THE SWIFT STALEY TEAM

Paducah Gaseous Diffusion Plant
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Department of Energy

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JUN 3 0 2015

Mr. Sean Alteri, Director
Division for Air Quality
Kentucky Department for Environmental Protection
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Frankfort, Kentucky 40601-1403

PPPO-02-2984561-15B

Ms. Beverly Banister, Director
Air, Pesticides, and Toxics Management Division
U.S. Environmental Protection Agency, Region 4
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Atlanta, Georgia 30303-8960

Mr. Reid Rosnick
Office of Radiation and Indoor Air
U.S. Environmental Protection Agency
Headquarters MS6608J
1200 Pennsylvania Avenue, Northwest
Washington, DC 20460

Dear Mr. Alteri, Ms. Banister, and Mr. Rosnick:

SUBMITTAL OF THE NATIONAL EMISSIONS STANDARDS FOR HAZARDOUS AIR POLLUTANTS ANNUAL REPORT FOR 2014 U.S. DEPARTMENT OF ENERGY RADIOLOGICAL EMISSIONS AT THE PADUCAH GASEOUS DIFFUSION PLANT (PAD-REG-1024)

Enclosed is the calendar year 2014 Annual National Emissions Standards for Hazardous Air Pollutants Report, required by 40 *CFR* Part 61, Subpart H. This report summarizes airborne radionuclide emissions from the Paducah Site, including both U.S. Department of Energy (DOE) and United States Enrichment Corporation (USEC) emissions for calendar year 2014. The total 2014 dose resulting from both DOE and USEC emissions was 0.0018 mrem. This is well below the annual limit of 10 mrem per year.

If you have any questions or require additional information, please contact Don Dihel at (270) 441-6824.

Sincerely,

Jennifer Woodard

Jennifer Woodard
Paducah Site Lead
Portsmouth/Paducah Project Office

Enclosures:
1. Certification pages
2. National Emissions Standards for Hazardous Air Pollutants Annual Report for 2014

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CERTIFICATION

Document Identification: ***National Emissions Standards for Hazardous Air Pollutants Annual Report for 2014 U.S. Department of Energy Radiological Emissions at the Paducah Gaseous Diffusion Plant*, PAD-REG-1024**

This certification pertains to the following U.S. Department of Energy emission sources:

Northwest Plume Treatment Facility
Northeast Plume Treatment Facility
Fugitive and Diffuse Sources

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

Mark J. Duff, Paducah Project Manager
LATA Environmental Services of Kentucky, LLC

6-29-15
Date Signed

Jennifer Woodard, Paducah Site Lead
U.S. Department of Energy

6/29/15
Date Signed

PAD-REG-1024

National Emissions Standards for Hazardous Air Pollutants Annual Report for 2014 U.S. Department of Energy Radiological Emissions at the Paducah Gaseous Diffusion Plant

This document is approved for public release per review by:	
Robert Jones DMC PGDP	6-18-15
LATA Kentucky Classification Support	Date

PAD-REG-1024

National Emissions Standards for Hazardous Air Pollutants Annual Report for 2014 U.S. Department of Energy Radiological Emissions at the Paducah Gaseous Diffusion Plant

Date Issued—June 2015

Prepared for the
U.S. DEPARTMENT OF ENERGY
Office of Environmental Management

Prepared by
LATA ENVIRONMENTAL SERVICES OF KENTUCKY, LLC
managing the
Environmental Remediation Activities at the
Paducah Gaseous Diffusion Plant
under contract DE-AC30-10CC40020

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TABLES

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ACRONYMS

ATU	alternate treatment unit
CAP88	Clean Air Act Assessment Package-1988
CFR	*Code of Federal Regulations*
DAC	derived air concentration
DOE	U.S. Department of Energy
EDE	effective dose equivalent
EPA	U.S. Environmental Protection Agency
FGR	Federal Guidance Report
HEPA	high-efficiency particulate air
KAR	*Kentucky Administrative Regulations*
KPDES	Kentucky Pollutant Discharge Elimination System
NESHAP	National Emission Standards for Hazardous Air Pollutants
PGDP	Paducah Gaseous Diffusion Plant
SX	seal exhaust
USEC	United States Enrichment Corporation
WA	wet air

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EXECUTIVE SUMMARY

The Kentucky Division for Air Quality regulates air emissions of radionuclides, other than radon, from U.S. Department of Energy (DOE) facilities under 401 *KAR* 57:002. The Kentucky regulations cite 40 *CFR* Part 61, Subpart H, regulations. Submission of this report fulfills the annual reporting requirements of 40 *CFR* § 61.94.

DOE owns the Paducah Site, which has radionuclide air emissions from DOE operations. DOE leased a portion of the site, the Paducah Gaseous Diffusion Plant used to enrich uranium, to United States Enrichment Corporation (USEC) whose operations also had radionuclide air emissions. USEC ceased enrichment operations, completed post-enrichment operations, and turned over the facilities on October 21, 2014. Fluor Federal Services Inc., Paducah Deactivation Project began deactivation of the enrichment facilities at that time. DOE emissions, including USEC emissions, were used to estimate the Paducah Site dose to the public. In previous reporting years, USEC submitted a separate National Emissions Standards for Hazardous Air Pollutants annual report; however, for 2014 and for future years, there will only be one report by DOE.

The dose to the public is calculated using the computer modeling program (CAP88) specified in 40 *CFR* § 61.93. Inputs to the computer program are obtained through continuous monitoring, periodic confirmatory measurements, engineering estimates, emission factors, and other U.S. Environmental Protection Agency-approved methods. This report meets the annual reporting requirements and establishes the total annual effective dose equivalent to the maximally exposed member of the public from Paducah Site emissions to be 0.0018 mrem for calendar year 2014. This is well below the annual limit of 10 mrem per year.

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1. FACILITY DESCRIPTION

Site Name: Paducah Site

Location: Paducah, Kentucky

Owner: U.S. Department of Energy (DOE)
Portsmouth/Paducah Project Office
5501 Hobbs Road
Kevil, Kentucky 42053
Jennifer Woodard, Paducah Site Lead
(270) 441-6825

Operators: LATA Environmental Services of Kentucky, LLC
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Kevil, Kentucky 42053
Mark J. Duff, Paducah Project Manager
(270) 441-5100

Babcock and Wilcox Conversion Services, LLC
1020 Monarch Street, Suite 300
Lexington, Kentucky 40513
John D. Woolery, President and Project Manager
(859) 685-3272

Fluor Federal Services Inc.
5511 Hobbs Road
Kevil, Kentucky 42053
Cornelius Murphy, Program Manager

2. INTRODUCTION

DOE owns the Paducah Site, which has radionuclide air emissions. The site was established to enrich uranium and was known as the Paducah Gaseous Diffusion Plant (PGDP). Over time, the enrichment process was privatized and operated by United States Enrichment Corporation (USEC) in accordance with Nuclear Regulatory Commission regulations. During 2014, USEC finished post-enrichment activities. When enrichment activities ceased and USEC's lease ended, the entire DOE-owned area was identified as the Paducah Site. DOE subsequently began deactivation of the enrichment facilities.

Paducah Site emissions include enrichment emissions, emissions from the depleted uranium hexafluoride (DUF_6) conversion facility (DOE began operations in 2011), and other sources. The DUF_6 facility converts the material generated by the enrichment process to a more stable uranium oxide compound. Other sources included waste management facilities, inactive buildings, and environmental restoration operations.

Emissions from all of these sources were analyzed together and used to calculate the resultant dose.

3. SITE DESCRIPTION

The Paducah Site was established based on the need to construct and operate the PGDP. The Paducah Site is located on a reservation consisting of approximately 3,500 acres in western McCracken County, 10 miles west of Paducah, Kentucky, and 3.5 miles south of the Ohio River. Roughly 650 acres of the reservation are enclosed within a fenced security area. An uninhabited buffer zone of at least 400 yards surrounds the entire fenced area. During World War II, Kentucky Ordnance Works, a trinitrotoluene production facility, was operated in an area southwest of the plant on what is now a wildlife management area, not on the DOE reservation.

Construction of the PGDP facility began in 1951. The plant was fully operational by 1955, supplying enriched uranium for commercial reactors and defense uses. Enriched uranium is defined as uranium in which the concentration of the fissionable uranium-235 (U-235) isotope has been increased from its natural assay. Natural uranium is primarily uranium-238 (U-238), with about 0.71% U-235 and 0.0055% uranium-234 (U-234). Uranium mills process the ores to produce concentrated uranium oxide [triuranium octoxide (U_3O_8)], which then is converted commercially to uranium hexafluoride (UF_6). The UF_6 then was sent to PGDP for enrichment. In 2011, DOE began operation of a facility to convert the stored DUF_6, the depleted material remaining after enrichment, to a more stable uranium oxide, primarily U_3O_8.

The radioactive materials used at PGDP are associated with enrichment of the uranium isotope U-235 by utilizing a gaseous diffusion process. During enriching operations from 1953 to 1975, UF_6 feed material derived from recycled uranium (called "reactor tails") from government reactors and "work for others" material also was used intermittently in addition to the UF_6 processed from uranium ore, which typically was used. Reactor tails were the spent fuel from nuclear reactors that is depleted in U-235 content that had been reprocessed to remove most of the fission products. The reactor fuel assemblies were processed at other DOE facilities (where most of the fission products were removed), and the enriched uranium and the remaining fission products were fed into the PGDP cascade system in the chemical form of UF_6. Use of the reactor tails resulted in the introduction of technetium-99 (Tc-99), a fission by-product, and transuranics, most notably neptunium-237 (Np-237) and plutonium-239 (Pu-239), into the cascade.

The West Kentucky Wildlife Management Area and lightly populated farmlands are in the immediate environs of PGDP. Based on population data from the 2010 census, the population within a 50-mile radius is approximately 534,000 persons. Of these, 44,000 live within 10 miles of the plant and 104,000 live within 20 miles of the plant. The unincorporated communities of Grahamville and Heath are 1.24 and 1.86 miles east of the plant, respectively. Portions of 28 counties—11 of which are in Kentucky, 4 in Missouri, 10 in Illinois, and 3 in Tennessee—are included within the 50-mile radius of the plant. Larger cities in the region include Paducah, Kentucky, located 10 air miles east of the plant; Cape Girardeau, Missouri, located 40 air miles to the west; and Metropolis, Illinois, located 6 air miles to the northeast. The nearest neighbor residences in each direction are observed and entered into the dose modeling software. The results of the dose modeling are presented in Section 6.

Paducah is located in the humid continental zone. Summers generally are dry; precipitation occurs mainly in the spring and fall. Winters are characterized by moderately cold days; the average temperature during the coldest month, January, is about 35°F. Summers are warm and humid; the average temperature in July is 79°F. Yearly precipitation averages about 44 inches. The prevailing wind direction is south to southwest.

Although DOE still owns all of the facilities at PGDP, in 1993, the enrichment facilities were leased to USEC, which has been responsible for the enrichment operations. USEC completed post-enrichment activities in 2014.

4. PADUCAH SITE SOURCE HANDLING AND PROCESSING DESCRIPTION

Radioactive material handling and processing that occurred last year included shutdown and cleanout of the uranium enrichment processes, conversion of DUF_6 to uranium oxides, environmental remediation of hazardous and radioactive materials, and management of radioactive waste.

The point sources from shutdown and clean out of the enrichment processes are grouped as described in the following sections. Some of these activities will be reduced or may cease as deactivation of the enrichment facilities progresses.

4.1 DEACTIVATION OF THE PADUCAH GASEOUS DIFFUSION PLANT

The emission point sources previously analyzed for operation of PGDP also were emission sources for deactivation. These deactivation sources are grouped in the same manner as the enrichment source grouping.

4.1.1 Group A—the C-400 Group

This grouping includes all of the C-400 sources.

4.1.1.1 C-400 decontamination spray booth

This facility is used to decontaminate equipment. It consists of a large booth equipped with a high-pressure sprayer, which sprays a water solution on the contaminated machinery. Radionuclides are entrained in the spray solution during the decontamination process. The booth is equipped with a mist eliminator as an emission control device. The mist eliminator is not listed as a pollution control device in 40 *CFR* Part 61, Appendix D, and no credit is taken for it. Emissions were estimated in accordance with Appendix D. The concentration of radionuclides in the spray booth water, multiplied by the total volume of water, is considered as the "curies used." The decontamination spray booth was removed from service in October 2014.

4.1.1.2 C-400 No. 5 dissolver/rotary vacuum filter

This facility is used to dissolve and precipitate the uranium solutions from the C-400 cylinder wash and decontamination spray booth. It also is used to treat uranium salvaged from laboratory activities. The solution is treated chemically to precipitate the uranium forming a slurry solution. The solution then is passed through a rotary vacuum filter, which collects the precipitate (filter cake) for future disposal, leaving the filtrate. After sampling, the filtrate is discharged via Kentucky Pollutant Discharge Elimination System (KPDES)-permitted outfalls. The radionuclide emissions originate from the vent on the pump pulling the slurry solution through the rotary vacuum filter. Emissions are minimal because the pump and its vent are downstream of the rotary vacuum filter, which traps the uranium as filter cake. Emissions were estimated in accordance with 40 *CFR* Part 61, Appendix D. The concentration of

radionuclides in the filtrate multiplied by the filtrate volume is considered as the "curies used." The No. 5 dissolver/rotary vacuum filter was removed from service in October 2014.

4.1.1.3 C-400 laundry

The C-400 laundry washes and dries protective clothing used to prevent skin contamination on personnel working in radiological areas. The driers are equipped with lint filters. Emissions from the laundry are estimated using data from health physics lint filter surveys. Alpha radiation is assumed to be 10% Np-237 and 90% uranium. Beta emissions are assumed to be Tc-99. The emission factor for cloth filters in 40 *CFR* Part 61, Appendix D, is used to estimate the emissions.

4.1.2 Group B—C-400 Cylinder Drying Station

This facility is used to dry UF_6 cylinders after the "heel" has been removed in the C-400 cylinder washstand. Dry plant air is passed through the cylinder to evaporate any remaining moisture from washing and hydrostatic testing. Emissions were estimated in accordance with 40 *CFR* Part 61, Appendix D. Concentrations of radionuclides in the cylinder wash water multiplied by the total volume of wash water used are considered as the "curies used." The C-400 cylinder drying station was removed from service in October 2014.

4.1.3 Group D—C-709/C-710 Laboratory Hoods

The C-709/C-710 laboratories are the main facilities for sample analysis and research at the Paducah Site. There were a total of 56 laboratory hoods and canopies in the C-709/C-710 Buildings that were used for radiological activities during the year. The radionuclides involved in analyses consist primarily of uranium, with a slight potential for emissions of Tc-99, Np-237, Pu-239, and the thorium daughters of uranium.

Four methods, depending on the type of operation occurring in the hood or radiological area in which the hood is located, are used to estimate emissions.

1. Estimation of the maximum quantity of uranium lost based on laboratory methods. (If an American Society for Testing and Materials analytical method specifies a maximum 1.6% mass loss during analysis, all samples analyzed using the method were assumed to lose 1.6% of the uranium in the sample.)

2. 40 *CFR* Part 61, Appendix D, emission factors.

3. Chemical trap efficiencies and uranium throughput information.

4. Knowledge of analytical or sample preparation process.

All methods use the total inventory of uranium processed in the hood or radiological area as the basis for the emission estimate.

4.1.4 Group E—C-310 Stack

The primary source of potential radionuclide air emissions is the vent stack that serves the "top end" of the cascade process and the cylinder burping facility. This 200-ft stack, designated as the C-310 stack, is located near the southwest corner of the C-310 Product Withdrawal Building. Low molecular weight gas compounds and contaminants, which have traveled up the cascade, are vented to the

atmosphere via the C-310 stack. Small quantities of U-234, U-235, U-238, Tc-99, Np-237, Pu-239, and thorium-230 (Th-230) also are emitted. The effluent is routed through alumina traps prior to being emitted via the C-310 stack. The alumina traps were upgraded in 1990 to provide greater criticality safety. The improved system consists of an online bank of 13 traps and a standby bank of 13 traps.

The cylinder burp facility, located on the east side of C-310, is used to vent low molecular weight gases from product cylinders. This facility is a potential source of uranium, Tc-99, and transuranics. The effluent from the burp facility is routed through a bank of sodium fluoride (NaF) traps prior to being emitted from the C-310 stack. There are two banks of chemical traps associated with this system. Each bank has five primary and two secondary traps. Uranium is recovered from the NaF traps and returned to the enrichment cascade.

Emissions from the C-310 stack were based on results from the continuous potassium hydroxide bubbler stack sampling system approved by the U.S. Environmental Protection Agency (EPA) in 1992. The continuous sampling system consists of a series of three caustic (potassium hydroxide solution) scrubbers and a sample flow totalizer. Stack flow is determined using periodic confirmatory methods as approved by EPA. Normally the first bubbler in the C-310 purge and vent sample train is changed daily. Samples are sent to the laboratory for analysis, and monthly and quarterly composite samples are prepared from the daily samples.

As part of the quality assurance/quality control requirements for the C-310 stack sampler, a range for the sample flow has been established. During the year, there were no samples where the sample flow was outside of the established range.

