.827E-14	2.586E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216692	SLAPS LOADOUT	09/25/19	Gross Alpha/Beta	Gross Alpha	0	7.657E-15	1.306E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216693	SLAPS LOADOUT	09/25/19	Gross Alpha/Beta	Gross Alpha	-1.237E-15	7.096E-15	1.282E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216693	SLAPS LOADOUT	09/25/19	Gross Alpha/Beta	Gross Beta	2.198E-14	1.683E-14	2.538E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216694	SLAPS LOADOUT	09/26/19	Gross Alpha/Beta	Gross Alpha	-1.261E-15	7.23E-15	1.306E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216694	SLAPS LOADOUT	09/26/19	Gross Alpha/Beta	Gross Beta	7.78E-15	1.563E-14	2.586E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216695	SLAPS LOADOUT	09/26/19	Gross Alpha/Beta	Gross Alpha	-1.392E-15	7.984E-15	1.443E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA216695	SLAPS LOADOUT	09/26/19	Gross Alpha/Beta	Gross Beta	2.831E-14	1.929E-14	2.855E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216696	SLAPS LOADOUT	09/26/19	Gross Alpha/Beta	Gross Alpha	-2.755E-15	7.407E-15	1.428E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216696	SLAPS LOADOUT	09/26/19	Gross Alpha/Beta	Gross Beta	1.826E-14	1.81E-14	2.825E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216697	SLAPS LOADOUT	09/26/19	Gross Alpha/Beta	Gross Alpha	4.176E-15	9.737E-15	1.443E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216697	SLAPS LOADOUT	09/26/19	Gross Alpha/Beta	Gross Beta	1.487E-14	1.792E-14	2.855E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216698	SLAPS LOADOUT	09/26/19	Gross Alpha/Beta	Gross Alpha	-1.215E-15	6.967E-15	1.259E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216698	SLAPS LOADOUT	09/26/19	Gross Alpha/Beta	Gross Beta	1.297E-14	1.564E-14	2.492E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216699	SLAPS LOADOUT	09/30/19	Gross Alpha/Beta	Gross Beta	2.756E-14	1.739E-14	2.538E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216699	SLAPS LOADOUT	09/30/19	Gross Alpha/Beta	Gross Alpha	-1.237E-15	7.096E-15	1.282E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216700	SLAPS LOADOUT	09/30/19	Gross Alpha/Beta	Gross Alpha	2.498E-15	8.369E-15	1.294E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216700	SLAPS LOADOUT	09/30/19	Gross Alpha/Beta	Gross Beta	2.379E-14	1.715E-14	2.561E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216701	SLAPS LOADOUT	10/01/19	Gross Alpha/Beta	Gross Beta	3.23E-14	1.758E-14	2.42E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA216701	SLAPS LOADOUT	10/01/19	Gross Alpha/Beta	Gross Alpha	-1.806E-15	4.446E-15	1.2E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA216701	SLAPS LOADOUT	10/01/19	Gross Alpha/Beta	Gross Alpha	1.806E-15	6.096E-15	1.2E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216701	SLAPS LOADOUT	10/01/19	Gross Alpha/Beta	Gross Beta	1.757E-14	1.612E-14	2.42E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216702	SLAPS LOADOUT	10/01/19	Gross Alpha/Beta	Gross Alpha	-1.839E-15	4.528E-15	1.222E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216702	SLAPS LOADOUT	10/01/19	Gross Alpha/Beta	Gross Beta	1.869E-14	1.649E-14	2.465E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216703	SLAPS LOADOUT	10/02/19	Gross Alpha/Beta	Gross Alpha	5.62E-15	7.671E-15	1.245E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216703	SLAPS LOADOUT	10/02/19	Gross Alpha/Beta	Gross Beta	2.386E-14	1.729E-14	2.511E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216704	SLAPS LOADOUT	10/02/19	Gross Alpha/Beta	Gross Alpha	4.252E-15	7.051E-15	1.211E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216704	SLAPS LOADOUT	10/02/19	Gross Alpha/Beta	Gross Beta	2.243E-14	1.674E-14	2.442E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216705	SLAPS LOADOUT	10/02/19	Gross Alpha/Beta	Gross Alpha	3.037E-15	1.025E-14	2.019E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216705	SLAPS LOADOUT	10/02/19	Gross Alpha/Beta	Gross Beta	3.086E-14	2.724E-14	4.071E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216706	SLAPS LOADOUT	10/02/19	Gross Alpha/Beta	Gross Alpha	-9.97E-16	8.375E-15	1.989E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216706	SLAPS LOADOUT	10/02/19	Gross Alpha/Beta	Gross Beta	1.627E-14	2.538E-14	4.01E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216707	SLAPS LOADOUT	10/02/19	Gross Alpha/Beta	Gross Alpha	-4.842E-15	6.019E-15	1.931E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216707	SLAPS LOADOUT	10/02/19	Gross Alpha/Beta	Gross Beta	2.952E-14	2.605E-14	3.894E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216708	SLAPS LOADOUT	10/03/19	Gross Alpha/Beta	Gross Alpha	-6.13E-16	5.148E-15	1.222E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216708	SLAPS LOADOUT	10/03/19	Gross Alpha/Beta	Gross Beta	1.158E-14	1.576E-14	2.465E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216709	SLAPS LOADOUT	10/03/19	Gross Alpha/Beta	Gross Alpha	6.19E-16	5.755E-15	1.234E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216709	SLAPS LOADOUT	10/03/19	Gross Alpha/Beta	Gross Beta	2.922E-15	1.499E-14	2.488E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216710	SLAPS LOADOUT	10/07/19	Gross Alpha/Beta	Gross Alpha	-6.82E-16	5.726E-15	1.36E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216710	SLAPS LOADOUT	10/07/19	Gross Alpha/Beta	Gross Beta	2.166E-14	1.843E-14	2.742E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216711	SLAPS LOADOUT	10/07/19	Gross Alpha/Beta	Gross Beta	2.841E-14	1.802E-14	2.559E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216711	SLAPS LOADOUT	10/07/19	Gross Alpha/Beta	Gross Alpha	9.545E-15	8.99E-15	1.269E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216712	SLAPS LOADOUT	10/08/19	Gross Alpha/Beta	Gross Beta	2.729E-14	1.821E-14	2.608E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216712	SLAPS LOADOUT	10/08/19	Gross Alpha/Beta	Gross Alpha	-6.49E-16	5.448E-15	1.294E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216713	SLAPS LOADOUT	10/08/19	Gross Alpha/Beta	Gross Beta	2.869E-14	1.776E-14	2.511E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216713	SLAPS LOADOUT	10/08/19	Gross Alpha/Beta	Gross Alpha	5.62E-15	7.671E-15	1.245E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216714	SLAPS LOADOUT	10/09/19	Gross Alpha/Beta	Gross Beta	3.161E-14	1.791E-14	2.488E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216714	SLAPS LOADOUT	10/09/19	Gross Alpha/Beta	Gross Alpha	-6.19E-16	5.195E-15	1.234E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216715	SLAPS LOADOUT	10/09/19	Gross Alpha/Beta	Gross Alpha	1.856E-15	6.265E-15	1.234E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216715	SLAPS LOADOUT	10/09/19	Gross Alpha/Beta	Gross Beta	2.444E-14	1.721E-14	2.488E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216716	SLAPS LOADOUT	10/10/19	Gross Alpha/Beta	Gross Beta	2.571E-14	1.761E-14	2.535E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216716	SLAPS LOADOUT	10/10/19	Gross Alpha/Beta	Gross Alpha	-3.152E-15	3.918E-15	1.257E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216717	SLAPS LOADOUT	10/10/19	Gross Alpha/Beta	Gross Alpha	-1.927E-15	4.746E-15	1.281E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216717	SLAPS LOADOUT	10/10/19	Gross Alpha/Beta	Gross Beta	2.207E-14	1.754E-14	2.583E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA216718	SLAPS LOADOUT	10/10/19	Gross Alpha/Beta	Gross Alpha	2.045E-15	6.905E-15	1.36E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216718	SLAPS LOADOUT	10/10/19	Gross Alpha/Beta	Gross Beta	-1.786E-14	1.415E-14	2.742E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216719	SLAPS LOADOUT	10/10/19	Gross Alpha/Beta	Gross Beta	3.044E-14	1.931E-14	2.742E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216719	SLAPS LOADOUT	10/10/19	Gross Alpha/Beta	Gross Alpha	4.773E-15	7.914E-15	1.36E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216720	SLAPS LOADOUT	10/10/19	Gross Alpha/Beta	Gross Beta	3.5E-14	1.943E-14	2.687E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216720	SLAPS LOADOUT	10/10/19	Gross Alpha/Beta	Gross Alpha	-2.004E-15	4.935E-15	1.332E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216721	SLAPS LOADOUT	10/16/19	Gross Alpha/Beta	Gross Alpha	2.304E-15	6.566E-15	1.169E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA216721	SLAPS LOADOUT	10/16/19	Gross Alpha/Beta	Gross Beta	1.446E-14	1.477E-14	2.073E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA216721	SLAPS LOADOUT	10/16/19	Gross Alpha/Beta	Gross Alpha	6.255E-15	8.005E-15	1.169E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216721	SLAPS LOADOUT	10/16/19	Gross Alpha/Beta	Gross Beta	1.789E-14	1.518E-14	2.073E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216722	SLAPS LOADOUT	10/16/19	Gross Alpha/Beta	Gross Beta	2.068E-14	1.416E-14	1.86E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216722	SLAPS LOADOUT	10/16/19	Gross Alpha/Beta	Gross Alpha	8.86E-16	5.395E-15	1.049E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216723	SLAPS LOADOUT	10/14/19	Gross Alpha/Beta	Gross Alpha	6.857E-15	7.637E-15	1.059E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216723	SLAPS LOADOUT	10/14/19	Gross Alpha/Beta	Gross Beta	1.698E-14	1.384E-14	1.877E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216724	SLAPS LOADOUT	10/14/19	Gross Alpha/Beta	Gross Beta	5.091E-14	1.768E-14	1.895E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA216724	SLAPS LOADOUT	10/14/19	Gross Alpha/Beta	Gross Alpha	8.126E-15	8.082E-15	1.069E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216725	SLAPS LOADOUT	10/15/19	Gross Alpha/Beta	Gross Beta	3.417E-14	1.504E-14	1.761E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA216725	SLAPS LOADOUT	10/15/19	Gross Alpha/Beta	Gross Alpha	3.076E-15	6.013E-15	9.933E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216726	SLAPS LOADOUT	10/15/19	Gross Alpha/Beta	Gross Beta	2.894E-14	1.442E-14	1.753E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA216726	SLAPS LOADOUT	10/15/19	Gross Alpha/Beta	Gross Alpha	8.35E-16	5.086E-15	9.889E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216727	SLAPS LOADOUT	10/15/19	Gross Alpha/Beta	Gross Beta	4.499E-14	2.242E-14	2.726E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA216727	SLAPS LOADOUT	10/15/19	Gross Alpha/Beta	Gross Alpha	6.494E-15	9.935E-15	1.538E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216728	SLAPS LOADOUT	10/15/19	Gross Alpha/Beta	Gross Beta	3.122E-14	2.075E-14	2.708E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216728	SLAPS LOADOUT	10/15/19	Gross Alpha/Beta	Gross Alpha	4.73E-15	9.244E-15	1.527E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216729	SLAPS LOADOUT	10/15/19	Gross Alpha/Beta	Gross Alpha	6.449E-15	9.868E-15	1.527E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216729	SLAPS LOADOUT	10/15/19	Gross Alpha/Beta	Gross Beta	-1.309E-15	1.673E-14	2.708E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216730	SLAPS LOADOUT	10/17/19	Gross Alpha/Beta	Gross Beta	2.27E-14	1.387E-14	1.777E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216730	SLAPS LOADOUT	10/17/19	Gross Alpha/Beta	Gross Alpha	-2.82E-16	4.633E-15	1.002E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216731	SLAPS LOADOUT	10/17/19	Gross Alpha/Beta	Gross Alpha	8.54E-16	5.201E-15	1.011E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216731	SLAPS LOADOUT	10/17/19	Gross Alpha/Beta	Gross Beta	1.77E-14	1.339E-14	1.793E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216732	SLAPS LOADOUT	10/21/19	Gross Alpha/Beta	Gross Alpha	8.94E-16	5.446E-15	1.059E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216732	SLAPS LOADOUT	10/21/19	Gross Alpha/Beta	Gross Beta	8.426E-15	1.28E-14	1.877E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216733	SLAPS LOADOUT	10/21/19	Gross Alpha/Beta	Gross Alpha	-1.463E-15	4.197E-15	1.039E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216733	SLAPS LOADOUT	10/21/19	Gross Alpha/Beta	Gross Beta	1.514E-14	1.34E-14	1.843E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216734	SLAPS LOADOUT	10/22/19	Gross Alpha/Beta	Gross Alpha	5.94E-16	6.61E-15	1.082E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA216734	SLAPS LOADOUT	10/22/19	Gross Alpha/Beta	Gross Beta	1.791E-14	1.579E-14	2.469E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA216734	SLAPS LOADOUT	10/22/19	Gross Alpha/Beta	Gross Alpha	6.533E-15	8.492E-15	1.082E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216734	SLAPS LOADOUT	10/22/19	Gross Alpha/Beta	Gross Beta	1.868E-14	1.587E-14	2.469E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216735	SLAPS LOADOUT	10/22/19	Gross Alpha/Beta	Gross Alpha	5.984E-15	9.121E-15	1.212E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216735	SLAPS LOADOUT	10/22/19	Gross Alpha/Beta	Gross Beta	2.69E-14	1.837E-14	2.764E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216736	SLAPS LOADOUT	10/23/19	Gross Alpha/Beta	Gross Alpha	1.165E-14	1.006E-14	1.117E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216736	SLAPS LOADOUT	10/23/19	Gross Alpha/Beta	Gross Beta	2.717E-14	1.718E-14	2.549E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216737	SLAPS LOADOUT	10/23/19	Gross Alpha/Beta	Gross Beta	3.6E-14	1.951E-14	2.806E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216737	SLAPS LOADOUT	10/23/19	Gross Alpha/Beta	Gross Alpha	6.074E-15	9.26E-15	1.23E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216738	SLAPS LOADOUT	10/23/19	Gross Alpha/Beta	Gross Alpha	1.097E-14	1.426E-14	1.818E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216738	SLAPS LOADOUT	10/23/19	Gross Alpha/Beta	Gross Beta	1.852E-14	2.532E-14	4.146E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216739	SLAPS LOADOUT	10/23/19	Gross Alpha/Beta	Gross Alpha	6.878E-15	1.289E-14	1.791E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA216739	SLAPS LOADOUT	10/23/19	Gross Alpha/Beta	Gross Beta	-7.066E-15	2.22E-14	4.085E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216740	SLAPS LOADOUT	10/23/19	Gross Alpha/Beta	Gross Alpha	1.867E-14	1.613E-14	1.791E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216740	SLAPS LOADOUT	10/23/19	Gross Alpha/Beta	Gross Beta	2.837E-14	2.6E-14	4.085E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216741	SLAPS LOADOUT	10/24/19	Gross Alpha/Beta	Gross Alpha	4.157E-15	7.791E-15	1.082E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216741	SLAPS LOADOUT	10/24/19	Gross Alpha/Beta	Gross Beta	2.021E-14	1.603E-14	2.469E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216742	SLAPS LOADOUT	10/24/19	Gross Alpha/Beta	Gross Alpha	-1.806E-15	5.77E-15	1.097E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216742	SLAPS LOADOUT	10/24/19	Gross Alpha/Beta	Gross Beta	2.203E-14	1.64E-14	2.503E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216743	SLAPS LOADOUT	10/28/19	Gross Alpha/Beta	Gross Beta	3.653E-14	1.837E-14	2.596E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216743	SLAPS LOADOUT	10/28/19	Gross Alpha/Beta	Gross Alpha	5.62E-15	8.567E-15	1.138E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216744	SLAPS LOADOUT	10/28/19	Gross Alpha/Beta	Gross Beta	4.055E-14	1.876E-14	2.596E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA216744	SLAPS LOADOUT	10/28/19	Gross Alpha/Beta	Gross Alpha	9.367E-15	9.612E-15	1.138E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216745	SLAPS LOADOUT	10/29/19	Gross Alpha/Beta	Gross Alpha	3.065E-15	7.656E-15	1.117E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216745	SLAPS LOADOUT	10/29/19	Gross Alpha/Beta	Gross Beta	3.487E-15	1.472E-14	2.549E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216746	SLAPS LOADOUT	10/29/19	Gross Alpha/Beta	Gross Alpha	-1.721E-15	5.498E-15	1.045E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216746	SLAPS LOADOUT	10/29/19	Gross Alpha/Beta	Gross Beta	1.287E-14	1.479E-14	2.384E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216747	SLAPS LOADOUT	10/29/19	Gross Alpha/Beta	Gross Alpha	3.409E-15	8.515E-15	1.243E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216747	SLAPS LOADOUT	10/29/19	Gross Alpha/Beta	Gross Beta	4.757E-15	1.647E-14	2.835E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216748	SLAPS LOADOUT	10/29/19	Gross Alpha/Beta	Gross Alpha	-6.82E-16	7.081E-15	1.243E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216748	SLAPS LOADOUT	10/29/19	Gross Alpha/Beta	Gross Beta	1.003E-14	1.703E-14	2.835E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216749	SLAPS LOADOUT	10/29/19	Gross Alpha/Beta	Gross Alpha	2.066E-15	8.147E-15	1.255E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216749	SLAPS LOADOUT	10/29/19	Gross Alpha/Beta	Gross Beta	8.354E-15	1.702E-14	2.864E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216750	SLAPS LOADOUT	10/30/19	Gross Alpha/Beta	Gross Alpha	3.182E-15	7.947E-15	1.16E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216750	SLAPS LOADOUT	10/30/19	Gross Alpha/Beta	Gross Beta	1.264E-14	1.624E-14	2.646E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216751	SLAPS LOADOUT	10/30/19	Gross Alpha/Beta	Gross Alpha	-1.927E-15	6.159E-15	1.171E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216751	SLAPS LOADOUT	10/30/19	Gross Alpha/Beta	Gross Beta	-2.965E-15	1.47E-14	2.671E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216752	SLAPS LOADOUT	10/31/19	Gross Alpha/Beta	Gross Alpha	4.371E-15	8.192E-15	1.138E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216752	SLAPS LOADOUT	10/31/19	Gross Alpha/Beta	Gross Beta	2.044E-14	1.677E-14	2.596E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216753	SLAPS LOADOUT	10/31/19	Gross Alpha/Beta	Gross Alpha	-6.42E-16	6.672E-15	1.171E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216753	SLAPS LOADOUT	10/31/19	Gross Alpha/Beta	Gross Beta	1.027E-14	1.614E-14	2.671E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216754	SLAPS LOADOUT	11/04/19	Gross Alpha/Beta	Gross Alpha	-3.279E-15	4.726E-15	1.114E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA216754	SLAPS LOADOUT	11/04/19	Gross Alpha/Beta	Gross Beta	4.019E-15	1.107E-14	1.913E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA216754	SLAPS LOADOUT	11/04/19	Gross Alpha/Beta	Gross Alpha	2.98E-16	6.273E-15	1.114E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216754	SLAPS LOADOUT	11/04/19	Gross Alpha/Beta	Gross Beta	-2.982E-15	1.004E-14	1.913E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216755	SLAPS LOADOUT	11/04/19	Gross Alpha/Beta	Gross Beta	4.783E-14	1.687E-14	1.988E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA216755	SLAPS LOADOUT	11/04/19	Gross Alpha/Beta	Gross Alpha	2.788E-15	7.404E-15	1.157E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216756	SLAPS LOADOUT	11/05/19	Gross Alpha/Beta	Gross Alpha	-8.78E-16	5.694E-15	1.093E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216756	SLAPS LOADOUT	11/05/19	Gross Alpha/Beta	Gross Beta	1.234E-14	1.202E-14	1.877E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216757	SLAPS LOADOUT	11/05/19	Gross Alpha/Beta	Gross Beta	2.016E-14	1.312E-14	1.895E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216757	SLAPS LOADOUT	11/05/19	Gross Alpha/Beta	Gross Alpha	5.021E-15	7.814E-15	1.103E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216758	SLAPS LOADOUT	11/06/19	Gross Alpha/Beta	Gross Beta	4.061E-14	1.504E-14	1.81E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA216758	SLAPS LOADOUT	11/06/19	Gross Alpha/Beta	Gross Alpha	1.044E-14	9.034E-15	1.054E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216759	SLAPS LOADOUT	11/06/19	Gross Alpha/Beta	Gross Alpha	1.861E-14	1.26E-14	1.312E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216759	SLAPS LOADOUT	11/06/19	Gross Alpha/Beta	Gross Beta	3.405E-14	1.682E-14	2.253E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA216760	SLAPS LOADOUT	11/07/19	Gross Alpha/Beta	Gross Beta	5.051E-14	1.651E-14	1.877E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA216760	SLAPS LOADOUT	11/07/19	Gross Alpha/Beta	Gross Alpha	8.486E-15	8.752E-15	1.093E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216761	SLAPS LOADOUT	11/07/19	Gross Alpha/Beta	Gross Alpha	1.564E-15	7.044E-15	1.169E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216761	SLAPS LOADOUT	11/07/19	Gross Alpha/Beta	Gross Beta	5.85E-15	1.185E-14	2.007E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA216762	SLAPS LOADOUT	11/07/19	Gross Alpha/Beta	Gross Alpha	1.927E-15	8.676E-15	1.439E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216762	SLAPS LOADOUT	11/07/19	Gross Alpha/Beta	Gross Beta	1.927E-14	1.622E-14	2.472E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216763	SLAPS LOADOUT	11/07/19	Gross Alpha/Beta	Gross Alpha	4.95E-15	9.598E-15	1.422E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216763	SLAPS LOADOUT	11/07/19	Gross Alpha/Beta	Gross Beta	2.401E-14	1.666E-14	2.442E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216764	SLAPS LOADOUT	11/07/19	Gross Alpha/Beta	Gross Alpha	7.996E-15	1.053E-14	1.422E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216764	SLAPS LOADOUT	11/07/19	Gross Alpha/Beta	Gross Beta	6.126E-15	1.428E-14	2.442E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216765	SLAPS LOADOUT	11/12/19	Gross Alpha/Beta	Gross Alpha	-4.387E-15	5.782E-15	8.057E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216765	SLAPS LOADOUT	11/12/19	Gross Alpha/Beta	Gross Beta	-2.613E-14	6.828E-15	1.516E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216766	SLAPS LOADOUT	11/12/19	Gross Alpha/Beta	Gross Alpha	-6.156E-15	5.623E-15	1.533E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216766	SLAPS LOADOUT	11/12/19	Gross Alpha/Beta	Gross Beta	3.391E-15	1.494E-14	2.633E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216767	SLAPS LOADOUT	11/12/19	Gross Alpha/Beta	Gross Alpha	-4.515E-15	6.505E-15	1.533E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216767	SLAPS LOADOUT	11/12/19	Gross Alpha/Beta	Gross Beta	2.32E-15	1.478E-14	2.633E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216768	SLAPS LOADOUT	11/12/19	Gross Alpha/Beta	Gross Beta	2.074E-14	1.309E-14	1.877E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216768	SLAPS LOADOUT	11/12/19	Gross Alpha/Beta	Gross Alpha	2.93E-16	6.157E-15	1.093E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216769	SLAPS LOADOUT	11/12/19	Gross Alpha/Beta	Gross Beta	2.415E-14	1.402E-14	1.968E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216769	SLAPS LOADOUT	11/12/19	Gross Alpha/Beta	Gross Alpha	1.534E-15	6.907E-15	1.146E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216770	SLAPS LOADOUT	11/13/19	Gross Alpha/Beta	Gross Alpha	1.591E-15	7.312E-15	1.294E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA216770	SLAPS LOADOUT	11/13/19	Gross Alpha/Beta	Gross Beta	3.552E-15	1.602E-14	2.631E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA216770	SLAPS LOADOUT	11/13/19	Gross Alpha/Beta	Gross Beta	3.879E-14	1.948E-14	2.631E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216770	SLAPS LOADOUT	11/13/19	Gross Alpha/Beta	Gross Alpha	6.682E-15	8.921E-15	1.294E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216771	SLAPS LOADOUT	11/13/19	Gross Alpha/Beta	Gross Beta	3.059E-14	1.745E-14	2.605E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216771	SLAPS LOADOUT	11/13/19	Gross Alpha/Beta	Gross Alpha	3.167E-15	9.473E-15	1.475E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216772	SLAPS LOADOUT	11/14/19	Gross Alpha/Beta	Gross Alpha	-1.093E-14	1.395E-14	2.977E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216772	SLAPS LOADOUT	11/14/19	Gross Alpha/Beta	Gross Beta	1.235E-14	3.013E-14	5.259E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216773	SLAPS LOADOUT	11/14/19	Gross Alpha/Beta	Gross Beta	4.681E-14	1.916E-14	2.629E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA216773	SLAPS LOADOUT	11/14/19	Gross Alpha/Beta	Gross Alpha	7.22E-16	8.894E-15	1.489E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216774	SLAPS LOADOUT	11/14/19	Gross Alpha/Beta	Gross Beta	3.486E-14	1.8E-14	2.629E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216774	SLAPS LOADOUT	11/14/19	Gross Alpha/Beta	Gross Alpha	-1.753E-15	8.177E-15	1.489E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216775	SLAPS LOADOUT	11/18/19	Gross Alpha/Beta	Gross Alpha	-5.11E-16	8.464E-15	1.475E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216775	SLAPS LOADOUT	11/18/19	Gross Alpha/Beta	Gross Beta	1.796E-14	1.617E-14	2.605E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216776	SLAPS LOADOUT	11/18/19	Gross Alpha/Beta	Gross Alpha	-5.415E-15	6.909E-15	1.475E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216776	SLAPS LOADOUT	11/18/19	Gross Alpha/Beta	Gross Beta	1.717E-14	1.609E-14	2.605E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216777	SLAPS LOADOUT	11/19/19	Gross Alpha/Beta	Gross Beta	4.402E-14	1.876E-14	2.605E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA216777	SLAPS LOADOUT	11/19/19	Gross Alpha/Beta	Gross Alpha	7.15E-16	8.812E-15	1.475E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216778	SLAPS LOADOUT	11/19/19	Gross Alpha/Beta	Gross Alpha	-5.35E-16	8.871E-15	1.546E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216778	SLAPS LOADOUT	11/19/19	Gross Alpha/Beta	Gross Beta	-2.689E-15	1.464E-14	2.73E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216779	SLAPS LOADOUT	11/19/19	Gross Alpha/Beta	Gross Alpha	-9.28E-15	9.034E-15	2.061E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216779	SLAPS LOADOUT	11/19/19	Gross Alpha/Beta	Gross Beta	1.931E-15	2.014E-14	3.641E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216780	SLAPS LOADOUT	11/19/19	Gross Alpha/Beta	Gross Alpha	4.315E-15	1.291E-14	2.01E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216780	SLAPS LOADOUT	11/19/19	Gross Alpha/Beta	Gross Beta	1.264E-14	2.08E-14	3.55E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216781	SLAPS LOADOUT	11/19/19	Gross Alpha/Beta	Gross Alpha	-2.396E-15	1.118E-14	2.035E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216781	SLAPS LOADOUT	11/19/19	Gross Alpha/Beta	Gross Beta	8.17E-16	1.976E-14	3.595E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216782	SLAPS LOADOUT	11/20/19	Gross Alpha/Beta	Gross Alpha	-7.94E-15	6.044E-15	1.489E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216782	SLAPS LOADOUT	11/20/19	Gross Alpha/Beta	Gross Beta	2.53E-14	1.705E-14	2.629E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216783	SLAPS LOADOUT	11/20/19	Gross Alpha/Beta	Gross Beta	3.314E-14	1.744E-14	2.558E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216783	SLAPS LOADOUT	11/20/19	Gross Alpha/Beta	Gross Alpha	3.11E-15	9.302E-15	1.449E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216784	SLAPS LOADOUT	11/21/19	Gross Alpha/Beta	Gross Beta	3.914E-14	1.884E-14	2.704E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA216784	SLAPS LOADOUT	11/21/19	Gross Alpha/Beta	Gross Alpha	-5.3E-16	8.787E-15	1.531E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216785	SLAPS LOADOUT	11/21/19	Gross Alpha/Beta	Gross Beta	4.203E-14	1.87E-14	2.629E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA216785	SLAPS LOADOUT	11/21/19	Gross Alpha/Beta	Gross Alpha	5.671E-15	1.019E-14	1.489E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216786	SLAPS LOADOUT	11/25/19	Gross Alpha/Beta	Gross Beta	5.191E-14	1.95E-14	2.605E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA216786	SLAPS LOADOUT	11/25/19	Gross Alpha/Beta	Gross Alpha	-5.11E-16	8.464E-15	1.475E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216787	SLAPS LOADOUT	11/25/19	Gross Alpha/Beta	Gross Beta	2.902E-14	1.77E-14	2.679E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216787	SLAPS LOADOUT	11/25/19	Gross Alpha/Beta	Gross Alpha	1.996E-15	9.407E-15	1.517E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216788	SLAPS LOADOUT	11/26/19	Gross Alpha/Beta	Gross Beta	4.165E-14	1.853E-14	2.605E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA216788	SLAPS LOADOUT	11/26/19	Gross Alpha/Beta	Gross Alpha	8.071E-15	1.068E-14	1.475E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216789	SLAPS LOADOUT	11/26/19	Gross Alpha/Beta	Gross Beta	3.552E-14	1.834E-14	2.679E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216789	SLAPS LOADOUT	11/26/19	Gross Alpha/Beta	Gross Alpha	9.56E-15	1.127E-14	1.517E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216790	SLAPS LOADOUT	11/27/19	Gross Alpha/Beta	Gross Alpha	-2.93E-16	4.506E-15	1.041E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA216790	SLAPS LOADOUT	11/27/19	Gross Alpha/Beta	Gross Beta	1.969E-14	1.591E-14	2.381E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA216790	SLAPS LOADOUT	11/27/19	Gross Alpha/Beta	Gross Alpha	4.396E-15	6.51E-15	1.041E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216790	SLAPS LOADOUT	11/27/19	Gross Alpha/Beta	Gross Beta	1.441E-14	1.537E-14	2.381E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216791	SLAPS LOADOUT	11/27/19	Gross Alpha/Beta	Gross Alpha	1.066E-15	6.161E-15	1.262E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216791	SLAPS LOADOUT	11/27/19	Gross Alpha/Beta	Gross Beta	2.823E-15	1.71E-14	2.888E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216792	SLAPS LOADOUT	12/02/19	Gross Alpha/Beta	Gross Alpha	3.403E-15	6.407E-15	1.099E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216792	SLAPS LOADOUT	12/02/19	Gross Alpha/Beta	Gross Beta	1.441E-14	1.614E-14	2.513E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216793	SLAPS LOADOUT	12/02/19	Gross Alpha/Beta	Gross Alpha	9.28E-16	5.362E-15	1.099E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216793	SLAPS LOADOUT	12/02/19	Gross Alpha/Beta	Gross Beta	1.043E-14	1.573E-14	2.513E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216794	SLAPS LOADOUT	12/03/19	Gross Alpha/Beta	Gross Alpha	8.352E-15	8.113E-15	1.099E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216794	SLAPS LOADOUT	12/03/19	Gross Alpha/Beta	Gross Beta	2.078E-14	1.679E-14	2.513E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216795	SLAPS LOADOUT	12/03/19	Gross Alpha/Beta	Gross Beta	3.592E-14	1.829E-14	2.513E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216795	SLAPS LOADOUT	12/03/19	Gross Alpha/Beta	Gross Alpha	-1.547E-15	4.064E-15	1.099E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216796	SLAPS LOADOUT	12/03/19	Gross Alpha/Beta	Gross Alpha	5.326E-15	1.003E-14	1.72E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216796	SLAPS LOADOUT	12/03/19	Gross Alpha/Beta	Gross Beta	3.846E-15	2.33E-14	3.934E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216797	SLAPS LOADOUT	12/03/19	Gross Alpha/Beta	Gross Alpha	-2.421E-15	6.36E-15	1.72E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216797	SLAPS LOADOUT	12/03/19	Gross Alpha/Beta	Gross Beta	-1.143E-15	2.276E-14	3.934E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216798	SLAPS LOADOUT	12/03/19	Gross Alpha/Beta	Gross Alpha	-4.84E-16	7.445E-15	1.72E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216798	SLAPS LOADOUT	12/03/19	Gross Alpha/Beta	Gross Beta	1.008E-14	2.396E-14	3.934E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216799	SLAPS LOADOUT	12/04/19	Gross Alpha/Beta	Gross Alpha	4.515E-15	6.686E-15	1.069E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216799	SLAPS LOADOUT	12/04/19	Gross Alpha/Beta	Gross Beta	1.48E-14	1.579E-14	2.446E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216800	SLAPS LOADOUT	12/04/19	Gross Alpha/Beta	Gross Alpha	-3.09E-16	4.757E-15	1.099E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216800	SLAPS LOADOUT	12/04/19	Gross Alpha/Beta	Gross Beta	2.158E-14	1.687E-14	2.513E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216801	SLAPS LOADOUT	12/04/19	Gross Alpha/Beta	Gross Beta	3.27E-14	1.397E-14	1.822E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA216801	SLAPS LOADOUT	12/04/19	Gross Alpha/Beta	Gross Alpha	2.243E-15	5.422E-15	8.952E-15	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA216801	SLAPS LOADOUT	12/04/19	Gross Alpha/Beta	Gross Beta	2.507E-14	1.303E-14	1.822E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216801	SLAPS LOADOUT	12/04/19	Gross Alpha/Beta	Gross Alpha	-9.8E-17	4.292E-15	8.952E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216802	SLAPS LOADOUT	12/05/19	Gross Alpha/Beta	Gross Alpha	7.123E-15	7.383E-15	9.208E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216802	SLAPS LOADOUT	12/05/19	Gross Alpha/Beta	Gross Beta	1.871E-14	1.248E-14	1.874E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216803	SLAPS LOADOUT	12/05/19	Gross Alpha/Beta	Gross Beta	3.804E-14	1.461E-14	1.822E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA216803	SLAPS LOADOUT	12/05/19	Gross Alpha/Beta	Gross Alpha	3.414E-15	5.909E-15	8.952E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216804	SLAPS LOADOUT	12/05/19	Gross Alpha/Beta	Gross Beta	2.662E-14	1.296E-14	1.772E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA216804	SLAPS LOADOUT	12/05/19	Gross Alpha/Beta	Gross Alpha	3.322E-15	5.749E-15	8.71E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216805	SLAPS LOADOUT	12/09/19	Gross Alpha/Beta	Gross Alpha	1.044E-14	8.261E-15	8.952E-15	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216805	SLAPS LOADOUT	12/09/19	Gross Alpha/Beta	Gross Beta	3.041E-14	1.369E-14	1.822E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA216806	SLAPS LOADOUT	12/09/19	Gross Alpha/Beta	Gross Beta	5.405E-14	1.671E-14	1.874E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA216806	SLAPS LOADOUT	12/09/19	Gross Alpha/Beta	Gross Alpha	4.715E-15	6.541E-15	9.208E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216807	SLAPS LOADOUT	12/09/19	Gross Alpha/Beta	Gross Beta	5.484E-14	1.68E-14	1.874E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA216807	SLAPS LOADOUT	12/09/19	Gross Alpha/Beta	Gross Alpha	4.715E-15	6.541E-15	9.208E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216808	SLAPS LOADOUT	12/10/19	Gross Alpha/Beta	Gross Alpha	9.353E-15	7.99E-15	9.036E-15	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216808	SLAPS LOADOUT	12/10/19	Gross Alpha/Beta	Gross Beta	1.914E-14	1.235E-14	1.839E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216809	SLAPS LOADOUT	12/10/19	Gross Alpha/Beta	Gross Beta	2.43E-14	1.293E-14	1.822E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216809	SLAPS LOADOUT	12/10/19	Gross Alpha/Beta	Gross Alpha	5.755E-15	6.78E-15	8.952E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216810	SLAPS LOADOUT	12/10/19	Gross Alpha/Beta	Gross Alpha	-1.268E-15	3.598E-15	8.952E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216810	SLAPS LOADOUT	12/10/19	Gross Alpha/Beta	Gross Beta	1.285E-14	1.141E-14	1.822E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216811	SLAPS LOADOUT	12/11/19	Gross Alpha/Beta	Gross Beta	4.383E-14	1.891E-14	2.432E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA216811	SLAPS LOADOUT	12/11/19	Gross Alpha/Beta	Gross Alpha	6.084E-15	6.608E-15	9.464E-15	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA216811	SLAPS LOADOUT	12/11/19	Gross Alpha/Beta	Gross Beta	2.869E-14	1.743E-14	2.432E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216811	SLAPS LOADOUT	12/11/19	Gross Alpha/Beta	Gross Alpha	7.321E-15	7.062E-15	9.464E-15	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216812	SLAPS LOADOUT	12/11/19	Gross Alpha/Beta	Gross Beta	4.383E-14	1.891E-14	2.432E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA216812	SLAPS LOADOUT	12/11/19	Gross Alpha/Beta	Gross Alpha	3.609E-15	5.595E-15	9.464E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216813	SLAPS LOADOUT	12/11/19	Gross Alpha/Beta	Gross Beta	3.246E-14	1.704E-14	2.304E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216813	SLAPS LOADOUT	12/11/19	Gross Alpha/Beta	Gross Alpha	5.763E-15	6.26E-15	8.966E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216814	SLAPS LOADOUT	12/12/19	Gross Alpha/Beta	Gross Alpha	2.511E-15	5.31E-15	1.002E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216814	SLAPS LOADOUT	12/12/19	Gross Alpha/Beta	Gross Beta	2.362E-14	1.778E-14	2.575E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216815	SLAPS LOADOUT	12/12/19	Gross Alpha/Beta	Gross Alpha	3.821E-15	5.924E-15	1.002E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216815	SLAPS LOADOUT	12/12/19	Gross Alpha/Beta	Gross Beta	2.194E-14	1.761E-14	2.575E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216816	SLAPS LOADOUT	12/12/19	Gross Alpha/Beta	Gross Alpha	6.441E-15	6.997E-15	1.002E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216816	SLAPS LOADOUT	12/12/19	Gross Alpha/Beta	Gross Beta	2.109E-14	1.752E-14	2.575E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216817	SLAPS LOADOUT	12/17/19	Gross Alpha/Beta	Gross Beta	5.71E-14	2.03E-14	2.455E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA216817	SLAPS LOADOUT	12/17/19	Gross Alpha/Beta	Gross Alpha	6.14E-15	6.67E-15	9.552E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216818	SLAPS LOADOUT	12/17/19	Gross Alpha/Beta	Gross Beta	2.815E-14	1.752E-14	2.455E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216818	SLAPS LOADOUT	12/17/19	Gross Alpha/Beta	Gross Alpha	3.643E-15	5.647E-15	9.552E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216819	SLAPS LOADOUT	12/17/19	Gross Alpha/Beta	Gross Alpha	-1.406E-15	2.725E-15	9.923E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216819	SLAPS LOADOUT	12/17/19	Gross Alpha/Beta	Gross Beta	1.337E-14	1.658E-14	2.55E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216820	SLAPS LOADOUT	12/17/19	Gross Alpha/Beta	Gross Alpha	3.748E-15	5.81E-15	9.828E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216820	SLAPS LOADOUT	12/17/19	Gross Alpha/Beta	Gross Beta	1.986E-14	1.71E-14	2.526E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216821	SLAPS LOADOUT	12/17/19	Gross Alpha/Beta	Gross Alpha	3.677E-15	5.701E-15	9.642E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216821	SLAPS LOADOUT	12/17/19	Gross Alpha/Beta	Gross Beta	1.137E-14	1.594E-14	2.478E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216822	SLAPS LOADOUT	12/18/19	Gross Alpha/Beta	Gross Beta	4.542E-14	1.906E-14	2.432E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA216822	SLAPS LOADOUT	12/18/19	Gross Alpha/Beta	Gross Alpha	3.609E-15	5.595E-15	9.464E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216823	SLAPS LOADOUT	12/18/19	Gross Alpha/Beta	Gross Alpha	1.134E-15	4.359E-15	9.464E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216823	SLAPS LOADOUT	12/18/19	Gross Alpha/Beta	Gross Beta	1.594E-14	1.614E-14	2.432E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216824	SLAPS LOADOUT	12/18/19	Gross Alpha/Beta	Gross Beta	4.497E-14	1.862E-14	2.367E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA216824	SLAPS LOADOUT	12/18/19	Gross Alpha/Beta	Gross Alpha	8.327E-15	7.287E-15	9.208E-15	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216825	SLAPS LOADOUT	12/18/19	Gross Alpha/Beta	Gross Beta	4.93E-14	2.127E-14	2.736E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA216825	SLAPS LOADOUT	12/18/19	Gross Alpha/Beta	Gross Alpha	8.236E-15	7.945E-15	1.065E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216826	SLAPS LOADOUT	12/18/19	Gross Alpha/Beta	Gross Beta	7.62E-14	2.378E-14	2.736E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA216826	SLAPS LOADOUT	12/18/19	Gross Alpha/Beta	Gross Alpha	4.06E-15	6.295E-15	1.065E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216827	SLAPS LOADOUT	12/18/19	Gross Alpha/Beta	Gross Alpha	-1.16E-16	4.036E-15	1.065E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216827	SLAPS LOADOUT	12/18/19	Gross Alpha/Beta	Gross Beta	1.524E-14	1.788E-14	2.736E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216828	SLAPS LOADOUT	12/19/19	Gross Alpha/Beta	Gross Beta	5.179E-14	1.966E-14	2.432E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2019

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA216828	SLAPS LOADOUT	12/19/19	Gross Alpha/Beta	Gross Alpha	-1.34E-15	2.599E-15	9.464E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216829	SLAPS LOADOUT	12/19/19	Gross Alpha/Beta	Gross Beta	5.976E-14	2.04E-14	2.432E-14	µCi/mL	=		SLAPS Loadout (General Area)-Perimeter Air
SLA216829	SLAPS LOADOUT	12/19/19	Gross Alpha/Beta	Gross Alpha	4.846E-15	6.122E-15	9.464E-15	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216830	SLAPS LOADOUT	12/19/19	Gross Alpha/Beta	Gross Alpha	1.701E-15	6.539E-15	1.42E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216830	SLAPS LOADOUT	12/19/19	Gross Alpha/Beta	Gross Beta	3.466E-14	2.531E-14	3.649E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216831	SLAPS LOADOUT	12/23/19	Gross Alpha/Beta	Gross Beta	3.865E-14	2.047E-14	2.539E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA216831	SLAPS LOADOUT	12/23/19	Gross Alpha/Beta	Gross Alpha	2.372E-15	8.921E-15	1.191E-14	µCi/mL			SLAPS Loadout (General Area)-Perimeter Air
SLA216831	SLAPS LOADOUT	12/23/19	Gross Alpha/Beta	Gross Beta	3.705E-14	2.033E-14	2.539E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216831	SLAPS LOADOUT	12/23/19	Gross Alpha/Beta	Gross Alpha	1.134E-15	8.57E-15	1.191E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216832	SLAPS LOADOUT	12/23/19	Gross Alpha/Beta	Gross Alpha	2.372E-15	8.921E-15	1.191E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216832	SLAPS LOADOUT	12/23/19	Gross Alpha/Beta	Gross Beta	1.992E-15	1.717E-14	2.539E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216833	SLAPS LOADOUT	12/24/19	Gross Alpha/Beta	Gross Beta	3.068E-14	1.977E-14	2.539E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216833	SLAPS LOADOUT	12/24/19	Gross Alpha/Beta	Gross Alpha	4.846E-15	9.587E-15	1.191E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216834	SLAPS LOADOUT	12/24/19	Gross Alpha/Beta	Gross Beta	2.669E-14	1.942E-14	2.539E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216834	SLAPS LOADOUT	12/24/19	Gross Alpha/Beta	Gross Alpha	-1.03E-16	8.204E-15	1.191E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216835	SLAPS LOADOUT	12/26/19	Gross Alpha/Beta	Gross Alpha	-4.04E-15	7.412E-15	1.261E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216835	SLAPS LOADOUT	12/26/19	Gross Alpha/Beta	Gross Beta	2.658E-14	2.041E-14	2.688E-14	µCi/mL	UJ	T04, T05	SLAPS Loadout (General Area)-Perimeter Air
SLA216836	SLAPS LOADOUT	12/26/19	Gross Alpha/Beta	Gross Alpha	1.201E-15	9.074E-15	1.261E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216836	SLAPS LOADOUT	12/26/19	Gross Alpha/Beta	Gross Beta	1.477E-14	1.935E-14	2.688E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216837	SLAPS LOADOUT	12/26/19	Gross Alpha/Beta	Gross Alpha	1.458E-15	1.102E-14	1.531E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216837	SLAPS LOADOUT	12/26/19	Gross Alpha/Beta	Gross Beta	1.895E-14	2.359E-14	3.264E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216838	SLAPS LOADOUT	12/30/19	Gross Alpha/Beta	Gross Beta	2.59E-14	1.935E-14	2.539E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216838	SLAPS LOADOUT	12/30/19	Gross Alpha/Beta	Gross Alpha	6.084E-15	9.905E-15	1.191E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216839	SLAPS LOADOUT	12/30/19	Gross Alpha/Beta	Gross Beta	2.829E-14	1.956E-14	2.539E-14	µCi/mL	J	T04, T20	SLAPS Loadout (General Area)-Perimeter Air
SLA216839	SLAPS LOADOUT	12/30/19	Gross Alpha/Beta	Gross Alpha	-2.578E-15	7.422E-15	1.191E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216840	SLAPS LOADOUT	12/30/19	Gross Alpha/Beta	Gross Alpha	7.059E-15	9.848E-15	1.149E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air
SLA216840	SLAPS LOADOUT	12/30/19	Gross Alpha/Beta	Gross Beta	1.268E-14	1.755E-14	2.448E-14	µCi/mL	UJ	T06	SLAPS Loadout (General Area)-Perimeter Air

VQs:

= - Indicates that the data met all QA/QC requirements, and that the parameter has been positively identified and the associated concentration value is accurate.

