

Statement of Work for Analytical Services Provided By Pacific Northwest National Laboratory Analytical Chemistry Laboratory

Prepared for the U.S. Department of Energy

Project Hanford Management Contractor for the
U.S. Department of Energy under Contract DE-AC06-96RL13200

Approved for Public Release

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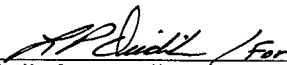
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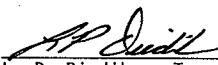
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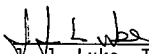
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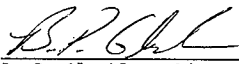
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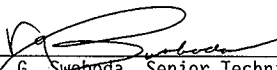
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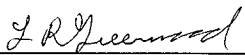
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1.0 PURPOSE

The purpose of this statement of work (SOW) is to establish laboratory analytical criteria and requirements for radioactive airborne emissions measurement sample and/or analysis activities.

2.0 REQUIREMENTS

2.1 REGULATORY REQUIREMENTS

In accordance with *Clean Air Act* requirements [40 Code of Federal Regulations (CFR) 61.93 and Washington Administrative Code (WAC) 246-247], owners and operators of radioactive airborne emissions units are required to implement a quality assurance program for radioactive airborne emissions measurement activities. In accordance with these requirements, a Quality Assurance Project Plan (WHC-EP-0528-2) has been prepared that governs the quality assurance activities associated with data collection and reporting of radioactive airborne emissions measurements. Included in WHC-EP-0528-2 are requirements for the following:

- Preparation of a SOW for the radioactive airborne emissions measurement program
- Identification of analytical criteria and detection limits for laboratory radioanalytical services.

This document, prepared by Rust Federal Services of Hanford Inc. (RFSH), Air and Water Services (AWS), fulfills these stated requirements for the Project Hanford Management Contract (PHMC)-managed facilities in the 300 and 400 Areas.

2.2 CONTRACTED ANALYTICAL LABORATORY

Analytical services for the radioactive airborne emissions measurement program for the PHMC-managed facilities in the 300 and 400 Areas are to be provided by Pacific Northwest National Laboratory's (PNNL) Analytical Chemistry Laboratory.

2.3 VARIANCES TO THE STATEMENT OF WORK

Variances to this SOW must be documented by PNNL and approved or acknowledged by the PHMC AWS organization.

3.0 REGULATORY REPORTING REQUIREMENTS

The sample data, resulting from the radioactive airborne emissions measurement program for the PHMC-managed facilities in the 300 and 400 Areas,

support a number of regulatory reporting requirements. A description of the required reports that this program supports is provided in the following sections.

3.1 RADIONUCLIDE AIR EMISSIONS REPORT

This report documents Hanford Site radioactive airborne emissions measurements results. Within this report, emissions measurements are used to estimate the annual effective dose equivalent (EDE) received by the hypothetical offsite highest receptor. This report complies with the reporting requirements of WAC 246-247, "Radiation Protection-Air Emissions", and the 40 CFR 61, "Protection of the Environment", "National Emissions Standards for Hazardous Air Pollutants", Subpart H, "National Emission Standards for Emissions of Radionuclides Other Than Radon From Department of Energy Facilities".

3.2 ANNUAL ENVIRONMENTAL RELEASES REPORT

This annual report fulfills effluent discharge reporting requirements of U.S. Department of Energy (DOE) Order 5400.1 and DOE Order 5484.1. This report summarizes the degree to which emissions of regulated substances (i.e., radioactive airborne emissions) from Hanford Site facilities comply with applicable regulatory limits.

3.3 HANFORD SITE ENVIRONMENTAL REPORT

This report is compiled and published annually by PNNL for U.S. Department of Energy, Richland Operations Office to comply with the requirements of DOE Order 5400.1.

3.4 EFFLUENT INFORMATION SYSTEM/ONSITE DISCHARGE INFORMATION SYSTEM

This report is transmitted electronically to Idaho National Engineering Laboratory (INEL) in Idaho Falls, Idaho for inclusion in the DOE effluent information system/onsite discharge information System (EIS/ODIS) database. This report complies with the requirements of DOE Order 5484.1 and DOE Order 5400.1.