4.1.5 Group F—Seal Exhaust/Wet Air Group

The seal exhaust (SX) and wet air (WA) systems have been evaluated for air emissions. It was determined the alumina traps, which are designed to protect pump oil and not to control emissions, are not pollution control devices under 40 *CFR* Part 61, Subpart H. The determination was forwarded to EPA January 28, 1994.

4.1.5.1 Seal exhaust systems

Emissions from the seal exhaust systems are routed through alumina traps and pump oil prior to venting. Seals on the UF_6 compressors are supplied with an intricate array of air pressures to minimize releases during seal failure. A seal failure allows UF_6 to enter the seal exhaust system. If UF_6 reaches the pump by virtue of trap breakthrough, it reacts with the pump oil creating a thick sludge that quickly causes pump failure. In turn, pump failure limits the amount that can be emitted. Although the pump oil serves as an excellent uranium emission control device due to the reaction between UF_6 and pump oil, no credit is taken for it as a pollution control device.

There is one SX vent per cascade building, one on the C-310 Product Withdrawal Building, and one on the C-315 Tails Withdrawal Building. The locations of the six SX systems are as follows:

- C-310 Product Withdrawal Building
- C-315 Tails Withdrawal Building
- C-331 Process Building
- C-333 Process Building

- C-335 Process Building
- C-337 Process Building

Periodic confirmatory measurements are made on each type of SX/WA system to verify low emissions. Emissions from these systems originally were estimated based on results of a modified 40 *CFR* Part 60 Method 5 stack sampling performed in 1992. The systems are resampled every five years with the most recent occurring in 2012. The SX/WA system for the C-335 Process Building was sampled in 2004 as part of the chlorofluorocarbon-114 (CFC-114)/UF_6 separation system modification and resampled in 2009. The most recent stack sampling results are used for emission estimates while the cascades were operating in calendar year 2014. After cascade operations ceased, there were no emissions for the remainder of the year.

4.1.5.2 Wet air exhaust systems

When maintenance is required on process equipment, it is evacuated to other sections of the cascade or surge drums. The equipment is swept in a series of purges with dry plant air. After maintenance, the system is closed and the ambient (wet) air is pumped from the system by the WA pumps. During dry air purges and WA evacuations, air is routed through alumina traps for uranium trapping to protect the WA pump oil and then to an exhaust vent. In process buildings C-310, C-335, and C-337, the exhaust vent is shared with the seal exhaust system for those buildings. As discussed under SX systems, emissions from the WA exhaust systems are estimated based on the most recent Method 5 stack sampling results. The locations of the five wet air exhaust systems are as follows:

- C-310 Product Withdrawal Building (same as SX)
- C-331 Process Building
- C-333 Process Building
- C-335 Process Building (same as SX)
- C-337 Process Building (same as SX)

4.1.5.3 CFC-114/UF_6 separation system

The CFC-114/UF_6 separation system is located in C-335 and is used to freeze out UF_6 from process gas that has been significantly contaminated with CFC-114 coolant. Such mixtures usually result from equipment failure, but also may result from abnormal cascade operation. Surge drums are used to store these mixtures until they can be separated. The primary purpose of the CFC-114/UF_6 separation system is to remove the coolant and return the UF_6 to the cascade.

The separation system operates by freezing out the UF_6 from the process gas. To freeze out the UF_6, the UF_6/CFC-114 mixture is transferred from the surge drum through a refrigerated set of favorable geometry cold traps. The gas stream then passes through NaF traps and alumina traps to absorb any residual UF_6. Typically the gas stream flows through the alumina traps, although these traps can be bypassed. The trap discharge is connected to the SX/WA pump system and to atmosphere through the existing common discharge header. The UF_6 is sublimed back to cascade after the processing of the contaminated gas has been completed.

To improve nuclear criticality safety, modification of the CFC-114/UF_6 separation system was made and initial baseline emissions testing completed in 2004. The modification reduced potential radionuclide emissions.

4.1.5.4 Cylinder valve connection activities

Activities involving connection and disconnection to UF_6 cylinders include cold pressure checks, sampling activities, withdrawals and feeding activities, and cylinder burping. The cylinder valves are connected to the associated process via a "pigtail." Pigtails consist of a single length of copper tubing and threaded couplings. Pigtail disconnection procedures require a series of purges to ensure that no UF_6 remains in the pigtail prior to disconnection. Although adherence to these procedures minimizes UF_6 emissions, rarely a small amount of UF_6 may be released during disconnection of the pigtails. Equipment containing a high-efficiency particulate air (HEPA) filter is used to minimize emissions. No credit is taken for the HEPA pollution control equipment. The locations of the pigtail systems using HEPA filter equipment are as follows:

- C-310 Product Withdrawal Building
- C-315 Tails Withdrawal Building
- C-333-A Feed Facility
- C-337-A Feed Facility
- C-360 Transfer Facility (Group H)

Emissions are based on the number of pigtail disconnections in each facility. An assumed quantity of UF_6 in each pigtail, based on engineering calculations, is multiplied by the number of disconnections to determine emissions.

4.1.5.5 Building ventilation

Radiological areas at PGDP are established under health physics procedures, DOE orders, and per 10 *CFR* Part 835. A radiological area is any area where (1) an individual can receive a dose equivalent greater than 5 mrem in 1 hour; or (2) airborne radioactivity concentrations are greater than 10% of a derived air concentration (DAC), which is defined as the airborne concentrations of radionuclides in the workplace that would cause a maximum internal radiation dose of 5,000 mrem/year (regulatory exposure limit) to workers breathing the air over a normal year; or (3) high levels of surface contamination. Airborne radioactivity from building ventilation relates to emission quantities that are used as the basis for analyzing radiological emissions.

There are a number of radiological areas at PGDP with potential airborne radioactivity concentrations that could exceed threshold values. These areas are monitored by health physics using low-volume air samplers. The samplers use a low-volume pump (approximately 20 to 40 liters per minute) to draw building air through a filter. Typically, the samplers run 24 hours per day and the filters are changed on a 2-, 3-, 4-, or 5-day basis, depending on filter loading and weekend/holiday schedules. After sample collection, the filters are counted for radioactivity concentrations.

Building ventilation sources from C-315, C-331, C-333, C-333-A, C-335, C-337, C-337-A, and C-720 are grouped with the SX/WA group. Building ventilation sources from C-310, C-360, C-400, and C-709/C-710 are grouped with their respective building emissions. Alpha and beta results from health physics air sampling are evaluated based on the most restrictive DAC applicable, listed in 10 *CFR* Part 20. For alpha emissions, Np-237 is used. For beta emissions, Tc-99 is used. Only air sampling results exceeding 10% of the designated DAC are used in emission calculations.

4.1.6 Group G—C-409 Dissolver/Rotary Vacuum Filter

This facility is used to dissolve and precipitate high assay uranium solutions from the laboratory and various sources. The solution is treated chemically to precipitate the uranium into a slurry solution. The solution then is passed through a rotary vacuum filter, which collects the precipitate (filter cake) for future disposal, leaving the filtrate. After sampling, the filtrate then is discharged via KPDES-permitted outfalls. Emissions originate from the vent on the pump that pulls the slurry solution through the rotary vacuum filter. Emissions are minimal because the pump and its vent are downstream of the rotary vacuum filter which traps the uranium as filter cake. Emissions are estimated in accordance with 40 *CFR* Part 61, Appendix D. The concentrations of radionuclides in the filtrate, multiplied by the filtrate volume, are considered as the "curies used." The C-409 dissolver/rotary vacuum filter was taken out of service in October 2014.

4.1.7 Group H—C-360

This group consists of cylinder valve disconnection activities. Emission determinations from these sources have been discussed above and are applicable to Group H. Cylinder valve disconnection activities in C-360 ceased in October 2014.

4.2 DEPLETED URANIUM HEXAFLUORIDE CONVERSION FACILITY

The DUF_6 conversion facility has operated since 2011. The facility converts DUF_6 stored in cylinders to a more stable uranium oxide powder. The form of uranium oxide is primarily U_3O_8. Multiple prefilters and primary HEPA filter banks within the facility heating, ventilation, and air-conditioning system control particulate emissions of oxide powder. Prior to atmospheric venting of process off gas through the stack, air passes through a secondary set of HEPA filter banks. The conversion building is also maintained at negative pressure to help eliminate the possibility of fugitive emissions. Radioactive emissions from the conversion operations are continuously monitored.

4.3 ENVIRONMENTAL RESTORATION ACTIVITIES

DOE had two point sources for restoration activities.

4.3.1 Northwest Plume Interim Remedial Action Project

On September 1, 1995, DOE began operation of a treatment system designed to remove trichloroethene (TCE) and Tc-99 from contaminated groundwater at the PGDP. The facility, C-612, is located at the northwest corner of the PGDP site security area. The facility consists of an air stripper to remove volatile organics.

Historical sampling has shown very little change in the concentration of Tc-99 in the water when it passes through the air stripper. Emissions of Tc-99 were estimated using 40 *CFR* Part 61, Subpart H, Appendix D, emission factors and the analysis of the groundwater. The exhaust from the air stripper is passed through a carbon adsorption unit prior to release to the atmosphere; however, historical data has shown that Tc-99 is not retained in the carbon; therefore, no reduction in Tc-99 emissions due to the use of the adsorption unit was assumed. The results of the analysis of the estimated emissions are reported in Section 6.

4.3.2 Northeast Plume Containment System

DOE began normal operation of the Northeast Plume Containment System (C-614 Northeast Plume Treatment System), a second treatment system, on February 28, 1997, as an interim remedial action also to treat contaminated groundwater. The C-614 system extracts contaminated groundwater and pumps it to an air stripper for removal of TCE. Initially, the contaminated groundwater did not contain radionuclides; however, low concentration Tc-99 was detected in the groundwater and, consequently, could have been emitted to the air since 2005. Emissions of Tc-99 were estimated using 40 *CFR* Part 61, Subpart H, Appendix D, emission factors and the analysis of the groundwater.

In June 2013, USEC ceased operation of the cooling tower that was the emission point for the Northeast Plume Treatment System. DOE ceased Northeast Plume Treatment System operations until an alternate treatment unit (ATU) containing an air stripper was installed. The Northeast Plume Treatment System resumed operation in September 2013, with the ATU as the emission point. As with the initial system, emissions of Tc-99 from the ATU were estimated using 40 *CFR* Part 61, Subpart H, Appendix D emission factors, and the analysis of the groundwater.

The results of the analysis of the estimated emissions are reported in Section 6.

4.4 FUGITIVE AND DIFFUSE SOURCES

Diffuse/fugitive emission sources include any source that is distributed spatially, diffuse in nature, or not emitted with forced air from a stack, vent, or other confined conduit. In this case, radionuclides are transported entirely by diffusion and/or thermally driven air currents. Typical examples of diffuse/fugitive emissions include emissions from building breathing; resuspension of contaminated soils, debris, or other materials; unventilated tanks; ponds, lakes, and streams; wastewater treatment systems; outdoor storage and processing areas; and leaks in piping, valves, or other process equipment. DOE has identified many potential fugitive and diffuse emission sources such as inactive facilities, building roofs, scrap metal storage yards, landfills, and various contamination areas. Specific activities that could generate fugitive emissions include transport and disposal of waste, demolition of contaminated facilities such as the C-410 Building (demolished in 2014), decontamination of contaminated equipment, and most environmental remediation activities. The use of ambient air monitors to evaluate emissions from fugitive and diffuse sources is described in Section 9.

5. WAIVER OF CONSTRUCTION AND MODIFICATION ACTIVITIES

No construction or modification activities occurred in this reporting period that were waived under 40 *CFR* § 61.96.

6. SOURCE CHARACTERISTICS AND AIR EMISSIONS DATA

Tables 1 through 4 contain specific emission information for each Paducah Site emission point. Table 1 lists the emission points and efficiency of control devices, as required by 40 *CFR* § 61.94 (b) (4) and (5). It is assumed that control for the Northwest Plume Treatment System has 0% efficiency because no credit is taken for any Tc-99 removal as a result of carbon filtration. Table 2 lists the distances from each emission point to receptors of concern, as listed in 40 *CFR* § 61.94 (b) (6). Table 3 contains emission

point information required to estimate the resulting potential exposure, as required by 40 *CFR* § 61.94 (b) (7). Table 4 contains a list of Paducah Site radioactive materials, as required by 40 *CFR* § 61.94 (b) (2), their emission rates, and total Paducah Site emissions by nuclide.

Table 1. Emission Point Effluent Controls and Efficiencies

Emission Points	Type Control	Efficiency %	Distance (m) and Direction to Nearest Receptor
Group A C-400 Group	None	0	1,920 ESE
Group B C-400 Cylinder Drying Station	None	0	1,900 ESE
Group D C-709/710 Laboratory Hoods	None	0	1,960 ESE
Group E C-310 Stack	NaF Trap	99.9	1,740 ESE
	Alumina Trap	98.6	
Group F SX/WA Group	Alumina Traps	98.6	1,490 ESE
Group F Cylinder Valve Disconnections	HEPA Filter	99	1,490 ESE
Group F Building Ventilation	None	0	1,490 ESE
Group G C-409 Dissolver	None	0	2,060 ESE
Group H C-360 Cylinder Valve Disconnections	HEPA Filter	99	1,180 SE
Northwest Plume Treatment System	Carbon	0	1,095 NNE
Northeast Plume Treatment System ATU	None	0	978 ESE
DUF_6 Conversion Facility	HEPA	99.9	2,150 E

NOTE: The building ventilation and cylinder valve connection activities not serviced by a stack are grouped with the SX/WA Group or respective building.

Table 2. Distances to Selected Receptors

Emission Points	Distances (m) to Selected Receptors		
	Nearest Farm	Nearest Business	Nearest School
Group A	1,920	2,819	4,225
Group B	1,900	2,819	4,100
Group D	1,960	2,705	3,900
Group E	1,740	2,705	3,840
Group F	1,490	2,438	3,840
Group G	2,060	2,900	4,040
Group H	1,180	2,000	3,840
Northwest Plume Treatment System	1,100	2,550	5,150
Northeast Plume Treatment System ATU	1,330	1,800	3,660
DUF_6 Conversion Facility	2,550	3,250	3,400

Table 3. Characteristics of Stacks, Vents, or Other Emission Points that Emit Radionuclides

Emission Points	Type	Height (m)	Diameter (m)	Gas Exit Velocity (m/s)	Gas Exit Temp. (°C)	Distance (m) & Direction to Maximally Exposed Individual for Each Source
Group A	Point	11.3	N/A	0	Ambient	2,040 N
Group B	Point	2.4	.05	0	Ambient	2,120 N
Group D	Point	7.1	N/A	0	Ambient	2,370 N
Group E	Point	61.0	0.3	0	21.7	3,040 NNE
Group F	Point	21.0	N/A	0	Ambient	2,350 N
Group G	Point	2.3	0.08	0	Ambient	2,134 N
Group H	Point	16.0	N/A	0	Ambient	1,180 SE
Northwest Plume Treatment System	Point	7.0	0.35	9.45	Ambient	1,080 NNE
Northeast Plume Treatment System Cooling Tower	Point	10.22	8.18	4.84	Ambient	1,360 SE
Northeast Plume Treatment System ATU	Point	5.94	0.19	10.8	Ambient	987 SE
DUF_6 Conversion Facility	Point	21.95	1.067	16.19	33.9	2,171 S

Table 4. Radionuclide Materials and Emissions Data (Curies)

Nuclide	Group A	Group B	Group D	Group E	Group F	Group G	Group H	Northwest Plume	Northeast Plume ATU	DUF_6 Conversion Facility	Total Site Emissions
U-234	6.45E-05	7.45E-07	1.45E-04	7.86E-06	6.46E-05	0	3.40E-08	0	0	1.46E-07	2.83E-4
U-235	2.24E-06	2.59E-08	5.05E-06	2.73E-07	2.24E-06	0	1.18E-09	0	0	6.66E-09	9.84E-6
U-238	2.65E-05	1.23E-06	1.35E-05	8.15E-07	1.70E-05	0	3.53E-09	0	0	3.57E-07	5.95E-5
Tc-99	2.39E-03	8.54E-09	0	2.26E-05	1.72E-06	0	00	1.20E-04	6.91E-06	0	2.54E-3
Th-230	1.20E-06	1.04E-07	0	9.30E-07	6.97E-09	0	0	0	0	0	2.24E-6
Th-231	0	0	0	0	0	0	0	0	0	3.08E-08	3.08E-8
Th-234	0	0	0	0	0	0	0	0	0	2.81E-06	2.81E-6
Np-237	4.97E-06	1.02E-10	0	1.75E-06	2.16E-06	0	0	0	0	0	8.87E-6
Pu-239	2.11E-08	8.77E-10	0	3.60E-07	0	0	0	0	0	0	3.82E-7
Pa-234m	0	0	0	0	0	0	0	0	0	2.81E-06	2.81E-6
Total Curies/ Year	**2.49E-03**	**2.12E-06**	**1.64E-04**	**3.46E-05**	**8.78E-05**	**0**	**3.88E-08**	**1.20E-04**	**6.91E-06**	**6.16E-06**	**2.91E-03**

7. DOSE ASSESSMENT

7.1 DESCRIPTION OF DOSE MODEL

The radiation dose calculations were performed using the Clean Air Act Assessment Package-1988 (CAP88) PC, Version 3. The CAP88 model is a set of computer programs, databases and associated utility programs for estimation of dose and risk from radionuclide emissions to air. CAP88 is composed of modified versions of the AIRDOS-EPA and DARTAB computer codes. CAP88-PC contains EPA's version of the AIRDOS-EPA computer code, which implements a steady-state, Gaussian plume, atmospheric dispersion model to calculate environmental concentrations of released radionuclides and then food chain models are used to calculate human exposures, both internal and external, to the environmental concentrations.

