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IOWA ARMY AMMUNITION PLANT OPERABLE UNIT 8 ANNUAL ENVIRONMENTAL MONITORING DATA AND ANALYSIS REPORT FOR CALENDAR YEAR 2017

MIDDLETOWN, IOWA

SEPTEMBER 21, 2018

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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TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

LIST OF TABLES

LIST OF TABLES (Continued)

LIST OF FIGURES

LIST OF APPENDICIES

BACK COVER

ACRONYMS AND ABBREVIATIONS

AEC	U.S. Atomic Energy Commission
ARAR	applicable or relevant and appropriate requirement
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	*Code of Federal Regulations*
COC	contaminant of concern
CY	calendar year
DOD	U.S. Department of Defense
DOE	U.S. Department of Energy
DQO	data quality objective
DU	depleted uranium
EDE	effective dose equivalent
ELAP	Environmental Laboratory Accreditation Program
EM	Engineer Manual
EMDAR	Environmental Monitoring Data and Analysis Report
ER	Engineer Regulation
FS	firing site
FUSRAP	Formerly Utilized Sites Remedial Action Program
GIS	geographic information system
IAAAP	Iowa Army Ammunition Plant
LAP	load, assemble, and pack
MARSSIM	*Multi-Agency Radiation Survey and Site Investigation Manual*
MDA	minimum detectable activity
MDC	minimum detectable concentration
MED	Manhattan Engineer District
NAD	normalized absolute difference
NRC	U.S. Nuclear Regulatory Commission
OU	operable unit
PDI	pre-design investigation
QA	quality assurance
QAPP	quality assurance project plan
QC	quality control
QSM	*Department of Defense (DoD)/Department of Energy (DOE) Consolidated Quality Systems Manual (QSM) for Environmental Laboratories*
RA	remedial action
RG	remediation goal
RI WP	*Remedial Investigation Work Plan for Line 1, Firing Sites Area, Yards C, G, and L, Warehouse 3-01 and the West Burn Pads Area South of the Road*
Rn	radon
ROD	*FUSRAP Record of Decision for the Iowa Army Ammunition Plant*
RPD	relative percent difference
SOP	standard operating procedure
SU	survey unit
TEDE	total effective dose equivalent
U	uranium
USACE	U.S. Army Corps of Engineers

ACRONYMS AND ABBREVIATIONS (Continued)

USEPA	U.S. Environmental Protection Agency
VQ	validation qualifier

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
Ci	curie(s)
cm	centimeter(s)
cm^3	cubic centimeter(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
pCi/L	picocurie(s) per liter
yd^3	cubic yard(s)

EXECUTIVE SUMMARY

This Annual Environmental Monitoring Data and Analysis Report (EMDAR) for calendar year (CY) 2017 applies to the Iowa Army Ammunition Plant (IAAAP) Operable Unit (OU)-8 (Figure 1-1), which is within the scope of the Formerly Utilized Sites Remedial Action Program (FUSRAP). This EMDAR provides an evaluation of the data collected as part of the environmental monitoring conducted for IAAAP OU-8. IAAAP OU-8 consists of the Firing Sites Area (containing five subareas: Firing Site (FS)-1 and FS-2; FS-3, FS-4, and FS-5; FS-6 Area [FS-6, FS-7, FS-8, and FS-15]; FS-12 Area [FS-9, FS-10, FS-11, and FS-12]; and FS-14); Line 1 Structures; Yards C, G, and L; and Warehouse 3-01. The M-Yard is not included as part of OU-8 in the *FUSRAP Record of Decision for the Iowa Army Ammunition Plant* (ROD) (USACE 2011); however, references to OU-8 include the M-Yard for the purposes of this EMDAR. Environmental monitoring of various media at IAAAP OU-8 is required under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and under the commitments in the ROD (USACE 2011).

The U.S. Army Corps of Engineers (USACE) St. Louis District collects environmental monitoring data as a component of remedial action (RA). These data serve as a critical component in the evaluation of the current status of residual contaminants and assessment of the potential future migration of residual contaminants.

The collection and evaluation of environmental monitoring data for IAAAP OU-8 is used to demonstrate compliance with the applicable or relevant and appropriate requirements (ARARs).

Radiological air data collected at IAAAP OU-8 through airborne radioactive particulate monitoring were evaluated. In addition to environmental monitoring purposes, radiological air data were also used as inputs to calculate the total effective dose equivalent (TEDE) to the hypothetical maximally exposed individual from IAAAP OU-8.

The TEDE calculated for the hypothetical maximally exposed individual at IAAAP OU-8 was less than 0.1 mrem per year. The results of the radiological air monitoring conducted at IAAAP OU-8 demonstrate compliance with the ARARs for IAAAP OU-8.

Surface-water and sediment sampling was completed as a best management practice in April and November of 2017. Samples were collected from 10 surface-water and sediment sampling locations (Figure 4-1). The results of the sampling were used to evaluate the radiological conditions of Long Creek and its tributary downgradient of the FS-12 Area and running to the east and south of the FS-12 Area. The results of the surface-water and sediment sampling demonstrate no adverse impacts from the remedial activities at the FS-12 area.

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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) 2017 applies to the Iowa Army Ammunition Plant (IAAAP) Operable Unit (OU)-8, which is within the scope of the Formerly Utilized Sites Remedial Action Program (FUSRAP). This EMDAR provides an evaluation of the data collected as part of the environmental monitoring conducted for IAAAP OU-8. IAAAP OU-8 includes the Firing Sites Area (consisting of five subareas: Firing Site (FS)-1 and FS-2; FS-3, FS-4, and FS-5; FS-6 Area [FS-6, FS-7, FS-8, and FS-15]; FS-12 Area [FS-9, FS-10, FS-11, and FS-12]; and FS-14); Line 1 Structures; Yards C, G, and L; and Warehouse 3-01 (Figure 1-1). The M-Yard is not included as part of OU-8 in the *FUSRAP Record of Decision for the Iowa Army Ammunition Plant* (ROD) (USACE 2011); however, references to OU-8 include the M-Yard for the purposes of this EMDAR. Environmental monitoring of various media at IAAAP OU-8 is required under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and under the commitments in the ROD (USACE 2011).

1.2 PURPOSE

The primary purpose of this EMDAR is to calculate the total effective dose equivalent (TEDE) from radionuclide emissions (exclusive of radon) to the hypothetical maximally exposed individual and other receptors from the IAAAP OU-8 sites at which a reasonable potential for radionuclide emissions due to FUSRAP activities exists to demonstrate compliance with the applicable or relevant and appropriate requirements (ARARs) or other federal and state benchmarks. During CY 2017, the FS-12 Area and the loadout area at the M-Yard had a reasonable potential for radionuclide emissions due to FUSRAP activities. The air emissions from the FS-12 Area and M-Yard are releases of particulate radionuclides in soil as a result of windblown action and remedial action (RA) in the form of excavation, stockpiling, on-site treatment (i.e., sorting), and loadout of soil.

This EMDAR additionally serves to enhance the reader's awareness of the current condition of IAAAP OU-8, summarize the data collection efforts for CY 2017, and provide analysis of the CY 2017 environmental monitoring data results. This EMDAR presents the following information:

- IAAAP OU-8 sample collection data and interpretation of CY 2017 results; and
- The status of IAAAP OU-8 regarding compliance with the ARARs or other federal and state benchmarks.

1.3 PROGRAM AND SITE HISTORY

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 remained from operations conducted for the Manhattan Engineer District (MED). The FUSRAP was continued by the successor agencies to the AEC until 1997, when the U.S. Congress transferred responsibility for the execution aspect of the FUSRAP from the U.S. Department of Energy (DOE) to the U.S. Army Corps of Engineers (USACE).

The IAAAP is a government-owned, contractor-operated facility that occupies approximately 76,890,000 m^2 (19,000 acres) in Des Moines County near Middletown, Iowa, approximately

10 miles west of Burlington, Iowa, and the Mississippi River (Figure 1-1). The installation's mission is to load, assemble, and pack (LAP) ammunition items, including projectiles, mortar rounds, warheads, demolition charges, and munitions components such as fuses, primers, and boosters.

All IAAAP land is currently owned by and under the control of the U.S. Army. Approximately one-third of the IAAAP property is occupied by active or formerly active munitions production or storage facilities. The remaining property is generally either forested (30,350,000 m^2 [7,500 acres]) or leased for agricultural use (31,160,000 m^2 [7,700 acres]).

Since operations began in 1941, the IAAAP has used explosives and lead-based initiating compounds to produce a wide variety of ordnance items. During the summer of 1947, Mason & Hanger – Silas Mason Company Inc., the operating contractor, entered into a contract with the Ordnance Department to assist in the design and engineering, to perform the construction, and to operate a facility for the purpose of supplying the AEC with explosive components for nuclear weapons. From 1947 to 1975, the IAAAP OU-8 sites were under the control of the AEC or its successors for weapon-assembly operations. Based on IAAAP project history reports, the first nuclear weapon assembly operations are believed to have begun in 1949. Throughout the remaining years of AEC control, the IAAAP tested, assembled, conducted surveillance on, and disassembled a wide variety of nuclear weapons. Detailed descriptions and histories of the IAAAP OU-8 sites are contained in the *Iowa Army Ammunition Plant FUSRAP Remedial Investigation Report for Firing Sites Area, Yards C, E, F, G, and L, Warehouse 3-01 and Area West of Line 5B* (USACE 2008) and the ROD (USACE 2011).

1.4 CALENDAR YEAR 2017 ACTIVITIES

1.4.1 IAAAP Operable Unit 8 Calendar Year 2017 Documents

During CY 2017, the *Iowa Army Ammunition Plant Operable Unit 8 Annual Environmental Monitoring Data and Analysis Report for Calendar Year 2016* (USACE 2017) was finalized.

1.4.2 IAAAP Operable Unit 8 Calendar Year 2017 Remedial Actions

During CY 2017, an RA was performed at the FS-12 Area. The RA began at the FS-12 Area in the first quarter and continued through the fourth quarter. A total of 9,339 tons of soil was sorted following excavation from the IAAAP OU-8 sites, with 428 tons of the soil stockpiled as contaminated material after sorting at the FS-12 Area.

In CY 2017, contaminated material, including the 2017 soil stockpile, a soil stockpile remaining from 2016 activities, and additional large, bulky material (large materials discharged from soil sorting, tree and brush material, etc.) collected over 4 years of field activities was transported from FS-12 to the M-Yard.

A total of 1,245 tons (1,153 yd^3) of contaminated material was loaded on railcars and shipped offsite for disposal at Energy Solutions in Clive, Utah. At the end of CY 2017, approximately 214 yd^3 of soil was transported back to FS-12 for stockpiling and no soil remained at the M-Yard.

During CY 2017, *Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)* (DOD 2000) Class 1 verifications were completed at the FS-12 Area (survey units [SUs] 13, 14, 15, 20, 21, 22, 23, 24, 35, 36, 37, 41, 42, and 43 [Areas F, G, and H] and at the FS-12 Bunker).

Verifications at the FS-12 Area were performed to confirm that the remediation goals (RGs) of the ROD were achieved.

During CY 2017, characterizations/pre-design investigations (PDIs) were performed at the FS-12 Area (SUs 52, 53, 93, 94, 97, 101, 102, 103, 104, 107, 108, 109, 110, 111, 112, 113, 114, and 115).

No excavation or decontamination water was released in CY 2017.

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2.0 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS EVALUATION

Section 2.8.2 of the ROD lists two ARARs that are evaluated in this EMDAR. The first ARAR, from 10 *Code of Federal Regulations [CFR]* 20.1403(b), requires that the TEDE from residual radioactivity distinguishable from background to the average member of the critical group not exceed 25 mrem per year. The second ARAR, from 10 *CFR* 20.1101(d), requires that emissions of radioactive material to the environment, excluding radon (Rn)-222 and its daughters, be maintained so the highest individual dose to the public does not exceed 10 mrem per year. For the purposes of the CY 2017 evaluation, the critical group is the current IAAAP employee not engaged in FUSRAP RA (i.e., an employee working at FS-1 and FS-2, located approximately 1,285 m south of the FS-12 Area and approximately 521 m northwest of the M-Yard).

The evaluation for compliance with the 10 *CFR* 20.1101(d) ARAR is accomplished using the U.S. Environmental Protection Agency (USEPA) computer code CAP88-PC to determine dose from radioactive airborne emissions to members of the public located at specific distances and directions from the site. The evaluation for compliance with the 10 *CFR* 20.1403(b) ARAR is typically accomplished by calculating dose from all pathways, including radioactive airborne emissions (inhalation), ingestion, dermal contact, external gamma radiation, and radon; however, based on the location of the current site worker at FS-1 and FS-2, the ROD considers exposure from all pathways except airborne emissions to be insignificant. Therefore, both ARARs will be evaluated using only the dose from airborne emissions. Additionally, compliance with 10 *CFR* 20.1101(d) will automatically ensure compliance with 10 *CFR* 20.1403(b), because both are dose-based limits of 10 mrem per year and 25 mrem per year, respectively to the same receptor.

Exposures to potential trespassers and recreational users (e.g., hunters) are considered infrequent and insignificant, because of access restrictions to the IAAAP property, as well as the physical characteristics of each area therein.

Although not required to be followed, 40 *CFR* 61.103, Appendix E, (the USEPA's equivalent regulation to 10 *CFR* 20.1101(d)), provides a procedure to determine compliance with radioactive airborne emissions. This procedure was followed to calculate dose to the potential receptors (e.g., residential, farm, business, and school receptors), and is described in the subsequent sections.

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3.0 EVALUATION OF RADIOLOGICAL AIR MONITORING DATA

3.1 METHOD

Emission rates for the IAAAP OU-8 sites were modeled using guidance documents referenced in 40 *CFR* 61, Appendix E, *Compliance Procedures Methods for Determining Compliance with Subpart I* (USEPA 1989), and were measured by collection of environmental air samples for radioactive particles. Emission rates were input into the USEPA computer code CAP88-PC, Version 4.0.1.17 (USEPA 2014), along with appropriate meteorological data and distances to receptors[1], to obtain the effective dose equivalent (EDE) from the air emissions.

Although 40 *CFR* 61.103 requires the use of the USEPA computer code COMPLY, the USEPA no longer supplies technical support for COMPLY. Because the USEPA lists both COMPLY and CAP88-PC as "Atmospheric transport models for assessing dose and risk from radioactive air emissions" (USEPA 2015), CAP88-PC was used as a comparable and conservative method to demonstrate compliance with the ARARs.

3.1.1 EMISSION RATE

The method used to determine particulate radionuclide emission rates from the IAAAP OU-8 sites was 40 *CFR* 61, Appendix D, *Methods for Estimating Radionuclide Emissions*. Emissions during excavations and waste loadout were evaluated using air sampling data at the excavation and waste loadout perimeters.

3.1.2 EFFECTIVE DOSE EQUIVALENT

The EDE to receptors[1] is obtained using the USEPA computer code CAP88-PC, Version 4.0.1.17 (USEPA 2014). CAP88-PC uses a Gaussian plume equation to estimate the dispersion of radionuclides. An area ground release at a height of 1 m is modeled for IAAAP OU-8.

The EDE is the dose from inhalation; exposures from ingestion, air immersion, and external ground surface are insignificant. 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.

3.2 METEOROLOGICAL DATA

Meteorological data were obtained from CAP88-PC for the Quad City International Airport in Moline, Illinois (wind file 14923.WND). The Quad City International Airport, located 60 miles northeast of the IAAAP, is the closest airport to the IAAAP with meteorological data. Data in the file were accumulated from 1988 through 1992.

- Average Annual Wind Velocity: 4.252 m per second
- Average Annual Precipitation Rate: 103 cm per year
- Average Annual Air Temperature: 11 ºC

Wind direction frequency was obtained from the CAP88-PC wind file, 14923.WND (Table 3-1).

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

Table 3-1. Quad City International Airport Wind Rose Frequency

Wind Direction		Wind Frequency	Wind Direction		Wind Frequency
Wind Toward	Wind From		Wind Toward	Wind From	
North	South	0.128	South	North	0.050
North-Northwest	South-Southeast	0.045	South-Southeast	North-Northwest	0.033
Northwest	Southeast	0.036	Southeast	Northwest	0.055
West-Northwest	East-Southeast	0.052	East-Southeast	West-Northwest	0.090
West	East	0.086	East	West	0.005
West-Southwest	East-Northeast	0.052	East-Northeast	West-Southwest	0.085
Southwest	Northeast	0.035	Northeast	Southwest	0.066
South-Southwest	North-Northeast	0.025	North-Northeast	South-Southwest	0.069

3.3 IAAAP OPERABLE UNIT 8 SITES UNDER ACTIVE REMEDIATION

3.3.1 Material Handling and Processing for Calendar Year 2017

At the IAAAP OU-8 sites in CY 2017, remedial activities were performed at the FS-12 Area, and waste loadout activities were conducted at the M-Yard. Excavated soils were placed at the FS-12 Area prior to treatment (i.e., soil sorting). The excavated soils (9,339 tons) were then sorted with 428 tons of the soil diverted to a post-sorting contaminated soil pile. The post-sorting contaminated soil pile was covered when sorting activities were concluded. The clean soil piles were not covered. Verification data for the clean soil piles and the excavation surface are less than the RG. Contaminated soil, debris, and other materials from 2017 and previous years' remedial activities were transported to the M-Yard via covered dump trucks, stockpiled, and loaded onto railcars for offsite disposal. The remaining contaminated soil pile (approximately 214 yd^3) was transported back to FS-12 for stockpiling and will be transported to a licensed disposal facility at a later date.

General area air samples were collected around active excavation perimeters, soil sorting activities, and loadout activities during CY 2017, with the results used to determine the site emissions. In-situ emissions from inactive areas of IAAAP OU-8 were not calculated, because the ground surface soil at the IAAAP is generally covered with vegetation that limits the potential for material to become airborne.

3.3.2 Source Description – Radionuclide Soil Concentrations

For the IAAAP OU-8 excavation area, the depleted uranium (DU) activity fractions listed in Section 2.5.7 of the ROD were used. Activity fractions for the contaminants of concern (COCs) are:

- 90.14 percent (uranium [U]-238),
- 1.45 percent (U-235), and
- 8.40 percent (U-234).

The averaged total alpha air particulate concentrations at the FS-12 Area and the M-Yard, along with the three uranium activity fractions, were used to calculate the emission rate for each area.

3.3.3 List of Assumed Air Releases for Calendar Year 2017

Wind erosion during periods of RA excavations and periods in which the excavated soil pile, post-sorting contaminated soil pile at the FS-12 Area, and loadout pile at the M-Yard were uncovered is assumed for the particulate radionuclide emission determinations from IAAAP OU-8. Verification data for post-sorting clean soil piles and non-backfilled excavation surfaces are less than the RG. Therefore, the post-sorting clean soil piles and non-backfilled excavation surfaces

are protective of human health and the environment and do not contribute to the emission determinations. Unexcavated areas do not contribute to the emission determinations for periods of inactivity due to the low activity and vegetative cover.

The excavation area, the excavated soil pile, the post-sorting contaminated soil pile, and loadout pile at the M-Yard were assumed to be contributing to air releases during the 2017 dates when the SUs were open and when the sorting and loadout piles were uncovered. Appendix A, Table A-1, lists the 2017 dates of potential air releases by location.

3.3.4 Distances to Receptors

The distances to receptors are listed in Table 3-2. Distances and directions to receptors are determined by using tools in a geographic information system (GIS). The location of the receptors is shown on Figure 3-1.

Table 3-2. IAAAP Operable Unit 8 Receptors for CY 2017

Sources	Resident		Farm		Business[a]		School	
	Distance (m)	Direction	Distance (m)	Direction	Distance (m)	Direction	Distance (m)	Direction
FS-12 Area	2,714	W	2,714	W	1,285	S	7,894	NW
M-Yard	3,498	NW	3,498	NW	521	NW	9,463	NW

[a] The business receptor, an IAAAP employee at FS-1 and FS-2, is an average member of the critical group.

3.4 EMISSIONS DETERMINATION

3.4.1 Measured Airborne Radioactive Particulate Emissions

Particulate air samples were collected from several locations around the perimeter of the FS-12 Area excavation, soil sorting area, soil stockpile areas, and the M-Yard loadout area to measure the radionuclide emissions from the RA, soil sorting, and soil loadout. The samples provide the basis for determining the radionuclide emission rates during CY 2017. Air sample data for particulate air samples were determined through the use of calibrated field instruments. Appendix C, Attachment C-1, contains the Air Sample Reports and Appendix C, Table C-1, is a summary table of the particulate air sample data. One sample was collected at FS-1 during the 2017 field season. One particulate air sample for each week was submitted to the USACE St. Louis District FUSRAP Radioanalytical Laboratory for analysis to verify sample results from the calibrated field instruments (see Table C-2).

The average gross alpha concentration (in μCi/mL) was determined for the FS-12 Area and the M-Yard for CY 2017 and is presented in Table 3-3. Gross alpha particulate results (Table C-1) less than zero indicate the result was less than the average background value for the instrument. When calculating an average airborne concentration, negative data points were rounded to a zero value.

Table 3-3. IAAAP Operable Unit 8 Average Gross Alpha Airborne Particulate Emissions for CY 2017

Sampler Location	Average Concentration (μCi/mL)
	Gross Alpha
FS-12 Area[a]	3.42E-15
M-Yard[b]	1.47E-15

[a] Includes the emission rates from the RA, soil sorting, and soil stockpiles.
[b] Includes the emission rates from the soil stockpile and loadout activities.

The activity fractions for DU at IAAAP OU-8 were determined as described in Section 3.3.2. The product of the DU activity fraction and the gross concentration provides the radionuclide emission concentration (in μCi/mL) for that area. The gross average concentration (in μCi/mL) is converted to a release (i.e., emission) rate, measured 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]) provides 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 = effective diameter of the release (in m), and
A = area of the stack, vent, or release point (in m^2).

Table 3-4 provides (1) the effective surface area available for release of airborne radionuclides normalized to 1 year for the FS-12 Area and the M-Yard and (2) the effective diameter for the FS-12 Area and the M-Yard, at which excavation (Areas F,G, and H) and/or soil stockpiling was conducted in CY 2017. Calculation of the effective surface area is presented in Appendix A.

Table 3-4. IAAAP Operable Unit 8 Excavation Effective Areas and Effective Diameters for CY 2017

IAAAP OU-8 Location	Effective Area (m^2)	Effective Diameter (m)
FS-12 Area	7,336	98
M-Yard	13	4

The average annual wind speed for the Quad City International Airport is provided in CAP88-PC as 4.252 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.

$$F = V\ \pi\ [(D)^2/4]*60 \qquad \textit{Equation 2}$$

where:

F = flow rate (in m^3 per minute),
V = wind velocity (in m per second),
π = mathematical constant,
D = effective diameter of the release using Equation 1 (in m), and
60 = time conversion (seconds to minute).

Converting the velocity of emissions from the FS-12 Area and M-Yard to an effective flow rate results in the following site release flow rates for the IAAAP OU-8 sites, as listed in Table 3-5. 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 illustrated in Table 3-6. Appendix A contains flow rates and average radionuclide concentration data.

Table 3-5. IAAAP Operable Unit 8 Site Release Flow Rate for CY 2017

IAAAP OU-8 Location	Site Release Flow Rate (m^3/minute)
FS-12 Area	1.9E+06
M-Yard	3.4E+03

3.4.2 IAAAP Operable Unit 8 Total Airborne Radioactive Particulate Emission Rates

The CY 2017 emission rates for the FS-12 Area and M-Yard are presented in Table 3-6 and are based on the air samples collected from the perimeter of the excavated area, soil sorting area, and stockpiled soil.

Table 3-6. IAAAP Operable Unit 8 Airborne Radioactive Particulate Emission Rates Based on Excavation Perimeter Air Samples for CY 2017

Radionuclide	Emission Rate (Ci/year)[a]	
	FS-12 Area	M-Yard
U-238	3.1E-03	2.4E-06
U-235	5.0E-05	3.8E-08
U-234	2.9E-04	2.2E-07

[a] Emission rate based on 365-day period at a respective flow rate (as presented in Table 3-5) as determined from the average annual wind speed (4.252 m per second) and the effective site area (as presented in Table 3-4) for each location.

3.4.3 CAP88-PC Results

The CAP88-PC report is contained in Appendix B. The effective area factor input was taken from Table 3-4. The individual dose results for the FS-12 Area and the M-Yard were summed. As shown in Table 3-7, this evaluation demonstrates that all IAAAP OU-8 receptors, including the hypothetical maximally exposed individual at IAAAP OU-8 (i.e., the business receptor, an IAAAP employee at FS-1 and FS-2, who is an average member of the critical group), receive less than the dose standards prescribed in 10 *CFR* 20.1101(d) (10 mrem per year) and 10 *CFR* 20.1403(b) (25 mrem per year).

Table 3-7. IAAAP Operable Unit 8 CAP88-PC Results for Receptors for CY 2017

Source	Dose (mrem/year)			
	Resident[a]	School[b]	Business[c]	Farm[a]
FS-12 Area and M-Yard	<0.1	<0.1	<0.1	<0.1

[a] 100 percent occupancy factor.
[b] Corrected for the 23 percent occupancy factor (40 hours per week for 50 weeks per year).
[c] The business receptor, an IAAAP employee at FS-1 and FS-2, is an average member of the critical group.

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4.0 SURFACE-WATER, SEDIMENT, AND STORM-WATER MONITORING

4.1 SURFACE-WATER AND SEDIMENT MONITORING

Surface water and sediment monitoring in Long Creek and its tributary, downgradient of the FS-12 Area and running to the east and south of the FS-12 Area, was performed as a best management practice. The purpose of the monitoring was to determine if RA is having a negative effect on Long Creek.

Surface water and sediment were sampled for the uranium isotopes to evaluate/determine if runoff from the FS-12 Area affects the quality of surface water and sediment in Long Creek and its tributary. Surface water and sediment sampling was conducted during April and November of CY 2017. Grab samples were collected and analyzed according to the protocol defined in Appendix D of the *Remedial Investigation Work Plan for Line 1, Firing Sites Area, Yards C, G, and L, Warehouse 3-01 and the West Burn Pads Area South of the Road* (RI WP) (USACE 2007).

The sampling events were conducted at 10 monitoring stations. Eight (8) of the stations were established in 2007 during the remedial investigation, and the remaining 2 stations (IAAP177509 and IAAP177517) were established in December 2014. Locations of the 10 surface-water and sediment monitoring stations are shown on Figure 4-1.

4.2 SURFACE-WATER MONITORING RESULTS

The radiological monitoring results for the CY 2017 surface-water sampling events are summarized in Table 4-1. FUSRAP surface-water monitoring analysis included unfiltered water samples for radionuclides associated with DU (i.e., U-234, U-235, and U-238). The monitoring results are presented in Appendix D, Table D-1, of this EMDAR.

Table 4-1. Radiological Results for CY 2017 Surface-Water Monitoring

Monitoring Station	Collection Date	Monitoring Parameters (pCi/L)		
		U-234	U-235	U-238
IAAP100153	04/25/17	1.28	0.18[a]	1.31
IAAP100153	11/15/17	1.46	0.23[a]	1.36
IAAP100154	04/25/17	1.29	0.19[a]	0.95
IAAP100154	11/14/17	0.80	0.57[a]	0.62
IAAP100155	04/25/17	1.65	0.18[a]	1.26
IAAP100155	11/14/17	1.23	0.21[a]	1.17
IAAP100164	[b]	[b]	[b]	[b]
IAAP100164	[b]	[b]	[b]	[b]
IAAP100165	04/25/17	0.78	0.41[a]	0.31
IAAP100165	11/14/17	0.51	0.50[a]	0.25
IAAP100178	04/25/17	1.02	0.20[a]	0.74
IAAP100178	11/14/17	1.01	0.52[a]	0.54
IAAP100180	04/25/17	0.67	0.20[a]	0.47
IAAP100180	11/14/17	0.82	0.19[a]	0.53
IAAP100187	04/25/17	0.43	0.16[a]	0.44
IAAP100187	11/14/17	0.61	0.21[a]	0.43
IAAP177509	04/25/17	1.08	0.39[a]	1.03
IAAP177509	11/15/17	0.55	0.18[a]	0.40
IAAP177517	04/25/17	0.16[a]	0.19[a]	0.46[a]
IAAP177517	11/14/17	0.41[a]	0.41[a]	0.51

[a] Reported result is less than the minimum detectable concentration (MDC) and is therefore set equal to the MDC.

[b] No surface water was present at the sample location due to seasonal weather conditions. No surface water sample was collected.

The historical radiological surface water monitoring data for all monitoring stations are summarized in Table 4-2.