4.0 ANALYTICAL LABORATORY SERVICES AND DATA QUALITY OBJECTIVES

PNNL's Analytical Chemistry Laboratory shall provide the following analytical and data handling services.

- Analytical services shall meet the analytical requirements listed in Tables 1 through 6.

- PNNL shall implement a quality assurance (QA) program that meets the applicable requirements of 40 CFR 61, Appendix B, Method 114, Section 4.0.
- Quality control test results and laboratory intercomparison scores shall be provided to AWS upon request; the tests shall include accuracy, precision, and background.
- PNNL shall participate in the DOE Inter-Laboratory Quality Assurance Program coordinated by the DOE Environmental Measurements Laboratory, New York, New York, as applicable for requested analyses.
- Upon request, AWS shall be permitted to review and approve the QA program.
- Particulate samples for the 340 Tank Vent Stack (340-NT-EX), 324 Facility stack (ESP-324-01-S), 327 Facility stacks (ESP-327-01-S and ESP-327-02-D) shall be saved and composited for quarterly specific radionuclide analyses. The composited samples shall be analyzed for plutonium-239/240, plutonium-238, americium-241, and cesium-137 in accordance with 40 CFR 61, Appendix B, Method 114 (refer to tables).

In some cases, sample radioactivity levels might be insufficient to allow for the detection of specific radionuclides. Therefore, as a cost savings measure, gross alpha/beta measurements shall be performed on composite samples before performing specific analyses (not applicable for gamma spectroscopy analyses). If insufficient radioactivity levels are present to allow for possible detection of the specified radionuclides, specific radionuclide analyses shall not be performed, unless otherwise directed by AWS. Conversely, specific radionuclide analyses shall be performed when gross alpha/beta radioactivity levels are sufficient to allow for possible detection of specific radionuclides.

- PNNL analytical data shall meet a minimum completeness criteria of 90 percent (90% of samples analyses for each stack shall meet the minimum requirements established in this document).
- Analytical results shall be expressed in the units shown for the respective minimum detectable concentrations (MDC) in Tables 1 through 6.
- PNNL shall transmit sample analysis results to AWS in an electronic format that can be downloaded into the environmental release summary (ERS) database. Table 7 lists parameters for reporting data via the ERS database.
- All raw data and analytical results shall be retained as QA documents for a minimum of 5 years, as specified by 40 CFR 61, Subpart H and WAC 246-247 requirements. Upon request, AWS shall be provided with access to the raw data and analytical results.

- In the event that alpha/beta activity is detected at MDC levels or greater (refer to Tables 1 through 6), PNNL shall contact AWS for guidance on performing follow-up analyses.

5.0 GLOSSARY

AWS	Air and Water Services
CFR	Code of Federal Regulations
DOE	U.S. Department of Energy
DOE-RL	U.S. Department of Energy, Richland Operations Office
EDE	effective dose equivalent
EDP	electronic data processing
EIS/ODIS	effluent information system/onsite discharge information system
EPA	U.S. Environmental Protection Agency
ERS	environmental release summary
FFTF	Fast Flux Test Facility
HNF	Hanford Nuclear Facility (document identifier)
INEL	Idaho National Engineering Laboratory
MASF	437 Maintenance and Storage Facility
MDC	minimum detectable concentrations
PHMC	Project Hanford Management Contract
PNNL	Pacific Northwest National Laboratory
QA	quality assurance
RFSH	Rust Federal Services of Hanford Inc.
SOW	statement of work
TT	turnaround time (elapsed time, in days, from when a sample is received by the laboratory until the analysis is reported to AWS).
cfm	cubic feet per minute
%	percent
$\mu\text{Ci/cc}$	microcuries per cubic centimeter

6.0 REFERENCES

- DOE Order 5400.1, *General Environmental Protection Program*.
- DOE Order 5484.1, *Environmental Protection, Safety and Health Protection Information Reporting Requirements*.
- DOE/RL-96-68, *Hanford analytical Services Quality Assurance Requirements Documents*, "Volume 4: Laboratory Technical Requirements", U.S. Department of Energy, Richland Operations Office.
- WHC-EP-0528-2, *Effluent Monitoring Quality Assurance Project Plan for Radioactive Airborne Emissions Data*, Westinghouse Hanford Company, Richland, Washington.