CAP88-PC, Version 3, uses dose factors from Federal Guidance Report (FGR) Number 13. The FGR 13 dose factors are based on the methods in Publication 72 of the International Commission on Radiological Protection (ICRP 1996). The dose factors are used to calculate effective doses (EDs). The ED is the weighted sum of equivalent doses to twelve specific tissues and organs plus general category that accounts for the remaining organs and tissues.

7.2 SUMMARY OF INPUT PARAMETERS

Default input parameters are used except for those provided in Section 6 and immediately below. Meteorological input information is from the National Weather Service at Paducah, except for the on-site joint frequency distribution information. The average mixing layer height was derived from area upper air data from 2007 and supplied by Oak Ridge National Laboratory.

Joint frequency distribution: Five-year stability array (STAR) distribution from 60-m station on PGDP meteorological tower for the years 1988 through 1992.

Rainfall rate: 119.01 cm/year

Average air temperature: 13.8°C

Average mixing layer height: 542 m

Fraction of foodstuffs from (rural default values):

	Local Area	50-Mile Radius	Beyond 50 Miles
Vegetables and produce:	0.700	0.300	0.000
Meat:	0.442	0.558	0.000
Milk:	0.399	0.601	0.000

7.3 DOSE ESTIMATE

Effective dose equivalent (EDE) to maximally exposed individual for each individual point source and the Paducah Site is provided in Table 5.

Table 5. Dose Analysis

Emission Sources*	EDE to the Maximum Exposed Individual for Each Source (mrem)	EDE to the Maximum Exposed Individual for the Plant (mrem)
Group A—C-400 Group	1.5E-03	1.5E-03
Group B—C-400 Cylinder Drying Station	3.2E-06	3.2E-06
Group D—C-709/C-710 Laboratory Hoods	7.3E-05	7.3E-05
Group E—C-310 Stack	2.7E-05	2.6E-05
Group F—SX/WA Group	5.1E-05	5.1E-05
Group G—C-360	1.4E-08	5.9E-09
Northwest Plume Treatment System	1.9E-04	1.9E-04
Northeast Plume Treatment System	7.6E-06	2.9E-06
DUF_6 Conversion Facility	9.5E-08	6.2E-08
Total from All Sources		**1.8E-03**

The maximally exposed individual from all plant emissions is located 2,430 m north of the C-310 stack, Group E.

Based on population data from the 2010 census, the total collective EDE to the 50-mile population (approximately 534,000 persons) was 0.02 person-rem. The collective EDE is obtained by multiplying the maximum exposed individual dose (e.g., 1.8E-03) by the population within the 50-mile radius of the Paducah Site (e.g., 534,000 persons).

8. UNPLANNED RELEASES

There were no DOE unplanned radioactive airborne releases in 2014.

9. AMBIENT AIR MONITORING

In accordance with the *National Emission Standards for Hazardous Air Pollutants Management Plan for Emission of Radionuclides for the U.S. Department of Energy Operations at the Paducah Site, Paducah, Kentucky*, PAD-REG-1017, November 2013, DOE used ambient air monitoring data to verify insignificant levels of radionuclides in off-site ambient air. Ambient air stations collect radionuclide samples at sites surrounding the plant. The ambient air monitors capture airborne radionuclides emitted from all sources, including fugitive and diffuse sources. The locations of the ambient air monitoring stations are shown in Figure 1.

During second quarter 2014, ambient air station AMD015 reported a neptunium-237 value above the corresponding 40 *CFR* Part 61, Appendix E, Table 2 concentration. The value was reported by the laboratory as not detectable. This indicates the detection level for this sample was higher than the standard.

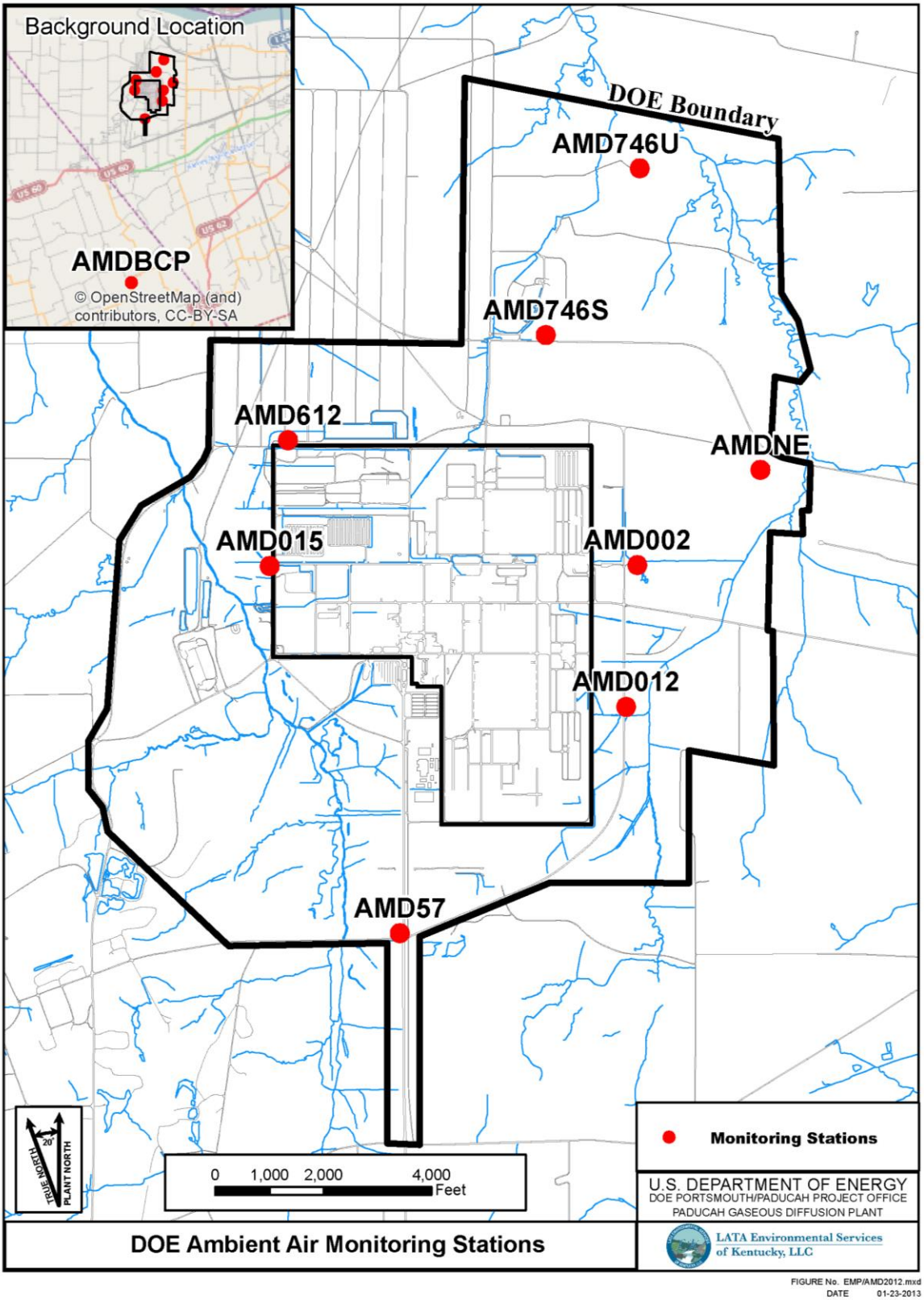

Figure 1. Location of Paducah Site Ambient Air Monitoring Stations

The ambient air monitoring stations operate continuously, drawing air through a filter paper to capture particles that may be radioactive. Filter paper is changed weekly; composited filter papers for a three-month period are measured for radioactivity by a laboratory. Normally the detection level attained by this methodology results in a level much lower than the Table 2 value; however, the detection level for the radionuclide in these samples was higher than the Table 2 value. All other isotope results were below Table 2 values.

The remaining analyses of ambient air monitoring results indicate that plant-derived radionuclides were not detected in concentrations greater than 40 *CFR* Part 61, Appendix E, Table 2, concentrations. The actual results of each air monitoring station are listed in the appendix of this report.

10. STATUS OF 40 *CFR* PART 61, SUBPART H, COMPLIANCE

DOE remains in compliance with 40 *CFR* Part 61, Subpart H. Kentucky Division for Air Quality has received a delegation of authority to administer the NESHAP program. An update to the NESHAP Management Plan was approved by EPA Region 4 on February 6, 2014.

Ambient air monitors measure radionuclide emissions from Paducah Site point sources, fugitive air emission sources, and background levels of radionuclides. In accordance with the NESHAP Management Plan, ambient air monitors are used to confirm that radiological emissions from the site produce a dose less than the levels allowed by 40 *CFR* Part 61, Subpart H.

APPENDIX

AMBIENT AIR MONITORING

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Table A.1. Ambient Air Monitoring 2014 Results

1st Quarter January through March								
Station	**Analysis**	**Result**	**Units**	**Qualifier**	**Concentration (pCi/m^3)**	**Concentration (Ci/m^3)**	**Standard (Ci/m^3)**	**Fraction of Standard**
AMD002	**Quarter Air Flow**	6,273	m^3					
AMD002	Americium-241	3.11	pCi/sample	U	4.96E-04	4.96E-16	1.90E-15	2.61E-01
AMD002	Neptunium-237	-0.181	pCi/sample	U	-2.89E-05	-2.89E-17	1.20E-15	-2.40E-02
AMD002	Plutonium-238	-0.00457	pCi/sample	U	-7.28E-07	-7.28E-19	2.10E-15	-3.47E-04
AMD002	Plutonium-239/240	0.0295	pCi/sample	U	4.70E-06	4.70E-18	2.00E-15	2.35E-03
AMD002	Technetium-99	-0.618	pCi/sample	U	-9.85E-05	-9.85E-17	1.40E-13	-7.04E-04
AMD002	Thorium-234	6.51	pCi/sample	U	1.04E-03	1.04E-15	2.20E-12	4.72E-04
AMD002	Uranium-234	7.78	pCi/sample	JU	1.24E-03	1.24E-15	7.70E-15	1.61E-01
AMD002	Uranium-235	0.189	pCi/sample	JU	3.01E-05	3.01E-17	7.10E-15	4.24E-03
AMD002	Uranium-238	4.2	pCi/sample	U	6.69E-04	6.69E-16	8.30E-15	8.07E-02
							Sum of the Fractions of the Standard	4.85E-01
AMD012	**Quarter Air Flow**	7,779	m^3					
AMD012	Americium-241	-0.613	pCi/sample	U	-7.88E-05	-7.88E-17	1.90E-15	-4.15E-02
AMD012	Neptunium-237	-0.442	pCi/sample	U	-5.68E-05	-5.68E-17	1.20E-15	-4.73E-02
AMD012	Plutonium-238	-0.00457	pCi/sample	U	-5.87E-07	-5.87E-19	2.10E-15	-2.80E-04
AMD012	Plutonium-239/240	-0.00889	pCi/sample	U	-1.14E-06	-1.14E-18	2.00E-15	-5.71E-04
AMD012	Technetium-99	-1.39	pCi/sample	U	-1.79E-04	-1.79E-16	1.40E-13	-1.28E-03
AMD012	Thorium-234	-0.475	pCi/sample	U	-6.11E-05	-6.11E-17	2.20E-12	-2.78E-05
AMD012	Uranium-234	7.78	pCi/sample	JU	1.00E-03	1.00E-15	7.70E-15	1.30E-01
AMD012	Uranium-235	0.189	pCi/sample	JU	2.43E-05	2.43E-17	7.10E-15	3.42E-03
AMD012	Uranium-238	4.2	pCi/sample	U	5.40E-04	5.40E-16	8.30E-15	6.51E-02
							Sum of the Fractions of the Standard	1.07E-01

Table A.1. Ambient Air Monitoring 2014 Results (Continued)

1st Quarter January through March								
Station	**Analysis**	**Result**	**Units**	**Qualifier**	**Concentration (pCi/m^3)**	**Concentration (Ci/m^3)**	**Standard (Ci/m^3)**	**Fraction of Standard**
AMD015	**Quarter Air Flow**	6,271	m^3					
AMD015	Americium-241	-1.74	pCi/sample	U	-2.77E-04	-2.77E-16	1.90E-15	-1.46E-01
AMD015	Neptunium-237	-0.0673	pCi/sample	U	-1.07E-05	-1.07E-17	1.20E-15	-8.94E-03
AMD015	Plutonium-238	-0.00457	pCi/sample	U	-7.29E-07	-7.29E-19	2.10E-15	-3.47E-04
AMD015	Plutonium-239/240	-0.00105	pCi/sample	U	-1.67E-07	-1.67E-19	2.00E-15	-8.37E-05
AMD015	Technetium-99	-1	pCi/sample	U	-1.59E-04	-1.59E-16	1.40E-13	-1.14E-03
AMD015	Thorium-234	6.99	pCi/sample	U	1.11E-03	1.11E-15	2.20E-12	5.07E-04
AMD015	Uranium-234	7.78	pCi/sample	JU	1.24E-03	1.24E-15	7.70E-15	1.61E-01
AMD015	Uranium-235	0.189	pCi/sample	JU	3.01E-05	3.01E-17	7.10E-15	4.24E-03
AMD015	Uranium-238	4.2	pCi/sample	U	6.70E-04	6.70E-16	8.30E-15	8.07E-02
							Sum of the Fractions of the Standard	9.00E-02
AMD57	**Quarter Air Flow**	6,198	m^3					
AMD57	Americium-241	0.601	pCi/sample	U	9.70E-05	9.70E-17	1.90E-15	5.10E-02
AMD57	Neptunium-237	-0.411	pCi/sample	U	-6.63E-05	-6.63E-17	1.20E-15	-5.53E-02
AMD57	Plutonium-238	-0.00301	pCi/sample	U	-4.86E-07	-4.86E-19	2.10E-15	-2.31E-04
AMD57	Plutonium-239/240	0.013	pCi/sample	U	2.10E-06	2.10E-18	2.00E-15	1.05E-03
AMD57	Technetium-99	-0.695	pCi/sample	U	-1.12E-04	-1.12E-16	1.40E-13	-8.01E-04
AMD57	Thorium-234	32.2	pCi/sample	U	5.20E-03	5.20E-15	2.20E-12	2.36E-03
AMD57	Uranium-234	7.78	pCi/sample	JU	1.26E-03	1.26E-15	7.70E-15	1.63E-01
AMD57	Uranium-235	0.189	pCi/sample	JU	3.05E-05	3.05E-17	7.10E-15	4.29E-03
AMD57	Uranium-238	4.2	pCi/sample	U	6.78E-04	6.78E-16	8.30E-15	8.16E-02
							Sum of the Fractions of the Standard	2.47E-01

Table A.1. Ambient Air Monitoring 2014 Results (Continued)

1st Quarter January through March								
Station	**Analysis**	**Result**	**Units**	**Qualifier**	**Concentration (pCi/m^3)**	**Concentration (Ci/m^3)**	**Standard (Ci/m^3)**	**Fraction of Standard**
AMD612	**Quarter Air Flow**	5,974	m^3					
AMD612	Americium-241	0.667	pCi/sample	U	1.12E-04	1.12E-16	1.90E-15	5.88E-02
AMD612	Neptunium-237	-2.32	pCi/sample	U	-3.88E-04	-3.88E-16	1.20E-15	-3.24E-01
AMD612	Plutonium-238	0.00642	pCi/sample	U	1.07E-06	1.07E-18	2.10E-15	5.12E-04
AMD612	Plutonium-239/240	-0.0199	pCi/sample	U	-3.33E-06	-3.33E-18	2.00E-15	-1.67E-03
AMD612	Technetium-99	-1.26	pCi/sample	U	-2.11E-04	-2.11E-16	1.40E-13	-1.51E-03
AMD612	Thorium-234	-0.7	pCi/sample	U	-1.17E-04	-1.17E-16	2.20E-12	-5.33E-05
AMD612	Uranium-234	7.78	pCi/sample	JU	1.30E-03	1.30E-15	7.70E-15	1.69E-01
AMD612	Uranium-235	0.189	pCi/sample	JU	3.16E-05	3.16E-17	7.10E-15	4.46E-03
AMD612	Uranium-238	4.2	pCi/sample	U	7.03E-04	7.03E-16	8.30E-15	8.47E-02
							Sum of the Fractions of the Standard	-9.28E-03
AMD746S	**Quarter Air Flow**	6,627	m^3					
AMD746S	Americium-241	3.46	pCi/sample	U	5.30E-04	5.30E-16	1.90E-15	2.79E-01
AMD746S	Neptunium-237	-1.57	pCi/sample	U	-2.41E-04	-2.41E-16	1.20E-15	-2.00E-01
AMD746S	Plutonium-238	-0.00457	pCi/sample	U	-7.00E-07	-7.00E-19	2.10E-15	-3.33E-04
AMD746S	Plutonium-239/240	0.0118	pCi/sample	U	1.81E-06	1.81E-18	2.00E-15	9.04E-04
AMD746S	Technetium-99	-0.811	pCi/sample	U	-1.24E-04	-1.24E-16	1.40E-13	-8.88E-04
AMD746S	Thorium-234	30.5	pCi/sample	U	4.67E-03	4.67E-15	2.20E-12	2.12E-03
AMD746S	Uranium-234	7.78	pCi/sample	JU	1.19E-03	1.19E-15	7.70E-15	1.55E-01
AMD746S	Uranium-235	0.189	pCi/sample	JU	2.90E-05	2.90E-17	7.10E-15	4.08E-03
AMD746S	Uranium-238	4.2	pCi/sample	U	6.43E-04	6.43E-16	8.30E-15	7.75E-02
							Sum of the Fractions of the Standard	3.17E-01