J - Indicates that the parameter was positively identified; the associated numerical value is the approximate concentration of the parameter in the sample.

UJ - Indicates that the parameter was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Validation Reason Code:

T04 - Radionuclide Quantitation: Professional judgment was used to qualify the data.

T05 - Radionuclide Quantitation: Analytical result is less than the associated MDA, but greater than the counting uncertainty.

T06 - Radionuclide Quantitation: Analytical result is less than both the associated counting uncertainty and MDA.

T20 - Radionuclide Quantitation: Analytical result is greater than the associated MDA, with uncertainty 50 to 100 percent of the result.

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX C

STORM-WATER, WASTE-WATER AND EXCAVATION-WATER DATA

(On the CD-ROM on the Back Cover of this Report)

THIS PAGE INTENTIONALLY LEFT BLANK

Table C-1. NPDES Analytical Data for CY 2019

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code
SVP175736	NPDES Outfall 002	01/19/19	ML-005	Th-228	0.302	0.311	0.504	pCi/L	UJ	T06
SVP175736	NPDES Outfall 002	01/19/19	ML-005	Th-230	0.425	0.359	0.504	pCi/L	UJ	T04, T05
SVP175736	NPDES Outfall 002	01/19/19	ML-005	Th-232	0	0.174	0.452	pCi/L	UJ	T06
SVP175736	NPDES Outfall 002	01/19/19	ML-006	Ra-226	-0.175	0.35	1.47	pCi/L	UJ	T06
SVP175736	NPDES Outfall 002	01/19/19	ML-003	Ac-227	-14.8	5.29	8.51	pCi/L	UJ	T04, T06
SVP175736	NPDES Outfall 002	01/19/19	ML-003	Pa-231	-17	34	55.9	pCi/L	UJ	T04, T06
SVP175736	NPDES Outfall 002	01/19/19	ML-018	Gross Alpha	-2.1	9.68	17.1	pCi/L	UJ	T06
SVP175736	NPDES Outfall 002	01/19/19	ML-018	Gross Beta	2.15	10.3	17.3	pCi/L	UJ	T06
SVP175736	NPDES Outfall 002	01/19/19	ML-021	Total U	-0.389	0.0355	2.45	pCi/L	UJ	T06
SVP175736	NPDES Outfall 002	01/19/19	ML-024	pH	6.88		0.1	No Units	J	A03
SVP175736	NPDES Outfall 002	01/19/19	EPA 160.5	SS	0.1		0.1	mL/L/hr	J	A03
SVP175737	NPDES Outfall 002	01/23/19	ML-005	Th-230	0.613	0.424	0.507	pCi/L	J	T04, T20
SVP175737	NPDES Outfall 002	01/23/19	ML-005	Th-228	0.444	0.359	0.461	pCi/L	UJ	T04, T05
SVP175737	NPDES Outfall 002	01/23/19	ML-005	Th-232	0.247	0.278	0.454	pCi/L	UJ	T06
SVP175737	NPDES Outfall 002	01/23/19	ML-006	Ra-226	0.107	0.627	1.73	pCi/L	UJ	T06
SVP175737	NPDES Outfall 002	01/23/19	ML-003	Ac-227	-11	4.61	8.09	pCi/L	UJ	T04, T06
SVP175737	NPDES Outfall 002	01/23/19	ML-003	Pa-231	-23.8	36.7	59.7	pCi/L	UJ	T04, T06
SVP175737	NPDES Outfall 002	01/23/19	ML-018	Gross Alpha	-1.75	9.71	17.1	pCi/L	UJ	T06
SVP175737	NPDES Outfall 002	01/23/19	ML-018	Gross Beta	-0.195	10.2	17.3	pCi/L	UJ	T06
SVP175737	NPDES Outfall 002	01/23/19	ML-021	Total U	-0.576	0.0525	2.45	pCi/L	UJ	T06
SVP175737	NPDES Outfall 002	01/23/19	ML-024	pH	7.39		0.1	No Units	=	
SVP175737	NPDES Outfall 002	01/23/19	EPA 160.5	SS	0		0.1	mL/L/hr	U	
SVP175738	NPDES Outfall 002	02/06/19	ML-005	Th-228	0.163	0.237	0.437	pCi/L	UJ	T06
SVP175738	NPDES Outfall 002	02/06/19	ML-005	Th-230	0.49	0.489	0.931	pCi/L	UJ	T04, T05
SVP175738	NPDES Outfall 002	02/06/19	ML-005	Th-232	0.229	0.272	0.437	pCi/L	UJ	T06
SVP175738	NPDES Outfall 002	02/06/19	ML-006	Ra-226	0.666	0.714	1.13	pCi/L	UJ	T06
SVP175738	NPDES Outfall 002	02/06/19	ML-003	Ac-227	-12.1	4.86	8.64	pCi/L	UJ	T04, T06
SVP175738	NPDES Outfall 002	02/06/19	ML-003	Pa-231	-21	37.5	62	pCi/L	UJ	T04, T06
SVP175738	NPDES Outfall 002	02/06/19	ML-018	Gross Alpha	-2.45	9.66	17.1	pCi/L	UJ	T06

Table C-1. NPDES Analytical Data for CY 2019

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code
SVP175738	NPDES Outfall 002	02/06/19	ML-018	Gross Beta	1.17	10.3	17.3	pCi/L	UJ	T06
SVP175738	NPDES Outfall 002	02/06/19	ML-021	Total U	0.114	0.0104	2.45	pCi/L	UJ	T04, T05
SVP175738	NPDES Outfall 002	02/06/19	ML-024	pH	6.96		0.1	No Units	=	
SVP175738	NPDES Outfall 002	02/06/19	EPA 160.5	SS	0		0.1	mL/L/hr	U	
SVP175739	NPDES Outfall 002	02/07/19	ML-005	Th-230	1.1	0.549	0.339	pCi/L	=	
SVP175739	NPDES Outfall 002	02/07/19	ML-005	Th-228	0.305	0.315	0.509	pCi/L	UJ	T06
SVP175739	NPDES Outfall 002	02/07/19	ML-005	Th-232	0.124	0.216	0.458	pCi/L	UJ	T06
SVP175739	NPDES Outfall 002	02/07/19	ML-006	Ra-226	-0.0355	0.326	1.21	pCi/L	UJ	T06
SVP175739	NPDES Outfall 002	02/07/19	ML-003	Ac-227	-6.93	4.9	8.64	pCi/L	UJ	T04, T06
SVP175739	NPDES Outfall 002	02/07/19	ML-003	Pa-231	24.5	36.5	65.2	pCi/L	UJ	T04, T06
SVP175739	NPDES Outfall 002	02/07/19	ML-018	Gross Alpha	-4.54	9.51	17.1	pCi/L	UJ	T06
SVP175739	NPDES Outfall 002	02/07/19	ML-018	Gross Beta	5.07	10.4	17.3	pCi/L	UJ	T06
SVP175739	NPDES Outfall 002	02/07/19	ML-021	Total U	-0.653	0.0596	2.45	pCi/L	UJ	T06
SVP175739	NPDES Outfall 002	02/07/19	ML-024	pH	7.28		0.1	No Units	=	
SVP175739	NPDES Outfall 002	02/07/19	EPA 160.5	SS	0		0.1	mL/L/hr	U	
SVP175740	NPDES Outfall 002	03/09/19	ML-005	Th-228	0.763	0.46	0.532	pCi/L	J	T04, T20
SVP175740	NPDES Outfall 002	03/09/19	ML-005	Th-230	2.15	0.763	0.402	pCi/L	=	
SVP175740	NPDES Outfall 002	03/09/19	ML-005	Th-232	0.503	0.352	0.298	pCi/L	J	T04, T20
SVP175740	NPDES Outfall 002	03/09/19	ML-006	Ra-226	0.582	0.456	0.677	pCi/L	UJ	T04, T05
SVP175740	NPDES Outfall 002	03/09/19	ML-003	Ac-227	-14.4	5.21	7.97	pCi/L	UJ	T04, T06
SVP175740	NPDES Outfall 002	03/09/19	ML-003	Pa-231	-27.2	35	57	pCi/L	UJ	T04, T06
SVP175740	NPDES Outfall 002	03/09/19	ML-018	Gross Alpha	4.89	8.9	14.9	pCi/L	UJ	T06
SVP175740	NPDES Outfall 002	03/09/19	ML-018	Gross Beta	-0.39	11.5	19.5	pCi/L	UJ	T06
SVP175740	NPDES Outfall 002	03/09/19	ML-021	Total U	-0.283	0.0258	2.45	pCi/L	UJ	T06
SVP175740	NPDES Outfall 002	03/09/19	ML-024	pH	7.05		0.1	No Units	J	A03
SVP175740	NPDES Outfall 002	03/09/19	EPA 160.5	SS	0.1		0.1	mL/L/hr	U	
SVP175741	NPDES Outfall 002	03/30/19	ML-005	Th-230	0.621	0.417	0.449	pCi/L	J	T04, T20
SVP175741	NPDES Outfall 002	03/30/19	ML-005	Th-228	0.52	0.397	0.536	pCi/L	UJ	T04, T05
SVP175741	NPDES Outfall 002	03/30/19	ML-005	Th-232	0.153	0.215	0.379	pCi/L	UJ	T06
SVP175741	NPDES Outfall 002	03/30/19	ML-006	Ra-226	0.401	0.568	1.11	pCi/L	UJ	T06

Table C-1. NPDES Analytical Data for CY 2019

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code
SVP175741	NPDES Outfall 002	03/30/19	ML-003	Ac-227	-15.7	4.94	6.68	pCi/L	UJ	T04, T06, T07
SVP175741	NPDES Outfall 002	03/30/19	ML-003	Pa-231	1.56	30	51.2	pCi/L	UJ	T04, T06
SVP175741	NPDES Outfall 002	03/30/19	ML-018	Gross Alpha	-2.45	8.92	15.9	pCi/L	UJ	T06
SVP175741	NPDES Outfall 002	03/30/19	ML-018	Gross Beta	8	11.5	19	pCi/L	UJ	T06
SVP175741	NPDES Outfall 002	03/30/19	ML-021	Total U	-1.05	0.0958	4.89	pCi/L	UJ	T06
SVP175741	NPDES Outfall 002	03/30/19	ML-024	pH	7.14		0.1	No Units	J	A03
SVP175741	NPDES Outfall 002	03/30/19	EPA 160.5	SS	0.1		0.1	mL/L/hr	U	
SVP175742	NPDES Outfall 002	04/18/19	ML-005	Th-230	0.983	0.501	0.398	pCi/L	J	T04, T20
SVP175742	NPDES Outfall 002	04/18/19	ML-005	Th-232	0.448	0.327	0.253	pCi/L	J	T04, T20
SVP175742	NPDES Outfall 002	04/18/19	ML-005	Th-228	0.27	0.309	0.575	pCi/L	UJ	T06
SVP175742	NPDES Outfall 002	04/18/19	ML-006	Ra-226	-0.181	0.311	1.19	pCi/L	UJ	T06
SVP175742	NPDES Outfall 002	04/18/19	ML-003	Ac-227	-16.4	5.36	7.18	pCi/L	UJ	T04, T06, T07
SVP175742	NPDES Outfall 002	04/18/19	ML-003	Pa-231	19.9	29	51.3	pCi/L	UJ	T04, T06
SVP175742	NPDES Outfall 002	04/18/19	ML-018	Gross Alpha	-1.4	9	15.9	pCi/L	UJ	T06
SVP175742	NPDES Outfall 002	04/18/19	ML-018	Gross Beta	7.81	11.5	19	pCi/L	UJ	T06
SVP175742	NPDES Outfall 002	04/18/19	ML-021	Total U	-1.65	0.151	4.89	pCi/L	UJ	T06
SVP175742	NPDES Outfall 002	04/18/19	ML-024	pH	6.9		0.1	No Units	=	
SVP175742	NPDES Outfall 002	04/18/19	EPA 160.5	SS	0		0.1	mL/L/hr	U	
SVP175743	NPDES Outfall 002	04/24/19	ML-005	Th-230	1.59	0.665	0.506	pCi/L	=	
SVP175743	NPDES Outfall 002	04/24/19	ML-005	Th-228	0.148	0.249	0.539	pCi/L	UJ	T06
SVP175743	NPDES Outfall 002	04/24/19	ML-005	Th-232	0.0445	0.122	0.315	pCi/L	UJ	T06
SVP175743	NPDES Outfall 002	04/24/19	ML-006	Ra-226	0.4	0.567	1.02	pCi/L	UJ	T06
SVP175743	NPDES Outfall 002	04/24/19	ML-003	Ac-227	-14.7	8.52	13.3	pCi/L	UJ	T04, T06
SVP175743	NPDES Outfall 002	04/24/19	ML-003	Pa-231	-12.9	53.7	91.4	pCi/L	UJ	T04, T06
SVP175743	NPDES Outfall 002	04/24/19	ML-018	Gross Alpha	5.24	8.2	13.7	pCi/L	UJ	T06
SVP175743	NPDES Outfall 002	04/24/19	ML-018	Gross Beta	4.99	10.1	16.9	pCi/L	UJ	T06
SVP175743	NPDES Outfall 002	04/24/19	ML-021	Total U	0.219	0.02	2.45	pCi/L	U	T04, T05
SVP175743	NPDES Outfall 002	04/24/19	ML-024	pH	6.82		0.1	No Units	=	
SVP175743	NPDES Outfall 002	04/24/19	EPA 160.5	SS	0		0.1	mL/L/hr	U	

Table C-1. NPDES Analytical Data for CY 2019

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code
SVP175744	NPDES Outfall 002	05/01/19	ML-005	Th-230	1.79	0.738	0.55	pCi/L	=	
SVP175744	NPDES Outfall 002	05/01/19	ML-005	Th-232	0.499	0.372	0.342	pCi/L	J	T04, T20
SVP175744	NPDES Outfall 002	05/01/19	ML-005	Th-228	0.371	0.381	0.677	pCi/L	UJ	T06
SVP175744	NPDES Outfall 002	05/01/19	ML-006	Ra-226	0.745	0.707	0.833	pCi/L	UJ	T04, T05
SVP175744	NPDES Outfall 002	05/01/19	ML-003	Ac-227	-15.7	6.08	9.05	pCi/L	UJ	T04, T06
SVP175744	NPDES Outfall 002	05/01/19	ML-003	Pa-231	43.4	37.6	68.8	pCi/L	UJ	T04, T05
SVP175744	NPDES Outfall 002	05/01/19	ML-018	Gross Alpha	0.616	7.84	13.7	pCi/L	UJ	T06
SVP175744	NPDES Outfall 002	05/01/19	ML-018	Gross Beta	7.75	10.3	16.9	pCi/L	UJ	T06
SVP175744	NPDES Outfall 002	05/01/19	ML-021	Total U	-0.41	0.0374	2.45	pCi/L	UJ	T06
SVP175744	NPDES Outfall 002	05/01/19	ML-024	pH	7.01		0.1	No Units	=	
SVP175744	NPDES Outfall 002	05/01/19	EPA 160.5	SS	0.1		0.1	mL/L/hr	U	
SVP175745	NPDES Outfall 002	05/02/19	ML-005	Th-228	0.52	0.376	0.391	pCi/L	J	T04, T20
SVP175745	NPDES Outfall 002	05/02/19	ML-005	Th-230	1.39	0.616	0.325	pCi/L	=	
SVP175745	NPDES Outfall 002	05/02/19	ML-005	Th-232	0.245	0.275	0.45	pCi/L	UJ	T06
SVP175745	NPDES Outfall 002	05/02/19	ML-006	Ra-226	0.87	0.825	1.19	pCi/L	UJ	T04, T05
SVP175745	NPDES Outfall 002	05/02/19	ML-003	Ac-227	-12.4	7.07	9.37	pCi/L	UJ	T04, T06
SVP175745	NPDES Outfall 002	05/02/19	ML-003	Pa-231	37.2	41.6	77.6	pCi/L	UJ	T04, T06
SVP175745	NPDES Outfall 002	05/02/19	ML-018	Gross Alpha	1.54	7.91	13.7	pCi/L	UJ	T06
SVP175745	NPDES Outfall 002	05/02/19	ML-018	Gross Beta	6.54	10.2	16.9	pCi/L	UJ	T06
SVP175745	NPDES Outfall 002	05/02/19	ML-021	Total U	0.578	0.0527	2.45	pCi/L	U	T04, T05
SVP175745	NPDES Outfall 002	05/02/19	EPA 160.5	SS	0		0.1	mL/L/hr	U	
SVP175746	NPDES Outfall 002	05/06/19	SW846 6020	Arsenic	0.98		0.33	μg/L	=	
SVP175746	NPDES Outfall 002	05/06/19	SW846 6020	Chromium	1.6		0.5	μg/L	=	
SVP175746	NPDES Outfall 002	05/06/19	SW846 6020	Cadmium	0.27		0.27	μg/L	U	
SVP175746	NPDES Outfall 002	05/06/19	SW846 8082	Aroclor-1016	0.12		0.12	μg/L	UJ	C05
SVP175746	NPDES Outfall 002	05/06/19	SW846 8082	Aroclor-1221	0.21		0.21	μg/L	UJ	C05
SVP175746	NPDES Outfall 002	05/06/19	SW846 8082	Aroclor-1232	0.16		0.16	μg/L	UJ	C05
SVP175746	NPDES Outfall 002	05/06/19	SW846 8082	Aroclor-1242	0.42		0.42	μg/L	UJ	C05
SVP175746	NPDES Outfall 002	05/06/19	SW846 8082	Aroclor-1248	0.091		0.091	μg/L	UJ	C05

Table C-1. NPDES Analytical Data for CY 2019

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code
SVP175746	NPDES Outfall 002	05/06/19	SW846 8082	Aroclor-1254	0.11		0.11	µg/L	UJ	C05
SVP175746	NPDES Outfall 002	05/06/19	SW846 8082	Aroclor-1260	0.16		0.16	µg/L	UJ	C05
SVP175746	NPDES Outfall 002	05/06/19	EPA 1664	Oil and Grease	1.6		1.6	mg/L	U	
SVP175746	NPDES Outfall 002	05/06/19	EPA 1664	TRPH	2.7		2.7	mg/L	U	
SVP175746	NPDES Outfall 002	05/06/19	EPA 410.4	COD	52		17	mg/L	=	
SVP175746	NPDES Outfall 002	05/06/19	ML-005	Th-230	0.513	0.359	0.312	pCi/L	J	T04, T20
SVP175746	NPDES Outfall 002	05/06/19	ML-005	Th-228	0	0.131	0.463	pCi/L	UJ	T06
SVP175746	NPDES Outfall 002	05/06/19	ML-005	Th-232	0.205	0.239	0.374	pCi/L	UJ	T06
SVP175746	NPDES Outfall 002	05/06/19	ML-006	Ra-226	-0.0767	0.325	0.98	pCi/L	UJ	T06
SVP175746	NPDES Outfall 002	05/06/19	ML-003	Ac-227	-14.7	6.79	8.61	pCi/L	UJ	T04, T06
SVP175746	NPDES Outfall 002	05/06/19	ML-003	Pa-231	15.1	38.5	69.3	pCi/L	UJ	T04, T06
SVP175746	NPDES Outfall 002	05/06/19	ML-018	Gross Alpha	19.7	9.26	13.7	pCi/L	J	F01
SVP175746	NPDES Outfall 002	05/06/19	ML-018	Gross Beta	15.7	10.6	16.9	pCi/L	UJ	T04, T05
SVP175746	NPDES Outfall 002	05/06/19	ML-021	Total U	15.5	1.42	2.45	pCi/L	=	
SVP175746	NPDES Outfall 002	05/06/19	ML-024	pH	6.81		0.1	No Units	=	
SVP175746	NPDES Outfall 002	05/06/19	EPA 160.5	SS	0		0.1	mL/L/hr	U	
SVP175747	NPDES Outfall 002	05/07/19	ML-005	Th-228	0.371	0.375	0.587	pCi/L	UJ	T06
SVP175747	NPDES Outfall 002	05/07/19	ML-005	Th-230	0.632	0.487	0.675	pCi/L	UJ	T04, T05
SVP175747	NPDES Outfall 002	05/07/19	ML-005	Th-232	0.111	0.217	0.474	pCi/L	UJ	T06
SVP175747	NPDES Outfall 002	05/07/19	ML-006	Ra-226	-0.0793	0.336	1.01	pCi/L	UJ	T06
SVP175747	NPDES Outfall 002	05/07/19	ML-003	Ac-227	-14.2	6.51	8.43	pCi/L	UJ	T04, T06
SVP175747	NPDES Outfall 002	05/07/19	ML-003	Pa-231	22.8	34.4	64.5	pCi/L	UJ	T04, T06
SVP175747	NPDES Outfall 002	05/07/19	ML-018	Gross Alpha	7.39	8.36	13.7	pCi/L	UJ	T06
SVP175747	NPDES Outfall 002	05/07/19	ML-018	Gross Beta	8.44	10.3	16.9	pCi/L	UJ	T06
SVP175747	NPDES Outfall 002	05/07/19	ML-021	Total U	10	0.914	2.45	pCi/L	=	
SVP175747	NPDES Outfall 002	05/07/19	EPA 160.5	SS	0.1		0.1	mL/L/hr	U	
SVP175748	NPDES Outfall 002	07/22/19	ML-005	Th-228	0.454	0.331	0.358	pCi/L	J	T04, T20
SVP175748	NPDES Outfall 002	07/22/19	ML-005	Th-230	1.17	0.53	0.311	pCi/L	=	
SVP175748	NPDES Outfall 002	07/22/19	ML-005	Th-232	0.622	0.384	0.335	pCi/L	J	T04, T20

Table C-1. NPDES Analytical Data for CY 2019

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code
SVP175748	NPDES Outfall 002	07/22/19	ML-006	Ra-226	0.474	0.671	1.31	pCi/L	UJ	T06
SVP175748	NPDES Outfall 002	07/22/19	ML-003	Ac-227	-17.6	7.38	9.31	pCi/L	UJ	T04, T06
SVP175748	NPDES Outfall 002	07/22/19	ML-003	Pa-231	-10.5	38	65	pCi/L	UJ	T04, T06
SVP175748	NPDES Outfall 002	07/22/19	ML-018	Gross Alpha	0.97	14	24.2	pCi/L	UJ	T06
SVP175748	NPDES Outfall 002	07/22/19	ML-018	Gross Beta	16	16.7	27.3	pCi/L	UJ	T06
SVP175748	NPDES Outfall 002	07/22/19	ML-021	Total U	-2.69	0.245	4.89	pCi/L	UJ	T06
SVP175748	NPDES Outfall 002	07/22/19	ML-024	pH	6.6		0.1	No Units	J	A03
SVP175748	NPDES Outfall 002	07/22/19	EPA 160.5	SS	0.1		0.1	mL/L/hr	U	
SVP175749	NPDES Outfall 002	08/12/19	ML-005	Th-228	1.54	0.663	0.391	pCi/L	=	
SVP175749	NPDES Outfall 002	08/12/19	ML-005	Th-230	2.37	0.839	0.391	pCi/L	=	
SVP175749	NPDES Outfall 002	08/12/19	ML-005	Th-232	1.24	0.587	0.326	pCi/L	=	
SVP175749	NPDES Outfall 002	08/12/19	ML-006	Ra-226	2.14	1.23	1.19	pCi/L	J	T04, T20
SVP175749	NPDES Outfall 002	08/12/19	ML-003	Ac-227	-48.3	13.7	10.7	pCi/L	UJ	T04, T06, T07
SVP175749	NPDES Outfall 002	08/12/19	ML-003	Pa-231	0.645	40.6	70.9	pCi/L	UJ	T04, T06
SVP175749	NPDES Outfall 002	08/12/19	ML-018	Gross Alpha	-8.73	13.3	24.2	pCi/L	UJ	T06
SVP175749	NPDES Outfall 002	08/12/19	ML-018	Gross Beta	20.9	16.9	27.3	pCi/L	UJ	T04, T05
SVP175749	NPDES Outfall 002	08/12/19	ML-021	Total U	-3	0.274	4.89	pCi/L	UJ	T06
SVP175749	NPDES Outfall 002	08/12/19	EPA 160.5	SS	0.4		0.1	mL/L/hr	=	
SVP175749	NPDES Outfall 002	08/12/19	ML-024	pH	6.83		0.1	No Units	J	A03
SVP175750	NPDES Outfall 002	10/30/19	ML-005	Th-230	0.658	0.414	0.422	pCi/L	J	F01, T04, T20
SVP175750	NPDES Outfall 002	10/30/19	ML-005	Th-228	0.263	0.349	0.727	pCi/L	UJ	T06
SVP175750	NPDES Outfall 002	10/30/19	ML-005	Th-232	0.0292	0.124	0.373	pCi/L	UJ	T06
SVP175750	NPDES Outfall 002	10/30/19	ML-006	Ra-226	0.16	0.468	1.23	pCi/L	UJ	T06
SVP175750	NPDES Outfall 002	10/30/19	ML-003	Ac-227	-0.758	8.05	13.7	pCi/L	UJ	T04, T06
SVP175750	NPDES Outfall 002	10/30/19	ML-003	Pa-231	-13.4	29.4	48.4	pCi/L	UJ	T04, T06
SVP175750	NPDES Outfall 002	10/30/19	ML-018	Gross Alpha	2.04	7.96	13.6	pCi/L	UJ	T06
SVP175750	NPDES Outfall 002	10/30/19	ML-018	Gross Beta	5.06	9.55	15.9	pCi/L	UJ	T06
SVP175750	NPDES Outfall 002	10/30/19	ML-021	Total U	-1.49	0.136	4.89	pCi/L	UJ	T06
SVP175750	NPDES Outfall 002	10/30/19	ML-024	pH	7.24		0.1	No Units	J	A03

Table C-1. NPDES Analytical Data for CY 2019

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code
SVP175750	NPDES Outfall 002	10/30/19	EPA 160.5	SS	0		0.1	mL/L/hr	U	
SVP175751	NPDES Outfall 002	11/28/19	ML-005	Th-228	1.38	0.719	0.619	pCi/L	J	T04, T20
SVP175751	NPDES Outfall 002	11/28/19	ML-005	Th-230	2.99	1.08	0.361	pCi/L	=	
SVP175751	NPDES Outfall 002	11/28/19	ML-005	Th-232	0.546	0.437	0.419	pCi/L	J	T04, T20
SVP175751	NPDES Outfall 002	11/28/19	ML-006	Ra-226	0.354	0.498	1.06	pCi/L	UJ	T06
SVP175751	NPDES Outfall 002	11/28/19	ML-003	Ac-227	-6.58	12.5	20.7	pCi/L	UJ	T04, T06
SVP175751	NPDES Outfall 002	11/28/19	ML-003	Pa-231	32.8	45.1	78.9	pCi/L	UJ	T04, T06
SVP175751	NPDES Outfall 002	11/28/19	ML-018	Gross Alpha	1.85	8.03	13.8	pCi/L	UJ	T06
SVP175751	NPDES Outfall 002	11/28/19	ML-018	Gross Beta	1.55	10.1	17	pCi/L	UJ	T06
SVP175751	NPDES Outfall 002	11/28/19	ML-021	Total U	-0.774	0.0706	2.45	pCi/L	UJ	T06
SVP175751	NPDES Outfall 002	11/28/19	ML-024	pH	7.13		0.1	No Units	J	A03
SVP175751	NPDES Outfall 002	11/28/19	EPA 160.5	SS	0.1		0.1	mL/L/hr	UJ	A03

VQs:

= - Indicates that the data met all QA/QC requirements, and that the parameter has been positively identified and the associated concentration value is accurate.

J - Indicates that the parameter was positively identified; the associated numerical value is the approximate concentration of the parameter in the sample.

U - Indicates that the data met all QA/QC requirements, and that the parameter was analyzed for but was not detected above the reported sample quantitation limit.

UJ - Indicates that the parameter was not detected above the reported sample quantitation limit and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample. However, the reported quantitation limit is approximate.

Validation Reason Codes:

A03 - Analysis hold times were exceeded.

C05 - Continuing calibration percent difference was greater (>) 25 percent.

F01 - Blanks: Sample data were qualified as a result of the method blank.

T04 - Radionuclide Quantitation: Professional judgment was used to qualify the data.

T05 - Radionuclide Quantitation: Analytical result is less than the associated MDA, but greater than the counting uncertainty.

T06 - Radionuclide Quantitation: Analytical result is less than both the associated counting uncertainty and MDA.

T07 - Radionuclide Quantitation: Negative analytical result where the absolute value exceeds two times (2x) the associated MDA.

T20 - Radionuclide Quantitation: Analytical result is greater than the associated MDA, with uncertainty 50 percent to 100 percent of the result.

Table C-2. North St. Louis County Sites Rainfall Data for CY 2019 – First Quarter

Date	Rainfall (inches)	Outfall	Date	Rainfall (inches)	Outfall	Date	Rainfall (inches)	Outfall
2019	**24-Hour Total**	**002[a]**	**2019**	**24-Hour Total**	**002[a]**	**2019**	**24-Hour Total**	**002[a]**
1-Jan			1-Feb			1-Mar		
2-Jan			2-Feb			2-Mar	0.01	
3-Jan			3-Feb			3-Mar	0.20	
4-Jan			4-Feb			4-Mar		
5-Jan			5-Feb	0.18		5-Mar		
6-Jan			6-Feb	0.63	0.102	6-Mar		
7-Jan	0.12		7-Feb	0.50	0.081	7-Mar	0.01	
8-Jan			8-Feb			8-Mar		
9-Jan			9-Feb			9-Mar	0.58	0.094
10-Jan			10-Feb	0.17		10-Mar		
11-Jan	0.73		11-Feb	0.72		11-Mar		
12-Jan	0.63		12-Feb	0.07		12-Mar	0.10	
13-Jan	0.12		13-Feb			13-Mar	0.68	
14-Jan			14-Feb			14-Mar		
15-Jan			15-Feb	0.13		15-Mar	0.01	
16-Jan			16-Feb	0.02		16-Mar	0.01	
17-Jan	0.01		17-Feb	0.02		17-Mar	0.02	
18-Jan	0.13		18-Feb			18-Mar		
19-Jan	0.19	0.097	19-Feb	0.11		19-Mar		
20-Jan	0.10		20-Feb	0.11		20-Mar	0.08	
21-Jan			21-Feb			21-Mar		
22-Jan	0.30		22-Feb			22-Mar		
23-Jan	0.18	0.226	23-Feb	0.16		23-Mar	0.12	
24-Jan			24-Feb			24-Mar	0.28	
25-Jan			25-Feb			25-Mar	0.02	
26-Jan	0.02		26-Feb			26-Mar		
27-Jan			27-Feb			27-Mar		
28-Jan	0.11		28-Feb	0.08		28-Mar	0.61	
29-Jan	0.01					29-Mar	0.06	
30-Jan	0.02					30-Mar	1.24	0.200
31-Jan						31-Mar		
Monthly Total	**2.67**	**0.323**	**Monthly Total**	**2.90**	**0.183**	**Monthly Total**	**4.03**	**0.294**

[a] Per a USACE email dated April 19, 2018, sampling at Outfall 002 has been increased to once per month.

Notes:

Flow measurements for the outfalls are reported in MGD. All blank spaces represent zero flow.

Rainfall data are obtained from the www.wunderground.com site (Weather Underground, Inc. 2019).

Table C-2. North St. Louis County Sites Rainfall Data for CY 2019 – Second Quarter

Date	Rainfall (inches)	Outfall	Date	Rainfall (inches)	Outfall	Date	Rainfall (inches)	Outfall
2019	**24-Hour Total**	**002[a]**	**2019**	**24-Hour Total**	**002[a]**	**2019**	**24-Hour Total**	**002[a]**
1-Apr			1-May	0.63	0.102	1-Jun	0.57	
2-Apr			2-May	0.44	0.071	2-Jun		
3-Apr			3-May	0.03		3-Jun		
4-Apr	0.53		4-May	0.14		4-Jun	0.10	
5-Apr			5-May			5-Jun	0.41	
6-Apr			6-May		0.031	6-Jun	0.01	
7-Apr	0.04		7-May		0.020	7-Jun	0.03	
8-Apr	0.03		8-May	0.49		8-Jun		
9-Apr			9-May	0.12		9-Jun		
10-Apr			10-May			10-Jun		
11-Apr	0.11		11-May	0.46		11-Jun		
12-Apr			12-May			12-Jun	0.19	
13-Apr	0.22		13-May			13-Jun		
14-Apr	0.64		14-May			14-Jun	0.04	
15-Apr			15-May	0.07		15-Jun	0.20	
16-Apr			16-May			16-Jun	0.15	
17-Apr	0.02		17-May			17-Jun	0.15	
18-Apr	0.96	0.16	18-May	0.03		18-Jun		
19-Apr	0.01		19-May	0.10		19-Jun	0.02	
20-Apr			20-May	0.02		20-Jun		
21-Apr			21-May	0.98		21-Jun	0.72	
22-Apr			22-May	0.02		22-Jun	0.51	
23-Apr	0.03		23-May	0.26		23-Jun	0.07	
24-Apr	0.49	0.08	24-May			24-Jun		
25-Apr	0.19		25-May			25-Jun		
26-Apr			26-May	0.21		26-Jun	0.62	
27-Apr	0.11		27-May	0.01		27-Jun		
28-Apr	0.06		28-May			28-Jun	0.11	
29-Apr	0.09		29-May	0.71		29-Jun		
30-Apr	0.92		30-May			30-Jun		
			31-May					
Monthly Total	**4.45**	**0.234**	**Monthly Total**	**4.72**	**0.224**	**Monthly Total**	**3.90**	

[a] Per a USACE email dated April 19, 2018, sampling at Outfall 002 has been increased to once per month.

Notes:

Flow measurements for the outfalls are reported in MGD. All blank spaces represent zero flow.

Rainfall data are obtained from the www.wunderground.com site (Weather Underground, Inc. 2019).

Table C-2. North St. Louis County Sites Rainfall Data for CY 2019 – Third Quarter

Date	Rainfall (inches)	Outfall	Date	Rainfall (inches)	Outfall	Date	Rainfall (inches)	Outfall
2019	**24-Hour Total**	**002[a]**	**2019**	**24-Hour Total**	**002[a]**	**2019**	**24-Hour Total**	**002[a]**
1-Jul			1-Aug			1-Sep		
2-Jul	0.22		2-Aug			2-Sep		
3-Jul	0.15		3-Aug			3-Sep		
4-Jul	0.19		4-Aug			4-Sep		
5-Jul	0.08		5-Aug			5-Sep		
6-Jul			6-Aug	0.30		6-Sep		
7-Jul			7-Aug			7-Sep		
8-Jul			8-Aug			8-Sep	0.88	
9-Jul			9-Aug			9-Sep		
10-Jul	0.03		10-Aug			10-Sep		
11-Jul			11-Aug			10-Sep		
12-Jul			12-Aug	2.20	0.355	10-Sep		
13-Jul			13-Aug	0.75		10-Sep		
14-Jul			14-Aug			10-Sep		
15-Jul	0.59		15-Aug			10-Sep		
16-Jul	0.02		16-Aug			16-Sep		
17-Jul	0.56		17-Aug	0.54		10-Sep		
18-Jul			18-Aug			10-Sep		
19-Jul			19-Aug			10-Sep		
20-Jul			20-Aug	0.05		20-Sep	0.12	
21-Jul			21-Aug	0.22		21-Sep	0.04	
22-Jul	5.06	0.817	22-Aug	0.13		22-Sep	0.49	
23-Jul			23-Aug			23-Sep		
24-Jul			24-Aug			24-Sep		
25-Jul			25-Aug	0.35		25-Sep		
26-Jul			26-Aug	0.67		26-Sep	0.06	
27-Jul			27-Aug	0.75		27-Sep	0.01	
28-Jul			28-Aug			28-Sep	0.03	
29-Jul	0.74		29-Aug			29-Sep	0.04	
30-Jul			30-Aug	1.04		30-Sep		
31-Jul			31-Aug	0.31				
Monthly Total	**7.64**	**0.817**	**Monthly Total**	**7.31**	**0.355**	**Monthly Total**	**1.67**	

[a] Per a USACE email dated April 19, 2018, sampling at Outfall 002 has been increased to once per month.

