REVISION 0

NORTH ST. LOUIS COUNTY SITES ANNUAL ENVIRONMENTAL MONITORING DATA AND ANALYSIS REPORT FOR CALENDAR YEAR 2016

ST. LOUIS, MISSOURI

JULY 21, 2017

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

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prepared by:

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

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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
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*
EMICY16	*Environmental Monitoring Implementation Plan for the North St. Louis County Sites for CY 2016*
EMP	Environmental Monitoring Program
FUSRAP	Formerly Utilized Sites Remedial Action Program
Futura	Futura Coatings Company
HISS	Hazelwood Interim Storage Site
HZ	hydrostratigraphic zone
IA	investigation area
ICP	inductively coupled plasma
ICRP	International Commission on Radiation Protection
K	potassium
KPA	kinetic phosphorescence analysis
LCL_{95}	95 percent lower confidence limit

ACRONYMS AND ABBREVIATIONS (Continued)

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
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
TEDE	total effective dose equivalent
Th	thorium
TLD	thermoluminescent dosimeter
TPH	total petroleum hydrocarbon
TRPH	total recoverable petroleum hydrocarbon
TSS	total suspended solid

ACRONYMS AND ABBREVIATIONS (Continued)

U	uranium
UCL	upper confidence limit
UCL_{95}	95 percent upper confidence limit
UNSCEAR	United Nations Scientific Committee on the Effects of Atomic Radiation
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
VQ	validation qualifier
VP	vicinity property
WL	working level
WLM	working level month
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	degrees Celsius (centigrade)
µCi/mL	microcurie(s) per milliliter
µg/L	microgram(s) per liter
µS/cm	microSiemen(s) per centimeter
Ci	curie(s)
ft	foot/feet
g	gram(s)
L	liter(s)
m	meter(s)
m^3	cubic 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
s.u.	standard unit

EXECUTIVE SUMMARY

This annual Environmental Monitoring Data and Analysis Report (EMDAR) for calendar year (CY) 2016 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 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 Highway 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 2016, 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 2016* (EMICY16) (USACE 2016) was conducted as planned during CY 2016. 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 EMICY16 (USACE 2016). 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 1.1 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 EMICY16 (USACE 2016).

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 EMICY16 (USACE 2016).

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

CY 2016 was the 15th 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 July 18, 2016, from Mr. Steve Grace to Mr. Bruce Munholand. This authorization expires on July 23, 2018 (MSD 2016a). The selenium discharge variance for the SLAPS was not utilized in CY 2016 (MSD 2005 and 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 2, 2016 (MSD 2016b). The special discharge authorization was extended to February 7, 2018.

The data collected at the NC Sites were compared to discharge limits described in Section 2.2.2 of the EMICY16 (USACE 2016). During CY 2016, no exceedances of the discharge limits occurred at the USACE St. Louis FUSRAP laboratory or the NC Sites.

COLDWATER CREEK MONITORING

The CY 2016 CWC surface-water and sediment sampling events, which were completed in March and October of 2016, evaluated the physical, radiological, and chemical conditions in the creek. During the March 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. The data collected were compared to the monitoring guidelines and/or remediation goals (RGs) described in Section 2.2.3 of the EMICY16 (USACE 2016).

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 2016 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 EMICY16 (USACE 2016) 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 EMICY16 (USACE 2016) 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 2016 and sufficient data were available to evaluate trends, Mann-Kendall Trend Test were completed to assess whether analyte concentrations were increasing or decreasing through time.

LATTY AVENUE PROPERTIES

Ground-water sampling was conducted at five hydrostratigraphic zone (HZ)-A ground-water monitoring wells at the Latty Avenue Properties during CY 2016. Contaminant of concern (COC) concentrations in one well (uranium [U]-234 in HW22) exceeded the ROD guideline in HZ-A ground water at the Latty Avenue Properties during CY 2016. Because a significant degradation of CWC surface water has not occurred, no findings currently indicate significantly degraded ground-water conditions in HZ-A ground water.

Ground-water samples were collected from one HZ-C well (HW23) during CY 2016. Concentrations of all inorganic and radiological soil COCs were below the ROD ground-water guidelines in this well during CY 2016.

The Mann-Kendall Trend Test was performed for one COC in one HZ-A well (total U in HW22) during CY 2016. A statistically significant increasing trend was identified for total U concentrations in HW22. Because the total U values are calculated using the U-234 and U-238 values, the trends in their values should be the same as the total U trend results. Therefore, performance of a separate trend analysis for each of these isotopes was unnecessary.

Concentrations of all soil COCs were below the NC ROD ground-water criteria in CY 2016 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-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 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, 14 ground-water wells were sampled for various parameters during CY 2016. Eleven (11) wells, screened in HZ-A, were sampled at the SLAPS and the adjacent SLAPS VP ballfields. Five inorganic analytes (barium, cadmium, chromium, molybdenum, and nickel) and one radiological contaminant (total U) were detected in HZ-A ground water at concentrations in excess of the ROD guidelines. A comparison of the data indicates that the chromium and molybdenum concentrations in B53W18S; nickel concentrations in B53W13S, and B53W18S; and the total U concentrations in PW46 exceeded the ROD guidelines for a period of at least 12 months. Because a significant degradation of CWC surface water has not occurred, no findings currently indicate significantly degraded ground-water conditions in HZ-A ground water at the SLAPS and SLAPS VPs in CY 2016. However, because chromium, molybdenum, nickel, and total U levels exceeded the ROD guidelines for a period of at least 12 months, monitoring will continue subject to subsequent 5-year reviews.

During CY 2016, three wells screened across the deeper HZs (HZ-C through HZ-E) were sampled at the SLAPS and SLAPS VPs. No soil COCs from ground-water samples collected from these three wells in CY 2016 exceeded the ROD guidelines. Therefore, the CY 2016 HZ-C through HZ-E ground-water data from the SLAPS and SLAPS VPs indicate that significant degradation of lower ground water is not occurring.

The Mann-Kendall Trend Test was performed for barium (B53W13S), chromium (B53W09S, and B53W18S), molybdenum (B53W18S), nickel (B53W09S, B53W13S, B53W18S, and PW43), and total U (PW46). Statistically significant increasing trends were observed for barium (B53W13S), chromium (B53W09S, and B53W18S), molybdenum (B53W18S), and nickel (B53W09S, B53W13S, and B53W18S). No trend was observed for nickel (PW43) or total U (PW46).

Potentiometric surface maps were created from ground-water elevations measured in June 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) 2016 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 Highway 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 2016, and provide analysis of the CY 2016 environmental monitoring data results. This EMDAR presents the following information:

- Sample collection data for various media at each site and interpretation of CY 2016 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 2016* [EMICY16] [USACE 2016]);
- 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: 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 2016, the following USACE documents were finalized for the NC Sites:

- *Environmental Monitoring Implementation Plan for the North St. Louis County Sites for Calendar Year 2016, St. Louis, Missouri* (January 29);
- *CY 2015 Fourth Quarter Laboratory QA/QC Report for the FUSRAP St. Louis Radioanalytical Laboratory & Associated Satellite Laboratories, St. Louis, Missouri* (March);
- *CY 2016 First Quarter Laboratory QA/QC Report for the FUSRAP St. Louis Radioanalytical Laboratory & Associated Satellite Laboratories, St. Louis, Missouri* (May);
- *Remedial Design/Remedial Action Work Description Spirit Asphalt Property, FUSRAP North St. Louis County Sites, St. Louis, Missouri* (May 24);
- *North St. Louis County Sites Annual Environmental Monitoring Data and Analysis Report for CY 2015, St. Louis, Missouri* (June 21);
- *Remedial Design/Remedial Action Work Description Palm Drive Properties, Supplement No. 5 to the Remedial Action Work Plan Coldwater Creek Properties, FUSRAP North St. Louis County Sites, St. Louis, Missouri* (June 29);
- *Pre-Design Investigation Summary Report Palm Drive Properties, FUSRAP North St. Louis County Sites, St. Louis, Missouri* (July 18);
- *Pre-Design Investigation Summary Report and Final Status Survey Evaluation for St. Louis Airport Site Vicinity Property 59, St. Louis, Missouri* (July 22);
- *CY 2016 Second Quarter Laboratory QA/QC Report for the FUSRAP St. Louis Radioanalytical Laboratory & Associated Satellite Laboratories, St. Louis, Missouri* August);
- *Pre-Design Investigation Summary Report and Final Status Survey Evaluation for Vicinity Properties Seeger-5 and Seeger-6, St. Louis, Missouri* (September 15);
- *Pre-Design Investigation Summary Report and Final Status Survey Evaluation for St. Louis Airport Site Vicinity Property 06(C). St. Louis, Missouri* (September 15);
- *Post-Remedial Action Report and Final Status Survey Evaluation for the St. Louis Airport Site Vicinity Property Investigation Area 12 (Partial), St. Louis, Missouri* (September 28);

- *CY 2016 Third Quarter Laboratory QA/QC Report for the FUSRAP St. Louis Radioanalytical Laboratory & Associated Satellite Laboratories, St. Louis, Missouri*. (November 29); and
- *Environmental Monitoring Implementation Plan for the North St. Louis Sites for Calendar Year 2017, St. Louis, Missouri* (December 29).

1.3.1 Latty Avenue Properties Calendar Year 2016 Remedial Actions

No RAs or *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 2016. 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 2016.

1.3.2 St. Louis Airport Site and St. Louis Airport Site Vicinity Properties Calendar Year 2016 Remedial Actions

In CY 2016, RAs were performed at the following SLAPS-related VPs (Figure 1-2): Duchesne Park and St. Cin Park. RAs at St. Cin Park were performed in the first quarter. RAs at Duchesne Park were performed in the second, third, and fourth quarters. During these RAs, 12,387 yd^3 of contaminated material were shipped from the SLAPS investigation areas (IAs) and VPs via railcar to US Ecology in Idaho for proper disposal.

During CY 2016, MARSSIM Class 1 verifications were performed at Duchesne Park (survey unit [SU]-1 and SU-2) and St. Cin Park (SU-1 and SU-2) to confirm that ROD RGs were achieved. No MARSSIM Class 2 or 3 verifications were performed.

Characterizations/PDIs were performed at the following SLAPS IAs and VPs in CY 2016: IA-9; VPs 2(C), 3(C), 4(C), 5(C), 6(C), 7(C), and 8(C); Seeger properties; Pershall South properties; Ford Lane properties; VP-40A; Duchesne Park; and Catholic Cemeteries of Archdiocese.

In CY 2016, no Resource Conservation and Recovery Act (RCRA) hazardous waste was shipped, and no monitoring wells were decommissioned.

In accordance with the Metropolitan St. Louis Sewer District (MSD) authorization letter, 1,269,793 gallons of excavation water were discharged from the NC Sites in CY 2016. Since the beginning of the project, 30,494,621 gallons have been treated and released to MSD from the NC Sites.

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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 2016.

All radiological air monitoring required through implementation of the EMICY16 (USACE 2016) was conducted as planned in CY 2016. 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 1.1 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 2016 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 United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) estimates that the total naturally occurring background radiation dose equivalent due to gamma exposure is 65 mrem per year, 35 mrem per year of which originates from sources on earth and 30 mrem per year of which originates from cosmic sources (UNSCEAR 1982). The background monitoring location for the NC Sites (Figure 2-1) is reasonably representative of background gamma radiation for the St. Louis metropolitan area.

Gamma radiation was measured at the NC Sites in CY 2016 using thermoluminescent dosimeters (TLDs). TLDs were placed at site boundaries in order to provide input for calculation of TEDE.

The TLDs were placed at the monitoring location approximately 5 ft above the ground surface inside a housing shelter. The TLDs were collected quarterly and sent to a properly certified, off-site laboratory for analysis.

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 ft above the ground 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, 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 weekly or at more frequent intervals.

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

The NC Sites CY 2016 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 4.0 modeling code (USEPA 2014) to demonstrate compliance with the 10 mrem per year ARAR prescribed in 40 *CFR* 61, Subpart I.

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. 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 chief 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 5 ft above the ground surface in housing shelters at the site boundaries or at locations representative of areas accessible to the public. Outdoor ATDs were collected approximately every 6 months and sent to an off-site laboratory for analysis. 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. 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 an off-site laboratory for analysis.

CY 2016 monitoring results for the NC Sites demonstrate compliance with the 0.02 WL ARAR prescribed by 40 *CFR* 192.12(b)(1). See Section 2.2.4 for further details.

2.2 LATTY AVENUE PROPERTIES

Radiological air monitoring was conducted at Futura in CY 2016.

2.2.1 Evaluation of Gamma Radiation Data

Because cleanup activities at the HISS and Futura were completed in CY 2011, external gamma radiation exposure from the Latty Avenue Properties is considered negligible. Therefore, environmental TLD monitoring was not conducted at the Latty Avenue Properties in CY 2016.

2.2.2 Evaluation of Airborne Radioactive Particulate Data

No excavation or loadout activities for the Latty Avenue Properties occurred in CY 2016. Therefore, radioactive particulate emissions were considered negligible, and air sampling for particulate radionuclides was not required.

2.2.3 Evaluation of Outdoor Airborne Radon Data

Because cleanup activities at the HISS and Futura were completed in CY 2011, outdoor exposure to Rn-222 from the Latty Avenue Properties was considered negligible. Therefore, outdoor environmental Rn-222 monitoring was not conducted at the Latty Avenue Properties in CY 2016.

2.2.4 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 5 ft (to approximate 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 2016 at each monitoring location, collected for analysis after approximately 6 months of exposure, and replaced with another set that represent radon exposure for the remainder of the year. Recorded radon concentrations (listed 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 2017a). Table 2-1 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 2-1. Summary of Futura Indoor Airborne Radon (Rn-222) Data for CY 2016

Monitoring Location	Monitoring Station	Average Annual Concentration (pCi/L)				WL[d]
		01/04/16 to 07/07/16[a]	07/07/16 to 01/04/17[a]	Annual Average[b]	Building Average[c]	
Futura Building 1	HF-1	1.1	2.2	1.65	**2.33**	**0.009**
	HF-2	4.1	6	5.05		
	HF-3	0.2	0.4	0.3		
Futura Building 2/3	HF-4	0.6	0.6	0.6	**0.70**	**0.003**
	HF-5	0.7	0.8	0.75		
	HF-6	0.4	0.8	0.6		
	HF-7	0.8	0.9	0.85		
Futura Building 4	HF-8	0.4	0.6	0.5	**0.48**	**0.002**
	HF-9	0.4	0.6	0.5		
	HF-10	0.3	0.6	0.45		

[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 concentration (in pCi/L) above background.
[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)).

2.3 SLAPS AND SLAPS VICINITY PROPERTIES

Radiological air monitoring was conducted at Duchesne Park, St. Cin Park, and the SLAPS in CY 2016.

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 2016 at four site locations surrounding the 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 2016 at the SLAPS is shown in Table 2-2. TLD data are contained in Appendix B, Table B-3, of this EMDAR.

Table 2-2. Summary of SLAPS Gamma Radiation Data for CY 2016

Monitoring Location	Monitoring Station	First Quarter TLD Data (mrem/quarter)		Second Quarter TLD Data (mrem/quarter)		Third Quarter TLD Data (mrem/quarter)		Fourth Quarter TLD Data (mrem/quarter)		CY 2016 Net TLD Data (mrem/year)
		Rpt.	Cor.[a,b]	Rpt.	Cor.[a,b]	Rpt.	Cor.[a,b]	Rpt.	Cor.[a,b]	
SLAPS Perimeter	PA-1	19.0	2	19.8	0	19.9	0.7	19.2	0.2	0.2
	PA-2	22.6	3.4	22.8	2.9	23.4	3.5	22.7	4.0	13.8
	PA-2[c]	20.2	0.8	33.6	3.7	23.8	4.0	22.1	3.3	11.8
	PA-3	20.1	0.7	20.2	0.1	21.6	1.5	20.2	1.3	3.6
	PA-4	25.9	6.7	25.1	5.3	26.2	6.7	25.0	6.4	25.1
Background	BA-1	19.4	---	20.1	---	20.3	---	19.0	---	---

[a] All quarterly data reported from the vendor have been normalized to exactly one quarter's exposure.
[b] CY 2016 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 2016. 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 2-3. Airborne radioactive particulate data are contained in Appendix B, Table B-4, of this EMDAR.

Table 2-3. Summary of SLAPS Airborne Radioactive Particulate Data for CY 2016

Monitoring Location	Average Concentration (µCi/mL)[a]	
	Gross Alpha	Gross Beta
Duchesne Park	4.63E-15	3.97E-14
St. Cin Park	3.63E-15	5.03E-14
SLAPS Loadout	4.05E-15	3.21E-14
Background Concentration[b]	3.61E-15	1.88E-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 2016 outdoor radon data at the SLAPS is shown in Table 2-4. Outdoor ATD data are contained in Appendix B, Table B-2, of this EMDAR.

Table 2-4. Summary of SLAPS Outdoor Airborne Radon (Rn-222) Data for CY 2016

Monitoring Location	Monitoring Station	Average Annual Concentration (pCi/L)		
		01/04/16 to 07/07/16[a] (Uncorrected)	07/07/16 to 01/04/17[a] (Uncorrected)	Average Annual Concentration[b]
SLAPS Perimeter	PA-1	0.2	0.3	0.05
	PA-2	0.2	0.2	0
	PA-2[c]	0.2	0.2	---
	PA-3	0.2	0.2	0
	PA-4	0.2	0.2	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 concentration (pCi/L) above background.
[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 2016. 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 EMICY16 (USACE 2016).

Section 2.2.2 of the EMICY16 outlines the discharge limits for the storm-water and excavation-water discharged at each site (USACE 2016). 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 and 2016a). The pollutants addressed for all NC Sites are identified in Table 2-5 of the EMICY16 (USACE 2016). 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 EMICY16 (USACE 2016). 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 2016. The monitoring results obtained from these activities are presented and compared with the various authorization letters or permit-equivalent limits as presented in the EMICY16 (USACE 2016). 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 2, 2016, and expires February 7, 2018 (MSD 2016b).

3.1.2 Evaluation of Storm-Water Discharge Monitoring Results

In CY 2016, 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 only one monitoring event was performed in CY 2016. 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. The USACE increased the sampling frequency at PN02 from annually (MDNR 2002) to monthly, as established in the original permit equivalent agreement, as of November 26, 2013. Sampling frequency at PN02 was again reduced to annually, per USACE email on June 17, 2014. A copy of this email is contained in Appendix C.

During 2016, un-named moving pumping outfalls were utilized during excavation activities at Duchesne Park 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 2016 storm-water monitoring events for the NC Sites are presented in the following subsections. NC Site storm-water monitoring results for CY 2016 are contained in Tables 3-1 and 3-2.

During CY 2016, rainfall data were obtained for the National Weather Service Lambert – St. Louis International Weather Station (Weather Underground, Inc. 2016), 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 2016, no NPDES samples were collected as no water was pumped.

Second Quarter

During the second quarter (April, May, and June) of CY 2016, no NPDES samples were collected as no water was pumped.

Third Quarter

During the third quarter (July, August, and September) of CY 2016, all NPDES sample results were in compliance with permit-equivalent requirements (Table 3-1). Samples were collected when flow permitted. One (1) sampling event was conducted at Outfall 002 during the third quarter.

Fourth Quarter

During the fourth quarter (October, November, and December) of CY 2016, all NPDES sample results were in compliance with permit-equivalent requirements (Table 3-2). Three (3) sampling events were conducted at Un-Named Outfall Duchesne Park during the fourth quarter.

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, 2018 (MSD 2016a). 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 results demonstrates that all ARARs have been met. The selenium discharge variance for the SLAPS was not utilized in CY 2016 (MSD 2005, 2008, 2010, 2012, 2014, 2016a). 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.

Table 3-1. Third Quarter CY 2016 NPDES Sampling Events[a]

Monitoring Parameter	Final Effluent Limitations		Units	Analytical Results					
				Outfall 002			Un-Named Outfall – Duchesne Park		
				Chemical Parameters					
	Daily Maximum	Monthly Average		July	August	September	July	August	September
Flow	Monitor only	Monitor only	MGD	[f]	0.16	[f]	[g]	[g]	[g]
Oil and Grease	15	10	mg/L	[f]	non-detect	[f]	[g]	[g]	[g]
TPHs	10	10	mg/L	[f]	non-detect	[f]	[g]	[g]	[g]
pH-Units	6.0-9.0	NA	s.u.	[f]	7.57	[f]	[g]	[g]	[g]
COD[b]	120	90	mg/L	[f]	44	[f]	[g]	[g]	[g]
SSs[c]	1.5	1.0	mL/L/hour	[f]	<0.1	[f]	[g]	[g]	[g]
Arsenic, Total Recoverable	100	100	µg/L	[f]	1.5	[f]	[g]	[g]	[g]
Lead, Total Recoverable[d]	190	190	µg/L	[f]	[d]	[f]	[g]	[g]	[g]
Chromium, Total Recoverable	280	280	µg/L	[f]	<1	[f]	[g]	[g]	[g]
Copper, Total Recoverable[d]	84	84	µg/L	[f]	[d]	[f]	[g]	[g]	[g]
Cadmium, Total Recoverable	94	94	µg/L	[f]	<0.1	[f]	[g]	[g]	[g]
PCBs[e]	No release	No release	µg/L	[f]	non-detect	[f]	[g]	[g]	[g]
				Radiological Parameters[h,i,j]					
Event Sampling Date				Event 1			Event 1		
				08/03/16			NA		
Total U[k,l]	Monitor only	Monitor only	µg/L	-3.E-01			[g]		
Total Ra[k,l]	Monitor only	Monitor only	µg/L	2.E-06			[g]		
Total Th[k,l]	Monitor only	Monitor only	µg/L	3.E-05			[g]		
Gross Alpha[k]	Monitor only	Monitor only	pCi/L	7.E-01			[g]		
Gross Beta[k]	Monitor only	Monitor only	pCi/L	-9.E+00			[g]		
Pa-231[k]	Monitor only	Monitor only	pCi/L	4.E+00			[g]		
Ac-227[k]	Monitor only	Monitor only	pCi/L	1.E+00			[g]		
Radon (semi-annual monitoring)	Monitor only	Monitor only	pCi/L	non-detect			[g]		

[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] DL = 0.5 µg/L.

[f] Per the USACE email dated June 17, 2014, sampling at Outfall 002 has been reduced to once per year.

[g] No sample is required, because no rain events producing measurable flow offsite occurred, and no pumping activities were performed.

[h] 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.

[i] Negative results are less than the laboratory system's background level.

[j] 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.

[k] As specified in the permit-equivalent, radionuclides require monitoring only, and limits are not permit-specified.

[l] 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).

NA – not applicable

Table 3-2. Fourth Quarter CY 2016 NPDES Sampling Events[a]

Monitoring Parameter	Final Effluent Limitations		Units	Analytical Results					
				Outfall 002			Un-Named Outfall – Duchesne Park		
	Daily Maximum	Monthly Average		Chemical Parameters					
				October	November	December	October	November	December
Flow	Monitor only	Monitor only	MGD	[f]	[f]	[f]	0.014	0.017	[g]
Oil and Grease	15	10	mg/L	[f]	[f]	[f]	non-detect	3	[g]
TPHs	10	10	mg/L	[f]	[f]	[f]	4.6	2.5	[g]
pH-Units	6.0-9.0	NA	s.u.	[f]	[f]	[f]	8.47	8.44	[g]
COD[b]	120	90	mg/L	[f]	[f]	[f]	14	[b]	[g]
SSs[c]	1.5	1.0	mL/L/hour	[f]	[f]	[f]	<0.1	<0.1	[g]
Arsenic, Total Recoverable	100	100	µg/L	[f]	[f]	[f]	12	28	[g]
Lead, Total Recoverable[d]	190	190	µg/L	[f]	[f]	[f]	[d]	[d]	[g]
Chromium, Total Recoverable	280	280	µg/L	[f]	[f]	[f]	27	70	[g]
Copper, Total Recoverable[d]	84	84	µg/L	[f]	[f]	[f]	[d]	[d]	[g]
Cadmium, Total Recoverable	94	94	µg/L	[f]	[f]	[f]	0.29	0.69	[g]
PCBs[e]	No release	No release	µg/L	[f]	[f]	[f]	non-detect	non-detect	[g]
				Radiological Parameters[h,i,j]					
Event Sampling Date				Event 1			Event 1	Event 2	Event 3
				NA			10/25/16	11/03/16	11/07/16 - 11/08/16
Total U[k,l]	Monitor only	Monitor only	µg/L	[f]			3.E-01	-2.E-01	-1.E-01
Total Ra[k,l]	Monitor only	Monitor only	µg/L	[f]			1.E-06	2.E-06	8.E-08
Total Th[k,l]	Monitor only	Monitor only	µg/L	[f]			8.E+00	2.E+01	4.E+00
Gross Alpha[k]	Monitor only	Monitor only	pCi/L	[f]			-3.E+00	-1.E+01	-5.E+00
Gross Beta[k]	Monitor only	Monitor only	pCi/L	[f]			9.E+00	5.E+01	1.E+01
Pa-231[k]	Monitor only	Monitor only	pCi/L	[f]			-7.E+00	-1.E+01	3.E+01
Ac-227[k]	Monitor only	Monitor only	pCi/L	[f]			-1.E+01	-1.E+00	-7.E-01
Radon (semi-annual monitoring)	Monitor only	Monitor only	pCi/L	[f]			[m]	[m]	[m]

[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] DL = 0.5 µg/L.
[f] Per the USACE email dated June 17, 2014, sampling at Outfall 002 has been reduced to once per year.
[g] No sample is required, because no rain events producing measurable flow offsite occurred, and no pumping activities were performed.
[h] 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.
[i] Negative results are less than the laboratory system's background level.
[j] 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.
[k] As specified in the permit-equivalent, radionuclides require monitoring only, and limits are not permit-specified.
[l] 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).
[m] Semi-annual reporting requirement only.
NA – not applicable

In CY 2016, approximately 1,269,793 gallons of treated excavation water from 5 treatment batches were released to MSD manhole 10L3-043S (Table 3-3). 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. Excavation Water Discharged at the NC Sites in CY 2016

Quarter	Number of Discharges	Number of Gallons Discharged[a]	Total Activity (Ci)		
			Thorium[b]	Uranium (KPA)[c]	Radium[d]
1	1	318,991	2.19E-06	6.04E-06	1.12E-06
2	1	84,964	8.10E-07	3.14E-06	3.28E-07
3	2	525,315	2.57E-06	3.75E-06	1.82E-06
4	1	340,523	7.02E-07	2.54E-06	1.11E-06
Total	5	1,269,793	6.28E-06	1.55E-05	4.39E-06

[a] Quantities based on actual quarterly discharges from NC Sites.
[b] Calculated value based on the addition of isotopic analyses: 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: 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 EMICY16 (USACE 2016). 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:

- 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 EMICY16 (USACE 2016); 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 2016). The sampling events are conducted at eight CWC monitoring stations (C002 through C004). 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.

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

Sampling of surface water at CWC was conducted at or below base flow elevation during the months of March and October in CY 2016. 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." CWC surface-water monitoring included determining water quality parameters, as well as obtaining samples for metals and radionuclides listed in Table 3-3 of the EMICY16 (USACE 2016). 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 EMICY16 was conducted as planned during CY 2016 (USACE 2016). 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 3-4. The average surface-water temperatures during the March and October sampling events were 13.2 and 23.1 °C, respectively. The average surface-water pH values were 6.64 and 6.80, respectively. The average pH values for both sampling events were within the acceptance range (6.0 to 9.0) and thus provide suitable conditions for aquatic life.

Table 3-4. Water Quality Results for CY 2016 CWC Surface-Water Sampling

Monitoring Parameter	Unit	Monitoring Station								Average
		C002	C003	C004	C005	C006	C007	C008	C009	
First Sampling Event (03/22/16-03/23/16)										
Temperature	°C	13.9	14.1	14.0	13.8	13.1	13.3	12.0	12.0	13.2
pH	s.u.	6.88	6.83	6.44	6.33	6.90	6.75	6.61	6.34	6.64
DO	mg/L	3.50	5.99	6.34	5.10	7.31	6.64	7.95	8.03	6.36
Specific Conductivity	µS/cm	0.135	0.142	0.148	0.147	0.141	0.133	0.120	0.112	0.135
ORP	mV	22	81	134	44	204	217	233	252	148
Turbidity	NTU	21.1	5.4	32.6	31.7	21.8	163	[a]	56.7	47.5
Second Sampling Event (10/17/16-10/18/16)										
Temperature	°C	23.4	23.9	23.2	24.0	23.4	23.0	21.8	22.3	23.1
pH	s.u.	7.07	6.79	6.39	7.17	7.00	6.86	6.73	6.39	6.80
DO	mg/L	9.60	9.74	7.03	6.99	7.22	7.63	6.48	7.52	7.78
Specific Conductivity	µS/cm	0.118	0.119	0.124	0.116	0.114	0.111	0.112	0.116	0.116
ORP	mV	212	219	246	212	217	217	227	219	221
Turbidity	NTU	675	765	861	847	807	688	751	797	774

[a] Turbidity value not collected due to an error with the water quality meter.
Note: Water quality data are used as part of the overall evaluation of water quality, but no ROD-defined monitoring criteria exist.

Average DO levels were 6.36 mg/L in March and 7.78 mg/L in October. Specific conductivity values were higher for the March event compared to the October event. The average specific conductivity for the March sampling event was 0.135 µS/cm, and the average specific conductivity for the October sampling event was 0.116 µS/cm. The average ORP value during the March sampling event (148 mV) was less than that of the October sampling event (221 mV). The average turbidity value during the March sampling event (47.5 nephelometric turbidity units [NTUs]) was less than the October sampling event (774 NTUs).

Radiological Parameters

The radiological monitoring results for the CY 2016 CWC surface-water sampling events are summarized in Table 3-5. 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 2016, because Ra-228 rapidly achieves equilibrium with Th-228, such that their concentrations are equal.

Table 3-5. Radiological Results for CY 2016 CWC Surface-Water Sampling

Monitoring Parameter	Monitoring Stations							
	C002	C003	C004	C005	C006	C007	C008	C009
Radionuclide Concentration (pCi/L)								
First Sampling Event (03/22/16-03/23/16)								
Ra-226	<1.35[a]	<1.48[a]	1.7	<1.81[a]	<0.80[a]	<1.52[a]	<0.95[a]	<1.4[a]
Th-228[b]	<0. 55[a]	<0.73[a]	<0.22[a]	<0.79[a]	<0.53[a]	<0.49[a]	0.50	<0.44[a]
Th-230	0.45	0.39	0.91	<0.58[a]	0.65	<0.49[a]	0.47	<0.36[a]
Th-232	<0.20[a]	<0.58[a]	<0.49[a]	<0.66[a]	<0.43[a]	<0.49[a]	<0.46[a]	<0.16[a]
U-234	1.19	1.70	1.31	0.896	1.98	0.869	1.03	0.603
U-235	<0.22[a]	<0.20[a]	<0.72[a]	<0.20[a]	<0.58[a]	<0.19[a]	<0.23[a]	<0.18[a]
U-238	0.94	1.48	0.53	1.13	1.14	0.68	1.05	<0.36[a]
Second Sampling Event (10/17/16-10/18/16)								
Ra-226	<1. 25[a]	<1.55[a]	<1.34[a]	<1.18[a]	0.98	<1.06[a]	<2.15[a]	<1.27[a]
Th-228[b]	<0.45[a]	<0.54[a]	<0.62[a]	<0.44[a]	<0.45[a]	<0.55[a]	<0.17[a]	<0.53[a]
Th-230	0.37	0.44	<0.44[a]	<0.54[a]	0.48	<0.16[a]	0.53	0.86
Th-232	<0.20[a]	<0.20[a]	<0.44[a]	<0.44[a]	<0.20[a]	<0.16[a]	<0.37[a]	<0.82[a]
U-234	0.91	0.55	1.16	<0.81[a]	0.40	1.09	<0.48[a]	0.92
U-235	<0.22[a]	<0.51[a]	<0.37[a]	<0.37[a]	<0.22[a]	<0.24[a]	<0.73[a]	<0.28[a]
U-238	1.69	0.55	<0.66[a]	<0.66[a]	0.66	0.43	0.80	0.54

[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.
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. (No sample was collected during this event.)

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 March of 2006 is presented in Table 3-6.

Table 3-6. Comparison of Historical Radiological Surface-Water Results for CWC

Stations	Radionuclide	Units	03/06	09/06	03/07	10/07	04/08	11/08	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
	Total U[a]	µg/L	0.72	2.2	2.3	2.2	3.2	2.2	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
	Ra-226	pCi/L	<0.44[b]	<0.46[b]	0.52	<0.67[b]	0.81	0.34	<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]
C002	Th-228[c]	pCi/L	0.64	<0.38[b]	0.25	<0.53[b]	<0.20[a]	<0.40[a]	<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]
	Th-230	pCi/L	<0.55[b]	0.64	0.38	1.3	0.59	<0.40[a]	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
	Th-232	pCi/L	<0.77[b]	<0.38[b]	<0.17[b]	<0.38[b]	<0.20[a]	<0.18[a]	<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]
	Total U[a]	µg/L	2.1	1.2	3.1	2.1	4.4	3.6	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
	Ra-226	pCi/L	<0.41[b]	1.5	0.20	<0.54[b]	1.32	<0.49[a]	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]
C003	Th-228[c]	pCi/L	<0.54[b]	<0.50[b]	<0.54[b]	<0.42[b]	<0.44[a]	<0.33[a]	<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]
	Th-230	pCi/L	0.55	0.67	0.44	1.3	1.32	0.58	<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
	Th-232	pCi/L	<0.20[b]	<0.41	<0.16[b]	<0.19[b]	<0.20[a]	<0.15[a]	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]
	Total U[a]	µg/L	4.3	1.9	2.7	2.1	2.4	2.6	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
	Ra-226	pCi/L	<0.50[b]	<0.67[b]	0.41	<0.61[b]	<0.63[a]	<0.71[a]	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]
C004	Th-228[c]	pCi/L	0.45	<0.44[b]	<0.53[b]	<0.17[b]	0.31	<0.50[a]	<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]
	Th-230	pCi/L	0.55	0.71	<0.38[b]	<0.45[b]	0.79	<0.50[a]	<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]
	Th-232	pCi/L	<0.19[b]	<0.20[b]	0.19	<0.19[b]	<0.21[a]	<0.18[a]	<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]
	Total U[a]	µg/L	2.1	3.0	4.8	1.4	4.0	3.2	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
	Ra-226	pCi/L	0.57	<0.36[b]	<0.51[b]	<0.64[b]	<0.74[a]	<0.20[a]	<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]
C005	Th-228[c]	pCi/L	<0.56[b]	0.26	<0.39[b]	0.23	<0.46[a]	<0.68[a]	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]
	Th-230	pCi/L	0.87	0.46	<0.39[b]	0.99	1.7	0.32	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]
	Th-232	pCi/L	<0.45[b]	<0.39[b]	<0.39[b]	<0.56[b]	<0.21[a]	<0.17[a]	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]
	Total U[a]	µg/L	2.0	1.9	3.5	2.2	2.9	3.2	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
	Ra-226	pCi/L	<0.57[b]	<0.55[b]	0.51	<0.46[b]	<0.66[a]	0.91	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
C006	Th-228[c]	pCi/L	<0.56[b]	<0.59[b]	<0.43[b]	<0.36[b]	<0.56[a]	<0.39[a]	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]
	Th-230	pCi/L	0.83	<0.52[b]	<0.16[b]	0.36	0.60	0.53	<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
	Th-232	pCi/L	<0.18[b]	<0.19[b]	<0.16[b]	<0.16[b]	<0.20[a]	<0.39[a]	<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]
	Total U[a]	µg/L	1.9	1.7	3.1	1.7	2.7	1.8	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
	Ra-226	pCi/L	<0.58[b]	<0.40[b]	0.55	<0.46[b]	<0.81[a]	<0.18[a]	<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]
C007	Th-228[c]	pCi/L	<0.41[b]	<0.38[b]	<0.17[b]	<0.47[b]	0.51	0.18	<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]
	Th-230	pCi/L	0.62	0.45	<0.17[b]	0.99	1.03	0.47	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]
	Th-232	pCi/L	<0.19[b]	<0.18[b]	<0.17[b]	<0.38[b]	<0.41[a]	<0.16[a]	<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]
	Total U[a]	µg/L																		1.32	2.82	1.79	3.07	1.71
	Ra-226	pCi/L																		<0.83[b]	<1.28[b]	0.61	<0.95[b]	<2.15[b]
C008[d]	Th-228[c]	pCi/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.54[b]	0.64	<0.42[b]	0.50	<0.17[b]
	Th-230	pCi/L																		0.22	<0.50[b]	<0.42[b]	0.47	0.53
	Th-232	pCi/L																		<0.20[b]	<0.40[b]	<0.36[b]	<0.46[b]	<0.48[b]
	Total U[a]	µg/L																		1.92	3.53	2.47	1.16	2.17
	Ra-226	pCi/L																		<0.90[b]	<1.04[b]	0.81	<1.4[b]	<1.27[b]
C009[d]	Th-228[c]	pCi/L	NA	NA	NA	NA	NA	NA	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]
	Th-230	pCi/L																		<0.49[b]	<0.45[b]	<0.51[b]	<0.36[b]	0.86
	Th-232	pCi/L																		<0.18[b]	3.33	2.04	3.15	3.96

[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.)

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 2016 CWC surface-water sampling events are presented in Table 3-7.

Table 3-7. Chemical Results for CY 2016 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 (03/22/16-03/23/16)								
Antimony	<1.7[b]	<1.7[b]	<1.7[b]	<1.7[b]	<1.7[b]	<1.7[b]	<1.7[b]	<1.7[b]
Arsenic	2.9	3.4	3.2	3.9	3.3	2.8	2.9	3.3
Barium	130	170	170	180	170	150	140	130
Cadmium	0. 13	<0.1[b]	<0.1[b]	<0.1[b]	<0.1[b]	<0.1[b]	<0.1[b]	<0.1[b]
Chromium	<1.0[b]	<1.0[b]	<1.0[b]	<1.0[b]	1.1	1.1	1.2	2
Molybdenum	9.0	13	12	12	15	12	10	11
Nickel	2.0	2.6	2.8	2.9	3.4	2.8	2.7	2.6
Selenium	1.8	1.9	2.2	<1.6[b]	<1.6[b]	2.0	<1.6[b]	<1.6[b]
Thallium	0.55[b]	<0.55[b]	<0.55[b]	<0.55[b]	<0.55[b]	<0.55[b]	<0.55[b]	<0.55[b]
Vanadium	<2.4[b]	<2.4[b]	<2.4[b]	<2.4[b]	2.6	2.6	2.4	2.4
Second Sampling Event (10/17/16-10/18/16)								
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	6.1	5.1	<4.0[b]	<4.0[b]	<4.0[b]	<4.0[b]	<4.0[b]	<4.0[b]
Barium	120	120	140	140	130	130	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]	4.6
Molybdenum	7.4	8.4	7.9	7.6	6.2	6.4	6.1	5.5
Nickel	2.2	2.1	2.3	2.6	3.0	2.2	2.3	2.5
Selenium	<2.0[b]	<2.0[b]	3.0	2.6	<2.0[b]	2.3	2.6	<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]

[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 2016 sediment sampling at CWC was conducted during the months of March 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 EMICY16 (USACE 2016).

All sediment monitoring required through implementation of the EMICY16 was conducted as planned during CY 2016 (USACE 2016). 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 2016 CWC sediment sampling events are presented in Table 3-8. 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 2016, because U-234 is assumed to be in equilibrium with U-238.

Table 3-8. Radiological Results for CY 2016 CWC Sediment Sampling

Monitoring Parameter	RGs[a]	Monitoring Stations							
		C002	C003	C004	C005	C006	C007	C008	C009
Radionuclide Concentration (pCi/g)									
First Sampling Event (03/22/16-03/23/16)									
Ac-227	No RG	<0.30[b]	<0.24[b]	<0.24[b]	<0.30[b]	<0.19[b]	<0.26[b]	<0.19[b]	<0.19[b]
Pa-231	No RG	<0.85[b]	<0.66[b]	<0.65[b]	<0.86[b]	<0.49[b]	<0.68[b]	<0.53[b]	<0.55[b]
Ra-226	15	1.34	1.11	1.39	1.44	1.27	1.14	1.27	1.43
Ra-228	No RG	1.11	0.66	0.95	1.06	0.85	0.67	0.90	0.83
Th-228[c]	No RG	1.74	1.28	1.64	1.70	1.49	0.47	1.16	1.30
Th-230[c]	43	1.99	2.55	2.77	2.23	3.89	3.77	2.30	2.46
Th-232[c]	No RG	1.39	0.87	1.30	1.30	0.95	1.04	1.19	1.26
U-235	No RG	<0.42[b]	<0.31[b]	<0.32[b]	<0.40[b]	<0.26[b]	<0.34[b]	<0.27[b]	<0.27[b]
U-238[d]	150	1.92	<1.07[b]	1.34	<1.37[b]	0.92	<1.06[b]	1.62	0.53
Second Sampling Event (10/17/16-10/18/16)									
Ac-227	No RG	<0.12[b]	<0.11[b]	<0.12[b]	<0.12[b]	<0.14[b]	<0.11[b]	<0.15[b]	<0.12[b]
Pa-231	No RG	<0.73[b]	<0.65[b]	<0.77[b]	<0.89[b]	<0.86[b]	<0.64[b]	<1.03[b]	<0.69[b]
Ra-226	15	2.01	1.41	1.44	1.74	1.47	1.28	1.71	1.48
Ra-228	No RG	1.08	0.98	1.03	0.99	1.14	0.59	1.27	0.88
Th-228[c]	No RG	1.61	1.35	1.17	1.26	1.23	0.62	1.26	1.26
Th-230[c]	43	2.10	3.71	2.11	1.83	2.31	4.75	1.93	3.54
Th-232[c]	No RG	0.57	1.14	0.94	1.43	1.45	0.87	1.06	0.98
U-235	No RG	0.35	<0.24[b]	<0.27[b]	<0.27[b]	<0.30[b]	<0.22[b]	<0.33[b]	<0.24[b]
U-238[d]	150	2.69	1.11	0.99	1.22	1.11	0.72	1.51	0.72

[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 March of 2006 are summarized in Table 3-9.

Chemical Parameters

Chemical monitoring results for CY 2016 CWC sediment sampling events are presented in Table 3-10.

Table 3-9. Comparison of Historical Radiological Sediment Results for CWC

Station	Radionuclide	Units	03/06	09/06	03/07	10/07	04/08	11/08	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
C002	Total U[a]	pCi/g	1.2	1.7	0.97	1.1[b]	1.7	0.73	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
	Ra-226	pCi/g	0.74	0.72	0.97	<0.37[b,c]	1.0	0.85	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
	Ra-228	pCi/g	0.22	0.29	0.20	0.18	0.20	0.17	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
	Th-228	pCi/g	0.75	0.67	0.26	0.24[b]	0.53	0.41	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
	Th-230	pCi/g	1.1	1.3	1.2	0.84[b]	0.92	1.1	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
	Th-232	pCi/g	0.30	0.22	0.46	<0.24[b,c]	0.24	<0.26[c]	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
C003	Total U[a]	pCi/g	1.4	1.4	1.2	2.0[b]	1.9	2.3	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
	Ra-226	pCi/g	1.1	1.3	1.5	1.7[b]	1.1	1.1	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
	Ra-228	pCi/g	0.45	0.38	0.68	0.49	0.49	0.57	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
	Th-228	pCi/g	1.2	0.34	0.97	0.53[b]	0.70	0.66	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
	Th-230	pCi/g	2.6	3.8	1.2	1.5[b]	2.1	2.3	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
	Th-232	pCi/g	0.69	0.43	0.38	0.46[b]	0.51	0.57	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
C004	Total U[a]	pCi/g	1.6	1.9	2.7	7.3[b,d]	2.0	2.3	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
	Ra-226	pCi/g	1.2	1.2	1.3	1.6[b]	1.0	1.0	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
	Ra-228	pCi/g	0.83	0.74	0.80	0.81	0.70	1.0	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
	Th-228	pCi/g	0.9	0.93	1.7	1.3[b]	1.2	1.4	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
	Th-230	pCi/g	2.2	2.1	2.6	2.2[b]	2.0	1.0	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
	Th-232	pCi/g	1.0	0.85	0.79	0.97[b]	1.3	0.80	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
C005	Total U[a]	pCi/g	2.3	2.0	0.94	2.0[b]	2.0	3.6	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
	Ra-226	pCi/g	1.4	1.4	1.7	1.6[b]	1.1	5.4	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
	Ra-228	pCi/g	0.78	0.53	0.98	0.58	0.78	1.1	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
	Th-228	pCi/g	1.5	1.0	1.5	0.68[b]	0.98	1.7	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
	Th-230	pCi/g	11	11	4.7	3.7[b]	6.6	82.6	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
	Th-232	pCi/g	1.3	0.77	1.6	0.45[b]	0.98	1.4	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
C006	Total U[a]	pCi/g	2.7	2.3	2.9	2.3[b]	1.7	1.8	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
	Ra-226	pCi/g	1.3	1.3	1.4	0.94[b]	1.0	1.4	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
	Ra-228	pCi/g	0.74	0.92	0.97	0.93	0.88	0.98	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
	Th-228	pCi/g	0.92	2.0	0.99	1.6[b]	1.7	0.94	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
	Th-230	pCi/g	2.8	3.2	1.8	2.7[b]	3.4	2.2	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
	Th-232	pCi/g	1.3	0.85	1.1	1.4[b]	1.1	1.2	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
C007	Total U[a]	pCi/g	2.1	1.9	2.0	2.3[b]	1.4	2.3	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
	Ra-226	pCi/g	1.3	1.5	1.9	1.1[b]	1.1	1.4	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
	Ra-228	pCi/g	0.99	0.87	0.79	0.84	0.69	0.89	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
	Th-228	pCi/g	1.2	1.0	1.2	1.5[b]	0.73	0.67	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
	Th-230	pCi/g	3.8	2.8	19	4.6[b]	3.8	3.6	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
	Th-232	pCi/g	1.1	0.84	1.2	0.83[b]	0.55	0.72	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
C008[e]	Total U[a]	pCi/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.60	1.81	1.37	3.24	3.11
	Ra-226	pCi/g																		1.22	1.17	1.23	1.27	1.71
	Ra-228	pCi/g																		0.72	0.81	0.76	0.90	1.27
	Th-228	pCi/g																		0.82	1.18	0.86	1.16	1.26
	Th-230	pCi/g																		2.80	2.48	3.36	2.30	1.93
	Th-232	pCi/g																		0.56	1.19	0.55	1.19	1.06

Table 3-9. Comparison of Historical Radiological Sediment Results for CWC (Continued)

Station	Radionuclide	Units	03/06	09/06	03/07	10/07	04/08	11/08	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
C009[e]	Total U[a]	pCi/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.79	1.72	1.63	1.10	1.45
	Ra-226	pCi/g																		1.43	1.26	1.19	1.43	1.48
	Ra-228	pCi/g																		0.80	0.94	0.81	0.83	0.88
	Th-228	pCi/g																		0.86	1.16	1.06	1.30	1.26
	Th-230	pCi/g																		3.96	2.27	2.99	2.46	3.54
	Th-232	pCi/g																		1.06	1.22	0.63	1.26	0.98

[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] The 7.3 pCi/g value for total U obtained in 10/07 from C004 was a typographical error. The result should be reported as 1.3.
[e] 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.)

Table 3-10. Chemical Results for CY 2016 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 (03/22/16-03/23/16)								
Antimony	<0.42[a]	<0.40[a]	<0.49[a]	<0.50[a]	<0.49[a]	<0.43[a]	<0.50[a]	<0.45[a]
Arsenic	14	12	9.2	5.7	6.7	8.2	4.9	5.2
Barium	130	260	220	220	190	180	170	150
Cadmium	0.70	0.57	0.96	0.48	0.77	1.6	0.55	0.39
Chromium	21	17	35	20	25	44	20	22
Molybdenum	3.1	1.2	1.6	<0.96[a]	<0.93[a]	1.3	<0.95[a]	<0.86[a]
Nickel	18	22	26	22	23	25	22	18
Selenium	1.1	2.5	2.2	2.0	2.5	1.7	1.5	1.7
Thallium	<0.97[a]	<0.94[a]	<1.1[a]	<1.2[a]	<1.1[a]	<0.99[a]	<1.2[a]	<1.1[a]
Vanadium	25	35	31	27	27	27	24	28
Second Sampling Event (10/17/16-10/18/16)								
Antimony	<0.66[a]	<0.63[a]	<0.62[a]	<0.62[a]	<0.66[a]	<0.64[a]	<0.73[a]	<0.66[a]
Arsenic	13	10	8	14	7.7	8.5	20	4.9
Barium	250	190	210	240	250	180	2,000	120
Cadmium	0.83	0.31	0.27	0.55	0.29	0.64	3.1	0.33
Chromium	18	19	18	26	23	25	20	20
Molybdenum	5.3	0.88	0.72	1.1	<0.66[a]	1.4	6.5	<0.66[a]
Nickel	31	27	20	29	26	17	96	17
Selenium	1.9	1.7	2.0	1.8	2.0	1.1	2.1	1.6
Thallium	<0.66[a]	<0.63[a]	<0.62[a]	<0.62[a]	<0.66[a]	<0.64[a]	<0.73[a]	<0.66[a]
Vanadium	31	38	29	35	35	22	73	25

[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 2016 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 3-11.

Table 3-11. 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 2016 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 and associated qualitative trend line graphs for total U from monitoring stations C008 and C009 will be presented in the CY 2017 EMDAR when additional samples are collected and data are available.

Conclusion

The data fit two hypothetical scenarios. First, the post-RA sampling results were not significantly less 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, an excessive short-term increase in total U concentrations would have been observed.

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4.0 EVALUATION OF GROUND-WATER MONITORING DATA

Twenty (20) ground-water monitoring wells were sampled at the NC Sites during CY 2016. 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 2016 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 2016 are contained in Appendix E, Tables E-3 and E-4.

Ground-Water Guidelines

The CY 2016 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 2016 Ground-Water Monitoring Results at the Latty Avenue Properties

Based on an evaluation of the ground-water data at the Latty Avenue Properties, one radiological soil COC (U-234) was detected at concentrations in excess of the ROD guidelines in HZ-A ground water at the Latty Avenue Properties in CY 2016. U-234 was detected above its ROD guideline in HZ-A well HW22 during the second quarter sampling event in CY 2016. However, U-234 does not exceed its ROD guideline at HW22 when measurement error is taken into account. A statistically significant increasing trend in total U concentrations was observed for

HW22, but the total U concentration detected from the 2016 sampling event did not exceed the total U monitoring guideline of 30 µg/L. Because a significant degradation of CWC surface water has not occurred, there is currently no finding of significantly degraded ground-water conditions in HZ-A ground water.

Based on the CY 2016 results for HW23, concentrations of all inorganic and radiological soil COCs were below the ROD ground-water guidelines in HZ-C during CY 2016. Therefore, no findings currently indicate significantly degraded ground-water conditions in HZ-C ground water. An evaluation of potential response actions is 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 2016 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 in March 2016.

Table 4-1. Screened HZs for Ground-Water Monitoring Wells at the Latty Avenue Properties in CY 2016

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

[a] Wells sampled in CY 2016.

Ground-water sampling was conducted at six ground-water monitoring wells at the Latty Avenue Properties in CY 2016. No ground-water sampling was conducted during the first-quarter of CY 2016. Second-quarter sampling was conducted on June 3, 2016; third-quarter sampling was conducted on August 17, 2016; and fourth-quarter sampling was conducted on November 8, 9, and 11, 2016.

HZ-A Ground Water

Ground-water samples were collected from five HZ-A wells in CY 2016. A summary table presenting the CY 2016 analytical data for all analytes is included in Appendix E (Table E-3).

For response-action monitoring, the CY 2016 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 2016 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). Those soil COCs with concentrations above the ROD guidelines in HZ-A ground-water samples at the Latty Avenue Properties during CY 2016 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 2016

Analyte	Units	Station	ROD Guidelines[a]	Minimum Detected	Maximum Detected	Mean Detected	No. Detects > ROD Guidelines[a]	Frequency of Detection
U-234	pCi/L	HW22	6.4	6.6[b]	6.6[b]	6.6[b]	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.
[b] The concentration of U-234 detected in HW22 is not above the ROD guideline when the measurement error (1.6 pCi/L) is taken into account.

No inorganic soil COCs were detected at concentrations above the ROD guidelines in HZ-A ground water at the Latty Avenue Properties in CY 2016. The radiological COC U-234 was detected above its ROD guideline in HZ-A ground water in one well (HW22) at the Latty Avenue Properties in CY 2016. However, the concentration of U-234 detected at HW22 during the second-quarter sampling event conducted in CY 2016 (6.59 pCi/L) does not exceed the ROD guideline (6.4 pCi/L) when measurement error is taken into account.

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.

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

The total U concentration in HW22 (11 µg/L, calculated from the isotopic concentrations) does not exceed the total U monitoring guideline of 30 µg/L.

In summary, comparison of the data to the ROD guidelines indicates that no inorganic or radiological soil COCs exceeded the ROD guidelines in HZ-A ground water in CY 2016 when measurement error is taken into account. Therefore, there is currently no finding of significantly degraded ground-water conditions in HZ-A ground water.

HZ-C Ground Water

Ground-water samples were collected from one HZ-C well (HW23) in CY 2016. This well was sampled for both radionuclides and inorganics during the second quarter and for inorganics during the fourth quarter. Concentrations of all inorganic and radiological soil COCs were below the ROD ground-water guidelines in HW23 during CY 2016.

In summary, the CY 2016 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 2016. Statistical analysis was used to assist with identifying trends for those contaminants that exceeded the ROD guidelines in CY 2016.

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 total U in HW22 is provided on Figure 4-3.

<u>Results of Trend Analysis for Ground Water at the Latty Avenue Properties</u>

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.

<u>HZ-A Ground Water</u>

The Mann-Kendall Trend Test was performed for those wells in which analytes exceeded the ROD guidelines at least once during CY 2016, 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 2016), 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 1999 to the fourth quarter of CY 2016.

Inorganics

Concentrations of all inorganic soil COCs were below the ROD ground-water criteria in ground-water samples from the five HZ-A wells sampled in CY 2016. Therefore, a trend analysis was not conducted for inorganic COCs in HZ-A ground water.

Radionuclides

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.

U-234 concentrations exceeded the ROD guideline in HW22 during the second quarter CY 2016 sampling event. A trend analysis was performed for the total U concentrations for HW22. Because the total U values are calculated using the U-234 value, the trend in its value should be similar to the total U trend results. Therefore, performance of a separate trend analysis for U-234 was unnecessary.

As shown in Table 4-3, a statistically significant increasing trend in total U concentrations was identified for HW22 for the CY 1999 through CY 2016 dataset. However, based on the time-versus-concentration plot for total U in HW22 (Figure 4-3), no significant trend exists in total U concentrations at HW22 when measurement error is taken into account. In addition, the total U concentrations at HW22 for this period have not exceeded the 30 µg/L ROD guideline.

Table 4-3. Results of Mann-Kendall Trend Test for Analyte Exceeding the ROD Guidelines at the Latty Avenue Properties in CY 2016

Analyte	Station	N[a]	Test Statistics[b]		Trend[d]
			S[c]	Z[c]	
Total U	HW22	17	74	3.01	Upward Trend[e]

[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 2016.

[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.

[e] When the measurement error is taken into account, a significant upward trend does not exist.

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 2016. Concentrations of all soil COCs were below the ROD ground-water criteria in CY 2016 ground-water samples from the HZ-C well HW23. 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, June, August, and November of CY 2016. The potentiometric surface maps for HZ-A and HZ-C created from the June 2 and November 7, 2016, ground-water elevation measurements are provided on Figures 4-5, 4-6, 4-7, and 4-8. 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 0.012 ft/ft (June) to 0.011 ft/ft (November) in CY 2016. Based on the CY 2016 water-level measurements, the position of the HZ-A ground-water surface in the wet and dry seasons were very similar. The relatively small difference in water levels (average difference of 0.2 inches in the second quarter of 2016 and fourth quarter of 2016 measurements) is likely a result of less seasonal variation in precipitation (i.e., a drier than typical June and a wetter than typical November in CY 2016).

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 east-northeast at an average horizontal gradient of 0.002 ft/ft in both June and November of CY 2016.

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 2016 Ground-Water Monitoring Results at the St. Louis Airport Site and St. Louis Airport Site Vicinity Properties

Six soil COCs (barium, cadmium, chromium, molybdenum, nickel, and total U) exceeded the ROD guidelines in HZ-A ground water at the SLAPS and SLAPS VPs in CY 2016. Three inorganic soil COCs (chromium, molybdenum, and nickel) and one radiological COC (total U) have exceeded the ROD guidelines for a period of at least 12 months.

Statistically significant increasing trends were observed for barium concentrations in B53W13S; chromium concentrations in B53W09S and B53W18S; molybdenum concentrations in B53W18S; and nickel concentrations in B53W09S, B53W13S, and B53W18S. The Mann-Kendall Trend Test results indicate no trend for total U in PW46 or nickel in PW43.

Because a significant degradation of CWC surface water has not occurred, no findings currently indicate significantly degraded ground-water conditions in HZ-A ground water at the SLAPS and SLAPS VPs in CY 2016. However, because chromium, molybdenum, nickel, and 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 2016 results for B53W07D, PW35, and PW42, no inorganic or radiological soil COC concentrations exceeded ROD ground-water guidelines in HZ-C during CY 2016. Therefore, no findings currently indicate significantly degraded ground-water conditions in HZ-C ground water.

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. Fourteen (14) wells are screened exclusively across the shallow zone (HZ-A). Four (4) 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 2016.

Table 4-4. Ground-Water Monitoring Well Network at the SLAPS and SLAPS VPs in CY 2016

Well ID	Screened HZs			
	HZ-A	HZ-B	HZ-C	HZ-E
B53W01D			X	
B53W01S	X			
B53W06S[a]	X			
B53W07D[a]			X	
B53W07S[a]	X			
B53W09S[a]	X			
B53W13S[a]	X			
B53W17S[a]	X			
B53W18S[a]	X			
B53W19S[a]	X			
MW31-98[a]	X			
MW32-98[a]	X			
PW35[a]				X
PW36		X	X	
PW42[a]			X	
PW43[a]	X			
PW44	X			
PW45	X			
PW46[a]	X			

[a] Wells sampled in CY 2016.

During CY 2016, 14 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. In CY 2016, ground-water sampling was conducted on February 22 and 23 (first quarter); June 6, 9, and 10 (second quarter); August 18 and 19 (third quarter); and November 7, 8, and 11 (fourth quarter).

HZ-A Ground Water

Eleven (11) HZ-A wells (B53W06S, B53W07S, B53W09S, B53W13S, B53W17S, B53W18S, B53W19S, MW31-98, MW32-98, PW43, and PW46) were sampled at the SLAPS and SLAPS VPs during CY 2016. The analytical data for the CY 2016 ground-water sampling at the SLAPS and SLAPS VPs are contained in Appendix E, Table E-4.

The CY 2016 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). Table 4-5 lists those soil COCs exceeding the ROD guidelines in CY 2016 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 2016

Analyte	Units	Station	ROD Guidelines[a]	Minimum Detected	Maximum Detected	Mean Detected	No. Detects > ROD Guidelines[a]	Frequency of Detection
Barium	µg/L	B53W13S	510	550	550	550	1	1/1
Cadmium	µg/L	B53W19S	0.7	1.2[b]	1.2[b]	1.2[b]	1	1/1
Chromium	µg/L	B53W09S	9.6	21	39	33	3	3/3
		B53W17S	7.0	8.9[b]	8.9[b]	8.9[b]	1	1/1
		B53W18S	51	150	150	150	1	1/1
Molybdenum	µg/L	B53W18S	28	58	58	58	1	1/1
Nickel	µg/L	B53W09S	83	37	120	82.3	2	3/3
		B53W13S	38	49	49	49	1	1/1
		B53W18S	910	1,500	1,500	1,500	1	1/1
		PW43	3.6	4.0[b]	4.0[b]	4.0[b]	1	1/1
U-234	pCi/L	PW46	5,500	384[c]	384[c]	384	0	1/1
U-235	pCi/L	PW46	290	42.4[c]	42.4[c]	42.4	0	1/1
U-238	pCi/L	PW46	5,600	388[c]	388[c]	388	0	1/1
Total U[d]	µg/L	PW46	30	1,178	1,178	1,178	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).
[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.

Five inorganic soil COCs (barium, cadmium, chromium, molybdenum, and nickel) were detected in HZ-A ground water at concentrations in excess of the ROD guidelines at the SLAPS and SLAPS VPs. Barium was detected in B53W13S at levels above the ROD guideline of 510 µg/L in the first-quarter sample (550 µg/L), but was below the ROD guideline in the previous sampling event conducted in the second quarter of CY 2015 (350 µg/L). Therefore, barium concentrations in B53W13S did not exceed the ROD guideline for more than 12 months.

Cadmium was detected in B53W19S at concentrations above the ROD guideline of 0.7 µg/L in the first quarter sample (1.2 µg/L), but does not exceed the guideline if the associated measurement error is taken into account. Chromium was detected at concentrations in excess of the ROD guidelines in three HZ-A wells (B53W09S, B53W17S, and B53W18S) during CY 2016. Chromium concentrations exceeded the ROD guideline of 9.6 µg/L in the second-, third-, and fourth-quarter samples from B53W09S (39 µg/L, 21 µg/L, and 39 µg/L, respectively). However, chromium was detected at concentrations below the ROD guideline in the previous sampling event conducted in the fourth-quarter of CY 2015 (6.9 µg/L). Therefore, chromium concentrations in B53W09S did not exceed the ROD guideline for more than 12 months. Chromium concentrations also exceeded the ROD guideline in the second-quarter sample from B53W17S (8.9 µg/L), but does not exceed the guideline if the associated measurement error is taken into account. Chromium was detected at concentrations in excess of the ROD guideline in the first-quarter sample from B53W18S (150 µg/L) and in the CY 2015 samples from B53W18S. Therefore, chromium concentrations in B53W18S have exceeded the ROD guidelines for more than 12 months.

Molybdenum was detected at concentrations in excess of the ROD guideline in HZ-A well B53W18S during CY 2016. Molybdenum concentrations in B53W18S exceeded the ROD guideline of 28 µg/L in the first-quarter sample (58 µg/L). Molybdenum concentrations also exceeded the ROD guideline in the first-, second, and third-quarter samples from B53W18S in CY 2015. Therefore, molybdenum concentrations in B53W18S have exceeded the ROD guideline for more than 12 months.

Nickel was detected at concentrations in excess of the ROD guidelines in four HZ-A wells (B53W09S, B53W13S, B53W18S, and PW43) during CY 2016. The concentration of nickel detected at B53W09S during the third- and fourth-quarter sampling events (120 µg/L and 90 µg/L, respectively) exceeded the ROD guideline (83 µg/L). However, nickel was detected at concentrations below the ROD guideline in the second-quarter sample (37 µg/L µg/L). Therefore, the nickel concentration at B53W09S has not exceeded the ROD guideline for a period of at least 12 months. Nickel concentrations in B53W13S exceeded the ROD guideline (38 µg/L) in the first-quarter sample (49 µg/L). It also exceeded the ROD guideline in the CY 2015 samples. Therefore, nickel has exceeded the ROD guideline for a period of at least 12 months in B53W13S. Nickel concentrations also exceeded the ROD guideline of 910 µg/L in the first-quarter sample from B53W18S (1,500 µg/L). It also exceeded the ROD guideline in the CY 2015 samples. Therefore, the nickel concentrations at B53W18S have exceeded the ROD guideline for a period of at least 12 months. The nickel concentration in PW43 exceeded the ROD guideline of 3.6 µg/L in the third-quarter sample (4.0 µg/L). However, the nickel concentration was not above the ROD guideline in PW43 if the associated measurement error is taken into account.

Downhole video inspections were conducted on April 5 and 6, 2016, at three stainless steel wells (B53W13S, B53W18S, and B53W19S) to investigate if well corrosion could be causing the elevated chromium and nickel concentrations detected in these wells. Two downhole video surveys were done in each well, one with a standard straight camera lens and one with a fisheye lens. The downhole video inspection results indicated that two of the stainless steel wells (B53W18S and B53W19S) had evidence of corrosion (severe staining, encrustations) of their well screens. The other stainless steel well (B53W13S) had evidence of corrosion in the steel casing at depths above the well screen. All three stainless steel wells, but particularly B53W18S and B53W19S, had large amounts of suspended sediment. Because well conditions (high particulates, possible corrosion) may be affecting the analytical results in these wells, continued sampling would be of limited use. Decommissioning and possible replacement of B53W13S, B53W18S, and B53W19S is currently being evaluated.

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-quarter CY 2016 sampling event. The total U concentration in PW46 was 1,177.9 µg/L on February 23, 2016. 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 2016 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 increases in the concentrations of total U have occurred in PW46 during CY 2016.

In summary, three inorganic soil COCs (chromium, molybdenum, and nickel) exceeded the ROD guidelines for a period of at least 12 months in HZ-A ground water (nickel in B53W13S, and chromium, molybdenum, and nickel in B53W18S) at the SLAPS and SLAPS VPs in CY 2016. In addition, concentrations 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 have exceeded the guideline for a period of at least 12 months. However, comparison of their CY 2016 concentrations 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, no findings currently indicate significantly degraded ground-water conditions in HZ-A ground water at the SLAPS and SLAPS VPs in CY 2016. However, because chromium, molybdenum, nickel, and 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)

Three wells (B53W07D, PW35, and PW42) screened across lower ground water (HZ-C through HZ-E) were sampled at the SLAPS and SLAPS VPs during CY 2016. No soil COCs exceeded the ROD guidelines in CY 2016 ground-water samples from wells screened across the lower ground-water at the SLAPS and SLAPS VPs.

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 2016 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 2016. 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 2016. For those monitoring wells at which an analyte exceeded these guidelines in one or more samples during CY 2016 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 2016 ground-water monitoring data for the SLAPS and SLAPS VPs, six soil COCs (barium, cadmium, chromium, molybdenum, nickel, and total U) exceeded the ROD guidelines in HZ-A ground water in CY 2016. The Mann-Kendall Trend Test was performed for barium in B53W13S; chromium in B53W09S and B53W18S; molybdenum in B53W18S; nickel in B53W09S, B53W13S, B53W18S, and PW43; and total U in PW46. For nickel in PW43, the time period was limited to CY 2003 through CY 2016 to obtain a dataset for which less than 50 percent of the results were non-detect. A trend analysis was not conducted for chromium in B53W17S or cadmium in B53W19S because their historical results were generally below or only slightly above their DLs. To aid in the evaluation of trends, time-versus-concentration plots for chromium, molybdenum, nickel, and total U are provided on Figures 4-12 through 4-15.

Trend analysis was not performed for deep (HZ-C through HZ-E) ground water, because no soil COCs exceeded their ROD guidelines in deep ground water during CY 2016 at the SLAPS and SLAPS VPs.

Inorganics

The results of the Mann-Kendall Trend Tests are provided in Table 4-6. As shown in Table 4-6, statistically significant increasing trends in chromium, molybdenum, and nickel concentrations (i.e., a trend with a confidence level greater than 95 percent) were observed for B53W18S. In addition, statistically significant increasing trends were observed for chromium and nickel concentrations in B53W09S and barium and nickel concentrations in B53W13S. 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 at B53W09S, B53W13S, and B53W18S (provided in Figures 4-12, 4-13, and 4-14, respectively) were used to evaluate these factors. The best-fit trend lines based on the data scatter are also shown on the graphs on these figures.

Table 4-6. Results of Mann-Kendall Trend Test for Analytes with Concentrations Exceeding ROD Guidelines in Ground Water at the SLAPS and SLAPS VPs in CY 2016

Analyte	Station	N[a]	Test Statistics[b]		Trend[d]
			S[c]	Z[c]	
Barium	B53W13S	28	208	4.09	Upward Trend
Chromium	B53W09S	25	180	4.20	Upward Trend
	B53W18S	24	158	3.91	Upward Trend
Molybdenum	B53W18S	24	170	4.21	Upward Trend
Nickel	B53W09S	25	116	2.69	Upward Trend
	B53W13S	28	136	2.67	Upward Trend
	B53W18S	24	137	3.37	Upward Trend
	PW43	14	13	0.67	No Trend
Total U	PW46	17	-12	-0.45	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 2016. With the exception of nickel at PW43 and total U at PW46, the time period is between January of 1999 and December of 2016. For PW43, the nickel dataset was restricted to the period between January of 2003 and December of 2016 to meet the Mann-Kendall Trend Test requirement that the dataset have a detection frequency greater than 50 percent. For PW46, which was installed in April 2006, the dataset covers the period between May of 2006 and December of 2016.

[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 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 2016 (PW46). The results of the Mann-Kendall Trend Test are provided in Table 4-6. 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 4-15. 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 4-15. 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 2016 at the SLAPS and SLAPS VPs are provided on Figure 4-16.

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, June, August, and November of CY 2016. Ground-water elevation contours were drawn using the June 2, 2016, and November 7, 2016, 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 June and November of CY 2016, 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 both the wet season (June 2, 2016) and dry season (November 7, 2016). The hydraulic gradient increases near CWC, where the average horizontal gradient ranges from 0.026 ft/ft (June 2, 2016) to 0.021 ft/ft (November 7, 2016). 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 2016 water-level measurements, the elevation of the HZ-A ground-water surface in the wet and dry seasons were very similar. The relatively small difference in water levels (average difference of 0.05 inches in the second quarter of 2016 and fourth quarter of 2016 HZ-A water-level measurements) is likely a result of less seasonal variation in precipitation (i.e., a drier than typical June and a wetter than typical November in CY 2016).

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 2016 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 0.0013 ft/ft in June and 0.0015 ft/ft in November of 2016. 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 6.4 ft higher than the potentiometric surface of the unconfined HZ-A zone, 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.

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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 March 22, 2016, October 17, 2016, and November 9, 2016, to observe the environmental monitoring activities. USEPA 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:

- 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).
- 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 within 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 EMICY16 outlines the analyses to be performed at the NC Sites for various media (USACE 2016).

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 EMICY16 (USACE 2016).

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 2013). In conjunction, 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 2013). 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 2013).

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 2013).

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 2016 environmental monitoring activities was acceptable. See Section 5.9 for the evaluation process.

Table 5-1. Non-Radiological Duplicate Sample Analysis for CY 2016 – Surface and Ground Water

Sample Name[a]	Antimony	Arsenic	Barium	Cadmium	Chromium
	RPD[b]	RPD[b]	RPD[b]	RPD[b]	RPD[b]
CWC187188 / CWC187188-1	NC	26.87	26.67	0.00	NC
CWC193459 / CWC193459-1	NC	NC	0.00	NC	0.00
SVP191286 / SVP191286-1	NC	NC	20.00	**37.50**	NC
Sample Name[a]	**Molybdenum**	**Nickel**	**Selenium**	**Thallium**	**Vanadium**
	RPD[b]	**RPD[b]**	**RPD[b]**	**RPD[b]**	**RPD[b]**
CWC187188 / CWC187188-1	28.57	18.18	**43.48**	NC	NC
CWC193459 / CWC193459-1	0.00	14.81	NC	NC	NC
SVP191286 / SVP191286-1	**47.06**	**59.46**	28.57	NC	0.00

[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.
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 5-2. Non-Radiological Duplicate Sample Analysis for CY 2016 – Sediment

Sample Name[a]	Antimony	Arsenic	Barium	Cadmium	Chromium
	RPD[b]	RPD[b]	RPD[b]	RPD[b]	RPD[b]
CWC187189 / CWC187189-1	NC	**125.58**	14.29	**94.74**	4.65
CWC193460 / CWC193460-1	NC	**54.81**	**76.92**	**59.57**	4.88
Sample Name[a]	**Molybdenum**	**Nickel**	**Selenium**	**Thallium**	**Vanadium**
	RPD[b]	**RPD[b]**	**RPD[b]**	**RPD[b]**	**RPD[b]**
CWC187189 / CWC187189-1	NC	15.38	**70.59**	NC	3.92
CWC193460 / CWC193460-1	NC	34.15	6.45	NC	7.69

[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 2016 – Surface and Ground 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]
CWC187188 / CWC187188-1	NC	NA	*	*	NC	NA	NC	NA
CWC193459 / CWC193459-1	NC	NA	*	*	NC	NA	50.80	0.52
SVP191286 / SVP191286-1	NC	NA	*	*	NC	NA	44.56	0.34
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]
CWC187188 / CWC187188-1	NC	NA	14.79	NA	NC	NA	18.15	NA
CWC193459 / CWC193459-1	NC	NA	18.40	NA	NC	NA	35.32	0.28
SVP191286 / SVP191286-1	NC	NA	13.01	NA	NC	NA	8.00	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 2016 – Sediment

Sample Name[a]	Th-228		Th-230		Th-232	
	RPD[b]	NAD[b]	RPD[b]	NAD[b]	RPD[b]	NAD[b]
CWC187189 / CWC187189-1	12.20	NA	10.93	NA	27.86	NA
CWC193460 / CWC193460-1	15.38	NA	44.98	NA	29.57	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 2016 – Sediment

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]
CWC187189 / CWC187189-1	NC	NA	NC	NA	NC	NA	13.24	NA
CWC193460 / CWC193460-1	NC	NA	NC	NA	NC	NA	7.46	NA
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]
CWC187189 / CWC187189-1	NC	NA	3.03	NA	17.11	NA	17.11	NA
CWC193460 / CWC193460-1	NC	NA	7.72	NA	5.54	NA	5.54	NA
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]
CWC187189 / CWC187189-1	NC	NA	17.11	NA	NC	NA	11.57	NA
CWC193460 / CWC193460-1	NC	NA	5.54	NA	NC	NA	1.81	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 2016 environmental monitoring activities was acceptable. See Section 5.9 for the evaluation process.

Table 5-6. Non-Radiological Split Sample Analysis for CY 2016 – Surface and Ground Water

Sample Name[a]	Antimony RPD[b]	Arsenic RPD[b]	Barium RPD[b]	Cadmium RPD[b]	Chromium RPD[b]
CWC187188 / CWC187188-2	NC	15.87	14.29	20.69	NC
CWC193459 / CWC193459-2	NC	NC	0.00	NC	6.32
SVP191286 / SVP191286-2	NC	NC	28.57	NC	**90.16**
Sample Name[a]	**Molybdenum RPD[b]**	**Nickel RPD[b]**	**Selenium RPD[b]**	**Thallium RPD[b]**	**Vanadium RPD[b]**
CWC187188 / CWC187188-2	10.53	4.88	5.71	NC	NC
CWC193459 / CWC193459-2	3.57	**113.48**	NC	NC	NC
SVP191286 / SVP191286-2	**32.26**	NC	0.00	NC	8.33

[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 2016 – Sediment

Sample Name[a]	Antimony RPD[b]	Arsenic RPD[b]	Barium RPD[b]	Cadmium RPD[b]	Chromium RPD[b]
CWC187189 / CWC187189-2	NC	**69.23**	26.09	**118.18**	40.00
CWC193460 / CWC193460-2	NC	**76.06**	27.49	16.39	28.57
Sample Name[a]	**Molybdenum RPD[b]**	**Nickel RPD[b]**	**Selenium RPD[b]**	**Thallium RPD[b]**	**Vanadium RPD[b]**
CWC187189 / CWC187189-2	**155.30**	32.26	**125.93**	NC	**56.41**
CWC193460 / CWC193460-2	NC	**51.85**	**128.21**	NC	**63.16**

[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 2016 – Surface and Ground 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]
CWC187188 / CWC187188-2	NC	NA	*	*	NC	NA	44.81	0.41
CWC193459 / CWC193459-2	NC	NA	*	*	NC	NA	101.05	1.03
SVP191286 / SVP191286-2	NC	NA	*	*	NC	NA	37.11	0.33
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]**
CWC187188 / CWC187188-2	NC	NA	40.65	0.62	NC	NA	54.77	0.70
CWC193459 / CWC193459-2	NC	NA	33.52	0.42	NC	NA	12.52	NA
SVP191286 / SVP191286-2	NC	NA	3.81	NA	NC	NA	11.65	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 2016 – Sediment

Sample Name[a]	Th-228		Th-230		Th-232	
	RPD[b]	NAD[b]	RPD[b]	NAD[b]	RPD[b]	NAD[b]
CWC187189 / CWC187189-2	56.92	1.04	11.82	NA	29.75	NA
CWC193460 / CWC193460-2	71.99	1.19	39.19	NA	38.15	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 2016 – Sediment

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]
CWC187189 / CWC187189-2	NC	NA	NC	NA	NC	NA	6.15	NA
CWC193460 / CWC193460-2	NC	NA	NC	NA	NC	NA	10.31	NA
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]**
CWC187189 / CWC187189-2	NC	NA	32.50	NA	11.86	NA	11.86	NA
CWC193460 / CWC193460-2	NC	NA	2.05	NA	**54.76**	**2.00**	**54.76**	**2.00**
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]**
CWC187189 / CWC187189-2	*	*	11.86	NA	NC	NA	70.92	1.08
CWC193460 / CWC193460-2	*	*	**54.76**	**2.00**	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.
Bold values exceed the control limits. Values not in bold are within control limits.
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 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 2016 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 2016 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 2016 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 EMICY16, 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 2016 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 2016 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 2016

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
CWC187188	1.70	1.70	U	2.90	1.20	=	130.00	0.22	=	0.13	0.10	=	1.00	1.00	U
CWC187188-1	1.70	1.70	U	3.80	1.20	=	170.00	0.22	=	0.13	0.10	=	1.00	1.00	U
CWC187188-2	0.58	0.25	=	3.40	0.25	=	150.00	0.17	J	0.16	0.12	=	0.33	0.25	=
CWC193459	2.00	2.00	U	4.00	4.00	U	130.00	0.90	=	0.20	0.20	U	4.60	4.00	=
CWC193459-1	2.00	2.00	U	4.00	4.00	U	130.00	0.90	=	0.20	0.20	U	4.60	4.00	=
CWC193459-2	0.90	0.06	=	0.58	0.47	=	130.00	0.13	=	0.21	0.21	U	4.90	0.11	=
SVP191286	1.70	1.70	U	1.20	1.20	U	360.00	0.22	=	0.13	0.10	=	1.40	1.00	=
SVP191286-1	1.70	1.70	U	1.20	1.20	U	440.00	0.22	=	0.19	0.10	=	1.00	1.00	U
SVP191286-2	1.00	1.00	U	0.98	1.00	=	270.00	1.00	=	1.00	1.00	U	0.53	1.00	=

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
CWC187188	9.00	1.00	=	2.00	0.80	=	1.80	1.60	=	0.55	0.55	U	2.40	2.40	U
CWC187188-1	12.00	1.00	=	2.40	0.80	=	2.80	1.60	=	0.55	0.55	U	2.40	2.40	U
CWC187188-2	10.00	0.25	=	2.10	0.16	=	1.70	0.32	=	0.08	0.08	U	0.44	0.24	=
CWC193459	5.50	2.00	=	2.50	2.00	=	2.00	2.00	U	0.90	0.90	U	4.00	4.00	U
CWC193459-1	5.50	2.00	=	2.90	2.00	=	2.80	2.00	J	0.90	0.90	U	4.00	4.00	U
CWC193459-2	5.70	0.32	=	0.69	0.11	=	1.80	0.14	=	0.05	0.05	U	1.50	0.30	=
SVP191286	1.30	1.00	=	1.30	0.80	=	44.00	1.60	=	0.55	0.55	U	2.50	2.40	=
SVP191286-1	2.10	1.00	=	2.40	0.80	=	33.00	1.60	=	0.55	0.55	U	2.50	2.40	=
SVP191286-2	1.80	1.00	=	1.50	1.50	U	44.00	1.00	=	1.00	1.00	U	2.30	1.00	=

[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 2016

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
CWC187189	0.42	0.42	UJ	14.00	1.70	=	130.00	0.60	J	0.70	0.10	=	21.00	2.90	=
CWC187189-1	0.46	0.46	UJ	3.20	1.80	=	150.00	0.66	J	0.25	0.11	=	22.00	3.20	=
CWC187189-2	0.16	0.11	=	6.80	0.11	=	100.00	0.08	=	0.18	0.04	=	14.00	0.11	=
CWC193460	0.66	0.66	U	4.90	1.30	=	120.00	1.60	=	0.33	0.08	=	20.00	1.50	=
CWC193460-1	0.63	0.63	U	8.60	1.30	=	270.00	1.60	=	0.61	0.08	=	21.00	1.40	=
CWC193460-2	0.18	0.05	J	2.20	0.09	=	91.00	0.07	=	0.28	0.06	=	15.00	0.08	=
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**
CWC187189	3.10	0.79	=	18.00	0.68	=	1.10	1.00	=	0.97	0.97	U	25.00	4.70	=
CWC187189-1	0.87	0.87	U	21.00	0.75	=	2.30	1.10	=	1.10	1.10	U	26.00	5.20	=
CWC187189-2	0.39	0.11	=	13.00	0.11	=	0.25	0.10	=	0.12	0.07	=	14.00	0.15	=
CWC193460	0.66	0.66	U	17.00	0.66	=	1.60	1.10	=	0.66	0.66	U	25.00	1.30	=
CWC193460-1	0.93	0.63	=	24.00	0.63	=	1.50	1.00	=	0.63	0.63	U	27.00	1.30	=
CWC193460-2	0.45	0.15	=	10.00	0.08	=	0.35	0.09	=	0.15	0.04	=	13.00	0.11	=

[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, "J" analyte was identified as estimated quantity, and "UJ" analyte was not detected and had QC deficiencies.

Table 5-13. Radiological Parent Samples and Associated Duplicate and Split Samples (Surface and Ground Water) for CY 2016

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
CWC187188	0.88	0.89	1.35	UJ	*	*	*	*	0.22	0.32	0.55	UJ	0.45	0.37	0.20	J
CWC187188-1	2.48	1.46	1.83	J	*	*	*	*	0.34	0.40	0.62	UJ	0.29	0.41	0.71	UJ
CWC187188-2	0.20	0.08	0.09	=	*	*	*	*	0.28	0.17	0.22	J	0.28	0.14	0.12	J
CWC193459	0.00	0.42	1.27	UJ	*	*	*	*	0.14	0.27	0.53	UJ	0.86	0.55	0.53	J
CWC193459-1	-0.08	0.44	1.39	UJ	*	*	*	*	0.34	0.35	0.50	UJ	0.51	0.40	0.41	J
CWC193459-2	0.16	0.12	0.16	J	*	*	*	*	0.39	0.19	0.21	J	0.28	0.14	0.09	=
SVP191286	0.00	0.67	1.55	UJ	*	*	*	*	0.14	0.21	0.20	UJ	0.36	0.33	0.20	J
SVP191286-1	0.29	0.46	0.81	UJ	*	*	*	*	0.45	0.46	0.31	UJ	0.57	0.52	0.31	J
SVP191286-2	0.15	0.06	0.06	=	*	*	*	*	0.06	0.06	0.10	UJ	0.25	0.08	0.05	J
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**
CWC187188	0.07	0.15	0.20	UJ	1.19	0.60	0.18	J	0.00	0.00	0.22	U	0.94	0.54	0.43	J
CWC187188-1	0.17	0.24	0.23	UJ	1.38	0.62	0.49	J	0.15	0.24	0.43	UJ	1.13	0.53	0.34	J
CWC187188-2	0.01	0.04	0.10	UJ	0.79	0.24	0.09	=	0.02	0.04	0.06	UJ	0.54	0.20	0.08	=
CWC193459	-0.25	0.19	0.82	UJ	0.92	0.58	0.23	J	0.00	0.00	0.28	U	0.54	0.46	0.50	J
CWC193459-1	-0.03	0.07	0.41	UJ	1.11	0.63	0.46	J	0.00	0.00	0.26	U	0.38	0.35	0.21	J
CWC193459-2	0.02	0.05	0.11	UJ	0.66	0.23	0.13	=	0.09	0.09	0.07	UJ	0.48	0.20	0.11	=
SVP191286	0.00	0.00	0.20	U	4.01	1.07	0.13	=	0.10	0.23	0.48	UJ	2.99	0.89	0.13	=
SVP191286-1	0.00	0.00	0.31	U	3.52	1.01	0.14	=	0.31	0.28	0.17	J	2.76	0.86	0.14	=
SVP191286-2	0.00	0.02	0.05	UJ	3.86	1.10	0.39	=	0.44	0.40	0.26	J	3.36	1.02	0.39	=

[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, "U" for not detected, "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 2016

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
CWC187189	1.74	0.72	0.33	=	1.99	0.79	0.41	J	1.39	0.63	0.37	=
CWC187189-1	1.54	0.73	0.39	=	2.22	0.90	0.33	J	1.84	0.80	0.18	=
CWC187189-2	0.97	0.19	0.08	=	2.24	0.32	0.04	=	1.03	0.20	0.04	=
CWC193460	1.26	0.54	0.13	=	3.54	1.06	0.24	=	0.98	0.47	0.13	J
CWC193460-1	1.08	0.56	0.31	J	2.24	0.88	0.31	J	1.32	0.63	0.31	=
CWC193460-2	0.59	0.14	0.08	=	2.38	0.33	0.05	=	0.67	0.15	0.05	=
Sample Name[a]	**Ac-227[c]**				**Am-241[c]**				**Cs-137[c]**			
	Result	**Error**	**MDC**	**VQ**	**Result**	**Error**	**MDC**	**VQ**	**Result**	**Error**	**MDC**	**VQ**
CWC187189	-0.07	0.18	0.30	UJ	0.04	0.10	0.15	UJ	0.02	0.02	0.04	UJ
CWC187189-1	-0.01	0.13	0.20	UJ	0.02	0.03	0.05	UJ	0.02	0.01	0.02	UJ
CWC187189-2	0.23	0.33	1.62	UJ	0.03	0.19	0.34	UJ	0.04	0.08	0.15	UJ
CWC193460	0.04	0.08	0.12	UJ	0.01	0.02	0.04	UJ	0.02	0.02	0.02	U
CWC193460-1	0.03	0.07	0.11	UJ	0.01	0.02	0.04	UJ	-0.01	0.01	0.02	UJ
CWC193460-2	-0.01	0.03	2.66	UJ	-0.08	0.15	0.55	UJ	-0.10	0.26	0.22	UJ
Sample Name[a]	**K-40[c]**				**Pa-231[c]**				**Ra-226[c]**			
	Result	**Error**	**MDC**	**VQ**	**Result**	**Error**	**MDC**	**VQ**	**Result**	**Error**	**MDC**	**VQ**
CWC187189	13.40	1.16	0.23	=	0.12	0.56	0.85	UJ	1.34	0.37	0.08	=
CWC187189-1	15.30	1.04	0.10	=	0.24	0.39	0.58	UJ	1.30	0.34	0.05	=
CWC187189-2	12.60	2.58	1.33	=	1.04	0.82	3.24	U	1.86	0.37	0.20	=
CWC193460	15.30	1.01	0.17	=	0.03	0.41	0.69	UJ	1.48	0.36	0.04	=
CWC193460-1	14.20	0.94	0.14	=	0.11	0.40	0.67	UJ	1.37	0.34	0.04	=
CWC193460-2	13.80	2.75	1.02	=	-0.74	5.49	9.27	UJ	1.45	0.34	0.23	=
Sample Name[a]	**Ra-228[c]**				**Th-228[b,c]**				**Th-230[b,c]**			
	Result	**Error**	**MDC**	**VQ**	**Result**	**Error**	**MDC**	**VQ**	**Result**	**Error**	**MDC**	**VQ**
CWC187189	1.11	0.10	0.08	=	1.11	0.10	0.08	=	-3.34	7.00	10.90	UJ
CWC187189-1	0.94	0.06	0.06	=	0.94	0.06	0.06	=	-1.49	3.56	4.83	UJ
CWC187189-2	1.25	0.34	0.23	=	1.25	0.34	0.23	=	*	*	*	*
CWC193460	0.88	0.08	0.06	=	0.88	0.08	0.06	=	4.60	4.60	3.74	J
CWC193460-1	0.93	0.07	0.05	=	0.93	0.07	0.05	=	0.75	2.25	3.58	UJ
CWC193460-2	1.54	0.32	0.17	=	1.54	0.32	0.17	=	*	*	*	*
Sample Name[a]	**Th-232[b,c]**				**U-235[c]**				**U-238[c]**			
	Result	**Error**	**MDC**	**VQ**	**Result**	**Error**	**MDC**	**VQ**	**Result**	**Error**	**MDC**	**VQ**
CWC187189	1.11	0.10	0.08	=	0.05	0.25	0.42	UJ	1.92	1.32	1.20	J
CWC187189-1	0.94	0.06	0.06	=	0.03	0.17	0.29	UJ	1.71	0.55	0.48	J
CWC187189-2	1.25	0.34	0.23	=	0.32	0.43	0.76	UJ	4.03	1.44	3.52	=
CWC193460	0.88	0.08	0.06	=	0.00	0.15	0.24	UJ	0.72	0.45	0.37	J
CWC193460-1	0.93	0.07	0.05	=	0.05	0.14	0.22	UJ	0.71	0.46	0.33	J
CWC193460-2	1.54	0.32	0.17	=	-0.48	0.61	1.75	UJ	0.28	0.57	4.85	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. 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, “U” for not detected, “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 SLAPS and 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 2016 Radionuclide Emissions NESHAP Report Submitted in Accordance with Requirements of 40 *CFR* 61, Subpart I").

6.1 SUMMARY OF ASSESSMENT RESULTS AND DOSE TRENDS

No excavation or loadout activities occurred on the Latty Avenue Properties, and soil cleanup activities on the most contaminated Latty Avenue Properties (HISS and Futura) were completed in CY 2011. Additionally, the TEDE from Latty Avenue Properties to a hypothetical maximally exposed receptor was indistinguishable from background radiation dose after the cleanup concluded on the Latty Avenue Properties. Therefore, calculation of TEDE from the Latty Avenue Properties to a hypothetical maximally exposed receptor will not be included in the current and future reports unless excavation or loadout activities occur on those properties.

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.

The TEDE from the SLAPS VPs to a hypothetical maximally exposed individual from all complete/applicable pathways combined was 1.1 mrem per year, estimated for a resident who lives full time at a location approximately 150 m northeast from the center of the Duchesne Park excavation area.

The TEDE from CWC to a hypothetical maximally exposed individual from all complete/applicable pathways combined was 0.4 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 2016 at applicable NC Sites are documented on Figure 6-1. A comparison of the maximum annual dose from CY 2000 to CY 2016 at each of the applicable NC Sites to the annual average natural background dose of approximately 300 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 2016 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 2016 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 2016. 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 2016 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 2016 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 (1.0 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). Fifty-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 2016 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 2016 TEDE for a hypothetical maximally exposed individual near the SLAPS, the SLAPS VPs, and CWC is less than 0.1 mrem per year, 1.1 mrem per year, and 0.4 mrem per year, respectively. In comparison, the annual average exposure to natural background radiation in the United States results in a TEDE of approximately 300 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

There were no excavation or loadout activities at the Latty Avenue Properties during CY 2016; therefore, dose from the Latty Avenue Properties is considered negligible.