Table 4-2. Comparison of Historical Radiological Surface-Water Results

Stations	Radionuclide	Units	December 2014	August 2015	December 2015	April 2016	November 2016	April 2017	November 2017
IAAP100153	U-234	pCi/L	0.59	0.92	0.36	0.64	1.28	1.28	1.46
	U-235	pCi/L	0.16[a]	0.18[a]	0.63[a]	0.63[a]	0.20[a]	0.18[a]	0.23[a]
	U-238	pCi/L	0.67	0.18	0.65	0.30	0.91	1.31	1.36
IAAP100154	U-234	pCi/L	0.63	0.56	0.52	0.48[a]	0.83	1.29	0.80
	U-235	pCi/L	0.20[a]	0.22[a]	0.44[a]	0.22[a]	0.23[a]	0.19[a]	0.57[a]
	U-238	pCi/L	0.64	0.33	0.38	0.52	1.07	0.95	0.62
IAAP100155	U-234	pCi/L	0.95	0.54[a]	0.70	0.71[a]	0.62	1.65	1.23
	U-235	pCi/L	0.14[a]	0.22[a]	0.47[a]	0.23[a]	0.24[a]	0.18[a]	0.21[a]
	U-238	pCi/L	0.34	0.75	0.54[a]	0.42[a]	0.44[a]	1.26	1.17
IAAP100164	U-234	pCi/L	1.12	0.72	0.31[a]	0.37	[b]	[b]	[b]
	U-235	pCi/L	0.16[a]	0.58[a]	0.47[a]	0.19[a]	[b]	[b]	[b]
	U-238	pCi/L	1.44	0.64	0.13[a]	0.45	[b]	[b]	[b]
IAAP100165	U-234	pCi/L	0.68	0.24	0.45	0.61[a]	0.74	0.78	0.51
	U-235	pCi/L	0.16[a]	0.59	0.17[a]	0.48[a]	0.25[a]	0.41[a]	0.50[a]
	U-238	pCi/L	0.58	0.16[a]	0.36	0.68	0.20[a]	0.31	0.25
IAAP100178	U-234	pCi/L	0.39	0.36	0.67	0.60	0.42[a]	1.02	1.01
	U-235	pCi/L	0.16[a]	0.39[a]	0.42[a]	0.22[a]	0.52[a]	0.20[a]	0.52[a]
	U-238	pCi/L	0.37[a]	0.20[a]	0.41	0.49	0.80	0.74	0.54
IAAP100180	U-234	pCi/L	0.77	0.36	0.42	0.62	0.35[a]	0.67	0.82
	U-235	pCi/L	0.16[a]	0.20[a]	0.15[a]	0.24[a]	0.20[a]	0.20[a]	0.19[a]
	U-238	pCi/L	0.48[a]	0.38[a]	0.40	0.58	0.35[a]	0.47	0.53
IAAP100187	U-234	pCi/L	1.07	0.52	0.34[a]	0.43	0.39	0.43	0.61
	U-235	pCi/L	0.20[a]	0.55[a]	0.52[a]	0.21[a]	0.71[a]	0.16[a]	0.21[a]
	U-238	pCi/L	0.45	0.33	0.42	0.43	0.29	0.44	0.43
IAAP177509	U-234	pCi/L	0.90	1.79	0.48	0.43[a]	1.06	1.08	0.55
	U-235	pCi/L	0.17[a]	0.21[a]	0.19[a]	0.24[a]	0.20[a]	0.39[a]	0.18[a]
	U-238	pCi/L	0.43	1.17	0.29	0.19[a]	0.72	1.03	0.40
IAAP177517	U-234	pCi/L	0.71	0.54[a]	0.63	0.47	0.93	0.16[a]	0.41[a]
	U-235	pCi/L	0.16[a]	0.22[a]	0.17[a]	0.65[a]	0.57[a]	0.19[a]	0.41[a]
	U-238	pCi/L	0.52	0.43[a]	0.51	0.68	0.50	0.46[a]	0.51

[a] Reported result is less than the MDC and is therefore set equal to the MDC.
[b] No surface water was present at the sample location due to seasonal weather conditions. No surface water sample was collected.

4.3 SEDIMENT MONITORING RESULTS

Sediment samples were collected in depositional environments near each of the 10 previously described surface-water locations (Figure 4-1). Sediment samples were evaluated for the radiological constituents associated with DU (i.e., U-234, U-235, and U-238).

The radiological results for CY 2017 sediment sampling events are summarized in Table 4-3. The ROD (USACE 2011) established a soil RG for DU which uses U-238 as a surrogate. Therefore, sediment sampling results for U-238 were compared against the corresponding soil RG of 150 pCi/g established in the ROD. All sediment monitoring results for U-238 were below the soil RG. The analytical results from these monitoring activities are presented in Appendix D, Table D-2, of this EMDAR.

Table 4-3. Radiological Results for CY 2017 Sediment Monitoring

Monitoring Station	Collection Date	Monitoring Parameters (pCi/g)		
		U-234	U-235	U-238
IAAP100153	04/25/17	0.75	0.18[a]	1.02
IAAP100153	11/15/17	0.37	0.10[a]	0.50
IAAP100154	04/25/17	0.54	0.26[a]	0.31
IAAP100154	11/14/17	0.20	0.04[a]	0.14
IAAP100155	04/25/17	0.67	0.19[a]	0.85
IAAP100155	11/14/17	0.18	0.04	0.19
IAAP100164	04/24/17	1.04	0.31[a]	0.84
IAAP100164	11/13/17	0.67	0.10[a]	0.81
IAAP100165	04/25/17	0.28	0.13[a]	0.31
IAAP100165	11/14/17	0.32	0.09[a]	0.20
IAAP100178	04/25/17	0.41	0.11[a]	0.44
IAAP100178	11/14/17	0.50	0.10[a]	0.38
IAAP100180	04/25/17	0.36	0.23[a]	0.37
IAAP100180	11/14/017	0.23	0.09[a]	0.33
IAAP100187	04/25/17	0.29	0.16[a]	0.36
IAAP100187	11/14/17	0.35	0.03[a]	0.34
IAAP177509	04/25/17	0.09[a]	0.10[a]	0.31
IAAP177509	11/14/17	0.32	0.22[a]	0.71
IAAP177517	04/25/17	0.13	0.21[a]	0.24
IAAP177517	11/14/17	0.17	0.04	0.28

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

The historical radiological sediment monitoring data for all monitoring stations are summarized in Table 4-4.

Table 4-4. Comparison of Historical Radiological Sediment Results

Stations	Radionuclide	Units	April 2007	December 2014	August 2015	December 2015	April 2016	November 2016	April 2017	November 2017
IAAP100153	U-234	pCi/g	[a]	0.56	0.51	0.43	0.99	0.42	0.75	0.37
	U-235	pCi/g	0.11[b]	0.05[b]	0.58[b]	0.13[b]	0.17[b]	0.21[b]	0.18[b]	0.10[b]
	U-238	pCi/g	0.50	0.43	1.00	0.20[b]	0.85	0.31[b]	1.02	0.50
IAAP100154	U-234	pCi/g	[a]	0.37	0.53[b]	0.46	0.82	0.36[b]	0.54	0.20
	U-235	pCi/g	0.17[b]	0.13[b]	0.55[b]	0.28[b]	0.36[b]	0.44[b]	0.26[b]	0.04[b]
	U-238	pCi/g	0.49	0.50	0.44[b]	0.45	1.08	0.75	0.31	0.14
IAAP100155	U-234	pCi/g	[a]	0.19	0.61[b]	0.61	0.76	0.40	0.67	0.18
	U-235	pCi/g	0.17[b]	0.12[b]	0.61[b]	0.24[b]	0.18[b]	0.20[b]	0.19[b]	0.04
	U-238	pCi/g	0.37	0.24	0.49	0.83	0.86	0.30[b]	0.85	0.19
IAAP100164	U-234	pCi/g	[a]	0.79	0.52[b]	0.94	0.74	0.52	1.04	0.67
	U-235	pCi/g	0.22[b]	0.12[b]	0.57[b]	0.33[b]	0.14[b]	0.40[b]	0.31[b]	0.10[b]
	U-238	pCi/g	0.87	0.84	0.59	1.01	0.47	0.84	0.84	0.81
IAAP100165	U-234	pCi/g	[a]	0.17	0.20[b]	0.59	0.38	0.26	0.28	0.32
	U-235	pCi/g	0.13[b]	0.05[b]	0.24[b]	0.37[b]	0.26[b]	0.33[b]	0.13[b]	0.09[b]
	U-238	pCi/g	0.29	0.14	0.43	1.07	0.41	0.35	0.31	0.20
IAAP100178	U-234	pCi/g	[a]	0.33	0.53	0.30[b]	0.62	0.39	0.41	0.50
	U-235	pCi/g	0.11[b]	0.13[b]	0.49[b]	0.17[b]	0.15[b]	0.19[b]	0.11[b]	0.10[b]
	U-238	pCi/g	0.23[b]	0.37	0.33	0.30[b]	0.18	0.29	0.44	0.38
IAAP10018	U-234	pCi/g	[a]	0.26	0.23[b]	0.39	0.31[b]	0.40	0.36	0.23
	U-235	pCi/g	0.16[b]	0.13[b]	0.52[b]	0.27[b]	0.21[b]	0.28[b]	0.23[b]	0.09[b]
	U-238	pCi/g	0.41	0.19	0.23[b]	0.59	0.49	0.39	0.37	0.33

Table 4-4. Comparison of Historical Radiological Sediment Results (Continued)

Stations	Radionuclide	Units	April 2007	December 2014	August 2015	December 2015	April 2016	November 2016	April 2017	November 2017
IAAP100187	U-234	pCi/g	[a]	0.34	0.39	0.34	0.29[b]	0.58	0.29	0.35
	U-235	pCi/g	0.14[b]	0.16[b]	0.36[b]	0.27[b]	0.27[b]	0.15[b]	0.16[b]	0.03[b]
	U-238	pCi/g	0.30	0.37	0.29[b]	0.64	0.25	0.31	0.36	0.34
IAAP177509[c]	U-234	pCi/g	[d]	0.17	0.14[b]	0.62	0.32[b]	0.39	0.09 [b]	0.32
	U-235	pCi/g	[d]	0.04[b]	0.33[b]	0.15[b]	0.21[b]	0.17[b]	0.10[b]	0.22[b]
	U-238	pCi/g	[d]	0.27	0.32[b]	0.68	0.81	0.25	0.31	0.71
IAAP177517[c]	U-234	pCi/g	[d]	0.27	0.41	0.40	0.32	0.47	0.13	0.17
	U-235	pCi/g	[d]	0.04[b]	0.23[b]	0.17[b]	0.16[b]	0.16[b]	0.21[b]	0.04
	U-238	pCi/g	[d]	0.18	0.41	0.54	0.28	0.28[b]	0.24	0.28

[a] Sample was not analyzed for U-234.
[b] Reported result is less than the MDC and is therefore set equal to the MDC.
[c] Stations IAAP177509 and IAAP177517 were established and initially sampled in December 2014.
[d] Sample not collected in 2007.

4.4 STORM-WATER MONITORING

No storm-water monitoring samples were collected in CY 2017.

4.5 CONCLUSION

The results from surface water and sediment sampling during CY2017 do not indicate impacts from the RA at the FS-12 Area.

5.0 ENVIRONMENTAL QUALITY ASSURANCE PROGRAM

5.1 PROGRAM OVERVIEW

The environmental quality assurance (QA) program includes management of the QA/quality control (QC) programs, plans, and procedures governing environmental monitoring activities at the IAAAP and at a USACE subcontracted vendor QA laboratory. This section describes 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.

Key elements in achieving the goals of this program are 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.
- Ensure samples were collected using approved techniques and are representative of existing site conditions.

5.2 QUALITY ASSURANCE PROJECT PLAN

The quality assurance project plan (QAPP) for environmental monitoring activities performed at the IAAAP OU-8 sites is contained in Appendix D of the RI WP (USACE 2007). The QAPP provides the organization, objectives, functional activities, and specific QA/QC activities associated with environmental monitoring activities at the IAAAP OU-8 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).

The QAPP summarizes standard operating procedures (SOPs) and data quality requirements for collecting and analyzing environmental data. The QAPP 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.

5.3 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 in 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 contained in Appendix C of *Requirements for the Preparation of Sampling and Analysis Plans,* EM 200-1-3 (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 database may be flagged accordingly.

5.4 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 QAPP.

5.4.1 Field Assessments

Internal assessments (i.e., audit or surveillance) of field activities (i.e., sampling and measurements) were conducted by the QA/QC Officer (or designee) for the FUSRAP. Assessments included an examination of field sampling records, field instrument operating records, sample collection, handling and packaging procedures, 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 (system audits).

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 Iowa.

5.4.2 Laboratory Audits

The USACE St. Louis FUSRAP laboratory is subject to periodic review(s) by the local USACE Chemist (system audits) to demonstrate compliance with the *Department of Defense (DoD)/Department of Energy (DOE) Consolidated Quality Systems Manual (QSM) for Environmental Laboratories* (QSM) (DOD and DOE 2013). In conjunction, the USACE St. Louis FUSRAP laboratory participates 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 U.S. Department of Defense (DOD) Environmental Laboratory Accreditation Program (ELAP). The DOD ELAP requires an annual audit and re-accreditation every 3 years.

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 Radiological Laboratory* (USACE 2013). Internal 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 SOPs. Internal performance audits were also conducted on a regular basis. Single-blind performance samples were prepared along with project samples and submitted 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 are 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 are to follow the guidance presented in the QSM (DOD and DOE 2013).

5.5 SUBCONTRACTED LABORATORY PROGRAMS

All samples collected during environmental monitoring activities were analyzed by USACE-approved laboratories. The QA samples collected for surface water and sediment were analyzed by the designated USACE-subcontracted QA laboratory. The laboratory supporting this work maintained statements of qualifications, including organizational structure, QA manual, and SOPs. Additionally, the subcontracted laboratory is 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*, Third Edition (USEPA 1993), and by other documented USEPA or nationally recognized methods. Laboratory SOPs are based on USEPA SW-846 methods.

5.6 QUALITY ASSURANCE AND QUALITY CONTROL SAMPLES

The QA/QC samples were analyzed for the purpose of assessing the quality of the sampling effort and the reported analytical data. The QA/QC samples include duplicate samples (–1) and split samples (–2). The equations utilized for accuracy and precision are presented in Section 5.8.

5.6.1 Duplicate Samples

These samples, which measure precision, were collected by the sampling teams and were submitted for analysis to the USACE St. Louis FUSRAP laboratory. 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 USACE St. Louis FUSRAP laboratory for analysis. One duplicate sample was collected for approximately every 20 field samples of each matrix and analyte. Precision is measured by the relative percent difference (RPD) or the normalized absolute difference (NAD) for radiological analyses.

The RPDs and NADs for radiological analyses are presented in Tables 5-1 and 5-2. The overall precision for CY 2017 environmental monitoring sampling activities was acceptable. See Section 5.8 for the evaluation process.

Table 5-1. Radiological Duplicate Sample Alpha Analysis for CY 2017 – Surface Water

Surface Water Sample Name	U-234[a]		U-235[a]		U-238[a]	
	RPD	NAD	RPD	NAD	RPD	NAD
IAAP196171 / IAAP196171-1	NC	NA	NC	NA	NC	NA

[a] RPD criterion for water matrix 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.
-1 Sample Duplicate
NA Not applicable; see RPD.
NC Not calculated due to one or both concentrations being below MDCs.

Table 5-2. Radiological Duplicate Sample Alpha Analysis for CY 2017 – Sediment

Sediment Sample Name	U-234[a]		U-235[a]		U-238[a]	
	RPD	NAD	RPD	NAD	RPD	NAD
IAAP199568 / IAAP199568-1	22.44	NA	NC	NA	15.09	NA

[a] 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.
-1 Sample Duplicate
NA Not applicable; see RPD.
NC Not calculated due to one or both concentrations being below MDCs.

5.6.2 Split Samples

Split samples measure accuracy and were collected by the sampling team and sent to a USACE-subcontracted 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 radiological analytes.

The RPDs and NADs for radiological analyses are presented in Tables 5-3 and 5-4. The overall accuracy for the CY 2017 environmental monitoring sampling activities was acceptable. See Section 5.8 for the evaluation process.

Table 5-3. Radiological Split Sample Alpha Analysis for CY 2017 – Surface Water

Surface Water Sample Name	U-234[a]		U-235[a]		U-238[a]	
	RPD	NAD	RPD	NAD	RPD	NAD
IAAP196171 / IAAP196171-2	NC	NA	NC	NA	NC	NA

[a] RPD criterion for water matrix 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.
-2 Sample Split
NA Not applicable; see RPD.
NC Not calculated due to one or both concentrations being below MDCs.

Table 5-4. Radiological Split Sample Alpha Analysis for CY 2017 – Sediment

Sediment Sample Name	U-234[a]		U-235[a]		U-238[a]	
	RPD	NAD	RPD	NAD	RPD	NAD
IAAP199568 / IAAP199568-2	37.26	NA	NC	NA	2.03	NA

[a] 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.
-2 Sample Split
NA Not applicable; see RPD.
NC Not calculated due to one or both concentrations being below MDCs.

5.6.3 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.

Sediment samples are collected from each station using a clean sampling spoon. These spoons are segregated after use and decontaminated 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, therefore, would not apply. The 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.

5.7 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 (ER)-1110-1-263 (USACE 1998) 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 1999). 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 District Chemist or District 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.

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

The data evaluation process considers precision, accuracy, representativeness, comparability, completeness, and sensitivity. The following subsections detail the particular parameters and the data evaluation method for each.

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 water radiological samples, when the RPD is greater than 30 percent, the NAD is used to determine the accuracy or precision of the method. The RPD criterion for sediment samples is equal to 50 percent. NAD accounts for uncertainty in the results; RPD does not. The NAD should be equal to or less than a value of 1.96. 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 and 5-2). Sample collection precision was evaluated in the laboratory by the analyses of duplicates. The overall precision for the CY 2017 environmental monitoring sampling 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 5-3 and 5-4). For this EMDAR, accuracy is evaluated 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 2017 environmental monitoring sampling 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 sampling protocol from the RI WP QAPP was followed, and analytical procedures were conducted in accordance with the QAPP. The overall representativeness of the CY 2017 environmental monitoring sampling activities was acceptable for the media and sampling described in this EMDAR.

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. Some sample media (e.g., radiological monitoring) have values that are primarily useful in the present, thus the comparison to historical data is not as relevant. The overall comparability of the applicable environmental monitoring sampling 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 2017 environmental monitoring sampling activities, the data completeness was 100 percent (the 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 report, MDC is a term generically used to represent 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 RI WP QAPP. 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 alpha spectroscopy. 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 alpha spectroscopy at the laboratory. 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.

5.9 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.

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

A summary of the QA parent sample results and associated duplicate and/or split sample results are presented in Tables 5-5 and 5-6.

Table 5-5. Radiological Parent Samples and Associated Duplicate and Split Samples for CY 2017 – Surface Water

Surface Water Sample Name[a]	U-234[b,c]				U-235[b,c]				U-238[b,c]			
	Result	Error	MDC	VQ	Result	Error	MDC	VQ	Result	Error	MDC	VQ
IAAP196171	0.11	0.16	0.16	UJ	0.07	0.14	0.19	UJ	0.38	0.35	0.46	UJ
IAAP196171-1	0.55	0.34	0.14	J	0.06	0.12	0.17	UJ	0.70	0.39	0.14	J
IAAP196171-2	0.19	0.30	0.48	UJ	0.00	0.05	0.40	UJ	-0.02	0.04	0.48	UJ

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

Table 5-6. Radiological Parent Samples and Associated Duplicate and Split Samples for CY 2017 – Sediment

Sediment Sample Name[a]	U-234[b,c]				U-235[b,c]				U-238[b,c]			
	Result	Error	MDC	VQ	Result	Error	MDC	VQ	Result	Error	MDC	VQ
IAAP199568	0.35	0.13	0.06	J	0.00	0.00	0.03	U	0.34	0.13	0.03	=
IAAP199568-1	0.28	0.12	0.07	J	0.01	0.05	0.11	UJ	0.29	0.12	0.03	=
IAAP199568-2	0.24	0.10	0.06	=	0.00	0.03	0.08	UJ	0.35	0.13	0.03	=

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

6.0 REFERENCES

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

DOD and DOE 2013. U.S. Department of Defense and U.S. Department of Energy. *Department of Defense (DoD)/Department of Energy (DOE) Consolidated Quality Systems Manual (QSM) for Environmental Laboratories*. DOD Quality Systems Manual Version 5.1 and DOE Quality Systems for Analytical Services Version 3.1. July 2013.

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

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

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

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

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

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

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

USACE 2007. U.S. Army Corps of Engineers. St. Louis District. *Remedial Investigation Work Plan for Line 1, Firing Sites Area, Yards C, G, and L, Warehouse 3-01 and the West Burn Pads Area South of the Road.* Final. June.

USACE 2008. U.S. Army Corps of Engineers, St. Louis District. *Iowa Army Ammunition Plant FUSRAP Remedial Investigation Report for Firing Sites Area, Yards C, E, F, G, and L, Warehouse 3-01 and Area West of Line 5B.* Middletown, Iowa. Final. October 8.

USACE 2011. U.S. Army Corps of Engineers, St. Louis District. *FUSRAP Record of Decision for the Iowa Army Ammunition Plant.* Middletown, Iowa. Final. September.

USACE 2013. U.S. Army Corps of Engineers, St. Louis District *Laboratory Quality Assurance Plan for the FUSRAP St. Louis Radiological Laboratory*, Berkeley, Missouri. Revision 8. April.

USACE 2017. U.S. Army Corps of Engineers, *St. Louis District Iowa Army Ammunition Plant Operable Unit 8 Annual Environmental Monitoring Data and Analysis Report for Calendar Year 2016*. Revision 0. June.

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

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

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

USEPA 2014. U.S. Environmental Protection Agency. CAP88-PC Version 4.0.1.17 Computer Code. September.

USEPA 2015. U.S. Environmental Protection Agency. "Rad NESHAPs Models." Radiation Protection. http://www.epa.gov/radiation/neshaps/models.html. Accessed September 2015.

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

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.*

FIGURES

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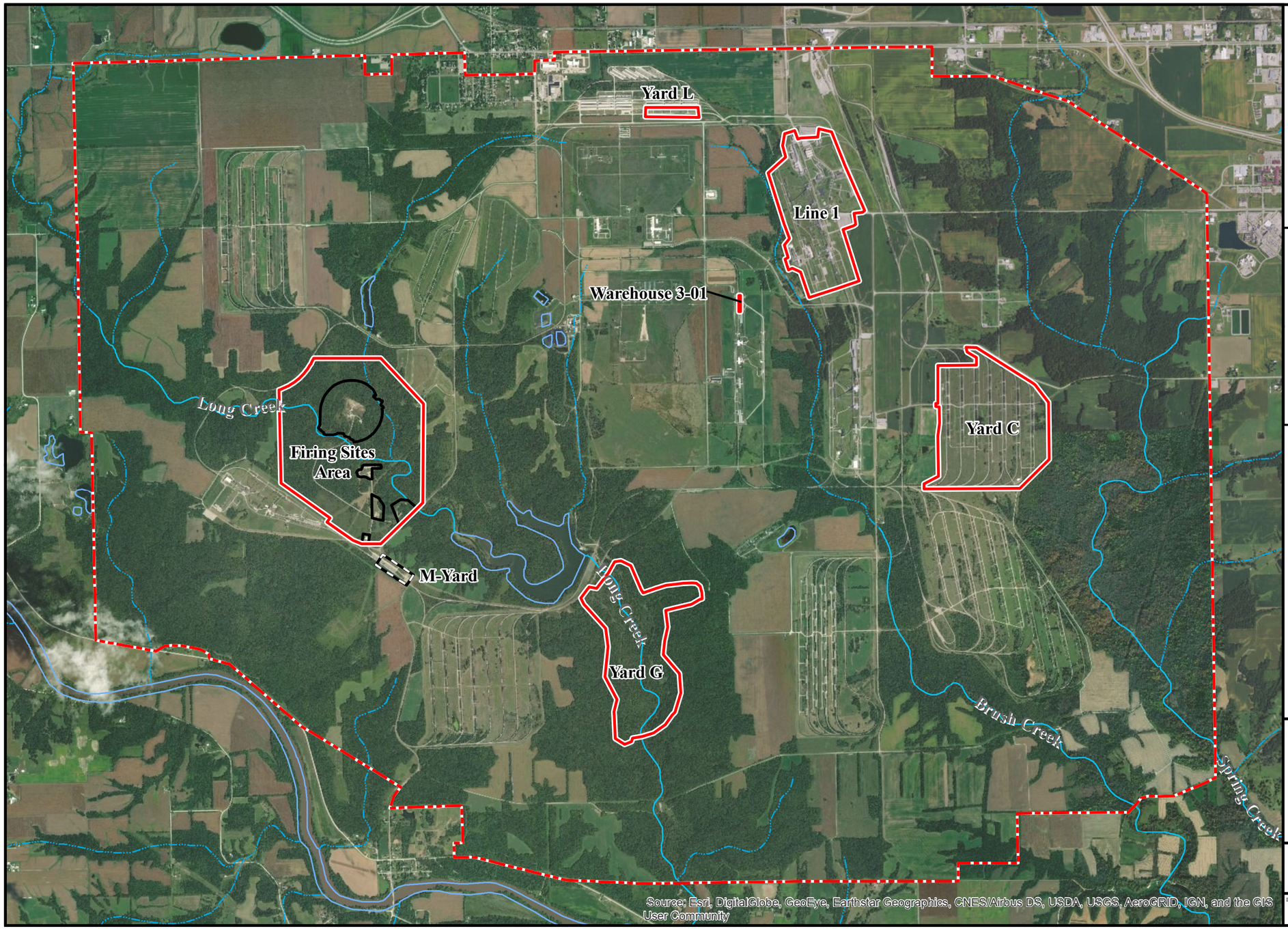
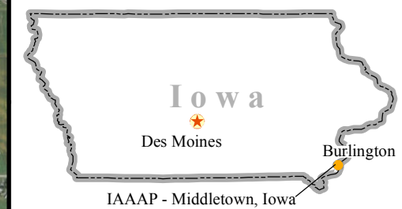
Path: U:\GPS\IAAAP\EMDAR\CY2017\Rev0\Figure 1 IAAAP FUSRAP Locations EMDAR (11x17).mxd



LEGEND:

- OU-8 Sites
- M-Yard
- Firing Site Areas
- IAAAP Boundary
- Surface Water



N
W E
S

Iowa-South State Plane
(NAD 83, Meters)

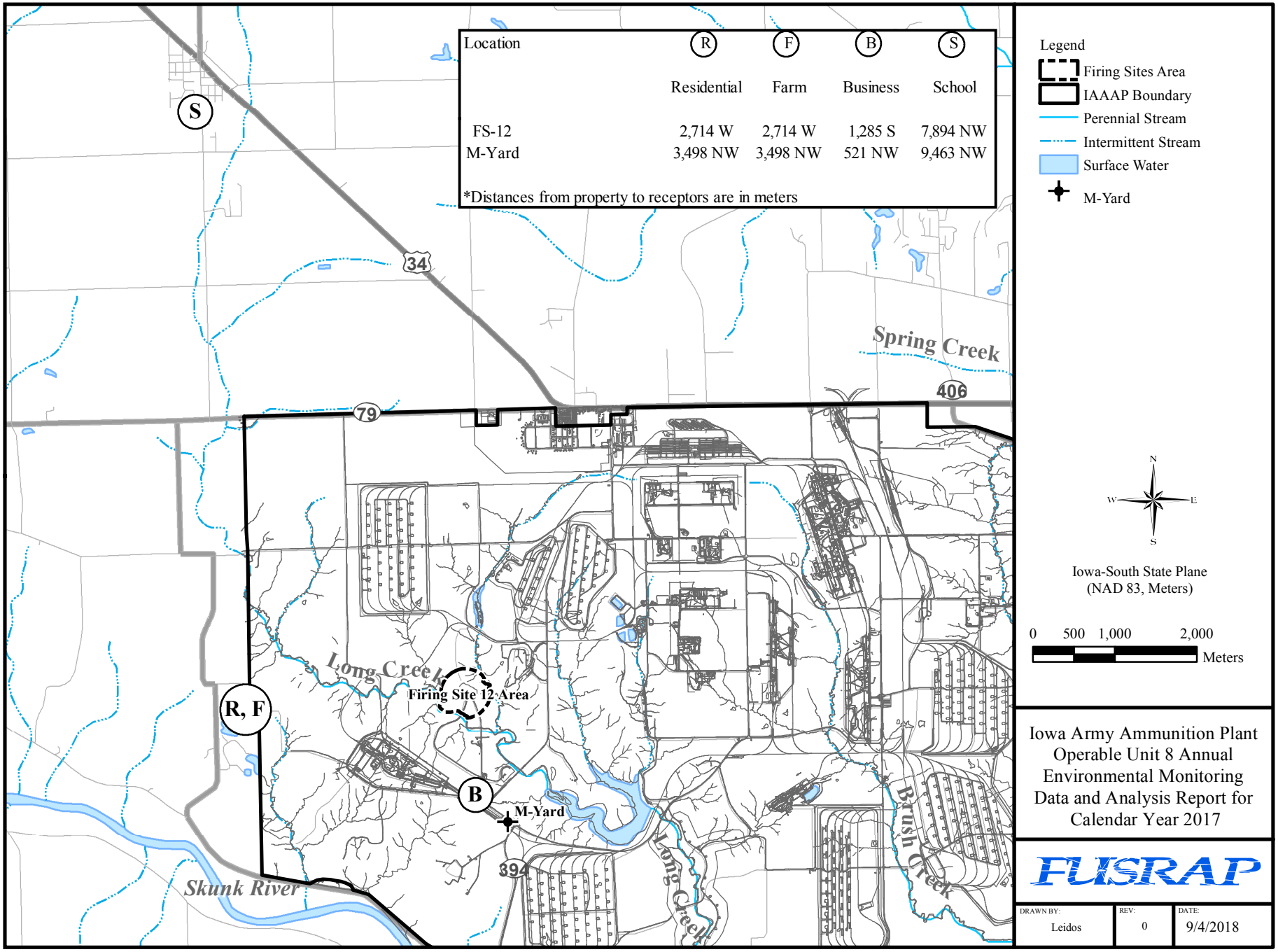
0 500 1,000 Meters

Iowa Army Ammunition Plant
Operable Unit 8 Annual
Environmental Monitoring
Data and Analysis Report for
Calendar Year 2017