Notes:

Flow measurements for the outfalls are reported in MGD. All blank spaces represent zero flow.

Rainfall data are obtained from the www.wunderground.com site (Weather Underground, Inc. 2019).

Table C-2. North St. Louis County Sites Rainfall Data for CY 2019 – Fourth Quarter

Date	Rainfall (inches)	Outfall	Date	Rainfall (inches)	Outfall	Date	Rainfall (inches)	Outfall
2019	**24-Hour Total**	**002[a]**	**2019**	**24-Hour Total**	**002[a]**	**2019**	**24-Hour Total**	**002[a]**
1-Oct			1-Nov			1-Dec	0.56	
2-Oct			2-Nov			2-Dec	0.01	
3-Oct			3-Nov			3-Dec		
4-Oct			4-Nov			4-Dec		
5-Oct			5-Nov	0.06		5-Dec		
6-Oct			6-Nov			6-Dec		
7-Oct			7-Nov	0.01		7-Dec		
8-Oct			8-Nov			8-Dec		
9-Oct			9-Nov			9-Dec	0.02	
10-Oct			10-Nov			10-Dec		
11-Oct	1.03		11-Nov			11-Dec		
12-Oct	0.05		12-Nov	0.30		12-Dec		
13-Oct			13-Nov			13-Dec		
14-Oct			14-Nov			14-Dec	0.05	
15-Oct			15-Nov			15-Dec	0.06	
16-Oct			16-Nov			16-Dec	0.23	
17-Oct			17-Nov			17-Dec	0.30	
18-Oct			18-Nov	0.01		18-Dec		
19-Oct			19-Nov			19-Dec		
20-Oct			20-Nov			20-Dec		
21-Oct	0.15		21-Nov	0.15		21-Dec		
22-Oct			22-Nov	0.03		22-Dec		
23-Oct			23-Nov	0.09		23-Dec		
24-Oct			24-Nov	0.01		24-Dec		
25-Oct			25-Nov			25-Dec		
26-Oct	0.01		26-Nov			26-Dec		
27-Oct	1.25		27-Nov	0.24		27-Dec		
28-Oct			28-Nov		0.039	28-Dec		
29-Oct	0.01		29-Nov	0.05		29-Dec	1.09	
30-Oct	0.96	0.155	30-Nov	2.04		30-Dec	0.10	
31-Oct	0.37					31-Dec		
Monthly Total	**3.83**	**0.155**	**Monthly Total**	**2.99**	0.039	**Monthly Total**	**2.42**	**0.000**

[a] Per a USACE email dated April 19, 2018, sampling at Outfall 002 has been increased to once per month.

Notes:

Flow measurements for the outfalls are reported in MGD. All blank spaces represent zero flow.

Rainfall data are obtained from the www.wunderground.com site (Weather Underground, Inc. 2019).

Table C-3. First Quarter Self-Monitoring Report for Excavation-Water Discharge at North St. Louis County Sites During CY 2019

Parameter	Batch Number	Date of Discharge	Batch Results[a]		Amount Discharged (Gallons)	Total Activity per Discharge (Ci)[b]	MSD Discharge Limit		SOR
Gross Alpha (raw water)	SLAPS-323	01/07/19 - 01/10/19 (SLAPS VP Ballfields [IA-09])	<15.5	pCi/L	309,454	9.1E-06	3,000	pCi/L	0.00
Gross Beta			<17.7	pCi/L		1.0E-05	NA		
Th-228			<0.5	pCi/L		3.0E-07	2,000	pCi/L	
Th-230			<0.5	pCi/L		3.0E-07	1,000	pCi/L	
Uranium (KPA)			<4.9	pCi/L		2.9E-06	3,000	pCi/L	
Ra-226[c]			<1.6	pCi/L		9.1E-07	10	pCi/L	
Ra-228[d,e]			<0.5	pCi/L		3.0E-07	30	pCi/L	
Barium			[h]	mg/L			10	mg/L	
Lead			[h]	mg/L			0.4	mg/L	
Selenium[f]			[h]	mg/L			0.2	mg/L[f]	
BOD[g]				mg/L			-		
COD[g]				mg/L			-		
Gross Alpha (TSS filtrate)			<15.5	pCi/L			-		
TSS			17.0	mg/L			-		
Gross Alpha (raw water)	SLAPS-324	02/06/19 - 02/21/19 (SLAPS VP Ballfields [IA-09])	<17.6	pCi/L	385,456	1.3E-05	3,000	pCi/L	0.01
Gross Beta			<18.8	pCi/L		1.4E-05	NA		
Th-228			<0.6	pCi/L		4.6E-07	2,000	pCi/L	
Th-230			2.3	pCi/L		3.4E-06	1,000	pCi/L	
Uranium (KPA)			<4.9	pCi/L		3.6E-06	3,000	pCi/L	
Ra-226[c]			<2.4	pCi/L		1.8E-06	10	pCi/L	
Ra-228[d,e]			<0.6	pCi/L		4.6E-07	30	pCi/L	
Barium			[h]	mg/L			10	mg/L	
Lead			[h]	mg/L			0.4	mg/L	
Selenium[f]			[h]	mg/L			0.2	mg/L[f]	
BOD[g]				mg/L			-		
COD[g]				mg/L			-		
Gross Alpha (TSS filtrate)			<17.6	pCi/L			-		
TSS			100.1	mg/L			-		
Gross Alpha (raw water)	SLAPS-325	03/19/19 - 03/21/19 (SLAPS VP Ballfields [IA-09])	<16.6	pCi/L	206,314	6.5E-06	3,000	pCi/L	0.01
Gross Beta			<18.6	pCi/L		7.3E-06	NA		
Th-228			<0.5	pCi/L		1.8E-07	2,000	pCi/L	
Th-230			0.5	pCi/L		3.9E-07	1,000	pCi/L	
Uranium (KPA)			9.1	pCi/L		7.1E-06	3,000	pCi/L	
Ra-226[c]			<1.5	pCi/L		5.8E-07	10	pCi/L	
Ra-228[d,e]			<0.5	pCi/L		1.8E-07	30	pCi/L	
Barium			[h]	mg/L			10	mg/L	
Lead			[h]	mg/L			0.4	mg/L	
Selenium[f]			[h]	mg/L			0.2	mg/L[f]	
BOD[g]				mg/L			-		
COD[g]				mg/L			-		
Gross Alpha (TSS filtrate)			<16.6	pCi/L			-		
TSS			11.1	mg/L			-		

Total Activity Discharged in First Quarter of CY 2019 (Ci)

Th-228	9.4E-07
Th-230	4.1E-06
Uranium (KPA)	1.4E-05
Ra-226	3.3E-06
Ra-228[b]	9.4E-07

Total Activity Discharged through 03/31/19 (Ci)

Th-228	9.4E-07
Th-230	4.1E-06
Uranium (KPA)	1.4E-05
Ra-226	3.3E-06
Ra-228[b]	9.4E-07

Total Volume for First Quarter of CY 2019 (gallons)

Gallons 901,224

Total Volume Discharged through 03/31/19 (gallons)

Gallons 901,224

[a] Non-detect sample results are converted to half the DL for total activity.
[b] The weighted average was used to calculate the total activity.
[c] 10 *CFR* 20 limit is 600 pCi/L for Ra-226.
[d] Ra-228 assumed to be in equilibrium with Th-228.
[e] 10 *CFR* 20 limit is 600 pCi/L for Ra-228.
[f] The limit for selenium can be a daily total mass of 76 g, with a concentration not to exceed 0.90 mg/L.
[g] MSD surcharges apply for BOD concentration greater than 300 mg/L and COD concentration greater than 600 mg/L.
[h] Analysis for metals is not required per the MSD letter dated May 24, 2012 (MSD 2012).

Notes:

- No data/No limit
BOD - biological oxygen demand
COD - chemical oxygen demand
NA - not applicable
SOR - sum of ratios
TSS - total suspended solid(s)

Table C-3. Second Quarter Self-Monitoring Report for Excavation-Water Discharge at North St. Louis County Sites During CY 2019

Parameter	Batch Number	Date of Discharge	Batch Results[a]		Amount Discharged (Gallons)	Total Activity per Discharge (Ci)[b]	MSD Discharge Limit		SOR
Gross Alpha (raw water)	SLAPS-326	04/09/19 - 04/30/19 (SLAPS VP Ballfields [IA-09])	<16.5	pCi/L	654,000	2.0E-05	3,000	pCi/L	0.01
Gross Beta			<19.2	pCi/L		2.4E-05	NA		
Th-228			<0.8	pCi/L		9.4E-07	2,000	pCi/L	
Th-230			<0.5	pCi/L		6.0E-07	1,000	pCi/L	
Uranium (KPA)			8.6	pCi/L		2.1E-05	3,000	pCi/L	
Ra-226[c]			<2.5	pCi/L		3.1E-06	10	pCi/L	
Ra-228[d,e]			<0.8	pCi/L		9.4E-07	30	pCi/L	
Barium			[h]	mg/L			10	mg/L	
Lead			[h]	mg/L			0.4	mg/L	
Selenium[f]			[h]	mg/L			0.2	mg/L[f]	
BOD[g]				mg/L			-		
COD[g]				mg/L			-		
Gross Alpha (TSS filtrate)			<16.5	pCi/L			-		
TSS			10.0	mg/L			-		
Gross Alpha (raw water)	SLAPS-327	05/01/19 - 05/30/19 (SLAPS VP Ballfields [IA-09])	<15.8	pCi/L	1,313,515	3.9E-05	3,000	pCi/L	0.01
Gross Beta			<17.7	pCi/L		4.4E-05	NA		
Th-228			<1.8	pCi/L		4.5E-06	2,000	pCi/L	
Th-230			0.7	pCi/L		3.5E-06	1,000	pCi/L	
Uranium (KPA)			7.7	pCi/L		3.8E-05	3,000	pCi/L	
Ra-226[c]			<3.1	pCi/L		7.7E-06	10	pCi/L	
Ra-228[d,e]			<1.8	pCi/L		4.5E-06	30	pCi/L	
Barium			[h]	mg/L			10	mg/L	
Lead			[h]	mg/L			0.4	mg/L	
Selenium[f]			[h]	mg/L			0.2	mg/L[f]	
BOD[g]				mg/L			-		
COD[g]				mg/L			-		
Gross Alpha (TSS filtrate)			<15.8	pCi/L			-		
TSS			21.8	mg/L			-		
Gross Alpha (raw water)	SLAPS-328	06/03/19 (SLAPS VP Ballfields [IA-09])	<14.7	pCi/L	82,363	2.3E-06	3,000	pCi/L	0.00
Gross Beta			<17.1	pCi/L		2.7E-06	NA		
Th-228			<0.4	pCi/L		6.7E-08	2,000	pCi/L	
Th-230			1.5	pCi/L		4.8E-07	1,000	pCi/L	
Uranium (KPA)			3.0	pCi/L		9.4E-07	3,000	pCi/L	
Ra-226[c]			<1.2	pCi/L		1.9E-07	10	pCi/L	
Ra-228[d,e]			<0.4	pCi/L		6.7E-08	30	pCi/L	
Barium			[h]	mg/L			10	mg/L	
Lead			[h]	mg/L			0.4	mg/L	
Selenium[f]			[h]	mg/L			0.2	mg/L[f]	
BOD[g]				mg/L			-		
COD[g]				mg/L			-		
Gross Alpha (TSS filtrate)			<14.7	pCi/L			-		
TSS			37.6	mg/L			-		

Total Activity Discharged in Second Quarter of CY 2019 (Ci)		Total Activity Discharged through 06/30/19 (Ci)	
Th-228	5.5E-06	**Th-228**	6.4E-06
Th-230	4.6E-06	**Th-230**	8.6E-06
Uranium (KPA)	6.1E-05	**Uranium (KPA)**	7.4E-05
Ra-226	1.1E-05	**Ra-226**	1.4E-05
Ra-228[b]	5.5E-06	**Ra-228[b]**	6.4E-06

Total Volume for Second Quarter of CY 2019 (gallons)		Total Volume Discharged through 06/30/19 (gallons)	
Gallons	2,049,878	**Gallons**	2,951,102

[a] Non-detect sample results are converted to half the DL for total activity.
[b] The weighted average was used to calculate the total activity.
[c] 10 *CFR* 20 limit is 600 pCi/L for Ra-226.
[d] Ra-228 assumed to be in equilibrium with Th-228.
[e] 10 *CFR* 20 limit is 600 pCi/L for Ra-228.
[f] The limit for selenium can be a daily total mass of 76 g, with a concentration not to exceed 0.90 mg/L.
[g] MSD surcharges apply for BOD concentration greater than 300 mg/L and COD concentration greater than 600 mg/L.
[h] Analysis for metals is not required per the MSD letter dated May 24, 2012 (MSD 2012).

Notes:
- No data/No limit
BOD - biological oxygen demand
COD - chemical oxygen demand
NA - not applicable
SOR - sum of ratios
TSS - total suspended solid(s)

Table C-3. Third Quarter Self-Monitoring Report for Excavation-Water Discharge at North St. Louis County Sites During CY 2019

Parameter	Batch Number	Date of Discharge	Batch Results[a]		Amount Discharged (Gallons)	Total Activity per Discharge (Ci)[b]	MSD Discharge Limit		SOR
Gross Alpha (raw water)	SLAPS-329	08/07/19 - 08/27/19 (SLAPS VP Ballfields [IA-09])	<14.4	pCi/L	506,324	1.4E-05	3,000	pCi/L	0.00
Gross Beta			<17.3	pCi/L		1.7E-05	NA		
Th-228			<0.6	pCi/L		5.8E-07	2,000	pCi/L	
Th-230			1.8	pCi/L		3.5E-06	1,000	pCi/L	
Uranium (KPA)			<4.9	pCi/L		4.7E-06	3,000	pCi/L	
Ra-226[c]			<1.5	pCi/L		1.4E-06	10	pCi/L	
Ra-228[d,e]			<0.6	pCi/L		5.8E-07	30	pCi/L	
Barium			[h]	mg/L			10	mg/L	
Lead			[h]	mg/L			0.4	mg/L	
Selenium[f]			[h]	mg/L			0.2	mg/L[f]	
BOD[g]				mg/L			-		
COD[g]				mg/L			-		
Gross Alpha (TSS filtrate)			<14.4	pCi/L			-		
TSS			8.2	mg/L			-		
Gross Alpha (raw water)	SLAPS-330	09/03/19 - 09/04/19 (SLAPS VP Ballfields [IA-09])	<16.1	pCi/L	136,973	4.2E-06	3,000	pCi/L	0.00
Gross Beta			<17.3	pCi/L		4.5E-06	NA		
Th-228			<0.3	pCi/L		8.3E-08	2,000	pCi/L	
Th-230			0.8	pCi/L		4.2E-07	1,000	pCi/L	
Uranium (KPA)			<4.9	pCi/L		1.3E-06	3,000	pCi/L	
Ra-226[c]			<1	pCi/L		2.6E-07	10	pCi/L	
Ra-228[d,e]			<0.3	pCi/L		8.3E-08	30	pCi/L	
Barium			[h]	mg/L			10	mg/L	
Lead			[h]	mg/L			0.4	mg/L	
Selenium[f]			[h]	mg/L			0.2	mg/L[f]	
BOD[g]				mg/L			-		
COD[g]				mg/L			-		
Gross Alpha (TSS filtrate)			<16.1	pCi/L			-		
TSS			15.3	mg/L			-		

Total Activity Discharged in Third Quarter of CY 2019 (Ci)		Total Activity Discharged through 09/30/19 (Ci)	
Th-228	6.7E-07	**Th-228**	7.1E-06
Th-230	3.9E-06	**Th-230**	1.2E-05
Uranium (KPA)	5.9E-06	**Uranium (KPA)**	8.0E-05
Ra-226	1.7E-06	**Ra-226**	1.6E-05
Ra-228[b]	6.7E-07	**Ra-228[b]**	7.1E-06

Total Volume for Third Quarter of CY 2019 (gallons)		Total Volume Discharged through 09/30/19 (gallons)	
Gallons	643,297	**Gallons**	3,594,399

[a] Non-detect sample results are converted to half the DL for total activity.
[b] The weighted average was used to calculate the total activity.
[c] 10 *CFR* 20 limit is 600 pCi/L for Ra-226.
[d] Ra-228 assumed to be in equilibrium with Th-228.
[e] 10 *CFR* 20 limit is 600 pCi/L for Ra-228.
[f] The limit for selenium can be a daily total mass of 76 g, with a concentration not to exceed 0.90 mg/L.
[g] MSD surcharges apply for BOD concentration greater than 300 mg/L and COD concentration greater than 600 mg/L.
[h] Analysis for metals is not required per the MSD letter dated May 24, 2012 (MSD 2012).

Notes:
- No data/No limit
BOD - biological oxygen demand
COD - chemical oxygen demand
NA - Not applicable
SOR - sum of ratios
TSS - total suspended solid(s)

Table C-3. Fourth Quarter Self-Monitoring Report for Excavation-Water Discharge at North St. Louis County Sites During CY 2019

Parameter	Batch Number	Date of Discharge	Batch Results[a]		Amount Discharged (Gallons)	Total Activity per Discharge (Ci)[b]	MSD Discharge Limit		SOR
Gross Alpha (raw water)	SLAPS-331	10/29/19 - 10/31/19 (SLAPS VP Ballfields [IA-09])	<13.6	pCi/L	215,474	5.5E-06	3,000	pCi/L	0.01
Gross Beta			<15.9	pCi/L		6.5E-06	NA		
Th-228			<0.8	pCi/L		3.3E-07	2,000	pCi/L	
Th-230			2.4	pCi/L		1.9E-06	1,000	pCi/L	
Uranium (KPA)			<4.9	pCi/L		2.0E-06	3,000	pCi/L	
Ra-226[c]			<1.5	pCi/L		6.2E-07	10	pCi/L	
Ra-228[d,e]			<0.8	pCi/L		3.3E-07	30	pCi/L	
Barium			[h]	mg/L			10	mg/L	
Lead			[h]	mg/L			0.4	mg/L	
Selenium[f]			[h]	mg/L			0.2	mg/L[f]	
BOD[g]				mg/L			-		
COD[g]				mg/L			-		
Gross Alpha (TSS filtrate)			<13.6	pCi/L			-		
TSS			38.5	mg/L			-		
Gross Alpha (raw water)	SLAPS-332	12/03/19 - 12/17/19 (SLAPS VP Ballfields [IA-09])	<15.3	pCi/L	422,147	1.2E-05	3,000	pCi/L	0.01
Gross Beta			17	pCi/L		2.8E-05	NA		
Th-228			<0.8	pCi/L		6.6E-07	2,000	pCi/L	
Th-230			3.9	pCi/L		6.2E-06	1,000	pCi/L	
Uranium (KPA)			<4.9	pCi/L		3.9E-06	3,000	pCi/L	
Ra-226[c]			<1.2	pCi/L		9.8E-07	10	pCi/L	
Ra-228[d,e]			<0.8	pCi/L		6.6E-07	30	pCi/L	
Barium			[h]	mg/L			10	mg/L	
Lead			[h]	mg/L			0.4	mg/L	
Selenium[f]			[h]	mg/L			0.2	mg/L[f]	
BOD[g]				mg/L			-		
COD[g]				mg/L			-		
Gross Alpha (TSS filtrate)			<15.3	pCi/L			-		
TSS			85.3	mg/L			-		

Total Activity Discharged in Fourth Quarter of CY 2019 (Ci)

Th-228	9.9E-07
Th-230	8.2E-06
Uranium (KPA)	5.9E-06
Ra-226	1.6E-06
Ra-228[b]	9.9E-07

Total Activity Discharged through 12/31/19 (Ci)

Th-228	8.1E-06
Th-230	2.1E-05
Uranium (KPA)	8.6E-05
Ra-226	1.7E-05
Ra-228[b]	8.1E-06

Total Volume for Fourth Quarter of CY 2019 (gallons)

Gallons 637,621

Total Volume Discharged through 12/31/19 (gallons)

Gallons 4,232,020

[a] Non-detect sample results are converted to half the DL for total activity.
[b] The weighted average was used to calculate the total activity.
[c] 10 *CFR* 20 limit is 600 pCi/L for Ra-226.
[d] Ra-228 assumed to be in equilibrium with Th-228.
[e] 10 *CFR* 20 limit is 600 pCi/L for Ra-228.
[f] The limit for selenium can be a daily total mass of 76 g, with a concentration not to exceed 0.90 mg/L.
[g] MSD surcharges apply for BOD concentration greater than 300 mg/L and COD concentration greater than 600 mg/L.
[h] Analysis for metals is not required per the MSD letter dated May 24, 2012 (MSD 2012).

Notes:
- No data/No limit
BOD - biological oxygen demand
COD - chemical oxygen demand
NA - not applicable
SOR - sum of ratios
TSS - total suspended solid(s)

THIS PAGE INTENTIONALLY LEFT BLANK

ATTACHMENT C-1

PN02 ANNUAL SAMPLING FREQUENCY SCHEDULE EMAIL, DATED APRIL 19, 2018

(On the CD-ROM on the Back Cover of this Report)

THIS PAGE INTENTIONALLY LEFT BLANK

From: Skoba, Gwenan
To: Daniel Carey (MDNR)
Cc: Dave Evans; Viehweg, William H. (USACE)
Subject: FW: Update regarding SLAPS Outfall 002
Date: Thursday, April 19, 2018 3:00:00 PM

Hello Dan,
Sorry for the late notice, USACE has restarted remediation at the Ballfields (SLAPS Outfall 002). We have resumed the sampling per the NPDES permit equivalent.
Please let Dave know if you have any questions.
Thank you!
Gwenan

Gwenan Skoba, MBA, CHMM
Principal Regulatory Specialist
HGL
110 James S. McDonnell Blvd
Hazelwood, MO 63042

-----Original Message-----
From: Skoba, Gwenan
Sent: Thursday, February 08, 2018 12:06 PM
To: Daniel Carey (MDNR)
Cc: Dave Evans; Viehweg, William H. (USACE)
Subject: RE: Update regarding SLAPS Outfall 002

Hi Dan,
For your records, USACE has temporarily stopped working at the Ballfields (SLAPS Outfall 002). Ballfields SU-12A & 12B were just confirmed.
We will notify MDNR when remediation resumes.
Thank you!
Gwenan

Gwenan Skoba, MBA, CHMM
Principal Regulatory Specialist
HGL
110 James S. McDonnell Blvd
Hazelwood, MO 63042

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX D

COLDWATER CREEK SURFACE-WATER AND SEDIMENT DATA

(On the CD-ROM on the Back Cover of this Report)

THIS PAGE INTENTIONALLY LEFT BLANK

Table D-1. CWC Surface-Water Data for CY 2018

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Error	DL	Units	VQ
CWC200932	CWC002	04/10/18	Metals	Barium	130		0.9	µg/L	=
CWC200932	CWC002	04/10/18	Metals	Molybdenum	8.2		2	µg/L	=
CWC200932	CWC002	04/10/18	Metals	Cadmium	0.22		0.2	µg/L	=
CWC200932	CWC002	04/10/18	Metals	Nickel	2.8		2	µg/L	=
CWC200932	CWC002	04/10/18	Metals	Selenium	3.2		2	µg/L	=
CWC200932	CWC002	04/10/18	Metals	Antimony	2		2	µg/L	U
CWC200932	CWC002	04/10/18	Metals	Arsenic	4		4	µg/L	U
CWC200932	CWC002	04/10/18	Metals	Chromium	4		4	µg/L	U
CWC200932	CWC002	04/10/18	Metals	Thallium	0.9		0.9	µg/L	U
CWC200932	CWC002	04/10/18	Metals	Vanadium	4		4	µg/L	U
CWC200932	CWC002	04/10/18	Alpha Spectroscopy	U-234	0.974	0.554	0.376	pCi/L	J
CWC200932	CWC002	04/10/18	Alpha Spectroscopy	Th-228	-0.0158	0.144	0.537	pCi/L	UJ
CWC200932	CWC002	04/10/18	Alpha Spectroscopy	Th-230	0.158	0.224	0.403	pCi/L	UJ
CWC200932	CWC002	04/10/18	Alpha Spectroscopy	Th-232	0.0157	0.137	0.454	pCi/L	UJ
CWC200932	CWC002	04/10/18	Alpha Spectroscopy	R-226	0	0	1.12	pCi/L	U
CWC200932	CWC002	04/10/18	Alpha Spectroscopy	U-235	-0.0218	0.18	0.464	pCi/L	UJ
CWC200932	CWC002	04/10/18	Alpha Spectroscopy	U-238	0.176	0.251	0.45	pCi/L	UJ
CWC200934	CWC003	04/10/18	Metals	Barium	130		0.9	µg/L	=
CWC200934	CWC003	04/10/18	Metals	Molybdenum	9.8		2	µg/L	=
CWC200934	CWC003	04/10/18	Metals	Cadmium	0.33		0.2	µg/L	=
CWC200934	CWC003	04/10/18	Metals	Nickel	2.4		2	µg/L	=
CWC200934	CWC003	04/10/18	Metals	Selenium	2.9		2	µg/L	=
CWC200934	CWC003	04/10/18	Metals	Antimony	2		2	µg/L	U
CWC200934	CWC003	04/10/18	Metals	Arsenic	4		4	µg/L	U
CWC200934	CWC003	04/10/18	Metals	Chromium	4		4	µg/L	U
CWC200934	CWC003	04/10/18	Metals	Thallium	0.9		0.9	µg/L	U
CWC200934	CWC003	04/10/18	Metals	Vanadium	4		4	µg/L	U
CWC200934	CWC003	04/10/18	Alpha Spectroscopy	U-234	1.12	0.664	0.465	pCi/L	J
CWC200934	CWC003	04/10/18	Alpha Spectroscopy	U-238	0.589	0.475	0.463	pCi/L	J
CWC200934	CWC003	04/10/18	Alpha Spectroscopy	Th-228	0.34	0.363	0.611	pCi/L	UJ
CWC200934	CWC003	04/10/18	Alpha Spectroscopy	Th-230	0.341	0.326	0.381	pCi/L	UJ
CWC200934	CWC003	04/10/18	Alpha Spectroscopy	Th-232	0	0.203	0.527	pCi/L	UJ
CWC200934	CWC003	04/10/18	Alpha Spectroscopy	R-226	0.568	0.651	1.12	pCi/L	UJ
CWC200934	CWC003	04/10/18	Alpha Spectroscopy	U-235	0	0.306	0.796	pCi/L	UJ

Table D-1. CWC Surface-Water Data for CY 2018

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Error	DL	Units	VQ
CWC200936	CWC004	04/10/18	Metals	Barium	140		0.9	µg/L	=
CWC200936	CWC004	04/10/18	Metals	Molybdenum	9.1		2	µg/L	=
CWC200936	CWC004	04/10/18	Metals	Nickel	2.3		2	µg/L	=
CWC200936	CWC004	04/10/18	Metals	Selenium	3.6		2	µg/L	=
CWC200936	CWC004	04/10/18	Metals	Antimony	2		2	µg/L	U
CWC200936	CWC004	04/10/18	Metals	Arsenic	4		4	µg/L	U
CWC200936	CWC004	04/10/18	Metals	Cadmium	0.2		0.2	µg/L	U
CWC200936	CWC004	04/10/18	Metals	Chromium	4		4	µg/L	U
CWC200936	CWC004	04/10/18	Metals	Thallium	0.9		0.9	µg/L	U
CWC200936	CWC004	04/10/18	Metals	Vanadium	4		4	µg/L	U
CWC200936	CWC004	04/10/18	Alpha Spectroscopy	U-234	0.912	0.569	0.559	pCi/L	J
CWC200936	CWC004	04/10/18	Alpha Spectroscopy	U-238	1.29	0.677	0.557	pCi/L	J
CWC200936	CWC004	04/10/18	Alpha Spectroscopy	Th-228	0	0	0.625	pCi/L	U
CWC200936	CWC004	04/10/18	Alpha Spectroscopy	Th-230	0.0505	0.139	0.358	pCi/L	UJ
CWC200936	CWC004	04/10/18	Alpha Spectroscopy	Th-232	0.0336	0.143	0.43	pCi/L	UJ
CWC200936	CWC004	04/10/18	Alpha Spectroscopy	R-226	0	0	1.17	pCi/L	U
CWC200936	CWC004	04/10/18	Alpha Spectroscopy	U-235	0.0469	0.199	0.599	pCi/L	UJ
CWC200938	CWC005	04/10/18	Metals	Barium	130		0.9	µg/L	=
CWC200938	CWC005	04/10/18	Metals	Molybdenum	9.1		2	µg/L	=
CWC200938	CWC005	04/10/18	Metals	Nickel	2.3		2	µg/L	=
CWC200938	CWC005	04/10/18	Metals	Selenium	3		2	µg/L	=
CWC200938	CWC005	04/10/18	Metals	Antimony	2		2	µg/L	U
CWC200938	CWC005	04/10/18	Metals	Arsenic	4		4	µg/L	U
CWC200938	CWC005	04/10/18	Metals	Cadmium	0.2		0.2	µg/L	U
CWC200938	CWC005	04/10/18	Metals	Chromium	4		4	µg/L	U
CWC200938	CWC005	04/10/18	Metals	Thallium	0.9		0.9	µg/L	U
CWC200938	CWC005	04/10/18	Metals	Vanadium	4		4	µg/L	U
CWC200938	CWC005	04/10/18	Alpha Spectroscopy	Th-230	0.564	0.43	0.519	pCi/L	J
CWC200938	CWC005	04/10/18	Alpha Spectroscopy	U-234	1.01	0.79	0.933	pCi/L	J
CWC200938	CWC005	04/10/18	Alpha Spectroscopy	U-238	1.64	1.01	0.929	pCi/L	J
CWC200938	CWC005	04/10/18	Alpha Spectroscopy	Th-228	0.422	0.384	0.557	pCi/L	UJ
CWC200938	CWC005	04/10/18	Alpha Spectroscopy	Th-232	0.158	0.252	0.507	pCi/L	UJ
CWC200938	CWC005	04/10/18	Alpha Spectroscopy	R-226	1.08	1.03	1.91	pCi/L	UJ
CWC200938	CWC005	04/10/18	Alpha Spectroscopy	U-235	0.156	0.443	1.15	pCi/L	UJ
CWC200940	CWC006	04/10/18	Metals	Barium	130		0.9	µg/L	=

Table D-1. CWC Surface-Water Data for CY 2018

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Error	DL	Units	VQ
CWC200940	CWC006	04/10/18	Metals	Molybdenum	7.7		2	µg/L	=
CWC200940	CWC006	04/10/18	Metals	Nickel	2.3		2	µg/L	=
CWC200940	CWC006	04/10/18	Metals	Selenium	3.7		2	µg/L	=
CWC200940	CWC006	04/10/18	Metals	Antimony	2		2	µg/L	U
CWC200940	CWC006	04/10/18	Metals	Arsenic	4		4	µg/L	U
CWC200940	CWC006	04/10/18	Metals	Cadmium	0.2		0.2	µg/L	U
CWC200940	CWC006	04/10/18	Metals	Chromium	4		4	µg/L	U
CWC200940	CWC006	04/10/18	Metals	Thallium	0.9		0.9	µg/L	U
CWC200940	CWC006	04/10/18	Metals	Vanadium	4		4	µg/L	U
CWC200940	CWC006	04/10/18	Alpha Spectroscopy	U-234	0.721	0.521	0.589	pCi/L	J
CWC200940	CWC006	04/10/18	Alpha Spectroscopy	U-238	0.757	0.524	0.509	pCi/L	J
CWC200940	CWC006	04/10/18	Alpha Spectroscopy	Th-228	0.125	0.227	0.496	pCi/L	UJ
CWC200940	CWC006	04/10/18	Alpha Spectroscopy	Th-230	0.11	0.181	0.334	pCi/L	UJ
CWC200940	CWC006	04/10/18	Alpha Spectroscopy	Th-232	0	0.177	0.461	pCi/L	UJ
CWC200940	CWC006	04/10/18	Alpha Spectroscopy	R-226	0.209	0.495	1.21	pCi/L	UJ
CWC200940	CWC006	04/10/18	Alpha Spectroscopy	U-235	0.0741	0.204	0.524	pCi/L	UJ
CWC200942	CWC007	04/09/18	Metals	Barium	130		0.9	µg/L	=
CWC200942	CWC007	04/09/18	Metals	Molybdenum	8.5		2	µg/L	=
CWC200942	CWC007	04/09/18	Metals	Nickel	2.2		2	µg/L	=
CWC200942	CWC007	04/09/18	Metals	Selenium	3.9		2	µg/L	=
CWC200942	CWC007	04/09/18	Metals	Antimony	2		2	µg/L	U
CWC200942	CWC007	04/09/18	Metals	Arsenic	4		4	µg/L	U
CWC200942	CWC007	04/09/18	Metals	Cadmium	0.2		0.2	µg/L	U
CWC200942	CWC007	04/09/18	Metals	Chromium	4		4	µg/L	U
CWC200942	CWC007	04/09/18	Metals	Thallium	0.9		0.9	µg/L	U
CWC200942	CWC007	04/09/18	Metals	Vanadium	4		4	µg/L	U
CWC200942	CWC007	04/09/18	Alpha Spectroscopy	U-234	1.02	0.581	0.394	pCi/L	J
CWC200942	CWC007	04/09/18	Alpha Spectroscopy	U-238	1.07	0.601	0.472	pCi/L	J
CWC200942	CWC007	04/09/18	Alpha Spectroscopy	Th-228	0.0859	0.255	0.659	pCi/L	UJ
CWC200942	CWC007	04/09/18	Alpha Spectroscopy	Th-230	0	0.154	0.544	pCi/L	UJ
CWC200942	CWC007	04/09/18	Alpha Spectroscopy	Th-232	0.103	0.201	0.439	pCi/L	UJ
CWC200942	CWC007	04/09/18	Alpha Spectroscopy	R-226	0	0	1.5	pCi/L	U
CWC200942	CWC007	04/09/18	Alpha Spectroscopy	U-235	0	0.259	0.674	pCi/L	UJ
CWC200944	CWC008	04/09/18	Metals	Barium	130		0.9	µg/L	=
CWC200944	CWC008	04/09/18	Metals	Molybdenum	8.1		2	µg/L	=

Table D-1. CWC Surface-Water Data for CY 2018

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Error	DL	Units	VQ
CWC200944	CWC008	04/09/18	Metals	Nickel	2		2	µg/L	=
CWC200944	CWC008	04/09/18	Metals	Selenium	3.5		2	µg/L	=
CWC200944	CWC008	04/09/18	Metals	Antimony	2		2	µg/L	U
CWC200944	CWC008	04/09/18	Metals	Arsenic	4		4	µg/L	U
CWC200944	CWC008	04/09/18	Metals	Cadmium	0.2		0.2	µg/L	U
CWC200944	CWC008	04/09/18	Metals	Chromium	4		4	µg/L	U
CWC200944	CWC008	04/09/18	Metals	Thallium	0.9		0.9	µg/L	U
CWC200944	CWC008	04/09/18	Metals	Vanadium	4		4	µg/L	U
CWC200944	CWC008	04/09/18	Alpha Spectroscopy	Th-230	0.689	0.437	0.341	pCi/L	J
CWC200944	CWC008	04/09/18	Alpha Spectroscopy	U-234	1.26	0.723	0.486	pCi/L	J
CWC200944	CWC008	04/09/18	Alpha Spectroscopy	U-238	1.18	0.715	0.671	pCi/L	J
CWC200944	CWC008	04/09/18	Alpha Spectroscopy	Th-228	0.176	0.225	0.34	pCi/L	UJ
CWC200944	CWC008	04/09/18	Alpha Spectroscopy	Th-232	0.064	0.181	0.471	pCi/L	UJ
CWC200944	CWC008	04/09/18	Alpha Spectroscopy	R-226	0	0	1.48	pCi/L	U
CWC200944	CWC008	04/09/18	Alpha Spectroscopy	U-235	0	0.319	0.831	pCi/L	UJ
CWC200946	CWC009	04/09/18	Metals	Barium	120		0.9	µg/L	=
CWC200946	CWC009	04/09/18	Metals	Molybdenum	7.7		2	µg/L	=
CWC200946	CWC009	04/09/18	Metals	Nickel	2.1		2	µg/L	=
CWC200946	CWC009	04/09/18	Metals	Selenium	4		2	µg/L	=
CWC200946	CWC009	04/09/18	Metals	Antimony	2		2	µg/L	U
CWC200946	CWC009	04/09/18	Metals	Arsenic	4		4	µg/L	U
CWC200946	CWC009	04/09/18	Metals	Cadmium	0.2		0.2	µg/L	U
CWC200946	CWC009	04/09/18	Metals	Chromium	4		4	µg/L	U
CWC200946	CWC009	04/09/18	Metals	Thallium	0.9		0.9	µg/L	U
CWC200946	CWC009	04/09/18	Metals	Vanadium	4		4	µg/L	U
CWC200946	CWC009	04/09/18	Alpha Spectroscopy	U-234	0.776	0.531	0.571	pCi/L	J
CWC200946	CWC009	04/09/18	Alpha Spectroscopy	U-238	0.444	0.388	0.41	pCi/L	J
CWC200946	CWC009	04/09/18	Alpha Spectroscopy	Th-228	0.194	0.268	0.512	pCi/L	UJ
CWC200946	CWC009	04/09/18	Alpha Spectroscopy	Th-230	0.324	0.321	0.477	pCi/L	UJ
CWC200946	CWC009	04/09/18	Alpha Spectroscopy	Th-232	0	0.183	0.477	pCi/L	UJ
CWC200946	CWC009	04/09/18	Alpha Spectroscopy	R-226	0	0	1.47	pCi/L	U
CWC200946	CWC009	04/09/18	Alpha Spectroscopy	U-235	0.168	0.276	0.508	pCi/L	UJ
CWC207421	CWC002	10/09/18	Metals	Barium	95		0.9	µg/L	=
CWC207421	CWC002	10/09/18	Metals	Molybdenum	18		2	µg/L	=
CWC207421	CWC002	10/09/18	Metals	Selenium	2.2		2	µg/L	J

Table D-1. CWC Surface-Water Data for CY 2018

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Error	DL	Units	VQ
CWC207421	CWC002	10/09/18	Metals	Nickel	2.5		2	µg/L	J
CWC207421	CWC002	10/09/18	Metals	Antimony	2		2	µg/L	U
CWC207421	CWC002	10/09/18	Metals	Cadmium	0.2		0.2	µg/L	U
CWC207421	CWC002	10/09/18	Metals	Chromium	4		4	µg/L	U
CWC207421	CWC002	10/09/18	Metals	Thallium	0.9		0.9	µg/L	U
CWC207421	CWC002	10/09/18	Metals	Vanadium	4		4	µg/L	U
CWC207421	CWC002	10/09/18	Metals	Arsenic	4		4	µg/L	U
CWC207421	CWC002	10/09/18	Alpha Spectroscopy	Th-230	0.453	0.355	0.294	pCi/L	J
CWC207421	CWC002	10/09/18	Alpha Spectroscopy	U-238	0.445	0.335	0.335	pCi/L	J
CWC207421	CWC002	10/09/18	Alpha Spectroscopy	Th-228	0.148	0.233	0.46	pCi/L	UJ
CWC207421	CWC002	10/09/18	Alpha Spectroscopy	Th-232	-0.0247	0.135	0.377	pCi/L	UJ
CWC207421	CWC002	10/09/18	Alpha Spectroscopy	R-226	0.596	0.806	1.59	pCi/L	UJ
CWC207421	CWC002	10/09/18	Alpha Spectroscopy	U-234	0.264	0.266	0.364	pCi/L	UJ
CWC207421	CWC002	10/09/18	Alpha Spectroscopy	U-235	0.0633	0.146	0.322	pCi/L	UJ
CWC207423	CWC003	10/09/18	Metals	Barium	110		0.9	µg/L	=
CWC207423	CWC003	10/09/18	Metals	Molybdenum	17		2	µg/L	=
CWC207423	CWC003	10/09/18	Metals	Selenium	2.5		2	µg/L	J
CWC207423	CWC003	10/09/18	Metals	Nickel	2.2		2	µg/L	J
CWC207423	CWC003	10/09/18	Metals	Antimony	2		2	µg/L	U
CWC207423	CWC003	10/09/18	Metals	Cadmium	0.2		0.2	µg/L	U
CWC207423	CWC003	10/09/18	Metals	Chromium	4		4	µg/L	U
CWC207423	CWC003	10/09/18	Metals	Thallium	0.9		0.9	µg/L	U
CWC207423	CWC003	10/09/18	Metals	Vanadium	4		4	µg/L	U
CWC207423	CWC003	10/09/18	Metals	Arsenic	4		4	µg/L	U
CWC207423	CWC003	10/09/18	Alpha Spectroscopy	U-234	0.68	0.443	0.307	pCi/L	J
CWC207423	CWC003	10/09/18	Alpha Spectroscopy	U-238	0.583	0.419	0.425	pCi/L	J
CWC207423	CWC003	10/09/18	Alpha Spectroscopy	Th-228	0.16	0.238	0.479	pCi/L	UJ
CWC207423	CWC003	10/09/18	Alpha Spectroscopy	Th-230	0.262	0.264	0.361	pCi/L	UJ
CWC207423	CWC003	10/09/18	Alpha Spectroscopy	Th-232	0.0436	0.118	0.301	pCi/L	UJ
CWC207423	CWC003	10/09/18	Alpha Spectroscopy	R-226	0.0773	0.319	0.959	pCi/L	UJ
CWC207423	CWC003	10/09/18	Alpha Spectroscopy	U-235	0	0	0.23	pCi/L	U
CWC207425	CWC004	10/09/18	Metals	Barium	100		0.9	µg/L	=
CWC207425	CWC004	10/09/18	Metals	Molybdenum	16		2	µg/L	=
CWC207425	CWC004	10/09/18	Metals	Selenium	2.4		2	µg/L	J
CWC207425	CWC004	10/09/18	Metals	Nickel	2.8		2	µg/L	J