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

The SLAPS Properties contributing to dose (i.e., those properties at which RA occurred in CY 2016) include: the SLAPS Loadout area. This section discusses the estimated TEDE to a hypothetical maximally exposed individual assumed to frequent the perimeter of the SLAPS and to receive a radiation dose by the exposure pathways identified previously. 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 SLAPS.

The exposure scenario assumptions are:

- 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. Exposure time is 2,000 hours per year (Leidos 2017b).
- 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.
- 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 2017b).
- Exposure from Rn-222 (and progeny) was calculated using a dispersion factor and Rn-222 (ATD) monitoring data at the site perimeter between the source and the receptor (Leidos 2017b).

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 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 less than 0.1 mrem per year from Rn-222, for a TEDE of less than 0.1 mrem per year (Leidos 2017b).

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 2016) include: Duchesne Park and St. Cin Park. 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. The excavation activities at Duchesne Park yielded the highest estimated exposure to airborne radioactive particulates (1.1 mrem per year) from SLAPS VPs and a private residence was located approximately 150 m northeast of the Duchesne Park excavation; therefore a residential receptor was considered the maximally exposed individual for the SLAPS VPs.

The exposure scenario assumptions are:

- 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 150 m northeast from the center of the Duchesne Park excavation area. Exposure time is 8,760 hours per year (Leidos 2017b).
- 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 2017b).

Based on the exposure scenario and assumptions described previously, a maximally exposed individual living at the residence receptor location 150 m northeast from the center of the Duchesne Park and St. Cin Park excavation areas would have received 1.2 mrem per year from airborne radioactive particulates for a TEDE of 1.1 mrem per year (Leidos 2017b).

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:

- 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.
- The soil/sediment ingestion rate is 50 mg per day, and the water ingestion rate is 2 L per day (USEPA 1989b).
- The UCL_{95} of the mean radionuclide concentrations in CWC surface water/sediment samples collected in CY 2016 were assumed to be present in the water/sediment ingested by the maximally exposed individual (Leidos 2017c).
- Dose equivalent conversion factors for ingestion (for a 10-year-old child) are: total U, 2.63E-4 mrem/pCi; Ra-226, 2.97E-3 mrem/pCi; Ra-228, 1.45E-02 mrem/pCi; Th-228, 5.07E-4 mrem/pCi; Th-230, 9.10E-4 mrem/pCi; and Th-232, 1.07E-3 mrem/pCi (ORNL 2014).

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 0.3 mrem per year from water ingestion, for a TEDE of 0.4 mrem per year (Leidos 2017c).

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FIGURES

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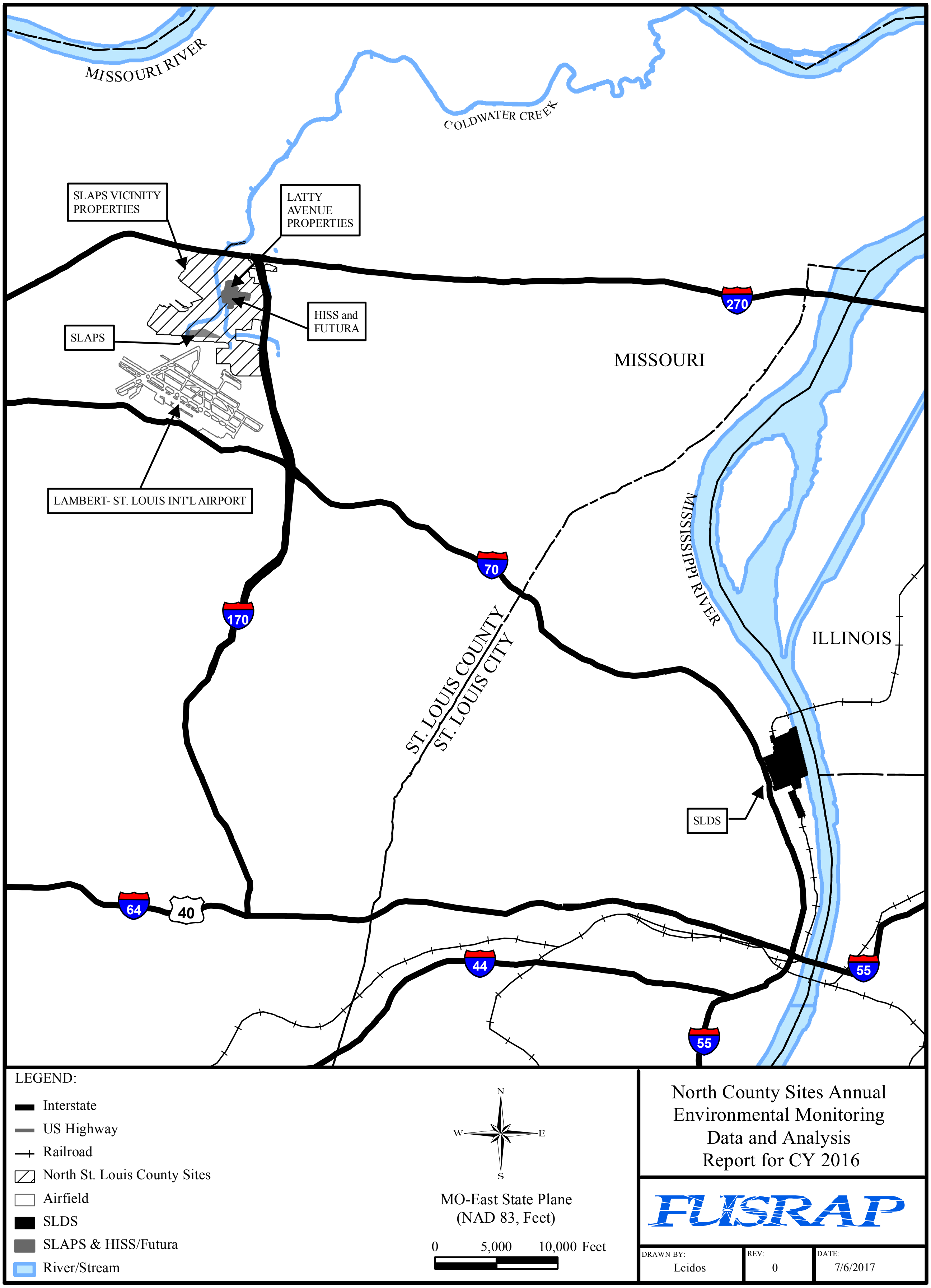

Path: U:\GPS\EMDAR\NCO Projects\FY2017\RevA\Figure 1-1 Location Map of the St Louis Sites.mxd

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

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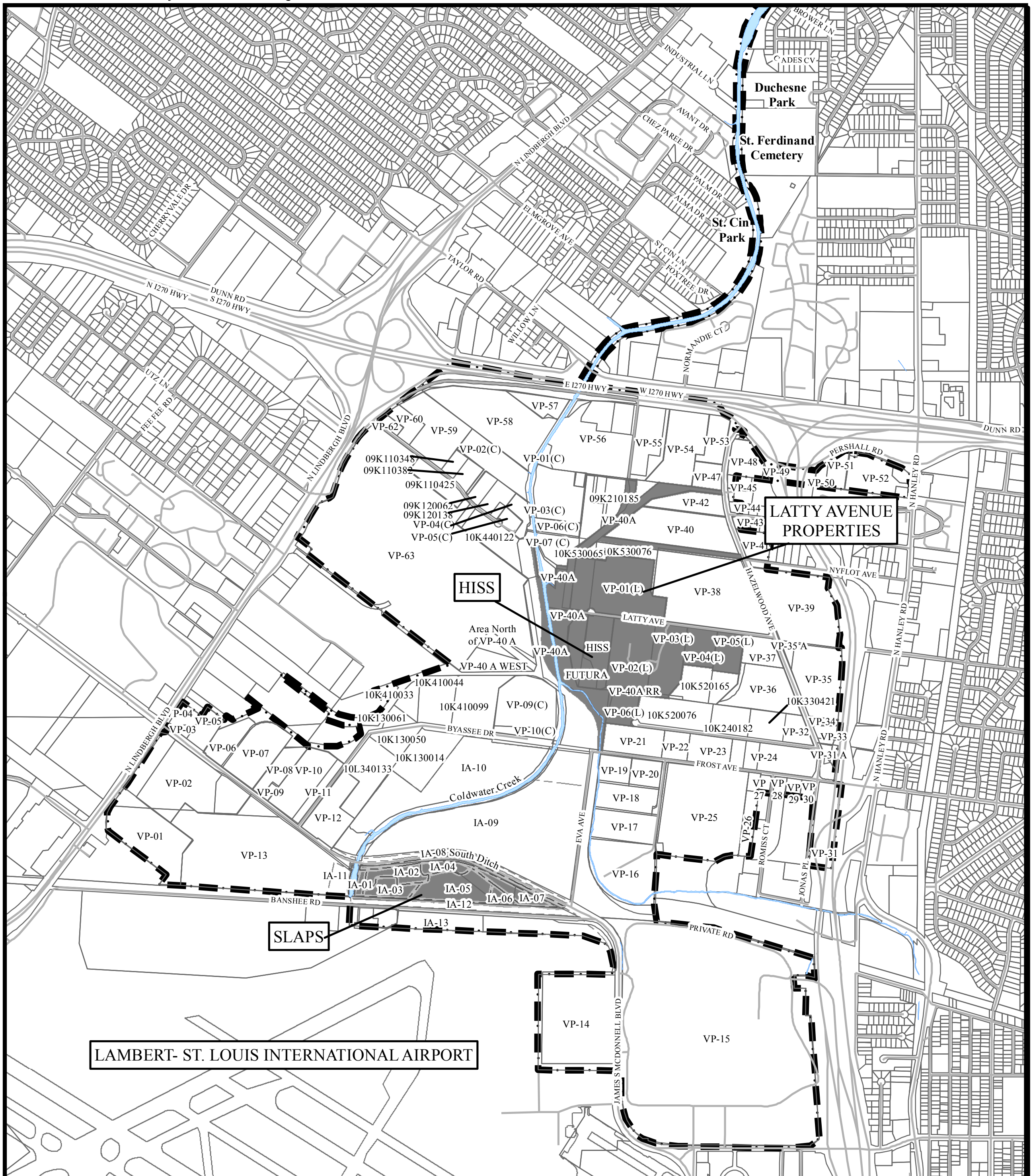

LEGEND:

- Road
- Airfield
- General Location of SLAPS and Latty Avenue Properties
- Investigation Areas
- Parcel Boundary
- River/Stream
- ROD Boundary

N / W / E / S

MO-East State Plane
(NAD 83, Feet)

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

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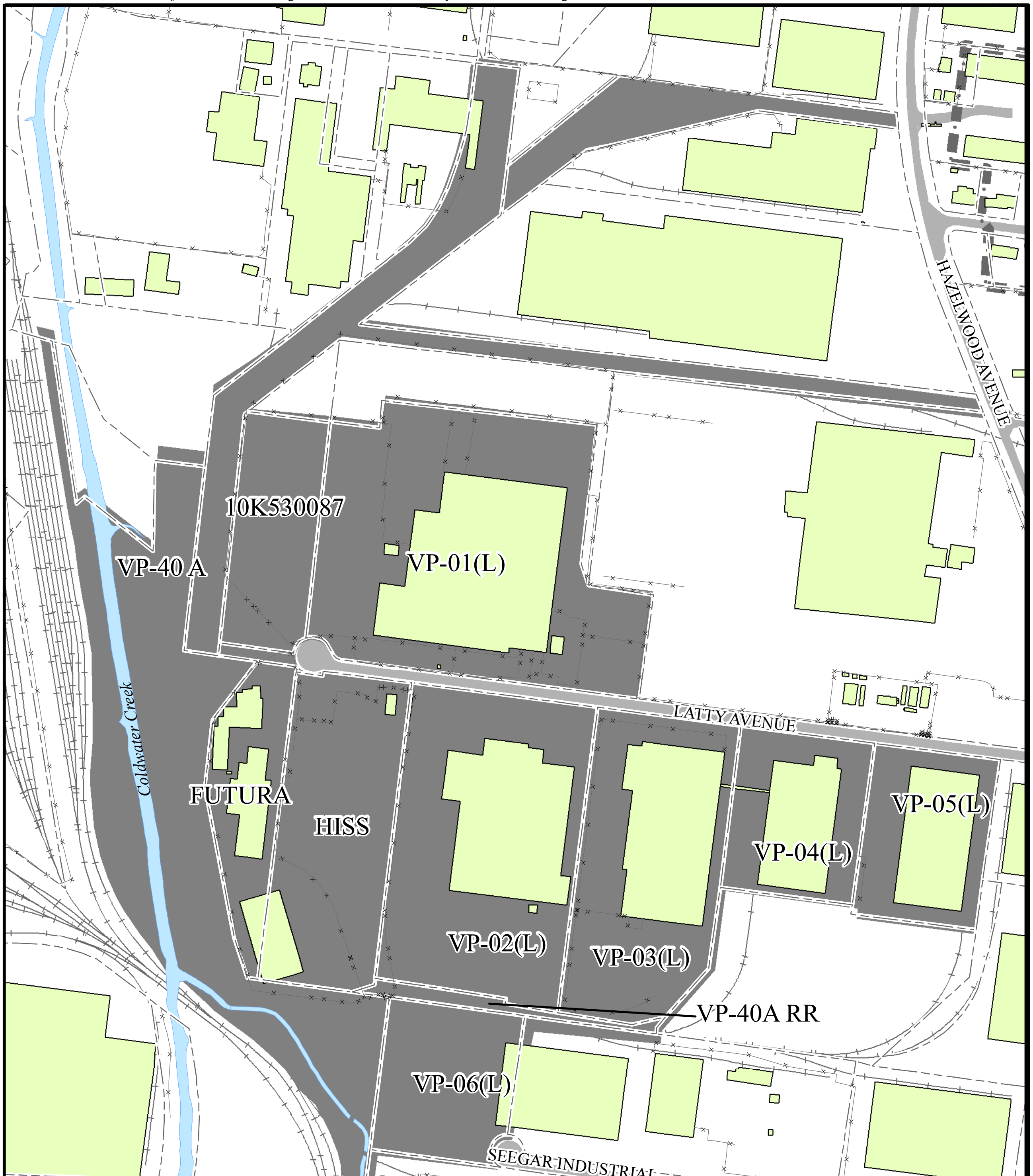

LEGEND:

Parcel Boundary	Road
Latty Avenue Properties	Fence
ROD Boundary	Railroad
Buildings	River/Stream

N W E S

MO-East State Plane
(NAD 83, Feet)

0 262.5 525 Feet

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

Path: U:\GPS\EMDAR\NCO Projects\FY2017\RevA\Figure 2-1 Gamma Radiation, Rn, and Particulate Air Monitoring at St. Louis Background Location2.mxd

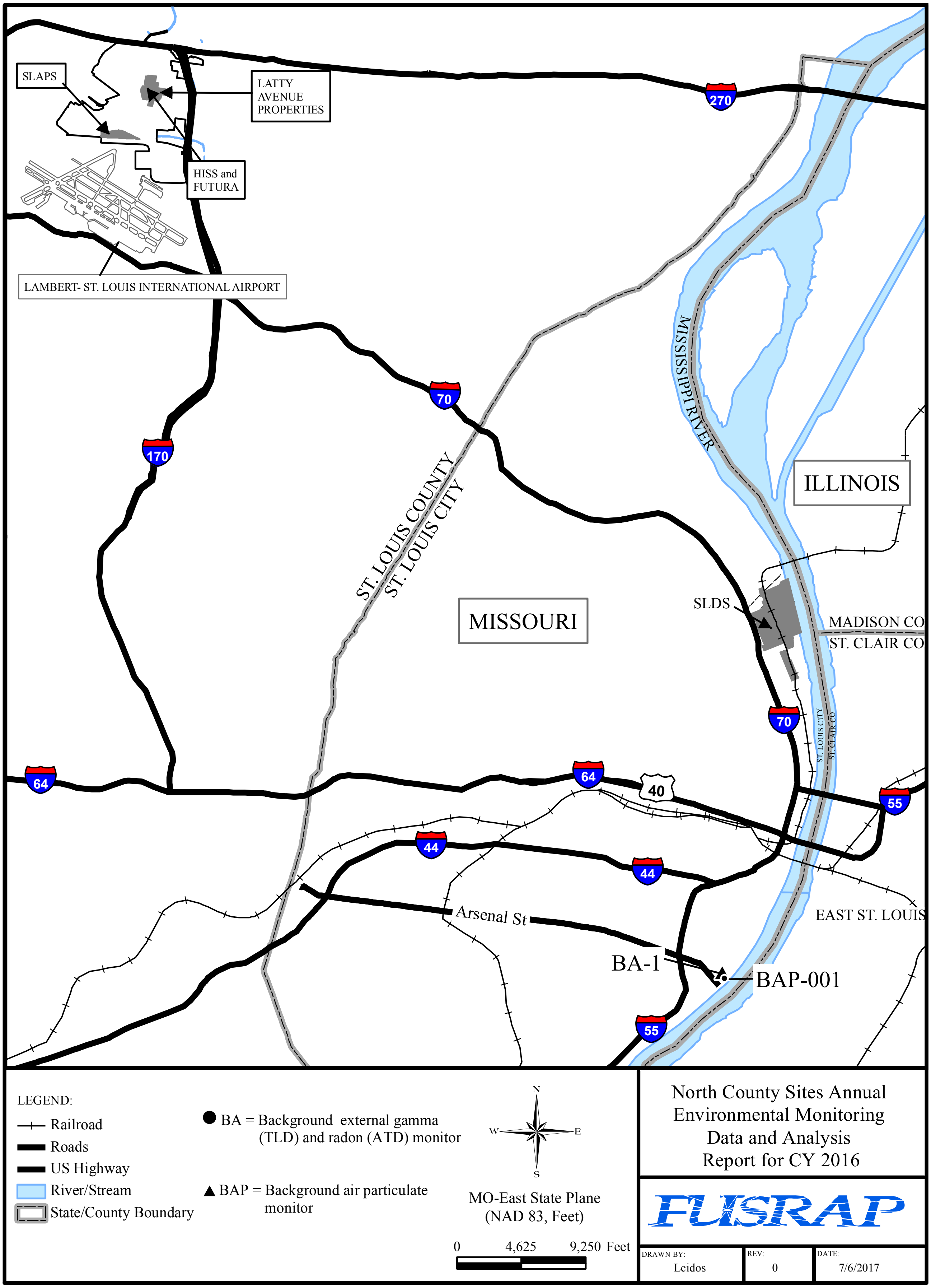


Figure 2-1. Gamma Radiation, Radon, and Particulate Air Monitoring at St. Louis Background Location - USACE Service Base

Path: U:\GPS\EMDAR\NCO Projects\FY2017\RevA\Figure 2-2 Gamma Radiation, Rn, and Particulate Air Monitoring Locations at the Latty Avenue Properties.mxd

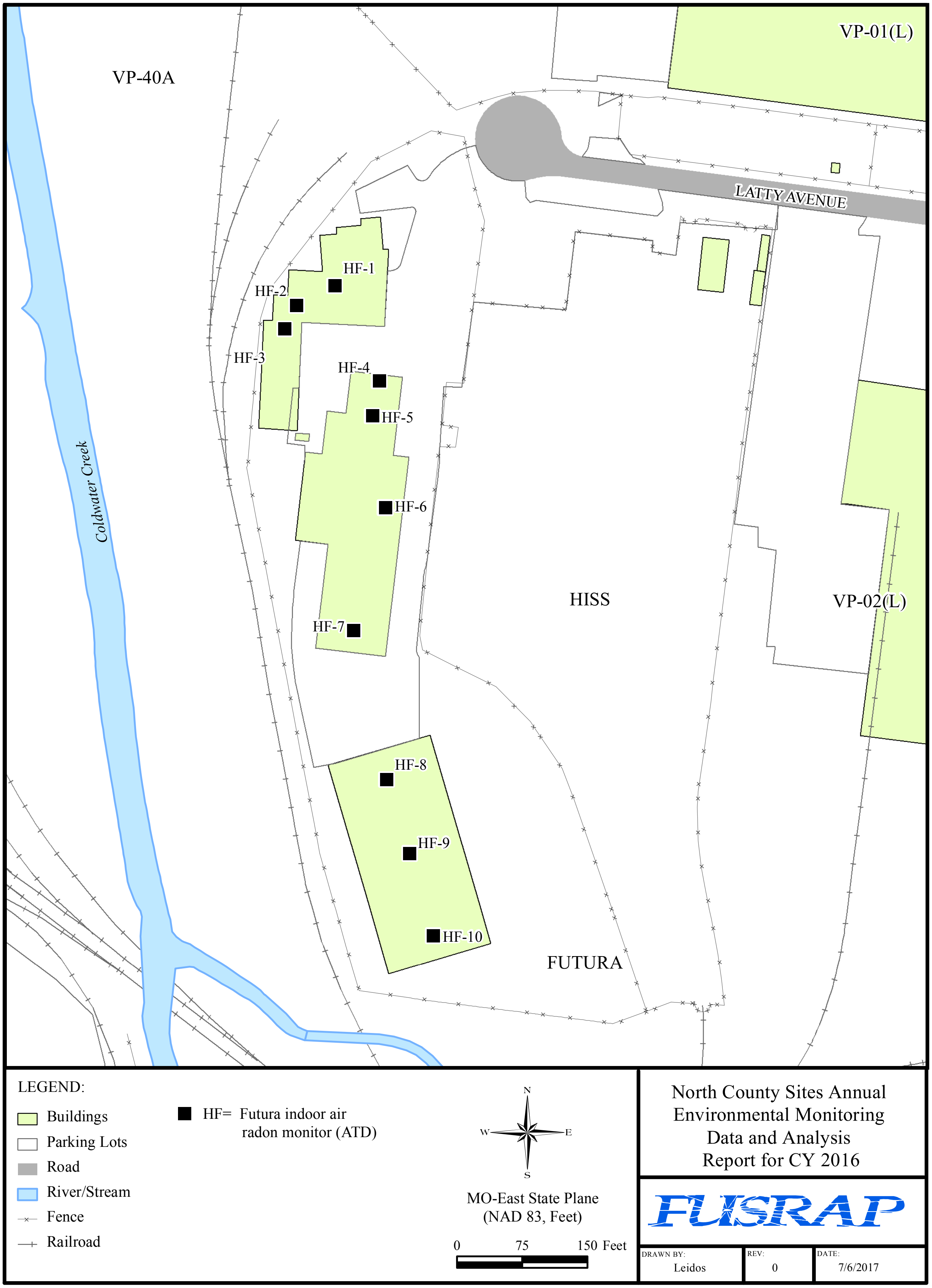


Figure 2-2. Radon Monitoring Locations at the Latty Avenue Properties

Path: U:\GPS\EMDAR\NCO Projects\FY2017\RevA\Figure 2-3 Gamma Radiation, Rn, and Particulate Air Monitoring Locations at the SLAPS and SLAPS VPs.mxd

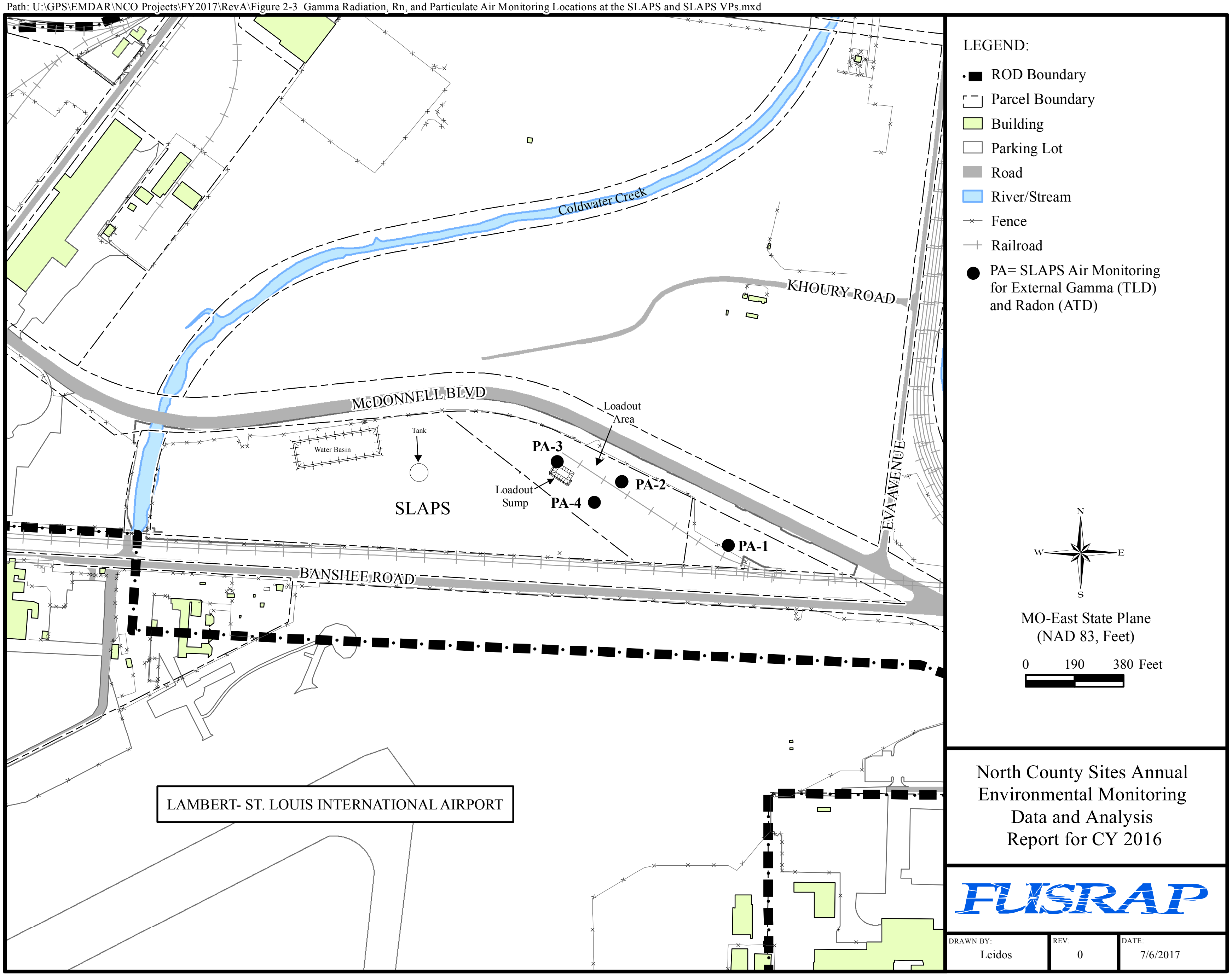


Figure 2-3. Gamma Radiation and Radon Monitoring Locations at the SLAPS

Path: U:\GPS\EMDAR\NCO Projects\FY2017\RevA\Figure 3-1 MSD Discharge Point for Waste Water from the HISS Labratory.mxd

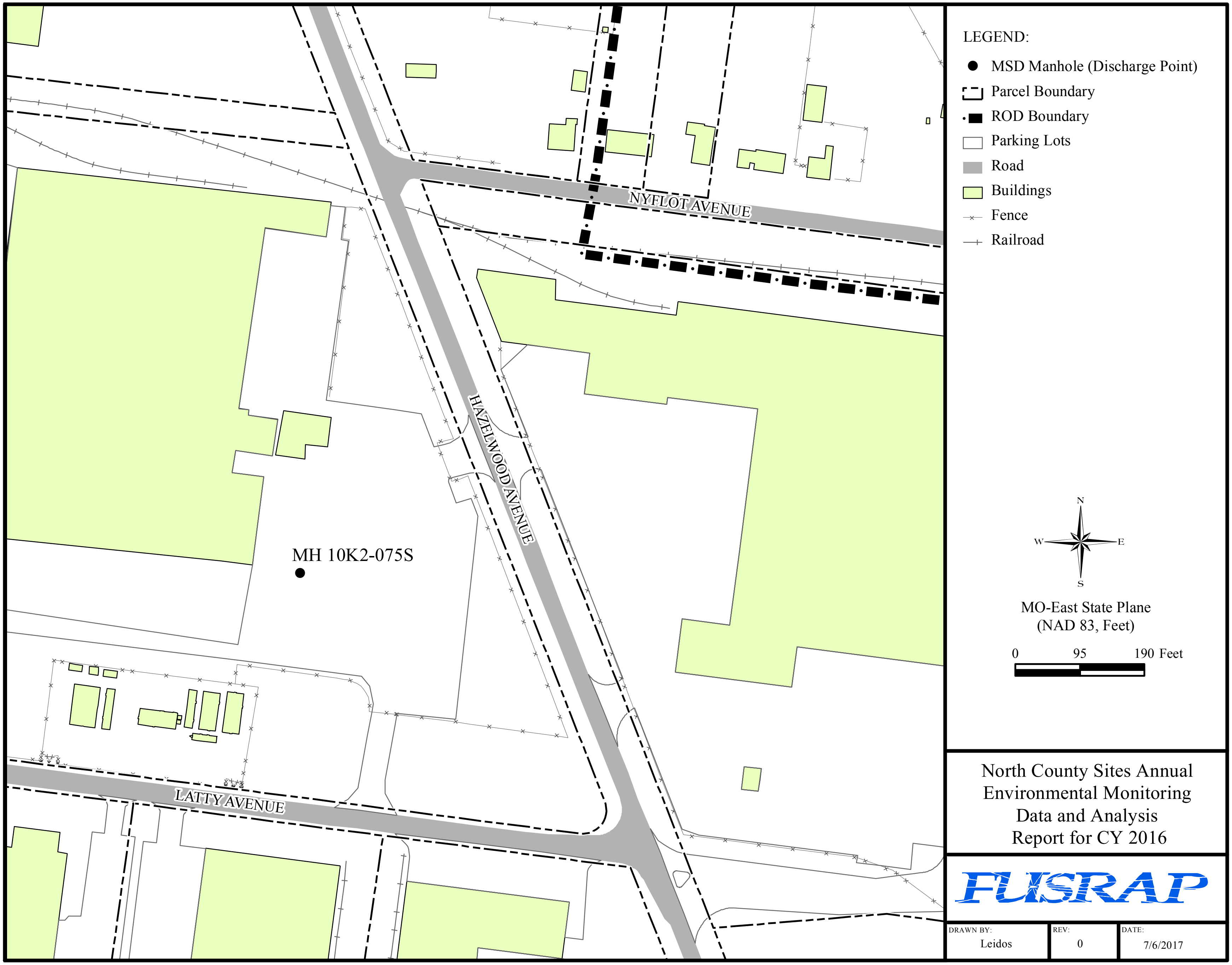


Figure 3-1. MSD Discharge Point for Waste Water from the USACE St. Louis FUSRAP Laboratory

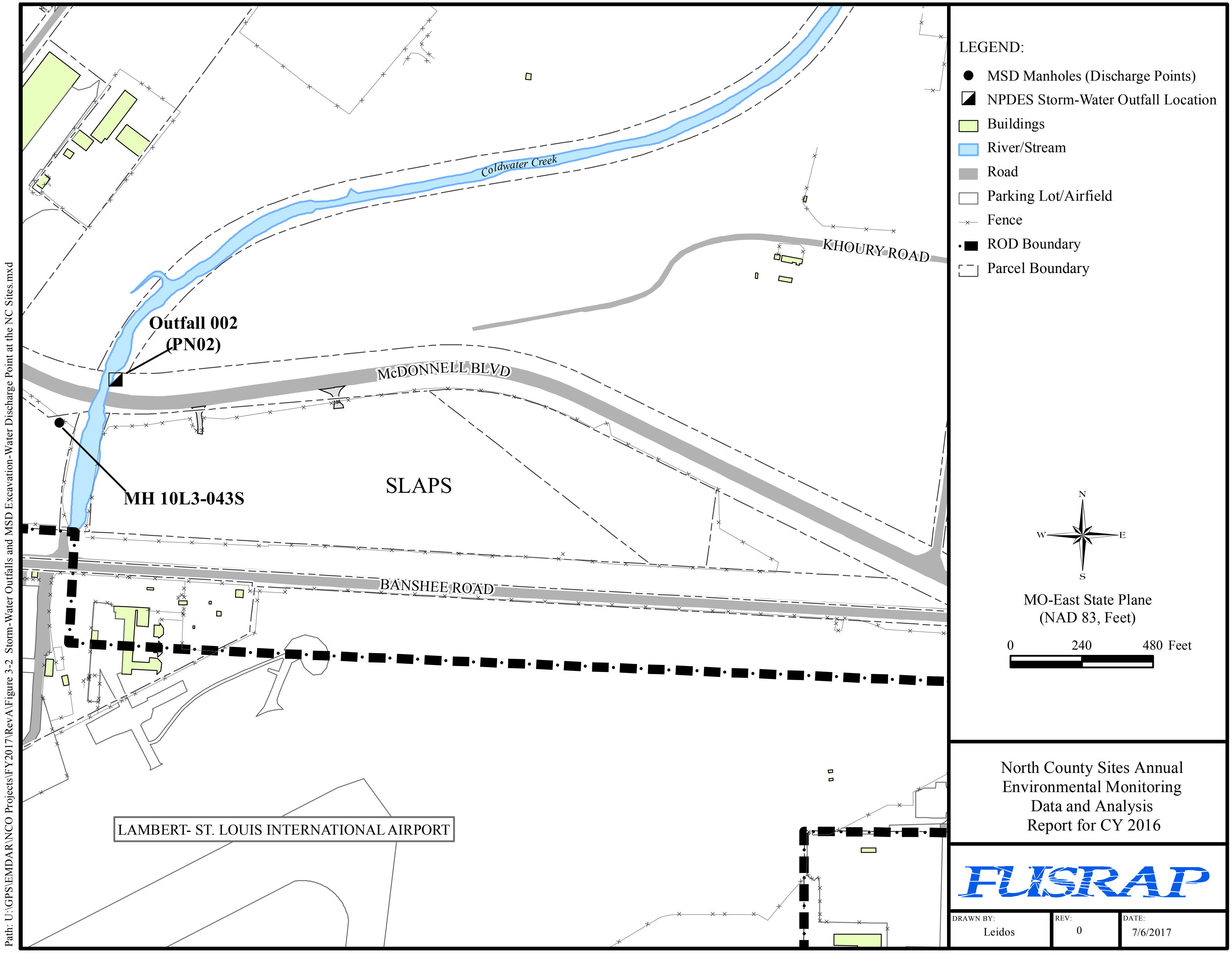


Figure 3-2. Storm-Water Outfall and MSD Excavation-Water Discharge Points at the SLAPS

Path: U:\GPS\EMDAR\NCO Projects\FY2017\RevA\Figure 3-3 Surface-Water and Sediment Sampling Locations at Coldwater Creek_new.mxd

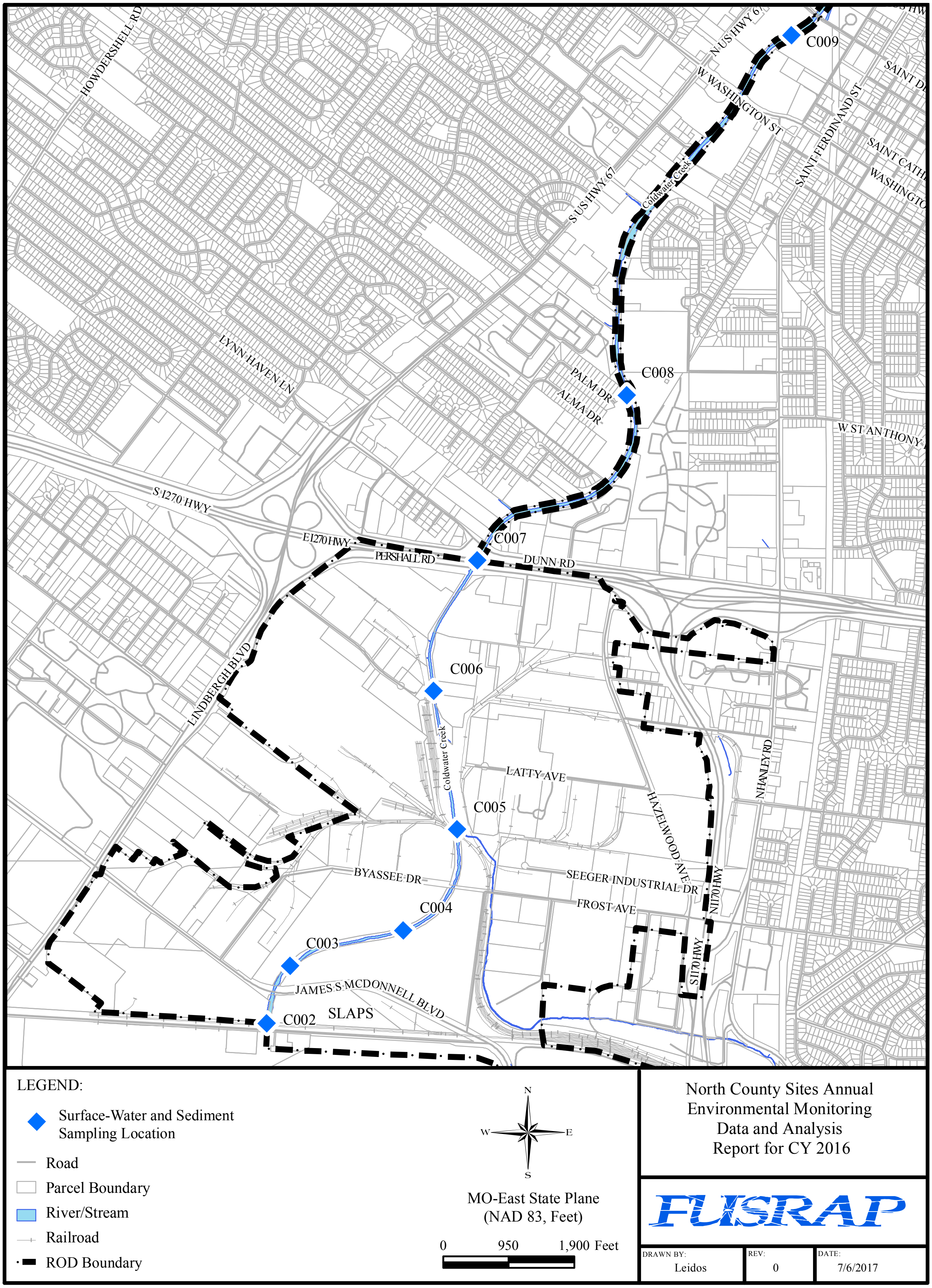


Figure 3-3. Surface-Water and Sediment Sampling Locations at Coldwater Creek

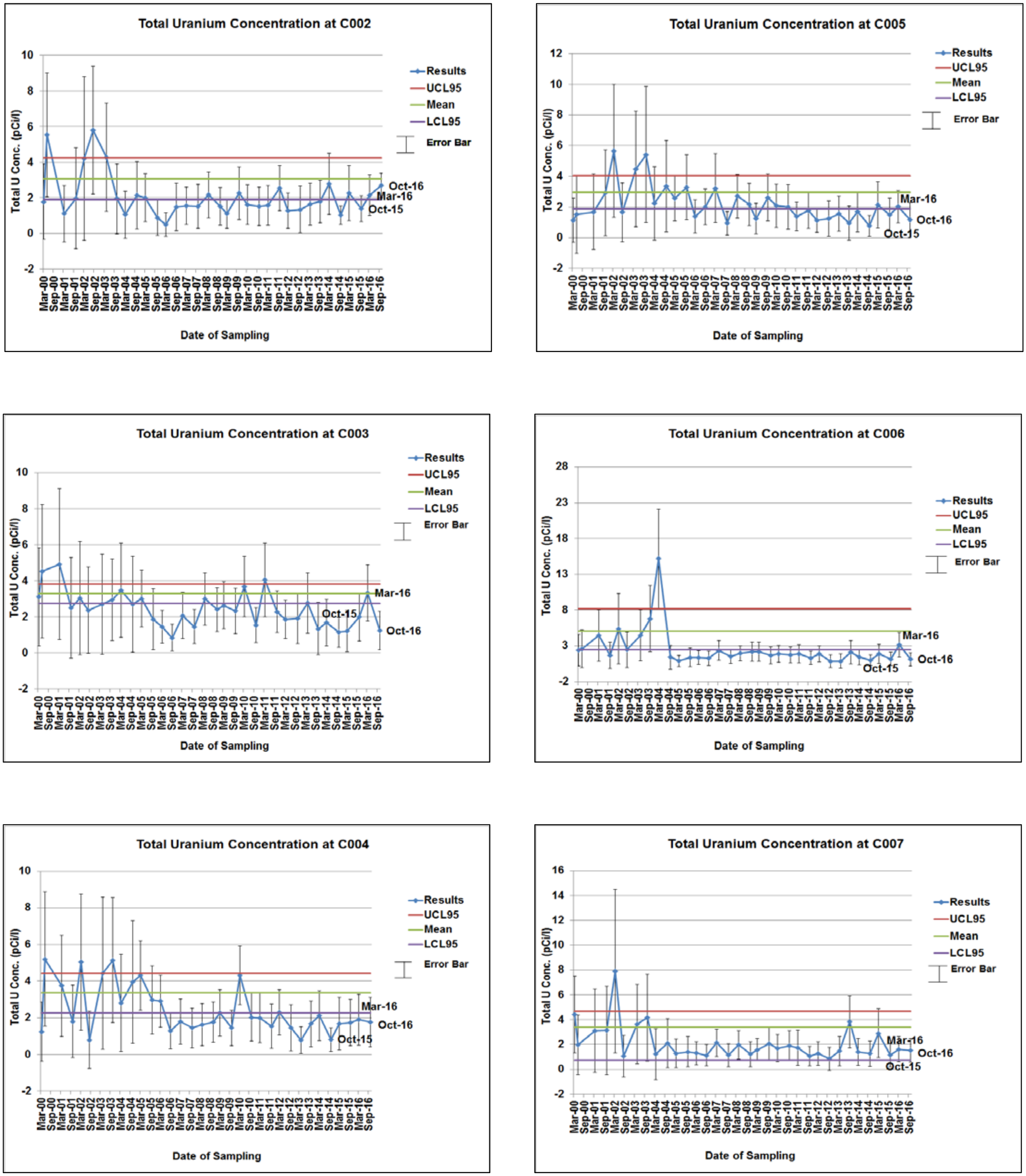
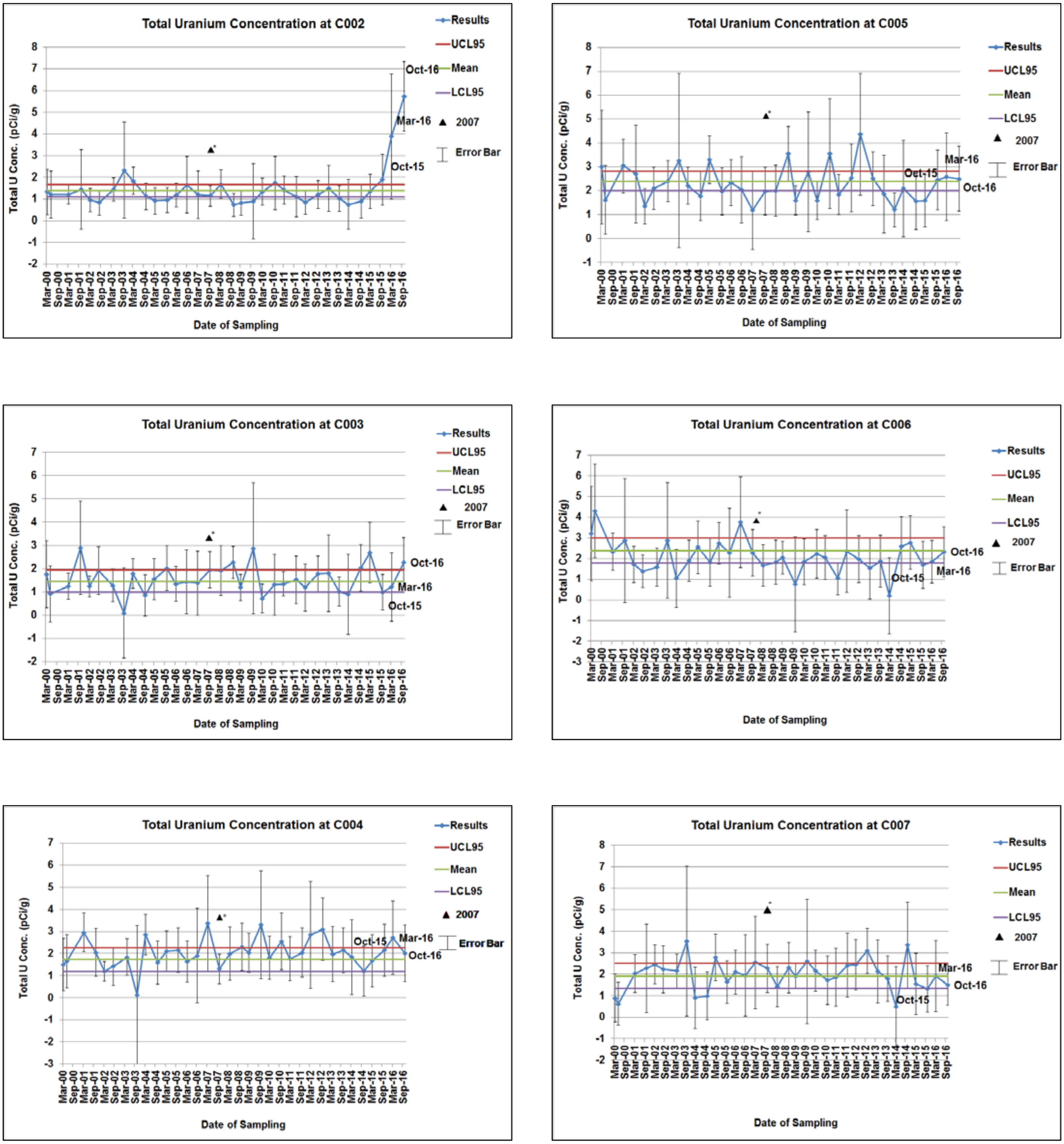


Figure 3-4. Total U Concentrations in Surface Water Versus Sampling Date



* The October 2007 value was incorrectly graphed 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 Concentrations in Sediment Versus Sampling Date

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.

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

Path: U:\GPS\EMDAR\NCO Projects\FY2017\Rev0\Figure 4-2 Existing Monitoring Well Locations at the Latty Avenue Properties.mxd

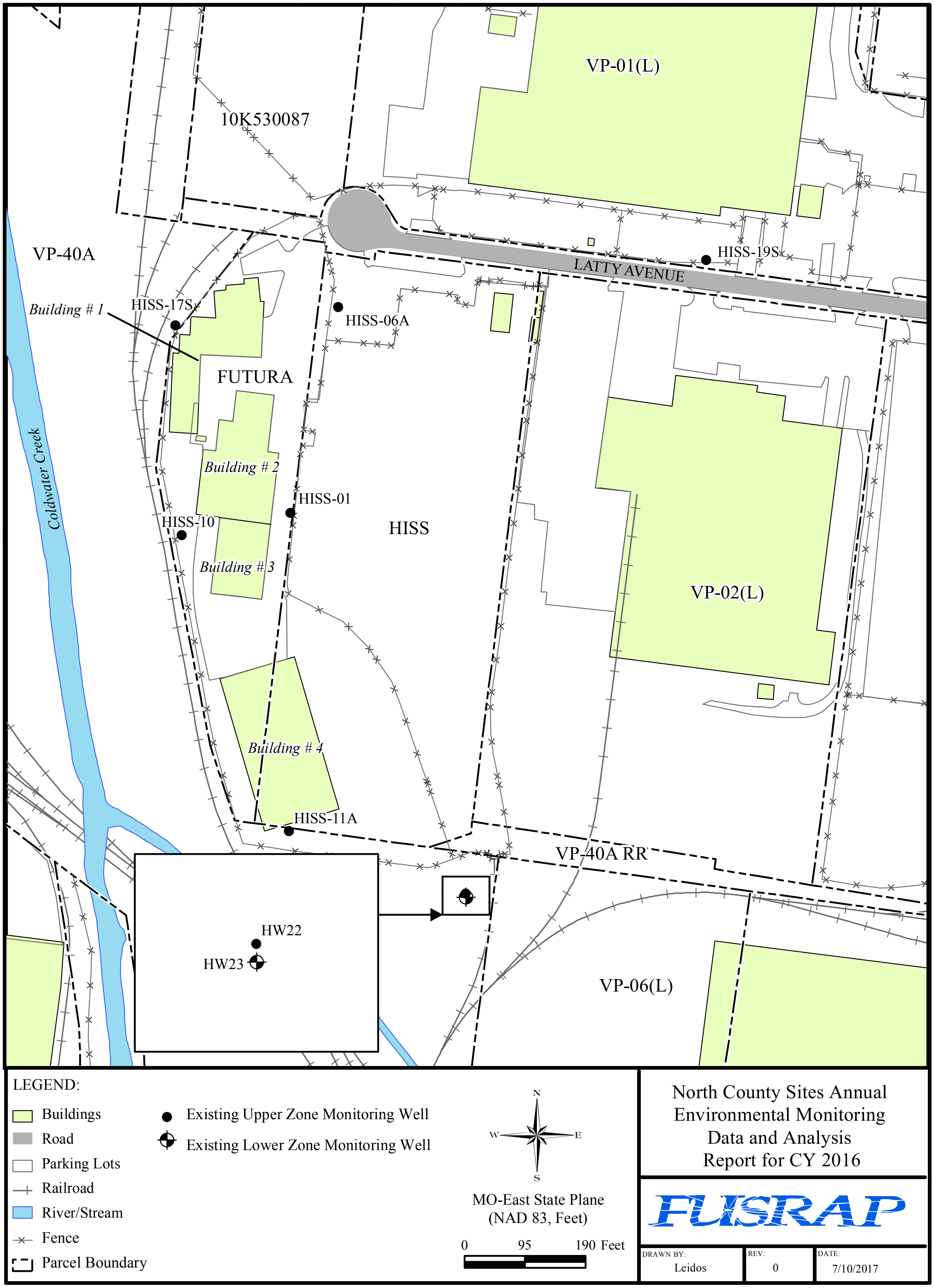
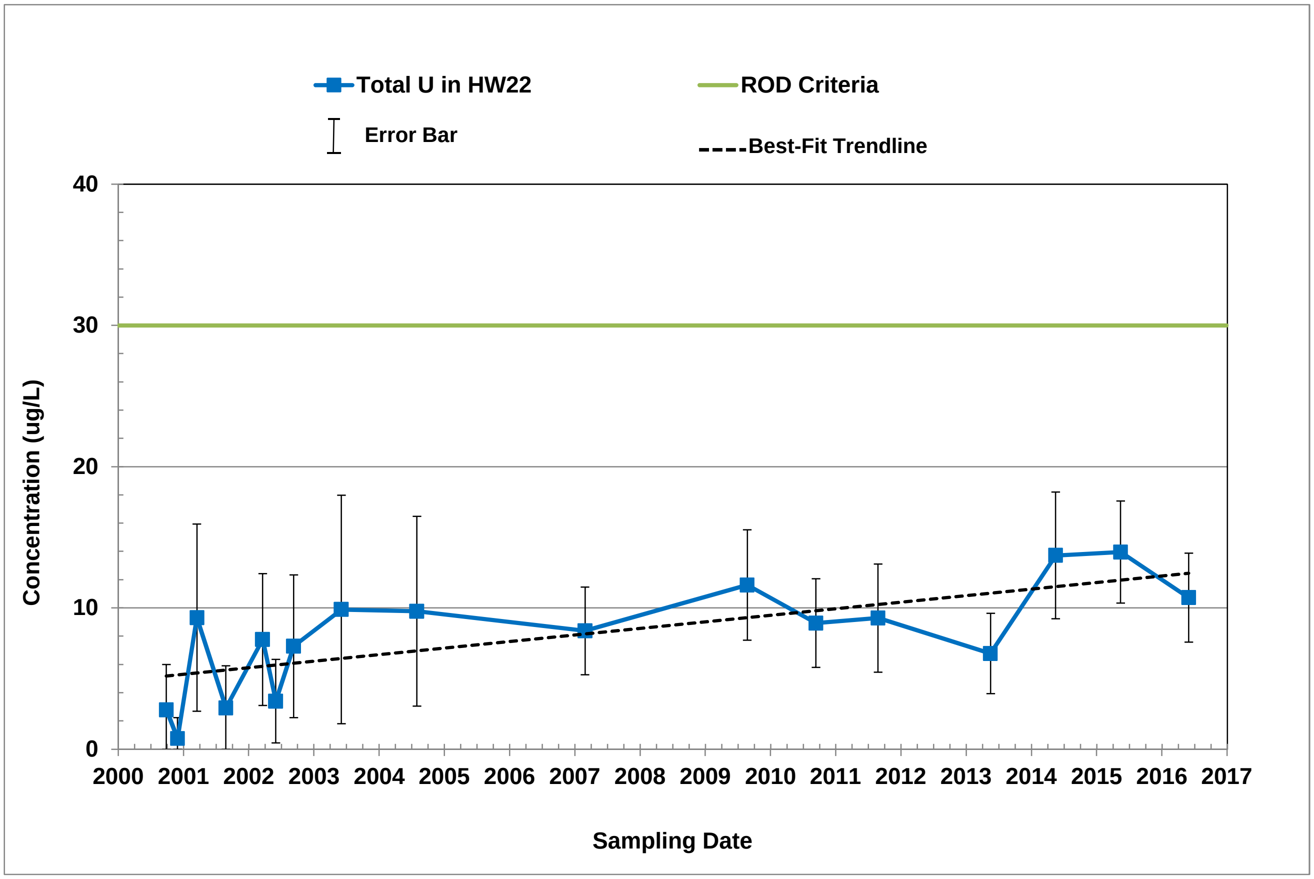


Figure 4-2. Existing Monitoring Well Locations at the Latty Avenue Properties



Notes:
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 4-3. Time-Versus-Concentration Plot for Total U in HW22 at the Latty Avenue Properties

Path: U:\GPS\EMDAR\NCO Projects\FY2017\Rev0\Figure 4-4 Selenium Concentrations in Unfiltered HZ-A Ground Water at the Latty Avenue Properties.mxd

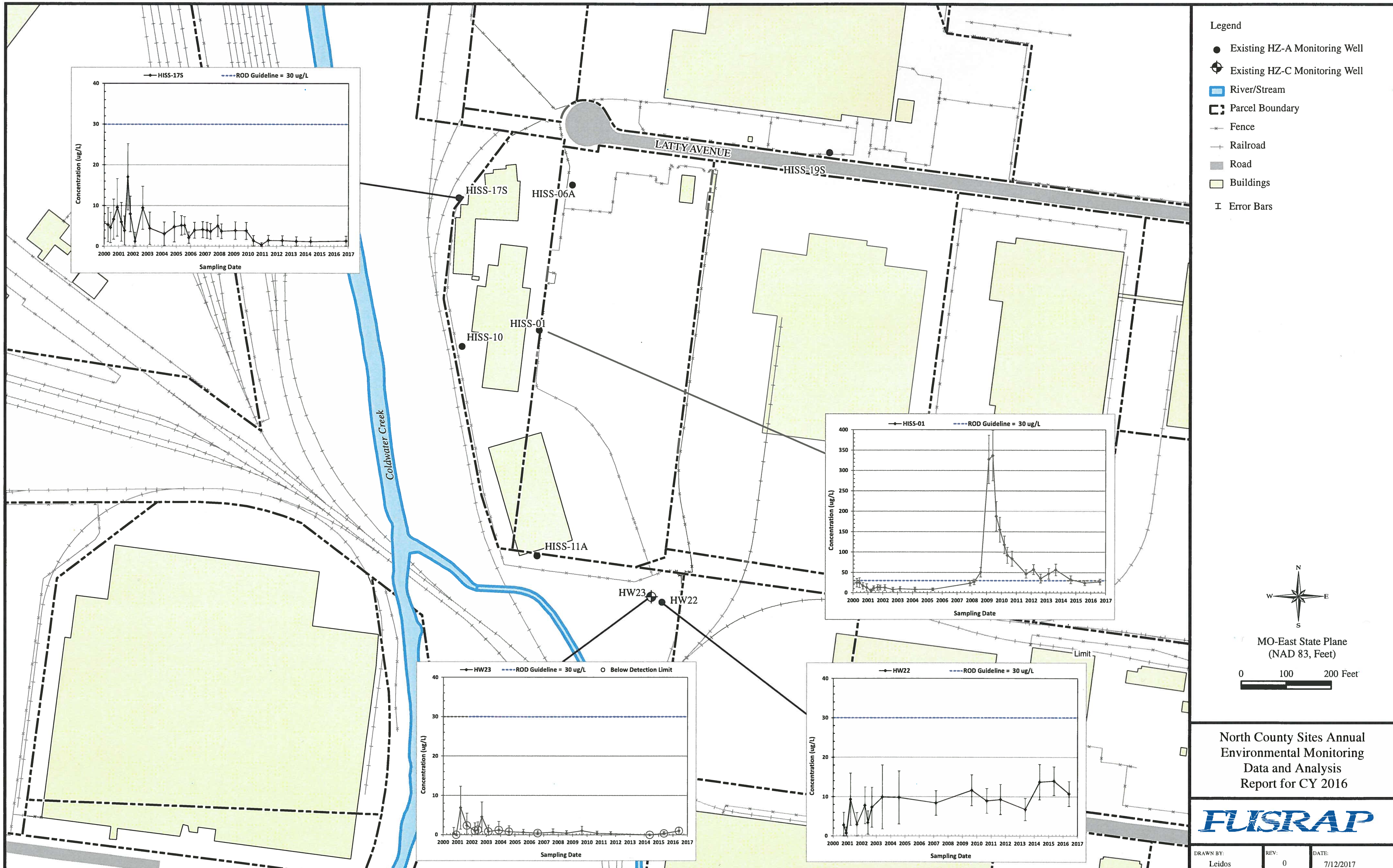


Figure 4-4. Total U Concentrations in Unfiltered Ground Water at the Latty Avenue Properties

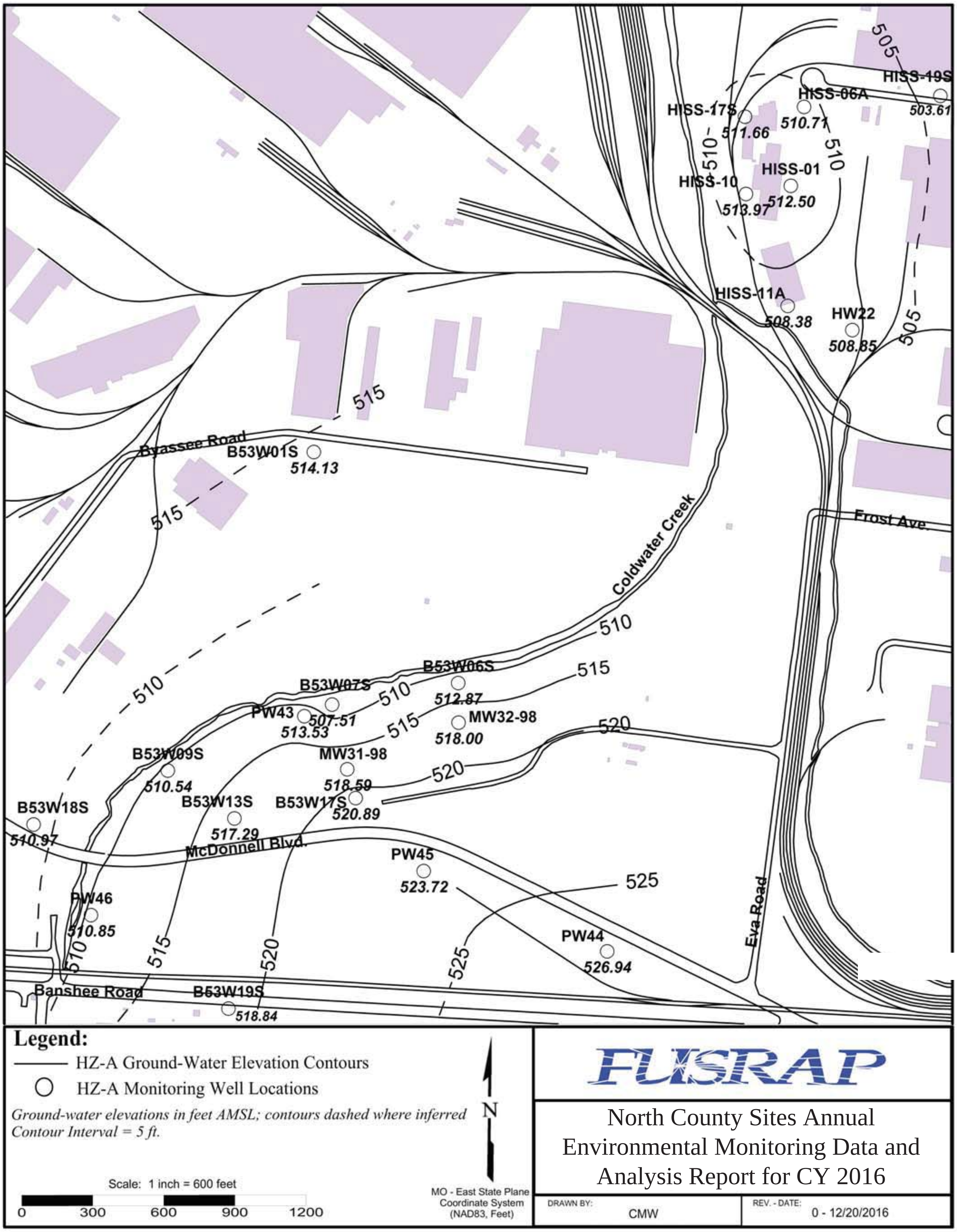


Figure 4-5. HZ-A Potentiometric Surface at the Latty Avenue Properties and the SLAPS and SLAPS VPs (June 2, 2016)

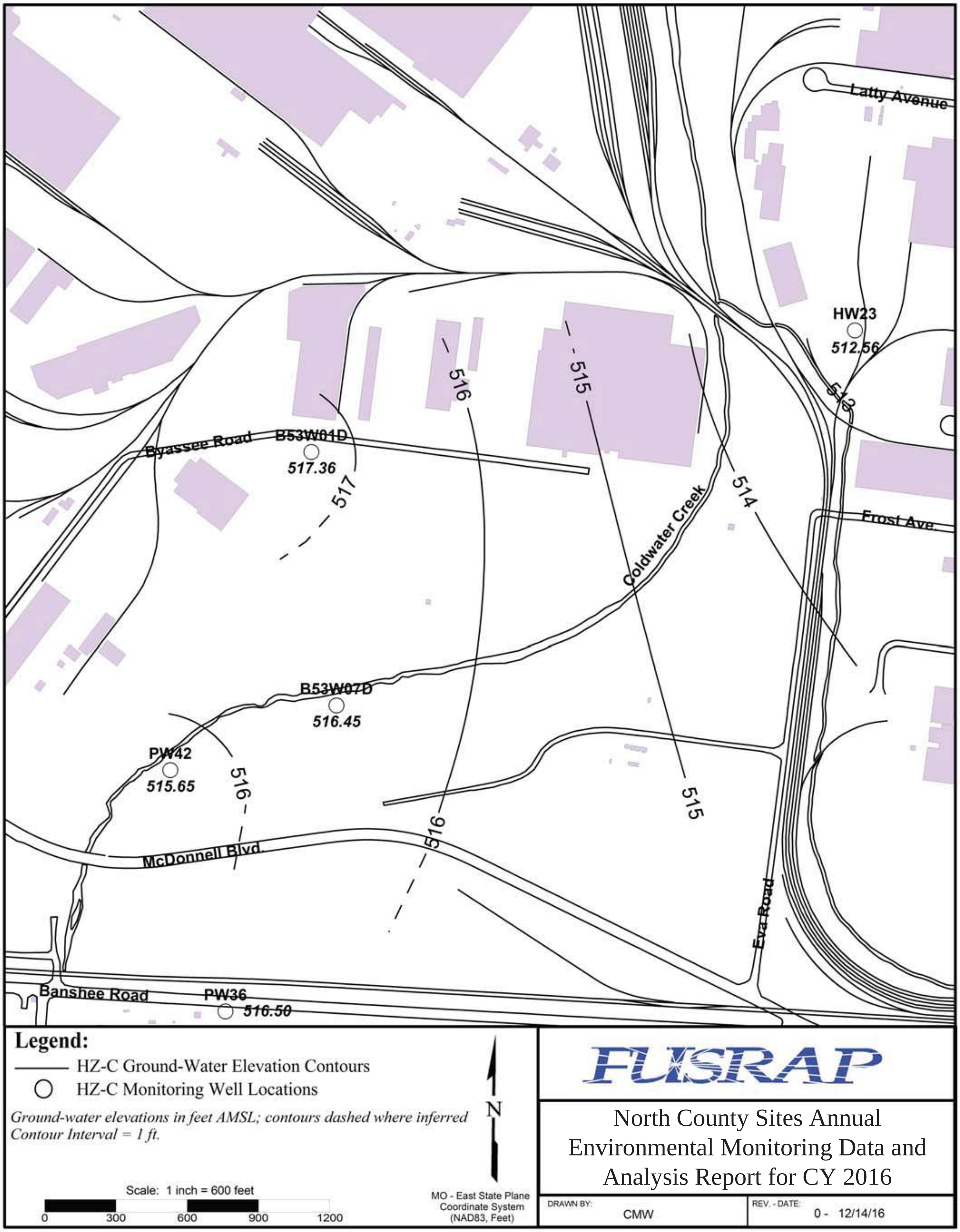


Figure 4-6. HZ-C Potentiometric Surface at the Latty Avenue Properties and the SLAPS and SLAPS VPs (June 2, 2016)

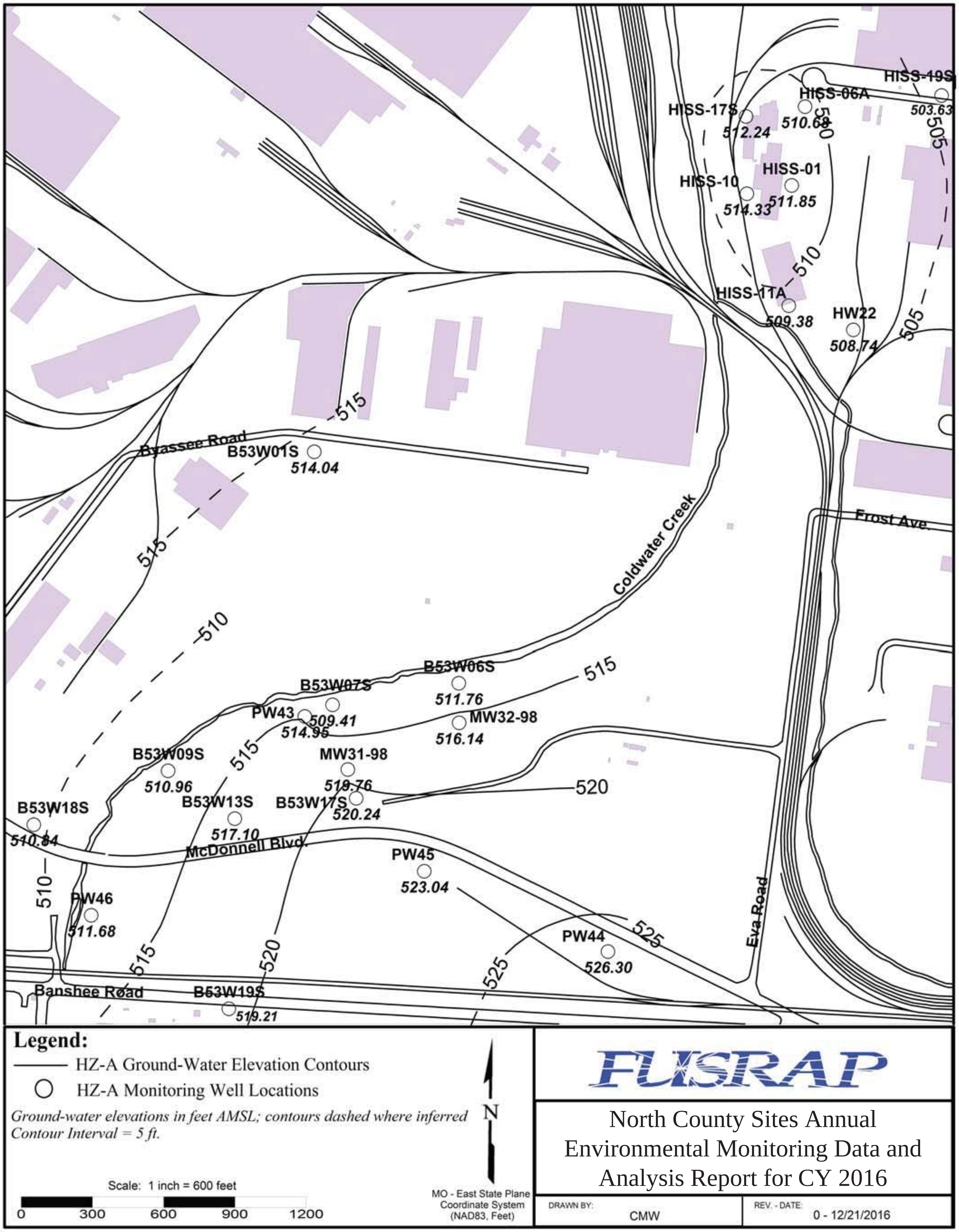


Figure 4-7. HZ-A Potentiometric Surface at the Latty Avenue Properties and the SLAPS and SLAPS VPs (November 7, 2016)

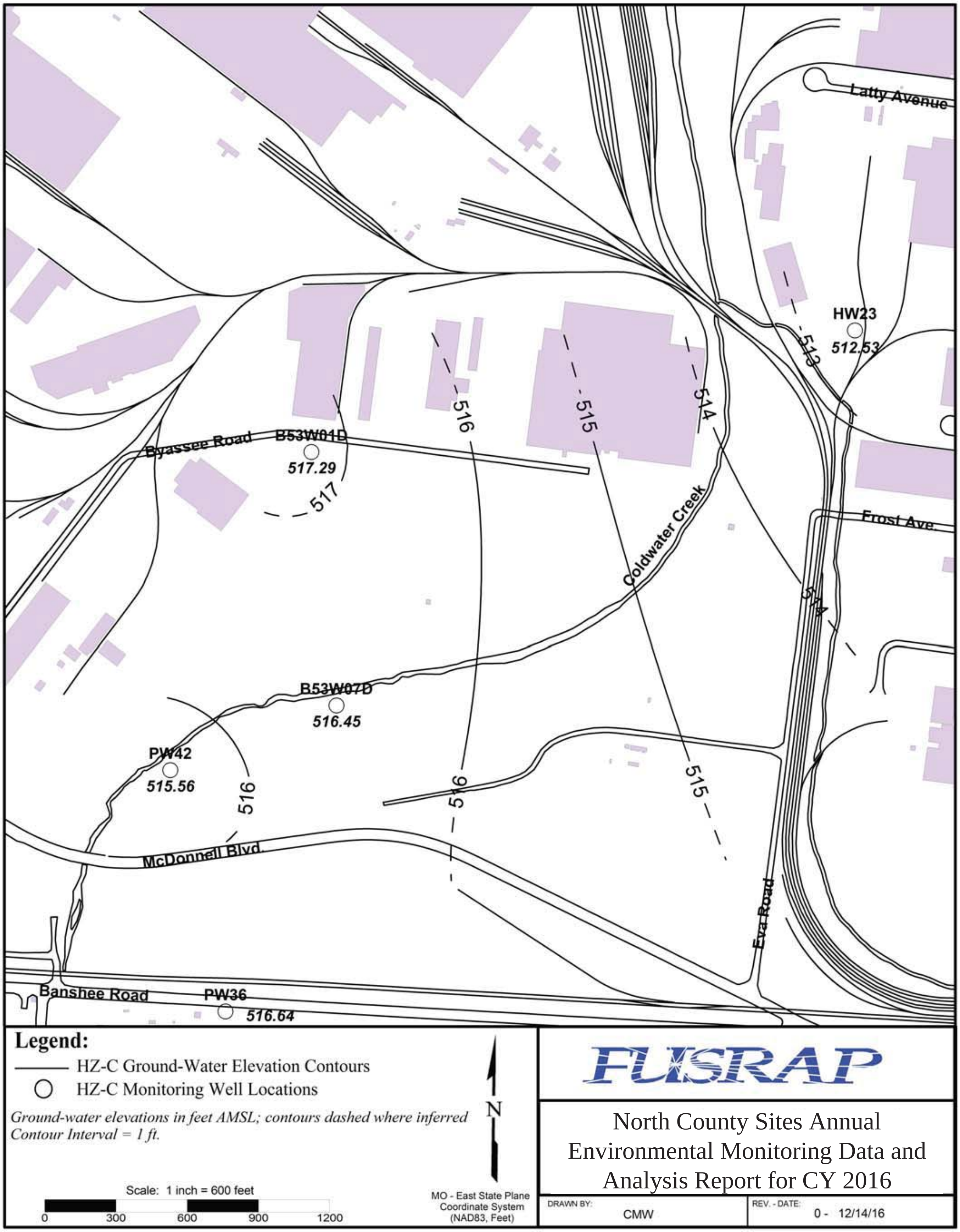
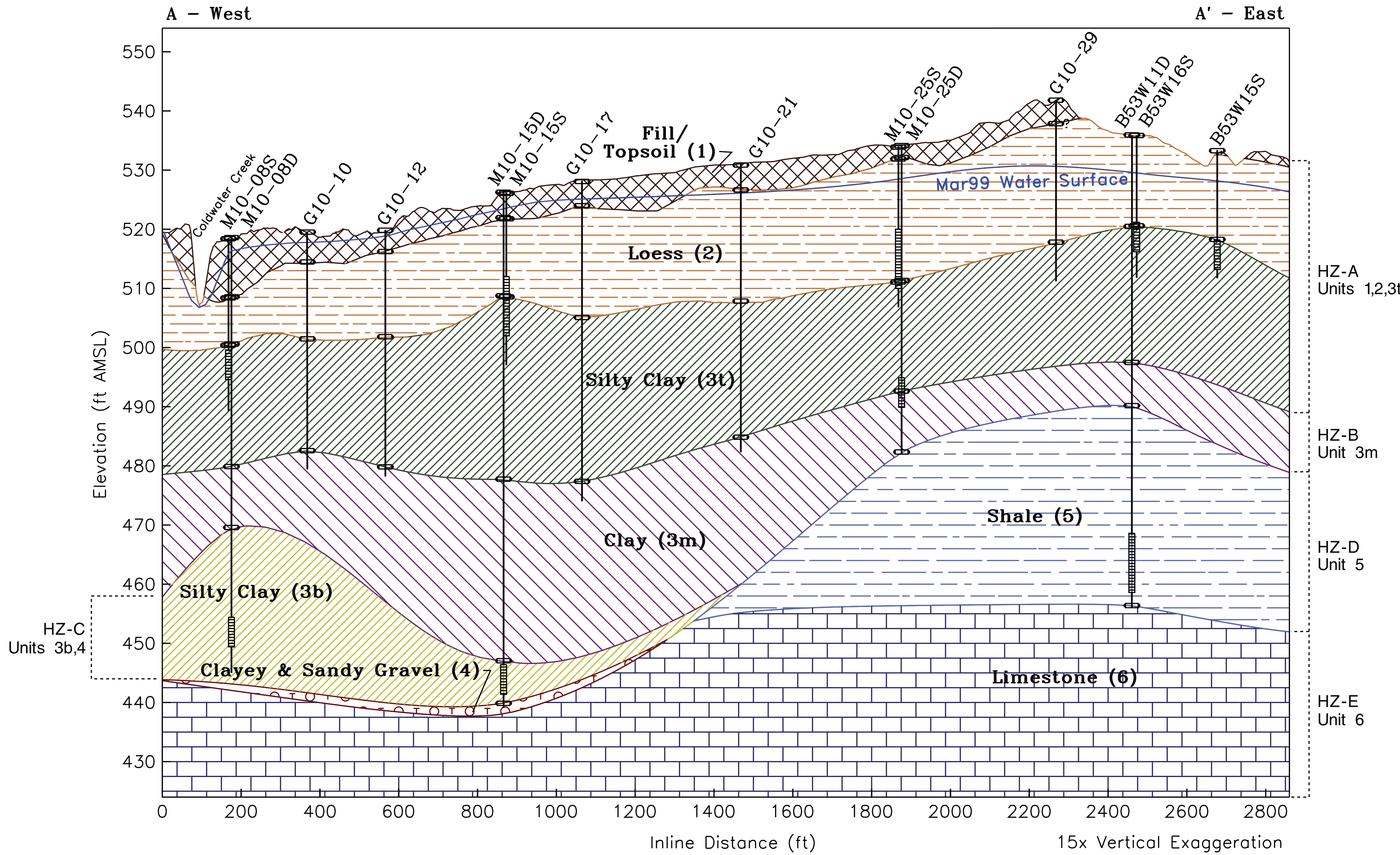


Figure 4-8. HZ-C Potentiometric Surface at the Latty Avenue Properties and the SLAPS and SLAPS VPs (November 7, 2016)



Notes

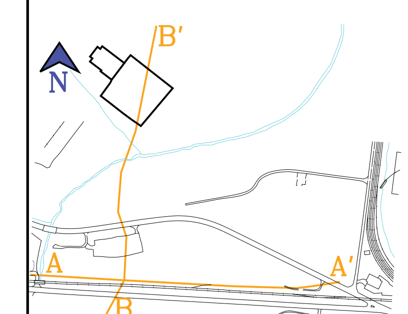
Geologic data used in the cross section collected through 2000.

Legend

Borehole pick

Well screen

Cross Section Location Map



FUSRAP

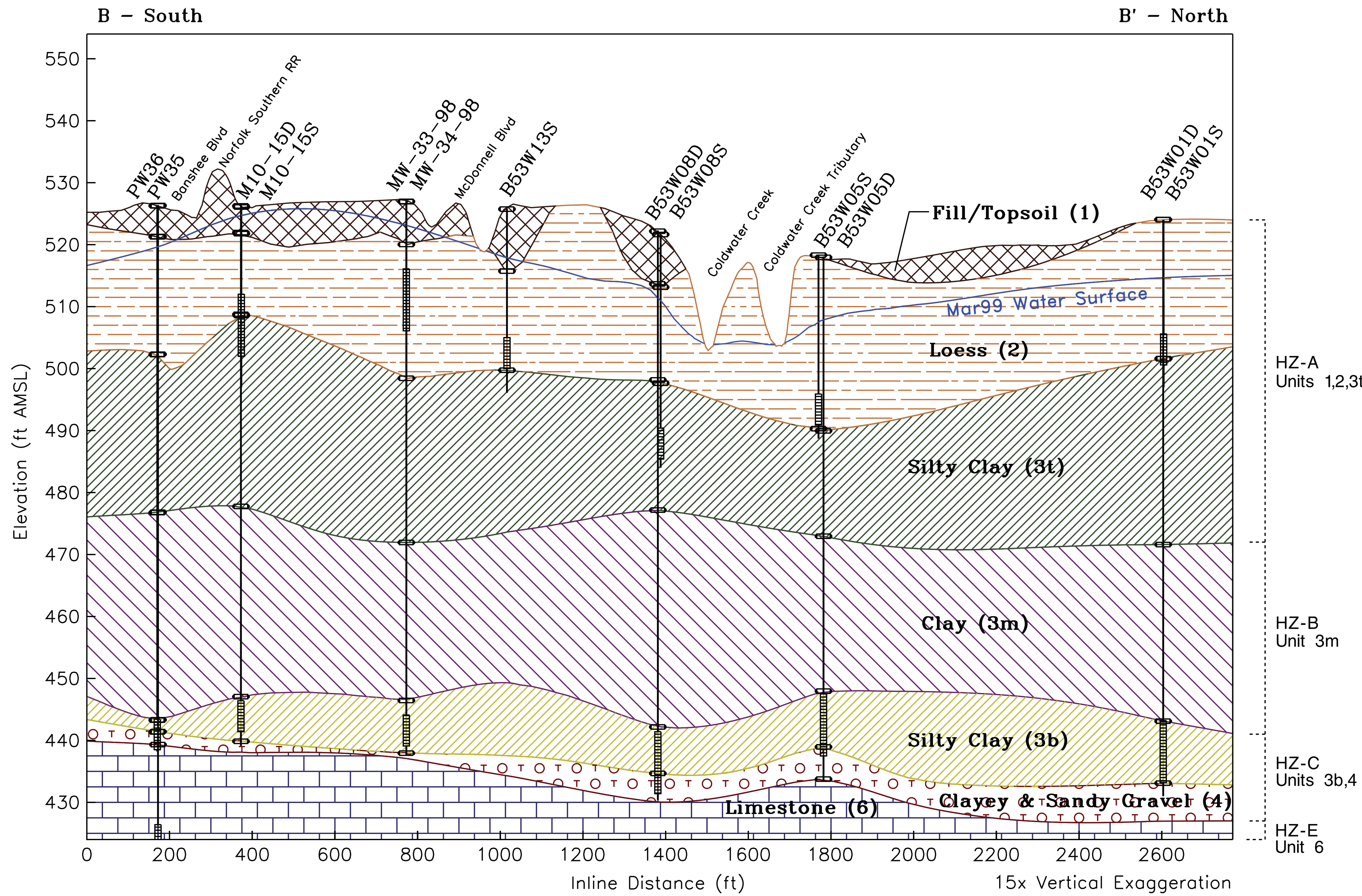
North County Sites
Annual Environmental Monitoring
Data and Analysis Report for
CY 2016

Drawn By: N. Voorhies

Date: 08/29/00, rev04/04/17

File: SLAPSGlg05ExtendedAAS.sho

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



Notes

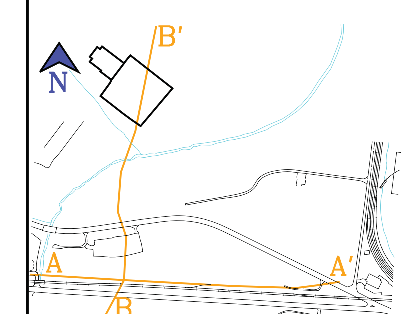
Geologic data used in the cross section collected through 2000.

Legend

Borehole pick

Well screen

Cross Section Location Map



FUSRAP

North County Sites
Annual Environmental Monitoring
Data and Analysis Report for
CY 2016

Drawn By: N. Voorhies

Date: 8/29/00, rev04/04/17

File: SLAPSGlg05ExtendedBBS.sho

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

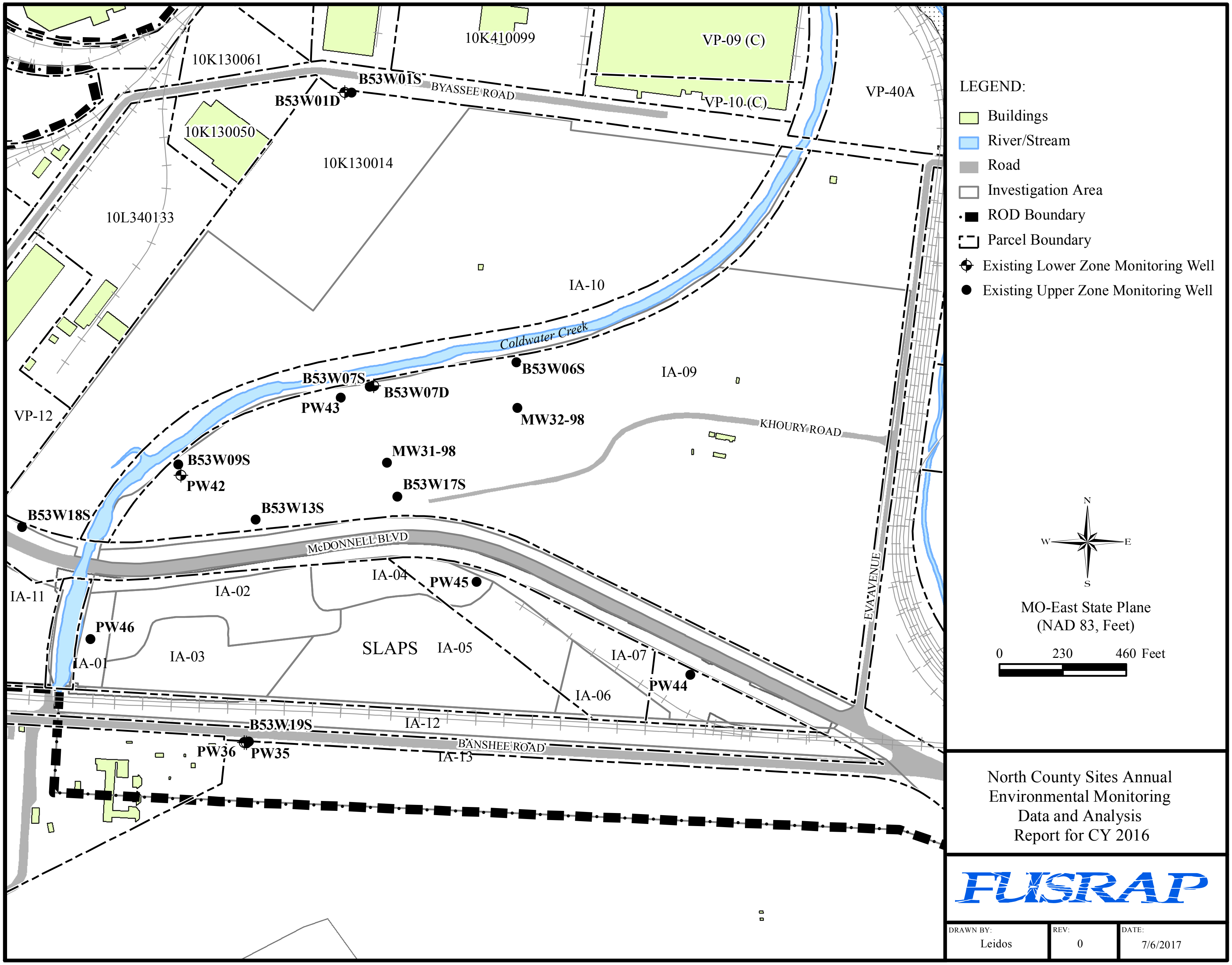
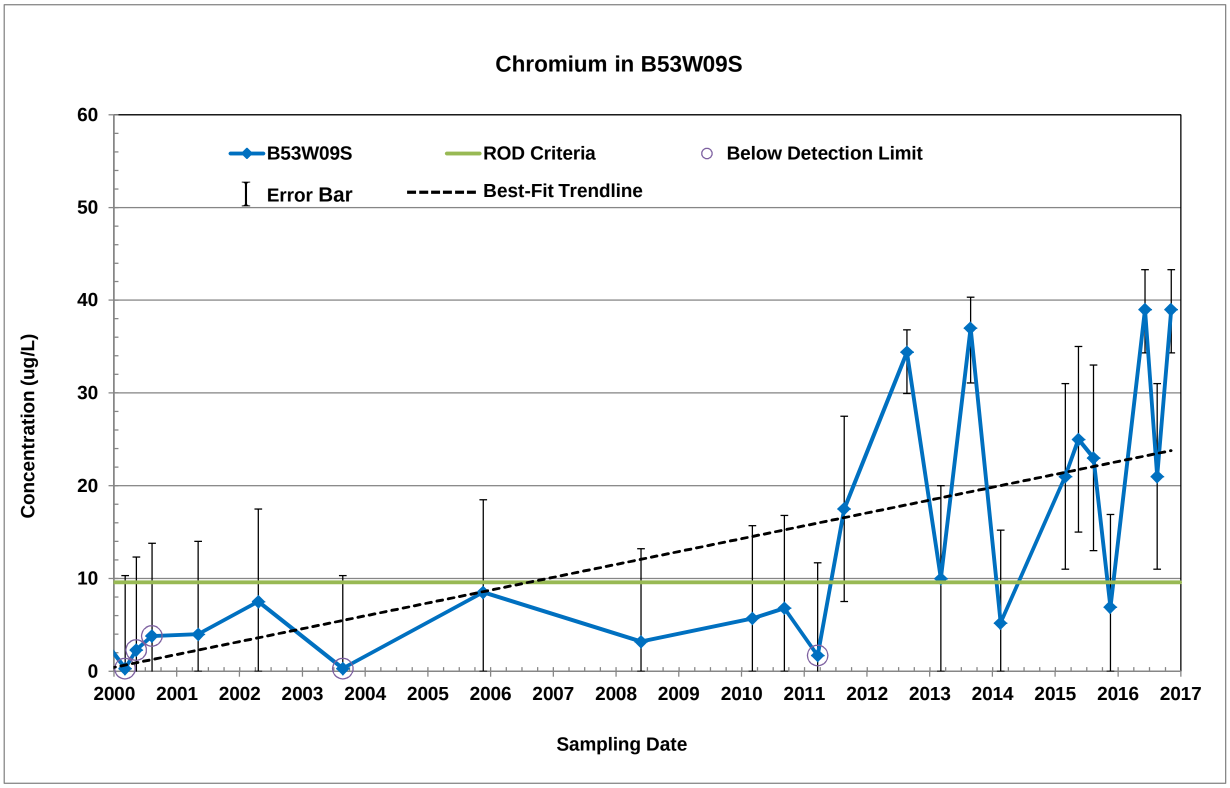
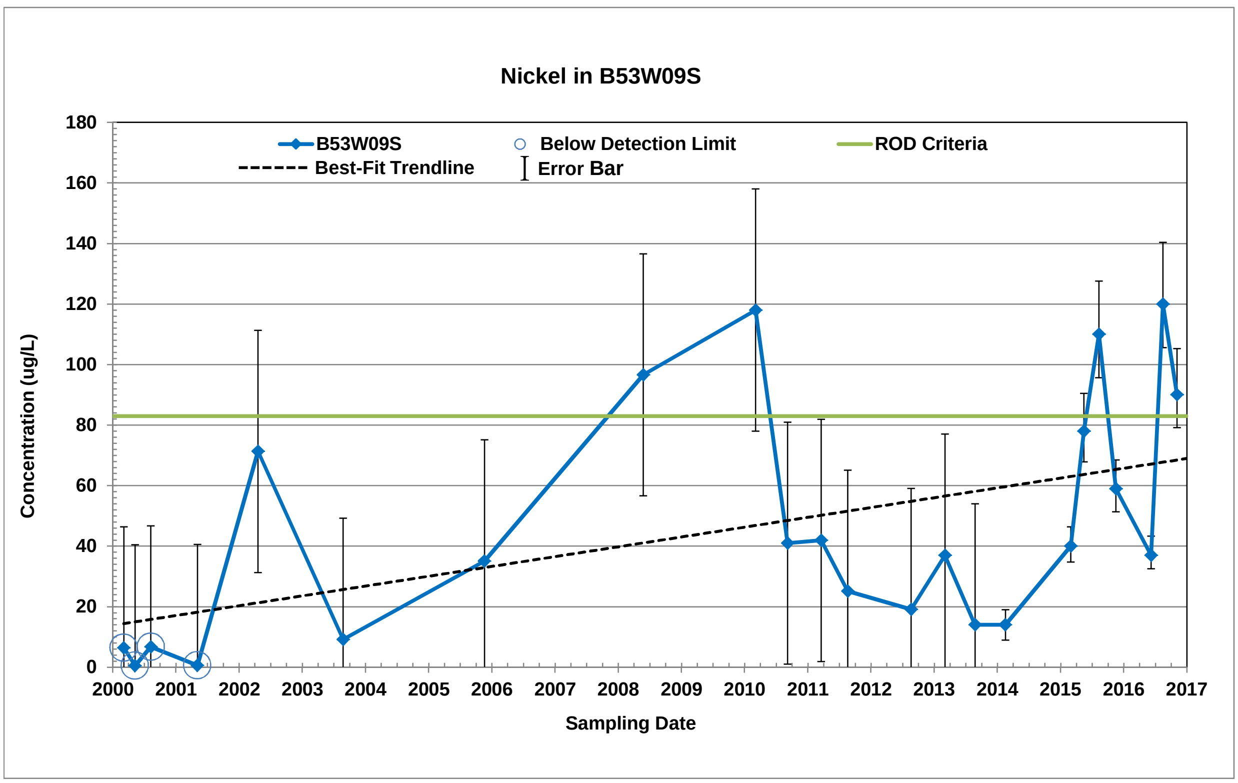


Figure 4-11. Existing Ground-Water Monitoring Locations at the SLAPS and SLAPS VPs

Path: U:\GPS\EMDAR\NCO Projects\FY2017\Rev0\Figure 4-11 Ground-Water Monitoring Locations at the SLAPS and Surrounding SLAPS VPs.mxd



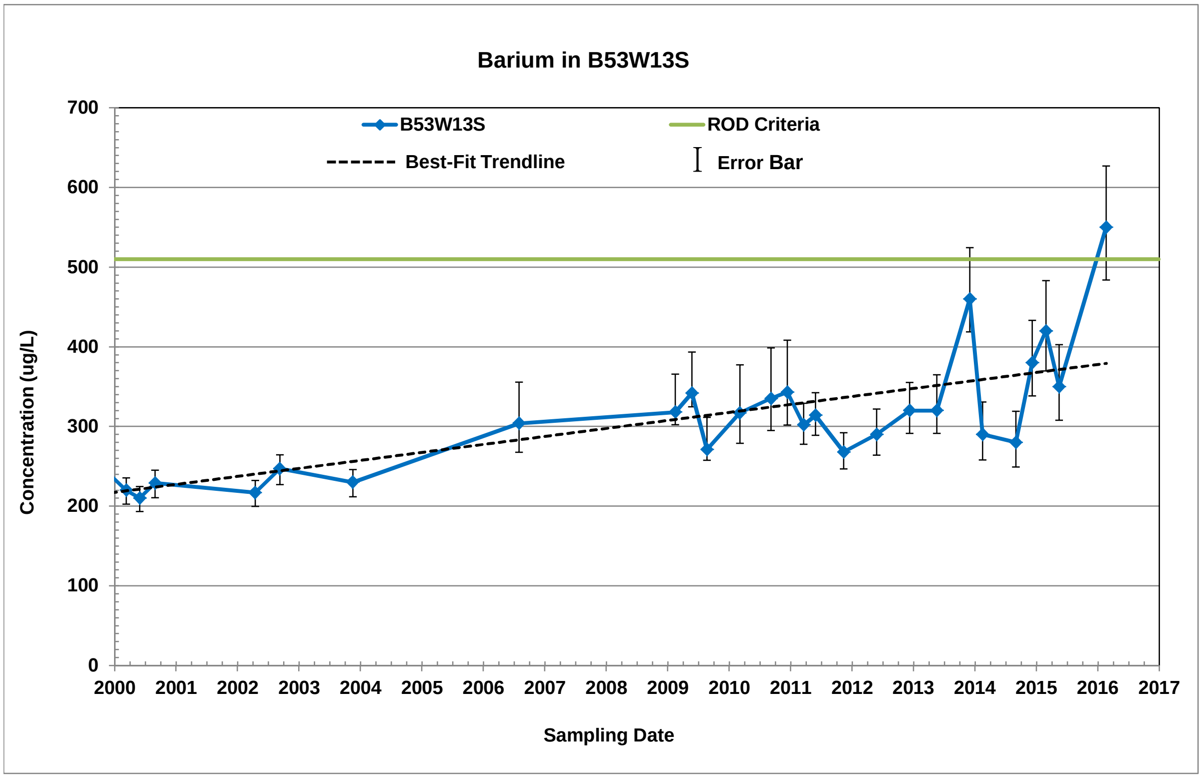


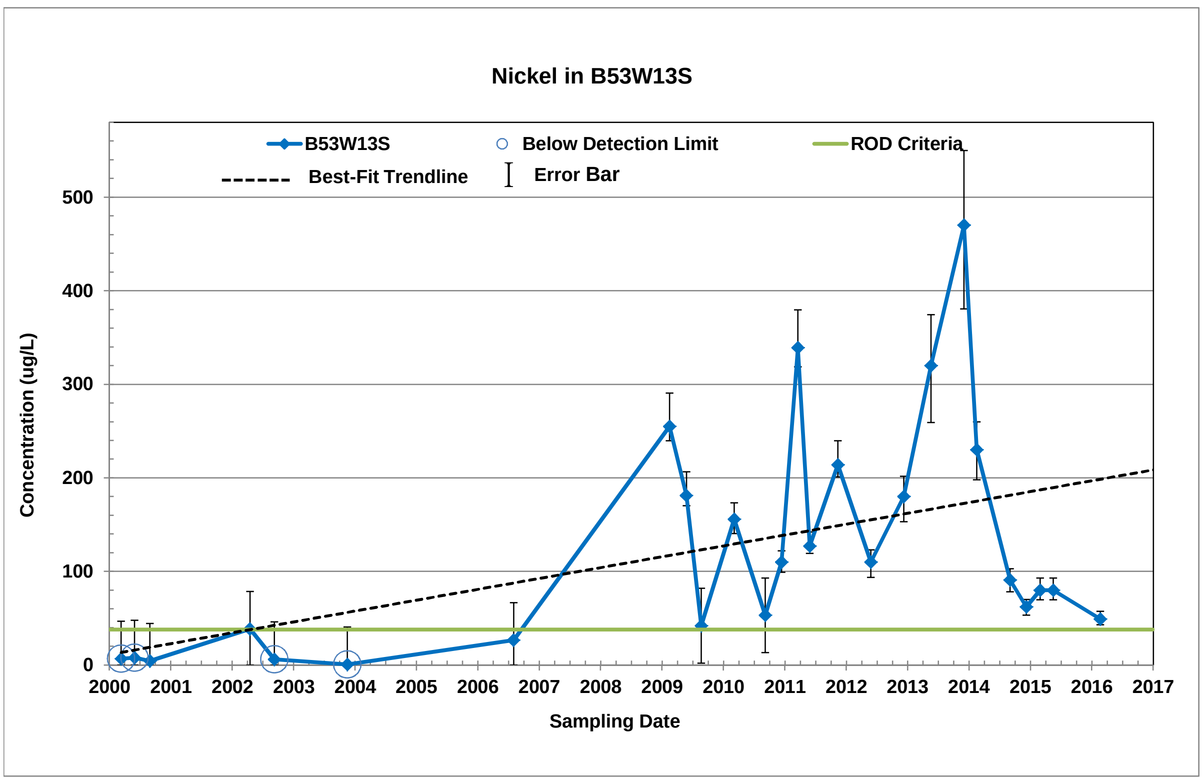
Notes:

For results less than 3 times the reporting limit (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.