Table A.1. Ambient Air Monitoring 2014 Results (Continued)

1st Quarter January through March								
Station	**Analysis**	**Result**	**Units**	**Qualifier**	**Concentration (pCi/m^3)**	**Concentration (Ci/m^3)**	**Standard (Ci/m^3)**	**Fraction of Standard**
AMD746U	**Quarter Air Flow**	7,526	m^3					
AMD746U	Americium-241	1.04	pCi/sample	U	1.38E-04	1.38E-16	1.90E-15	7.27E-02
AMD746U	Neptunium-237	0.968	pCi/sample	U	1.29E-04	1.29E-16	1.20E-15	1.07E-01
AMD746U	Plutonium-238	0.0274	pCi/sample	U	3.64E-06	3.64E-18	2.10E-15	1.73E-03
AMD746U	Plutonium-239/240	0.00912	pCi/sample	U	1.21E-06	1.21E-18	2.00E-15	6.06E-04
AMD746U	Technetium-99	-2.86	pCi/sample	U	-3.80E-04	-3.80E-16	1.40E-13	-2.71E-03
AMD746U	Thorium-234	5.89	pCi/sample	U	7.83E-04	7.83E-16	2.20E-12	3.56E-04
AMD746U	Uranium-234	7.78	pCi/sample	JU	1.03E-03	1.03E-15	7.70E-15	1.34E-01
AMD746U	Uranium-235	0.189	pCi/sample	JU	2.51E-05	2.51E-17	7.10E-15	3.54E-03
AMD746U	Uranium-238	4.2	pCi/sample	U	5.58E-04	5.58E-16	8.30E-15	6.72E-02
							Sum of the Fractions of the Standard	3.85E-01
AMDBCP	**Quarter Air Flow**	6,650	m^3					
AMDBCP	Americium-241	-0.297	pCi/sample	U	-4.47E-05	-4.47E-17	1.90E-15	-2.35E-02
AMDBCP	Neptunium-237	0.683	pCi/sample	U	1.03E-04	1.03E-16	1.20E-15	8.56E-02
AMDBCP	Plutonium-238	-0.00313	pCi/sample	U	-4.71E-07	-4.71E-19	2.10E-15	-2.24E-04
AMDBCP	Plutonium-239/240	0.00903	pCi/sample	U	1.36E-06	1.36E-18	2.00E-15	6.79E-04
AMDBCP	Technetium-99	-2.55	pCi/sample	U	-3.83E-04	-3.83E-16	1.40E-13	-2.74E-03
AMDBCP	Thorium-234	-6.45	pCi/sample	U	-9.70E-04	-9.70E-16	2.20E-12	-4.41E-04
AMDBCP	Uranium-234	7.78	pCi/sample	JU	1.17E-03	1.17E-15	7.70E-15	1.52E-01
AMDBCP	Uranium-235	0.189	pCi/sample	JU	2.84E-05	2.84E-17	7.10E-15	4.00E-03
AMDBCP	Uranium-238	4.2	pCi/sample	U	6.32E-04	6.32E-16	8.30E-15	7.61E-02
							Sum of the Fractions of the Standard	2.91E-01

Table A.1. Ambient Air Monitoring 2014 Results (Continued)

1st Quarter January through March								
Station	**Analysis**	**Result**	**Units**	**Qualifier**	**Concentration (pCi/m^3)**	**Concentration (Ci/m^3)**	**Standard (Ci/m^3)**	**Fraction of Standard**
AMDNE	**Quarter Air Flow**	5,126	m^3					
AMDNE	Americium-241	2.95	pCi/sample	U	5.75E-04	5.75E-16	1.90E-15	3.03E-01
AMDNE	Neptunium-237	0.0575	pCi/sample	U	1.12E-05	1.12E-17	1.20E-15	9.35E-03
AMDNE	Plutonium-238	-0.00295	pCi/sample	U	-5.75E-07	-5.75E-19	2.10E-15	-2.74E-04
AMDNE	Plutonium-239/240	-0.0204	pCi/sample	U	-3.98E-06	-3.98E-18	2.00E-15	-1.99E-03
AMDNE	Technetium-99	-1.49	pCi/sample	U	-2.91E-04	-2.91E-16	1.40E-13	-2.08E-03
AMDNE	Thorium-234	-6.59	pCi/sample	U	-1.29E-03	-1.29E-15	2.20E-12	-5.84E-04
AMDNE	Uranium-234	7.78	pCi/sample	JU	1.52E-03	1.52E-15	7.70E-15	1.97E-01
AMDNE	Uranium-235	0.189	pCi/sample	JU	3.69E-05	3.69E-17	7.10E-15	5.19E-03
AMDNE	Uranium-238	4.2	pCi/sample	U	8.19E-04	8.19E-16	8.30E-15	9.87E-02
							Sum of the Fractions of the Standard	6.08E-01

Table A.1. Ambient Air Monitoring 2014 Results (Continued)

2nd Quarter April through June								
Station	**Analysis**	**Result**	**Units**	**Qualifier**	**Concentration (pCi/m^3)**	**Concentration (Ci/m^3)**	**Standard (Ci/m^3)**	**Fraction of Standard**
AMD002	**Quarter Air Flow**	6,721	m^3					
AMD002	Americium-241	0.623	pCi/Sample	U	9.27E-05	9.27E-17	1.90E-15	4.88E-02
AMD002	Neptunium-237	0	pCi/Sample	U	0.00E+00	0.00E+00	1.20E-15	0.00E+00
AMD002	Plutonium-238	0.0295	pCi/Sample	U	4.39E-06	4.39E-18	2.10E-15	2.09E-03
AMD002	Plutonium-239/240	0.00739	pCi/Sample	U	1.10E-06	1.10E-18	2.00E-15	5.50E-04
AMD002	Technetium-99	-0.323	pCi/Sample	U	-4.81E-05	-4.81E-17	1.40E-13	-3.43E-04
AMD002	Thorium-234	-16.4	pCi/Sample	U	-2.44E-03	-2.44E-15	2.20E-12	-1.11E-03
AMD002	Uranium-234	6.6	pCi/Sample	U	9.82E-04	9.82E-16	7.70E-15	1.28E-01
AMD002	Uranium-235	0.118	pCi/Sample	U	1.76E-05	1.76E-17	7.10E-15	2.47E-03
AMD002	Uranium-238	2.36	pCi/Sample		3.51E-04	3.51E-16	8.30E-15	4.23E-02
							Sum of the Fractions of the Standard	2.22E-01
AMD012	**Quarter Air Flow**	5,108	m^3					
AMD012	Americium-241	0.315	pCi/Sample	U	6.17E-05	6.17E-17	1.90E-15	3.25E-02
AMD012	Neptunium-237	-2.55	pCi/Sample	U	-4.99E-04	-4.99E-16	1.20E-15	-4.16E-01
AMD012	Plutonium-238	-0.0298	pCi/Sample	U	-5.83E-06	-5.83E-18	2.10E-15	-2.78E-03
AMD012	Plutonium-239/240	0.0149	pCi/Sample	U	2.92E-06	2.92E-18	2.00E-15	1.46E-03
AMD012	Technetium-99	-1.19	pCi/Sample	U	-2.33E-04	-2.33E-16	1.40E-13	-1.66E-03
AMD012	Thorium-234	-0.755	pCi/Sample	U	-1.48E-04	-1.48E-16	2.20E-12	-6.72E-05
AMD012	Uranium-234	5.41	pCi/Sample	U	1.06E-03	1.06E-15	7.70E-15	1.38E-01
AMD012	Uranium-235	0.0691	pCi/Sample	U	1.35E-05	1.35E-17	7.10E-15	1.91E-03
AMD012	Uranium-238	1.63	pCi/Sample		3.19E-04	3.19E-16	8.30E-15	3.84E-02
							Sum of the Fractions of the Standard	-2.09E-01

Table A.1. Ambient Air Monitoring 2014 Results (Continued)

2nd Quarter April through June								
Station	**Analysis**	**Result**	**Units**	**Qualifier**	**Concentration (pCi/m^3)**	**Concentration (Ci/m^3)**	**Standard (Ci/m^3)**	**Fraction of Standard**
AMD015	**Quarter Air Flow**	7,334	m^3					
AMD015	Americium-241	0.753	pCi/Sample	U	1.03E-04	1.03E-16	1.90E-15	5.40E-02
AMD015	Neptunium-237	12.5	pCi/Sample	U	1.70E-03	1.70E-15	1.20E-15	1.42E+00
AMD015	Plutonium-238	0	pCi/Sample	U	0.00E+00	0.00E+00	2.10E-15	0.00E+00
AMD015	Plutonium-239/240	-0.00736	pCi/Sample	U	-1.00E-06	-1.00E-18	2.00E-15	-5.02E-04
AMD015	Technetium-99	-0.327	pCi/Sample	U	-4.46E-05	-4.46E-17	1.40E-13	-3.18E-04
AMD015	Thorium-234	-24.4	pCi/Sample	U	-3.33E-03	-3.33E-15	2.20E-12	-1.51E-03
AMD015	Uranium-234	6.6	pCi/Sample	U	9.00E-04	9.00E-16	7.70E-15	1.17E-01
AMD015	Uranium-235	0.139	pCi/Sample	U	1.90E-05	1.90E-17	7.10E-15	2.67E-03
AMD015	Uranium-238	3.12	pCi/Sample		4.25E-04	4.25E-16	8.30E-15	5.13E-02
							Sum of the Fractions of the Standard	1.64E+00
AMD57	**Quarter Air Flow**	6,390	m^3					
AMD57	Americium-241	1.56	pCi/Sample	U	2.44E-04	2.44E-16	1.90E-15	1.28E-01
AMD57	Neptunium-237	-3.07	pCi/Sample	U	-4.80E-04	-4.80E-16	1.20E-15	-4.00E-01
AMD57	Plutonium-238	0.0296	pCi/Sample	U	4.63E-06	4.63E-18	2.10E-15	2.21E-03
AMD57	Plutonium-239/240	0	pCi/Sample	U	0.00E+00	0.00E+00	2.00E-15	0.00E+00
AMD57	Technetium-99	-0.424	pCi/Sample	U	-6.64E-05	-6.64E-17	1.40E-13	-4.74E-04
AMD57	Thorium-234	8.88	pCi/Sample	U	1.39E-03	1.39E-15	2.20E-12	6.32E-04
AMD57	Uranium-234	4.98	pCi/Sample	U	7.79E-04	7.79E-16	7.70E-15	1.01E-01
AMD57	Uranium-235	0.0963	pCi/Sample	U	1.51E-05	1.51E-17	7.10E-15	2.12E-03
AMD57	Uranium-238	2.18	pCi/Sample		3.41E-04	3.41E-16	8.30E-15	4.11E-02
							Sum of the Fractions of the Standard	-1.25E-01

Table A.1. Ambient Air Monitoring 2014 Results (Continued)

2nd Quarter April through June								
Station	**Analysis**	**Result**	**Units**	**Qualifier**	**Concentration (pCi/m^3)**	**Concentration (Ci/m^3)**	**Standard (Ci/m^3)**	**Fraction of Standard**
AMD612	**Quarter Air Flow**	6,890	m^3					
AMD612	Americium-241	1.59	pCi/Sample	U	2.31E-04	2.31E-16	1.90E-15	1.21E-01
AMD612	Neptunium-237	0	pCi/Sample	U	0.00E+00	0.00E+00	1.20E-15	0.00E+00
AMD612	Plutonium-238	0.0217	pCi/Sample	U	3.15E-06	3.15E-18	2.10E-15	1.50E-03
AMD612	Plutonium-239/240	0	pCi/Sample	U	0.00E+00	0.00E+00	2.00E-15	0.00E+00
AMD612	Technetium-99	0.876	pCi/Sample	U	1.27E-04	1.27E-16	1.40E-13	9.08E-04
AMD612	Thorium-234	14.5	pCi/Sample	U	2.10E-03	2.10E-15	2.20E-12	9.57E-04
AMD612	Uranium-234	3.98	pCi/Sample	U	5.78E-04	5.78E-16	7.70E-15	7.50E-02
AMD612	Uranium-235	0.103	pCi/Sample	U	1.49E-05	1.49E-17	7.10E-15	2.11E-03
AMD612	Uranium-238	2.39	pCi/Sample		3.47E-04	3.47E-16	8.30E-15	4.18E-02
							Sum of the Fractions of the Standard	2.44E-01

Table A.1. Ambient Air Monitoring 2014 Results (Continued)

2nd Quarter April through June								
Station	**Analysis**	**Result**	**Units**	**Qualifier**	**Concentration (pCi/m^3)**	**Concentration (Ci/m^3)**	**Standard (Ci/m^3)**	**Fraction of Standard**
AMD746S	**Quarter Air Flow**	7,195	m^3					
AMD746S	Americium-241	0.795	pCi/Sample	U	1.10E-04	1.10E-16	1.90E-15	5.82E-02
AMD746S	Neptunium-237	0.0967	pCi/Sample	U	1.34E-05	1.34E-17	1.20E-15	1.12E-02
AMD746S	Plutonium-238	0.0524	pCi/Sample	U	7.28E-06	7.28E-18	2.10E-15	3.47E-03
AMD746S	Plutonium-239/240	0.015	pCi/Sample	U	2.08E-06	2.08E-18	2.00E-15	1.04E-03
AMD746S	Technetium-99	1.71	pCi/Sample	U	2.38E-04	2.38E-16	1.40E-13	1.70E-03
AMD746S	Thorium-234	15	pCi/Sample	U	2.08E-03	2.08E-15	2.20E-12	9.48E-04
AMD746S	Uranium-234	7.65	pCi/Sample	U	1.06E-03	1.06E-15	7.70E-15	1.38E-01
AMD746S	Uranium-235	0.153	pCi/Sample	U	2.13E-05	2.13E-17	7.10E-15	3.00E-03
AMD746S	Uranium-238	3.42	pCi/Sample		4.75E-04	4.75E-16	8.30E-15	5.73E-02
							Sum of the Fractions of the Standard	2.75E-01
AMD746U	**Quarter Air Flow**	7,382	m^3					
AMD746U	Americium-241	0.579	pCi/Sample	U	7.84E-05	7.84E-17	1.90E-15	4.13E-02
AMD746U	Neptunium-237	3.39	pCi/Sample	U	4.59E-04	4.59E-16	1.20E-15	3.83E-01
AMD746U	Plutonium-238	0.0379	pCi/Sample	U	5.13E-06	5.13E-18	2.10E-15	2.44E-03
AMD746U	Plutonium-239/240	0.038	pCi/Sample	U	5.15E-06	5.15E-18	2.00E-15	2.57E-03
AMD746U	Technetium-99	-0.645	pCi/Sample	U	-8.74E-05	-8.74E-17	1.40E-13	-6.24E-04
AMD746U	Thorium-234	24.7	pCi/Sample	U	3.35E-03	3.35E-15	2.20E-12	1.52E-03
AMD746U	Uranium-234	1.31	pCi/Sample	U	1.77E-04	1.77E-16	7.70E-15	2.30E-02
AMD746U	Uranium-235	0.132	pCi/Sample	U	1.79E-05	1.79E-17	7.10E-15	2.52E-03
AMD746U	Uranium-238	2.81	pCi/Sample		3.81E-04	3.81E-16	8.30E-15	4.59E-02
							Sum of the Fractions of the Standard	5.01E-01

Table A.1. Ambient Air Monitoring 2014 Results (Continued)