Table D-1. CWC Surface-Water Data for CY 2018

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Error	DL	Units	VQ
CWC207425	CWC004	10/09/18	Metals	Antimony	2		2	µg/L	U
CWC207425	CWC004	10/09/18	Metals	Cadmium	0.2		0.2	µg/L	U
CWC207425	CWC004	10/09/18	Metals	Chromium	4		4	µg/L	U
CWC207425	CWC004	10/09/18	Metals	Thallium	0.9		0.9	µg/L	U
CWC207425	CWC004	10/09/18	Metals	Vanadium	4		4	µg/L	U
CWC207425	CWC004	10/09/18	Metals	Arsenic	4		4	µg/L	U
CWC207425	CWC004	10/09/18	Alpha Spectroscopy	U-234	0.61	0.402	0.324	pCi/L	J
CWC207425	CWC004	10/09/18	Alpha Spectroscopy	U-238	0.304	0.281	0.277	pCi/L	J
CWC207425	CWC004	10/09/18	Alpha Spectroscopy	Th-228	0.169	0.238	0.419	pCi/L	UJ
CWC207425	CWC004	10/09/18	Alpha Spectroscopy	Th-230	0.102	0.195	0.42	pCi/L	UJ
CWC207425	CWC004	10/09/18	Alpha Spectroscopy	Th-232	0.0423	0.139	0.388	pCi/L	UJ
CWC207425	CWC004	10/09/18	Alpha Spectroscopy	R-226	0.0403	0.337	1.12	pCi/L	UJ
CWC207425	CWC004	10/09/18	Alpha Spectroscopy	U-235	0	0	0.209	pCi/L	U
CWC207427	CWC005	10/09/18	Metals	Barium	98		0.9	µg/L	=
CWC207427	CWC005	10/09/18	Metals	Molybdenum	15		2	µg/L	=
CWC207427	CWC005	10/09/18	Metals	Selenium	2.2		2	µg/L	J
CWC207427	CWC005	10/09/18	Metals	Nickel	2.7		2	µg/L	J
CWC207427	CWC005	10/09/18	Metals	Antimony	2		2	µg/L	U
CWC207427	CWC005	10/09/18	Metals	Cadmium	0.2		0.2	µg/L	U
CWC207427	CWC005	10/09/18	Metals	Chromium	4		4	µg/L	U
CWC207427	CWC005	10/09/18	Metals	Thallium	0.9		0.9	µg/L	U
CWC207427	CWC005	10/09/18	Metals	Vanadium	4		4	µg/L	U
CWC207427	CWC005	10/09/18	Metals	Arsenic	4		4	µg/L	U
CWC207427	CWC005	10/09/18	Alpha Spectroscopy	U-238	0.778	0.537	0.391	pCi/L	J
CWC207427	CWC005	10/09/18	Alpha Spectroscopy	Th-228	0.0592	0.173	0.452	pCi/L	UJ
CWC207427	CWC005	10/09/18	Alpha Spectroscopy	Th-230	0.163	0.207	0.307	pCi/L	UJ
CWC207427	CWC005	10/09/18	Alpha Spectroscopy	Th-232	0.037	0.121	0.339	pCi/L	UJ
CWC207427	CWC005	10/09/18	Alpha Spectroscopy	R-226	0	0	1.09	pCi/L	U
CWC207427	CWC005	10/09/18	Alpha Spectroscopy	U-234	0.562	0.475	0.582	pCi/L	UJ
CWC207427	CWC005	10/09/18	Alpha Spectroscopy	U-235	0.312	0.38	0.484	pCi/L	UJ
CWC207429	CWC006	10/09/18	Metals	Barium	92		0.9	µg/L	=
CWC207429	CWC006	10/09/18	Metals	Molybdenum	13		2	µg/L	=
CWC207429	CWC006	10/09/18	Metals	Nickel	11		2	µg/L	J
CWC207429	CWC006	10/09/18	Metals	Selenium	2.5		2	µg/L	J
CWC207429	CWC006	10/09/18	Metals	Vanadium	4.2		4	µg/L	=

Table D-1. CWC Surface-Water Data for CY 2018

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Error	DL	Units	VQ
CWC207429	CWC006	10/09/18	Metals	Antimony	2		2	µg/L	U
CWC207429	CWC006	10/09/18	Metals	Cadmium	0.2		0.2	µg/L	U
CWC207429	CWC006	10/09/18	Metals	Chromium	4		4	µg/L	U
CWC207429	CWC006	10/09/18	Metals	Thallium	0.9		0.9	µg/L	U
CWC207429	CWC006	10/09/18	Metals	Arsenic	4		4	µg/L	U
CWC207429	CWC006	10/09/18	Alpha Spectroscopy	Th-230	0.41	0.339	0.391	pCi/L	J
CWC207429	CWC006	10/09/18	Alpha Spectroscopy	U-234	0.347	0.321	0.317	pCi/L	J
CWC207429	CWC006	10/09/18	Alpha Spectroscopy	Th-228	0.197	0.257	0.461	pCi/L	UJ
CWC207429	CWC006	10/09/18	Alpha Spectroscopy	Th-232	0.244	0.254	0.28	pCi/L	UJ
CWC207429	CWC006	10/09/18	Alpha Spectroscopy	R-226	0	0	0.331	pCi/L	U
CWC207429	CWC006	10/09/18	Alpha Spectroscopy	U-235	0	0	0.238	pCi/L	U
CWC207429	CWC006	10/09/18	Alpha Spectroscopy	U-238	0.266	0.286	0.367	pCi/L	UJ
CWC207431	CWC007	10/09/18	Metals	Barium	78		0.9	µg/L	=
CWC207431	CWC007	10/09/18	Metals	Molybdenum	8.8		2	µg/L	=
CWC207431	CWC007	10/09/18	Metals	Nickel	2.6		2	µg/L	J
CWC207431	CWC007	10/09/18	Metals	Antimony	2		2	µg/L	U
CWC207431	CWC007	10/09/18	Metals	Cadmium	0.2		0.2	µg/L	U
CWC207431	CWC007	10/09/18	Metals	Chromium	4		4	µg/L	U
CWC207431	CWC007	10/09/18	Metals	Selenium	2		2	µg/L	U
CWC207431	CWC007	10/09/18	Metals	Thallium	0.9		0.9	µg/L	U
CWC207431	CWC007	10/09/18	Metals	Vanadium	4		4	µg/L	U
CWC207431	CWC007	10/09/18	Metals	Arsenic	4		4	µg/L	U
CWC207431	CWC007	10/09/18	Alpha Spectroscopy	Th-228	0.176	0.295	0.646	pCi/L	UJ
CWC207431	CWC007	10/09/18	Alpha Spectroscopy	Th-230	0.288	0.291	0.397	pCi/L	UJ
CWC207431	CWC007	10/09/18	Alpha Spectroscopy	Th-232	-0.024	0.131	0.366	pCi/L	UJ
CWC207431	CWC007	10/09/18	Alpha Spectroscopy	R-226	0.147	0.43	1.13	pCi/L	UJ
CWC207431	CWC007	10/09/18	Alpha Spectroscopy	U-234	0.307	0.292	0.335	pCi/L	UJ
CWC207431	CWC007	10/09/18	Alpha Spectroscopy	U-235	0	0	0.216	pCi/L	U
CWC207431	CWC007	10/09/18	Alpha Spectroscopy	U-238	0.298	0.291	0.369	pCi/L	UJ
CWC207433	CWC008	10/09/18	Metals	Barium	70		0.9	µg/L	=
CWC207433	CWC008	10/09/18	Metals	Molybdenum	6.8		2	µg/L	=
CWC207433	CWC008	10/09/18	Metals	Nickel	2.5		2	µg/L	J
CWC207433	CWC008	10/09/18	Metals	Antimony	2		2	µg/L	U
CWC207433	CWC008	10/09/18	Metals	Cadmium	0.2		0.2	µg/L	U
CWC207433	CWC008	10/09/18	Metals	Chromium	4		4	µg/L	U

Table D-1. CWC Surface-Water Data for CY 2018

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Error	DL	Units	VQ
CWC207433	CWC008	10/09/18	Metals	Selenium	2		2	µg/L	U
CWC207433	CWC008	10/09/18	Metals	Thallium	0.9		0.9	µg/L	U
CWC207433	CWC008	10/09/18	Metals	Vanadium	4		4	µg/L	U
CWC207433	CWC008	10/09/18	Metals	Arsenic	4		4	µg/L	U
CWC207433	CWC008	10/09/18	Alpha Spectroscopy	Th-228	0.371	0.307	0.354	pCi/L	J
CWC207433	CWC008	10/09/18	Alpha Spectroscopy	Th-230	0.222	0.231	0.255	pCi/L	UJ
CWC207433	CWC008	10/09/18	Alpha Spectroscopy	Th-232	-0.0357	0.119	0.377	pCi/L	UJ
CWC207433	CWC008	10/09/18	Alpha Spectroscopy	R-226	0	0	1.21	pCi/L	U
CWC207433	CWC008	10/09/18	Alpha Spectroscopy	U-234	0.224	0.272	0.347	pCi/L	UJ
CWC207433	CWC008	10/09/18	Alpha Spectroscopy	U-235	0.0841	0.194	0.428	pCi/L	UJ
CWC207433	CWC008	10/09/18	Alpha Spectroscopy	U-238	0	0	0.721	pCi/L	U
CWC207435	CWC009	10/09/18	Metals	Barium	61		0.9	µg/L	=
CWC207435	CWC009	10/09/18	Metals	Nickel	5.3		2	µg/L	J
CWC207435	CWC009	10/09/18	Metals	Molybdenum	4.5		2	µg/L	=
CWC207435	CWC009	10/09/18	Metals	Vanadium	4.4		4	µg/L	=
CWC207435	CWC009	10/09/18	Metals	Antimony	2		2	µg/L	U
CWC207435	CWC009	10/09/18	Metals	Cadmium	0.2		0.2	µg/L	U
CWC207435	CWC009	10/09/18	Metals	Chromium	4		4	µg/L	U
CWC207435	CWC009	10/09/18	Metals	Selenium	2		2	µg/L	U
CWC207435	CWC009	10/09/18	Metals	Thallium	0.9		0.9	µg/L	U
CWC207435	CWC009	10/09/18	Metals	Arsenic	4		4	µg/L	U
CWC207435	CWC009	10/09/18	Alpha Spectroscopy	U-234	0.412	0.356	0.371	pCi/L	J
CWC207435	CWC009	10/09/18	Alpha Spectroscopy	Th-228	0.241	0.293	0.527	pCi/L	UJ
CWC207435	CWC009	10/09/18	Alpha Spectroscopy	Th-230	0.225	0.261	0.398	pCi/L	UJ
CWC207435	CWC009	10/09/18	Alpha Spectroscopy	Th-232	0.016	0.134	0.447	pCi/L	UJ
CWC207435	CWC009	10/09/18	Alpha Spectroscopy	R-226	0.0179	0.301	1.05	pCi/L	UJ
CWC207435	CWC009	10/09/18	Alpha Spectroscopy	U-235	0	0	0.822	pCi/L	U
CWC207435	CWC009	10/09/18	Alpha Spectroscopy	U-238	0.187	0.25	0.409	pCi/L	UJ

VQs:

= - Indicates that the data met all QA/QC requirements, and that the parameter has been positively identified and the associated concentration value is accurate.

J - Indicates that the parameter was positively identified; the associated numerical value is the approximate concentration of the parameter in the sample.

U - Indicates that the data met all QA/QC requirements, and that the parameter was analyzed for but was not detected above the reported sample quantitation limit.

UJ - Indicates that the parameter was not detected above the reported sample quantitation limit and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample. However, the reported quantitation limit is approximate.

Table D-2. CWC Sediment Data for CY 2018

Sample Name	Station Name	Collection Date	Method	Analyte	Result	DL	Units	VQ	Validation Reason Code
CWC200931	CWC002	04/10/18	Metals	Arsenic	3.6	0.46	mg/kg	=	
CWC200931	CWC002	04/10/18	Metals	Cadmium	0.24	0.028	mg/kg	=	
CWC200931	CWC002	04/10/18	Metals	Chromium	8.2	0.52	mg/kg	=	
CWC200931	CWC002	04/10/18	Metals	Molybdenum	0.63	0.23	mg/kg	=	
CWC200931	CWC002	04/10/18	Metals	Nickel	8.3	0.23	mg/kg	=	
CWC200931	CWC002	04/10/18	Metals	Selenium	1.1	0.37	mg/kg	=	
CWC200931	CWC002	04/10/18	Metals	Vanadium	11	0.46	mg/kg	=	
CWC200931	CWC002	04/10/18	Metals	Barium	110	0.57	mg/kg	J	H01, H02, H04
CWC200931	CWC002	04/10/18	Metals	Antimony	0.23	0.23	mg/kg	U	
CWC200931	CWC002	04/10/18	Metals	Thallium	0.23	0.23	mg/kg	U	
CWC200931	CWC002	04/10/18	Alpha Spectroscopy	Th-228	0.324	0.244	pCi/g	J	T04, T20
CWC200931	CWC002	04/10/18	Alpha Spectroscopy	Th-230	0.648	0.217	pCi/g	J	T04, T20
CWC200931	CWC002	04/10/18	Alpha Spectroscopy	Th-232	0.101	0.156	pCi/g	UJ	T06
CWC200931	CWC002	04/10/18	Gamma Spectroscopy	K-40	10.2	0.222	pCi/g	=	
CWC200931	CWC002	04/10/18	Gamma Spectroscopy	R-226	0.976	0.0554	pCi/g	=	
CWC200931	CWC002	04/10/18	Gamma Spectroscopy	R-228	0.34	0.0558	pCi/g	=	
CWC200931	CWC002	04/10/18	Gamma Spectroscopy	Th-228	0.34	0.0558	pCi/g	=	
CWC200931	CWC002	04/10/18	Gamma Spectroscopy	Th-232	0.34	0.0558	pCi/g	=	
CWC200931	CWC002	04/10/18	Gamma Spectroscopy	U-238	0.632	0.436	pCi/g	=	
CWC200931	CWC002	04/10/18	Gamma Spectroscopy	Ac-227	-0.29	0.125	pCi/g	UJ	T04, T06, T07
CWC200931	CWC002	04/10/18	Gamma Spectroscopy	Am241	-0.0199	0.0375	pCi/g	UJ	T04, T06
CWC200931	CWC002	04/10/18	Gamma Spectroscopy	Cs-137	0.00408	0.023	pCi/g	UJ	T04, T06
CWC200931	CWC002	04/10/18	Gamma Spectroscopy	Pa-231	-0.138	0.824	pCi/g	UJ	T04, T06
CWC200931	CWC002	04/10/18	Gamma Spectroscopy	Th-230	1.1	3.77	pCi/g	UJ	T04, T06
CWC200931	CWC002	04/10/18	Gamma Spectroscopy	U-235	0.0829	0.272	pCi/g	UJ	T04, T06
CWC200933	CWC003	04/10/18	Metals	Arsenic	5.3	0.59	mg/kg	=	
CWC200933	CWC003	04/10/18	Metals	Barium	140	0.73	mg/kg	=	
CWC200933	CWC003	04/10/18	Metals	Cadmium	0.48	0.035	mg/kg	J	Q02
CWC200933	CWC003	04/10/18	Metals	Chromium	26	0.66	mg/kg	=	
CWC200933	CWC003	04/10/18	Metals	Molybdenum	1.5	0.29	mg/kg	=	
CWC200933	CWC003	04/10/18	Metals	Nickel	14	0.29	mg/kg	J	Q02
CWC200933	CWC003	04/10/18	Metals	Selenium	2	0.47	mg/kg	=	
CWC200933	CWC003	04/10/18	Metals	Vanadium	15	0.59	mg/kg	=	
CWC200933	CWC003	04/10/18	Metals	Antimony	0.36	0.29	mg/kg	J	Q02

Table D-2. CWC Sediment Data for CY 2018

Sample Name	Station Name	Collection Date	Method	Analyte	Result	DL	Units	VQ	Validation Reason Code
CWC200933	CWC003	04/10/18	Metals	Thallium	0.29	0.29	mg/kg	U	
CWC200933	CWC003	04/10/18	Alpha Spectroscopy	Th-228	1.14	0.239	pCi/g	=	
CWC200933	CWC003	04/10/18	Alpha Spectroscopy	Th-230	2.7	0.156	pCi/g	=	
CWC200933	CWC003	04/10/18	Alpha Spectroscopy	Th-232	0.954	0.156	pCi/g	=	
CWC200933	CWC003	04/10/18	Gamma Spectroscopy	Ac-227	0.233	0.1	pCi/g	=	
CWC200933	CWC003	04/10/18	Gamma Spectroscopy	K-40	12.5	0.207	pCi/g	=	
CWC200933	CWC003	04/10/18	Gamma Spectroscopy	R-226	1.04	0.0534	pCi/g	=	
CWC200933	CWC003	04/10/18	Gamma Spectroscopy	R-228	0.655	0.0467	pCi/g	=	
CWC200933	CWC003	04/10/18	Gamma Spectroscopy	Th-228	0.655	0.0467	pCi/g	=	
CWC200933	CWC003	04/10/18	Gamma Spectroscopy	Th-232	0.655	0.0467	pCi/g	=	
CWC200933	CWC003	04/10/18	Gamma Spectroscopy	U-238	0.744	0.5	pCi/g	=	
CWC200933	CWC003	04/10/18	Gamma Spectroscopy	Am241	0.00104	0.0417	pCi/g	UJ	T04, T06
CWC200933	CWC003	04/10/18	Gamma Spectroscopy	Cs-137	-0.00476	0.0194	pCi/g	UJ	T04, T06
CWC200933	CWC003	04/10/18	Gamma Spectroscopy	Pa-231	0.207	0.795	pCi/g	UJ	T04, T06
CWC200933	CWC003	04/10/18	Gamma Spectroscopy	Th-230	5.27	4.31	pCi/g	UJ	T04
CWC200933	CWC003	04/10/18	Gamma Spectroscopy	U-235	0.114	0.261	pCi/g	UJ	T04, T06
CWC200935	CWC004	04/10/18	Metals	Arsenic	4.7	0.54	mg/kg	=	
CWC200935	CWC004	04/10/18	Metals	Barium	130	0.67	mg/kg	=	
CWC200935	CWC004	04/10/18	Metals	Cadmium	0.32	0.032	mg/kg	=	
CWC200935	CWC004	04/10/18	Metals	Chromium	12	0.61	mg/kg	=	
CWC200935	CWC004	04/10/18	Metals	Nickel	13	0.27	mg/kg	=	
CWC200935	CWC004	04/10/18	Metals	Selenium	1.6	0.43	mg/kg	=	
CWC200935	CWC004	04/10/18	Metals	Vanadium	16	0.54	mg/kg	=	
CWC200935	CWC004	04/10/18	Metals	Molybdenum	0.56	0.27	mg/kg	=	
CWC200935	CWC004	04/10/18	Metals	Antimony	0.27	0.27	mg/kg	U	
CWC200935	CWC004	04/10/18	Metals	Thallium	0.27	0.27	mg/kg	U	
CWC200935	CWC004	04/10/18	Alpha Spectroscopy	Th-228	0.915	0.198	pCi/g	=	
CWC200935	CWC004	04/10/18	Alpha Spectroscopy	Th-230	1.83	0.12	pCi/g	=	
CWC200935	CWC004	04/10/18	Alpha Spectroscopy	Th-232	0.857	0.12	pCi/g	=	
CWC200935	CWC004	04/10/18	Gamma Spectroscopy	K-40	13.2	0.195	pCi/g	=	
CWC200935	CWC004	04/10/18	Gamma Spectroscopy	R-226	1.17	0.0563	pCi/g	=	
CWC200935	CWC004	04/10/18	Gamma Spectroscopy	R-228	0.711	0.0519	pCi/g	=	
CWC200935	CWC004	04/10/18	Gamma Spectroscopy	Th-228	0.711	0.0519	pCi/g	=	
CWC200935	CWC004	04/10/18	Gamma Spectroscopy	Th-232	0.711	0.0519	pCi/g	=	

Table D-2. CWC Sediment Data for CY 2018

Sample Name	Station Name	Collection Date	Method	Analyte	Result	DL	Units	VQ	Validation Reason Code
CWC200935	CWC004	04/10/18	Gamma Spectroscopy	U-238	0.818	0.514	pCi/g	=	
CWC200935	CWC004	04/10/18	Gamma Spectroscopy	Ac-227	-0.678	0.142	pCi/g	UJ	T04, T06, T07
CWC200935	CWC004	04/10/18	Gamma Spectroscopy	Am241	0.0104	0.0567	pCi/g	UJ	T04, T06
CWC200935	CWC004	04/10/18	Gamma Spectroscopy	Cs-137	0.00174	0.0201	pCi/g	UJ	T04, T06
CWC200935	CWC004	04/10/18	Gamma Spectroscopy	Pa-231	0.0346	0.845	pCi/g	UJ	T04, T06
CWC200935	CWC004	04/10/18	Gamma Spectroscopy	Th-230	0.544	5.08	pCi/g	UJ	T04, T06
CWC200935	CWC004	04/10/18	Gamma Spec	U-235	0.0799	0.292	pCi/g	UJ	T04, T06
CWC200937	CWC005	04/10/18	Metals	Arsenic	10	0.53	mg/kg	=	
CWC200937	CWC005	04/10/18	Metals	Barium	210	0.67	mg/kg	=	
CWC200937	CWC005	04/10/18	Metals	Cadmium	0.42	0.032	mg/kg	=	
CWC200937	CWC005	04/10/18	Metals	Chromium	16	0.6	mg/kg	=	
CWC200937	CWC005	04/10/18	Metals	Nickel	19	0.27	mg/kg	=	
CWC200937	CWC005	04/10/18	Metals	Selenium	2.2	0.43	mg/kg	=	
CWC200937	CWC005	04/10/18	Metals	Vanadium	30	0.53	mg/kg	=	
CWC200937	CWC005	04/10/18	Metals	Antimony	0.28	0.27	mg/kg	=	
CWC200937	CWC005	04/10/18	Metals	Molybdenum	0.62	0.27	mg/kg	=	
CWC200937	CWC005	04/10/18	Metals	Thallium	0.27	0.27	mg/kg	U	
CWC200937	CWC005	04/10/18	Alpha Spectroscopy	Th-228	1.24	0.17	pCi/g	=	
CWC200937	CWC005	04/10/18	Alpha Spectroscopy	Th-230	1.61	0.218	pCi/g	J	F01
CWC200937	CWC005	04/10/18	Alpha Spectroscopy	Th-232	1.1	0.218	pCi/g	=	
CWC200937	CWC005	04/10/18	Gamma Spectroscopy	K-40	14.7	0.466	pCi/g	=	
CWC200937	CWC005	04/10/18	Gamma Spectroscopy	R-226	1.78	0.0954	pCi/g	=	
CWC200937	CWC005	04/10/18	Gamma Spectroscopy	R-228	0.918	0.0949	pCi/g	=	
CWC200937	CWC005	04/10/18	Gamma Spectroscopy	Th-228	0.918	0.0949	pCi/g	=	
CWC200937	CWC005	04/10/18	Gamma Spectroscopy	Th-232	0.918	0.0949	pCi/g	=	
CWC200937	CWC005	04/10/18	Gamma Spectroscopy	U-238	1	0.448	pCi/g	=	
CWC200937	CWC005	04/10/18	Gamma Spectroscopy	Ac-227	-0.564	0.324	pCi/g	UJ	T04, T06
CWC200937	CWC005	04/10/18	Gamma Spectroscopy	Am241	-0.0399	0.08	pCi/g	UJ	T04, T06
CWC200937	CWC005	04/10/18	Gamma Spectroscopy	Cs-137	-0.00156	0.0421	pCi/g	UJ	T04, T06
CWC200937	CWC005	04/10/18	Gamma Spectroscopy	Pa-231	0.137	1.47	pCi/g	UJ	T04, T06
CWC200937	CWC005	04/10/18	Gamma Spectroscopy	Th-230	0.207	7.61	pCi/g	UJ	T04, T06
CWC200937	CWC005	04/10/18	Gamma Spectroscopy	U-235	0.0529	0.459	pCi/g	UJ	T04, T06
CWC200939	CWC006	04/10/18	Metals	Arsenic	5.8	0.61	mg/kg	=	
CWC200939	CWC006	04/10/18	Metals	Barium	150	0.76	mg/kg	=	

Table D-2. CWC Sediment Data for CY 2018

Sample Name	Station Name	Collection Date	Method	Analyte	Result	DL	Units	VQ	Validation Reason Code
CWC200939	CWC006	04/10/18	Metals	Cadmium	0.51	0.036	mg/kg	=	
CWC200939	CWC006	04/10/18	Metals	Chromium	20	0.68	mg/kg	=	
CWC200939	CWC006	04/10/18	Metals	Molybdenum	0.9	0.3	mg/kg	=	
CWC200939	CWC006	04/10/18	Metals	Nickel	23	0.3	mg/kg	=	
CWC200939	CWC006	04/10/18	Metals	Selenium	1.9	0.49	mg/kg	=	
CWC200939	CWC006	04/10/18	Metals	Vanadium	19	0.61	mg/kg	=	
CWC200939	CWC006	04/10/18	Metals	Antimony	0.31	0.3	mg/kg	=	
CWC200939	CWC006	04/10/18	Metals	Thallium	0.3	0.3	mg/kg	U	
CWC200939	CWC006	04/10/18	Alpha Spectroscopy	Th-228	1.11	0.219	pCi/g	=	
CWC200939	CWC006	04/10/18	Alpha Spectroscopy	Th-230	2.71	0.148	pCi/g	=	
CWC200939	CWC006	04/10/18	Alpha Spectroscopy	Th-232	1.06	0.244	pCi/g	=	
CWC200939	CWC006	04/10/18	Gamma Spectroscopy	K-40	14.5	0.243	pCi/g	=	
CWC200939	CWC006	04/10/18	Gamma Spectroscopy	R-226	1.23	0.0656	pCi/g	=	
CWC200939	CWC006	04/10/18	Gamma Spectroscopy	R-228	0.791	0.0567	pCi/g	=	
CWC200939	CWC006	04/10/18	Gamma Spectroscopy	Th-228	0.791	0.0567	pCi/g	=	
CWC200939	CWC006	04/10/18	Gamma Spectroscopy	Th-232	0.791	0.0567	pCi/g	=	
CWC200939	CWC006	04/10/18	Gamma Spectroscopy	U-238	1.01	0.487	pCi/g	=	
CWC200939	CWC006	04/10/18	Gamma Spectroscopy	Ac-227	-1.43	0.14	pCi/g	UJ	T04, T06, T07
CWC200939	CWC006	04/10/18	Gamma Spectroscopy	Am241	0.000333	0.0472	pCi/g	UJ	T04, T06
CWC200939	CWC006	04/10/18	Gamma Spectroscopy	Cs-137	0.00649	0.0245	pCi/g	UJ	T04, T06
CWC200939	CWC006	04/10/18	Gamma Spectroscopy	Pa-231	-0.502	0.876	pCi/g	UJ	T04, T06
CWC200939	CWC006	04/10/18	Gamma Spectroscopy	Th-230	3.94	4.73	pCi/g	UJ	T04, T05
CWC200939	CWC006	04/10/18	Gamma Spectroscopy	U-235	-0.0878	0.282	pCi/g	UJ	T04, T06
CWC200941	CWC007	04/09/18	Metals	Arsenic	6.7	0.54	mg/kg	=	
CWC200941	CWC007	04/09/18	Metals	Barium	200	0.67	mg/kg	=	
CWC200941	CWC007	04/09/18	Metals	Cadmium	1	0.032	mg/kg	=	
CWC200941	CWC007	04/09/18	Metals	Chromium	34	0.61	mg/kg	=	
CWC200941	CWC007	04/09/18	Metals	Molybdenum	1.6	0.27	mg/kg	=	
CWC200941	CWC007	04/09/18	Metals	Nickel	18	0.27	mg/kg	=	
CWC200941	CWC007	04/09/18	Metals	Selenium	1.8	0.43	mg/kg	=	
CWC200941	CWC007	04/09/18	Metals	Vanadium	20	0.54	mg/kg	=	
CWC200941	CWC007	04/09/18	Metals	Antimony	0.45	0.27	mg/kg	=	
CWC200941	CWC007	04/09/18	Metals	Thallium	0.27	0.27	mg/kg	U	
CWC200941	CWC007	04/09/18	Alpha Spectroscopy	Th-228	0.947	0.175	pCi/g	=	

Table D-2. CWC Sediment Data for CY 2018

Sample Name	Station Name	Collection Date	Method	Analyte	Result	DL	Units	VQ	Validation Reason Code
CWC200941	CWC007	04/09/18	Alpha Spectroscopy	Th-230	3.79	0.208	pCi/g	=	
CWC200941	CWC007	04/09/18	Alpha Spectroscopy	Th-232	1.01	0.126	pCi/g	=	
CWC200941	CWC007	04/09/18	Gamma Spectroscopy	K-40	11.6	0.343	pCi/g	=	
CWC200941	CWC007	04/09/18	Gamma Spectroscopy	R-226	1.14	0.0681	pCi/g	=	
CWC200941	CWC007	04/09/18	Gamma Spectroscopy	R-228	0.686	0.0674	pCi/g	=	
CWC200941	CWC007	04/09/18	Gamma Spectroscopy	Th-228	0.686	0.0674	pCi/g	=	
CWC200941	CWC007	04/09/18	Gamma Spectroscopy	Th-232	0.686	0.0674	pCi/g	=	
CWC200941	CWC007	04/09/18	Gamma Spectroscopy	U-238	0.797	0.593	pCi/g	=	
CWC200941	CWC007	04/09/18	Gamma Spectroscopy	Ac-227	-0.725	0.246	pCi/g	UJ	T04, T06, T07
CWC200941	CWC007	04/09/18	Gamma Spectroscopy	Am241	-0.0227	0.0605	pCi/g	UJ	T04, T06
CWC200941	CWC007	04/09/18	Gamma Spectroscopy	Cs-137	0.0194	0.0199	pCi/g	U	T04, T05
CWC200941	CWC007	04/09/18	Gamma Spectroscopy	Pa-231	-0.296	1.1	pCi/g	UJ	T04, T06
CWC200941	CWC007	04/09/18	Gamma Spectroscopy	Th-230	3.04	5.77	pCi/g	UJ	T04, T05
CWC200941	CWC007	04/09/18	Gamma Spectroscopy	U-235	0.0657	0.364	pCi/g	UJ	T04, T06
CWC200943	CWC008	04/09/18	Metals	Arsenic	4.2	0.56	mg/kg	=	
CWC200943	CWC008	04/09/18	Metals	Barium	130	0.7	mg/kg	=	
CWC200943	CWC008	04/09/18	Metals	Cadmium	0.34	0.033	mg/kg	=	
CWC200943	CWC008	04/09/18	Metals	Chromium	15	0.63	mg/kg	=	
CWC200943	CWC008	04/09/18	Metals	Nickel	16	0.28	mg/kg	=	
CWC200943	CWC008	04/09/18	Metals	Selenium	1.9	0.45	mg/kg	=	
CWC200943	CWC008	04/09/18	Metals	Vanadium	17	0.56	mg/kg	=	
CWC200943	CWC008	04/09/18	Metals	Molybdenum	0.44	0.28	mg/kg	=	
CWC200943	CWC008	04/09/18	Metals	Antimony	0.28	0.28	mg/kg	U	
CWC200943	CWC008	04/09/18	Metals	Thallium	0.28	0.28	mg/kg	U	
CWC200943	CWC008	04/09/18	Alpha Spectroscopy	Th-228	1.12	0.25	pCi/g	=	
CWC200943	CWC008	04/09/18	Alpha Spectroscopy	Th-230	2.11	0.16	pCi/g	=	
CWC200943	CWC008	04/09/18	Alpha Spectroscopy	Th-232	0.895	0.263	pCi/g	=	
CWC200943	CWC008	04/09/18	Gamma Spectroscopy	K-40	14.5	0.594	pCi/g	=	
CWC200943	CWC008	04/09/18	Gamma Spectroscopy	R-226	1.2	0.156	pCi/g	=	
CWC200943	CWC008	04/09/18	Gamma Spectroscopy	R-228	0.739	0.139	pCi/g	=	
CWC200943	CWC008	04/09/18	Gamma Spectroscopy	Th-228	0.739	0.139	pCi/g	=	
CWC200943	CWC008	04/09/18	Gamma Spectroscopy	Th-232	0.739	0.139	pCi/g	=	
CWC200943	CWC008	04/09/18	Gamma Spectroscopy	Ac-227	-1.07	0.279	pCi/g	UJ	T04, T06, T07
CWC200943	CWC008	04/09/18	Gamma Spectroscopy	Am241	-0.0166	0.0943	pCi/g	UJ	T04, T06

Table D-2. CWC Sediment Data for CY 2018

Sample Name	Station Name	Collection Date	Method	Analyte	Result	DL	Units	VQ	Validation Reason Code
CWC200943	CWC008	04/09/18	Gamma Spectroscopy	Cs-137	0.0165	0.0515	pCi/g	UJ	T04, T06
CWC200943	CWC008	04/09/18	Gamma Spectroscopy	Pa-231	-0.67	1.83	pCi/g	UJ	T04, T06
CWC200943	CWC008	04/09/18	Gamma Spectroscopy	Th-230	14.2	9.9	pCi/g	UJ	T04
CWC200943	CWC008	04/09/18	Gamma Spectroscopy	U-235	-0.063	0.542	pCi/g	UJ	T04, T06
CWC200943	CWC008	04/09/18	Gamma Spectroscopy	U-238	0.456	0.799	pCi/g	UJ	T04, T05
CWC200945	CWC009	04/09/18	Metals	Arsenic	5.3	0.47	mg/kg	=	
CWC200945	CWC009	04/09/18	Metals	Barium	110	0.58	mg/kg	=	
CWC200945	CWC009	04/09/18	Metals	Cadmium	0.53	0.028	mg/kg	=	
CWC200945	CWC009	04/09/18	Metals	Chromium	21	0.53	mg/kg	=	
CWC200945	CWC009	04/09/18	Metals	Molybdenum	0.89	0.23	mg/kg	=	
CWC200945	CWC009	04/09/18	Metals	Nickel	17	0.23	mg/kg	=	
CWC200945	CWC009	04/09/18	Metals	Selenium	1.3	0.37	mg/kg	=	
CWC200945	CWC009	04/09/18	Metals	Vanadium	14	0.47	mg/kg	=	
CWC200945	CWC009	04/09/18	Metals	Antimony	0.35	0.23	mg/kg	=	
CWC200945	CWC009	04/09/18	Metals	Thallium	0.23	0.23	mg/kg	U	
CWC200945	CWC009	04/09/18	Alpha Spectroscopy	Th-228	1.25	0.215	pCi/g	=	
CWC200945	CWC009	04/09/18	Alpha Spectroscopy	Th-230	2.21	0.25	pCi/g	=	
CWC200945	CWC009	04/09/18	Alpha Spectroscopy	Th-232	0.861	0.215	pCi/g	J	T04, T20
CWC200945	CWC009	04/09/18	Gamma Spectroscopy	Ac-227	0.162	0.118	pCi/g	=	
CWC200945	CWC009	04/09/18	Gamma Spectroscopy	K-40	12.5	0.259	pCi/g	=	
CWC200945	CWC009	04/09/18	Gamma Spectroscopy	R-226	1.25	0.0614	pCi/g	=	
CWC200945	CWC009	04/09/18	Gamma Spectroscopy	R-228	0.725	0.0634	pCi/g	=	
CWC200945	CWC009	04/09/18	Gamma Spectroscopy	Th-228	0.725	0.0634	pCi/g	=	
CWC200945	CWC009	04/09/18	Gamma Spectroscopy	Th-232	0.725	0.0634	pCi/g	=	
CWC200945	CWC009	04/09/18	Gamma Spectroscopy	U-238	0.716	0.512	pCi/g	=	
CWC200945	CWC009	04/09/18	Gamma Spectroscopy	Am241	0.0132	0.0464	pCi/g	UJ	T04, T06
CWC200945	CWC009	04/09/18	Gamma Spectroscopy	Cs-137	0.00265	0.0261	pCi/g	UJ	T04, T06
CWC200945	CWC009	04/09/18	Gamma Spectroscopy	Pa-231	0.337	1	pCi/g	UJ	T04, T06
CWC200945	CWC009	04/09/18	Gamma Spectroscopy	Th-230	2.17	4.49	pCi/g	UJ	T04, T06
CWC200945	CWC009	04/09/18	Gamma Spectroscopy	U-235	-0.119	0.285	pCi/g	UJ	T04, T06
CWC207420	CWC002	10/09/18	Metals	Arsenic	8.9	0.55	mg/kg	=	
CWC207420	CWC002	10/09/18	Metals	Barium	190	0.69	mg/kg	=	
CWC207420	CWC002	10/09/18	Metals	Cadmium	0.6	0.033	mg/kg	=	
CWC207420	CWC002	10/09/18	Metals	Chromium	16	0.62	mg/kg	=	

Table D-2. CWC Sediment Data for CY 2018

Sample Name	Station Name	Collection Date	Method	Analyte	Result	DL	Units	VQ	Validation Reason Code
CWC207420	CWC002	10/09/18	Metals	Molybdenum	1.4	0.28	mg/kg	=	
CWC207420	CWC002	10/09/18	Metals	Nickel	17	0.28	mg/kg	=	
CWC207420	CWC002	10/09/18	Metals	Selenium	2	0.44	mg/kg	=	
CWC207420	CWC002	10/09/18	Metals	Vanadium	21	0.55	mg/kg	=	
CWC207420	CWC002	10/09/18	Metals	Antimony	0.49	0.28	mg/kg	=	
CWC207420	CWC002	10/09/18	Metals	Thallium	0.28	0.28	mg/kg	U	
CWC207420	CWC002	10/09/18	Alpha Spectroscopy	Th-228	0.917	0.19	pCi/g	=	
CWC207420	CWC002	10/09/18	Alpha Spectroscopy	Th-230	1.3	0.137	pCi/g	J	F01
CWC207420	CWC002	10/09/18	Alpha Spectroscopy	Th-232	0.615	0.149	pCi/g	=	
CWC207420	CWC002	10/09/18	Gamma Spectroscopy	K-40	12	0.302	pCi/g	=	
CWC207420	CWC002	10/09/18	Gamma Spectroscopy	R-226	1.24	0.0644	pCi/g	=	
CWC207420	CWC002	10/09/18	Gamma Spectroscopy	R-228	0.613	0.0629	pCi/g	=	
CWC207420	CWC002	10/09/18	Gamma Spectroscopy	Th-228	0.613	0.0629	pCi/g	=	
CWC207420	CWC002	10/09/18	Gamma Spectroscopy	Th-232	0.613	0.0629	pCi/g	=	
CWC207420	CWC002	10/09/18	Gamma Spectroscopy	U-238	0.852	0.346	pCi/g	=	
CWC207420	CWC002	10/09/18	Gamma Spectroscopy	Ac-227	-0.503	0.165	pCi/g	UJ	T04, T06, T07
CWC207420	CWC002	10/09/18	Gamma Spectroscopy	Am241	0.00694	0.051	pCi/g	UJ	T04, T06
CWC207420	CWC002	10/09/18	Gamma Spectroscopy	Cs-137	0.000724	0.0287	pCi/g	UJ	T04, T06
CWC207420	CWC002	10/09/18	Gamma Spec	Pa-231	0.303	1.14	pCi/g	UJ	T04, T06
CWC207420	CWC002	10/09/18	Gamma Spec	Th-230	1.96	4.74	pCi/g	UJ	T04, T06
CWC207420	CWC002	10/09/18	Gamma Spec	U-235	-0.123	0.317	pCi/g	UJ	T04, T06
CWC207422	CWC003	10/09/18	Metals	Arsenic	6.9	0.61	mg/kg	=	
CWC207422	CWC003	10/09/18	Metals	Barium	160	0.76	mg/kg	=	
CWC207422	CWC003	10/09/18	Metals	Cadmium	0.65	0.037	mg/kg	=	
CWC207422	CWC003	10/09/18	Metals	Chromium	27	0.69	mg/kg	=	
CWC207422	CWC003	10/09/18	Metals	Molybdenum	1.1	0.3	mg/kg	=	
CWC207422	CWC003	10/09/18	Metals	Nickel	17	0.3	mg/kg	=	
CWC207422	CWC003	10/09/18	Metals	Selenium	2.6	0.49	mg/kg	=	
CWC207422	CWC003	10/09/18	Metals	Vanadium	21	0.61	mg/kg	=	
CWC207422	CWC003	10/09/18	Metals	Antimony	0.41	0.3	mg/kg	=	
CWC207422	CWC003	10/09/18	Metals	Thallium	0.3	0.3	mg/kg	U	
CWC207422	CWC003	10/09/18	Alpha Spectroscopy	Th-228	1.05	0.174	pCi/g	=	
CWC207422	CWC003	10/09/18	Alpha Spectroscopy	Th-230	1.48	0.151	pCi/g	J	F01
CWC207422	CWC003	10/09/18	Alpha Spectroscopy	Th-232	0.857	0.116	pCi/g	=	