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Table 1. Sample and Analysis Criteria for the 309 Facility.

309 Facility, 309-PRTR Stack						
SAMPLE AND ANALYSIS CRITERIA						
Sample size	Type of analysis	Precision ^a	Accuracy ^b	Samples/year (frequency)	MDC ^c , $\mu\text{Ci/cc}$	Unit price, \$
nominal 2 cfm for period of collection, unless otherwise indicated	gross α and gross β	<20%	Footnote b	6 (6 per year)	2.0 E-15 and 1.9 E-14	100

^a DOE/RL-96-68, Vol. 4, Table 7-1, states that duplicate analyses should have <20% relative percent difference when the result is >5 times the minimum detectable activity.

^b Performance evaluation sample/analysis results should meet the minimum acceptability scores specified by the required evaluation studies. Evaluation study requirements are specified in Section 4.0.

^c MDCs shall be as low as reasonably attainable, but shall not exceed the values specified in the table.

^d Turnaround times are expressed as calendar days.

α = alpha.

β = beta.

cfm = cubic feet per meter.

MDC = minimum detectable concentrations.

% = percent.

$\mu\text{Ci/cc}$ = microcuries per cubic centimeter.

TT = turnaround time.

< = less than.

> = greater than.

Table 2. Sample and Analysis Criteria for the 324 Facility.
(sheet 1 of 2)

324 FACILITY, ESP-324-01-S Stack							
SAMPLE AND ANALYSIS CRITERIA							
Sample size	Type of analysis	Precision ^a	Accuracy ^b	Samples per year (frequency)	MDC ^c , (μCi/cc)	TT ^f , (days)	Unit price, \$
nominal 2.0 cfm for period of collection, unless otherwise indicated	gross α and gross β	<20%	Footnote b	26 (1/2 weeks)	2.0 E-15 and 1.9 E-14	14	100
	²³⁸ Pu ^d			4 (1/quarter)	2.1 E-15	Footnote e	250
	²⁴¹ Am ^d			4 (1/quarter)	1.9 E-15	Footnote e	250
	³ H			24 (2/month)	1.5 E-9	45	750
	⁹⁰ Sr ^d			4 (1/quarter)	1.9 E-14	Footnote e	250
	gamma spec ^d (¹³⁷ Cs) (¹³⁴ Cs) (¹⁵⁴ Eu) (¹⁵⁵ Eu) (⁶⁰ Co)			4 (1/quarter)	1.9 E-14 2.7 E-14 2.3 E-14 5.9 E-13 1.7 E-14	Footnote e	100
	^{239,240} Pu ^d			4 (1/quarter)	2.0 E-15	Footnote e	250

^a DOE/RL-96-68, Vol. 4, Table 7-1, states that duplicate analyses should have <20% relative percent difference when the result is >5 times the minimum detectable activity.

^b Performance evaluation sample/analysis results should meet the minimum acceptability scores specified by the required evaluation studies. Evaluation study requirements are specified in Section 4.0.

^c MDCs shall be as low as reasonably attainable, but shall not exceed the values specified in the table.

Table 2. Sample and Analysis Criteria for the 324 Facility.
(sheet 2 of 2)

d Sample analyses for the specified radionuclide shall be performed quarterly on a composite of the particulate samples collected during each quarter of the calendar year.

Note: Historical data indicate that sample activity levels typically are insufficient to allow for the detection of specific radionuclides. Therefore, as a cost savings measure, gross alpha/beta measurements shall be performed on composite samples before performing specific analyses (not applicable for gamma spectroscopy analyses). If insufficient activity levels are present to allow for possible detection of the specified radionuclides, specific radionuclide analyses shall not be performed unless otherwise directed by AWS. Conversely, specific radionuclide analyses shall be performed when gross alpha/beta activity levels are sufficient to allow for possible detection of specific radionuclides.

e The turnaround time for the 1st, 2nd, and 3rd quarter samples is 60 days. The turnaround time for the 4th quarter sample (10-1-97 through 12-31-97) is 45 days.

f Turnaround times are expressed as calendar days.

α = alpha.

β = beta.

cfm = cubic feet per meter.

MDC = minimum detectable concentrations.