2nd Quarter April through June								
Station	**Analysis**	**Result**	**Units**	**Qualifier**	**Concentration (pCi/m^3)**	**Concentration (Ci/m^3)**	**Standard (Ci/m^3)**	**Fraction of Standard**
AMDBCP	**Quarter Air Flow**	7,334	m^3					
AMDBCP	Americium-241	-0.528	pCi/Sample	U	-7.20E-05	-7.20E-17	1.90E-15	-3.79E-02
AMDBCP	Neptunium-237	-0.653	pCi/Sample	U	-8.90E-05	-8.90E-17	1.20E-15	-7.42E-02
AMDBCP	Plutonium-238	0.00753	pCi/Sample	U	1.03E-06	1.03E-18	2.10E-15	4.89E-04
AMDBCP	Plutonium-239/240	0	pCi/Sample	U	0.00E+00	0.00E+00	2.00E-15	0.00E+00
AMDBCP	Technetium-99	0.786	pCi/Sample	U	1.07E-04	1.07E-16	1.40E-13	7.65E-04
AMDBCP	Thorium-234	0.906	pCi/Sample	U	1.24E-04	1.24E-16	2.20E-12	5.62E-05
AMDBCP	Uranium-234	2.99	pCi/Sample	U	4.08E-04	4.08E-16	7.70E-15	5.29E-02
AMDBCP	Uranium-235	0.0983	pCi/Sample	U	1.34E-05	1.34E-17	7.10E-15	1.89E-03
AMDBCP	Uranium-238	2.16	pCi/Sample		2.95E-04	2.95E-16	8.30E-15	3.55E-02
							Sum of the Fractions of the Standard	-2.05E-02
AMDNE	**Quarter Air Flow**	7,401	m^3					
AMDNE	Americium-241	0.94	pCi/Sample	U	1.27E-04	1.27E-16	1.90E-15	6.68E-02
AMDNE	Neptunium-237	0.907	pCi/Sample	U	1.23E-04	1.23E-16	1.20E-15	1.02E-01
AMDNE	Plutonium-238	-0.00737	pCi/Sample	U	-9.96E-07	-9.96E-19	2.10E-15	-4.74E-04
AMDNE	Plutonium-239/240	-0.00738	pCi/Sample	U	-9.97E-07	-9.97E-19	2.00E-15	-4.99E-04
AMDNE	Technetium-99	-1.37	pCi/Sample	U	-1.85E-04	-1.85E-16	1.40E-13	-1.32E-03
AMDNE	Thorium-234	13	pCi/Sample	U	1.76E-03	1.76E-15	2.20E-12	7.98E-04
AMDNE	Uranium-234	1.12	pCi/Sample	U	1.51E-04	1.51E-16	7.70E-15	1.97E-02
AMDNE	Uranium-235	0.106	pCi/Sample	U	1.43E-05	1.43E-17	7.10E-15	2.02E-03
AMDNE	Uranium-238	2.4	pCi/Sample		3.24E-04	3.24E-16	8.30E-15	3.91E-02
							Sum of the Fractions of the Standard	2.28E-01

Table A.1. Ambient Air Monitoring 2014 Results (Continued)

3rd Quarter July through September								
Station	**Analysis**	**Result**	**Units**	**Qualifier**	**Concentration (pCi/m^3)**	**Concentration (Ci/m^3)**	**Standard (Ci/m^3)**	**Fraction of Standard**
AMD002	**Quarter Air Flow**	7,418	m^3					
AMD002	Americium-241	-1.07	pCi/Sample	U	-1.44E-04	-1.44E-16	1.90E-15	-7.59E-02
AMD002	Neptunium-237	-3.61	pCi/Sample	U	-4.87E-04	-4.87E-16	1.20E-15	-4.06E-01
AMD002	Plutonium-238	0.0469	pCi/Sample	U	6.32E-06	6.32E-18	2.10E-15	3.01E-03
AMD002	Plutonium-239/240	0.0156	pCi/Sample	U	2.10E-06	2.10E-18	2.00E-15	1.05E-03
AMD002	Technetium-99	-0.367	pCi/Sample	U	-4.95E-05	-4.95E-17	1.40E-13	-3.53E-04
AMD002	Thorium-234	20.5	pCi/Sample	U	2.76E-03	2.76E-15	2.20E-12	1.26E-03
AMD002	Uranium-234	3.67	pCi/Sample	U	4.95E-04	4.95E-16	7.70E-15	6.43E-02
AMD002	Uranium-235	0.123	pCi/Sample	U	1.66E-05	1.66E-17	7.10E-15	2.34E-03
AMD002	Uranium-238	3.09	pCi/Sample		4.17E-04	4.17E-16	8.30E-15	5.02E-02
							Sum of the Fractions of the Standard	-3.60E-01
AMD012	**Quarter Air Flow**	4,147	m^3					
AMD012	Americium-241	5.53	pCi/Sample		1.33E-03	1.33E-15	1.90E-15	7.02E-01
AMD012	Neptunium-237	-0.173	pCi/Sample	U	-4.17E-05	-4.17E-17	1.20E-15	-3.48E-02
AMD012	Plutonium-238	-0.0237	pCi/Sample	U	-5.71E-06	-5.71E-18	2.10E-15	-2.72E-03
AMD012	Plutonium-239/240	-0.0158	pCi/Sample	U	-3.81E-06	-3.81E-18	2.00E-15	-1.90E-03
AMD012	Technetium-99	0.534	pCi/Sample	U	1.29E-04	1.29E-16	1.40E-13	9.20E-04
AMD012	Thorium-234	1.95	pCi/Sample	U	4.70E-04	4.70E-16	2.20E-12	2.14E-04
AMD012	Uranium-234	2.61	pCi/Sample	U	6.29E-04	6.29E-16	7.70E-15	8.17E-02
AMD012	Uranium-235	0.0487	pCi/Sample	U	1.17E-05	1.17E-17	7.10E-15	1.65E-03
AMD012	Uranium-238	1.6	pCi/Sample		3.86E-04	3.86E-16	8.30E-15	4.65E-02
							Sum of the Fractions of the Standard	7.93E-01

Table A.1. Ambient Air Monitoring 2014 Results (Continued)

3rd Quarter July through September								
Station	**Analysis**	**Result**	**Units**	**Qualifier**	**Concentration (pCi/m^3)**	**Concentration (Ci/m^3)**	**Standard (Ci/m^3)**	**Fraction of Standard**
AMD015	**Quarter Air Flow**	7,364	m^3					
AMD015	Americium-241	0.915	pCi/Sample	U	1.24E-04	1.24E-16	1.90E-15	6.54E-02
AMD015	Neptunium-237	1.34	pCi/Sample	U	1.82E-04	1.82E-16	1.20E-15	1.52E-01
AMD015	Plutonium-238	0.00765	pCi/Sample	U	1.04E-06	1.04E-18	2.10E-15	4.95E-04
AMD015	Plutonium-239/240	-0.023	pCi/Sample	U	-3.12E-06	-3.12E-18	2.00E-15	-1.56E-03
AMD015	Technetium-99	2.65	pCi/Sample	U	3.60E-04	3.60E-16	1.40E-13	2.57E-03
AMD015	Thorium-234	-40.5	pCi/Sample	U	-5.50E-03	-5.50E-15	2.20E-12	-2.50E-03
AMD015	Uranium-234	0.249	pCi/Sample	U	3.38E-05	3.38E-17	7.70E-15	4.39E-03
AMD015	Uranium-235	0.0931	pCi/Sample	U	1.26E-05	1.26E-17	7.10E-15	1.78E-03
AMD015	Uranium-238	2.69	pCi/Sample		3.65E-04	3.65E-16	8.30E-15	4.40E-02
							Sum of the Fractions of the Standard	2.66E-01
AMD57	**Quarter Air Flow**	7,405	m^3					
AMD57	Americium-241	2.26	pCi/Sample	U	3.05E-04	3.05E-16	1.90E-15	1.61E-01
AMD57	Neptunium-237	-8.17	pCi/Sample	U	-1.10E-03	-1.10E-15	1.20E-15	-9.19E-01
AMD57	Plutonium-238	0.0079	pCi/Sample	U	1.07E-06	1.07E-18	2.10E-15	5.08E-04
AMD57	Plutonium-239/240	0.00791	pCi/Sample	U	1.07E-06	1.07E-18	2.00E-15	5.34E-04
AMD57	Technetium-99	0.572	pCi/Sample	U	7.72E-05	7.72E-17	1.40E-13	5.52E-04
AMD57	Thorium-234	8.24	pCi/Sample	U	1.11E-03	1.11E-15	2.20E-12	5.06E-04
AMD57	Uranium-234	6.1	pCi/Sample	U	8.24E-04	8.24E-16	7.70E-15	1.07E-01
AMD57	Uranium-235	0.0767	pCi/Sample	U	1.04E-05	1.04E-17	7.10E-15	1.46E-03
AMD57	Uranium-238	2.33	pCi/Sample		3.15E-04	3.15E-16	8.30E-15	3.79E-02
							Sum of the Fractions of the Standard	-6.10E-01

Table A.1. Ambient Air Monitoring 2014 Results (Continued)

3rd Quarter July through September								
Station	**Analysis**	**Result**	**Units**	**Qualifier**	**Concentration (pCi/m^3)**	**Concentration (Ci/m^3)**	**Standard (Ci/m^3)**	**Fraction of Standard**
AMD612	**Quarter Air Flow**	7,416	m^3					
AMD612	Americium-241	2.2	pCi/Sample	U	2.97E-04	2.97E-16	1.90E-15	1.56E-01
AMD612	Neptunium-237	3.82	pCi/Sample	U	5.15E-04	5.15E-16	1.20E-15	4.29E-01
AMD612	Plutonium-238	-0.0382	pCi/Sample	U	-5.15E-06	-5.15E-18	2.10E-15	-2.45E-03
AMD612	Plutonium-239/240	0.0459	pCi/Sample		6.19E-06	6.19E-18	2.00E-15	3.09E-03
AMD612	Technetium-99	0	pCi/Sample	U	0.00E+00	0.00E+00	1.40E-13	0.00E+00
AMD612	Thorium-234	1.55	pCi/Sample	U	2.09E-04	2.09E-16	2.20E-12	9.50E-05
AMD612	Uranium-234	6.53	pCi/Sample	U	8.81E-04	8.81E-16	7.70E-15	1.14E-01
AMD612	Uranium-235	0.0954	pCi/Sample	U	1.29E-05	1.29E-17	7.10E-15	1.81E-03
AMD612	Uranium-238	2.67	pCi/Sample		3.60E-04	3.60E-16	8.30E-15	4.34E-02
							Sum of the Fractions of the Standard	7.46E-01
AMD746S	**Quarter Air Flow**	7,973	m^3					
AMD746S	Americium-241	-0.255	pCi/Sample	U	-3.20E-05	-3.20E-17	1.90E-15	-1.68E-02
AMD746S	Neptunium-237	-1.86	pCi/Sample	U	-2.33E-04	-2.33E-16	1.20E-15	-1.94E-01
AMD746S	Plutonium-238	0.00819	pCi/Sample	U	1.03E-06	1.03E-18	2.10E-15	4.89E-04
AMD746S	Plutonium-239/240	0.0656	pCi/Sample		8.23E-06	8.23E-18	2.00E-15	4.11E-03
AMD746S	Technetium-99	-0.488	pCi/Sample	U	-6.12E-05	-6.12E-17	1.40E-13	-4.37E-04
AMD746S	Thorium-234	29.6	pCi/Sample	U	3.71E-03	3.71E-15	2.20E-12	1.69E-03
AMD746S	Uranium-234	4.04	pCi/Sample	U	5.07E-04	5.07E-16	7.70E-15	6.58E-02
AMD746S	Uranium-235	0.109	pCi/Sample	U	1.37E-05	1.37E-17	7.10E-15	1.93E-03
AMD746S	Uranium-238	2.88	pCi/Sample		3.61E-04	3.61E-16	8.30E-15	4.35E-02
							Sum of the Fractions of the Standard	-9.41E-02

Table A.1. Ambient Air Monitoring 2014 Results (Continued)

3rd Quarter July through September								
Station	**Analysis**	**Result**	**Units**	**Qualifier**	**Concentration (pCi/m^3)**	**Concentration (Ci/m^3)**	**Standard (Ci/m^3)**	**Fraction of Standard**
AMD746U	**Quarter Air Flow**	7,403	m^3					
AMD746U	Americium-241	1.09	pCi/Sample	U	1.47E-04	1.47E-16	1.90E-15	7.75E-02
AMD746U	Neptunium-237	-3.23	pCi/Sample	U	-4.36E-04	-4.36E-16	1.20E-15	-3.64E-01
AMD746U	Plutonium-238	-0.0595	pCi/Sample	U	-8.04E-06	-8.04E-18	2.10E-15	-3.83E-03
AMD746U	Plutonium-239/240	0.0223	pCi/Sample		3.01E-06	3.01E-18	2.00E-15	1.51E-03
AMD746U	Technetium-99	3.63	pCi/Sample	U	4.90E-04	4.90E-16	1.40E-13	3.50E-03
AMD746U	Thorium-234	7.13	pCi/Sample	U	9.63E-04	9.63E-16	2.20E-12	4.38E-04
AMD746U	Uranium-234	4.17	pCi/Sample	U	5.63E-04	5.63E-16	7.70E-15	7.31E-02
AMD746U	Uranium-235	0.0927	pCi/Sample	U	1.25E-05	1.25E-17	7.10E-15	1.76E-03
AMD746U	Uranium-238	2.6	pCi/Sample		3.51E-04	3.51E-16	8.30E-15	4.23E-02
							Sum of the Fractions of the Standard	-1.67E-01
AMDBCP	**Quarter Air Flow**	5,416	m^3					
AMDBCP	Americium-241	-1.52	pCi/Sample	U	-2.81E-04	-2.81E-16	1.90E-15	-1.48E-01
AMDBCP	Neptunium-237	-2.42	pCi/Sample	U	-4.47E-04	-4.47E-16	1.20E-15	-3.72E-01
AMDBCP	Plutonium-238	-0.0226	pCi/Sample	U	-4.17E-06	-4.17E-18	2.10E-15	-1.99E-03
AMDBCP	Plutonium-239/240	0.00754	pCi/Sample	U	1.39E-06	1.39E-18	2.00E-15	6.96E-04
AMDBCP	Technetium-99	0.367	pCi/Sample	U	6.78E-05	6.78E-17	1.40E-13	4.84E-04
AMDBCP	Thorium-234	12.1	pCi/Sample	U	2.23E-03	2.23E-15	2.20E-12	1.02E-03
AMDBCP	Uranium-234	2.86	pCi/Sample	U	5.28E-04	5.28E-16	7.70E-15	6.86E-02
AMDBCP	Uranium-235	0.0262	pCi/Sample	U	4.84E-06	4.84E-18	7.10E-15	6.81E-04
AMDBCP	Uranium-238	1.24	pCi/Sample		2.29E-04	2.29E-16	8.30E-15	2.76E-02
							Sum of the Fractions of the Standard	-4.23E-01

Table A.1. Ambient Air Monitoring 2014 Results (Continued)

3rd Quarter July through September								
Station	**Analysis**	**Result**	**Units**	**Qualifier**	**Concentration (pCi/m^3)**	**Concentration (Ci/m^3)**	**Standard (Ci/m^3)**	**Fraction of Standard**
AMDNE	**Quarter Air Flow**	7,423	m^3					
AMDNE	Americium-241	1.35	pCi/Sample	U	1.82E-04	1.82E-16	1.90E-15	9.57E-02
AMDNE	Neptunium-237	0.113	pCi/Sample	U	1.52E-05	1.52E-17	1.20E-15	1.27E-02
AMDNE	Plutonium-238	-0.0158	pCi/Sample	U	-2.13E-06	-2.13E-18	2.10E-15	-1.01E-03
AMDNE	Plutonium-239/240	-0.00792	pCi/Sample	U	-1.07E-06	-1.07E-18	2.00E-15	-5.33E-04
AMDNE	Technetium-99	-0.526	pCi/Sample	U	-7.09E-05	-7.09E-17	1.40E-13	-5.06E-04
AMDNE	Thorium-234	6.33	pCi/Sample	U	8.53E-04	8.53E-16	2.20E-12	3.88E-04
AMDNE	Uranium-234	2.18	pCi/Sample	U	2.94E-04	2.94E-16	7.70E-15	3.81E-02
AMDNE	Uranium-235	0.0681	pCi/Sample	U	9.17E-06	9.17E-18	7.10E-15	1.29E-03
AMDNE	Uranium-238	1.97	pCi/Sample		2.65E-04	2.65E-16	8.30E-15	3.20E-02
							Sum of the Fractions of the Standard	1.78E-01

Table A.1. Ambient Air Monitoring 2014 Results (Continued)

4th Quarter October through December								
Station	**Analysis**	**Result**	**Units**	**Qualifier**	**Concentration (pCi/m^3)**	**Concentration (Ci/m^3)**	**Standard (Ci/m^3)**	**Fraction of Standard**
AMD002	**Quarter Air Flow**	7,901	m^3					
AMD002	Americium-241	0.123	pCi/sample	U	1.56E-05	1.56E-17	1.90E-15	8.19E-03
AMD002	Neptunium-237	0.667	pCi/sample	U	8.44E-05	8.44E-17	1.20E-15	7.04E-02
AMD002	Plutonium-238	-0.022	pCi/sample	U	-2.78E-06	-2.78E-18	2.10E-15	-1.33E-03
AMD002	Plutonium-239/240	-0.06	pCi/sample	U	-7.59E-06	-7.59E-18	2.00E-15	-3.80E-03
AMD002	Technetium-99	-17	pCi/sample	U	-2.15E-03	-2.15E-15	1.40E-13	-1.54E-02
AMD002	Thorium-234	38.085	pCi/sample	U	4.82E-03	4.82E-15	2.20E-12	2.19E-03
AMD002	Uranium-234	1.265	pCi/sample		1.60E-04	1.60E-16	7.70E-15	2.08E-02
AMD002	Uranium-235	0.094	pCi/sample		1.19E-05	1.19E-17	7.10E-15	1.68E-03
AMD002	Uranium-238	1.423	pCi/sample		1.80E-04	1.80E-16	8.30E-15	2.17E-02
							Sum of the Fractions of the Standard	1.04E-01
AMD012	**Quarter Air Flow**	7,615	m^3					
AMD012	Americium-241	-0.052	pCi/sample	U	-6.83E-06	-6.83E-18	1.90E-15	-3.59E-03
AMD012	Neptunium-237	-0.484	pCi/sample	U	-6.36E-05	-6.36E-17	1.20E-15	-5.30E-02
AMD012	Plutonium-238	-0.025	pCi/sample	U	-3.28E-06	-3.28E-18	2.10E-15	-1.56E-03
AMD012	Plutonium-239/240	0.025	pCi/sample	U	3.28E-06	3.28E-18	2.00E-15	1.64E-03
AMD012	Technetium-99	9	pCi/sample	U	1.18E-03	1.18E-15	1.40E-13	8.44E-03
AMD012	Thorium-234	43.541	pCi/sample	U	5.72E-03	5.72E-15	2.20E-12	2.60E-03
AMD012	Uranium-234	1.36	pCi/sample		1.79E-04	1.79E-16	7.70E-15	2.32E-02
AMD012	Uranium-235	0.015	pCi/sample	U	1.97E-06	1.97E-18	7.10E-15	2.77E-04
AMD012	Uranium-238	2.629	pCi/sample		3.45E-04	3.45E-16	8.30E-15	4.16E-02
							Sum of the Fractions of the Standard	1.96E-02