FUSRAP

DRAWN BY:	REV:	DATE:
Leidos	0	9/4/2018

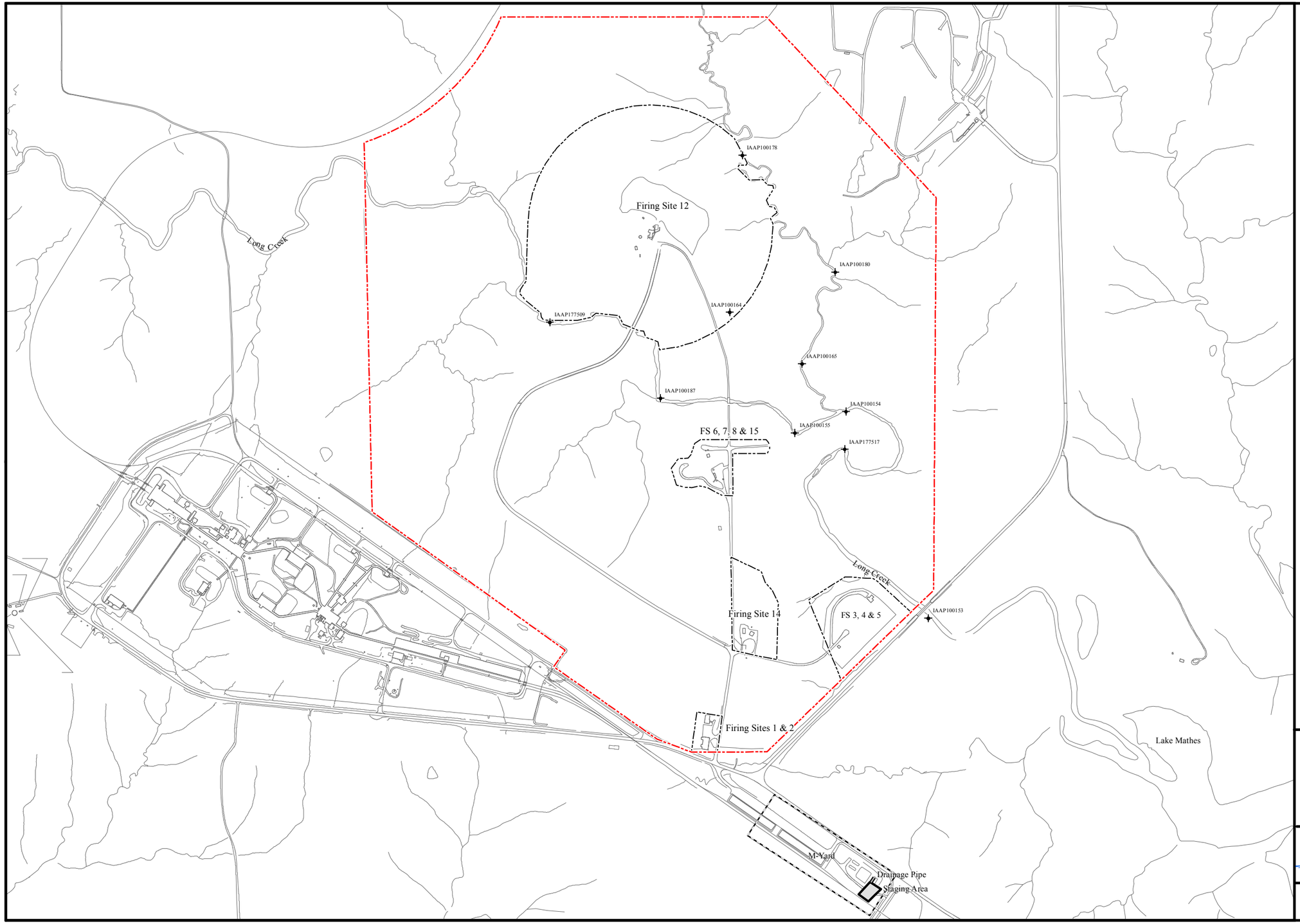
Figure 1-1.
FUSRAP Areas at the IAAAP



Path: U:\GPSI\IAAAP\EMDAR\CY2017\Rev0\Figure 3-1 FS-12 EMDAR (Letter).mxd

Figure 3-1. IAAAP
Firing Sites Area Receptors

Path: U:\GPS\IAAAP\EMDAR\CY2017\Rev0\Figure 4-1 Firing Sites Sediment Sample Locations Emdar.mxd



LEGEND:

- Environmental Monitoring Sample Locations
- Firing Sites Area
- Firing Site Boundaries
- Surface Feature
- M-Yard
- M-Yard Staging Area
- Drainage Pipe

N
W E
S

IA-South State Plane
(NAD 83, Meters)

0 500 1,000 Feet

Iowa Army Ammunition Plant
Operable Unit 8 Annual
Environmental Monitoring
Data and Analysis Report for
Calendar Year 2017

FUSRAP

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Figure 4-1. Surface-Water and Sediment Monitoring Locations

APPENDIX A

CALCULATED EMISSION RATES FROM IAAAP OPERABLE UNIT 8 SITES

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Table A-1. Total Days for CY 2017

Location	Open Date	Close Date	Total Days
FS-12 Area SUs (Areas F, G, H)	05/04/17	10/26/17	176
FS-12 Area Pre-Sorting Pile	05/18/17	10/26/17	162
FS-12 Area Post-Sorting Contaminated Pile	05/18/17	11/15/17	182
M-Yard Post-Sorting Contaminated Pile	10/26/17	11/06/17	12

Table A-2. FS-12 Area Average Surface Area and Flow Rate Per Location for CY 2017

Location	Surface Area (m^2)	Total Days[a]	Surface Area × Total Days	Average Surface Area/Year (A)[c] (m^2)	Diameter of Stack D = $(1.3\ A)^{1/2}$ (m)	Flow Rated[d] $F = V\ \pi\ [(D)^2 / 4]*60$ (m^3/minute)
FS-12 Area						
SUs (Areas F, G, H)	13,000	176	2,288,000			
Pre-Sorting Pile[b]	2,000	162	324,000			
Post-Sorting Contaminated Pile[b]	400	182	72,800			
		Total	**2,684,800**	**7,336**	**98**	**1.9E+06**
M-Yard						
Post-Sorting Contaminated Pile[b]	400	12	**4,800**	**13**	**4**	**3.4E+03**

[a] Total days were based on the 2017 dates in which potential wind-erosion occurred, as listed in Table A-1.
[b] No data identifying the area associated with the pre- and post-sorting piles existed. Therefore, the pre-sorting contaminated pile area was set at 2,000 m^2 (conservative value selected based on previous years' area values). The post-sorting contaminated piles at both FS-12 and the M-Yard were set at 400 m^2, which corresponds to 20 percent of the pre-sorting pile. The average volume ratio of post-sorting contaminated pile to pre-sorting pile is 13 percent.
[c] Average surface area/year (A) = [Σ(surface area x total days)]/365.
[d] V = 4.252 m per second

Table A-3. Airborne Radioactive Particulate Emissions Based on Excavation Perimeter Air Samples

Radionuclide	Gross Alpha Concentration (µCi/cm^3)	Activity Fraction[a]	Emission Concentration (µCi/cm^3)[b]	Emission Rate (Ci/year)[c]
FS-12 Area				
U-238	3.42E-15	0.9014	3.1E-15	3.1E-03
U-235	3.42E-15	0.0145	5.0E-17	5.0E-05
U-234	3.42E-15	0.0840	2.9E-16	2.9E-04
M-Yard				
U-238	1.47E-15	0.9014	1.3E-15	2.4E-06
U-235	1.47E-15	0.0145	2.1E-17	3.8E-08
U-234	1.47E-15	0.0840	1.2E-16	2.2E-07

[a] As listed in the ROD (USACE 2011).
[b] Emission concentration is equal to the activity fraction multiplied by the gross alpha airborne particulate concentrations.
[c] Emission rate is based on a 365-day period calculated flow rate (Table A-2) for each site as determined from the average annual wind speed (4.252 m per second) and calculated site area (Table A-2). (Note: 1 mL = 1 cm^3).

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APPENDIX B

CAP88-PC OUTPUT REPORT FOR IAAAP OPERABLE UNIT 8 SITES

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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
Mon Apr 16 15:14:09 2018

Facility: FS-12 IAAAP
Address: Iowa Army Ammunition Plant
City: Middletown
State: IA Zip: 52638

Source Category: Area
Source Type: Area
Emission Year: 2017
DOSE Age Group: Adult

Comments: FS-12 Emissions
FS-12 Emissions

Dataset Name: FS-12 Emissions
Dataset Date: Apr 16, 2018 03:14 PM
Wind File: C:\Users\passigm\Documents\CAP88\Wind Files\14923.WND

Mon Apr 16 15:14:09 2018 SUMMARY
Page 1

ORGAN DOSE EQUIVALENT SUMMARY

Organ	Selected Individual (mrem)
Adrenal	2.18E-03
UB_Wall	2.29E-03
Bone_Sur	3.16E-02
Brain	2.23E-03
Breasts	2.60E-03
St_Wall	2.30E-03
SI_Wall	2.25E-03
ULI_Wall	2.45E-03
LLI_Wall	2.87E-03
Kidneys	1.15E-02
Liver	5.14E-03
Muscle	2.55E-03
Ovaries	2.20E-03
Pancreas	2.16E-03
R_Marrow	4.35E-03
Skin	4.17E-01
Spleen	2.30E-03
Testes	2.61E-03
Thymus	2.27E-03
Thyroid	2.40E-03
GB_Wall	2.18E-03
Ht_Wall	2.25E-03
Uterus	2.21E-03
ET_Reg	2.54E-02
Lung_66	1.01E-01
Effectiv	1.91E-02

PATHWAY COMMITTED EFFECTIVE DOSE EQUIVALENT SUMMARY

Pathway	Selected Individual (mrem)
INGESTION	5.44E-04
INHALATION	1.29E-02
AIR IMMERSION	3.52E-09
GROUND SURFACE	5.56E-03
INTERNAL	1.35E-02
EXTERNAL	5.56E-03
TOTAL	1.91E-02

Mon Apr 16 15:14:09 2018 SUMMARY
Page 2

NUCLIDE COMMITTED EFFECTIVE DOSE EQUIVALENT SUMMARY

Nuclide	Selected Individual (mrem)
U-234	1.35E-03
Th-230	8.43E-10
Ra-226	1.02E-10
Rn-222	5.70E-12
Po-218	1.02E-16
Pb-214	3.72E-09
At-218	3.83E-16
Bi-214	2.18E-08
Rn-218	2.22E-18
Po-214	1.21E-12
Tl-210	8.49E-12
Pb-210	1.42E-11
Bi-210	2.30E-10
Hg-206	1.86E-17
Po-210	5.91E-14
Tl-206	5.37E-16
U-235	3.13E-04
Th-231	1.09E-05
Pa-231	1.81E-08
Ac-227	6.06E-11
Th-227	2.89E-08
Fr-223	2.73E-10
Ra-223	3.23E-08
Rn-219	1.40E-08
At-219	0.00E+00
Bi-215	6.30E-14
Po-215	4.28E-11
Pb-211	2.75E-08
Bi-211	1.13E-08
Tl-207	1.42E-08
Po-211	5.45E-12
U-238	1.20E-02
Th-234	3.63E-04
Pa-234m	4.97E-03
Pa-234	9.79E-05
TOTAL	1.91E-02

CANCER RISK SUMMARY

Cancer	Selected Individual Total Lifetime Fatal Cancer Risk

PATHWAY RISK SUMMARY

Pathway	Selected Individual Total Lifetime Fatal Cancer Risk
INGESTION	3.30E-11
INHALATION	4.44E-09
AIR IMMERSION	1.86E-15
GROUND SURFACE	1.18E-09
INTERNAL	4.48E-09
EXTERNAL	1.18E-09
TOTAL	5.66E-09

Mon Apr 16 15:14:09 2018 SUMMARY
Page 4

NUCLIDE RISK SUMMARY

Nuclide	Selected Individual Total Lifetime Fatal Cancer Risk
U-234	4.63E-10
Th-230	3.58E-16
Ra-226	5.57E-17
Rn-222	3.11E-18
Po-218	4.55E-23
Pb-214	1.99E-15
At-218	4.72E-23
Bi-214	1.15E-14
Rn-218	1.21E-24
Po-214	6.62E-19
Tl-210	4.54E-18
Pb-210	6.38E-18
Bi-210	2.55E-17
Hg-206	8.24E-24
Po-210	3.24E-20
Tl-206	6.04E-23
U-235	1.26E-10
Th-231	4.97E-12
Pa-231	9.42E-15
Ac-227	2.26E-17
Th-227	1.57E-14
Fr-223	1.02E-16
Ra-223	1.75E-14
Rn-219	7.66E-15
At-219	0.00E+00
Bi-215	2.81E-20
Po-215	2.34E-17
Pb-211	9.83E-15
Bi-211	6.19E-15
Tl-207	1.83E-15
Po-211	2.99E-18
U-238	3.95E-09
Th-234	1.88E-10
Pa-234m	8.69E-10
Pa-234	5.32E-11
TOTAL	5.66E-09

Mon Apr 16 15:14:09 2018 SUMMARY
Page 5

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

	Distance (m)		
Direction	1285	2714	7894
N	1.9E-02	5.7E-03	1.4E-03
NNW	7.4E-03	2.4E-03	7.8E-04
NW	5.8E-03	1.9E-03	7.0E-04
WNW	1.1E-02	3.2E-03	9.3E-04
W	1.8E-02	5.2E-03	1.3E-03
WSW	8.4E-03	2.6E-03	8.3E-04
SW	4.4E-03	1.5E-03	6.3E-04
SSW	3.3E-03	1.2E-03	5.7E-04
S	5.4E-03	1.8E-03	6.9E-04
SSE	3.9E-03	1.4E-03	6.1E-04
SSE	5.0E-03	1.7E-03	6.8E-04
ESE	8.2E-03	2.7E-03	8.5E-04
E	1.4E-02	4.2E-03	1.1E-03
ENE	1.6E-02	4.8E-03	1.2E-03
NE	1.1E-02	3.5E-03	9.8E-04
NNE	1.0E-02	3.2E-03	9.4E-04

Note: Highlighted EDE values (in mrem) are applicable to the critical receptors as defined in Section 3.3.4 of this report taking into account the distance and direction from the applicable site to each receptor. The highlighted value assumes 100 percent occupancy.

Mon Apr 16 15:14:09 2018 SUMMARY
Page 6

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

	Distance (m)		
Direction	1285	2714	7894
N	5.7E-09	1.6E-09	3.2E-10
NNW	2.1E-09	6.1E-10	1.3E-10
NW	1.7E-09	4.8E-10	1.1E-10
WNW	3.1E-09	8.7E-10	1.8E-10
W	5.2E-09	1.5E-09	2.9E-10
WSW	2.4E-09	6.9E-10	1.5E-10
SW	1.2E-09	3.6E-10	8.8E-11
SSW	8.9E-10	2.7E-10	7.1E-11
S	1.5E-09	4.5E-10	1.1E-10
SSE	1.1E-09	3.2E-10	8.3E-11
SSE	1.4E-09	4.2E-10	1.0E-10
ESE	2.4E-09	6.9E-10	1.5E-10
E	4.1E-09	1.2E-09	2.4E-10
ENE	4.8E-09	1.4E-09	2.7E-10
NE	3.3E-09	9.4E-10	1.9E-10
NNE	3.1E-09	8.6E-10	1.8E-10

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

Non-Radon Individual Assessment
Mon Apr 16 15:18:43 2018

Facility: M-Yard IAAAP
Address: Iowa Army Ammunition Plant
City: Middletown
State: IA Zip: 52638

Source Category: Area
Source Type: Area
Emission Year: 2017
DOSE Age Group: Adult

Comments: FS-12 Emissions
FS-12 Emissions

Dataset Name: M-Yard Emissions
Dataset Date: Apr 16, 2018 03:18 PM
Wind File: C:\Users\passigm\Documents\CAP88\Wind Files\14923.WND

Mon Apr 16 15:18:43 2018 SUMMARY
Page 1

ORGAN DOSE EQUIVALENT SUMMARY

Organ	Selected Individual (mrem)
Adrenal	8.46E-06
UB_Wall	8.89E-06
Bone_Sur	1.23E-04
Brain	8.67E-06
Breasts	1.01E-05
St_Wall	8.90E-06
SI_Wall	8.70E-06
ULI_Wall	9.39E-06
LLI_Wall	1.08E-05
Kidneys	4.49E-05
Liver	2.00E-05
Muscle	9.89E-06
Ovaries	8.54E-06
Pancreas	8.37E-06
R_Marrow	1.69E-05
Skin	1.61E-03
Spleen	8.92E-06
Testes	1.01E-05
Thymus	8.80E-06
Thyroid	9.33E-06
GB_Wall	8.48E-06
Ht_Wall	8.74E-06
Uterus	8.58E-06
ET_Reg	1.06E-04
Lung_66	4.23E-04
Effectiv	7.78E-05

PATHWAY COMMITTED EFFECTIVE DOSE EQUIVALENT SUMMARY

Pathway	Selected Individual (mrem)
INGESTION	1.73E-06
INHALATION	5.45E-05
AIR IMMERSION	1.46E-11
GROUND SURFACE	2.16E-05
INTERNAL	5.62E-05
EXTERNAL	2.16E-05
TOTAL	7.78E-05

Mon Apr 16 15:18:43 2018 SUMMARY
Page 2

NUCLIDE COMMITTED EFFECTIVE DOSE EQUIVALENT SUMMARY

Nuclide	Selected Individual (mrem)
U-234	5.52E-06
Th-230	3.20E-12
Ra-226	3.89E-13
Rn-222	2.16E-14
Po-218	3.87E-19
Pb-214	1.41E-11
At-218	1.45E-18
Bi-214	8.26E-11
Rn-218	8.42E-21
Po-214	4.58E-15
Tl-210	3.23E-14
Pb-210	5.41E-14
Bi-210	8.74E-13
Hg-206	7.05E-20
Po-210	2.24E-16
Tl-206	2.04E-18
U-235	1.25E-06
Th-231	4.14E-08
Pa-231	6.87E-11
Ac-227	2.30E-13
Th-227	1.10E-10
Fr-223	1.04E-12
Ra-223	1.23E-10
Rn-219	5.33E-11
At-219	0.00E+00
Bi-215	2.40E-16
Po-215	1.63E-13
Pb-211	1.05E-10
Bi-211	4.31E-11
Tl-207	5.42E-11
Po-211	2.07E-14
U-238	4.99E-05
Th-234	1.41E-06
Pa-234m	1.92E-05
Pa-234	3.79E-07
TOTAL	7.78E-05

CANCER RISK SUMMARY

Cancer	Selected Individual Total Lifetime Fatal Cancer Risk

PATHWAY RISK SUMMARY

Pathway	Selected Individual Total Lifetime Fatal Cancer Risk
INGESTION	1.04E-13
INHALATION	1.87E-11
AIR IMMERSION	7.71E-18
GROUND SURFACE	4.57E-12
INTERNAL	1.88E-11
EXTERNAL	4.57E-12
TOTAL	2.34E-11

Mon Apr 16 15:18:43 2018 SUMMARY
Page 4

NUCLIDE RISK SUMMARY

Nuclide	Selected Individual Total Lifetime Fatal Cancer Risk
U-234	1.90E-12
Th-230	1.36E-18
Ra-226	2.11E-19
Rn-222	1.18E-20
Po-218	1.73E-25
Pb-214	7.56E-18
At-218	1.79E-25
Bi-214	4.36E-17
Rn-218	4.61E-27
Po-214	2.51E-21
Tl-210	1.72E-20
Pb-210	2.42E-20
Bi-210	9.69E-20
Hg-206	3.13E-26
Po-210	1.23E-22
Tl-206	2.29E-25
U-235	5.03E-13
Th-231	1.89E-14
Pa-231	3.58E-17
Ac-227	8.61E-20
Th-227	5.96E-17
Fr-223	3.86E-19
Ra-223	6.64E-17
Rn-219	2.91E-17
At-219	0.00E+00
Bi-215	1.07E-22
Po-215	8.92E-20
Pb-211	3.74E-17
Bi-211	2.35E-17
Tl-207	6.96E-18
Po-211	1.14E-20
U-238	1.67E-11
Th-234	7.29E-13
Pa-234m	3.37E-12
Pa-234	2.06E-13
TOTAL	2.34E-11

Mon Apr 16 15:18:43 2018 SUMMARY
Page 5

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

	Distance (m)		
Direction	521	3498	9463
N	7.8E-05	3.9E-06	1.8E-06
NNW	3.0E-05	2.2E-06	1.4E-06
NW	2.3E-05	2.0E-06	1.4E-06
WNW	4.3E-05	2.7E-06	1.5E-06
W	7.3E-05	3.7E-06	1.7E-06
WSW	3.4E-05	2.4E-06	1.5E-06
SW	1.7E-05	1.8E-06	1.4E-06
SSW	1.3E-05	1.7E-06	1.3E-06
S	2.1E-05	2.0E-06	1.4E-06
SSE	1.5E-05	1.7E-06	1.3E-06
SSE	1.9E-05	1.9E-06	1.4E-06
ESE	3.2E-05	2.4E-06	1.5E-06
E	5.7E-05	3.2E-06	1.6E-06
ENE	6.7E-05	3.5E-06	1.7E-06
NE	4.7E-05	2.8E-06	1.6E-06
NNE	4.3E-05	2.7E-06	1.5E-06

Note: Highlighted EDE values (in mrem) are applicable to the critical receptors as defined in Section 3.3.4 of this report taking into account the distance and direction from the applicable site to each receptor. The highlighted value assumes 100 percent occupancy.

Mon Apr 16 15:18:43 2018 SUMMARY
Page 6

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

	Distance (m)		
Direction	521	3498	9463
N	2.3E-11	8.8E-13	2.4E-13
NNW	8.8E-12	3.8E-13	1.4E-13
NW	6.8E-12	3.1E-13	1.2E-13
WNW	1.3E-11	5.1E-13	1.6E-13
W	2.2E-11	8.2E-13	2.3E-13
WSW	1.0E-11	4.2E-13	1.4E-13
SW	4.9E-12	2.5E-13	1.1E-13
SSW	3.6E-12	2.0E-13	1.0E-13
S	6.1E-12	2.9E-13	1.2E-13
SSE	4.3E-12	2.3E-13	1.1E-13
SSE	5.5E-12	2.8E-13	1.2E-13
ESE	9.5E-12	4.2E-13	1.5E-13
E	1.7E-11	6.6E-13	2.0E-13
ENE	2.0E-11	7.6E-13	2.1E-13
NE	1.4E-11	5.4E-13	1.7E-13
NNE	1.3E-11	5.0E-13	1.6E-13

APPENDIX C

CALENDAR YEAR 2017 AIR MONITORING DATA

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Table C-1. CY 2017 IAAAP Air Sample Summary Table

Date	Sample ID	Area	Gross Alpha Concentration (µCi/mL)		
			1st Count	2nd Count	3rd Count
04/20/17	20170421-001	FS-1 Background	7.31E-16	-	-
05/02/17	20170502-002	Bobcat RotoTiller	6.49E-15	-	-
05/03/17	20170503-003	Bobcat RotoTiller	1.30E-14	-	-
05/03/17	20170503-004	Amec Soil Sorting Area	5.01E-15	-	-
05/03/17	20170503-005	Amec Soil Sorting Area	-2.42E-15	-	-
05/03/17	20170503-006	Bobcat RotoTiller	-1.95E-14	-	-
05/04/17	20170504-007	Bobcat RotoTiller	-6.06E-15	-	-
05/04/17	20170504-009	Amec Soil Sorting Area	1.96E-15	-	-
05/04/17	20170504-010	Boundry	4.27E-15	-	-
05/05/17	20170505-008	Bobcat RotoTiller	8.75E-16	-	-
05/08/17	20170508-011	Bobcat RotoTiller	-8.56E-16	-	-
05/09/17	20170509-012	Amec Soil Sorting Area	8.59E-16	-	-
05/09/17	20170509-013	Boundry	5.29E-15	-	-
05/09/17	20170509-014	Bobcat RotoTiller	0.00E+00	-	-
05/10/17	20170510-015	Bobcat RotoTiller	-7.42E-15	-	-
05/12/17	20170512-016	Amec Soil Sorting Area	1.60E-15	-	-
05/12/17	20170512-017	Boundry	2.74E-15	-	-
05/12/17	20170512-018	Bobcat RotoTiller	3.23E-15	-	-
05/16/17	20170516-019	Amec Soil Sorting Area	9.69E-15	-	-
05/16/17	20170516-020	Boundry	4.50E-15	-	-
05/18/17	20170518-021	Bobcat RotoTiller	-3.89E-15	-	-
05/18/17	20170518-022	Boundry	5.18E-15	-	-
05/31/17	20170518-023	Amec Soil Sorting Area	7.83E-15	-	-
05/25/17	20170525-024	Amec Soil Sorting Area	1.85E-14	-	-
05/31/17	20170531-025	Amec Soil Sorting Area	2.35E-15	6.3E-14	-
06/02/17	20170602-026	Boundry	3.45E-15	-	-
06/02/17	20170602-027	Amec Soil Sorting Area	4.55E-15	-	-
06/13/17	20170606-028	Amec Soil Sorting Area	4.55E-15	-	-
06/13/17	20170606-029	FS12 SCA Boundary	7.62E-17	-	-
06/16/17	20170608-030	Amec Soil Sorting Area	7.74E-15	-	-
06/16/17	20170608-031	FS12 SCA Boundary	2.64E-15	-	-
06/19/17	20170612-032	Amec Soil Sorting Area	7.29E-15	-	-
06/19/17	20170612-033	FS12 SCA Boundary	1.72E-15	-	-
06/26/17	20170615-034	Amec Soil Sorting Area	7.16E-15	-	-
06/26/17	20170615-035	FS12 SCA Boundary	3.01E-15	-	-
06/27/17	20170619-036	FS12 SCA Boundary	3.09E-15	-	-
06/19/17	20170619-037	Amec Soil Sorting Area	1.21E-15	-	-
06/29/17	20170621-038	FS12 SCA Boundary	5.28E-16	-	-
07/12/17	20170623-039	Bobcat RotoTiller	2.23E-15	-	-

Table C-1. CY 2017 IAAAP Air Sample Summary Table

Date	Sample ID	Area	Gross Alpha Concentration (µCi/mL)		
			1st Count	2nd Count	3rd Count
07/12/17	20170626-040	FS12 SCA Boundary	4.22E-15	-	-
07/12/17	20170626-041	FS12 SCA Boundary	4.97E-15	-	-
07/12/17	20170626-042	Bobcat RotoTiller	2.23E-15	-	-
07/14/17	20170629-043	Bobcat RotoTiller	2.23E-15	-	-
07/14/17	20170629-044	FS12 SCA Boundary	5.05E-15	-	-
07/14/17	20170629-045	FS12 SCA Boundary	1.51E-16	-	-
07/17/17	20170706-046	FS12 SCA Boundary	8.29E-16	-	-
07/17/17	20170706-047	Amec Soil Sorting Area	2.34E-15	-	-
07/19/17	20170712-048	FS12 SCA Boundary	4.52E-15	-	-
07/19/17	20170712-049	Amec Soil Sorting Area	7.54E-15	-	-
07/24/17	20170717-050	Amec Soil Sorting Area	3.92E-15	-	-
07/24/17	20170717-051	FS12 SCA Boundary	5.28E-16	-	-
07/28/17	20170719-052	Amec Soil Sorting Area	4.30E-15	-	-
07/28/17	20170719-053	FS12 SCA Boundary	4.22E-15	-	-
07/31/17	20170721-054	FS12 SCA Boundary	2.71E-15	-	-
07/31/17	20170721-055	Amec Soil Sorting Area	1.21E-15	-	-
08/02/17	20170725-056	Amec Soil Sorting Area	3.77E-15	-	-
08/02/17	20170725-057	FS12 SCA Boundary	4.90E-15	-	-
08/04/17	20170725-059	FS12 SCA Boundary	4.15E-15	-	-
08/04/17	20170728-058	Amec Soil Sorting Area	1.51E-15	-	-
08/09/17	20170801-060	Amec Soil Sorting Area	5.35E-15	-	-
08/09/17	20170801-061	FS12 SCA Boundary	3.09E-15	-	-
08/14/17	20170804-062	Amec Soil Sorting Area	9.87E-15	-	-
08/14/17	20170804-063	FS12 SCA Boundary	4.60E-15	-	-
08/17/17	20170808-064	Amec Soil Sorting Area	2.03E-15	-	-
08/17/17	20170808-065	FS12 SCA Boundary	1.66E-15	-	-
08/18/17	20170810-066	FS12 SCA Boundary	3.77E-15	-	-
08/18/17	20170810-067	Amec Soil Sorting Area	1.51E-15	-	-
08/22/17	20170814-068	FS12 SCA Boundary	2.61E-15	-	-
08/24/17	20170814-069	Amec Soil Sorting Area	6.50E-15	-	-
08/25/17	20170817-070	FS12 SCA Boundary	8.02E-16	-	-
08/29/17	20170821-071	Amec Soil Sorting Area	7.84E-15	-	-
08/29/17	20170821-072	FS12 SCA Boundary	6.86E-15	-	-
09/01/17	20170824-073	Amec Soil Sorting Area	1.77E-15	-	-
09/01/17	20170824-074	FS12 SCA Boundary	2.12E-15	-	-
09/08/17	20170830-075	FS12 SCA Boundary	2.12E-15	-	-
09/08/17	20170830-076	Amec Soil Sorting Area	6.36E-15	-	-
09/08/17	20170901-077	FS12 SCA Boundary	7.54E-16	-	-
09/08/17	20170901-078	Amec Soil Sorting Area	1.06E-15	-	-

Table C-1. CY 2017 IAAAP Air Sample Summary Table

Date	Sample ID	Area	Gross Alpha Concentration (µCi/mL)		
			1st Count	2nd Count	3rd Count
09/13/17	20170906-079	Amec Soil Sorting Area	-7.28E-15	-	-
09/15/17	20170908-080	Amec Soil Sorting Area	3.53E-15	-	-
09/15/17	20170908-081	Amec Soil Sorting Area	4.24E-15	-	-
09/22/17	20170912-082	FS12 SCA Boundary	1.43E-15	-	-
09/22/17	20170912-083	Amec Soil Sorting Area	3.11E-15	-	-
09/22/17	20170914-084	FS12 SCA Boundary	6.36E-16	-	-
09/25/17	20170914-085	Amec Soil Sorting Area	3.82E-15	-	-
10/02/17	20170927-086	FS12 SCA Boundary	-9.04E-16	-	-
10/02/17	20170927-087	Amec Soil Sorting Area	4.31E-15	1.96E-15	-
10/12/17	20170929-088	Amec Soil Sorting Area	3.67E-15	-	-
10/12/17	20170929-089	FS12 SCA Boundary	4.24E-16	-	-
10/13/17	20171004-090	FS12 SCA Boundary	1.13E-15	-	-
10/13/17	20171004-091	Amec Soil Sorting Area	2.19E-15	-	-
10/17/17	20171010-092	FS12 SCA Boundary	1.13E-15	-	-
10/17/17	20171010-093	Amec Soil Sorting Area	3.60E-15	-	-
10/24/17	20171018-094	FS12 SCA Boundary	6.78E-16	-	-
10/24/17	20171018-095	FS12 SCA Boundary	6.78E-16	-	-
10/30/17	20171020-096	FS12 SCA Boundary	1.57E-15	-	-
10/30/17	20171020-097	Amec Soil Sorting Area	8.37E-15	-	-
10/31/17	20171025-098	FS12 SCA Boundary	2.26E-16	-	-
10/31/17	20171025-099	Amec Soil Sorting Area	2.19E-15	-	-
11/09/17	20171027-100	Amec Soil Sorting Area	1.88E-15	-	-
11/13/17	20171102-105	FS12 CRZ Boundry	3.63E-15	-	-
11/13/17	20171106-107	FS12 CRZ Boundry	-2.02E-15	-	-
11/09/17	20171027-101	M Yard	5.02E-15	-	-
11/09/17	20171031-102	M Yard	8.70E-16	-	-
11/13/17	20171102-104	M Yard	-8.07E-16	-	-
11/13/17	20171106-106	M Yard	-1.21E-15	-	-

Negative results indicate result was less than the average background value for the instrument.