Table D-2. CWC Sediment Data for CY 2018

Sample Name	Station Name	Collection Date	Method	Analyte	Result	DL	Units	VQ	Validation Reason Code
CWC207422	CWC003	10/09/18	Gamma Spectroscopy	K-40	13.7	0.321	pCi/g	=	
CWC207422	CWC003	10/09/18	Gamma Spectroscopy	R-226	1.47	0.0743	pCi/g	=	
CWC207422	CWC003	10/09/18	Gamma Spectroscopy	R-228	0.805	0.0692	pCi/g	=	
CWC207422	CWC003	10/09/18	Gamma Spectroscopy	Th-228	0.805	0.0692	pCi/g	=	
CWC207422	CWC003	10/09/18	Gamma Spectroscopy	Th-232	0.805	0.0692	pCi/g	=	
CWC207422	CWC003	10/09/18	Gamma Spectroscopy	U-238	0.895	0.379	pCi/g	=	
CWC207422	CWC003	10/09/18	Gamma Spectroscopy	Ac-227	-0.98	0.174	pCi/g	UJ	T04, T06, T07
CWC207422	CWC003	10/09/18	Gamma Spectroscopy	Am241	0.0339	0.0581	pCi/g	UJ	T04, T06
CWC207422	CWC003	10/09/18	Gamma Spectroscopy	Cs-137	0.0014	0.0318	pCi/g	UJ	T04, T06
CWC207422	CWC003	10/09/18	Gamma Spectroscopy	Pa-231	0.132	1.24	pCi/g	UJ	T04, T06
CWC207422	CWC003	10/09/18	Gamma Spectroscopy	Th-230	1.27	5.37	pCi/g	UJ	T04, T06
CWC207422	CWC003	10/09/18	Gamma Spectroscopy	U-235	0.153	0.368	pCi/g	UJ	T04, T06
CWC207424	CWC004	10/09/18	Metals	Arsenic	5.2	0.53	mg/kg	=	
CWC207424	CWC004	10/09/18	Metals	Barium	140	0.67	mg/kg	=	
CWC207424	CWC004	10/09/18	Metals	Cadmium	0.5	0.032	mg/kg	=	
CWC207424	CWC004	10/09/18	Metals	Chromium	17	0.6	mg/kg	=	
CWC207424	CWC004	10/09/18	Metals	Molybdenum	0.77	0.27	mg/kg	=	
CWC207424	CWC004	10/09/18	Metals	Nickel	15	0.27	mg/kg	=	
CWC207424	CWC004	10/09/18	Metals	Selenium	2	0.43	mg/kg	=	
CWC207424	CWC004	10/09/18	Metals	Vanadium	20	0.53	mg/kg	=	
CWC207424	CWC004	10/09/18	Metals	Antimony	0.3	0.27	mg/kg	=	
CWC207424	CWC004	10/09/18	Metals	Thallium	0.27	0.27	mg/kg	U	
CWC207424	CWC004	10/09/18	Alpha Spectroscopy	Th-228	0.911	0.23	pCi/g	=	
CWC207424	CWC004	10/09/18	Alpha Spectroscopy	Th-230	1.5	0.151	pCi/g	J	F01
CWC207424	CWC004	10/09/18	Alpha Spectroscopy	Th-232	0.938	0.141	pCi/g	=	
CWC207424	CWC004	10/09/18	Gamma Spectroscopy	K-40	13.2	0.297	pCi/g	=	
CWC207424	CWC004	10/09/18	Gamma Spectroscopy	R-226	1.33	0.069	pCi/g	=	
CWC207424	CWC004	10/09/18	Gamma Spectroscopy	R-228	0.792	0.0667	pCi/g	=	
CWC207424	CWC004	10/09/18	Gamma Spectroscopy	Th-228	0.792	0.0667	pCi/g	=	
CWC207424	CWC004	10/09/18	Gamma Spectroscopy	Th-232	0.792	0.0667	pCi/g	=	
CWC207424	CWC004	10/09/18	Gamma Spectroscopy	U-238	0.978	0.315	pCi/g	=	
CWC207424	CWC004	10/09/18	Gamma Spectroscopy	Ac-227	-0.865	0.156	pCi/g	UJ	T04, T06, T07
CWC207424	CWC004	10/09/18	Gamma Spectroscopy	Am241	-0.00779	0.0593	pCi/g	UJ	T04, T06
CWC207424	CWC004	10/09/18	Gamma Spectroscopy	Cs-137	-0.0126	0.0252	pCi/g	UJ	T04, T06

Table D-2. CWC Sediment Data for CY 2018

Sample Name	Station Name	Collection Date	Method	Analyte	Result	DL	Units	VQ	Validation Reason Code
CWC207424	CWC004	10/09/18	Gamma Spectroscopy	Pa-231	-0.177	0.991	pCi/g	UJ	T04, T06
CWC207424	CWC004	10/09/18	Gamma Spectroscopy	Th-230	0.696	5.01	pCi/g	UJ	T04, T06
CWC207424	CWC004	10/09/18	Gamma Spectroscopy	U-235	0.118	0.303	pCi/g	UJ	T04, T06
CWC207426	CWC005	10/09/18	Metals	Arsenic	7.7	0.54	mg/kg	=	
CWC207426	CWC005	10/09/18	Metals	Barium	180	0.67	mg/kg	=	
CWC207426	CWC005	10/09/18	Metals	Cadmium	0.76	0.032	mg/kg	=	
CWC207426	CWC005	10/09/18	Metals	Chromium	27	0.61	mg/kg	=	
CWC207426	CWC005	10/09/18	Metals	Molybdenum	1	0.27	mg/kg	=	
CWC207426	CWC005	10/09/18	Metals	Nickel	21	0.27	mg/kg	=	
CWC207426	CWC005	10/09/18	Metals	Selenium	2.6	0.43	mg/kg	=	
CWC207426	CWC005	10/09/18	Metals	Vanadium	25	0.54	mg/kg	=	
CWC207426	CWC005	10/09/18	Metals	Antimony	0.57	0.27	mg/kg	=	
CWC207426	CWC005	10/09/18	Metals	Thallium	0.27	0.27	mg/kg	U	
CWC207426	CWC005	10/09/18	Alpha Spectroscopy	Th-228	1.04	0.209	pCi/g	=	
CWC207426	CWC005	10/09/18	Alpha Spectroscopy	Th-230	3.5	0.164	pCi/g	=	
CWC207426	CWC005	10/09/18	Alpha Spectroscopy	Th-232	0.888	0.181	pCi/g	=	
CWC207426	CWC005	10/09/18	Gamma Spectroscopy	K-40	12.8	0.588	pCi/g	=	
CWC207426	CWC005	10/09/18	Gamma Spectroscopy	R-226	1.68	0.134	pCi/g	=	
CWC207426	CWC005	10/09/18	Gamma Spectroscopy	R-228	0.869	0.116	pCi/g	=	
CWC207426	CWC005	10/09/18	Gamma Spectroscopy	Th-228	0.869	0.116	pCi/g	=	
CWC207426	CWC005	10/09/18	Gamma Spectroscopy	Th-232	0.869	0.116	pCi/g	=	
CWC207426	CWC005	10/09/18	Gamma Spectroscopy	U-238	0.949	0.634	pCi/g	=	
CWC207426	CWC005	10/09/18	Gamma Spectroscopy	Ac-227	-0.867	0.298	pCi/g	UJ	T04, T06, T07
CWC207426	CWC005	10/09/18	Gamma Spectroscopy	Am241	-0.0374	0.101	pCi/g	UJ	T04, T06
CWC207426	CWC005	10/09/18	Gamma Spectroscopy	Cs-137	0.00605	0.0535	pCi/g	UJ	T04, T06
CWC207426	CWC005	10/09/18	Gamma Spectroscopy	Pa-231	0.182	2.08	pCi/g	UJ	T04, T06
CWC207426	CWC005	10/09/18	Gamma Spectroscopy	Th-230	4.47	9.71	pCi/g	UJ	T04, T06
CWC207426	CWC005	10/09/18	Gamma Spectroscopy	U-235	0.199	0.575	pCi/g	UJ	T04, T06
CWC207428	CWC006	10/09/18	Metals	Arsenic	6.8	0.55	mg/kg	=	
CWC207428	CWC006	10/09/18	Metals	Barium	210	0.69	mg/kg	=	
CWC207428	CWC006	10/09/18	Metals	Cadmium	0.92	0.033	mg/kg	=	
CWC207428	CWC006	10/09/18	Metals	Chromium	27	0.62	mg/kg	=	
CWC207428	CWC006	10/09/18	Metals	Molybdenum	1.3	0.27	mg/kg	=	
CWC207428	CWC006	10/09/18	Metals	Nickel	21	0.27	mg/kg	=	

Table D-2. CWC Sediment Data for CY 2018

Sample Name	Station Name	Collection Date	Method	Analyte	Result	DL	Units	VQ	Validation Reason Code
CWC207428	CWC006	10/09/18	Metals	Selenium	2.3	0.44	mg/kg	=	
CWC207428	CWC006	10/09/18	Metals	Vanadium	25	0.55	mg/kg	=	
CWC207428	CWC006	10/09/18	Metals	Antimony	0.42	0.27	mg/kg	=	
CWC207428	CWC006	10/09/18	Metals	Thallium	0.27	0.27	mg/kg	U	
CWC207428	CWC006	10/09/18	Alpha Spectroscopy	Th-228	1.27	0.177	pCi/g	=	
CWC207428	CWC006	10/09/18	Alpha Spectroscopy	Th-230	4.52	0.15	pCi/g	=	
CWC207428	CWC006	10/09/18	Alpha Spectroscopy	Th-232	1.18	0.16	pCi/g	=	
CWC207428	CWC006	10/09/18	Gamma Spectroscopy	K-40	13.9	0.572	pCi/g	=	
CWC207428	CWC006	10/09/18	Gamma Spectroscopy	R-226	1.59	0.136	pCi/g	=	
CWC207428	CWC006	10/09/18	Gamma Spectroscopy	R-228	0.805	0.127	pCi/g	=	
CWC207428	CWC006	10/09/18	Gamma Spectroscopy	Th-228	0.805	0.127	pCi/g	=	
CWC207428	CWC006	10/09/18	Gamma Spectroscopy	Th-232	0.805	0.127	pCi/g	=	
CWC207428	CWC006	10/09/18	Gamma Spectroscopy	Ac-227	-2.07	0.289	pCi/g	UJ	T04, T06, T07
CWC207428	CWC006	10/09/18	Gamma Spectroscopy	Am241	-0.0706	0.105	pCi/g	UJ	T04, T06
CWC207428	CWC006	10/09/18	Gamma Spectroscopy	Cs-137	0.00916	0.0602	pCi/g	UJ	T04, T06
CWC207428	CWC006	10/09/18	Gamma Spectroscopy	Pa-231	0.686	2.03	pCi/g	UJ	T04, T06
CWC207428	CWC006	10/09/18	Gamma Spectroscopy	Th-230	8.04	10	pCi/g	UJ	T04, T05
CWC207428	CWC006	10/09/18	Gamma Spectroscopy	U-235	0.27	0.581	pCi/g	UJ	T04, T06
CWC207428	CWC006	10/09/18	Gamma Spectroscopy	U-238	0.609	0.675	pCi/g	UJ	T04, T05
CWC207430	CWC007	10/09/18	Metals	Arsenic	6.5	0.57	mg/kg	=	
CWC207430	CWC007	10/09/18	Metals	Barium	160	0.72	mg/kg	=	
CWC207430	CWC007	10/09/18	Metals	Cadmium	0.64	0.034	mg/kg	=	
CWC207430	CWC007	10/09/18	Metals	Chromium	53	0.65	mg/kg	=	
CWC207430	CWC007	10/09/18	Metals	Molybdenum	1.4	0.29	mg/kg	=	
CWC207430	CWC007	10/09/18	Metals	Nickel	20	0.29	mg/kg	=	
CWC207430	CWC007	10/09/18	Metals	Selenium	2.5	0.46	mg/kg	=	
CWC207430	CWC007	10/09/18	Metals	Vanadium	21	0.57	mg/kg	=	
CWC207430	CWC007	10/09/18	Metals	Antimony	0.51	0.29	mg/kg	=	
CWC207430	CWC007	10/09/18	Metals	Thallium	0.29	0.29	mg/kg	U	
CWC207430	CWC007	10/09/18	Alpha Spectroscopy	Th-228	1.01	0.209	pCi/g	=	
CWC207430	CWC007	10/09/18	Alpha Spectroscopy	Th-230	3.29	0.156	pCi/g	=	
CWC207430	CWC007	10/09/18	Alpha Spectroscopy	Th-232	0.728	0.134	pCi/g	=	
CWC207430	CWC007	10/09/18	Gamma Spectroscopy	K-40	12.2	0.247	pCi/g	=	
CWC207430	CWC007	10/09/18	Gamma Spectroscopy	R-226	1.39	0.0633	pCi/g	=	

Table D-2. CWC Sediment Data for CY 2018

Sample Name	Station Name	Collection Date	Method	Analyte	Result	DL	Units	VQ	Validation Reason Code
CWC207430	CWC007	10/09/18	Gamma Spectroscopy	R-228	0.638	0.0624	pCi/g	=	
CWC207430	CWC007	10/09/18	Gamma Spectroscopy	Th-228	0.638	0.0624	pCi/g	=	
CWC207430	CWC007	10/09/18	Gamma Spectroscopy	Th-232	0.638	0.0624	pCi/g	=	
CWC207430	CWC007	10/09/18	Gamma Spectroscopy	U-238	0.866	0.323	pCi/g	=	
CWC207430	CWC007	10/09/18	Gamma Spectroscopy	Ac-227	-1.16	0.164	pCi/g	UJ	T04, T06, T07
CWC207430	CWC007	10/09/18	Gamma Spectroscopy	Am241	0.0121	0.048	pCi/g	UJ	T04, T06
CWC207430	CWC007	10/09/18	Gamma Spectroscopy	Cs-137	0.00975	0.0267	pCi/g	UJ	T04, T06
CWC207430	CWC007	10/09/18	Gamma Spectroscopy	Pa-231	0.0873	1	pCi/g	UJ	T04, T06
CWC207430	CWC007	10/09/18	Gamma Spectroscopy	Th-230	4.22	4.9	pCi/g	UJ	T04, T05
CWC207430	CWC007	10/09/18	Gamma Spectroscopy	U-235	0.174	0.312	pCi/g	UJ	T04, T06
CWC207432	CWC008	10/09/18	Metals	Arsenic	5.2	0.55	mg/kg	=	
CWC207432	CWC008	10/09/18	Metals	Barium	170	0.68	mg/kg	=	
CWC207432	CWC008	10/09/18	Metals	Cadmium	0.37	0.033	mg/kg	=	
CWC207432	CWC008	10/09/18	Metals	Chromium	20	0.62	mg/kg	=	
CWC207432	CWC008	10/09/18	Metals	Nickel	21	0.27	mg/kg	=	
CWC207432	CWC008	10/09/18	Metals	Selenium	2.4	0.44	mg/kg	=	
CWC207432	CWC008	10/09/18	Metals	Vanadium	24	0.55	mg/kg	=	
CWC207432	CWC008	10/09/18	Metals	Molybdenum	0.47	0.27	mg/kg	=	
CWC207432	CWC008	10/09/18	Metals	Antimony	0.27	0.27	mg/kg	U	
CWC207432	CWC008	10/09/18	Metals	Thallium	0.27	0.27	mg/kg	U	
CWC207432	CWC008	10/09/18	Alpha Spectroscopy	Th-228	1.01	0.128	pCi/g	=	
CWC207432	CWC008	10/09/18	Alpha Spectroscopy	Th-230	2.23	0.128	pCi/g	J	F01
CWC207432	CWC008	10/09/18	Alpha Spectroscopy	Th-232	1.18	0.156	pCi/g	=	
CWC207432	CWC008	10/09/18	Gamma Spectroscopy	K-40	14.5	0.713	pCi/g	=	
CWC207432	CWC008	10/09/18	Gamma Spectroscopy	R-226	1.7	0.156	pCi/g	=	
CWC207432	CWC008	10/09/18	Gamma Spectroscopy	R-228	0.883	0.132	pCi/g	=	
CWC207432	CWC008	10/09/18	Gamma Spectroscopy	Th-228	0.883	0.132	pCi/g	=	
CWC207432	CWC008	10/09/18	Gamma Spectroscopy	Th-232	0.883	0.132	pCi/g	=	
CWC207432	CWC008	10/09/18	Gamma Spectroscopy	Ac-227	-0.651	0.324	pCi/g	UJ	T04, T06, T07
CWC207432	CWC008	10/09/18	Gamma Spectroscopy	Am241	-0.00209	0.11	pCi/g	UJ	T04, T06
CWC207432	CWC008	10/09/18	Gamma Spectroscopy	Cs-137	-0.0209	0.0551	pCi/g	UJ	T04, T06
CWC207432	CWC008	10/09/18	Gamma Spectroscopy	Pa-231	0.165	2.21	pCi/g	UJ	T04, T06
CWC207432	CWC008	10/09/18	Gamma Spectroscopy	Th-230	0.949	10	pCi/g	UJ	T04, T06
CWC207432	CWC008	10/09/18	Gamma Spectroscopy	U-235	0.215	0.634	pCi/g	UJ	T04, T06
CWC207432	CWC008	10/09/18	Gamma Spectroscopy	U-238	-0.192	1.24	pCi/g	UJ	T04, T06

Table D-2. CWC Sediment Data for CY 2018

Sample Name	Station Name	Collection Date	Method	Analyte	Result	DL	Units	VQ	Validation Reason Code
CWC207434	CWC009	10/09/18	Metals	Arsenic	16	0.56	mg/kg	=	
CWC207434	CWC009	10/09/18	Metals	Barium	160	0.7	mg/kg	=	
CWC207434	CWC009	10/09/18	Metals	Cadmium	0.52	0.033	mg/kg	=	
CWC207434	CWC009	10/09/18	Metals	Chromium	23	0.63	mg/kg	=	
CWC207434	CWC009	10/09/18	Metals	Molybdenum	0.92	0.28	mg/kg	=	
CWC207434	CWC009	10/09/18	Metals	Nickel	22	0.28	mg/kg	=	
CWC207434	CWC009	10/09/18	Metals	Selenium	2.5	0.45	mg/kg	=	
CWC207434	CWC009	10/09/18	Metals	Vanadium	42	0.56	mg/kg	=	
CWC207434	CWC009	10/09/18	Metals	Antimony	0.47	0.28	mg/kg	=	
CWC207434	CWC009	10/09/18	Metals	Thallium	0.28	0.28	mg/kg	U	
CWC207434	CWC009	10/09/18	Alpha Spectroscopy	Th-228	0.866	0.192	pCi/g	=	
CWC207434	CWC009	10/09/18	Alpha Spectroscopy	Th-230	4.6	0.139	pCi/g	=	
CWC207434	CWC009	10/09/18	Alpha Spectroscopy	Th-232	0.718	0.151	pCi/g	=	
CWC207434	CWC009	10/09/18	Gamma Spectroscopy	K-40	13.7	0.251	pCi/g	=	
CWC207434	CWC009	10/09/18	Gamma Spectroscopy	R-226	1.67	0.0678	pCi/g	=	
CWC207434	CWC009	10/09/18	Gamma Spectroscopy	R-228	0.878	0.0672	pCi/g	=	
CWC207434	CWC009	10/09/18	Gamma Spectroscopy	Th-228	0.878	0.0672	pCi/g	=	
CWC207434	CWC009	10/09/18	Gamma Spectroscopy	Th-232	0.878	0.0672	pCi/g	=	
CWC207434	CWC009	10/09/18	Gamma Spectroscopy	U-238	0.879	0.34	pCi/g	=	
CWC207434	CWC009	10/09/18	Gamma Spectroscopy	Ac-227	-1.3	0.164	pCi/g	UJ	T04, T06, T07
CWC207434	CWC009	10/09/18	Gamma Spectroscopy	Am241	0.01	0.0508	pCi/g	UJ	T04, T06
CWC207434	CWC009	10/09/18	Gamma Spectroscopy	Cs-137	-0.00288	0.0285	pCi/g	UJ	T04, T06
CWC207434	CWC009	10/09/18	Gamma Spectroscopy	Pa-231	0.212	1.06	pCi/g	UJ	T04, T06

Table D-2. CWC Sediment Data for CY 2018

Sample Name	Station Name	Collection Date	Method	Analyte	Result	DL	Units	VQ	Validation Reason Code
CWC207434	CWC009	10/09/18	Gamma Spectroscopy	Th-230	3.86	5.03	pCi/g	UJ	T04, T05
CWC207434	CWC009	10/09/18	Gamma Spectroscopy	U-235	-0.00523	0.313	pCi/g	UJ	T04, T06

VQs:

= - Indicates that the data met all QA/QC requirements, and that the parameter has been positively identified and the associated concentration value is accurate.

J - Indicates that the parameter was positively identified; the associated numerical value is the approximate concentration of the parameter in the sample.

U - Indicates that the data met all QA/QC requirements, and that the parameter was analyzed for but was not detected above the reported sample quantitation limit.

UJ - Indicates that the parameter was not detected above the reported sample quantitation limit and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample. However, the reported quantitation limit is approximate.

Validation Reason Codes:

F01 - Blanks: Sample data were qualified as a result of the method blank.

H01 - Matrix Spike/Matrix Spike Duplicate: Matrix Spike/Matrix Spike Duplicate recovery was above the upper control limit.

H02 - Matrix Spike/Matrix Spike Duplicate: Matrix Spike/Matrix Spike Duplicate recovery was above the lower control limit.

H04 - Matrix Spike/Matrix Spike Duplicate: Matrix Spike/Matrix Spike Duplicate pairs exceed the RPD limit.

Q02 - Radiological field duplicate NAD was outside the control limit.

T04 - Radionuclide Quantitation: Professional judgment was used to qualify the data.

T05 - Radionuclide Quantitation: Analytical result is less than the associated MDA, but greater than the counting uncertainty.

T06 - Radionuclide Quantitation: Analytical result is less than both the associated counting uncertainty and MDA.

T20 - Radionuclide Quantitation: Analytical result is greater than the associated MDA, with uncertainty 50 percent to 100 percent of the result.

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX E

GROUND-WATER FIELD PARAMETER DATA AND ANALYTICAL DATA RESULTS FOR CALENDAR YEAR 2019

(On the CD-ROM on the Back Cover of this Report)

THIS PAGE INTENTIONALLY LEFT BLANK

Table E-1. Ground-Water Monitoring
First Quarter 2019 - Field Parameters for the Latty Avenue Properties

Station ID	Date Sampled	Purge Rate (mL/minute)	Volume Removed (mL)	pH	Conductivity (µS/cm)	Turbidity (NTU)	DO (mg/L)	Temp (°C)	ORP (mV)	Depth to Water at Sampling Time	Depth to Water (BTOC) 02/18/19
HISS-01	---	---	---	---	---	---	---	---	---	---	7.29
HISS-06A	---	---	---	---	---	---	---	---	---	---	7.13
HISS-10	02/18/19	150	1,800	6.48	0.12	0	8.36	9.3	223	5.4	5.06
HISS-11A	---	---	---	---	---	---	---	---	---	---	10.55
HISS-17S	---	---	---	---	---	---	---	---	---	---	4.92
HISS-19S	---	---	---	---	---	---	---	---	---	---	14.08
HW22	---	---	---	---	---	---	---	---	---	---	12.17
HW23	---	---	---	---	---	---	---	---	---	---	9.79

Table E-1. Ground-Water Monitoring
Second Quarter 2019 - Field Parameters for the Latty Avenue Properties

Station ID	Date Sampled	Purge Rate (mL/minute)	Volume Removed (mL)	pH	Conductivity (µS/cm)	Turbidity (NTU)	DO (mg/L)	Temp (°C)	ORP (mV)	Depth to Water at Sampling Time	Depth to Water (BTOC) 05/06/19
HISS-01	---	---	---	---	---	---	---	---	---	---	7.40
HISS-06A	---	---	---	---	---	---	---	---	---	---	7.05
HISS-10	05/09/19	150	1,350	7.27	0.12	39.50	5.81	13.40	178	4.69	4.49
HISS-11A	---	---	---	---	---	---	---	---	---	---	8.33
HISS-17S	05/09/19	80	960	7.20	47.10	37.30	5.34	14.70	151	3.33	3.97
HISS-19	05/09/19	60	720	6.61	85.30	63.50	4.29	15.40	191	13.81	13.73
HW22	---	---	---	---	---	---	---	---	---	---	10.73
HW23	05/09/19	80	960	7.33	0.126	110	4.19	16.4	-157	9.78	9.68

Table E-1. Ground-Water Monitoring
Third Quarter 2019 - Field Parameters for the Latty Avenue Properties

Station ID	Date Sampled	Purge Rate (mL/minute)	Volume Removed (mL)	pH	Conductivity (µS/cm)	Turbidity (NTU)	DO (mg/L)	Temp (°C)	ORP (mV)	Depth to Water at Sampling Time	Depth to Water (BTOC) 08/05/19
HISS-01	08/06/19	120	1,800	7.1	0.132	109	3.4	22	208	10.57	10.28
HISS-06A	08/06/19	100	1,200	6.76	0.174	160	3.28	21.7	219	8.46	8.31
HISS-10	---	---	---	---	---	---	---	---	---	---	6.51
HISS-11A	08/06/19	50	600	6.57	91.5	14.4	3.35	22.3	239	13.35	12.45
HISS-17S	---	---	---	---	---	---	---	---	---	---	7.19
HISS-19	---	---	---	---	---	---	---	---	---	---	14.50
HW22	---	---	---	---	---	---	---	---	---	---	14.41
HW23	---	---	---	---	---	---	---	---	---	---	9.85

Table E-1. Ground-Water Monitoring
Fourth Quarter 2019 - Field Parameters for the Latty Avenue Properties

Station ID	Date Sampled	Purge Rate (mL/minute)	Volume Removed (mL)	pH	Conductivity (µS/cm)	Turbidity (NTU)	DO (mg/L)	Temp (°C)	ORP (mV)	Depth to Water at Sampling Time	Depth to Water (BTOC) 11/07/19
HISS-01	---	---	---	---	---	---	---	---	---	---	9.14
HISS-06A	---	---	---	---	---	---	---	---	---	---	6.13
HISS-10	11/08/19	150	1,350	6.79	0.112	7.5	4.02	13.9	154	6.38	5.9
HISS-11A	---	---	---	---	---	---	---	---	---	---	11.93
HISS-17S	---	---	---	---	---	---	---	---	---	---	6.06
HISS-19S	---	---	---	---	---	---	---	---	---	---	14.54
HW22	11/08/19	35	315	6.25	0.236	3.6	4.46	12.6	158	14.05	13.82
HW23	---	---	---	---	---	---	---	---	---	---	9.75

* Monitoring well PW43 was inaccessible during the third quarter of 2019 and fourth quarter of 2019 sampling events because it was in an excavation area.

--- Monitoring well was not sampled during this event.

BTOC – below top of casing

Table E-2. Ground-Water Monitoring
First Quarter 2019 - Field Parameters for SLAPS and SLAPS VPs

Station ID	Date Sampled	Purge Rate (mL/minute)	Volume Removed (mL)	pH	Conductivity (µS/cm)	Turbidity (NTU)	DO (mg/L)	Temp (°C)	ORP (mV)	Depth to Water at Sampling Time	Depth to Water (BTOC) 02/18/19
B53W01D	---	---	---	---	---	---	---	---	---	---	10.48
B53W01S	---	---	---	---	---	---	---	---	---	---	11.1
B53W06S	---	---	---	---	---	---	---	---	---	---	13.12
B53W07D	---	---	---	---	---	---	---	---	---	---	10.77
B53W07S	02/19/19	15	225	6.35	0.138	15.9	4.74	9.2	227	16.82	16.08
B53W09S	---	---	---	---	---	---	---	---	---	---	14
B53W13S	---	---	---	---	---	---	---	---	---	---	6.62
B53W17S	---	---	---	---	---	---	---	---	---	---	7.74
B53W18S	---	---	---	---	---	---	---	---	---	---	13.09
B53W19S	---	---	---	---	---	---	---	---	---	---	6.35
MW31-98	---	---	---	---	---	---	---	---	---	---	6.78
MW32-98	---	---	---	---	---	---	---	---	---	---	12.06
PW35	---	---	---	---	---	---	---	---	---	---	10.23
PW36	---	---	---	---	---	---	---	---	---	---	9.97
PW42	---	---	---	---	---	---	---	---	---	---	10.69
PW43	---	---	---	---	---	---	---	---	---	---	11.78
PW44	---	---	---	---	---	---	---	---	---	---	2.62
PW45	---	---	---	---	---	---	---	---	---	---	6.85
PW46	02/19/19	50	600	6.44	0.269	25.6	5.48	8	246	11.06	10.51

Table E-2. Ground-Water Monitoring
Second Quarter 2019 - Field Parameters for SLAPS and SLAPS VPs

Station ID	Date Sampled	Purge Rate (mL/minute)	Volume Removed (mL)	pH	Conductivity (µS/cm)	Turbidity (NTU)	DO (mg/L)	Temp (°C)	ORP (mV)	Depth to Water at Sampling Time	Depth to Water (BTOC) 05/06/19
B53W01D	---	---	---	---	---	---	---	---	---	---	10.31
B53W01S	---	---	---	---	---	---	---	---	---	---	6.89
B53W06S	05/07/19	25	300	7.24	62.7	55.3	4.16	16.3	136	11.8	10.52
B53W07D	---	---	---	---	---	---	---	---	---	---	10.48
B53W07S	05/07/19	15	180	7	0.156	50.9	5.31	15.2	128	13.82	12.77
B53W09S	05/07/19	30	450	6.76	0.133	68.3	3.92	14.4	111	13.55	12
B53W13S	---	---	---	---	---	---	---	---	---	---	4.52
B53W17S	05/07/19	55	660	7.02	0.378	100	5	14.4	188	6.05	5.57
B53W18S	---	---	---	---	---	---	---	---	---	---	12.45
B53W19S	---	---	---	---	---	---	---	---	---	---	5.22
MW31-98	---	---	---	---	---	---	---	---	---	---	3.5
MW32-98	05/07/19	90	1,080	7.29	67.1	99.2	6.07	14.4	160	10.14	9.72
PW35	---	---	---	---	---	---	---	---	---	---	10.38
PW36	---	---	---	---	---	---	---	---	---	---	9.75
PW42	---	---	---	---	---	---	---	---	---	---	10.3
PW43	---	---	---	---	---	---	---	---	---	---	5.87
PW44	---	---	---	---	---	---	---	---	---	---	2.55
PW45	---	---	---	---	---	---	---	---	---	---	8.98
PW46	05/07/19	50	600	6.59	0.261	9.5	4.66	18	194	9.75	10.22

Table E-2. Ground-Water Monitoring
Third Quarter 2019 - Field Parameters for SLAPS and SLAPS VPs

Station ID	Date Sampled	Purge Rate (mL/minute)	Volume Removed (mL)	pH	Conductivity (µS/cm)	Turbidity (NTU)	DO (mg/L)	Temp (°C)	ORP (mV)	Depth to Water at Sampling Time	Depth to Water (BTOC) 08/05/19
B53W01D	---	---	---	---	---	---	---	---	---	---	10.31
B53W01S	---	---	---	---	---	---	---	---	---	---	14.18
B53W06S	---	---	---	---	---	---	---	---	---	---	14
B53W07D	08/07/19	40	480	6.94	0.114	210	3.4	16.9	-174	10.59	10.53
B53W07S	08/07/19	10	120	6.87	0.143	147	3.97	20.3	134	18.81	18.23
B53W09S	---	---	---	---	---	---	---	---	---	---	15.79
B53W13S	---	---	---	---	---	---	---	---	---	---	11.10
B53W17S	---	---	---	---	---	---	---	---	---	---	9.68
B53W18S	---	---	---	---	---	---	---	---	---	---	13.20
B53W19S	---	---	---	---	---	---	---	---	---	---	7.29
MW31-98	---	---	---	---	---	---	---	---	---	---	7.96
MW32-98	---	---	---	---	---	---	---	---	---	---	14.18
PW35	---	---	---	---	---	---	---	---	---	---	10.57
PW36	---	---	---	---	---	---	---	---	---	---	9.72
PW42	---	---	---	---	---	---	---	---	---	---	10.37
PW43	---	---	---	---	---	---	---	---	---	---	*
PW44	---	---	---	---	---	---	---	---	---	---	5.11
PW45	---	---	---	---	---	---	---	---	---	---	8.75
PW46	08/07/19	50	600	6.37	0.264	7.9	3.9	20.6	208	13.54	12.88

Table E-2. Ground-Water Monitoring
Fourth Quarter 2019 - Field Parameters for SLAPS and SLAPS VPs

Station ID	Date Sampled	Purge Rate (mL/minute)	Volume Removed (mL)	pH	Conductivity (µS/cm)	Turbidity (NTU)	DO (mg/L)	Temp (°C)	ORP (mV)	Depth to Water at Sampling Time	Depth to Water (BTOC) 11/07/19
B53W01D	---	---	---	---	---	---	---	---	---	---	10.22
B53W01S	11/08/19	50	600	6.14	97.2	6	4.34	12.3	238	13.96	13.86
B53W06S	---	---	---	---	---	---	---	---	---	---	15.05
B53W07D	---	---	---	---	---	---	---	---	---	---	10.48
B53W07S	---	---	---	---	---	---	---	---	---	---	18.9
B53W09S	11/08/19	30	360	6.28	0.128	10.5	4.06	13.1	143	16.85	16.15
B53W13S	---	---	---	---	---	---	---	---	---	---	12
B53W17S	---	---	---	---	---	---	---	---	---	---	11.43
B53W18S	---	---	---	---	---	---	---	---	---	---	13.45
B53W19S	---	---	---	---	---	---	---	---	---	---	7.04
MW31-98	---	---	---	---	---	---	---	---	---	---	13.61
MW32-98	---	---	---	---	---	---	---	---	---	---	15.51
PW35	---	---	---	---	---	---	---	---	---	---	9.9
PW36	---	---	---	---	---	---	---	---	---	---	9.59
PW42	---	---	---	---	---	---	---	---	---	---	10.41
PW43	---	---	---	---	---	---	---	---	---	---	*
PW44	---	---	---	---	---	---	---	---	---	---	4.84
PW45	---	---	---	---	---	---	---	---	---	---	7.31
PW46	---	---	---	---	---	---	---	---	---	---	11.9

* No water level measurements were taken at monitoring well PW43 during the third quarter of 2019 and fourth quarter of 2019 sampling events because it was inaccessible (in an excavation).

--- Monitoring well was not sampled during this event.