For results reported below the DL (nondetect), the value plotted is half the DL.

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



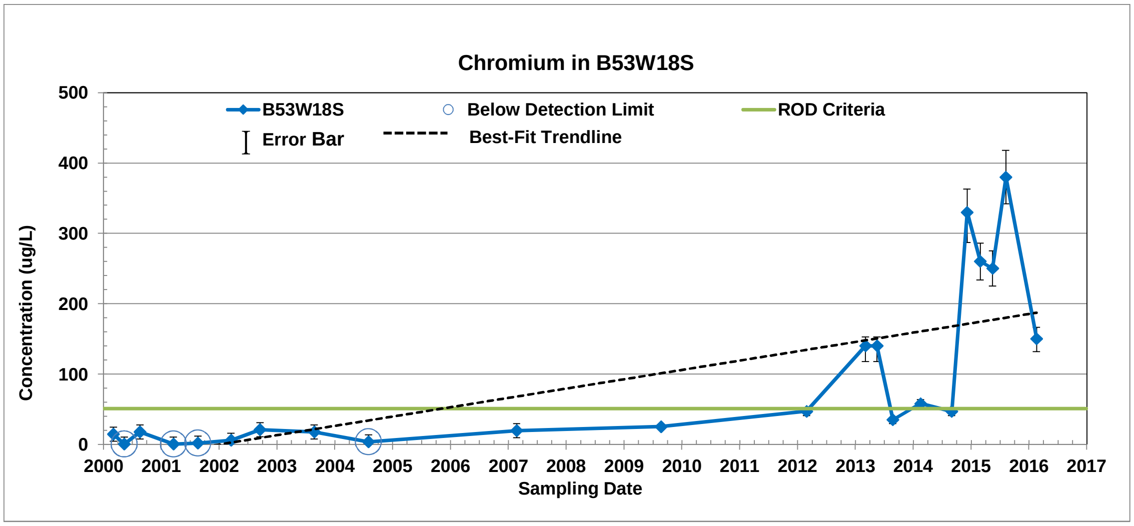


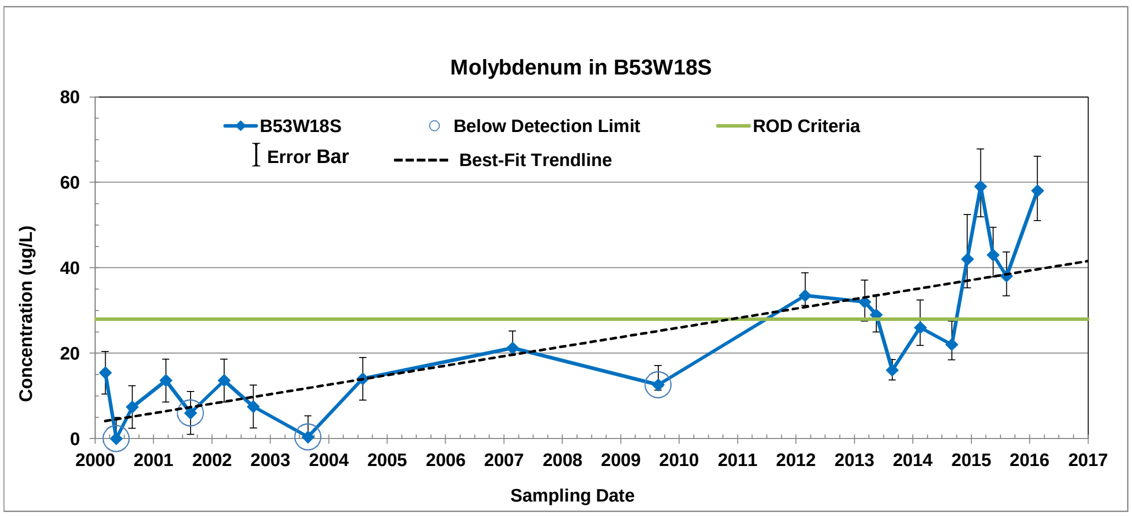
Notes:

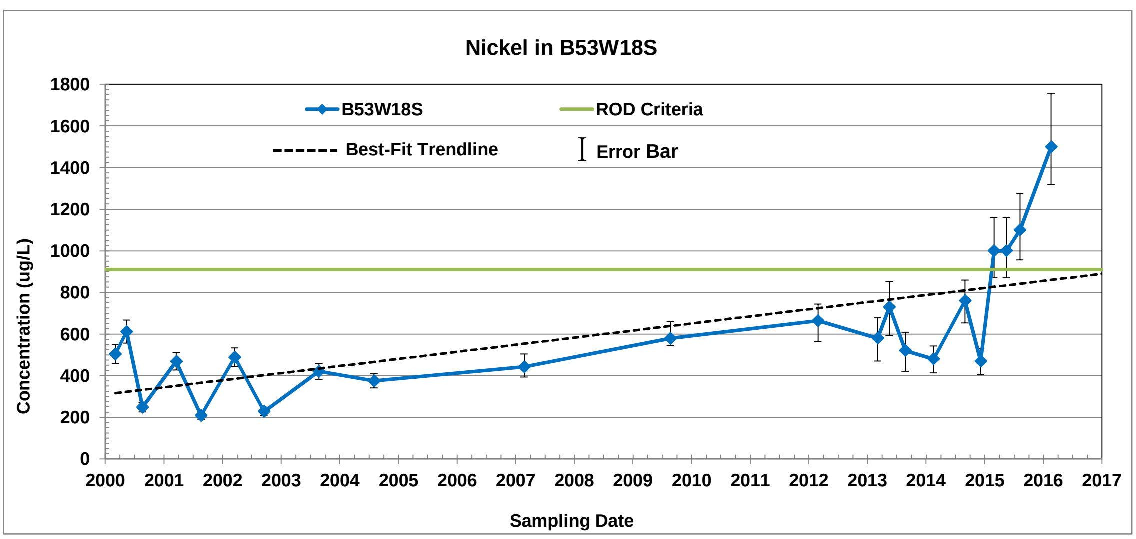
For results less than 3 times the RL, the error bar represents ± RL. For results exceeding 3 times the RL, the error bar represents the upper and lower control limits on the control spike samples.

For results reported below the DL (nondetect), the value plotted is half the DL.

Figure 4-13. Time-Versus-Concentration Graphs for Barium and Nickel in Ground Water at B53W13S





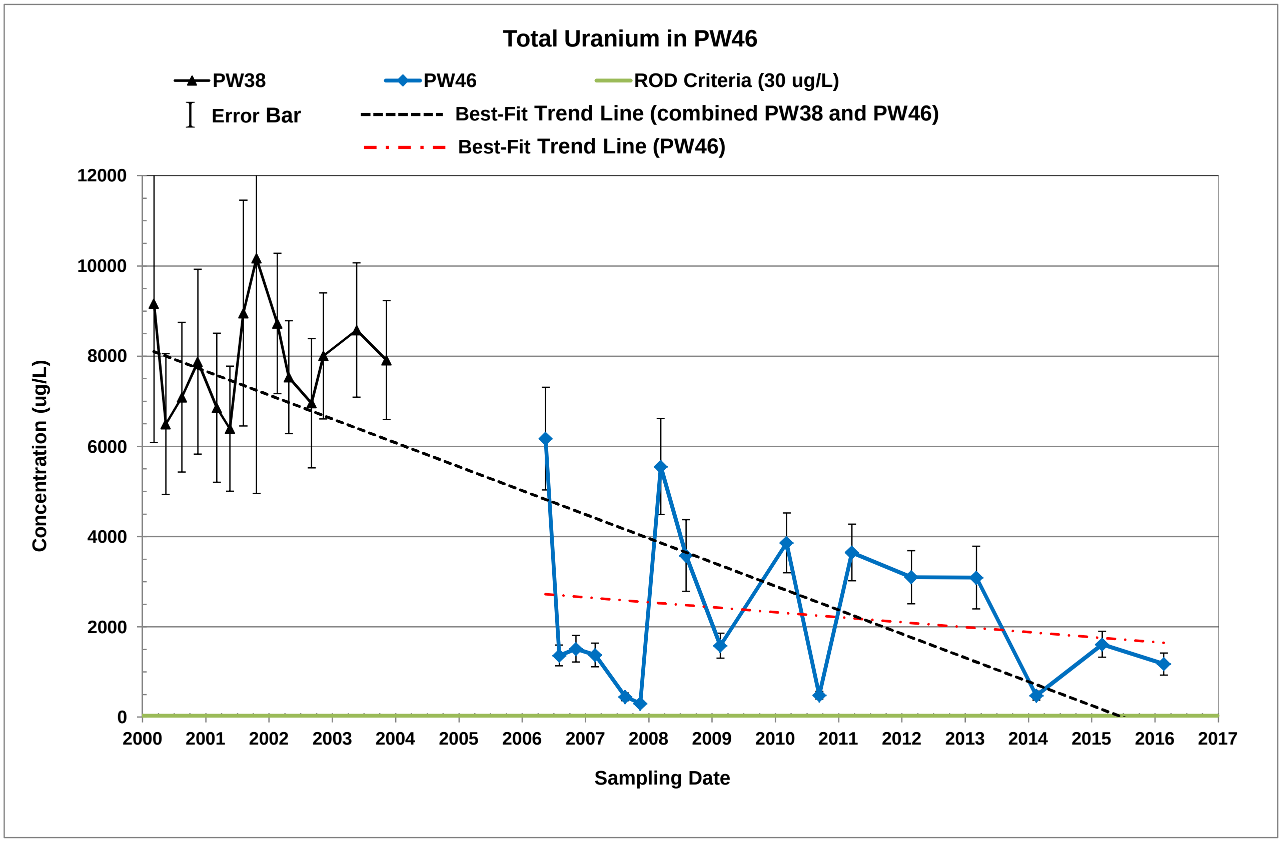


Notes:

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.

For results reported below the DL (nondetect), the value plotted is half the DL.

Figure 4-14. Time-Versus-Concentration Graphs for Chromium, Molybdenum, and Nickel in Ground Water at B53W18S



Notes:
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 4-15. Time-Versus-Concentration Graphs for Total U in Ground Water at PW38 and PW46

Path: U:\GPS\EMDAR\NCO Projects\FY2017\Rev0\Figure 4-16 Selenium Concentrations in Ground Water at the SLAPS and SLAPS VPs.mxd

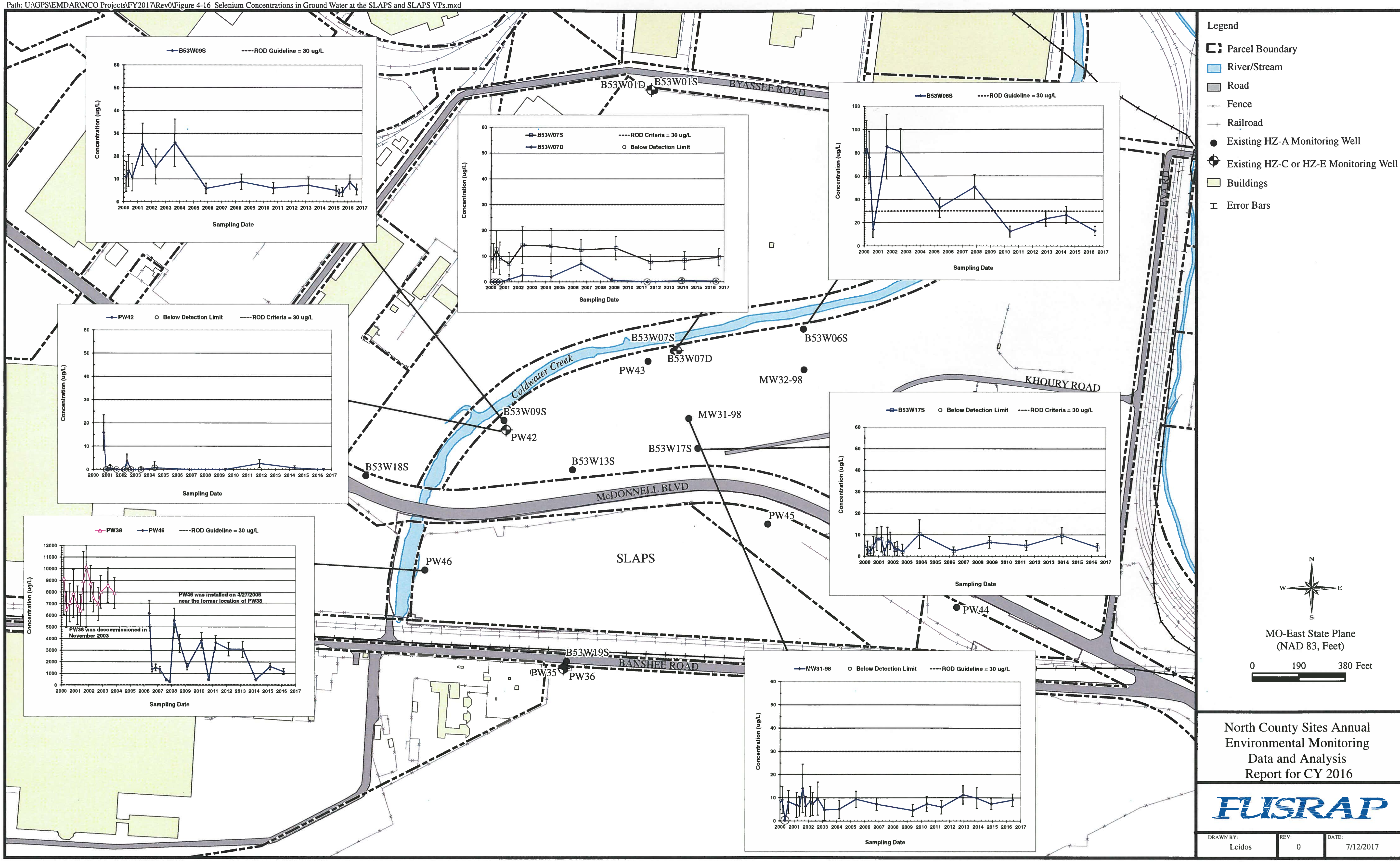


Figure 4-16. Total U Concentrations in Unfiltered Ground Water at the SLAPS and SLAPS VPs

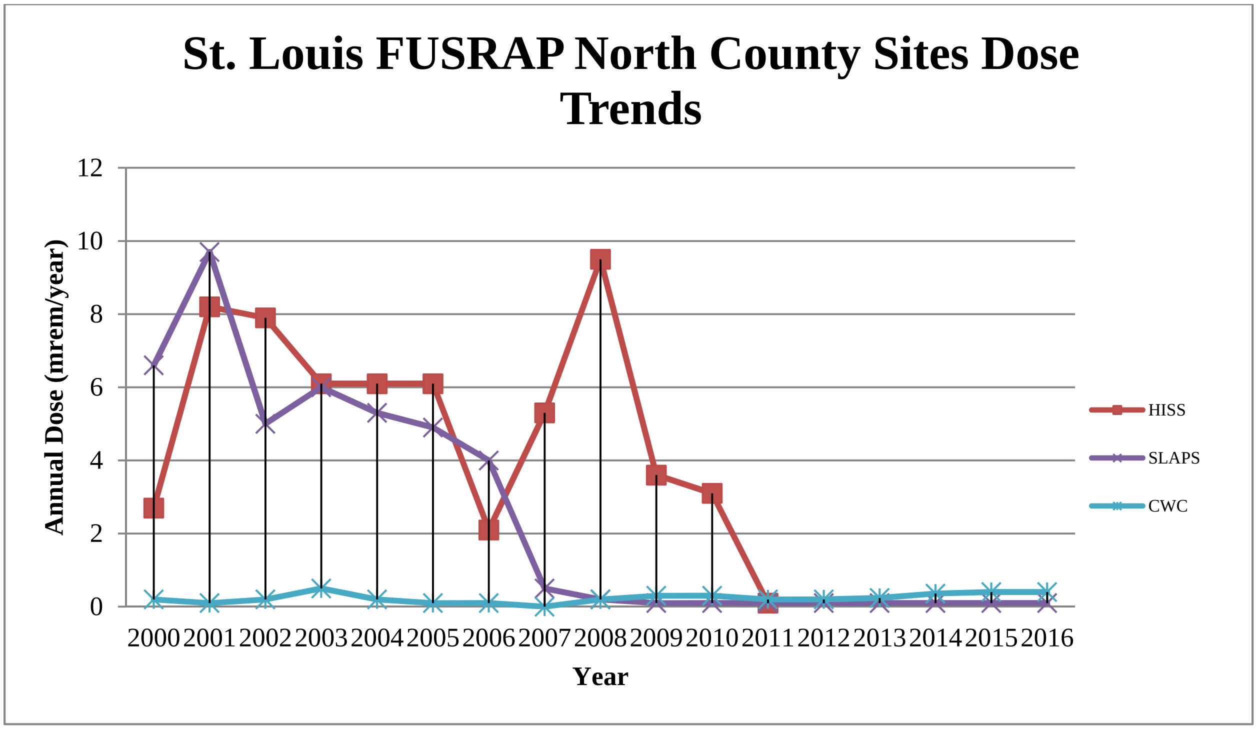


Figure 6-1. St. Louis FUSRAP NC Sites Dose Trends

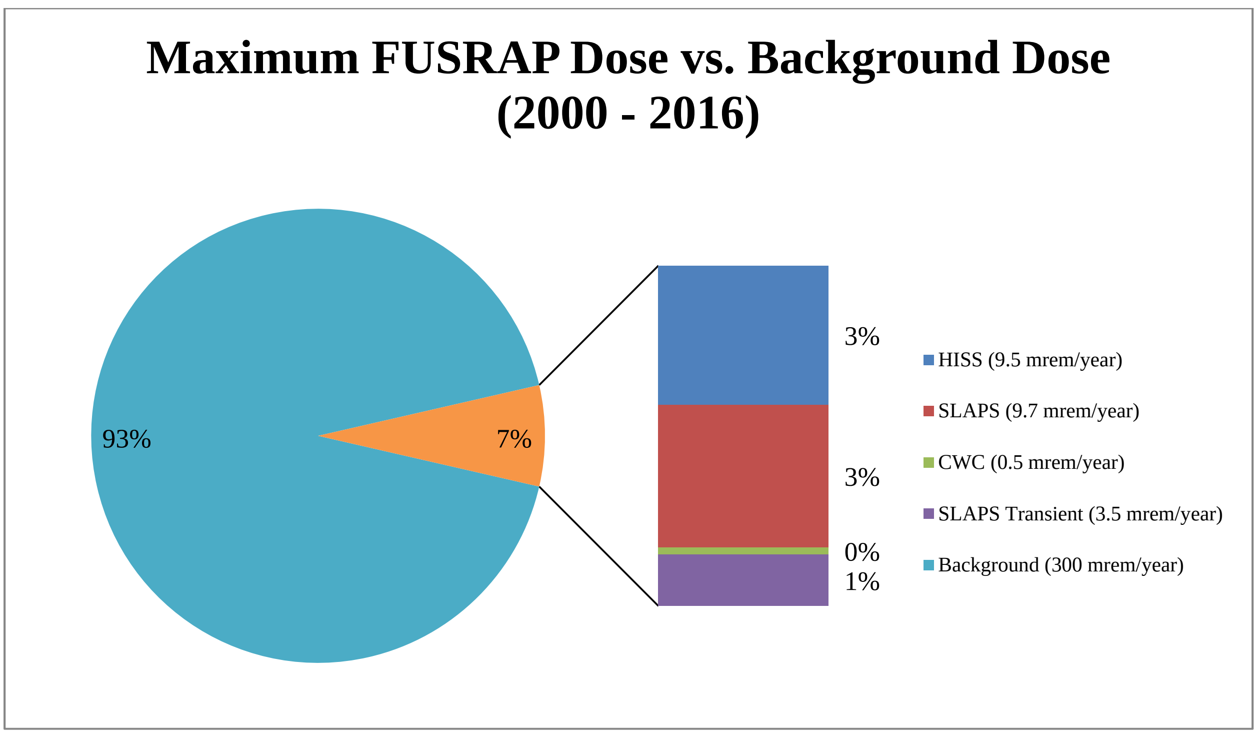


Figure 6-2. St. Louis FUSRAP NC Sites Maximum Dose Versus Background Dose

APPENDIX A

NORTH ST. LOUIS COUNTY FUSRAP SITES
2016 RADIONUCLIDE EMISSIONS NESHAP REPORT
SUBMITTED IN ACCORDANCE WITH REQUIREMENTS OF 40 *CFR* 61, SUBPART I

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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
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) 2016. 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: Duchesne Park, St. Cin Park, 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 2016 to provide a conservative estimate of total emissions.

The NESHAP 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 1.1 mrem per year from the SLAPS 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 2014), resulting in an EDE of less than 0.1 mrem per year.

Evaluations for the Latty Avenue Properties, 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:	8945 Latty Ave.
	Berkeley, MO 63134
Contact:	Jon Rankins

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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: Duchesne Park, St. Cin Park, 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.

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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 2014). The USEPA continues to maintain and update the CAP88-PC modeling program and has updated it as recently as September 2014. 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. 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 4.0 (USEPA 2014). 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 1.0 m is modeled for the sites, and a stack release 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.

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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	
N	S	13.1	S	N	5.6
NNW	SSE	7.4	SSE	NNW	4.3
NW	SE	6.8	SE	NW	6.1
WNW	ESE	6.9	ESE	WNW	8.7
W	E	5.5	E	W	9.0
WSW	ENE	2.8	ENE	WSW	6.8
SW	NE	3.1	NE	SW	5.4
SSW	NNE	3.7	NNE	SSW	5.0

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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 Futura 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 vicinity properties (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, which now constitutes the Hazelwood Interim Storage Site (HISS). 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.

4.2 MATERIAL HANDLING AND PROCESSING FOR CALENDAR YEAR 2016

Soil cleanup activities at the HISS and Futura, which were the Latty Avenue Properties with the highest initial levels of residual contamination, were completed in CY 2011. No excavation or loadout activities for the Latty Avenue Properties occurred in CY 2016; therefore, radioactive particulate emissions were considered negligible, air sampling for particulate radionuclides was not conducted, and NESHAP calculations for these properties were not required.

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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 excavations have concluded at the SLAPS, 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 2016

During CY 2016, excavations were conducted on Duchesne Park and St. Cin Park; 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 2016. Analytical results of air particulate samples were used to determine windblown in situ emissions.

5.3 SOURCE DESCRIPTION – RADIONUCLIDE SOIL CONCENTRATIONS

The radionuclide concentrations for Duchesne Park, St. Cin Park, and the SLAPS Loadout area were obtained from data contained in the *Pre-Design Investigation Summary Report for St. Cin Park, the Archdiocese of St. Louis Property, and Duchesne Park* (USACE 2015). Attachment A-1 of this NESHAP report contains 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 2016

Ground releases of particulate radionuclides in soil, as a result of windblown action and RA in the form of excavation (for Duchesne Park and St. Cin Park) and off-site disposal (for the SLAPS Loadout area) of soil, are assumed for the particulate radionuclide emission determinations from the SLAPS VPs at which excavations occurred in CY 2016. Other SLAPS VPs do not contribute to the emission determinations for periods of inactivity due to the low activity and vegetative cover.

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 2016

Sources	Nearest Residence		Farm		Business		School	
	Distance (m)	Direction	Distance (m)	Direction	Distance (m)[a]	Direction	Distance (m)	Direction
Duchesne Park	150	NE	4,500	WNW	70	W	600	E
St. Cin Park	100	NW	4,500	WNW	70	W	600	E
SLAPS Loadout	770	NE	1,710	NE	500	WSW	2,580	E

[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 samples provide the basis for determining the radionuclide emission rates during all of CY 2016. The average gross alpha and gross beta concentrations (in μCi/mL) were determined for each sample location for CY 2016. 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 2016

Monitoring Location	Average Concentration (μCi/mL)	
	Gross Alpha	Gross Beta
Duchesne Park	4.63E-15	3.97E-14
St. Cin Park	3.63E-15	5.03E-14
SLAPS Loadout	4.05E-15	3.21E-14
Background Concentration[a]	3.61E-15	1.88E-14

[a] 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 activity fractions are determined for alpha and beta from the average radionuclide concentration data contained in *Pre-Design Investigation Summary Report for St. Cin Park, the Archdiocese of St. Louis Property, and Duchesne Park* (USACE 2015). The product of each radionuclide activity fraction and the gross concentration provide the radionuclide emission concentration as measured in $\mu Ci/cm^3$. The gross average concentration (in $\mu Ci/cm^3$) 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) (page 3-21, [2]) 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 SLAPS VPs that were excavated in CY 2016. 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 2016

Location	Effective Area (m^2)	Effective Diameters (m)
Duchesne Park	1,435	43
St. Cin Park	47	8
SLAPS Loadout	460	24

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

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 2016

Location	Site Release Flow Rate (m^3/minute)
Duchesne Park	3.9E+05
St. Cin Park	1.3E+04
SLAPS Loadout	1.3E+05

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

The total CY 2016 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 site or excavations as appropriate.

Table A-7. SLAPS and SLAPS VPs Total Airborne Radioactive Particulate Emission Rates for CY 2016

Radionuclide	Emission (Ci/year)[a]		
	Duchesne Park	St. Cin Park	SLAPS Loadout
Uranium (U)-238	7.9E-05	2.1E-06	2.3E-05
U-235	3.9E-06	7.0E-08	9.7E-07
U-234	7.9E-05	2.1E-06	2.3E-05
Radium (Ra)-226	1.0E-04	2.6E-06	3.0E-05
Thorium (Th)-232	6.7E-05	1.8E-06	2.0E-05
Th-230	4.6E-04	1.2E-05	1.3E-04
Th-228	7.5E-05	2.0E-06	2.2E-05
Ra-224	7.5E-05	2.0E-06	2.2E-05
Th-234	2.3E-03	9.6E-05	6.2E-04
Protactinium (Pa)-234m	2.3E-03	9.6E-05	6.2E-04
Th-231	1.1E-04	3.3E-06	2.6E-05
Ra-228	1.7E-03	7.4E-05	4.7E-04
Actinium (Ac)-228	1.7E-03	7.4E-05	4.7E-04
Pa-231	5.9E-06	1.9E-07	1.9E-06
Ac-227	3.9E-06	1.4E-07	1.4E-06

[a] Release rate based on a 366-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 2016

Source	Dose (mrem/year)			
	Nearest Residence[a]	Farm[a]	Business[b]	School[b]
Duchesne Park	1.1	0.4	0.7	0.1
St. Cin Park	<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. The USACE St. Louis FUSRAP laboratory is bounded to the north, east, and west by the SuperValue Inc. 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 2016

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 2016.

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 2016

Receptor	Distance (m)	Direction from Site
Nearest Residence	300	NE
Farm	300	NE
Business	110	S
School	1,830	SE

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 2016.

$$\text{Emission Rate (Ci/year)} = \text{C} * \lfloor N_1 * F_1 + N_2 * F_2 \rfloor * 1{,}000\ \text{g/sample} * 1\text{E}\quad 12\ \text{(Ci per picocuries)}$$

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 2016[a]

Site	Type	Gamma Spectroscopy	Isotopic Ra[b]	Isotopic Th[b]	Isotopic U[b]	Total Drying and Grinding[c]	Total Separations[d]
HISS	Soil	0	0	0	0	0	0
HISS	Water	0	4	4	4	0	12
Latty Avenue Properties	Soil	2	0	0	0	2	0
Latty Avenue Properties	Water	0	0	0	0	0	0
Iowa Army Ammunitions Plant (IAAAP)	Soil	735	0	0	767	735	767
IAAAP	Water	0	0	0	20	0	20
SLAPS	Soil	0	0	0	0	0	0
SLAPS	Water	1	2	2	1	1	5
SLAPS VPs	Soil	948	0	994	0	948	994
SLAPS VPs	Water	4	45	46	15	4	106
Coldwater Creek (CWC)	Sediment (soil)	1,531	0	1,777	0	1,531	1,777
CWC	Water	0	18	18	18	0	54
SLDS	Soil	1,105	0	1,108	0	1,105	1,108
SLDS	Water	0	101	105	10	0	216
		HISS and Latty Avenue Properties			**Total**	2	12
		IAAAP			**Total**	735	787
		SLAPS, SLAPS VPs, and CWC			**Total**	2,479	2,936
		SLDS			**Total**	1,105	1,324
					Grand Total	4,321	5,059

[a] Data provided by the USACE St. Louis FUSRAP laboratory for CY 2016.
[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.
Note: CWC samples use SLAPS characterization data to determine release rates.

6.5.2 Laboratory Total Airborne Radioactive Particulate Emission Rates

The USACE St. Louis FUSRAP laboratory total CY 2016 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 2016

Radionuclide	Emission (Ci/year)[a]
U-238	3.6E-06
U-235	5.8E-08
U-234	1.6E-06
Ra-226	1.8E-07
Th-232	6.4E-08
Th-230	3.7E-07
Th-228	6.7E-08
Ra-224	6.7E-08
Th-234	6.4E-07
Protactinium (Pa)-234m	6.4E-07
Th-231	3.2E-08
Ra-228	6.2E-08
Ac-228	6.2E-08
Pa-231	3.3E-08
Ac-227	3.2E-08

[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 2016

Receptor	Distance (m)	Direction from Site	Dose (mrem/year)
Nearest Residence[a]	300	NE	<0.1
Farm[a]	300	NE	<0.1
Business[b]	110	S	<0.1
School[b]	1,830	SE	<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).

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7.0 REFERENCES

USACE 2011. U.S. Army Corps of Engineers, St. Louis District Office. *Feasibility Study for the Iowa Army Ammunition Plant*, Burlington, Iowa. Final. April.

USACE 2015. U.S. Army Corps of Engineers. *Pre-Design Investigation Summary Report for St. Cin Park, the Archdiocese of St. Louis Property, and Duchesne Park*, St. Louis, Missouri. Revision 0. June 24.

USACE 2017. U.S. Army Corps of Engineers. *St. Louis Downtown Site Annual Environmental Monitoring Data and Analysis Report for Calendar Year 2016*, St. Louis, Missouri. Revision 0. June 30.

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.

USEPA 2014. U.S. Environmental Protection Agency. CAP88-PC Version 4.0 Computer Code, U.S. Environmental Protection Agency. September.

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*.

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APPENDIX A

FIGURES

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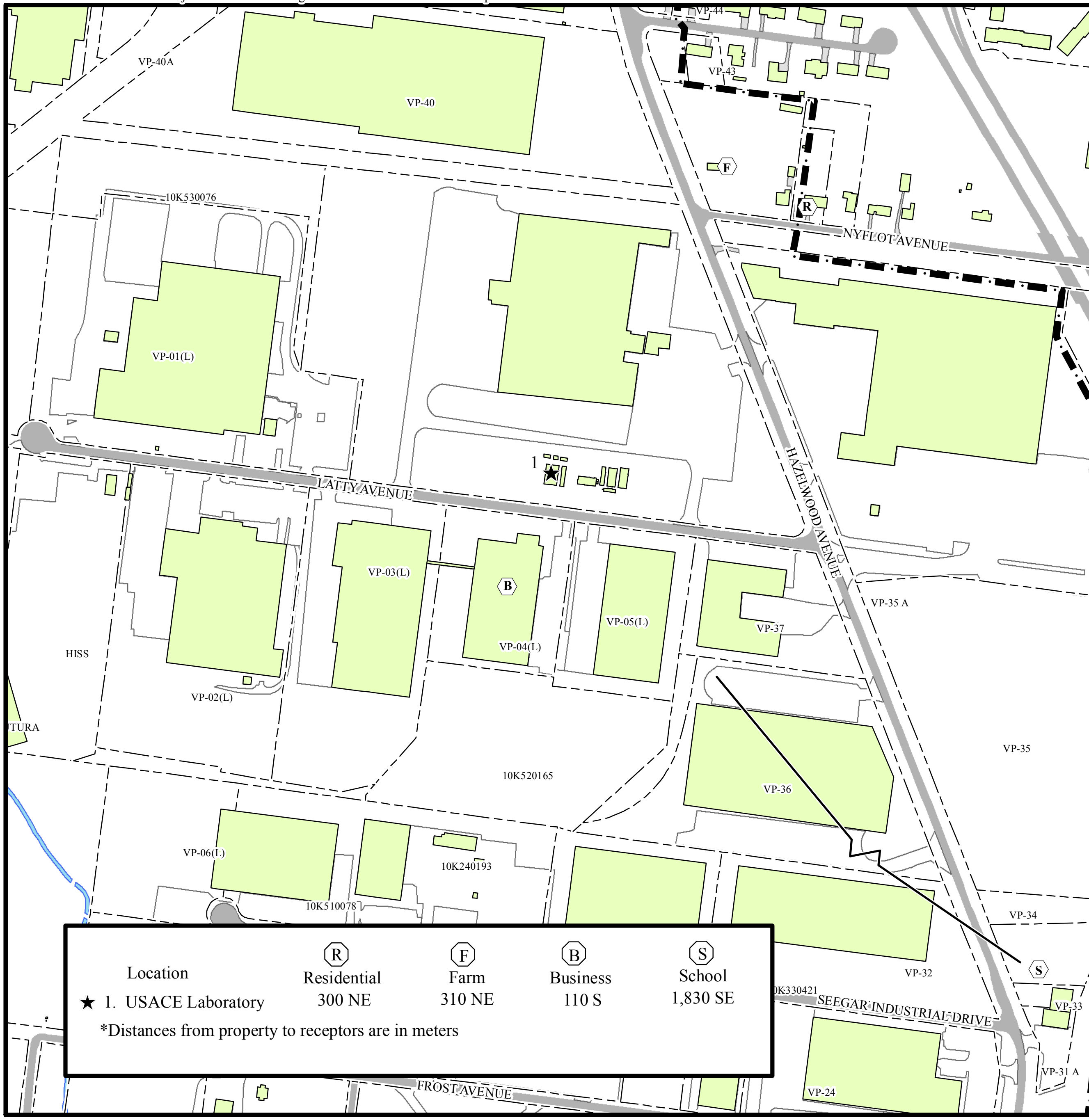

Location	Residential (R)	Farm (F)	Business (B)	School (S)
★ 1. USACE Laboratory	300 NE	310 NE	110 S	1,830 SE

*Distances from property to receptors are in meters

North County Sites Annual Environmental Monitoring Data and Analysis Report for CY 2016

FUSRAP

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

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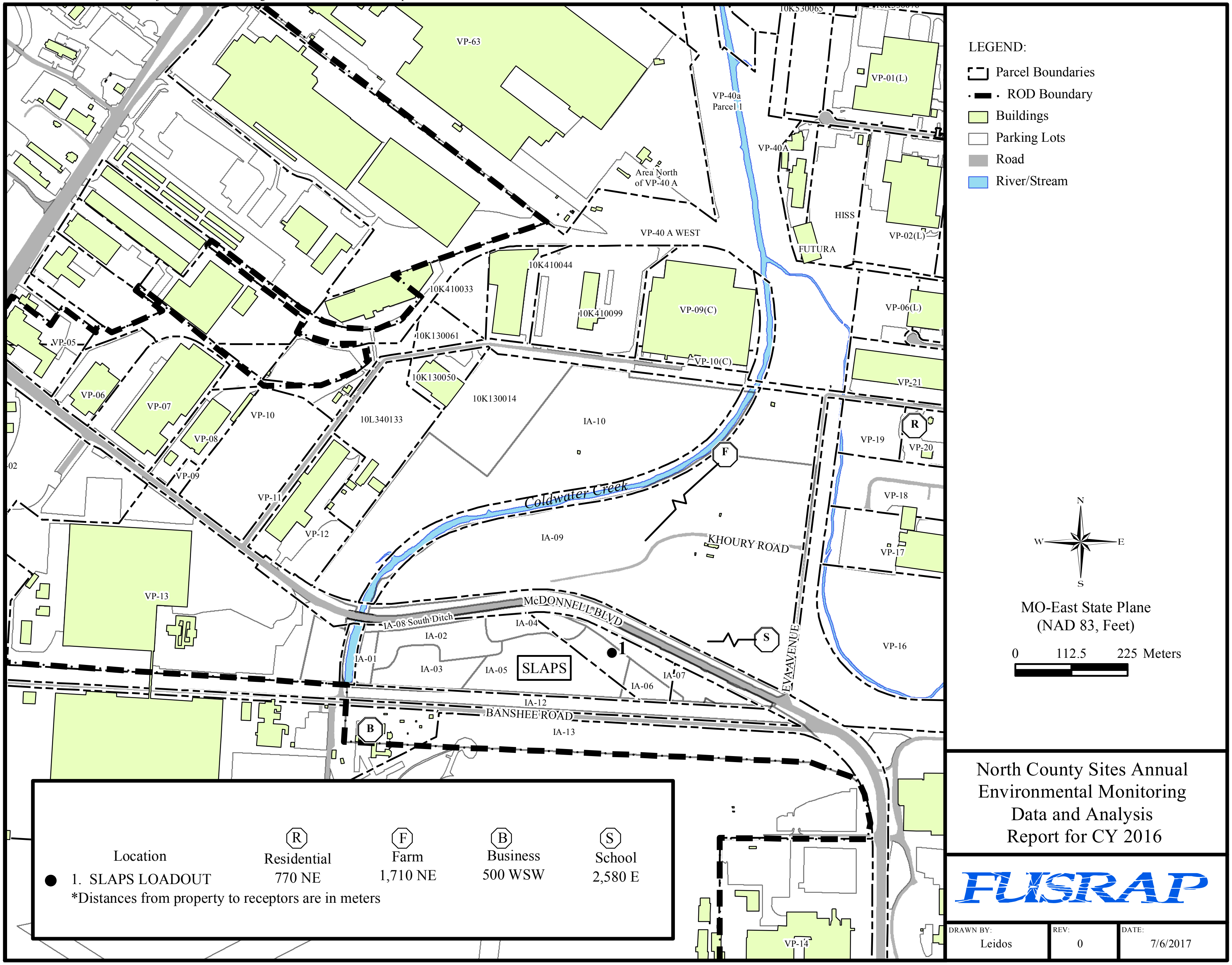

Figure A-2. SLAPS and SLAPS VPs Critical Receptors

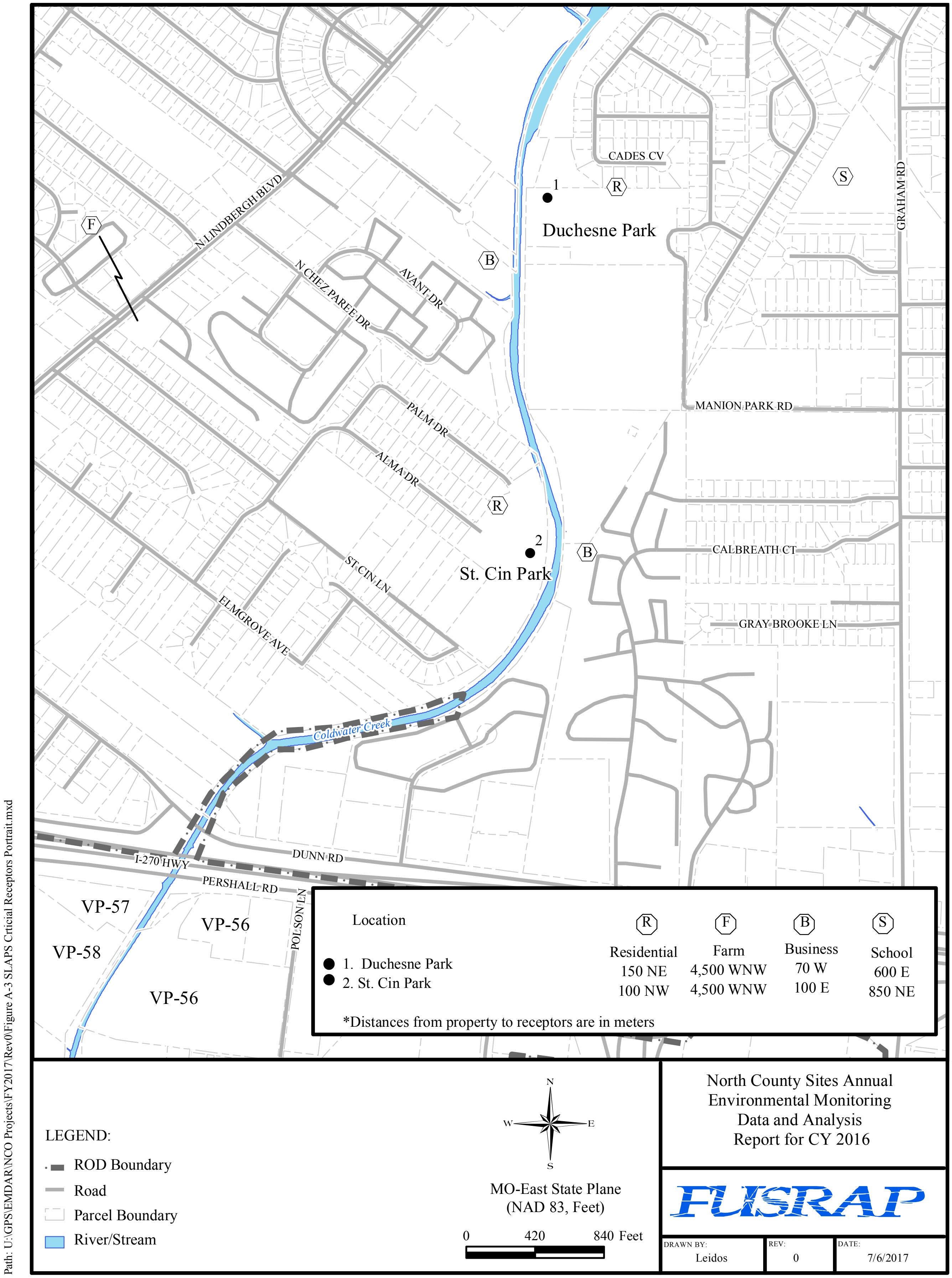

Figure A-3. SLAPS and SLAPS VPs Critical Receptors

ATTACHMENT A-1

CALCULATED EMISSION RATES FROM NORTH ST. LOUIS COUNTY SITE PROPERTIES

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Table A-1-1. North St. Louis County Site Properties Soil Radionuclide Concentrations for CY 2016

Property	Duchesne Park[a]	St. Cin Park[a]	SLAPS Loadout
Radionuclide	**Average Concentration (pCi/g)**		
U-238	1.2	1.2	1.2
U-235	0.06	0.04	0.05
U-234	1.2	1.2	1.2
Ra-226	1.6	1.5	1.6
Ra-228	0.9	0.9	0.9
Th-232	1.0	1.0	1.0
Th-230	7.0	6.8	6.9
Th-228	1.1	1.1	1.1
Pa-231	0.09	0.1	0.1
Ac-227	0.06	0.08	0.07

[a] Derived from the average soil radionuclide concentrations from the *Pre-Design Investigation Summary Report for St. Cin Park, the Archdiocese of St. Louis Property, and Duchesne Park* (USACE 2015).

Table A-1-2. North St. Louis County Sites Average Gross Alpha and Beta Airborne Particulate Emissions for CY 2016

Location	Average Concentration (µCi/mL) for Location[a]	
	Gross Alpha	**Gross Beta**
Duchesne Park	4.63E-15	3.97E-14
St. Cin Park	3.63E-15	5.03E-14
SLAPS Loadout	4.05E-15	3.21E-14
Background Concentration	3.61E-15	1.88E-14

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

Table A-1-3. North St. Louis County Site Properties Excavation Data for CY 2016

Location	Area (m^2)	Excavation Start Date[a]	Excavation End Date[a]
Duchesne Park, Survey Unit (SU)-1A	315	03/21/16	06/20/16
Duchesne Park, SU-1B	313	05/25/16	06/20/16
Duchesne Park, SU-1C	417	03/15/16	08/31/16
Duchesne Park, SU-1D	693	05/16/16	08/31/16
Duchesne Park, SU-1E	146	07/18/16	08/31/16
Duchesne Park, SU-2A	710	04/13/16	09/26/16
Duchesne Park, SU-2B	34	07/18/16	12/31/16
Duchesne Park, SU-2C	893	07/26/16	11/23/16
Duchesne Park, SU-2D	574	07/26/16	12/14/16
Duchesne Park, SU-2E	836	12/06/16	12/31/16
St. Cin Park, SU-1I	198	01/01/16	01/25/16
St. Cin Park, SU-1J	158	01/01/16	01/25/16
St. Cin Park, SU-1K	69	01/05/16	02/03/16
St. Cin Park, SU-1L	155	01/11/16	02/18/16
SLAPS Loadout	2,000	01/01/16	12/31/16

[a] Open/close dates set to start or stop at the CY boundary.

Table A-1-4. North St. Louis County Site Properties Average Surface Area and Flow Rate per Location for CY 2016

Location	Total Days	Surface Area × Total Days	Average Surface Area/Year (m^2)	Diameter of Stack $D = (1.3\ A)^{1/2}$ (m)	Flow Rate $F = V\ \pi\ (D)^2/4$ (m^3/minute)
Duchesne Park					
Duchesne Park, SU-1A	92	28,939			
Duchesne Park, SU-1B	27	8,442			
Duchesne Park, SU-1C	170	70,921			
Duchesne Park, SU-1D	108	74,872			
Duchesne Park, SU-1E	45	6,587			
Duchesne Park, SU-2A	167	118,500			
Duchesne Park, SU-2B	167	5,660			
Duchesne Park, SU-2C	121	108,093			
Duchesne Park, SU-2D	142	81,462			
Duchesne Park, SU-2E	26	21,729			
	Total	**525,206**	**1,435**	**43**	**3.9E+05**
St. Cin Park					
St. Cin Park, SU-1I	25	4,950			
St. Cin Park, SU-1J	25	3,950			
St. Cin Park, SU-1K	30	2,067			
St. Cin Park, SU-1L	39	6,054			
	Total	**17,021**	**47**	**8**	**1.3E+04**
SLAPS Loadout					
SLAPS Loadout	366	168,360			
	Total	**168,360**	**460**	**24**	**1.3E+05**

Table A-1-5. SLAPS and SLAPS VPs Airborne Radioactive Particulate Emissions Based on Site Perimeter Air Samples for CY 2016

Property	Duchesne Park			St. Cin Park			SLAPS Loadout		
Radionuclide	Activity Fraction[a]	Emission Conc. (µCi/cm³)[b]	Release Rate (Ci/year)[c]	Activity Fraction[a]	Emission Conc. (µCi/cm³)[b]	Release Rate (Ci/year)[c]	Activity Fraction[a]	Emission Conc. (µCi/cm³)[b]	Release Rate (Ci/year)[c]
U-238	0.08	3.9E-16	7.9E-05	0.08	3.0E-16	2.1E-06	0.08	3.4E-16	2.3E-05
U-235	0.004	1.9E-17	3.9E-06	0.003	1.0E-17	7.0E-08	0.004	1.4E-17	9.7E-07
U-234	0.08	3.9E-16	7.9E-05	0.08	3.0E-16	2.1E-06	0.08	3.4E-16	2.3E-05
Ra-226	0.11	5.1E-16	1.0E-04	0.11	3.9E-16	2.6E-06	0.11	4.4E-16	3.0E-05
Th-232	0.07	3.3E-16	6.7E-05	0.07	2.6E-16	1.8E-06	0.07	2.9E-16	2.0E-05
Th-230	0.48	2.2E-15	4.6E-04	0.48	1.7E-15	1.2E-05	0.48	1.9E-15	1.3E-04
Th-228	0.08	3.6E-16	7.5E-05	0.08	2.9E-16	2.0E-06	0.08	3.2E-16	2.2E-05
Ra-224[d]	0.08	3.6E-16	7.5E-05	0.08	2.9E-16	2.0E-06	0.08	3.2E-16	2.2E-05
Th-234[d]	0.28	1.1E-14	2.3E-03	0.28	1.4E-14	9.6E-05	0.28	9.0E-15	6.2E-04
Pa-234m[d]	0.28	1.1E-14	2.3E-03	0.28	1.4E-14	9.6E-05	0.28	9.0E-15	6.2E-04
Th-231[d]	0.01	5.6E-16	1.1E-04	0.01	4.8E-16	3.3E-06	0.01	3.8E-16	2.6E-05
Ra-228	0.21	8.3E-15	1.7E-03	0.22	1.1E-14	7.4E-05	0.21	6.8E-15	4.7E-04
Ac-228[d]	0.21	8.3E-15	1.7E-03	0.22	1.1E-14	7.4E-05	0.21	6.8E-15	4.7E-04
Pa-231	0.006	2.9E-17	5.9E-06	0.008	2.8E-17	1.9E-07	0.007	2.8E-17	1.9E-06
Ac-227	0.004	1.9E-17	3.9E-06	0.006	2.1E-17	1.4E-07	0.005	2.0E-17	1.4E-06

[a] Derived from the average soil radionuclide concentrations from the *Pre-Design Investigation Summary Report for St. Cin Park, the Archdiocese of St. Louis Property, and Duchesne Park* (USACE 2015). Average soil radionuclide concentrations are presented in Table A-1-1. Activity fractions have been rounded; non-rounded values were used in calculations.

[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 366-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 cm³).

[d] When 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 2016

Site	Type	Gamma Spectroscopy	Isotopic Ra[a]	Isotopic Th[a]	Isotopic U[a]	Total Drying and Grinding[b]	Total Separations[c]
HISS	Soil	0	0	0	0	0	0
HISS	Water	0	4	4	4	0	12
Latty Avenue Properties	Soil	2	0	0	0	2	0
Latty Avenue Properties	Water	0	0	0	0	0	0
IAAAP	Soil	735	0	0	767	735	767
IAAAP	Water	0	0	0	20	0	20
SLAPS	Soil	0	0	0	0	0	0
SLAPS	Water	1	2	2	1	1	5
SLAPS VPs	Soil	948	0	994	0	948	994
SLAPS VPs	Water	4	45	46	15	4	106
CWC	Sediment (soil)	1,531	0	1,777	0	1,531	1,777
CWC	Water	0	18	18	18	0	54
SLDS	Soil	1,105	0	1,108	0	1,105	1,108
SLDS	Water	0	101	105	10	0	216
		HISS and Latty Avenue Properties			**Total**	2	12
		IAAAP			**Total**	735	787
		SLAPS, SLAPS VPs, and CWC			**Total**	2,479	2,936
		SLDS			**Total**	1,105	1,324
					Grand Total	4,321	5,059

[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 2016.
CWC samples use SLAPS characterization data to determine release rates.

Table A-1-7. SLDS Property Laboratory Samples for CY 2016

Radionuclide	Average (pCi/g)	No. Samples (Drying and Grinding)	No. Samples (Separations)	Emission Rate[a] (Ci/year)
U-238[b]	81	1,105	1,324	6.2E-07
U-235[b]	4	1,105	1,324	3.1E-08
U-234[b]	81	1,105	1,324	6.2E-07
Ra-226[b]	20	1,105	1,324	1.5E-07
Th-232[b]	6	1,105	1,324	4.6E-08
Th-230[b]	33	1,105	1,324	2.5E-07
Th-228[b]	6	1,105	1,324	4.6E-08
Ra-224[c]	6	1,105	1,324	4.6E-08
Th-234[c]	81	1,105	1,324	6.2E-07
Pa-234m[c]	81	1,105	1,324	6.2E-07
Th-231[c]	4	1,105	1,324	3.1E-08
Ra-228[c]	6	1,105	1,324	4.6E-08
Ac-228[c]	6	1,105	1,324	4.6E-08
Pa-231[c]	4	1,105	1,324	3.1E-08
Ac-227[c]	4	1,105	1,324	3.1E-08

[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 Table A-1-1 of the *St. Louis Downtown Site Annual Environmental Monitoring Data and Analysis Report for Calendar Year 2016*, Appendix A, Attachment A-1 (USACE 2017).
[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 2016

Radionuclide	Average (pCi/g)	No. Samples (Drying and Grinding)	No. Samples (Separations)	Emission Rate[a] (Ci/year)
U-238[b]	1	2,479	2,936	2.1E-08
U-235[b]	0.1	2,479	2,936	8.6E-10
U-234[b]	1	2,479	2,936	2.1E-08
Ra-226[b]	2	2,479	2,936	2.7E-08
Th-232[b]	1	2,479	2,936	1.7E-08
Th-230[b]	7	2,479	2,936	1.2E-07
Th-228[b]	1	2,479	2,936	2.0E-08
Ra-224[c]	1	2,479	2,936	2.0E-08
Th-234[c]	1	2,479	2,936	2.1E-08
Pa-234m[c]	1	2,479	2,936	2.1E-08
Th-231[c]	0.1	2,479	2,936	8.6E-10
Ra-228[c]	0.9	2,479	2,936	1.6E-08
Ac-228[c]	0.9	2,479	2,936	1.6E-08
Pa-231[b]	0.1	2,479	2,936	1.7E-09
Ac-227[b]	0.1	2,479	2,936	1.2E-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 Table A-1-1.
[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 2016

Radionuclide	Average (pCi/g)[a]	No. Samples (Drying and Grinding)	No. Samples (Separations)	Emission Rate[b] (Ci/year)
U-238	9	2	12	5.8E-10
U-235	0.01	2	12	6.9E-13
U-234	0.3	2	12	1.6E-11
Ra-226	2	2	12	1.2E-10
Th-232	0.01	2	12	4.8E-13
Th-230	2	2	12	1.2E-10
Th-228	21	2	12	1.3E-09
Ra-224	21	2	12	1.3E-09
Th-234	9	2	12	5.8E-10
Pa-234m	9	2	12	5.8E-10
Th-231	0.01	2	12	6.9E-13
Ra-228	0.01	2	12	4.8E-13
Ac-228	0.01	2	12	4.8E-13
Pa-231	0.1	2	12	8.9E-12
Ac-227	0.1	2	12	6.9E-12

[a] Average soil concentration from Table A-1-1.
[b] Emission Rate = (0.001 * Avg * No. Samples [drying and grinding] + 0.005 * Avg * No. Samples [separations]) * (1,000 g * 1E-12Ci/pCi).

Table A-1-10. Iowa Army Ammunition Plant Laboratory Samples for CY 2016

Radionuclide	Average (pCi/g)[a]	No. Samples (Drying and Grinding)	No. Samples (Separations)	Emission Rate[b] (Ci/year)
U-238	623	735	787	2.9E-06
U-235	6	735	787	2.6E-08
U-234	211	735	787	9.9E-07
Ra-226	0	735	787	0.0E+00
Th-232	0	735	787	0.0E+00
Th-230	0	735	787	0.0E+00
Th-228	0	735	787	0.0E+00
Ra-224	0	735	787	0.0E+00
Th-234	0	735	787	0.0E+00
Pa-234m	0	735	787	0.0E+00
Th-231	0	735	787	0.0E+00
Ra-228	0	735	787	0.0E+00
Ac-228	0	735	787	0.0E+00
Pa-231	0	735	787	0.0E+00
Ac-227	0	735	787	0.0E+00

[a] Average soil concentration from Table 2-3 of *FUSRAP Feasibility Study for the Iowa Army Ammunition Plant* (USACE 2011).
[b] Emission Rate = (0.001 * Avg * No. Samples [drying and grinding]+ 0.005 * Avg * No. Samples [separations]) * (1,000 g * 1E-12Ci/pCi).

Table A-1-11. Total Laboratory Airborne Radioactive Particulate Emission Rate for CY 2016

Radionuclide	Emission Rate (Ci/year)				
	SLDS	SLAPS and SLAPS VPs	Latty Avenue Properties	IAAAP	Total Across Laboratory[a]
U-238	6.2E-07	2.1E-08	5.8E-10	2.9E-06	3.6E-06
U-235	3.1E-08	8.6E-10	6.9E-13	2.6E-08	5.8E-08
U-234	6.2E-07	2.1E-08	1.6E-11	9.9E-07	1.6E-06
Ra-226	1.5E-07	2.7E-08	1.2E-10	0.0E+00	1.8E-07
Th-232	4.6E-08	1.7E-08	4.8E-13	0.0E+00	6.4E-08
Th-230	2.5E-07	1.2E-07	1.2E-10	0.0E+00	3.7E-07
Th-228	4.6E-08	2.0E-08	1.3E-09	0.0E+00	6.7E-08
Ra-224	4.6E-08	2.0E-08	1.3E-09	0.0E+00	6.7E-08
Th-234	6.2E-07	2.1E-08	5.8E-10	0.0E+00	6.4E-07
Pa-234m	6.2E-07	2.1E-08	5.8E-10	0.0E+00	6.4E-07
Th-231	3.1E-08	8.6E-10	6.9E-13	0.0E+00	3.2E-08
Ra-228	4.6E-08	1.6E-08	4.8E-13	0.0E+00	6.2E-08
Ac-228	4.6E-08	1.6E-08	4.8E-13	0.0E+00	6.2E-08
Pa-231	3.1E-08	1.7E-09	8.9E-12	0.0E+00	3.3E-08
Ac-227	3.1E-08	1.2E-09	6.9E-12	0.0E+00	3.2E-08

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

ATTACHMENT A-2

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

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CAP88-PC RUNS FOR THE SLAPS AND SLAPS VICINITY PROPERTIES

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CAP88 OUTPUT RESULTS

Duchesne Park

C A P 8 8 - P C

Version 4.0

Clean Air Act Assessment Package - 1988

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

          Non-Radon Individual Assessment
               Tue Mar 14 14:43:04 2017


     Facility:  2016 Duchesne Park
      Address:  5 Brower Ln
         City:  Florissant
        State:  MO          Zip:  63031


Source Category:  Area
    Source Type:  Area
  Emission Year:  2016
 DOSE Age Group:  Adult

       Comments:  Air
                Air


   Dataset Name:  2016 Duchesne Pa
   Dataset Date:  Mar 14, 2017 02:42 PM
      Wind File:  C:\Users\hansenra\Documents\CAP88\Wind Files\13994.WND
```

Tue Mar 14 14:43:04 2017

SUMMARY
Page 1

ORGAN DOSE EQUIVALENT SUMMARY

Organ	Selected Individual (mrem)
Adrenal	1.32E+00
UB_Wall	1.45E+00
Bone_Sur	7.51E+01
Brain	1.39E+00
Breasts	1.50E+00
St_Wall	1.40E+00
SI_Wall	1.39E+00
ULI_Wall	1.45E+00
LLI_Wall	1.58E+00
Kidneys	2.59E+00
Liver	3.59E+00
Muscle	1.54E+00
Ovaries	1.78E+00
Pancreas	1.33E+00
R_Marrow	5.96E+00
Skin	9.59E+00
Spleen	1.41E+00
Testes	1.97E+00
Thymus	1.39E+00
Thyroid	1.44E+00
GB_Wall	1.34E+00
Ht_Wall	1.39E+00
Uterus	1.38E+00
ET_Reg	6.79E+00
Lung_66	1.75E+01
Effectiv	4.95E+00

PATHWAY COMMITTED EFFECTIVE DOSE EQUIVALENT SUMMARY

Pathway	Selected Individual (mrem)
INGESTION	5.71E-01
INHALATION	3.08E+00
AIR IMMERSION	8.23E-05
GROUND SURFACE	1.30E+00
INTERNAL	3.65E+00
EXTERNAL	1.30E+00
TOTAL	4.95E+00

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Page 2

NUCLIDE COMMITTED EFFECTIVE DOSE EQUIVALENT SUMMARY

Nuclide	Selected Individual (mrem)
U-238	3.49E-02
Th-234	4.91E-03
Pa-234m	1.34E-02
Pa-234	2.64E-04
U-234	4.20E-02
Th-230	1.18E+00
Ra-226	7.44E-02
Rn-222	5.58E-05
Po-218	9.98E-10
Pb-214	3.64E-02
At-218	3.75E-09
Bi-214	2.13E-01
Rn-218	2.17E-11
Po-214	1.18E-05
Tl-210	8.32E-05
Pb-210	1.78E-04
Bi-210	2.88E-03
Hg-206	2.33E-10
Po-210	7.47E-07
Tl-206	6.73E-09
U-235	2.67E-03
Th-231	8.99E-05
Pa-231	1.04E-01
Ac-227	5.18E-02
Th-227	8.09E-04
Fr-223	7.62E-06
Ra-223	9.05E-04
Rn-219	3.92E-04
At-219	0.00E+00
Bi-215	1.76E-09
Po-215	1.20E-06
Pb-211	7.69E-04
Bi-211	3.17E-04
Tl-207	3.98E-04
Po-211	1.53E-07
Th-232	3.17E-01
Ra-228	1.32E+00
Ac-228	4.05E-01
Th-228	4.79E-01
Ra-224	3.50E-02
Rn-220	2.76E-04
Po-216	6.66E-06
Pb-212	6.06E-02
Bi-212	7.07E-02
Po-212	0.00E+00
Tl-208	4.89E-01
TOTAL	4.95E+00

Tue Mar 14 14:43:04 2017 SUMMARY
Page 3

CANCER RISK SUMMARY

Cancer	Selected Individual Total Lifetime Fatal Cancer Risk

PATHWAY RISK SUMMARY

Pathway	Selected Individual Total Lifetime Fatal Cancer Risk
INGESTION	5.70E-08
INHALATION	7.22E-07
AIR IMMERSION	4.43E-11
GROUND SURFACE	6.81E-07
INTERNAL	7.79E-07
EXTERNAL	6.81E-07
TOTAL	1.46E-06

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Page 4

NUCLIDE RISK SUMMARY

Nuclide	Selected Individual Total Lifetime Fatal Cancer Risk
U-238	1.16E-08
Th-234	1.77E-09
Pa-234m	2.34E-09
Pa-234	1.43E-10
U-234	1.44E-08
Th-230	2.62E-07
Ra-226	4.03E-08
Rn-222	3.05E-11
Po-218	4.46E-16
Pb-214	1.95E-08
At-218	4.62E-16
Bi-214	1.13E-07
Rn-218	1.19E-17
Po-214	6.48E-12
Tl-210	4.44E-11
Pb-210	7.99E-11
Bi-210	3.19E-10
Hg-206	1.03E-16
Po-210	4.10E-13
Tl-206	7.57E-16
U-235	1.06E-09
Th-231	4.04E-11
Pa-231	4.48E-09
Ac-227	6.48E-09
Th-227	4.38E-10
Fr-223	2.84E-12
Ra-223	4.89E-10
Rn-219	2.14E-10
At-219	0.00E+00
Bi-215	7.86E-16
Po-215	6.56E-13
Pb-211	2.75E-10
Bi-211	1.73E-10
Tl-207	5.12E-11
Po-211	8.35E-14
Th-232	6.94E-08
Ra-228	1.86E-07
Ac-228	2.14E-07
Th-228	1.72E-07
Ra-224	1.35E-08
Rn-220	1.51E-10
Po-216	3.66E-12
Pb-212	3.30E-08
Bi-212	2.73E-08
Po-212	0.00E+00
Tl-208	2.66E-07
TOTAL	1.46E-06

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SUMMARY
Page 5

INDIVIDUAL COMMITTED EFFECTIVE DOSE EQUIVALENT (mrem)[a]
(All Radionuclides and Pathways)

Direction	Distance (m) 70	150	600	4500	
N	4.8E+00	1.8E+00	5.5E-01	4.4E-01	
NNW	3.5E+00	1.1E+00	4.9E-01	4.4E-01	
NW	3.6E+00	1.3E+00	5.0E-01	4.4E-01	
WNW	4.0E+00	1.5E+00	5.2E-01	4.4E-01	Farm
W	3.2E+00	1.2E+00	5.0E-01	4.4E-01	Business
WSW	2.1E+00	8.1E-01	4.7E-01	4.4E-01	
SW	2.4E+00	9.7E-01	4.8E-01	4.4E-01	
SSW	2.7E+00	1.1E+00	4.9E-01	4.4E-01	
S	2.5E+00	1.0E+00	4.8E-01	4.4E-01	
SSE	2.1E+00	8.3E-01	4.7E-01	4.4E-01	
SSE	2.7E+00	1.0E+00	4.8E-01	4.4E-01	
ESE	4.0E+00	1.4E+00	5.1E-01	4.4E-01	
E	4.9E+00	1.8E+00	5.4E-01	4.4E-01	School
ENE	4.3E+00	1.5E+00	5.2E-01	4.4E-01	
NE	3.0E+00	1.1E+00	4.9E-01	4.4E-01	Residence
NNE	3.0E+00	9.9E-01	4.8E-01	4.4E-01	

[a] Highlighted EDE values (mrem) are applicable to the critical receptors as defined in the 2016 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.

Tue Mar 14 14:43:04 2017

SUMMARY
Page 6

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

	Distance (m)			
Direction	70	150	600	4500
N	1.4E-06	4.8E-07	7.8E-08	4.5E-08
NNW	1.0E-06	2.7E-07	6.1E-08	4.4E-08
NW	1.0E-06	3.1E-07	6.4E-08	4.4E-08
WNW	1.2E-06	3.7E-07	6.8E-08	4.4E-08
W	9.2E-07	2.9E-07	6.2E-08	4.4E-08
WSW	5.7E-07	1.6E-07	5.3E-08	4.4E-08
SW	6.5E-07	2.1E-07	5.6E-08	4.4E-08
SSW	7.6E-07	2.5E-07	5.9E-08	4.4E-08
S	7.0E-07	2.2E-07	5.8E-08	4.4E-08
SSE	5.7E-07	1.7E-07	5.3E-08	4.4E-08
SSE	7.6E-07	2.3E-07	5.8E-08	4.4E-08
ESE	1.2E-06	3.6E-07	6.8E-08	4.4E-08
E	1.5E-06	4.6E-07	7.5E-08	4.5E-08
ENE	1.2E-06	3.9E-07	7.0E-08	4.4E-08
NE	8.6E-07	2.5E-07	6.0E-08	4.4E-08
NNE	8.4E-07	2.2E-07	5.7E-08	4.4E-08

CAP88 OUTPUT RESULTS

St. Cin Park

```
                    C A P 8 8 - P C

                      Version 4.0

          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
                   Tue Mar 14 14:38:33 2017


       Facility:  2016 St Cin Park
        Address:  135 St. Cin Lane
           City:  Hazelwood
          State:  MO         Zip:  63042


 Source Category:  Area
     Source Type:  Area
   Emission Year:  2016
  DOSE Age Group:  Adult

        Comments:  Air
                 Air


    Dataset Name:  2016 St Cin Park
    Dataset Date:  Mar 14, 2017 02:38 PM
       Wind File:  C:\Users\hansenra\Documents\CAP88\Wind Files\13994.WND
```

Tue Mar 14 14:38:33 2017 SUMMARY
Page 1

ORGAN DOSE EQUIVALENT SUMMARY

Organ	Selected Individual (mrem)
Adrenal	3.15E-02
UB_Wall	3.47E-02
Bone_Sur	1.63E+00
Brain	3.31E-02
Breasts	3.58E-02
St_Wall	3.34E-02
SI_Wall	3.32E-02
ULI_Wall	3.47E-02
LLI_Wall	3.78E-02
Kidneys	5.96E-02
Liver	8.56E-02
Muscle	3.69E-02
Ovaries	4.12E-02
Pancreas	3.19E-02
R_Marrow	1.41E-01
Skin	2.21E-01
Spleen	3.36E-02
Testes	4.57E-02
Thymus	3.32E-02
Thyroid	3.43E-02
GB_Wall	3.19E-02
Ht_Wall	3.31E-02
Uterus	3.29E-02
ET_Reg	1.34E-01
Lung_66	3.31E-01
Effectiv	1.05E-01

PATHWAY COMMITTED EFFECTIVE DOSE EQUIVALENT SUMMARY

Pathway	Selected Individual (mrem)
INGESTION	1.42E-02
INHALATION	6.03E-02
AIR IMMERSION	2.24E-06
GROUND SURFACE	3.10E-02
INTERNAL	7.45E-02
EXTERNAL	3.10E-02
TOTAL	1.05E-01

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Page 2

NUCLIDE COMMITTED EFFECTIVE DOSE EQUIVALENT SUMMARY

Nuclide	Selected Individual (mrem)
U-238	5.80E-04
Th-234	1.19E-04
Pa-234m	2.33E-04
Pa-234	4.59E-06
U-234	7.00E-04
Th-230	1.94E-02
Ra-226	1.19E-03
Rn-222	9.18E-07
Po-218	1.64E-11
Pb-214	6.00E-04
At-218	6.17E-11
Bi-214	3.50E-03
Rn-218	3.57E-13
Po-214	1.94E-07
Tl-210	1.37E-06
Pb-210	2.93E-06
Bi-210	4.74E-05
Hg-206	3.83E-12
Po-210	1.23E-08
Tl-206	1.11E-10
U-235	3.01E-05
Th-231	1.06E-06
Pa-231	2.09E-03
Ac-227	1.17E-03
Th-227	1.71E-05
Fr-223	1.61E-07
Ra-223	1.92E-05
Rn-219	8.30E-06
At-219	0.00E+00
Bi-215	3.73E-11
Po-215	2.53E-08
Pb-211	1.63E-05
Bi-211	6.71E-06
Tl-207	8.44E-06
Po-211	3.23E-09
Th-232	5.34E-03
Ra-228	3.54E-02
Ac-228	1.04E-02
Th-228	8.02E-03
Ra-224	6.24E-04
Rn-220	7.09E-06
Po-216	1.71E-07
Pb-212	1.56E-03
Bi-212	1.82E-03
Po-212	0.00E+00
Tl-208	1.25E-02
TOTAL	1.05E-01

Tue Mar 14 14:38:33 2017 SUMMARY
Page 3

CANCER RISK SUMMARY

Cancer	Selected Individual Total Lifetime Fatal Cancer Risk

PATHWAY RISK SUMMARY

Pathway	Selected Individual Total Lifetime Fatal Cancer Risk
INGESTION	1.21E-09
INHALATION	1.37E-08
AIR IMMERSION	1.21E-12
GROUND SURFACE	1.62E-08
INTERNAL	1.49E-08
EXTERNAL	1.62E-08
TOTAL	3.12E-08

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Page 4

NUCLIDE RISK SUMMARY

Nuclide	Selected Individual Total Lifetime Fatal Cancer Risk
U-238	1.93E-10
Th-234	4.16E-11
Pa-234m	4.08E-11
Pa-234	2.50E-12
U-234	2.41E-10
Th-230	4.28E-09
Ra-226	6.40E-10
Rn-222	5.01E-13
Po-218	7.33E-18
Pb-214	3.21E-10
At-218	7.60E-18
Bi-214	1.85E-09
Rn-218	1.95E-19
Po-214	1.07E-13
Tl-210	7.31E-13
Pb-210	1.31E-12
Bi-210	5.26E-12
Hg-206	1.70E-18
Po-210	6.74E-15
Tl-206	1.24E-17
U-235	1.20E-11
Th-231	4.72E-13
Pa-231	9.04E-11
Ac-227	1.46E-10
Th-227	9.28E-12
Fr-223	6.01E-14
Ra-223	1.03E-11
Rn-219	4.54E-12
At-219	0.00E+00
Bi-215	1.66E-17
Po-215	1.39E-14
Pb-211	5.82E-12
Bi-211	3.67E-12
Tl-207	1.08E-12
Po-211	1.77E-15
Th-232	1.17E-09
Ra-228	5.04E-09
Ac-228	5.53E-09
Th-228	2.88E-09
Ra-224	2.47E-10
Rn-220	3.88E-12
Po-216	9.40E-14
Pb-212	8.47E-10
Bi-212	7.00E-10
Po-212	0.00E+00
Tl-208	6.82E-09
TOTAL	3.12E-08

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INDIVIDUAL COMMITTED EFFECTIVE DOSE EQUIVALENT (mrem)[a]
(All Radionuclides and Pathways)

Direction	Distance (m) 100	850	4500	
N	1.1E-01	1.3E-02	1.1E-02	
NNW	5.9E-02	1.2E-02	1.1E-02	
NW	6.8E-02	1.2E-02	1.1E-02	Residence
WNW	8.1E-02	1.2E-02	1.1E-02	Farm
W	6.4E-02	1.2E-02	1.1E-02	
WSW	3.6E-02	1.1E-02	1.1E-02	
SW	4.7E-02	1.1E-02	1.1E-02	
SSW	5.5E-02	1.2E-02	1.1E-02	
S	5.0E-02	1.1E-02	1.1E-02	
SSE	3.8E-02	1.1E-02	1.1E-02	
SSE	5.0E-02	1.2E-02	1.1E-02	
ESE	7.8E-02	1.2E-02	1.1E-02	
E	1.0E-01	1.2E-02	1.1E-02	Business
ENE	8.4E-02	1.2E-02	1.1E-02	
NE	5.6E-02	1.2E-02	1.1E-02	School
NNE	4.8E-02	1.1E-02	1.1E-02	

[a] Highlighted EDE values (mrem) are applicable to the critical receptors as defined in the 2016 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.

Tue Mar 14 14:38:33 2017

SUMMARY
Page 6

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

	Distance (m)		
Direction	100	850	4500
N	3.1E-08	1.5E-09	9.5E-10
NNW	1.6E-08	1.2E-09	9.3E-10
NW	1.9E-08	1.3E-09	9.3E-10
WNW	2.3E-08	1.4E-09	9.4E-10
W	1.8E-08	1.2E-09	9.3E-10
WSW	9.0E-09	1.1E-09	9.2E-10
SW	1.2E-08	1.1E-09	9.2E-10
SSW	1.5E-08	1.2E-09	9.2E-10
S	1.3E-08	1.2E-09	9.2E-10
SSE	9.6E-09	1.1E-09	9.2E-10
SSE	1.3E-08	1.2E-09	9.2E-10
ESE	2.2E-08	1.3E-09	9.4E-10
E	2.9E-08	1.5E-09	9.4E-10
ENE	2.4E-08	1.4E-09	9.4E-10
NE	1.5E-08	1.2E-09	9.2E-10
NNE	1.3E-08	1.1E-09	9.2E-10

CAP88 OUTPUT RESULTS

SLAPS Loadout

C A P 8 8 - P C

Version 4.0

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
Tue Mar 14 14:45:39 2017

```
     Facility:  SLAPS Loadout
      Address:  1110 James S. McDonnell Boulevard
         City:  Hazelwood
        State:  MO          Zip:  63042

 Source Category:  Area
     Source Type:  Area
   Emission Year:  2016
  DOSE Age Group:  Adult

        Comments:  Air
                Air

    Dataset Name:  2016 SLAPS Loado
    Dataset Date:  Mar 14, 2017 02:45 PM
       Wind File:  C:\Users\hansenra\Documents\CAP88\Wind Files\13994.WND
```

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SUMMARY
Page 1

ORGAN DOSE EQUIVALENT SUMMARY

Organ	Selected Individual (mrem)
Adrenal	1.33E-02
UB_Wall	1.46E-02
Bone_Sur	7.29E-01
Brain	1.39E-02
Breasts	1.51E-02
St_Wall	1.41E-02
SI_Wall	1.40E-02
ULI_Wall	1.46E-02
LLI_Wall	1.59E-02
Kidneys	2.54E-02
Liver	3.59E-02
Muscle	1.55E-02
Ovaries	1.77E-02
Pancreas	1.34E-02
R_Marrow	5.87E-02
Skin	9.68E-02
Spleen	1.41E-02
Testes	1.96E-02
Thymus	1.40E-02
Thyroid	1.44E-02
GB_Wall	1.34E-02
Ht_Wall	1.39E-02
Uterus	1.38E-02
ET_Reg	6.42E-02
Lung_66	1.65E-01
Effectiv	4.79E-02

PATHWAY COMMITTED EFFECTIVE DOSE EQUIVALENT SUMMARY

Pathway	Selected Individual (mrem)
INGESTION	6.06E-03
INHALATION	2.88E-02
AIR IMMERSION	7.40E-07
GROUND SURFACE	1.31E-02
INTERNAL	3.48E-02
EXTERNAL	1.31E-02
TOTAL	4.79E-02

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SUMMARY
Page 2

NUCLIDE COMMITTED EFFECTIVE DOSE EQUIVALENT SUMMARY

Nuclide	Selected Individual (mrem)
U-238	3.32E-04
Th-234	4.59E-05
Pa-234m	1.37E-04
Pa-234	2.71E-06
U-234	4.01E-04
Th-230	1.09E-02
Ra-226	7.65E-04
Rn-222	5.90E-07
Po-218	1.06E-11
Pb-214	3.86E-04
At-218	3.97E-11
Bi-214	2.25E-03
Rn-218	2.30E-13
Po-214	1.25E-07
Tl-210	8.80E-07
Pb-210	1.89E-06
Bi-210	3.05E-05
Hg-206	2.46E-12
Po-210	7.90E-09
Tl-206	7.12E-11
U-235	2.23E-05
Th-231	7.85E-07
Pa-231	1.09E-03
Ac-227	6.06E-04
Th-227	9.59E-06
Fr-223	9.04E-08
Ra-223	1.07E-05
Rn-219	4.64E-06
At-219	0.00E+00
Bi-215	2.09E-11
Po-215	1.42E-08
Pb-211	9.12E-06
Bi-211	3.76E-06
Tl-207	4.72E-06
Po-211	1.81E-09
Th-232	3.09E-03
Ra-228	1.27E-02
Ac-228	4.01E-03
Th-228	4.58E-03
Ra-224	3.36E-04
Rn-220	2.74E-06
Po-216	6.61E-08
Pb-212	6.02E-04
Bi-212	7.02E-04
Po-212	0.00E+00
Tl-208	4.85E-03
TOTAL	4.79E-02

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CANCER RISK SUMMARY

Cancer	Selected Individual Total Lifetime Fatal Cancer Risk

PATHWAY RISK SUMMARY

Pathway	Selected Individual Total Lifetime Fatal Cancer Risk
INGESTION	6.23E-10
INHALATION	6.75E-09
AIR IMMERSION	3.98E-13
GROUND SURFACE	6.85E-09
INTERNAL	7.37E-09
EXTERNAL	6.85E-09
TOTAL	1.42E-08

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NUCLIDE RISK SUMMARY

Nuclide	Selected Individual Total Lifetime Fatal Cancer Risk
U-238	1.10E-10
Th-234	1.66E-11
Pa-234m	2.40E-11
Pa-234	1.47E-12
U-234	1.38E-10
Th-230	2.41E-09
Ra-226	4.31E-10
Rn-222	3.22E-13
Po-218	4.71E-18
Pb-214	2.06E-10
At-218	4.89E-18
Bi-214	1.19E-09
Rn-218	1.26E-19
Po-214	6.85E-14
Tl-210	4.70E-13
Pb-210	8.45E-13
Bi-210	3.38E-12
Hg-206	1.09E-18
Po-210	4.34E-15
Tl-206	8.01E-18
U-235	8.93E-12
Th-231	3.53E-13
Pa-231	4.71E-11
Ac-227	7.57E-11
Th-227	5.19E-12
Fr-223	3.37E-14
Ra-223	5.79E-12
Rn-219	2.54E-12
At-219	0.00E+00
Bi-215	9.31E-18
Po-215	7.77E-15
Pb-211	3.26E-12
Bi-211	2.05E-12
Tl-207	6.07E-13
Po-211	9.90E-16
Th-232	6.74E-10
Ra-228	1.73E-09
Ac-228	2.13E-09
Th-228	1.64E-09
Ra-224	1.30E-10
Rn-220	1.50E-12
Po-216	3.63E-14
Pb-212	3.27E-10
Bi-212	2.71E-10
Po-212	0.00E+00
Tl-208	2.64E-09
TOTAL	1.42E-08

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SUMMARY
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INDIVIDUAL COMMITTED EFFECTIVE DOSE EQUIVALENT (mrem)[a]
(All Radionuclides and Pathways)

	Distance (m)				
Direction	500	770	1710	2580	
N	4.8E-02	2.4E-02	9.7E-03	7.3E-03	
NNW	2.7E-02	1.5E-02	7.3E-03	6.1E-03	
NW	3.1E-02	1.6E-02	7.7E-03	6.2E-03	
WNW	3.6E-02	1.9E-02	8.3E-03	6.5E-03	
W	2.9E-02	1.5E-02	7.4E-03	6.1E-03	
WSW	1.6E-02	9.9E-03	6.0E-03	5.4E-03	Business
SW	2.1E-02	1.2E-02	6.5E-03	5.6E-03	
SSW	2.5E-02	1.4E-02	6.9E-03	5.9E-03	
S	2.2E-02	1.3E-02	6.8E-03	5.8E-03	
SSE	1.7E-02	1.0E-02	6.2E-03	5.5E-03	
SSE	2.3E-02	1.3E-02	6.8E-03	5.8E-03	
ESE	3.6E-02	1.8E-02	8.2E-03	6.5E-03	
E	4.5E-02	2.2E-02	9.1E-03	7.0E-03	school
ENE	3.8E-02	1.9E-02	8.4E-03	6.6E-03	
NE	2.5E-02	1.4E-02	7.0E-03	5.9E-03	Residence (770); Farm (1710)
NNE	2.2E-02	1.2E-02	6.7E-03	5.7E-03	

[a] Highlighted EDE values (mrem) are applicable to the critical receptors as defined in the 2016 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.

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

Direction	Distance (m) 500	770	1710	2580
N	1.4E-08	6.7E-09	2.1E-09	1.3E-09
NNW	7.5E-09	3.7E-09	1.3E-09	9.2E-10
NW	8.7E-09	4.2E-09	1.4E-09	9.7E-10
WNW	1.1E-08	5.0E-09	1.6E-09	1.1E-09
W	8.1E-09	3.9E-09	1.4E-09	9.3E-10
WSW	4.1E-09	2.1E-09	9.0E-10	7.0E-10
SW	5.6E-09	2.8E-09	1.1E-09	7.8E-10
SSW	6.8E-09	3.3E-09	1.2E-09	8.5E-10
S	6.1E-09	3.0E-09	1.1E-09	8.3E-10
SSE	4.4E-09	2.3E-09	9.5E-10	7.3E-10
SSE	6.2E-09	3.1E-09	1.2E-09	8.3E-10
ESE	1.0E-08	4.9E-09	1.6E-09	1.1E-09
E	1.3E-08	6.1E-09	1.9E-09	1.2E-09
ENE	1.1E-08	5.2E-09	1.7E-09	1.1E-09
NE	6.9E-09	3.4E-09	1.2E-09	8.6E-10
NNE	5.9E-09	2.9E-09	1.1E-09	8.1E-10

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CAP88 OUTPUT RESULTS

USACE Laboratory

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                         C A P 8 8 - P C

                           Version 4.0

              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
                       Tue Mar 14 15:03:40 2017


      Facility:  USACE Lab
       Address:  Latty Ave
          City:  Berkely
         State:  MO          Zip:  63134


 Source Category:  Stack
     Source Type:  Stack
   Emission Year:  2016
  DOSE Age Group:  Adult

        Comments:  Air
                 Air


    Dataset Name:  2016 USACE Lab.
    Dataset Date:  Mar 14, 2017 03:03 PM
       Wind File:  C:\Users\hansenra\Documents\CAP88\Wind Files\13994.WND
```

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Page 1

ORGAN DOSE EQUIVALENT SUMMARY

Organ	Selected Individual (mrem)
Adrenal	3.52E-04
UB_Wall	3.79E-04
Bone_Sur	2.40E-02
Brain	3.65E-04
Breasts	4.05E-04
St_Wall	4.04E-04
SI_Wall	4.50E-04
ULI_Wall	8.81E-04
LLI_Wall	1.84E-03
Kidneys	1.12E-03
Liver	1.60E-03
Muscle	4.09E-04
Ovaries	5.30E-04
Pancreas	3.52E-04
R_Marrow	1.36E-03
Skin	2.37E-02
Spleen	3.73E-04
Testes	5.84E-04
Thymus	3.69E-04
Thyroid	3.84E-04
GB_Wall	3.55E-04
Ht_Wall	3.67E-04
Uterus	3.62E-04
ET_Reg	3.04E-03
Lung_66	1.20E-02
Effectiv	2.58E-03

PATHWAY COMMITTED EFFECTIVE DOSE EQUIVALENT SUMMARY

Pathway	Selected Individual (mrem)
INGESTION	1.43E-04
INHALATION	1.92E-03
AIR IMMERSION	4.08E-07
GROUND SURFACE	5.14E-04
INTERNAL	2.07E-03
EXTERNAL	5.14E-04
TOTAL	2.58E-03

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NUCLIDE COMMITTED EFFECTIVE DOSE EQUIVALENT SUMMARY

Nuclide	Selected Individual (mrem)
U-238	5.09E-04
Th-234	3.70E-04
Pa-234m	2.64E-04
Pa-234	5.20E-06
U-234	2.73E-04
Th-230	3.05E-04
Ra-226	4.30E-05
Rn-222	3.20E-08
Po-218	5.72E-13
Pb-214	2.09E-05
At-218	2.15E-12
Bi-214	1.22E-04
Rn-218	1.25E-14
Po-214	6.77E-09
Tl-210	4.77E-08
Pb-210	1.03E-07
Bi-210	1.66E-06
Hg-206	1.34E-13
Po-210	4.30E-10
Tl-206	3.88E-12
U-235	1.29E-05
Th-231	4.16E-07
Pa-231	1.86E-04
Ac-227	1.36E-04
Th-227	1.74E-06
Fr-223	1.64E-08
Ra-223	1.94E-06
Rn-219	8.41E-07
At-219	0.00E+00
Bi-215	3.78E-12
Po-215	2.57E-09
Pb-211	1.65E-06
Bi-211	6.81E-07
Tl-207	8.56E-07
Po-211	3.28E-10
Th-232	9.70E-05
Ra-228	1.55E-05
Ac-228	2.52E-05
Th-228	1.37E-04
Ra-224	9.03E-06
Rn-220	1.81E-08
Po-216	4.36E-10
Pb-212	3.97E-06
Bi-212	4.63E-06
Po-212	0.00E+00
Tl-208	3.20E-05
TOTAL	2.58E-03

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CANCER RISK SUMMARY

Cancer	Selected Individual Total Lifetime Fatal Cancer Risk

PATHWAY RISK SUMMARY

Pathway	Selected Individual Total Lifetime Fatal Cancer Risk
INGESTION	3.77E-11
INHALATION	5.31E-10
AIR IMMERSION	1.63E-13
GROUND SURFACE	1.77E-10
INTERNAL	5.69E-10
EXTERNAL	1.77E-10
TOTAL	7.46E-10

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NUCLIDE RISK SUMMARY

Nuclide	Selected Individual Total Lifetime Fatal Cancer Risk
U-238	1.69E-10
Th-234	1.23E-10
Pa-234m	4.63E-11
Pa-234	2.83E-12
U-234	9.37E-11
Th-230	6.75E-11
Ra-226	2.33E-11
Rn-222	1.75E-14
Po-218	2.56E-19
Pb-214	1.12E-11
At-218	2.65E-19
Bi-214	6.46E-11
Rn-218	6.82E-21
Po-214	3.72E-15
Tl-210	2.55E-14
Pb-210	4.60E-14
Bi-210	1.84E-13
Hg-206	5.95E-20
Po-210	2.36E-16
Tl-206	4.36E-19
U-235	5.14E-12
Th-231	1.90E-13
Pa-231	8.03E-12
Ac-227	1.70E-11
Th-227	9.41E-13
Fr-223	6.10E-15
Ra-223	1.05E-12
Rn-219	4.60E-13
At-219	0.00E+00
Bi-215	1.69E-18
Po-215	1.41E-15
Pb-211	5.91E-13
Bi-211	3.72E-13
Tl-207	1.10E-13
Po-211	1.79E-16
Th-232	2.12E-11
Ra-228	2.18E-12
Ac-228	1.34E-11
Th-228	4.91E-11
Ra-224	3.33E-12
Rn-220	9.90E-15
Po-216	2.40E-16
Pb-212	2.16E-12
Bi-212	1.79E-12
Po-212	0.00E+00
Tl-208	1.74E-11
TOTAL	7.46E-10

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INDIVIDUAL COMMITTED EFFECTIVE DOSE EQUIVALENT (mrem)[a]
(All Radionuclides and Pathways)

	Distance (m)				
Direction	110	300	310	1830	
N	2.6E-03	7.1E-04	6.8E-04	1.3E-04	
NNW	1.4E-03	4.2E-04	4.0E-04	1.2E-04	
NW	1.5E-03	4.7E-04	4.5E-04	1.2E-04	
WNW	1.7E-03	5.5E-04	5.3E-04	1.2E-04	
W	1.4E-03	4.4E-04	4.2E-04	1.2E-04	
WSW	7.4E-04	2.7E-04	2.6E-04	1.1E-04	
SW	9.2E-04	3.3E-04	3.2E-04	1.1E-04	
SSW	1.1E-03	3.8E-04	3.7E-04	1.1E-04	
S	1.2E-03	3.5E-04	3.4E-04	1.1E-04	Business
SSE	8.7E-04	2.8E-04	2.7E-04	1.1E-04	
SSE	1.2E-03	3.6E-04	3.5E-04	1.1E-04	School
ESE	1.7E-03	5.4E-04	5.1E-04	1.2E-04	
E	2.0E-03	6.7E-04	6.4E-04	1.3E-04	
ENE	1.7E-03	5.7E-04	5.4E-04	1.2E-04	
NE	1.2E-03	3.9E-04	3.7E-04	1.1E-04	Residence (300); Farm (310)
NNE	1.1E-03	3.4E-04	3.3E-04	1.1E-04	

[a] Highlighted EDE values (mrem) are applicable to the critical receptors as defined in the 2016 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.