- Count not performed.

Table C-2. CY 2017 IAAAP Air Sample Laboratory Analysis Summary Table

Sample ID	Station Name	Sample Name	Collect Date	Analyte	Result	Error	Detection Limit	Units	VQ
AS20170509-010	Boundary	IAAP200576	05/05/17	Gross Alpha	1.5041E-14	5.4989E-15	3.7287E-15	µCi/mL	=
	Boundary	IAAP200576	05/05/17	Gross Beta	6.0853E-14	1.0372E-14	6.5599E-15	µCi/mL	=
AS20170509-013	Boundary	IAAP200577	05/09/17	Gross Alpha	1.6405E-14	8.7536E-15	8.0941E-15	µCi/mL	J
	Boundary	IAAP200577	05/09/17	Gross Beta	6.4187E-14	1.661E-14	1.424E-14	µCi/mL	=
AS20170518-022	Boundary	IAAP200578	05/18/17	Gross Alpha	7.7757E-15	4.1491E-15	3.8365E-15	µCi/mL	J
	Boundary	IAAP200578	05/18/17	Gross Beta	5.2172E-14	9.7955E-15	6.7495E-15	µCi/mL	=
AS20170615-035	Boundary	IAAP200579	06/15/17	Gross Alpha	3.9906E-15	3.1063E-15	3.6873E-15	µCi/mL	J
	Boundary	IAAP200579	06/15/17	Gross Beta	5.7668E-14	1.0049E-14	6.487E-15	µCi/mL	=
AS20170619-036	Boundary	IAAP200580	06/19/17	Gross Alpha	9.65E-15	4.4574E-15	3.6873E-15	µCi/mL	=
	Boundary	IAAP200580	06/19/17	Gross Beta	5.0143E-14	9.4146E-15	6.487E-15	µCi/mL	=
AS20170621-038	Boundary	IAAP200581	06/21/17	Gross Alpha	7.4733E-15	3.9878E-15	3.6873E-15	µCi/mL	J
	Boundary	IAAP200581	06/21/17	Gross Beta	5.0701E-14	9.462E-15	6.487E-15	µCi/mL	=
AS20170629-045	Boundary	IAAP200582	06/29/17	Gross Alpha	5.7319E-15	3.5723E-15	3.6873E-15	µCi/mL	J
	Boundary	IAAP200582	06/29/17	Gross Beta	2.3666E-14	7.0431E-15	6.487E-15	µCi/mL	=
AS20170712-046	Boundary	IAAP200583	07/06/17	Gross Alpha	1.0956E-14	4.7191E-15	3.6873E-15	µCi/mL	=
	Boundary	IAAP200583	07/06/17	Gross Beta	3.5372E-14	8.1252E-15	6.487E-15	µCi/mL	=
AS20170712-048	Boundary	IAAP200584	07/12/17	Gross Alpha	1.3568E-14	5.2077E-15	3.6873E-15	µCi/mL	=
	Boundary	IAAP200584	07/12/17	Gross Beta	6.9652E-14	1.1035E-14	6.487E-15	µCi/mL	=
AS20170719-053	Boundary	IAAP200585	07/19/17	Gross Alpha	1.5658E-14	5.4774E-15	3.5684E-15	µCi/mL	=
	Boundary	IAAP200585	07/19/17	Gross Beta	7.3879E-14	1.1201E-14	6.2777E-15	µCi/mL	=
AS20170725-057	Boundary	IAAP200586	07/25/17	Gross Alpha	6.1673E-15	3.6802E-15	3.6873E-15	µCi/mL	J
	Boundary	IAAP200586	07/25/17	Gross Beta	3.0913E-14	7.7206E-15	6.487E-15	µCi/mL	=
AS20170804-063	Boundary	IAAP200587	08/04/17	Gross Alpha	1.0085E-14	4.5461E-15	3.6873E-15	µCi/mL	=
	Boundary	IAAP200587	08/04/17	Gross Beta	4.3733E-14	8.8634E-15	6.487E-15	µCi/mL	=
AS20170808-065	Boundary	IAAP200588	08/08/17	Gross Alpha	1.3133E-14	5.1291E-15	3.6873E-15	µCi/mL	=
	Boundary	IAAP200588	08/08/17	Gross Beta	2.506E-14	7.1756E-15	6.487E-15	µCi/mL	=
AS20170817-070	Boundary	IAAP200589	08/17/17	Gross Alpha	1.6615E-14	5.7325E-15	3.6873E-15	µCi/mL	=
	Boundary	IAAP200589	08/17/17	Gross Beta	4.7356E-14	9.1763E-15	6.487E-15	µCi/mL	=

Table C-2. CY 2017 IAAAP Air Sample Laboratory Analysis Summary Table

Sample ID	Station Name	Sample Name	Collect Date	Analyte	Result	Error	Detection Limit	Units	VQ
AS20170824-074	Boundary	IAAP200590	08/24/17	Gross Alpha	5.7818E-15	3.4502E-15	3.4568E-15	µCi/mL	J
	Boundary	IAAP200590	08/24/17	Gross Beta	2.9765E-14	7.3098E-15	6.0815E-15	µCi/mL	=
AS20170901-077	Boundary	IAAP200591	09/01/17	Gross Alpha	3.1199E-15	2.8467E-15	3.6873E-15	µCi/mL	=
	Boundary	IAAP200591	09/01/17	Gross Beta	2.4224E-14	7.0962E-15	6.487E-15	µCi/mL	UJ
AS20170913-082	Boundary	IAAP200592	09/12/17	Gross Alpha	1.2262E-14	4.9686E-15	3.6873E-15	µCi/mL	=
	Boundary	IAAP200592	09/12/17	Gross Beta	4.2897E-14	8.7906E-15	6.487E-15	µCi/mL	=
AS20170927-086	Boundary	IAAP200593	09/27/17	Gross Alpha	1.8792E-14	6.084E-15	3.6873E-15	µCi/mL	=
	Boundary	IAAP200593	09/27/17	Gross Beta	5.3209E-14	9.6744E-15	6.487E-15	µCi/mL	=
AS20171004-090	Boundary	IAAP200594	10/04/17	Gross Alpha	9.65E-15	4.4574E-15	3.6873E-15	µCi/mL	=
	Boundary	IAAP200594	10/04/17	Gross Beta	4.4012E-14	8.8876E-15	6.487E-15	µCi/mL	=
AS20171010-092	Boundary	IAAP200595	10/10/17	Gross Alpha	7.4733E-15	3.9878E-15	3.6873E-15	µCi/mL	J
	Boundary	IAAP200595	10/10/17	Gross Beta	2.7011E-14	7.3592E-15	6.487E-15	µCi/mL	=
AS20171018-094	Boundary	IAAP200596	10/18/17	Gross Alpha	1.0521E-14	4.6333E-15	3.6873E-15	µCi/mL	=
	Boundary	IAAP200596	10/18/17	Gross Beta	4.2618E-14	8.7663E-15	6.487E-15	µCi/mL	=
AS20171025-098	Boundary	IAAP200597	10/25/17	Gross Alpha	3.5552E-15	2.9792E-15	3.6873E-15	µCi/mL	=
	Boundary	IAAP200597	10/25/17	Gross Beta	2.0879E-14	6.7745E-15	6.487E-15	µCi/mL	UJ

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

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.

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ATTACHMENT C-1

CALENDAR YEAR 2017 AIR SAMPLE REPORTS

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ATTACHMENT C-1-1

CALENDAR YEAR 2017 BACKGROUND AIR SAMPLE REPORT

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

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AIR SAMPLE REPORT

Section I - Collection Data

Date:	4/20/2017	Sample ID:	20170421-001	RWP:	2017-001	
Occupational (DAC): ☐	Limit:	6.00E-14	µCi/ml **(I)**	Breathing Zone: ☐	General Area: ☑	Work Area: ☐
Non-Occupational (EC): ☑	[DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml]			Radionuclides:	**DU (Depleted Uranium)**	
Location:	FS-1 Background			Sampled By:	David Berres	
Wearer:	NA			Activity Performed:	NA	
Monitored Workers:	NA					
Lapel Pump Model:	NA	Serial No.	NA	Calibration Due Date:	NA	
Air Pump Model:	RV-1	Serial No.	3667	Calibration Due Date:	3/7/2018	

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
4/20/2017	7:00	15:30	510		65.0	65.0
4/21/2017	7:00	15:30	510		65	65
		Total Time (Tc):	1020		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **1.2E+04** Liters

Sample Volume: 65 (lpm) x 1020 (minutes) = **6.6E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		5/5/2107		
Count Time (e.g., noon, 1300, etc.)		1:00		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	10		
Sample Count Rate	cpm	0.17		
Background Count Rate	cpm	0.13		
Air Volume (liters) **(A)**	liters	6.6E+04	6.6E+04	6.6E+04
Net count rate **(B)**	cpm	0.04		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.11		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.77		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**7.31E-16**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml			
NET Concentration Value = **(H) - (F1); (F2)**	uCi/ml	**7.31E-16**		
DAC (or AE) Fraction = **(F2)/(I)**		**1.22%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**5.26E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**8.77%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

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ATTACHMENT C-1-2

CALENDAR YEAR 2017 LAPEL AIR SAMPLE REPORTS

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AIR SAMPLE REPORT

Section I - Collection Data

Date: 5/2/2017 | Sample ID: 20170502-002 | RWP: 2017-001

Occupational (DAC): ☑ | Limit: 2.0E-11 µCi/ml **(I)** | Breathing Zone: ☑ | General Area: ☐ | Work Area: ☐

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] | Radionuclides: **DU (Depleted Uranium)**

Location: Bobcat RotoTiller | Sampled By: David Berres

Wearer: Jake Burgess | Activity Performed: Tilling Dirt

Monitored Workers: Jake Burgess

Lapel Pump Model: SKC224-PCXR8 | Serial No. 2162 | Calibration Due Date: 5/2/2018

Air Pump Model: NA | Serial No. NA | Calibration Due Date: NA

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
5/2/2017	14:15	15:15	60		56.6	56.6
			0			
		Total Time (Tc):	60		Avg. Flow Rate (lpm)	56.6

Minimum Air Sample Volume: **3.1E+01** Liters

Sample Volume: 57 (lpm) x 60 (minutes) = **3.4E+03** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L2929	158817	164736	12/13/2017	12/13/2017	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		5/9/2017		
Count Time (e.g., noon, 1300, etc.)		13:00		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	7		
Sample Count Rate	cpm	0.12		
Background Count Rate	cpm	0.10		
Air Volume (liters) **(A)**	liters	3.4E+03	3.4E+03	3.4E+03
Net count rate **(B)**	cpm	0.02		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.05		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.70		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**6.49E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**6.48E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.03%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**9.25E-14**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.46%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date:	5/3/2017	Sample ID:	20170503-003	RWP:	2017-001	
Occupational (DAC): ☑	Limit:	2.0E-11 µCi/ml **(I)**		Breathing Zone: ☑	General Area: ☐	Work Area: ☐
Non-Occupational (EC): ☐	[DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml]			Radionuclides:	**DU (Depleted Uranium)**	
Location:	Bobcat RotoTiller			Sampled By:	David Berres	
Wearer:	Jake Burgess			Activity Performed:	Tilling Dirt	
Monitored Workers:	Jake Burgess					
Lapel Pump Model:	SKC224-PCXR8	Serial No.	2162	Calibration Due Date:	5/2/2018	
Air Pump Model:	NA	Serial No.	NA	Calibration Due Date:	NA	

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
5/3/2017	7:45	11:45	240		56.6	56.6
			0			
		Total Time (Tc):	240		Avg. Flow Rate (lpm)	56.6

Minimum Air Sample Volume: **3.1E+01** Liters

Sample Volume: 57 (lpm) x 240 (minutes) = **1.4E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L2929	158817	164736	12/13/2017	12/13/2017	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		5/10/2017		
Count Time (e.g., noon, 1300, etc.)		14:00		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	14		
Sample Count Rate	cpm	0.23		
Background Count Rate	cpm	0.10		
Air Volume (liters) **(A)**	liters	1.4E+04	1.4E+04	1.4E+04
Net count rate **(B)**	cpm	0.13		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.39		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.70		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**1.30E-14**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**1.30E-14**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.06%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**2.31E-14**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.12%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date:	5/3/2017	Sample ID:	20170503-006	RWP:	2017-001	
Occupational (DAC): ☑	Limit:	2.0E-11	µCi/ml **(I)**	Breathing Zone: ☑	General Area: ☐	Work Area: ☐
Non-Occupational (EC): ☐	[DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml]			Radionuclides:	**DU (Depleted Uranium)**	
Location:	Bobcat RotoTiller			Sampled By:	David Berres	
Wearer:	Jake Burgess			Activity Performed:	Tilling Dirt	
Monitored Workers:	Jake Burgess					
Lapel Pump Model:	SKC224-PCXR8	Serial No.	2162	Calibration Due Date:	5/2/2018	
Air Pump Model:	NA	Serial No.	NA	Calibration Due Date:	NA	

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
5/3/2017	12:30	14:50	140		56.6	56.6
			0			
		Total Time (Tc):	140		Avg. Flow Rate (lpm)	56.6

Minimum Air Sample Volume: **4.2E+01** Liters

Sample Volume: 57 (lpm) x 140 (minutes) = **7.9E+03** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L2929	158817	164736	12/13/2017	12/13/2017	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		5/12/2017		
Count Time (e.g., noon, 1300, etc.)		12:30		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	5		
Sample Count Rate	cpm	0.08		
Background Count Rate	cpm	0.20		
Air Volume (liters) **(A)**	liters	7.9E+03	7.9E+03	7.9E+03
Net count rate **(B)**	cpm	-0.12		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	-0.34		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.93		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**-1.95E-14**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**-1.95E-14**		
DAC (or AE) Fraction = **(F2)/(I)**		**-0.10%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**5.26E-14**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.26%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date:	5/4/2017	Sample ID:	20170504-007	RWP:	2017-001	
Occupational (DAC): ☑	Limit:	2.0E-11	µCi/ml **(I)**	Breathing Zone: ☑	General Area: ☐	Work Area: ☐
Non-Occupational (EC): ☐	[DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml]			Radionuclides:	**DU (Depleted Uranium)**	
Location:	Bobcat RotoTiller			Sampled By:	David Berres	
Wearer:	Jake Burgess			Activity Performed:	Tilling Dirt	
Monitored Workers:	Jake Burgess					
Lapel Pump Model:	SKC224-PCXR8	Serial No.	2162	Calibration Due Date:	5/2/2018	
Air Pump Model:	NA	Serial No.	NA	Calibration Due Date:	NA	

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
5/4/2017	7:45	15:15	450		56.6	56.6
			0			
		Total Time (Tc):	450		Avg. Flow Rate (lpm)	56.6

Minimum Air Sample Volume: **4.2E+01** Liters

Sample Volume: 57 (lpm) x 450 (minutes) = **2.5E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L2929	158817	164736	12/13/2017	12/13/2017	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		5/12/2017		
Count Time (e.g., noon, 1300, etc.)		13:40		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	5		
Sample Count Rate	cpm	0.08		
Background Count Rate	cpm	0.20		
Air Volume (liters) **(A)**	liters	2.5E+04	2.5E+04	2.5E+04
Net count rate **(B)**	cpm	-0.12		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	-0.34		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.93		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**-6.06E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**-6.07E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**-0.03%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**1.64E-14**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.08%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date:	5/5/2017	Sample ID:	20170505-008	RWP:	2017-001	
Occupational (DAC): ☑	Limit:	2.0E-11	µCi/ml **(I)**	Breathing Zone: ☑	General Area: ☐	Work Area: ☐
Non-Occupational (EC): ☐	[DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml]			Radionuclides:	**DU (Depleted Uranium)**	
Location:	Bobcat RotoTiller			Sampled By:	David Berres	
Wearer:	Jake Burgess			Activity Performed:	Tilling Dirt	
Monitored Workers:	Jake Burgess					
Lapel Pump Model:	SKC224-PCXR8	Serial No.	2162	Calibration Due Date:	5/2/2018	
Air Pump Model:	NA	Serial No.	NA	Calibration Due Date:	NA	

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
5/5/2017	7:45	15:10	445		56.6	56.6
			0			
		Total Time (Tc):	445		Avg. Flow Rate (lpm)	56.6

Minimum Air Sample Volume: **3.1E+01** Liters

Sample Volume: 57 (lpm) x 445 (minutes) = **2.5E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L2929	158817	164736	12/13/2017	12/13/2017	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		5/15/2017		
Count Time (e.g., noon, 1300, etc.)		13:15		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	7		
Sample Count Rate	cpm	0.12		
Background Count Rate	cpm	0.10		
Air Volume (liters) **(A)**	liters	2.5E+04	2.5E+04	2.5E+04
Net count rate **(B)**	cpm	0.02		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.05		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.70		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**8.75E-16**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**8.68E-16**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.00%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**1.25E-14**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.06%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date:	5/8/2017	Sample ID:	20170508-011	RWP:	2017-001	
Occupational (DAC): ☑	Limit:	2.0E-11	µCi/ml **(I)**	Breathing Zone: ☑	General Area: ☐	Work Area: ☐
Non-Occupational (EC): ☐	[DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml]			Radionuclides:	**DU (Depleted Uranium)**	
Location:	Bobcat RotoTiller			Sampled By:	David Berres	
Wearer:	Jake Burgess			Activity Performed:	Tilling Dirt	
Monitored Workers:	Jake Burgess					
Lapel Pump Model:	SKC224-PCXR8	Serial No.	2162	Calibration Due Date:	5/2/2018	
Air Pump Model:	NA	Serial No.	NA	Calibration Due Date:	NA	

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
5/8/2017	7:45	15:20	455		56.6	56.6
			0			
		Total Time (Tc):	455		Avg. Flow Rate (lpm)	56.6

Minimum Air Sample Volume: **3.1E+01** Liters

Sample Volume: 57 (lpm) x 455 (minutes) = **2.6E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L2929	158817	164736	12/13/2017	12/13/2017	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		5/16/2017		
Count Time (e.g., noon, 1300, etc.)		13:30		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	5		
Sample Count Rate	cpm	0.08		
Background Count Rate	cpm	0.10		
Air Volume (liters) **(A)**	liters	2.6E+04	2.6E+04	2.6E+04
Net count rate **(B)**	cpm	-0.02		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	-0.05		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.70		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**-8.56E-16**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**-8.63E-16**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.00%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**1.22E-14**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.06%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date:	5/9/2017	Sample ID:	20170509-014	RWP:	2017-001	
Occupational (DAC): ☑	Limit:	2.0E-11	µCi/ml **(I)**	Breathing Zone: ☑	General Area: ☐	Work Area: ☐
Non-Occupational (EC): ☐	[DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml]			Radionuclides:	**DU (Depleted Uranium)**	
Location:	Bobcat RotoTiller			Sampled By:	David Berres	
Wearer:	Jake Burgess			Activity Performed:	Tilling Dirt	
Monitored Workers:	Jake Burgess					
Lapel Pump Model:	SKC224-PCXR8	Serial No.	2162	Calibration Due Date:	5/2/2018	
Air Pump Model:	NA	Serial No.	NA	Calibration Due Date:	NA	

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
5/9/2017	12:30	15:15	165		56.6	56.6
			0			
		Total Time (Tc):	165		Avg. Flow Rate (lpm)	56.6

Minimum Air Sample Volume: **3.1E+01** Liters

Sample Volume: 57 (lpm) x 165 (minutes) = **9.3E+03** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L2929	158817	164736	12/13/2017	12/13/2017	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		5/18/2017		
Count Time (e.g., noon, 1300, etc.)		13:30		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	6		
Sample Count Rate	cpm	0.10		
Background Count Rate	cpm	0.10		
Air Volume (liters) **(A)**	liters	9.3E+03	9.3E+03	9.3E+03
Net count rate **(B)**	cpm	0.00		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.00		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.70		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**0.00E+00**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**-7.31E-18**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.00%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**3.36E-14**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.17%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date:	5/10/2017	Sample ID:	20170510-015	RWP:	2017-001	
Occupational (DAC): ☑	Limit:	2.0E-11 µCi/ml **(I)**		Breathing Zone: ☑	General Area: ☐	Work Area: ☐
Non-Occupational (EC): ☐	[DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml]			Radionuclides:	**DU (Depleted Uranium)**	
Location:	Bobcat RotoTiller			Sampled By:	David Berres	
Wearer:	Jake Burgess			Activity Performed:	Tilling Dirt	
Monitored Workers:	Jake Burgess					
Lapel Pump Model:	SKC224-PCXR8	Serial No.	2162	Calibration Due Date:	5/2/2018	
Air Pump Model:	NA	Serial No.	NA	Calibration Due Date:	NA	

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
5/10/2017	13:30	15:15	105		56.6	56.6
			0			
		Total Time (Tc):	105		Avg. Flow Rate (lpm)	56.6

Minimum Air Sample Volume: **3.1E+01** Liters

Sample Volume: 57 (lpm) x 105 (minutes) = **5.9E+03** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L2929	158817	164736	12/13/2017	12/13/2017	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		5/18/2017		
Count Time (e.g., noon, 1300, etc.)		15:15		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	4		
Sample Count Rate	cpm	0.07		
Background Count Rate	cpm	0.10		
Air Volume (liters) **(A)**	liters	5.9E+03	5.9E+03	5.9E+03
Net count rate **(B)**	cpm	-0.03		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	-0.10		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.70		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**-7.42E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**-7.43E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**-0.04%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**5.28E-14**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.26%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 5/12/2017 Sample ID: 20170512-018 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.0E-11 µCi/ml **(I)** Breathing Zone: ☑ General Area: ☐ Work Area: ☐

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: Bobcat RotoTiller Sampled By: David Berres

Wearer: Jake Burgess Activity Performed: Tilling Dirt

Monitored Workers: Jake Burgess

Lapel Pump Model: SKC224-PCXR8 Serial No. 2162 Calibration Due Date: 5/2/2018

Air Pump Model: NA Serial No. NA Calibration Due Date: NA

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
5/12/2017	7:40	14:30	410		56.6	56.6
			0			
		Total Time (Tc):	410		Avg. Flow Rate (lpm)	56.6

Minimum Air Sample Volume: **2.6E+01** Liters

Sample Volume: 57 (lpm) x 410 (minutes) = **2.3E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L2929	158817	164736	12/13/2017	12/13/2017	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		5/22/2017		
Count Time (e.g., noon, 1300, etc.)		11:30		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	7		
Sample Count Rate	cpm	0.12		
Background Count Rate	cpm	0.06		
Air Volume (liters) **(A)**	liters	2.3E+04	2.3E+04	2.3E+04
Net count rate **(B)**	cpm	0.06		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.17		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.57		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**3.23E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**3.22E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.02%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**1.11E-14**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.06%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date:	5/18/2017	Sample ID:	20170518-021	RWP:	2017-001	
Occupational (DAC): ☑	Limit:	2.0E-11	µCi/ml **(I)**	Breathing Zone: ☑	General Area: ☐	Work Area: ☐
Non-Occupational (EC): ☐	[DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml]			Radionuclides:	**DU (Depleted Uranium)**	
Location:	Hopper			Sampled By:	David Berres	
Wearer:	John King			Activity Performed:	Sorting Dirt	
Monitored Workers:	John King					
Lapel Pump Model:	SKC224-PCXR8	Serial No.	2162	Calibration Due Date:	5/2/2018	
Air Pump Model:	NA	Serial No.	NA	Calibration Due Date:	NA	

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
5/18/2017	10:30	15:10	280		56.6	56.6
			0			
		Total Time (Tc):	280		Avg. Flow Rate (lpm)	56.6

Minimum Air Sample Volume: **2.9E+01** Liters

Sample Volume: 57 (lpm) x 280 (minutes) = **1.6E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L2929	158817	164736	12/13/2017	12/13/2017	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		5/31/2017		
Count Time (e.g., noon, 1300, etc.)		10:30		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	2		
Sample Count Rate	cpm	0.03		
Background Count Rate	cpm	0.08		
Air Volume (liters) **(A)**	liters	1.6E+04	1.6E+04	1.6E+04
Net count rate **(B)**	cpm	-0.05		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	-0.14		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.64		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**-3.89E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**-3.90E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**-0.02%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**1.82E-14**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.09%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 7/12/2017 | Sample ID: 20170623-039 | RWP: 2017-001

Occupational (DAC): ☑ | Limit: 2.0E-11 µCi/ml **(I)** | Breathing Zone: ☑ | General Area: ☐ | Work Area: ☐

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] | Radionuclides: **DU (Depleted Uranium)**

Location: Hual Truck | Sampled By: R Santangelo

Wearer: Jake Burgess | Activity Performed: Moving Dirt

Monitored Workers: Jake Burgess

Lapel Pump Model: SKC224-PCXR8 | Serial No. 2162 | Calibration Due Date: 5/2/2018

Air Pump Model: NA | Serial No. NA | Calibration Due Date: NA

Sample Information	Time				Flow Rate (lpm)	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
6/26/2017	10:00	15:15	315		56.6	56.6
			0			
		Total Time (Tc):	315		Avg. Flow Rate (lpm)	56.6

Minimum Air Sample Volume: **3.1E+01** Liters

Sample Volume: 57 (lpm) x 315 (minutes) = **1.8E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L2929	158817	164736	12/13/2017	12/13/2017	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		7/12/2017		
Count Time (e.g., noon, 1300, etc.)		10:00		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	5		
Sample Count Rate	cpm	0.13		
Background Count Rate	cpm	0.10		
Air Volume (liters) **(A)**	liters	1.8E+04	1.8E+04	1.8E+04
Net count rate **(B)**	cpm	0.03		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.09		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.70		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**2.23E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**2.22E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.01%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**1.76E-14**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.09%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 7/12/2017 | Sample ID: 20170626-042 | RWP: 2017-001

Occupational (DAC): ☑ | Limit: 2.0E-11 µCi/ml **(I)** | Breathing Zone: ☑ | General Area: ☐ | Work Area: ☐

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] | Radionuclides: **DU (Depleted Uranium)**

Location: Hual Truck | Sampled By: R Santangelo

Wearer: Jake Burgess | Activity Performed: Moving Dirt

Monitored Workers: Jake Burgess

Lapel Pump Model: SKC224-PCXR8 | Serial No. 2162 | Calibration Due Date: 5/2/2018

Air Pump Model: NA | Serial No. NA | Calibration Due Date: NA

Sample Information	Time				Flow Rate (lpm)	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
6/26/2017	10:00	15:15	315		56.6	56.6
			0			
		Total Time (Tc):	315		Avg. Flow Rate (lpm)	56.6

Minimum Air Sample Volume: **3.1E+01** Liters

Sample Volume: 57 (lpm) x 315 (minutes) = **1.8E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L2929	158817	164736	12/13/2017	12/13/2017	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		7/12/2017		
Count Time (e.g., noon, 1300, etc.)		10:00		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	12		
Sample Count Rate	cpm	0.13		
Background Count Rate	cpm	0.10		
Air Volume (liters) **(A)**	liters	1.8E+04	1.8E+04	1.8E+04
Net count rate **(B)**	cpm	0.03		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.09		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.70		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**2.23E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**2.22E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.01%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**1.76E-14**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.09%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 7/14/2017 | Sample ID: 20170629-043 | RWP: 2017-001

Occupational (DAC): ☑ | Limit: 2.0E-11 µCi/ml **(I)** | Breathing Zone: ☑ | General Area: ☐ | Work Area: ☐

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] | Radionuclides: **DU (Depleted Uranium)**

Location: Hual Truck | Sampled By: R Santangelo

Wearer: Jake Burgess | Activity Performed: Moving Dirt

Monitored Workers: Jake Burgess

Lapel Pump Model: SKC224-PCXR8 | Serial No. 2162 | Calibration Due Date: 5/2/2018

Air Pump Model: NA | Serial No. NA | Calibration Due Date: NA

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
6/29/2017	10:30	14:00	210		56.6	56.6
			0			
		Total Time (Tc):	210		Avg. Flow Rate (lpm)	56.6

Minimum Air Sample Volume: **3.3E+01** Liters

Sample Volume: 57 (lpm) x 210 (minutes) = **1.2E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L2929	158817	164736	12/13/2017	12/13/2017	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		7/14/2017		
Count Time (e.g., noon, 1300, etc.)		10:00		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	5		
Sample Count Rate	cpm	0.13		
Background Count Rate	cpm	0.11		
Air Volume (liters) **(A)**	liters	1.2E+04	1.2E+04	1.2E+04
Net count rate **(B)**	cpm	0.02		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.06		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.72		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**2.23E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**2.22E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.01%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**2.74E-14**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.14%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