Table E-3. CY 2019 Ground-Water Sampling Data for the Latty Avenue Properties

Site: Latty Avenue Properties

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Filtered
HIS215500	HISS-01	08/06/19	ML-006	Ra-226	0.789	0.77	1.26	pCi/L	UJ	T04, T05	No
HIS215500	HISS-01	08/06/19	ML-005	Th-228	0.216	0.293	0.575	pCi/L	UJ	T06	No
HIS215500	HISS-01	08/06/19	ML-005	Th-230	0.12	0.182	0.285	pCi/L	UJ	T06	No
HIS215500	HISS-01	08/06/19	ML-005	Th-232	0.104	0.183	0.366	pCi/L	UJ	T06	No
HIS215500	HISS-01	08/06/19	ML-015	U-234	7.93	1.23	0.227	pCi/L	=		No
HIS215500	HISS-01	08/06/19	ML-015	U-235	0.461	0.295	0.281	pCi/L	J	T04, T20	No
HIS215500	HISS-01	08/06/19	ML-015	U-238	8.87	1.32	0.261	pCi/L	=		No
HIS215501	HISS-06A	08/06/19	SW846 6020	Antimony	2		2	µg/L	U		No
HIS215501	HISS-06A	08/06/19	SW846 6020	Arsenic	4		4	µg/L	U		No
HIS215501	HISS-06A	08/06/19	SW846 6020	Barium	94		0.9	µg/L	=		No
HIS215501	HISS-06A	08/06/19	SW846 6020	Cadmium	0.64		0.2	µg/L	=		No
HIS215501	HISS-06A	08/06/19	SW846 6020	Chromium	4		4	µg/L	U		No
HIS215501	HISS-06A	08/06/19	SW846 6020	Molybdenum	4.9		2	µg/L	=		No
HIS215501	HISS-06A	08/06/19	SW846 6020	Nickel	13		2	µg/L	J	F01, F12	No
HIS215501	HISS-06A	08/06/19	ML-006	Ra-226	1.07	0.87	1.17	pCi/L	UJ	T04, T05	No
HIS215501	HISS-06A	08/06/19	SW846 6020	Selenium	260		2	µg/L	=		No
HIS215501	HISS-06A	08/06/19	SW846 6020	Thallium	0.9		0.9	µg/L	U		No
HIS215501	HISS-06A	08/06/19	ML-005	Th-228	0.935	0.495	0.425	pCi/L	J	T04, T20	No
HIS215501	HISS-06A	08/06/19	ML-005	Th-230	0.493	0.355	0.36	pCi/L	J	T04, T20	No
HIS215501	HISS-06A	08/06/19	ML-005	Th-232	0.152	0.203	0.332	pCi/L	UJ	T06	No
HIS215501	HISS-06A	08/06/19	ML-015	U-234	2.36E+00	0.639	0.285	pCi/L	=		No
HIS215501	HISS-06A	08/06/19	ML-015	U-235	0.131	0.168	0.254	pCi/L	UJ	T06	No
HIS215501	HISS-06A	08/06/19	ML-015	U-238	2.12	0.602	0.284	pCi/L	=		No
HIS215501	HISS-06A	08/06/19	SW846 6020	Vanadium	4		4	µg/L	U		No
HIS210064	HISS-10	02/18/19	SW846 6020	Antimony	2		2	µg/L	U		No
HIS210064	HISS-10	02/18/19	SW846 6020	Arsenic	4		4	µg/L	U		No
HIS210064	HISS-10	02/18/19	SW846 6020	Barium	140		0.9	µg/L	=		No
HIS210064	HISS-10	02/18/19	SW846 6020	Cadmium	1.5		0.2	µg/L	=		No
HIS210064	HISS-10	02/18/19	SW846 6020	Chromium	4		4	µg/L	U		No
HIS210064	HISS-10	02/18/19	SW846 6020	Molybdenum	34		2	µg/L	=		No
HIS210064	HISS-10	02/18/19	SW846 6020	Nickel	2.3		2	µg/L	=		No
HIS210064	HISS-10	02/18/19	SW846 6020	Selenium	71		2	µg/L	=		No
HIS210064	HISS-10	02/18/19	SW846 6020	Thallium	0.9		0.9	µg/L	U		No

Table E-3. CY 2019 Ground-Water Sampling Data for the Latty Avenue Properties

Site: Latty Avenue Properties

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Filtered
HIS210064	HISS-10	02/18/19	SW846 6020	Vanadium	4		4	µg/L	U		No
HIS211489	HISS-10	05/09/19	SW846 6020	Antimony	2		2	µg/L	U	A05	No
HIS211489	HISS-10	05/09/19	SW846 6020	Arsenic	4		4	µg/L	U	A05	No
HIS211489	HISS-10	05/09/19	SW846 6020	Barium	130		0.9	µg/L	=	A05	No
HIS211489	HISS-10	05/09/19	SW846 6020	Cadmium	0.32		0.2	µg/L	=	A05	No
HIS211489	HISS-10	05/09/19	SW846 6020	Chromium	4		4	µg/L	U	A05	No
HIS211489	HISS-10	05/09/19	SW846 6020	Molybdenum	30		2	µg/L	=	A05	No
HIS211489	HISS-10	05/09/19	SW846 6020	Nickel	2		2	µg/L	U	A05	No
HIS211489	HISS-10	05/09/19	SW846 6020	Selenium	72		2	µg/L	=	A05	No
HIS211489	HISS-10	05/09/19	SW846 6020	Thallium	0.9		0.9	µg/L	U	A05	No
HIS211489	HISS-10	05/09/19	SW846 6020	Vanadium	4		4	µg/L	U	A05	No
HIS217787	HISS-10	11/08/19	SW846 6020	Antimony	2		2	µg/L	U		No
HIS217787	HISS-10	11/08/19	SW846 6020	Arsenic	4		4	µg/L	U		No
HIS217787	HISS-10	11/08/19	SW846 6020	Barium	76		0.9	µg/L	=		No
HIS217787	HISS-10	11/08/19	SW846 6020	Cadmium	0.2		0.2	µg/L	U		No
HIS217787	HISS-10	11/08/19	SW846 6020	Chromium	4		4	µg/L	U		No
HIS217787	HISS-10	11/08/19	SW846 6020	Molybdenum	36		2	µg/L	=		No
HIS217787	HISS-10	11/08/19	SW846 6020	Nickel	2		2	µg/L	U		No
HIS217787	HISS-10	11/08/19	ML-006	Ra-226	0.437	0.437	0.691	pCi/L	UJ	T06	No
HIS217787	HISS-10	11/08/19	SW846 6020	Selenium	17		2	µg/L	=		No
HIS217787	HISS-10	11/08/19	SW846 6020	Thallium	0.9		0.9	µg/L	U		No
HIS217787	HISS-10	11/08/19	ML-005	Th-228	0.13	0.15	0.258	pCi/L	UJ	T06	No
HIS217787	HISS-10	11/08/19	ML-005	Th-230	0.669	0.317	0.296	pCi/L	J	F01	No
HIS217787	HISS-10	11/08/19	ML-005	Th-232	-0.0326	0.0729	0.258	pCi/L	UJ	T06	No
HIS217787	HISS-10	11/08/19	ML-015	U-234	4.37	0.862	0.258	pCi/L	=		No
HIS217787	HISS-10	11/08/19	ML-015	U-235	0.0771	0.127	0.234	pCi/L	UJ	T06	No
HIS217787	HISS-10	11/08/19	ML-015	U-238	3.06	0.705	0.262	pCi/L	=		No
HIS217787	HISS-10	11/08/19	SW846 6020	Vanadium	4		4	µg/L	U		No
HIS215502	HISS-11A	08/06/19	SW846 6020	Antimony	2		2	µg/L	U		No
HIS215502	HISS-11A	08/06/19	SW846 6020	Arsenic	4		4	µg/L	U		No
HIS215502	HISS-11A	08/06/19	SW846 6020	Barium	140		0.9	µg/L	=		No
HIS215502	HISS-11A	08/06/19	SW846 6020	Cadmium	0.2		0.2	µg/L	U		No
HIS215502	HISS-11A	08/06/19	SW846 6020	Chromium	4		4	µg/L	U		No

Table E-3. CY 2019 Ground-Water Sampling Data for the Latty Avenue Properties

Site: Latty Avenue Properties											
Sample Name	Station Name	Collection Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Filtered
HIS215502	HISS-11A	08/06/19	SW846 6020	Molybdenum	4.2		2	µg/L	=		No
HIS215502	HISS-11A	08/06/19	SW846 6020	Nickel	2		2	µg/L	U		No
HIS215502	HISS-11A	08/06/19	ML-006	Ra-226	0.313	0.541	1.19	pCi/L	UJ	T06	No
HIS215502	HISS-11A	08/06/19	SW846 6020	Selenium	24		2	µg/L	=		No
HIS215502	HISS-11A	08/06/19	SW846 6020	Thallium	0.9		0.9	µg/L	U		No
HIS215502	HISS-11A	08/06/19	ML-005	Th-228	0.432	0.381	0.517	pCi/L	UJ	T04, T05	No
HIS215502	HISS-11A	08/06/19	ML-005	Th-230	0.406	0.351	0.365	pCi/L	J	T04, T20	No
HIS215502	HISS-11A	08/06/19	ML-005	Th-232	0	0.199	0.519	pCi/L	UJ	T06	No
HIS215502	HISS-11A	08/06/19	ML-015	U-234	2.06	0.699	0.29	pCi/L	=		No
HIS215502	HISS-11A	08/06/19	ML-015	U-235	0.0506	0.139	0.358	pCi/L	UJ	T06	No
HIS215502	HISS-11A	08/06/19	ML-015	U-238	1.62	0.614	0.289	pCi/L	=		No
HIS215502	HISS-11A	08/06/19	SW846 6020	Vanadium	4		4	µg/L	U		No
HIS211490	HISS-17S	05/09/19	SW846 6020	Antimony	2		2	µg/L	U	A05	No
HIS211490	HISS-17S	05/09/19	SW846 6020	Arsenic	4		4	µg/L	U	A05	No
HIS211490	HISS-17S	05/09/19	SW846 6020	Barium	79		0.9	µg/L	=	A05	No
HIS211490	HISS-17S	05/09/19	SW846 6020	Cadmium	0.27		0.2	µg/L	=	A05	No
HIS211490	HISS-17S	05/09/19	SW846 6020	Chromium	4		4	µg/L	U	A05	No
HIS211490	HISS-17S	05/09/19	SW846 6020	Molybdenum	7.5		2	µg/L	=	A05	No
HIS211490	HISS-17S	05/09/19	SW846 6020	Nickel	2		2	µg/L	=	A05	No
HIS211490	HISS-17S	05/09/19	ML-006	Ra-226	4.1	1.64	1.15	pCi/L	=		No
HIS211490	HISS-17S	05/09/19	SW846 6020	Selenium	14		2	µg/L	=	A05	No
HIS211490	HISS-17S	05/09/19	SW846 6020	Thallium	0.9		0.9	µg/L	U	A05	No
HIS211490	HISS-17S	05/09/19	ML-005	Th-228	0.449	0.413	0.55	pCi/L	UJ	T04, T05	No
HIS211490	HISS-17S	05/09/19	ML-005	Th-230	0.94	0.588	0.551	pCi/L	J	T04, T20	No
HIS211490	HISS-17S	05/09/19	ML-005	Th-232	0	0.231	0.6	pCi/L	UJ	T06	No
HIS211490	HISS-17S	05/09/19	ML-015	U-234	0.537	0.403	0.404	pCi/L	J	T04, T20	No
HIS211490	HISS-17S	05/09/19	ML-015	U-235	0.152	0.248	0.45	pCi/L	UJ	T06	No
HIS211490	HISS-17S	05/09/19	ML-015	U-238	0.737	0.472	0.435	pCi/L	J	T04, T20	No
HIS211490	HISS-17S	05/09/19	SW846 6020	Vanadium	4		4	µg/L	U	A05	No
HIS211491	HISS-19S	05/09/19	SW846 6020	Antimony	2		2	µg/L	U	A05	No
HIS211491	HISS-19S	05/09/19	SW846 6020	Arsenic	19		4	µg/L	=	A05	No
HIS211491	HISS-19S	05/09/19	SW846 6020	Barium	300		0.9	µg/L	=	A05	No
HIS211491	HISS-19S	05/09/19	SW846 6020	Cadmium	4.4		0.2	µg/L	=	A05	No

Table E-3. CY 2019 Ground-Water Sampling Data for the Latty Avenue Properties

Site: Latty Avenue Properties

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Filtered
HIS211491	HISS-19S	05/09/19	SW846 6020	Chromium	4		4	µg/L	U	A05	No
HIS211491	HISS-19S	05/09/19	SW846 6020	Molybdenum	4.3		2	µg/L	=	A05	No
HIS211491	HISS-19S	05/09/19	SW846 6020	Nickel	2.5		2	µg/L	=	A05	No
HIS211491	HISS-19S	05/09/19	ML-006	Ra-226	2.02	1.21	1.36	pCi/L	J	T04, T20	No
HIS211491	HISS-19S	05/09/19	SW846 6020	Selenium	2		2	µg/L	U	A05	No
HIS211491	HISS-19S	05/09/19	SW846 6020	Thallium	0.9		0.9	µg/L	U	A05	No
HIS211491	HISS-19S	05/09/19	ML-005	Th-228	-0.033	0.148	0.445	pCi/L	UJ	T06	No
HIS211491	HISS-19S	05/09/19	ML-005	Th-230	0.628	0.432	0.446	pCi/L	J	T04, T20	No
HIS211491	HISS-19S	05/09/19	ML-005	Th-232	-0.033	0.148	0.445	pCi/L	UJ	T06	No
HIS211491	HISS-19S	05/09/19	ML-015	U-234	0.242	0.251	0.278	pCi/L	UJ	T06	No
HIS211491	HISS-19S	05/09/19	ML-015	U-235	-0.00962	0.155	0.343	pCi/L	UJ	T06	No
HIS211491	HISS-19S	05/09/19	ML-015	U-238	0.248	0.279	0.457	pCi/L	UJ	T06	No
HIS211491	HISS-19S	05/09/19	SW846 6020	Vanadium	4		4	µg/L	U	A05	No
HIS217788	HW22	11/08/19	SW846 6020	Antimony	2		2	µg/L	U		No
HIS217788	HW22	11/08/19	SW846 6020	Arsenic	4		4	µg/L	U		No
HIS217788	HW22	11/08/19	SW846 6020	Barium	200		0.9	µg/L	=		No
HIS217788	HW22	11/08/19	SW846 6020	Cadmium	0.2		0.2	µg/L	U		No
HIS217788	HW22	11/08/19	SW846 6020	Chromium	4		4	µg/L	U		No
HIS217788	HW22	11/08/19	SW846 6020	Molybdenum	2.1		2	µg/L	J	F01	No
HIS217788	HW22	11/08/19	SW846 6020	Nickel	2		2	µg/L	U		No
HIS217788	HW22	11/08/19	ML-006	Ra-226	0.387	0.578	1.28	pCi/L	UJ	T06	No
HIS217788	HW22	11/08/19	SW846 6020	Selenium	20		2	µg/L	=		No
HIS217788	HW22	11/08/19	SW846 6020	Thallium	0.9		0.9	µg/L	U		No
HIS217788	HW22	11/08/19	ML-005	Th-228	0.275	0.235	0.364	pCi/L	UJ	T04, T05	No
HIS217788	HW22	11/08/19	ML-005	Th-230	0.626	0.322	0.242	pCi/L	J	F01, T04, T20	No
HIS217788	HW22	11/08/19	ML-005	Th-232	-0.00947	0.0781	0.201	pCi/L	UJ	T06	No
HIS217788	HW22	11/08/19	ML-015	U-234	5.02	0.96	0.242	pCi/L	=		No
HIS217788	HW22	11/08/19	ML-015	U-235	0.199	0.213	0.337	pCi/L	UJ	T06	No
HIS217788	HW22	11/08/19	ML-015	U-238	4.1	0.852	0.2	pCi/L	=		No
HIS217788	HW22	11/08/19	SW846 6020	Vanadium	4		4	µg/L	U		No
HIS211492	HW23	05/08/19	SW846 6020	Antimony	2		2	µg/L	U	A05	No
HIS211492	HW23	05/08/19	SW846 6020	Arsenic	200		4	µg/L	=	A05	No
HIS211492	HW23	05/08/19	SW846 6020	Barium	490		0.9	µg/L	=	A05	No

Table E-3. CY 2019 Ground-Water Sampling Data for the Latty Avenue Properties

Site: Latty Avenue Properties

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Filtered
HIS211492	HW23	05/08/19	SW846 6020	Cadmium	0.2		0.2	µg/L	U	A05	No
HIS211492	HW23	05/08/19	SW846 6020	Chromium	4		4	µg/L	U	A05	No
HIS211492	HW23	05/08/19	SW846 6020	Molybdenum	8.2		2	µg/L	=	A05	No
HIS211492	HW23	05/08/19	SW846 6020	Nickel	2		2	µg/L	=	A05	No
HIS211492	HW23	05/08/19	ML-006	Ra-226	0.439	0.531	0.68	pCi/L	UJ	T06	No
HIS211492	HW23	05/08/19	SW846 6020	Selenium	2		2	µg/L	U	A05	No
HIS211492	HW23	05/08/19	SW846 6020	Thallium	0.9		0.9	µg/L	U	A05	No
HIS211492	HW23	05/08/19	ML-005	Th-228	0.221	0.315	0.62	pCi/L	UJ	T06	No
HIS211492	HW23	05/08/19	ML-005	Th-230	0.443	0.396	0.544	pCi/L	UJ	T04, T05	No
HIS211492	HW23	05/08/19	ML-005	Th-232	-0.0369	0.165	0.497	pCi/L	UJ	T06	No
HIS211492	HW23	05/08/19	ML-015	U-234	1.36	0.64	0.32	pCi/L	=		No
HIS211492	HW23	05/08/19	ML-015	U-235	0.155	0.253	0.458	pCi/L	UJ	T06	No
HIS211492	HW23	05/08/19	ML-015	U-238	2.19	0.825	0.41	pCi/L	=		No
HIS211492	HW23	05/08/19	SW846 6020	Vanadium	4		4	µg/L	U	A05	No

VQs:

= - Indicates that the data met all QA/QC requirements, and that the parameter has been positively identified and the associated concentration value is accurate.

J - Indicates that the parameter was positively identified; the associated numerical value is the approximate concentration of the parameter in the sample.

U - Indicates that the data met all QA/QC requirements, and that the parameter was analyzed for but was not detected above the reported sample quantitation limit.

UJ - Indicates that the parameter was not detected above the reported sample quantitation limit and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample. However, the reported quantitation limit is approximate.

Validation Reason Codes:

A05 - Holding Times: Samples were not preserved properly.

F01 - Blanks: Sample data were qualified as a result of the method blank.

F12 - Blanks: Professional judgment was used to qualify the data.

T04 - Radionuclide Quantitation: Professional judgment was used to qualify the data.

T05 - Radionuclide Quantitation: Analytical result is less than the associated MDA, but greater than the counting uncertainty.

T06 - Radionuclide Quantitation: Analytical result is less than both the associated counting uncertainty and MDA.

T20 - Radionuclide Quantitation: Analytical result is greater than the associated MDA, with uncertainly 50 to 100 percent of the result.

Table E-4. CY 2019 Ground-Water Sampling Data for the SLAPS and SLAPS VPs

Site: SLAPS and SLAPS VPs

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Filtered
SVP217789	B53W01S	11/08/19	SW846 6020	Antimony	2		2	µg/L	U		No
SVP217789	B53W01S	11/08/19	SW846 6020	Arsenic	4		4	µg/L	U		No
SVP217789	B53W01S	11/08/19	SW846 6020	Barium	86		0.9	µg/L	=		No
SVP217789	B53W01S	11/08/19	SW846 6020	Cadmium	0.2		0.2	µg/L	U		No
SVP217789	B53W01S	11/08/19	SW846 6020	Chromium	4		4	µg/L	U		No
SVP217789	B53W01S	11/08/19	SW846 6020	Molybdenum	2		2	µg/L	U		No
SVP217789	B53W01S	11/08/19	SW846 6020	Nickel	2		2	µg/L	U	E01, E08	No
SVP217789	B53W01S	11/08/19	ML-006	Ra-226	0.104	0.361	0.945	pCi/L	UJ	T06	No
SVP217789	B53W01S	11/08/19	SW846 6020	Selenium	2		2	µg/L	U		No
SVP217789	B53W01S	11/08/19	SW846 6020	Thallium	0.9		0.9	µg/L	U		No
SVP217789	B53W01S	11/08/19	ML-005	Th-228	0.231	0.216	0.355	pCi/L	UJ	T04, T05	No
SVP217789	B53W01S	11/08/19	ML-005	Th-230	2.18	0.622	0.293	pCi/L	J	F01	No
SVP217789	B53W01S	11/08/19	ML-005	Th-232	-0.0277	0.0806	0.267	pCi/L	UJ	T06	No
SVP217789	B53W01S	11/08/19	ML-015	U-234	1.13	0.397	0.209	pCi/L	=		No
SVP217789	B53W01S	11/08/19	ML-015	U-235	0.0504	0.119	0.291	pCi/L	UJ	T06	No
SVP217789	B53W01S	11/08/19	ML-015	U-238	0.895	0.352	0.208	pCi/L	=		No
SVP217789	B53W01S	11/08/19	SW846 6020	Vanadium	4		4	µg/L	U		No
SVP211498	B53W06S	05/07/19	SW846 6020	Antimony	2		2	µg/L	U	A05	No
SVP211498	B53W06S	05/07/19	SW846 6020	Arsenic	4		4	µg/L	U	A05	No
SVP211498	B53W06S	05/07/19	SW846 6020	Barium	35		0.9	µg/L	=	A05	No
SVP211498	B53W06S	05/07/19	SW846 6020	Cadmium	2.4		0.2	µg/L	=	A05	No
SVP211498	B53W06S	05/07/19	SW846 6020	Chromium	4		4	µg/L	U	A05	No
SVP211498	B53W06S	05/07/19	SW846 6020	Molybdenum	3.8		2	µg/L	=	A05	No
SVP211498	B53W06S	05/07/19	SW846 6020	Nickel	4.4		2	µg/L	=	A05	No
SVP211498	B53W06S	05/07/19	SW846 6020	Selenium	2.5		2	µg/L	=	A05	No
SVP211498	B53W06S	05/07/19	SW846 6020	Thallium	0.9		0.9	µg/L	U	A05	No
SVP211498	B53W06S	05/07/19	SW846 6020	Vanadium	4		4	µg/L	U	A05	No
SVP215504	B53W07D	08/07/19	SW846 6020	Antimony	2		2	µg/L	U		No

Table E-4. CY 2019 Ground-Water Sampling Data for the SLAPS and SLAPS VPs

Site: SLAPS and SLAPS VPs

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Filtered
SVP215504	B53W07D	08/07/19	SW846 6020	Arsenic	86		4	µg/L	=		No
SVP215504	B53W07D	08/07/19	SW846 6020	Barium	410		0.9	µg/L	=		No
SVP215504	B53W07D	08/07/19	SW846 6020	Cadmium	0.3		0.2	µg/L	=		No
SVP215504	B53W07D	08/07/19	SW846 6020	Chromium	90		4	µg/L	=		No
SVP215504	B53W07D	08/07/19	SW846 6020	Molybdenum	2.4		2	µg/L	=		No
SVP215504	B53W07D	08/07/19	SW846 6020	Nickel	51		2	µg/L	=		No
SVP215504	B53W07D	08/07/19	SW846 6020	Selenium	2		2	µg/L	U		No
SVP215504	B53W07D	08/07/19	SW846 6020	Thallium	0.9		0.9	µg/L	U		No
SVP215504	B53W07D	08/07/19	SW846 6020	Vanadium	4		4	µg/L	U		No
SVP210065	B53W07S	02/19/19	SW846 6020	Antimony	2		2	µg/L	U		No
SVP210065	B53W07S	02/19/19	SW846 6020	Arsenic	4		4	µg/L	U		No
SVP210065	B53W07S	02/19/19	SW846 6020	Barium	220		0.9	µg/L	=		No
SVP210065	B53W07S	02/19/19	SW846 6020	Cadmium	0.22		0.2	µg/L	=		No
SVP210065	B53W07S	02/19/19	SW846 6020	Chromium	7		4	µg/L	=		No
SVP210065	B53W07S	02/19/19	SW846 6020	Molybdenum	2		2	µg/L	U		No
SVP210065	B53W07S	02/19/19	SW846 6020	Nickel	24		2	µg/L	=		No
SVP210065	B53W07S	02/19/19	ML-006	Ra-226	0.665	0.522	0.871	pCi/L	UJ	T04, T05	No
SVP210065	B53W07S	02/19/19	SW846 6020	Selenium	3.4		2	µg/L	=		No
SVP210065	B53W07S	02/19/19	SW846 6020	Thallium	0.9		0.9	µg/L	U		No
SVP210065	B53W07S	02/19/19	ML-005	Th-228	0.144	0.226	0.447	pCi/L	UJ	T06	No
SVP210065	B53W07S	02/19/19	ML-005	Th-230	0.921	0.513	0.423	pCi/L	J	T04, T20	No
SVP210065	B53W07S	02/19/19	ML-005	Th-232	0	0.181	0.471	pCi/L	UJ	T06	No
SVP210065	B53W07S	02/19/19	ML-015	U-234	3.06	0.98	0.389	pCi/L	=		No
SVP210065	B53W07S	02/19/19	ML-015	U-235	-0.0162	0.165	0.404	pCi/L	UJ	T06	No
SVP210065	B53W07S	02/19/19	ML-015	U-238	2.48	0.874	0.481	pCi/L	=		No
SVP210065	B53W07S	02/19/19	SW846 6020	Vanadium	4		4	µg/L	U		No
SVP211499	B53W07S	05/07/19	SW846 6020	Antimony	2		2	µg/L	U	A05	No
SVP211499	B53W07S	05/07/19	SW846 6020	Arsenic	4		4	µg/L	U	A05	No

Table E-4. CY 2019 Ground-Water Sampling Data for the SLAPS and SLAPS VPs

Site: SLAPS and SLAPS VPs											
Sample Name	**Station Name**	**Collection Date**	**Method**	**Analyte**	**Result**	**Measurement Error**	**DL**	**Units**	**VQ**	**Validation Reason Code**	**Filtered**
SVP211499	B53W07S	05/07/19	SW846 6020	Barium	290		0.9	µg/L	=	A05	No
SVP211499	B53W07S	05/07/19	SW846 6020	Cadmium	0.2		0.2	µg/L	U	A05	No
SVP211499	B53W07S	05/07/19	SW846 6020	Chromium	4.5		4	µg/L	=	A05	No
SVP211499	B53W07S	05/07/19	SW846 6020	Molybdenum	2		2	µg/L	U	A05	No
SVP211499	B53W07S	05/07/19	SW846 6020	Nickel	2		2	µg/L	U	A05	No
SVP211499	B53W07S	05/07/19	SW846 6020	Selenium	6.2		2	µg/L	=	A05	No
SVP211499	B53W07S	05/07/19	SW846 6020	Thallium	0.9		0.9	µg/L	U	A05	No
SVP211499	B53W07S	05/07/19	SW846 6020	Vanadium	4		4	µg/L	U	A05	No
SVP215505	B53W07S	08/07/19	SW846 6020	Antimony	2		2	µg/L	U		No
SVP215505	B53W07S	08/07/19	SW846 6020	Arsenic	4		4	µg/L	U		No
SVP215505	B53W07S	08/07/19	SW846 6020	Barium	290		0.9	µg/L	=		No
SVP215505	B53W07S	08/07/19	SW846 6020	Cadmium	0.2		0.2	µg/L	U		No
SVP215505	B53W07S	08/07/19	SW846 6020	Chromium	4		4	µg/L	U		No
SVP215505	B53W07S	08/07/19	SW846 6020	Molybdenum	2		2	µg/L	U		No
SVP215505	B53W07S	08/07/19	SW846 6020	Nickel	5.6		2	µg/L	J	F01	No
SVP215505	B53W07S	08/07/19	SW846 6020	Selenium	5.1		2	µg/L	=		No
SVP215505	B53W07S	08/07/19	SW846 6020	Thallium	0.9		0.9	µg/L	U		No
SVP215505	B53W07S	08/07/19	SW846 6020	Vanadium	4		4	µg/L	U		No
SVP211500	B53W09S	05/07/19	SW846 6020	Antimony	2		2	µg/L	U	A05	No
SVP211500	B53W09S	05/07/19	SW846 6020	Arsenic	4.9		4	µg/L	=	A05	No
SVP211500	B53W09S	05/07/19	SW846 6020	Barium	580		0.9	µg/L	=	A05	No
SVP211500	B53W09S	05/07/19	SW846 6020	Cadmium	0.39		0.2	µg/L	=	A05	No
SVP211500	B53W09S	05/07/19	SW846 6020	Chromium	25		4	µg/L	=	A05	No
SVP211500	B53W09S	05/07/19	SW846 6020	Molybdenum	6.8		2	µg/L	=	A05	No
SVP211500	B53W09S	05/07/19	SW846 6020	Nickel	82		2	µg/L	=	A05	No
SVP211500	B53W09S	05/07/19	SW846 6020	Selenium	2		2	µg/L	U	A05	No
SVP211500	B53W09S	05/07/19	SW846 6020	Thallium	0.9		0.9	µg/L	U	A05	No
SVP211500	B53W09S	05/07/19	SW846 6020	Vanadium	4		4	µg/L	U	A05	No

Table E-4. CY 2019 Ground-Water Sampling Data for the SLAPS and SLAPS VPs

Site: SLAPS and SLAPS VPs											
Sample Name	Station Name	Collection Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Filtered
SVP217790	B53W09S	11/08/19	SW846 6020	Antimony	2		2	µg/L	U		No
SVP217790	B53W09S	11/08/19	SW846 6020	Arsenic	4		4	µg/L	U		No
SVP217790	B53W09S	11/08/19	SW846 6020	Barium	350		0.9	µg/L	=		No
SVP217790	B53W09S	11/08/19	SW846 6020	Cadmium	0.2		0.2	µg/L	U		No
SVP217790	B53W09S	11/08/19	SW846 6020	Chromium	5.7		4	µg/L	=		No
SVP217790	B53W09S	11/08/19	SW846 6020	Molybdenum	3		2	µg/L	=		No
SVP217790	B53W09S	11/08/19	SW846 6020	Nickel	30		2	µg/L	=		No
SVP217790	B53W09S	11/08/19	SW846 6020	Selenium	2		2	µg/L	U		No
SVP217790	B53W09S	11/08/19	SW846 6020	Thallium	9.00E-01		0.9	µg/L	U		No
SVP217790	B53W09S	11/08/19	SW846 6020	Vanadium	4		4	µg/L	U		No
SVP211501	B53W17S	05/07/19	SW846 6020	Antimony	2		2	µg/L	U	A05	No
SVP211501	B53W17S	05/07/19	SW846 6020	Arsenic	4		4	µg/L	U	A05	No
SVP211501	B53W17S	05/07/19	SW846 6020	Barium	230		0.9	µg/L	=	A05	No
SVP211501	B53W17S	05/07/19	SW846 6020	Cadmium	0.2		0.2	µg/L	U	A05	No
SVP211501	B53W17S	05/07/19	SW846 6020	Chromium	12		4	µg/L	=	A05	No
SVP211501	B53W17S	05/07/19	SW846 6020	Molybdenum	2		2	µg/L	U	A05	No
SVP211501	B53W17S	05/07/19	SW846 6020	Nickel	2.4		2	µg/L	=	A05	No
SVP211501	B53W17S	05/07/19	SW846 6020	Selenium	77		2	µg/L	=	A05	No
SVP211501	B53W17S	05/07/19	SW846 6020	Thallium	0.9		0.9	µg/L	U	A05	No
SVP211501	B53W17S	05/07/19	SW846 6020	Vanadium	4		4	µg/L	U	A05	No
SVP211502	MW32-98	05/07/19	SW846 6020	Antimony	2		2	µg/L	U	A05	No
SVP211502	MW32-98	05/07/19	SW846 6020	Arsenic	4		4	µg/L	U	A05	No
SVP211502	MW32-98	05/07/19	SW846 6020	Barium	110		0.9	µg/L	=	A05	No
SVP211502	MW32-98	05/07/19	SW846 6020	Cadmium	0.2		0.2	µg/L	U	A05	No
SVP211502	MW32-98	05/07/19	SW846 6020	Chromium	4		4	µg/L	U	A05	No
SVP211502	MW32-98	05/07/19	SW846 6020	Molybdenum	2		2	µg/L	U	A05	No
SVP211502	MW32-98	05/07/19	SW846 6020	Nickel	2		2	µg/L	U	A05	No
SVP211502	MW32-98	05/07/19	ML-006	Ra-226	-0.0827	0.36	1.45	pCi/L	UJ	T06	No

Table E-4. CY 2019 Ground-Water Sampling Data for the SLAPS and SLAPS VPs

Site: SLAPS and SLAPS VPs

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Filtered
SVP211502	MW32-98	05/07/19	SW846 6020	Selenium	2		2	µg/L	U	A05	No
SVP211502	MW32-98	05/07/19	SW846 6020	Thallium	0.9		0.9	µg/L	U	A05	No
SVP211502	MW32-98	05/07/19	ML-005	Th-228	0.0734	0.208	0.54	pCi/L	UJ	T06	No
SVP211502	MW32-98	05/07/19	ML-005	Th-230	0.404	0.372	0.495	pCi/L	UJ	T04, T05	No
SVP211502	MW32-98	05/07/19	ML-005	Th-232	0.147	0.255	0.54	pCi/L	UJ	T06	No
SVP211502	MW32-98	05/07/19	ML-015	U-234	0.531	0.413	0.476	pCi/L	J	T04, T20	No
SVP211502	MW32-98	05/07/19	ML-015	U-235	0.167	0.253	0.396	pCi/L	UJ	T06	No
SVP211502	MW32-98	05/07/19	ML-015	U-238	0.843	0.505	0.371	pCi/L	J	T04, T20	No
SVP211502	MW32-98	05/07/19	SW846 6020	Vanadium	4		4	µg/L	U	A05	No
SVP212878	PW43	06/19/19	SW846 6020	Antimony	2		2	µg/L	U	A05	No
SVP212878	PW43	06/19/19	SW846 6020	Arsenic	4		4	µg/L	U	A05	No
SVP212878	PW43	06/19/19	SW846 6020	Barium	210		0.9	µg/L	=	A05	No
SVP212878	PW43	06/19/19	SW846 6020	Cadmium	0.55		0.2	µg/L	=	A05	No
SVP212878	PW43	06/19/19	SW846 6020	Chromium	4		4	µg/L	U	A05	No
SVP212878	PW43	06/19/19	SW846 6020	Molybdenum	2.4		2	µg/L	=	A05	No
SVP212878	PW43	06/19/19	SW846 6020	Nickel	8.5		2	µg/L	=	A05	No
SVP212878	PW43	06/19/19	ML-006	Ra-226	0.819	0.785	1.32	pCi/L	UJ	T04, T05	No
SVP212878	PW43	06/19/19	SW846 6020	Selenium	2		2	µg/L	U	A05	No
SVP212878	PW43	06/19/19	SW846 6020	Thallium	1.8		0.9	µg/L	=	A05	No
SVP212878	PW43	06/19/19	ML-005	Th-228	0.265	0.293	0.471	pCi/L	UJ	T06	No
SVP212878	PW43	06/19/19	ML-005	Th-230	0.668	0.437	0.425	pCi/L	J	T04, T20	No
SVP212878	PW43	06/19/19	ML-005	Th-232	-0.0241	0.131	0.368	pCi/L	UJ	T06	No
SVP212878	PW43	06/19/19	ML-015	U-234	1.98	0.789	0.327	pCi/L	=		No
SVP212878	PW43	06/19/19	ML-015	U-235	0.17	0.258	0.404	pCi/L	UJ	T06	No
SVP212878	PW43	06/19/19	ML-015	U-238	2.37	0.875	0.484	pCi/L	=		No
SVP212878	PW43	06/19/19	SW846 6020	Vanadium	4		4	µg/L	U	A05	No
SVP210066	PW46	02/19/19	SW846 6020	Antimony	2		2	µg/L	U		No
SVP210066-1	PW46	02/19/19	SW846 6020	Antimony	2		2	µg/L	U		No

Table E-4. CY 2019 Ground-Water Sampling Data for the SLAPS and SLAPS VPs

Site: SLAPS and SLAPS VPs											
Sample Name	Station Name	Collection Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Filtered
SVP210066-2	PW46	02/19/19	SW846 6020	Antimony	0.5		0.5	µg/L	U		No
SVP210066	PW46	02/19/19	SW846 6020	Arsenic	4		4	µg/L	U		No
SVP210066-1	PW46	02/19/19	SW846 6020	Arsenic	4		4	µg/L	U		No
SVP210066-2	PW46	02/19/19	SW846 6020	Arsenic	2.1		0.5	µg/L	=		No
SVP210066	PW46	02/19/19	SW846 6020	Barium	48		0.9	µg/L	=		No
SVP210066-1	PW46	02/19/19	SW846 6020	Barium	47		0.9	µg/L	=		No
SVP210066-2	PW46	02/19/19	SW846 6020	Barium	46.3		1.5	µg/L	=		No
SVP210066	PW46	02/19/19	SW846 6020	Cadmium	0		0.2	µg/L	U		No
SVP210066-1	PW46	02/19/19	SW846 6020	Cadmium	0		0.2	µg/L	U		No
SVP210066-2	PW46	02/19/19	SW846 6020	Cadmium	0.3		0.3	µg/L	U		No
SVP210066	PW46	02/19/19	SW846 6020	Chromium	4		4	µg/L	U		No
SVP210066-1	PW46	02/19/19	SW846 6020	Chromium	4		4	µg/L	U		No
SVP210066-2	PW46	02/19/19	SW846 6020	Chromium	1.25		1	µg/L	=		No
SVP210066	PW46	02/19/19	SW846 6020	Molybdenum	2		2	µg/L	U		No
SVP210066-1	PW46	02/19/19	SW846 6020	Molybdenum	2		2	µg/L	U		No
SVP210066-2	PW46	02/19/19	SW846 6010B	Molybdenum	5		5	µg/L	U		No
SVP210066	PW46	02/19/19	SW846 6020	Nickel	2		2	µg/L	U		No
SVP210066-1	PW46	02/19/19	SW846 6020	Nickel	2		2	µg/L	U		No
SVP210066-2	PW46	02/19/19	SW846 6020	Nickel	6		2	µg/L	=		No
SVP210066	PW46	02/19/19	ML-006	Ra-226	0.351	0.562	1.26	pCi/L	UJ	T06	No
SVP210066-1	PW46	02/19/19	ML-006	Ra-226	1.15	1.15	2.01	pCi/L	UJ	T06	No
SVP210066-2	PW46	02/19/19	SW846 9315 MODL	Ra-226	0.0344	0.0722	0.131	pCi/L	UJ	T06	No
SVP210066-2	PW46	02/19/19	SW846 9320 MODL	Ra-228	0.274	0.218	0.341	pCi/L	UJ	T04, T05	No
SVP210066	PW46	02/19/19	SW846 6020	Selenium	90		2	µg/L	=		No
SVP210066-1	PW46	02/19/19	SW846 6020	Selenium	88		2	µg/L	=		No
SVP210066-2	PW46	02/19/19	SW846 6020	Selenium	121		0.5	µg/L	=		No

Table E-4. CY 2019 Ground-Water Sampling Data for the SLAPS and SLAPS VPs

Site: SLAPS and SLAPS VPs											
Sample Name	Station Name	Collection Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Filtered
SVP210066	PW46	02/19/19	SW846 6020	Thallium	0.9		0.9	µg/L	U		No
SVP210066-1	PW46	02/19/19	SW846 6020	Thallium	0.9		0.9	µg/L	U		No
SVP210066-2	PW46	02/19/19	SW846 6020	Thallium	0.156		0.1	µg/L	=		No
SVP210066	PW46	02/19/19	ML-005	Th-228	0.0893	0.188	0.429	pCi/L	UJ	T06	No
SVP210066-1	PW46	02/19/19	ML-005	Th-228	0.0556	0.186	0.505	pCi/L	UJ	T06	No
SVP210066-2	PW46	02/19/19	EML A-01-R MOD	Th-228	0.0681	0.234	0.428	pCi/L	UJ	T06	No
SVP210066	PW46	02/19/19	ML-005	Th-230	0.87	0.502	0.43	pCi/L	J	T04, T20	No
SVP210066-1	PW46	02/19/19	ML-005	Th-230	0.708	0.453	0.466	pCi/L	J	T04, T20	No
SVP210066-2	PW46	02/19/19	EML A-01-R MOD	Th-230	0.0265	0.249	0.407	pCi/L	UJ	T06	No
SVP210066	PW46	02/19/19	ML-005	Th-232	0.105	0.186	0.372	pCi/L	UJ	T06	No
SVP210066-1	PW46	02/19/19	ML-005	Th-232	0.119	0.181	0.283	pCi/L	UJ	T06	No
SVP210066-2	PW46	02/19/19	EML A-01-R MOD	Th-232	0.0149	0.0918	0.24	pCi/L	UJ	T06	No
SVP210066	PW46	02/19/19	ML-015	U-234	791	107	0.555	pCi/L	=		No
SVP210066-1	PW46	02/19/19	ML-015	U-234	846	115	0.388	pCi/L	=		No
SVP210066-2	PW46	02/19/19	EML A-01-R MOD	U-234	1060	114	7.97	pCi/L	=		No
SVP210066	PW46	02/19/19	ML-015	U-235	49.5	7.92	0.559	pCi/L	=		No
SVP210066-1	PW46	02/19/19	ML-015	U-235	55.6	8.81	0.479	pCi/L	=		No
SVP210066-2	PW46	02/19/19	EML A-01-R MOD	U-235	69.5	21.2	7.19	pCi/L	=		No
SVP210066	PW46	02/19/19	ML-015	U-238	817	111	0.506	pCi/L	=		No
SVP210066-1	PW46	02/19/19	ML-015	U-238	894	122	0.46	pCi/L	=		No
SVP210066-2	PW46	02/19/19	EML A-01-R MOD	U-238	1010	109	7.37	pCi/L	=		No
SVP210066	PW46	02/19/19	SW846 6020	Vanadium	4		4	µg/L	U		No
SVP210066-1	PW46	02/19/19	SW846 6020	Vanadium	4		4	µg/L	U		No
SVP210066-2	PW46	02/19/19	SW846 6020	Vanadium	0.62		0.5	µg/L	=		No
SLA211497	PW46	05/08/19	ML-006	Ra-226	-0.0931	0.384	1.15	pCi/L	UJ	T06	No
SLA211497	PW46	05/08/19	ML-005	Th-228	0.317	0.326	0.475	pCi/L	UJ	T06	No
SLA211497	PW46	05/08/19	ML-005	Th-230	0.388	0.357	0.475	pCi/L	UJ	T04, T05	No
SLA211497	PW46	05/08/19	ML-005	Th-232	0.141	0.245	0.518	pCi/L	UJ	T06	No
SLA211497	PW46	05/08/19	ML-015	U-234	1242	141	0.616	pCi/L	=		No
SLA211497	PW46	05/08/19	ML-015	U-235	88.1	11.9	0.635	pCi/L	=		No
SLA211497	PW46	05/08/19	ML-015	U-238	1370	155	0.654	pCi/L	=		No

Table E-4. CY 2019 Ground-Water Sampling Data for the SLAPS and SLAPS VPs

Site: SLAPS and SLAPS VPs

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Filtered
SLA215503	PW46	08/07/19	ML-006	Ra-226	-0.0693	0.378	1.06	pCi/L	UJ	T06	No
SLA215503	PW46	08/07/19	ML-005	Th-228	0.109	0.24	0.571	pCi/L	UJ	T06	No
SLA215503	PW46	08/07/19	ML-005	Th-230	0.126	0.239	0.534	pCi/L	UJ	T06	No
SLA215503	PW46	08/07/19	ML-005	Th-232	-0.0252	0.137	0.385	pCi/L	UJ	T06	No
SLA215503	PW46	08/07/19	ML-015	U-234	385	34.6	0.317	pCi/L	=		No
SLA215503	PW46	08/07/19	ML-015	U-235	19.9	2.8	0.391	pCi/L	=		No
SLA215503	PW46	08/07/19	ML-015	U-238	409	36.6	0.421	pCi/L	=		No

VQs:

= - Indicates that the data met all QA/QC requirements, and that the parameter has been positively identified and the associated concentration value is accurate.

J - Indicates that the parameter was positively identified; the associated numerical value is the approximate concentration of the parameter in the sample.

U - Indicates that the data met all QA/QC requirements, and that the parameter was analyzed for but was not detected above the reported sample quantitation limit.

UJ - Indicates that the parameter was not detected above the reported sample quantitation limit and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample. However, the reported quantitation limit is approximate.

Validation Reason Codes:

E01 - ICP and Furnace Requirements: Interference check sample recovery was outside the control limit.

E08 - ICP and Furnace Requirements: Professional judgment was used to qualify the data.

F01 - Blanks: Sample data were qualified as a result of the method blank.

T04 - Radionuclide Quantitation: Professional judgment was used to qualify the data.

T05 - Radionuclide Quantitation: Analytical result is less than the associated MDA, but greater than the counting uncertainty.

T06 - Radionuclide Quantitation: Analytical result is less than both the associated counting uncertainty and MDA.