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

	Distance (m)			
Direction	110	300	310	1830
N	7.5E-10	2.0E-10	2.0E-10	3.5E-11
NNW	4.2E-10	1.2E-10	1.1E-10	3.1E-11
NW	4.3E-10	1.3E-10	1.3E-10	3.2E-11
WNW	5.0E-10	1.6E-10	1.5E-10	3.3E-11
W	4.0E-10	1.3E-10	1.2E-10	3.1E-11
WSW	2.1E-10	7.5E-11	7.2E-11	2.9E-11
SW	2.6E-10	9.4E-11	9.0E-11	3.0E-11
SSW	3.1E-10	1.1E-10	1.0E-10	3.1E-11
S	3.3E-10	1.0E-10	9.6E-11	3.0E-11
SSE	2.5E-10	7.9E-11	7.6E-11	2.9E-11
SSE	3.4E-10	1.0E-10	9.8E-11	3.0E-11
ESE	5.0E-10	1.5E-10	1.5E-10	3.3E-11
E	5.9E-10	1.9E-10	1.8E-10	3.4E-11
ENE	4.8E-10	1.6E-10	1.6E-10	3.3E-11
NE	3.5E-10	1.1E-10	1.1E-10	3.1E-11
NNE	3.1E-10	9.8E-11	9.4E-11	3.0E-11

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APPENDIX B

ENVIRONMENTAL THERMOLUMINESCENT DOSIMETER, ALPHA TRACK DETECTOR, AND PERIMETER AIR DATA

(On the CD-ROM on the Back Cover of this Report)

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Table B-1. Background Air Particulate Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
HIS184809	BAP-001	01/04/16	Gross Alpha/Beta	Gross Alpha	8.09E-15	1.68E-15	7.25E-16	µCi/mL	=		HISS (General Air)-Perimeter Air
HIS184809	BAP-001	01/04/16	Gross Alpha/Beta	Gross Beta	2.51E-14	2.91E-15	1.17E-15	µCi/mL	=		HISS (General Air)-Perimeter Air
HIS184810	BAP-001	01/11/16	Gross Alpha/Beta	Gross Alpha	2.98E-15	9.60E-16	6.43E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184810	BAP-001	01/11/16	Gross Alpha/Beta	Gross Beta	1.24E-14	1.83E-15	1.03E-15	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184811	BAP-001	01/19/16	Gross Alpha/Beta	Gross Alpha	6.80E-15	1.33E-15	5.37E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184811	BAP-001	01/19/16	Gross Alpha/Beta	Gross Beta	2.49E-14	2.62E-15	8.63E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184812	BAP-001	01/25/16	Gross Alpha/Beta	Gross Alpha	2.74E-15	1.01E-15	7.54E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184812	BAP-001	01/25/16	Gross Alpha/Beta	Gross Beta	1.80E-14	2.42E-15	1.21E-15	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184813	BAP-001	02/01/16	Gross Alpha/Beta	Gross Alpha	3.72E-15	1.06E-15	6.34E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184813	BAP-001	02/01/16	Gross Alpha/Beta	Gross Beta	1.62E-14	2.11E-15	1.02E-15	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184814	BAP-001	02/08/16	Gross Alpha/Beta	Gross Alpha	4.25E-15	1.16E-15	6.67E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184814	BAP-001	02/08/16	Gross Alpha/Beta	Gross Beta	1.74E-14	2.25E-15	1.07E-15	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184815	BAP-001	02/15/16	Gross Alpha/Beta	Gross Alpha	1.67E-15	7.10E-16	5.95E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184815	BAP-001	02/15/16	Gross Alpha/Beta	Gross Beta	1.70E-14	2.12E-15	9.56E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184816	BAP-001	02/22/16	Gross Alpha/Beta	Gross Alpha	2.37E-15	8.86E-16	6.72E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184816	BAP-001	02/22/16	Gross Alpha/Beta	Gross Beta	2.01E-14	2.46E-15	1.08E-15	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184817	BAP-001	02/29/16	Gross Alpha/Beta	Gross Alpha	2.70E-15	8.80E-16	5.95E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184817	BAP-001	02/29/16	Gross Alpha/Beta	Gross Beta	1.76E-14	2.16E-15	9.56E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184818	BAP-001	03/07/16	Gross Alpha/Beta	Gross Alpha	2.43E-15	8.54E-16	6.17E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184818	BAP-001	03/07/16	Gross Alpha/Beta	Gross Beta	1.58E-14	2.06E-15	9.92E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184819	BAP-001	03/14/16	Gross Alpha/Beta	Gross Alpha	1.62E-15	7.19E-16	6.22E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184819	BAP-001	03/14/16	Gross Alpha/Beta	Gross Beta	1.59E-14	2.07E-15	9.99E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184820	BAP-001	03/21/16	Gross Alpha/Beta	Gross Alpha	1.31E-15	6.43E-16	5.96E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184820	BAP-001	03/21/16	Gross Alpha/Beta	Gross Beta	1.13E-14	1.68E-15	9.58E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184821	BAP-001	03/28/16	Gross Alpha/Beta	Gross Alpha	1.15E-15	5.76E-16	5.45E-16	µCi/mL	J	T04	HISS Air (Particulate Air)-Environmental Monitoring
HIS184821	BAP-001	03/28/16	Gross Alpha/Beta	Gross Beta	1.36E-14	1.79E-15	8.76E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184822	BAP-001	04/04/16	Gross Alpha/Beta	Gross Alpha	4.80E-15	1.18E-15	6.08E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184822	BAP-001	04/04/16	Gross Alpha/Beta	Gross Beta	1.42E-14	1.88E-15	9.71E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184823	BAP-001	04/11/16	Gross Alpha/Beta	Gross Alpha	4.03E-15	1.12E-15	6.43E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184823	BAP-001	04/11/16	Gross Alpha/Beta	Gross Beta	1.10E-14	1.67E-15	1.03E-15	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184824	BAP-001	04/16/16	Gross Alpha/Beta	Gross Alpha	4.46E-15	1.38E-15	8.84E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184824	BAP-001	04/16/16	Gross Alpha/Beta	Gross Beta	1.70E-14	2.45E-15	1.41E-15	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184825	BAP-001	04/25/16	Gross Alpha/Beta	Gross Alpha	3.90E-15	1.04E-15	5.83E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184825	BAP-001	04/25/16	Gross Alpha/Beta	Gross Beta	1.54E-14	1.94E-15	9.32E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184826	BAP-001	05/02/16	Gross Alpha/Beta	Gross Alpha	3.71E-15	1.10E-15	6.80E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184826	BAP-001	05/02/16	Gross Alpha/Beta	Gross Beta	1.27E-14	1.85E-15	1.09E-15	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184827	BAP-001	05/09/16	Gross Alpha/Beta	Gross Alpha	3.07E-15	9.32E-16	5.85E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184827	BAP-001	05/09/16	Gross Alpha/Beta	Gross Beta	1.26E-14	1.73E-15	9.34E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184828	BAP-001	05/16/16	Gross Alpha/Beta	Gross Alpha	2.69E-15	8.82E-16	5.92E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184828	BAP-001	05/16/16	Gross Alpha/Beta	Gross Beta	1.23E-14	1.71E-15	9.45E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184829	BAP-001	05/23/16	Gross Alpha/Beta	Gross Alpha	2.87E-15	9.40E-16	6.31E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184829	BAP-001	05/23/16	Gross Alpha/Beta	Gross Beta	1.78E-14	2.20E-15	1.01E-15	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring

Table B-1. Background Air Particulate Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
HIS184830	BAP-001	05/31/16	Gross Alpha/Beta	Gross Alpha	-2.29E-16	1.61E-16	5.21E-16	µCi/mL	UJ	T06	HISS Air (Particulate Air)-Environmental Monitoring
HIS184830	BAP-001	05/31/16	Gross Alpha/Beta	Gross Beta	1.40E-17	4.85E-16	8.32E-16	µCi/mL	UJ	T06	HISS Air (Particulate Air)-Environmental Monitoring
HIS184831	BAP-001	06/06/16	Gross Alpha/Beta	Gross Alpha	2.57E-15	9.39E-16	6.89E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184831	BAP-001	06/06/16	Gross Alpha/Beta	Gross Beta	1.96E-14	2.41E-15	1.10E-15	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184832	BAP-001	06/13/16	Gross Alpha/Beta	Gross Alpha	2.99E-15	9.57E-16	6.29E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184832	BAP-001	06/13/16	Gross Alpha/Beta	Gross Beta	2.11E-14	2.44E-15	1.01E-15	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184833	BAP-001	06/20/16	Gross Alpha/Beta	Gross Alpha	1.57E-15	6.88E-16	5.79E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184833	BAP-001	06/20/16	Gross Alpha/Beta	Gross Beta	1.76E-14	2.11E-15	9.25E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184834	BAP-001	06/27/16	Gross Alpha/Beta	Gross Alpha	1.28E-15	7.22E-16	7.15E-16	µCi/mL	J	T04	HISS Air (Particulate Air)-Environmental Monitoring
HIS184834	BAP-001	06/27/16	Gross Alpha/Beta	Gross Beta	1.76E-14	2.29E-15	1.14E-15	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184835	BAP-001	07/05/16	Gross Alpha/Beta	Gross Alpha	3.96E-15	9.49E-16	4.88E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184835	BAP-001	07/05/16	Gross Alpha/Beta	Gross Beta	1.29E-14	1.60E-15	7.47E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184836	BAP-001	07/11/16	Gross Alpha/Beta	Gross Alpha	8.16E-15	1.70E-15	7.49E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184836	BAP-001	07/11/16	Gross Alpha/Beta	Gross Beta	2.63E-14	2.95E-15	1.15E-15	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184837	BAP-001	07/18/16	Gross Alpha/Beta	Gross Alpha	5.34E-15	1.25E-15	6.27E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184837	BAP-001	07/18/16	Gross Alpha/Beta	Gross Beta	1.69E-14	2.08E-15	9.60E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184838	BAP-001	07/25/16	Gross Alpha/Beta	Gross Alpha	4.00E-15	1.10E-15	6.53E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184838	BAP-001	07/25/16	Gross Alpha/Beta	Gross Beta	1.82E-14	2.21E-15	1.00E-15	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184839	BAP-001	08/01/16	Gross Alpha/Beta	Gross Alpha	3.98E-15	1.03E-15	5.75E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184839	BAP-001	08/01/16	Gross Alpha/Beta	Gross Beta	1.74E-14	2.05E-15	8.80E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184840	BAP-001	08/09/16	Gross Alpha/Beta	Gross Alpha	4.02E-15	1.07E-15	6.08E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184840	BAP-001	08/09/16	Gross Alpha/Beta	Gross Beta	1.55E-14	1.94E-15	9.31E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184841	BAP-001	08/15/16	Gross Alpha/Beta	Gross Alpha	3.33E-15	1.08E-15	7.36E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184841	BAP-001	08/15/16	Gross Alpha/Beta	Gross Beta	1.67E-14	2.19E-15	1.13E-15	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184842	BAP-001	08/22/16	Gross Alpha/Beta	Gross Alpha	2.76E-15	9.62E-16	7.03E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184842	BAP-001	08/22/16	Gross Alpha/Beta	Gross Beta	1.41E-14	1.95E-15	1.08E-15	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184843	BAP-001	08/29/16	Gross Alpha/Beta	Gross Alpha	4.13E-15	1.11E-15	6.43E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184843	BAP-001	08/29/16	Gross Alpha/Beta	Gross Beta	2.03E-14	2.36E-15	9.84E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184844	BAP-001	09/06/16	Gross Alpha/Beta	Gross Alpha	2.84E-15	8.60E-16	5.55E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184844	BAP-001	09/06/16	Gross Alpha/Beta	Gross Beta	2.01E-14	2.23E-15	8.50E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184845	BAP-001	09/12/16	Gross Alpha/Beta	Gross Alpha	1.08E-15	6.76E-16	7.49E-16	µCi/mL	J	T04	HISS Air (Particulate Air)-Environmental Monitoring
HIS184845	BAP-001	09/12/16	Gross Alpha/Beta	Gross Beta	1.36E-14	1.96E-15	1.15E-15	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184846	BAP-001	09/19/16	Gross Alpha/Beta	Gross Alpha	1.66E-15	7.75E-16	7.11E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184846	BAP-001	09/19/16	Gross Alpha/Beta	Gross Beta	2.79E-14	3.02E-15	1.09E-15	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184847	BAP-001	09/26/16	Gross Alpha/Beta	Gross Alpha	2.09E-15	7.59E-16	5.75E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184847	BAP-001	09/26/16	Gross Alpha/Beta	Gross Beta	3.40E-14	3.28E-15	8.80E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184848	BAP-001	10/03/16	Gross Alpha/Beta	Gross Alpha	4.84E-15	1.22E-15	5.36E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184848	BAP-001	10/03/16	Gross Alpha/Beta	Gross Beta	1.37E-14	1.91E-15	1.09E-15	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184849	BAP-001	10/11/16	Gross Alpha/Beta	Gross Alpha	6.13E-15	1.21E-15	4.05E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184849	BAP-001	10/11/16	Gross Alpha/Beta	Gross Beta	2.42E-14	2.49E-15	8.19E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184850	BAP-001	10/17/16	Gross Alpha/Beta	Gross Alpha	6.81E-15	1.56E-15	6.16E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184850	BAP-001	10/17/16	Gross Alpha/Beta	Gross Beta	2.14E-14	2.64E-15	1.25E-15	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring

Table B-1. Background Air Particulate Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
HIS184851	BAP-001	10/24/16	Gross Alpha/Beta	Gross Alpha	6.30E-15	1.32E-15	4.72E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184851	BAP-001	10/24/16	Gross Alpha/Beta	Gross Beta	1.94E-14	2.25E-15	9.55E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184852	BAP-001	10/31/16	Gross Alpha/Beta	Gross Alpha	6.41E-15	1.37E-15	4.99E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184852	BAP-001	10/31/16	Gross Alpha/Beta	Gross Beta	2.41E-14	2.65E-15	1.01E-15	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184853	BAP-001	11/07/16	Gross Alpha/Beta	Gross Alpha	5.30E-15	1.26E-15	5.21E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184853	BAP-001	11/07/16	Gross Alpha/Beta	Gross Beta	2.54E-14	2.78E-15	1.06E-15	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184854	BAP-001	11/14/16	Gross Alpha/Beta	Gross Alpha	4.99E-15	1.20E-15	5.04E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184854	BAP-001	11/14/16	Gross Alpha/Beta	Gross Beta	2.41E-14	2.66E-15	1.02E-15	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184855	BAP-001	11/21/16	Gross Alpha/Beta	Gross Alpha	6.21E-15	1.30E-15	4.65E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184855	BAP-001	11/21/16	Gross Alpha/Beta	Gross Beta	3.63E-14	3.48E-15	9.42E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184856	BAP-001	11/28/16	Gross Alpha/Beta	Gross Alpha	4.52E-15	1.11E-15	4.74E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184856	BAP-001	11/28/16	Gross Alpha/Beta	Gross Beta	2.87E-14	2.94E-15	9.60E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184857	BAP-001	12/05/16	Gross Alpha/Beta	Gross Alpha	2.43E-15	8.23E-16	4.91E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184857	BAP-001	12/05/16	Gross Alpha/Beta	Gross Beta	2.03E-14	2.35E-15	9.95E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184858	BAP-001	12/12/16	Gross Alpha/Beta	Gross Alpha	2.81E-15	8.55E-16	4.61E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184858	BAP-001	12/12/16	Gross Alpha/Beta	Gross Beta	1.78E-14	2.11E-15	9.33E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184859	BAP-001	12/19/16	Gross Alpha/Beta	Gross Alpha	2.71E-15	8.45E-16	4.65E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184859	BAP-001	12/19/16	Gross Alpha/Beta	Gross Beta	2.84E-14	2.91E-15	9.42E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184860	BAP-001	12/27/16	Gross Alpha/Beta	Gross Alpha	1.47E-15	6.45E-16	4.87E-16	µCi/mL	=		HISS Air (Particulate Air)-Environmental Monitoring
HIS184860	BAP-001	12/27/16	Gross Alpha/Beta	Gross Beta	2.33E-14	2.57E-15	9.85E-16	µCi/mL	=		HISS 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.

Table B-2. NC Sites Ra-222 Results for CY 2016

Sample Name	Station Name	Collect Date	Method Type	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event Name
HIS184872	BA-1	07/07/16	Radiological	Ra-222	0.2	0	0.2	pCi/L	UJ	Y01	HISS Air (Alpha Tracks)-Environmental Monitoring
HIS194325	BA-1	01/04/17	Radiological	Ra-222	0.2	0	0.2	pCi/L	UJ	Y01	HISS/Futura (Alpha Tracks)-Environmental Monitoring
HIS184873	HF-1	07/07/16	Radiological	Ra-222	1.1	0	0.2	pCi/L	J	Y01	HISS Air (Alpha Tracks)-Environmental Monitoring
HIS194326	HF-1	01/04/17	Radiological	Ra-222	2.2	0	0.2	pCi/L	J	Y01	HISS/Futura (Alpha Tracks)-Environmental Monitoring
HIS184882	HF-10	07/07/16	Radiological	Ra-222	0.3	0	0.2	pCi/L	J	Y01	HISS Air (Alpha Tracks)-Environmental Monitoring
HIS194335	HF-10	01/04/17	Radiological	Ra-222	0.6	0	0.2	pCi/L	J	Y01	HISS/Futura (Alpha Tracks)-Environmental Monitoring
HIS184874	HF-2	07/07/16	Radiological	Ra-222	4.1	0	0.2	pCi/L	J	Y01	HISS Air (Alpha Tracks)-Environmental Monitoring
HIS194327	HF-2	01/04/17	Radiological	Ra-222	6	0	0.2	pCi/L	J	Y01	HISS/Futura (Alpha Tracks)-Environmental Monitoring
HIS184875	HF-3	07/07/16	Radiological	Ra-222	0.2	0	0.2	pCi/L	J	Y01	HISS Air (Alpha Tracks)-Environmental Monitoring
HIS194328	HF-3	01/04/17	Radiological	Ra-222	0.4	0	0.2	pCi/L	J	Y01	HISS/Futura (Alpha Tracks)-Environmental Monitoring
HIS184876	HF-4	07/07/16	Radiological	Ra-222	0.6	0	0.2	pCi/L	J	Y01	HISS Air (Alpha Tracks)-Environmental Monitoring
HIS194329	HF-4	01/04/17	Radiological	Ra-222	0.6	0	0.2	pCi/L	J	Y01	HISS/Futura (Alpha Tracks)-Environmental Monitoring
HIS184877	HF-5	07/07/16	Radiological	Ra-222	0.7	0	0.2	pCi/L	J	Y01	HISS Air (Alpha Tracks)-Environmental Monitoring
HIS194330	HF-5	01/04/17	Radiological	Ra-222	0.8	0	0.2	pCi/L	J	Y01	HISS/Futura (Alpha Tracks)-Environmental Monitoring
HIS184878	HF-6	07/07/16	Radiological	Ra-222	0.4	0	0.2	pCi/L	J	Y01	HISS Air (Alpha Tracks)-Environmental Monitoring
HIS194331	HF-6	01/04/17	Radiological	Ra-222	0.8	0	0.2	pCi/L	J	Y01	HISS/Futura (Alpha Tracks)-Environmental Monitoring
HIS184879	HF-7	07/07/16	Radiological	Ra-222	0.8	0	0.2	pCi/L	J	Y01	HISS Air (Alpha Tracks)-Environmental Monitoring
HIS194332	HF-7	01/04/17	Radiological	Ra-222	0.9	0	0.2	pCi/L	J	Y01	HISS/Futura (Alpha Tracks)-Environmental Monitoring
HIS184880	HF-8	07/07/16	Radiological	Ra-222	0.4	0	0.2	pCi/L	J	Y01	HISS Air (Alpha Tracks)-Environmental Monitoring
HIS194333	HF-8	01/04/17	Radiological	Ra-222	0.6	0	0.2	pCi/L	J	Y01	HISS/Futura (Alpha Tracks)-Environmental Monitoring
HIS184881	HF-9	07/07/16	Radiological	Ra-222	0.4	0	0.2	pCi/L	J	Y01	HISS Air (Alpha Tracks)-Environmental Monitoring
HIS194334	HF-9	01/04/17	Radiological	Ra-222	0.6	0	0.2	pCi/L	J	Y01	HISS/Futura (Alpha Tracks)-Environmental Monitoring
SLA184907	PA-1	07/07/16	Radiological	Ra-222	0.2	0	0.2	pCi/L	UJ	Y01	SLAPS Air (Alpha Tracks)-Environmental Monitoring
SLA194347	PA-1	01/04/17	Radiological	Ra-222	0.3	0	0.2	pCi/L	J	Y01	SLAPS Air (Alpha Tracks)-Environmental Monitoring
SLA184908	PA-2	07/07/16	Radiological	Ra-222	0.2	0	0.2	pCi/L	UJ	Y01	SLAPS Air (Alpha Tracks)-Environmental Monitoring
SLA194348	PA-2	01/04/17	Radiological	Ra-222	0.2	0	0.2	pCi/L	J	Y01	SLAPS Air (Alpha Tracks)-Environmental Monitoring
SLA184908-1	PA-2 dup	07/07/16	Radiological	Ra-222	0.2	0	0.2	pCi/L	UJ	Y01	SLAPS Air (Alpha Tracks)-Environmental Monitoring
SLA194348-1	PA-2 dup	01/04/17	Radiological	Ra-222	0.2	0	0.2	pCi/L	UJ	Y01	SLAPS Air (Alpha Tracks)-Environmental Monitoring
SLA184909	PA-3	07/07/16	Radiological	Ra-222	0.2	0	0.2	pCi/L	UJ	Y01	SLAPS Air (Alpha Tracks)-Environmental Monitoring
SLA194349	PA-3	01/04/17	Radiological	Ra-222	0.2	0	0.2	pCi/L	UJ	Y01	SLAPS Air (Alpha Tracks)-Environmental Monitoring
SLA184910	PA-4	07/07/16	Radiological	Ra-222	0.2	0	0.2	pCi/L	J	Y01	SLAPS Air (Alpha Tracks)-Environmental Monitoring
SLA194350	PA-4	01/04/17	Radiological	Ra-222	0.2	0	0.2	pCi/L	UJ	Y01	SLAPS Air (Alpha Tracks)-Environmental Monitoring

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 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
HIS184884	BA-1	04/05/16	Radiological	External gamma radiation	19.4	0	0.1	mrem	J	Y01	HISS Air (TLDs)-Environmental Monitoring
SLA184891	PA-1	04/05/16	Radiological	External gamma radiation	19	0	0.1	mrem	J	Y01	SLAPS Air (TLDs)-Environmental Monitoring
SLA184892	PA-2	04/05/16	Radiological	External gamma radiation	22.6	0	0.1	mrem	J	Y01	SLAPS Air (TLDs)-Environmental Monitoring
SLA184892-1	PA-2dup	04/05/16	Radiological	External gamma radiation	20.2	0	0.1	mrem	J	Y01	SLAPS Air (TLDs)-Environmental Monitoring
SLA184893	PA-3	04/05/16	Radiological	External gamma radiation	20.1	0	0.1	mrem	J	Y01	SLAPS Air (TLDs)-Environmental Monitoring
SLA184894	PA-4	04/05/16	Radiological	External gamma radiation	25.7	0	0.1	mrem	J	Y01	SLAPS Air (TLDs)-Environmental Monitoring
HIS184885	BA-1	07/07/16	Radiological	External gamma radiation	20.1	0	0.1	mrem	J	Y01	HISS Air (TLDs)-Environmental Monitoring
SLA184895	PA-1	07/07/16	Radiological	External gamma radiation	19.8	0	0.1	mrem	J	Y01	SLAPS Air (TLDs)-Environmental Monitoring
SLA184896	PA-2	07/07/16	Radiological	External gamma radiation	22.8	0	0.1	mrem	J	Y01	SLAPS Air (TLDs)-Environmental Monitoring
SLA184896-1	PA-2dup	07/07/16	Radiological	External gamma radiation	23.6	0	0.1	mrem	J	Y01	SLAPS Air (TLDs)-Environmental Monitoring
SLA184897	PA-3	07/07/16	Radiological	External gamma radiation	20.2	0	0.1	mrem	J	Y01	SLAPS Air (TLDs)-Environmental Monitoring
SLA184898	PA-4	07/07/16	Radiological	External gamma radiation	25.1	0	0.1	mrem	J	Y01	SLAPS Air (TLDs)-Environmental Monitoring
HIS184886	BA-1	10/03/16	Radiological	External gamma radiation	20.3	0	0.1	mrem	J	Y01	HISS Air (TLDs)-Environmental Monitoring
SLA184899	PA-1	10/03/16	Radiological	External gamma radiation	19.9	0	0.1	mrem	J	Y01	SLAPS Air (TLDs)-Environmental Monitoring
SLA184900	PA-2	10/03/16	Radiological	External gamma radiation	23.4	0	0.1	mrem	J	Y01	SLAPS Air (TLDs)-Environmental Monitoring
SLA184900-1	PA-2dup	10/03/16	Radiological	External gamma radiation	23.8	0	0.1	mrem	J	Y01	SLAPS Air (TLDs)-Environmental Monitoring
SLA184901	PA-3	10/03/16	Radiological	External gamma radiation	21.6	0	0.1	mrem	J	Y01	SLAPS Air (TLDs)-Environmental Monitoring
SLA184902	PA-4	10/03/16	Radiological	External gamma radiation	26.2	0	0.1	mrem	J	Y01	SLAPS Air (TLDs)-Environmental Monitoring
HIS194367	BA-1	01/04/17	Radiological	External gamma radiation	19	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-4Q2016
SLA194371	PA-1	01/04/17	Radiological	External gamma radiation	19.2	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-4Q2016
SLA194372	PA-2	01/04/17	Radiological	External gamma radiation	22.7	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-4Q2016
SLA194372-1	PA-2dup	01/04/17	Radiological	External gamma radiation	22.1	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-4Q2016
SLA194373	PA-3	01/04/17	Radiological	External gamma radiation	20.2	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-4Q2016
SLA194374	PA-4	01/04/17	Radiological	External gamma radiation	25	0	0.1	mrem	J	Y01	Environmental Monitoring (TLDs)-4Q2016