Table A.1. Ambient Air Monitoring 2014 Results (Continued)

4th Quarter October through December								
Station	**Analysis**	**Result**	**Units**	**Qualifier**	**Concentration (pCi/m^3)**	**Concentration (Ci/m^3)**	**Standard (Ci/m^3)**	**Fraction of Standard**
AMD015	**Quarter Air Flow**	7,943	m^3					
AMD015	Americium-241	1.895	pCi/sample	U	2.39E-04	2.39E-16	1.90E-15	1.26E-01
AMD015	Neptunium-237	-0.049	pCi/sample	U	-6.17E-06	-6.17E-18	1.20E-15	-5.14E-03
AMD015	Plutonium-238	-0.022	pCi/sample	U	-2.77E-06	-2.77E-18	2.10E-15	-1.32E-03
AMD015	Plutonium-239/240	0.007	pCi/sample	U	8.81E-07	8.81E-19	2.00E-15	4.41E-04
AMD015	Technetium-99	5	pCi/sample	U	6.30E-04	6.30E-16	1.40E-13	4.50E-03
AMD015	Thorium-234	14.837	pCi/sample	U	1.87E-03	1.87E-15	2.20E-12	8.49E-04
AMD015	Uranium-234	1.129	pCi/sample		1.42E-04	1.42E-16	7.70E-15	1.85E-02
AMD015	Uranium-235	0.038	pCi/sample		4.78E-06	4.78E-18	7.10E-15	6.74E-04
AMD015	Uranium-238	3.022	pCi/sample		3.80E-04	3.80E-16	8.30E-15	4.58E-02
							Sum of the Fractions of the Standard	1.90E-01
AMD57	**Quarter Air Flow**	7,902	m^3					
AMD57	Americium-241	1.835	pCi/sample	U	2.32E-04	2.32E-16	1.90E-15	1.22E-01
AMD57	Neptunium-237	1.414	pCi/sample	U	1.79E-04	1.79E-16	1.20E-15	1.49E-01
AMD57	Plutonium-238	0	pCi/sample	U	0.00E+00	0.00E+00	2.10E-15	0.00E+00
AMD57	Plutonium-239/240	-0.033	pCi/sample	U	-4.18E-06	-4.18E-18	2.00E-15	-2.09E-03
AMD57	Technetium-99	15	pCi/sample	U	1.90E-03	1.90E-15	1.40E-13	1.36E-02
AMD57	Thorium-234	19.025	pCi/sample	U	2.41E-03	2.41E-15	2.20E-12	1.09E-03
AMD57	Uranium-234	0.704	pCi/sample		8.91E-05	8.91E-17	7.70E-15	1.16E-02
AMD57	Uranium-235	0.05	pCi/sample	U	6.33E-06	6.33E-18	7.10E-15	8.91E-04
AMD57	Uranium-238	2.389	pCi/sample		3.02E-04	3.02E-16	8.30E-15	3.64E-02
							Sum of the Fractions of the Standard	3.33E-01

Table A.1. Ambient Air Monitoring 2014 Results (Continued)

4th Quarter October through December								
Station	**Analysis**	**Result**	**Units**	**Qualifier**	**Concentration (pCi/m^3)**	**Concentration (Ci/m^3)**	**Standard (Ci/m^3)**	**Fraction of Standard**
AMD612	**Quarter Air Flow**	7,768	m^3					
AMD612	Americium-241	-0.188	pCi/sample	U	-2.42E-05	-2.42E-17	1.90E-15	-1.27E-02
AMD612	Neptunium-237	0.328	pCi/sample	U	4.22E-05	4.22E-17	1.20E-15	3.52E-02
AMD612	Plutonium-238	-0.015	pCi/sample	U	-1.93E-06	-1.93E-18	2.10E-15	-9.19E-04
AMD612	Plutonium-239/240	-0.022	pCi/sample	U	-2.83E-06	-2.83E-18	2.00E-15	-1.42E-03
AMD612	Technetium-99	20	pCi/sample	U	2.57E-03	2.57E-15	1.40E-13	1.84E-02
AMD612	Thorium-234	32.205	pCi/sample	U	4.15E-03	4.15E-15	2.20E-12	1.88E-03
AMD612	Uranium-234	1.403	pCi/sample		1.81E-04	1.81E-16	7.70E-15	2.35E-02
AMD612	Uranium-235	0.052	pCi/sample	U	6.69E-06	6.69E-18	7.10E-15	9.43E-04
AMD612	Uranium-238	2.152	pCi/sample		2.77E-04	2.77E-16	8.30E-15	3.34E-02
							Sum of the Fractions of the Standard	9.82E-02
AMD746S	**Quarter Air Flow**	8,239	m^3					
AMD746S	Americium-241	1.716	pCi/sample	U	2.08E-04	2.08E-16	1.90E-15	1.10E-01
AMD746S	Neptunium-237	-0.446	pCi/sample	U	-5.41E-05	-5.41E-17	1.20E-15	-4.51E-02
AMD746S	Plutonium-238	-0.007	pCi/sample	U	-8.50E-07	-8.50E-19	2.10E-15	-4.05E-04
AMD746S	Plutonium-239/240	0.027	pCi/sample	U	3.28E-06	3.28E-18	2.00E-15	1.64E-03
AMD746S	Technetium-99	-14	pCi/sample	U	-1.70E-03	-1.70E-15	1.40E-13	-1.21E-02
AMD746S	Thorium-234	1.855	pCi/sample	U	2.25E-04	2.25E-16	2.20E-12	1.02E-04
AMD746S	Uranium-234	1.396	pCi/sample		1.69E-04	1.69E-16	7.70E-15	2.20E-02
AMD746S	Uranium-235	0.064	pCi/sample	U	7.77E-06	7.77E-18	7.10E-15	1.09E-03
AMD746S	Uranium-238	3.184	pCi/sample		3.86E-04	3.86E-16	8.30E-15	4.66E-02
							Sum of the Fractions of the Standard	1.23E-01

Table A.1. Ambient Air Monitoring 2014 Results (Continued)

4th Quarter October through December								
Station	**Analysis**	**Result**	**Units**	**Qualifier**	**Concentration (pCi/m^3)**	**Concentration (Ci/m^3)**	**Standard (Ci/m^3)**	**Fraction of Standard**
AMD746U	**Quarter Air Flow**	7,899	m^3					
AMD746U	Americium-241	-0.248	pCi/sample	U	-3.14E-05	-3.14E-17	1.90E-15	-1.65E-02
AMD746U	Neptunium-237	0.455	pCi/sample	U	5.76E-05	5.76E-17	1.20E-15	4.80E-02
AMD746U	Plutonium-238	-0.008	pCi/sample	U	-1.01E-06	-1.01E-18	2.10E-15	-4.82E-04
AMD746U	Plutonium-239/240	-0.048	pCi/sample	U	-6.08E-06	-6.08E-18	2.00E-15	-3.04E-03
AMD746U	Technetium-99	-8	pCi/sample	U	-1.01E-03	-1.01E-15	1.40E-13	-7.23E-03
AMD746U	Thorium-234	39.388	pCi/sample	U	4.99E-03	4.99E-15	2.20E-12	2.27E-03
AMD746U	Uranium-234	1.961	pCi/sample		2.48E-04	2.48E-16	7.70E-15	3.22E-02
AMD746U	Uranium-235	0.094	pCi/sample		1.19E-05	1.19E-17	7.10E-15	1.68E-03
AMD746U	Uranium-238	6.755	pCi/sample		8.55E-04	8.55E-16	8.30E-15	1.03E-01
							Sum of the Fractions of the Standard	1.60E-01
AMDBCP	**Quarter Air Flow**	7,897	m^3					
AMDBCP	Americium-241	0.133	pCi/sample	U	1.68E-05	1.68E-17	1.90E-15	8.86E-03
AMDBCP	Neptunium-237	0.526	pCi/sample	U	6.66E-05	6.66E-17	1.20E-15	5.55E-02
AMDBCP	Plutonium-238	0.019	pCi/sample	U	2.41E-06	2.41E-18	2.10E-15	1.15E-03
AMDBCP	Plutonium-239/240	-0.019	pCi/sample	U	-2.41E-06	-2.41E-18	2.00E-15	-1.20E-03
AMDBCP	Technetium-99	3	pCi/sample	U	3.80E-04	3.80E-16	1.40E-13	2.71E-03
AMDBCP	Thorium-234	30.368	pCi/sample	U	3.85E-03	3.85E-15	2.20E-12	1.75E-03
AMDBCP	Uranium-234	1.264	pCi/sample		1.60E-04	1.60E-16	7.70E-15	2.08E-02
AMDBCP	Uranium-235	0.056	pCi/sample	U	7.09E-06	7.09E-18	7.10E-15	9.99E-04
AMDBCP	Uranium-238	4.904	pCi/sample		6.21E-04	6.21E-16	8.30E-15	7.48E-02
							Sum of the Fractions of the Standard	1.65E-01

Table A.1. Ambient Air Monitoring 2014 Results (Continued)

4th Quarter October through December								
Station	**Analysis**	**Result**	**Units**	**Qualifier**	**Concentration (pCi/m^3)**	**Concentration (Ci/m^3)**	**Standard (Ci/m^3)**	**Fraction of Standard**
AMDNE	**Quarter Air Flow**	7,743	m^3					
AMDNE	Americium-241	-0.656	pCi/sample	U	-8.47E-05	-8.47E-17	1.90E-15	-4.46E-02
AMDNE	Neptunium-237	-0.035	pCi/sample	U	-4.52E-06	-4.52E-18	1.20E-15	-3.77E-03
AMDNE	Plutonium-238	0	pCi/sample	U	0.00E+00	0.00E+00	2.10E-15	0.00E+00
AMDNE	Plutonium-239/240	0	pCi/sample	U	0.00E+00	0.00E+00	2.00E-15	0.00E+00
AMDNE	Technetium-99	-14	pCi/sample	U	-1.81E-03	-1.81E-15	1.40E-13	-1.29E-02
AMDNE	Thorium-234	43.663	pCi/sample	U	5.64E-03	5.64E-15	2.20E-12	2.56E-03
AMDNE	Uranium-234	1.652	pCi/sample		2.13E-04	2.13E-16	7.70E-15	2.77E-02
AMDNE	Uranium-235	0.043	pCi/sample	U	5.55E-06	5.55E-18	7.10E-15	7.82E-04
AMDNE	Uranium-238	4.248	pCi/sample		5.49E-04	5.49E-16	8.30E-15	6.61E-02
Sum of the Fractions of the Standard								3.59E-02

Table A.2. Ambient Air Monitoring 2014 Individual Sample Isotopic Concentrations

STA_NAME	D_COLLECTED	CHEMICAL_NAME	ANA_METHOD	RESULTS	UNITS	RSLTQUAL	DETECT_ LIMIT	RAD_ ERR	TPU
AMD002	27-Mar-14	Americium-241	RL-7124	3.11	pCi/sample	U	5.96	6.22	6.22
AMD002	27-Mar-14	Neptunium-237	RL-7124	-0.181	pCi/sample	U	3.97	0.362	2.4
AMD002	27-Mar-14	Plutonium-238	RL-7128	-0.00457	pCi/sample	U	0.135	0	0.0632
AMD002	27-Mar-14	Plutonium-239/240	RL-7128	0.0295	pCi/sample	U	0.137	0.0352	0.0548
AMD002	27-Mar-14	Technetium-99	RL-7100	-0.618	pCi/sample	U	2.71	1.77	1.77
AMD002	27-Mar-14	Thorium-234	RL-7124	6.51	pCi/sample	U	36.3	13	19.8
AMD002	27-Mar-14	Uranium-234	ST7106	7.78	pCi/sample	JU	7.78		
AMD002	27-Mar-14	Uranium-235	ST7106	0.189	pCi/sample	JU	0.189		
AMD002	27-Mar-14	Uranium-238	ST7106	4.2	pCi/sample	U	4.2		
AMD002	08-Jul-14	Americium-241	GA-01-R	0.623	pCi/Sample	U	5.14	3.06	3.06
AMD002	08-Jul-14	Neptunium-237	GA-01-R	0	pCi/Sample	U	14.4	8.55	8.55
AMD002	08-Jul-14	Plutonium-238	A-01-R	0.0295	pCi/Sample	U	0.0817	0.0467	0.0468
AMD002	08-Jul-14	Plutonium-239/240	A-01-R	0.00739	pCi/Sample	U	0.0566	0.0256	0.0256
AMD002	08-Jul-14	Protactinium-233	GA-01-R	-1.29	pCi/Sample	U	8.1	3.04	3.04
AMD002	08-Jul-14	Technetium-99	HASL 300, Tc-02-RC M	-0.323	pCi/Sample	U	5.06	2.98	2.98
AMD002	08-Jul-14	Thorium-234	GA-01-R	-16.4	pCi/Sample	U	53.9	36.2	36.3
AMD002	08-Jul-14	Uranium-234	SW846-6020A	6.6	pCi/Sample	U	187	4.75	4.78
AMD002	08-Jul-14	Uranium-235	SW846-6020A	0.118	pCi/Sample	U	0.44	0.0108	0.0153
AMD002	08-Jul-14	Uranium-238	GA-01-R	-16.4	pCi/Sample	U	53.9	36.2	36.3
AMD002	08-Jul-14	Uranium-238	SW846-6020A	2.36	pCi/Sample		0.0101	0.0716	0.228
AMD002	13-Oct-14	Americium-241	GA-01-R	-1.07	pCi/Sample	U	5.29	4.46	4.46
AMD002	13-Oct-14	Neptunium-237	GA-01-R	-3.61	pCi/Sample	U	13.5	8.12	8.12
AMD002	13-Oct-14	Plutonium-238	A-01-R	0.0469	pCi/Sample	U	0.0749	0.0494	0.0496
AMD002	13-Oct-14	Plutonium-239/240	A-01-R	0.0156	pCi/Sample	U	0.0749	0.0383	0.0383
AMD002	13-Oct-14	Protactinium-233	GA-01-R	-0.224	pCi/Sample	U	7.94	4.65	4.65
AMD002	13-Oct-14	Technetium-99	HASL 300, TC-02-RC M	-0.367	pCi/Sample	U	7.04	4.06	4.06
AMD002	13-Oct-14	Thorium-234	GA-01-R	20.5	pCi/Sample	U	50.4	33.9	33.9
AMD002	13-Oct-14	Uranium-234	SW846-6020A	3.67	pCi/Sample	U	187	4.09	4.1
AMD002	13-Oct-14	Uranium-235	SW846-6020A	0.123	pCi/Sample	U	0.44	0.0167	0.0202
AMD002	13-Oct-14	Uranium-238	SW846-6020A	3.09	pCi/Sample		0.0101	0.305	0.417
AMD002	13-Oct-14	Uranium-238	GA-01-R	20.5	pCi/Sample	U	50.4	33.9	33.9
AMD012	27-Mar-14	Americium-241	RL-7124	-0.613	pCi/sample	U	5.67	1.23	3.64
AMD012	27-Mar-14	Neptunium-237	RL-7124	-0.442	pCi/sample	U	4.19	0.885	2.56
AMD012	27-Mar-14	Plutonium-238	RL-7128	-0.00457	pCi/sample	U	0.136	0	0.0632
AMD012	27-Mar-14	Plutonium-239/240	RL-7128	-0.00889	pCi/sample	U	0.133	0.0157	0.0541
AMD012	27-Mar-14	Technetium-99	RL-7100	-1.39	pCi/sample	U	2.71	1.74	1.74
AMD012	27-Mar-14	Thorium-234	RL-7124	-0.475	pCi/sample	U	36.5	0.951	20.1
AMD012	27-Mar-14	Uranium-234	ST7106	7.78	pCi/sample	JU	7.78		
AMD012	27-Mar-14	Uranium-235	ST7106	0.189	pCi/sample	JU	0.189		
AMD012	27-Mar-14	Uranium-238	ST7106	4.2	pCi/sample	U	4.2		
AMD012	08-Jul-14	Americium-241	GA-01-R	0.315	pCi/Sample	U	4.49	2.94	2.94
AMD012	08-Jul-14	Neptunium-237	GA-01-R	-2.55	pCi/Sample	U	8.69	5.19	5.19
AMD012	08-Jul-14	Plutonium-238	A-01-R	-0.0298	pCi/Sample	U	0.132	0.0597	0.0597
AMD012	08-Jul-14	Plutonium-239/240	A-01-R	0.0149	pCi/Sample	U	0.0224	0.0211	0.0211
AMD012	08-Jul-14	Protactinium-233	GA-01-R	-3.65	pCi/Sample	U	8.37	5.06	5.08
AMD012	08-Jul-14	Technetium-99	HASL 300, Tc-02-RC M	-1.19	pCi/Sample	U	4.72	2.74	2.74