T20 - Radionuclide Quantitation: Analytical result is greater than the associated MDA, with uncertainly 50 to 100 percent of the result.

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX F

CALCULATION OF THE RECORD OF DECISION GROUND-WATER EVALUATION GUIDELINES

THIS PAGE INTENTIONALLY LEFT BLANK

CALCULATION OF THE RECORD OF DECISION GROUND-WATER MONITORING GUIDELINES

This appendix briefly outlines the methodology used to develop the ground-water monitoring guidelines for select wells and analytes at the NC Sites. The development of these guidelines was necessary to meet the requirements of response-action monitoring and long-term monitoring specified in the ROD (USACE 2005). These requirements are also identified in the EMICY19 (USACE 2018). The results of these calculations are used in the EMDAR to evaluate ground-water monitoring data at the Latty Avenue Properties and the SLAPS and SLAPS VPs for CY 2019.

INTRODUCTION

Response-action monitoring is conducted for HZ-A and HZ-C ground water at the NC Sites to assess if water quality has improved due to source removals or if ground-water conditions have significantly degraded. Based on the ROD, a significantly degraded ground-water condition requires all of the following:

1. that soil COC concentrations have statistically increased in ground water (relative to the well's historical data and accounting for uncertainty) for more than a 12-month period. Significantly increased concentrations are defined as doubling of an individual COC concentration above the UCL of the mean (based on the historical concentration before remedial activity) for a period of 12 months;
2. that the degraded well is close enough to impact CWC; and
3. that a significant degradation of CWC surface water is anticipated (USACE 2005).

In addition to the previous requirements, the ROD specifies that the maximum contaminant level for total U of 30 µg/L be used as a monitoring guideline for both response-action and long-term monitoring of ground water. If ground-water monitoring indicates the presence of COCs at significantly increased concentrations and total U significantly above 30 µg/L, then an evaluation of potential response actions would be conducted.

METHODOLOGY

In order to evaluate ground water for significant degradation, the UCL must be calculated using the historical ground-water data (i.e., data collected before remedial activity). The UCL is used to represent a historical average concentration for an analyte in a particular well. As stated in the USEPA's *Supplemental Guidance to RAGS: Calculating the Concentration Term,* "because of the uncertainty associated with estimating the true average concentration at a site, the UCL_{95} of the arithmetic mean should be used for this variable" (USEPA 1992). Based on the previously specified guidance, a 95 percent confidence interval was used in the UCL calculations.

Consistent with the ROD, UCL_{95} values for the soil COCs are used in the EMDAR to evaluate if concentrations have statistically increased in ground water for more than a 12-month period. The soil COCs defined in the ROD include antimony, arsenic, barium, cadmium, chromium, molybdenum, nickel, selenium, thallium, total U, vanadium, Ra-226, Ra-228, Th-228, Th-230, Th-232, U-234, U-235, and U-238. Because the SLAPS well PW46 is a replacement well, pre-2006 data from PW38 were used to develop the ground-water monitoring guideline to compare with the PW46 results. PW46 was installed in April of 2006 near the former location of PW38 and is screened across the same interval. Similarly, pre-2006 data from HISS-06 and HISS-11 were used to develop the ground-water monitoring guidelines for the two replacement wells (HISS-06A and HISS-11A) installed in CY 2011 at the HISS. For wells located in areas in which a response action has occurred, significant degradation is defined as occurring if the concentration of any COC in a recent sample from that well is double its UCL_{95}, and the total U is significantly above 30 µg/L. The ROD ground-water monitoring guideline for the soil COC for a particular well is defined as equivalent to two times the UCL_{95} value.

The dataset used for this evaluation was reduced prior to performing the statistical analysis. Filtered data, results qualified with an "R" designation, and QC samples were removed from each of the datasets. The analytical result was used when the VQ was assigned an "=" or a "J." For nondetect chemical data (i.e., the VQ was assigned a "U" or "UJ"), the value used in the UCL_{95} calculation was half the DL. For nondetect radiological data, the reported value was used, except in cases in which the value reported was negative. In those cases, a value of zero was substituted for the negative value.

RESULTS

The USEPA software package ProUCL Version 5.0 was used to calculate the UCL_{95} value. ProUCL computes parametric UCLs (for normal, lognormal, and gamma distributions) and nonparametric UCLs using several nonparametric methods (USEPA 2013). Based upon the data distribution and the associated skewness, ProUCL performs and recommends the appropriate UCL.

The UCL_{95} values are those recommended by ProUCL with the following exceptions.

- If the calculated UCL_{95} exceeded the maximum detected value, then the maximum detected value was used, as recommended in the USEPA's *Risk Assessment Guidance for Superfund Volume 1 Human Health Evaluation Manual (Part A)* (USEPA 1989c).
- If no values were detected for the COC in the historical database for that well, then the UCL_{95} was not determined. If only one value of the COC was detected, then the detected value was used.

The ground-water monitoring guidelines based on these UCL_{95} values are listed in Tables F-1 and F-2 for the Latty Avenue Properties and the SLAPS and SLAPS VPs, respectively.

Table F-1. ROD Monitoring Guidelines for Ground Water at the Latty Avenue Properties

Analyte Type	Soil COCs	HISS-01	HISS-06A[a]	HISS-09	HISS-10	HISS-11A[a]	HISS-14
Inorganics (µg/L)	Antimony	12	---	---	---	---	---
	Arsenic	---	---	---	---	5.2	---
	Barium	250	240	420	270	370	1,080
	Cadmium	---	---	---	1.4	---	---
	Chromium	13	2.2	---	2.4	7.0	---
	Molybdenum	23	40	22	5.6	4.8	---
	Nickel	20	34	21	3.8	20	11
	Selenium	570	770	19	7.6	---	610
	Thallium	4.6	---	---	---	---	5.8
	Total U	30	30	30	30	30	30
	Vanadium	37	31	17	16	---	250
Radionuclides (pCi/L)	Ra-226	5.3	---	---	---	16	4.2
	Th-228	1.9	2.4	3.2	3.4	3.4	2.0
	Th-230	4.2	7.0	7.4	6.0	5.0	21
	Th-232	---	1.8	---	0.2	---	---
	U-234	12	32	1.8	6.6	4.8	14
	U-235	---	4.2	---	---	---	---
	U-238	13	31	1.4	5.2	3.0	11

Table F-1. ROD Monitoring Guidelines for Ground Water at the Latty Avenue Properties

Analyte Type	Soil COCs	HISS-17S	HISS-18S	HISS-19S	HW21	HW22	HW23
Inorganics (µg/L)	Antimony	---	---	7.4	---	---	4.6
	Arsenic	---	6.6	510	6.8	2.4	320
	Barium	500	410	1,200	3,700	460	810
	Cadmium	---	---	---	2.8	1.6	3.4
	Chromium	12	---	3.0	7.0	9.0	8.1
	Molybdenum	16	---	10	5.6	3.4	26
	Nickel	30	39	7.0	44	7.0	12
	Selenium	250	---	---	110	17	---
	Thallium	---	---	8.0	6.2	---	5.4
	Total U	30	30	30	30	30	30
	Vanadium	18	16	4.4	12	4.0	6.4
Radionuclides (pCi/L)	Ra-226	5.7	5.5	2.5	8.4	11	2.4
	Th-228	2.4	3.2	10	4.2	1.8	2.6
	Th-230	3.8	5.8	12	5.2	3.8	5.2
	Th-232	---	1.9	---	---	---	1.0
	U-234	8.2	8.2	---	24	6.4	3.8
	U-235	---	---	---	2.0	---	---
	U-238	5.6	3.7	---	16	5.4	3.2

[a] The ROD evaluation criteria for HISS-06A and HISS-11A were calculated using historical data from the previous wells at these locations (HISS-06 and HISS-11).

--- The analyte was not detected in the historical database, so a monitoring guideline was not developed.

Ground-Water Monitoring Guideline = 2 x UCL_{95}

Total U monitoring guide = 30 µg/L.

Table F-2. ROD Monitoring Guidelines for Ground Water at the SLAPS and SLAPS VPs

Analyte Type	Soil COCs	B53W01D	B53W01S	B53W06S	B53W07D	B53W07S	B53W09S	B53W13S	B53W17S	B53W18S
Inorganics (µg/L)	Antimony	---	---	105	5.0	---	---	---	---	---
	Arsenic	170	---	---	150	140	---	---	---	3.6
	Barium	840	390	190	730	530	630	510	450	1,200
	Cadmium	---	---	---	---	---	---	---	8.8	---
	Chromium	7.2	15	47	5.6	11	9.6	9.1	7.0	51
	Molybdenum	---	---	22	4.0	4.4	14	3.2	21	28
	Nickel	---	30	16	12	5.2	83	38	5.2	910
	Selenium	---	---	---	4.0	5.2	700	790	140	---
	Thallium	---	8.0	---	7.4	---	---	7.0	---	---
	Total U	30	30	30	30	30	30	30	30	30
	Vanadium	19	44	48	12	17	24	---	83	54
Radionuclides (pCi/L)	Ra-226	4.4	---	3.8	3.4	7.2	2.5	---	---	7.2
	Th-228	1.6	1.0	1.5	---	2.2	3.0	4.4	3.8	7.0
	Th-230	5.8	2.9	3.9	4.4	4.0	5.0	6.0	5.6	8.0
	Th-232	---	---	---	---	---	---	---	---	1.4
	U-234	3.4	8.2	66	3.6	11	18	13	5.4	4.5
	U-235	---	---	2.9	---	---	6.1	---	4.4	---
	U-238	2.7	2.7	57	4.6	8.2	13	10	4.2	3.4

Table F-2. ROD Monitoring Guidelines for Ground Water at the SLAPS and SLAPS VPs

Analyte Type	Soil COCs	B53W19S	MW31-98	MW32-98	PW35	PW36	PW42	PW43	PW44	PW45	PW46[a]
Inorganics (µg/L)	Antimony	---	---	---	---	---	---	---	---	---	---
	Arsenic	36	---	5.8	90	220	280	53	13	---	7.0
	Barium	510	1,300	700	3,300	1,500	670	260	260	610	250
	Cadmium	0.7	3.8	3.8	0.6	---	0.8	---	---	---	1.2
	Chromium	290	4.6	5.6	16	3.2	52	3.5	---	---	37
	Molybdenum	130	35	3.0	32	8.0	6.0	6.4	12	1,500	2.2
	Nickel	1,100	7.8	4.0	35	13	28	3.6	---	67	3.4
	Selenium	4.2	390	740	2.8	3.8	---	---	---	7,200	710
	Thallium	7.7	---	9.8	7.4	14	7.6	---	---	---	---
	Total U	30	30	30	30	30	30	30	30	30	30
	Vanadium	36	110	54	35	13	12	3.1	---	---	67
Radionuclides (pCi/L)	Ra-226	1.4	3.4	1.6	8.0	2.0	4.0	6.1	1.8	2.4	22
	Th-228	5.2	4.6	1.4	2.6	2.6	1.6	2.4	3.4	2.5	2.1
	Th-230	6.0	4.0	4.0	4.1	3.6	3.4	2.6	12	5.8	60
	Th-232	2.2	---	0.4	2.3	---	---	---	---	---	7.0
	U-234	2.4	7.0	21	4.3	3.2	9.0	29	4.7	79	5,500
	U-235	---	5.9	9.4	---	---	---	2.2	---	3.0	290
	U-238	1.8	5.7	19	4.7	4.9	6.6	26	3.4	64	5,600

[a] The ROD evaluation criteria for PW46 were calculated using historical data from the previous well at this location (PW38).

--- The analyte was not detected in the historical database, so a monitoring guideline was not developed.

Ground-Water Monitoring Guideline = 2 x UCL_{95}

Total U monitoring guide = 30 µg/L.

APPENDIX G

WELL MAINTENANCE CHECKLISTS FOR THE ANNUAL GROUND-WATER MONITORING WELL INSPECTIONS CONDUCTED AT THE NORTH ST. LOUIS COUNTY SITES IN CALENDAR YEAR 2019

(On the CD-ROM on the Back Cover of this Report)

THIS PAGE INTENTIONALLY LEFT BLANK

CALENDAR YEAR 2019 WELL MAINTENANCE CHECKLISTS FOR THE HAZELWOOD INTERIM STORAGE SITE

THIS PAGE INTENTIONALLY LEFT BLANK

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 04/24/19 Time: 1035

Monitoring Well Station Identification: HISS-01 ☐SLAPS* ☐SLDS ☒HISS

		Yes	No	N/A
1.	Is well identification number visible on outer casing for a stick up well?	☒	☐	☐
2.	Is well identification visible on top of well casing for flush mount well?	☐	☐	☒
3.	Is well accessible?	☒	☐	☐
4.	Is well covered/surrounded by vegetation?	☐	☒	☐
5.	Is there standing water or debris inside well casing? If so, remove water.	☐	☒	☐
6.	Is the weep hole open? If not, clear blockage.	☒	☐	☐
7.	Is the protective casing dented, damaged, rusted, or covered in other matter (i.e., bird droppings)?	☐	☒	☐
8.	Is the riser casing dented or damaged?	☐	☒	☐
9.	Is the concrete pad intact (free of cracks, chips, etc.)?	☒	☐	☐
10.	Does the pad move or is it unstable?	☐	☒	☐
11.	Are there gaps between pad and well casing?	☐	☒	☐
12.	Are there signs of erosion around the well or pad?	☐	☒	☐
13.	Is riser cap present?	☒	☐	☐
14.	Do the wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☒	☐	☐
15.	Do the flush mount wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
16.	Is the well secure (shut properly or locked, if applicable)?	☒	☐	☐
17.	Do the locks work properly?	☒	☐	☐
18.	Are the locks rusted?	☐	☒	☐
19.	Does surface water flow away from well casing (i.e., no ponding)?	☒	☐	☐
20.	Is TOC elevation mark clearly visible?	☒	☐	☐
21.	Has there been a change in land use that impacts the well? If yes, describe in comment section.	☐	☒	☐
22.	Will the well need any type of attention before the next groundwater surface measurement? If yes, describe in comment section.	☐	☒	☐

Comments / Observations regarding this well.
None.

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 04/24/19 Time: 1310

Monitoring Well Station Identification: HISS-06A ☐SLAPS* ☐SLDS ☒HISS

		Yes	No	N/A
1.	Is well identification number visible on outer casing for a stick up well?	☒	☐	☐
2.	Is well identification visible on top of well casing for flush mount well?	☐	☐	☒
3.	Is well accessible?	☒	☐	☐
4.	Is well covered/surrounded by vegetation?	☐	☒	☐
5.	Is there standing water or debris inside well casing? If so, remove water.	☐	☒	☐
6.	Is the weep hole open? If not, clear blockage.	☒	☐	☐
7.	Is the protective casing dented, damaged, rusted, or covered in other matter (i.e., bird droppings)?	☐	☒	☐
8.	Is the riser casing dented or damaged?	☐	☒	☐
9.	Is the concrete pad intact (free of cracks, chips, etc.)?	☒	☐	☐
10.	Does the pad move or is it unstable?	☐	☒	☐
11.	Are there gaps between pad and well casing?	☐	☒	☐
12.	Are there signs of erosion around the well or pad?	☐	☒	☐
13.	Is riser cap present?	☒	☐	☐
14.	Do the wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☒	☐	☐
15.	Do the flush mount wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
16.	Is the well secure (shut properly or locked, if applicable)?	☒	☐	☐
17.	Do the locks work properly?	☒	☐	☐
18.	Are the locks rusted?	☐	☒	☐
19.	Does surface water flow away from well casing (i.e., no ponding)?	☒	☐	☐
20.	Is TOC elevation mark clearly visible?	☒	☐	☐
21.	Has there been a change in land use that impacts the well? If yes, describe in comment section.	☐	☒	☐
22.	Will the well need any type of attention before the next groundwater surface measurement? If yes, describe in comment section.	☐	☒	☐

Comments / Observations regarding this well.

Re-mark/label the well ID on the lid.

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 04/24/19 Time: 1040

Monitoring Well Station Identification: HISS-10 ☐SLAPS* ☐SLDS ☒HISS

		Yes	No	N/A
1.	Is well identification number visible on outer casing for a stick up well?	☒	☐	☐
2.	Is well identification visible on top of well casing for flush mount well?	☐	☐	☒
3.	Is well accessible?	☒	☐	☐
4.	Is well covered/surrounded by vegetation?	☐	☒	☐
5.	Is there standing water or debris inside well casing? If so, remove water.	☐	☒	☐
6.	Is the weep hole open? If not, clear blockage.	☒	☐	☐
7.	Is the protective casing dented, damaged, rusted, or covered in other matter (i.e., bird droppings)?	☐	☒	☐
8.	Is the riser casing dented or damaged?	☐	☒	☐
9.	Is the concrete pad intact (free of cracks, chips, etc.)?	☒	☐	☐
10.	Does the pad move or is it unstable?	☐	☒	☐
11.	Are there gaps between pad and well casing?	☐	☒	☐
12.	Are there signs of erosion around the well or pad?	☐	☒	☐
13.	Is riser cap present?	☒	☐	☐
14.	Do the wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☒	☐	☐
15.	Do the flush mount wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
16.	Is the well secure (shut properly or locked, if applicable)?	☒	☐	☐
17.	Do the locks work properly?	☒	☐	☐
18.	Are the locks rusted?	☐	☒	☐
19.	Does surface water flow away from well casing (i.e., no ponding)?	☒	☐	☐
20.	Is TOC elevation mark clearly visible?	☒	☐	☐
21.	Has there been a change in land use that impacts the well? If yes, describe in comment section.	☐	☒	☐
22.	Will the well need any type of attention before the next groundwater surface measurement? If yes, describe in comment section.	☐	☒	☐

Comments / Observations regarding this well.

Poor housekeeping around the well by the property owner.

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 04/24/19 Time: 1035

Monitoring Well Station Identification: HISS-11A ☐SLAPS* ☐SLDS ☒HISS

		Yes	No	N/A
1.	Is well identification number visible on outer casing for a stick up well?	☒	☐	☐
2.	Is well identification visible on top of well casing for flush mount well?	☐	☐	☒
3.	Is well accessible?	☒	☐	☐
4.	Is well covered/surrounded by vegetation?	☐	☒	☐
5.	Is there standing water or debris inside well casing? If so, remove water.	☐	☒	☐
6.	Is the weep hole open? If not, clear blockage.	☒	☐	☐
7.	Is the protective casing dented, damaged, rusted, or covered in other matter (i.e., bird droppings)?	☐	☒	☐
8.	Is the riser casing dented or damaged?	☐	☒	☐
9.	Is the concrete pad intact (free of cracks, chips, etc.)?	☒	☐	☐
10.	Does the pad move or is it unstable?	☐	☒	☐
11.	Are there gaps between pad and well casing?	☐	☒	☐
12.	Are there signs of erosion around the well or pad?	☐	☒	☐
13.	Is riser cap present?	☒	☐	☐
14.	Do the wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☒	☐	☐
15.	Do the flush mount wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
16.	Is the well secure (shut properly or locked, if applicable)?	☒	☐	☐
17.	Do the locks work properly?	☒	☐	☐
18.	Are the locks rusted?	☐	☒	☐
19.	Does surface water flow away from well casing (i.e., no ponding)?	☒	☐	☐
20.	Is TOC elevation mark clearly visible?	☒	☐	☐
21.	Has there been a change in land use that impacts the well? If yes, describe in comment section.	☐	☒	☐
22.	Will the well need any type of attention before the next groundwater surface measurement? If yes, describe in comment section.	☐	☒	☐

Comments / Observations regarding this well.
None.

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 04/24/19 Time: 1045

Monitoring Well Station Identification: HISS-17S ☐SLAPS* ☐SLDS ☒HISS

		Yes	No	N/A
1.	Is well identification number visible on outer casing for a stick up well?	☒	☐	☐
2.	Is well identification visible on top of well casing for flush mount well?	☐	☐	☒
3.	Is well accessible?	☒	☐	☐
4.	Is well covered/surrounded by vegetation?	☒	☐	☐
5.	Is there standing water or debris inside well casing? If so, remove water.	☐	☒	☐
6.	Is the weep hole open? If not, clear blockage.	☒	☐	☐
7.	Is the protective casing dented, damaged, rusted, or covered in other matter (i.e., bird droppings)?	☒	☐	☐
8.	Is the riser casing dented or damaged?	☐	☒	☐
9.	Is the concrete pad intact (free of cracks, chips, etc.)?	☒	☐	☐
10.	Does the pad move or is it unstable?	☐	☒	☐
11.	Are there gaps between pad and well casing?	☐	☒	☐
12.	Are there signs of erosion around the well or pad?	☐	☒	☐
13.	Is riser cap present?	☒	☐	☐
14.	Do the wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☒	☐	☐
15.	Do the flush mount wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
16.	Is the well secure (shut properly or locked, if applicable)?	☒	☐	☐
17.	Do the locks work properly?	☒	☐	☐
18.	Are the locks rusted?	☐	☒	☐
19.	Does surface water flow away from well casing (i.e., no ponding)?	☒	☐	☐
20.	Is TOC elevation mark clearly visible?	☒	☐	☐
21.	Has there been a change in land use that impacts the well? If yes, describe in comment section.	☐	☒	☐
22.	Will the well need any type of attention before the next groundwater surface measurement? If yes, describe in comment section.	☐	☒	☐

Comments / Observations regarding this well.

None.

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 04/24/19 Time: 1055

Monitoring Well Station Identification: HISS-19S ☐SLAPS* ☐SLDS ☒HISS

		Yes	No	N/A
1.	Is well identification number visible on outer casing for a stick up well?	☐	☐	☒
2.	Is well identification visible on top of well casing for flush mount well?	☐	☒	☐
3.	Is well accessible?	☒	☐	☐
4.	Is well covered/surrounded by vegetation?	☐	☒	☐
5.	Is there standing water or debris inside well casing? If so, remove water.	☐	☒	☐
6.	Is the weep hole open? If not, clear blockage.	☐	☐	☒
7.	Is the protective casing dented, damaged, rusted, or covered in other matter (i.e., bird droppings)?	☐	☒	☐
8.	Is the riser casing dented or damaged?	☐	☒	☐
9.	Is the concrete pad intact (free of cracks, chips, etc.)?	☒	☐	☐
10.	Does the pad move or is it unstable?	☐	☒	☐
11.	Are there gaps between pad and well casing?	☐	☒	☐
12.	Are there signs of erosion around the well or pad?	☐	☒	☐
13.	Is riser cap present?	☒	☐	☐
14.	Do the wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
15.	Do the flush mount wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☒	☐	☐
16.	Is the well secure (shut properly or locked, if applicable)?	☒	☐	☐
17.	Do the locks work properly?	☒	☐	☐
18.	Are the locks rusted?	☐	☒	☐
19.	Does surface water flow away from well casing (i.e., no ponding)?	☒	☐	☐
20.	Is TOC elevation mark clearly visible?	☒	☐	☐
21.	Has there been a change in land use that impacts the well? If yes, describe in comment section.	☐	☒	☐
22.	Will the well need any type of attention before the next groundwater surface measurement? If yes, describe in comment section.	☐	☒	☐

Comments / Observations regarding this well.

Re-mark/label the well ID on the lid.

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 04/24/19 Time: 1050

Monitoring Well Station Identification: HW22 ☐SLAPS* ☐SLDS ☒HISS

		Yes	No	N/A
1.	Is well identification number visible on outer casing for a stick up well?	☒	☐	☐
2.	Is well identification visible on top of well casing for flush mount well?	☐	☐	☒
3.	Is well accessible?	☒	☐	☐
4.	Is well covered/surrounded by vegetation?	☐	☒	☐
5.	Is there standing water or debris inside well casing? If so, remove water.	☐	☒	☐
6.	Is the weep hole open? If not, clear blockage.	☒	☐	☐
7.	Is the protective casing dented, damaged, rusted, or covered in other matter (i.e., bird droppings)?	☒	☐	☐
8.	Is the riser casing dented or damaged?	☐	☒	☐
9.	Is the concrete pad intact (free of cracks, chips, etc.)?	☒	☐	☐
10.	Does the pad move or is it unstable?	☐	☒	☐
11.	Are there gaps between pad and well casing?	☐	☒	☐
12.	Are there signs of erosion around the well or pad?	☐	☒	☐
13.	Is riser cap present?	☒	☐	☐
14.	Do the wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☒	☐	☐
15.	Do the flush mount wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
16.	Is the well secure (shut properly or locked, if applicable)?	☒	☐	☐
17.	Do the locks work properly?	☒	☐	☐
18.	Are the locks rusted?	☐	☒	☐
19.	Does surface water flow away from well casing (i.e., no ponding)?	☒	☐	☐
20.	Is TOC elevation mark clearly visible?	☒	☐	☐
21.	Has there been a change in land use that impacts the well? If yes, describe in comment section.	☐	☒	☐
22.	Will the well need any type of attention before the next groundwater surface measurement? If yes, describe in comment section.	☐	☒	☐

Comments / Observations regarding this well.

None.

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 04/24/19 Time: 1052

Monitoring Well Station Identification: HW23 ☐SLAPS* ☐SLDS ☒HISS

		Yes	No	N/A
1.	Is well identification number visible on outer casing for a stick up well?	☒	☐	☐
2.	Is well identification visible on top of well casing for flush mount well?	☐	☐	☒
3.	Is well accessible?	☒	☐	☐
4.	Is well covered/surrounded by vegetation?	☐	☒	☐
5.	Is there standing water or debris inside well casing? If so, remove water.	☐	☒	☐
6.	Is the weep hole open? If not, clear blockage.	☒	☐	☐
7.	Is the protective casing dented, damaged, rusted, or covered in other matter (i.e., bird droppings)?	☒	☐	☐
8.	Is the riser casing dented or damaged?	☐	☒	☐
9.	Is the concrete pad intact (free of cracks, chips, etc.)?	☒	☐	☐
10.	Does the pad move or is it unstable?	☐	☒	☐
11.	Are there gaps between pad and well casing?	☐	☒	☐
12.	Are there signs of erosion around the well or pad?	☐	☒	☐
13.	Is riser cap present?	☒	☐	☐
14.	Do the wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☒	☐	☐
15.	Do the flush mount wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
16.	Is the well secure (shut properly or locked, if applicable)?	☒	☐	☐
17.	Do the locks work properly?	☒	☐	☐
18.	Are the locks rusted?	☐	☒	☐
19.	Does surface water flow away from well casing (i.e., no ponding)?	☒	☐	☐
20.	Is TOC elevation mark clearly visible?	☒	☐	☐
21.	Has there been a change in land use that impacts the well? If yes, describe in comment section.	☐	☒	☐
22.	Will the well need any type of attention before the next groundwater surface measurement? If yes, describe in comment section.	☐	☒	☐

Comments / Observations regarding this well.

None.

* - SLAPS and SLAPS Vicinity Properties (VPs)

CALENDAR YEAR 2019 WELL MAINTENANCE CHECKLISTS FOR THE ST. LOUIS AIRPORT SITE AND ST. LOUIS AIRPORT SITE VICINITY PROPERTIES

THIS PAGE INTENTIONALLY LEFT BLANK

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 04/24/19 Time: 0945

Monitoring Well Station Identification: B53W01D ☒SLAPS* ☐SLDS ☐HISS

		Yes	No	N/A
1.	Is well identification number visible on outer casing for a stick up well?	☒	☐	☐
2.	Is well identification visible on top of well casing for flush mount well?	☐	☐	☒
3.	Is well accessible?	☒	☐	☐
4.	Is well covered/surrounded by vegetation?	☐	☒	☐
5.	Is there standing water or debris inside well casing? If so, remove water.	☐	☒	☐
6.	Is the weep hole open? If not, clear blockage.	☒	☐	☐
7.	Is the protective casing dented, damaged, rusted, or covered in other matter (i.e., bird droppings)?	☒	☐	☐
8.	Is the riser casing dented or damaged?	☐	☒	☐
9.	Is the concrete pad intact (free of cracks, chips, etc.)?	☒	☐	☐
10.	Does the pad move or is it unstable?	☐	☒	☐
11.	Are there gaps between pad and well casing?	☐	☒	☐
12.	Are there signs of erosion around the well or pad?	☐	☒	☐
13.	Is riser cap present?	☒	☐	☐
14.	Do the wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
15.	Do the flush mount wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
16.	Is the well secure (shut properly or locked, if applicable)?	☒	☐	☐
17.	Do the locks work properly?	☒	☐	☐
18.	Are the locks rusted?	☐	☒	☐
19.	Does surface water flow away from well casing (i.e., no ponding)?	☒	☐	☐
20.	Is TOC elevation mark clearly visible?	☒	☐	☐
21.	Has there been a change in land use that impacts the well? If yes, describe in comment section.	☐	☒	☐
22.	Will the well need any type of attention before the next groundwater surface measurement? If yes, describe in comment section.	☐	☒	☐

Comments / Observations regarding this well.
None.

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 04/24/19 Time: 0950

Monitoring Well Station Identification: B53W01S ☒SLAPS* ☐SLDS ☐HISS

		Yes	No	N/A
1.	Is well identification number visible on outer casing for a stick up well?	☒	☐	☐
2.	Is well identification visible on top of well casing for flush mount well?	☐	☐	☒
3.	Is well accessible?	☒	☐	☐
4.	Is well covered/surrounded by vegetation?	☐	☒	☐
5.	Is there standing water or debris inside well casing? If so, remove water.	☐	☒	☐
6.	Is the weep hole open? If not, clear blockage.	☒	☐	☐
7.	Is the protective casing dented, damaged, rusted, or covered in other matter (i.e., bird droppings)?	☒	☐	☐
8.	Is the riser casing dented or damaged?	☐	☒	☐
9.	Is the concrete pad intact (free of cracks, chips, etc.)?	☒	☐	☐
10.	Does the pad move or is it unstable?	☐	☒	☐
11.	Are there gaps between pad and well casing?	☐	☒	☐
12.	Are there signs of erosion around the well or pad?	☐	☒	☐
13.	Is riser cap present?	☒	☐	☐
14.	Do the wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
15.	Do the flush mount wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
16.	Is the well secure (shut properly or locked, if applicable)?	☒	☐	☐
17.	Do the locks work properly?	☒	☐	☐
18.	Are the locks rusted?	☐	☒	☐
19.	Does surface water flow away from well casing (i.e., no ponding)?	☒	☐	☐
20.	Is TOC elevation mark clearly visible?	☒	☐	☐
21.	Has there been a change in land use that impacts the well? If yes, describe in comment section.	☐	☒	☐
22.	Will the well need any type of attention before the next groundwater surface measurement? If yes, describe in comment section.	☐	☒	☐

Comments / Observations regarding this well.

None.

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 04/24/19 Time: 1230

Monitoring Well Station Identification: B53W06S ☒SLAPS* ☐SLDS ☐HISS

		Yes	No	N/A
1.	Is well identification number visible on outer casing for a stick up well?	☐	☐	☒
2.	Is well identification visible on top of well casing for flush mount well?	☐	☒	☐
3.	Is well accessible?	☒	☐	☐
4.	Is well covered/surrounded by vegetation?	☐	☒	☐
5.	Is there standing water or debris inside well casing? If so, remove water.	☐	☒	☐
6.	Is the weep hole open? If not, clear blockage.	☒	☐	☐
7.	Is the protective casing dented, damaged, rusted, or covered in other matter (i.e., bird droppings)?	☐	☒	☐
8.	Is the riser casing dented or damaged?	☐	☒	☐
9.	Is the concrete pad intact (free of cracks, chips, etc.)?	☒	☐	☐
10.	Does the pad move or is it unstable?	☐	☒	☐
11.	Are there gaps between pad and well casing?	☐	☒	☐
12.	Are there signs of erosion around the well or pad?	☐	☒	☐
13.	Is riser cap present?	☒	☐	☐
14.	Do the wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
15.	Do the flush mount wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☒	☐	☐
16.	Is the well secure (shut properly or locked, if applicable)?	☒	☐	☐
17.	Do the locks work properly?	☒	☐	☐
18.	Are the locks rusted?	☐	☒	☐
19.	Does surface water flow away from well casing (i.e., no ponding)?	☒	☐	☐
20.	Is TOC elevation mark clearly visible?	☒	☐	☐
21.	Has there been a change in land use that impacts the well? If yes, describe in comment section.	☐	☒	☐
22.	Will the well need any type of attention before the next groundwater surface measurement? If yes, describe in comment section.	☐	☒	☐

Comments / Observations regarding this well.

Paint lid.

Re-mark/label well ID on lid.

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 04/24/19 Time: 1235

Monitoring Well Station Identification: B53W07D ☒SLAPS* ☐SLDS ☐HISS

		Yes	No	N/A
1.	Is well identification number visible on outer casing for a stick up well?	☒	☐	☐
2.	Is well identification visible on top of well casing for flush mount well?	☐	☐	☒
3.	Is well accessible?	☒	☐	☐
4.	Is well covered/surrounded by vegetation?	☐	☒	☐
5.	Is there standing water or debris inside well casing? If so, remove water.	☐	☒	☐
6.	Is the weep hole open? If not, clear blockage.	☒	☐	☐
7.	Is the protective casing dented, damaged, rusted, or covered in other matter (i.e., bird droppings)?	☒	☐	☐
8.	Is the riser casing dented or damaged?	☐	☒	☐
9.	Is the concrete pad intact (free of cracks, chips, etc.)?	☒	☐	☐
10.	Does the pad move or is it unstable?	☐	☒	☐
11.	Are there gaps between pad and well casing?	☐	☒	☐
12.	Are there signs of erosion around the well or pad?	☐	☒	☐
13.	Is riser cap present?	☒	☐	☐
14.	Do the wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☒	☐	☐
15.	Do the flush mount wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
16.	Is the well secure (shut properly or locked, if applicable)?	☒	☐	☐
17.	Do the locks work properly?	☒	☐	☐
18.	Are the locks rusted?	☐	☒	☐
19.	Does surface water flow away from well casing (i.e., no ponding)?	☒	☐	☐
20.	Is TOC elevation mark clearly visible?	☒	☐	☐
21.	Has there been a change in land use that impacts the well? If yes, describe in comment section.	☐	☒	☐
22.	Will the well need any type of attention before the next groundwater surface measurement? If yes, describe in comment section.	☐	☒	☐

Comments / Observations regarding this well.

Paint

Re-mark/label well ID on protective casing.

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 04/24/19 Time: 1235

Monitoring Well Station Identification: B53W07S ☒SLAPS* ☐SLDS ☐HISS

		Yes	No	N/A
1.	Is well identification number visible on outer casing for a stick up well?	☐	☒	☐
2.	Is well identification visible on top of well casing for flush mount well?	☐	☐	☒
3.	Is well accessible?	☒	☐	☐
4.	Is well covered/surrounded by vegetation?	☐	☒	☐
5.	Is there standing water or debris inside well casing? If so, remove water.	☐	☒	☐
6.	Is the weep hole open? If not, clear blockage.	☒	☐	☐
7.	Is the protective casing dented, damaged, rusted, or covered in other matter (i.e., bird droppings)?	☒	☐	☐
8.	Is the riser casing dented or damaged?	☐	☒	☐
9.	Is the concrete pad intact (free of cracks, chips, etc.)?	☒	☐	☐
10.	Does the pad move or is it unstable?	☐	☒	☐
11.	Are there gaps between pad and well casing?	☐	☒	☐
12.	Are there signs of erosion around the well or pad?	☐	☒	☐
13.	Is riser cap present?	☒	☐	☐
14.	Do the wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☒	☐	☐
15.	Do the flush mount wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
16.	Is the well secure (shut properly or locked, if applicable)?	☒	☐	☐
17.	Do the locks work properly?	☒	☐	☐
18.	Are the locks rusted?	☐	☒	☐
19.	Does surface water flow away from well casing (i.e., no ponding)?	☒	☐	☐
20.	Is TOC elevation mark clearly visible?	☒	☐	☐
21.	Has there been a change in land use that impacts the well? If yes, describe in comment section.	☐	☒	☐
22.	Will the well need any type of attention before the next groundwater surface measurement? If yes, describe in comment section.	☐	☒	☐

Comments / Observations regarding this well.

Paint

Re-mark/label well ID on the protective casing.

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 04/24/19 Time: 1240

Monitoring Well Station Identification: B53W09S ☒SLAPS* ☐SLDS ☐HISS

		Yes	No	N/A
1.	Is well identification number visible on outer casing for a stick up well?	☒	☐	☐
2.	Is well identification visible on top of well casing for flush mount well?	☐	☐	☒
3.	Is well accessible?	☒	☐	☐
4.	Is well covered/surrounded by vegetation?	☒	☐	☐
5.	Is there standing water or debris inside well casing? If so, remove water.	☐	☒	☐
6.	Is the weep hole open? If not, clear blockage.	☒	☐	☐
7.	Is the protective casing dented, damaged, rusted, or covered in other matter (i.e., bird droppings)?	☐	☒	☐
8.	Is the riser casing dented or damaged?	☐	☒	☐
9.	Is the concrete pad intact (free of cracks, chips, etc.)?	☒	☐	☐
10.	Does the pad move or is it unstable?	☐	☒	☐
11.	Are there gaps between pad and well casing?	☐	☒	☐
12.	Are there signs of erosion around the well or pad?	☐	☒	☐
13.	Is riser cap present?	☒	☐	☐
14.	Do the wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☒	☐	☐
15.	Do the flush mount wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
16.	Is the well secure (shut properly or locked, if applicable)?	☒	☐	☐
17.	Do the locks work properly?	☒	☐	☐
18.	Are the locks rusted?	☐	☒	☐
19.	Does surface water flow away from well casing (i.e., no ponding)?	☒	☐	☐
20.	Is TOC elevation mark clearly visible?	☒	☐	☐
21.	Has there been a change in land use that impacts the well? If yes, describe in comment section.	☐	☒	☐
22.	Will the well need any type of attention before the next groundwater surface measurement? If yes, describe in comment section.	☐	☒	☐

Comments / Observations regarding this well.

None.

Well lid bent but functional.

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 04/24/19 Time: 1245

Monitoring Well Station Identification: B53W13S ☒SLAPS* ☐SLDS ☐HISS

		Yes	No	N/A
1.	Is well identification number visible on outer casing for a stick up well?	☐	☒	☐
2.	Is well identification visible on top of well casing for flush mount well?	☐	☐	☒
3.	Is well accessible?	☒	☐	☐
4.	Is well covered/surrounded by vegetation?	☐	☒	☐
5.	Is there standing water or debris inside well casing? If so, remove water.	☐	☒	☐
6.	Is the weep hole open? If not, clear blockage.	☒	☐	☐
7.	Is the protective casing dented, damaged, rusted, or covered in other matter (i.e., bird droppings)?	☒	☐	☐
8.	Is the riser casing dented or damaged?	☐	☒	☐
9.	Is the concrete pad intact (free of cracks, chips, etc.)?	☒	☐	☐
10.	Does the pad move or is it unstable?	☐	☒	☐
11.	Are there gaps between pad and well casing?	☐	☒	☐
12.	Are there signs of erosion around the well or pad?	☐	☒	☐
13.	Is riser cap present?	☒	☐	☐
14.	Do the wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☒	☐	☐
15.	Do the flush mount wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
16.	Is the well secure (shut properly or locked, if applicable)?	☒	☐	☐
17.	Do the locks work properly?	☐	☒	☐
18.	Are the locks rusted?	☐	☒	☐
19.	Does surface water flow away from well casing (i.e., no ponding)?	☒	☐	☐
20.	Is TOC elevation mark clearly visible?	☒	☐	☐
21.	Has there been a change in land use that impacts the well? If yes, describe in comment section.	☐	☒	☐
22.	Will the well need any type of attention before the next groundwater surface measurement? If yes, describe in comment section.	☒	☐	☐

Comments / Observations regarding this well.

Addition of protective bollards or decommissioning the well recommended.

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 04/24/19 Time: 1250

Monitoring Well Station Identification: B53W17S ☒SLAPS* ☐SLDS ☐HISS

		Yes	No	N/A
1.	Is well identification number visible on outer casing for a stick up well?	☒	☐	☐
2.	Is well identification visible on top of well casing for flush mount well?	☐	☐	☒
3.	Is well accessible?	☒	☐	☐
4.	Is well covered/surrounded by vegetation?	☐	☒	☐
5.	Is there standing water or debris inside well casing? If so, remove water.	☐	☒	☐
6.	Is the weep hole open? If not, clear blockage.	☒	☐	☐
7.	Is the protective casing dented, damaged, rusted, or covered in other matter (i.e., bird droppings)?	☐	☒	☐
8.	Is the riser casing dented or damaged?	☐	☒	☐
9.	Is the concrete pad intact (free of cracks, chips, etc.)?	☒	☐	☐
10.	Does the pad move or is it unstable?	☐	☒	☐
11.	Are there gaps between pad and well casing?	☐	☒	☐
12.	Are there signs of erosion around the well or pad?	☐	☒	☐
13.	Is riser cap present?	☒	☐	☐
14.	Do the wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☒	☐	☐
15.	Do the flush mount wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
16.	Is the well secure (shut properly or locked, if applicable)?	☒	☐	☐
17.	Do the locks work properly?	☒	☐	☐
18.	Are the locks rusted?	☐	☒	☐
19.	Does surface water flow away from well casing (i.e., no ponding)?	☒	☐	☐
20.	Is TOC elevation mark clearly visible?	☒	☐	☐
21.	Has there been a change in land use that impacts the well? If yes, describe in comment section.	☐	☒	☐
22.	Will the well need any type of attention before the next groundwater surface measurement? If yes, describe in comment section.	☒	☐	☐

Comments / Observations regarding this well.