% = percent.

$\mu\text{Ci/cc}$ = microcuries per cubic centimeter.

TT = turnaround time.

< = less than.

> = greater than.

Table 3. Sample and Analysis Criteria for the 327 Facility. (sheet 1 of 3)

327 FACILITY, ESP-327-01-S Stack							
SAMPLE AND ANALYSIS CRITERIA							
Sample size	Type of analysis	Precision ^a	Accuracy ^b	Samples per year (frequency)	MDC ^c , (μCi/cc)	TT ^f , (days)	Unit Price, \$
nominal 2.0 cfm for period of collection, unless otherwise indicated	gross α and gross β	<20%	Footnote b	26 (1/2 weeks)	2.0 E-15 and 1.9 E-14	14	100
	²³⁸ Pu ^d			4 (1/quarter)	2.1 E-15	Footnote e	250
	²⁴¹ Am ^d			4 (1/quarter)	1.9E-15	Footnote e	250
	³ H			24 (2/month)	1.5E-9	45	750
	⁹⁰ Sr ^d			4 (1/quarter)	1.9E-14	Footnote e	250
	gamma spec ^d (¹³⁷ Cs)			4 (1/quarter)	1.9 E-14	Footnote e	100
	(¹³⁴ Cs)				2.7 E-14		
	(¹⁵⁴ Eu)				2.3 E-14		
	(¹⁵⁵ Eu)				5.9 E-13		
	(⁶⁰ Co)				1.7 E-14		
	^{239,240} Pu ^d			4 (1/quarter)	2.0 E-15	Footnote e	250

Table 3. Sample and Analysis Criteria for the 327 Facility. (sheet 2 of 3)

327 FACILITY, ESP-327-02-V Stack						
SAMPLE AND ANALYSIS CRITERIA						
Sample size	Type of analysis	Precision ^a	Accuracy ^b	Samples/year (frequency)	MDC ^c , ($\mu\text{Ci/cc}$)	Tf, (days)
nominal 2.0 cfm for period of collection, unless otherwise indicated	gross α and gross β	<20%	Footnote b	26 (1/2 weeks)	2.0 E-15 and 1.9 E-14	14
	$^{238}\text{Pu}^d$			4 (1/quarter)	2.1 E-15	Footnote e
	$^{241}\text{Am}^d$			4 (1/quarter)	1.9E-15	Footnote e
	$^{90}\text{Sr}^d$			4 (1/quarter)	1.9E-14	Footnote e
	gamma spec (^{137}Cs) (^{134}Cs) (^{154}Eu) (^{155}Eu) (^{60}Co)			4 (1/quarter)	1.9 E-14 2.7 E-14 2.3 E-14 5.9 E-13 1.7 E-14	Footnote e
	$^{239,240}\text{Pu}^d$			4 (1/quarter)	2.0 E-15	Footnote e
						Unit price, \$
						100
						250
						250
						250
						100
						250

Table 3. Sample and Analysis Criteria for the 327 Facility. (sheet 3 of 3)

- ^a DOE/RL-96-68, Vol. 4, Table 7-1, states that duplicate analyses should have <20% relative percent difference when the result is >5 times the minimum detectable activity.
- ^b Performance evaluation sample/analysis results should meet the minimum acceptability scores specified by the required evaluation studies. Evaluation study requirements are specified in Section 4.0.
- ^c MDCs shall be as low as reasonably attainable, but shall not exceed the values specified in the table.
- ^d Sample analyses for the specified radionuclide shall be performed quarterly on a composite of the particulate samples collected during each quarter of the calendar year.

Note: Historical data indicate that sample activity levels typically are insufficient to allow for the detection of specific radionuclides. Therefore, as a cost savings measure, gross alpha/beta measurements shall be performed on composite samples before performing specific analyses (not applicable for gamma spectroscopy analyses). If insufficient activity levels are present to allow for possible detection of the specified radionuclides, specific radionuclide analyses shall not be not performed unless otherwise directed by AWS. Conversely, specific radionuclide analyses shall be performed when gross alpha/beta activity levels are sufficient to allow for possible detection of specific radionuclides.

- ^e The turnaround time for the 1st, 2nd, and 3rd quarter samples is 60 days. The turnaround time for the 4th quarter sample (10-1-97 through 12-31-97) is 45 days.