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 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA183372	SLAPS Loadout	01/05/16	Gross Alpha/Beta	Gross Alpha	-1.78E-15	4.88E-15	1.18E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA183372	SLAPS Loadout	01/05/16	Gross Alpha/Beta	Gross Alpha	5.93E-16	5.92E-15	1.18E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183372	SLAPS Loadout	01/05/16	Gross Alpha/Beta	Gross Beta	1.99E-14	1.41E-14	1.81E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA183372	SLAPS Loadout	01/05/16	Gross Alpha/Beta	Gross Beta	2.52E-14	1.47E-14	1.81E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA183373	SLAPS Loadout	01/05/16	Gross Alpha/Beta	Gross Alpha	2.97E-15	6.81E-15	1.18E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183373	SLAPS Loadout	01/05/16	Gross Alpha/Beta	Gross Beta	2.07E-14	1.42E-14	1.81E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA183374	SLAPS Loadout	01/06/16	Gross Alpha/Beta	Gross Alpha	1.88E-15	6.73E-15	1.25E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183374	SLAPS Loadout	01/06/16	Gross Alpha/Beta	Gross Beta	2.74E-14	1.56E-14	1.91E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA183375	SLAPS Loadout	01/06/16	Gross Alpha/Beta	Gross Alpha	-1.88E-15	5.15E-15	1.25E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183375	SLAPS Loadout	01/06/16	Gross Alpha/Beta	Gross Beta	3.06E-14	1.60E-14	1.91E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA183376	SLAPS Loadout	01/07/16	Gross Alpha/Beta	Gross Alpha	1.46E-14	9.99E-15	1.16E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA183376	SLAPS Loadout	01/07/16	Gross Alpha/Beta	Gross Beta	5.09E-14	1.72E-14	1.77E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA183377	SLAPS Loadout	01/07/16	Gross Alpha/Beta	Gross Alpha	-5.77E-16	5.27E-15	1.15E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183377	SLAPS Loadout	01/07/16	Gross Alpha/Beta	Gross Beta	2.90E-14	1.48E-14	1.76E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA183378	SLAPS Loadout	01/07/16	Gross Alpha/Beta	Gross Alpha	-5.82E-16	5.32E-15	1.16E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183378	SLAPS Loadout	01/07/16	Gross Alpha/Beta	Gross Beta	3.00E-14	1.50E-14	1.77E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA183379	SLAPS Loadout	01/07/16	Gross Alpha/Beta	Gross Alpha	4.08E-15	7.08E-15	1.16E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183379	SLAPS Loadout	01/07/16	Gross Alpha/Beta	Gross Beta	2.33E-14	1.43E-14	1.77E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA183380	SLAPS Loadout	01/07/16	Gross Alpha/Beta	Gross Alpha	1.75E-15	6.26E-15	1.16E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183380	SLAPS Loadout	01/07/16	Gross Alpha/Beta	Gross Beta	2.18E-14	1.41E-14	1.77E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA183381	SLAPS Loadout	01/11/16	Gross Alpha/Beta	Gross Alpha	5.19E-15	7.39E-15	1.15E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183381	SLAPS Loadout	01/11/16	Gross Alpha/Beta	Gross Beta	5.78E-14	1.78E-14	1.76E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA183382	SLAPS Loadout	01/11/16	Gross Alpha/Beta	Gross Alpha	4.04E-15	7.01E-15	1.15E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183382	SLAPS Loadout	01/11/16	Gross Alpha/Beta	Gross Beta	4.74E-14	1.68E-14	1.76E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA183383	SLAPS Loadout	01/12/16	Gross Alpha/Beta	Gross Alpha	5.81E-15	7.09E-15	1.05E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183383	SLAPS Loadout	01/12/16	Gross Alpha/Beta	Gross Beta	3.40E-14	1.44E-14	1.61E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA183384	SLAPS Loadout	01/12/16	Gross Alpha/Beta	Gross Alpha	2.64E-15	6.06E-15	1.05E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183384	SLAPS Loadout	01/12/16	Gross Alpha/Beta	Gross Beta	4.21E-14	1.52E-14	1.61E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA183385	SLAPS Loadout	01/13/16	Gross Alpha/Beta	Gross Alpha	3.38E-15	7.76E-15	1.35E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183385	SLAPS Loadout	01/13/16	Gross Alpha/Beta	Gross Beta	3.13E-14	1.71E-14	2.06E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA183386	SLAPS Loadout	01/13/16	Gross Alpha/Beta	Gross Alpha	3.38E-15	7.76E-15	1.35E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183386	SLAPS Loadout	01/13/16	Gross Alpha/Beta	Gross Beta	2.18E-14	1.60E-14	2.06E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA183387	SLAPS Loadout	01/14/16	Gross Alpha/Beta	Gross Alpha	-1.87E-15	5.12E-15	1.24E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183387	SLAPS Loadout	01/14/16	Gross Alpha/Beta	Gross Beta	9.11E-14	2.20E-14	1.90E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA183388	SLAPS Loadout	01/14/16	Gross Alpha/Beta	Gross Alpha	8.73E-15	8.49E-15	1.16E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA183388	SLAPS Loadout	01/14/16	Gross Alpha/Beta	Gross Beta	7.70E-14	1.98E-14	1.77E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA183389	SLAPS Loadout	01/18/16	Gross Alpha/Beta	Gross Alpha	-3.14E-16	7.95E-15	1.33E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA183389	SLAPS Loadout	01/18/16	Gross Alpha/Beta	Gross Alpha	9.43E-16	8.34E-15	1.33E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183389	SLAPS Loadout	01/18/16	Gross Alpha/Beta	Gross Beta	3.60E-14	1.59E-14	1.90E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA183389	SLAPS Loadout	01/18/16	Gross Alpha/Beta	Gross Beta	3.04E-14	1.52E-14	1.90E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA183390	SLAPS Loadout	01/18/16	Gross Alpha/Beta	Gross Alpha	-1.57E-15	7.54E-15	1.33E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183390	SLAPS Loadout	01/18/16	Gross Alpha/Beta	Gross Beta	3.84E-14	1.61E-14	1.90E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA183391	SLAPS Loadout	01/19/16	Gross Alpha/Beta	Gross Alpha	-3.14E-15	7.90E-15	1.48E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183391	SLAPS Loadout	01/19/16	Gross Alpha/Beta	Gross Beta	1.13E-14	1.42E-14	2.12E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA183392	SLAPS Loadout	01/19/16	Gross Alpha/Beta	Gross Alpha	-1.75E-15	8.38E-15	1.48E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183392	SLAPS Loadout	01/19/16	Gross Alpha/Beta	Gross Beta	1.76E-14	1.50E-14	2.12E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA183393	SLAPS Loadout	01/20/16	Gross Alpha/Beta	Gross Alpha	-4.49E-15	7.32E-15	1.46E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183393	SLAPS Loadout	01/20/16	Gross Alpha/Beta	Gross Beta	1.39E-14	1.43E-14	2.09E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183394	SLAPS Loadout	01/20/16	Gross Alpha/Beta	Gross Alpha	5.18E-15	1.04E-14	1.46E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183394	SLAPS Loadout	01/20/16	Gross Alpha/Beta	Gross Beta	3.42E-14	1.68E-14	2.09E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA183395	SLAPS Loadout	01/21/16	Gross Alpha/Beta	Gross Alpha	3.76E-15	9.86E-15	1.44E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183395	SLAPS Loadout	01/21/16	Gross Alpha/Beta	Gross Beta	3.56E-14	1.68E-14	2.07E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA183396	SLAPS Loadout	01/21/16	Gross Alpha/Beta	Gross Alpha	5.13E-15	1.02E-14	1.44E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183396	SLAPS Loadout	01/21/16	Gross Alpha/Beta	Gross Beta	4.44E-14	1.78E-14	2.07E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA183397	SLAPS Loadout	01/25/16	Gross Alpha/Beta	Gross Alpha	-3.89E-15	6.34E-15	1.26E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183397	SLAPS Loadout	01/25/16	Gross Alpha/Beta	Gross Beta	2.28E-14	1.38E-14	1.81E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA183398	SLAPS Loadout	01/25/16	Gross Alpha/Beta	Gross Alpha	3.29E-15	8.64E-15	1.26E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183398	SLAPS Loadout	01/25/16	Gross Alpha/Beta	Gross Beta	3.58E-14	1.53E-14	1.81E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA183399	SLAPS Loadout	01/25/16	Gross Alpha/Beta	Gross Alpha	3.84E-15	1.01E-14	1.48E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183399	SLAPS Loadout	01/25/16	Gross Alpha/Beta	Gross Beta	2.21E-14	1.55E-14	2.12E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA183400	SLAPS Loadout	01/25/16	Gross Alpha/Beta	Gross Alpha	2.47E-15	9.79E-15	1.49E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183400	SLAPS Loadout	01/25/16	Gross Alpha/Beta	Gross Beta	3.05E-14	1.67E-14	2.14E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA183401	SLAPS Loadout	01/25/16	Gross Alpha/Beta	Gross Alpha	-3.57E-16	9.04E-15	1.51E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183401	SLAPS Loadout	01/25/16	Gross Alpha/Beta	Gross Beta	4.46E-14	1.84E-14	2.16E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA183402	SLAPS Loadout	01/27/16	Gross Alpha/Beta	Gross Alpha	6.11E-15	7.97E-15	1.08E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA183402	SLAPS Loadout	01/27/16	Gross Alpha/Beta	Gross Alpha	1.05E-14	9.45E-15	1.08E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA183402	SLAPS Loadout	01/27/16	Gross Alpha/Beta	Gross Beta	6.19E-15	3.16E-14	3.40E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA183402	SLAPS Loadout	01/27/16	Gross Alpha/Beta	Gross Beta	1.94E-14	3.24E-14	3.40E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183403	SLAPS Loadout	01/27/16	Gross Alpha/Beta	Gross Alpha	3.18E-15	6.80E-15	1.08E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183403	SLAPS Loadout	01/27/16	Gross Alpha/Beta	Gross Beta	2.50E-14	3.27E-14	3.40E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183404	SLAPS Loadout	01/27/16	Gross Alpha/Beta	Gross Alpha	3.22E-15	6.88E-15	1.09E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183404	SLAPS Loadout	01/27/16	Gross Alpha/Beta	Gross Beta	8.16E-15	3.21E-14	3.44E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183405	SLAPS Loadout	01/27/16	Gross Alpha/Beta	Gross Alpha	7.48E-15	7.43E-15	8.91E-15	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA183405	SLAPS Loadout	01/27/16	Gross Alpha/Beta	Gross Beta	2.79E-15	2.60E-14	2.81E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183406	SLAPS Loadout	01/27/16	Gross Alpha/Beta	Gross Alpha	3.84E-15	6.12E-15	8.91E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183406	SLAPS Loadout	01/27/16	Gross Alpha/Beta	Gross Beta	1.60E-14	2.68E-14	2.81E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183407	SLAPS Loadout	02/01/16	Gross Alpha/Beta	Gross Alpha	4.04E-15	6.43E-15	9.36E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183407	SLAPS Loadout	02/01/16	Gross Alpha/Beta	Gross Beta	1.76E-14	2.82E-14	2.95E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183408	SLAPS Loadout	02/01/16	Gross Alpha/Beta	Gross Alpha	-1.06E-15	3.92E-15	9.36E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183408	SLAPS Loadout	02/01/16	Gross Alpha/Beta	Gross Beta	2.58E-14	2.87E-14	2.95E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183409	SLAPS Loadout	02/02/16	Gross Alpha/Beta	Gross Alpha	2.68E-15	5.73E-15	9.08E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183409	SLAPS Loadout	02/02/16	Gross Alpha/Beta	Gross Beta	1.16E-14	2.70E-14	2.87E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183410	SLAPS Loadout	02/02/16	Gross Alpha/Beta	Gross Alpha	3.92E-15	6.25E-15	9.08E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183410	SLAPS Loadout	02/02/16	Gross Alpha/Beta	Gross Beta	1.71E-14	2.74E-14	2.87E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183411	SLAPS Loadout	02/02/16	Gross Alpha/Beta	Gross Alpha	1.85E-15	5.78E-15	1.12E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA183411	SLAPS Loadout	02/02/16	Gross Alpha/Beta	Gross Alpha	6.17E-16	5.22E-15	1.12E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183411	SLAPS Loadout	02/02/16	Gross Alpha/Beta	Gross Beta	1.67E-14	1.31E-14	1.83E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA183411	SLAPS Loadout	02/02/16	Gross Alpha/Beta	Gross Beta	1.28E-14	1.26E-14	1.83E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA183412	SLAPS Loadout	02/03/16	Gross Alpha/Beta	Gross Alpha	8.02E-15	8.00E-15	1.12E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA183412	SLAPS Loadout	02/03/16	Gross Alpha/Beta	Gross Beta	1.51E-14	1.29E-14	1.83E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA183413	SLAPS Loadout	02/04/16	Gross Alpha/Beta	Gross Alpha	1.68E-15	5.24E-15	1.02E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183413	SLAPS Loadout	02/04/16	Gross Alpha/Beta	Gross Beta	1.23E-14	1.15E-14	1.66E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA183414	SLAPS Loadout	02/04/16	Gross Alpha/Beta	Gross Alpha	7.17E-15	7.16E-15	1.01E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA183414	SLAPS Loadout	02/04/16	Gross Alpha/Beta	Gross Beta	2.70E-14	1.32E-14	1.64E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA183415	SLAPS Loadout	02/08/16	Gross Alpha/Beta	Gross Alpha	9.13E-15	9.12E-15	1.28E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA183415	SLAPS Loadout	02/08/16	Gross Alpha/Beta	Gross Beta	4.34E-14	1.78E-14	2.09E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA183416	SLAPS Loadout	02/08/16	Gross Alpha/Beta	Gross Alpha	4.95E-15	7.74E-15	1.29E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183416	SLAPS Loadout	02/08/16	Gross Alpha/Beta	Gross Beta	3.91E-14	1.74E-14	2.10E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA183417	SLAPS Loadout	02/10/16	Gross Alpha/Beta	Gross Alpha	8.44E-16	7.15E-15	1.54E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183417	SLAPS Loadout	02/10/16	Gross Alpha/Beta	Gross Beta	2.07E-14	1.76E-14	2.51E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA183418	SLAPS Loadout	02/10/16	Gross Alpha/Beta	Gross Alpha	5.87E-15	9.18E-15	1.53E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183418	SLAPS Loadout	02/10/16	Gross Alpha/Beta	Gross Beta	2.06E-14	1.75E-14	2.49E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA183419	SLAPS Loadout	02/11/16	Gross Alpha/Beta	Gross Alpha	3.08E-15	6.28E-15	1.12E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183419	SLAPS Loadout	02/11/16	Gross Alpha/Beta	Gross Beta	2.15E-14	1.37E-14	1.83E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA183420	SLAPS Loadout	02/11/16	Gross Alpha/Beta	Gross Alpha	9.25E-15	8.38E-15	1.12E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA183420	SLAPS Loadout	02/11/16	Gross Alpha/Beta	Gross Beta	1.91E-14	1.34E-14	1.83E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA183421	SLAPS Loadout	02/15/16	Gross Alpha/Beta	Gross Alpha	2.91E-15	5.93E-15	1.06E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183421	SLAPS Loadout	02/15/16	Gross Alpha/Beta	Gross Beta	3.59E-14	1.48E-14	1.73E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA183422	SLAPS Loadout	02/15/16	Gross Alpha/Beta	Gross Alpha	5.82E-16	4.93E-15	1.06E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183422	SLAPS Loadout	02/15/16	Gross Alpha/Beta	Gross Beta	3.00E-14	1.41E-14	1.73E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA183423	SLAPS Loadout	02/16/16	Gross Alpha/Beta	Gross Alpha	1.75E-15	5.45E-15	1.06E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183423	SLAPS Loadout	02/16/16	Gross Alpha/Beta	Gross Beta	2.70E-14	1.37E-14	1.73E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA183424	SLAPS Loadout	02/17/16	Gross Alpha/Beta	Gross Alpha	7.10E-15	7.96E-15	1.18E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183424	SLAPS Loadout	02/17/16	Gross Alpha/Beta	Gross Beta	3.32E-14	1.56E-14	1.92E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA183425	SLAPS Loadout	02/18/16	Gross Alpha/Beta	Gross Alpha	2.42E-15	5.47E-15	9.65E-15	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA183425	SLAPS Loadout	02/18/16	Gross Alpha/Beta	Gross Alpha	6.20E-15	7.00E-15	9.65E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183425	SLAPS Loadout	02/18/16	Gross Alpha/Beta	Gross Beta	4.14E-14	2.18E-14	2.78E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA183425	SLAPS Loadout	02/18/16	Gross Alpha/Beta	Gross Beta	3.74E-14	2.14E-14	2.78E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA183426	SLAPS Loadout	02/18/16	Gross Alpha/Beta	Gross Alpha	6.27E-15	7.07E-15	9.75E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183426	SLAPS Loadout	02/18/16	Gross Alpha/Beta	Gross Beta	3.37E-14	2.13E-14	2.81E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA183427	SLAPS Loadout	02/22/16	Gross Alpha/Beta	Gross Alpha	-1.03E-16	4.06E-15	9.46E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183427	SLAPS Loadout	02/22/16	Gross Alpha/Beta	Gross Beta	2.32E-14	2.00E-14	2.73E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA183428	SLAPS Loadout	02/23/16	Gross Alpha/Beta	Gross Alpha	1.17E-15	4.90E-15	9.75E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183428	SLAPS Loadout	02/23/16	Gross Alpha/Beta	Gross Beta	3.61E-14	2.15E-14	2.81E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA183429	SLAPS Loadout	02/25/16	Gross Alpha/Beta	Gross Alpha	9.83E-16	4.99E-15	1.04E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA183429	SLAPS Loadout	02/25/16	Gross Alpha/Beta	Gross Alpha	4.52E-15	6.45E-15	1.04E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183429	SLAPS Loadout	02/25/16	Gross Alpha/Beta	Gross Beta	3.90E-14	1.97E-14	2.57E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA183429	SLAPS Loadout	02/25/16	Gross Alpha/Beta	Gross Beta	2.92E-14	1.89E-14	2.57E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA183430	SLAPS Loadout	02/25/16	Gross Alpha/Beta	Gross Alpha	9.69E-16	4.92E-15	1.02E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183430	SLAPS Loadout	02/25/16	Gross Alpha/Beta	Gross Beta	2.51E-14	1.83E-14	2.53E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA183431	SLAPS Loadout	02/29/16	Gross Alpha/Beta	Gross Alpha	-6.07E-15	6.83E-15	2.47E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183431	SLAPS Loadout	02/29/16	Gross Alpha/Beta	Gross Beta	1.92E-14	4.07E-14	6.10E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA183432	SLAPS Loadout	02/29/16	Gross Alpha/Beta	Gross Alpha	7.94E-15	1.43E-14	2.47E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183432	SLAPS Loadout	02/29/16	Gross Alpha/Beta	Gross Beta	7.84E-14	4.57E-14	6.10E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA183433	SLAPS Loadout	02/29/16	Gross Alpha/Beta	Gross Alpha	-5.94E-15	6.68E-15	2.41E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183433	SLAPS Loadout	02/29/16	Gross Alpha/Beta	Gross Beta	2.75E-14	4.06E-14	5.97E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183434	SLAPS Loadout	02/29/16	Gross Alpha/Beta	Gross Alpha	1.01E-15	5.14E-15	1.07E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183434	SLAPS Loadout	02/29/16	Gross Alpha/Beta	Gross Beta	3.32E-14	1.97E-14	2.64E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA183435	SLAPS Loadout	02/29/16	Gross Alpha/Beta	Gross Alpha	3.50E-15	6.30E-15	1.09E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183435	SLAPS Loadout	02/29/16	Gross Alpha/Beta	Gross Beta	2.35E-14	1.93E-14	2.69E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA183436	SLAPS Loadout	03/01/16	Gross Alpha/Beta	Gross Alpha	-2.68E-15	3.01E-15	1.09E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183436	SLAPS Loadout	03/01/16	Gross Alpha/Beta	Gross Beta	2.43E-14	1.93E-14	2.69E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA183437	SLAPS Loadout	03/02/16	Gross Alpha/Beta	Gross Alpha	-4.16E-15	1.83E-15	1.16E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183437	SLAPS Loadout	03/02/16	Gross Alpha/Beta	Gross Beta	8.14E-15	1.90E-14	2.86E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183438	SLAPS Loadout	03/02/16	Gross Alpha/Beta	Gross Alpha	-2.21E-16	4.96E-15	1.17E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183438	SLAPS Loadout	03/02/16	Gross Alpha/Beta	Gross Beta	1.16E-14	1.95E-14	2.89E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183439	SLAPS Loadout	03/02/16	Gross Alpha/Beta	Gross Alpha	2.49E-15	6.35E-15	1.19E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183439	SLAPS Loadout	03/02/16	Gross Alpha/Beta	Gross Beta	4.06E-15	1.92E-14	2.95E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183440	SLAPS Loadout	03/02/16	Gross Alpha/Beta	Gross Alpha	-2.21E-16	4.96E-15	1.17E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183440	SLAPS Loadout	03/02/16	Gross Alpha/Beta	Gross Beta	2.35E-14	2.05E-14	2.89E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA183441	SLAPS Loadout	03/02/16	Gross Alpha/Beta	Gross Alpha	-4.30E-15	1.89E-15	1.19E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183441	SLAPS Loadout	03/02/16	Gross Alpha/Beta	Gross Beta	2.84E-14	2.13E-14	2.95E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA183442	SLAPS Loadout	03/03/16	Gross Alpha/Beta	Gross Alpha	1.15E-14	8.59E-15	1.03E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA183442	SLAPS Loadout	03/03/16	Gross Alpha/Beta	Gross Beta	2.31E-13	3.13E-14	2.54E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA183443	SLAPS Loadout	03/07/16	Gross Alpha/Beta	Gross Alpha	-1.82E-15	3.00E-14	4.35E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA183443	SLAPS Loadout	03/07/16	Gross Alpha/Beta	Gross Alpha	-1.15E-14	2.67E-14	4.35E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183443	SLAPS Loadout	03/07/16	Gross Alpha/Beta	Gross Beta	1.03E-13	2.77E-13	9.70E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA183443	SLAPS Loadout	03/07/16	Gross Alpha/Beta	Gross Beta	9.06E-14	2.77E-13	9.70E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183444	SLAPS Loadout	03/07/16	Gross Alpha/Beta	Gross Alpha	-1.15E-14	2.67E-14	4.35E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183444	SLAPS Loadout	03/07/16	Gross Alpha/Beta	Gross Beta	8.12E-14	2.77E-13	9.70E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183445	SLAPS Loadout	03/07/16	Gross Alpha/Beta	Gross Alpha	1.76E-14	3.57E-14	4.35E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183445	SLAPS Loadout	03/07/16	Gross Alpha/Beta	Gross Beta	8.44E-14	2.77E-13	9.70E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183446	SLAPS Loadout	03/07/16	Gross Alpha/Beta	Gross Alpha	8.05E-16	8.37E-15	1.15E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183446	SLAPS Loadout	03/07/16	Gross Alpha/Beta	Gross Beta	5.70E-14	7.42E-14	2.57E-14	µCi/mL	UJ	T02	SLAPS (General Area)-Perimeter Air
SLA183447	SLAPS Loadout	03/07/16	Gross Alpha/Beta	Gross Alpha	-3.10E-15	7.19E-15	1.17E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183447	SLAPS Loadout	03/07/16	Gross Alpha/Beta	Gross Beta	4.95E-14	7.52E-14	2.61E-14	µCi/mL	UJ	T02	SLAPS (General Area)-Perimeter Air
SLA183448	SLAPS Loadout	03/08/16	Gross Alpha/Beta	Gross Alpha	5.89E-15	9.73E-15	1.14E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183448	SLAPS Loadout	03/08/16	Gross Alpha/Beta	Gross Beta	4.91E-14	7.33E-14	2.55E-14	µCi/mL	UJ	T02	SLAPS (General Area)-Perimeter Air
SLA183449	SLAPS Loadout	03/08/16	Gross Alpha/Beta	Gross Alpha	-4.77E-16	7.88E-15	1.14E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183449	SLAPS Loadout	03/08/16	Gross Alpha/Beta	Gross Beta	3.69E-14	7.30E-14	2.55E-14	µCi/mL	UJ	T02	SLAPS (General Area)-Perimeter Air
SLA183450	SLAPS Loadout	03/09/16	Gross Alpha/Beta	Gross Alpha	-1.61E-15	6.84E-15	1.05E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183450	SLAPS Loadout	03/09/16	Gross Alpha/Beta	Gross Beta	2.26E-14	6.67E-14	2.34E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183451	SLAPS Loadout	03/09/16	Gross Alpha/Beta	Gross Alpha	-1.64E-15	6.97E-15	1.07E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183451	SLAPS Loadout	03/09/16	Gross Alpha/Beta	Gross Beta	2.68E-14	6.80E-14	2.38E-14	µCi/mL	UJ	T02	SLAPS (General Area)-Perimeter Air
SLA183452	SLAPS Loadout	03/14/16	Gross Alpha/Beta	Gross Alpha	1.67E-15	5.56E-15	1.12E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA183452	SLAPS Loadout	03/14/16	Gross Alpha/Beta	Gross Alpha	5.68E-15	7.24E-15	1.12E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA183452	SLAPS Loadout	03/14/16	Gross Alpha/Beta	Gross Beta	1.63E-14	1.92E-14	3.07E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA183452	SLAPS Loadout	03/14/16	Gross Alpha/Beta	Gross Beta	1.29E-14	1.89E-14	3.07E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183453	SLAPS Loadout	03/14/16	Gross Alpha/Beta	Gross Alpha	5.68E-15	7.24E-15	1.12E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183453	SLAPS Loadout	03/14/16	Gross Alpha/Beta	Gross Beta	1.38E-14	1.89E-14	3.07E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183454	SLAPS Loadout	03/15/16	Gross Alpha/Beta	Gross Alpha	7.61E-15	8.38E-15	1.22E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183454	SLAPS Loadout	03/15/16	Gross Alpha/Beta	Gross Beta	2.13E-14	2.11E-14	3.33E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA183455	SLAPS Loadout	03/15/16	Gross Alpha/Beta	Gross Alpha	3.19E-15	6.54E-15	1.19E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183455	SLAPS Loadout	03/15/16	Gross Alpha/Beta	Gross Beta	2.53E-14	2.11E-14	3.25E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA183456	SLAPS Loadout	03/16/16	Gross Alpha/Beta	Gross Alpha	5.19E-15	6.62E-15	1.02E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183456	SLAPS Loadout	03/16/16	Gross Alpha/Beta	Gross Beta	1.57E-14	1.76E-14	2.80E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183457	SLAPS Loadout	03/16/16	Gross Alpha/Beta	Gross Alpha	6.32E-15	6.96E-15	1.01E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183457	SLAPS Loadout	03/16/16	Gross Alpha/Beta	Gross Beta	4.05E-15	1.63E-14	2.76E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183458	SLAPS Loadout	03/17/16	Gross Alpha/Beta	Gross Alpha	1.36E-14	1.04E-14	1.24E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA183458	SLAPS Loadout	03/17/16	Gross Alpha/Beta	Gross Beta	2.64E-14	2.19E-14	3.38E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA183459	SLAPS Loadout	03/17/16	Gross Alpha/Beta	Gross Alpha	9.22E-15	9.03E-15	1.24E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA183459	SLAPS Loadout	03/17/16	Gross Alpha/Beta	Gross Beta	2.82E-14	2.21E-14	3.38E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA183460	SLAPS Loadout	03/21/16	Gross Alpha/Beta	Gross Alpha	1.06E-14	8.04E-15	9.56E-15	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA183460	SLAPS Loadout	03/21/16	Gross Alpha/Beta	Gross Beta	1.82E-14	1.68E-14	2.62E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA183461	SLAPS Loadout	03/21/16	Gross Alpha/Beta	Gross Alpha	1.43E-15	4.74E-15	9.56E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183461	SLAPS Loadout	03/21/16	Gross Alpha/Beta	Gross Beta	1.18E-14	1.62E-14	2.62E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183462	SLAPS Loadout	03/22/16	Gross Alpha/Beta	Gross Alpha	6.07E-15	6.68E-15	9.69E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA183462	SLAPS Loadout	03/22/16	Gross Alpha/Beta	Gross Beta	2.72E-14	1.78E-14	2.65E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187609	SLAPS Loadout	03/22/16	Gross Alpha/Beta	Gross Alpha	-1.23E-15	5.12E-15	1.26E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187609	SLAPS Loadout	03/22/16	Gross Alpha/Beta	Gross Alpha	1.04E-15	6.04E-15	1.26E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187609	SLAPS Loadout	03/22/16	Gross Alpha/Beta	Gross Beta	2.40E-14	1.42E-14	1.79E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187609	SLAPS Loadout	03/22/16	Gross Alpha/Beta	Gross Beta	2.69E-14	1.45E-14	1.79E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187610	SLAPS Loadout	03/23/16	Gross Alpha/Beta	Gross Alpha	-9.70E-17	5.73E-15	1.29E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187610	SLAPS Loadout	03/23/16	Gross Alpha/Beta	Gross Beta	1.71E-14	1.37E-14	1.83E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187611	SLAPS Loadout	03/23/16	Gross Alpha/Beta	Gross Alpha	2.22E-15	6.60E-15	1.29E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187611	SLAPS Loadout	03/23/16	Gross Alpha/Beta	Gross Beta	1.41E-14	1.34E-14	1.83E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187612	SLAPS Loadout	03/24/16	Gross Alpha/Beta	Gross Alpha	2.34E-15	6.95E-15	1.36E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187612	SLAPS Loadout	03/24/16	Gross Alpha/Beta	Gross Beta	1.10E-14	1.36E-14	1.93E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187613	SLAPS Loadout	03/24/16	Gross Alpha/Beta	Gross Alpha	-3.73E-15	4.27E-15	1.35E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187613	SLAPS Loadout	03/24/16	Gross Alpha/Beta	Gross Beta	2.32E-15	1.24E-14	1.91E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187614	SLAPS Loadout	03/28/16	Gross Alpha/Beta	Gross Alpha	-9.40E-17	5.60E-15	1.26E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187614	SLAPS Loadout	03/28/16	Gross Alpha/Beta	Gross Beta	2.32E-14	1.41E-14	1.79E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187615	SLAPS Loadout	03/28/16	Gross Alpha/Beta	Gross Alpha	-7.02E-15	8.80E-16	1.29E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187615	SLAPS Loadout	03/28/16	Gross Alpha/Beta	Gross Beta	1.48E-14	1.34E-14	1.82E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187616	SLAPS Loadout	03/29/16	Gross Alpha/Beta	Gross Alpha	5.69E-15	1.18E-14	2.18E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187616	SLAPS Loadout	03/29/16	Gross Alpha/Beta	Gross Beta	3.00E-14	2.32E-14	3.08E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187617	SLAPS Loadout	03/29/16	Gross Alpha/Beta	Gross Alpha	1.76E-15	1.02E-14	2.14E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187617	SLAPS Loadout	03/29/16	Gross Alpha/Beta	Gross Beta	9.84E-15	2.05E-14	3.03E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187618	SLAPS Loadout	03/29/16	Gross Alpha/Beta	Gross Alpha	9.12E-15	1.21E-14	1.71E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187618	SLAPS Loadout	03/29/16	Gross Alpha/Beta	Gross Alpha	1.44E-15	9.31E-15	1.71E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA187618	SLAPS Loadout	03/29/16	Gross Alpha/Beta	Gross Beta	2.25E-14	1.93E-14	2.96E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187618	SLAPS Loadout	03/29/16	Gross Alpha/Beta	Gross Beta	3.35E-14	2.08E-14	2.96E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187619	SLAPS Loadout	03/29/16	Gross Alpha/Beta	Gross Alpha	4.67E-15	7.43E-15	1.11E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187619	SLAPS Loadout	03/29/16	Gross Alpha/Beta	Gross Beta	1.86E-14	1.31E-14	1.92E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187620	SLAPS Loadout	03/29/16	Gross Alpha/Beta	Gross Alpha	9.29E-16	6.01E-15	1.10E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187620	SLAPS Loadout	03/29/16	Gross Alpha/Beta	Gross Beta	6.55E-15	1.14E-14	1.91E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187621	SLAPS Loadout	03/30/16	Gross Alpha/Beta	Gross Alpha	1.89E-15	1.22E-14	2.23E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187621	SLAPS Loadout	03/30/16	Gross Alpha/Beta	Gross Beta	3.75E-14	2.64E-14	3.87E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187622	SLAPS Loadout	03/30/16	Gross Alpha/Beta	Gross Alpha	6.33E-15	1.01E-14	1.50E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187622	SLAPS Loadout	03/30/16	Gross Alpha/Beta	Gross Beta	1.33E-14	1.61E-14	2.60E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187623	SLAPS Loadout	03/31/16	Gross Alpha/Beta	Gross Alpha	2.00E-15	6.00E-15	1.02E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187623	SLAPS Loadout	03/31/16	Gross Alpha/Beta	Gross Beta	3.17E-14	1.38E-14	1.76E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187624	SLAPS Loadout	03/31/16	Gross Alpha/Beta	Gross Alpha	-1.44E-15	4.53E-15	1.02E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187624	SLAPS Loadout	03/31/16	Gross Alpha/Beta	Gross Beta	2.23E-14	1.27E-14	1.77E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187625	SLAPS Loadout	03/31/16	Gross Alpha/Beta	Gross Alpha	5.95E-15	1.78E-14	3.02E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187625	SLAPS Loadout	03/31/16	Gross Alpha/Beta	Gross Beta	-2.56E-14	2.45E-14	5.23E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187626	SLAPS Loadout	03/31/16	Gross Alpha/Beta	Gross Alpha	9.35E-15	1.91E-14	3.02E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187626	SLAPS Loadout	03/31/16	Gross Alpha/Beta	Gross Beta	-1.04E-14	2.70E-14	5.23E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187627	SLAPS Loadout	03/31/16	Gross Alpha/Beta	Gross Alpha	1.62E-14	2.14E-14	3.02E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187627	SLAPS Loadout	03/31/16	Gross Alpha/Beta	Gross Beta	5.28E-14	3.60E-14	5.23E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187628	SLAPS Loadout	04/04/16	Gross Alpha/Beta	Gross Alpha	1.16E-14	8.68E-15	8.65E-15	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187628	SLAPS Loadout	04/04/16	Gross Alpha/Beta	Gross Alpha	7.91E-15	7.54E-15	8.65E-15	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187628	SLAPS Loadout	04/04/16	Gross Alpha/Beta	Gross Beta	4.42E-14	2.09E-14	2.84E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187628	SLAPS Loadout	04/04/16	Gross Alpha/Beta	Gross Beta	3.25E-14	1.99E-14	2.84E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187629	SLAPS Loadout	04/04/16	Gross Alpha/Beta	Gross Alpha	1.29E-14	9.04E-15	8.65E-15	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187629	SLAPS Loadout	04/04/16	Gross Alpha/Beta	Gross Beta	2.08E-14	1.89E-14	2.84E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187630	SLAPS Loadout	04/05/16	Gross Alpha/Beta	Gross Alpha	8.27E-15	8.81E-15	1.07E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187630	SLAPS Loadout	04/05/16	Gross Alpha/Beta	Gross Beta	3.83E-14	2.45E-14	3.51E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187631	SLAPS Loadout	04/05/16	Gross Alpha/Beta	Gross Alpha	6.81E-15	7.26E-15	8.82E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187631	SLAPS Loadout	04/05/16	Gross Alpha/Beta	Gross Beta	9.32E-15	1.82E-14	2.89E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187632	SLAPS Loadout	04/06/16	Gross Alpha/Beta	Gross Alpha	1.02E-14	1.50E-14	2.09E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187632	SLAPS Loadout	04/06/16	Gross Alpha/Beta	Gross Beta	3.15E-14	4.41E-14	6.86E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187633	SLAPS Loadout	04/06/16	Gross Alpha/Beta	Gross Alpha	-1.87E-15	9.70E-15	2.25E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187633	SLAPS Loadout	04/06/16	Gross Alpha/Beta	Gross Beta	-6.57E-15	4.37E-14	7.38E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187634	SLAPS Loadout	04/07/16	Gross Alpha/Beta	Gross Alpha	5.81E-16	5.06E-15	9.78E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187634	SLAPS Loadout	04/07/16	Gross Alpha/Beta	Gross Beta	1.03E-14	2.02E-14	3.21E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187635	SLAPS Loadout	04/07/16	Gross Alpha/Beta	Gross Alpha	1.95E-15	5.71E-15	9.68E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187635	SLAPS Loadout	04/07/16	Gross Alpha/Beta	Gross Beta	9.35E-15	1.99E-14	3.17E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187636	SLAPS Loadout	04/07/16	Gross Alpha/Beta	Gross Alpha	1.09E-15	9.49E-15	1.84E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187636	SLAPS Loadout	04/07/16	Gross Alpha/Beta	Gross Beta	-1.03E-14	3.52E-14	6.02E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187637	SLAPS Loadout	04/07/16	Gross Alpha/Beta	Gross Alpha	6.33E-15	1.21E-14	1.84E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187637	SLAPS Loadout	04/07/16	Gross Alpha/Beta	Gross Beta	4.58E-14	4.03E-14	6.02E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187638	SLAPS Loadout	04/07/16	Gross Alpha/Beta	Gross Alpha	-7.49E-15	1.19E-14	2.43E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187638	SLAPS Loadout	04/07/16	Gross Alpha/Beta	Gross Alpha	5.35E-15	1.65E-14	2.43E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA187638	SLAPS Loadout	04/07/16	Gross Alpha/Beta	Gross Beta	-6.17E-15	2.14E-14	4.08E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187638	SLAPS Loadout	04/07/16	Gross Alpha/Beta	Gross Beta	8.63E-15	2.35E-14	4.08E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187639	SLAPS Loadout	04/12/16	Gross Alpha/Beta	Gross Alpha	3.56E-15	7.77E-15	1.09E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187639	SLAPS Loadout	04/12/16	Gross Alpha/Beta	Gross Beta	2.09E-14	1.28E-14	1.84E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187640	SLAPS Loadout	04/12/16	Gross Alpha/Beta	Gross Alpha	1.25E-15	7.05E-15	1.09E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187640	SLAPS Loadout	04/12/16	Gross Alpha/Beta	Gross Beta	2.16E-14	1.29E-14	1.84E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187641	SLAPS Loadout	04/12/16	Gross Alpha/Beta	Gross Alpha	-4.61E-15	2.72E-14	4.77E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187641	SLAPS Loadout	04/12/16	Gross Alpha/Beta	Gross Beta	3.30E-14	4.84E-14	8.00E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187642	SLAPS Loadout	04/12/16	Gross Alpha/Beta	Gross Alpha	5.68E-15	3.20E-14	4.97E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187642	SLAPS Loadout	04/12/16	Gross Alpha/Beta	Gross Beta	4.20E-15	4.61E-14	8.34E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187643	SLAPS Loadout	04/12/16	Gross Alpha/Beta	Gross Alpha	1.62E-14	3.53E-14	4.97E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187643	SLAPS Loadout	04/12/16	Gross Alpha/Beta	Gross Beta	-2.52E-15	4.51E-14	8.34E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187644	SLAPS Loadout	04/13/16	Gross Alpha/Beta	Gross Alpha	4.22E-15	9.21E-15	1.30E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187644	SLAPS Loadout	04/13/16	Gross Alpha/Beta	Gross Beta	3.79E-14	1.68E-14	2.18E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187645	SLAPS Loadout	04/13/16	Gross Alpha/Beta	Gross Alpha	9.68E-15	1.07E-14	1.30E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187645	SLAPS Loadout	04/13/16	Gross Alpha/Beta	Gross Beta	6.35E-15	1.28E-14	2.18E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187646	SLAPS Loadout	04/14/16	Gross Alpha/Beta	Gross Alpha	2.59E-15	8.00E-15	1.18E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187646	SLAPS Loadout	04/14/16	Gross Alpha/Beta	Gross Beta	1.94E-14	1.34E-14	1.98E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187647	SLAPS Loadout	04/14/16	Gross Alpha/Beta	Gross Alpha	2.48E-15	7.66E-15	1.13E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187647	SLAPS Loadout	04/14/16	Gross Alpha/Beta	Gross Beta	1.62E-14	1.26E-14	1.90E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187648	SLAPS Loadout	04/15/16	Gross Alpha/Beta	Gross Alpha	3.17E-15	1.79E-14	2.77E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187648	SLAPS Loadout	04/15/16	Gross Alpha/Beta	Gross Alpha	6.09E-15	1.88E-14	2.77E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187648	SLAPS Loadout	04/15/16	Gross Alpha/Beta	Gross Beta	1.73E-14	2.79E-14	4.65E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187648	SLAPS Loadout	04/15/16	Gross Alpha/Beta	Gross Beta	3.23E-14	2.99E-14	4.65E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187649	SLAPS Loadout	04/18/16	Gross Alpha/Beta	Gross Alpha	4.87E-15	2.74E-14	4.26E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187649	SLAPS Loadout	04/18/16	Gross Alpha/Beta	Gross Beta	2.09E-14	4.20E-14	7.15E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187650	SLAPS Loadout	04/18/16	Gross Alpha/Beta	Gross Alpha	6.42E-15	1.11E-14	1.49E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187650	SLAPS Loadout	04/18/16	Gross Alpha/Beta	Gross Beta	2.95E-14	1.76E-14	2.50E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187651	SLAPS Loadout	04/18/16	Gross Alpha/Beta	Gross Alpha	1.26E-14	1.00E-14	1.08E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187651	SLAPS Loadout	04/18/16	Gross Alpha/Beta	Gross Beta	3.07E-14	1.38E-14	1.80E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187652	SLAPS Loadout	04/19/16	Gross Alpha/Beta	Gross Alpha	7.58E-15	9.44E-15	1.18E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187652	SLAPS Loadout	04/19/16	Gross Alpha/Beta	Gross Beta	1.78E-14	1.32E-14	1.98E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187653	SLAPS Loadout	04/19/16	Gross Alpha/Beta	Gross Alpha	-2.39E-15	6.27E-15	1.18E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187653	SLAPS Loadout	04/19/16	Gross Alpha/Beta	Gross Beta	1.62E-14	1.30E-14	1.98E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187654	SLAPS Loadout	04/20/16	Gross Alpha/Beta	Gross Alpha	9.70E-17	7.50E-15	1.10E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187654	SLAPS Loadout	04/20/16	Gross Alpha/Beta	Gross Alpha	9.70E-17	7.50E-15	1.10E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187654	SLAPS Loadout	04/20/16	Gross Alpha/Beta	Gross Beta	2.76E-14	1.41E-14	1.74E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187654	SLAPS Loadout	04/20/16	Gross Alpha/Beta	Gross Beta	2.91E-14	1.43E-14	1.74E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187655	SLAPS Loadout	04/20/16	Gross Alpha/Beta	Gross Alpha	4.76E-15	8.87E-15	1.10E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187655	SLAPS Loadout	04/20/16	Gross Alpha/Beta	Gross Beta	2.85E-14	1.42E-14	1.75E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187656	SLAPS Loadout	04/21/16	Gross Alpha/Beta	Gross Alpha	6.56E-15	1.02E-14	1.22E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187656	SLAPS Loadout	04/21/16	Gross Alpha/Beta	Gross Beta	2.74E-14	1.53E-14	1.94E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187657	SLAPS Loadout	04/21/16	Gross Alpha/Beta	Gross Alpha	2.67E-15	9.07E-15	1.22E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187657	SLAPS Loadout	04/21/16	Gross Alpha/Beta	Gross Beta	3.39E-14	1.60E-14	1.93E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA187658	SLAPS Loadout	04/25/16	Gross Alpha/Beta	Gross Alpha	9.68E-15	1.03E-14	1.14E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187658	SLAPS Loadout	04/25/16	Gross Alpha/Beta	Gross Beta	4.00E-14	1.58E-14	1.80E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187659	SLAPS Loadout	04/26/16	Gross Alpha/Beta	Gross Alpha	3.32E-15	1.13E-14	1.51E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187659	SLAPS Loadout	04/26/16	Gross Alpha/Beta	Gross Beta	4.61E-14	2.03E-14	2.40E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187660	SLAPS Loadout	04/28/16	Gross Alpha/Beta	Gross Alpha	4.76E-15	8.87E-15	1.10E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187660	SLAPS Loadout	04/28/16	Gross Alpha/Beta	Gross Beta	2.77E-14	1.41E-14	1.75E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187661	SLAPS Loadout	05/02/16	Gross Alpha/Beta	Gross Alpha	8.02E-15	7.46E-15	1.00E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187661	SLAPS Loadout	05/02/16	Gross Alpha/Beta	Gross Alpha	4.32E-15	6.10E-15	1.00E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187661	SLAPS Loadout	05/02/16	Gross Alpha/Beta	Gross Beta	1.19E-15	1.22E-14	1.94E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187661	SLAPS Loadout	05/02/16	Gross Alpha/Beta	Gross Beta	1.15E-14	1.35E-14	1.94E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187662	SLAPS Loadout	05/02/16	Gross Alpha/Beta	Gross Alpha	-1.17E-15	6.77E-15	1.89E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187662	SLAPS Loadout	05/02/16	Gross Alpha/Beta	Gross Beta	5.22E-15	2.34E-14	3.66E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187663	SLAPS Loadout	05/02/16	Gross Alpha/Beta	Gross Alpha	1.75E-14	1.49E-14	1.89E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187663	SLAPS Loadout	05/02/16	Gross Alpha/Beta	Gross Beta	3.06E-14	2.65E-14	3.66E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187664	SLAPS Loadout	05/03/16	Gross Alpha/Beta	Gross Alpha	6.55E-16	4.62E-15	1.06E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187664	SLAPS Loadout	05/03/16	Gross Alpha/Beta	Gross Beta	1.39E-14	1.45E-14	2.06E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187665	SLAPS Loadout	05/03/16	Gross Alpha/Beta	Gross Alpha	7.21E-15	7.48E-15	1.06E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187665	SLAPS Loadout	05/03/16	Gross Alpha/Beta	Gross Beta	2.73E-14	1.61E-14	2.06E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187666	SLAPS Loadout	05/03/16	Gross Alpha/Beta	Gross Alpha	1.33E-14	1.89E-14	3.10E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187666	SLAPS Loadout	05/03/16	Gross Alpha/Beta	Gross Beta	3.66E-15	3.76E-14	5.98E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187667	SLAPS Loadout	05/03/16	Gross Alpha/Beta	Gross Alpha	2.86E-14	2.43E-14	3.10E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187667	SLAPS Loadout	05/03/16	Gross Alpha/Beta	Gross Beta	9.65E-14	4.86E-14	5.98E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187668	SLAPS Loadout	05/03/16	Gross Alpha/Beta	Gross Alpha	1.91E-15	1.35E-14	3.10E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187668	SLAPS Loadout	05/03/16	Gross Alpha/Beta	Gross Beta	1.10E-14	3.85E-14	5.98E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187669	SLAPS Loadout	05/04/16	Gross Alpha/Beta	Gross Alpha	5.93E-16	4.19E-15	9.64E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187669	SLAPS Loadout	05/04/16	Gross Alpha/Beta	Gross Beta	1.48E-14	1.34E-14	1.86E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187670	SLAPS Loadout	05/04/16	Gross Alpha/Beta	Gross Alpha	4.08E-15	5.77E-15	9.46E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187670	SLAPS Loadout	05/04/16	Gross Alpha/Beta	Gross Beta	2.13E-14	1.39E-14	1.83E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187671	SLAPS Loadout	05/09/16	Gross Alpha/Beta	Gross Alpha	6.15E-15	6.73E-15	9.01E-15	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187671	SLAPS Loadout	05/09/16	Gross Alpha/Beta	Gross Alpha	6.15E-15	6.73E-15	9.01E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187671	SLAPS Loadout	05/09/16	Gross Alpha/Beta	Gross Beta	3.72E-14	1.93E-14	2.65E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187671	SLAPS Loadout	05/09/16	Gross Alpha/Beta	Gross Beta	2.49E-14	1.82E-14	2.65E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187672	SLAPS Loadout	05/09/16	Gross Alpha/Beta	Gross Alpha	6.12E-15	6.70E-15	8.97E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187672	SLAPS Loadout	05/09/16	Gross Alpha/Beta	Gross Beta	5.22E-14	2.05E-14	2.64E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187673	SLAPS Loadout	05/09/16	Gross Alpha/Beta	Gross Alpha	5.14E-15	1.07E-14	1.84E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187673	SLAPS Loadout	05/09/16	Gross Alpha/Beta	Gross Beta	2.91E-14	3.51E-14	5.40E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187674	SLAPS Loadout	05/09/16	Gross Alpha/Beta	Gross Alpha	5.14E-15	1.07E-14	1.84E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187674	SLAPS Loadout	05/09/16	Gross Alpha/Beta	Gross Beta	1.66E-14	3.40E-14	5.40E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187675	SLAPS Loadout	05/09/16	Gross Alpha/Beta	Gross Alpha	5.14E-15	1.07E-14	1.84E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187675	SLAPS Loadout	05/09/16	Gross Alpha/Beta	Gross Beta	5.24E-14	3.73E-14	5.40E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187676	SLAPS Loadout	05/10/16	Gross Alpha/Beta	Gross Alpha	2.80E-15	5.82E-15	1.00E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187676	SLAPS Loadout	05/10/16	Gross Alpha/Beta	Gross Beta	9.04E-15	1.85E-14	2.94E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187677	SLAPS Loadout	05/10/16	Gross Alpha/Beta	Gross Alpha	5.35E-15	6.78E-15	9.75E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187677	SLAPS Loadout	05/10/16	Gross Alpha/Beta	Gross Beta	7.98E-15	1.79E-14	2.87E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA187678	SLAPS Loadout	05/11/16	Gross Alpha/Beta	Gross Alpha	2.50E-15	5.20E-15	8.93E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187678	SLAPS Loadout	05/11/16	Gross Alpha/Beta	Gross Beta	3.08E-14	1.86E-14	2.63E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187679	SLAPS Loadout	05/11/16	Gross Alpha/Beta	Gross Alpha	4.90E-15	6.21E-15	8.93E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187679	SLAPS Loadout	05/11/16	Gross Alpha/Beta	Gross Beta	3.68E-14	1.91E-14	2.63E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187680	SLAPS Loadout	05/11/16	Gross Alpha/Beta	Gross Alpha	1.20E-14	1.86E-14	2.90E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187680	SLAPS Loadout	05/11/16	Gross Alpha/Beta	Gross Beta	1.39E-14	5.24E-14	8.51E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187681	SLAPS Loadout	05/11/16	Gross Alpha/Beta	Gross Alpha	-3.56E-15	1.01E-14	2.90E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187681	SLAPS Loadout	05/11/16	Gross Alpha/Beta	Gross Alpha	3.24E-16	1.28E-14	2.90E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187681	SLAPS Loadout	05/11/16	Gross Alpha/Beta	Gross Beta	-3.27E-15	5.07E-14	8.51E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187681	SLAPS Loadout	05/11/16	Gross Alpha/Beta	Gross Beta	1.64E-15	5.12E-14	8.51E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187682	SLAPS Loadout	05/11/16	Gross Alpha/Beta	Gross Alpha	1.20E-14	1.86E-14	2.90E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187682	SLAPS Loadout	05/11/16	Gross Alpha/Beta	Gross Beta	3.11E-14	5.40E-14	8.51E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187683	SLAPS Loadout	05/12/16	Gross Alpha/Beta	Gross Alpha	2.74E-15	5.70E-15	9.80E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187683	SLAPS Loadout	05/12/16	Gross Alpha/Beta	Gross Beta	4.29E-14	2.12E-14	2.88E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187684	SLAPS Loadout	05/12/16	Gross Alpha/Beta	Gross Alpha	4.04E-15	6.25E-15	9.75E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187684	SLAPS Loadout	05/12/16	Gross Alpha/Beta	Gross Beta	2.04E-14	1.91E-14	2.87E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187685	SLAPS Loadout	05/16/16	Gross Alpha/Beta	Gross Alpha	2.52E-15	5.25E-15	9.01E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187685	SLAPS Loadout	05/16/16	Gross Alpha/Beta	Gross Beta	2.95E-14	1.86E-14	2.65E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187686	SLAPS Loadout	05/16/16	Gross Alpha/Beta	Gross Alpha	2.52E-15	5.25E-15	9.01E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187686	SLAPS Loadout	05/16/16	Gross Alpha/Beta	Gross Beta	2.04E-14	1.78E-14	2.65E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187687	SLAPS Loadout	05/17/16	Gross Alpha/Beta	Gross Alpha	3.63E-15	5.62E-15	8.76E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187687	SLAPS Loadout	05/17/16	Gross Alpha/Beta	Gross Beta	4.88E-14	1.99E-14	2.58E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187688	SLAPS Loadout	05/18/16	Gross Alpha/Beta	Gross Alpha	4.74E-15	6.02E-15	8.64E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187688	SLAPS Loadout	05/18/16	Gross Alpha/Beta	Gross Beta	4.44E-14	1.93E-14	2.54E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187689	SLAPS Loadout	05/18/16	Gross Alpha/Beta	Gross Alpha	2.41E-15	5.01E-15	8.61E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187689	SLAPS Loadout	05/18/16	Gross Alpha/Beta	Gross Beta	2.67E-14	1.77E-14	2.53E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187690	SLAPS Loadout	05/19/16	Gross Alpha/Beta	Gross Alpha	7.31E-15	6.54E-15	7.76E-15	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187690	SLAPS Loadout	05/19/16	Gross Alpha/Beta	Gross Alpha	3.94E-15	5.24E-15	7.76E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187690	SLAPS Loadout	05/19/16	Gross Alpha/Beta	Gross Beta	2.57E-14	1.77E-14	2.51E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187690	SLAPS Loadout	05/19/16	Gross Alpha/Beta	Gross Beta	1.72E-14	1.69E-14	2.51E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187691	SLAPS Loadout	05/19/16	Gross Alpha/Beta	Gross Alpha	3.96E-15	5.26E-15	7.80E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187691	SLAPS Loadout	05/19/16	Gross Alpha/Beta	Gross Beta	2.97E-15	1.57E-14	2.52E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187692	SLAPS Loadout	05/23/16	Gross Alpha/Beta	Gross Alpha	8.55E-15	7.02E-15	7.87E-15	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187692	SLAPS Loadout	05/23/16	Gross Alpha/Beta	Gross Beta	3.18E-14	1.84E-14	2.54E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187693	SLAPS Loadout	05/23/16	Gross Alpha/Beta	Gross Alpha	4.01E-15	5.33E-15	7.90E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187693	SLAPS Loadout	05/23/16	Gross Alpha/Beta	Gross Beta	2.61E-14	1.80E-14	2.55E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187694	SLAPS Loadout	05/24/16	Gross Alpha/Beta	Gross Alpha	7.51E-15	6.72E-15	7.97E-15	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187694	SLAPS Loadout	05/24/16	Gross Alpha/Beta	Gross Beta	5.33E-14	2.05E-14	2.58E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187695	SLAPS Loadout	05/24/16	Gross Alpha/Beta	Gross Alpha	2.89E-15	4.86E-15	7.97E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187695	SLAPS Loadout	05/24/16	Gross Alpha/Beta	Gross Beta	3.07E-14	1.85E-14	2.58E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187696	SLAPS Loadout	05/25/16	Gross Alpha/Beta	Gross Alpha	8.67E-15	7.11E-15	7.97E-15	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187696	SLAPS Loadout	05/25/16	Gross Alpha/Beta	Gross Beta	2.27E-14	1.78E-14	2.58E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187697	SLAPS Loadout	05/25/16	Gross Alpha/Beta	Gross Alpha	2.89E-15	4.86E-15	7.97E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187697	SLAPS Loadout	05/25/16	Gross Alpha/Beta	Gross Beta	8.50E-16	1.59E-14	2.58E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA187698	SLAPS Loadout	05/26/16	Gross Alpha/Beta	Gross Alpha	9.78E-15	1.10E-14	1.50E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187698	SLAPS Loadout	05/26/16	Gross Alpha/Beta	Gross Beta	1.94E-14	3.15E-14	4.85E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187699	SLAPS Loadout	05/31/16	Gross Alpha/Beta	Gross Alpha	5.83E-16	3.62E-15	8.05E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187699	SLAPS Loadout	05/31/16	Gross Alpha/Beta	Gross Beta	3.69E-14	1.92E-14	2.60E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187700	SLAPS Loadout	06/01/16	Gross Alpha/Beta	Gross Alpha	-2.08E-16	5.99E-15	1.31E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187700	SLAPS Loadout	06/01/16	Gross Alpha/Beta	Gross Alpha	-3.94E-15	4.16E-15	1.31E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187700	SLAPS Loadout	06/01/16	Gross Alpha/Beta	Gross Beta	4.28E-14	1.76E-14	1.95E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187700	SLAPS Loadout	06/01/16	Gross Alpha/Beta	Gross Beta	2.36E-14	1.56E-14	1.95E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187701	SLAPS Loadout	06/01/16	Gross Alpha/Beta	Gross Alpha	7.30E-15	8.60E-15	1.31E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187701	SLAPS Loadout	06/01/16	Gross Alpha/Beta	Gross Beta	1.81E-14	1.50E-14	1.96E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187702	SLAPS Loadout	06/02/16	Gross Alpha/Beta	Gross Alpha	6.86E-15	8.08E-15	1.23E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187702	SLAPS Loadout	06/02/16	Gross Alpha/Beta	Gross Beta	2.23E-14	1.47E-14	1.84E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187703	SLAPS Loadout	06/02/16	Gross Alpha/Beta	Gross Alpha	-2.15E-16	6.20E-15	1.35E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187703	SLAPS Loadout	06/02/16	Gross Alpha/Beta	Gross Beta	2.61E-14	1.63E-14	2.02E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187704	SLAPS Loadout	06/06/16	Gross Alpha/Beta	Gross Alpha	-1.84E-16	5.30E-15	1.16E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187704	SLAPS Loadout	06/06/16	Gross Alpha/Beta	Gross Beta	3.22E-14	1.50E-14	1.73E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187705	SLAPS Loadout	06/06/16	Gross Alpha/Beta	Gross Alpha	2.01E-15	6.13E-15	1.15E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187705	SLAPS Loadout	06/06/16	Gross Alpha/Beta	Gross Beta	1.24E-14	1.28E-14	1.72E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187706	SLAPS Loadout	06/07/16	Gross Alpha/Beta	Gross Alpha	4.61E-15	6.00E-15	8.38E-15	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187706	SLAPS Loadout	06/07/16	Gross Alpha/Beta	Gross Alpha	9.64E-15	7.85E-15	8.38E-15	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187706	SLAPS Loadout	06/07/16	Gross Alpha/Beta	Gross Beta	7.47E-15	1.61E-14	2.74E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187706	SLAPS Loadout	06/07/16	Gross Alpha/Beta	Gross Beta	2.49E-14	1.78E-14	2.74E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187707	SLAPS Loadout	06/07/16	Gross Alpha/Beta	Gross Alpha	4.32E-15	5.61E-15	7.84E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187707	SLAPS Loadout	06/07/16	Gross Alpha/Beta	Gross Beta	7.73E-15	1.52E-14	2.57E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187708	SLAPS Loadout	06/08/16	Gross Alpha/Beta	Gross Alpha	1.95E-15	4.49E-15	7.80E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187708	SLAPS Loadout	06/08/16	Gross Alpha/Beta	Gross Beta	2.69E-14	1.70E-14	2.56E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187709	SLAPS Loadout	06/08/16	Gross Alpha/Beta	Gross Alpha	7.88E-16	3.86E-15	7.87E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187709	SLAPS Loadout	06/08/16	Gross Alpha/Beta	Gross Beta	4.79E-15	1.49E-14	2.58E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187710	SLAPS Loadout	06/08/16	Gross Alpha/Beta	Gross Alpha	5.11E-15	8.28E-15	1.28E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187710	SLAPS Loadout	06/08/16	Gross Alpha/Beta	Gross Beta	2.35E-14	2.58E-14	4.18E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187711	SLAPS Loadout	06/08/16	Gross Alpha/Beta	Gross Alpha	5.14E-15	8.34E-15	1.29E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187711	SLAPS Loadout	06/08/16	Gross Alpha/Beta	Gross Beta	4.92E-14	2.84E-14	4.21E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187712	SLAPS Loadout	06/08/16	Gross Alpha/Beta	Gross Alpha	3.24E-15	7.45E-15	1.29E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187712	SLAPS Loadout	06/08/16	Gross Alpha/Beta	Gross Beta	2.26E-14	2.60E-14	4.24E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187713	SLAPS Loadout	06/09/16	Gross Alpha/Beta	Gross Alpha	3.17E-15	5.14E-15	7.91E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187713	SLAPS Loadout	06/09/16	Gross Alpha/Beta	Gross Beta	4.83E-14	1.92E-14	2.59E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187714	SLAPS Loadout	06/09/16	Gross Alpha/Beta	Gross Alpha	1.02E-14	7.68E-15	7.80E-15	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187714	SLAPS Loadout	06/09/16	Gross Alpha/Beta	Gross Beta	4.39E-14	1.86E-14	2.56E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187715	SLAPS Loadout	06/13/16	Gross Alpha/Beta	Gross Alpha	4.30E-15	5.59E-15	7.80E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187715	SLAPS Loadout	06/13/16	Gross Alpha/Beta	Gross Beta	5.57E-14	1.96E-14	2.56E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187716	SLAPS Loadout	06/13/16	Gross Alpha/Beta	Gross Alpha	7.77E-16	3.81E-15	7.77E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187716	SLAPS Loadout	06/13/16	Gross Alpha/Beta	Gross Beta	3.78E-14	1.79E-14	2.54E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187717	SLAPS Loadout	06/13/16	Gross Alpha/Beta	Gross Alpha	3.24E-15	7.45E-15	1.29E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187717	SLAPS Loadout	06/13/16	Gross Alpha/Beta	Gross Beta	2.01E-14	2.58E-14	4.24E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA187718	SLAPS Loadout	06/13/16	Gross Alpha/Beta	Gross Alpha	7.13E-15	9.27E-15	1.29E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187718	SLAPS Loadout	06/13/16	Gross Alpha/Beta	Gross Beta	5.57E-14	2.92E-14	4.24E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187719	SLAPS Loadout	06/13/16	Gross Alpha/Beta	Gross Alpha	5.18E-15	8.40E-15	1.29E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187719	SLAPS Loadout	06/13/16	Gross Alpha/Beta	Gross Beta	2.75E-14	2.65E-14	4.24E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187720	SLAPS Loadout	06/14/16	Gross Alpha/Beta	Gross Alpha	3.67E-15	7.02E-15	1.15E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187720	SLAPS Loadout	06/14/16	Gross Alpha/Beta	Gross Alpha	5.92E-15	7.71E-15	1.15E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187720	SLAPS Loadout	06/14/16	Gross Alpha/Beta	Gross Beta	2.14E-14	1.52E-14	1.79E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187720	SLAPS Loadout	06/14/16	Gross Alpha/Beta	Gross Beta	2.72E-14	1.58E-14	1.79E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187721	SLAPS Loadout	06/14/16	Gross Alpha/Beta	Gross Alpha	4.82E-15	7.41E-15	1.15E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187721	SLAPS Loadout	06/14/16	Gross Alpha/Beta	Gross Beta	6.96E-15	1.38E-14	1.80E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187722	SLAPS Loadout	06/15/16	Gross Alpha/Beta	Gross Alpha	-3.70E-15	2.35E-14	5.02E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187722	SLAPS Loadout	06/15/16	Gross Alpha/Beta	Gross Beta	-1.40E-14	5.50E-14	7.82E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187723	SLAPS Loadout	06/15/16	Gross Alpha/Beta	Gross Alpha	-8.63E-15	2.13E-14	5.02E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187723	SLAPS Loadout	06/15/16	Gross Alpha/Beta	Gross Beta	5.24E-14	6.22E-14	7.82E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187724	SLAPS Loadout	06/15/16	Gross Alpha/Beta	Gross Alpha	1.11E-14	2.90E-14	5.02E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187724	SLAPS Loadout	06/15/16	Gross Alpha/Beta	Gross Beta	5.87E-14	6.29E-14	7.82E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187725	SLAPS Loadout	06/15/16	Gross Alpha/Beta	Gross Alpha	6.84E-15	8.91E-15	1.33E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187725	SLAPS Loadout	06/15/16	Gross Alpha/Beta	Gross Beta	3.97E-14	1.91E-14	2.07E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187726	SLAPS Loadout	06/15/16	Gross Alpha/Beta	Gross Alpha	-9.58E-16	6.08E-15	1.30E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187726	SLAPS Loadout	06/15/16	Gross Alpha/Beta	Gross Beta	2.42E-14	1.72E-14	2.02E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187727	SLAPS Loadout	06/16/16	Gross Alpha/Beta	Gross Alpha	1.59E-15	7.03E-15	1.29E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187727	SLAPS Loadout	06/16/16	Gross Alpha/Beta	Gross Beta	5.09E-14	1.98E-14	2.01E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187728	SLAPS Loadout	06/16/16	Gross Alpha/Beta	Gross Alpha	4.17E-15	7.98E-15	1.31E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187728	SLAPS Loadout	06/16/16	Gross Alpha/Beta	Gross Beta	2.60E-14	1.75E-14	2.04E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187729	SLAPS Loadout	06/20/16	Gross Alpha/Beta	Gross Alpha	6.60E-15	8.18E-15	1.15E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187729	SLAPS Loadout	06/20/16	Gross Alpha/Beta	Gross Alpha	5.44E-15	7.84E-15	1.15E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187729	SLAPS Loadout	06/20/16	Gross Alpha/Beta	Gross Beta	5.48E-14	1.71E-14	1.83E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187729	SLAPS Loadout	06/20/16	Gross Alpha/Beta	Gross Beta	3.39E-14	1.48E-14	1.83E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187730	SLAPS Loadout	06/20/16	Gross Alpha/Beta	Gross Alpha	1.01E-14	9.18E-15	1.15E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187730	SLAPS Loadout	06/20/16	Gross Alpha/Beta	Gross Beta	2.43E-14	1.38E-14	1.84E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187731	SLAPS Loadout	06/21/16	Gross Alpha/Beta	Gross Alpha	1.15E-15	9.31E-15	1.69E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187731	SLAPS Loadout	06/21/16	Gross Alpha/Beta	Gross Beta	4.13E-14	2.09E-14	2.71E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187732	SLAPS Loadout	06/21/16	Gross Alpha/Beta	Gross Alpha	-2.30E-15	7.93E-15	1.69E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187732	SLAPS Loadout	06/21/16	Gross Alpha/Beta	Gross Beta	2.81E-14	1.94E-14	2.71E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187733	SLAPS Loadout	06/22/16	Gross Alpha/Beta	Gross Alpha	1.91E-15	6.59E-15	1.13E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187733	SLAPS Loadout	06/22/16	Gross Alpha/Beta	Gross Beta	4.06E-14	1.54E-14	1.80E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187734	SLAPS Loadout	06/22/16	Gross Alpha/Beta	Gross Alpha	1.93E-15	6.68E-15	1.14E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187734	SLAPS Loadout	06/22/16	Gross Alpha/Beta	Gross Beta	3.15E-14	1.45E-14	1.82E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187735	SLAPS Loadout	06/23/16	Gross Alpha/Beta	Gross Alpha	3.05E-15	6.98E-15	1.13E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187735	SLAPS Loadout	06/23/16	Gross Alpha/Beta	Gross Beta	3.84E-14	1.51E-14	1.80E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187736	SLAPS Loadout	06/23/16	Gross Alpha/Beta	Gross Alpha	1.91E-15	6.59E-15	1.13E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187736	SLAPS Loadout	06/23/16	Gross Alpha/Beta	Gross Beta	2.01E-14	1.30E-14	1.80E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187737	SLAPS Loadout	06/27/16	Gross Alpha/Beta	Gross Alpha	7.59E-16	6.15E-15	1.12E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187737	SLAPS Loadout	06/27/16	Gross Alpha/Beta	Gross Beta	1.42E-14	1.23E-14	1.79E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA187738	SLAPS Loadout	06/27/16	Gross Alpha/Beta	Gross Alpha	1.89E-15	6.53E-15	1.11E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187738	SLAPS Loadout	06/27/16	Gross Alpha/Beta	Gross Beta	2.21E-14	1.32E-14	1.78E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187739	SLAPS Loadout	06/28/16	Gross Alpha/Beta	Gross Alpha	6.02E-15	7.56E-15	1.21E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187739	SLAPS Loadout	06/28/16	Gross Alpha/Beta	Gross Alpha	-1.45E-15	4.45E-15	1.21E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187739	SLAPS Loadout	06/28/16	Gross Alpha/Beta	Gross Beta	1.24E-14	1.21E-14	1.91E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187739	SLAPS Loadout	06/28/16	Gross Alpha/Beta	Gross Beta	1.96E-14	1.30E-14	1.91E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187740	SLAPS Loadout	06/28/16	Gross Alpha/Beta	Gross Alpha	-2.10E-16	5.15E-15	1.22E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187740	SLAPS Loadout	06/28/16	Gross Alpha/Beta	Gross Beta	1.89E-14	1.31E-14	1.93E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187741	SLAPS Loadout	06/29/16	Gross Alpha/Beta	Gross Alpha	3.32E-15	6.28E-15	1.13E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187741	SLAPS Loadout	06/29/16	Gross Alpha/Beta	Gross Beta	8.62E-15	1.09E-14	1.80E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187742	SLAPS Loadout	06/29/16	Gross Alpha/Beta	Gross Alpha	3.30E-15	6.25E-15	1.13E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187742	SLAPS Loadout	06/29/16	Gross Alpha/Beta	Gross Beta	2.28E-14	1.28E-14	1.79E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187743	SLAPS Loadout	06/30/16	Gross Alpha/Beta	Gross Alpha	9.78E-15	1.07E-14	1.63E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187743	SLAPS Loadout	06/30/16	Gross Alpha/Beta	Gross Beta	1.99E-14	1.67E-14	2.57E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187744	SLAPS Loadout	06/30/16	Gross Alpha/Beta	Gross Alpha	8.11E-15	1.02E-14	1.63E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187744	SLAPS Loadout	06/30/16	Gross Alpha/Beta	Gross Beta	1.45E-14	1.60E-14	2.57E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187745	SLAPS Loadout	07/05/16	Gross Alpha/Beta	Gross Alpha	2.05E-15	5.56E-15	1.08E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187745	SLAPS Loadout	07/05/16	Gross Alpha/Beta	Gross Beta	3.69E-14	1.41E-14	1.72E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187746	SLAPS Loadout	07/05/16	Gross Alpha/Beta	Gross Alpha	9.28E-16	5.07E-15	1.08E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187746	SLAPS Loadout	07/05/16	Gross Alpha/Beta	Gross Beta	4.24E-14	1.46E-14	1.71E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187747	SLAPS Loadout	07/06/16	Gross Alpha/Beta	Gross Alpha	1.41E-15	7.69E-15	1.64E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187747	SLAPS Loadout	07/06/16	Gross Alpha/Beta	Gross Beta	1.46E-14	1.61E-14	2.59E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187748	SLAPS Loadout	07/06/16	Gross Alpha/Beta	Gross Alpha	-1.96E-15	5.99E-15	1.63E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187748	SLAPS Loadout	07/06/16	Gross Alpha/Beta	Gross Beta	3.17E-14	1.83E-14	2.57E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187749	SLAPS Loadout	07/07/16	Gross Alpha/Beta	Gross Alpha	9.74E-15	1.46E-14	2.46E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187749	SLAPS Loadout	07/07/16	Gross Alpha/Beta	Gross Beta	3.50E-14	2.60E-14	3.90E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187750	SLAPS Loadout	07/07/16	Gross Alpha/Beta	Gross Alpha	1.75E-14	1.72E-14	2.49E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187750	SLAPS Loadout	07/07/16	Gross Alpha/Beta	Gross Beta	1.40E-14	2.33E-14	3.94E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187751	SLAPS Loadout	07/11/16	Gross Alpha/Beta	Gross Alpha	4.36E-15	6.52E-15	1.10E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187751	SLAPS Loadout	07/11/16	Gross Alpha/Beta	Gross Beta	3.17E-14	1.36E-14	1.75E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187752	SLAPS Loadout	07/11/16	Gross Alpha/Beta	Gross Alpha	2.09E-15	5.66E-15	1.10E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187752	SLAPS Loadout	07/11/16	Gross Alpha/Beta	Gross Beta	2.08E-14	1.23E-14	1.75E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187753	SLAPS Loadout	07/12/16	Gross Alpha/Beta	Gross Alpha	3.24E-15	6.13E-15	1.11E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187753	SLAPS Loadout	07/12/16	Gross Alpha/Beta	Gross Beta	2.45E-14	1.28E-14	1.76E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187754	SLAPS Loadout	07/12/16	Gross Alpha/Beta	Gross Alpha	9.53E-16	5.21E-15	1.11E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187754	SLAPS Loadout	07/12/16	Gross Alpha/Beta	Gross Beta	2.23E-14	1.25E-14	1.76E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187755	SLAPS Loadout	07/13/16	Gross Alpha/Beta	Gross Alpha	6.99E-15	8.84E-15	1.23E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187755	SLAPS Loadout	07/13/16	Gross Alpha/Beta	Gross Alpha	3.63E-15	7.45E-15	1.23E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187755	SLAPS Loadout	07/13/16	Gross Alpha/Beta	Gross Beta	1.53E-14	2.71E-14	3.85E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187755	SLAPS Loadout	07/13/16	Gross Alpha/Beta	Gross Beta	1.31E-14	2.69E-14	3.85E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187756	SLAPS Loadout	07/13/16	Gross Alpha/Beta	Gross Alpha	9.19E-15	8.11E-15	9.42E-15	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187756	SLAPS Loadout	07/13/16	Gross Alpha/Beta	Gross Beta	2.87E-14	2.21E-14	2.94E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187757	SLAPS Loadout	07/13/16	Gross Alpha/Beta	Gross Alpha	6.46E-15	1.33E-14	2.19E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187757	SLAPS Loadout	07/13/16	Gross Alpha/Beta	Gross Beta	3.09E-14	4.85E-14	6.84E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA187758	SLAPS Loadout	07/13/16	Gross Alpha/Beta	Gross Alpha	4.97E-16	1.02E-14	2.19E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187758	SLAPS Loadout	07/13/16	Gross Alpha/Beta	Gross Beta	3.84E-14	4.91E-14	6.84E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187759	SLAPS Loadout	07/13/16	Gross Alpha/Beta	Gross Alpha	3.44E-15	1.17E-14	2.17E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187759	SLAPS Loadout	07/13/16	Gross Alpha/Beta	Gross Beta	6.40E-14	5.07E-14	6.76E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187760	SLAPS Loadout	07/14/16	Gross Alpha/Beta	Gross Alpha	2.61E-15	5.35E-15	8.84E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187760	SLAPS Loadout	07/14/16	Gross Alpha/Beta	Gross Beta	2.39E-14	2.05E-14	2.76E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187761	SLAPS Loadout	07/14/16	Gross Alpha/Beta	Gross Alpha	2.62E-15	5.37E-15	8.89E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187761	SLAPS Loadout	07/14/16	Gross Alpha/Beta	Gross Beta	1.94E-14	2.02E-14	2.78E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187762	SLAPS Loadout	07/18/16	Gross Alpha/Beta	Gross Alpha	4.69E-15	5.93E-15	8.26E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187762	SLAPS Loadout	07/18/16	Gross Alpha/Beta	Gross Beta	4.29E-14	2.08E-14	2.58E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187763	SLAPS Loadout	07/18/16	Gross Alpha/Beta	Gross Alpha	5.84E-15	6.38E-15	8.30E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187763	SLAPS Loadout	07/18/16	Gross Alpha/Beta	Gross Beta	2.38E-14	1.94E-14	2.59E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187764	SLAPS Loadout	07/18/16	Gross Alpha/Beta	Gross Alpha	8.69E-15	1.78E-14	2.94E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187764	SLAPS Loadout	07/18/16	Gross Alpha/Beta	Gross Beta	7.69E-14	6.81E-14	9.19E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187765	SLAPS Loadout	07/18/16	Gross Alpha/Beta	Gross Alpha	6.68E-16	1.37E-14	2.94E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187765	SLAPS Loadout	07/18/16	Gross Alpha/Beta	Gross Beta	-4.00E-15	6.15E-14	9.19E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187766	SLAPS Loadout	07/18/16	Gross Alpha/Beta	Gross Alpha	8.69E-15	1.78E-14	2.94E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187766	SLAPS Loadout	07/18/16	Gross Alpha/Beta	Gross Beta	-1.67E-14	6.05E-14	9.19E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187767	SLAPS Loadout	07/19/16	Gross Alpha/Beta	Gross Alpha	7.22E-15	7.02E-15	8.60E-15	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187767	SLAPS Loadout	07/19/16	Gross Alpha/Beta	Gross Beta	4.17E-14	2.14E-14	2.69E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187768	SLAPS Loadout	07/19/16	Gross Alpha/Beta	Gross Alpha	3.73E-15	5.74E-15	8.64E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187768	SLAPS Loadout	07/19/16	Gross Alpha/Beta	Gross Beta	3.22E-14	2.07E-14	2.70E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187769	SLAPS Loadout	07/20/16	Gross Alpha/Beta	Gross Alpha	6.96E-15	7.00E-15	9.78E-15	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187769	SLAPS Loadout	07/20/16	Gross Alpha/Beta	Gross Alpha	1.04E-14	8.06E-15	9.78E-15	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187769	SLAPS Loadout	07/20/16	Gross Alpha/Beta	Gross Beta	2.96E-14	1.36E-14	1.74E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187769	SLAPS Loadout	07/20/16	Gross Alpha/Beta	Gross Beta	2.44E-14	1.30E-14	1.74E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187770	SLAPS Loadout	07/20/16	Gross Alpha/Beta	Gross Alpha	5.04E-15	6.68E-15	1.06E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187770	SLAPS Loadout	07/20/16	Gross Alpha/Beta	Gross Beta	2.32E-14	1.36E-14	1.87E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187771	SLAPS Loadout	07/20/16	Gross Alpha/Beta	Gross Alpha	4.71E-15	6.25E-15	9.87E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187771	SLAPS Loadout	07/20/16	Gross Alpha/Beta	Gross Beta	2.91E-14	1.37E-14	1.75E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187772	SLAPS Loadout	07/21/16	Gross Alpha/Beta	Gross Alpha	-1.05E-15	3.50E-15	9.83E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187772	SLAPS Loadout	07/21/16	Gross Alpha/Beta	Gross Beta	3.48E-14	1.43E-14	1.75E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187773	SLAPS Loadout	07/21/16	Gross Alpha/Beta	Gross Alpha	2.40E-15	5.33E-15	9.87E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187773	SLAPS Loadout	07/21/16	Gross Alpha/Beta	Gross Beta	2.32E-14	1.29E-14	1.75E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187774	SLAPS Loadout	07/25/16	Gross Alpha/Beta	Gross Alpha	1.39E-15	5.34E-15	1.10E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187774	SLAPS Loadout	07/25/16	Gross Alpha/Beta	Gross Beta	2.74E-14	1.46E-14	1.95E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187775	SLAPS Loadout	07/25/16	Gross Alpha/Beta	Gross Alpha	1.40E-15	5.37E-15	1.10E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187775	SLAPS Loadout	07/25/16	Gross Alpha/Beta	Gross Beta	2.01E-14	1.37E-14	1.96E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187776	SLAPS Loadout	07/26/16	Gross Alpha/Beta	Gross Alpha	1.32E-15	5.08E-15	1.05E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187776	SLAPS Loadout	07/26/16	Gross Alpha/Beta	Gross Beta	3.39E-14	1.48E-14	1.86E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187777	SLAPS Loadout	07/26/16	Gross Alpha/Beta	Gross Alpha	3.80E-15	6.21E-15	1.06E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187777	SLAPS Loadout	07/26/16	Gross Alpha/Beta	Gross Beta	4.13E-14	1.58E-14	1.87E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187778	SLAPS Loadout	07/27/16	Gross Alpha/Beta	Gross Alpha	6.48E-15	6.53E-15	9.12E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187778	SLAPS Loadout	07/27/16	Gross Alpha/Beta	Gross Beta	1.73E-14	1.14E-14	1.62E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA187779	SLAPS Loadout	07/27/16	Gross Alpha/Beta	Gross Alpha	3.30E-15	5.39E-15	9.16E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187779	SLAPS Loadout	07/27/16	Gross Alpha/Beta	Gross Beta	2.49E-14	1.24E-14	1.63E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187780	SLAPS Loadout	07/28/16	Gross Alpha/Beta	Gross Alpha	6.65E-15	6.70E-15	9.36E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187780	SLAPS Loadout	07/28/16	Gross Alpha/Beta	Gross Beta	2.83E-14	1.30E-14	1.66E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187781	SLAPS Loadout	07/28/16	Gross Alpha/Beta	Gross Alpha	5.54E-15	6.30E-15	9.32E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187781	SLAPS Loadout	07/28/16	Gross Alpha/Beta	Gross Beta	3.93E-14	1.42E-14	1.66E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187782	SLAPS Loadout	08/01/16	Gross Alpha/Beta	Gross Alpha	3.33E-15	9.61E-15	1.69E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187782	SLAPS Loadout	08/01/16	Gross Alpha/Beta	Gross Alpha	5.43E-15	1.05E-14	1.69E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187782	SLAPS Loadout	08/01/16	Gross Alpha/Beta	Gross Beta	4.76E-14	3.77E-14	4.74E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187782	SLAPS Loadout	08/01/16	Gross Alpha/Beta	Gross Beta	2.51E-14	3.60E-14	4.74E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187783	SLAPS Loadout	08/01/16	Gross Alpha/Beta	Gross Alpha	7.34E-16	5.16E-15	1.01E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187783	SLAPS Loadout	08/01/16	Gross Alpha/Beta	Gross Beta	1.42E-14	2.14E-14	2.84E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187784	SLAPS Loadout	08/02/16	Gross Alpha/Beta	Gross Alpha	-2.26E-15	4.74E-15	1.28E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187784	SLAPS Loadout	08/02/16	Gross Alpha/Beta	Gross Beta	1.90E-14	2.72E-14	3.59E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187785	SLAPS Loadout	08/03/16	Gross Alpha/Beta	Gross Alpha	-4.73E-16	4.07E-15	9.11E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187785	SLAPS Loadout	08/03/16	Gross Alpha/Beta	Gross Beta	9.97E-15	1.91E-14	2.56E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187786	SLAPS Loadout	08/03/16	Gross Alpha/Beta	Gross Alpha	1.80E-15	5.19E-15	9.11E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187786	SLAPS Loadout	08/03/16	Gross Alpha/Beta	Gross Beta	1.93E-14	1.99E-14	2.56E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187787	SLAPS Loadout	08/04/16	Gross Alpha/Beta	Gross Alpha	4.30E-15	6.45E-15	9.63E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187787	SLAPS Loadout	08/04/16	Gross Alpha/Beta	Gross Beta	2.79E-14	2.15E-14	2.70E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187788	SLAPS Loadout	08/04/16	Gross Alpha/Beta	Gross Alpha	5.57E-15	6.98E-15	9.76E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187788	SLAPS Loadout	08/04/16	Gross Alpha/Beta	Gross Beta	2.76E-14	2.18E-14	2.74E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187789	SLAPS Loadout	08/08/16	Gross Alpha/Beta	Gross Alpha	6.48E-15	7.06E-15	9.32E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187789	SLAPS Loadout	08/08/16	Gross Alpha/Beta	Gross Beta	3.51E-14	2.15E-14	2.62E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187790	SLAPS Loadout	08/08/16	Gross Alpha/Beta	Gross Alpha	1.85E-15	5.33E-15	9.36E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187790	SLAPS Loadout	08/08/16	Gross Alpha/Beta	Gross Beta	1.02E-14	1.97E-14	2.63E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187791	SLAPS Loadout	08/09/16	Gross Alpha/Beta	Gross Alpha	1.78E-15	5.14E-15	9.03E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187791	SLAPS Loadout	08/09/16	Gross Alpha/Beta	Gross Beta	2.62E-14	2.02E-14	2.54E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187792	SLAPS Loadout	08/09/16	Gross Alpha/Beta	Gross Alpha	4.03E-15	6.05E-15	9.03E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187792	SLAPS Loadout	08/09/16	Gross Alpha/Beta	Gross Beta	2.69E-14	2.03E-14	2.54E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187793	SLAPS Loadout	08/10/16	Gross Alpha/Beta	Gross Alpha	5.42E-15	6.79E-15	9.49E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187793	SLAPS Loadout	08/10/16	Gross Alpha/Beta	Gross Beta	2.83E-14	2.13E-14	2.67E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187794	SLAPS Loadout	08/10/16	Gross Alpha/Beta	Gross Alpha	4.22E-15	6.33E-15	9.45E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187794	SLAPS Loadout	08/10/16	Gross Alpha/Beta	Gross Beta	4.00E-14	2.21E-14	2.65E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187795	SLAPS Loadout	08/10/16	Gross Alpha/Beta	Gross Alpha	1.51E-15	1.06E-14	2.08E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187795	SLAPS Loadout	08/10/16	Gross Alpha/Beta	Gross Beta	2.11E-14	4.36E-14	5.84E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187796	SLAPS Loadout	08/10/16	Gross Alpha/Beta	Gross Alpha	7.62E-15	1.39E-14	2.43E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187796	SLAPS Loadout	08/10/16	Gross Alpha/Beta	Gross Alpha	5.08E-15	1.30E-14	2.43E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187796	SLAPS Loadout	08/10/16	Gross Alpha/Beta	Gross Beta	1.94E-14	2.57E-14	3.93E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187796	SLAPS Loadout	08/10/16	Gross Alpha/Beta	Gross Beta	4.06E-14	2.84E-14	3.93E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187797	SLAPS Loadout	08/10/16	Gross Alpha/Beta	Gross Alpha	1.04E-14	1.52E-14	2.48E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187797	SLAPS Loadout	08/10/16	Gross Alpha/Beta	Gross Beta	5.80E-14	3.09E-14	4.01E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187798	SLAPS Loadout	08/11/16	Gross Alpha/Beta	Gross Alpha	1.23E-15	5.77E-15	1.17E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187798	SLAPS Loadout	08/11/16	Gross Alpha/Beta	Gross Beta	2.82E-14	1.47E-14	1.90E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA187799	SLAPS Loadout	08/11/16	Gross Alpha/Beta	Gross Alpha	9.77E-15	8.67E-15	1.17E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187799	SLAPS Loadout	08/11/16	Gross Alpha/Beta	Gross Beta	1.40E-14	1.30E-14	1.89E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187800	SLAPS Loadout	08/15/16	Gross Alpha/Beta	Gross Alpha	0	7.33E-15	1.65E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187800	SLAPS Loadout	08/15/16	Gross Alpha/Beta	Gross Beta	-1.20E-15	1.55E-14	2.66E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187801	SLAPS Loadout	08/16/16	Gross Alpha/Beta	Gross Alpha	2.31E-15	5.89E-15	1.10E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187801	SLAPS Loadout	08/16/16	Gross Alpha/Beta	Gross Beta	2.95E-14	1.42E-14	1.78E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187802	SLAPS Loadout	08/16/16	Gross Alpha/Beta	Gross Alpha	-1.17E-15	4.39E-15	1.12E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187802	SLAPS Loadout	08/16/16	Gross Alpha/Beta	Gross Beta	3.67E-14	1.52E-14	1.81E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187803	SLAPS Loadout	08/17/16	Gross Alpha/Beta	Gross Alpha	1.19E-15	5.58E-15	1.13E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187803	SLAPS Loadout	08/17/16	Gross Alpha/Beta	Gross Beta	2.20E-14	1.36E-14	1.83E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187804	SLAPS Loadout	08/17/16	Gross Alpha/Beta	Gross Alpha	1.19E-15	5.58E-15	1.13E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187804	SLAPS Loadout	08/17/16	Gross Alpha/Beta	Gross Beta	3.11E-14	1.47E-14	1.83E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187805	SLAPS Loadout	08/18/16	Gross Alpha/Beta	Gross Alpha	1.26E-15	5.94E-15	1.21E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187805	SLAPS Loadout	08/18/16	Gross Alpha/Beta	Gross Beta	1.78E-14	1.38E-14	1.95E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187806	SLAPS Loadout	08/18/16	Gross Alpha/Beta	Gross Alpha	1.26E-15	5.91E-15	1.20E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187806	SLAPS Loadout	08/18/16	Gross Alpha/Beta	Gross Beta	3.46E-14	1.58E-14	1.94E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187807	SLAPS Loadout	08/17/16	Gross Alpha/Beta	Gross Alpha	1.57E-14	2.88E-14	5.01E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187807	SLAPS Loadout	08/17/16	Gross Alpha/Beta	Gross Beta	2.32E-14	5.08E-14	8.10E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187808	SLAPS Loadout	08/17/16	Gross Alpha/Beta	Gross Alpha	-1.05E-14	1.67E-14	5.01E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187808	SLAPS Loadout	08/17/16	Gross Alpha/Beta	Gross Beta	6.35E-14	5.60E-14	8.10E-14	µCi/mL	U	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187809	SLAPS Loadout	08/17/16	Gross Alpha/Beta	Gross Alpha	0	2.23E-14	5.01E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187809	SLAPS Loadout	08/17/16	Gross Alpha/Beta	Gross Beta	8.37E-14	5.85E-14	8.10E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187810	SLAPS Loadout	08/22/16	Gross Alpha/Beta	Gross Alpha	2.34E-15	5.98E-15	1.12E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187810	SLAPS Loadout	08/22/16	Gross Alpha/Beta	Gross Beta	8.93E-15	1.18E-14	1.81E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187811	SLAPS Loadout	08/22/16	Gross Alpha/Beta	Gross Alpha	2.33E-15	5.95E-15	1.11E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187811	SLAPS Loadout	08/22/16	Gross Alpha/Beta	Gross Beta	2.75E-14	1.41E-14	1.80E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187812	SLAPS Loadout	08/23/16	Gross Alpha/Beta	Gross Alpha	5.30E-15	7.85E-15	1.26E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187812	SLAPS Loadout	08/23/16	Gross Alpha/Beta	Gross Alpha	5.30E-15	7.85E-15	1.26E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187812	SLAPS Loadout	08/23/16	Gross Alpha/Beta	Gross Beta	3.67E-14	1.53E-14	1.80E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187812	SLAPS Loadout	08/23/16	Gross Alpha/Beta	Gross Beta	2.93E-14	1.45E-14	1.80E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187813	SLAPS Loadout	08/23/16	Gross Alpha/Beta	Gross Alpha	4.12E-15	7.48E-15	1.26E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187813	SLAPS Loadout	08/23/16	Gross Alpha/Beta	Gross Beta	3.53E-14	1.51E-14	1.80E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187814	SLAPS Loadout	08/24/16	Gross Alpha/Beta	Gross Alpha	-5.55E-16	5.48E-15	1.19E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187814	SLAPS Loadout	08/24/16	Gross Alpha/Beta	Gross Beta	1.99E-14	1.28E-14	1.70E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187815	SLAPS Loadout	08/24/16	Gross Alpha/Beta	Gross Alpha	5.53E-16	5.88E-15	1.19E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187815	SLAPS Loadout	08/24/16	Gross Alpha/Beta	Gross Beta	8.67E-15	1.13E-14	1.69E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187816	SLAPS Loadout	08/24/16	Gross Alpha/Beta	Gross Alpha	-6.77E-15	1.09E-14	2.91E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187816	SLAPS Loadout	08/24/16	Gross Alpha/Beta	Gross Beta	4.00E-14	3.00E-14	4.14E-14	µCi/mL	UJ	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187817	SLAPS Loadout	08/24/16	Gross Alpha/Beta	Gross Alpha	-1.35E-15	1.33E-14	2.91E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187817	SLAPS Loadout	08/24/16	Gross Alpha/Beta	Gross Beta	1.95E-14	2.75E-14	4.14E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187818	SLAPS Loadout	08/24/16	Gross Alpha/Beta	Gross Alpha	6.77E-15	1.63E-14	2.91E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187818	SLAPS Loadout	08/24/16	Gross Alpha/Beta	Gross Beta	3.49E-14	2.94E-14	4.14E-14	µCi/mL	UJ	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187819	SLAPS Loadout	08/25/16	Gross Alpha/Beta	Gross Alpha	2.17E-15	8.22E-15	1.55E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187819	SLAPS Loadout	08/25/16	Gross Alpha/Beta	Gross Beta	1.77E-14	1.56E-14	2.21E-14	µCi/mL	UJ	T04, T05	SLAPS (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA187820	SLAPS Loadout	08/29/16	Gross Alpha/Beta	Gross Alpha	-1.85E-15	5.56E-15	1.33E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187820	SLAPS Loadout	08/29/16	Gross Alpha/Beta	Gross Beta	3.31E-14	1.54E-14	1.89E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187821	SLAPS Loadout	08/29/16	Gross Alpha/Beta	Gross Alpha	4.24E-15	7.69E-15	1.30E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187821	SLAPS Loadout	08/29/16	Gross Alpha/Beta	Gross Beta	4.62E-14	1.66E-14	1.85E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187822	SLAPS Loadout	08/30/16	Gross Alpha/Beta	Gross Alpha	6.52E-16	6.94E-15	1.40E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187822	SLAPS Loadout	08/30/16	Gross Alpha/Beta	Gross Beta	3.99E-14	1.68E-14	2.00E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187823	SLAPS Loadout	08/30/16	Gross Alpha/Beta	Gross Alpha	4.64E-15	8.42E-15	1.42E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187823	SLAPS Loadout	08/30/16	Gross Alpha/Beta	Gross Beta	3.38E-14	1.64E-14	2.03E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187824	SLAPS Loadout	08/31/16	Gross Alpha/Beta	Gross Alpha	-3.10E-15	5.01E-15	1.33E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187824	SLAPS Loadout	08/31/16	Gross Alpha/Beta	Gross Beta	2.54E-14	1.46E-14	1.90E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187825	SLAPS Loadout	08/31/16	Gross Alpha/Beta	Gross Alpha	6.79E-15	8.59E-15	1.33E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187825	SLAPS Loadout	08/31/16	Gross Alpha/Beta	Gross Beta	3.70E-14	1.59E-14	1.89E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187826	SLAPS Loadout	09/07/16	Gross Alpha/Beta	Gross Alpha	1.59E-15	1.19E-14	2.19E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187826	SLAPS Loadout	09/07/16	Gross Alpha/Beta	Gross Alpha	7.05E-15	1.42E-14	2.19E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187826	SLAPS Loadout	09/07/16	Gross Alpha/Beta	Gross Beta	1.78E-14	3.68E-14	6.29E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187826	SLAPS Loadout	09/07/16	Gross Alpha/Beta	Gross Beta	2.98E-14	3.79E-14	6.29E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187827	SLAPS Loadout	09/07/16	Gross Alpha/Beta	Gross Alpha	-3.99E-15	9.32E-15	2.26E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187827	SLAPS Loadout	09/07/16	Gross Alpha/Beta	Gross Beta	1.48E-14	3.76E-14	6.50E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187828	SLAPS Loadout	09/12/16	Gross Alpha/Beta	Gross Alpha	5.35E-15	6.90E-15	9.36E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187828	SLAPS Loadout	09/12/16	Gross Alpha/Beta	Gross Beta	2.60E-14	1.74E-14	2.69E-14	µCi/mL	UJ	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187829	SLAPS Loadout	09/12/16	Gross Alpha/Beta	Gross Alpha	3.07E-15	6.17E-15	9.54E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187829	SLAPS Loadout	09/12/16	Gross Alpha/Beta	Gross Beta	3.02E-14	1.81E-14	2.74E-14	µCi/mL	J	T04	SLAPS (General Area)-Perimeter Air
SLA187830	SLAPS Loadout	09/12/16	Gross Alpha/Beta	Gross Alpha	1.36E-15	1.02E-14	1.87E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187830	SLAPS Loadout	09/12/16	Gross Alpha/Beta	Gross Beta	2.40E-14	3.23E-14	5.38E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187831	SLAPS Loadout	09/12/16	Gross Alpha/Beta	Gross Alpha	8.51E-15	1.32E-14	1.91E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187831	SLAPS Loadout	09/12/16	Gross Alpha/Beta	Gross Beta	-9.99E-16	3.04E-14	5.48E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187832	SLAPS Loadout	09/12/16	Gross Alpha/Beta	Gross Alpha	6.14E-15	1.23E-14	1.91E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187832	SLAPS Loadout	09/12/16	Gross Alpha/Beta	Gross Beta	1.55E-14	3.20E-14	5.48E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187833	SLAPS Loadout	09/13/16	Gross Alpha/Beta	Gross Alpha	9.09E-15	8.24E-15	9.63E-15	µCi/mL	UJ	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187833	SLAPS Loadout	09/13/16	Gross Alpha/Beta	Gross Beta	3.96E-14	1.91E-14	2.76E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187834	SLAPS Loadout	09/13/16	Gross Alpha/Beta	Gross Alpha	5.55E-15	7.16E-15	9.72E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187834	SLAPS Loadout	09/13/16	Gross Alpha/Beta	Gross Beta	2.62E-14	1.80E-14	2.79E-14	µCi/mL	UJ	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187835	SLAPS Loadout	09/14/16	Gross Alpha/Beta	Gross Alpha	5.55E-15	7.16E-15	9.72E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187835	SLAPS Loadout	09/14/16	Gross Alpha/Beta	Gross Beta	4.84E-14	2.00E-14	2.79E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187836	SLAPS Loadout	09/14/16	Gross Alpha/Beta	Gross Alpha	5.55E-15	7.16E-15	9.72E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187836	SLAPS Loadout	09/14/16	Gross Alpha/Beta	Gross Beta	3.84E-14	1.91E-14	2.79E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187837	SLAPS Loadout	09/14/16	Gross Alpha/Beta	Gross Alpha	9.99E-15	1.55E-14	2.24E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187837	SLAPS Loadout	09/14/16	Gross Alpha/Beta	Gross Beta	1.64E-14	3.74E-14	6.43E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187838	SLAPS Loadout	09/14/16	Gross Alpha/Beta	Gross Alpha	1.63E-15	1.21E-14	2.24E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187838	SLAPS Loadout	09/14/16	Gross Alpha/Beta	Gross Beta	-1.17E-15	3.57E-14	6.43E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187839	SLAPS Loadout	09/14/16	Gross Alpha/Beta	Gross Alpha	9.99E-15	1.55E-14	2.24E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187839	SLAPS Loadout	09/14/16	Gross Alpha/Beta	Gross Beta	4.10E-15	3.62E-14	6.43E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187840	LOADOUT	09/29/16	Gross Alpha/Beta	Gross Alpha	6.20E-16	6.40E-15	9.23E-15	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187840	LOADOUT	09/29/16	Gross Alpha/Beta	Gross Alpha	4.12E-15	7.57E-15	9.23E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA187840	LOADOUT	09/29/16	Gross Alpha/Beta	Gross Beta	2.47E-14	2.98E-14	1.52E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187840	LOADOUT	09/29/16	Gross Alpha/Beta	Gross Beta	1.51E-14	2.93E-14	1.52E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187841	LOADOUT	09/29/16	Gross Alpha/Beta	Gross Alpha	6.26E-16	6.46E-15	9.32E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187841	LOADOUT	09/29/16	Gross Alpha/Beta	Gross Beta	2.79E-14	3.02E-14	1.54E-14	µCi/mL	UJ	T02	SLAPS (General Area)-Perimeter Air
SLA187842	LOADOUT	09/29/16	Gross Alpha/Beta	Gross Alpha	2.71E-15	1.03E-14	1.40E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187842	LOADOUT	09/29/16	Gross Alpha/Beta	Gross Beta	2.51E-14	4.44E-14	2.31E-14	µCi/mL	UJ	T02	SLAPS (General Area)-Perimeter Air
SLA187843	LOADOUT	09/29/16	Gross Alpha/Beta	Gross Alpha	9.39E-16	9.69E-15	1.40E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187843	LOADOUT	09/29/16	Gross Alpha/Beta	Gross Beta	2.62E-14	4.45E-14	2.31E-14	µCi/mL	UJ	T02	SLAPS (General Area)-Perimeter Air
SLA187844	LOADOUT	09/29/16	Gross Alpha/Beta	Gross Alpha	1.49E-14	1.38E-14	1.38E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA187844	LOADOUT	09/29/16	Gross Alpha/Beta	Gross Beta	3.69E-14	4.45E-14	2.28E-14	µCi/mL	UJ	T02	SLAPS (General Area)-Perimeter Air
SLA187845	SLAPS Loadout	10/03/16	Gross Alpha/Beta	Gross Alpha	2.08E-15	4.94E-15	9.31E-15	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187845	SLAPS Loadout	10/03/16	Gross Alpha/Beta	Gross Alpha	1.16E-14	8.38E-15	9.31E-15	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA187845	SLAPS Loadout	10/03/16	Gross Alpha/Beta	Gross Beta	2.57E-14	1.64E-14	2.49E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA187845	SLAPS Loadout	10/03/16	Gross Alpha/Beta	Gross Beta	4.60E-14	1.84E-14	2.49E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187846	SLAPS Loadout	10/03/16	Gross Alpha/Beta	Gross Alpha	5.64E-15	6.44E-15	9.31E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187846	SLAPS Loadout	10/03/16	Gross Alpha/Beta	Gross Beta	3.17E-14	1.70E-14	2.49E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA187847	SLAPS Loadout	10/05/16	Gross Alpha/Beta	Gross Alpha	3.27E-15	5.49E-15	9.31E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187847	SLAPS Loadout	10/05/16	Gross Alpha/Beta	Gross Beta	3.25E-14	1.71E-14	2.49E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA187848	SLAPS Loadout	10/05/16	Gross Alpha/Beta	Gross Alpha	1.63E-14	9.66E-15	9.31E-15	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA187848	SLAPS Loadout	10/05/16	Gross Alpha/Beta	Gross Beta	1.41E-13	2.66E-14	2.49E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187849	SLAPS Loadout	10/05/16	Gross Alpha/Beta	Gross Alpha	1.18E-14	1.98E-14	3.35E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187849	SLAPS Loadout	10/05/16	Gross Alpha/Beta	Gross Beta	8.18E-14	5.81E-14	8.97E-14	µCi/mL	UJ	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187850	SLAPS Loadout	10/05/16	Gross Alpha/Beta	Gross Alpha	-5.35E-15	9.85E-15	3.35E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187850	SLAPS Loadout	10/05/16	Gross Alpha/Beta	Gross Beta	4.68E-14	5.45E-14	8.97E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187851	SLAPS Loadout	10/05/16	Gross Alpha/Beta	Gross Alpha	1.18E-14	1.98E-14	3.35E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187851	SLAPS Loadout	10/05/16	Gross Alpha/Beta	Gross Beta	7.10E-14	5.70E-14	8.97E-14	µCi/mL	UJ	T04, T05	SLAPS (General Area)-Perimeter Air
SLA187852	SLAPS Loadout	10/06/16	Gross Alpha/Beta	Gross Alpha	9.72E-16	4.73E-15	1.02E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187852	SLAPS Loadout	10/06/16	Gross Alpha/Beta	Gross Beta	5.83E-14	2.08E-14	2.72E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187853	SLAPS Loadout	10/06/16	Gross Alpha/Beta	Gross Alpha	1.52E-14	9.86E-15	1.02E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA187853	SLAPS Loadout	10/06/16	Gross Alpha/Beta	Gross Beta	7.55E-14	2.24E-14	2.72E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187854	SLAPS Loadout	10/11/16	Gross Alpha/Beta	Gross Alpha	2.35E-14	1.13E-14	9.31E-15	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187854	SLAPS Loadout	10/11/16	Gross Alpha/Beta	Gross Beta	1.13E-13	2.43E-14	2.49E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187855	SLAPS Loadout	10/11/16	Gross Alpha/Beta	Gross Alpha	1.63E-14	9.66E-15	9.31E-15	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA187855	SLAPS Loadout	10/11/16	Gross Alpha/Beta	Gross Beta	1.20E-13	2.49E-14	2.49E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187856	SLAPS Loadout	10/12/16	Gross Alpha/Beta	Gross Alpha	9.72E-16	4.73E-15	1.02E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187856	SLAPS Loadout	10/12/16	Gross Alpha/Beta	Gross Beta	5.50E-14	2.05E-14	2.72E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187857	SLAPS Loadout	10/12/16	Gross Alpha/Beta	Gross Alpha	6.15E-15	7.03E-15	1.02E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187857	SLAPS Loadout	10/12/16	Gross Alpha/Beta	Gross Beta	4.11E-14	1.92E-14	2.72E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA187858	SLAPS Loadout	10/12/16	Gross Alpha/Beta	Gross Alpha	-6.05E-16	7.38E-15	1.90E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA187858	SLAPS Loadout	10/12/16	Gross Alpha/Beta	Gross Beta	4.94E-14	3.32E-14	5.08E-14	µCi/mL	UJ	T04, T05	SLAPS (General Area)-Perimeter Air
SLA193549	SLAPS Loadout	10/12/16	Gross Alpha/Beta	Gross Alpha	6.44E-15	1.50E-14	2.66E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA193549	SLAPS Loadout	10/12/16	Gross Alpha/Beta	Gross Alpha	2.89E-14	2.13E-14	2.66E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193549	SLAPS Loadout	10/12/16	Gross Alpha/Beta	Gross Beta	4.22E-14	2.96E-14	3.80E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA193549	SLAPS Loadout	10/12/16	Gross Alpha/Beta	Gross Beta	1.04E-13	3.61E-14	3.80E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA193550	SLAPS Loadout	10/12/16	Gross Alpha/Beta	Gross Alpha	3.73E-15	1.33E-14	2.51E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193550	SLAPS Loadout	10/12/16	Gross Alpha/Beta	Gross Beta	1.91E-14	2.55E-14	3.59E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193551	SLAPS Loadout	10/13/16	Gross Alpha/Beta	Gross Alpha	7.27E-16	6.59E-15	1.33E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193551	SLAPS Loadout	10/13/16	Gross Alpha/Beta	Gross Beta	2.27E-14	1.50E-14	1.90E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193552	SLAPS Loadout	10/13/16	Gross Alpha/Beta	Gross Alpha	-1.77E-15	5.57E-15	1.33E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193552	SLAPS Loadout	10/13/16	Gross Alpha/Beta	Gross Beta	-9.18E-16	1.21E-14	1.90E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193553	SLAPS Loadout	10/17/16	Gross Alpha/Beta	Gross Alpha	4.38E-15	7.74E-15	1.31E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193553	SLAPS Loadout	10/17/16	Gross Alpha/Beta	Gross Beta	3.15E-14	1.57E-14	1.86E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA193554	SLAPS Loadout	10/17/16	Gross Alpha/Beta	Gross Alpha	4.34E-15	7.66E-15	1.29E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193554	SLAPS Loadout	10/17/16	Gross Alpha/Beta	Gross Beta	1.21E-14	1.34E-14	1.85E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193555	SLAPS Loadout	10/18/16	Gross Alpha/Beta	Gross Alpha	1.13E-14	9.45E-15	1.26E-14	µCi/mL	UJ	T04, T05	SLAPS (General Area)-Perimeter Air
SLA193555	SLAPS Loadout	10/18/16	Gross Alpha/Beta	Gross Beta	7.87E-14	2.00E-14	1.79E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA193556	SLAPS Loadout	10/18/16	Gross Alpha/Beta	Gross Alpha	5.40E-15	7.82E-15	1.26E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193556	SLAPS Loadout	10/18/16	Gross Alpha/Beta	Gross Beta	6.75E-14	1.89E-14	1.79E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA193557	SLAPS Loadout	10/19/16	Gross Alpha/Beta	Gross Alpha	6.91E-15	1.22E-14	2.06E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193557	SLAPS Loadout	10/19/16	Gross Alpha/Beta	Gross Beta	3.39E-14	2.30E-14	2.94E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193558	SLAPS Loadout	10/19/16	Gross Alpha/Beta	Gross Alpha	-2.73E-15	8.61E-15	2.06E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193558	SLAPS Loadout	10/19/16	Gross Alpha/Beta	Gross Beta	2.29E-14	2.18E-14	2.94E-14	µCi/mL	UJ	T04, T05	SLAPS (General Area)-Perimeter Air
SLA193559	SLAPS Loadout	10/24/16	Gross Alpha/Beta	Gross Alpha	1.22E-14	9.50E-15	1.17E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA193559	SLAPS Loadout	10/24/16	Gross Alpha/Beta	Gross Alpha	1.47E-14	1.01E-14	1.17E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193559	SLAPS Loadout	10/24/16	Gross Alpha/Beta	Gross Beta	4.67E-14	1.67E-14	1.93E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA193559	SLAPS Loadout	10/24/16	Gross Alpha/Beta	Gross Beta	5.67E-14	1.78E-14	1.93E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA193560	SLAPS Loadout	10/25/16	Gross Alpha/Beta	Gross Alpha	2.40E-15	6.33E-15	1.15E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193560	SLAPS Loadout	10/25/16	Gross Alpha/Beta	Gross Beta	2.54E-14	1.42E-14	1.90E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193561	SLAPS Loadout	10/26/16	Gross Alpha/Beta	Gross Alpha	3.67E-15	6.91E-15	1.17E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193561	SLAPS Loadout	10/26/16	Gross Alpha/Beta	Gross Beta	5.21E-14	1.73E-14	1.93E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA193562	SLAPS Loadout	10/26/16	Gross Alpha/Beta	Gross Alpha	1.18E-15	5.75E-15	1.13E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193562	SLAPS Loadout	10/26/16	Gross Alpha/Beta	Gross Beta	2.19E-14	1.36E-14	1.86E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193563	SLAPS Loadout	10/31/16	Gross Alpha/Beta	Gross Alpha	1.36E-14	9.91E-15	1.18E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193563	SLAPS Loadout	10/31/16	Gross Alpha/Beta	Gross Beta	4.01E-14	1.61E-14	1.95E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA193564	SLAPS Loadout	10/31/16	Gross Alpha/Beta	Gross Alpha	9.88E-15	8.92E-15	1.18E-14	µCi/mL	UJ	T04, T05	SLAPS (General Area)-Perimeter Air
SLA193564	SLAPS Loadout	10/31/16	Gross Alpha/Beta	Gross Beta	2.53E-14	1.45E-14	1.95E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193565	SLAPS Loadout	10/27/16	Gross Alpha/Beta	Gross Alpha	6.12E-15	7.73E-15	1.17E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193565	SLAPS Loadout	10/27/16	Gross Alpha/Beta	Gross Beta	4.28E-14	1.63E-14	1.93E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA193566	SLAPS Loadout	10/27/16	Gross Alpha/Beta	Gross Alpha	1.09E-14	9.08E-15	1.16E-14	µCi/mL	UJ	T04, T05	SLAPS (General Area)-Perimeter Air
SLA193566	SLAPS Loadout	10/27/16	Gross Alpha/Beta	Gross Beta	3.17E-14	1.50E-14	1.91E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA193567	SLAPS Loadout	11/01/16	Gross Alpha/Beta	Gross Alpha	-3.13E-15	7.49E-15	1.31E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA193567	SLAPS Loadout	11/01/16	Gross Alpha/Beta	Gross Alpha	-1.92E-15	7.87E-15	1.31E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193567	SLAPS Loadout	11/01/16	Gross Alpha/Beta	Gross Beta	1.85E-14	1.32E-14	1.86E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA193567	SLAPS Loadout	11/01/16	Gross Alpha/Beta	Gross Beta	2.24E-14	1.36E-14	1.86E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193568	SLAPS Loadout	11/01/16	Gross Alpha/Beta	Gross Alpha	-1.90E-15	7.79E-15	1.30E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193568	SLAPS Loadout	11/01/16	Gross Alpha/Beta	Gross Beta	3.50E-14	1.50E-14	1.84E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA193569	SLAPS Loadout	11/02/16	Gross Alpha/Beta	Gross Alpha	5.10E-16	8.66E-15	1.32E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193569	SLAPS Loadout	11/02/16	Gross Alpha/Beta	Gross Beta	1.56E-14	1.29E-14	1.88E-14	µCi/mL	UJ	T04, T05	SLAPS (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA193570	SLAPS Loadout	11/02/16	Gross Alpha/Beta	Gross Alpha	-6.87E-16	8.00E-15	1.27E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193570	SLAPS Loadout	11/02/16	Gross Alpha/Beta	Gross Beta	2.10E-14	1.32E-14	1.81E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193571	SLAPS Loadout	11/02/16	Gross Alpha/Beta	Gross Alpha	7.24E-15	1.67E-14	2.29E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193571	SLAPS Loadout	11/02/16	Gross Alpha/Beta	Gross Beta	4.98E-14	2.51E-14	3.25E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193572	SLAPS Loadout	11/02/16	Gross Alpha/Beta	Gross Alpha	-1.24E-15	1.44E-14	2.29E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193572	SLAPS Loadout	11/02/16	Gross Alpha/Beta	Gross Beta	3.11E-14	2.28E-14	3.25E-14	µCi/mL	UJ	T04, T05	SLAPS (General Area)-Perimeter Air
SLA193573	SLAPS Loadout	11/02/16	Gross Alpha/Beta	Gross Alpha	-3.36E-15	1.38E-14	2.29E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193573	SLAPS Loadout	11/02/16	Gross Alpha/Beta	Gross Beta	4.45E-14	2.45E-14	3.25E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193574	SLAPS Loadout	11/07/16	Gross Alpha/Beta	Gross Alpha	1.17E-14	1.16E-14	1.35E-14	µCi/mL	UJ	T04, T05	SLAPS (General Area)-Perimeter Air
SLA193574	SLAPS Loadout	11/07/16	Gross Alpha/Beta	Gross Beta	8.84E-14	2.09E-14	1.91E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA193575	SLAPS Loadout	11/07/16	Gross Alpha/Beta	Gross Alpha	-1.94E-15	7.94E-15	1.32E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193575	SLAPS Loadout	11/07/16	Gross Alpha/Beta	Gross Beta	7.14E-15	1.18E-14	1.88E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193576	SLAPS Loadout	11/07/16	Gross Alpha/Beta	Gross Alpha	1.61E-15	2.73E-14	4.16E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193576	SLAPS Loadout	11/07/16	Gross Alpha/Beta	Gross Beta	1.03E-14	3.55E-14	5.91E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193577	SLAPS Loadout	11/07/16	Gross Alpha/Beta	Gross Alpha	2.76E-15	1.72E-14	3.28E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA193577	SLAPS Loadout	11/07/16	Gross Alpha/Beta	Gross Alpha	2.76E-14	2.67E-14	3.28E-14	µCi/mL	UJ	T04, T05	SLAPS (General Area)-Perimeter Air
SLA193577	SLAPS Loadout	11/07/16	Gross Alpha/Beta	Gross Beta	-1.48E-14	1.14E-13	1.08E-13	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA193577	SLAPS Loadout	11/07/16	Gross Alpha/Beta	Gross Beta	-6.44E-14	1.11E-13	1.08E-13	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193578	SLAPS Loadout	11/07/16	Gross Alpha/Beta	Gross Alpha	7.13E-15	1.98E-14	3.39E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193578	SLAPS Loadout	11/07/16	Gross Alpha/Beta	Gross Beta	1.25E-13	1.24E-13	1.12E-13	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193579	SLAPS Loadout	11/08/16	Gross Alpha/Beta	Gross Alpha	2.27E-14	2.45E-14	3.18E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193579	SLAPS Loadout	11/08/16	Gross Alpha/Beta	Gross Beta	2.79E-13	1.24E-13	1.05E-13	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA193580	SLAPS Loadout	11/09/16	Gross Alpha/Beta	Gross Alpha	-4.11E-16	4.50E-15	9.79E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193580	SLAPS Loadout	11/09/16	Gross Alpha/Beta	Gross Beta	3.29E-14	3.56E-14	3.23E-14	µCi/mL	UJ	T02	SLAPS (General Area)-Perimeter Air
SLA193581	SLAPS Loadout	11/09/16	Gross Alpha/Beta	Gross Alpha	3.32E-15	6.27E-15	9.88E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193581	SLAPS Loadout	11/09/16	Gross Alpha/Beta	Gross Beta	5.29E-14	3.69E-14	3.26E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193582	SLAPS Loadout	11/10/16	Gross Alpha/Beta	Gross Alpha	8.22E-16	5.14E-15	9.79E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193582	SLAPS Loadout	11/10/16	Gross Alpha/Beta	Gross Beta	5.32E-14	3.66E-14	3.23E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193583	SLAPS Loadout	11/10/16	Gross Alpha/Beta	Gross Alpha	-4.07E-16	4.46E-15	9.70E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193583	SLAPS Loadout	11/10/16	Gross Alpha/Beta	Gross Beta	6.42E-14	3.68E-14	3.20E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193584	SLAPS Loadout	11/14/16	Gross Alpha/Beta	Gross Alpha	-3.96E-16	4.34E-15	9.43E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193584	SLAPS Loadout	11/14/16	Gross Alpha/Beta	Gross Beta	2.95E-14	3.42E-14	3.11E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193585	SLAPS Loadout	11/14/16	Gross Alpha/Beta	Gross Alpha	3.17E-15	5.98E-15	9.43E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193585	SLAPS Loadout	11/14/16	Gross Alpha/Beta	Gross Beta	7.44E-14	3.64E-14	3.11E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA193586	SLAPS Loadout	11/15/16	Gross Alpha/Beta	Gross Alpha	3.35E-15	6.33E-15	9.98E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193586	SLAPS Loadout	11/15/16	Gross Alpha/Beta	Gross Beta	8.36E-14	3.88E-14	3.30E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA193587	SLAPS Loadout	11/15/16	Gross Alpha/Beta	Gross Alpha	5.14E-16	8.75E-15	1.33E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA193587	SLAPS Loadout	11/15/16	Gross Alpha/Beta	Gross Alpha	5.45E-15	1.01E-14	1.33E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193587	SLAPS Loadout	11/15/16	Gross Alpha/Beta	Gross Beta	5.94E-14	1.79E-14	1.89E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA193587	SLAPS Loadout	11/15/16	Gross Alpha/Beta	Gross Beta	5.79E-14	1.78E-14	1.89E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA193588	SLAPS Loadout	11/16/16	Gross Alpha/Beta	Gross Alpha	1.67E-15	8.67E-15	1.27E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193588	SLAPS Loadout	11/16/16	Gross Alpha/Beta	Gross Beta	4.93E-14	1.63E-14	1.81E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA193589	SLAPS Loadout	11/16/16	Gross Alpha/Beta	Gross Alpha	-3.22E-15	7.71E-15	1.35E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193589	SLAPS Loadout	11/16/16	Gross Alpha/Beta	Gross Beta	7.10E-14	1.92E-14	1.91E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA193590	SLAPS Loadout	11/16/16	Gross Alpha/Beta	Gross Alpha	8.20E-15	1.27E-14	1.64E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193590	SLAPS Loadout	11/16/16	Gross Alpha/Beta	Gross Beta	5.95E-14	2.06E-14	2.32E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA193591	SLAPS Loadout	11/16/16	Gross Alpha/Beta	Gross Alpha	2.12E-15	1.10E-14	1.62E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193591	SLAPS Loadout	11/16/16	Gross Alpha/Beta	Gross Beta	3.14E-14	1.73E-14	2.30E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193592	SLAPS Loadout	11/16/16	Gross Alpha/Beta	Gross Alpha	3.75E-15	1.18E-14	1.68E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193592	SLAPS Loadout	11/16/16	Gross Alpha/Beta	Gross Beta	6.19E-14	2.12E-14	2.38E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA193593	SLAPS Loadout	11/17/16	Gross Alpha/Beta	Gross Alpha	7.96E-15	7.84E-15	1.04E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA193593	SLAPS Loadout	11/17/16	Gross Alpha/Beta	Gross Alpha	1.30E-14	9.34E-15	1.04E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193593	SLAPS Loadout	11/17/16	Gross Alpha/Beta	Gross Beta	7.61E-14	5.06E-14	3.51E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA193593	SLAPS Loadout	11/17/16	Gross Alpha/Beta	Gross Beta	4.59E-14	4.95E-14	3.51E-14	µCi/mL	UJ	T02	SLAPS (General Area)-Perimeter Air
SLA193594	SLAPS Loadout	11/17/16	Gross Alpha/Beta	Gross Alpha	1.29E-14	9.25E-15	1.03E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193594	SLAPS Loadout	11/17/16	Gross Alpha/Beta	Gross Beta	9.58E-14	5.09E-14	3.48E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193595	SLAPS Loadout	11/21/16	Gross Alpha/Beta	Gross Alpha	-8.30E-16	4.07E-15	1.03E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193595	SLAPS Loadout	11/21/16	Gross Alpha/Beta	Gross Beta	4.63E-14	4.90E-14	3.48E-14	µCi/mL	UJ	T02	SLAPS (General Area)-Perimeter Air
SLA193596	SLAPS Loadout	11/21/16	Gross Alpha/Beta	Gross Alpha	2.88E-15	5.88E-15	1.02E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193596	SLAPS Loadout	11/21/16	Gross Alpha/Beta	Gross Beta	4.97E-14	4.87E-14	3.44E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193597	SLAPS Loadout	11/21/16	Gross Alpha/Beta	Gross Alpha	1.19E-14	1.84E-14	2.96E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193597	SLAPS Loadout	11/21/16	Gross Alpha/Beta	Gross Beta	8.07E-14	1.38E-13	9.94E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193598	SLAPS Loadout	11/21/16	Gross Alpha/Beta	Gross Alpha	4.62E-15	1.50E-14	2.88E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193598	SLAPS Loadout	11/21/16	Gross Alpha/Beta	Gross Beta	8.51E-14	1.35E-13	9.67E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193599	SLAPS Loadout	11/21/16	Gross Alpha/Beta	Gross Alpha	8.31E-15	1.70E-14	2.96E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193599	SLAPS Loadout	11/21/16	Gross Alpha/Beta	Gross Beta	6.56E-15	1.36E-13	9.94E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193600	SLAPS Loadout	11/22/16	Gross Alpha/Beta	Gross Alpha	4.00E-15	6.20E-15	9.95E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193600	SLAPS Loadout	11/22/16	Gross Alpha/Beta	Gross Beta	4.00E-14	4.70E-14	3.35E-14	µCi/mL	UJ	T02	SLAPS (General Area)-Perimeter Air
SLA193601	SLAPS Loadout	11/22/16	Gross Alpha/Beta	Gross Alpha	1.63E-15	5.28E-15	1.01E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193601	SLAPS Loadout	11/22/16	Gross Alpha/Beta	Gross Beta	4.85E-14	4.82E-14	3.41E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193602	SLAPS Loadout	11/23/16	Gross Alpha/Beta	Gross Alpha	9.58E-15	1.23E-14	1.84E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193602	SLAPS Loadout	11/23/16	Gross Alpha/Beta	Gross Beta	6.55E-14	8.64E-14	6.17E-14	µCi/mL	UJ	T02	SLAPS (General Area)-Perimeter Air
SLA193603	SLAPS Loadout	11/23/16	Gross Alpha/Beta	Gross Alpha	7.77E-15	1.21E-14	1.94E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193603	SLAPS Loadout	11/23/16	Gross Alpha/Beta	Gross Beta	3.96E-14	9.01E-14	6.51E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193604	SLAPS Loadout	11/28/16	Gross Alpha/Beta	Gross Alpha	8.83E-15	8.69E-15	1.16E-14	µCi/mL	UJ	T04, T05	SLAPS (General Area)-Perimeter Air
SLA193604	SLAPS Loadout	11/28/16	Gross Alpha/Beta	Gross Beta	3.42E-14	5.42E-14	3.89E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193605	SLAPS Loadout	11/29/16	Gross Alpha/Beta	Gross Alpha	1.56E-15	5.04E-15	9.68E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193605	SLAPS Loadout	11/29/16	Gross Alpha/Beta	Gross Beta	3.23E-14	4.55E-14	3.25E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193606	SLAPS Loadout	11/29/16	Gross Alpha/Beta	Gross Alpha	1.56E-15	5.04E-15	9.68E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193606	SLAPS Loadout	11/29/16	Gross Alpha/Beta	Gross Beta	3.08E-14	4.54E-14	3.25E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193607	SLAPS Loadout	11/30/16	Gross Alpha/Beta	Gross Alpha	6.52E-15	7.21E-15	1.01E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA193607	SLAPS Loadout	11/30/16	Gross Alpha/Beta	Gross Alpha	7.74E-15	7.62E-15	1.01E-14	µCi/mL	UJ	T04, T05	SLAPS (General Area)-Perimeter Air
SLA193607	SLAPS Loadout	11/30/16	Gross Alpha/Beta	Gross Beta	4.23E-14	4.80E-14	3.41E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA193607	SLAPS Loadout	11/30/16	Gross Alpha/Beta	Gross Beta	3.38E-14	4.77E-14	3.41E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193608	SLAPS Loadout	11/30/16	Gross Alpha/Beta	Gross Alpha	-8.14E-16	3.99E-15	1.01E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193608	SLAPS Loadout	11/30/16	Gross Alpha/Beta	Gross Beta	9.95E-15	4.68E-14	3.41E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193609	SLAPS Loadout	11/30/16	Gross Alpha/Beta	Gross Alpha	1.02E-15	1.17E-14	2.53E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193609	SLAPS Loadout	11/30/16	Gross Alpha/Beta	Gross Beta	3.07E-14	1.17E-13	8.52E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA193610	SLAPS Loadout	11/30/16	Gross Alpha/Beta	Gross Alpha	-2.04E-15	9.98E-15	2.53E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193610	SLAPS Loadout	11/30/16	Gross Alpha/Beta	Gross Beta	7.31E-14	1.19E-13	8.52E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193611	SLAPS Loadout	11/30/16	Gross Alpha/Beta	Gross Alpha	-2.04E-15	9.98E-15	2.53E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193611	SLAPS Loadout	11/30/16	Gross Alpha/Beta	Gross Beta	2.68E-14	1.17E-13	8.52E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193612	SLAPS Loadout	12/01/16	Gross Alpha/Beta	Gross Alpha	2.02E-15	4.81E-15	9.07E-15	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA193612	SLAPS Loadout	12/01/16	Gross Alpha/Beta	Gross Alpha	1.01E-14	7.81E-15	9.07E-15	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193612	SLAPS Loadout	12/01/16	Gross Alpha/Beta	Gross Beta	1.61E-14	1.24E-14	1.84E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA193612	SLAPS Loadout	12/01/16	Gross Alpha/Beta	Gross Beta	2.48E-14	1.34E-14	1.84E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193613	SLAPS Loadout	12/01/16	Gross Alpha/Beta	Gross Alpha	4.42E-15	5.93E-15	9.24E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193613	SLAPS Loadout	12/01/16	Gross Alpha/Beta	Gross Beta	5.95E-15	1.12E-14	1.87E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193614	SLAPS Loadout	12/05/16	Gross Alpha/Beta	Gross Alpha	3.30E-15	5.54E-15	9.41E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193614	SLAPS Loadout	12/05/16	Gross Alpha/Beta	Gross Beta	3.94E-14	1.55E-14	1.91E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA193615	SLAPS Loadout	12/05/16	Gross Alpha/Beta	Gross Alpha	3.33E-15	5.59E-15	9.50E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193615	SLAPS Loadout	12/05/16	Gross Alpha/Beta	Gross Beta	2.29E-14	1.37E-14	1.92E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193616	SLAPS Loadout	12/06/16	Gross Alpha/Beta	Gross Alpha	2.12E-15	5.04E-15	9.50E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193616	SLAPS Loadout	12/06/16	Gross Alpha/Beta	Gross Beta	3.14E-14	1.47E-14	1.92E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA193617	SLAPS Loadout	12/07/16	Gross Alpha/Beta	Gross Alpha	1.09E-14	8.43E-15	9.78E-15	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193617	SLAPS Loadout	12/07/16	Gross Alpha/Beta	Gross Beta	2.36E-14	1.41E-14	1.98E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193618	SLAPS Loadout	12/07/16	Gross Alpha/Beta	Gross Alpha	2.18E-15	5.19E-15	9.78E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193618	SLAPS Loadout	12/07/16	Gross Alpha/Beta	Gross Beta	2.52E-14	1.43E-14	1.98E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193619	SLAPS Loadout	12/08/16	Gross Alpha/Beta	Gross Alpha	-5.89E-16	7.18E-15	1.85E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193619	SLAPS Loadout	12/08/16	Gross Alpha/Beta	Gross Beta	6.39E-14	2.89E-14	3.74E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA193620	SLAPS Loadout	12/08/16	Gross Alpha/Beta	Gross Alpha	2.27E-15	1.10E-14	2.38E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193620	SLAPS Loadout	12/08/16	Gross Alpha/Beta	Gross Beta	2.29E-14	2.99E-14	4.81E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193621	SLAPS Loadout	12/12/16	Gross Alpha/Beta	Gross Alpha	4.59E-15	6.16E-15	9.59E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193621	SLAPS Loadout	12/12/16	Gross Alpha/Beta	Gross Beta	5.40E-15	1.16E-14	1.94E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193622	SLAPS Loadout	12/12/16	Gross Alpha/Beta	Gross Alpha	1.19E-14	8.63E-15	9.59E-15	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA193622	SLAPS Loadout	12/12/16	Gross Alpha/Beta	Gross Alpha	1.07E-14	8.26E-15	9.59E-15	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193622	SLAPS Loadout	12/12/16	Gross Alpha/Beta	Gross Beta	6.41E-14	1.83E-14	1.94E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA193622	SLAPS Loadout	12/12/16	Gross Alpha/Beta	Gross Beta	7.41E-14	1.93E-14	1.94E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA193623	SLAPS Loadout	12/13/16	Gross Alpha/Beta	Gross Alpha	9.17E-16	4.46E-15	9.59E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193623	SLAPS Loadout	12/13/16	Gross Alpha/Beta	Gross Beta	5.02E-14	1.69E-14	1.94E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA193624	SLAPS Loadout	12/13/16	Gross Alpha/Beta	Gross Alpha	1.54E-14	9.54E-15	9.50E-15	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193624	SLAPS Loadout	12/13/16	Gross Alpha/Beta	Gross Beta	1.14E-13	2.29E-14	1.92E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA193625	SLAPS Loadout	12/14/16	Gross Alpha/Beta	Gross Alpha	8.26E-15	7.49E-15	9.59E-15	µCi/mL	UJ	T04, T05	SLAPS (General Area)-Perimeter Air
SLA193625	SLAPS Loadout	12/14/16	Gross Alpha/Beta	Gross Beta	2.32E-14	1.38E-14	1.94E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193626	SLAPS Loadout	12/14/16	Gross Alpha/Beta	Gross Alpha	1.13E-14	8.16E-15	9.07E-15	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193626	SLAPS Loadout	12/14/16	Gross Alpha/Beta	Gross Beta	3.58E-14	1.47E-14	1.84E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA193627	SLAPS Loadout	12/14/16	Gross Alpha/Beta	Gross Alpha	4.16E-15	6.99E-15	1.19E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193627	SLAPS Loadout	12/14/16	Gross Alpha/Beta	Gross Beta	3.63E-14	1.80E-14	2.41E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA193628	SLAPS Loadout	12/14/16	Gross Alpha/Beta	Gross Alpha	5.82E-15	7.81E-15	1.22E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193628	SLAPS Loadout	12/14/16	Gross Alpha/Beta	Gross Beta	2.94E-14	1.75E-14	2.46E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193629	SLAPS Loadout	12/14/16	Gross Alpha/Beta	Gross Alpha	-3.70E-16	4.51E-15	1.16E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193629	SLAPS Loadout	12/14/16	Gross Alpha/Beta	Gross Beta	1.96E-14	1.57E-14	2.35E-14	µCi/mL	UJ	T04, T05	SLAPS (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SLA193630	SLAPS Loadout	12/15/16	Gross Alpha/Beta	Gross Alpha	8.83E-16	4.29E-15	9.24E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193630	SLAPS Loadout	12/15/16	Gross Alpha/Beta	Gross Beta	4.16E-14	1.55E-14	1.87E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA193631	SLAPS Loadout	12/15/16	Gross Alpha/Beta	Gross Alpha	5.59E-15	6.39E-15	9.24E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193631	SLAPS Loadout	12/15/16	Gross Alpha/Beta	Gross Beta	2.83E-14	1.40E-14	1.87E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA193632	SLAPS Loadout	12/19/16	Gross Alpha/Beta	Gross Alpha	8.99E-15	8.48E-15	1.05E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA193632	SLAPS Loadout	12/19/16	Gross Alpha/Beta	Gross Alpha	5.00E-15	7.09E-15	1.05E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193632	SLAPS Loadout	12/19/16	Gross Alpha/Beta	Gross Beta	2.83E-14	2.17E-14	3.15E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA193632	SLAPS Loadout	12/19/16	Gross Alpha/Beta	Gross Beta	2.32E-14	2.13E-14	3.15E-14	µCi/mL	UJ	T04, T05	SLAPS (General Area)-Perimeter Air
SLA193633	SLAPS Loadout	12/20/16	Gross Alpha/Beta	Gross Alpha	3.20E-15	5.73E-15	9.12E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193633	SLAPS Loadout	12/20/16	Gross Alpha/Beta	Gross Beta	2.54E-14	1.90E-14	2.74E-14	µCi/mL	UJ	T04, T05	SLAPS (General Area)-Perimeter Air
SLA193634	SLAPS Loadout	12/20/16	Gross Alpha/Beta	Gross Alpha	8.80E-16	4.73E-15	9.20E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193634	SLAPS Loadout	12/20/16	Gross Alpha/Beta	Gross Beta	9.10E-15	1.78E-14	2.77E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193635	SLAPS Loadout	12/21/16	Gross Alpha/Beta	Gross Alpha	3.38E-15	6.06E-15	9.64E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193635	SLAPS Loadout	12/21/16	Gross Alpha/Beta	Gross Beta	4.90E-14	2.20E-14	2.90E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA193636	SLAPS Loadout	12/21/16	Gross Alpha/Beta	Gross Alpha	5.73E-15	6.86E-15	9.46E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193636	SLAPS Loadout	12/21/16	Gross Alpha/Beta	Gross Beta	1.94E-14	1.92E-14	2.85E-14	µCi/mL	UJ	T04, T05	SLAPS (General Area)-Perimeter Air
SLA193637	SLAPS Loadout	12/21/16	Gross Alpha/Beta	Gross Alpha	3.11E-15	8.00E-15	1.39E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193637	SLAPS Loadout	12/21/16	Gross Alpha/Beta	Gross Beta	3.89E-14	2.91E-14	4.19E-14	µCi/mL	UJ	T04, T05	SLAPS (General Area)-Perimeter Air
SLA193638	SLAPS Loadout	12/21/16	Gross Alpha/Beta	Gross Alpha	6.15E-15	8.73E-15	1.29E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193638	SLAPS Loadout	12/21/16	Gross Alpha/Beta	Gross Beta	5.06E-14	2.81E-14	3.87E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193639	SLAPS Loadout	12/21/16	Gross Alpha/Beta	Gross Alpha	1.28E-15	6.88E-15	1.34E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193639	SLAPS Loadout	12/21/16	Gross Alpha/Beta	Gross Beta	4.72E-14	2.88E-14	4.03E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193640	SLAPS Loadout	12/22/16	Gross Alpha/Beta	Gross Alpha	2.76E-15	7.11E-15	1.24E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193640	SLAPS Loadout	12/22/16	Gross Alpha/Beta	Gross Beta	2.24E-14	2.48E-14	3.73E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193641	SLAPS Loadout	12/22/16	Gross Alpha/Beta	Gross Alpha	-3.81E-16	5.33E-15	1.19E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193641	SLAPS Loadout	12/22/16	Gross Alpha/Beta	Gross Beta	8.88E-15	2.28E-14	3.59E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193642	SLAPS Loadout	12/27/16	Gross Alpha/Beta	Gross Alpha	4.52E-15	6.42E-15	9.46E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193642	SLAPS Loadout	12/27/16	Gross Alpha/Beta	Gross Beta	3.88E-14	2.08E-14	2.85E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193643	SLAPS Loadout	12/27/16	Gross Alpha/Beta	Gross Alpha	9.22E-16	4.96E-15	9.64E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193643	SLAPS Loadout	12/27/16	Gross Alpha/Beta	Gross Beta	4.27E-14	2.15E-14	2.90E-14	µCi/mL	J	T04, T20	SLAPS (General Area)-Perimeter Air
SLA193644	SLAPS Loadout	12/28/16	Gross Alpha/Beta	Gross Alpha	8.72E-16	4.69E-15	9.12E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193644	SLAPS Loadout	12/28/16	Gross Alpha/Beta	Gross Beta	4.19E-14	2.04E-14	2.74E-14	µCi/mL	=		SLAPS (General Area)-Perimeter Air
SLA193645	SLAPS Loadout	12/28/16	Gross Alpha/Beta	Gross Alpha	9.44E-15	8.13E-15	9.55E-15	µCi/mL	UJ	T04, T05	SLAPS (General Area)-Perimeter Air
SLA193645	SLAPS Loadout	12/28/16	Gross Alpha/Beta	Gross Beta	2.82E-14	2.01E-14	2.88E-14	µCi/mL	UJ	T04, T05	SLAPS (General Area)-Perimeter Air
SLA193646	SLAPS Loadout	12/29/16	Gross Alpha/Beta	Gross Alpha	7.95E-16	6.42E-15	1.29E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA193646	SLAPS Loadout	12/29/16	Gross Alpha/Beta	Gross Alpha	2.39E-15	7.16E-15	1.29E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193646	SLAPS Loadout	12/29/16	Gross Alpha/Beta	Gross Beta	1.32E-14	1.67E-14	2.47E-14	µCi/mL			SLAPS (General Area)-Perimeter Air
SLA193646	SLAPS Loadout	12/29/16	Gross Alpha/Beta	Gross Beta	2.17E-15	1.53E-14	2.47E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193647	SLAPS Loadout	12/29/16	Gross Alpha/Beta	Gross Alpha	5.70E-16	4.61E-15	9.26E-15	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SLA193647	SLAPS Loadout	12/29/16	Gross Alpha/Beta	Gross Beta	5.16E-15	1.14E-14	1.77E-14	µCi/mL	UJ	T06	SLAPS (General Area)-Perimeter Air
SVP182218	St. Cin Park	01/05/16	Gross Alpha/Beta	Gross Alpha	2.07E-15	6.63E-15	1.31E-14	µCi/mL			North County Air (General Area Air)-Perimeter Air
SVP182218	St. Cin Park	01/05/16	Gross Alpha/Beta	Gross Alpha	3.85E-15	7.52E-15	1.31E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182218	St. Cin Park	01/05/16	Gross Alpha/Beta	Gross Beta	5.88E-15	2.55E-14	3.96E-14	µCi/mL			North County Air (General Area Air)-Perimeter Air
SVP182218	St. Cin Park	01/05/16	Gross Alpha/Beta	Gross Beta	2.52E-14	2.72E-14	3.96E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP182219	St. Cin Park	01/05/16	Gross Alpha/Beta	Gross Alpha	1.83E-15	5.85E-15	1.15E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182219	St. Cin Park	01/05/16	Gross Alpha/Beta	Gross Beta	4.13E-14	2.56E-14	3.50E-14	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air
SVP182220	St. Cin Park	01/06/16	Gross Alpha/Beta	Gross Alpha	1.00E-14	1.06E-14	1.43E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182220	St. Cin Park	01/06/16	Gross Alpha/Beta	Gross Beta	1.39E-14	2.86E-14	4.33E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182221	St. Cin Park	01/06/16	Gross Alpha/Beta	Gross Alpha	2.13E-15	6.82E-15	1.34E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182221	St. Cin Park	01/06/16	Gross Alpha/Beta	Gross Beta	4.12E-14	2.93E-14	4.08E-14	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air
SVP182222	St. Cin Park	01/11/16	Gross Alpha/Beta	Gross Alpha	4.99E-15	7.39E-15	1.16E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182222	St. Cin Park	01/11/16	Gross Alpha/Beta	Gross Beta	5.07E-14	2.64E-14	3.52E-14	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air
SVP182223	St. Cin Park	01/11/16	Gross Alpha/Beta	Gross Alpha	9.06E-15	1.11E-14	1.60E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182223	St. Cin Park	01/11/16	Gross Alpha/Beta	Gross Beta	5.32E-14	3.52E-14	4.85E-14	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air
SVP182224	St. Cin Park	01/12/16	Gross Alpha/Beta	Gross Alpha	1.29E-14	1.02E-14	1.16E-14	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air
SVP182224	St. Cin Park	01/12/16	Gross Alpha/Beta	Gross Beta	5.37E-14	2.67E-14	3.52E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP182225	St. Cin Park	01/12/16	Gross Alpha/Beta	Gross Alpha	-1.23E-15	3.59E-15	1.08E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182225	St. Cin Park	01/12/16	Gross Alpha/Beta	Gross Beta	1.25E-14	2.19E-14	3.29E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182226	St. Cin Park	01/13/16	Gross Alpha/Beta	Gross Alpha	1.23E-14	1.16E-14	1.46E-14	µCi/mL	U	T04, T05	North County Air (General Area Air)-Perimeter Air
SVP182226	St. Cin Park	01/13/16	Gross Alpha/Beta	Gross Beta	2.70E-14	3.03E-14	4.43E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182227	St. Cin Park	01/13/16	Gross Alpha/Beta	Gross Alpha	-1.59E-15	4.65E-15	1.40E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182227	St. Cin Park	01/13/16	Gross Alpha/Beta	Gross Beta	2.84E-14	2.94E-14	4.26E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182228	St.Cin Park	01/18/16	Gross Alpha/Beta	Gross Alpha	1.53E-15	6.21E-15	9.52E-15	µCi/mL			North County Air (General Area Air)-Perimeter Air
SVP182228	St.Cin Park	01/18/16	Gross Alpha/Beta	Gross Alpha	-7.65E-16	5.30E-15	9.52E-15	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182228	St.Cin Park	01/18/16	Gross Alpha/Beta	Gross Beta	1.72E-14	2.30E-14	2.51E-14	µCi/mL			North County Air (General Area Air)-Perimeter Air
SVP182228	St.Cin Park	01/18/16	Gross Alpha/Beta	Gross Beta	1.27E-14	2.28E-14	2.51E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182229	St.Cin Park	01/18/16	Gross Alpha/Beta	Gross Alpha	1.60E-15	6.51E-15	9.97E-15	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182229	St.Cin Park	01/18/16	Gross Alpha/Beta	Gross Beta	3.41E-14	2.52E-14	2.63E-14	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air
SVP182230	St.Cin Park	01/19/16	Gross Alpha/Beta	Gross Alpha	2.03E-15	8.23E-15	1.26E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182230	St.Cin Park	01/19/16	Gross Alpha/Beta	Gross Beta	2.76E-14	3.08E-14	3.33E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182231	St.Cin Park	01/19/16	Gross Alpha/Beta	Gross Alpha	-2.60E-15	6.49E-15	1.29E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182231	St.Cin Park	01/19/16	Gross Alpha/Beta	Gross Beta	7.22E-14	3.43E-14	3.42E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP182232	St.Cin Park	01/20/16	Gross Alpha/Beta	Gross Alpha	1.91E-14	3.50E-14	4.76E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182232	St.Cin Park	01/20/16	Gross Alpha/Beta	Gross Beta	1.96E-13	1.22E-13	1.26E-13	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air
SVP182233	St.Cin Park	01/20/16	Gross Alpha/Beta	Gross Alpha	-1.68E-14	2.30E-14	5.23E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182233	St.Cin Park	01/20/16	Gross Alpha/Beta	Gross Beta	8.62E-14	1.26E-13	1.38E-13	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182234	St. Cin Park	02/02/16	Gross Alpha/Beta	Gross Alpha	1.11E-15	2.44E-14	4.88E-14	µCi/mL	UJ	T06	North County Air (St. Cin Park)(General Area Air)-Perimeter Air
SVP182234	St. Cin Park	02/02/16	Gross Alpha/Beta	Gross Beta	1.95E-14	1.43E-13	1.54E-13	µCi/mL	UJ	T06	North County Air (St. Cin Park)(General Area Air)-Perimeter Air
SVP182235	St. Cin Park	02/02/16	Gross Alpha/Beta	Gross Alpha	7.55E-15	2.71E-14	4.75E-14	µCi/mL	UJ	T06	North County Air (St. Cin Park)(General Area Air)-Perimeter Air
SVP182235	St. Cin Park	02/02/16	Gross Alpha/Beta	Gross Beta	1.10E-13	1.44E-13	1.50E-13	µCi/mL	UJ	T06	North County Air (St. Cin Park)(General Area Air)-Perimeter Air
SVP182236	Duchesne Park	03/15/16	Gross Alpha/Beta	Gross Alpha	3.20E-15	1.00E-14	1.69E-14	µCi/mL			North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182236	Duchesne Park	03/15/16	Gross Alpha/Beta	Gross Alpha	4.95E-15	1.06E-14	1.69E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182236	Duchesne Park	03/15/16	Gross Alpha/Beta	Gross Beta	1.18E-14	1.71E-14	2.68E-14	µCi/mL			North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182236	Duchesne Park	03/15/16	Gross Alpha/Beta	Gross Beta	1.06E-14	1.70E-14	2.68E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182237	Duchesne Park	03/15/16	Gross Alpha/Beta	Gross Alpha	7.64E-15	9.19E-15	1.27E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182237	Duchesne Park	03/15/16	Gross Alpha/Beta	Gross Beta	1.05E-14	1.31E-14	2.01E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182238	Duchesne Park	03/16/16	Gross Alpha/Beta	Gross Alpha	-4.43E-15	5.06E-15	1.36E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182238	Duchesne Park	03/16/16	Gross Alpha/Beta	Gross Beta	1.66E-14	1.46E-14	2.15E-14	µCi/mL	U	T04, T05	North County Air (Duchesne Park)(General Area Air)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP182239	Duchesne Park	03/15/16	Gross Alpha/Beta	Gross Alpha	2.31E-15	7.23E-15	1.22E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182239	Duchesne Park	03/15/16	Gross Alpha/Beta	Gross Beta	9.27E-15	1.24E-14	1.93E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182240	Duchesne Park	03/16/16	Gross Alpha/Beta	Gross Alpha	-1.67E-15	6.56E-15	1.39E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182240	Duchesne Park	03/16/16	Gross Alpha/Beta	Gross Beta	5.95E-15	1.35E-14	2.19E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182241	Duchesne Park	03/17/16	Gross Alpha/Beta	Gross Alpha	-4.99E-16	1.50E-14	2.90E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182241	Duchesne Park	03/17/16	Gross Alpha/Beta	Gross Beta	2.40E-14	2.98E-14	4.60E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182242	Duchesne Park	03/17/16	Gross Alpha/Beta	Gross Alpha	-2.19E-15	8.61E-15	1.82E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182242	Duchesne Park	03/17/16	Gross Alpha/Beta	Gross Beta	2.35E-14	1.98E-14	2.88E-14	µCi/mL	U	T04, T05	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182243	Duchesne Park	03/21/16	Gross Alpha/Beta	Gross Alpha	-1.53E-15	6.01E-15	1.27E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182243	Duchesne Park	03/21/16	Gross Alpha/Beta	Gross Beta	2.56E-14	1.50E-14	2.01E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182244	Duchesne Park	03/21/16	Gross Alpha/Beta	Gross Alpha	4.87E-15	8.15E-15	1.23E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182244	Duchesne Park	03/21/16	Gross Alpha/Beta	Gross Beta	1.83E-14	1.37E-14	1.95E-14	µCi/mL	U	T04, T05	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182245	Duchesne Park	03/21/16	Gross Alpha/Beta	Gross Alpha	3.60E-15	1.13E-14	1.91E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182245	Duchesne Park	03/21/16	Gross Alpha/Beta	Gross Beta	1.07E-14	1.89E-14	3.02E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182246	Duchesne Park	03/22/16	Gross Alpha/Beta	Gross Alpha	4.85E-15	8.10E-15	1.23E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182246	Duchesne Park	03/22/16	Gross Alpha/Beta	Gross Beta	3.28E-14	1.54E-14	1.94E-14	µCi/mL	=		North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182247	Duchesne Park	03/22/16	Gross Alpha/Beta	Gross Alpha	1.04E-15	6.71E-15	1.21E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182247	Duchesne Park	03/22/16	Gross Alpha/Beta	Gross Beta	2.51E-14	1.43E-14	1.91E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182248	Duchesne Park	03/22/16	Gross Alpha/Beta	Gross Alpha	-2.18E-16	6.56E-15	1.27E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182248	Duchesne Park	03/22/16	Gross Alpha/Beta	Gross Beta	2.81E-14	1.53E-14	2.01E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182249	Duchesne Park	03/23/16	Gross Alpha/Beta	Gross Alpha	2.51E-15	7.86E-15	1.33E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182249	Duchesne Park	03/23/16	Gross Alpha/Beta	Gross Beta	2.32E-14	1.52E-14	2.10E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182250	Duchesne Park	03/23/16	Gross Alpha/Beta	Gross Alpha	2.31E-15	7.23E-15	1.22E-14	µCi/mL			North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182250	Duchesne Park	03/23/16	Gross Alpha/Beta	Gross Alpha	-2.10E-16	6.29E-15	1.22E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182250	Duchesne Park	03/23/16	Gross Alpha/Beta	Gross Beta	1.89E-14	1.37E-14	1.93E-14	µCi/mL			North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182250	Duchesne Park	03/23/16	Gross Alpha/Beta	Gross Beta	1.57E-14	1.33E-14	1.93E-14	µCi/mL	U	T04, T05	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182251	Duchesne Park	03/23/16	Gross Alpha/Beta	Gross Alpha	-3.98E-15	4.55E-15	1.22E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182251	Duchesne Park	03/23/16	Gross Alpha/Beta	Gross Beta	1.09E-14	1.26E-14	1.93E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182252	Duchesne Park	03/24/16	Gross Alpha/Beta	Gross Alpha	2.45E-15	7.69E-15	1.30E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182252	Duchesne Park	03/24/16	Gross Alpha/Beta	Gross Beta	1.29E-15	1.20E-14	2.05E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182253	Duchesne Park	03/24/16	Gross Alpha/Beta	Gross Alpha	-2.93E-15	5.59E-15	1.31E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182253	Duchesne Park	03/24/16	Gross Alpha/Beta	Gross Beta	2.64E-14	1.54E-14	2.08E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182254	Duchesne Park	03/24/16	Gross Alpha/Beta	Gross Alpha	5.24E-15	8.77E-15	1.33E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182254	Duchesne Park	03/24/16	Gross Alpha/Beta	Gross Beta	3.99E-14	1.71E-14	2.10E-14	µCi/mL	=		North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182255	Duchesne Park	03/28/16	Gross Alpha/Beta	Gross Alpha	2.53E-15	7.95E-15	1.34E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182255	Duchesne Park	03/28/16	Gross Alpha/Beta	Gross Beta	1.82E-14	1.47E-14	2.12E-14	µCi/mL	U	T04, T05	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182256	Duchesne Park	03/29/16	Gross Alpha/Beta	Gross Alpha	1.11E-14	2.30E-14	4.25E-14	µCi/mL			North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182256	Duchesne Park	03/29/16	Gross Alpha/Beta	Gross Alpha	1.87E-14	2.54E-14	4.25E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182256	Duchesne Park	03/29/16	Gross Alpha/Beta	Gross Beta	-2.44E-15	3.80E-14	6.02E-14	µCi/mL			North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182256	Duchesne Park	03/29/16	Gross Alpha/Beta	Gross Beta	1.95E-14	4.07E-14	6.02E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182257	Duchesne Park	03/29/16	Gross Alpha/Beta	Gross Alpha	-1.51E-14	1.08E-14	4.13E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182257	Duchesne Park	03/29/16	Gross Alpha/Beta	Gross Beta	3.56E-14	4.15E-14	5.84E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182258	Duchesne Park	03/29/16	Gross Alpha/Beta	Gross Alpha	-8.45E-15	1.64E-14	4.53E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182258	Duchesne Park	03/29/16	Gross Alpha/Beta	Gross Beta	2.34E-14	4.37E-14	6.40E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP182259	Duchesne Park	03/30/16	Gross Alpha/Beta	Gross Alpha	-2.84E-15	1.18E-14	2.92E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182259	Duchesne Park	03/30/16	Gross Alpha/Beta	Gross Beta	1.51E-14	2.82E-14	4.14E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182260	Duchesne Park	03/30/16	Gross Alpha/Beta	Gross Alpha	-7.60E-15	8.70E-15	2.75E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182260	Duchesne Park	03/30/16	Gross Alpha/Beta	Gross Beta	1.42E-14	2.65E-14	3.89E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182261	Duchesne Park	03/30/16	Gross Alpha/Beta	Gross Alpha	7.64E-15	1.58E-14	2.92E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182261	Duchesne Park	03/30/16	Gross Alpha/Beta	Gross Beta	4.87E-14	3.21E-14	4.14E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182262	Duchesne Park	04/04/16	Gross Alpha/Beta	Gross Alpha	6.90E-15	2.34E-14	3.14E-14	µCi/mL			North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182262	Duchesne Park	04/04/16	Gross Alpha/Beta	Gross Alpha	-9.65E-15	1.81E-14	3.14E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182262	Duchesne Park	04/04/16	Gross Alpha/Beta	Gross Beta	4.59E-15	3.09E-14	4.98E-14	µCi/mL			North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182262	Duchesne Park	04/04/16	Gross Alpha/Beta	Gross Beta	5.76E-14	3.77E-14	4.98E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182263	Duchesne Park	04/04/16	Gross Alpha/Beta	Gross Alpha	3.59E-15	2.24E-14	3.14E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182263	Duchesne Park	04/04/16	Gross Alpha/Beta	Gross Beta	3.43E-14	3.48E-14	4.98E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182264	Duchesne Park	04/04/16	Gross Alpha/Beta	Gross Alpha	2.13E-14	2.84E-14	3.31E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182264	Duchesne Park	04/04/16	Gross Alpha/Beta	Gross Beta	3.84E-14	3.70E-14	5.26E-14	µCi/mL	U	T04, T05	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182265	Duchesne Park	04/05/16	Gross Alpha/Beta	Gross Alpha	1.70E-15	1.07E-14	1.49E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182265	Duchesne Park	04/05/16	Gross Alpha/Beta	Gross Beta	1.33E-14	1.62E-14	2.37E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182266	Duchesne Park	04/05/16	Gross Alpha/Beta	Gross Alpha	6.04E-15	1.13E-14	1.40E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182266	Duchesne Park	04/05/16	Gross Alpha/Beta	Gross Beta	2.48E-14	1.67E-14	2.23E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182267	Duchesne Park	04/05/16	Gross Alpha/Beta	Gross Alpha	1.70E-15	1.07E-14	1.49E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182267	Duchesne Park	04/05/16	Gross Alpha/Beta	Gross Beta	7.22E-15	1.54E-14	2.37E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182268	Duchesne Park	04/13/16	Gross Alpha/Beta	Gross Alpha	-3.01E-15	9.16E-15	1.49E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182268	Duchesne Park	04/13/16	Gross Alpha/Beta	Gross Beta	4.55E-14	2.00E-14	2.37E-14	µCi/mL	=		North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182269	Duchesne Park	04/13/16	Gross Alpha/Beta	Gross Alpha	3.74E-15	1.27E-14	1.70E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182269	Duchesne Park	04/13/16	Gross Alpha/Beta	Gross Beta	3.36E-14	2.07E-14	2.70E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182270	Duchesne Park	04/13/16	Gross Alpha/Beta	Gross Alpha	5.31E-15	1.27E-14	1.63E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182270	Duchesne Park	04/13/16	Gross Alpha/Beta	Gross Beta	3.00E-14	1.96E-14	2.59E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182271	Duchesne Park	04/14/16	Gross Alpha/Beta	Gross Alpha	4.40E-15	2.75E-14	3.85E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182271	Duchesne Park	04/14/16	Gross Alpha/Beta	Gross Beta	6.02E-14	4.50E-14	6.11E-14	µCi/mL	U	T04, T05	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182272	Duchesne Park	04/14/16	Gross Alpha/Beta	Gross Alpha	-3.84E-15	2.58E-14	3.98E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182272	Duchesne Park	04/14/16	Gross Alpha/Beta	Gross Beta	3.00E-14	4.24E-14	6.31E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182273	Duchesne Park	04/14/16	Gross Alpha/Beta	Gross Alpha	-8.31E-15	2.53E-14	4.11E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182273	Duchesne Park	04/14/16	Gross Alpha/Beta	Gross Beta	4.21E-14	4.53E-14	6.53E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182274	Duchesne Park	04/18/16	Gross Alpha/Beta	Gross Alpha	1.20E-16	9.36E-15	1.37E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182274	Duchesne Park	04/18/16	Gross Alpha/Beta	Gross Beta	2.98E-14	1.70E-14	2.18E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182275	Duchesne Park	04/18/16	Gross Alpha/Beta	Gross Alpha	1.75E-15	1.09E-14	1.53E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182275	Duchesne Park	04/18/16	Gross Alpha/Beta	Gross Beta	2.50E-14	1.80E-14	2.43E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182276	Duchesne Park	04/18/16	Gross Alpha/Beta	Gross Alpha	1.79E-15	1.12E-14	1.57E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182276	Duchesne Park	04/18/16	Gross Alpha/Beta	Gross Beta	3.62E-14	1.97E-14	2.49E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182277	Futura	04/21/16	Gross Alpha/Beta	Gross Alpha	-1.65E-15	1.11E-14	1.70E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182277	Futura	04/21/16	Gross Alpha/Beta	Gross Beta	3.13E-14	2.05E-14	2.70E-14	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air
SVP182278	Futura	04/20/16	Gross Alpha/Beta	Gross Alpha	8.65E-15	1.02E-14	1.16E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182278	Futura	04/20/16	Gross Alpha/Beta	Gross Beta	2.67E-14	1.46E-14	1.84E-14	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air
SVP182279	Duchesne Park	05/04/16	Gross Alpha/Beta	Gross Alpha	5.39E-15	6.40E-15	9.73E-15	µCi/mL			North County Air (General Area Air)-Perimeter Air
SVP182279	Duchesne Park	05/04/16	Gross Alpha/Beta	Gross Alpha	1.62E-14	9.68E-15	9.73E-15	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP182279	Duchesne Park	05/04/16	Gross Alpha/Beta	Gross Beta	4.95E-14	1.73E-14	1.88E-14	µCi/mL			North County Air (General Area Air)-Perimeter Air
SVP182279	Duchesne Park	05/04/16	Gross Alpha/Beta	Gross Beta	2.72E-14	1.49E-14	1.88E-14	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air
SVP182280	Duchesne Park	05/04/16	Gross Alpha/Beta	Gross Alpha	-6.23E-16	3.62E-15	1.01E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182280	Duchesne Park	05/04/16	Gross Alpha/Beta	Gross Beta	2.35E-14	1.50E-14	1.96E-14	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air
SVP182281	Duchesne Park	05/04/16	Gross Alpha/Beta	Gross Alpha	1.89E-15	5.10E-15	1.02E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182281	Duchesne Park	05/04/16	Gross Alpha/Beta	Gross Beta	2.22E-14	1.50E-14	1.97E-14	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air
SVP182282	Duchesne Park	05/09/16	Gross Alpha/Beta	Gross Alpha	2.10E-14	4.06E-14	7.44E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182282	Duchesne Park	05/09/16	Gross Alpha/Beta	Gross Beta	6.72E-14	1.15E-13	1.55E-13	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182283	Duchesne Park	05/09/16	Gross Alpha/Beta	Gross Alpha	1.97E-15	9.98E-15	2.09E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182283	Duchesne Park	05/09/16	Gross Alpha/Beta	Gross Beta	4.53E-14	3.45E-14	4.37E-14	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air
SVP182284	Duchesne Park	05/09/16	Gross Alpha/Beta	Gross Alpha	7.86E-15	1.21E-14	2.09E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182284	Duchesne Park	05/09/16	Gross Alpha/Beta	Gross Beta	2.27E-14	3.27E-14	4.37E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182285	Duchesne Park	05/16/16	Gross Alpha/Beta	Gross Alpha	5.59E-15	8.60E-15	1.49E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182285	Duchesne Park	05/16/16	Gross Alpha/Beta	Gross Beta	4.57E-14	2.56E-14	3.11E-14	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air
SVP182286	Duchesne Park	05/16/16	Gross Alpha/Beta	Gross Alpha	0	4.19E-14	9.57E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182286	Duchesne Park	05/16/16	Gross Alpha/Beta	Gross Beta	1.67E-13	1.54E-13	2.00E-13	µCi/mL	U	T04, T05	North County Air (General Area Air)-Perimeter Air
SVP182287	Duchesne Park	05/16/16	Gross Alpha/Beta	Gross Alpha	1.92E-14	5.01E-14	9.46E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182287	Duchesne Park	05/16/16	Gross Alpha/Beta	Gross Beta	1.29E-13	1.32E-13	1.79E-13	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182288	Duchesne Park	05/19/16	Gross Alpha/Beta	Gross Alpha	5.64E-15	7.60E-15	1.08E-14	µCi/mL			North County Air (General Area Air)-Perimeter Air
SVP182288	Duchesne Park	05/19/16	Gross Alpha/Beta	Gross Alpha	8.06E-16	5.85E-15	1.08E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182288	Duchesne Park	05/19/16	Gross Alpha/Beta	Gross Beta	1.81E-14	1.37E-14	1.79E-14	µCi/mL			North County Air (General Area Air)-Perimeter Air
SVP182288	Duchesne Park	05/19/16	Gross Alpha/Beta	Gross Beta	2.05E-14	1.39E-14	1.79E-14	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air
SVP182289	Duchesne Park	05/19/16	Gross Alpha/Beta	Gross Alpha	4.57E-15	7.42E-15	1.12E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182289	Duchesne Park	05/19/16	Gross Alpha/Beta	Gross Beta	1.87E-14	1.41E-14	1.85E-14	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air
SVP182290	Duchesne Park	05/19/16	Gross Alpha/Beta	Gross Alpha	7.13E-15	8.30E-15	1.13E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182290	Duchesne Park	05/19/16	Gross Alpha/Beta	Gross Beta	4.06E-14	1.67E-14	1.86E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP182291	Duchesne Park	05/23/16	Gross Alpha/Beta	Gross Alpha	4.39E-15	7.13E-15	1.07E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182291	Duchesne Park	05/23/16	Gross Alpha/Beta	Gross Beta	5.17E-14	1.73E-14	1.78E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP182292	Duchesne Park	05/23/16	Gross Alpha/Beta	Gross Alpha	2.12E-15	6.65E-15	1.14E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182292	Duchesne Park	05/23/16	Gross Alpha/Beta	Gross Beta	3.62E-14	1.63E-14	1.88E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP182293	Duchesne Park	05/23/16	Gross Alpha/Beta	Gross Alpha	2.10E-15	6.59E-15	1.13E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182293	Duchesne Park	05/23/16	Gross Alpha/Beta	Gross Beta	4.14E-14	1.68E-14	1.86E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP182294	Duchesne Park	05/31/16	Gross Alpha/Beta	Gross Alpha	2.72E-15	8.55E-15	1.46E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182294	Duchesne Park	05/31/16	Gross Alpha/Beta	Gross Beta	1.61E-14	1.74E-14	2.42E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182295	Duchesne Park	05/31/16	Gross Alpha/Beta	Gross Alpha	2.83E-15	8.90E-15	1.52E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182295	Duchesne Park	05/31/16	Gross Alpha/Beta	Gross Beta	3.20E-14	2.00E-14	2.52E-14	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air
SVP182296	Duchesne Park	06/01/16	Gross Alpha/Beta	Gross Alpha	6.21E-15	7.33E-15	8.76E-15	µCi/mL			North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182296	Duchesne Park	06/01/16	Gross Alpha/Beta	Gross Alpha	1.16E-14	9.09E-15	8.76E-15	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182296	Duchesne Park	06/01/16	Gross Alpha/Beta	Gross Beta	4.07E-14	8.12E-14	2.63E-14	µCi/mL			North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182296	Duchesne Park	06/01/16	Gross Alpha/Beta	Gross Beta	3.65E-14	8.11E-14	2.63E-14	µCi/mL	UJ	T02	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182297	Duchesne Park	06/01/16	Gross Alpha/Beta	Gross Alpha	8.65E-16	4.99E-15	8.76E-15	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182297	Duchesne Park	06/01/16	Gross Alpha/Beta	Gross Beta	2.98E-14	8.09E-14	2.63E-14	µCi/mL	UJ	T02	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182298	Duchesne Park	06/01/16	Gross Alpha/Beta	Gross Alpha	6.34E-15	7.48E-15	8.95E-15	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182298	Duchesne Park	06/01/16	Gross Alpha/Beta	Gross Beta	9.32E-14	8.42E-14	2.68E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP182299	Duchesne Park	06/02/16	Gross Alpha/Beta	Gross Alpha	2.03E-15	5.23E-15	8.09E-15	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182299	Duchesne Park	06/02/16	Gross Alpha/Beta	Gross Beta	3.53E-14	7.49E-14	2.42E-14	µCi/mL	UJ	T02	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182300	Duchesne Park	06/02/16	Gross Alpha/Beta	Gross Alpha	2.03E-15	5.23E-15	8.09E-15	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182300	Duchesne Park	06/02/16	Gross Alpha/Beta	Gross Beta	3.84E-14	7.49E-14	2.42E-14	µCi/mL	UJ	T02	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182301	Duchesne Park	06/02/16	Gross Alpha/Beta	Gross Alpha	4.59E-15	6.41E-15	8.25E-15	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182301	Duchesne Park	06/02/16	Gross Alpha/Beta	Gross Beta	3.99E-14	7.64E-14	2.47E-14	µCi/mL	UJ	T02	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182302	Duchesne Park	06/06/16	Gross Alpha/Beta	Gross Alpha	8.22E-16	4.74E-15	8.33E-15	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182302	Duchesne Park	06/06/16	Gross Alpha/Beta	Gross Beta	2.59E-14	7.69E-14	2.50E-14	µCi/mL	UJ	T02	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182303	Duchesne Park	06/06/16	Gross Alpha/Beta	Gross Alpha	-4.48E-16	4.01E-15	8.33E-15	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182303	Duchesne Park	06/06/16	Gross Alpha/Beta	Gross Beta	4.59E-14	7.73E-14	2.50E-14	µCi/mL	UJ	T02	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182304	Duchesne Park	06/06/16	Gross Alpha/Beta	Gross Alpha	5.68E-15	6.70E-15	8.01E-15	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182304	Duchesne Park	06/06/16	Gross Alpha/Beta	Gross Beta	3.49E-14	7.42E-14	2.40E-14	µCi/mL	UJ	T02	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182305	Duchesne Park	06/07/16	Gross Alpha/Beta	Gross Alpha	6.47E-15	8.43E-15	1.25E-14	µCi/mL			North County Air (General Area Air)-Perimeter Air
SVP182305	Duchesne Park	06/07/16	Gross Alpha/Beta	Gross Alpha	7.71E-15	8.79E-15	1.25E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182305	Duchesne Park	06/07/16	Gross Alpha/Beta	Gross Beta	1.86E-14	1.61E-14	1.96E-14	µCi/mL			North County Air (General Area Air)-Perimeter Air
SVP182305	Duchesne Park	06/07/16	Gross Alpha/Beta	Gross Beta	2.65E-14	1.69E-14	1.96E-14	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air
SVP182306	Duchesne Park	06/07/16	Gross Alpha/Beta	Gross Alpha	-9.83E-16	6.23E-15	1.33E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182306	Duchesne Park	06/07/16	Gross Alpha/Beta	Gross Beta	4.90E-16	1.51E-14	2.08E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182307	Duchesne Park	06/07/16	Gross Alpha/Beta	Gross Alpha	-2.29E-15	5.66E-15	1.33E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182307	Duchesne Park	06/07/16	Gross Alpha/Beta	Gross Beta	9.72E-15	1.61E-14	2.08E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182308	Duchesne Park	06/09/16	Gross Alpha/Beta	Gross Alpha	-9.34E-16	5.92E-15	1.27E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182308	Duchesne Park	06/09/16	Gross Alpha/Beta	Gross Beta	2.68E-14	1.71E-14	1.97E-14	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air
SVP182309	Duchesne Park	06/09/16	Gross Alpha/Beta	Gross Alpha	5.51E-15	8.47E-15	1.32E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182309	Duchesne Park	06/09/16	Gross Alpha/Beta	Gross Beta	1.79E-14	1.68E-14	2.06E-14	µCi/mL	U	T04, T05	North County Air (General Area Air)-Perimeter Air
SVP182310	Duchesne Park	06/09/16	Gross Alpha/Beta	Gross Alpha	2.89E-15	7.56E-15	1.31E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182310	Duchesne Park	06/09/16	Gross Alpha/Beta	Gross Beta	1.28E-14	1.61E-14	2.04E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182311	Duchesne Park	06/14/16	Gross Alpha/Beta	Gross Alpha	4.13E-15	7.90E-15	1.29E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182311	Duchesne Park	06/14/16	Gross Alpha/Beta	Gross Beta	2.08E-14	1.68E-14	2.01E-14	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air
SVP182312	Duchesne Park	06/14/16	Gross Alpha/Beta	Gross Alpha	-1.33E-15	8.43E-15	1.80E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182312	Duchesne Park	06/14/16	Gross Alpha/Beta	Gross Beta	2.00E-14	2.25E-14	2.81E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182313	Duchesne Park	06/14/16	Gross Alpha/Beta	Gross Alpha	7.53E-15	1.16E-14	1.80E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182313	Duchesne Park	06/14/16	Gross Alpha/Beta	Gross Beta	3.81E-14	2.43E-14	2.81E-14	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air
SVP182314	Duchesne Park	06/16/16	Gross Alpha/Beta	Gross Alpha	6.54E-15	8.52E-15	1.27E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182314	Duchesne Park	06/16/16	Gross Alpha/Beta	Gross Beta	4.44E-14	1.88E-14	1.97E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP182315	Duchesne Park	06/16/16	Gross Alpha/Beta	Gross Alpha	5.45E-15	8.39E-15	1.31E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182315	Duchesne Park	06/16/16	Gross Alpha/Beta	Gross Beta	4.08E-14	1.89E-14	2.04E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP182316	Duchesne Park	06/16/16	Gross Alpha/Beta	Gross Alpha	5.40E-15	8.30E-15	1.29E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182316	Duchesne Park	06/16/16	Gross Alpha/Beta	Gross Beta	4.44E-14	1.91E-14	2.01E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP182317	Duchesne Park	06/20/16	Gross Alpha/Beta	Gross Alpha	3.36E-15	6.17E-15	9.58E-15	µCi/mL			North County Air (General Area Air)-Perimeter Air
SVP182317	Duchesne Park	06/20/16	Gross Alpha/Beta	Gross Alpha	4.58E-15	6.64E-15	9.58E-15	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182317	Duchesne Park	06/20/16	Gross Alpha/Beta	Gross Beta	3.08E-14	2.25E-14	2.71E-14	µCi/mL			North County Air (General Area Air)-Perimeter Air
SVP182317	Duchesne Park	06/20/16	Gross Alpha/Beta	Gross Beta	4.39E-14	2.35E-14	2.71E-14	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air
SVP182318	Duchesne Park	06/20/16	Gross Alpha/Beta	Gross Alpha	-3.18E-16	4.66E-15	9.96E-15	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182318	Duchesne Park	06/20/16	Gross Alpha/Beta	Gross Beta	1.76E-14	2.23E-14	2.82E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP182319	Duchesne Park	06/20/16	Gross Alpha/Beta	Gross Alpha	8.57E-15	8.20E-15	9.96E-15	µCi/mL	U	T04, T05	North County Air (General Area Air)-Perimeter Air
SVP182319	Duchesne Park	06/20/16	Gross Alpha/Beta	Gross Beta	4.81E-14	2.46E-14	2.82E-14	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air
SVP182320	Duchesne Park	06/21/16	Gross Alpha/Beta	Gross Alpha	8.40E-15	1.54E-14	2.40E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182320	Duchesne Park	06/21/16	Gross Alpha/Beta	Gross Beta	2.89E-14	5.27E-14	6.78E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182321	Duchesne Park	06/22/16	Gross Alpha/Beta	Gross Alpha	-3.05E-16	4.48E-15	9.58E-15	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182321	Duchesne Park	06/22/16	Gross Alpha/Beta	Gross Beta	3.78E-14	2.31E-14	2.71E-14	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air
SVP182322	Duchesne Park	06/22/16	Gross Alpha/Beta	Gross Alpha	-1.56E-15	3.83E-15	9.77E-15	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182322	Duchesne Park	06/22/16	Gross Alpha/Beta	Gross Beta	4.71E-15	2.10E-14	2.77E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182323	Duchesne Park	06/22/16	Gross Alpha/Beta	Gross Alpha	-1.56E-15	3.83E-15	9.77E-15	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182323	Duchesne Park	06/22/16	Gross Alpha/Beta	Gross Beta	2.36E-15	2.08E-14	2.77E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182324	Duchesne Park	06/23/16	Gross Alpha/Beta	Gross Alpha	9.16E-16	5.10E-15	9.58E-15	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182324	Duchesne Park	06/23/16	Gross Alpha/Beta	Gross Beta	3.85E-14	2.31E-14	2.71E-14	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air
SVP182325	Duchesne Park	06/23/16	Gross Alpha/Beta	Gross Alpha	6.19E-15	7.54E-15	1.02E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP182325	Duchesne Park	06/23/16	Gross Alpha/Beta	Gross Beta	4.19E-14	2.47E-14	2.89E-14	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air
SVP182326	Duchesne Park	06/23/16	Gross Alpha/Beta	Gross Alpha	1.15E-14	9.24E-15	1.03E-14	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air
SVP182326	Duchesne Park	06/23/16	Gross Alpha/Beta	Gross Beta	4.87E-14	2.53E-14	2.91E-14	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air
SVP182327	Duchesne Park	06/29/16	Gross Alpha/Beta	Gross Alpha	1.31E-15	7.16E-15	1.52E-14	µCi/mL			North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182327	Duchesne Park	06/29/16	Gross Alpha/Beta	Gross Alpha	7.60E-15	9.54E-15	1.52E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182327	Duchesne Park	06/29/16	Gross Alpha/Beta	Gross Beta	9.57E-15	1.44E-14	2.41E-14	µCi/mL			North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182327	Duchesne Park	06/29/16	Gross Alpha/Beta	Gross Beta	2.97E-14	1.71E-14	2.41E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182328	Duchesne Park	06/30/16	Gross Alpha/Beta	Gross Alpha	1.79E-14	1.96E-14	2.97E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182328	Duchesne Park	06/30/16	Gross Alpha/Beta	Gross Beta	4.91E-15	2.61E-14	4.71E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182329	Duchesne Park	06/30/16	Gross Alpha/Beta	Gross Alpha	1.75E-14	1.92E-14	2.90E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182329	Duchesne Park	06/30/16	Gross Alpha/Beta	Gross Beta	4.70E-14	3.14E-14	4.60E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182330	Duchesne Park	06/30/16	Gross Alpha/Beta	Gross Alpha	-6.81E-15	9.31E-15	3.05E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182330	Duchesne Park	06/30/16	Gross Alpha/Beta	Gross Beta	-1.31E-14	2.39E-14	4.83E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182331	Duchesne Park	07/05/16	Gross Alpha/Beta	Gross Alpha	3.39E-15	6.43E-15	1.16E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182331	Duchesne Park	07/05/16	Gross Alpha/Beta	Gross Beta	2.96E-14	1.39E-14	1.84E-14	µCi/mL	=		North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182332	Duchesne Park	07/05/16	Gross Alpha/Beta	Gross Alpha	6.14E-15	7.71E-15	1.23E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182332	Duchesne Park	07/05/16	Gross Alpha/Beta	Gross Beta	3.13E-14	1.47E-14	1.95E-14	µCi/mL	=		North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182333	Duchesne Park	07/05/16	Gross Alpha/Beta	Gross Alpha	-2.10E-16	5.15E-15	1.22E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182333	Duchesne Park	07/05/16	Gross Alpha/Beta	Gross Beta	3.59E-14	1.52E-14	1.93E-14	µCi/mL	=		North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182334	Duchesne Park	07/06/16	Gross Alpha/Beta	Gross Alpha	5.77E-15	1.57E-14	3.05E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182334	Duchesne Park	07/06/16	Gross Alpha/Beta	Gross Beta	1.51E-14	2.82E-14	4.83E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182335	Duchesne Park	07/06/16	Gross Alpha/Beta	Gross Alpha	6.07E-15	1.65E-14	3.21E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182335	Duchesne Park	07/06/16	Gross Alpha/Beta	Gross Beta	4.77E-14	3.41E-14	5.08E-14	µCi/mL	U	T04, T05	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182336	Duchesne Park	07/06/16	Gross Alpha/Beta	Gross Alpha	2.69E-15	1.47E-14	3.13E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182336	Duchesne Park	07/06/16	Gross Alpha/Beta	Gross Beta	-3.10E-15	2.62E-14	4.95E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182337	Duchesne Park	07/11/16	Gross Alpha/Beta	Gross Alpha	2.35E-15	6.39E-15	1.24E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP182337	Duchesne Park	07/11/16	Gross Alpha/Beta	Gross Beta	3.99E-14	1.59E-14	1.97E-14	µCi/mL	=		North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192348	Duchesne Park	07/11/16	Gross Alpha/Beta	Gross Alpha	-2.70E-15	3.69E-15	1.21E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192348	Duchesne Park	07/11/16	Gross Alpha/Beta	Gross Beta	2.75E-14	1.41E-14	1.91E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192349	Duchesne Park	07/11/16	Gross Alpha/Beta	Gross Alpha	7.49E-15	8.21E-15	1.24E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192349	Duchesne Park	07/11/16	Gross Alpha/Beta	Gross Beta	2.10E-14	1.36E-14	1.97E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP192350	Duchesne Park	07/12/16	Gross Alpha/Beta	Gross Alpha	-3.59E-15	4.90E-15	1.61E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192350	Duchesne Park	07/12/16	Gross Alpha/Beta	Gross Beta	7.95E-15	1.49E-14	2.54E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192351	Duchesne Park	07/12/16	Gross Alpha/Beta	Gross Alpha	4.45E-15	8.43E-15	1.52E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192351	Duchesne Park	07/12/16	Gross Alpha/Beta	Gross Beta	4.28E-14	1.87E-14	2.41E-14	µCi/mL	=		North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192352	Duchesne Park	07/12/16	Gross Alpha/Beta	Gross Alpha	3.03E-15	8.23E-15	1.61E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192352	Duchesne Park	07/12/16	Gross Alpha/Beta	Gross Beta	1.43E-14	1.58E-14	2.54E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192353	Duchesne Park	07/13/16	Gross Alpha/Beta	Gross Alpha	1.33E-14	3.43E-14	5.78E-14	µCi/mL			North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192353	Duchesne Park	07/13/16	Gross Alpha/Beta	Gross Alpha	5.91E-14	4.73E-14	5.78E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192353	Duchesne Park	07/13/16	Gross Alpha/Beta	Gross Beta	5.89E-14	6.58E-14	9.01E-14	µCi/mL			North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192353	Duchesne Park	07/13/16	Gross Alpha/Beta	Gross Beta	9.55E-14	7.00E-14	9.01E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192354	Duchesne Park	07/13/16	Gross Alpha/Beta	Gross Alpha	2.21E-15	3.50E-14	6.69E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192354	Duchesne Park	07/13/16	Gross Alpha/Beta	Gross Beta	5.55E-14	7.47E-14	1.04E-13	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192355	Duchesne Park	07/14/16	Gross Alpha/Beta	Gross Alpha	-2.02E-15	5.41E-15	1.22E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192355	Duchesne Park	07/14/16	Gross Alpha/Beta	Gross Beta	2.25E-14	1.51E-14	1.91E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192356	Duchesne Park	07/14/16	Gross Alpha/Beta	Gross Alpha	6.71E-15	8.73E-15	1.27E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192356	Duchesne Park	07/14/16	Gross Alpha/Beta	Gross Beta	2.26E-14	1.56E-14	1.98E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192357	Duchesne Park	07/14/16	Gross Alpha/Beta	Gross Alpha	4.19E-15	7.96E-15	1.27E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192357	Duchesne Park	07/14/16	Gross Alpha/Beta	Gross Beta	3.79E-14	1.72E-14	1.98E-14	µCi/mL	=		North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192358	Duchesne Park	07/18/16	Gross Alpha/Beta	Gross Alpha	-1.33E-15	9.78E-15	2.02E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192358	Duchesne Park	07/18/16	Gross Alpha/Beta	Gross Beta	3.08E-14	2.41E-14	3.15E-14	µCi/mL	U	T04, T05	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192359	Duchesne Park	07/18/16	Gross Alpha/Beta	Gross Alpha	2.85E-14	2.14E-14	2.54E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192359	Duchesne Park	07/18/16	Gross Alpha/Beta	Gross Beta	3.40E-14	2.99E-14	3.97E-14	µCi/mL	U	T04, T05	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192360	Duchesne Park	07/18/16	Gross Alpha/Beta	Gross Alpha	8.22E-15	1.56E-14	2.49E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192360	Duchesne Park	07/18/16	Gross Alpha/Beta	Gross Beta	4.44E-14	3.05E-14	3.89E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192361	Duchesne Park	07/19/16	Gross Alpha/Beta	Gross Alpha	-7.99E-16	5.87E-15	1.21E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192361	Duchesne Park	07/19/16	Gross Alpha/Beta	Gross Beta	4.15E-14	1.70E-14	1.89E-14	µCi/mL	=		North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192362	Duchesne Park	07/19/16	Gross Alpha/Beta	Gross Alpha	5.19E-15	7.95E-15	1.21E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192362	Duchesne Park	07/19/16	Gross Alpha/Beta	Gross Beta	2.46E-14	1.52E-14	1.89E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192363	Duchesne Park	07/19/16	Gross Alpha/Beta	Gross Alpha	6.45E-15	8.39E-15	1.22E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192363	Duchesne Park	07/19/16	Gross Alpha/Beta	Gross Beta	3.34E-14	1.62E-14	1.91E-14	µCi/mL	=		North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192364	Duchesne Park	07/21/16	Gross Alpha/Beta	Gross Alpha	5.97E-15	7.41E-15	9.86E-15	µCi/mL			North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192364	Duchesne Park	07/21/16	Gross Alpha/Beta	Gross Alpha	3.46E-15	6.49E-15	9.86E-15	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192364	Duchesne Park	07/21/16	Gross Alpha/Beta	Gross Beta	3.52E-14	2.21E-14	2.84E-14	µCi/mL			North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192364	Duchesne Park	07/21/16	Gross Alpha/Beta	Gross Beta	2.57E-14	2.13E-14	2.84E-14	µCi/mL	U	T04, T05	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192365	Duchesne Park	07/21/16	Gross Alpha/Beta	Gross Alpha	2.39E-15	6.49E-15	1.07E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192365	Duchesne Park	07/21/16	Gross Alpha/Beta	Gross Beta	3.59E-16	2.09E-14	3.08E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192366	Duchesne Park	07/21/16	Gross Alpha/Beta	Gross Alpha	-3.52E-16	5.39E-15	1.11E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192366	Duchesne Park	07/21/16	Gross Alpha/Beta	Gross Beta	1.02E-14	2.24E-14	3.19E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192367	Duchesne Park	07/26/16	Gross Alpha/Beta	Gross Alpha	7.52E-15	1.11E-14	1.57E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192367	Duchesne Park	07/26/16	Gross Alpha/Beta	Gross Beta	5.74E-14	3.52E-14	4.53E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192368	Duchesne Park	07/27/16	Gross Alpha/Beta	Gross Alpha	2.34E-15	6.36E-15	1.05E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192368	Duchesne Park	07/27/16	Gross Alpha/Beta	Gross Beta	1.97E-14	2.20E-14	3.02E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192369	Duchesne Park	07/27/16	Gross Alpha/Beta	Gross Alpha	-3.08E-16	4.72E-15	9.67E-15	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192369	Duchesne Park	07/27/16	Gross Alpha/Beta	Gross Beta	2.68E-14	2.10E-14	2.79E-14	µCi/mL	U	T04, T05	North County Air (Duchesne Park)(General Area Air)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP192370	Duchesne Park	07/27/16	Gross Alpha/Beta	Gross Alpha	1.20E-14	9.15E-15	9.67E-15	µCi/mL	J	T04	Duchesne Park (General Air)-Perimeter Air
SVP192370	Duchesne Park	07/27/16	Gross Alpha/Beta	Gross Beta	4.23E-14	2.23E-14	2.79E-14	µCi/mL	J	T04	Duchesne Park (General Air)-Perimeter Air
SVP192371	Duchesne Park	07/28/16	Gross Alpha/Beta	Gross Alpha	9.25E-16	5.32E-15	9.67E-15	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192371	Duchesne Park	07/28/16	Gross Alpha/Beta	Gross Beta	3.46E-14	2.16E-14	2.79E-14	µCi/mL	J	T04	Duchesne Park (General Air)-Perimeter Air
SVP192372	Duchesne Park	07/28/16	Gross Alpha/Beta	Gross Alpha	8.49E-15	8.23E-15	9.86E-15	µCi/mL	U	T04, T05	Duchesne Park (General Air)-Perimeter Air
SVP192372	Duchesne Park	07/28/16	Gross Alpha/Beta	Gross Beta	4.08E-14	2.25E-14	2.84E-14	µCi/mL	J	T04	Duchesne Park (General Air)-Perimeter Air
SVP192373	Duchesne Park	07/28/16	Gross Alpha/Beta	Gross Alpha	6.35E-15	7.88E-15	1.05E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192373	Duchesne Park	07/28/16	Gross Alpha/Beta	Gross Beta	4.76E-14	2.42E-14	3.02E-14	µCi/mL	J	T04	Duchesne Park (General Air)-Perimeter Air
SVP192374	Duchesne Park	08/01/16	Gross Alpha/Beta	Gross Alpha	-5.05E-15	1.06E-14	2.86E-14	µCi/mL			Duchesne Park (General Air)-Perimeter Air
SVP192374	Duchesne Park	08/01/16	Gross Alpha/Beta	Gross Alpha	5.64E-15	1.63E-14	2.86E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192374	Duchesne Park	08/01/16	Gross Alpha/Beta	Gross Beta	5.60E-14	6.20E-14	8.03E-14	µCi/mL			Duchesne Park (General Air)-Perimeter Air
SVP192374	Duchesne Park	08/01/16	Gross Alpha/Beta	Gross Beta	3.58E-14	6.04E-14	8.03E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192375	Duchesne Park	08/01/16	Gross Alpha/Beta	Gross Alpha	-1.49E-15	1.28E-14	2.86E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192375	Duchesne Park	08/01/16	Gross Alpha/Beta	Gross Beta	2.00E-14	5.92E-14	8.03E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192376	Duchesne Park	08/01/16	Gross Alpha/Beta	Gross Alpha	-1.49E-15	1.28E-14	2.86E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192376	Duchesne Park	08/01/16	Gross Alpha/Beta	Gross Beta	2.45E-14	5.95E-14	8.03E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192377	Duchesne Park	08/03/16	Gross Alpha/Beta	Gross Alpha	4.42E-15	6.63E-15	9.90E-15	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192377	Duchesne Park	08/03/16	Gross Alpha/Beta	Gross Beta	6.94E-15	2.05E-14	2.78E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192378	Duchesne Park	08/03/16	Gross Alpha/Beta	Gross Alpha	7.16E-15	7.80E-15	1.03E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192378	Duchesne Park	08/03/16	Gross Alpha/Beta	Gross Beta	1.77E-14	2.21E-14	2.89E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192379	Duchesne Park	08/03/16	Gross Alpha/Beta	Gross Alpha	2.05E-15	5.92E-15	1.04E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192379	Duchesne Park	08/03/16	Gross Alpha/Beta	Gross Beta	2.77E-14	2.31E-14	2.92E-14	µCi/mL	U	T04, T05	Duchesne Park (General Air)-Perimeter Air
SVP192380	Duchesne Park	08/04/16	Gross Alpha/Beta	Gross Alpha	5.02E-15	9.70E-15	1.56E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192380	Duchesne Park	08/04/16	Gross Alpha/Beta	Gross Beta	1.83E-14	3.29E-14	4.38E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192381	Duchesne Park	08/04/16	Gross Alpha/Beta	Gross Alpha	2.05E-15	5.92E-15	1.04E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192381	Duchesne Park	08/04/16	Gross Alpha/Beta	Gross Beta	3.84E-14	2.39E-14	2.92E-14	µCi/mL	J	T04	Duchesne Park (General Air)-Perimeter Air
SVP192382	Duchesne Park	08/04/16	Gross Alpha/Beta	Gross Alpha	-8.48E-16	7.30E-15	1.64E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192382	Duchesne Park	08/04/16	Gross Alpha/Beta	Gross Beta	3.07E-14	3.53E-14	4.59E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192383	Duchesne Park	08/08/16	Gross Alpha/Beta	Gross Alpha	1.99E-14	2.17E-14	2.86E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192383	Duchesne Park	08/08/16	Gross Alpha/Beta	Gross Beta	5.15E-14	6.16E-14	8.03E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192384	Duchesne Park	08/08/16	Gross Alpha/Beta	Gross Alpha	5.64E-15	1.63E-14	2.86E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192384	Duchesne Park	08/08/16	Gross Alpha/Beta	Gross Beta	-9.18E-15	5.69E-14	8.03E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192385	Duchesne Park	08/08/16	Gross Alpha/Beta	Gross Alpha	-1.73E-15	3.64E-15	9.81E-15	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192385	Duchesne Park	08/08/16	Gross Alpha/Beta	Gross Beta	4.08E-14	2.29E-14	2.76E-14	µCi/mL	J	T04	Duchesne Park (General Air)-Perimeter Air
SVP192386	Duchesne Park	08/09/16	Gross Alpha/Beta	Gross Alpha	-5.34E-16	4.60E-15	1.03E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192386	Duchesne Park	08/09/16	Gross Alpha/Beta	Gross Beta	4.12E-14	2.39E-14	2.89E-14	µCi/mL	J	T04	Duchesne Park (General Air)-Perimeter Air
SVP192387	Duchesne Park	08/09/16	Gross Alpha/Beta	Gross Alpha	3.28E-15	6.34E-15	1.02E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192387	Duchesne Park	08/09/16	Gross Alpha/Beta	Gross Beta	5.20E-14	2.45E-14	2.86E-14	µCi/mL	=		Duchesne Park (General Air)-Perimeter Air
SVP192388	Duchesne Park	08/09/16	Gross Alpha/Beta	Gross Alpha	0	5.24E-15	1.18E-14	µCi/mL			Duchesne Park (General Air)-Perimeter Air
SVP192388	Duchesne Park	08/09/16	Gross Alpha/Beta	Gross Alpha	2.47E-15	6.30E-15	1.18E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192388	Duchesne Park	08/09/16	Gross Alpha/Beta	Gross Beta	2.68E-14	1.46E-14	1.91E-14	µCi/mL			Duchesne Park (General Air)-Perimeter Air
SVP192388	Duchesne Park	08/09/16	Gross Alpha/Beta	Gross Beta	3.63E-14	1.57E-14	1.91E-14	µCi/mL	=		Duchesne Park (General Air)-Perimeter Air
SVP192389	Duchesne Park	08/10/16	Gross Alpha/Beta	Gross Alpha	1.45E-14	2.66E-14	4.62E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192389	Duchesne Park	08/10/16	Gross Alpha/Beta	Gross Beta	9.58E-14	5.63E-14	7.47E-14	µCi/mL	J	T04	Duchesne Park (General Air)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP192390	Duchesne Park	08/10/16	Gross Alpha/Beta	Gross Alpha	9.68E-15	2.47E-14	4.62E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192390	Duchesne Park	08/10/16	Gross Alpha/Beta	Gross Beta	1.52E-14	4.61E-14	7.47E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192391	Duchesne Park	08/10/16	Gross Alpha/Beta	Gross Alpha	-3.49E-15	1.31E-14	3.34E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192391	Duchesne Park	08/10/16	Gross Alpha/Beta	Gross Beta	8.77E-15	3.30E-14	5.40E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192392	Duchesne Park	08/11/16	Gross Alpha/Beta	Gross Alpha	-1.27E-15	4.77E-15	1.21E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192392	Duchesne Park	08/11/16	Gross Alpha/Beta	Gross Beta	1.78E-14	1.39E-14	1.96E-14	µCi/mL	U	T04, T05	Duchesne Park (General Air)-Perimeter Air
SVP192393	Duchesne Park	08/16/16	Gross Alpha/Beta	Gross Alpha	2.54E-15	6.49E-15	1.21E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192393	Duchesne Park	08/16/16	Gross Alpha/Beta	Gross Beta	4.39E-14	1.69E-14	1.96E-14	µCi/mL	=		Duchesne Park (General Air)-Perimeter Air
SVP192394	Duchesne Park	08/17/16	Gross Alpha/Beta	Gross Alpha	9.32E-15	2.38E-14	4.45E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192394	Duchesne Park	08/17/16	Gross Alpha/Beta	Gross Beta	7.44E-14	5.20E-14	7.20E-14	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air
SVP192395	Duchesne Park	08/18/16	Gross Alpha/Beta	Gross Alpha	6.55E-15	8.10E-15	1.25E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192395	Duchesne Park	08/18/16	Gross Alpha/Beta	Gross Beta	3.27E-14	1.60E-14	2.02E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192396	Duchesne Park	08/18/16	Gross Alpha/Beta	Gross Alpha	5.06E-15	7.39E-15	1.21E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192396	Duchesne Park	08/18/16	Gross Alpha/Beta	Gross Beta	2.50E-14	1.47E-14	1.95E-14	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air
SVP192397	Duchesne Park	08/22/16	Gross Alpha/Beta	Gross Alpha	-1.31E-15	4.92E-15	1.25E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192397	Duchesne Park	08/22/16	Gross Alpha/Beta	Gross Beta	3.52E-14	1.63E-14	2.02E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192398	Duchesne Park	08/22/16	Gross Alpha/Beta	Gross Alpha	5.19E-15	7.58E-15	1.24E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192398	Duchesne Park	08/22/16	Gross Alpha/Beta	Gross Beta	2.57E-14	1.51E-14	2.00E-14	µCi/mL	J	T04	North County Air (General Area Air)-Perimeter Air
SVP192399	Duchesne Park	08/22/16	Gross Alpha/Beta	Gross Alpha	0	5.51E-15	1.24E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192399	Duchesne Park	08/22/16	Gross Alpha/Beta	Gross Beta	1.41E-14	1.37E-14	2.00E-14	µCi/mL	U	T04, T05	North County Air (General Area Air)-Perimeter Air
SVP192400	Duchesne Park	08/23/16	Gross Alpha/Beta	Gross Alpha	1.34E-14	9.19E-15	9.98E-15	µCi/mL			North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192400	Duchesne Park	08/23/16	Gross Alpha/Beta	Gross Alpha	-4.19E-16	3.75E-15	9.98E-15	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192400	Duchesne Park	08/23/16	Gross Alpha/Beta	Gross Beta	4.79E-14	2.14E-14	2.71E-14	µCi/mL			North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192400	Duchesne Park	08/23/16	Gross Alpha/Beta	Gross Beta	3.60E-14	2.04E-14	2.71E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192401	Duchesne Park	08/23/16	Gross Alpha/Beta	Gross Alpha	3.49E-15	5.99E-15	1.04E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192401	Duchesne Park	08/23/16	Gross Alpha/Beta	Gross Beta	6.63E-14	2.36E-14	2.83E-14	µCi/mL	=		North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192402	Duchesne Park	08/23/16	Gross Alpha/Beta	Gross Alpha	6.86E-15	6.96E-15	9.60E-15	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192402	Duchesne Park	08/23/16	Gross Alpha/Beta	Gross Beta	3.38E-14	1.95E-14	2.61E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192403	Duchesne Park	08/24/16	Gross Alpha/Beta	Gross Alpha	2.00E-14	2.30E-14	3.39E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192403	Duchesne Park	08/24/16	Gross Alpha/Beta	Gross Beta	1.06E-13	6.78E-14	9.23E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192404	Duchesne Park	08/24/16	Gross Alpha/Beta	Gross Alpha	7.13E-15	1.76E-14	3.39E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192404	Duchesne Park	08/24/16	Gross Alpha/Beta	Gross Beta	8.72E-14	6.61E-14	9.23E-14	µCi/mL	UJ	T04, T05	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192405	Duchesne Park	08/24/16	Gross Alpha/Beta	Gross Alpha	2.85E-15	1.54E-14	3.39E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192405	Duchesne Park	08/24/16	Gross Alpha/Beta	Gross Beta	3.33E-14	6.13E-14	9.23E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192406	Duchesne Park	08/30/16	Gross Alpha/Beta	Gross Alpha	5.88E-15	8.01E-15	1.27E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192406	Duchesne Park	08/30/16	Gross Alpha/Beta	Gross Beta	3.88E-14	2.53E-14	3.46E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192407	Duchesne Park	08/30/16	Gross Alpha/Beta	Gross Alpha	8.65E-15	8.78E-15	1.21E-14	µCi/mL	UJ	T06	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192407	Duchesne Park	08/30/16	Gross Alpha/Beta	Gross Beta	6.39E-14	2.65E-14	3.30E-14	µCi/mL	=		North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192408	Duchesne Park	08/30/16	Gross Alpha/Beta	Gross Alpha	1.46E-14	1.14E-14	1.34E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192408	Duchesne Park	08/30/16	Gross Alpha/Beta	Gross Beta	5.15E-14	2.76E-14	3.64E-14	µCi/mL	J	T04	North County Air (Duchesne Park)(General Area Air)-Perimeter Air
SVP192409	Duchesne Park	09/07/16	Gross Alpha/Beta	Gross Alpha	1.34E-14	1.94E-14	3.04E-14	µCi/mL			Duchesne Park (General Air)-Perimeter Air
SVP192409	Duchesne Park	09/07/16	Gross Alpha/Beta	Gross Alpha	-7.82E-15	1.10E-14	3.04E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192409	Duchesne Park	09/07/16	Gross Alpha/Beta	Gross Beta	6.51E-14	3.38E-14	4.65E-14	µCi/mL			Duchesne Park (General Air)-Perimeter Air
SVP192409	Duchesne Park	09/07/16	Gross Alpha/Beta	Gross Beta	4.41E-14	3.12E-14	4.65E-14	µCi/mL	UJ	T04, T05	Duchesne Park (General Air)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP192410	Duchesne Park	09/07/16	Gross Alpha/Beta	Gross Alpha	1.08E-15	1.30E-14	2.61E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192410	Duchesne Park	09/07/16	Gross Alpha/Beta	Gross Beta	3.29E-14	2.61E-14	3.99E-14	µCi/mL	UJ	T04, T05	Duchesne Park (General Air)-Perimeter Air
SVP192411	Duchesne Park	09/07/16	Gross Alpha/Beta	Gross Alpha	1.44E-14	1.78E-14	2.66E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192411	Duchesne Park	09/07/16	Gross Alpha/Beta	Gross Beta	3.69E-14	2.71E-14	4.07E-14	µCi/mL	UJ	T04, T05	Duchesne Park (General Air)-Perimeter Air
SVP192412	Duchesne Park	09/12/16	Gross Alpha/Beta	Gross Alpha	-2.47E-15	1.95E-14	4.26E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192412	Duchesne Park	09/12/16	Gross Alpha/Beta	Gross Beta	4.04E-14	4.08E-14	6.51E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192413	Duchesne Park	09/12/16	Gross Alpha/Beta	Gross Alpha	6.21E-15	2.37E-14	4.40E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192413	Duchesne Park	09/12/16	Gross Alpha/Beta	Gross Beta	1.68E-14	3.87E-14	6.74E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192414	Duchesne Park	09/12/16	Gross Alpha/Beta	Gross Alpha	1.83E-15	2.20E-14	4.40E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192414	Duchesne Park	09/12/16	Gross Alpha/Beta	Gross Beta	-5.31E-15	3.54E-14	6.74E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192415	Duchesne Park	09/13/16	Gross Alpha/Beta	Gross Alpha	-7.42E-16	5.85E-15	1.28E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192415	Duchesne Park	09/13/16	Gross Alpha/Beta	Gross Beta	3.46E-14	1.51E-14	1.95E-14	µCi/mL	=		Duchesne Park (General Air)-Perimeter Air
SVP192416	Duchesne Park	09/13/16	Gross Alpha/Beta	Gross Alpha	1.17E-14	9.78E-15	1.25E-14	µCi/mL	UJ	T04, T05	Duchesne Park (General Air)-Perimeter Air
SVP192416	Duchesne Park	09/13/16	Gross Alpha/Beta	Gross Beta	5.12E-14	1.67E-14	1.92E-14	µCi/mL	=		Duchesne Park (General Air)-Perimeter Air
SVP192417	Duchesne Park	09/13/16	Gross Alpha/Beta	Gross Alpha	1.77E-15	6.73E-15	1.25E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192417	Duchesne Park	09/13/16	Gross Alpha/Beta	Gross Beta	4.65E-14	1.62E-14	1.92E-14	µCi/mL	=		Duchesne Park (General Air)-Perimeter Air
SVP192418	Duchesne Park	09/19/16	Gross Alpha/Beta	Gross Alpha	5.05E-15	9.02E-15	1.48E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192418	Duchesne Park	09/19/16	Gross Alpha/Beta	Gross Beta	3.18E-14	1.65E-14	2.27E-14	µCi/mL	J	T04	Duchesne Park (General Air)-Perimeter Air
SVP192419	Duchesne Park	09/19/16	Gross Alpha/Beta	Gross Alpha	6.16E-16	7.42E-15	1.48E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192419	Duchesne Park	09/19/16	Gross Alpha/Beta	Gross Beta	5.33E-14	1.90E-14	2.27E-14	µCi/mL	=		Duchesne Park (General Air)-Perimeter Air
SVP192420	Duchesne Park	09/21/16	Gross Alpha/Beta	Gross Alpha	1.33E-14	1.11E-14	1.42E-14	µCi/mL	UJ	T04, T05	Duchesne Park (General Air)-Perimeter Air
SVP192420	Duchesne Park	09/21/16	Gross Alpha/Beta	Gross Beta	6.07E-14	1.93E-14	2.17E-14	µCi/mL	=		Duchesne Park (General Air)-Perimeter Air
SVP192421	Duchesne Park	09/22/16	Gross Alpha/Beta	Gross Alpha	1.26E-14	1.17E-14	1.17E-14	µCi/mL	J	T04, T20	Duchesne Park (General Air)-Perimeter Air
SVP192421	Duchesne Park	09/22/16	Gross Alpha/Beta	Gross Beta	9.11E-14	4.10E-14	1.93E-14	µCi/mL	J	F01	Duchesne Park (General Air)-Perimeter Air
SVP192422	Duchesne Park	09/29/16	Gross Alpha/Beta	Gross Alpha	4.99E-15	9.17E-15	1.12E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192422	Duchesne Park	09/29/16	Gross Alpha/Beta	Gross Beta	3.71E-14	3.65E-14	1.85E-14	µCi/mL	J	F01, T04, T20	Duchesne Park (General Air)-Perimeter Air
SVP192423	Duchesne Park	10/05/16	Gross Alpha/Beta	Gross Alpha	-6.31E-16	7.41E-15	1.62E-14	µCi/mL			North County Air (General Area Air)-Perimeter Air
SVP192423	Duchesne Park	10/05/16	Gross Alpha/Beta	Gross Alpha	9.97E-15	1.09E-14	1.62E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192423	Duchesne Park	10/05/16	Gross Alpha/Beta	Gross Beta	2.57E-14	1.80E-14	2.31E-14	µCi/mL			North County Air (General Area Air)-Perimeter Air
SVP192423	Duchesne Park	10/05/16	Gross Alpha/Beta	Gross Beta	4.29E-14	1.99E-14	2.31E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192424	Duchesne Park	10/05/16	Gross Alpha/Beta	Gross Alpha	-6.58E-15	6.68E-15	2.06E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192424	Duchesne Park	10/05/16	Gross Alpha/Beta	Gross Beta	3.14E-14	2.27E-14	2.94E-14	µCi/mL	J	T04, T20	North County Air (General Area Air)-Perimeter Air
SVP192425	Duchesne Park	10/05/16	Gross Alpha/Beta	Gross Alpha	-1.33E-15	1.56E-14	3.39E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192425	Duchesne Park	10/05/16	Gross Alpha/Beta	Gross Beta	3.78E-14	3.59E-14	4.84E-14	µCi/mL	UJ	T04, T05	North County Air (General Area Air)-Perimeter Air
SVP192426	Duchesne Park	10/06/16	Gross Alpha/Beta	Gross Alpha	2.01E-15	7.19E-15	1.36E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192426	Duchesne Park	10/06/16	Gross Alpha/Beta	Gross Beta	4.16E-14	1.73E-14	1.94E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192427	Duchesne Park	10/06/16	Gross Alpha/Beta	Gross Alpha	1.07E-14	9.68E-15	1.33E-14	µCi/mL	UJ	T04, T05	North County Air (General Area Air)-Perimeter Air
SVP192427	Duchesne Park	10/06/16	Gross Alpha/Beta	Gross Beta	2.98E-14	1.58E-14	1.90E-14	µCi/mL	J	T04, T20	North County Air (General Area Air)-Perimeter Air
SVP192428	Duchesne Park	10/06/16	Gross Alpha/Beta	Gross Alpha	3.22E-15	7.48E-15	1.33E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192428	Duchesne Park	10/06/16	Gross Alpha/Beta	Gross Beta	4.95E-14	1.78E-14	1.90E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192429	Duchesne Park	10/11/16	Gross Alpha/Beta	Gross Alpha	1.00E-15	9.09E-15	1.84E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192429	Duchesne Park	10/11/16	Gross Alpha/Beta	Gross Beta	7.25E-14	2.50E-14	2.62E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192430	Duchesne Park	10/11/16	Gross Alpha/Beta	Gross Alpha	1.93E-14	1.22E-14	1.41E-14	µCi/mL	J	T04, T20	North County Air (General Area Air)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP192430	Duchesne Park	10/11/16	Gross Alpha/Beta	Gross Beta	8.18E-14	2.18E-14	2.02E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192431	Duchesne Park	10/11/16	Gross Alpha/Beta	Gross Alpha	8.72E-15	9.57E-15	1.41E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192431	Duchesne Park	10/11/16	Gross Alpha/Beta	Gross Beta	6.34E-14	2.00E-14	2.02E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192432	Duchesne Park	10/13/16	Gross Alpha/Beta	Gross Alpha	5.30E-15	9.36E-15	1.58E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192432	Duchesne Park	10/13/16	Gross Alpha/Beta	Gross Beta	1.11E-14	1.59E-14	2.25E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192433	Duchesne Park	10/13/16	Gross Alpha/Beta	Gross Alpha	-6.31E-16	7.41E-15	1.62E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192433	Duchesne Park	10/13/16	Gross Alpha/Beta	Gross Beta	2.76E-14	1.82E-14	2.31E-14	µCi/mL	J	T04, T20	North County Air (General Area Air)-Perimeter Air
SVP192434	Duchesne Park	10/13/16	Gross Alpha/Beta	Gross Alpha	5.43E-15	9.58E-15	1.62E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192434	Duchesne Park	10/13/16	Gross Alpha/Beta	Gross Beta	1.23E-14	1.64E-14	2.31E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192435	Duchesne Park	10/17/16	Gross Alpha/Beta	Gross Alpha	7.35E-16	6.66E-15	1.34E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192435	Duchesne Park	10/17/16	Gross Alpha/Beta	Gross Beta	1.97E-14	1.48E-14	1.92E-14	µCi/mL	J	T04, T20	North County Air (General Area Air)-Perimeter Air
SVP192436	Duchesne Park	10/17/16	Gross Alpha/Beta	Gross Alpha	7.65E-16	6.93E-15	1.40E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192436	Duchesne Park	10/17/16	Gross Alpha/Beta	Gross Beta	3.30E-14	1.68E-14	2.00E-14	µCi/mL	J	T04, T20	North County Air (General Area Air)-Perimeter Air
SVP192437	Duchesne Park	10/17/16	Gross Alpha/Beta	Gross Alpha	3.50E-15	8.12E-15	1.44E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192437	Duchesne Park	10/17/16	Gross Alpha/Beta	Gross Beta	3.15E-14	1.70E-14	2.06E-14	µCi/mL	J	T04, T20	North County Air (General Area Air)-Perimeter Air
SVP192438	Duchesne Park	10/18/16	Gross Alpha/Beta	Gross Alpha	9.27E-16	8.41E-15	1.70E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192438	Duchesne Park	10/18/16	Gross Alpha/Beta	Gross Beta	1.59E-14	1.76E-14	2.42E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192439	Duchesne Park	10/24/16	Gross Alpha/Beta	Gross Alpha	5.89E-15	7.85E-15	1.06E-14	µCi/mL			Duchesne Park (General Air)-Perimeter Air
SVP192439	Duchesne Park	10/24/16	Gross Alpha/Beta	Gross Alpha	2.16E-14	1.21E-14	1.06E-14	µCi/mL	J	T04, T20	Duchesne Park (General Air)-Perimeter Air
SVP192439	Duchesne Park	10/24/16	Gross Alpha/Beta	Gross Beta	6.68E-14	2.25E-14	2.92E-14	µCi/mL			Duchesne Park (General Air)-Perimeter Air
SVP192439	Duchesne Park	10/24/16	Gross Alpha/Beta	Gross Beta	9.24E-14	2.48E-14	2.92E-14	µCi/mL	=		Duchesne Park (General Air)-Perimeter Air
SVP192440	Duchesne Park	10/25/16	Gross Alpha/Beta	Gross Alpha	5.77E-15	7.69E-15	1.04E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192440	Duchesne Park	10/25/16	Gross Alpha/Beta	Gross Beta	1.77E-14	1.77E-14	2.86E-14	µCi/mL	UJ	T04, T05	Duchesne Park (General Air)-Perimeter Air
SVP192441	Duchesne Park	10/26/16	Gross Alpha/Beta	Gross Alpha	4.68E-15	7.55E-15	1.09E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192441	Duchesne Park	10/26/16	Gross Alpha/Beta	Gross Beta	3.03E-14	1.96E-14	2.98E-14	µCi/mL	J	T04, T20	Duchesne Park (General Air)-Perimeter Air
SVP192442	Duchesne Park	10/26/16	Gross Alpha/Beta	Gross Alpha	2.00E-15	6.53E-15	1.09E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192442	Duchesne Park	10/26/16	Gross Alpha/Beta	Gross Beta	3.95E-14	2.04E-14	2.98E-14	µCi/mL	J	T04, T20	Duchesne Park (General Air)-Perimeter Air
SVP192443	Duchesne Park	10/26/16	Gross Alpha/Beta	Gross Alpha	8.78E-15	8.96E-15	1.10E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192443	Duchesne Park	10/26/16	Gross Alpha/Beta	Gross Beta	5.53E-14	2.20E-14	3.01E-14	µCi/mL	=		Duchesne Park (General Air)-Perimeter Air
SVP192444	Duchesne Park	10/31/16	Gross Alpha/Beta	Gross Alpha	1.92E-15	6.27E-15	1.04E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192444	Duchesne Park	10/31/16	Gross Alpha/Beta	Gross Beta	5.82E-14	2.15E-14	2.86E-14	µCi/mL	=		Duchesne Park (General Air)-Perimeter Air
SVP192445	Duchesne Park	10/27/16	Gross Alpha/Beta	Gross Alpha	6.34E-15	8.45E-15	1.15E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192445	Duchesne Park	10/27/16	Gross Alpha/Beta	Gross Beta	1.77E-14	1.93E-14	3.15E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192446	Duchesne Park	10/27/16	Gross Alpha/Beta	Gross Alpha	3.52E-15	7.44E-15	1.15E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192446	Duchesne Park	10/27/16	Gross Alpha/Beta	Gross Beta	3.02E-14	2.05E-14	3.15E-14	µCi/mL	UJ	T04, T05	Duchesne Park (General Air)-Perimeter Air
SVP192447	Duchesne Park	10/27/16	Gross Alpha/Beta	Gross Alpha	1.23E-14	1.04E-14	1.17E-14	µCi/mL	J	T04, T20	Duchesne Park (General Air)-Perimeter Air
SVP192447	Duchesne Park	10/27/16	Gross Alpha/Beta	Gross Beta	3.81E-14	2.16E-14	3.22E-14	µCi/mL	J	T04, T20	Duchesne Park (General Air)-Perimeter Air
SVP192448	Duchesne Park	10/31/16	Gross Alpha/Beta	Gross Alpha	3.24E-15	6.84E-15	1.05E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192448	Duchesne Park	10/31/16	Gross Alpha/Beta	Gross Beta	5.80E-14	2.16E-14	2.89E-14	µCi/mL	=		Duchesne Park (General Air)-Perimeter Air
SVP192449	Duchesne Park	10/31/16	Gross Alpha/Beta	Gross Alpha	1.94E-15	6.33E-15	1.05E-14	µCi/mL	UJ	T06	Duchesne Park (General Air)-Perimeter Air
SVP192449	Duchesne Park	10/31/16	Gross Alpha/Beta	Gross Beta	3.02E-14	1.91E-14	2.89E-14	µCi/mL	J	T04, T20	Duchesne Park (General Air)-Perimeter Air
SVP192450	Duchesne Park	11/01/16	Gross Alpha/Beta	Gross Alpha	9.01E-15	7.59E-15	9.23E-15	µCi/mL			North County Air (General Area Air)-Perimeter Air
SVP192450	Duchesne Park	11/01/16	Gross Alpha/Beta	Gross Alpha	6.50E-15	6.69E-15	9.23E-15	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192450	Duchesne Park	11/01/16	Gross Alpha/Beta	Gross Beta	3.83E-14	2.84E-14	2.79E-14	µCi/mL			North County Air (General Area Air)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP192450	Duchesne Park	11/01/16	Gross Alpha/Beta	Gross Beta	5.81E-14	2.97E-14	2.79E-14	µCi/mL	J	T04, T20	North County Air (General Area Air)-Perimeter Air
SVP192451	Duchesne Park	11/07/16	Gross Alpha/Beta	Gross Alpha	5.08E-15	7.21E-15	1.18E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192451	Duchesne Park	11/07/16	Gross Alpha/Beta	Gross Beta	8.93E-14	3.88E-14	3.56E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192452	Duchesne Park	11/07/16	Gross Alpha/Beta	Gross Alpha	7.80E-15	8.02E-15	1.11E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192452	Duchesne Park	11/07/16	Gross Alpha/Beta	Gross Beta	1.39E-13	4.01E-14	3.35E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192453	Duchesne Park	11/08/16	Gross Alpha/Beta	Gross Alpha	1.07E-14	3.19E-14	6.73E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192453	Duchesne Park	11/08/16	Gross Alpha/Beta	Gross Beta	2.50E-13	2.05E-13	2.03E-13	µCi/mL	J	T04, T20	North County Air (General Area Air)-Perimeter Air
SVP192454	Duchesne Park	11/02/16	Gross Alpha/Beta	Gross Alpha	3.46E-14	2.52E-14	2.77E-14	µCi/mL	J	T04, T20	North County Air (General Area Air)-Perimeter Air
SVP192454	Duchesne Park	11/02/16	Gross Alpha/Beta	Gross Beta	2.15E-13	9.16E-14	8.36E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192455	Duchesne Park	11/08/16	Gross Alpha/Beta	Gross Alpha	1.99E-14	3.68E-14	6.73E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192455	Duchesne Park	11/08/16	Gross Alpha/Beta	Gross Beta	4.23E-13	2.16E-13	2.03E-13	µCi/mL	J	T04, T20	North County Air (General Area Air)-Perimeter Air
SVP192456	Duchesne Park	11/09/16	Gross Alpha/Beta	Gross Alpha	3.98E-15	5.65E-15	9.23E-15	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192456	Duchesne Park	11/09/16	Gross Alpha/Beta	Gross Beta	6.92E-14	3.04E-14	2.79E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192457	Duchesne Park	11/09/16	Gross Alpha/Beta	Gross Alpha	5.57E-15	6.58E-15	9.81E-15	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192457	Duchesne Park	11/09/16	Gross Alpha/Beta	Gross Beta	7.86E-14	3.26E-14	2.96E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192458	Duchesne Park	11/09/16	Gross Alpha/Beta	Gross Alpha	6.50E-15	6.69E-15	9.23E-15	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192458	Duchesne Park	11/09/16	Gross Alpha/Beta	Gross Beta	7.00E-14	3.04E-14	2.79E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192459	Duchesne Park	11/10/16	Gross Alpha/Beta	Gross Alpha	3.98E-15	5.65E-15	9.23E-15	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192459	Duchesne Park	11/10/16	Gross Alpha/Beta	Gross Beta	9.38E-14	3.20E-14	2.79E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192460	Duchesne Park	11/10/16	Gross Alpha/Beta	Gross Alpha	3.98E-15	5.65E-15	9.23E-15	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192460	Duchesne Park	11/10/16	Gross Alpha/Beta	Gross Beta	7.56E-14	3.08E-14	2.79E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192461	Duchesne Park	11/10/16	Gross Alpha/Beta	Gross Alpha	1.66E-14	9.82E-15	9.23E-15	µCi/mL	J	T04, T20	North County Air (General Area Air)-Perimeter Air
SVP192461	Duchesne Park	11/10/16	Gross Alpha/Beta	Gross Beta	8.43E-14	3.13E-14	2.79E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192462	Duchesne Park	11/14/16	Gross Alpha/Beta	Gross Alpha	1.13E-14	8.23E-15	9.06E-15	µCi/mL	J	T04, T20	North County Air (General Area Air)-Perimeter Air
SVP192462	Duchesne Park	11/14/16	Gross Alpha/Beta	Gross Beta	9.36E-14	3.14E-14	2.74E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192463	Duchesne Park	11/14/16	Gross Alpha/Beta	Gross Alpha	1.38E-14	8.96E-15	9.06E-15	µCi/mL	J	T04, T20	North County Air (General Area Air)-Perimeter Air
SVP192463	Duchesne Park	11/14/16	Gross Alpha/Beta	Gross Beta	8.66E-14	3.10E-14	2.74E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192464	Duchesne Park	11/14/16	Gross Alpha/Beta	Gross Alpha	3.87E-15	5.49E-15	8.97E-15	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192464	Duchesne Park	11/14/16	Gross Alpha/Beta	Gross Beta	9.65E-14	3.14E-14	2.71E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192465	Duchesne Park	11/15/16	Gross Alpha/Beta	Gross Alpha	3.31E-15	6.14E-15	1.12E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192465	Duchesne Park	11/15/16	Gross Alpha/Beta	Gross Beta	1.30E-13	3.99E-14	3.39E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192466	Duchesne Park	11/17/16	Gross Alpha/Beta	Gross Alpha	4.38E-15	8.65E-15	1.30E-14	µCi/mL			Duchesne Park (General Area)-Perimeter Air
SVP192466	Duchesne Park	11/17/16	Gross Alpha/Beta	Gross Alpha	5.76E-15	9.09E-15	1.30E-14	µCi/mL	UJ	T06	Duchesne Park (General Area)-Perimeter Air
SVP192466	Duchesne Park	11/17/16	Gross Alpha/Beta	Gross Beta	1.99E-14	1.45E-14	2.13E-14	µCi/mL			Duchesne Park (General Area)-Perimeter Air
SVP192466	Duchesne Park	11/17/16	Gross Alpha/Beta	Gross Beta	3.03E-14	1.58E-14	2.13E-14	µCi/mL	J	T04, T20	Duchesne Park (General Area)-Perimeter Air
SVP192467	Duchesne Park	11/21/16	Gross Alpha/Beta	Gross Alpha	2.12E-15	1.01E-14	1.71E-14	µCi/mL	UJ	T06	Duchesne Park (General Area)-Perimeter Air
SVP192467	Duchesne Park	11/21/16	Gross Alpha/Beta	Gross Beta	1.92E-14	1.81E-14	2.80E-14	µCi/mL	UJ	T04, T05	Duchesne Park (General Area)-Perimeter Air
SVP192468	Duchesne Park	11/21/16	Gross Alpha/Beta	Gross Alpha	-1.49E-15	8.61E-15	1.69E-14	µCi/mL	UJ	T06	Duchesne Park (General Area)-Perimeter Air
SVP192468	Duchesne Park	11/21/16	Gross Alpha/Beta	Gross Beta	1.10E-14	1.68E-14	2.76E-14	µCi/mL	UJ	T06	Duchesne Park (General Area)-Perimeter Air
SVP192469	Duchesne Park	11/21/16	Gross Alpha/Beta	Gross Alpha	2.99E-16	9.33E-15	1.69E-14	µCi/mL	UJ	T06	Duchesne Park (General Area)-Perimeter Air
SVP192469	Duchesne Park	11/21/16	Gross Alpha/Beta	Gross Beta	1.56E-14	1.74E-14	2.76E-14	µCi/mL	UJ	T06	Duchesne Park (General Area)-Perimeter Air
SVP192470	Duchesne Park	11/22/16	Gross Alpha/Beta	Gross Alpha	2.65E-15	7.25E-15	1.15E-14	µCi/mL	UJ	T06	Duchesne Park (General Area)-Perimeter Air
SVP192470	Duchesne Park	11/22/16	Gross Alpha/Beta	Gross Beta	3.07E-14	1.44E-14	1.89E-14	µCi/mL	=		Duchesne Park (General Area)-Perimeter Air
SVP192471	Duchesne Park	11/22/16	Gross Alpha/Beta	Gross Alpha	2.65E-15	7.25E-15	1.15E-14	µCi/mL	UJ	T06	Duchesne Park (General Area)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP192471	Duchesne Park	11/22/16	Gross Alpha/Beta	Gross Beta	2.99E-14	1.43E-14	1.89E-14	µCi/mL	=		Duchesne Park (General Area)-Perimeter Air
SVP192472	Duchesne Park	11/22/16	Gross Alpha/Beta	Gross Alpha	5.10E-15	8.04E-15	1.15E-14	µCi/mL	UJ	T06	Duchesne Park (General Area)-Perimeter Air
SVP192472	Duchesne Park	11/22/16	Gross Alpha/Beta	Gross Beta	1.83E-14	1.29E-14	1.89E-14	µCi/mL	UJ	T04, T05	Duchesne Park (General Area)-Perimeter Air
SVP192473	Duchesne Park	11/23/16	Gross Alpha/Beta	Gross Alpha	3.12E-14	3.24E-14	4.10E-14	µCi/mL	UJ	T06	Duchesne Park (General Area)-Perimeter Air
SVP192473	Duchesne Park	11/23/16	Gross Alpha/Beta	Gross Beta	1.75E-13	5.87E-14	6.72E-14	µCi/mL	=		Duchesne Park (General Area)-Perimeter Air
SVP192474	Duchesne Park	11/23/16	Gross Alpha/Beta	Gross Alpha	3.71E-14	3.50E-14	4.27E-14	µCi/mL	UJ	T04, T05	Duchesne Park (General Area)-Perimeter Air
SVP192474	Duchesne Park	11/23/16	Gross Alpha/Beta	Gross Beta	1.65E-14	4.10E-14	7.01E-14	µCi/mL	UJ	T06	Duchesne Park (General Area)-Perimeter Air
SVP192475	Duchesne Park	11/23/16	Gross Alpha/Beta	Gross Alpha	9.19E-15	2.51E-14	3.99E-14	µCi/mL	UJ	T06	Duchesne Park (General Area)-Perimeter Air
SVP192475	Duchesne Park	11/23/16	Gross Alpha/Beta	Gross Beta	4.48E-14	4.23E-14	6.54E-14	µCi/mL	UJ	T04, T05	Duchesne Park (General Area)-Perimeter Air
SVP192476	Duchesne Park	11/28/16	Gross Alpha/Beta	Gross Alpha	-7.29E-15	1.74E-14	3.74E-14	µCi/mL	UJ	T06	Duchesne Park (General Area)-Perimeter Air
SVP192476	Duchesne Park	11/28/16	Gross Alpha/Beta	Gross Beta	5.46E-14	4.12E-14	6.13E-14	µCi/mL	UJ	T04, T05	Duchesne Park (General Area)-Perimeter Air
SVP192477	Duchesne Park	11/29/16	Gross Alpha/Beta	Gross Alpha	-1.03E-15	5.94E-15	1.16E-14	µCi/mL	UJ	T06	Duchesne Park (General Area)-Perimeter Air
SVP192477	Duchesne Park	11/29/16	Gross Alpha/Beta	Gross Beta	2.79E-14	1.42E-14	1.90E-14	µCi/mL	J	T04, T20	Duchesne Park (General Area)-Perimeter Air
SVP192478	Duchesne Park	11/29/16	Gross Alpha/Beta	Gross Alpha	1.58E-15	7.55E-15	1.27E-14	µCi/mL	UJ	T06	Duchesne Park (General Area)-Perimeter Air
SVP192478	Duchesne Park	11/29/16	Gross Alpha/Beta	Gross Beta	2.37E-14	1.47E-14	2.09E-14	µCi/mL	J	T04, T20	Duchesne Park (General Area)-Perimeter Air
SVP192479	Duchesne Park	11/29/16	Gross Alpha/Beta	Gross Alpha	1.58E-15	7.55E-15	1.27E-14	µCi/mL	UJ	T06	Duchesne Park (General Area)-Perimeter Air
SVP192479	Duchesne Park	11/29/16	Gross Alpha/Beta	Gross Beta	1.43E-14	1.35E-14	2.09E-14	µCi/mL	UJ	T04, T05	Duchesne Park (General Area)-Perimeter Air
SVP192480	Duchesne Park	11/30/16	Gross Alpha/Beta	Gross Alpha	1.19E-15	1.37E-14	2.96E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192480	Duchesne Park	11/30/16	Gross Alpha/Beta	Gross Beta	-2.44E-15	1.36E-13	9.94E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192481	Duchesne Park	11/30/16	Gross Alpha/Beta	Gross Alpha	-2.38E-15	1.16E-14	2.96E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192481	Duchesne Park	11/30/16	Gross Alpha/Beta	Gross Beta	2.23E-14	1.36E-13	9.94E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192482	Duchesne Park	11/30/16	Gross Alpha/Beta	Gross Alpha	-8.55E-15	5.27E-15	2.66E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192482	Duchesne Park	11/30/16	Gross Alpha/Beta	Gross Beta	6.05E-14	1.24E-13	8.95E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192483	Duchesne Park	12/01/16	Gross Alpha/Beta	Gross Alpha	6.11E-16	4.94E-15	9.93E-15	µCi/mL			North County Air (General Area Air)-Perimeter Air
SVP192483	Duchesne Park	12/01/16	Gross Alpha/Beta	Gross Alpha	6.11E-16	4.94E-15	9.93E-15	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192483	Duchesne Park	12/01/16	Gross Alpha/Beta	Gross Beta	1.56E-14	1.35E-14	1.90E-14	µCi/mL			North County Air (General Area Air)-Perimeter Air
SVP192483	Duchesne Park	12/01/16	Gross Alpha/Beta	Gross Beta	7.85E-15	1.25E-14	1.90E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192484	Duchesne Park	12/01/16	Gross Alpha/Beta	Gross Alpha	1.83E-15	5.51E-15	9.93E-15	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192484	Duchesne Park	12/01/16	Gross Alpha/Beta	Gross Beta	6.30E-15	1.24E-14	1.90E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192485	Duchesne Park	12/01/16	Gross Alpha/Beta	Gross Alpha	6.11E-16	4.94E-15	9.93E-15	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192485	Duchesne Park	12/01/16	Gross Alpha/Beta	Gross Beta	2.17E-14	1.42E-14	1.90E-14	µCi/mL	J	T04, T20	North County Air (General Area Air)-Perimeter Air
SVP192486	Duchesne Park	12/05/16	Gross Alpha/Beta	Gross Alpha	6.48E-15	7.11E-15	9.56E-15	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192486	Duchesne Park	12/05/16	Gross Alpha/Beta	Gross Beta	3.21E-14	1.50E-14	1.83E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192487	Duchesne Park	12/05/16	Gross Alpha/Beta	Gross Alpha	1.82E-15	5.46E-15	9.84E-15	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192487	Duchesne Park	12/05/16	Gross Alpha/Beta	Gross Beta	2.69E-14	1.47E-14	1.88E-14	µCi/mL	J	T04, T20	North County Air (General Area Air)-Perimeter Air
SVP192488	Duchesne Park	12/05/16	Gross Alpha/Beta	Gross Alpha	1.82E-15	5.46E-15	9.84E-15	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192488	Duchesne Park	12/05/16	Gross Alpha/Beta	Gross Beta	2.23E-14	1.42E-14	1.88E-14	µCi/mL	J	T04, T20	North County Air (General Area Air)-Perimeter Air
SVP192489	Duchesne Park	12/06/16	Gross Alpha/Beta	Gross Alpha	4.32E-15	6.58E-15	1.00E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192489	Duchesne Park	12/06/16	Gross Alpha/Beta	Gross Beta	2.74E-14	1.50E-14	1.92E-14	µCi/mL	J	T04, T20	North County Air (General Area Air)-Perimeter Air
SVP192490	Duchesne Park	12/06/16	Gross Alpha/Beta	Gross Alpha	3.35E-15	6.60E-15	1.09E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192490	Duchesne Park	12/06/16	Gross Alpha/Beta	Gross Beta	1.54E-14	1.46E-14	2.08E-14	µCi/mL	UJ	T04, T05	North County Air (General Area Air)-Perimeter Air
SVP192491	Duchesne Park	12/06/16	Gross Alpha/Beta	Gross Alpha	2.01E-15	6.03E-15	1.09E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192491	Duchesne Park	12/06/16	Gross Alpha/Beta	Gross Beta	3.65E-14	1.70E-14	2.08E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192492	Duchesne Park	12/07/16	Gross Alpha/Beta	Gross Alpha	3.21E-15	6.34E-15	1.04E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP192492	Duchesne Park	12/07/16	Gross Alpha/Beta	Gross Beta	3.42E-14	1.62E-14	1.99E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192493	Duchesne Park	12/07/16	Gross Alpha/Beta	Gross Alpha	4.54E-15	6.91E-15	1.05E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192493	Duchesne Park	12/07/16	Gross Alpha/Beta	Gross Beta	1.49E-14	1.41E-14	2.01E-14	µCi/mL	UJ	T04, T05	North County Air (General Area Air)-Perimeter Air
SVP192494	Duchesne Park	12/07/16	Gross Alpha/Beta	Gross Alpha	1.90E-15	5.70E-15	1.03E-14	µCi/mL			North County Air (General Area Air)-Perimeter Air
SVP192494	Duchesne Park	12/07/16	Gross Alpha/Beta	Gross Alpha	1.20E-14	9.19E-15	1.03E-14	µCi/mL	J	T04, T20	North County Air (General Area Air)-Perimeter Air
SVP192494	Duchesne Park	12/07/16	Gross Alpha/Beta	Gross Beta	2.01E-14	1.44E-14	1.96E-14	µCi/mL			North County Air (General Area Air)-Perimeter Air
SVP192494	Duchesne Park	12/07/16	Gross Alpha/Beta	Gross Beta	2.81E-14	1.54E-14	1.96E-14	µCi/mL	J	T04, T20	North County Air (General Area Air)-Perimeter Air
SVP192495	Duchesne Park	12/12/16	Gross Alpha/Beta	Gross Alpha	5.67E-15	7.17E-15	1.02E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192495	Duchesne Park	12/12/16	Gross Alpha/Beta	Gross Beta	6.61E-14	1.93E-14	1.95E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192496	Duchesne Park	12/12/16	Gross Alpha/Beta	Gross Alpha	4.45E-15	6.77E-15	1.03E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192496	Duchesne Park	12/12/16	Gross Alpha/Beta	Gross Beta	4.27E-14	1.70E-14	1.97E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192497	Duchesne Park	12/12/16	Gross Alpha/Beta	Gross Alpha	8.27E-15	8.09E-15	1.03E-14	µCi/mL	UJ	T04, T05	North County Air (General Area Air)-Perimeter Air
SVP192497	Duchesne Park	12/12/16	Gross Alpha/Beta	Gross Beta	5.23E-14	1.80E-14	1.97E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192498	Duchesne Park	12/13/16	Gross Alpha/Beta	Gross Alpha	1.61E-14	1.04E-14	1.04E-14	µCi/mL	J	T04, T20	North County Air (General Area Air)-Perimeter Air
SVP192498	Duchesne Park	12/13/16	Gross Alpha/Beta	Gross Beta	8.53E-14	2.14E-14	1.99E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192499	Duchesne Park	12/13/16	Gross Alpha/Beta	Gross Alpha	4.74E-15	7.21E-15	1.10E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192499	Duchesne Park	12/13/16	Gross Alpha/Beta	Gross Beta	3.17E-14	1.66E-14	2.10E-14	µCi/mL	J	T04, T20	North County Air (General Area Air)-Perimeter Air
SVP192500	Duchesne Park	12/13/16	Gross Alpha/Beta	Gross Alpha	1.56E-14	1.06E-14	1.10E-14	µCi/mL	J	T04, T20	North County Air (General Area Air)-Perimeter Air
SVP192500	Duchesne Park	12/13/16	Gross Alpha/Beta	Gross Beta	7.27E-14	2.09E-14	2.10E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192501	Duchesne Park	12/15/16	Gross Alpha/Beta	Gross Alpha	8.52E-15	8.34E-15	1.07E-14	µCi/mL	UJ	T04, T05	North County Air (General Area Air)-Perimeter Air
SVP192501	Duchesne Park	12/15/16	Gross Alpha/Beta	Gross Beta	4.48E-14	1.76E-14	2.04E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192502	Duchesne Park	12/15/16	Gross Alpha/Beta	Gross Alpha	4.69E-15	7.13E-15	1.09E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192502	Duchesne Park	12/15/16	Gross Alpha/Beta	Gross Beta	1.03E-14	1.39E-14	2.08E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192503	Duchesne Park	12/15/16	Gross Alpha/Beta	Gross Alpha	6.09E-15	7.70E-15	1.10E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192503	Duchesne Park	12/15/16	Gross Alpha/Beta	Gross Beta	2.83E-14	1.62E-14	2.10E-14	µCi/mL	J	T04, T20	North County Air (General Area Air)-Perimeter Air
SVP192504	Duchesne Park	12/19/16	Gross Alpha/Beta	Gross Alpha	0	8.10E-15	1.62E-14	µCi/mL			North County Air (General Area Air)-Perimeter Air
SVP192504	Duchesne Park	12/19/16	Gross Alpha/Beta	Gross Alpha	5.09E-15	1.00E-14	1.62E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192504	Duchesne Park	12/19/16	Gross Alpha/Beta	Gross Beta	4.49E-14	2.22E-14	2.58E-14	µCi/mL			North County Air (General Area Air)-Perimeter Air
SVP192504	Duchesne Park	12/19/16	Gross Alpha/Beta	Gross Beta	3.31E-14	2.09E-14	2.58E-14	µCi/mL	J	T04, T20	North County Air (General Area Air)-Perimeter Air
SVP192505	Duchesne Park	12/19/16	Gross Alpha/Beta	Gross Alpha	-1.70E-15	7.36E-15	1.62E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192505	Duchesne Park	12/19/16	Gross Alpha/Beta	Gross Beta	3.10E-14	2.07E-14	2.58E-14	µCi/mL	J	T04, T20	North County Air (General Area Air)-Perimeter Air
SVP192506	Duchesne Park	12/19/16	Gross Alpha/Beta	Gross Alpha	7.66E-15	1.00E-14	1.46E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192506	Duchesne Park	12/19/16	Gross Alpha/Beta	Gross Beta	2.89E-14	1.88E-14	2.33E-14	µCi/mL	J	T04, T20	North County Air (General Area Air)-Perimeter Air
SVP192507	Duchesne Park	12/20/16	Gross Alpha/Beta	Gross Alpha	1.63E-15	8.44E-15	1.56E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192507	Duchesne Park	12/20/16	Gross Alpha/Beta	Gross Beta	4.62E-14	2.17E-14	2.48E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192508	Duchesne Park	12/20/16	Gross Alpha/Beta	Gross Alpha	4.71E-15	9.27E-15	1.50E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192508	Duchesne Park	12/20/16	Gross Alpha/Beta	Gross Beta	3.76E-14	2.01E-14	2.39E-14	µCi/mL	J	T04, T20	North County Air (General Area Air)-Perimeter Air
SVP192509	Duchesne Park	12/20/16	Gross Alpha/Beta	Gross Alpha	3.26E-15	9.05E-15	1.56E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192509	Duchesne Park	12/20/16	Gross Alpha/Beta	Gross Beta	1.33E-14	1.80E-14	2.48E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192510	Duchesne Park	12/21/16	Gross Alpha/Beta	Gross Alpha	-5.09E-15	2.21E-14	4.86E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192510	Duchesne Park	12/21/16	Gross Alpha/Beta	Gross Beta	4.79E-14	5.69E-14	7.74E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192511	Duchesne Park	12/21/16	Gross Alpha/Beta	Gross Alpha	1.09E-14	2.15E-14	3.47E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192511	Duchesne Park	12/21/16	Gross Alpha/Beta	Gross Beta	6.63E-14	4.43E-14	5.53E-14	µCi/mL	J	T04, T20	North County Air (General Area Air)-Perimeter Air
SVP192512	Duchesne Park	12/22/16	Gross Alpha/Beta	Gross Alpha	1.27E-15	6.59E-15	1.22E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air