Paint lid. Re-mark/label well ID on top of protective casing.

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 04/24/19 Time: 0955

Monitoring Well Station Identification: B53W18S ☒SLAPS* ☐SLDS ☐HISS

		Yes	No	N/A
1.	Is well identification number visible on outer casing for a stick up well?	☒	☐	☐
2.	Is well identification visible on top of well casing for flush mount well?	☐	☐	☒
3.	Is well accessible?	☒	☐	☐
4.	Is well covered/surrounded by vegetation?	☐	☒	☐
5.	Is there standing water or debris inside well casing? If so, remove water.	☐	☒	☐
6.	Is the weep hole open? If not, clear blockage.	☒	☐	☐
7.	Is the protective casing dented, damaged, rusted, or covered in other matter (i.e., bird droppings)?	☐	☒	☐
8.	Is the riser casing dented or damaged?	☐	☒	☐
9.	Is the concrete pad intact (free of cracks, chips, etc.)?	☒	☐	☐
10.	Does the pad move or is it unstable?	☐	☒	☐
11.	Are there gaps between pad and well casing?	☐	☒	☐
12.	Are there signs of erosion around the well or pad?	☐	☒	☐
13.	Is riser cap present?	☒	☐	☐
14.	Do the wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☒	☐	☐
15.	Do the flush mount wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
16.	Is the well secure (shut properly or locked, if applicable)?	☒	☐	☐
17.	Do the locks work properly?	☒	☐	☐
18.	Are the locks rusted?	☐	☒	☐
19.	Does surface water flow away from well casing (i.e., no ponding)?	☒	☐	☐
20.	Is TOC elevation mark clearly visible?	☒	☐	☐
21.	Has there been a change in land use that impacts the well? If yes, describe in comment section.	☐	☒	☐
22.	Will the well need any type of attention before the next groundwater surface measurement? If yes, describe in comment section.	☐	☒	☐

Comments / Observations regarding this well.

Re-mark/label well ID on the protective casing.

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 04/24/19 Time: 1020

Monitoring Well Station Identification: B53W19S ☒SLAPS* ☐SLDS ☐HISS

		Yes	No	N/A
1.	Is well identification number visible on outer casing for a stick up well?	☐	☐	☒
2.	Is well identification visible on top of well casing for flush mount well?	☒	☐	☐
3.	Is well accessible?	☒	☐	☐
4.	Is well covered/surrounded by vegetation?	☐	☒	☐
5.	Is there standing water or debris inside well casing? If so, remove water.	☐	☒	☐
6.	Is the weep hole open? If not, clear blockage.	☐	☐	☒
7.	Is the protective casing dented, damaged, rusted, or covered in other matter (i.e., bird droppings)?	☐	☒	☐
8.	Is the riser casing dented or damaged?	☐	☒	☐
9.	Is the concrete pad intact (free of cracks, chips, etc.)?	☒	☐	☐
10.	Does the pad move or is it unstable?	☐	☒	☐
11.	Are there gaps between pad and well casing?	☐	☒	☐
12.	Are there signs of erosion around the well or pad?	☐	☒	☐
13.	Is riser cap present?	☒	☐	☐
14.	Do the wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
15.	Do the flush mount wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
16.	Is the well secure (shut properly or locked, if applicable)?	☒	☐	☐
17.	Do the locks work properly?	☒	☐	☐
18.	Are the locks rusted?	☐	☒	☐
19.	Does surface water flow away from well casing (i.e., no ponding)?	☒	☐	☐
20.	Is TOC elevation mark clearly visible?	☒	☐	☐
21.	Has there been a change in land use that impacts the well? If yes, describe in comment section.	☐	☒	☐
22.	Will the well need any type of attention before the next groundwater surface measurement? If yes, describe in comment section.	☐	☒	☐

Comments / Observations regarding this well.

None.

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 04/24/19 Time: 1250

Monitoring Well Station Identification: MW31-98 ☒SLAPS* ☐SLDS ☐HISS

		Yes	No	N/A
1.	Is well identification number visible on outer casing for a stick up well?	☒	☐	☐
2.	Is well identification visible on top of well casing for flush mount well?	☐	☐	☒
3.	Is well accessible?	☒	☐	☐
4.	Is well covered/surrounded by vegetation?	☐	☒	☐
5.	Is there standing water or debris inside well casing? If so, remove water.	☐	☒	☐
6.	Is the weep hole open? If not, clear blockage.	☒	☐	☐
7.	Is the protective casing dented, damaged, rusted, or covered in other matter (i.e., bird droppings)?	☒	☐	☐
8.	Is the riser casing dented or damaged?	☐	☒	☐
9.	Is the concrete pad intact (free of cracks, chips, etc.)?	☒	☐	☐
10.	Does the pad move or is it unstable?	☐	☒	☐
11.	Are there gaps between pad and well casing?	☐	☒	☐
12.	Are there signs of erosion around the well or pad?	☐	☒	☐
13.	Is riser cap present?	☒	☐	☐
14.	Do the wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☒	☐	☐
15.	Do the flush mount wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
16.	Is the well secure (shut properly or locked, if applicable)?	☒	☐	☐
17.	Do the locks work properly?	☒	☐	☐
18.	Are the locks rusted?	☐	☒	☐
19.	Does surface water flow away from well casing (i.e., no ponding)?	☒	☐	☐
20.	Is TOC elevation mark clearly visible?	☒	☐	☐
21.	Has there been a change in land use that impacts the well? If yes, describe in comment section.	☐	☒	☐
22.	Will the well need any type of attention before the next groundwater surface measurement? If yes, describe in comment section.	☐	☒	☐

Comments / Observations regarding this well.

None.

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 04/24/19 Time: 1230

Monitoring Well Station Identification: MW32-98 ☒SLAPS* ☐SLDS ☐HISS

		Yes	No	N/A
1.	Is well identification number visible on outer casing for a stick up well?	☒	☐	☐
2.	Is well identification visible on top of well casing for flush mount well?	☐	☐	☒
3.	Is well accessible?	☒	☐	☐
4.	Is well covered/surrounded by vegetation?	☐	☒	☐
5.	Is there standing water or debris inside well casing? If so, remove water.	☐	☒	☐
6.	Is the weep hole open? If not, clear blockage.	☒	☐	☐
7.	Is the protective casing dented, damaged, rusted, or covered in other matter (i.e., bird droppings)?	☒	☐	☐
8.	Is the riser casing dented or damaged?	☐	☒	☐
9.	Is the concrete pad intact (free of cracks, chips, etc.)?	☒	☐	☐
10.	Does the pad move or is it unstable?	☐	☒	☐
11.	Are there gaps between pad and well casing?	☐	☒	☐
12.	Are there signs of erosion around the well or pad?	☐	☒	☐
13.	Is riser cap present?	☒	☐	☐
14.	Do the wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☒	☐	☐
15.	Do the flush mount wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
16.	Is the well secure (shut properly or locked, if applicable)?	☒	☐	☐
17.	Do the locks work properly?	☒	☐	☐
18.	Are the locks rusted?	☐	☒	☐
19.	Does surface water flow away from well casing (i.e., no ponding)?	☒	☐	☐
20.	Is TOC elevation mark clearly visible?	☒	☐	☐
21.	Has there been a change in land use that impacts the well? If yes, describe in comment section.	☐	☒	☐
22.	Will the well need any type of attention before the next groundwater surface measurement? If yes, describe in comment section.	☐	☒	☐

Comments / Observations regarding this well.

None.

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 04/24/19 Time: 1015

Monitoring Well Station Identification: PW35 ☒SLAPS* ☐SLDS ☐HISS

		Yes	No	N/A
1.	Is well identification number visible on outer casing for a stick up well?	☐	☐	☒
2.	Is well identification visible on top of well casing for flush mount well?	☒	☐	☐
3.	Is well accessible?	☒	☐	☐
4.	Is well covered/surrounded by vegetation?	☐	☒	☐
5.	Is there standing water or debris inside well casing? If so, remove water.	☒	☐	☐
6.	Is the weep hole open? If not, clear blockage.	☐	☐	☒
7.	Is the protective casing dented, damaged, rusted, or covered in other matter (i.e., bird droppings)?	☒	☐	☐
8.	Is the riser casing dented or damaged?	☐	☒	☐
9.	Is the concrete pad intact (free of cracks, chips, etc.)?	☐	☒	☐
10.	Does the pad move or is it unstable?	☒	☐	☐
11.	Are there gaps between pad and well casing?	☒	☐	☐
12.	Are there signs of erosion around the well or pad?	☐	☒	☐
13.	Is riser cap present?	☒	☐	☐
14.	Do the wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
15.	Do the flush mount wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
16.	Is the well secure (shut properly or locked, if applicable)?	☒	☐	☐
17.	Do the locks work properly?	☒	☐	☐
18.	Are the locks rusted?	☐	☒	☐
19.	Does surface water flow away from well casing (i.e., no ponding)?	☒	☐	☐
20.	Is TOC elevation mark clearly visible?	☒	☐	☐
21.	Has there been a change in land use that impacts the well? If yes, describe in comment section.	☐	☒	☐
22.	Will the well need any type of attention before the next groundwater surface measurement? If yes, describe in comment section.	☒	☐	☐

Comments / Observations regarding this well.

Well pad is cracked and needs replacement. Vault fills with water.

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 04/24/19 Time: 1015

Monitoring Well Station Identification: PW36 ☒SLAPS* ☐SLDS ☐HISS

		Yes	No	N/A
1.	Is well identification number visible on outer casing for a stick up well?	☐	☐	☒
2.	Is well identification visible on top of well casing for flush mount well?	☒	☐	☐
3.	Is well accessible?	☒	☐	☐
4.	Is well covered/surrounded by vegetation?	☐	☒	☐
5.	Is there standing water or debris inside well casing? If so, remove water.	☐	☒	☐
6.	Is the weep hole open? If not, clear blockage.	☐	☐	☒
7.	Is the protective casing dented, damaged, rusted, or covered in other matter (i.e., bird droppings)?	☐	☒	☐
8.	Is the riser casing dented or damaged?	☐	☒	☐
9.	Is the concrete pad intact (free of cracks, chips, etc.)?	☐	☒	☐
10.	Does the pad move or is it unstable?	☒	☐	☐
11.	Are there gaps between pad and well casing?	☐	☒	☐
12.	Are there signs of erosion around the well or pad?	☐	☒	☐
13.	Is riser cap present?	☒	☐	☐
14.	Do the wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
15.	Do the flush mount wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
16.	Is the well secure (shut properly or locked, if applicable)?	☒	☐	☐
17.	Do the locks work properly?	☐	☒	☐
18.	Are the locks rusted?	☒	☐	☐
19.	Does surface water flow away from well casing (i.e., no ponding)?	☒	☐	☐
20.	Is TOC elevation mark clearly visible?	☒	☐	☐
21.	Has there been a change in land use that impacts the well? If yes, describe in comment section.	☐	☒	☐
22.	Will the well need any type of attention before the next groundwater surface measurement? If yes, describe in comment section.	☒	☐	☐

Comments / Observations regarding this well.

Well pad is loose and needs repair/replacement. Vault fills with water.

Vault full of water. Vault pushed up by the freeze thaw cycle to the point where the pressure cap

cannot be removed without water from the vault getting into the well.

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 04/24/19 Time: 1240

Monitoring Well Station Identification: PW42 ☒SLAPS* ☐SLDS ☐HISS

		Yes	No	N/A
1.	Is well identification number visible on outer casing for a stick up well?	☒	☐	☐
2.	Is well identification visible on top of well casing for flush mount well?	☐	☐	☒
3.	Is well accessible?	☒	☐	☐
4.	Is well covered/surrounded by vegetation?	☐	☒	☐
5.	Is there standing water or debris inside well casing? If so, remove water.	☐	☒	☐
6.	Is the weep hole open? If not, clear blockage.	☒	☐	☐
7.	Is the protective casing dented, damaged, rusted, or covered in other matter (i.e., bird droppings)?	☐	☒	☐
8.	Is the riser casing dented or damaged?	☐	☒	☐
9.	Is the concrete pad intact (free of cracks, chips, etc.)?	☒	☐	☐
10.	Does the pad move or is it unstable?	☐	☒	☐
11.	Are there gaps between pad and well casing?	☐	☒	☐
12.	Are there signs of erosion around the well or pad?	☐	☒	☐
13.	Is riser cap present?	☒	☐	☐
14.	Do the wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☒	☐	☐
15.	Do the flush mount wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
16.	Is the well secure (shut properly or locked, if applicable)?	☒	☐	☐
17.	Do the locks work properly?	☒	☐	☐
18.	Are the locks rusted?	☐	☒	☐
19.	Does surface water flow away from well casing (i.e., no ponding)?	☒	☐	☐
20.	Is TOC elevation mark clearly visible?	☒	☐	☐
21.	Has there been a change in land use that impacts the well? If yes, describe in comment section.	☐	☒	☐
22.	Will the well need any type of attention before the next groundwater surface measurement? If yes, describe in comment section.	☐	☒	☐

Comments / Observations regarding this well.

Re-mark/label well ID on protective casing.

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 04/24/18 Time: 1235

Monitoring Well Station Identification: PW43 ☒SLAPS* ☐SLDS ☐HISS

		Yes	No	N/A
1.	Is well identification number visible on outer casing for a stick up well?	☒	☐	☐
2.	Is well identification visible on top of well casing for flush mount well?	☐	☐	☒
3.	Is well accessible?	☒	☐	☐
4.	Is well covered/surrounded by vegetation?	☐	☒	☐
5.	Is there standing water or debris inside well casing? If so, remove water.	☐	☒	☐
6.	Is the weep hole open? If not, clear blockage.	☒	☐	☐
7.	Is the protective casing dented, damaged, rusted, or covered in other matter (i.e., bird droppings)?	☐	☒	☐
8.	Is the riser casing dented or damaged?	☐	☒	☐
9.	Is the concrete pad intact (free of cracks, chips, etc.)?	☒	☐	☐
10.	Does the pad move or is it unstable?	☐	☒	☐
11.	Are there gaps between pad and well casing?	☐	☒	☐
12.	Are there signs of erosion around the well or pad?	☐	☒	☐
13.	Is riser cap present?	☒	☐	☐
14.	Do the wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☒	☐	☐
15.	Do the flush mount wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
16.	Is the well secure (shut properly or locked, if applicable)?	☒	☐	☐
17.	Do the locks work properly?	☒	☐	☐
18.	Are the locks rusted?	☐	☒	☐
19.	Does surface water flow away from well casing (i.e., no ponding)?	☒	☐	☐
20.	Is TOC elevation mark clearly visible?	☒	☐	☐
21.	Has there been a change in land use that impacts the well? If yes, describe in comment section.	☐	☒	☐
22.	Will the well need any type of attention before the next groundwater surface measurement? If yes, describe in comment section.	☐	☒	☐

Comments / Observations regarding this well.

Re-mark/label well ID on protective casing.

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 04/24/19 Time: 1010

Monitoring Well Station Identification: PW44 ☒SLAPS* ☐SLDS ☐HISS

#	Question	Yes	No	N/A
1.	Is well identification number visible on outer casing for a stick up well?	☒	☐	☐
2.	Is well identification visible on top of well casing for flush mount well?	☐	☐	☒
3.	Is well accessible?	☒	☐	☐
4.	Is well covered/surrounded by vegetation?	☐	☒	☐
5.	Is there standing water or debris inside well casing? If so, remove water.	☐	☒	☐
6.	Is the weep hole open? If not, clear blockage.	☐	☒	☐
7.	Is the protective casing dented, damaged, rusted, or covered in other matter (i.e., bird droppings)?	☐	☒	☐
8.	Is the riser casing dented or damaged?	☐	☒	☐
9.	Is the concrete pad intact (free of cracks, chips, etc.)?	☒	☐	☐
10.	Does the pad move or is it unstable?	☒	☐	☐
11.	Are there gaps between pad and well casing?	☒	☐	☐
12.	Are there signs of erosion around the well or pad?	☐	☒	☐
13.	Is riser cap present?	☒	☐	☐
14.	Do the wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☒	☐	☐
15.	Do the flush mount wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
16.	Is the well secure (shut properly or locked, if applicable)?	☒	☐	☐
17.	Do the locks work properly?	☒	☐	☐
18.	Are the locks rusted?	☐	☒	☐
19.	Does surface water flow away from well casing (i.e., no ponding)?	☒	☐	☐
20.	Is TOC elevation mark clearly visible?	☒	☐	☐
21.	Has there been a change in land use that impacts the well? If yes, describe in comment section.	☐	☒	☐
22.	Will the well need any type of attention before the next groundwater surface measurement? If yes, describe in comment section.	☐	☒	☐

Comments / Observations regarding this well.
None.

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 04/24/19 Time: 1005

Monitoring Well Station Identification: PW45 ☒SLAPS* ☐SLDS ☐HISS

		Yes	No	N/A
1.	Is well identification number visible on outer casing for a stick up well?	☐	☒	☐
2.	Is well identification visible on top of well casing for flush mount well?	☐	☐	☒
3.	Is well accessible?	☒	☐	☐
4.	Is well covered/surrounded by vegetation?	☐	☒	☐
5.	Is there standing water or debris inside well casing? If so, remove water.	☐	☒	☐
6.	Is the weep hole open? If not, clear blockage.	☒	☐	☐
7.	Is the protective casing dented, damaged, rusted, or covered in other matter (i.e., bird droppings)?	☐	☒	☐
8.	Is the riser casing dented or damaged?	☐	☒	☐
9.	Is the concrete pad intact (free of cracks, chips, etc.)?	☒	☐	☐
10.	Does the pad move or is it unstable?	☐	☒	☐
11.	Are there gaps between pad and well casing?	☐	☒	☐
12.	Are there signs of erosion around the well or pad?	☐	☒	☐
13.	Is riser cap present?	☒	☐	☐
14.	Do the wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☒	☐	☐
15.	Do the flush mount wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
16.	Is the well secure (shut properly or locked, if applicable)?	☒	☐	☐
17.	Do the locks work properly?	☒	☐	☐
18.	Are the locks rusted?	☐	☒	☐
19.	Does surface water flow away from well casing (i.e., no ponding)?	☒	☐	☐
20.	Is TOC elevation mark clearly visible?	☒	☐	☐
21.	Has there been a change in land use that impacts the well? If yes, describe in comment section.	☐	☒	☐
22.	Will the well need any type of attention before the next groundwater surface measurement? If yes, describe in comment section.	☐	☒	☐

Comments / Observations regarding this well.

Re-mark/label well ID on protective casing.

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 04/24/19 Time: 1000

Monitoring Well Station Identification: PW46 ☒SLAPS* ☐SLDS ☐HISS

		Yes	No	N/A
1.	Is well identification number visible on outer casing for a stick up well?	☐	☒	☐
2.	Is well identification visible on top of well casing for flush mount well?	☐	☐	☒
3.	Is well accessible?	☒	☐	☐
4.	Is well covered/surrounded by vegetation?	☐	☒	☐
5.	Is there standing water or debris inside well casing? If so, remove water.	☐	☒	☐
6.	Is the weep hole open? If not, clear blockage.	☒	☐	☐
7.	Is the protective casing dented, damaged, rusted, or covered in other matter (i.e., bird droppings)?	☐	☒	☐
8.	Is the riser casing dented or damaged?	☐	☒	☐
9.	Is the concrete pad intact (free of cracks, chips, etc.)?	☒	☐	☐
10.	Does the pad move or is it unstable?	☐	☒	☐
11.	Are there gaps between pad and well casing?	☐	☒	☐
12.	Are there signs of erosion around the well or pad?	☐	☒	☐
13.	Is riser cap present?	☒	☐	☐
14.	Do the wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☒	☐	☐
15.	Do the flush mount wells in the Mississippi River and Coldwater Creek floodplain have a properly working pressure cap?	☐	☐	☒
16.	Is the well secure (shut properly or locked, if applicable)?	☒	☐	☐
17.	Do the locks work properly?	☒	☐	☐
18.	Are the locks rusted?	☒	☐	☐
19.	Does surface water flow away from well casing (i.e., no ponding)?	☒	☐	☐
20.	Is TOC elevation mark clearly visible?	☒	☐	☐
21.	Has there been a change in land use that impacts the well? If yes, describe in comment section.	☐	☒	☐
22.	Will the well need any type of attention before the next groundwater surface measurement? If yes, describe in comment section.	☐	☒	☐

Comments / Observations regarding this well.

Re-mark/label well ID on protective casing.

* - SLAPS and SLAPS Vicinity Properties (VPs)

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX H

DOSE ASSESSMENT ASSUMPTIONS

THIS PAGE INTENTIONALLY LEFT BLANK

DOSE ASSESSMENT ASSUMPTIONS

DOSE FROM THE LATTY AVENUE PROPERTIES TO A MAXIMALLY EXPOSED INDIVIDUAL

The TEDE to a hypothetical maximally exposed individual was calculated for an area adjacent to the VP-40A railroad tracks. Dose from the remainder of the Latty Avenue Properties is considered negligible.

This section discusses the estimated TEDE to a hypothetical maximally exposed individual assumed to work in an area directly adjacent to the railroad tracks on VP-40A near the fence on the boundary of VP-40A and Futura. No private residences are adjacent to the site. Therefore, all calculations of dose equivalent due to the applicable pathway assume a realistic residence time that is less than 100 percent. A full-time-employee business receptor was considered the maximally exposed individual for the Latty Avenue Properties.

The exposure scenario assumptions are as follows:

- Exposure to external gamma radiation and radon from VP-40A sources occurs to the maximally exposed individual while working full time outside at the receptor location (i.e., Futura) located approximately 75 m east from the area identified as having the highest external gamma level in the area adjacent to Futura. Exposure time is 2,000 hours per year (Leidos 2020b).
- Exposure from external gamma radiation was calculated using environmental TLD monitoring data at the perimeter between the source and the receptor. The site is assumed to represent a line-source to the receptor (Leidos 2020b).
- Exposure from Rn-222 (and decay chain isotopes) was calculated using a dispersion factor and Rn-222 (ATD) monitoring data at the site perimeter between the source and the receptor (Leidos 2020b).

External Gamma Pathway

The VP-40A TLDs measured an average above background annual exposure of 6.0 mrem per year based on 8,760 hours of continuous exposure. The dose equivalent due to gamma exposure for the maximally exposed individual is estimated by assuming the site approximates a line source with a source strength (H_1) that is the average of the TLD measurements between the source and the receptor (Cember 1996).

$$H_1 = 6.0 \text{ mrem/year}$$

Based on a 100-percent occupancy rate, the exposure rate (H_2) to the receptor was calculated.

$$H_2 = H_1 \times \frac{h_1}{h_2} * \frac{\tan^{-1}(L/h_2)}{\tan^{-1}(L/h_1)}$$

$$H_2 = 1.6\text{E-}01 \text{ mrem/year}$$

where:

H_2 = exposure rate to the receptor (continuous exposure)
H_1 = exposure rate to TLDs
h_2 = distance from source to receptor = 75 m
h_1 = distance from source to TLDs = 5 m
L = average distance from centerline of the line source (H_1) to the end of the line source = 50 m

The actual dose to the maximally exposed individual, who is present during a normal work year only, was calculated.

$$H_{MEI} = H_2 \times \frac{2{,}000 \text{ hours per work year}}{8{,}760 \text{ hours per total year}} = 3.7\text{-}02 \text{ mrem/year}$$

$$H_{MEI} = <0.1 \text{ mrem/year}$$

Airborne Radon Pathway

The VP-40A ATDs measured an average above background annual exposure of 0.05 pCi/L based on 8,760 hours of continuous exposure. Exposure to the receptor from radon (and decay chain isotopes) was estimated using a dispersion factor (C_2) and the average ATD monitoring data (S_1) at the site perimeter between the source and the receptor (Leidos 2020b).

In order to calculate the dispersion factor, the radon concentrations were determined for a receptor located at 1 m and 75 m east of the monitored area on VP-40A by inputting a radon release rate of 1 Ci per year, the St. Louis – Lambert International Airport wind file, and a surface area of 300 m^2 into the CAP88-PC model. The CAP88-PC input data and the result of the CAP88-PC run are highlighted and presented in Appendix A. The radon dispersion factor (C_2) for the site was calculated as follows:

$$C_2 = (9.45\text{E-}03)/(2.25\text{E-}02) = 0.42$$

The average of ATD monitoring data (S_1) at the site perimeter (Futura fence line) was calculated as follows:

$$S_1 = 0.05 \text{ pCi/L}$$

The actual radon exposure dose to the hypothetical maximally exposed individual was calculated.

$$S_{MEI} = S_1 \times F \times DCF \times T \times C_1 \times C_2$$

$$S_{MEI} = 0.05 \text{ pCi/L} * 0.007 \text{ WL/pCi.L} * 1{,}250 \text{ mrem/WLM} * 2{,}000 \text{ hours/year} * 1 \text{ month/170 hours} * 0.42$$

$$S_{MEI} = 2.2 \text{ mrem/year}$$

where:

S_{MEI}	=	radon exposure to the hypothetical maximally exposed individual
S_1	=	fenceline average of ATD measurements between source and receptor
F	=	equilibrium fraction based on Section 4 of *Measurement of Radon and Radon Daughters in Air,* 1 WL = 100 pCi/L and 0.7 outdoor equilibrium factor (NRCP 1988)
DCF	=	dose conversion factor (USEPA 1989b) = 1,250 mrem per working level month (WLM)
T	=	exposure time = 2,000 hours per year
C_1	=	occupancy factor constant = 1 month per 170 hours
C_2	=	constant derived using CAP88-PC Version 4.1, the Lambert – St. Louis International Airport wind file (assuming a distance of 75 m), and an impacted surface area of 300 m^2). Calculation assumes a 1 Ci per year radon release rate, then ratios the concentrations at 1 m and 75 m to determine the constant.
WL	=	working level (concentration unit)
WLM	=	working level month (exposure unit)

Total Effective Dose Equivalent

Based on the exposure scenario and assumptions described previously, a maximally exposed individual working outside at the receptor facility 75 m east of the area adjacent to Futura identified as having the highest external gamma level would have received less than 0.1 mrem per year from external gamma, and 0.6 mrem per year from Rn-222, for a TEDE of 0.6 mrem per year (Leidos 2020b).

$$\text{TEDE} = \text{CEDE (airborne particulates)} + H_{MEI}\text{ (external gamma)} + S_{MEI}\text{ (airborne radon)}$$

$$\text{TEDE} = <0.1\text{ mrem/year} + 2.2\text{ mrem/year} = 2.2\text{ mrem/year}$$

DOSE FROM THE ST. LOUIS AIRPORT SITE TO A MAXIMALLY EXPOSED INDIVIDUAL

A full-time-employee business receptor was evaluated to determine the maximally exposed individual from the SLAPS. The business receptor worked full time outside of the facility, located approximately 500 m west-southwest of the center of the SLAPS Loadout area. Exposure time was 2,000 hours per year (250 days per year).

Gamma radiation and radon exposure measured at the SLAPS perimeter assumes a hypothetical member of the public would be at the same location 24 hours per day, 365 days per year. Off-site dose to the nearest member of the public is dependent upon the member's proximity to the gamma source and amount of time spent at the affected site. A more realistic approach to project dose is to evaluate members of the public as either residence-based or off-site-worker-based receptors. A residence-based, off-site exposure assumes a 100-percent occupancy rate at a given location. No public areas or residences exist near the SLAPS; therefore, exposure to a residence-based receptor is greatly reduced due to the distance relative to the site. An off-site-worker exposure assumes that a worker's occupancy rate is 23 percent, based on 40 hours per week for 50 weeks per year. The off-site-worker-based receptor is a more realistic choice to represent the hypothetical maximally exposed individual, because of the proximity of the receptor. A realistic assessment of dose can be performed using conservative assumptions of occupancy rate and distance from the source.

The following dose assessment is for a maximally exposed individual who works full time (2,000 hours per year) at a location approximately 500 m west-southwest of the center of the SLAPS Loadout area.

Airborne Radioactive Particulates

The EDE of less than 0.1 mrem per year to the receptor was calculated using activity fraction and air particulate monitoring data to determine a source term, and then using the USEPA CAP88-PC modeling code to calculate dose to the receptor at 500 m southwest of the center of the SLAPS Loadout area (Leidos 20209c). Details related to calculation of EDEs for the exposed receptors are presented in Appendix A of this EMDAR.

External Gamma Pathway

The SLAPS TLDs measured an average above background annual exposure of 9.1 mrem per year based on 8,760 hours of continuous exposure. The dose equivalent due to gamma exposure for the maximally exposed individual is estimated by assuming the site approximates a line source with a source strength (H_1) that is the average of the TLD measurements between the source and the receptor (Cember 1996).

$$H_1 = 9.1 \text{ mrem/year}$$

Based on a 100-percent occupancy rate, the exposure rate (H_2) to the receptor was calculated.

$$H_2 = H_1 \times \frac{h_1}{h_2} * \frac{\tan^{-1}(L/h_2)}{\tan^{-1}(L/h_1)}$$

$$H_2 = 1.9\text{E-03 mrem/year}$$

where:

- H_2 = exposure rate to the receptor (continuous exposure)
- H_1 = exposure rate to TLDs
- h_2 = distance from source to receptor = 500 m
- h_1 = distance from source to TLDs = 1.6 m
- L = average distance from centerline of the line source (H_1) to the end of the line source = 50 m

The actual dose to the maximally exposed individual, who is present during a normal work year only, was calculated.

$$H_{MEI} = H_2 \times \frac{2{,}000 \text{ hours per work year}}{8{,}760 \text{ hours per total year}} = 4.4\text{E-04 mrem/year}$$

$$H_{MEI} = <0.1 \text{ mrem/year}$$

Airborne Radon Pathway

The SLAPS ATDs measured an average above background annual exposure of 0.0 pCi/L based on 8,760 hours of continuous exposure. Because the radon results at all ATD locations was 0.0 pCi/L, exposure to the receptor from radon (and decay chain isotopes) did not require estimation using a dispersion factor (C_2).

The average of ATD monitoring data (S_1) at the site perimeter (SLAPS Loadout area) was calculated as follows:

$$S_1 = 0.0 \text{ pCi/L}$$

The actual radon exposure dose to the hypothetical maximally exposed individual was calculated.

$$S_{MEI} = S_1 \times F \times DCF \times T \times C_1 \times C_2$$

$$S_{MEI} = 0.0 \text{ pCi/L} * 0.007 \text{ WL/pCi.L} * 1250 \text{ mrem/WLM} * 2000 \text{ hours/year} * 1 \text{ month/170 hours} * 0.002$$

$$S_{MEI} = 0.0 \text{ mrem/year}$$

where:

- S_{MEI} = radon exposure to the hypothetical maximally exposed individual
- S_1 = fenceline average of ATD measurements between source and receptor
- F = equilibrium fraction based on Section 4 of *Measurement of Radon and Radon Daughters in Air,* 1 WL = 100 pCi/L and 0.7 outdoor equilibrium factor (NRCP 1988)
- DCF = dose conversion factor (USEPA 1989b) = 1,250 mrem per WLM
- T = exposure time = 2,000 hours per year
- C_1 = occupancy factor constant = 1 month per 170 hours

C_2 = constant derived using CAP88-PC Version 4.0, the Lambert – St. Louis International Airport wind file (assuming a distance of 500 m), and an impacted surface area of 460 m^2). Calculation assumes a 1 Ci per year radon release rate, then ratios the concentrations at 1 m and 500 m to determine the constant.
WL = working level (concentration unit)
WLM = working level month (exposure unit)

Total Effective Dose Equivalent

TEDE = CEDE (airborne particulates) + H_{MEI} (external gamma) + S_{MEI} (airborne radon)

TEDE = <0.1 mrem/year + <0.1 mrem/year + 0.0 mrem/year = < 0.1 mrem/year

DOSE FROM THE ST. LOUIS AIRPORT SITE VICINITY PROPERTIES TO A MAXIMALLY EXPOSED INDIVIDUAL

A full-time, residence-based receptor was evaluated to determine the maximally exposed individual from the SLAPS VPs, because the RA work conducted on the SLAPS VPs occurred in the vicinity of the receptor. The residence-based receptors lived full-time between the two areas remediated during 2019 at a location approximately 205 m east of the center of the of the Eva Avenue excavation area, approximately 780 m northeast of the IA-09 Ballfields excavation area. Exposure time was 8,760 hours per year (365 days per year).

Gamma radiation and radon exposure were considered negligible at the excavation area. Therefore, only exposure to airborne radioactive particulates was considered in the dose estimate calculation.

Airborne Radioactive Particulates

The EDE of 0.1 mrem per year to the receptor was calculated using activity fraction and air particulate monitoring data to determine a source term, and then using the USEPA CAP88-PC modeling code to calculate dose to the receptor at 205 m east and 780 m northeast of the center of the Eva Avenue and Ballfields excavation areas respectively (Leidos 2020c). Details related to calculation of EDEs for the exposed receptors are presented in Appendix A of this EMDAR.

Total Effective Dose Equivalent

TEDE = CEDE (airborne particulates) + H_{MEI} (external gamma) + S_{MEI} (airborne radon)

TEDE = 0.1 mrem/year + 0 mrem/year + 0 mrem/year = 0.1 mrem/year

DOSE FROM COLDWATER CREEK TO A MAXIMALLY EXPOSED INDIVIDUAL

The following dose assessment is for a maximally exposed individual assumed to be a youth (10-year-old child) who spends time at CWC for recreational purposes.

Contaminated Water Ingestion (Leidos 2020d)

The average contamination values measured in CWC surface water in CY 2019 at each monitoring station (Table H-1) were used to calculate the EDE to the receptor from an intake of contaminated water. Assumptions follow.

The receptor visits CWC as a recreational user once every 2 weeks (26 visits per year), and the receptor drinks 2 L per day of contaminated water from CWC during each visit (USEPA 1989c).

The TEDE due to ingestion of surface water ($TEDE_w$) was calculated.

$$TEDE_W = \Sigma\ (TEDE_{Tot\text{-}U}, TEDE_{Th\text{-}228}, TEDE_{Th\text{-}230}, TEDE_{Th\text{-}232}, TEDE_{Ra\text{-}226}, TEDE_{Ra\text{-}228})$$

$$TEDE_i = \text{(Average) pCi/L} \times 2.0 \text{ L/day} \times 26 \text{ days/year} \times \text{DCF mrem/pCi}$$

Table H-1. Average Values for Radionuclides for CY 2019

Radionuclides	Average Concentration	Unit
Ra-226	0.27	pCi/L
Th-228	0.19	pCi/L
Th-230	0.26	pCi/L
Th-232	0.03	pCi/L
Total U	1.45	pCi/L

The DCFs (ORNL 2014) for radionuclides present in CWC surface water are presented in Table H-2.

Table H-2. Radionuclide Dose Conversion Factors for CY 2019

Radionuclides	DCF[a]	Unit
Ra-226	2.97E-03	mrem/pCi
Th-228	5.07E-04	mrem/pCi
Th-230	9.10E-04	mrem/pCi
Th-232	1.07E-03	mrem/pCi
Total U	2.63E-04	mrem/pCi

[a] For a youth (10-year-old child).

Therefore:

$$TEDE_{Ra\text{-}226} = 0.27 \text{ pCi/L} \times 2.0 \text{ L/day} \times 26 \text{ days/year} \times 2.97\text{E-}03 \text{ mrem/pCi}$$
$$= 4.17\text{E-}02 \text{ mrem/year}$$

$$TEDE_{Th\text{-}228} = 0.19 \text{ pCi/L} \times 2.0 \text{ L/ day} \times 26 \text{ days/year} \times 5.07\text{E-}04 \text{ mrem/pCi}$$
$$= 5.01\text{E-}03 \text{ mrem/year}$$

$$TEDE_{Th\text{-}230} = 0.26 \text{ pCi/L} \times 2.0 \text{ L/ day} \times 26 \text{ days/year} \times 9.10\text{E-}04\text{mrem/pCi}$$
$$= 1.23\text{E-}02 \text{ mrem/year}$$

$$TEDE_{Th\text{-}232} = 0.03 \text{ pCi/L} \times 2.0 \text{ L/ day} \times 26 \text{ days/year} \times 1.07\text{E-}3 \text{ mrem/pCi}$$
$$= 1.67\text{E-}03 \text{ mrem/year}$$

$$TEDE_{Tot\text{-}U} = 1.45 \text{ pCi/L} \times 2.0 \text{ L/ day} \times 26 \text{ days/year} \times 2.63\text{E-}04 \text{ mrem/pCi}$$
$$= 2.00\text{E-}02 \text{ mrem/year}$$

$$TEDE_W = 8.07\text{E-}02 \text{ mrem/year}$$

Contaminated Sediment Ingestion (Leidos 2019d)

The average contamination values measured in CWC sediment in CY 2019 at each monitoring station (Table H-3) were used to calculate the EDE to the receptor from an intake of contaminated sediment. Assumptions follow.

The receptor visits CWC as a recreational user once every 2 weeks (26 visits per year). The receptor ingests 50 mg per day of contaminated sediment from CWC during each visit (USEPA 1989c).

The TEDE due to ingestion of contaminated sediment ($TEDE_S$) was calculated.

$$TEDE_S = \Sigma\ (TEDE_{Tot\text{-}U}, TEDE_{Th\text{-}228}, TEDE_{Th\text{-}230}, TEDE_{Th\text{-}232}, TEDE_{Ra\text{-}226}, TEDE_{Ra\text{-}228})$$

$$TEDE_i = \text{(Average) pCi/g} \times 0.05 \text{ g/day} \times 26 \text{ days/year} \times \text{DCF mrem/pCi}$$

Table H-3. Average Values for Radionuclide for CY 2019

Radionuclides	Average Concentration	Unit
Ra-226	1.44	pCi/g
Ra-228	0.74	pCi/g
Th-228	0.98	pCi/g
Th-230	2.62	pCi/g
Th-232	0.85	pCi/g
Total U	2.02	pCi/g

The DCFs (ORNL 2014) for radionuclides present in CWC sediment are presented in Table H-4.

Table H-4. Radionuclide Dose Conversion Factors for CY 2019

Radionuclides	DCF[a]	Unit
Ra-226	2.97E-03	mrem/pCi
Ra-228	1.45E-02	mrem/pCi
Th-228	5.07E-04	mrem/pCi
Th-230	9.10E-04	mrem/pCi
Th-232	1.07E-03	mrem/pCi
Total U	2.63E-04	mrem/pCi

[a] For a youth (10-year-old child).

Therefore:

$$TEDE_{Ra\text{-}226} = 1.44 \text{ pCi/g} \times 0.05 \text{ g/day} \times 26 \text{ days/year} \times 2.97\text{E-03 mrem/pCi}$$
$$= 5.56\text{E-03 mrem/year}$$

$$TEDE_{Ra\text{-}228} = 0.74 \text{ pCi/g} \times 0.05 \text{ g/day} \times 26 \text{ days/year} \times 1.45\text{E-02 mrem/pCi}$$
$$= 1.39\text{E-02 mrem/year}$$

$$TEDE_{Th\text{-}228} = 0.98 \text{ pCi/g} \times 0.05 \text{ g/day} \times 26 \text{ days/year} \times 5.07\text{E-04 mrem/pCi}$$
$$= 6.46\text{E-04 mrem/year}$$

$$TEDE_{Th\text{-}230} = 2.62 \text{ pCi/g} \times 0.05 \text{ g/day} \times 26 \text{ days/year} \times 9.10\text{E-04 mrem/pCi}$$
$$= 3.10\text{E-03 mrem/year}$$

$$TEDE_{Th\text{-}232} = 0.85 \text{ pCi/g} \times 0.05 \text{ g/day} \times 26 \text{ days/year} \times 1.07\text{E-3 mrem/pCi}$$
$$= 1.18\text{E-03 mrem/year}$$

$$TEDE_{Tot\text{-}U} = 2.02 \text{ pCi/g} \times 0.05 \text{ g/day} \times 26 \text{ days/year} \times 2.63\text{E-4 mrem/pCi}$$
$$= 6.91\text{E-04 mrem/year}$$

$$TEDE_S = 2.5\text{E-02 mrem/year}$$

Total Effective Dose Equivalent

$$TEDE = TEDE_W + TEDE_S$$

$$TEDE = 8.07\text{E-02 mrem/year} + 2.5\text{E-02 mrem/year} = 0.1 \text{ mrem/year}$$

THIS PAGE INTENTIONALLY LEFT BLANK