- ^f Turnaround times are expressed as calendar days.

α = alpha.
 β = beta.
 cfm = cubic feet per meter.
 MDC = minimum detectable concentrations.
 % = percent.
 $\mu\text{Ci/cc}$ = microcuries per cubic centimeter.
 TT = turnaround time.
 < = less than.
 > = greater than.

Table 4. Sample and Analysis Criteria for the 340 Facility. (sheet 1 of 2)

340 FACILITY, 340-NT-EX Stack							
SAMPLE AND ANALYSIS CRITERIA							
Sample size	Type of analysis	Precision ^a	Accuracy ^b	Samples/year (frequency)	MDC ^c (μCi/cc)	TT ^f (days)	Unit price, \$
nominal 3.1 cfm for period of collection, unless otherwise indicated	gross α and gross β	<20%	Footnote b	26 (1/2 weeks)	2.0 E-15 and 1.9 E-14	14	100
	²³⁸ Pu ^d			4 (1/quarter)	2.1 E-15	Footnote e	250
	²⁴¹ Am ^d			4 (1/quarter)	1.9E-15	Footnote e	250
	¹³¹ I			4 (1/quarter)	2.1E-13	14	100
	gamma spec ^d (¹³⁷ Cs)			4 (1/quarter)	1.9 E-14	Footnote e	100
	^{239,240} Pu ^d			4 (1/quarter)	2.0 E-15	Footnote e	250

340 FACILITY, 340-DECON Stack							
SAMPLE AND ANALYSIS CRITERIA							
Sample size	Type of analysis	Precision ^a	Accuracy ^b	Samples/year (frequency)	MDC ^c , $\mu\text{Ci/cc}$	TT ^f , (days)	Unit price, \$
nominal 2 cfm for period of collection, unless otherwise indicated	gross α and gross β	<20%	Footnote b	4 (1/quarter)	2.0 E-15 and 1.9 E-14	14	100

Table 4. Sample and Analysis Criteria for the 340 Facility. (sheet 2 of 2)

340 FACILITY, 340-B-BLDG Stack						
SAMPLE AND ANALYSIS CRITERIA						
Sample Size	Type of Analysis	Precision ^a	Accuracy ^b	Samples/year (frequency)	MDC ^c , $\mu\text{Ci/cc}$	TI ^f , (days)
nominal 2 cfm for period of collection, unless otherwise indicated	gross α and gross β	<20%	Footnote b	4 (1/quarter)	2.0 E-15 and 1.9 E-14	14
						Unit price, \$ 100

^a DOE/RL-96-68, Vol. 4, Table 7-1, states that duplicate analyses should have <20% relative percent difference when the result is >5 times the minimum detectable activity.

^b Performance evaluation sample/analysis results should meet the minimum acceptability scores specified by the required evaluation studies. Evaluation study requirements are specified in Section 4.0.

^c MDCs shall be as low as reasonably attainable, but shall not exceed the values specified in the table.

^d Sample analyses for the specified radionuclide shall be performed quarterly on a composite of the particulate samples collected during each quarter of the calendar year.

Note: Historical data indicate that sample activity levels typically are insufficient to allow for the detection of specific radionuclides. Therefore, as a cost savings measure, gross alpha/beta measurements shall be performed on composite samples before performing specific analyses (not applicable for gamma spectroscopy analyses). If insufficient activity levels are present to allow for possible detection of the specified radionuclides, specific radionuclide analyses shall not be performed unless otherwise directed by AMS. Conversely, specific radionuclide analyses shall be performed when gross alpha/beta activity levels are sufficient to allow for possible detection of specific radionuclides.

^e The turnaround time for the 1st, 2nd, and 3rd quarter samples is 60 days. The turnaround time for the 4th quarter sample (10-1-97 through 12-31-97) is 45 days.

^f Turnaround times are expressed as calendar days.

α = alpha.

β = beta.

cfm = cubic feet per meter.

MDC = minimum detectable concentrations.

% = percent.

$\mu\text{Ci/cc}$ = microcuries per cubic centimeter.

TI = turnaround time.

< = less than.

> = greater than.