Table B-4. SLAPS Perimeter Air Data Results for CY 2016

Sample Name	Station Name	Collect Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code	Sampling Event
SVP192512	Duchesne Park	12/22/16	Gross Alpha/Beta	Gross Beta	1.36E-14	1.44E-14	1.94E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192513	Duchesne Park	12/22/16	Gross Alpha/Beta	Gross Alpha	-2.54E-15	4.90E-15	1.22E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192513	Duchesne Park	12/22/16	Gross Alpha/Beta	Gross Beta	6.36E-15	1.36E-14	1.94E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192514	Duchesne Park	12/22/16	Gross Alpha/Beta	Gross Alpha	6.06E-15	7.94E-15	1.16E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192514	Duchesne Park	12/22/16	Gross Alpha/Beta	Gross Beta	1.45E-14	1.39E-14	1.84E-14	µCi/mL	UJ	T04, T05	North County Air (General Area Air)-Perimeter Air
SVP192515	Duchesne Park	12/27/16	Gross Alpha/Beta	Gross Alpha	5.22E-15	8.14E-15	1.25E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192515	Duchesne Park	12/27/16	Gross Alpha/Beta	Gross Beta	5.35E-14	1.90E-14	1.99E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192516	Duchesne Park	12/27/16	Gross Alpha/Beta	Gross Alpha	1.31E-15	6.79E-15	1.25E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192516	Duchesne Park	12/27/16	Gross Alpha/Beta	Gross Beta	5.95E-14	1.97E-14	2.00E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192517	Duchesne Park	12/27/16	Gross Alpha/Beta	Gross Alpha	1.91E-14	1.17E-14	1.22E-14	µCi/mL	J	T04, T20	North County Air (General Area Air)-Perimeter Air
SVP192517	Duchesne Park	12/27/16	Gross Alpha/Beta	Gross Beta	6.18E-14	1.95E-14	1.94E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192518	Duchesne Park	12/28/16	Gross Alpha/Beta	Gross Alpha	1.29E-15	6.65E-15	1.23E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192518	Duchesne Park	12/28/16	Gross Alpha/Beta	Gross Beta	3.64E-14	1.71E-14	1.96E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192519	Duchesne Park	12/28/16	Gross Alpha/Beta	Gross Alpha	2.65E-15	7.36E-15	1.27E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192519	Duchesne Park	12/28/16	Gross Alpha/Beta	Gross Beta	3.59E-14	1.74E-14	2.02E-14	µCi/mL	=		North County Air (General Area Air)-Perimeter Air
SVP192520	Duchesne Park	12/28/16	Gross Alpha/Beta	Gross Alpha	0	6.33E-15	1.27E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192520	Duchesne Park	12/28/16	Gross Alpha/Beta	Gross Beta	3.00E-14	1.68E-14	2.02E-14	µCi/mL	J	T04, T20	North County Air (General Area Air)-Perimeter Air
SVP192521	Duchesne Park	12/29/16	Gross Alpha/Beta	Gross Alpha	4.54E-15	1.37E-14	2.46E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192521	Duchesne Park	12/29/16	Gross Alpha/Beta	Gross Beta	7.96E-15	2.96E-14	4.70E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192522	Duchesne Park	12/29/16	Gross Alpha/Beta	Gross Alpha	8.03E-15	7.86E-15	1.00E-14	µCi/mL	UJ	T04, T05	North County Air (General Area Air)-Perimeter Air
SVP192522	Duchesne Park	12/29/16	Gross Alpha/Beta	Gross Beta	8.70E-15	1.28E-14	1.92E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192523	Duchesne Park	12/29/16	Gross Alpha/Beta	Gross Alpha	4.54E-15	1.37E-14	2.46E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-Perimeter Air
SVP192523	Duchesne Park	12/29/16	Gross Alpha/Beta	Gross Beta	1.18E-14	3.01E-14	4.70E-14	µCi/mL	UJ	T06	North County Air (General Area Air)-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.