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Table A.2. Ambient Air Monitoring 2014 Individual Sample Isotopic Concentrations (Continued)

STA_NAME	D_COLLECTED	CHEMICAL_NAME	ANA_METHOD	RESULTS	UNITS	RSLTQUAL	DETECT_ LIMIT	RAD_ ERR	TPU
AMD012	08-Jul-14	Thorium-234	GA-01-R	-0.755	pCi/Sample	U	53.6	37	37
AMD012	08-Jul-14	Uranium-234	SW846-6020A	5.41	pCi/Sample	U	187	2.86	2.9
AMD012	08-Jul-14	Uranium-235	SW846-6020A	0.0691	pCi/Sample	U	0.44	0.00955	0.0115
AMD012	08-Jul-14	Uranium-238	GA-01-R	-0.755	pCi/Sample	U	53.6	37	37
AMD012	08-Jul-14	Uranium-238	SW846-6020A	1.63	pCi/Sample		0.0101	0.123	0.194
AMD012	13-Oct-14	Americium-241	GA-01-R	5.53	pCi/Sample		3.8	3.01	3.06
AMD012	13-Oct-14	Neptunium-237	GA-01-R	-0.173	pCi/Sample	U	13.7	8.05	8.05
AMD012	13-Oct-14	Plutonium-238	A-01-R	-0.0237	pCi/Sample	U	0.14	0.0651	0.0652
AMD012	13-Oct-14	Plutonium-239/240	A-01-R	-0.0158	pCi/Sample	U	0.0757	0.0224	0.0224
AMD012	13-Oct-14	Protactinium-233	GA-01-R	2.17	pCi/Sample	U	7.85	4.67	4.67
AMD012	13-Oct-14	Technetium-99	HASL 300, TC-02-RC M	0.534	pCi/Sample	U	6.47	3.78	3.78
AMD012	13-Oct-14	Thorium-234	GA-01-R	1.95	pCi/Sample	U	57.3	39	39
AMD012	13-Oct-14	Uranium-234	SW846-6020A	2.61	pCi/Sample	U	187	7.96	7.96
AMD012	13-Oct-14	Uranium-235	SW846-6020A	0.0487	pCi/Sample	U	0.44	0.00577	0.00731
AMD012	13-Oct-14	Uranium-238	SW846-6020A	1.6	pCi/Sample		0.0101	0.0744	0.165
AMD012	13-Oct-14	Uranium-238	GA-01-R	1.95	pCi/Sample	U	57.3	39	39
AMD015	27-Mar-14	Americium-241	RL-7124	-1.74	pCi/sample	U	5.47	3.47	3.58
AMD015	27-Mar-14	Neptunium-237	RL-7124	-0.0673	pCi/sample	U	4.14	0.135	2.5
AMD015	27-Mar-14	Plutonium-238	RL-7128	-0.00457	pCi/sample	U	0.135	0	0.0632
AMD015	27-Mar-14	Plutonium-239/240	RL-7128	-0.00105	pCi/sample	U	0.132	0	0.0588
AMD015	27-Mar-14	Technetium-99	RL-7100	-1	pCi/sample	U	2.71	1.77	1.77
AMD015	27-Mar-14	Thorium-234	RL-7124	6.99	pCi/sample	U	36.5	14	19.9
AMD015	27-Mar-14	Uranium-234	ST7106	7.78	pCi/sample	JU	7.78		
AMD015	27-Mar-14	Uranium-235	ST7106	0.189	pCi/sample	JU	0.189		
AMD015	27-Mar-14	Uranium-238	ST7106	4.2	pCi/sample	U	4.2		
AMD015	08-Jul-14	Americium-241	GA-01-R	0.753	pCi/Sample	U	5.08	3.03	3.03
AMD015	08-Jul-14	Neptunium-237	GA-01-R	12.5	pCi/Sample	U	13.1	8.12	8.23
AMD015	08-Jul-14	Plutonium-238	A-01-R	0	pCi/Sample	U	0.113	0.055	0.055
AMD015	08-Jul-14	Plutonium-239/240	A-01-R	-0.00736	pCi/Sample	U	0.0564	0.0147	0.0147
AMD015	08-Jul-14	Protactinium-233	GA-01-R	-1.09	pCi/Sample	U	7.51	4.45	4.45
AMD015	08-Jul-14	Technetium-99	HASL 300, Tc-02-RC M	-0.327	pCi/Sample	U	4.21	2.47	2.47
AMD015	08-Jul-14	Thorium-234	GA-01-R	-24.4	pCi/Sample	U	54.4	41.5	41.6
AMD015	08-Jul-14	Uranium-234	SW846-6020A	6.6	pCi/Sample	U	187	5.08	5.11
AMD015	08-Jul-14	Uranium-235	SW846-6020A	0.139	pCi/Sample	U	0.44	0.0117	0.0173
AMD015	08-Jul-14	Uranium-238	GA-01-R	-24.4	pCi/Sample	U	54.4	41.5	41.6
AMD015	08-Jul-14	Uranium-238	SW846-6020A	3.12	pCi/Sample		0.0101	0.165	0.331
AMD015	13-Oct-14	Americium-241	GA-01-R	0.915	pCi/Sample	U	3.13	1.87	1.87
AMD015	13-Oct-14	Neptunium-237	GA-01-R	1.34	pCi/Sample	U	6.62	4.17	4.17
AMD015	13-Oct-14	Plutonium-238	A-01-R	0.00765	pCi/Sample	U	0.124	0.0631	0.0631
AMD015	13-Oct-14	Plutonium-239/240	A-01-R	-0.023	pCi/Sample	U	0.0847	0.0265	0.0266
AMD015	13-Oct-14	Protactinium-233	GA-01-R	0.593	pCi/Sample	U	5.58	1.13	1.13
AMD015	13-Oct-14	Technetium-99	HASL 300, TC-02-RC M	2.65	pCi/Sample	U	6.89	4.12	4.12
AMD015	13-Oct-14	Thorium-234	GA-01-R	-40.5	pCi/Sample	U	39.2	44.1	44.3
AMD015	13-Oct-14	Uranium-234	SW846-6020A	0.249	pCi/Sample	U	187	6.11	6.11
AMD015	13-Oct-14	Uranium-235	SW846-6020A	0.0931	pCi/Sample	U	0.44	0.0205	0.0222
AMD015	13-Oct-14	Uranium-238	GA-01-R	-40.5	pCi/Sample	U	39.2	44.1	44.3

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Table A.2. Ambient Air Monitoring 2014 Individual Sample Isotopic Concentrations (Continued)

STA_NAME	D_COLLECTED	CHEMICAL_NAME	ANA_METHOD	RESULTS	UNITS	RSLTQUAL	DETECT_ LIMIT	RAD_ ERR	TPU
AMD015	13-Oct-14	Uranium-238	SW846-6020A	2.69	pCi/Sample		0.0101	0.117	0.274
AMD57	27-Mar-14	Americium-241	RL-7124	0.601	pCi/sample	U	5.51	1.2	3.2
AMD57	27-Mar-14	Neptunium-237	RL-7124	-0.411	pCi/sample	U	4.24	0.822	2.92
AMD57	27-Mar-14	Plutonium-238	RL-7128	-0.00301	pCi/sample	U	0.138	0.00312	0.0531
AMD57	27-Mar-14	Plutonium-239/240	RL-7128	0.013	pCi/sample	U	0.141	0.0281	0.0622
AMD57	27-Mar-14	Technetium-99	RL-7100	-0.695	pCi/sample	U	2.71	1.75	1.75
AMD57	27-Mar-14	Thorium-234	RL-7124	32.2	pCi/sample	U	37.9	64.3	64.3
AMD57	27-Mar-14	Uranium-234	ST7106	7.78	pCi/sample	JU	7.78		
AMD57	27-Mar-14	Uranium-235	ST7106	0.189	pCi/sample	JU	0.189		
AMD57	27-Mar-14	Uranium-238	ST7106	4.2	pCi/sample	U	4.2		
AMD57	08-Jul-14	Americium-241	GA-01-R	1.56	pCi/Sample	U	3.32	2.01	2.02
AMD57	08-Jul-14	Neptunium-237	GA-01-R	-3.07	pCi/Sample	U	9.95	5.97	5.98
AMD57	08-Jul-14	Plutonium-238	A-01-R	0.0296	pCi/Sample	U	0.12	0.0661	0.0662
AMD57	08-Jul-14	Plutonium-239/240	A-01-R	0	pCi/Sample	U	0.0709	0.0296	0.0296
AMD57	08-Jul-14	Protactinium-233	GA-01-R	1.59	pCi/Sample	U	6	2.64	2.64
AMD57	08-Jul-14	Technetium-99	HASL 300, Tc-02-RC M	-0.424	pCi/Sample	U	4.37	2.56	2.56
AMD57	08-Jul-14	Thorium-234	GA-01-R	8.88	pCi/Sample	U	39.9	24.7	24.7
AMD57	08-Jul-14	Uranium-234	SW846-6020A	4.98	pCi/Sample	U	187	10.3	10.3
AMD57	08-Jul-14	Uranium-235	SW846-6020A	0.0963	pCi/Sample	U	0.44	0.00815	0.012
AMD57	08-Jul-14	Uranium-238	SW846-6020A	2.18	pCi/Sample		0.0101	0.118	0.233
AMD57	08-Jul-14	Uranium-238	GA-01-R	8.88	pCi/Sample	U	39.9	24.7	24.7
AMD57	13-Oct-14	Americium-241	GA-01-R	2.26	pCi/Sample	U	5.52	3.33	3.34
AMD57	13-Oct-14	Neptunium-237	GA-01-R	-8.17	pCi/Sample	U	17.5	10.6	10.7
AMD57	13-Oct-14	Plutonium-238	A-01-R	0.0079	pCi/Sample	U	0.106	0.0524	0.0524
AMD57	13-Oct-14	Plutonium-239/240	A-01-R	0.00791	pCi/Sample	U	0.0757	0.0354	0.0354
AMD57	13-Oct-14	Protactinium-233	GA-01-R	1.12	pCi/Sample	U	6.94	3.39	3.39
AMD57	13-Oct-14	Technetium-99	HASL 300, TC-02-RC M	0.572	pCi/Sample	U	6.94	4.05	4.05
AMD57	13-Oct-14	Thorium-234	GA-01-R	8.24	pCi/Sample	U	67.3	11.6	11.6
AMD57	13-Oct-14	Uranium-234	SW846-6020A	6.1	pCi/Sample	U	187	4.23	4.26
AMD57	13-Oct-14	Uranium-235	SW846-6020A	0.0767	pCi/Sample	U	0.44	0.00474	0.0085
AMD57	13-Oct-14	Uranium-238	SW846-6020A	2.33	pCi/Sample		0.0101	0.213	0.302
AMD57	13-Oct-14	Uranium-238	GA-01-R	8.24	pCi/Sample	U	67.3	11.6	11.6
AMD612	27-Mar-14	Americium-241	RL-7124	0.667	pCi/sample	U	5.69	1.33	3.31
AMD612	27-Mar-14	Neptunium-237	RL-7124	-2.32	pCi/sample	U	3.93	4.64	4.64
AMD612	27-Mar-14	Plutonium-238	RL-7128	0.00642	pCi/sample	U	0.137	0.022	0.0498
AMD612	27-Mar-14	Plutonium-239/240	RL-7128	-0.0199	pCi/sample	U	0.135	0.0266	0.0495
AMD612	27-Mar-14	Technetium-99	RL-7100	-1.26	pCi/sample	U	2.71	1.73	1.73
AMD612	27-Mar-14	Thorium-234	RL-7124	-0.7	pCi/sample	U	36.8	1.4	20.4
AMD612	27-Mar-14	Uranium-234	ST7106	7.78	pCi/sample	JU	7.78		
AMD612	27-Mar-14	Uranium-235	ST7106	0.189	pCi/sample	JU	0.189		
AMD612	27-Mar-14	Uranium-238	ST7106	4.2	pCi/sample	U	4.2		
AMD612	08-Jul-14	Americium-241	GA-01-R	1.59	pCi/Sample	U	4.97	3.75	3.75
AMD612	08-Jul-14	Neptunium-237	GA-01-R	0	pCi/Sample	U	9.51	5.55	5.55
AMD612	08-Jul-14	Plutonium-238	A-01-R	0.0217	pCi/Sample	U	0.0888	0.0479	0.0479
AMD612	08-Jul-14	Plutonium-239/240	A-01-R	0	pCi/Sample	U	0.0799	0.0354	0.0354
AMD612	08-Jul-14	Protactinium-233	GA-01-R	2.49	pCi/Sample	U	7.59	5.59	5.59

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Table A.2. Ambient Air Monitoring 2014 Individual Sample Isotopic Concentrations (Continued)

STA_NAME	D_COLLECTED	CHEMICAL_NAME	ANA_METHOD	RESULTS	UNITS	RSLTQUAL	DETECT_ LIMIT	RAD_ ERR	TPU
AMD612	08-Jul-14	Technetium-99	HASL 300, Tc-02-RC M	0.876	pCi/Sample	U	4.02	2.39	2.39
AMD612	08-Jul-14	Thorium-234	GA-01-R	14.5	pCi/Sample	U	48	27.4	27.5
AMD612	08-Jul-14	Uranium-234	SW846-6020A	3.98	pCi/Sample	U	187	5.83	5.84
AMD612	08-Jul-14	Uranium-235	SW846-6020A	0.103	pCi/Sample	U	0.44	0.0055	0.011
AMD612	08-Jul-14	Uranium-238	GA-01-R	14.5	pCi/Sample	U	48	27.4	27.5
AMD612	08-Jul-14	Uranium-238	SW846-6020A	2.39	pCi/Sample		0.0101	0.119	0.25
AMD612	13-Oct-14	Americium-241	GA-01-R	2.2	pCi/Sample	U	4.09	3.01	3.02
AMD612	13-Oct-14	Neptunium-237	GA-01-R	3.82	pCi/Sample	U	12.7	7.61	7.62
AMD612	13-Oct-14	Plutonium-238	A-01-R	-0.0382	pCi/Sample	U	0.141	0.063	0.0631
AMD612	13-Oct-14	Plutonium-239/240	A-01-R	0.0459	pCi/Sample		0.0229	0.0375	0.0377
AMD612	13-Oct-14	Protactinium-233	GA-01-R	1.83	pCi/Sample	U	9.09	2.26	2.27
AMD612	13-Oct-14	Technetium-99	HASL 300, TC-02-RC M	0	pCi/Sample	U	6.66	3.86	3.86
AMD612	13-Oct-14	Thorium-234	GA-01-R	1.55	pCi/Sample	U	58.3	3.37	3.38
AMD612	13-Oct-14	Uranium-234	SW846-6020A	6.53	pCi/Sample	U	187	1.76	1.86
AMD612	13-Oct-14	Uranium-235	SW846-6020A	0.0954	pCi/Sample	U	0.44	0.0215	0.0232
AMD612	13-Oct-14	Uranium-238	GA-01-R	1.55	pCi/Sample	U	58.3	3.37	3.38
AMD612	13-Oct-14	Uranium-238	SW846-6020A	2.67	pCi/Sample		0.0101	0.276	0.37
AMD746S	27-Mar-14	Americium-241	RL-7124	3.46	pCi/sample	U	5.93	6.91	6.91
AMD746S	27-Mar-14	Neptunium-237	RL-7124	-1.57	pCi/sample	U	4.1	3.13	3.13
AMD746S	27-Mar-14	Plutonium-238	RL-7128	-0.00457	pCi/sample	U	0.141	0	0.0632
AMD746S	27-Mar-14	Plutonium-239/240	RL-7128	0.0118	pCi/sample	U	0.141	0.0258	0.0559
AMD746S	27-Mar-14	Technetium-99	RL-7100	-0.811	pCi/sample	U	2.71	1.73	1.73
AMD746S	27-Mar-14	Thorium-234	RL-7124	30.5	pCi/sample	U	37.8	61	61
AMD746S	27-Mar-14	Uranium-234	ST7106	7.78	pCi/sample	JU	7.78		
AMD746S	27-Mar-14	Uranium-235	ST7106	0.189	pCi/sample	JU	0.189		
AMD746S	27-Mar-14	Uranium-238	ST7106	4.2	pCi/sample	U	4.2		
AMD746S	08-Jul-14	Americium-241	GA-01-R	0.795	pCi/Sample	U	4.98	2.97	2.97
AMD746S	08-Jul-14	Neptunium-237	GA-01-R	0.0967	pCi/Sample	U	13.7	8.07	8.07
AMD746S	08-Jul-14	Plutonium-238	A-01-R	0.0524	pCi/Sample	U	0.108	0.0652	0.0654
AMD746S	08-Jul-14	Plutonium-239/240	A-01-R	0.015	pCi/Sample	U	0.0225	0.0212	0.0212
AMD746S	08-Jul-14	Protactinium-233	GA-01-R	0.791	pCi/Sample	U	6.39	5.6	5.6
AMD746S	08-Jul-14	Technetium-99	HASL 300, Tc-02-RC M	1.71	pCi/Sample	U	4.11	2.48	2.48
AMD746S	08-Jul-14	Thorium-234	GA-01-R	15	pCi/Sample	U	56.4	39.2	39.2
AMD746S	08-Jul-14	Uranium-234	SW846-6020A	7.65	pCi/Sample	U	187	5.27	5.31
AMD746S	08-Jul-14	Uranium-235	SW846-6020A	0.153	pCi/Sample	U	0.44	0.00239	0.0143
AMD746S	08-Jul-14	Uranium-238	SW846-6020A	3.42	pCi/Sample		0.0101	0.15	0.349
AMD746S	08-Jul-14	Uranium-238	GA-01-R	15	pCi/Sample	U	56.4	39.2	39.2
AMD746S	13-Oct-14	Americium-241	GA-01-R	-0.255	pCi/Sample	U	4.05	2.87	2.87
AMD746S	13-Oct-14	Neptunium-237	GA-01-R	-1.86	pCi/Sample	U	13.4	8.01	8.01
AMD746S	13-Oct-14	Plutonium-238	A-01-R	0.00819	pCi/Sample	U	0.0906	0.0434	0.0434
AMD746S	13-Oct-14	Plutonium-239/240	A-01-R	0.0656	pCi/Sample		0.0246	0.0464	0.0467
AMD746S	13-Oct-14	Protactinium-233	GA-01-R	1.25	pCi/Sample	U	7.41	4.38	4.38
AMD746S	13-Oct-14	Technetium-99	HASL 300, TC-02-RC M	-0.488	pCi/Sample	U	6.35	3.65	3.65
AMD746S	13-Oct-14	Thorium-234	GA-01-R	29.6	pCi/Sample	U	49.4	22	22.2
AMD746S	13-Oct-14	Uranium-234	SW846-6020A	4.04	pCi/Sample	U	187	8.1	8.11
AMD746S	13-Oct-14	Uranium-235	SW846-6020A	0.109	pCi/Sample	U	0.44	0.00678	0.0121

U = Indicates the analyte was analyzed for but not detected.
J = Indicates an estimated value.
Note: Uranium isotopes analyzed by ST7106 is an ICP-MS method that has no Rad error or TPU.