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ATTACHMENT C-1-3

CALENDAR YEAR 2017 WORK AREA AIR SAMPLE REPORTS

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AIR SAMPLE REPORT

Section I - Collection Data

Date:	5/3/2017	Sample ID:	20170503-004	RWP:	2017-001	
Occupational (DAC): ☑	Limit:	2.00E-11	µCi/ml **(I)**	Breathing Zone: ☐	General Area: ☐	Work Area: ☑
Non-Occupational (EC): ☐	[DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml]			Radionuclides:	**DU (Depleted Uranium)**	
Location:	Amec Soil Sorting Area			Sampled By:	David Berres	
Wearer:	NA			Activity Performed:	NA	
Monitored Workers:	NA					
Lapel Pump Model:	NA	Serial No.	NA	Calibration Due Date:	NA	
Air Pump Model:	RV-1	Serial No.	3664	Calibration Due Date:	3/16/2018	

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
5/3/2017	8:00	15:00	420		65.0	65.0
		Total Time (Tc):	420		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **2.9E+01** Liters

Sample Volume: 65 (lpm) x 420 (minutes) = **2.7E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		5/12/2017		
Count Time (e.g., noon, 1300, etc.)		9:00		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	11		
Sample Count Rate	cpm	0.18		
Background Count Rate	cpm	0.08		
Air Volume (liters) **(A)**	liters	2.7E+04	2.7E+04	2.7E+04
Net count rate **(B)**	cpm	0.10		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.30		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.64		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**5.01E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**5.00E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.02%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**1.05E-14**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.05%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 5/3/2017 | Sample ID: 20170503-005 | RWP: 2017-001

Occupational (DAC): ☑ | Limit: 2.00E-11 µCi/ml **(I)** | Breathing Zone: ☐ | General Area: ☐ | Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] | Radionuclides: **DU (Depleted Uranium)**

Location: Amec Soil Sorting Area | Sampled By: David Berres

Wearer: NA | Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA | Serial No. NA | Calibration Due Date: NA

Air Pump Model: RV-1 | Serial No. 3664 | Calibration Due Date: 3/16/2018

Sample Information	Time			Flow Rate (lpm)	
Collection Date	Start	Stop	Total (minutes)	Start	Stop
5/3/2017	8:00	15:00	420	65.0	65.0
			0		
		Total Time (Tc):	420	Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **4.2E+01** Liters

Sample Volume: 65 (lpm) x 420 (minutes) = **2.7E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		5/12/2017		
Count Time (e.g., noon, 1300, etc.)		10:35		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	9		
Sample Count Rate	cpm	0.15		
Background Count Rate	cpm	0.20		
Air Volume (liters) **(A)**	liters	2.7E+04	2.7E+04	2.7E+04
Net count rate **(B)**	cpm	-0.05		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)**/**(E)** **(F)**	dpm	-0.15		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.93		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**-2.42E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**-2.43E-15**		
DAC (or AE) Fraction = **(F2)**/**(I)**		**-0.01%**		
MDC = MDA/V = **(G)**/**(A)** **(J)**	µCi/ml	**1.53E-14**		
MDC Fraction of DAC (or AE) = **(J)**/**(I)** (Goal<10%)		**0.08%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date:	5/4/2017	Sample ID:	20170504-009	RWP:	2017-001	
Occupational (DAC): ☑	Limit:	2.00E-11	µCi/ml **(I)**	Breathing Zone: ☐	General Area: ☐	Work Area: ☑
Non-Occupational (EC): ☐	[DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml]			Radionuclides:	**DU (Depleted Uranium)**	
Location:	Amec Soil Sorting Area			Sampled By:	David Berres	
Wearer:	NA			Activity Performed:	NA	
Monitored Workers:	NA					
Lapel Pump Model:	NA	Serial No.	NA	Calibration Due Date:	NA	
Air Pump Model:	RV-1	Serial No.	3664	Calibration Due Date:	3/16/2018	

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
5/4/2017	7:40	15:10	450		65.0	65.0
5/5/2017	7:45	15:15	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **2.9E+01** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		5/16/2017		
Count Time (e.g., noon, 1300, etc.)		10:35		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	10		
Sample Count Rate	cpm	0.17		
Background Count Rate	cpm	0.08		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.09		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.25		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.64		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**1.96E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**1.95E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.01%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**4.92E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.02%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date:	5/4/2017	Sample ID:	20170504-010	RWP:	2017-001	
Occupational (DAC): ☐	Limit:	6.00E-14	µCi/ml **(I)**	Breathing Zone: ☐	General Area: ☐	Work Area: ☑
Non-Occupational (EC): ☑	[DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml]			Radionuclides:	**DU (Depleted Uranium)**	
Location:	Boundry			Sampled By:	David Berres	
Wearer:	NA			Activity Performed:	NA	
Monitored Workers:	NA					
Lapel Pump Model:	NA	Serial No.	NA	Calibration Due Date:	NA	
Air Pump Model:	RV-1	Serial No.	3667	Calibration Due Date:	3/7/2018	

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
5/4/2017	7:50	15:15	445		65.0	65.0
5/5/2017	7:50	15:15	445		65	65
		Total Time (Tc):	890		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **9.6E+03** Liters

Sample Volume: 65 (lpm) x 890 (minutes) = **5.8E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		5/16/2017		
Count Time (e.g., noon, 1300, etc.)		12:30		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	16		
Sample Count Rate	cpm	0.27		
Background Count Rate	cpm	0.08		
Air Volume (liters) **(A)**	liters	5.8E+04	5.8E+04	5.8E+04
Net count rate **(B)**	cpm	0.19		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.55		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.64		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**4.27E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**4.26E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**7.10%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**4.98E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**8.29%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 5/9/2017 | Sample ID: 20170509-012 | RWP: 2017-001

Occupational (DAC): ☑ | Limit: 2.00E-11 µCi/ml **(I)** | Breathing Zone: ☐ | General Area: ☐ | Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] | Radionuclides: **DU (Depleted Uranium)**

Location: Amec Soil Sorting Area | Sampled By: David Berres

Wearer: NA | Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA | Serial No. NA | Calibration Due Date: NA

Air Pump Model: RV-1 | Serial No. 3664 | Calibration Due Date: 3/16/2018

Sample Information	Time				Flow Rate (lpm)	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
5/8/2017	7:35	13:20	345		65.0	65.0
5/9/2017	7:40	8:30	50		65	65
5/9/2017	12:15	14:15	120		65	65
		Total Time (Tc):	395		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **3.1E+01** Liters

Sample Volume: 65 (lpm) x 395 (minutes) = **2.6E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		5/16/2017		
Count Time (e.g., noon, 1300, etc.)		15:00		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	7		
Sample Count Rate	cpm	0.12		
Background Count Rate	cpm	0.10		
Air Volume (liters) **(A)**	liters	2.6E+04	2.6E+04	2.6E+04
Net count rate **(B)**	cpm	0.02		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)**/**(E)** **(F)**	dpm	0.05		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.70		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**8.59E-16**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**8.51E-16**		
DAC (or AE) Fraction = **(F2)**/**(I)**		**0.00%**		
MDC = MDA/V = **(G)**/**(A)** **(J)**	µCi/ml	**1.22E-14**		
MDC Fraction of DAC (or AE) = **(J)**/**(I)** (Goal<10%)		**0.06%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 5/9/2017 | Sample ID: 20170509-013 | RWP: 2017-001

Occupational (DAC): ☐ | Limit: 6.00E-14 µCi/ml **(I)** | Breathing Zone: ☐ | General Area: ☐ | Work Area: ☑

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] | Radionuclides: **DU (Depleted Uranium)**

Location: Boundry | Sampled By: David Berres

Wearer: NA | Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA | Serial No. NA | Calibration Due Date: NA

Air Pump Model: RV-1 | Serial No. 3667 | Calibration Due Date: 3/16/2018

Sample Information	Time				Flow Rate (lpm)	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
5/8/2017	7:30	13:20	350		65.0	65.0
5/9/2017	7:40	8:40	60		65	65
5/9/2017	12:15	14:15	120		65	65
		Total Time (Tc):	410		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **4.8E+03** Liters

Sample Volume: 65 (lpm) x 410 (minutes) = **2.7E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		5/18/2107		
Count Time (e.g., noon, 1300, etc.)		12:30		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	7		
Sample Count Rate	cpm	0.12		
Background Count Rate	cpm	0.01		
Air Volume (liters) **(A)**	liters	2.7E+04	2.7E+04	2.7E+04
Net count rate **(B)**	cpm	0.11		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)**/**(E)** **(F)**	dpm	0.31		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.32		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**5.29E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**5.29E-15**		
DAC (or AE) Fraction = **(F2)**/**(I)**		**8.81%**		
MDC = MDA/V = **(G)**/**(A)** **(J)**	µCi/ml	**5.41E-15**		
MDC Fraction of DAC (or AE) = **(J)**/**(I)** (Goal<10%)		**9.01%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date:	5/12/2017	Sample ID:	20170512-016	RWP:	2017-001	
Occupational (DAC): ☑	Limit:	2.00E-11	µCi/ml **(I)**	Breathing Zone: ☐	General Area: ☐	Work Area: ☑
Non-Occupational (EC): ☐	[DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml]			Radionuclides:	**DU (Depleted Uranium)**	
Location:	Amec Soil Sorting Area			Sampled By:	David Berres	
Wearer:	NA			Activity Performed:	NA	
Monitored Workers:	NA					
Lapel Pump Model:	NA	Serial No.	NA	Calibration Due Date:	NA	
Air Pump Model:	RV-1	Serial No.	3664	Calibration Due Date:	3/16/2018	

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
5/10/2017	13:30	15:15	105		65.0	65.0
5/12/2017	8:00	14:45	405		65	65
		Total Time (Tc):	510		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **2.6E+01** Liters

Sample Volume: 65 (lpm) x 510 (minutes) = **3.3E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		5/22/2017		
Count Time (e.g., noon, 1300, etc.)		9:00		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	6		
Sample Count Rate	cpm	0.10		
Background Count Rate	cpm	0.06		
Air Volume (liters) **(A)**	liters	3.3E+04	3.3E+04	3.3E+04
Net count rate **(B)**	cpm	0.04		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.12		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.57		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**1.60E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**1.59E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.01%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**7.78E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.04%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date:	5/12/2017	Sample ID:	20170512-017	RWP:	2017-001	
Occupational (DAC): ☐	Limit:	6.00E-14	µCi/ml **(I)**	Breathing Zone: ☐	General Area: ☑	Work Area: ☐
Non-Occupational (EC): ☑	[DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml]			Radionuclides:	**DU (Depleted Uranium)**	
Location:	Boundry			Sampled By:	David Berres	
Wearer:	NA			Activity Performed:	NA	
Monitored Workers:	NA					
Lapel Pump Model:	NA	Serial No.	NA	Calibration Due Date:	NA	
Air Pump Model:	RV-1	Serial No.	3667	Calibration Due Date:	3/7/2018	

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
5/10/2017	13:40	15:10	90		65.0	65.0
5/12/2017	7:30	14:40	430		65	65
		Total Time (Tc):	520		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **9.6E+03** Liters

Sample Volume: 65 (lpm) x 520 (minutes) = **3.4E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		5/22/2017		
Count Time (e.g., noon, 1300, etc.)		12:30		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	9		
Sample Count Rate	cpm	0.15		
Background Count Rate	cpm	0.08		
Air Volume (liters) **(A)**	liters	3.4E+04	3.4E+04	3.4E+04
Net count rate **(B)**	cpm	0.07		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.21		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.64		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**2.74E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**2.73E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**4.55%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**8.52E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**14.19%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date:	5/16/2017	Sample ID:	20170516-019	RWP:	2017-001	
Occupational (DAC): ☑	Limit:	2.00E-11	µCi/ml **(I)**	Breathing Zone: ☐	General Area: ☐	Work Area: ☑
Non-Occupational (EC): ☐	[DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml]			Radionuclides:	**DU (Depleted Uranium)**	
Location:	Amec Soil Sorting Area			Sampled By:	David Berres	
Wearer:	NA			Activity Performed:	NA	
Monitored Workers:	NA					
Lapel Pump Model:	NA	Serial No.	NA	Calibration Due Date:	NA	
Air Pump Model:	RV-1	Serial No.	3664	Calibration Due Date:	3/16/2018	

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
5/15/2017	7:40	15:10	450		65.0	65.0
5/16/2017	7:40	14:45	425		65	65
		Total Time (Tc):	875		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **2.4E+01** Liters

Sample Volume: 65 (lpm) x 875 (minutes) = **5.7E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		5/26/2017		
Count Time (e.g., noon, 1300, etc.)		8:30		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	28		
Sample Count Rate	cpm	0.47		
Background Count Rate	cpm	0.05		
Air Volume (liters) **(A)**	liters	5.7E+04	5.7E+04	5.7E+04
Net count rate **(B)**	cpm	0.42		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	1.22		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.54		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**9.69E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**9.68E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.05%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**4.24E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.02%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date:	5/16/2017	Sample ID:	20170516-020	RWP:	2017-001	
Occupational (DAC): ☐	Limit:	6.00E-14	µCi/ml **(I)**	Breathing Zone: ☐	General Area: ☑	Work Area: ☐
Non-Occupational (EC): ☑	[DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml]			Radionuclides:	**DU (Depleted Uranium)**	
Location:	Boundry			Sampled By:	David Berres	
Wearer:	NA			Activity Performed:	NA	
Monitored Workers:	NA					
Lapel Pump Model:	NA	Serial No.	NA	Calibration Due Date:	NA	
Air Pump Model:	RV-1	Serial No.	3667	Calibration Due Date:	3/7/2018	

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
5/15/2017	7:45	15:15	450		65.0	65.0
5/16/2017	7:40	15:15	455		65	65
		Total Time (Tc):	905		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **8.0E+03** Liters

Sample Volume: 65 (lpm) x 905 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		5/26/2017		
Count Time (e.g., noon, 1300, etc.)		22:30		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	15		
Sample Count Rate	cpm	0.25		
Background Count Rate	cpm	0.05		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.20		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.59		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.54		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**4.50E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**4.49E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**7.48%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**4.10E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**6.84%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date:	5/18/2017	Sample ID:	20170518-022	RWP:	2017-001	
Occupational (DAC): ☐	Limit:	6.00E-14	µCi/ml **(I)**	Breathing Zone: ☐	General Area: ☑	Work Area: ☐
Non-Occupational (EC): ☑	[DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml]			Radionuclides:	**DU (Depleted Uranium)**	
Location:	Boundry			Sampled By:	David Berres	
Wearer:	NA			Activity Performed:	NA	
Monitored Workers:	NA					
Lapel Pump Model:	NA	Serial No.	NA	Calibration Due Date:	NA	
Air Pump Model:	RV-1	Serial No.	3667	Calibration Due Date:	3/7/2018	

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
5/17/2017	7:45	15:05	440		65.0	65.0
5/18/2017	8:05	15:10	425		65	65
		Total Time (Tc):	865		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **9.6E+03** Liters

Sample Volume: 65 (lpm) x 865 (minutes) = **5.6E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		5/31/2017		
Count Time (e.g., noon, 1300, etc.)		11:45		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	18		
Sample Count Rate	cpm	0.30		
Background Count Rate	cpm	0.08		
Air Volume (liters) **(A)**	liters	5.6E+04	5.6E+04	5.6E+04
Net count rate **(B)**	cpm	0.22		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.65		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.64		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**5.18E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**5.17E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**8.61%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**5.12E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**8.53%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date:	5/31/2017	Sample ID:	20170518-023	RWP:	2017-001	
Occupational (DAC): ☑	Limit:	2.00E-11	µCi/ml **(I)**	Breathing Zone: ☐	General Area: ☐	Work Area: ☑
Non-Occupational (EC): ☐	[DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml]			Radionuclides:	**DU (Depleted Uranium)**	
Location:	Amec Soil Sorting Area			Sampled By:	David Berres	
Wearer:	NA			Activity Performed:	NA	
Monitored Workers:	NA					
Lapel Pump Model:	NA	Serial No.	NA	Calibration Due Date:	NA	
Air Pump Model:	RV-1	Serial No.	3664	Calibration Due Date:	3/16/2018	

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
5/17/2017	7:40	15:00	440		65.0	65.0
5/18/2017	8:00	15:15	435		65	65
		Total Time (Tc):	875		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **2.9E+01** Liters

Sample Volume: 65 (lpm) x 875 (minutes) = **5.7E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		5/31/2017		
Count Time (e.g., noon, 1300, etc.)		11:30		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	25		
Sample Count Rate	cpm	0.42		
Background Count Rate	cpm	0.08		
Air Volume (liters) **(A)**	liters	5.7E+04	5.7E+04	5.7E+04
Net count rate **(B)**	cpm	0.34		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)**/**(E)** **(F)**	dpm	0.99		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.64		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**7.83E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**7.82E-15**		
DAC (or AE) Fraction = **(F2)**/**(I)**		**0.04%**		
MDC = MDA/V = **(G)**/**(A)** **(J)**	µCi/ml	**5.06E-15**		
MDC Fraction of DAC (or AE) = **(J)**/**(I)** (Goal<10%)		**0.03%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date:	5/25/2017	Sample ID:	20170525-024	RWP:	2017-001	
Occupational (DAC): ☑	Limit:	2.00E-11	µCi/ml **(I)**	Breathing Zone: ☐	General Area: ☐	Work Area: ☑
Non-Occupational (EC): ☐	[DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml]			Radionuclides:	**DU (Depleted Uranium)**	
Location:	Amec Soil Sorting Area			Sampled By:	David Berres	
Wearer:	NA			Activity Performed:	NA	
Monitored Workers:	NA					
Lapel Pump Model:	NA	Serial No.	NA	Calibration Due Date:	NA	
Air Pump Model:	RV-1	Serial No.	3664	Calibration Due Date:	3/16/2018	

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
5/22/2017	7:40	9:50	130		65.0	65.0
5/25/2017	7:55	10:05	130		65	65
		Total Time (Tc):	260		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **2.9E+01** Liters

Sample Volume: 65 (lpm) x 260 (minutes) = **1.7E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		5/31/2017		
Count Time (e.g., noon, 1300, etc.)		13:20		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	19		
Sample Count Rate	cpm	0.32		
Background Count Rate	cpm	0.08		
Air Volume (liters) **(A)**	liters	1.7E+04	1.7E+04	1.7E+04
Net count rate **(B)**	cpm	0.24		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.69		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.64		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**1.85E-14**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**1.85E-14**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.09%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**1.70E-14**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.09%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date:	5/31/2017	Sample ID:	20170531-025	RWP:	2017-001	
Occupational (DAC): ☑	Limit:	2.00E-11	µCi/ml **(I)**	Breathing Zone: ☐	General Area: ☐	Work Area: ☑
Non-Occupational (EC): ☐	[DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml]			Radionuclides:	**DU (Depleted Uranium)**	
Location:	Amec Soil Sorting Area			Sampled By:	David Berres	
Wearer:	NA			Activity Performed:	NA	
Monitored Workers:	NA					
Lapel Pump Model:	NA	Serial No.	NA	Calibration Due Date:	NA	
Air Pump Model:	RV-1	Serial No.	3664	Calibration Due Date:	3/16/2018	

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
5/30/2017	7:50	15:00	430		65.0	65.0
5/31/2017	7:30	15:15	465		65	65
		Total Time (Tc):	895		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **2.0E+01** Liters

Sample Volume: 65 (lpm) x 895 (minutes) = **5.8E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		6/7/2017		
Count Time (e.g., noon, 1300, etc.)		11:00		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	8		
Sample Count Rate	cpm	0.13		
Background Count Rate	cpm	0.03		
Air Volume (liters) **(A)**	liters	5.8E+04	5.8E+04	5.8E+04
Net count rate **(B)**	cpm	0.10		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.30		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.45		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**2.35E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**2.34E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.01%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**3.47E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.02%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date:	6/2/2017	Sample ID:	20170602-026	RWP:	2017-001	
Occupational (DAC): ☐	Limit:	6.00E-14	µCi/ml **(I)**	Breathing Zone: ☐	General Area: ☑	Work Area: ☐
Non-Occupational (EC): ☑	[DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml]			Radionuclides:	**DU (Depleted Uranium)**	
Location:	Boundry			Sampled By:	David Berres	
Wearer:	NA			Activity Performed:	NA	
Monitored Workers:	NA					
Lapel Pump Model:	NA	Serial No.	NA	Calibration Due Date:	NA	
Air Pump Model:	RV-1	Serial No.	3667	Calibration Due Date:	3/7/2018	

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
6/1/2017	7:45	15:00	435		65.0	65.0
6/2/2017	7:40	15:10	450		65	65
		Total Time (Tc):	885		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **1.0E+04** Liters

Sample Volume: 65 (lpm) x 885 (minutes) = **5.8E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		6/12/2017		
Count Time (e.g., noon, 1300, etc.)		12:40		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	15		
Sample Count Rate	cpm	0.25		
Background Count Rate	cpm	0.10		
Air Volume (liters) **(A)**	liters	5.8E+04	5.8E+04	5.8E+04
Net count rate **(B)**	cpm	0.15		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.44		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.70		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**3.45E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**3.44E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**5.74%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**5.46E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**9.10%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date:	6/2/2017	Sample ID:	20170602-027	RWP:	2017-001	
Occupational (DAC): ☑	Limit:	2.00E-11	µCi/ml **(I)**	Breathing Zone: ☐	General Area: ☐	Work Area: ☑
Non-Occupational (EC): ☐	[DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml]			Radionuclides:	**DU (Depleted Uranium)**	
Location:	Amec Soil Sorting Area			Sampled By:	David Berres	
Wearer:	NA			Activity Performed:	NA	
Monitored Workers:	NA					
Lapel Pump Model:	NA	Serial No.	NA	Calibration Due Date:	NA	
Air Pump Model:	RV-1	Serial No.	3664	Calibration Due Date:	3/16/2018	

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
6/5/2017	7:40	15:05	445		65.0	65.0
6/6/2017	7:30	15:15	465		65	65
		Total Time (Tc):	910		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **4.0E+01** Liters

Sample Volume: 65 (lpm) x 910 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		6/13/2017		
Count Time (e.g., noon, 1300, etc.)		9:15		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	23		
Sample Count Rate	cpm	0.38		
Background Count Rate	cpm	0.18		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.20		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.60		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.89		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**4.55E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**4.54E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.02%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**6.75E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.03%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date:	6/13/2017	Sample ID:	20170606-028	RWP:	2017-001	
Occupational (DAC): ☑	Limit:	2.00E-11	µCi/ml **(I)**	Breathing Zone: ☐	General Area: ☐	Work Area: ☑
Non-Occupational (EC): ☐	[DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml]			Radionuclides:	**DU (Depleted Uranium)**	
Location:	Amec Soil Area			Sampled By:	D Berres	
Wearer:	NA			Activity Performed:	NA	
Monitored Workers:	NA					
Lapel Pump Model:	NA	Serial No.	NA	Calibration Due Date:	NA	
Air Pump Model:	RV-1	Serial No.	3664	Calibration Due Date:	3/16/2018	

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
6/5/2017	7:40	15:05	445		65.0	65.0
6/6/2017	7:30	15:15	465		65	65
		Total Time (Tc):	910		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **4.0E+01** Liters

Sample Volume: 65 (lpm) x 910 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		6/13/2017		
Count Time (e.g., noon, 1300, etc.)		9:15		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	23		
Sample Count Rate	cpm	0.38		
Background Count Rate	cpm	0.18		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.20		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.60		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.89		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**4.55E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**4.54E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.02%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**6.75E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.03%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date:	6/13/2017	Sample ID:	20170606-029	RWP:	2017-001	
Occupational (DAC): ☐	Limit:	6.00E-14	µCi/ml **(I)**	Breathing Zone: ☐	General Area: ☑	Work Area: ☐
Non-Occupational (EC): ☑	[DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml]			Radionuclides:	**DU (Depleted Uranium)**	
Location:	FS12 SCA Boundary			Sampled By:	D Berres	
Wearer:	NA			Activity Performed:	NA	
Monitored Workers:	NA					
Lapel Pump Model:	NA	Serial No.	NA	Calibration Due Date:	NA	
Air Pump Model:	RV-1	Serial No.	3667	Calibration Due Date:	3/7/2018	

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
6/5/2017	7:45	15:05	440		65.0	65.0
6/6/2017	7:40	15:10	450		65	65
		Total Time (Tc):	890		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **1.3E+04** Liters

Sample Volume: 65 (lpm) x 890 (minutes) = **5.8E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		6/13/2017		
Count Time (e.g., noon, 1300, etc.)		11:50		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	11		
Sample Count Rate	cpm	0.18		
Background Count Rate	cpm	0.18		
Air Volume (liters) **(A)**	liters	5.8E+04	5.8E+04	5.8E+04
Net count rate **(B)**	cpm	0.00		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.01		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.89		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**7.62E-17**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**6.89E-17**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.11%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**6.90E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**11.49%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date:	6/16/2017	Sample ID:	20170608-030	RWP:	2017-001	
Occupational (DAC): ☑	Limit:	2.00E-11	µCi/ml **(I)**	Breathing Zone: ☐	General Area: ☐	Work Area: ☑
Non-Occupational (EC): ☐	[DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml]			Radionuclides:	**DU (Depleted Uranium)**	
Location:	FS12 Amec soil area			Sampled By:	D Berres	
Wearer:	NA			Activity Performed:	NA	
Monitored Workers:	NA					
Lapel Pump Model:	NA	Serial No.	NA	Calibration Due Date:	NA	
Air Pump Model:	LV-1	Serial No.	3664	Calibration Due Date:	3/16/2018	

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
6/7/2017	7:30	15:10	460		65.0	65.0
6/8/2017	7:30	15:10	460		65	65
		Total Time (Tc):	920		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **2.4E+01** Liters

Sample Volume: 65 (lpm) x 920 (minutes) = **6.0E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		6/16/2017		
Count Time (e.g., noon, 1300, etc.)		9:20		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	24		
Sample Count Rate	cpm	0.40		
Background Count Rate	cpm	0.05		
Air Volume (liters) **(A)**	liters	6.0E+04	6.0E+04	6.0E+04
Net count rate **(B)**	cpm	0.35		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	1.03		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.54		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**7.74E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**7.73E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.04%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**4.03E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.02%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date:	6/16/2017	Sample ID:	20170608-031	RWP:	2017-001	
Occupational (DAC): ☐	Limit:	6.00E-14	µCi/ml **(I)**	Breathing Zone: ☐	General Area: ☑	Work Area: ☐
Non-Occupational (EC): ☑	[DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml]			Radionuclides:	**DU (Depleted Uranium)**	
Location:	FS12 SCA Boundary			Sampled By:	D Berres	
Wearer:	NA			Activity Performed:	NA	
Monitored Workers:	NA					
Lapel Pump Model:	NA	Serial No.	NA	Calibration Due Date:	NA	
Air Pump Model:	LV-1	Serial No.	3667	Calibration Due Date:	3/7/2018	

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
6/7/2017	7:30	15:00	450		65.0	65.0
6/8/2017	7:40	15:10	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **8.0E+03** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		6/16/2017		
Count Time (e.g., noon, 1300, etc.)		10:50		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	10		
Sample Count Rate	cpm	0.17		
Background Count Rate	cpm	0.05		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.12		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.34		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.54		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**2.64E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**2.63E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**4.38%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**4.12E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**6.87%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date:	6/19/2017	Sample ID:	20170612-032	RWP:	2017-001	
Occupational (DAC): ☑	Limit:	2.00E-11	µCi/ml **(I)**	Breathing Zone: ☐	General Area: ☐	Work Area: ☑
Non-Occupational (EC): ☐	[DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml]			Radionuclides:	**DU (Depleted Uranium)**	
Location:	FS12 Amec Soil Sort Area			Sampled By:	D Berres	
Wearer:	NA			Activity Performed:	NA	
Monitored Workers:	NA					
Lapel Pump Model:	NA	Serial No.	NA	Calibration Due Date:	NA	
Air Pump Model:	LV-1	Serial No.	3664	Calibration Due Date:	3/16/2018	

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
6/9/2017	7:45	11:30	225		65.0	65.0
6/12/2017	7:45	15:10	445		65	65
		Total Time (Tc):	670		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **3.8E+01** Liters

Sample Volume: 65 (lpm) x 670 (minutes) = **4.4E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		6/19/2017		
Count Time (e.g., noon, 1300, etc.)		8:45		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	24		
Sample Count Rate	cpm	0.40		
Background Count Rate	cpm	0.16		
Air Volume (liters) **(A)**	liters	4.4E+04	4.4E+04	4.4E+04
Net count rate **(B)**	cpm	0.24		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.70		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.84		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**7.29E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**7.28E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.04%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**8.72E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.04%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date:	6/19/2017	Sample ID:	20170612-033	RWP:	2017-001	
Occupational (DAC): ☐	Limit:	6.00E-14	µCi/ml **(I)**	Breathing Zone: ☐	General Area: ☑	Work Area: ☐
Non-Occupational (EC): ☑	[DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml]			Radionuclides:	**DU (Depleted Uranium)**	
Location:	FS12 SCA Boundary			Sampled By:	D Berres	
Wearer:	NA			Activity Performed:	NA	
Monitored Workers:	NA					
Lapel Pump Model:	NA	Serial No.	NA	Calibration Due Date:	NA	
Air Pump Model:	LV-1	Serial No.	3667	Calibration Due Date:	3/7/2018	

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
6/9/2017	7:45	11:30	225		65.0	65.0
6/12/2017	7:45	15:10	445		65	65
		Total Time (Tc):	670		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **1.3E+04** Liters