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. 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:

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 uncertainty 50 to 100 percent of the result.

APPENDIX C

STORM-WATER, WASTE-WATER AND EXCAVATION-WATER DATA

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Table C-1. NPDES Analytical Data for CY 2016

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code
SVP175722	NPDES Outfall 002	08/03/16	ML-003	Ac-227	-7.82	4.86	6.86	pCi/L		
SVP175722	NPDES Outfall 002	08/03/16	ML-003	Ac-227	1.2	4.85	7.05	pCi/L	UJ	T04, T06
SVP175722	NPDES Outfall 002	08/03/16	SW846 8082	Aroclor-1016	0.41		0.41	µg/L	U	
SVP175722	NPDES Outfall 002	08/03/16	SW846 8082	Aroclor-1221	0.41		0.41	µg/L	U	
SVP175722	NPDES Outfall 002	08/03/16	SW846 8082	Aroclor-1232	0.41		0.41	µg/L	U	
SVP175722	NPDES Outfall 002	08/03/16	SW846 8082	Aroclor-1242	0.41		0.41	µg/L	U	
SVP175722	NPDES Outfall 002	08/03/16	SW846 8082	Aroclor-1248	0.41		0.41	µg/L	U	
SVP175722	NPDES Outfall 002	08/03/16	SW846 8082	Aroclor-1254	0.25		0.25	µg/L	U	
SVP175722	NPDES Outfall 002	08/03/16	SW846 8082	Aroclor-1260	0.25		0.25	µg/L	U	
SVP175722	NPDES Outfall 002	08/03/16	SW846 6020	Arsenic	1.5		1.2	µg/L	=	
SVP175722	NPDES Outfall 002	08/03/16	SW846 6020	Cadmium	0.1		0.1	µg/L	U	
SVP175722	NPDES Outfall 002	08/03/16	EPA 410.4	COD	44		4.1	mg/L	=	
SVP175722	NPDES Outfall 002	08/03/16	SW846 6020	Chromium	1		1	µg/L	U	
SVP175722	NPDES Outfall 002	08/03/16	ML-018	Gross Alpha	-3.12	11.5	15.5	pCi/L		
SVP175722	NPDES Outfall 002	08/03/16	ML-018	Gross Alpha	0.662	11.9	15.5	pCi/L	UJ	T06
SVP175722	NPDES Outfall 002	08/03/16	ML-018	Gross Beta	-12.3	15.7	19.7	pCi/L		
SVP175722	NPDES Outfall 002	08/03/16	ML-018	Gross Beta	-9.35	15.8	19.8	pCi/L	UJ	T06
SVP175722	NPDES Outfall 002	08/03/16	EPA 1664	Oil and Grease	1.2		1.2	mg/L	U	
SVP175722	NPDES Outfall 002	08/03/16	ML-024	pH	7.57		0.1	No Units	=	
SVP175722	NPDES Outfall 002	08/03/16	ML-003	Pa-231	1.9	32	36.9	pCi/L		
SVP175722	NPDES Outfall 002	08/03/16	ML-003	Pa-231	4.41	33.3	40.1	pCi/L	UJ	T04, T06
SVP175722	NPDES Outfall 002	08/03/16	ML-006	Ra-226	0.782	0.64	0.353	pCi/L		
SVP175722	NPDES Outfall 002	08/03/16	ML-006	Ra-226	2.23	1.14	0.966	pCi/L	J	T04
SVP175722	NPDES Outfall 002	08/03/16	SM 7500 Rn B	Rn-222	-21.5	35.1	64.7	pCi/L	UJ	T06
SVP175722	NPDES Outfall 002	08/03/16	EPA 160.5	SS	0		0.1	mL/L/hr	U	
SVP175722	NPDES Outfall 002	08/03/16	ML-005	Th-228	0.0339	0.152	0.406	pCi/L		
SVP175722	NPDES Outfall 002	08/03/16	ML-005	Th-228	0.298	0.308	0.439	pCi/L	UJ	T06
SVP175722	NPDES Outfall 002	08/03/16	ML-005	Th-230	0.136	0.255	0.499	pCi/L		
SVP175722	NPDES Outfall 002	08/03/16	ML-005	Th-230	0.598	0.388	0.162	pCi/L	J	F01, T04
SVP175722	NPDES Outfall 002	08/03/16	ML-005	Th-232	0.102	0.204	0.406	pCi/L		
SVP175722	NPDES Outfall 002	08/03/16	ML-005	Th-232	0	0	0.162	pCi/L	U	
SVP175722	NPDES Outfall 002	08/03/16	ML-021	Total U	-0.214	0.0196	4.89	pCi/L		
SVP175722	NPDES Outfall 002	08/03/16	ML-021	Total U	-0.226	0.0206	4.89	pCi/L	UJ	T06
SVP175722	NPDES Outfall 002	08/03/16	EPA 1664	TRPH	2		2	mg/L	U	
SVP175723	Duchesne Park	10/25/16	ML-003	Ac-227	0.2	4.9	7.47	pCi/L		

Table C-1. NPDES Analytical Data for CY 2016

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code
SVP175723	Duchesne Park	10/25/16	ML-003	Ac-227	-10.1	5.07	7.1	pCi/L	UJ	T04, T06
SVP175723	Duchesne Park	10/25/16	SW846 8082	Aroclor-1016	0.34		0.34	µg/L	U	
SVP175723	Duchesne Park	10/25/16	SW846 8082	Aroclor-1221	0.34		0.34	µg/L	U	
SVP175723	Duchesne Park	10/25/16	SW846 8082	Aroclor-1232	0.34		0.34	µg/L	U	
SVP175723	Duchesne Park	10/25/16	SW846 8082	Aroclor-1242	0.34		0.34	µg/L	U	
SVP175723	Duchesne Park	10/25/16	SW846 8082	Aroclor-1248	0.34		0.34	µg/L	U	
SVP175723	Duchesne Park	10/25/16	SW846 8082	Aroclor-1254	0.21		0.21	µg/L	U	
SVP175723	Duchesne Park	10/25/16	SW846 8082	Aroclor-1260	0.21		0.21	µg/L	U	
SVP175723	Duchesne Park	10/25/16	SW846 6020	Arsenic	12		4	µg/L	=	
SVP175723	Duchesne Park	10/25/16	SW846 6020	Cadmium	0.29		0.2	µg/L	=	
SVP175723	Duchesne Park	10/25/16	EPA 410.4	COD	14		4.1	mg/L	=	
SVP175723	Duchesne Park	10/25/16	SW846 6020	Chromium	27		4	µg/L	=	
SVP175723	Duchesne Park	10/25/16	ML-018	Gross Alpha	-12	10.8	15.8	pCi/L		
SVP175723	Duchesne Park	10/25/16	ML-018	Gross Alpha	-2.56	11.8	15.8	pCi/L	UJ	T06
SVP175723	Duchesne Park	10/25/16	ML-018	Gross Beta	4.89	14.9	17.8	pCi/L		
SVP175723	Duchesne Park	10/25/16	ML-018	Gross Beta	9.32	15.2	18.1	pCi/L	UJ	T06
SVP175723	Duchesne Park	10/25/16	EPA 1664	Oil and Grease	1.7		1.7	mg/L	U	
SVP175723	Duchesne Park	10/25/16	ML-024	pH	8.47		0.1	No Units	=	
SVP175723	Duchesne Park	10/25/16	ML-003	Pa-231	-14.7	34.4	36.8	pCi/L		
SVP175723	Duchesne Park	10/25/16	ML-003	Pa-231	-7.05	34.2	35.9	pCi/L	UJ	T04, T06
SVP175723	Duchesne Park	10/25/16	ML-006	Ra-226	0.999	0.757	0.387	pCi/L	J	T04, T20
SVP175723	Duchesne Park	10/25/16	EPA 160.5	SS	0		0.1	mL/L/hr	U	
SVP175723	Duchesne Park	10/25/16	ML-005	Th-228	1.28	0.659	0.523	pCi/L	J	T04, T20
SVP175723	Duchesne Park	10/25/16	ML-005	Th-230	0.818	0.514	0.426	pCi/L	J	F01, T04, T20
SVP175723	Duchesne Park	10/25/16	ML-005	Th-232	0.887	0.535	0.426	pCi/L	J	T04, T20
SVP175723	Duchesne Park	10/25/16	ML-021	Total U	0.182	0.0166	2.45	pCi/L		
SVP175723	Duchesne Park	10/25/16	ML-021	Total U	0.193	0.0176	2.45	pCi/L	UJ	T04, T05
SVP175723	Duchesne Park	10/25/16	EPA 1664	TRPH	4.6		3	mg/L	J	P02
SVP175724	Duchesne Park	11/03/16	ML-003	Ac-227	-1.15	4.01	6.04	pCi/L	UJ	T04, T06
SVP175724	Duchesne Park	11/03/16	SW846 8082	Aroclor-1016	0.4		0.4	µg/L	U	
SVP175724	Duchesne Park	11/03/16	SW846 8082	Aroclor-1221	0.4		0.4	µg/L	U	
SVP175724	Duchesne Park	11/03/16	SW846 8082	Aroclor-1232	0.4		0.4	µg/L	U	
SVP175724	Duchesne Park	11/03/16	SW846 8082	Aroclor-1242	0.4		0.4	µg/L	U	
SVP175724	Duchesne Park	11/03/16	SW846 8082	Aroclor-1248	0.4		0.4	µg/L	U	
SVP175724	Duchesne Park	11/03/16	SW846 8082	Aroclor-1254	0.25		0.25	µg/L	U	
SVP175724	Duchesne Park	11/03/16	SW846 8082	Aroclor-1260	0.25		0.25	µg/L	U	

Table C-1. NPDES Analytical Data for CY 2016

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code
SVP175724	Duchesne Park	11/03/16	SW846 6020	Arsenic	28		8	µg/L	=	
SVP175724	Duchesne Park	11/03/16	SW846 6020	Cadmium	0.69		0.4	µg/L	=	
SVP175724	Duchesne Park	11/03/16	SW846 6010B	Chromium	70		8	µg/L	=	
SVP175724	Duchesne Park	11/03/16	ML-018	Gross Alpha	-12.2	10.8	15.8	pCi/L	UJ	T06
SVP175724	Duchesne Park	11/03/16	ML-018	Gross Beta	49.7	17.3	17.8	pCi/L	J	F01
SVP175724	Duchesne Park	11/03/16	EPA 1664	Oil and Grease	3.2		1.3	mg/L	=	
SVP175724	Duchesne Park	11/03/16	ML-024	pH	8.44		0.1	No Units	=	
SVP175724	Duchesne Park	11/03/16	ML-003	Pa-231	-13.8	26.3	31	pCi/L	UJ	T04, T06
SVP175724	Duchesne Park	11/03/16	ML-006	Ra-226	1.54	1.05	1.23	pCi/L	J	T04, T20
SVP175724	Duchesne Park	11/03/16	EPA 160.5	SS	0.1		0.1	mL/L/hr	U	
SVP175724	Duchesne Park	11/03/16	ML-005	Th-228	2.8	0.907	0.158	pCi/L	=	
SVP175724	Duchesne Park	11/03/16	ML-005	Th-230	3.79	1.11	0.429	pCi/L	=	
SVP175724	Duchesne Park	11/03/16	ML-005	Th-232	2.39	0.825	0.158	pCi/L	=	
SVP175724	Duchesne Park	11/03/16	ML-021	Total U	-0.166	0.0152	2.45	pCi/L	UJ	T06
SVP175724	Duchesne Park	11/03/16	EPA 1664	TRPH	2.5		0.99	mg/L	=	
SVP175725	Duchesne Park	11/07/16	ML-003	Ac-227	-0.672	4.28	6.51	pCi/L	UJ	T04, T06
SVP175725	Duchesne Park	11/07/16	ML-018	Gross Alpha	-5.08	11.6	15.8	pCi/L	UJ	T06
SVP175725	Duchesne Park	11/07/16	ML-018	Gross Beta	10.8	15.3	18	pCi/L	UJ	T06
SVP175725	Duchesne Park	11/07/16	ML-024	pH	8.23		0.1	No Units	=	
SVP175725	Duchesne Park	11/07/16	ML-003	Pa-231	30.5	28	29.3	pCi/L	UJ	T04
SVP175725	Duchesne Park	11/07/16	ML-006	Ra-226	0.0769	0.51	1.29	pCi/L	UJ	T06
SVP175725	Duchesne Park	11/07/16	EPA 160.5	SS	0		0.1	mL/L/hr	U	
SVP175725	Duchesne Park	11/07/16	ML-005	Th-228	0.538	0.423	0.532	pCi/L	J	T04, T20
SVP175725	Duchesne Park	11/07/16	ML-005	Th-230	0.571	0.42	0.467	pCi/L	J	F01, T04, T20
SVP175725	Duchesne Park	11/07/16	ML-005	Th-232	0.411	0.347	0.38	pCi/L	J	T04, T20
SVP175725	Duchesne Park	11/07/16	ML-021	Total U	-0.0906	0.00826	2.45	pCi/L	UJ	T06
SVP175726	Duchesne Park	11/08/16	ML-003	Ac-227	-1.01	4.05	5.64	pCi/L	UJ	T04, T06
SVP175726	Duchesne Park	11/08/16	ML-018	Gross Alpha	-6.38	11.4	15.8	pCi/L	UJ	T06
SVP175726	Duchesne Park	11/08/16	ML-018	Gross Beta	21.3	15.8	18	pCi/L	J	F01, T04, T20
SVP175726	Duchesne Park	11/08/16	ML-003	Pa-231	-2.27	25.5	31.2	pCi/L	UJ	T04, T06
SVP175726	Duchesne Park	11/08/16	ML-006	Ra-226	0.134	0.425	0.988	pCi/L	UJ	T06
SVP175726	Duchesne Park	11/08/16	EPA 160.5	SS	0		0.1	mL/L/hr	U	
SVP175726	Duchesne Park	11/08/16	ML-005	Th-228	0.201	0.238	0.344	pCi/L	UJ	T06
SVP175726	Duchesne Park	11/08/16	ML-005	Th-230	0.975	0.494	0.155	pCi/L	J	F01, T04, T20

Table C-1. NPDES Analytical Data for CY 2016

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Measurement Error	DL	Units	VQ	Validation Reason Code
SVP175726	Duchesne Park	11/08/16	ML-005	Th-232	0.0859	0.172	0.343	pCi/L	UJ	T06
SVP175726	Duchesne Park	11/08/16	ML-021	Total U	0.376	0.0343	2.45	pCi/L	UJ	T04, T05

TRPH – total recoverable petroleum hydrocarbon

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.

P02 Laboratory Control Samples: Laboratory control sample recovery was below lower 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.

Table C-2. North St. Louis County Sites Rainfall Data for CY 2016 – First Quarter

Date	Rainfall (inches)	Outfall	Outfall St. Cin Park
2016	**24-Hour Total**	**002[a]**	**Un-Named[b]**
1-Jan			
2-Jan			
3-Jan			
4-Jan			
5-Jan			
6-Jan	trace		
7-Jan	0.06		
8-Jan	0.01		
9-Jan	0.70		
10-Jan	trace		
11-Jan	trace		
12-Jan	trace		
13-Jan			
14-Jan			
15-Jan	0.09		
16-Jan			
17-Jan	0.50		
18-Jan			
19-Jan	1.90		
20-Jan	0.20		
21-Jan			
22-Jan			
23-Jan	trace		
24-Jan			
25-Jan			
26-Jan			
27-Jan			
28-Jan			
29-Jan			
30-Jan			
31-Jan			
Monthly Total	**3.46**		

Date	Rainfall (inches)	Outfall	Outfall St. Cin Park
2016	**24-Hour Total**	**002[a]**	**Un-Named[b]**
1-Feb			
2-Feb	0.15		
3-Feb	trace		
4-Feb			
5-Feb			
6-Feb			
7-Feb	trace		
8-Feb	0.20		
9-Feb	0.30		
10-Feb	1.10		
11-Feb	trace		
12-Feb	0.60		
13-Feb	0.00		
14-Feb	1.50		
15-Feb			
16-Feb	0.06		
17-Feb			
18-Feb			
19-Feb			
20-Feb	0.02		
21-Feb			
22-Feb			
23-Feb			
24-Feb	3.60		
25-Feb	trace		
26-Feb			
27-Feb			
28-Feb			
29-Feb			
Monthly Total	**7.53**		

Date	Rainfall (inches)	Outfall	Outfall Duchesne Park
2016	**24-Hour Total**	**002[a]**	**Un-Named[b]**
1-Mar	trace		
2-Mar			
3-Mar	0.05		
4-Mar			
5-Mar			
6-Mar	0.01		
7-Mar	0.04		
8-Mar	0.07		
9-Mar	0.05		
10-Mar	0.20		
11-Mar	trace		
12-Mar	0.05		
13-Mar	0.12		
14-Mar	0.14		
15-Mar			
16-Mar			
17-Mar			
18-Mar	0.10		
19-Mar	trace		
20-Mar	0.30		
21-Mar			
22-Mar			
23-Mar			
24-Mar	0.16		
25-Mar			
26-Mar			
27-Mar	0.23		
28-Mar			
29-Mar			
30-Mar	0.41		
31-Mar	0.55		
Monthly Total	**2.48**		

[a] Per USACE email dated June 17, 2014, sampling at Outfall 002 has been reduced to once per year.

[b] Un-Named moving outfall is an outfall sampled during pumping activities or from a rain event producing a measurable flow offsite.

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. 2016).

Table C-2. North St. Louis County Sites Rainfall Data for CY 2016 – Second Quarter

Date	Rainfall (inches)	Outfall	Outfall Duchesne Park	Date	Rainfall (inches)	Outfall	Outfall Duchesne Park	Date	Rainfall (inches)	Outfall	Outfall Duchesne Park
2016	**24-Hour Total**	**002[a]**	**Un-Named[b]**	**2016**	**24-Hour Total**	**002[a]**	**Un-Named[b]**	**2016**	**24-Hour Total**	**002[a]**	**Un-Named[b]**
1-Apr	0.04			1-May				1-Jun	0.09		
2-Apr				2-May	trace			2-Jun			
3-Apr				3-May				3-Jun	trace		
4-Apr				4-May	trace			4-Jun	0.24		
5-Apr				5-May				5-Jun			
6-Apr	0.36			6-May				6-Jun			
7-Apr	trace			7-May	0.05			7-Jun			
8-Apr	0.00			8-May	trace			8-Jun			
9-Apr				9-May	0.29			9-Jun			
10-Apr	0.18			10-May	0.14			10-Jun			
11-Apr	0.99			11-May	1.59			11-Jun			
12-Apr				12-May	0.04			12-Jun			
13-Apr				13-May	0.12			13-Jun	0.12		
14-Apr				14-May	trace			14-Jun			
15-Apr				15-May				15-Jun	0.01		
16-Apr				16-May	0.37			16-Jun			
17-Apr				17-May	0.51			17-Jun			
18-Apr				18-May				18-Jun			
19-Apr				19-May				19-Jun			
20-Apr	0.22			20-May	0.01			20-Jun	0.03		
21-Apr	trace			21-May				21-Jun	0.00		
22-Apr				22-May				22-Jun	trace		
23-Apr				23-May				23-Jun			
24-Apr				24-May	trace			24-Jun			
25-Apr				25-May	0.01			25-Jun	0.42		
26-Apr	1.07			26-May	0.53			26-Jun	trace		
27-Apr	0.14			27-May	1.01			27-Jun			
28-Apr				28-May				28-Jun			
29-Apr	0.37			29-May				29-Jun			
30-Apr	1.12			30-May	trace			30-Jun	0.38		
				31-May	trace						
Monthly Total	**4.49**			**Monthly Total**	**4.67**			**Monthly Total**	**1.29**		

[a] Per USACE email dated June 17, 2014, sampling at Outfall 002 has been reduced to once per year.

[b] Un-Named moving outfall is an outfall sampled during pumping activities or from a rain event producing a measurable flow offsite.

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. 2016).

Table C-2. North St. Louis County Sites Rainfall Data for CY 2016 – Third Quarter

Date	Rainfall (inches)	Outfall	Outfall Duchesne Park
2016	24-Hour Total	002[a]	Un-Named[b]
1-Jul			
2-Jul	0.15		
3-Jul	1.11		
4-Jul	0.11		
5-Jul			
6-Jul	0.52		
7-Jul	0.49		
8-Jul	0.18		
9-Jul			
10-Jul	1.15		
11-Jul			
12-Jul	trace		
13-Jul	0.57		
14-Jul	0.01		
15-Jul			
16-Jul			
17-Jul			
18-Jul	trace		
19-Jul	0.70		
20-Jul	0.97		
21-Jul			
22-Jul	0.07		
23-Jul	0.00		
24-Jul	0.16		
25-Jul	1.21		
26-Jul	0.15		
27-Jul	trace		
28-Jul			
29-Jul			
30-Jul			
31-Jul	0.06		
Monthly Total	**7.61**		

Date	Rainfall (inches)	Outfall	Outfall Duchesne Park
2016	24-Hour Total	002[a]	Un-Named[b]
1-Aug	0.31		
2-Aug	0.16		
3-Aug	0.96	0.155	
4-Aug			
5-Aug	0.17		
6-Aug	trace		
7-Aug			
8-Aug	trace		
9-Aug			
10-Aug			
11-Aug			
12-Aug	0.73		
13-Aug	trace		
14-Aug	0.36		
15-Aug	2.52		
16-Aug	trace		
17-Aug			
18-Aug			
19-Aug			
20-Aug	trace		
21-Aug			
22-Aug			
23-Aug	0.03		
24-Aug	trace		
25-Aug			
26-Aug			
27-Aug	trace		
28-Aug			
29-Aug	0.35		
30-Aug	0.18		
31-Aug	trace		
Monthly Total	**5.77**	**0.155**	

Date	Rainfall (inches)	Outfall	Outfall Duchesne Park
2016	24-Hour Total	002[a]	Un-Named[b]
1-Sep			
2-Sep			
3-Sep			
4-Sep			
5-Sep			
6-Sep	0.19		
7-Sep			
8-Sep	0.32		
9-Sep	1.44		
10-Sep	1.41		
10-Sep			
10-Sep			
10-Sep			
10-Sep			
10-Sep	trace		
16-Sep	1.32		
10-Sep			
10-Sep			
10-Sep			
20-Sep			
21-Sep			
22-Sep			
23-Sep			
24-Sep			
25-Sep	0.14		
26-Sep	0.08		
27-Sep			
28-Sep			
29-Sep	0.01		
30-Sep	0.04		
Monthly Total	**4.95**		

[a] Per USACE email dated June 17, 2014, sampling at Outfall 002 has been reduced to once per year.

[b] Un-Named moving outfall is an outfall sampled during pumping activities or from a rain event producing a measurable flow offsite.

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. 2016).

Table C-2. North St. Louis County Sites Rainfall Data for CY 2016 – Fourth Quarter

Date	Rainfall (inches)	Outfall	Outfall Duchesne Park
2016	24-Hour Total	002[a]	Un-Named[b]
1-Oct	trace		
2-Oct			
3-Oct			
4-Oct			
5-Oct	trace		
6-Oct			
7-Oct			
8-Oct			
9-Oct			
10-Oct			
11-Oct			
12-Oct	0.06		
13-Oct			
14-Oct			
15-Oct	trace		
16-Oct			
17-Oct			
18-Oct			
19-Oct	2.48		
20-Oct	0.59		
21-Oct			
22-Oct			
23-Oct			
24-Oct			
25-Oct			0.014
26-Oct	0.02		
27-Oct	trace		
28-Oct			
29-Oct			
30-Oct			
31-Oct			
Monthly Total	**3.15**		**0.014**

Date	Rainfall (inches)	Outfall	Outfall Duchesne Park
2016	24-Hour Total	002[a]	Un-Named[b]
1-Nov			
2-Nov	2.11		
3-Nov	0.71		0.017
4-Nov			
5-Nov			
6-Nov			
7-Nov	trace		
8-Nov	0.07		
9-Nov			
10-Nov			
11-Nov			
12-Nov			
13-Nov			
14-Nov	trace		
15-Nov			
16-Nov			
17-Nov			
18-Nov	0.21		
19-Nov			
20-Nov			
21-Nov			
22-Nov	0.09		
23-Nov	0.15		
24-Nov			
25-Nov			
26-Nov			
27-Nov	0.11		
28-Nov	0.28		
29-Nov			
30-Nov			
Monthly Total	**3.73**		**0.017**

Date	Rainfall (inches)	Outfall	Outfall Duchesne Park
2016	24-Hour Total	002[a]	Un-Named[b]
1-Dec			
2-Dec			
3-Dec			
4-Dec	0.27		
5-Dec			
6-Dec	trace		
7-Dec			
8-Dec			
9-Dec			
10-Dec			
11-Dec	0.01		
12-Dec	trace		
13-Dec	trace		
14-Dec			
15-Dec			
16-Dec	trace		
17-Dec	0.20		
18-Dec	trace		
19-Dec			
20-Dec			
21-Dec			
22-Dec	trace		
23-Dec	trace		
24-Dec			
25-Dec	0.14		
26-Dec	0.42		
27-Dec			
28-Dec	0.02		
29-Dec			
30-Dec			
31-Dec			
Monthly Total	**1.06**		

[a] Per USACE email dated June 17, 2014, sampling at Outfall 002 has been reduced to once per year.

[b] Un-Named moving outfall is an outfall sampled during pumping activities or from a rain event producing a measurable flow offsite.

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. 2016).

Table C-3. First Quarter Self-Monitoring Report for Excavation-Water Discharge at North St. Louis County Sites During CY 2016

Parameter	Batch Number	Date of Discharge	Batch Results[a]		Amount Discharged (Gallons)	Total Activity per Discharge[b] (Ci)	MSD Discharge Limit		SOR
Gross Alpha (raw water)	SLAPS-306	01/04/16 - 01/07/16 (SLAPS VP-57, VP-58, and Pershall Road)	<25.6	pCi/L	318,991	1.5E-05	3,000	pCi/L	0.00
Gross Beta			29	pCi/L		3.5E-05	NA		
Th-228			<0.6	pCi/L		3.8E-07	2,000	pCi/L	
Th-230			1.5	pCi/L		1.8E-06	1,000	pCi/L	
Uranium (KPA)			5.0	pCi/L		6.0E-06	3,000	pCi/L	
Ra-226[c]			<1.2	pCi/L		7.4E-07	10	pCi/L	
Ra-228[d,e]			<0.6	pCi/L		3.8E-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)			<25.6	pCi/L			-		
TSS			51	mg/L			-		

Total Activity Discharged in First Quarter of CY 2016 (Ci)		Total Activity Discharged through 03/31/16 (Ci)	
Th-228	3.8E-07	**Th-228**	3.8E-07
Th-230	1.8E-06	**Th-230**	1.8E-06
Uranium (KPA)	6.0E-06	**Uranium (KPA)**	6.0E-06
Ra-226	7.4E-07	**Ra-226**	7.4E-07
Ra-228[b]	3.8E-07	**Ra-228[b]**	3.8E-07

Total Volume for First Quarter of CY 2016 (gallons)		Total Volume Discharged through 03/31/16 (gallons)	
Gallons	318,991	**Gallons**	318,991

[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 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 2016

Parameter	Batch Number	Date of Discharge	Batch Results[a]		Amount Discharged (Gallons)	Total Activity per Discharge[b] (Ci)	MSD Discharge Limit		SOR
Gross Alpha (raw water)	SLAPS-307	05/18/16 (SLAPS VP-57, VP-58, and Pershall Road)	9	pCi/L	84,964	2.9E-06	3,000	pCi/L	0.01
Gross Beta			<10.2	pCi/L		1.6E-06	NA		
Th-228			0.5	pCi/L		1.5E-07	2,000	pCi/L	
Th-230			2.0	pCi/L		6.6E-07	1,000	pCi/L	
Uranium (KPA)			9.8	pCi/L		3.1E-06	3,000	pCi/L	
Ra-226[c]			<1.1	pCi/L		1.7E-07	10	pCi/L	
Ra-228[d,e]			0.5	pCi/L		1.5E-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)			7	pCi/L			-		
TSS			37	mg/L			-		

Total Activity Discharged in Second Quarter of CY 2016 (Ci)		**Total Activity Discharged through 06/30/16 (Ci)**	
Th-228	1.5E-07	**Th-228**	5.3E-07
Th-230	6.6E-07	**Th-230**	2.5E-06
Uranium (KPA)	3.1E-06	**Uranium (KPA)**	9.2E-06
Ra-226	1.7E-07	**Ra-226**	9.2E-07
Ra-228[b]	1.5E-07	**Ra-228[b]**	5.3E-07

Total Volume for Second Quarter of CY 2015 (gallons)		**Total Volume Discharged through 06/30/15 (gallons)**	
Gallons	84,964	**Gallons**	403,955

[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 2016

Parameter	Batch Number	Date of Discharge	Batch Results[a]		Amount Discharged (Gallons)	Total Activity per Discharge[b] (Ci)	MSD Discharge Limit		SOR
Gross Alpha (raw water)	SLAPS-308	07/18/16 - 07/26/16 (SLAPS VP-57, VP-58, and Pershall Road)	<7.1	pCi/L	321,595	4.3E-06	3,000	pCi/L	0.00
Gross Beta			<9.2	pCi/L		5.6E-06	NA		
Th-228			<0.7	pCi/L		4.1E-07	2,000	pCi/L	
Th-230			0.7	pCi/L		8.4E-07	1,000	pCi/L	
Uranium (KPA)			2.0	pCi/L		2.4E-06	3,000	pCi/L	
Ra-226[c]			<1.3	pCi/L		7.9E-07	10	pCi/L	
Ra-228[d,e]			<0.7	pCi/L		4.1E-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)			<7.1	pCi/L			-		
TSS			11	mg/L			-		
Gross Alpha (raw water)	SLAPS-309	08/01/16 - 08/16/16 (SLAPS VP-57, VP-58, and Pershall Road)	<15.6	pCi/L	203,720	6.0E-06	3,000	pCi/L	0.00
Gross Beta			<19.4	pCi/L		7.5E-06	NA		
Th-228			<0.4	pCi/L		1.7E-07	2,000	pCi/L	
Th-230			1.5	pCi/L		1.2E-06	1,000	pCi/L	
Uranium (KPA)			1.7	pCi/L		1.3E-06	3,000	pCi/L	
Ra-226[c]			<1.2	pCi/L		4.5E-07	10	pCi/L	
Ra-228[d,e]			<0.4	pCi/L		1.7E-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)			<15.6	pCi/L			-		
TSS			56	mg/L			-		

Total Activity Discharged in Third Quarter of CY 2016 (Ci)

Th-228	5.8E-07
Th-230	2.0E-06
Uranium (KPA)	3.7E-06
Ra-226	1.2E-06
Ra-228[b]	5.8E-07

Total Activity Discharged through 09/30/16 (Ci)

Th-228	1.1E-06
Th-230	4.5E-06
Uranium (KPA)	1.3E-05
Ra-226	2.2E-06
Ra-228[b]	1.1E-06

Total Volume for Third Quarter of CY 2016 (gallons)

Gallons 525,315

Total Volume Discharged through 09/30/16 (gallons)

Gallons 929,270

[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 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 2016

Parameter	Batch Number	Date of Discharge	Batch Results[a]		Amount Discharged (Gallons)	Total Activity per Discharge[b] (Ci)	MSD Discharge Limit		SOR
Gross Alpha (raw water)	SLAPS-310	10/20/16 - 10/27/16 (SLAPS VP-57, VP-58, and Pershall Road)	<14.3	pCi/L	340,523	9.2E-06	3,000	pCi/L	0.00
Gross Beta			<19.1	pCi/L		1.2E-05	NA		
Th-228			<0.5	pCi/L		3.2E-07	2,000	pCi/L	
Th-230			<0.6	pCi/L		3.8E-07	1,000	pCi/L	
Uranium (KPA)			2.0	pCi/L		2.5E-06	3,000	pCi/L	
Ra-226[c]			<1.2	pCi/L		7.9E-07	10	pCi/L	
Ra-228[d,e]			<0.5	pCi/L		3.2E-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	mg/L			-		

Total Activity Discharged in Fourth Quarter of CY 2016 (Ci)

Th-228	3.2E-07
Th-230	3.8E-07
Uranium (KPA)	2.5E-06
Ra-226	7.9E-07
Ra-228[b]	3.2E-07

Total Activity Discharged through 12/31/16 (Ci)

Th-228	1.4E-06
Th-230	4.8E-06
Uranium (KPA)	1.5E-05
Ra-226	3.0E-06
Ra-228[b]	1.4E-06

Total Volume for Fourth Quarter of CY 2016 (gallons)

Gallons 340,523

Total Volume Discharged through 12/31/16 (gallons)

Gallons 1,269,793

[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)

ATTACHMENT C-1

PN02 ANNUAL SAMPLING FREQUENCY SCHEDULE EMAIL, DATED JUNE 17, 2014

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-----Original Message-----
From: Carey, Daniel
Sent: Monday, June 16, 2014 10:28 AM
To: 'Evans, David M MVS'
Cc: Skoba, Gwenan
Subject: RE: SLAPS 0002 Outfall sampling schedule (UNCLASSIFIED)

Thanks for letting me know Dave, understood.

Dan
-----Original Message-----
From: Evans, David M MVS
Sent: Monday, June 16, 2014 10:25 AM
To: Carey, Daniel
Cc: Skoba, Gwenan
Subject: FW: SLAPS 0002 Outfall sampling schedule (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Dan,

Just wanted to inform you that the USACE will not be sampling outfall 0002 at SLAPS until remediation of the area adjacent to the subject outfall. Due to schedule constraints we will not be in that area until later this fall. We will be in contact with you as we get closer to remediation. In short, we will revert to yearly sampling until we disturb soil in and around the outfall.

Please let me know if you have any questions.

Thanks,

Dave

-----Original Message-----
From: Evans, David M MVS
Sent: Tuesday, November 26, 2013 3:02 PM
To: Chris Wieberg; Amanda Sappington
Cc: Carey, Daniel; Jim Rhodes
Subject: SLAPS Outfall 002 (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Chris,

The message is to inform you that the USACE will be increasing the sampling frequency at Outfall 002, as established in the original permit equivalent agreement (October 2, 1998) effective today. For reference, I have attached a copy of the permit equivalent agreement and also the most recent correspondence (February 19, 2002) between the USACE and MDNR regarding Outfall 002 sampling.

If you have any questions or need additional information, please contact Dan Carey of MDNR.

Regards,

David Evans
Chemist
U.S. Army Corps of Engineers
St. Louis District

APPENDIX D

COLDWATER CREEK SURFACE-WATER AND SEDIMENT DATA

(On the CD-ROM on the Back Cover of this Report)

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Table D-1. CWC Surface-Water Data for CY 2016

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Error	DL	Units	VQ
CWC187188	CWC002	03/23/16	Metals	Antimony	1.7		1.7	µg/L	U
CWC187188	CWC002	03/23/16	Metals	Arsenic	2.9		1.2	µg/L	=
CWC187188	CWC002	03/23/16	Metals	Barium	130		0.22	µg/L	=
CWC187188	CWC002	03/23/16	Metals	Cadmium	0.13		0.1	µg/L	=
CWC187188	CWC002	03/23/16	Metals	Chromium	1		1	µg/L	U
CWC187188	CWC002	03/23/16	Metals	Molybdenum	9		1	µg/L	=
CWC187188	CWC002	03/23/16	Metals	Nickel	2		0.8	µg/L	=
CWC187188	CWC002	03/23/16	Alpha Spectroscopy	Ra-226	0.882	0.894	1.35	pCi/L	UJ
CWC187188	CWC002	03/23/16	Metals	Selenium	1.8		1.6	µg/L	=
CWC187188	CWC002	03/23/16	Metals	Thallium	0.55		0.55	µg/L	U
CWC187188	CWC002	03/23/16	Alpha Spectroscopy	Th-228	0.224	0.319	0.549	pCi/L	UJ
CWC187188	CWC002	03/23/16	Alpha Spectroscopy	Th-230	0.448	0.373	0.203	pCi/L	J
CWC187188	CWC002	03/23/16	Alpha Spectroscopy	Th-232	0.0746	0.15	0.202	pCi/L	UJ
CWC187188	CWC002	03/23/16	Alpha Spectroscopy	U-234	1.19	0.597	0.179	pCi/L	J
CWC187188	CWC002	03/23/16	Alpha Spectroscopy	U-235	0	0	0.221	pCi/L	U
CWC187188	CWC002	03/23/16	Alpha Spectroscopy	U-238	0.942	0.542	0.427	pCi/L	J
CWC187188	CWC002	03/23/16	Metals	Vanadium	2.4		2.4	µg/L	U
CWC187190	CWC003	03/23/16	Metals	Antimony	1.7		1.7	µg/L	U
CWC187190	CWC003	03/23/16	Metals	Arsenic	3.4		1.2	µg/L	=
CWC187190	CWC003	03/23/16	Metals	Barium	170		0.22	µg/L	=
CWC187190	CWC003	03/23/16	Metals	Cadmium	0.1		0.1	µg/L	U
CWC187190	CWC003	03/23/16	Metals	Chromium	1		1	µg/L	U
CWC187190	CWC003	03/23/16	Metals	Molybdenum	13		1	µg/L	=
CWC187190	CWC003	03/23/16	Metals	Nickel	2.6		0.8	µg/L	=
CWC187190	CWC003	03/23/16	Alpha Spectroscopy	Ra-226	0.636	0.842	1.48	pCi/L	UJ
CWC187190	CWC003	03/23/16	Metals	Selenium	1.9		1.6	µg/L	=
CWC187190	CWC003	03/23/16	Metals	Thallium	0.55		0.55	µg/L	U
CWC187190	CWC003	03/23/16	Alpha Spectroscopy	Th-228	0.236	0.387	0.73	pCi/L	UJ
CWC187190	CWC003	03/23/16	Alpha Spectroscopy	Th-230	0.393	0.358	0.213	pCi/L	J
CWC187190	CWC003	03/23/16	Alpha Spectroscopy	Th-232	-0.0785	0.112	0.578	pCi/L	UJ
CWC187190	CWC003	03/23/16	Alpha Spectroscopy	U-234	1.7	0.693	0.159	pCi/L	J
CWC187190	CWC003	03/23/16	Alpha Spectroscopy	U-235	0.145	0.206	0.196	pCi/L	UJ
CWC187190	CWC003	03/23/16	Alpha Spectroscopy	U-238	1.48	0.65	0.381	pCi/L	J
CWC187190	CWC003	03/23/16	Metals	Vanadium	2.4		2.4	µg/L	U
CWC187192	CWC004	03/23/16	Metals	Antimony	1.7		1.7	µg/L	U
CWC187192	CWC004	03/23/16	Metals	Arsenic	3.2		1.2	µg/L	=

Table D-1. CWC Surface-Water Data for CY 2016

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Error	DL	Units	VQ
CWC187192	CWC004	03/23/16	Metals	Barium	170		0.22	µg/L	=
CWC187192	CWC004	03/23/16	Metals	Cadmium	0.1		0.1	µg/L	U
CWC187192	CWC004	03/23/16	Metals	Chromium	1		1	µg/L	U
CWC187192	CWC004	03/23/16	Metals	Molybdenum	12		1	µg/L	=
CWC187192	CWC004	03/23/16	Metals	Nickel	2.8		0.8	µg/L	=
CWC187192	CWC004	03/23/16	Alpha Spectroscopy	Ra-226	1.7	1.09	0.968	pCi/L	J
CWC187192	CWC004	03/23/16	Metals	Selenium	2.2		1.6	µg/L	=
CWC187192	CWC004	03/23/16	Metals	Thallium	0.55		0.55	µg/L	U
CWC187192	CWC004	03/23/16	Alpha Spectroscopy	Th-228	0	0	0.223	pCi/L	U
CWC187192	CWC004	03/23/16	Alpha Spectroscopy	Th-230	0.906	0.567	0.223	pCi/L	J
CWC187192	CWC004	03/23/16	Alpha Spectroscopy	Th-232	0.0411	0.184	0.493	pCi/L	UJ
CWC187192	CWC004	03/23/16	Alpha Spectroscopy	U-234	1.31	0.66	0.197	pCi/L	J
CWC187192	CWC004	03/23/16	Alpha Spectroscopy	U-235	0.0597	0.305	0.724	pCi/L	UJ
CWC187192	CWC004	03/23/16	Alpha Spectroscopy	U-238	0.53	0.431	0.47	pCi/L	J
CWC187192	CWC004	03/23/16	Metals	Vanadium	2.4		2.4	µg/L	U
CWC187194	CWC005	03/23/16	Metals	Antimony	1.7		1.7	µg/L	U
CWC187194	CWC005	03/23/16	Metals	Arsenic	3.9		1.2	µg/L	=
CWC187194	CWC005	03/23/16	Metals	Barium	180		0.22	µg/L	=
CWC187194	CWC005	03/23/16	Metals	Cadmium	0.1		0.1	µg/L	U
CWC187194	CWC005	03/23/16	Metals	Chromium	1		1	µg/L	U
CWC187194	CWC005	03/23/16	Metals	Molybdenum	12		1	µg/L	=
CWC187194	CWC005	03/23/16	Metals	Nickel	2.9		0.8	µg/L	=
CWC187194	CWC005	03/23/16	Alpha Spectroscopy	Ra-226	0.873	1.04	1.81	pCi/L	UJ
CWC187194	CWC005	03/23/16	Metals	Selenium	1.6		1.6	µg/L	U
CWC187194	CWC005	03/23/16	Metals	Thallium	0.55		0.55	µg/L	U
CWC187194	CWC005	03/23/16	Alpha Spectroscopy	Th-228	0.118	0.361	0.792	pCi/L	UJ
CWC187194	CWC005	03/23/16	Alpha Spectroscopy	Th-230	0.551	0.468	0.58	pCi/L	U
CWC187194	CWC005	03/23/16	Alpha Spectroscopy	Th-232	-0.0393	0.208	0.661	pCi/L	UJ
CWC187194	CWC005	03/23/16	Alpha Spectroscopy	U-234	0.896	0.497	0.38	pCi/L	J
CWC187194	CWC005	03/23/16	Alpha Spectroscopy	U-235	0	0	0.195	pCi/L	U
CWC187194	CWC005	03/23/16	Alpha Spectroscopy	U-238	1.13	0.558	0.379	pCi/L	J
CWC187194	CWC005	03/23/16	Metals	Vanadium	2.4		2.4	µg/L	U
CWC187196	CWC006	03/22/16	Metals	Antimony	1.7		1.7	µg/L	U
CWC187196	CWC006	03/22/16	Metals	Arsenic	3.3		1.2	µg/L	=
CWC187196	CWC006	03/22/16	Metals	Barium	170		0.22	µg/L	=
CWC187196	CWC006	03/22/16	Metals	Cadmium	0.1		0.1	µg/L	U

Table D-1. CWC Surface-Water Data for CY 2016

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Error	DL	Units	VQ
CWC187196	CWC006	03/22/16	Metals	Chromium	1.1		1	µg/L	=
CWC187196	CWC006	03/22/16	Metals	Molybdenum	15		1	µg/L	=
CWC187196	CWC006	03/22/16	Metals	Nickel	3.4		0.8	µg/L	=
CWC187196	CWC006	03/22/16	Alpha Spectroscopy	Ra-226	0.464	0.547	0.795	pCi/L	UJ
CWC187196	CWC006	03/22/16	Metals	Selenium	1.6		1.6	µg/L	U
CWC187196	CWC006	03/22/16	Metals	Thallium	0.55		0.55	µg/L	U
CWC187196	CWC006	03/22/16	Alpha Spectroscopy	Th-228	0.435	0.403	0.533	pCi/L	U
CWC187196	CWC006	03/22/16	Alpha Spectroscopy	Th-230	0.653	0.481	0.534	pCi/L	J
CWC187196	CWC006	03/22/16	Alpha Spectroscopy	Th-232	-0.0362	0.0726	0.434	pCi/L	UJ
CWC187196	CWC006	03/22/16	Alpha Spectroscopy	U-234	1.98	0.862	0.579	pCi/L	J
CWC187196	CWC006	03/22/16	Alpha Spectroscopy	U-235	0.0295	0.213	0.575	pCi/L	UJ
CWC187196	CWC006	03/22/16	Alpha Spectroscopy	U-238	1.14	0.607	0.193	pCi/L	J
CWC187196	CWC006	03/22/16	Metals	Vanadium	2.6		2.4	µg/L	=
CWC187198	CWC007	03/22/16	Metals	Antimony	1.7		1.7	µg/L	U
CWC187198	CWC007	03/22/16	Metals	Arsenic	2.8		1.2	µg/L	=
CWC187198	CWC007	03/22/16	Metals	Barium	150		0.22	µg/L	=
CWC187198	CWC007	03/22/16	Metals	Cadmium	0.1		0.1	µg/L	U
CWC187198	CWC007	03/22/16	Metals	Chromium	1.1		1	µg/L	=
CWC187198	CWC007	03/22/16	Metals	Molybdenum	12		1	µg/L	=
CWC187198	CWC007	03/22/16	Metals	Nickel	2.8		0.8	µg/L	=
CWC187198	CWC007	03/22/16	Alpha Spectroscopy	Ra-226	0.327	0.731	1.52	pCi/L	UJ
CWC187198	CWC007	03/22/16	Metals	Selenium	2		1.6	µg/L	=
CWC187198	CWC007	03/22/16	Metals	Thallium	0.55		0.55	µg/L	U
CWC187198	CWC007	03/22/16	Alpha Spectroscopy	Th-228	0.369	0.381	0.492	pCi/L	UJ
CWC187198	CWC007	03/22/16	Alpha Spectroscopy	Th-230	0.369	0.381	0.492	pCi/L	UJ
CWC187198	CWC007	03/22/16	Alpha Spectroscopy	Th-232	0.041	0.183	0.492	pCi/L	UJ
CWC187198	CWC007	03/22/16	Alpha Spectroscopy	U-234	0.869	0.482	0.369	pCi/L	J
CWC187198	CWC007	03/22/16	Alpha Spectroscopy	U-235	0.0699	0.14	0.19	pCi/L	UJ
CWC187198	CWC007	03/22/16	Alpha Spectroscopy	U-238	0.677	0.407	0.153	pCi/L	J
CWC187198	CWC007	03/22/16	Metals	Vanadium	2.6		2.4	µg/L	=
CWC187200	CWC008	03/22/16	Metals	Antimony	1.7		1.7	µg/L	U
CWC187200	CWC008	03/22/16	Metals	Arsenic	2.9		1.2	µg/L	=
CWC187200	CWC008	03/22/16	Metals	Barium	140		0.22	µg/L	=
CWC187200	CWC008	03/22/16	Metals	Cadmium	0.1		0.1	µg/L	U
CWC187200	CWC008	03/22/16	Metals	Chromium	1.2		1	µg/L	=
CWC187200	CWC008	03/22/16	Metals	Molybdenum	10		1	µg/L	=

Table D-1. CWC Surface-Water Data for CY 2016

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Error	DL	Units	VQ
CWC187200	CWC008	03/22/16	Metals	Nickel	2.7		0.8	µg/L	=
CWC187200	CWC008	03/22/16	Alpha Spectroscopy	Ra-226	0.385	0.545	0.945	pCi/L	UJ
CWC187200	CWC008	03/22/16	Metals	Selenium	1.6		1.6	µg/L	U
CWC187200	CWC008	03/22/16	Metals	Thallium	0.55		0.55	µg/L	U
CWC187200	CWC008	03/22/16	Alpha Spectroscopy	Th-228	0.503	0.425	0.464	pCi/L	J
CWC187200	CWC008	03/22/16	Alpha Spectroscopy	Th-230	0.465	0.387	0.21	pCi/L	J
CWC187200	CWC008	03/22/16	Alpha Spectroscopy	Th-232	0.0387	0.173	0.464	pCi/L	UJ
CWC187200	CWC008	03/22/16	Alpha Spectroscopy	U-234	1.03	0.564	0.187	pCi/L	J
CWC187200	CWC008	03/22/16	Alpha Spectroscopy	U-235	0	0	0.23	pCi/L	U
CWC187200	CWC008	03/22/16	Alpha Spectroscopy	U-238	1.05	0.587	0.446	pCi/L	J
CWC187200	CWC008	03/22/16	Metals	Vanadium	2.4		2.4	µg/L	=
CWC187202	CWC009	03/22/16	Metals	Antimony	1.7		1.7	µg/L	U
CWC187202	CWC009	03/22/16	Metals	Arsenic	3.3		1.2	µg/L	=
CWC187202	CWC009	03/22/16	Metals	Barium	130		0.22	µg/L	=
CWC187202	CWC009	03/22/16	Metals	Cadmium	0.1		0.1	µg/L	U
CWC187202	CWC009	03/22/16	Metals	Chromium	2		1	µg/L	=
CWC187202	CWC009	03/22/16	Metals	Molybdenum	11		1	µg/L	=
CWC187202	CWC009	03/22/16	Metals	Nickel	2.6		0.8	µg/L	=
CWC187202	CWC009	03/22/16	Alpha Spectroscopy	Ra-226	0.348	0.695	1.4	pCi/L	UJ
CWC187202	CWC009	03/22/16	Metals	Selenium	1.6		1.6	µg/L	U
CWC187202	CWC009	03/22/16	Metals	Thallium	0.55		0.55	µg/L	U
CWC187202	CWC009	03/22/16	Alpha Spectroscopy	Th-228	0.12	0.225	0.441	pCi/L	UJ
CWC187202	CWC009	03/22/16	Alpha Spectroscopy	Th-230	0.15	0.218	0.36	pCi/L	UJ
CWC187202	CWC009	03/22/16	Alpha Spectroscopy	Th-232	0	0	0.162	pCi/L	U
CWC187202	CWC009	03/22/16	Alpha Spectroscopy	U-234	0.603	0.377	0.149	pCi/L	J
CWC187202	CWC009	03/22/16	Alpha Spectroscopy	U-235	0	0	0.183	pCi/L	U
CWC187202	CWC009	03/22/16	Alpha Spectroscopy	U-238	0.182	0.232	0.355	pCi/L	UJ
CWC187202	CWC009	03/22/16	Metals	Vanadium	2.4		2.4	µg/L	=
CWC193445	CWC002	10/18/16	Alpha Spec	Ra-226	0.338	0.633	1.25	pCi/L	UJ
CWC193445	CWC002	10/18/16	Alpha Spec	Th-228	0.0373	0.167	0.448	pCi/L	UJ
CWC193445	CWC002	10/18/16	Alpha Spec	Th-230	0.374	0.339	0.202	pCi/L	J
CWC193445	CWC002	10/18/16	Alpha Spec	Th-232	0	0	0.202	pCi/L	U
CWC193445	CWC002	10/18/16	Alpha Spectroscopy	U-234	0.911	0.536	0.479	pCi/L	J
CWC193445	CWC002	10/18/16	Alpha Spectroscopy	U-235	0.0803	0.161	0.218	pCi/L	UJ
CWC193445	CWC002	10/18/16	Alpha Spectroscopy	U-238	1.69	0.722	0.176	pCi/L	J
CWC193447	CWC003	10/18/16	Alpha Spectroscopy	Ra-226	0.829	0.958	1.55	pCi/L	UJ

Table D-1. CWC Surface-Water Data for CY 2016

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Error	DL	Units	VQ
CWC193447	CWC003	10/18/16	Alpha Spectroscopy	Th-228	0.292	0.346	0.537	pCi/L	UJ
CWC193447	CWC003	10/18/16	Alpha Spectroscopy	Th-230	0.439	0.365	0.198	pCi/L	J
CWC193447	CWC003	10/18/16	Alpha Spectroscopy	Th-232	0.073	0.146	0.198	pCi/L	UJ
CWC193447	CWC003	10/18/16	Alpha Spectroscopy	U-234	0.552	0.402	0.187	pCi/L	J
CWC193447	CWC003	10/18/16	Alpha Spectroscopy	U-235	0.128	0.256	0.51	pCi/L	UJ
CWC193447	CWC003	10/18/16	Alpha Spectroscopy	U-238	0.549	0.4	0.186	pCi/L	J
CWC193449	CWC004	10/18/16	Alpha Spectroscopy	Ra-226	0.719	0.831	1.34	pCi/L	UJ
CWC193449	CWC004	10/18/16	Alpha Spectroscopy	Th-228	0.0368	0.244	0.619	pCi/L	UJ
CWC193449	CWC004	10/18/16	Alpha Spectroscopy	Th-230	0.332	0.342	0.442	pCi/L	UJ
CWC193449	CWC004	10/18/16	Alpha Spectroscopy	Th-232	-0.0368	0.0738	0.442	pCi/L	UJ
CWC193449	CWC004	10/18/16	Alpha Spectroscopy	U-234	1.16	0.779	0.661	pCi/L	J
CWC193449	CWC004	10/18/16	Alpha Spectroscopy	U-235	0	0	0.368	pCi/L	U
CWC193449	CWC004	10/18/16	Alpha Spectroscopy	U-238	0.604	0.564	0.658	pCi/L	UJ
CWC193451	CWC005	10/17/16	Alpha Spectroscopy	Ra-226	0.161	0.508	1.18	pCi/L	UJ
CWC193451	CWC005	10/17/16	Alpha Spectroscopy	Th-228	0.0365	0.164	0.438	pCi/L	UJ
CWC193451	CWC005	10/17/16	Alpha Spectroscopy	Th-230	0.293	0.346	0.539	pCi/L	UJ
CWC193451	CWC005	10/17/16	Alpha Spectroscopy	Th-232	0.11	0.22	0.438	pCi/L	UJ
CWC193451	CWC005	10/17/16	Alpha Spectroscopy	U-234	0.552	0.575	0.812	pCi/L	UJ
CWC193451	CWC005	10/17/16	Alpha Spectroscopy	U-235	0	0	0.369	pCi/L	U
CWC193451	CWC005	10/17/16	Alpha Spectroscopy	U-238	0.604	0.564	0.659	pCi/L	UJ
CWC193453	CWC006	10/17/16	Alpha Spectroscopy	Ra-226	0.974	0.797	0.44	pCi/L	J
CWC193453	CWC006	10/17/16	Alpha Spectroscopy	Th-228	0.26	0.309	0.445	pCi/L	UJ
CWC193453	CWC006	10/17/16	Alpha Spectroscopy	Th-230	0.483	0.408	0.446	pCi/L	J
CWC193453	CWC006	10/17/16	Alpha Spectroscopy	Th-232	0	0	0.201	pCi/L	U
CWC193453	CWC006	10/17/16	Alpha Spectroscopy	U-234	0.397	0.331	0.179	pCi/L	J
CWC193453	CWC006	10/17/16	Alpha Spectroscopy	U-235	0.0815	0.164	0.221	pCi/L	UJ
CWC193453	CWC006	10/17/16	Alpha Spectroscopy	U-238	0.658	0.432	0.178	pCi/L	J
CWC193455	CWC007	10/17/16	Alpha Spectroscopy	Ra-226	0.43	0.608	1.06	pCi/L	UJ
CWC193455	CWC007	10/17/16	Alpha Spectroscopy	Th-228	-1.37E-05	0.204	0.548	pCi/L	UJ
CWC193455	CWC007	10/17/16	Alpha Spectroscopy	Th-230	0.177	0.206	0.16	pCi/L	UJ
CWC193455	CWC007	10/17/16	Alpha Spectroscopy	Th-232	0	0	0.16	pCi/L	U
CWC193455	CWC007	10/17/16	Alpha Spectroscopy	U-234	1.09	0.595	0.196	pCi/L	J
CWC193455	CWC007	10/17/16	Alpha Spectroscopy	U-235	0	0	0.242	pCi/L	U
CWC193455	CWC007	10/17/16	Alpha Spectroscopy	U-238	0.433	0.362	0.196	pCi/L	J
CWC193457	CWC008	10/17/16	Alpha Spectroscopy	Ra-226	-0.428	0.705	2.15	pCi/L	UJ
CWC193457	CWC008	10/17/16	Alpha Spectroscopy	Th-228	0.0623	0.125	0.169	pCi/L	UJ

Table D-1. CWC Surface-Water Data for CY 2016

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Error	DL	Units	VQ
CWC193457	CWC008	10/17/16	Alpha Spectroscopy	Th-230	0.531	0.388	0.374	pCi/L	J
CWC193457	CWC008	10/17/16	Alpha Spectroscopy	Th-232	-0.0312	0.0625	0.374	pCi/L	UJ
CWC193457	CWC008	10/17/16	Alpha Spectroscopy	U-234	0.361	0.374	0.481	pCi/L	UJ
CWC193457	CWC008	10/17/16	Alpha Spectroscopy	U-235	-0.0989	0.141	0.728	pCi/L	UJ
CWC193457	CWC008	10/17/16	Alpha Spectroscopy	U-238	0.798	0.527	0.216	pCi/L	J
CWC193459	CWC009	10/17/16	Alpha Spectroscopy	Ra-226	7.99E-06	0.423	1.27	pCi/L	UJ
CWC193459	CWC009	10/17/16	Alpha Spectroscopy	Th-228	0.144	0.27	0.529	pCi/L	UJ
CWC193459	CWC009	10/17/16	Alpha Spectroscopy	Th-230	0.864	0.546	0.53	pCi/L	J
CWC193459	CWC009	10/17/16	Alpha Spectroscopy	Th-232	-0.252	0.194	0.82	pCi/L	UJ
CWC193459	CWC009	10/17/16	Alpha Spectroscopy	U-234	0.923	0.584	0.227	pCi/L	J
CWC193459	CWC009	10/17/16	Alpha Spectroscopy	U-235	0	0	0.28	pCi/L	U
CWC193459	CWC009	10/17/16	Alpha Spectroscopy	U-238	0.543	0.462	0.501	pCi/L	J
CWC193445	CWC002	10/18/16	Metals	Antimony	2		2	µg/L	U
CWC193445	CWC002	10/18/16	Metals	Arsenic	6.1		4	µg/L	=
CWC193445	CWC002	10/18/16	Metals	Barium	120		0.9	µg/L	=
CWC193445	CWC002	10/18/16	Metals	Cadmium	0.2		0.2	µg/L	U
CWC193445	CWC002	10/18/16	Metals	Chromium	4		4	µg/L	U
CWC193445	CWC002	10/18/16	Metals	Molybdenum	7.4		2	µg/L	=
CWC193445	CWC002	10/18/16	Metals	Nickel	2.2		2	µg/L	=
CWC193445	CWC002	10/18/16	Metals	Selenium	2		2	µg/L	U
CWC193445	CWC002	10/18/16	Metals	Thallium	0.9		0.9	µg/L	U
CWC193445	CWC002	10/18/16	Metals	Vanadium	4		4	µg/L	U
CWC193447	CWC003	10/18/16	Metals	Antimony	2		2	µg/L	U
CWC193447	CWC003	10/18/16	Metals	Arsenic	5.1		4	µg/L	=
CWC193447	CWC003	10/18/16	Metals	Barium	120		0.9	µg/L	=
CWC193447	CWC003	10/18/16	Metals	Cadmium	0.2		0.2	µg/L	U
CWC193447	CWC003	10/18/16	Metals	Chromium	4		4	µg/L	U
CWC193447	CWC003	10/18/16	Metals	Molybdenum	8.4		2	µg/L	=
CWC193447	CWC003	10/18/16	Metals	Nickel	2.1		2	µg/L	=
CWC193447	CWC003	10/18/16	Metals	Selenium	2		2	µg/L	U
CWC193447	CWC003	10/18/16	Metals	Thallium	0.9		0.9	µg/L	U
CWC193447	CWC003	10/18/16	Metals	Vanadium	4		4	µg/L	U
CWC193449	CWC004	10/18/16	Metals	Antimony	2		2	µg/L	U
CWC193449	CWC004	10/18/16	Metals	Arsenic	4		4	µg/L	U
CWC193449	CWC004	10/18/16	Metals	Barium	140		0.9	µg/L	=
CWC193449	CWC004	10/18/16	Metals	Cadmium	0.2		0.2	µg/L	U

Table D-1. CWC Surface-Water Data for CY 2016

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Error	DL	Units	VQ
CWC193449	CWC004	10/18/16	Metals	Chromium	4		4	µg/L	U
CWC193449	CWC004	10/18/16	Metals	Molybdenum	7.9		2	µg/L	=
CWC193449	CWC004	10/18/16	Metals	Nickel	2.3		2	µg/L	=
CWC193449	CWC004	10/18/16	Metals	Selenium	3		2	µg/L	=
CWC193449	CWC004	10/18/16	Metals	Thallium	0.9		0.9	µg/L	U
CWC193449	CWC004	10/18/16	Metals	Vanadium	4		4	µg/L	U
CWC193451	CWC005	10/17/16	Metals	Antimony	2		2	µg/L	U
CWC193451	CWC005	10/17/16	Metals	Arsenic	4		4	µg/L	U
CWC193451	CWC005	10/17/16	Metals	Barium	140		0.9	µg/L	=
CWC193451	CWC005	10/17/16	Metals	Cadmium	0.2		0.2	µg/L	U
CWC193451	CWC005	10/17/16	Metals	Chromium	4		4	µg/L	U
CWC193451	CWC005	10/17/16	Metals	Molybdenum	7.6		2	µg/L	=
CWC193451	CWC005	10/17/16	Metals	Nickel	2.6		2	µg/L	=
CWC193451	CWC005	10/17/16	Metals	Selenium	2.6		2	µg/L	=
CWC193451	CWC005	10/17/16	Metals	Thallium	0.9		0.9	µg/L	U
CWC193451	CWC005	10/17/16	Metals	Vanadium	4		4	µg/L	U
CWC193453	CWC006	10/17/16	Metals	Antimony	2		2	µg/L	U
CWC193453	CWC006	10/17/16	Metals	Arsenic	4		4	µg/L	U
CWC193453	CWC006	10/17/16	Metals	Barium	130		0.9	µg/L	=
CWC193453	CWC006	10/17/16	Metals	Cadmium	0.2		0.2	µg/L	U
CWC193453	CWC006	10/17/16	Metals	Chromium	4		4	µg/L	U
CWC193453	CWC006	10/17/16	Metals	Molybdenum	6.2		2	µg/L	=
CWC193453	CWC006	10/17/16	Metals	Nickel	3		2	µg/L	=
CWC193453	CWC006	10/17/16	Metals	Selenium	2		2	µg/L	U
CWC193453	CWC006	10/17/16	Metals	Thallium	0.9		0.9	µg/L	U
CWC193453	CWC006	10/17/16	Metals	Vanadium	4		4	µg/L	U
CWC193455	CWC007	10/17/16	Metals	Antimony	2		2	µg/L	U
CWC193455	CWC007	10/17/16	Metals	Arsenic	4		4	µg/L	U
CWC193455	CWC007	10/17/16	Metals	Barium	130		0.9	µg/L	=
CWC193455	CWC007	10/17/16	Metals	Cadmium	0.2		0.2	µg/L	U
CWC193455	CWC007	10/17/16	Metals	Chromium	4		4	µg/L	U
CWC193455	CWC007	10/17/16	Metals	Molybdenum	6.4		2	µg/L	=
CWC193455	CWC007	10/17/16	Metals	Nickel	2.2		2	µg/L	=
CWC193455	CWC007	10/17/16	Metals	Selenium	2.3		2	µg/L	J
CWC193455	CWC007	10/17/16	Metals	Thallium	0.9		0.9	µg/L	U
CWC193455	CWC007	10/17/16	Metals	Vanadium	4		4	µg/L	U

Table D-1. CWC Surface-Water Data for CY 2016

Sample Name	Station Name	Collection Date	Method	Analyte	Result	Error	DL	Units	VQ
CWC193457	CWC008	10/17/16	Metals	Antimony	2		2	µg/L	U
CWC193457	CWC008	10/17/16	Metals	Arsenic	4		4	µg/L	U
CWC193457	CWC008	10/17/16	Metals	Barium	130		0.9	µg/L	=
CWC193457	CWC008	10/17/16	Metals	Cadmium	0.2		0.2	µg/L	U
CWC193457	CWC008	10/17/16	Metals	Chromium	4		4	µg/L	U
CWC193457	CWC008	10/17/16	Metals	Molybdenum	6.1		2	µg/L	=
CWC193457	CWC008	10/17/16	Metals	Nickel	2.3		2	µg/L	=
CWC193457	CWC008	10/17/16	Metals	Selenium	2.6		2	µg/L	J
CWC193457	CWC008	10/17/16	Metals	Thallium	0.9		0.9	µg/L	U
CWC193457	CWC008	10/17/16	Metals	Vanadium	4		4	µg/L	U
CWC193459	CWC009	10/17/16	Metals	Antimony	2		2	µg/L	U
CWC193459	CWC009	10/17/16	Metals	Arsenic	4		4	µg/L	U
CWC193459	CWC009	10/17/16	Metals	Barium	130		0.9	µg/L	=
CWC193459	CWC009	10/17/16	Metals	Cadmium	0.2		0.2	µg/L	U
CWC193459	CWC009	10/17/16	Metals	Chromium	4.6		4	µg/L	=
CWC193459	CWC009	10/17/16	Metals	Molybdenum	5.5		2	µg/L	=
CWC193459	CWC009	10/17/16	Metals	Nickel	2.5		2	µg/L	=
CWC193459	CWC009	10/17/16	Metals	Selenium	2		2	µg/L	U
CWC193459	CWC009	10/17/16	Metals	Thallium	0.9		0.9	µg/L	U
CWC193459	CWC009	10/17/16	Metals	Vanadium	4		4	µg/L	U

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 2016

Sample Name	Station Name	Collection Date	Method	Analyte	Result	DL	Units	VQ	Validation Reason Code
CWC187189	CWC002	03/23/16	Gamma Spectroscopy	Ac-227	-0.0662	0.297	pCi/g	UJ	T04, T06
CWC187189	CWC002	03/23/16	Gamma Spectroscopy	Am-241	0.0412	0.148	pCi/g	UJ	T04, T06
CWC187189	CWC002	03/23/16	Metals	Antimony	0.42	0.42	mg/kg	UJ	H02
CWC187189	CWC002	03/23/16	Metals	Arsenic	14	1.7	mg/kg	=	
CWC187189	CWC002	03/23/16	Metals	Barium	130	0.6	mg/kg	J	H01
CWC187189	CWC002	03/23/16	Metals	Cadmium	0.7	0.1	mg/kg	=	
CWC187189	CWC002	03/23/16	Gamma Spectroscopy	Cs-137	0.0206	0.0365	pCi/g	UJ	T04, T05
CWC187189	CWC002	03/23/16	Metals	Chromium	21	2.9	mg/kg	=	
CWC187189	CWC002	03/23/16	Metals	Molybdenum	3.1	0.79	mg/kg	=	
CWC187189	CWC002	03/23/16	Metals	Nickel	18	0.68	mg/kg	=	
CWC187189	CWC002	03/23/16	Gamma Spectroscopy	K-40	13.4	0.228	pCi/g	=	
CWC187189	CWC002	03/23/16	Gamma Spectroscopy	Pa-231	0.116	0.847	pCi/g	UJ	T04, T06
CWC187189	CWC002	03/23/16	Gamma Spectroscopy	Ra-226	1.34	0.0815	pCi/g	=	
CWC187189	CWC002	03/23/16	Gamma Spectroscopy	Ra-228	1.11	0.0828	pCi/g	=	
CWC187189	CWC002	03/23/16	Metals	Selenium	1.1	1	mg/kg	=	
CWC187189	CWC002	03/23/16	Metals	Thallium	0.97	0.97	mg/kg	U	
CWC187189	CWC002	03/23/16	Gamma Spectroscopy	Th-228	1.11	0.0828	pCi/g	=	
CWC187189	CWC002	03/23/16	Alpha Spectroscopy	Th-228	1.74	0.331	pCi/g	=	
CWC187189	CWC002	03/23/16	Alpha Spectroscopy	Th-230	1.99	0.406	pCi/g	J	F01
CWC187189	CWC002	03/23/16	Gamma Spectroscopy	Th-230	-3.34	10.9	pCi/g	UJ	T04, T06
CWC187189	CWC002	03/23/16	Gamma Spectroscopy	Th-232	1.11	0.0828	pCi/g	=	
CWC187189	CWC002	03/23/16	Alpha Spectroscopy	Th-232	1.39	0.371	pCi/g	=	
CWC187189	CWC002	03/23/16	Gamma Spectroscopy	U-235	0.0452	0.422	pCi/g	UJ	T04, T06
CWC187189	CWC002	03/23/16	Gamma Spectroscopy	U-238	1.92	1.2	pCi/g	J	F01, T04
CWC187189	CWC002	03/23/16	Metals	Vanadium	25	4.7	mg/kg	=	
CWC187191	CWC003	03/23/16	Gamma Spectroscopy	Ac-227	-0.0355	0.235	pCi/g	UJ	T04, T06
CWC187191	CWC003	03/23/16	Gamma Spectroscopy	Am-241	-0.014	0.113	pCi/g	UJ	T04, T06
CWC187191	CWC003	03/23/16	Metals	Antimony	0.4	0.4	mg/kg	U	
CWC187191	CWC003	03/23/16	Metals	Arsenic	12	1.6	mg/kg	=	
CWC187191	CWC003	03/23/16	Metals	Barium	260	0.58	mg/kg	=	
CWC187191	CWC003	03/23/16	Metals	Cadmium	0.57	0.099	mg/kg	=	
CWC187191	CWC003	03/23/16	Gamma Spectroscopy	Cs-137	-3.00E-06	0.0252	pCi/g	UJ	T04, T06
CWC187191	CWC003	03/23/16	Metals	Chromium	17	2.8	mg/kg	=	
CWC187191	CWC003	03/23/16	Metals	Molybdenum	1.2	0.77	mg/kg	=	
CWC187191	CWC003	03/23/16	Metals	Nickel	22	0.66	mg/kg	=	
CWC187191	CWC003	03/23/16	Gamma Spectroscopy	K-40	10.7	0.154	pCi/g	=	
CWC187191	CWC003	03/23/16	Gamma Spectroscopy	Pa-231	0.138	0.66	pCi/g	UJ	T04, T06
CWC187191	CWC003	03/23/16	Gamma Spectroscopy	Ra-226	1.11	0.0658	pCi/g	=	

Table D-2. CWC Sediment Data for CY 2016

Sample Name	Station Name	Collection Date	Method	Analyte	Result	DL	Units	VQ	Validation Reason Code
CWC187191	CWC003	03/23/16	Gamma Spectroscopy	Ra-228	0.655	0.0785	pCi/g	=	
CWC187191	CWC003	03/23/16	Metals	Selenium	2.5	0.98	mg/kg	=	
CWC187191	CWC003	03/23/16	Metals	Thallium	0.94	0.94	mg/kg	U	
CWC187191	CWC003	03/23/16	Gamma Spectroscopy	Th-228	0.655	0.0785	pCi/g	=	
CWC187191	CWC003	03/23/16	Alpha Spectroscopy	Th-228	1.28	0.329	pCi/g	=	
CWC187191	CWC003	03/23/16	Alpha Spectroscopy	Th-230	2.55	0.133	pCi/g	J	F01
CWC187191	CWC003	03/23/16	Gamma Spectroscopy	Th-230	-0.698	8.54	pCi/g	UJ	T04, T06
CWC187191	CWC003	03/23/16	Gamma Spectroscopy	Th-232	0.655	0.0785	pCi/g	=	
CWC187191	CWC003	03/23/16	Alpha Spectroscopy	Th-232	0.867	0.246	pCi/g	J	T04
CWC187191	CWC003	03/23/16	Gamma Spectroscopy	U-235	0.0307	0.31	pCi/g	UJ	T04, T06
CWC187191	CWC003	03/23/16	Gamma Spectroscopy	U-238	0.593	1.07	pCi/g	UJ	T04, T06
CWC187191	CWC003	03/23/16	Metals	Vanadium	35	4.5	mg/kg	=	
CWC187193	CWC004	03/23/16	Gamma Spectroscopy	Ac-227	-0.0284	0.244	pCi/g	UJ	T04, T06
CWC187193	CWC004	03/23/16	Gamma Spectroscopy	Am-241	0.0546	0.0562	pCi/g	UJ	T04, T05
CWC187193	CWC004	03/23/16	Metals	Antimony	0.49	0.49	mg/kg	U	
CWC187193	CWC004	03/23/16	Metals	Arsenic	9.2	1.9	mg/kg	=	
CWC187193	CWC004	03/23/16	Metals	Barium	220	0.7	mg/kg	=	
CWC187193	CWC004	03/23/16	Metals	Cadmium	0.96	0.12	mg/kg	=	
CWC187193	CWC004	03/23/16	Gamma Spectroscopy	Cs-137	0.0227	0.0269	pCi/g	UJ	T04, T05
CWC187193	CWC004	03/23/16	Metals	Chromium	35	3.4	mg/kg	=	
CWC187193	CWC004	03/23/16	Metals	Molybdenum	1.6	0.93	mg/kg	=	
CWC187193	CWC004	03/23/16	Metals	Nickel	26	0.8	mg/kg	=	
CWC187193	CWC004	03/23/16	Gamma Spectroscopy	K-40	15.3	0.185	pCi/g	=	
CWC187193	CWC004	03/23/16	Gamma Spectroscopy	Pa-231	-0.252	0.646	pCi/g	UJ	T04, T06
CWC187193	CWC004	03/23/16	Gamma Spectroscopy	Ra-226	1.39	0.0619	pCi/g	=	
CWC187193	CWC004	03/23/16	Gamma Spectroscopy	Ra-228	0.948	0.0753	pCi/g	=	
CWC187193	CWC004	03/23/16	Metals	Selenium	2.2	1.2	mg/kg	=	
CWC187193	CWC004	03/23/16	Metals	Thallium	1.1	1.1	mg/kg	U	
CWC187193	CWC004	03/23/16	Gamma Spectroscopy	Th-228	0.948	0.0753	pCi/g	=	
CWC187193	CWC004	03/23/16	Alpha Spectroscopy	Th-228	1.64	0.308	pCi/g	=	
CWC187193	CWC004	03/23/16	Alpha Spectroscopy	Th-230	2.77	0.413	pCi/g	J	F01
CWC187193	CWC004	03/23/16	Gamma Spectroscopy	Th-230	1.5	5.59	pCi/g	UJ	T04, T06
CWC187193	CWC004	03/23/16	Gamma Spectroscopy	Th-232	0.948	0.0753	pCi/g	=	
CWC187193	CWC004	03/23/16	Alpha Spectroscopy	Th-232	1.3	0.412	pCi/g	=	
CWC187193	CWC004	03/23/16	Gamma Spectroscopy	U-235	0.0294	0.32	pCi/g	UJ	T04, T06
CWC187193	CWC004	03/23/16	Gamma Spectroscopy	U-238	1.34	0.52	pCi/g	J	F01, T04
CWC187193	CWC004	03/23/16	Metals	Vanadium	31	5.5	mg/kg	=	
CWC187195	CWC005	03/23/16	Gamma Spectroscopy	Ac-227	-0.0701	0.303	pCi/g	UJ	T04, T06

Table D-2. CWC Sediment Data for CY 2016

Sample Name	Station Name	Collection Date	Method	Analyte	Result	DL	Units	VQ	Validation Reason Code
CWC187195	CWC005	03/23/16	Gamma Spectroscopy	Am-241	0.0361	0.149	pCi/g	UJ	T04, T06
CWC187195	CWC005	03/23/16	Metals	Antimony	0.5	0.5	mg/kg	U	
CWC187195	CWC005	03/23/16	Metals	Arsenic	5.7	2	mg/kg	=	
CWC187195	CWC005	03/23/16	Metals	Barium	220	0.73	mg/kg	=	
CWC187195	CWC005	03/23/16	Metals	Cadmium	0.48	0.12	mg/kg	=	
CWC187195	CWC005	03/23/16	Gamma Spectroscopy	Cs-137	0.00511	0.0348	pCi/g	UJ	T04, T06
CWC187195	CWC005	03/23/16	Metals	Chromium	20	3.5	mg/kg	=	
CWC187195	CWC005	03/23/16	Metals	Molybdenum	0.96	0.96	mg/kg	U	
CWC187195	CWC005	03/23/16	Metals	Nickel	22	0.83	mg/kg	=	
CWC187195	CWC005	03/23/16	Gamma Spectroscopy	K-40	17.1	0.212	pCi/g	=	
CWC187195	CWC005	03/23/16	Gamma Spectroscopy	Pa-231	-0.343	0.858	pCi/g	UJ	T04, T06
CWC187195	CWC005	03/23/16	Gamma Spectroscopy	Ra-226	1.44	0.0839	pCi/g	=	
CWC187195	CWC005	03/23/16	Gamma Spectroscopy	Ra-228	1.06	0.103	pCi/g	=	
CWC187195	CWC005	03/23/16	Metals	Selenium	2	1.2	mg/kg	=	
CWC187195	CWC005	03/23/16	Metals	Thallium	1.2	1.2	mg/kg	U	
CWC187195	CWC005	03/23/16	Gamma Spectroscopy	Th-228	1.06	0.103	pCi/g	=	
CWC187195	CWC005	03/23/16	Alpha Spectroscopy	Th-228	1.7	0.287	pCi/g	=	
CWC187195	CWC005	03/23/16	Alpha Spectroscopy	Th-230	2.23	0.155	pCi/g	J	F01
CWC187195	CWC005	03/23/16	Gamma Spectroscopy	Th-230	5.52	11.7	pCi/g	UJ	T04, T06
CWC187195	CWC005	03/23/16	Gamma Spectroscopy	Th-232	1.06	0.103	pCi/g	=	
CWC187195	CWC005	03/23/16	Alpha Spectroscopy	Th-232	1.3	0.287	pCi/g	=	
CWC187195	CWC005	03/23/16	Gamma Spectroscopy	U-235	0.136	0.401	pCi/g	UJ	T04, T06
CWC187195	CWC005	03/23/16	Gamma Spectroscopy	U-238	1.22	1.37	pCi/g	UJ	T04, T05
CWC187195	CWC005	03/23/16	Metals	Vanadium	27	5.7	mg/kg	=	
CWC187197	CWC006	03/22/16	Gamma Spectroscopy	Ac-227	0.049	0.191	pCi/g	UJ	T04, T06
CWC187197	CWC006	03/22/16	Gamma Spectroscopy	Am-241	0.0168	0.044	pCi/g	UJ	T04, T06
CWC187197	CWC006	03/22/16	Metals	Antimony	0.49	0.49	mg/kg	U	
CWC187197	CWC006	03/22/16	Metals	Arsenic	6.7	1.9	mg/kg	=	
CWC187197	CWC006	03/22/16	Metals	Barium	190	0.7	mg/kg	=	
CWC187197	CWC006	03/22/16	Metals	Cadmium	0.77	0.12	mg/kg	=	
CWC187197	CWC006	03/22/16	Gamma Spectroscopy	Cs-137	0.0205	0.0194	pCi/g	UJ	T04
CWC187197	CWC006	03/22/16	Metals	Chromium	25	3.4	mg/kg	=	
CWC187197	CWC006	03/22/16	Metals	Molybdenum	0.93	0.93	mg/kg	U	
CWC187197	CWC006	03/22/16	Metals	Nickel	23	0.8	mg/kg	=	
CWC187197	CWC006	03/22/16	Gamma Spectroscopy	K-40	13.6	0.123	pCi/g	=	
CWC187197	CWC006	03/22/16	Gamma Spectroscopy	Pa-231	0.14	0.492	pCi/g	UJ	T04, T06
CWC187197	CWC006	03/22/16	Gamma Spectroscopy	Ra-226	1.27	0.0437	pCi/g	=	
CWC187197	CWC006	03/22/16	Gamma Spectroscopy	Ra-228	0.846	0.0529	pCi/g	=	

Table D-2. CWC Sediment Data for CY 2016

Sample Name	Station Name	Collection Date	Method	Analyte	Result	DL	Units	VQ	Validation Reason Code
CWC187197	CWC006	03/22/16	Metals	Selenium	2.5	1.2	mg/kg	=	
CWC187197	CWC006	03/22/16	Metals	Thallium	1.1	1.1	mg/kg	U	
CWC187197	CWC006	03/22/16	Gamma Spectroscopy	Th-228	0.846	0.0529	pCi/g	=	
CWC187197	CWC006	03/22/16	Alpha Spectroscopy	Th-228	1.49	0.156	pCi/g	=	
CWC187197	CWC006	03/22/16	Alpha Spectroscopy	Th-230	3.89	0.289	pCi/g	=	
CWC187197	CWC006	03/22/16	Gamma Spectroscopy	Th-230	4.57	4.54	pCi/g	UJ	T04
CWC187197	CWC006	03/22/16	Gamma Spectroscopy	Th-232	0.846	0.0529	pCi/g	=	
CWC187197	CWC006	03/22/16	Alpha Spectroscopy	Th-232	0.946	0.344	pCi/g	J	T04
CWC187197	CWC006	03/22/16	Gamma Spectroscopy	U-235	0.016	0.258	pCi/g	UJ	T04, T06
CWC187197	CWC006	03/22/16	Gamma Spectroscopy	U-238	0.916	0.43	pCi/g	J	F01
CWC187197	CWC006	03/22/16	Metals	Vanadium	27	5.5	mg/kg	=	
CWC187199	CWC007	03/22/16	Gamma Spectroscopy	Ac-227	0.136	0.262	pCi/g	UJ	T04, T06
CWC187199	CWC007	03/22/16	Gamma Spectroscopy	Am-241	-0.0413	0.117	pCi/g	UJ	T04, T06
CWC187199	CWC007	03/22/16	Metals	Antimony	0.43	0.43	mg/kg	U	
CWC187199	CWC007	03/22/16	Metals	Arsenic	8.2	1.7	mg/kg	=	
CWC187199	CWC007	03/22/16	Metals	Barium	180	0.62	mg/kg	=	
CWC187199	CWC007	03/22/16	Metals	Cadmium	1.6	0.1	mg/kg	=	
CWC187199	CWC007	03/22/16	Gamma Spectroscopy	Cs-137	0.0233	0.0269	pCi/g	UJ	T04, T06
CWC187199	CWC007	03/22/16	Metals	Chromium	44	2.9	mg/kg	=	
CWC187199	CWC007	03/22/16	Metals	Molybdenum	1.3	0.81	mg/kg	=	
CWC187199	CWC007	03/22/16	Metals	Nickel	25	0.7	mg/kg	=	
CWC187199	CWC007	03/22/16	Gamma Spectroscopy	K-40	10.7	0.182	pCi/g	=	
CWC187199	CWC007	03/22/16	Gamma Spectroscopy	Pa-231	-0.436	0.676	pCi/g	UJ	T04, T06
CWC187199	CWC007	03/22/16	Gamma Spectroscopy	Ra-226	1.14	0.0647	pCi/g	=	
CWC187199	CWC007	03/22/16	Gamma Spectroscopy	Ra-228	0.666	0.0823	pCi/g	=	
CWC187199	CWC007	03/22/16	Metals	Selenium	1.7	1	mg/kg	=	
CWC187199	CWC007	03/22/16	Metals	Thallium	0.99	0.99	mg/kg	U	
CWC187199	CWC007	03/22/16	Gamma Spectroscopy	Th-228	0.666	0.0823	pCi/g	=	
CWC187199	CWC007	03/22/16	Alpha Spectroscopy	Th-228	0.466	0.329	pCi/g	J	T04
CWC187199	CWC007	03/22/16	Alpha Spectroscopy	Th-230	3.77	0.276	pCi/g	=	
CWC187199	CWC007	03/22/16	Gamma Spectroscopy	Th-230	5.99	9.71	pCi/g	UJ	T04, T05
CWC187199	CWC007	03/22/16	Gamma Spectroscopy	Th-232	0.666	0.0823	pCi/g	=	
CWC187199	CWC007	03/22/16	Alpha Spectroscopy	Th-232	1.04	0.148	pCi/g	J	T04
CWC187199	CWC007	03/22/16	Gamma Spectroscopy	U-235	0.143	0.34	pCi/g	UJ	T04, T06
CWC187199	CWC007	03/22/16	Gamma Spectroscopy	U-238	0.883	1.06	pCi/g	UJ	T04, T05
CWC187199	CWC007	03/22/16	Metals	Vanadium	27	4.8	mg/kg	=	
CWC187201	CWC008	03/22/16	Gamma Spectroscopy	Ac-227	-0.0883	0.192	pCi/g	UJ	T04, T06
CWC187201	CWC008	03/22/16	Gamma Spectroscopy	Am-241	0.0296	0.0447	pCi/g	UJ	T04, T05

Table D-2. CWC Sediment Data for CY 2016

Sample Name	Station Name	Collection Date	Method	Analyte	Result	DL	Units	VQ	Validation Reason Code
CWC187201	CWC008	03/22/16	Metals	Antimony	0.5	0.5	mg/kg	U	
CWC187201	CWC008	03/22/16	Metals	Arsenic	4.9	2	mg/kg	=	
CWC187201	CWC008	03/22/16	Metals	Barium	170	0.72	mg/kg	=	
CWC187201	CWC008	03/22/16	Metals	Cadmium	0.55	0.12	mg/kg	=	
CWC187201	CWC008	03/22/16	Gamma Spectroscopy	Cs-137	0.00198	0.0181	pCi/g	UJ	T04, T06
CWC187201	CWC008	03/22/16	Metals	Chromium	20	3.5	mg/kg	=	
CWC187201	CWC008	03/22/16	Metals	Molybdenum	0.95	0.95	mg/kg	U	
CWC187201	CWC008	03/22/16	Metals	Nickel	22	0.82	mg/kg	=	
CWC187201	CWC008	03/22/16	Gamma Spectroscopy	K-40	13.6	0.113	pCi/g	=	
CWC187201	CWC008	03/22/16	Gamma Spectroscopy	Pa-231	-0.0539	0.529	pCi/g	UJ	T04, T06
CWC187201	CWC008	03/22/16	Gamma Spectroscopy	Ra-226	1.27	0.0441	pCi/g	=	
CWC187201	CWC008	03/22/16	Gamma Spectroscopy	Ra-228	0.899	0.0642	pCi/g	=	
CWC187201	CWC008	03/22/16	Metals	Selenium	1.5	1.2	mg/kg	=	
CWC187201	CWC008	03/22/16	Metals	Thallium	1.2	1.2	mg/kg	U	
CWC187201	CWC008	03/22/16	Alpha Spectroscopy	Th-228	1.16	0.351	pCi/g	=	
CWC187201	CWC008	03/22/16	Gamma Spectroscopy	Th-228	0.899	0.0642	pCi/g	=	
CWC187201	CWC008	03/22/16	Gamma Spectroscopy	Th-230	1.27	4.52	pCi/g	UJ	T04, T06
CWC187201	CWC008	03/22/16	Alpha Spectroscopy	Th-230	2.3	0.384	pCi/g	J	F01
CWC187201	CWC008	03/22/16	Alpha Spectroscopy	Th-232	1.19	0.262	pCi/g	=	
CWC187201	CWC008	03/22/16	Gamma Spectroscopy	Th-232	0.899	0.0642	pCi/g	=	
CWC187201	CWC008	03/22/16	Gamma Spectroscopy	U-235	-0.0933	0.266	pCi/g	UJ	T04, T06
CWC187201	CWC008	03/22/16	Gamma Spectroscopy	U-238	1.62	0.43	pCi/g	J	F01
CWC187201	CWC008	03/22/16	Metals	Vanadium	24	5.6	mg/kg	=	
CWC187203	CWC009	03/23/16	Gamma Spectroscopy	Ac-227	-0.0252	0.194	pCi/g	UJ	T04, T06
CWC187203	CWC009	03/23/16	Gamma Spectroscopy	Am-241	0.0257	0.0466	pCi/g	UJ	T04, T06
CWC187203	CWC009	03/23/16	Metals	Antimony	0.45	0.45	mg/kg	U	
CWC187203	CWC009	03/23/16	Metals	Arsenic	5.2	1.8	mg/kg	=	
CWC187203	CWC009	03/23/16	Metals	Barium	150	0.65	mg/kg	=	
CWC187203	CWC009	03/23/16	Metals	Cadmium	0.39	0.11	mg/kg	=	
CWC187203	CWC009	03/23/16	Gamma Spectroscopy	Cs-137	-0.00183	0.019	pCi/g	UJ	T04, T06
CWC187203	CWC009	03/23/16	Metals	Chromium	22	3.1	mg/kg	=	
CWC187203	CWC009	03/23/16	Metals	Molybdenum	0.86	0.86	mg/kg	U	
CWC187203	CWC009	03/23/16	Metals	Nickel	18	0.74	mg/kg	=	
CWC187203	CWC009	03/23/16	Gamma Spectroscopy	K-40	14.6	0.111	pCi/g	=	
CWC187203	CWC009	03/23/16	Gamma Spectroscopy	Pa-231	0.299	0.553	pCi/g	UJ	T04, T06
CWC187203	CWC009	03/23/16	Gamma Spectroscopy	Ra-226	1.43	0.0461	pCi/g	=	
CWC187203	CWC009	03/23/16	Gamma Spectroscopy	Ra-228	0.828	0.0553	pCi/g	=	
CWC187203	CWC009	03/23/16	Metals	Selenium	1.7	1.1	mg/kg	=	