Table A.2. Ambient Air Monitoring 2014 Individual Sample Isotopic Concentrations (Continued)

STA_NAME	D_COLLECTED	CHEMICAL_NAME	ANA_METHOD	RESULTS	UNITS	RSLTQUAL	DETECT_ LIMIT	RAD_ ERR	TPU
AMD746S	13-Oct-14	Uranium-238	SW846-6020A	2.88	pCi/Sample		0.0101	0.135	0.298
AMD746S	13-Oct-14	Uranium-238	GA-01-R	29.6	pCi/Sample	U	49.4	22	22.2
AMD746U	27-Mar-14	Americium-241	RL-7124	1.04	pCi/sample	U	6.02	2.08	3.5
AMD746U	27-Mar-14	Neptunium-237	RL-7124	0.968	pCi/sample	U	4.54	1.94	2.69
AMD746U	27-Mar-14	Plutonium-238	RL-7128	0.0274	pCi/sample	U	0.135	0.0443	0.0632
AMD746U	27-Mar-14	Plutonium-239/240	RL-7128	0.00912	pCi/sample	U	0.139	0.0203	0.0463
AMD746U	27-Mar-14	Technetium-99	RL-7100	-2.86	pCi/sample	U	2.71	1.7	1.71
AMD746U	27-Mar-14	Thorium-234	RL-7124	5.89	pCi/sample	U	36.6	11.8	20
AMD746U	27-Mar-14	Uranium-234	ST7106	7.78	pCi/sample	JU	7.78		
AMD746U	27-Mar-14	Uranium-235	ST7106	0.189	pCi/sample	JU	0.189		
AMD746U	27-Mar-14	Uranium-238	ST7106	4.2	pCi/sample	U	4.2		
AMD746U	08-Jul-14	Americium-241	GA-01-R	0.579	pCi/Sample	U	3.3	1.96	1.96
AMD746U	08-Jul-14	Neptunium-237	GA-01-R	3.39	pCi/Sample	U	9.39	5.65	5.66
AMD746U	08-Jul-14	Plutonium-238	A-01-R	0.0379	pCi/Sample	U	0.109	0.0625	0.0626
AMD746U	08-Jul-14	Plutonium-239/240	A-01-R	0.038	pCi/Sample	U	0.0581	0.0402	0.0403
AMD746U	08-Jul-14	Protactinium-233	GA-01-R	0.0912	pCi/Sample	U	6.04	0.203	0.203
AMD746U	08-Jul-14	Technetium-99	HASL 300, Tc-02-RC M	-0.645	pCi/Sample	U	5.33	3.11	3.11
AMD746U	08-Jul-14	Thorium-234	GA-01-R	24.7	pCi/Sample	U	41.2	28.3	28.4
AMD746U	08-Jul-14	Uranium-234	SW846-6020A	1.31	pCi/Sample	U	187	1.32	1.33
AMD746U	08-Jul-14	Uranium-235	SW846-6020A	0.132	pCi/Sample	U	0.44	0.0173	0.0212
AMD746U	08-Jul-14	Uranium-238	SW846-6020A	2.81	pCi/Sample		0.0101	0.145	0.296
AMD746U	08-Jul-14	Uranium-238	GA-01-R	24.7	pCi/Sample	U	41.2	28.3	28.4
AMD746U	13-Oct-14	Americium-241	GA-01-R	1.09	pCi/Sample	U	3.09	1.85	1.86
AMD746U	13-Oct-14	Neptunium-237	GA-01-R	-3.23	pCi/Sample	U	9.5	5.71	5.72
AMD746U	13-Oct-14	Plutonium-238	A-01-R	-0.0595	pCi/Sample	U	0.156	0.0697	0.0699
AMD746U	13-Oct-14	Plutonium-239/240	A-01-R	0.0223	pCi/Sample		0.0223	0.0258	0.0258
AMD746U	13-Oct-14	Protactinium-233	GA-01-R	0.587	pCi/Sample	U	6.2	1.19	1.19
AMD746U	13-Oct-14	Technetium-99	HASL 300, TC-02-RC M	3.63	pCi/Sample	U	6.01	3.67	3.69
AMD746U	13-Oct-14	Thorium-234	GA-01-R	7.13	pCi/Sample	U	40.2	26.4	26.4
AMD746U	13-Oct-14	Uranium-234	SW846-6020A	4.17	pCi/Sample	U	187	4.15	4.17
AMD746U	13-Oct-14	Uranium-235	SW846-6020A	0.0927	pCi/Sample	U	0.44	0.0125	0.0151
AMD746U	13-Oct-14	Uranium-238	SW846-6020A	2.6	pCi/Sample		0.0101	0.111	0.264
AMD746U	13-Oct-14	Uranium-238	GA-01-R	7.13	pCi/Sample	U	40.2	26.4	26.4
AMDBCP	27-Mar-14	Americium-241	RL-7124	-0.297	pCi/sample	U	5.7	0.595	3.36
AMDBCP	27-Mar-14	Neptunium-237	RL-7124	0.683	pCi/sample	U	4.26	1.37	2.53
AMDBCP	27-Mar-14	Plutonium-238	RL-7128	-0.00313	pCi/sample	U	0.133	0.00288	0.052
AMDBCP	27-Mar-14	Plutonium-239/240	RL-7128	0.00903	pCi/sample	U	0.134	0.0202	0.0463
AMDBCP	27-Mar-14	Technetium-99	RL-7100	-2.55	pCi/sample	U	2.71	1.72	1.72
AMDBCP	27-Mar-14	Thorium-234	RL-7124	-6.45	pCi/sample	U	35.8	12.9	19.8
AMDBCP	27-Mar-14	Uranium-234	ST7106	7.78	pCi/sample	JU	7.78		
AMDBCP	27-Mar-14	Uranium-235	ST7106	0.189	pCi/sample	JU	0.189		
AMDBCP	27-Mar-14	Uranium-238	ST7106	4.2	pCi/sample	U	4.2		
AMDBCP	08-Jul-14	Americium-241	GA-01-R	-0.528	pCi/Sample	U	5.04	3.18	3.18
AMDBCP	08-Jul-14	Neptunium-237	GA-01-R	-0.653	pCi/Sample	U	13	7.71	7.71
AMDBCP	08-Jul-14	Plutonium-238	A-01-R	0.00753	pCi/Sample	U	0.163	0.0865	0.0865
AMDBCP	08-Jul-14	Plutonium-238	A-01-R	-0.0143	pCi/Sample	U	0.127	0.0608	0.0608

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Table A.2. Ambient Air Monitoring 2014 Individual Sample Isotopic Concentrations (Continued)

STA_NAME	D_COLLECTED	CHEMICAL_NAME	ANA_METHOD	RESULTS	UNITS	RSLTQUAL	DETECT_ LIMIT	RAD_ ERR	TPU
AMDBCP	08-Jul-14	Plutonium-239/240	A-01-R	0	pCi/Sample	U	0.108	0.0522	0.0522
AMDBCP	08-Jul-14	Plutonium-239/240	A-01-R	0.0215	pCi/Sample		0.0215	0.0249	0.0249
AMDBCP	08-Jul-14	Protactinium-233	GA-01-R	-0.475	pCi/Sample	U	7.76	1.76	1.76
AMDBCP	08-Jul-14	Technetium-99	HASL 300, Tc-02-RC M	0.786	pCi/Sample	U	3.61	2.15	2.15
AMDBCP	08-Jul-14	Thorium-234	GA-01-R	0.906	pCi/Sample	U	50.2	30.3	30.3
AMDBCP	08-Jul-14	Uranium-234	SW846-6020A	2.99	pCi/Sample	U	187	5.76	5.77
AMDBCP	08-Jul-14	Uranium-235	SW846-6020A	0.0983	pCi/Sample	U	0.44	0.0143	0.0169
AMDBCP	08-Jul-14	Uranium-238	GA-01-R	0.906	pCi/Sample	U	50.2	30.3	30.3
AMDBCP	08-Jul-14	Uranium-238	SW846-6020A	2.16	pCi/Sample		0.0101	0.169	0.26
AMDBCP	13-Oct-14	Americium-241	GA-01-R	-1.52	pCi/Sample	U	5.45	5.54	5.55
AMDBCP	13-Oct-14	Neptunium-237	GA-01-R	-2.42	pCi/Sample	U	13	7.75	7.75
AMDBCP	13-Oct-14	Plutonium-238	A-01-R	-0.0226	pCi/Sample	U	0.154	0.0754	0.0754
AMDBCP	13-Oct-14	Plutonium-239/240	A-01-R	0.00754	pCi/Sample	U	0.0723	0.0337	0.0337
AMDBCP	13-Oct-14	Protactinium-233	GA-01-R	-2.53	pCi/Sample	U	7.82	4.68	4.69
AMDBCP	13-Oct-14	Technetium-99	HASL 300, TC-02-RC M	0.367	pCi/Sample	U	6.68	3.89	3.89
AMDBCP	13-Oct-14	Thorium-234	GA-01-R	12.1	pCi/Sample	U	53.2	38.4	38.4
AMDBCP	13-Oct-14	Uranium-234	SW846-6020A	2.86	pCi/Sample	U	187	3.13	3.14
AMDBCP	13-Oct-14	Uranium-235	SW846-6020A	0.0262	pCi/Sample	U	0.44	0.00624	0.00669
AMDBCP	13-Oct-14	Uranium-238	SW846-6020A	1.24	pCi/Sample		0.0101	0.0403	0.121
AMDBCP	13-Oct-14	Uranium-238	GA-01-R	12.1	pCi/Sample	U	53.2	38.4	38.4
AMDNE	27-Mar-14	Americium-241	RL-7124	2.95	pCi/sample	U	5.8	5.9	5.9
AMDNE	27-Mar-14	Neptunium-237	RL-7124	0.0575	pCi/sample	U	4.05	0.115	2.44
AMDNE	27-Mar-14	Plutonium-238	RL-7128	-0.00295	pCi/sample	U	0.14	0.00323	0.0537
AMDNE	27-Mar-14	Plutonium-239/240	RL-7128	-0.0204	pCi/sample	U	0.143	0.0274	0.05
AMDNE	27-Mar-14	Technetium-99	RL-7100	-1.49	pCi/sample	U	2.71	1.73	1.73
AMDNE	27-Mar-14	Thorium-234	RL-7124	-6.59	pCi/sample	U	35.4	13.2	19.6
AMDNE	27-Mar-14	Uranium-234	ST7106	7.78	pCi/sample	JU	7.78		
AMDNE	27-Mar-14	Uranium-235	ST7106	0.189	pCi/sample	JU	0.189		
AMDNE	27-Mar-14	Uranium-238	ST7106	4.2	pCi/sample	U	4.2		
AMDNE	08-Jul-14	Americium-241	GA-01-R	0.94	pCi/Sample	U	5.17	3.08	3.09
AMDNE	08-Jul-14	Neptunium-237	GA-01-R	0.907	pCi/Sample	U	12.4	8.97	8.97
AMDNE	08-Jul-14	Plutonium-238	A-01-R	-0.00737	pCi/Sample	U	0.0989	0.0442	0.0443
AMDNE	08-Jul-14	Plutonium-239/240	A-01-R	-0.00738	pCi/Sample	U	0.0565	0.0148	0.0148
AMDNE	08-Jul-14	Protactinium-233	GA-01-R	2.27	pCi/Sample	U	7.53	4.03	4.03
AMDNE	08-Jul-14	Technetium-99	HASL 300, Tc-02-RC M	-1.37	pCi/Sample	U	4.35	2.52	2.52
AMDNE	08-Jul-14	Thorium-234	GA-01-R	13	pCi/Sample	U	55.8	21.6	21.6
AMDNE	08-Jul-14	Uranium-234	SW846-6020A	1.12	pCi/Sample	U	187	2.96	2.96
AMDNE	08-Jul-14	Uranium-235	SW846-6020A	0.106	pCi/Sample	U	0.44	0.00688	0.0119
AMDNE	08-Jul-14	Uranium-238	SW846-6020A	2.4	pCi/Sample		0.0101	0.0575	0.228
AMDNE	08-Jul-14	Uranium-238	GA-01-R	13	pCi/Sample	U	55.8	21.6	21.6
AMDNE	13-Oct-14	Americium-241	GA-01-R	1.35	pCi/Sample	U	2.45	1.75	1.76
AMDNE	13-Oct-14	Neptunium-237	GA-01-R	0.113	pCi/Sample	U	9.58	5.63	5.63
AMDNE	13-Oct-14	Plutonium-238	A-01-R	-0.0158	pCi/Sample	U	0.134	0.0633	0.0633
AMDNE	13-Oct-14	Plutonium-239/240	A-01-R	-0.00792	pCi/Sample	U	0.0759	0.0274	0.0275
AMDNE	13-Oct-14	Protactinium-233	GA-01-R	0.203	pCi/Sample	U	5.88	3.43	3.43
AMDNE	13-Oct-14	Technetium-99	HASL 300, TC-02-RC M	-0.526	pCi/Sample	U	6.17	3.55	3.55

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Table A.2. Ambient Air Monitoring 2014 Individual Sample Isotopic Concentrations (Continued)

STA_NAME	D_COLLECTED	CHEMICAL_NAME	ANA_METHOD	RESULTS	UNITS	RSLTQUAL	DETECT_ LIMIT	RAD_ ERR	TPU
AMDNE	13-Oct-14	Thorium-234	GA-01-R	6.33	pCi/Sample	U	41.9	13.8	13.8
AMDNE	13-Oct-14	Uranium-234	SW846-6020A	2.18	pCi/Sample	U	187	6.08	6.08
AMDNE	13-Oct-14	Uranium-235	SW846-6020A	0.0681	pCi/Sample	U	0.44	0.0158	0.017
AMDNE	13-Oct-14	Uranium-238	GA-01-R	6.33	pCi/Sample	U	41.9	13.8	13.8
AMDNE	13-Oct-14	Uranium-238	SW846-6020A	1.97	pCi/Sample		0.0101	0.0416	0.186

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Note: Uranium isotopes analyzed by ST7106 is an ICP-MS method that has no Rad error or TPU.

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CERTIFICATION

Document Identification: ***National Emissions Standards for Hazardous Air Pollutants Annual Report for 2014 U.S. Department of Energy Radiological Emissions at the Paducah Gaseous Diffusion Plant,*** **PAD-REG-1024**

This certification pertains to the following U.S. Department of Energy emission sources:

Depleted Uranium Hexafluoride Conversion Facility (BWCS)

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

_____ _____

John D. Woolery, President and Project Manager
Babcock and Wilcox Conversion Services, LLC

Date Signed

CERTIFICATION

Document Identification: ***National Emissions Standards for Hazardous Air Pollutants Annual Report for 2014 U.S. Department of Energy Radiological Emissions at the Paducah Gaseous Diffusion Plant,*** **PAD-REG-1024**

This certification pertains to the following U.S. Department of Energy emission sources:

Paducah Deactivation Project

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

_____ _____

Con Murphy, Project Manager
Fluor Federal Services, Inc.

Date Signed