Sample Volume: 65 (lpm) x 670 (minutes) = **4.4E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		6/19/2017		
Count Time (e.g., noon, 1300, etc.)		13:00		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	13		
Sample Count Rate	cpm	0.22		
Background Count Rate	cpm	0.16		
Air Volume (liters) **(A)**	liters	4.4E+04	4.4E+04	4.4E+04
Net count rate **(B)**	cpm	0.06		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.17		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.84		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**1.72E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**1.71E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**2.86%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**8.72E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**14.54%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 6/26/2017 Sample ID: 20170615-034 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 Amec Soil Sort Area Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3664 Calibration Due Date: 3/16/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
6/13/2017	7:30	15:00	450		65.0	65.0
6/15/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **3.1E+01** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		6/26/2017		
Count Time (e.g., noon, 1300, etc.)		12:00		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	25		
Sample Count Rate	cpm	0.42		
Background Count Rate	cpm	0.10		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.32		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.93		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.70		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**7.16E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**7.15E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.04%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**5.37E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.03%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 6/26/2017 Sample ID: 20170615-035 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3667 Calibration Due Date: 3/7/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
6/13/2017	7:30	15:00	450		65.0	65.0
6/12/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **1.0E+04** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		6/26/2017		
Count Time (e.g., noon, 1300, etc.)		13:00		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	14		
Sample Count Rate	cpm	0.23		
Background Count Rate	cpm	0.10		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.13		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.39		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.70		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**3.01E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1); (F2)**	uCi/ml	**3.01E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**5.01%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**5.37E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**8.95%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 6/27/2017 Sample ID: 20170619-036 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3667 Calibration Due Date: 3/7/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
6/16/2017	7:30	15:00	450		65.0	65.0
6/19/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **1.2E+04** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

			Alpha		
Variables, Calculations, Results		**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date			6/27/2017		
Count Time (e.g., noon, 1300, etc.)			8:00		
Sample Count Time (Ts, Tb) = T		minutes	60		
Total Counts		counts	16		
Sample Count Rate		cpm	0.27		
Background Count Rate		cpm	0.13		
Air Volume (liters)	**(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate	**(B)**	cpm	0.14		
Counter Efficiency	**(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency	**(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)**	**(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)**	**(F)**	dpm	0.40		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T)	**(G)**	dpm	0.77		
Concentration = **(F)**/(2.22E9 x **(A)**)	**(H)**	µCi/ml	**3.09E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21		uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);**	**(F2)**	uCi/ml	**3.08E-15**		
DAC (or AE) Fraction = **(F2)/(I)**			**5.14%**		
MDC = MDA/V = **(G)/(A)**	**(J)**	µCi/ml	**5.96E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)			**9.94%**		
Final Count?		Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 6/19/2017 Sample ID: 20170619-037 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 Amec Soil Sort Area Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3664 Calibration Due Date: 3/16/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
6/16/2017	7:30	15:00	450		65.0	65.0
6/19/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **3.5E+01** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		6/27/2017		
Count Time (e.g., noon, 1300, etc.)		12:00		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	11		
Sample Count Rate	cpm	0.18		
Background Count Rate	cpm	0.13		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.05		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.16		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.77		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**1.21E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1); (F2)**	uCi/ml	**1.20E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.01%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**5.96E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.03%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 6/29/2017 Sample ID: 20170621-038 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3667 Calibration Due Date: 3/7/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
6/20/2017	7:30	15:00	450		65.0	65.0
6/21/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **1.1E+04** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		6/29/2017		
Count Time (e.g., noon, 1300, etc.)		9:30		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	8		
Sample Count Rate	cpm	0.13		
Background Count Rate	cpm	0.11		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.02		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.07		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.72		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**5.28E-16**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1); (F2)**	uCi/ml	**5.20E-16**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.87%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**5.58E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**9.29%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 7/12/2017 Sample ID: 20170626-040 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3667 Calibration Due Date: 3/7/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
6/23/2017	7:30	15:00	450		65.0	65.0
6/26/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **1.2E+04** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		6/27/2017		
Count Time (e.g., noon, 1300, etc.)		8:00		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	19		
Sample Count Rate	cpm	0.32		
Background Count Rate	cpm	0.13		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.19		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.55		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.77		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**4.22E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1); (F2)**	uCi/ml	**4.21E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**7.02%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**5.96E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**9.94%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 7/12/2017 Sample ID: 20170626-041 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3667 Calibration Due Date: 3/7/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
6/20/2017	7:30	15:00	450		65.0	65.0
6/26/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **1.2E+04** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

			Alpha		
Variables, Calculations, Results		**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date			7/12/2017		
Count Time (e.g., noon, 1300, etc.)			10:30		
Sample Count Time (Ts, Tb) = T		minutes	60		
Total Counts		counts	21		
Sample Count Rate		cpm	0.35		
Background Count Rate		cpm	0.13		
Air Volume (liters)	**(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate	**(B)**	cpm	0.22		
Counter Efficiency	**(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency	**(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)**	**(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)**	**(F)**	dpm	0.65		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T)	**(G)**	dpm	0.77		
Concentration = **(F)**/(2.22E9 x **(A)**)	**(H)**	µCi/ml	**4.97E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21		uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);**	**(F2)**	uCi/ml	**4.97E-15**		
DAC (or AE) Fraction = **(F2)/(I)**			**8.28%**		
MDC = MDA/V = **(G)/(A)**	**(J)**	µCi/ml	**5.96E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)			**9.94%**		
Final Count?		Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 7/14/2017 Sample ID: 20170629-044 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3667 Calibration Due Date: 3/7/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
6/27/2017	7:30	15:00	450		65.0	65.0
6/29/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **1.1E+04** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		7/14/2017		
Count Time (e.g., noon, 1300, etc.)		11:00		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	20		
Sample Count Rate	cpm	0.33		
Background Count Rate	cpm	0.11		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.22		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.66		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.72		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**5.05E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**5.04E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**8.40%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**5.58E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**9.29%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 7/14/2017 Sample ID: 20170629-045 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3667 Calibration Due Date: 3/7/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
6/27/2017	7:30	15:00	450		65.0	65.0
6/29/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **1.1E+04** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		7/14/2017		
Count Time (e.g., noon, 1300, etc.)		9:30		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	7		
Sample Count Rate	cpm	0.12		
Background Count Rate	cpm	0.11		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.01		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.02		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.72		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**1.51E-16**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1); (F2)**	uCi/ml	**1.43E-16**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.24%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**5.58E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**9.29%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 7/17/2017 Sample ID: 20170706-047 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 Amec Soil Sort Area Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3664 Calibration Due Date: 3/16/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
6/30/2017	7:30	15:00	450		65.0	65.0
7/6/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **2.9E+01** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		7/17/2017		
Count Time (e.g., noon, 1300, etc.)		13:30 PM		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	11		
Sample Count Rate	cpm	0.18		
Background Count Rate	cpm	0.08		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.10		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.30		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.64		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**2.34E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1); (F2)**	uCi/ml	**2.33E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.01%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**4.92E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.02%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 7/17/2017 Sample ID: 20170706-046 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3667 Calibration Due Date: 3/7/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
6/30/2017	7:30	15:00	450		65.0	65.0
7/6/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **9.6E+03** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		7/17/2017		
Count Time (e.g., noon, 1300, etc.)		11:00		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	7		
Sample Count Rate	cpm	0.12		
Background Count Rate	cpm	0.08		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.04		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.11		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.64		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**8.29E-16**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1); (F2)**	uCi/ml	**8.22E-16**		
DAC (or AE) Fraction = **(F2)/(I)**		**1.37%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**4.92E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**8.20%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 7/19/2017 Sample ID: 20170712-048 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3667 Calibration Due Date: 3/7/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
7/7/2017	7:30	15:00	450		65.0	65.0
7/12/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **8.0E+03** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

			Alpha		
Variables, Calculations, Results		**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date			7/19/2017		
Count Time (e.g., noon, 1300, etc.)			9:45		
Sample Count Time (Ts, Tb) = T		minutes	60		
Total Counts		counts	15		
Sample Count Rate		cpm	0.25		
Background Count Rate		cpm	0.05		
Air Volume (liters)	**(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate	**(B)**	cpm	0.20		
Counter Efficiency	**(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency	**(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)**	**(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)**	**(F)**	dpm	0.59		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T)	**(G)**	dpm	0.54		
Concentration = **(F)**/(2.22E9 x **(A)**)	**(H)**	µCi/ml	**4.52E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21		uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);**	**(F2)**	uCi/ml	**4.51E-15**		
DAC (or AE) Fraction = **(F2)/(I)**			**7.52%**		
MDC = MDA/V = **(G)/(A)**	**(J)**	µCi/ml	**4.12E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)			**6.87%**		
Final Count?		Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 7/19/2017 Sample ID: 20170712-049 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 Amec Soil Sort Area Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3664 Calibration Due Date: 3/16/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
7/7/2017	7:30	15:00	450		65.0	65.0
7/12/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **2.4E+01** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		7/19/2017		
Count Time (e.g., noon, 1300, etc.)		11:30		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	23		
Sample Count Rate	cpm	0.38		
Background Count Rate	cpm	0.05		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.33		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.98		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.54		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**7.54E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1); (F2)**	uCi/ml	**7.53E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.04%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**4.12E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.02%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 7/24/2017 Sample ID: 20170717-050 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 Amec Soil Sort Area Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3664 Calibration Due Date: 3/16/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
7/14/2017	7:30	15:00	450		65.0	65.0
7/17/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **3.3E+01** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		7/24/2017		
Count Time (e.g., noon, 1300, etc.)		9:30		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	17		
Sample Count Rate	cpm	0.28		
Background Count Rate	cpm	0.11		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.17		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.51		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.72		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**3.92E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1); (F2)**	uCi/ml	**3.91E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.02%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**5.58E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.03%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 7/24/2017 Sample ID: 20170717-051 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3667 Calibration Due Date: 3/7/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
7/14/2017	7:30	15:00	450		65.0	65.0
7/17/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **1.1E+04** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

			Alpha		
Variables, Calculations, Results		**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date			7/24/2017		
Count Time (e.g., noon, 1300, etc.)			10:45		
Sample Count Time (Ts, Tb) = T		minutes	60		
Total Counts		counts	8		
Sample Count Rate		cpm	0.13		
Background Count Rate		cpm	0.11		
Air Volume (liters)	**(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate	**(B)**	cpm	0.02		
Counter Efficiency	**(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency	**(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)**	**(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)**	**(F)**	dpm	0.07		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T)	**(G)**	dpm	0.72		
Concentration = **(F)**/(2.22E9 x **(A)**)	**(H)**	µCi/ml	**5.28E-16**		
Background "Strip" value (F.1) Date Updated	4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);**	**(F2)**	uCi/ml	**5.20E-16**		
DAC (or AE) Fraction = **(F2)/(I)**			**0.87%**		
MDC = MDA/V = **(G)/(A)**	**(J)**	µCi/ml	**5.58E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)			**9.29%**		
Final Count?		Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 7/28/2017 Sample ID: 20170719-052 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 Amec Soil Sort Area Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3664 Calibration Due Date: 3/16/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
7/18/2017	7:30	15:00	450		65.0	65.0
7/19/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **3.3E+01** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		7/28/2017		
Count Time (e.g., noon, 1300, etc.)		9:30		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	18		
Sample Count Rate	cpm	0.30		
Background Count Rate	cpm	0.11		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.19		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.56		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.72		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**4.30E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1); (F2)**	uCi/ml	**4.29E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.02%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**5.58E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.03%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 7/28/2017 Sample ID: 20170719-053 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3667 Calibration Due Date: 3/7/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
7/18/2017	7:30	15:00	450		65.0	65.0
7/19/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **6.7E+03** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		7/28/2017		
Count Time (e.g., noon, 1300, etc.)		10:45		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	13		
Sample Count Rate	cpm	0.22		
Background Count Rate	cpm	0.03		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.19		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.55		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.45		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**4.22E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1); (F2)**	uCi/ml	**4.21E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**7.02%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**3.45E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**5.74%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 7/31/2017 Sample ID: 20170721-054 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3667 Calibration Due Date: 3/7/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
7/20/2017	7:30	15:00	450		65.0	65.0
7/21/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **6.7E+03** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		7/31/2017		
Count Time (e.g., noon, 1300, etc.)		13:45:00 AM		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	9		
Sample Count Rate	cpm	0.15		
Background Count Rate	cpm	0.03		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.12		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.35		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.45		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**2.71E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**2.71E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**4.51%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**3.45E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**5.74%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 7/31/2017 Sample ID: 20170721-055 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 Amec Soil Sort Area Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3664 Calibration Due Date: 3/16/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
7/20/2017	7:30	15:00	450		65.0	65.0
7/21/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **2.0E+01** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		7/31/2017		
Count Time (e.g., noon, 1300, etc.)		11:30		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	5		
Sample Count Rate	cpm	0.08		
Background Count Rate	cpm	0.03		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.05		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.16		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.45		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**1.21E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**1.20E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.01%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**3.45E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.02%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 8/2/2017 Sample ID: 20170725-056 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 Amec Soil Sort Area Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3664 Calibration Due Date: 3/16/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
7/24/2017	7:30	15:00	450		65.0	65.0
7/25/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **3.1E+01** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		8/2/2017		
Count Time (e.g., noon, 1300, etc.)		9:30		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	16		
Sample Count Rate	cpm	0.27		
Background Count Rate	cpm	0.10		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.17		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.49		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.70		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**3.77E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1); (F2)**	uCi/ml	**3.76E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.02%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**5.37E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.03%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 8/2/2017 Sample ID: 20170725-057 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3667 Calibration Due Date: 3/7/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
7/24/2017	7:30	15:00	450		65.0	65.0
7/25/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **1.0E+04** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		8/2/2017		
Count Time (e.g., noon, 1300, etc.)		10:45		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	19		
Sample Count Rate	cpm	0.32		
Background Count Rate	cpm	0.10		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.22		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.64		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.70		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**4.90E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1); (F2)**	uCi/ml	**4.89E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**8.15%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**5.37E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**8.95%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 8/4/2017 Sample ID: 20170728-058 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 Amec Soil Sort Area Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3664 Calibration Due Date: 3/16/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
7/26/2017	7:30	15:00	450		65.0	65.0
7/28/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **3.1E+01** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		8/4/2017		
Count Time (e.g., noon, 1300, etc.)		10:30		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	10		
Sample Count Rate	cpm	0.17		
Background Count Rate	cpm	0.10		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.07		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.20		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.70		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**1.51E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1); (F2)**	uCi/ml	**1.50E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.01%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**5.37E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.03%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 8/4/2017 Sample ID: 20170725-059 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3667 Calibration Due Date: 3/7/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
7/26/2017	7:30	15:00	450		65.0	65.0
7/28/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **1.0E+04** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		8/4/2017		
Count Time (e.g., noon, 1300, etc.)		0:45		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	17		
Sample Count Rate	cpm	0.28		
Background Count Rate	cpm	0.10		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.18		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.54		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.70		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**4.15E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1); (F2)**	uCi/ml	**4.14E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**6.90%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**5.37E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**8.95%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 8/9/2017 Sample ID: 20170801-060 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 Amec Soil Sort Area Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3664 Calibration Due Date: 3/16/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
7/31/2017	7:30	15:00	450		65.0	65.0
8/1/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **2.0E+01** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		8/9/2017		
Count Time (e.g., noon, 1300, etc.)		11:30		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	16		
Sample Count Rate	cpm	0.27		
Background Count Rate	cpm	0.03		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.24		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.69		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.45		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**5.35E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**5.34E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.03%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**3.45E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.02%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 8/9/2017 Sample ID: 20170801-061 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3667 Calibration Due Date: 3/7/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
7/31/2017	7:30	15:00	450		65.0	65.0
8/1/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **6.7E+03** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		8/9/2017		
Count Time (e.g., noon, 1300, etc.)		13:45:00 pm		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	10		
Sample Count Rate	cpm	0.17		
Background Count Rate	cpm	0.03		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.14		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.40		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.45		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**3.09E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1); (F2)**	uCi/ml	**3.08E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**5.14%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**3.45E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**5.74%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 8/14/2017 Sample ID: 20170804-062 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 Amec Soil Sort Area Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3664 Calibration Due Date: 3/16/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
8/2/2017	7:30	15:00	450		65.0	65.0
8/4/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **2.0E+01** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		8/14/2017		
Count Time (e.g., noon, 1300, etc.)		9:30		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	28		
Sample Count Rate	cpm	0.47		
Background Count Rate	cpm	0.03		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.44		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	1.28		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.45		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**9.87E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**9.87E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.05%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**3.45E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.02%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 8/14/2017 Sample ID: 20170804-063 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3667 Calibration Due Date: 3/7/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
8/2/2017	7:30	15:00	450		65.0	65.0
8/4/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **6.7E+03** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		8/9/2017		
Count Time (e.g., noon, 1300, etc.)		11:30		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	14		
Sample Count Rate	cpm	0.23		
Background Count Rate	cpm	0.03		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.20		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.60		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.45		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**4.60E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**4.59E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**7.65%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**3.45E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**5.74%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 8/17/2017 Sample ID: 20170808-064 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 Amec Soil Sort Area Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3664 Calibration Due Date: 3/16/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
8/7/2017	7:30	15:00	450		65.0	65.0
8/8/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **3.3E+01** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		8/17/2017		
Count Time (e.g., noon, 1300, etc.)		11:30		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	12		
Sample Count Rate	cpm	0.20		
Background Count Rate	cpm	0.11		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.09		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.26		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.72		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**2.03E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**2.03E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.01%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**5.58E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.03%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 8/17/2017 Sample ID: 20170808-065 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3667 Calibration Due Date: 3/7/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
8/7/2017	7:30	15:00	450		65.0	65.0
8/8/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **1.1E+04** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		8/17/2017		
Count Time (e.g., noon, 1300, etc.)		12:30		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	11		
Sample Count Rate	cpm	0.18		
Background Count Rate	cpm	0.11		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.07		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.22		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.72		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**1.66E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**1.65E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**2.75%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**5.58E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**9.29%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 8/18/2017 Sample ID: 20170810-066 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3667 Calibration Due Date: 3/7/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
8/9/2017	7:30	15:00	450		65.0	65.0
8/10/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **8.0E+03** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		8/18/2017		
Count Time (e.g., noon, 1300, etc.)		9:30		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	13		
Sample Count Rate	cpm	0.22		
Background Count Rate	cpm	0.05		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.17		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.49		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.54		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**3.77E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1); (F2)**	uCi/ml	**3.76E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**6.27%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**4.12E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**6.87%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 8/18/2017 Sample ID: 20170810-067 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 Amec Soil Sort Area Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3664 Calibration Due Date: 3/16/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
8/9/2017	7:30	15:00	450		65.0	65.0
8/10/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **2.4E+01** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		8/18/2017		
Count Time (e.g., noon, 1300, etc.)		12:30		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	7		
Sample Count Rate	cpm	0.12		
Background Count Rate	cpm	0.05		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.07		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.20		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.54		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**1.51E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1); (F2)**	uCi/ml	**1.50E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.01%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**4.12E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.02%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 8/22/2017 Sample ID: 20170814-068 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3667 Calibration Due Date: 3/7/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
8/11/2017	7:30	15:30	480		65.0	65.0
8/14/2017	7:30	15:30	480		65	65
		Total Time (Tc):	960		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **8.6E+03** Liters

Sample Volume: 65 (lpm) x 960 (minutes) = **6.2E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		8/22/2017		
Count Time (e.g., noon, 1300, etc.)		8:45		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	11		
Sample Count Rate	cpm	0.18		
Background Count Rate	cpm	0.06		
Air Volume (liters) **(A)**	liters	6.2E+04	6.2E+04	6.2E+04
Net count rate **(B)**	cpm	0.12		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.36		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.57		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**2.61E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**2.61E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**4.34%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**4.13E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**6.89%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 8/24/2017 Sample ID: 20170814-069 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 Amec Soil Sort Area Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3664 Calibration Due Date: 3/16/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
8/11/2017	7:30	15:30	480		65.0	65.0
8/14/2017	7:30	15:30	480		65	65
		Total Time (Tc):	960		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **3.3E+01** Liters

Sample Volume: 65 (lpm) x 960 (minutes) = **6.2E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		8/22/2017		
Count Time (e.g., noon, 1300, etc.)		12:30		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	25		
Sample Count Rate	cpm	0.42		
Background Count Rate	cpm	0.11		
Air Volume (liters) **(A)**	liters	6.2E+04	6.2E+04	6.2E+04
Net count rate **(B)**	cpm	0.31		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.90		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.72		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**6.50E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**6.49E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.03%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**5.23E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.03%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 8/25/2017 Sample ID: 20170817-070 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3667 Calibration Due Date: 3/7/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
8/15/2017	7:30	15:00	450		65.0	65.0
8/17/2017	7:30	15:30	480		65	65
		Total Time (Tc):	930		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **9.6E+03** Liters

Sample Volume: 65 (lpm) x 930 (minutes) = **6.0E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		8/25/2017		
Count Time (e.g., noon, 1300, etc.)		11:45		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	7		
Sample Count Rate	cpm	0.12		
Background Count Rate	cpm	0.08		
Air Volume (liters) **(A)**	liters	6.0E+04	6.0E+04	6.0E+04
Net count rate **(B)**	cpm	0.04		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.11		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.64		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**8.02E-16**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**7.95E-16**		
DAC (or AE) Fraction = **(F2)/(I)**		**1.32%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**4.76E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**7.94%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 8/29/2017 Sample ID: 20170821-071 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 Amec Soil Sort Area Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3664 Calibration Due Date: 3/16/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
8/15/2017	7:30	15:30	480		65.0	65.0
8/21/2017	7:30	15:30	480		65	65
		Total Time (Tc):	960		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **2.0E+01** Liters

Sample Volume: 65 (lpm) x 960 (minutes) = **6.2E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		8/29/2017		
Count Time (e.g., noon, 1300, etc.)		10:10		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	24		
Sample Count Rate	cpm	0.40		
Background Count Rate	cpm	0.03		
Air Volume (liters) **(A)**	liters	6.2E+04	6.2E+04	6.2E+04
Net count rate **(B)**	cpm	0.37		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	1.09		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.45		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**7.84E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**7.84E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.04%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**3.23E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.02%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 8/29/2017 Sample ID: 20170821-072 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3667 Calibration Due Date: 3/7/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
8/18/2017	7:30	15:00	450		65.0	65.0
8/21/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **6.7E+03** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		8/29/2017	8/30/2017	
Count Time (e.g., noon, 1300, etc.)		11:13	13:22	
Sample Count Time (Ts, Tb) = T	minutes	60	60	
Total Counts	counts	20	10	
Sample Count Rate	cpm	0.33	0.17	
Background Count Rate	cpm	0.03	0.08	
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.30	0.09	
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.89	0.25	
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.45	0.64	
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**6.86E-15**	**1.96E-15**	
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1); (F2)**	uCi/ml	**6.85E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**11.42%**	**3.27%**	
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**3.45E-15**	**4.92E-15**	
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**5.74%**	**8.20%**	
Final Count?	Yes/No	**No**	**Yes**	

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 9/1/2017 Sample ID: 20170824-073 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 Amec Soil Sort Area Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3664 Calibration Due Date: 3/16/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
8/23/2017	7:30	15:30	480		65.0	65.0
8/24/2017	7:30	15:30	480		65	65
		Total Time (Tc):	960		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **3.1E+01** Liters

Sample Volume: 65 (lpm) x 960 (minutes) = **6.2E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		9/1/2017		
Count Time (e.g., noon, 1300, etc.)		11:10		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	11		
Sample Count Rate	cpm	0.18		
Background Count Rate	cpm	0.10		
Air Volume (liters) **(A)**	liters	6.2E+04	6.2E+04	6.2E+04
Net count rate **(B)**	cpm	0.08		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.24		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.70		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**1.77E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1); (F2)**	uCi/ml	**1.76E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.01%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**5.03E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.03%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 9/1/2017 Sample ID: 20170824-074 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3667 Calibration Due Date: 3/7/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
8/23/2017	7:30	15:30	480		65.0	65.0
8/24/2017	7:30	15:30	480		65	65
		Total Time (Tc):	960		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **1.0E+04** Liters

Sample Volume: 65 (lpm) x 960 (minutes) = **6.2E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

			Alpha		
Variables, Calculations, Results		**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date			9/1/2017		
Count Time (e.g., noon, 1300, etc.)			11:13		
Sample Count Time (Ts, Tb) = T		minutes	60		
Total Counts		counts	12		
Sample Count Rate		cpm	0.20		
Background Count Rate		cpm	0.10		
Air Volume (liters)	**(A)**	liters	6.2E+04	6.2E+04	6.2E+04
Net count rate	**(B)**	cpm	0.10		
Counter Efficiency	**(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency	**(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)**	**(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)**	**(F)**	dpm	0.29		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T)	**(G)**	dpm	0.70		
Concentration = **(F)**/(2.22E9 x **(A)**)	**(H)**	µCi/ml	**2.12E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21		uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);**	**(F2)**	uCi/ml	**2.11E-15**		
DAC (or AE) Fraction = **(F2)/(I)**			**3.52%**		
MDC = MDA/V = **(G)/(A)**	**(J)**	µCi/ml	**5.03E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)			**8.39%**		
Final Count?		Yes/No	**No**	**Yes**	

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 9/8/2017 Sample ID: 20170830-075 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3667 Calibration Due Date: 3/7/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
8/25/2017	7:30	15:30	480		65.0	65.0
8/30/2017	7:30	15:30	480		65	65
		Total Time (Tc):	960		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **1.0E+04** Liters

Sample Volume: 65 (lpm) x 960 (minutes) = **6.2E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		9/8/2017		
Count Time (e.g., noon, 1300, etc.)		13:00		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	12		
Sample Count Rate	cpm	0.20		
Background Count Rate	cpm	0.10		
Air Volume (liters) **(A)**	liters	6.2E+04	6.2E+04	6.2E+04
Net count rate **(B)**	cpm	0.10		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.29		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.70		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**2.12E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**2.11E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**3.52%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**5.03E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**8.39%**		
Final Count?	Yes/No	**No**	**Yes**	

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 9/8/2017 Sample ID: 20170830-076 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 Amec Soil Sort Area Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3664 Calibration Due Date: 3/16/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
8/25/2017	7:30	15:30	480		65.0	65.0
8/30/2017	7:30	15:30	480		65	65
		Total Time (Tc):	960		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **3.1E+01** Liters

Sample Volume: 65 (lpm) x 960 (minutes) = **6.2E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		9/8/2017		
Count Time (e.g., noon, 1300, etc.)		8:15		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	24		
Sample Count Rate	cpm	0.40		
Background Count Rate	cpm	0.10		
Air Volume (liters) **(A)**	liters	6.2E+04	6.2E+04	6.2E+04
Net count rate **(B)**	cpm	0.30		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.88		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.70		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**6.36E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**6.35E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.03%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**5.03E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.03%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 9/8/2017 Sample ID: 20170901-077 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3667 Calibration Due Date: 3/7/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
8/31/2017	7:30	15:00	450		65.0	65.0
9/1/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **1.0E+04** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		9/8/2017		
Count Time (e.g., noon, 1300, etc.)		9:30		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	8		
Sample Count Rate	cpm	0.13		
Background Count Rate	cpm	0.10		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.03		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)**/**(E)** **(F)**	dpm	0.10		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.70		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**7.54E-16**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**7.46E-16**		
DAC (or AE) Fraction = **(F2)**/**(I)**		**1.24%**		
MDC = MDA/V = **(G)**/**(A)** **(J)**	µCi/ml	**5.37E-15**		
MDC Fraction of DAC (or AE) = **(J)**/**(I)** (Goal<10%)		**8.95%**		
Final Count?	Yes/No	**No**	**Yes**	

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 9/8/2017 Sample ID: 20170901-078 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 Amec Soil Sort Area Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3664 Calibration Due Date: 3/16/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
8/31/2017	7:30	15:30	480		65.0	65.0
9/1/2017	7:30	15:30	480		65	65
		Total Time (Tc):	960		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **3.1E+01** Liters

Sample Volume: 65 (lpm) x 960 (minutes) = **6.2E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		9/8/2017		
Count Time (e.g., noon, 1300, etc.)		10:30		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	9		
Sample Count Rate	cpm	0.15		
Background Count Rate	cpm	0.10		
Air Volume (liters) **(A)**	liters	6.2E+04	6.2E+04	6.2E+04
Net count rate **(B)**	cpm	0.05		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.15		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.70		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**1.06E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1); (F2)**	uCi/ml	**1.05E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.01%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**5.03E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.03%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 9/13/2017 Sample ID: 20170906-079 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 Amec Soil Sort Area Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3664 Calibration Due Date: 3/16/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
9/5/2017	7:30	15:30	480		65.0	65.0
9/6/2017	7:30	15:30	480		65	65
		Total Time (Tc):	960		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **7.0E+01** Liters

Sample Volume: 65 (lpm) x 960 (minutes) = **6.2E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		9/13/2017		
Count Time (e.g., noon, 1300, etc.)		9::00 AM		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	19		
Sample Count Rate	cpm	0.32		
Background Count Rate	cpm	0.66		
Air Volume (liters) **(A)**	liters	6.2E+04	6.2E+04	6.2E+04
Net count rate **(B)**	cpm	-0.34		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	-1.01		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	1.56		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**-7.28E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**-7.28E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**-0.04%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**1.13E-14**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.06%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 9/15/2017 Sample ID: 20170908-080 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 Amec Soil Sort Area Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3664 Calibration Due Date: 3/7/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
9/7/2017	7:30	15:30	480		65.0	65.0
9/8/2017	7:30	15:30	480		65	65
		Total Time (Tc):	960		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **3.1E+01** Liters

Sample Volume: 65 (lpm) x 960 (minutes) = **6.2E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		9/15/2017		
Count Time (e.g., noon, 1300, etc.)		9:40		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	16		
Sample Count Rate	cpm	0.27		
Background Count Rate	cpm	0.10		
Air Volume (liters) **(A)**	liters	6.2E+04	6.2E+04	6.2E+04
Net count rate **(B)**	cpm	0.17		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.49		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.70		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**3.53E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1); (F2)**	uCi/ml	**3.53E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.02%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**5.03E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.03%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 9/15/2017 Sample ID: 20170908-081 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 Amec Soil Sort Area Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3664 Calibration Due Date: 3/16/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
9/7/2017	7:30	15:30	480		65.0	65.0
9/8/2017	7:30	15:30	480		65	65
		Total Time (Tc):	960		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **3.1E+01** Liters