Table D-2. CWC Sediment Data for CY 2016

Sample Name	Station Name	Collection Date	Method	Analyte	Result	DL	Units	VQ	Validation Reason Code
CWC187203	CWC009	03/23/16	Metals	Thallium	1.1	1.1	mg/kg	U	
CWC187203	CWC009	03/23/16	Alpha Spectroscopy	Th-228	1.3	0.244	pCi/g	=	
CWC187203	CWC009	03/23/16	Gamma Spectroscopy	Th-228	0.828	0.0553	pCi/g	=	
CWC187203	CWC009	03/23/16	Gamma Spectroscopy	Th-230	-1.48	4.45	pCi/g	UJ	T04, T06
CWC187203	CWC009	03/23/16	Alpha Spectroscopy	Th-230	2.46	0.244	pCi/g	J	F01
CWC187203	CWC009	03/23/16	Alpha Spectroscopy	Th-232	1.26	0.131	pCi/g	=	
CWC187203	CWC009	03/23/16	Gamma Spectroscopy	Th-232	0.828	0.0553	pCi/g	=	
CWC187203	CWC009	03/23/16	Gamma Spectroscopy	U-235	0.0448	0.266	pCi/g	UJ	T04, T06
CWC187203	CWC009	03/23/16	Gamma Spectroscopy	U-238	0.528	0.429	pCi/g	J	F01, T04
CWC187203	CWC009	03/23/16	Metals	Vanadium	28	5.1	mg/kg	=	
CWC193446	CWC002	10/18/16	Gamma Spectroscopy	Ac-227	0.0138	0.115	pCi/g	UJ	T04, T06
CWC193446	CWC002	10/18/16	Gamma Spectroscopy	Am-241	0.0172	0.0433	pCi/g	UJ	T04, T06
CWC193446	CWC002	10/18/16	Gamma Spectroscopy	Cs-137	0.00307	0.0196	pCi/g	UJ	T04, T06
CWC193446	CWC002	10/18/16	Gamma Spectroscopy	K-40	14.6	0.187	pCi/g	=	
CWC193446	CWC002	10/18/16	Gamma Spectroscopy	Pa-231	-0.564	0.727	pCi/g	UJ	T04, T06
CWC193446	CWC002	10/18/16	Gamma Spectroscopy	Ra-226	2.01	0.0481	pCi/g	=	
CWC193446	CWC002	10/18/16	Gamma Spectroscopy	Ra-228	1.08	0.0709	pCi/g	=	
CWC193446	CWC002	10/18/16	Gamma Spectroscopy	Th-228	1.08	0.0709	pCi/g	=	
CWC193446	CWC002	10/18/16	Alpha Spectroscopy	Th-228	1.61	0.22	pCi/g	=	
CWC193446	CWC002	10/18/16	Alpha Spectroscopy	Th-230	2.1	0.119	pCi/g	J	F01
CWC193446	CWC002	10/18/16	Gamma Spectroscopy	Th-230	0.297	4.13	pCi/g	UJ	T04, T06
CWC193446	CWC002	10/18/16	Gamma Spectroscopy	Th-232	1.08	0.0709	pCi/g	=	
CWC193446	CWC002	10/18/16	Alpha Spectroscopy	Th-232	0.568	0.119	pCi/g	J	T04, T20
CWC193446	CWC002	10/18/16	Gamma Spectroscopy	U-235	0.356	0.274	pCi/g	UJ	T04
CWC193446	CWC002	10/18/16	Gamma Spectroscopy	U-238	2.69	0.409	pCi/g	=	
CWC193448	CWC003	10/18/16	Gamma Spectroscopy	Ac-227	0.0233	0.111	pCi/g	UJ	T04, T06
CWC193448	CWC003	10/18/16	Gamma Spectroscopy	Am-241	0.00416	0.0385	pCi/g	UJ	T04, T06
CWC193448	CWC003	10/18/16	Gamma Spectroscopy	Cs-137	0.0171	0.0206	pCi/g	UJ	T04, T05
CWC193448	CWC003	10/18/16	Gamma Spectroscopy	K-40	16.6	0.172	pCi/g	=	
CWC193448	CWC003	10/18/16	Gamma Spectroscopy	Pa-231	-0.266	0.651	pCi/g	UJ	T04, T06
CWC193448	CWC003	10/18/16	Gamma Spectroscopy	Ra-226	1.41	0.0467	pCi/g	=	
CWC193448	CWC003	10/18/16	Gamma Spectroscopy	Ra-228	0.972	0.0668	pCi/g	=	
CWC193448	CWC003	10/18/16	Gamma Spectroscopy	Th-228	0.972	0.0668	pCi/g	=	
CWC193448	CWC003	10/18/16	Alpha Spectroscopy	Th-228	1.35	0.274	pCi/g	=	
CWC193448	CWC003	10/18/16	Alpha Spectroscopy	Th-230	3.71	0.148	pCi/g	=	
CWC193448	CWC003	10/18/16	Gamma Spectroscopy	Th-230	4.44	3.51	pCi/g	J	T04, T20
CWC193448	CWC003	10/18/16	Gamma Spectroscopy	Th-232	0.972	0.0668	pCi/g	=	
CWC193448	CWC003	10/18/16	Alpha Spectroscopy	Th-232	1.14	0.148	pCi/g	=	

Table D-2. CWC Sediment Data for CY 2016

Sample Name	Station Name	Collection Date	Method	Analyte	Result	DL	Units	VQ	Validation Reason Code
CWC193448	CWC003	10/18/16	Gamma Spectroscopy	U-235	0.0518	0.241	pCi/g	UJ	T04, T06
CWC193448	CWC003	10/18/16	Gamma Spectroscopy	U-238	1.11	0.359	pCi/g	=	
CWC193450	CWC004	10/18/16	Gamma Spectroscopy	Ac-227	-0.0412	0.121	pCi/g	UJ	T04, T06
CWC193450	CWC004	10/18/16	Gamma Spectroscopy	Am-241	0.0286	0.0438	pCi/g	UJ	T04, T05
CWC193450	CWC004	10/18/16	Gamma Spectroscopy	Cs-137	0.0194	0.0196	pCi/g	U	T04, T05
CWC193450	CWC004	10/18/16	Gamma Spectroscopy	K-40	16.3	0.172	pCi/g	=	
CWC193450	CWC004	10/18/16	Gamma Spectroscopy	Pa-231	-0.44	0.774	pCi/g	UJ	T04, T06
CWC193450	CWC004	10/18/16	Gamma Spectroscopy	Ra-226	1.44	0.0516	pCi/g	=	
CWC193450	CWC004	10/18/16	Gamma Spectroscopy	Ra-228	1.03	0.0775	pCi/g	=	
CWC193450	CWC004	10/18/16	Gamma Spectroscopy	Th-228	1.03	0.0775	pCi/g	=	
CWC193450	CWC004	10/18/16	Alpha Spectroscopy	Th-228	1.17	0.158	pCi/g	=	
CWC193450	CWC004	10/18/16	Alpha Spectroscopy	Th-230	2.11	0.159	pCi/g	J	F01
CWC193450	CWC004	10/18/16	Gamma Spectroscopy	Th-230	1.48	4.26	pCi/g	UJ	T04, T06
CWC193450	CWC004	10/18/16	Gamma Spectroscopy	Th-232	1.03	0.0775	pCi/g	=	
CWC193450	CWC004	10/18/16	Alpha Spectroscopy	Th-232	0.935	0.158	pCi/g	J	T04, T20
CWC193450	CWC004	10/18/16	Gamma Spectroscopy	U-235	0.0166	0.273	pCi/g	UJ	T04, T06
CWC193450	CWC004	10/18/16	Gamma Spectroscopy	U-238	0.992	0.411	pCi/g	J	T04, T20
CWC193452	CWC005	10/17/16	Gamma Spectroscopy	Ac-227	-0.0434	0.12	pCi/g	UJ	T04, T06
CWC193452	CWC005	10/17/16	Gamma Spectroscopy	Am-241	0.00711	0.0419	pCi/g	UJ	T04, T06
CWC193452	CWC005	10/17/16	Gamma Spectroscopy	Cs-137	-0.0145	0.0196	pCi/g	UJ	T04, T06
CWC193452	CWC005	10/17/16	Gamma Spectroscopy	K-40	15.2	0.178	pCi/g	=	
CWC193452	CWC005	10/17/16	Gamma Spectroscopy	Pa-231	0.612	0.893	pCi/g	UJ	T04, T06
CWC193452	CWC005	10/17/16	Gamma Spectroscopy	Ra-226	1.74	0.0512	pCi/g	=	
CWC193452	CWC005	10/17/16	Gamma Spectroscopy	Ra-228	0.994	0.0787	pCi/g	=	
CWC193452	CWC005	10/17/16	Gamma Spectroscopy	Th-228	0.994	0.0787	pCi/g	=	
CWC193452	CWC005	10/17/16	Alpha Spectroscopy	Th-228	1.26	0.336	pCi/g	=	
CWC193452	CWC005	10/17/16	Alpha Spectroscopy	Th-230	1.83	0.251	pCi/g	J	F01
CWC193452	CWC005	10/17/16	Gamma Spectroscopy	Th-230	4.02	4.02	pCi/g	J	T04, T20
CWC193452	CWC005	10/17/16	Gamma Spectroscopy	Th-232	0.994	0.0787	pCi/g	=	
CWC193452	CWC005	10/17/16	Alpha Spectroscopy	Th-232	1.43	0.251	pCi/g	=	
CWC193452	CWC005	10/17/16	Gamma Spectroscopy	U-235	0.0572	0.27	pCi/g	UJ	T04, T06
CWC193452	CWC005	10/17/16	Gamma Spectroscopy	U-238	1.22	0.389	pCi/g	=	
CWC193454	CWC006	10/17/16	Gamma Spectroscopy	Ac-227	0.0266	0.139	pCi/g	UJ	T04, T06
CWC193454	CWC006	10/17/16	Gamma Spectroscopy	Am-241	-0.0439	0.0447	pCi/g	UJ	T04, T06
CWC193454	CWC006	10/17/16	Gamma Spectroscopy	Cs-137	-0.00989	0.0227	pCi/g	UJ	T04, T06
CWC193454	CWC006	10/17/16	Gamma Spectroscopy	K-40	18.8	0.184	pCi/g	=	
CWC193454	CWC006	10/17/16	Gamma Spectroscopy	Pa-231	-0.148	0.86	pCi/g	UJ	T04, T06
CWC193454	CWC006	10/17/16	Gamma Spectroscopy	Ra-226	1.47	0.0554	pCi/g	=	

Table D-2. CWC Sediment Data for CY 2016

Sample Name	Station Name	Collection Date	Method	Analyte	Result	DL	Units	VQ	Validation Reason Code
CWC193454	CWC006	10/17/16	Gamma Spectroscopy	Ra-228	1.14	0.0824	pCi/g	=	
CWC193454	CWC006	10/17/16	Gamma Spectroscopy	Th-228	1.14	0.0824	pCi/g	=	
CWC193454	CWC006	10/17/16	Alpha Spectroscopy	Th-228	1.23	0.128	pCi/g	=	
CWC193454	CWC006	10/17/16	Alpha Spectroscopy	Th-230	2.31	0.238	pCi/g	J	F01
CWC193454	CWC006	10/17/16	Gamma Spectroscopy	Th-230	0.0461	4.54	pCi/g	UJ	T04, T06
CWC193454	CWC006	10/17/16	Gamma Spectroscopy	Th-232	1.14	0.0824	pCi/g	=	
CWC193454	CWC006	10/17/16	Alpha Spectroscopy	Th-232	1.45	0.238	pCi/g	=	
CWC193454	CWC006	10/17/16	Gamma Spectroscopy	U-235	0.107	0.298	pCi/g	UJ	T04, T06
CWC193454	CWC006	10/17/16	Gamma Spectroscopy	U-238	1.11	0.456	pCi/g	=	
CWC193456	CWC007	10/17/16	Gamma Spectroscopy	Ac-227	0.103	0.107	pCi/g	UJ	T04, T05
CWC193456	CWC007	10/17/16	Gamma Spectroscopy	Am-241	-0.0112	0.0331	pCi/g	UJ	T04, T06
CWC193456	CWC007	10/17/16	Gamma Spectroscopy	Cs-137	0.00675	0.0186	pCi/g	UJ	T04, T06
CWC193456	CWC007	10/17/16	Gamma Spectroscopy	K-40	12.1	0.144	pCi/g	=	
CWC193456	CWC007	10/17/16	Gamma Spectroscopy	Pa-231	-0.125	0.636	pCi/g	UJ	T04, T06
CWC193456	CWC007	10/17/16	Gamma Spectroscopy	Ra-226	1.28	0.0383	pCi/g	=	
CWC193456	CWC007	10/17/16	Gamma Spectroscopy	Ra-228	0.586	0.055	pCi/g	=	
CWC193456	CWC007	10/17/16	Gamma Spectroscopy	Th-228	0.586	0.055	pCi/g	=	
CWC193456	CWC007	10/17/16	Alpha Spectroscopy	Th-228	0.624	0.292	pCi/g	J	T04, T20
CWC193456	CWC007	10/17/16	Alpha Spectroscopy	Th-230	4.75	0.293	pCi/g	=	
CWC193456	CWC007	10/17/16	Gamma Spectroscopy	Th-230	4.21	3.39	pCi/g	J	T04, T20
CWC193456	CWC007	10/17/16	Gamma Spectroscopy	Th-232	0.586	0.055	pCi/g	=	
CWC193456	CWC007	10/17/16	Alpha Spectroscopy	Th-232	0.871	0.157	pCi/g	J	T04, T20

Table D-2. CWC Sediment Data for CY 2016

Sample Name	Station Name	Collection Date	Method	Analyte	Result	DL	Units	VQ	Validation Reason Code
CWC193456	CWC007	10/17/16	Gamma Spectroscopy	U-235	0.045	0.221	pCi/g	UJ	T04, T06
CWC193456	CWC007	10/17/16	Gamma Spectroscopy	U-238	0.724	0.332	pCi/g	J	T04, T20
CWC193458	CWC008	10/17/16	Gamma Spectroscopy	Ac-227	0.101	0.153	pCi/g	UJ	T04, T05
CWC193458	CWC008	10/17/16	Gamma Spectroscopy	Am-241	0.00344	0.0498	pCi/g	UJ	T04, T06
CWC193458	CWC008	10/17/16	Gamma Spectroscopy	Cs-137	-0.000678	0.0229	pCi/g	UJ	T04, T06
CWC193458	CWC008	10/17/16	Gamma Spectroscopy	K-40	18.5	0.222	pCi/g	=	
CWC193458	CWC008	10/17/16	Gamma Spectroscopy	Pa-231	0.0866	1.03	pCi/g	UJ	T04, T06
CWC193458	CWC008	10/17/16	Gamma Spectroscopy	Ra-226	1.71	0.063	pCi/g	=	
CWC193458	CWC008	10/17/16	Gamma Spectroscopy	Ra-228	1.27	0.0718	pCi/g	=	
CWC193458	CWC008	10/17/16	Gamma Spectroscopy	Th-228	1.27	0.0718	pCi/g	=	
CWC193458	CWC008	10/17/16	Alpha Spectroscopy	Th-228	1.26	0.289	pCi/g	=	
CWC193458	CWC008	10/17/16	Alpha Spectroscopy	Th-230	1.93	0.107	pCi/g	J	F01
CWC193458	CWC008	10/17/16	Gamma Spectroscopy	Th-230	2.33	5.15	pCi/g	UJ	T04, T06
CWC193458	CWC008	10/17/16	Gamma Spectroscopy	Th-232	1.27	0.0718	pCi/g	=	
CWC193458	CWC008	10/17/16	Alpha Spectroscopy	Th-232	1.06	0.106	pCi/g	=	
CWC193458	CWC008	10/17/16	Gamma Spectroscopy	U-235	0.091	0.332	pCi/g	UJ	T04, T06
CWC193458	CWC008	10/17/16	Gamma Spectroscopy	U-238	1.51	0.47	pCi/g	=	
CWC193460	CWC009	10/17/16	Gamma Spectroscopy	Ac-227	0.0428	0.118	pCi/g	UJ	T04, T06
CWC193460	CWC009	10/17/16	Gamma Spectroscopy	Am-241	0.0059	0.0384	pCi/g	UJ	T04, T06
CWC193460	CWC009	10/17/16	Gamma Spectroscopy	Cs-137	0.0175	0.0188	pCi/g	U	T04, T05
CWC193460	CWC009	10/17/16	Gamma Spectroscopy	K-40	15.3	0.168	pCi/g	=	
CWC193460	CWC009	10/17/16	Gamma Spectroscopy	Pa-231	0.0334	0.692	pCi/g	UJ	T04, T06
CWC193460	CWC009	10/17/16	Gamma Spectroscopy	Ra-226	1.48	0.0441	pCi/g	=	
CWC193460	CWC009	10/17/16	Gamma Spectroscopy	Ra-228	0.878	0.0628	pCi/g	=	
CWC193460	CWC009	10/17/16	Gamma Spectroscopy	Th-228	0.878	0.0628	pCi/g	=	
CWC193460	CWC009	10/17/16	Alpha Spectroscopy	Th-228	1.26	0.127	pCi/g	=	
CWC193460	CWC009	10/17/16	Alpha Spectroscopy	Th-230	3.54	0.235	pCi/g	=	
CWC193460	CWC009	10/17/16	Gamma Spectroscopy	Th-230	4.6	3.74	pCi/g	J	T04, T20
CWC193460	CWC009	10/17/16	Gamma Spectroscopy	Th-232	0.878	0.0628	pCi/g	=	
CWC193460	CWC009	10/17/16	Alpha Spectroscopy	Th-232	0.98	0.126	pCi/g	J	F01
CWC193460	CWC009	10/17/16	Gamma Spectroscopy	U-235	0.000976	0.235	pCi/g	UJ	T04, T06
CWC193460	CWC009	10/17/16	Gamma Spectroscopy	U-238	0.724	0.368	pCi/g	J	T04, T20
CWC193446	CWC002	10/18/16	Metals	Antimony	0.66	0.66	mg/kg	UJ	H02
CWC193446	CWC002	10/18/16	Metals	Arsenic	13	1.3	mg/kg	=	
CWC193446	CWC002	10/18/16	Metals	Barium	250	1.6	mg/kg	=	
CWC193446	CWC002	10/18/16	Metals	Cadmium	0.83	0.079	mg/kg	=	
CWC193446	CWC002	10/18/16	Metals	Chromium	18	1.5	mg/kg	=	
CWC193446	CWC002	10/18/16	Metals	Molybdenum	5.3	0.66	mg/kg	=	

Table D-2. CWC Sediment Data for CY 2016

Sample Name	Station Name	Collection Date	Method	Analyte	Result	DL	Units	VQ	Validation Reason Code
CWC193446	CWC002	10/18/16	Metals	Nickel	31	0.66	mg/kg	=	
CWC193446	CWC002	10/18/16	Metals	Selenium	1.9	1.1	mg/kg	=	
CWC193446	CWC002	10/18/16	Metals	Thallium	0.66	0.66	mg/kg	U	
CWC193446	CWC002	10/18/16	Metals	Vanadium	31	1.3	mg/kg	=	
CWC193448	CWC003	10/18/16	Metals	Antimony	0.63	0.63	mg/kg	U	
CWC193448	CWC003	10/18/16	Metals	Arsenic	10	1.3	mg/kg	=	
CWC193448	CWC003	10/18/16	Metals	Barium	190	1.6	mg/kg	=	
CWC193448	CWC003	10/18/16	Metals	Cadmium	0.31	0.076	mg/kg	=	
CWC193448	CWC003	10/18/16	Metals	Chromium	19	1.4	mg/kg	=	
CWC193448	CWC003	10/18/16	Metals	Molybdenum	0.88	0.63	mg/kg	=	
CWC193448	CWC003	10/18/16	Metals	Nickel	27	0.63	mg/kg	=	
CWC193448	CWC003	10/18/16	Metals	Selenium	1.7	1	mg/kg	=	
CWC193448	CWC003	10/18/16	Metals	Thallium	0.63	0.63	mg/kg	U	
CWC193448	CWC003	10/18/16	Metals	Vanadium	38	1.3	mg/kg	=	
CWC193450	CWC004	10/18/16	Metals	Antimony	0.62	0.62	mg/kg	U	
CWC193450	CWC004	10/18/16	Metals	Arsenic	8	1.2	mg/kg	=	
CWC193450	CWC004	10/18/16	Metals	Barium	210	1.5	mg/kg	=	
CWC193450	CWC004	10/18/16	Metals	Cadmium	0.27	0.074	mg/kg	=	
CWC193450	CWC004	10/18/16	Metals	Chromium	18	1.4	mg/kg	=	
CWC193450	CWC004	10/18/16	Metals	Molybdenum	0.72	0.62	mg/kg	=	
CWC193450	CWC004	10/18/16	Metals	Nickel	20	0.62	mg/kg	=	
CWC193450	CWC004	10/18/16	Metals	Selenium	2	0.99	mg/kg	=	
CWC193450	CWC004	10/18/16	Metals	Thallium	0.62	0.62	mg/kg	U	
CWC193450	CWC004	10/18/16	Metals	Vanadium	29	1.2	mg/kg	=	
CWC193452	CWC005	10/17/16	Metals	Antimony	0.62	0.62	mg/kg	U	
CWC193452	CWC005	10/17/16	Metals	Arsenic	14	1.2	mg/kg	=	
CWC193452	CWC005	10/17/16	Metals	Barium	240	1.6	mg/kg	=	
CWC193452	CWC005	10/17/16	Metals	Cadmium	0.55	0.075	mg/kg	=	
CWC193452	CWC005	10/17/16	Metals	Chromium	26	1.4	mg/kg	=	
CWC193452	CWC005	10/17/16	Metals	Molybdenum	1.1	0.62	mg/kg	=	
CWC193452	CWC005	10/17/16	Metals	Nickel	29	0.62	mg/kg	=	
CWC193452	CWC005	10/17/16	Metals	Selenium	1.8	1	mg/kg	=	
CWC193452	CWC005	10/17/16	Metals	Thallium	0.62	0.62	mg/kg	U	

Table D-2. CWC Sediment Data for CY 2016

Sample Name	Station Name	Collection Date	Method	Analyte	Result	DL	Units	VQ	Validation Reason Code
CWC193452	CWC005	10/17/16	Metals	Vanadium	35	1.2	mg/kg	=	
CWC193454	CWC006	10/17/16	Metals	Antimony	0.66	0.66	mg/kg	U	
CWC193454	CWC006	10/17/16	Metals	Arsenic	7.7	1.3	mg/kg	=	
CWC193454	CWC006	10/17/16	Metals	Barium	250	1.7	mg/kg	=	
CWC193454	CWC006	10/17/16	Metals	Cadmium	0.29	0.079	mg/kg	=	
CWC193454	CWC006	10/17/16	Metals	Chromium	23	1.5	mg/kg	=	
CWC193454	CWC006	10/17/16	Metals	Molybdenum	0.66	0.66	mg/kg	U	
CWC193454	CWC006	10/17/16	Metals	Nickel	26	0.66	mg/kg	=	
CWC193454	CWC006	10/17/16	Metals	Selenium	2	1.1	mg/kg	=	
CWC193454	CWC006	10/17/16	Metals	Thallium	0.66	0.66	mg/kg	U	
CWC193454	CWC006	10/17/16	Metals	Vanadium	35	1.3	mg/kg	=	
CWC193456	CWC007	10/17/16	Metals	Antimony	0.64	0.64	mg/kg	U	
CWC193456	CWC007	10/17/16	Metals	Arsenic	8.5	1.3	mg/kg	=	
CWC193456	CWC007	10/17/16	Metals	Barium	180	1.6	mg/kg	=	
CWC193456	CWC007	10/17/16	Metals	Cadmium	0.64	0.077	mg/kg	=	
CWC193456	CWC007	10/17/16	Metals	Chromium	25	1.4	mg/kg	=	
CWC193456	CWC007	10/17/16	Metals	Molybdenum	1.4	0.64	mg/kg	=	
CWC193456	CWC007	10/17/16	Metals	Nickel	17	0.64	mg/kg	=	
CWC193456	CWC007	10/17/16	Metals	Selenium	1.1	1	mg/kg	=	
CWC193456	CWC007	10/17/16	Metals	Thallium	0.64	0.64	mg/kg	U	
CWC193456	CWC007	10/17/16	Metals	Vanadium	22	1.3	mg/kg	=	
CWC193458	CWC008	10/17/16	Metals	Antimony	0.73	0.73	mg/kg	U	
CWC193458	CWC008	10/17/16	Metals	Arsenic	20	1.5	mg/kg	=	
CWC193458	CWC008	10/17/16	Metals	Barium	2,000	1.8	mg/kg	=	
CWC193458	CWC008	10/17/16	Metals	Cadmium	3.1	0.088	mg/kg	=	
CWC193458	CWC008	10/17/16	Metals	Chromium	20	1.7	mg/kg	=	
CWC193458	CWC008	10/17/16	Metals	Molybdenum	6.5	0.73	mg/kg	=	
CWC193458	CWC008	10/17/16	Metals	Nickel	96	0.73	mg/kg	=	
CWC193458	CWC008	10/17/16	Metals	Selenium	2.1	1.2	mg/kg	=	
CWC193458	CWC008	10/17/16	Metals	Thallium	0.73	0.73	mg/kg	U	
CWC193458	CWC008	10/17/16	Metals	Vanadium	73	1.5	mg/kg	=	
CWC193460	CWC009	10/17/16	Metals	Antimony	0.66	0.66	mg/kg	U	
CWC193460	CWC009	10/17/16	Metals	Arsenic	4.9	1.3	mg/kg	=	
CWC193460	CWC009	10/17/16	Metals	Barium	120	1.6	mg/kg	=	
CWC193460	CWC009	10/17/16	Metals	Cadmium	0.33	0.079	mg/kg	=	
CWC193460	CWC009	10/17/16	Metals	Chromium	20	1.5	mg/kg	=	
CWC193460	CWC009	10/17/16	Metals	Molybdenum	0.66	0.66	mg/kg	U	

Table D-2. CWC Sediment Data for CY 2016

Sample Name	Station Name	Collection Date	Method	Analyte	Result	DL	Units	VQ	Validation Reason Code
CWC193460	CWC009	10/17/16	Metals	Nickel	17	0.66	mg/kg	=	
CWC193460	CWC009	10/17/16	Metals	Selenium	1.6	1.1	mg/kg	=	
CWC193460	CWC009	10/17/16	Metals	Thallium	0.66	0.66	mg/kg	U	
CWC193460	CWC009	10/17/16	Metals	Vanadium	25	1.3	mg/kg	=	

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.

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.

APPENDIX E

GROUND-WATER FIELD PARAMETER DATA AND ANALYTICAL DATA RESULTS FOR CALENDAR YEAR 2016

(On the CD-ROM on the Back Cover of this Report)

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Table E-1. Ground-Water Monitoring
First Quarter 2016 - 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) 02/22/16
HISS-01	---	---	---	---	---	---	---	---	---	---	7.36
HISS-06A	---	---	---	---	---	---	---	---	---	---	7.27
HISS-10	---	---	---	---	---	---	---	---	---	---	7.23
HISS-11A	---	---	---	---	---	---	---	---	---	---	12.98
HISS-17S	---	---	---	---	---	---	---	---	---	---	7.31
HISS-19S	---	---	---	---	---	---	---	---	---	---	14.53
HW22	---	---	---	---	---	---	---	---	---	---	13.50
HW23	---	---	---	---	---	---	---	---	---	---	9.48

Table E-1. Ground-Water Monitoring
Second Quarter 2016 - 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) 06/02/16
HISS-01	---	---	---	---	---	---	---	---	---	---	8.31
HISS-06A	---	---	---	---	---	---	---	---	---	---	7.94
HISS-10	---	---	---	---	---	---	---	---	---	---	5.57
HISS-11A	---	---	---	---	---	---	---	---	---	---	11.08
HISS-17S	---	---	---	---	---	---	---	---	---	---	5.68
HISS-19	---	---	---	---	---	---	---	---	---	---	14.06
HW22	06/03/16	35	420	6.17	0.175	22.3	2.6	19.7	86	13.42	12.97
HW23	06/03/16	80	1,200	7.02	0.113	26.7	4.58	18.4	-141	9.51	9.37

Table E-1. Ground-Water Monitoring
Third Quarter 2016 - 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) 08/17/16
HISS-01	08/17/16	120	1,440	6.77	0.119	0	2.23	26.2	159	8.72	8.55
HISS-06A	---	---	---	---	---	---	---	---	---	---	7.32
HISS-10	---	---	---	---	---	---	---	---	---	---	4.48
HISS-11A	08/17/16	50	600	6.53	0.111	0	1.68	26.8	176	8.07	7.55
HISS-17S	---	---	---	---	---	---	---	---	---	---	3.79
HISS-19	---	---	---	---	---	---	---	---	---	---	13.25
HW22	---	---	---	---	---	---	---	---	---	---	12.60
HW23	---	---	---	---	---	---	---	---	---	---	9.38

Table E-1. Ground-Water Monitoring
Fourth Quarter 2016 - 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) 11/07/16
HISS-01	---	---	---	---	---	---	---	---	---	---	8.96
HISS-06A	---	---	---	---	---	---	---	---	---	---	7.97
HISS-10	---	---	---	---	---	---	---	---	---	---	5.21
HISS-11A	---	---	---	---	---	---	---	---	---	---	10.08
HISS-17S	11/09/16	80	1200	6.63	43.8	0	2.37	18.4	195	5.94	5.1
HISS-19S	11/11/16	60	720	6.38	0.127	922	1.47	20	-147	14.53	14.04
HW22	---	---	---	---	---	---	---	---	---	---	13.08
HW23	11/08/16	50	450	7.21	0.117	945	7.95	18.1	-130	9.41	9.40

No ground-water samples were collected at the HISS during the first quarter of 2016.

--- Monitoring well was not sampled during this event.

BTOC – below top of casing

Table E-2. Ground-Water Monitoring
First Quarter 2016 - 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) 02/22/16
B53W01D	---	---	---	---	---	---	---	---	---	---	9.78
B53W01S	---	---	---	---	---	---	---	---	---	---	12.63
B53W06S	---	---	---	---	---	---	---	---	---	---	13.18
B53W07D	---	---	---	---	---	---	---	---	---	---	10.17
B53W07S	---	---	---	---	---	---	---	---	---	---	17.55
B53W09S	02/23/16	30	450	6.51	0.131	17.7	3.29	14	196	14.52	14.03
B53W13S	02/23/16	60	1,080	6.59	0.39	0	1.9	14	173	9.71	9.4
B53W17S	---	---	---	---	---	---	---	---	---	---	7.87
B53W18S	02/22/16	75	1,350	6.58	0.441	20.4	2.94	15.3	201	13.7	13.4
B53W19S	02/22/16	150	1,800	6.8	0.226	0	4.87	14.6	199	6.69	6.62
MW31-98	---	---	---	---	---	---	---	---	---	---	9.32
MW32-98	---	---	---	---	---	---	---	---	---	---	12.6
PW35	---	---	---	---	---	---	---	---	---	---	10.85
PW36	---	---	---	---	---	---	---	---	---	---	9.4
PW42	---	---	---	---	---	---	---	---	---	---	10.02
PW43	---	---	---	---	---	---	---	---	---	---	11.92
PW44	---	---	---	---	---	---	---	---	---	---	4.16
PW45	---	---	---	---	---	---	---	---	---	---	7.71
PW46	02/23/16	50	600	6.52	0.274	0	4.93	13.2	206	12.44	12.06

Table E-2. Ground-Water Monitoring
Second Quarter 2016 - 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) 06/02/16
B53W01D	---	---	---	---	---	---	---	---	---	---	9.74
B53W01S	---	---	---	---	---	---	---	---	---	---	12.87
B53W06S	06/06/16	25	450	6.41	0.165	0	1.97	18.1	117	14.5	13.00
B53W07D	06/06/16	40	600	6.68	0.`115	0	1.69	17.2	-177	10.12	10.08
B53W07S	---	---	---	---	---	---	---	---	---	---	17.70
B53W09S	06/10/16	30	360	6.61	0.132	53.8	4.16	19.1	172	14.73	13.81
B53W13S	---	---	---	---	---	---	---	---	---	---	9.71
B53W17S	06/06/16	50	750	6.47	0.415	0	1.85	18.1	175	9.27	8.65
B53W18S	---	---	---	---	---	---	---	---	---	---	13.10
B53W19S	---	---	---	---	---	---	---	---	---	---	6.90
MW31-98	06/09/16	60	720	6.4	0.358	141	2.59	20.6	133	11.28	10.42
MW32-98	---	---	---	---	---	---	---	---	---	---	12.47
PW35	---	---	---	---	---	---	---	---	---	---	10.26
PW36	---	---	---	---	---	---	---	---	---	---	9.40
PW42	06/09/16	35	420	6.66	0.113	0	3.4	21.6	-156	11.53	9.96
PW43	---	---	---	---	---	---	---	---	---	---	13.04
PW44	---	---	---	---	---	---	---	---	---	---	4.49
PW45	---	---	---	---	---	---	---	---	---	---	6.64
PW46	---	---	---	---	---	---	---	---	---	---	11.61

Table E-2. Ground-Water Monitoring
Third Quarter 2016 - 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) 08/17/16
B53W01D	---	---	---	---	---	---	---	---	---	---	9.73
B53W01S	---	---	---	---	---	---	---	---	---	---	14.05
B53W06S	---	---	---	---	---	---	---	---	---	---	14.46
B53W07D	08/18/16	40	920	6.66	0.119	0	1.15	21.9	-202	10.11	10.05
B53W07S	08/18/16	15	180	6.47	0.125	0	2.13	22.7	200	17.25	16.47
B53W09S	08/19/16	30	540	6.47	0.145	0	2.2	19	67	14.79	14.28
B53W13S	---	---	---	---	---	---	---	---	---	---	11.35
B53W17S	---	---	---	---	---	---	---	---	---	---	9.78
B53W18S	---	---	---	---	---	---	---	---	---	---	12.70
B53W19S	---	---	---	---	---	---	---	---	---	---	5.90
MW31-98	---	---	---	---	---	---	---	---	---	---	10.31
MW32-98	---	---	---	---	---	---	---	---	---	---	14.90
PW35	---	---	---	---	---	---	---	---	---	---	10.18
PW36	---	---	---	---	---	---	---	---	---	---	9.31
PW42	---	---	---	---	---	---	---	---	---	---	9.90
PW43	08/19/16	50	600	6.3	0.115	0	2.39	21.7	47	12.78	12.44
PW44	---	---	---	---	---	---	---	---	---	---	4.35
PW45	---	---	---	---	---	---	---	---	---	---	5.96
PW46	---	---	---	---	---	---	---	---	---	---	11.46

Table E-2. Ground-Water Monitoring
Fourth Quarter 2016 - 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) 11/07/16
B53W01D	---	---	---	---	---	---	---	---	---	---	9.81
B53W01S	---	---	---	---	---	---	---	---	---	---	12.96
B53W06S	11/07/16	20	240	6.51	0.097	797	3.47	18.7	234	15.11	14.11
B53W07D	---	---	---	---	---	---	---	---	---	---	10.08
B53W07S	---	---	---	---	---	---	---	---	---	---	15.8
B53W09S	11/08/16	30	360	6.38	0.15	769	3.14	17.1	230	13.71	13.39
B53W13S	---	---	---	---	---	---	---	---	---	---	9.9
B53W17S	---	---	---	---	---	---	---	---	---	---	9.3
B53W18S	---	---	---	---	---	---	---	---	---	---	13.23
B53W19S	---	---	---	---	---	---	---	---	---	---	6.53
MW31-98	---	---	---	---	---	---	---	---	---	---	9.25
MW32-98	11/07/16	90	810	6.52	86.8	731	5.33	18.1	232	14.5	14.33
PW35	11/11/16	45	675	7.04	0.155	0	2.32	19.4	-94	11.67	9.68
PW36	---	---	---	---	---	---	---	---	---	---	9.26
PW42	---	---	---	---	---	---	---	---	---	---	10.05
PW43	---	---	---	---	---	---	---	---	---	---	11.62
PW44	---	---	---	---	---	---	---	---	---	---	5.13
PW45	---	---	---	---	---	---	---	---	---	---	7.32
PW46	---	---	---	---	---	---	---	---	---	---	10.78

--- Monitoring well was not sampled during this event.

Table E-3. CY 2016 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
HIS192616	HISS-01	08/17/16	ML-006	Ra-226	1.04	0.933	1.4	pCi/L	U	T04, T05	No
HIS192616	HISS-01	08/17/16	ML-005	Th-228	-0.0475	0.145	0.441	pCi/L	UJ	T06	No
HIS192616	HISS-01	08/17/16	ML-005	Th-230	0.397	0.298	0.31	pCi/L	J	F01, T04	No
HIS192616	HISS-01	08/17/16	ML-005	Th-232	0.0475	0.0952	0.129	pCi/L	UJ	T06	No
HIS192616	HISS-01	08/17/16	ML-015	U-234	8.14	2.15	0.203	pCi/L	=		No
HIS192616	HISS-01	08/17/16	ML-015	U-235	0.83	0.573	0.25	pCi/L	J	T04	No
HIS192616	HISS-01	08/17/16	ML-015	U-238	8.96	2.31	0.446	pCi/L	=		No
HIS192617	HISS-11A	08/17/16	SW846 6020	Antimony	1.7		1.7	µg/L	U		No
HIS192617	HISS-11A	08/17/16	SW846 6020	Arsenic	1.2		1.2	µg/L	U		No
HIS192617	HISS-11A	08/17/16	SW846 6020	Barium	140		0.22	µg/L	=		No
HIS192617	HISS-11A	08/17/16	SW846 6020	Cadmium	1.4		0.1	µg/L	=		No
HIS192617	HISS-11A	08/17/16	SW846 6020	Chromium	1		1	µg/L	U		No
HIS192617	HISS-11A	08/17/16	SW846 6020	Molybdenum	3.6		1	µg/L	=		No
HIS192617	HISS-11A	08/17/16	SW846 6020	Nickel	2.6		0.8	µg/L	=		No
HIS192617	HISS-11A	08/17/16	SW846 6020	Selenium	43		1.6	µg/L	=		No
HIS192617	HISS-11A	08/17/16	SW846 6020	Thallium	0.55		0.55	µg/L	U		No
HIS192617	HISS-11A	08/17/16	SW846 6020	Vanadium	2.4		2.4	µg/L	=		No
HIS193779	HISS-17S	11/09/16	SW846 6020	Antimony	2		2	µg/L	U		No
HIS193779	HISS-17S	11/09/16	SW846 6020	Arsenic	4		4	µg/L	U		No
HIS193779	HISS-17S	11/09/16	SW846 6020	Barium	60		0.9	µg/L	=		No
HIS193779	HISS-17S	11/09/16	SW846 6020	Cadmium	2.90E-01		0.2	µg/L	=		No
HIS193779	HISS-17S	11/09/16	SW846 6020	Chromium	4		4	µg/L	U		No
HIS193779	HISS-17S	11/09/16	SW846 6020	Molybdenum	11		2	µg/L	=		No
HIS193779	HISS-17S	11/09/16	SW846 6020	Nickel	2.5		2	µg/L	=		No
HIS193779	HISS-17S	11/09/16	ML-006	Ra-226	0.652	0.665	0.869	pCi/L	UJ	T06	No
HIS193779	HISS-17S	11/09/16	SW846 6020	Selenium	9.3		2	µg/L	=		No
HIS193779	HISS-17S	11/09/16	SW846 6020	Thallium	0.9		0.9	µg/L	U		No
HIS193779	HISS-17S	11/09/16	ML-005	Th-228	0.194	0.226	0.176	pCi/L	UJ	T02	No
HIS193779	HISS-17S	11/09/16	ML-005	Th-230	0.389	0.323	0.176	pCi/L	J	F01, T04, T20	No
HIS193779	HISS-17S	11/09/16	ML-005	Th-232	0	0	0.175	pCi/L	U		No
HIS193779	HISS-17S	11/09/16	ML-015	U-234	0.821	0.523	0.504	pCi/L	J	F01, T04, T20	No
HIS193779	HISS-17S	11/09/16	ML-015	U-235	0.0422	0.189	0.506	pCi/L	UJ	T06	No
HIS193779	HISS-17S	11/09/16	ML-015	U-238	0.443	0.375	0.409	pCi/L	J	F01, T04, T20	No

Table E-3. CY 2016 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
HIS193779	HISS-17S	11/09/16	SW846 6020	Vanadium	4		4	µg/L	U		No
HIS193780	HISS-19	11/11/16	SW846 6020	Antimony	2		2	µg/L	U		No
HIS193780	HISS-19	11/11/16	SW846 6020	Arsenic	260		4	µg/L	=		No
HIS193780	HISS-19	11/11/16	SW846 6020	Barium	590		0.9	µg/L	=		No
HIS193780	HISS-19	11/11/16	SW846 6020	Cadmium	1.8		0.2	µg/L	=		No
HIS193780	HISS-19	11/11/16	SW846 6020	Chromium	4		4	µg/L	U		No
HIS193780	HISS-19	11/11/16	SW846 6020	Molybdenum	8.1		2	µg/L	=		No
HIS193780	HISS-19	11/11/16	SW846 6020	Nickel	3.7		2	µg/L	=		No
HIS193780	HISS-19	11/11/16	SW846 6020	Selenium	2		2	µg/L	U		No
HIS193780	HISS-19	11/11/16	SW846 6020	Thallium	0.9		0.9	µg/L	U		No
HIS193780	HISS-19	11/11/16	SW846 6020	Vanadium	4		4	µg/L	U		No
HIS191280	HW22	06/03/16	ML-006	Ra-226	0.443	0.444	0.3	pCi/L	UJ	T02	No
HIS191280	HW22	06/03/16	ML-005	Th-228	0.0756	0.303	0.702	pCi/L	UJ	T06	No
HIS191280	HW22	06/03/16	ML-005	Th-230	0.265	0.315	0.454	pCi/L	UJ	T06	No
HIS191280	HW22	06/03/16	ML-005	Th-232	0	0	0.205	pCi/L	U		No
HIS191280	HW22	06/03/16	ML-015	U-234	6.59	1.56	0.138	pCi/L	=		No
HIS191280	HW22	06/03/16	ML-015	U-235	0.189	0.22	0.171	pCi/L	UJ	T02	No
HIS191280	HW22	06/03/16	ML-015	U-238	3.56	1.02	0.138	pCi/L	=		No
HIS191281	HW23	06/03/16	SW846 6020	Antimony	1.7		1.7	µg/L	U		No
HIS191281	HW23	06/03/16	SW846 6020	Arsenic	210		1.2	µg/L	=		No
HIS191281	HW23	06/03/16	SW846 6020	Barium	530		0.22	µg/L	=		No
HIS191281	HW23	06/03/16	SW846 6020	Cadmium	0.56		0.1	µg/L	=		No
HIS191281	HW23	06/03/16	SW846 6020	Chromium	1		1	µg/L	U		No
HIS191281	HW23	06/03/16	SW846 6020	Molybdenum	8		1	µg/L	=		No
HIS191281	HW23	06/03/16	SW846 6020	Nickel	3		0.8	µg/L	=		No
HIS191281	HW23	06/03/16	ML-006	Ra-226	0.589	0.562	0.719	pCi/L	U	T04, T05	No
HIS191281	HW23	06/03/16	SW846 6020	Selenium	1.6		1.6	µg/L	U		No
HIS191281	HW23	06/03/16	SW846 6020	Thallium	0.55		0.55	µg/L	U		No
HIS191281	HW23	06/03/16	ML-005	Th-228	0.0574	0.23	0.533	pCi/L	UJ	T06	No
HIS191281	HW23	06/03/16	ML-005	Th-230	0.0862	0.173	0.345	pCi/L	UJ	T06	No
HIS191281	HW23	06/03/16	ML-005	Th-232	-0.0287	0.0575	0.344	pCi/L	UJ	T06	No
HIS191281	HW23	06/03/16	ML-015	U-234	0.395	0.33	0.416	pCi/L	U	T04, T05	No
HIS191281	HW23	06/03/16	ML-015	U-235	0.0635	0.128	0.172	pCi/L	UJ	T06	No

Table E-3. CY 2016 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
HIS191281	HW23	06/03/16	ML-015	U-238	0.325	0.285	0.334	pCi/L	U	T04, T05	No
HIS191281	HW23	06/03/16	SW846 6020	Vanadium	2.4		2.4	µg/L	U		No
HIS193781	HW23	11/08/16	SW846 6020	Antimony	2		2	µg/L	U		No
HIS193781	HW23	11/08/16	SW846 6020	Arsenic	190		4	µg/L	=		No
HIS193781	HW23	11/08/16	SW846 6020	Barium	450		0.9	µg/L	=		No
HIS193781	HW23	11/08/16	SW846 6020	Cadmium	0.51		0.2	µg/L	=		No
HIS193781	HW23	11/08/16	SW846 6020	Chromium	4		4	µg/L	U		No
HIS193781	HW23	11/08/16	SW846 6020	Molybdenum	6.8		2	µg/L	=		No
HIS193781	HW23	11/08/16	SW846 6020	Nickel	3.6		2	µg/L	=		No
HIS193781	HW23	11/08/16	SW846 6020	Selenium	2		2	µg/L	U		No
HIS193781	HW23	11/08/16	SW846 6020	Thallium	0.9		0.9	µg/L	U		No
HIS193781	HW23	11/08/16	SW846 6020	Vanadium	4		4	µg/L	U		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:

F01 Blanks: Sample data were qualified as a result of the method blank.

T02 Radionuclide Quantitation: Analytical uncertainties were not met and/or not reported.

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 2016 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**
SVP191283	B53W06S	06/06/16	SW846 6020	Antimony	1.7		1.7	µg/L	U		No
SVP191283	B53W06S	06/06/16	SW846 6020	Arsenic	1.3		1.2	µg/L	=		No
SVP191283	B53W06S	06/06/16	SW846 6020	Barium	98		0.22	µg/L	=		No
SVP191283	B53W06S	06/06/16	SW846 6020	Cadmium	1.2		0.1	µg/L	=		No
SVP191283	B53W06S	06/06/16	SW846 6020	Chromium	16		1	µg/L	=		No
SVP191283	B53W06S	06/06/16	SW846 6020	Molybdenum	6.4		1	µg/L	=		No
SVP191283	B53W06S	06/06/16	SW846 6020	Nickel	6.3		0.8	µg/L	=		No
SVP191283	B53W06S	06/06/16	ML-006	Ra-226	0.496	0.83	1.53	pCi/L	UJ	T06	No
SVP191283	B53W06S	06/06/16	SW846 6020	Selenium	31		1.6	µg/L	=		No
SVP191283	B53W06S	06/06/16	SW846 6020	Thallium	0.67		0.55	µg/L	=		No
SVP191283	B53W06S	06/06/16	ML-005	Th-228	0.259	0.262	0.176	pCi/L	UJ	T02	No
SVP191283	B53W06S	06/06/16	ML-005	Th-230	0.389	0.323	0.176	pCi/L	J	T04	No
SVP191283	B53W06S	06/06/16	ML-005	Th-232	0.0648	0.13	0.176	pCi/L	UJ	T06	No
SVP191283	B53W06S	06/06/16	ML-015	U-234	5.56	1.52	0.171	pCi/L	=		No
SVP191283	B53W06S	06/06/16	ML-015	U-235	0.468	0.39	0.211	pCi/L	J	T04	No
SVP191283	B53W06S	06/06/16	ML-015	U-238	4.28	1.27	0.171	pCi/L	=		No
SVP191283	B53W06S	06/06/16	SW846 6020	Vanadium	4.4		2.4	µg/L	=		No
SVP193782	B53W06S	11/07/16	SW846 6020	Antimony	2		2	µg/L	U		No
SVP193782	B53W06S	11/07/16	SW846 6020	Arsenic	4		4	µg/L	U		No
SVP193782	B53W06S	11/07/16	SW846 6020	Barium	48		0.9	µg/L	=		No
SVP193782	B53W06S	11/07/16	SW846 6020	Cadmium	11		0.2	µg/L	=		No
SVP193782	B53W06S	11/07/16	SW846 6020	Chromium	6.2		4	µg/L	=		No
SVP193782	B53W06S	11/07/16	SW846 6020	Molybdenum	6.2		2	µg/L	=		No
SVP193782	B53W06S	11/07/16	SW846 6020	Nickel	5.5		2	µg/L	=		No
SVP193782	B53W06S	11/07/16	SW846 6020	Selenium	6		2	µg/L	=		No
SVP193782	B53W06S	11/07/16	SW846 6020	Thallium	0.9		0.9	µg/L	U		No
SVP193782	B53W06S	11/07/16	SW846 6020	Vanadium	4.2		4	µg/L	=		No
SVP191284	B53W07D	06/06/16	SW846 6020	Antimony	1.7		1.7	µg/L	U		No

Table E-4. CY 2016 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**
SVP191284	B53W07D	06/06/16	SW846 6020	Arsenic	88		1.2	µg/L	=		No
SVP191284	B53W07D	06/06/16	SW846 6020	Barium	380		0.22	µg/L	=		No
SVP191284	B53W07D	06/06/16	SW846 6020	Cadmium	0.34		0.1	µg/L	=		No
SVP191284	B53W07D	06/06/16	SW846 6020	Chromium	5.3		1	µg/L	=		No
SVP191284	B53W07D	06/06/16	SW846 6020	Molybdenum	2.1		1	µg/L	=		No
SVP191284	B53W07D	06/06/16	SW846 6020	Nickel	9.3		0.8	µg/L	=		No
SVP191284	B53W07D	06/06/16	ML-006	Ra-226	0.436	0.553	0.852	pCi/L	UJ	T06	No
SVP191284	B53W07D	06/06/16	SW846 6020	Selenium	1.6		1.6	µg/L	U		No
SVP191284	B53W07D	06/06/16	SW846 6020	Thallium	0.55		0.55	µg/L	U		No
SVP191284	B53W07D	06/06/16	ML-005	Th-228	-0.0303	0.161	0.51	pCi/L	UJ	T06	No
SVP191284	B53W07D	06/06/16	ML-005	Th-230	0.304	0.275	0.165	pCi/L	J	T04	No
SVP191284	B53W07D	06/06/16	ML-005	Th-232	0.0303	0.136	0.364	pCi/L	UJ	T06	No
SVP191284	B53W07D	06/06/16	ML-015	U-234	0.14	0.163	0.127	pCi/L	UJ	T02	No
SVP191284	B53W07D	06/06/16	ML-015	U-235	0.0192	0.139	0.375	pCi/L	UJ	T06	No
SVP191284	B53W07D	06/06/16	ML-015	U-238	0.0931	0.133	0.126	pCi/L	UJ	T06	No
SVP191284	B53W07D	06/06/16	SW846 6020	Vanadium	4		2.4	µg/L	=		No
SVP192611	B53W07D	08/18/16	SW846 6020	Antimony	1.7		1.7	µg/L	U		No
SVP192611	B53W07D	08/18/16	SW846 6020	Arsenic	89		1.2	µg/L	=		No
SVP192611	B53W07D	08/18/16	SW846 6020	Barium	370		0.22	µg/L	=		No
SVP192611	B53W07D	08/18/16	SW846 6020	Cadmium	0.24		0.1	µg/L	=		No
SVP192611	B53W07D	08/18/16	SW846 6020	Chromium	1.8		1	µg/L	=		No
SVP192611	B53W07D	08/18/16	SW846 6020	Molybdenum	2.1		1	µg/L	=		No
SVP192611	B53W07D	08/18/16	SW846 6020	Nickel	7.3		0.8	µg/L	=		No
SVP192611	B53W07D	08/18/16	SW846 6020	Selenium	1.6		1.6	µg/L	U		No
SVP192611	B53W07D	08/18/16	SW846 6020	Thallium	0.55		0.55	µg/L	U		No
SVP192611	B53W07D	08/18/16	SW846 6020	Vanadium	2.4		2.4	µg/L	U		No
SVP192610	B53W07S	08/18/16	SW846 6020	Antimony	1.7		1.7	µg/L	U		No
SVP192610	B53W07S	08/18/16	SW846 6020	Arsenic	1.2		1.2	µg/L	U		No

Table E-4. CY 2016 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**
SVP192610	B53W07S	08/18/16	SW846 6020	Barium	160		0.22	µg/L	=		No
SVP192610	B53W07S	08/18/16	SW846 6020	Cadmium	0.13		0.1	µg/L	=		No
SVP192610	B53W07S	08/18/16	SW846 6020	Chromium	1.8		1	µg/L	=		No
SVP192610	B53W07S	08/18/16	SW846 6020	Molybdenum	1.3		1	µg/L	=		No
SVP192610	B53W07S	08/18/16	SW846 6020	Nickel	1.7		0.8	µg/L	=		No
SVP192610	B53W07S	08/18/16	ML-006	Ra-226	0.0713	0.588	1.44	pCi/L	UJ	T06	No
SVP192610	B53W07S	08/18/16	SW846 6020	Selenium	4.6		1.6	µg/L	=		No
SVP192610	B53W07S	08/18/16	SW846 6020	Thallium	0.55		0.55	µg/L	U		No
SVP192610	B53W07S	08/18/16	ML-005	Th-228	0.0611	0.221	0.472	pCi/L	UJ	T06	No
SVP192610	B53W07S	08/18/16	ML-005	Th-230	0.505	0.312	0.124	pCi/L	J	F01, T04	No
SVP192610	B53W07S	08/18/16	ML-005	Th-232	0	0	0.124	pCi/L	U		No
SVP192610	B53W07S	08/18/16	ML-015	U-234	3.97	1.27	0.192	pCi/L	=		No
SVP192610	B53W07S	08/18/16	ML-015	U-235	0	0	0.237	pCi/L	U		No
SVP192610	B53W07S	08/18/16	ML-015	U-238	3.21	1.12	0.423	pCi/L	=		No
SVP192610	B53W07S	08/18/16	SW846 6020	Vanadium	2.4		2.4	µg/L	U		No
SVP186148	B53W09S	02/23/16	ML-006	Ra-226	0.515	0.704	1.22	pCi/L	UJ	T06	No
SVP186148	B53W09S	02/23/16	ML-005	Th-228	0.188	0.256	0.437	pCi/L	UJ	T06	No
SVP186148	B53W09S	02/23/16	ML-005	Th-230	0.142	0.165	0.128	pCi/L	UJ	T02	No
SVP186148	B53W09S	02/23/16	ML-005	Th-232	0.0471	0.0944	0.128	pCi/L	UJ	T06	No
SVP186148	B53W09S	02/23/16	ML-015	U-234	2.51	0.92	0.416	pCi/L	J	F01	No
SVP186148	B53W09S	02/23/16	ML-015	U-235	0.263	0.335	0.513	pCi/L	UJ	T06	No
SVP186148	B53W09S	02/23/16	ML-015	U-238	2.86	0.985	0.172	pCi/L	J	F01	No
SVP191282	B53W09S	06/10/16	SW846 6020	Antimony	1.7		1.7	µg/L	U		No
SVP191282	B53W09S	06/10/16	SW846 6020	Arsenic	1.2		1.2	µg/L	U		No
SVP191282	B53W09S	06/10/16	SW846 6020	Barium	300		0.22	µg/L	=		No
SVP191282	B53W09S	06/10/16	SW846 6020	Cadmium	0.91		0.1	µg/L	=		No
SVP191282	B53W09S	06/10/16	SW846 6020	Chromium	39		1	µg/L	=		No
SVP191282	B53W09S	06/10/16	SW846 6020	Molybdenum	4.4		1	µg/L	=		No

Table E-4. CY 2016 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
SVP191282	B53W09S	06/10/16	SW846 6020	Nickel	37		0.8	µg/L	=		No
SVP191282	B53W09S	06/10/16	SW846 6020	Selenium	4.5		1.6	µg/L	=		No
SVP191282	B53W09S	06/10/16	SW846 6020	Thallium	0.55		0.55	µg/L	U		No
SVP191282	B53W09S	06/10/16	SW846 6020	Vanadium	2.4		2.4	µg/L	U		No
SVP192612	B53W09S	08/19/16	SW846 6020	Antimony	1.7		1.7	µg/L	U		No
SVP192612	B53W09S	08/19/16	SW846 6020	Arsenic	1.2		1.2	µg/L	U		No
SVP192612	B53W09S	08/19/16	SW846 6020	Barium	370		0.22	µg/L	=		No
SVP192612	B53W09S	08/19/16	SW846 6020	Cadmium	0.53		0.1	µg/L	=		No
SVP192612	B53W09S	08/19/16	SW846 6020	Chromium	2.10E+01		1	µg/L	=		No
SVP192612	B53W09S	08/19/16	SW846 6020	Molybdenum	4.3		1	µg/L	=		No
SVP192612	B53W09S	08/19/16	SW846 6020	Nickel	120		0.8	µg/L	=		No
SVP192612	B53W09S	08/19/16	ML-006	Ra-226	1.21	0.931	0.97	pCi/L	J	T04	No
SVP192612	B53W09S	08/19/16	SW846 6020	Selenium	4.5		1.6	µg/L	=		No
SVP192612	B53W09S	08/19/16	SW846 6020	Thallium	0.55		0.55	µg/L	U		No
SVP192612	B53W09S	08/19/16	ML-005	Th-228	0.315	0.275	0.323	pCi/L	U	T04, T05	No
SVP192612	B53W09S	08/19/16	ML-005	Th-230	0.961	0.47	0.324	pCi/L	J	F01	No
SVP192612	B53W09S	08/19/16	ML-005	Th-232	0.0993	0.141	0.135	pCi/L	UJ	T06	No
SVP192612	B53W09S	08/19/16	ML-015	U-234	2.08	0.856	0.194	pCi/L	=		No
SVP192612	B53W09S	08/19/16	ML-015	U-235	0.0883	0.177	0.239	pCi/L	UJ	T06	No
SVP192612	B53W09S	08/19/16	ML-015	U-238	1.78	0.781	0.193	pCi/L	=		No
SVP192612	B53W09S	08/19/16	SW846 6020	Vanadium	2.4		2.4	µg/L	U		No
SVP193783	B53W09S	11/08/16	SW846 6020	Antimony	2		2	µg/L	U		No
SVP193783	B53W09S	11/08/16	SW846 6020	Arsenic	4		4	µg/L	U		No
SVP193783	B53W09S	11/08/16	SW846 6020	Barium	370		0.9	µg/L	=		No
SVP193783	B53W09S	11/08/16	SW846 6020	Cadmium	0.38		0.2	µg/L	=		No
SVP193783	B53W09S	11/08/16	SW846 6020	Chromium	39		4	µg/L	=		No
SVP193783	B53W09S	11/08/16	SW846 6020	Molybdenum	3.9		2	µg/L	=		No
SVP193783	B53W09S	11/08/16	SW846 6020	Nickel	90		2	µg/L	=		No

Table E-4. CY 2016 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**
SVP193783	B53W09S	11/08/16	SW846 6020	Selenium	3.2		2	µg/L	=		No
SVP193783	B53W09S	11/08/16	SW846 6020	Thallium	0.9		0.9	µg/L	U		No
SVP193783	B53W09S	11/08/16	SW846 6020	Vanadium	4		4	µg/L	U		No
SVP186146	B53W13S	02/23/16	SW846 6020	Antimony	8.4		8.4	µg/L	U		No
SVP186146	B53W13S	02/23/16	SW846 6020	Arsenic	5.9		5.9	µg/L	U		No
SVP186146	B53W13S	02/23/16	SW846 6020	Barium	550		1.1	µg/L	=		No
SVP186146	B53W13S	02/23/16	SW846 6020	Cadmium	1.6		0.5	µg/L	=		No
SVP186146	B53W13S	02/23/16	SW846 6020	Chromium	5		5	µg/L	U		No
SVP186146	B53W13S	02/23/16	SW846 6020	Molybdenum	5		5	µg/L	U		No
SVP186146	B53W13S	02/23/16	SW846 6020	Nickel	49		4	µg/L	=		No
SVP186146	B53W13S	02/23/16	SW846 6020	Selenium	130		8	µg/L	=		No
SVP186146	B53W13S	02/23/16	SW846 6020	Thallium	2.8		2.8	µg/L	U		No
SVP186146	B53W13S	02/23/16	SW846 6020	Vanadium	12		12	µg/L	U		No
SVP191285	B53W17S	06/06/16	SW846 6020	Antimony	1.7		1.7	µg/L	U		No
SVP191285	B53W17S	06/06/16	SW846 6020	Arsenic	1.2		1.2	µg/L	U		No
SVP191285	B53W17S	06/06/16	SW846 6020	Barium	230		0.22	µg/L	=		No
SVP191285	B53W17S	06/06/16	SW846 6020	Cadmium	0.27		0.1	µg/L	=		No
SVP191285	B53W17S	06/06/16	SW846 6020	Chromium	8.9		1	µg/L	=		No
SVP191285	B53W17S	06/06/16	SW846 6020	Molybdenum	1.2		1	µg/L	=		No
SVP191285	B53W17S	06/06/16	SW846 6020	Nickel	2.9		0.8	µg/L	=		No
SVP191285	B53W17S	06/06/16	ML-006	Ra-226	0.266	0.859	1.79	pCi/L	UJ	T06	No
SVP191285	B53W17S	06/06/16	SW846 6020	Selenium	83		1.6	µg/L	=		No
SVP191285	B53W17S	06/06/16	SW846 6020	Thallium	0.55		0.55	µg/L	U		No
SVP191285	B53W17S	06/06/16	ML-005	Th-228	0.164	0.238	0.394	pCi/L	UJ	T06	No
SVP191285	B53W17S	06/06/16	ML-005	Th-230	0.394	0.328	0.178	pCi/L	J	T04	No
SVP191285	B53W17S	06/06/16	ML-005	Th-232	0.0656	0.132	0.178	pCi/L	UJ	T06	No
SVP191285	B53W17S	06/06/16	ML-015	U-234	1.35	0.548	0.299	pCi/L	=		No
SVP191285	B53W17S	06/06/16	ML-015	U-235	0.17	0.198	0.154	pCi/L	UJ	T02	No

Table E-4. CY 2016 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**
SVP191285	B53W17S	06/06/16	ML-015	U-238	1.37	0.544	0.124	pCi/L	=		No
SVP191285	B53W17S	06/06/16	SW846 6020	Vanadium	2.4		2.4	µg/L	U		No
SVP186147	B53W18S	02/22/16	SW846 6020	Antimony	8.4		8.4	µg/L	U		No
SVP186147	B53W18S	02/22/16	SW846 6020	Arsenic	5.9		5.9	µg/L	U		No
SVP186147	B53W18S	02/22/16	SW846 6020	Barium	620		1.1	µg/L	=		No
SVP186147	B53W18S	02/22/16	SW846 6020	Cadmium	0.98		0.5	µg/L	=		No
SVP186147	B53W18S	02/22/16	SW846 6020	Chromium	150		5	µg/L	=		No
SVP186147	B53W18S	02/22/16	SW846 6020	Molybdenum	58		5	µg/L	=		No
SVP186147	B53W18S	02/22/16	SW846 6020	Nickel	1,500		4	µg/L	=		No
SVP186147	B53W18S	02/22/16	SW846 6020	Selenium	8		8	µg/L	U		No
SVP186147	B53W18S	02/22/16	SW846 6020	Thallium	2.8		2.8	µg/L	U		No
SVP186147	B53W18S	02/22/16	SW846 6020	Vanadium	12		12	µg/L	U		No
SVP186145	B53W19S	02/22/16	SW846 6020	Antimony	8.4		8.4	µg/L	U		No
SVP186145	B53W19S	02/22/16	SW846 6020	Arsenic	5.9		5.9	µg/L	U		No
SVP186145	B53W19S	02/22/16	SW846 6020	Barium	230		1.1	µg/L	=		No
SVP186145	B53W19S	02/22/16	SW846 6020	Cadmium	1.2		0.5	µg/L	=		No
SVP186145	B53W19S	02/22/16	SW846 6020	Chromium	240		5	µg/L	=		No
SVP186145	B53W19S	02/22/16	SW846 6020	Molybdenum	39		5	µg/L	=		No
SVP186145	B53W19S	02/22/16	SW846 6020	Nickel	460		4	µg/L	=		No
SVP186145	B53W19S	02/22/16	SW846 6020	Selenium	8		8	µg/L	U		No
SVP186145	B53W19S	02/22/16	SW846 6020	Thallium	2.8		2.8	µg/L	U		No
SVP186145	B53W19S	02/22/16	SW846 6020	Vanadium	12		12	µg/L	U		No
SVP191286	MW31-98	06/09/16	SW846 6020	Antimony	1.7		1.7	µg/L	U		No
SVP191286	MW31-98	06/09/16	SW846 6020	Arsenic	1.2		1.2	µg/L	U		No
SVP191286	MW31-98	06/09/16	SW846 6020	Barium	360		0.22	µg/L	=		No
SVP191286	MW31-98	06/09/16	SW846 6020	Cadmium	0.13		0.1	µg/L	=		No

Table E-4. CY 2016 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**
SVP191286	MW31-98	06/09/16	SW846 6020	Chromium	1.4		1	µg/L	=		No
SVP191286	MW31-98	06/09/16	SW846 6020	Molybdenum	1.3		1	µg/L	=		No
SVP191286	MW31-98	06/09/16	SW846 6020	Nickel	1		0.8	µg/L	=		No
SVP191286	MW31-98	06/09/16	ML-006	Ra-226	-5.98E-06	0.668	1.55	pCi/L	UJ	T06	No
SVP191286	MW31-98	06/09/16	SW846 6020	Selenium	44		1.6	µg/L	=		No
SVP191286	MW31-98	06/09/16	SW846 6020	Thallium	0.55		0.55	µg/L	U		No
SVP191286	MW31-98	06/09/16	ML-005	Th-228	0.144	0.206	0.196	pCi/L	UJ	T06	No
SVP191286	MW31-98	06/09/16	ML-005	Th-230	0.361	0.328	0.196	pCi/L	J	T04	No
SVP191286	MW31-98	06/09/16	ML-005	Th-232	0	0	0.196	pCi/L	U		No
SVP191286	MW31-98	06/09/16	ML-015	U-234	4.01	1.07	0.129	pCi/L	=		No
SVP191286	MW31-98	06/09/16	ML-015	U-235	0.0981	0.233	0.475	pCi/L	UJ	T06	No
SVP191286	MW31-98	06/09/16	ML-015	U-238	2.99	0.885	0.129	pCi/L	=		No
SVP191286	MW31-98	06/09/16	SW846 6020	Vanadium	2.5		2.4	µg/L	=		No
SVP193784	MW32-98	11/07/16	SW846 6020	Antimony	2		2	µg/L	U		No
SVP193784	MW32-98	11/07/16	SW846 6020	Arsenic	4		4	µg/L	U		No
SVP193784	MW32-98	11/07/16	SW846 6020	Barium	140		0.9	µg/L	=		No
SVP193784	MW32-98	11/07/16	SW846 6020	Cadmium	0.88		0.2	µg/L	=		No
SVP193784	MW32-98	11/07/16	SW846 6020	Chromium	4		4	µg/L	U		No
SVP193784	MW32-98	11/07/16	SW846 6020	Molybdenum	2		2	µg/L	U		No
SVP193784	MW32-98	11/07/16	SW846 6020	Nickel	2		2	µg/L	U		No
SVP193784	MW32-98	11/07/16	ML-006	Ra-226	-0.151	0.213	1.11	pCi/L	UJ	T06	No
SVP193784	MW32-98	11/07/16	SW846 6020	Selenium	2		2	µg/L	U		No
SVP193784	MW32-98	11/07/16	SW846 6020	Thallium	0.9		0.9	µg/L	U		No
SVP193784	MW32-98	11/07/16	ML-005	Th-228	0.217	0.257	0.371	pCi/L	UJ	T06	No
SVP193784	MW32-98	11/07/16	ML-005	Th-230	0.403	0.339	0.372	pCi/L	J	F01, T04, T20	No
SVP193784	MW32-98	11/07/16	ML-005	Th-232	0.124	0.176	0.168	pCi/L	UJ	T06	No
SVP193784	MW32-98	11/07/16	ML-015	U-234	0.9	0.601	0.514	pCi/L	J	F01, T04, T20	No

Table E-4. CY 2016 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
SVP193784	MW32-98	11/07/16	ML-015	U-235	0	0	0.287	pCi/L	U		No
SVP193784	MW32-98	11/07/16	ML-015	U-238	0.598	0.466	0.231	pCi/L	J	F01, T04, T20	No
SVP193784	MW32-98	11/07/16	SW846 6020	Vanadium	4		4	µg/L	U		No
SVP193785	PW35	11/11/16	SW846 6020	Antimony	2		2	µg/L	U		No
SVP193785	PW35	11/11/16	SW846 6020	Arsenic	30		4	µg/L	=		No
SVP193785	PW35	11/11/16	SW846 6020	Barium	2,000		0.9	µg/L	=		No
SVP193785	PW35	11/11/16	SW846 6020	Cadmium	0.52		0.2	µg/L	=		No
SVP193785	PW35	11/11/16	SW846 6020	Chromium	5.6		4	µg/L	=		No
SVP193785	PW35	11/11/16	SW846 6020	Molybdenum	3.7		2	µg/L	=		No
SVP193785	PW35	11/11/16	SW846 6020	Nickel	4.4		2	µg/L	=		No
SVP193785	PW35	11/11/16	SW846 6020	Selenium	2		2	µg/L	U		No
SVP193785	PW35	11/11/16	SW846 6020	Thallium	0.9		0.9	µg/L	U		No
SVP193785	PW35	11/11/16	SW846 6020	Vanadium	6		4	µg/L	=		No
SVP191287	PW42	06/09/16	SW846 6020	Antimony	1.7		1.7	µg/L	U		No
SVP191287	PW42	06/09/16	SW846 6020	Arsenic	130		1.2	µg/L	=		No
SVP191287	PW42	06/09/16	SW846 6020	Barium	340		0.22	µg/L	=		No
SVP191287	PW42	06/09/16	SW846 6020	Cadmium	0.36		0.1	µg/L	=		No
SVP191287	PW42	06/09/16	SW846 6020	Chromium	1		1	µg/L	U		No
SVP191287	PW42	06/09/16	SW846 6020	Molybdenum	1		1	µg/L	U		No
SVP191287	PW42	06/09/16	SW846 6020	Nickel	0.84		0.8	µg/L	=		No
SVP191287	PW42	06/09/16	ML-006	Ra-226	0.603	0.575	0.736	pCi/L	U	T04, T05	No
SVP191287	PW42	06/09/16	SW846 6020	Selenium	1.6		1.6	µg/L	U		No
SVP191287	PW42	06/09/16	SW846 6020	Thallium	0.55		0.55	µg/L	U		No
SVP191287	PW42	06/09/16	ML-005	Th-228	0.343	0.354	0.505	pCi/L	UJ	T06	No
SVP191287	PW42	06/09/16	ML-005	Th-230	0.344	0.312	0.186	pCi/L	J	T04	No
SVP191287	PW42	06/09/16	ML-005	Th-232	6.35E-06	0.168	0.505	pCi/L	UJ	T06	No

Table E-4. CY 2016 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
SVP191287	PW42	06/09/16	ML-015	U-234	0.295	0.246	0.133	pCi/L	J	T04	No
SVP191287	PW42	06/09/16	ML-015	U-235	0	0	0.165	pCi/L	U		No
SVP191287	PW42	06/09/16	ML-015	U-238	0.0163	0.118	0.319	pCi/L	UJ	T06	No
SVP191287	PW42	06/09/16	SW846 6020	Vanadium	2.40E+00		2.4	µg/L	U		No
SVP192613	PW43	08/19/16	SW846 6020	Antimony	1.7		1.7	µg/L	U		No
SVP192613	PW43	08/19/16	SW846 6020	Arsenic	4		1.2	µg/L	=		No
SVP192613	PW43	08/19/16	SW846 6020	Barium	200		0.22	µg/L	=		No
SVP192613	PW43	08/19/16	SW846 6020	Cadmium	0.19		0.1	µg/L	=		No
SVP192613	PW43	08/19/16	SW846 6020	Chromium	1		1	µg/L	U		No
SVP192613	PW43	08/19/16	SW846 6020	Molybdenum	1.3		1	µg/L	=		No
SVP192613	PW43	08/19/16	SW846 6020	Nickel	4		0.8	µg/L	=		No
SVP192613	PW43	08/19/16	SW846 6020	Selenium	1.8		1.6	µg/L	=		No
SVP192613	PW43	08/19/16	SW846 6020	Thallium	0.55		0.55	µg/L	U		No
SVP192613	PW43	08/19/16	SW846 6020	Vanadium	3.8		2.4	µg/L	=		No
SLA186144	PW46	02/23/16	SW846 6020	Antimony	8.4		8.4	µg/L	U		No
SLA186144	PW46	02/23/16	SW846 6020	Arsenic	5.9		5.9	µg/L	U		No
SLA186144	PW46	02/23/16	SW846 6020	Barium	83		1.1	µg/L	=		No
SLA186144	PW46	02/23/16	SW846 6020	Cadmium	1.2		0.5	µg/L	=		No
SLA186144	PW46	02/23/16	SW846 6020	Chromium	5		5	µg/L	U		No
SLA186144	PW46	02/23/16	SW846 6020	Molybdenum	5		5	µg/L	U		No
SLA186144	PW46	02/23/16	SW846 6020	Nickel	4		4	µg/L	U		No
SLA186144	PW46	02/23/16	ML-006	Ra-226	-0.531	0.588	1.85	pCi/L	UJ	T06	No
SLA186144	PW46	02/23/16	SW846 6020	Selenium	41		8	µg/L	=		No
SLA186144	PW46	02/23/16	SW846 6020	Thallium	2.8		2.8	µg/L	U		No
SLA186144	PW46	02/23/16	ML-005	Th-228	0.145	0.245	0.45	pCi/L	UJ	T06	No
SLA186144	PW46	02/23/16	ML-005	Th-230	0.549	0.351	0.315	pCi/L	J	T04	No

Table E-4. CY 2016 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**
SLA186144	PW46	02/23/16	ML-005	Th-232	0.0484	0.097	0.131	pCi/L	UJ	T06	No
SLA186144	PW46	02/23/16	ML-015	U-234	384	79.1	0.723	pCi/L	=		No
SLA186144	PW46	02/23/16	ML-015	U-235	42.4	9.76	0.328	pCi/L	=		No
SLA186144	PW46	02/23/16	ML-015	U-238	388	80	0.265	pCi/L	=		No
SLA186144	PW46	02/23/16	SW846 6020	Vanadium	12		12	µg/L	U		No
SLA179616	PW46	03/04/15	SW846 6020	Selenium	23		1.6	µg/L	=		No
SLA179616	PW46	03/04/15	SW846 6020	Thallium	0.55		0.55	µg/L	U		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:

F01 Blanks: Sample data were qualified as a result of the method blank.

T02 Radionuclide Quantitation: Analytical uncertainties were not met and/or not reported.

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.

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APPENDIX F

CALCULATION OF THE RECORD OF DECISION GROUND-WATER EVALUATION GUIDELINES

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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 EMICY16 (USACE 2016). 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 2016.

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).

Ground-Water Monitoring Guideline = 2 x UCL_{95}

Total U monitoring guide = 30 µg/L.

--- The analyte was not detected in the historical database, so a monitoring guideline was not developed.

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).

Ground-Water Monitoring Guideline = 2 x UCL_{95}

Total U monitoring guide = 30 µg/L.

--- The analyte was not detected in the historical database, so a monitoring guideline was not developed.

APPENDIX G

WELL MAINTENANCE CHECKLISTS FOR THE ANNUAL GROUND-WATER MONITORING WELL INSPECTIONS CONDUCTED AT THE NORTH ST. LOUIS COUNTY SITES IN CALENDAR YEAR 2016

(On the CD-ROM on the Back Cover of this Report)

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CALENDAR YEAR 2016 WELL MAINTENANCE CHECKLISTS FOR THE HAZELWOOD INTERIM STORAGE SITE

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Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 03/08/16 Time: 1255

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.

WL – 7.60, TD – 26.30 (Estimated TD – 25.0)

Solid bottom

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 03/08/16 Time: 1315

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.

WL – 7.50, TD – 22.15 (Estimated TD – 22.90)

Semi-soft bottom

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 03/08/16 Time: 1250

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.

WL – 6.70, TD – 25.60 (Estimated TD – 25.7)

Semi-soft bottom

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 03/08/16 Time: 1240

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.

WL – 12.5, TD – 23.45 (Estimated TD – 23.2)

Solid bottom

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 03/08/16 Time: 1305

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.

WL – 7.0, TD – 22.2 (Estimated TD – 22.6)

Solid bottom

Clear brush, scrape off loose paint, and repaint

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 03/08/16 Time: 1320

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.

WL – 14.5, TD – 28.7 (Estimated TD – 29.6)

Solid bottom

Repaint lid and remark ID

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 03/08/16 Time: 1045

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.

WL – 13.2, TD – 27.70 (Estimated TD - 30.0)

Solid bottom

Well riser paint needs to be scraped, repainted, and relabeled; lock needs to be replaced

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 03/08/16 Time: 1040

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.

WL – 9.5, TD – 91.05 (Estimated TD – 93.5)

Semi-soft bottom

Well riser paint needs to be scraped, repainted, and relabeled; lock needs to be replaced

* - SLAPS and SLAPS Vicinity Properties (VPs)

WELL MAINTENANCE CHECKLISTS FOR CALENDAR YEAR 2016
THE ST. LOUIS AIRPORT SITE

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Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 03/08/16 Time: 0845

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.

WL – 9.8, TD – 95.77 (Estimated TD – 96.0)

Semi-soft bottom

Protective casing needs to be scraped and painted.

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross   Date: 03/08/16   Time: 0840

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.

WL – 12.45, TD – 28.5 (Estimated TD – 28.5)

Solid bottom

Protective casing needs to be scraped and painted.

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 03/08/16 Time: 1000

Monitoring Well Station Identification: B53W06S ☒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.

WL – 15.2, TD – 36.0 (Estimated TD – 36.0)

Solid bottom

Paint lid

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 03/08/16 Time: 0945

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.

WL – 10.2, TD – 87.6 (Estimated TD – 89.0)

Solid bottom

Protective casing needs to be scraped and painted; Lock needs to be lubricated

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 03/08/16 Time: 0925

Monitoring Well Station Identification: B53W09S ☒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.

WL – 16.1, TD – 35.94 (Estimated TD – 36.0)

Soft bottom.

Well needs brush removal and to be relabeled/remarked

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 03/08/16 Time: 1020

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.

WL – 9.60, TD – 29.05 (Estimated TD – 29.0)

Solid bottom

Protective casing in need of repair/retrofit. Lid routinely hit by mowers and needs to be replaced.

Lock is routinely sheared off by mowers. Addition of protective bollards recommended.

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 03/08/16 Time: 1025

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.

WL – 7.9, TD – 37.35 (Estimated TD – 35.5)

Solid bottom

Well needs to be remarked/labeled

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 03/08/16 Time: 0830

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.

WL – 13.35, TD – 27.50 (Estimated TD – 27.3)

Solid bottom

Consider painting (stainless steel protective casing)

Lubricate lock

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 03/08/16 Time: 1200

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.

WL – 7.00, TD – 22.10 (Estimated TD – 22.5)

Solid bottom

Remark/label ID

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 03/08/16 Time: 1010

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.

WL – 9.3, TD – 35.70 (Estimated TD – 34.0)

Soft bottom

Protective casing needs to be scraped and painted; remark/label the ID

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 03/08/16 Time: 1005

Monitoring Well Station Identification: MW32-98 ☒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.

WL – 12.6, TD – 22.95 (Estimated TD – 20.3)

Solid bottom

Protective casing needs to be scraped and painted

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 03/08/16 Time: 1215

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.

WL –10.5, TD – 115.30 (Estimated TD – 115.0)

Soft bottom

Well pad is cracked and needs replacement. Vault fills with water. Remark/label with ID

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 03/08/16 Time: 1225

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.

WL – 9.4 TD – 88.0 (Estimated TD – 88.0)

Semi-soft bottom

Well pad is loose and needs repair/replacement; Remark/label ID; Replace lock

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 03/08/16 Time: 0910

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.

WL – 10.00, TD – 87.5 (Estimated TD – 85.1)

Solid bottom

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 03/08/16 Time: 0930

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.

WL – 12.60, TD – 27.75 (Estimated TD – 25.5)

Solid bottom

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 03/08/16 Time: 1135

Monitoring Well Station Identification: PW44 ☒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.

WL – 4.3, TD – 20.25 (Estimated TD – 20.1)

Solid bottom

Weep hole needs to be lowered and enlarged. Well pad needs to be replaced.

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 03/08/16 Time: 1125

Monitoring Well Station Identification: PW45 ☒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.

WL – 7.5, TD – 22.64 (Estimated TD – 22.3)

Solid bottom

* - SLAPS and SLAPS Vicinity Properties (VPs)

Well Maintenance Checklist

Name of Observer(s): L. Hoover, N. Gross Date: 03/08/16 Time: 0905

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.

WL – 11.8, TD – 22.25 (Estimated TD – 23.1)

Solid bottom

Pressure cap is functional but needs to be replaced. Lubricate or replace lock.

* - SLAPS and SLAPS Vicinity Properties (VPs)

APPENDIX H

DOSE ASSESSMENT ASSUMPTIONS

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DOSE ASSESSMENT ASSUMPTIONS

DOSE FROM THE LATTY AVENUE PROPERTIES TO A MAXIMALLY EXPOSED INDIVIDUAL

No excavation or loadout activities for the Latty Avenue Properties occurred in CY 2016; therefore, dose to a maximally exposed individual was not calculated.

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; however, because CY 2016 was a leap year, a value of 366 days per year was used for this dose assessment. 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 west-southwest of the center of the SLAPS Loadout area (Leidos 2017b). 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 above background annual exposure of 11 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).

$$H_1 = 11 \text{ mrem/year}$$

Based on a 100-percent occupancy rate, the exposure rate (H_2) to the receptor was calculated.

$$H_2 = H_1 \times \frac{h_1}{h_2} * \frac{\tan^{-1}(L/h_2)}{\tan^{-1}(L/h_1)}$$

$$H_2 = 2.2\text{E-03 mrem/year}$$

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.

$$H_{MEI} = H_2 \times \frac{2{,}000 \text{ hours per work year}}{8{,}760 \text{ hours per total year}} = 5\text{E-04 mrem/year}$$

$$H_{MEI} = <0.1 \text{ mrem/year}$$

Airborne Radon Pathway

The SLAPS ATDs measured an above background annual exposure of 0.01 pCi/L based on 8,760 hours of continuous exposure. Exposure to the receptor from radon (and progeny) 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 2017b).

In order to calculate the dispersion factor, the radon concentrations were determined to a receptor located at 1.0 m and 500 m, southwest of the SLAPS by inputting a radon release rate of 1.0 Ci per year, the St. Louis – Lambert International Airport wind file, and a surface area of 460 m^2 into the CAP88-PC model. Effective surface area was determined by summing the time-weighted average annual open surface areas for the SLAPS loadout. 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:

$$C_2 = \left[\frac{0.0000926 \text{ pCi/L}}{0.0363 \text{ pCi/L}} \right] = 0.003$$

The average of ATD monitoring data (S_1) at the site perimeter (SLAPS Loadout area) was calculated as follows:

$$S_1 = 0.01 \text{ pCi/L}$$

The actual radon exposure dose to the hypothetical maximally exposed individual was calculated.

$$S_{MEI} = S_1 \times F \times DCF \times T \times C_1 \times C_2$$

$$S_{MEI} = 0.01 \text{ pCi/L} \times 0.007 \frac{\text{WL}}{\text{pCi/L}} \times 1{,}250 \frac{\text{mrem}}{\text{WLM}} \times \frac{2{,}000 \text{ hours}}{\text{year}} \times \frac{1 \text{ month}}{170 \text{ hours}} \times 0.003 = < 0.1 \text{ mrem/year}$$

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*, 1.0 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 4.0, 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 1.0 Ci per year radon release rate, then ratios the concentrations at 1.0 m and 500 m to determine the constant.
WL = working level (concentration unit)
WLM = working level month (exposure unit)

Total Effective Dose Equivalent

$$TEDE = CEDE \text{ (airborne particulates)} + H_{MEI} \text{ (external gamma)} + S_{MEI} \text{ (airborne radon)}$$

$$TEDE = <0.1 \text{ mrem/year} + <0.1 \text{ mrem/year} + <0.1 \text{ mrem/year} = <0.1 \text{ mrem/year}$$

DOSE FROM THE ST. LOUIS AIRPO RT 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 outside (approximately 150 m northeast) of the Duchesne Park excavation area (and approximately 100 m northwest) of the St. Cin Park excavation area). Exposure time was 8,760 hours per year (366 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 1.1 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 150 m northeast of the center of the Duchesne Park excavation area (Leidos 2017b). The same process was followed to calculate a dose to the St. Cin Park receptor. The EDE for the St. Cin Park receptor was 0.1 mrem per year. Details related to calculation of EDEs for the exposed receptors are presented in Appendix A of this EMDAR.

Total Effective Dose Equivalent

$$TEDE = CEDE \text{ (airborne particulates)} + H_{MEI} \text{ (external gamma)} + S_{MEI} \text{ (airborne radon)}$$

$$TEDE = 1.1 \text{ mrem/year} + 0 \text{ mrem/year} + 0 \text{ mrem/year} = 1.1 \text{ mrem/year}$$

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 2017c)

The UCL_{95} values of the average contamination values measured in CWC surface water in CY 2016 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.

$$TEDE_W = \Sigma\ (TEDE_{Tot\text{-}U}, TEDE_{Th\text{-}228}, TEDE_{Th\text{-}230}, TEDE_{Th\text{-}232}, TEDE_{Ra\text{-}226}, TEDE_{Ra\text{-}228})$$

$$TEDE_i = (UCL_{95})\ \text{pCi/L} \times 2.0\ \text{L/day} \times 26\ \text{days/year} \times \text{DCF mrem/pCi}$$

Table H-1. UCL_{95} Values for Radionuclides for CY 2016

Radionuclides	UCL_{95} Concentration	Unit
Ra-226	1.51	pCi/L
Th-228	0.57	pCi/L
Th-230	0.59	pCi/L
Th-232	0.48	pCi/L
Total U	2.60	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 2016

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).

The USEPA software ProUCL, Version 5.0, software was used to determine the UCL_{95} values for radiological contaminants present in CWC (Leidos 2017c). The UCL_{95} values are presented in Table H-1.

Therefore:

$$TEDE_{Ra\text{-}226} = 1.51\ \text{pCi/L} \times 2.0\ \text{L/day} \times 26\ \text{days/year} \times 2.97\text{E-03 mrem/pCi} = 2.33\text{E-01 mrem/year}$$

$$TEDE_{Th\text{-}228} = 0.57\ \text{pCi/L} \times 2.0\ \text{L/ day} \times 26\ \text{days/year} \times 5.07\text{E-04 mrem/pCi} = 1.50\text{E-02 mrem/year}$$

$$TEDE_{Th\text{-}230} = 0.59\ \text{pCi/L} \times 2.0\ \text{L/ day} \times 26\ \text{days/year} \times 9.10\text{E-04mrem/pCi} = 2.78\text{E-02 mrem/year}$$

$$TEDE_{Th\text{-}232} = 0.48 \text{ pCi/L} \times 2.0 \text{ L/ day} \times 26 \text{ days/year} \times 1.07\text{E-3 mrem/pCi} = 2.67\text{E-02 mrem/year}$$

$$TEDE_{Tot\text{-}U} = 2.60 \text{ pCi/L} \times 2.0 \text{ L/ day} \times 26 \text{ days/year} \times 2.63\text{E-04 mrem/pCi} = 3.56\text{E-02 mrem/year}$$

$$TEDE_{W} = 3.39\text{E-01 mrem/year}$$

Contaminated Sediment Ingestion (Leidos 2107d)

The UCL_{95} values of the average contamination values measured in CWC sediment in CY 2016 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.

$$TEDE_S = \Sigma \left(TEDE_{Tot\text{-}U}, TEDE_{Th\text{-}228}, TEDE_{Th\text{-}230}, TEDE_{Th\text{-}232}, TEDE_{Ra\text{-}226}, TEDE_{Ra\text{-}228}\right)$$

$$TEDE_i = (UCL_{95}) \text{ pCi/g} \times 0.05 \text{ g/day} \times 26 \text{ days/year} \times \text{DCF mrem/pCi}$$

Table H-3. UCL_{95} Values for Radionuclide for CY 2016

Radionuclides	UCL_{95} Concentration	Unit
Ra-226	1.53	pCi/g
Ra-228	1.02	pCi/g
Th-228	1.44	pCi/g
Th-230	3.22	pCi/g
Th-232	1.22	pCi/g
Total U	3.27	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 2016

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).

The USEPA ProUCL, Version 5.0, software was used to determine UCL_{95} values for radiological contaminants present in CWC sediment (Leidos 2017c). The UCL_{95} values are presented in Table H-3.

Therefore:

$$TEDE_{Ra\text{-}226} = 1.53 \text{ pCi/g} \times 0.05 \text{ g/day} \times 26 \text{ days/year} \times 2.97\text{E-03 mrem/pCi} = 5.91\text{E-03 mrem/year}$$

$$TEDE_{Ra\text{-}228} = 1.02 \text{ pCi/g} \times 0.05 \text{ g/day} \times 26 \text{ days/year} \times 1.45\text{E-02 mrem/pCi} = 1.92\text{E-02 mrem/year}$$

$$TEDE_{Th\text{-}228} = 1.44 \text{ pCi/g} \times 0.05 \text{ g/day} \times 26 \text{ days/year} \times 5.07E\text{-}04 \text{ mrem/pCi}$$
$$= 9.46E\text{-}04 \text{ mrem/year}$$

$$TEDE_{Th\text{-}230} = 3.22 \text{ pCi/g} \times 0.05 \text{ g/day} \times 26 \text{ days/year} \times 9.10E\text{-}04 \text{ mrem/pCi}$$
$$= 3.81E\text{-}03 \text{ mrem/year}$$

$$TEDE_{Th\text{-}232} = 1.22 \text{ pCi/g} \times 0.05 \text{ g/day} \times 26 \text{ days/year} \times 1.07E\text{-}3 \text{ mrem/pCi}$$
$$= 1.69E\text{-}03 \text{ mrem/year}$$

$$TEDE_{Tot\text{-}U} = 3.27 \text{ pCi/g} \times 0.05 \text{ g/day} \times 26 \text{ days/year} \times 2.63E\text{-}4 \text{ mrem/pCi}$$
$$= 1.12E\text{-}03 \text{ mrem/year}$$

$$TEDE_S = 3.27E\text{-}02 \text{ mrem/year}$$

Total Effective Dose Equivalent

$$TEDE = TEDE_W + TEDE_S$$

$$TEDE = 3.39E\text{-}01 \text{ mrem/year} + 3.27E\text{-}02 \text{ mrem/year} = 0.4 \text{ mrem/year}$$