Sample Volume: 65 (lpm) x 960 (minutes) = **6.2E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		9/15/2017		
Count Time (e.g., noon, 1300, etc.)		10:45		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	18		
Sample Count Rate	cpm	0.30		
Background Count Rate	cpm	0.10		
Air Volume (liters) **(A)**	liters	6.2E+04	6.2E+04	6.2E+04
Net count rate **(B)**	cpm	0.20		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.59		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.70		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**4.24E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**4.23E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.02%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**5.03E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.03%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 9/22/2017 Sample ID: 20170912-082 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 2591 Calibration Due Date: 9/5/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
9/11/2017	7:30	15:00	450		65.0	65.0
9/12/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **1.1E+04** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		9/22/2017		
Count Time (e.g., noon, 1300, etc.)		9:30		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	11		
Sample Count Rate	cpm	0.18		
Background Count Rate	cpm	0.12		
Air Volume (liters) **(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate **(B)**	cpm	0.06		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)**/**(E)** **(F)**	dpm	0.19		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.75		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**1.43E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**1.42E-15**		
DAC (or AE) Fraction = **(F2)**/**(I)**		**2.37%**		
MDC = MDA/V = **(G)**/**(A)** **(J)**	µCi/ml	**5.77E-15**		
MDC Fraction of DAC (or AE) = **(J)**/**(I)** (Goal<10%)		**9.62%**		
Final Count?	Yes/No	**No**	**Yes**	

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 9/22/2017 Sample ID: 20170912-083 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 Amec Soil Sort Area Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3664 Calibration Due Date: 3/16/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
9/11/2017	7:30	15:30	480		65.0	65.0
9/12/2017	7:30	15:30	480		65	65
		Total Time (Tc):	960		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **3.4E+01** Liters

Sample Volume: 65 (lpm) x 960 (minutes) = **6.2E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		9/22/2017		
Count Time (e.g., noon, 1300, etc.)		10:45		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	16		
Sample Count Rate	cpm	0.27		
Background Count Rate	cpm	0.12		
Air Volume (liters) **(A)**	liters	6.2E+04	6.2E+04	6.2E+04
Net count rate **(B)**	cpm	0.15		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.43		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.75		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**3.11E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**3.10E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.02%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**5.41E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.03%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 9/22/2017 Sample ID: 20170914-084 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 2591 Calibration Due Date: 9/5/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
9/13/2017	7:30	15:30	480		65.0	65.0
9/14/2017	7:30	15:30	480		65	65
		Total Time (Tc):	960		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **1.1E+04** Liters

Sample Volume: 65 (lpm) x 960 (minutes) = **6.2E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

			Alpha		
Variables, Calculations, Results		**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date			9/22/2017		
Count Time (e.g., noon, 1300, etc.)			11:30		
Sample Count Time (Ts, Tb) = T		minutes	60		
Total Counts		counts	9		
Sample Count Rate		cpm	0.15		
Background Count Rate		cpm	0.12		
Air Volume (liters)	**(A)**	liters	6.2E+04	6.2E+04	6.2E+04
Net count rate	**(B)**	cpm	0.03		
Counter Efficiency	**(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency	**(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)**	**(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)**	**(F)**	dpm	0.09		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T)	**(G)**	dpm	0.75		
Concentration = **(F)**/(2.22E9 x **(A)**)	**(H)**	µCi/ml	**6.36E-16**		
Background "Strip" value (F.1) Date Updated 4/20-4/21		uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);**	**(F2)**	uCi/ml	**6.29E-16**		
DAC (or AE) Fraction = **(F2)/(I)**			**1.05%**		
MDC = MDA/V = **(G)/(A)**	**(J)**	µCi/ml	**5.41E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)			**9.02%**		
Final Count?		Yes/No	**No**	**Yes**	

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 9/25/2017 Sample ID: 20170914-085 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 Amec Soil Sort Area Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3664 Calibration Due Date: 3/7/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
9/13/2017	7:30	15:30	480		65.0	65.0
9/14/2017	7:30	15:30	480		65	65
		Total Time (Tc):	960		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **3.4E+01** Liters

Sample Volume: 65 (lpm) x 960 (minutes) = **6.2E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		9/25/2017		
Count Time (e.g., noon, 1300, etc.)		10:45		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	18		
Sample Count Rate	cpm	0.30		
Background Count Rate	cpm	0.12		
Air Volume (liters) **(A)**	liters	6.2E+04	6.2E+04	6.2E+04
Net count rate **(B)**	cpm	0.18		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)/(E)** **(F)**	dpm	0.53		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.75		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**3.82E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1); (F2)**	uCi/ml	**3.81E-15**		
DAC (or AE) Fraction = **(F2)/(I)**		**0.02%**		
MDC = MDA/V = **(G)/(A)** **(J)**	µCi/ml	**5.41E-15**		
MDC Fraction of DAC (or AE) = **(J)/(I)** (Goal<10%)		**0.03%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 10/2/2017 Sample ID: 20170927-086 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 2591 Calibration Due Date: 9/5/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
9/25/2017	7:30	15:00	450		65.0	65.0
9/27/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **1.1E+04** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

			Alpha		
Variables, Calculations, Results		**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date			10/2/2017		
Count Time (e.g., noon, 1300, etc.)			11:30		
Sample Count Time (Ts, Tb) = T		minutes	60		
Total Counts		counts	8		
Sample Count Rate		cpm	0.08		
Background Count Rate		cpm	0.12		
Air Volume (liters)	**(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate	**(B)**	cpm	-0.04		
Counter Efficiency	**(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency	**(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)**	**(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)**/**(E)**	**(F)**	dpm	-0.12		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**		dpm	0.75		
Concentration = **(F)**/(2.22E9 x **(A)**)	**(H)**	µCi/ml	**-9.04E-16**		
Background "Strip" value (F.1) Date Updated: 4/20-4/21		uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);**	**(F2)**	uCi/ml	**-9.12E-16**		
DAC (or AE) Fraction = **(F2)**/**(I)**			**-1.52%**		
MDC = MDA/V = **(G)**/**(A)**	**(J)**	µCi/ml	**5.77E-15**		
MDC Fraction of DAC (or AE) = **(J)**/**(I)** (Goal<10%)			**9.62%**		
Final Count?		Yes/No	**No**	**Yes**	

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 10/2/2017 Sample ID: 20170927-087 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 Amec Soil Sort Area Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3664 Calibration Due Date: 3/7/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
9/25/2017	7:30	15:30	480		65.0	65.0
9/27/2017	7:30	15:30	480		65	65
		Total Time (Tc):	960		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **2.9E+01** Liters

Sample Volume: 65 (lpm) x 960 (minutes) = **6.2E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

			Alpha		
Variables, Calculations, Results		**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date			10/2/2017		
Count Time (e.g., noon, 1300, etc.)			9:45		
Sample Count Time (Ts, Tb) = T		minutes	60		
Total Counts		counts	17		
Sample Count Rate		cpm	0.28		
Background Count Rate		cpm	0.08		
Air Volume (liters)	**(A)**	liters	6.2E+04	6.2E+04	6.2E+04
Net count rate	**(B)**	cpm	0.20		
Counter Efficiency	**(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency	**(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)**	**(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)**/**(E)**	**(F)**	dpm	0.60		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**		dpm	0.64		
Concentration = **(F)**/(2.22E9 x **(A)**)	**(H)**	µCi/ml	**4.31E-15**		
Background "Strip" value (F.1) Date Updated: 4/20-4/21		uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);**	**(F2)**	uCi/ml	**4.30E-15**		
DAC (or AE) Fraction = **(F2)**/**(I)**			**0.02%**		
MDC = MDA/V = **(G)**/**(A)**	**(J)**	µCi/ml	**4.61E-15**		
MDC Fraction of DAC (or AE) = **(J)**/**(I)** (Goal<10%)			**0.02%**		
Final Count?		Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 10/12/2017 Sample ID: 20170929-088 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 Amec Soil Sort Area Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 2591 Calibration Due Date: 9/5/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
9/28/2017	7:30	15:30	480		65.0	65.0
9/29/2017	7:30	15:30	480		65	65
		Total Time (Tc):	960		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **2.6E+01** Liters

Sample Volume: 65 (lpm) x 960 (minutes) = **6.2E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

			Alpha		
Variables, Calculations, Results		**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date			10/12/2017		
Count Time (e.g., noon, 1300, etc.)			9:45		
Sample Count Time (Ts, Tb) = T		minutes	60		
Total Counts		counts	14		
Sample Count Rate		cpm	0.23		
Background Count Rate		cpm	0.06		
Air Volume (liters)	**(A)**	liters	6.2E+04	6.2E+04	6.2E+04
Net count rate	**(B)**	cpm	0.17		
Counter Efficiency	**(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency	**(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)**	**(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)**/**(E)**	**(F)**	dpm	0.51		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**		dpm	0.57		
Concentration = **(F)**/(2.22E9 x **(A)**)	**(H)**	µCi/ml	**3.67E-15**		
Background "Strip" value (F.1) Date Updated: 4/20-4/21		uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);**	**(F2)**	uCi/ml	**3.67E-15**		
DAC (or AE) Fraction = **(F2)**/**(I)**			**0.02%**		
MDC = MDA/V = **(G)**/**(A)**	**(J)**	µCi/ml	**4.13E-15**		
MDC Fraction of DAC (or AE) = **(J)**/**(I)** (Goal<10%)			**0.02%**		
Final Count?		Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 10/12/2017 Sample ID: 20170929-089 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3664 Calibration Due Date: 3/16/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
9/28/2017	7:30	15:30	480		65.0	65.0
9/29/2017	7:30	15:30	480		65	65
		Total Time (Tc):	960		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **8.6E+03** Liters

Sample Volume: 65 (lpm) x 960 (minutes) = **6.2E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

			Alpha		
Variables, Calculations, Results		**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date			10/12/2017		
Count Time (e.g., noon, 1300, etc.)			11:30		
Sample Count Time (Ts, Tb) = T		minutes	60		
Total Counts		counts	5		
Sample Count Rate		cpm	0.08		
Background Count Rate		cpm	0.06		
Air Volume (liters)	**(A)**	liters	6.2E+04	6.2E+04	6.2E+04
Net count rate	**(B)**	cpm	0.02		
Counter Efficiency	**(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency	**(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)**	**(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)**/**(E)**	**(F)**	dpm	0.06		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**		dpm	0.57		
Concentration = **(F)**/(2.22E9 x **(A)**)	**(H)**	µCi/ml	**4.24E-16**		
Background "Strip" value (F.1) Date Updated: 4/20-4/21		uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);**	**(F2)**	uCi/ml	**4.17E-16**		
DAC (or AE) Fraction = **(F2)**/**(I)**			**0.69%**		
MDC = MDA/V = **(G)**/**(A)**	**(J)**	µCi/ml	**4.13E-15**		
MDC Fraction of DAC (or AE) = **(J)**/**(I)** (Goal<10%)			**6.89%**		
Final Count?		Yes/No	**No**	**Yes**	

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 10/13/2017 Sample ID: 20171004-090 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3664 Calibration Due Date: 3/16/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
10/2/2017	7:30	15:00	450		65.0	65.0
10/4/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **6.7E+03** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

			Alpha		
Variables, Calculations, Results		**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date			10/13/2017		
Count Time (e.g., noon, 1300, etc.)			10:30		
Sample Count Time (Ts, Tb) = T		minutes	60		
Total Counts		counts	16		
Sample Count Rate		cpm	0.08		
Background Count Rate		cpm	0.03		
Air Volume (liters)	**(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate	**(B)**	cpm	0.05		
Counter Efficiency	**(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency	**(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)**	**(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)**/**(E)**	**(F)**	dpm	0.15		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**		dpm	0.45		
Concentration = **(F)**/(2.22E9 x **(A)**)	**(H)**	µCi/ml	**1.13E-15**		
Background "Strip" value (F.1) Date Updated: 4/20-4/21		uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);**	**(F2)**	uCi/ml	**1.12E-15**		
DAC (or AE) Fraction = **(F2)**/**(I)**			**1.87%**		
MDC = MDA/V = **(G)**/**(A)**	**(J)**	µCi/ml	**3.45E-15**		
MDC Fraction of DAC (or AE) = **(J)**/**(I)** (Goal<10%)			**5.74%**		
Final Count?		Yes/No	**No**	**Yes**	

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 10/13/2017 Sample ID: 20171004-091 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 Amec Soil Sort Area Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 2591 Calibration Due Date: 9/5/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
10/2/2017	7:30	15:30	480		65.0	65.0
10/4/2017	7:30	15:30	480		65	65
		Total Time (Tc):	960		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **2.0E+01** Liters

Sample Volume: 65 (lpm) x 960 (minutes) = **6.2E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

		Alpha		
Variables, Calculations, Results	**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date		10/13/2017		
Count Time (e.g., noon, 1300, etc.)		9:15		
Sample Count Time (Ts, Tb) = T	minutes	60		
Total Counts	counts	8		
Sample Count Rate	cpm	0.13		
Background Count Rate	cpm	0.03		
Air Volume (liters) **(A)**	liters	6.2E+04	6.2E+04	6.2E+04
Net count rate **(B)**	cpm	0.10		
Counter Efficiency **(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency **(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)** **(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)**/**(E)** **(F)**	dpm	0.30		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**	dpm	0.45		
Concentration = **(F)**/(2.22E9 x **(A)**) **(H)**	µCi/ml	**2.19E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21	uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);** **(F2)**	uCi/ml	**2.18E-15**		
DAC (or AE) Fraction = **(F2)**/**(I)**		**0.01%**		
MDC = MDA/V = **(G)**/**(A)** **(J)**	µCi/ml	**3.23E-15**		
MDC Fraction of DAC (or AE) = **(J)**/**(I)** (Goal<10%)		**0.02%**		
Final Count?	Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 10/17/2017 Sample ID: 20171010-092 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3664 Calibration Due Date: 3/16/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
10/5/2017	7:30	15:00	450		65.0	65.0
10/10/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **6.7E+03** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

			Alpha		
Variables, Calculations, Results		**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date			10/17/2017		
Count Time (e.g., noon, 1300, etc.)			9:30		
Sample Count Time (Ts, Tb) = T		minutes	60		
Total Counts		counts	10		
Sample Count Rate		cpm	0.08		
Background Count Rate		cpm	0.03		
Air Volume (liters)	**(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate	**(B)**	cpm	0.05		
Counter Efficiency	**(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency	**(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)**	**(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)**/**(E)**	**(F)**	dpm	0.15		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**		dpm	0.45		
Concentration = **(F)**/(2.22E9 x **(A)**)	**(H)**	µCi/ml	**1.13E-15**		
Background "Strip" value (F.1) Date Updated: 4/20-4/21		uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);**	**(F2)**	uCi/ml	**1.12E-15**		
DAC (or AE) Fraction = **(F2)**/**(I)**			**1.87%**		
MDC = MDA/V = **(G)**/**(A)**	**(J)**	µCi/ml	**3.45E-15**		
MDC Fraction of DAC (or AE) = **(J)**/**(I)** (Goal<10%)			**5.74%**		
Final Count?		Yes/No	**No**	**Yes**	

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 10/17/2017 Sample ID: 20171010-093 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 Amec Soil Sort Area Sampled By: R Santangelo

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 2591 Calibration Due Date: 9/5/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
10/5/2017	7:30	15:30	480		65.0	65.0
10/10/2017	7:30	15:30	480		65	65
		Total Time (Tc):	960		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **2.0E+01** Liters

Sample Volume: 65 (lpm) x 960 (minutes) = **6.2E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

			Alpha		
Variables, Calculations, Results		**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date			10/17/2017		
Count Time (e.g., noon, 1300, etc.)			9:15		
Sample Count Time (Ts, Tb) = T		minutes	60		
Total Counts		counts	12		
Sample Count Rate		cpm	0.20		
Background Count Rate		cpm	0.03		
Air Volume (liters)	**(A)**	liters	6.2E+04	6.2E+04	6.2E+04
Net count rate	**(B)**	cpm	0.17		
Counter Efficiency	**(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency	**(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)**	**(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)**/**(E)**	**(F)**	dpm	0.50		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**		dpm	0.45		
Concentration = **(F)**/(2.22E9 x **(A)**)	**(H)**	µCi/ml	**3.60E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21		uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);**	**(F2)**	uCi/ml	**3.60E-15**		
DAC (or AE) Fraction = **(F2)**/**(I)**			**0.02%**		
MDC = MDA/V = **(G)**/**(A)**	**(J)**	µCi/ml	**3.23E-15**		
MDC Fraction of DAC (or AE) = **(J)**/**(I)** (Goal<10%)			**0.02%**		
Final Count?		Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 10/24/2017 Sample ID: 20171018-094 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: David Berres

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3664 Calibration Due Date: 3/16/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
10/17/2017	7:30	15:00	450		65.0	65.0
10/18/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **8.0E+03** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

			Alpha		
Variables, Calculations, Results		**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date			10/24/2017		
Count Time (e.g., noon, 1300, etc.)			9:30		
Sample Count Time (Ts, Tb) = T		minutes	60		
Total Counts		counts	4		
Sample Count Rate		cpm	0.08		
Background Count Rate		cpm	0.05		
Air Volume (liters)	**(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate	**(B)**	cpm	0.03		
Counter Efficiency	**(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency	**(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)**	**(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)**/**(E)**	**(F)**	dpm	0.09		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**		dpm	0.54		
Concentration = **(F)**/(2.22E9 x **(A)**)	**(H)**	µCi/ml	**6.78E-16**		
Background "Strip" value (F.1) Date Updated: 4/20-4/21		uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);**	**(F2)**	uCi/ml	**6.71E-16**		
DAC (or AE) Fraction = **(F2)**/**(I)**			**1.12%**		
MDC = MDA/V = **(G)**/**(A)**	**(J)**	µCi/ml	**4.12E-15**		
MDC Fraction of DAC (or AE) = **(J)**/**(I)** (Goal<10%)			**6.87%**		
Final Count?		Yes/No	**No**	**Yes**	

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 10/24/2017 Sample ID: 20171018-095 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: David Berres

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3664 Calibration Due Date: 3/16/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
10/17/2017	7:30	15:00	450		65.0	65.0
10/18/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **8.0E+03** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

			Alpha		
Variables, Calculations, Results		**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date			10/24/2017		
Count Time (e.g., noon, 1300, etc.)			9:30		
Sample Count Time (Ts, Tb) = T		minutes	60		
Total Counts		counts	6		
Sample Count Rate		cpm	0.08		
Background Count Rate		cpm	0.05		
Air Volume (liters)	**(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate	**(B)**	cpm	0.03		
Counter Efficiency	**(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency	**(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)**	**(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)**/**(E)**	**(F)**	dpm	0.09		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**		dpm	0.54		
Concentration = **(F)**/(2.22E9 x **(A)**)	**(H)**	µCi/ml	**6.78E-16**		
Background "Strip" value (F.1) Date Updated: 4/20-4/21		uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);**	**(F2)**	uCi/ml	**6.71E-16**		
DAC (or AE) Fraction = **(F2)**/**(I)**			**1.12%**		
MDC = MDA/V = **(G)**/**(A)**	**(J)**	µCi/ml	**4.12E-15**		
MDC Fraction of DAC (or AE) = **(J)**/**(I)** (Goal<10%)			**6.87%**		
Final Count?		Yes/No	**No**	**Yes**	

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 10/30/2017 Sample ID: 20171020-096 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: David Berres

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3664 Calibration Due Date: 3/16/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
10/19/2017	9:30	15:00	330		65.0	65.0
10/20/2017	7:30	15:00	450		65	65
		Total Time (Tc):	780		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **5.9E+03** Liters

Sample Volume: 65 (lpm) x 780 (minutes) = **5.1E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

			Alpha		
Variables, Calculations, Results		**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date			10/30/2017		
Count Time (e.g., noon, 1300, etc.)			9:30		
Sample Count Time (Ts, Tb) = T		minutes	60		
Total Counts		counts	10		
Sample Count Rate		cpm	0.08		
Background Count Rate		cpm	0.02		
Air Volume (liters)	**(A)**	liters	5.1E+04	5.1E+04	5.1E+04
Net count rate	**(B)**	cpm	0.06		
Counter Efficiency	**(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency	**(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)**	**(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)**/**(E)**	**(F)**	dpm	0.18		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**		dpm	0.39		
Concentration = **(F)**/(2.22E9 x **(A)**)	**(H)**	µCi/ml	**1.57E-15**		
Background "Strip" value (F.1) Date Updated: 4/20-4/21		uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);**	**(F2)**	uCi/ml	**1.56E-15**		
DAC (or AE) Fraction = **(F2)**/**(I)**			**2.60%**		
MDC = MDA/V = **(G)**/**(A)**	**(J)**	µCi/ml	**3.48E-15**		
MDC Fraction of DAC (or AE) = **(J)**/**(I)** (Goal<10%)			**5.81%**		
Final Count?		Yes/No	**No**	**Yes**	

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 10/30/2017 Sample ID: 20171020-097 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 Amec Soil Sort Area Sampled By: David Berres

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 2591 Calibration Due Date: 9/5/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
10/19/2017	7:30	15:00	450		65.0	65.0
10/20/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **2.0E+01** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

			Alpha		
Variables, Calculations, Results		**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date			10/30/2017		
Count Time (e.g., noon, 1300, etc.)			9:00:00 AM		
Sample Count Time (Ts, Tb) = T		minutes	60		
Total Counts		counts	24		
Sample Count Rate		cpm	0.40		
Background Count Rate		cpm	0.03		
Air Volume (liters)	**(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate	**(B)**	cpm	0.37		
Counter Efficiency	**(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency	**(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)**	**(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)**/**(E)**	**(F)**	dpm	1.09		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**		dpm	0.45		
Concentration = **(F)**/(2.22E9 x **(A)**)	**(H)**	µCi/ml	**8.37E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21		uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);**	**(F2)**	uCi/ml	**8.36E-15**		
DAC (or AE) Fraction = **(F2)**/**(I)**			**0.04%**		
MDC = MDA/V = **(G)**/**(A)**	**(J)**	µCi/ml	**3.45E-15**		
MDC Fraction of DAC (or AE) = **(J)**/**(I)** (Goal<10%)			**0.02%**		
Final Count?		Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 10/31/2017 Sample ID: 20171025-098 RWP: 2017-001

Occupational (DAC): ☐ Limit: 6.00E-14 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☑ Work Area: ☐

Non-Occupational (EC): ☑ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 SCA Boundary Sampled By: David Berres

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 3664 Calibration Due Date: 3/16/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
10/23/2017	7:30	15:00	450		65.0	65.0
10/25/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **9.1E+03** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

			Alpha		
Variables, Calculations, Results		**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date			10/31/2017		
Count Time (e.g., noon, 1300, etc.)			9:30		
Sample Count Time (Ts, Tb) = T		minutes	60		
Total Counts		counts	14		
Sample Count Rate		cpm	0.08		
Background Count Rate		cpm	0.07		
Air Volume (liters)	**(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate	**(B)**	cpm	0.01		
Counter Efficiency	**(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency	**(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)**	**(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)**/**(E)**	**(F)**	dpm	0.03		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**		dpm	0.61		
Concentration = **(F)**/(2.22E9 x **(A)**)	**(H)**	µCi/ml	**2.26E-16**		
Background "Strip" value (F.1) Date Updated: 4/20-4/21		uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);**	**(F2)**	uCi/ml	**2.19E-16**		
DAC (or AE) Fraction = **(F2)**/**(I)**			**0.36%**		
MDC = MDA/V = **(G)**/**(A)**	**(J)**	µCi/ml	**4.67E-15**		
MDC Fraction of DAC (or AE) = **(J)**/**(I)** (Goal<10%)			**7.79%**		
Final Count?		Yes/No	**No**	**Yes**	

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 10/31/2017 Sample ID: 20171025-099 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 Amec Soil Sort Area Sampled By: David Berres

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 2591 Calibration Due Date: 9/5/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
10/23/2017	7:30	15:00	450		65.0	65.0
10/25/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **2.7E+01** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

			Alpha		
Variables, Calculations, Results		**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date			10/31/2017		
Count Time (e.g., noon, 1300, etc.)			9:00:00 AM		
Sample Count Time (Ts, Tb) = T		minutes	60		
Total Counts		counts	10		
Sample Count Rate		cpm	0.17		
Background Count Rate		cpm	0.07		
Air Volume (liters)	**(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate	**(B)**	cpm	0.10		
Counter Efficiency	**(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency	**(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)**	**(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)**/**(E)**	**(F)**	dpm	0.28		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**		dpm	0.61		
Concentration = **(F)**/(2.22E9 x **(A)**)	**(H)**	µCi/ml	**2.19E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21		uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);**	**(F2)**	uCi/ml	**2.18E-15**		
DAC (or AE) Fraction = **(F2)**/**(I)**			**0.01%**		
MDC = MDA/V = **(G)**/**(A)**	**(J)**	µCi/ml	**4.67E-15**		
MDC Fraction of DAC (or AE) = **(J)**/**(I)** (Goal<10%)			**0.02%**		
Final Count?		Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 11/9/2017 Sample ID: 20171027-100 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 Amec Soil Sort Area Sampled By: David Berres

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 2591 Calibration Due Date: 9/5/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
10/26/2017	7:30	15:00	450		65.0	65.0
10/27/2017	7:30	15:00	450		65	65
		Total Time (Tc):	900		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **3.1E+01** Liters

Sample Volume: 65 (lpm) x 900 (minutes) = **5.9E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

			Alpha		
Variables, Calculations, Results		**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date			11/9/2017		
Count Time (e.g., noon, 1300, etc.)			10:00:00 AM		
Sample Count Time (Ts, Tb) = T		minutes	60		
Total Counts		counts	11		
Sample Count Rate		cpm	0.18		
Background Count Rate		cpm	0.10		
Air Volume (liters)	**(A)**	liters	5.9E+04	5.9E+04	5.9E+04
Net count rate	**(B)**	cpm	0.08		
Counter Efficiency	**(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency	**(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)**	**(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)**/**(E)**	**(F)**	dpm	0.24		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**		dpm	0.70		
Concentration = **(F)**/(2.22E9 x **(A)**)	**(H)**	µCi/ml	**1.88E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21		uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);**	**(F2)**	uCi/ml	**1.88E-15**		
DAC (or AE) Fraction = **(F2)**/**(I)**			**0.01%**		
MDC = MDA/V = **(G)**/**(A)**	**(J)**	µCi/ml	**5.37E-15**		
MDC Fraction of DAC (or AE) = **(J)**/**(I)** (Goal<10%)			**0.03%**		
Final Count?		Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 11/9/2017 Sample ID: 20171027-101 RWP: 2017-002

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: M-Yard Sampled By: Ed Siemers

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 2591 Calibration Due Date: 9/5/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
10/26/2017	9:00	15:00	360		65.0	65.0
10/27/2017	7:30	15:00	450		65	65
		Total Time (Tc):	810		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **3.1E+01** Liters

Sample Volume: 65 (lpm) x 810 (minutes) = **5.3E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

			Alpha		
Variables, Calculations, Results		**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date			11/9/2017		
Count Time (e.g., noon, 1300, etc.)			10:00:00 AM		
Sample Count Time (Ts, Tb) = T		minutes	60		
Total Counts		counts	18		
Sample Count Rate		cpm	0.30		
Background Count Rate		cpm	0.10		
Air Volume (liters)	**(A)**	liters	5.3E+04	5.3E+04	5.3E+04
Net count rate	**(B)**	cpm	0.20		
Counter Efficiency	**(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency	**(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)**	**(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)**/**(E)**	**(F)**	dpm	0.59		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**		dpm	0.70		
Concentration = **(F)**/(2.22E9 x **(A)**)	**(H)**	µCi/ml	**5.02E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21		uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);**	**(F2)**	uCi/ml	**5.02E-15**		
DAC (or AE) Fraction = **(F2)**/**(I)**			**0.03%**		
MDC = MDA/V = **(G)**/**(A)**	**(J)**	µCi/ml	**5.96E-15**		
MDC Fraction of DAC (or AE) = **(J)**/**(I)** (Goal<10%)			**0.03%**		
Final Count?		Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 11/9/2017 Sample ID: 20171031-102 RWP: 2017-002

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: M-Yard Sampled By: Ed Siemers

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 2591 Calibration Due Date: 9/5/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
10/30/2017	8:00	15:00	420		65.0	65.0
10/31/2017	9:00	15:00	360		65	65
		Total Time (Tc):	780		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **3.1E+01** Liters

Sample Volume: 65 (lpm) x 780 (minutes) = **5.1E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

			Alpha		
Variables, Calculations, Results		**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date			11/9/2017		
Count Time (e.g., noon, 1300, etc.)			13:00:00 AM		
Sample Count Time (Ts, Tb) = T		minutes	60		
Total Counts		counts	8		
Sample Count Rate		cpm	0.13		
Background Count Rate		cpm	0.10		
Air Volume (liters)	**(A)**	liters	5.1E+04	5.1E+04	5.1E+04
Net count rate	**(B)**	cpm	0.03		
Counter Efficiency	**(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency	**(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)**	**(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)**/**(E)**	**(F)**	dpm	0.10		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**		dpm	0.70		
Concentration = **(F)**/(2.22E9 x **(A)**)	**(H)**	µCi/ml	**8.70E-16**		
Background "Strip" value (F.1) Date Updated: 4/20-4/21		uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);**	**(F2)**	uCi/ml	**8.62E-16**		
DAC (or AE) Fraction = **(F2)**/**(I)**			**0.00%**		
MDC = MDA/V = **(G)**/**(A)**	**(J)**	µCi/ml	**6.19E-15**		
MDC Fraction of DAC (or AE) = **(J)**/**(I)** (Goal<10%)			**0.03%**		
Final Count?		Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 11/13/2017 Sample ID: 20171102-105 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS12 CRZ Boundry Sampled By: David Berres

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 2591 Calibration Due Date: 9/5/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
11/1/2017	8:00	15:00	420		65.0	65.0
11/2/2017	8:00	15:00	420		65	65
		Total Time (Tc):	840		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **4.2E+01** Liters

Sample Volume: 65 (lpm) x 840 (minutes) = **5.5E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

			Alpha		
Variables, Calculations, Results		**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date			11/13/2017		
Count Time (e.g., noon, 1300, etc.)			11:00:00 AM		
Sample Count Time (Ts, Tb) = T		minutes	60		
Total Counts		counts	21		
Sample Count Rate		cpm	0.35		
Background Count Rate		cpm	0.20		
Air Volume (liters)	**(A)**	liters	5.5E+04	5.5E+04	5.5E+04
Net count rate	**(B)**	cpm	0.15		
Counter Efficiency	**(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency	**(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)**	**(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)**/**(E)**	**(F)**	dpm	0.44		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**		dpm	0.93		
Concentration = **(F)**/(2.22E9 x **(A)**)	**(H)**	µCi/ml	**3.63E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21		uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);**	**(F2)**	uCi/ml	**3.63E-15**		
DAC (or AE) Fraction = **(F2)**/**(I)**			**0.02%**		
MDC = MDA/V = **(G)**/**(A)**	**(J)**	µCi/ml	**7.64E-15**		
MDC Fraction of DAC (or AE) = **(J)**/**(I)** (Goal<10%)			**0.04%**		
Final Count?		Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 11/13/2017 Sample ID: 20171102-104 RWP: 2017-002

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: M-Yard Sampled By: Ed Siemers

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 2591 Calibration Due Date: 9/5/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
11/1/2017	8:00	15:00	420		65.0	65.0
11/2/2017	8:00	15:00	420		65	65
		Total Time (Tc):	840		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **4.2E+01** Liters

Sample Volume: 65 (lpm) x 840 (minutes) = **5.5E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

			Alpha		
Variables, Calculations, Results		**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date			11/13/2017		
Count Time (e.g., noon, 1300, etc.)			13:00:00 AM		
Sample Count Time (Ts, Tb) = T		minutes	60		
Total Counts		counts	10		
Sample Count Rate		cpm	0.17		
Background Count Rate		cpm	0.20		
Air Volume (liters)	**(A)**	liters	5.5E+04	5.5E+04	5.5E+04
Net count rate	**(B)**	cpm	-0.03		
Counter Efficiency	**(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency	**(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)**	**(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)**/**(E)**	**(F)**	dpm	-0.10		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**		dpm	0.93		
Concentration = **(F)**/(2.22E9 x **(A)**)	**(H)**	µCi/ml	**-8.07E-16**		
Background "Strip" value (F.1) Date Updated: 4/20-4/21		uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);**	**(F2)**	uCi/ml	**-8.15E-16**		
DAC (or AE) Fraction = **(F2)**/**(I)**			**0.00%**		
MDC = MDA/V = **(G)**/**(A)**	**(J)**	µCi/ml	**7.64E-15**		
MDC Fraction of DAC (or AE) = **(J)**/**(I)** (Goal<10%)			**0.04%**		
Final Count?		Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 11/13/2017 Sample ID: 20171102-105 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS-12 CRZ Boundry Sampled By: David Berres

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 2591 Calibration Due Date: 9/5/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
11/1/2017	8:00	15:00	420		65.0	65.0
11/2/2017	8:00	15:00	420		65	65
		Total Time (Tc):	840		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **4.2E+01** Liters

Sample Volume: 65 (lpm) x 840 (minutes) = **5.5E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

			Alpha		
Variables, Calculations, Results		**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date			11/13/2017		
Count Time (e.g., noon, 1300, etc.)			11:00:00 AM		
Sample Count Time (Ts, Tb) = T		minutes	60		
Total Counts		counts	21		
Sample Count Rate		cpm	0.35		
Background Count Rate		cpm	0.20		
Air Volume (liters)	**(A)**	liters	5.5E+04	5.5E+04	5.5E+04
Net count rate	**(B)**	cpm	0.15		
Counter Efficiency	**(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency	**(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)**	**(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)**/**(E)**	**(F)**	dpm	0.44		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**		dpm	0.93		
Concentration = **(F)**/(2.22E9 x **(A)**)	**(H)**	µCi/ml	**3.63E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21		uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);**	**(F2)**	uCi/ml	**3.63E-15**		
DAC (or AE) Fraction = **(F2)**/**(I)**			**0.02%**		
MDC = MDA/V = **(G)**/**(A)**	**(J)**	µCi/ml	**7.64E-15**		
MDC Fraction of DAC (or AE) = **(J)**/**(I)** (Goal<10%)			**0.04%**		
Final Count?		Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 11/13/2017 Sample ID: 20171106-106 RWP: 2017-002

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: M-Yard Sampled By: Ed Siemers

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 2591 Calibration Due Date: 9/5/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
11/3/2017	8:00	15:00	420		65.0	65.0
11/6/2017	8:00	15:00	420		65	65
		Total Time (Tc):	840		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **4.2E+01** Liters

Sample Volume: 65 (lpm) x 840 (minutes) = **5.5E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

			Alpha		
Variables, Calculations, Results		**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date			11/13/2017		
Count Time (e.g., noon, 1300, etc.)			13:00:00 AM		
Sample Count Time (Ts, Tb) = T		minutes	60		
Total Counts		counts	9		
Sample Count Rate		cpm	0.15		
Background Count Rate		cpm	0.20		
Air Volume (liters)	**(A)**	liters	5.5E+04	5.5E+04	5.5E+04
Net count rate	**(B)**	cpm	-0.05		
Counter Efficiency	**(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency	**(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)**	**(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)**/**(E)**	**(F)**	dpm	-0.15		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**		dpm	0.93		
Concentration = **(F)**/(2.22E9 x **(A)**)	**(H)**	µCi/ml	**-1.21E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21		uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);**	**(F2)**	uCi/ml	**-1.22E-15**		
DAC (or AE) Fraction = **(F2)**/**(I)**			**-0.01%**		
MDC = MDA/V = **(G)**/**(A)**	**(J)**	µCi/ml	**7.64E-15**		
MDC Fraction of DAC (or AE) = **(J)**/**(I)** (Goal<10%)			**0.04%**		
Final Count?		Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

AIR SAMPLE REPORT

Section I - Collection Data

Date: 11/13/2017 Sample ID: 20171106-107 RWP: 2017-001

Occupational (DAC): ☑ Limit: 2.00E-11 µCi/ml **(I)** Breathing Zone: ☐ General Area: ☐ Work Area: ☑

Non-Occupational (EC): ☐ [DAC = 2.0E-11µCi/ml (U-238), EC= 6.0E-14µCi/ml] Radionuclides: **DU (Depleted Uranium)**

Location: FS-12 CRZ Boundry Sampled By: David Berres

Wearer: NA Activity Performed: NA

Monitored Workers: NA

Lapel Pump Model: NA Serial No. NA Calibration Due Date: NA

Air Pump Model: LV-1 Serial No. 2591 Calibration Due Date: 9/5/2018

Sample Information	**Time**				**Flow Rate (lpm)**	
Collection Date	Start	Stop	Total (minutes)		Start	Stop
11/3/2017	8:00	15:00	420		65.0	65.0
11/6/2017	8:00	15:00	420		65	65
		Total Time (Tc):	840		Avg. Flow Rate (lpm)	65.0

Minimum Air Sample Volume: **4.2E+01** Liters

Sample Volume: 65 (lpm) x 840 (minutes) = **5.5E+04** Liters **(A)**

Remarks: Minimum sample volumes identified are necessary to achieve 10% of DAC or AE value.

Section II - Analysis Data

Instrument Information	Serial Number		Calibration Due Date		
Instrument Type	Meter	Detector	Meter	Detector	Efficiency (α)
L-2929	158817	164736	12/13/2018	12/13/2018	0.344
N/A	N/A	N/A	N/A	N/A	N/A

			Alpha		
Variables, Calculations, Results		**Units**	**1st Count**	**2nd Count**	**3rd Count**
Count Date			11/13/2017		
Count Time (e.g., noon, 1300, etc.)			14:00:00 AM		
Sample Count Time (Ts, Tb) = T		minutes	60		
Total Counts		counts	7		
Sample Count Rate		cpm	0.12		
Background Count Rate		cpm	0.20		
Air Volume (liters)	**(A)**	liters	5.5E+04	5.5E+04	5.5E+04
Net count rate	**(B)**	cpm	-0.08		
Counter Efficiency	**(C)**	cpm/dpm	0.34	0.34	0.34
Collection Efficiency	**(D)**	0.99	0.99	0.99	0.99
Efficiency = **(C)** x **(D)**	**(E)**	cpm/dpm	0.34	0.34	0.34
Activity (dpm) = **(B)**/**(E)**	**(F)**	dpm	-0.24		
Minimum Detectable Activity (dpm) = (3+4.65*SQRT(Cb))/(E*T) **(G)**		dpm	0.93		
Concentration = **(F)**/(2.22E9 x **(A)**)	**(H)**	µCi/ml	**-2.02E-15**		
Background "Strip" value (F.1) Date Updated 4/20-4/21		uCi/ml	7.31E-18		
NET Concentration Value = **(H) - (F1);**	**(F2)**	uCi/ml	**-2.03E-15**		
DAC (or AE) Fraction = **(F2)**/**(I)**			**-0.01%**		
MDC = MDA/V = **(G)**/**(A)**	**(J)**	µCi/ml	**7.64E-15**		
MDC Fraction of DAC (or AE) = **(J)**/**(I)** (Goal<10%)			**0.04%**		
Final Count?		Yes/No	**Yes**		

Note: Unexpected DAC or AE fraction > 100% requires immediate RSO notification.

Performed By: _____ Date: _____

Reviewed By: _____ Date: _____

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APPENDIX D

SURFACE-WATER AND SEDIMENT DATA

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Table D-1. Surface Water Data for CY 2017

Station Name	Sample Name	Collection Date	Method	Analyte	Result	Error	Detection Limit	Units	VQ
IAAP100153	IAAP196153	04/25/17	ML-018	Gross Alpha	2.23	5.58	7.05	pCi/L	UJ
IAAP100153	IAAP196153	04/25/17	ML-018	Gross Beta	-1.8	8.39	10.4	pCi/L	UJ
IAAP100153	IAAP196153	04/25/17	ML-015	U-234	1.28	0.568	0.342	pCi/L	=
IAAP100153	IAAP196153	04/25/17	ML-015	U-235	0.13	0.184	0.176	pCi/L	UJ
IAAP100153	IAAP196153	04/25/17	ML-015	U-238	1.31	0.563	0.142	pCi/L	J
IAAP100154	IAAP196157	04/25/17	ML-018	Gross Alpha	-0.00572	5.32	7.05	pCi/L	UJ
IAAP100154	IAAP196157	04/25/17	ML-018	Gross Beta	1.74	8.52	10.3	pCi/L	UJ
IAAP100154	IAAP196157	04/25/17	ML-015	U-234	1.29	0.577	0.152	pCi/L	=
IAAP100154	IAAP196157	04/25/17	ML-015	U-235	0	0	0.187	pCi/L	U
IAAP100154	IAAP196157	04/25/17	ML-015	U-238	0.947	0.485	0.151	pCi/L	J
IAAP100155	IAAP196159	04/25/17	ML-018	Gross Alpha	5.05	5.91	7.06	pCi/L	UJ
IAAP100155	IAAP196159	04/25/17	ML-018	Gross Beta	10.2	8.99	10.5	pCi/L	UJ
IAAP100155	IAAP196159	04/25/17	ML-015	U-234	1.65	0.659	0.149	pCi/L	=
IAAP100155	IAAP196159	04/25/17	ML-015	U-235	0.0678	0.136	0.184	pCi/L	UJ
IAAP100155	IAAP196159	04/25/17	ML-015	U-238	1.26	0.564	0.148	pCi/L	J
IAAP100165	IAAP196163	04/25/17	ML-018	Gross Alpha	2.86	5.66	7.05	pCi/L	UJ
IAAP100165	IAAP196163	04/25/17	ML-018	Gross Beta	-0.771	8.44	10.4	pCi/L	UJ
IAAP100165	IAAP196163	04/25/17	ML-015	U-234	0.782	0.432	0.332	pCi/L	J
IAAP100165	IAAP196163	04/25/17	ML-015	U-235	0.0839	0.197	0.41	pCi/L	UJ
IAAP100165	IAAP196163	04/25/17	ML-015	U-238	0.305	0.254	0.138	pCi/L	J
IAAP100178	IAAP196165	04/25/17	ML-018	Gross Alpha	2.21	5.58	7.05	pCi/L	UJ
IAAP100178	IAAP196165	04/25/17	ML-018	Gross Beta	5.73	8.74	10.4	pCi/L	UJ
IAAP100178	IAAP196165	04/25/17	ML-015	U-234	1.02	0.525	0.163	pCi/L	J
IAAP100178	IAAP196165	04/25/17	ML-015	U-235	0	0	0.201	pCi/L	U
IAAP100178	IAAP196165	04/25/17	ML-015	U-238	0.739	0.457	0.39	pCi/L	J
IAAP100180	IAAP196167	04/25/17	ML-018	Gross Alpha	-0.944	5.21	7.05	pCi/L	UJ
IAAP100180	IAAP196167	04/25/17	ML-018	Gross Beta	-3.09	8.29	10.3	pCi/L	UJ
IAAP100180	IAAP196167	04/25/17	ML-015	U-234	0.672	0.433	0.386	pCi/L	J
IAAP100180	IAAP196167	04/25/17	ML-015	U-235	0.146	0.208	0.198	pCi/L	UJ
IAAP100180	IAAP196167	04/25/17	ML-015	U-238	0.473	0.343	0.16	pCi/L	J
IAAP100187	IAAP196169	04/25/17	ML-018	Gross Alpha	4.47	5.84	7.04	pCi/L	UJ

Table D-1. Surface Water Data for CY 2017

Station Name	Sample Name	Collection Date	Method	Analyte	Result	Error	Detection Limit	Units	VQ
IAAP100187	IAAP196169	04/25/17	ML-018	Gross Beta	-5.15	8.27	10.5	pCi/L	UJ
IAAP100187	IAAP196169	04/25/17	ML-015	U-234	0.43	0.294	0.13	pCi/L	J
IAAP100187	IAAP196169	04/25/17	ML-015	U-235	0	0	0.16	pCi/L	U
IAAP100187	IAAP196169	04/25/17	ML-015	U-238	0.444	0.315	0.31	pCi/L	J
IAAP177509	IAAP196155	04/25/17	ML-018	Gross Alpha	3.49	5.73	7.05	pCi/L	UJ
IAAP177509	IAAP196155	04/25/17	ML-018	Gross Beta	0.839	8.52	10.4	pCi/L	UJ
IAAP177509	IAAP196155	04/25/17	ML-015	U-234	1.08	0.491	0.133	pCi/L	=
IAAP177509	IAAP196155	04/25/17	ML-015	U-235	-0.0404	0.081	0.394	pCi/L	UJ
IAAP177509	IAAP196155	04/25/17	ML-015	U-238	1.03	0.476	0.132	pCi/L	J
IAAP177517	IAAP196171	04/25/17	ML-018	Gross Alpha	-1.59	5.13	7.05	pCi/L	UJ
IAAP177517	IAAP196171	04/25/17	ML-018	Gross Beta	0.321	8.44	10.3	pCi/L	UJ
IAAP177517	IAAP196171	04/25/17	ML-015	U-234	0.114	0.163	0.155	pCi/L	UJ
IAAP177517	IAAP196171	04/25/17	ML-015	U-235	0.0704	0.141	0.191	pCi/L	UJ
IAAP177517	IAAP196171	04/25/17	ML-015	U-238	0.379	0.345	0.459	pCi/L	UJ
IAAP177517	IAAP196171-1	04/25/17	ML-018	Gross Alpha	-0.627	5.25	7.05	pCi/L	UJ
IAAP177517	IAAP196171-1	04/25/17	ML-018	Gross Beta	-2.58	8.32	10.3	pCi/L	UJ
IAAP177517	IAAP196171-1	04/25/17	ML-015	U-234	0.553	0.344	0.136	pCi/L	J
IAAP177517	IAAP196171-1	04/25/17	ML-015	U-235	0.062	0.124	0.168	pCi/L	UJ
IAAP177517	IAAP196171-1	04/25/17	ML-015	U-238	0.7	0.39	0.136	pCi/L	J
IAAP100153	IAAP199553	11/15/17	ML-018	Gross Alpha	-1.01	5.87	7.81	pCi/L	UJ
IAAP100153	IAAP199553	11/15/17	ML-018	Gross Beta	18.5	9.41	10.4	pCi/L	J
IAAP100153	IAAP199553	11/15/17	ML-015	U-234	1.46	0.697	0.445	pCi/L	=
IAAP100153	IAAP199553	11/15/17	ML-015	U-235	0	0	0.229	pCi/L	U
IAAP100153	IAAP199553	11/15/17	ML-015	U-238	1.36	0.655	0.185	pCi/L	=
IAAP100154	IAAP199557	11/14/17	ML-018	Gross Alpha	-0.4	5.93	7.82	pCi/L	UJ
IAAP100154	IAAP199557	11/14/17	ML-018	Gross Beta	25	9.77	10.4	pCi/L	J
IAAP100154	IAAP199557	11/14/17	ML-015	U-234	0.796	0.491	0.528	pCi/L	J
IAAP100154	IAAP199557	11/14/17	ML-015	U-235	0.0467	0.238	0.566	pCi/L	UJ
IAAP100154	IAAP199557	11/14/17	ML-015	U-238	0.622	0.389	0.153	pCi/L	J
IAAP100155	IAAP199559	11/14/17	ML-018	Gross Alpha	-0.401	5.93	7.82	pCi/L	UJ
IAAP100155	IAAP199559	11/14/17	ML-018	Gross Beta	25.4	9.79	10.4	pCi/L	J

Table D-1. Surface Water Data for CY 2017

Station Name	Sample Name	Collection Date	Method	Analyte	Result	Error	Detection Limit	Units	VQ
IAAP100155	IAAP199559	11/14/17	ML-015	U-234	1.23	0.59	0.167	pCi/L	=
IAAP100155	IAAP199559	11/14/17	ML-015	U-235	0.076	0.153	0.206	pCi/L	UJ
IAAP100155	IAAP199559	11/14/17	ML-015	U-238	1.17	0.571	0.166	pCi/L	=
IAAP100165	IAAP199563	11/14/17	ML-018	Gross Alpha	-2.62	5.69	7.82	pCi/L	UJ
IAAP100165	IAAP199563	11/14/17	ML-018	Gross Beta	23.9	9.68	10.3	pCi/L	J
IAAP100165	IAAP199563	11/14/17	ML-015	U-234	0.514	0.389	0.401	pCi/L	J
IAAP100165	IAAP199563	11/14/17	ML-015	U-235	0.0254	0.183	0.495	pCi/L	UJ
IAAP100165	IAAP199563	11/14/17	ML-015	U-238	0.246	0.249	0.166	pCi/L	UJ
IAAP100178	IAAP199565	11/14/17	ML-018	Gross Alpha	-2.63	5.69	7.82	pCi/L	UJ
IAAP100178	IAAP199565	11/14/17	ML-018	Gross Beta	25.4	9.77	10.3	pCi/L	J
IAAP100178	IAAP199565	11/14/17	ML-015	U-234	1.01	0.5	0.34	pCi/L	=
IAAP100178	IAAP199565	11/14/17	ML-015	U-235	-0.0215	0.177	0.521	pCi/L	UJ
IAAP100178	IAAP199565	11/14/17	ML-015	U-238	0.538	0.363	0.339	pCi/L	J
IAAP100180	IAAP199567	11/14/17	ML-018	Gross Alpha	-3.88	5.55	7.81	pCi/L	UJ
IAAP100180	IAAP199567	11/14/17	ML-018	Gross Beta	19.7	9.44	10.3	pCi/L	J
IAAP100180	IAAP199567	11/14/17	ML-015	U-234	0.82	0.469	0.372	pCi/L	J
IAAP100180	IAAP199567	11/14/17	ML-015	U-235	0	0	0.191	pCi/L	U
IAAP100180	IAAP199567	11/14/17	ML-015	U-238	0.531	0.378	0.371	pCi/L	J
IAAP100187	IAAP199569	11/14/17	ML-018	Gross Alpha	-2.91	5.66	7.81	pCi/L	UJ
IAAP100187	IAAP199569	11/14/17	ML-018	Gross Beta	15.6	9.24	10.3	pCi/L	J
IAAP100187	IAAP199569	11/14/17	ML-015	U-234	0.613	0.401	0.166	pCi/L	J
IAAP100187	IAAP199569	11/14/17	ML-015	U-235	0	0	0.205	pCi/L	U
IAAP100187	IAAP199569	11/14/17	ML-015	U-238	0.427	0.331	0.165	pCi/L	J
IAAP177509	IAAP199555	11/14/17	ML-018	Gross Alpha	-1.98	5.76	7.82	pCi/L	UJ
IAAP177509	IAAP199555	11/14/17	ML-018	Gross Beta	22.6	9.62	10.4	pCi/L	J
IAAP177509	IAAP199555	11/14/17	ML-015	U-234	0.551	0.36	0.149	pCi/L	J
IAAP177509	IAAP199555	11/14/17	ML-015	U-235	0	0	0.184	pCi/L	U
IAAP177509	IAAP199555	11/14/17	ML-015	U-238	0.403	0.326	0.357	pCi/L	J
IAAP177517	IAAP199571	11/14/17	ML-018	Gross Alpha	-1.02	5.87	7.82	pCi/L	UJ
IAAP177517	IAAP199571	11/14/17	ML-018	Gross Beta	21.2	9.56	10.4	pCi/L	J
IAAP177517	IAAP199571	11/14/17	ML-015	U-234	0.338	0.307	0.41	pCi/L	UJ

Table D-1. Surface Water Data for CY 2017

Station Name	Sample Name	Collection Date	Method	Analyte	Result	Error	Detection Limit	Units	VQ
IAAP177517	IAAP199571	11/14/17	ML-015	U-235	-0.0417	0.0836	0.407	pCi/L	UJ
IAAP177517	IAAP199571	11/14/17	ML-015	U-238	0.505	0.329	0.137	pCi/L	J

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

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. Sediment Data for CY 2017

Station Name	Sample Name	Collection Date	Method	Analyte	Result	Error	Detection Limit	Units	VQ
IAAP100153	IAAP196152	04/25/17	ML-015	U-234	0.753	0.347	0.147	pCi/g	J
IAAP100153	IAAP196152	04/25/17	ML-015	U-235	-0.00902	0.0182	0.182	pCi/g	UJ
IAAP100153	IAAP196152	04/25/17	ML-015	U-238	1.02	0.419	0.0789	pCi/g	J
IAAP100154	IAAP196156	04/25/17	ML-015	U-234	0.544	0.333	0.113	pCi/g	J
IAAP100154	IAAP196156	04/25/17	ML-015	U-235	0.0387	0.107	0.26	pCi/g	UJ
IAAP100154	IAAP196156	04/25/17	ML-015	U-238	0.312	0.251	0.25	pCi/g	J
IAAP100155	IAAP196158	04/25/17	ML-015	U-234	0.665	0.44	0.285	pCi/g	J
IAAP100155	IAAP196158	04/25/17	ML-015	U-235	0	0	0.189	pCi/g	U
IAAP100155	IAAP196158	04/25/17	ML-015	U-238	0.846	0.504	0.153	pCi/g	J
IAAP100164	IAAP196160	04/24/17	ML-015	U-234	1.04	0.538	0.134	pCi/g	J
IAAP100164	IAAP196160	04/24/17	ML-015	U-235	0.0456	0.126	0.306	pCi/g	UJ
IAAP100164	IAAP196160	04/24/17	ML-015	U-238	0.835	0.468	0.133	pCi/g	J
IAAP100165	IAAP196162	04/25/17	ML-015	U-234	0.275	0.219	0.106	pCi/g	J
IAAP100165	IAAP196162	04/25/17	ML-015	U-235	0.0484	0.0976	0.131	pCi/g	UJ
IAAP100165	IAAP196162	04/25/17	ML-015	U-238	0.313	0.235	0.106	pCi/g	J
IAAP100178	IAAP196164	04/25/17	ML-015	U-234	0.409	0.257	0.0923	pCi/g	J
IAAP100178	IAAP196164	04/25/17	ML-015	U-235	0.084	0.121	0.114	pCi/g	UJ
IAAP100178	IAAP196164	04/25/17	ML-015	U-238	0.441	0.268	0.0919	pCi/g	J
IAAP100180	IAAP196166	04/25/17	ML-015	U-234	0.364	0.254	0.188	pCi/g	J
IAAP100180	IAAP196166	04/25/17	ML-015	U-235	0.0345	0.0954	0.232	pCi/g	UJ
IAAP100180	IAAP196166	04/25/17	ML-015	U-238	0.372	0.253	0.101	pCi/g	J
IAAP100187	IAAP196168	04/25/17	ML-015	U-234	0.289	0.25	0.131	pCi/g	J
IAAP100187	IAAP196168	04/25/17	ML-015	U-235	0	0	0.161	pCi/g	U
IAAP100187	IAAP196168	04/25/17	ML-015	U-238	0.36	0.292	0.288	pCi/g	J
IAAP177509	IAAP196154	04/25/17	ML-015	U-234	0.0937	0.11	0.0846	pCi/g	UJ
IAAP177509	IAAP196154	04/25/17	ML-015	U-235	0.077	0.111	0.104	pCi/g	UJ
IAAP177509	IAAP196154	04/25/17	ML-015	U-238	0.311	0.21	0.0843	pCi/g	J
IAAP177517	IAAP196170	04/25/17	ML-015	U-234	0.131	0.12	0.071	pCi/g	J
IAAP177517	IAAP196170	04/25/17	ML-015	U-235	-0.0215	0.0308	0.21	pCi/g	UJ

Table D-2. Sediment Data for CY 2017

Station Name	Sample Name	Collection Date	Method	Analyte	Result	Error	Detection Limit	Units	VQ
IAAP177517	IAAP196170	04/25/17	ML-015	U-238	0.235	0.164	0.0707	pCi/g	J
IAAP100153	IAAP199552	11/15/17	ML-015	U-234	0.37	0.152	0.0821	pCi/g	J
IAAP100153	IAAP199552	11/15/17	ML-015	U-235	-0.0104	0.0208	0.101	pCi/g	UJ
IAAP100153	IAAP199552	11/15/17	ML-015	U-238	0.503	0.179	0.0341	pCi/g	=
IAAP100154	IAAP199556	11/14/17	ML-015	U-234	0.203	0.103	0.0721	pCi/g	J
IAAP100154	IAAP199556	11/14/17	ML-015	U-235	0	0	0.037	pCi/g	U
IAAP100154	IAAP199556	11/14/17	ML-015	U-238	0.136	0.0836	0.0718	pCi/g	J
IAAP100155	IAAP199558	11/14/17	ML-015	U-234	0.184	0.091	0.0277	pCi/g	J
IAAP100155	IAAP199558	11/14/17	ML-015	U-235	0.0378	0.044	0.0342	pCi/g	UJ
IAAP100155	IAAP199558	11/14/17	ML-015	U-238	0.193	0.0933	0.0276	pCi/g	=
IAAP100164	IAAP199560	11/13/17	ML-015	U-234	0.669	0.213	0.0989	pCi/g	J
IAAP100164	IAAP199560	11/13/17	ML-015	U-235	0.0352	0.0563	0.0983	pCi/g	UJ
IAAP100164	IAAP199560	11/13/17	ML-015	U-238	0.805	0.236	0.033	pCi/g	=
IAAP100165	IAAP199562	11/14/17	ML-015	U-234	0.322	0.127	0.0291	pCi/g	J
IAAP100165	IAAP199562	11/14/17	ML-015	U-235	0.00441	0.0318	0.0861	pCi/g	UJ
IAAP100165	IAAP199562	11/14/17	ML-015	U-238	0.196	0.0988	0.0695	pCi/g	J
IAAP100178	IAAP199564	11/14/17	ML-015	U-234	0.502	0.175	0.0332	pCi/g	J
IAAP100178	IAAP199564	11/14/17	ML-015	U-235	0.0503	0.0641	0.0982	pCi/g	UJ
IAAP100178	IAAP199564	11/14/17	ML-015	U-238	0.378	0.148	0.033	pCi/g	=
IAAP100180	IAAP199566	11/14/17	ML-015	U-234	0.232	0.108	0.0299	pCi/g	J
IAAP100180	IAAP199566	11/14/17	ML-015	U-235	0.00454	0.0328	0.0886	pCi/g	UJ
IAAP100180	IAAP199566	11/14/17	ML-015	U-238	0.326	0.134	0.0888	pCi/g	=
IAAP100187	IAAP199568	11/14/17	ML-015	U-234	0.347	0.129	0.0639	pCi/g	J
IAAP100187	IAAP199568	11/14/17	ML-015	U-235	0	0	0.0329	pCi/g	U
IAAP100187	IAAP199568	11/14/17	ML-015	U-238	0.342	0.126	0.0265	pCi/g	=
IAAP100187	IAAP199568-1	11/14/17	ML-015	U-234	0.277	0.12	0.0712	pCi/g	J
IAAP100187	IAAP199568-1	11/14/17	ML-015	U-235	0.009	0.0459	0.109	pCi/g	UJ
IAAP100187	IAAP199568-1	11/14/17	ML-015	U-238	0.294	0.122	0.0295	pCi/g	=
IAAP177509	IAAP199554	11/14/17	ML-015	U-234	0.32	0.228	0.0965	pCi/g	J

Table D-2. Sediment Data for CY 2017

Station Name	Sample Name	Collection Date	Method	Analyte	Result	Error	Detection Limit	Units	VQ
IAAP177509	IAAP199554	11/14/17	ML-015	U-235	-0.011	0.0221	0.221	pCi/g	UJ
IAAP177509	IAAP199554	11/14/17	ML-015	U-238	0.709	0.362	0.0961	pCi/g	J
IAAP177517	IAAP199570	11/14/17	ML-015	U-234	0.172	0.0978	0.0779	pCi/g	J
IAAP177517	IAAP199570	11/14/17	ML-015	U-235	0.0443	0.0516	0.04	pCi/g	UJ
IAAP177517	IAAP199570	11/14/17	ML-015	U-238	0.278	0.126	0.0776	pCi/g	=

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

VQs:

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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.

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