Table 5. Sample and Analysis Criteria for the Fast Flux Test Facility. (sheet 1 of 2)

FFTF, FFTF-CB-EX Stack							
SAMPLE AND ANALYSIS CRITERIA							
Sample size	Type of analysis	Precision ^a	Accuracy ^b	Samples/year (frequency) ^c	MDC ^c , $\mu\text{Ci/cc}$	TT ^e , (days)	Unit price, \$
nominal 2 cfm for period of gross collection, unless otherwise indicated	gross α and gross β	<20%	Footnote b	52 (1/week)	2.0 E-15 and 1.9 E-14	14	100
	^3H			4 ^f	1.5 E-9	60	750
	^{131}I			26 (1/2 weeks)	2.1 E-13	14	100

FFTF, FFTF-RE-SB Stack							
SAMPLE AND ANALYSIS CRITERIA							
Sample Size	Type of Analysis	Precision ^a	Accuracy ^b	Samples/year (frequency) ^c	MDC ^c , $\mu\text{Ci/cc}$	TT ^e , (days)	Unit Price, \$
nominal 2 cfm for period of gross collection, unless otherwise indicated	gross α and gross β	<20%	Footnote b	52 (1/week)	2.0 E-15 and 1.9 E-14	14	100
	^{131}I			26 (1/2 weeks)	2.1 E-13	14	100

Table 5. Sample and Analysis Criteria for the Fast Flux Test Facility. (sheet 2 of 2)

FFTF, FFTF-HT-TR Stack						
SAMPLE AND ANALYSIS CRITERIA						
Sample size	Type of analysis	Precision ^a	Accuracy ^b	Samples/year (Frequency) ^c	MDC ^c $\mu\text{Ci/cc}$	TT ^e , (days) Unit Price, \$
nominal 2 cfm for period of collection, unless otherwise indicated	gross α and gross β	<20%	Footnote b	52 (1/week)	2.0 E-15 and 1.9 E-14	14 100

^a DOE/RL-96-68, Vol. 4, Table 7-1, states that duplicate analyses should have <20% relative percent difference when the result is >5 times the minimum detectable activity.

^b Performance evaluation sample/analysis results should meet the minimum acceptability scores specified by the required evaluation studies. Evaluation study requirements are specified in Section 4.0.

^c MDCs shall be as low as reasonably attainable, but shall not exceed the values specified in the table.

^d Sample frequency may be reduced during the calendar year. A reduction in the sample frequency may result in less samples delivered to PNNL for analysis.

^e Turnaround times are expressed as calendar days.

^f Four samples will be collected during a 4 week period (1 sample per week). The samples shall be analyzed as a batch to reduce analytical costs per sample.

α = alpha.
 β = beta.
 cfm = cubic feet per meter.

MDC = minimum detectable concentrations.
 % = percent.

$\mu\text{Ci/cc}$ = microcuries per cubic centimeter.
 TT = turnaround time.

< = less than.
 > = greater than.

Table 6. Sample and Analysis Criteria for the 437 Maintenance and Storage Facility. (sheet 1 of 2)

MASF, 437-MN&ST Stack							
SAMPLE AND ANALYSIS CRITERIA							
Sample size	Type of analysis	Precision ^a	Accuracy ^b	Samples/year (frequency)	MDC ^c , $\mu\text{Ci/cc}$	TT ^e , (days)	Unit price, \$
nominal 2.0 cfm for period of collection, unless otherwise indicated	gross α and gross β	<20%	Footnote b	52 (1/week)	2.0 E-15 and 1.9 E-14	14	100

MASF, 437-1-61 Stack							
SAMPLE AND ANALYSIS CRITERIA							
Sample size	Type of analysis	Precision ^a	Accuracy ^b	Samples/year (frequency)	MDC ^c , $\mu\text{Ci/cc}$	TT ^e , (days)	Unit price, \$
nominal 2 cfm for period of collection, unless otherwise indicated	gross α and gross β	<20%	Footnote b	4	2.0 E-15 and 1.9 E-14	14	100

Table 6. Sample and Analysis Criteria for the 437 Maintenance and Storage Facility. (sheet 2 of 2)

- a DOE/RL-96-68, Vol. 4, Table 7-1, states that duplicate analyses should have <20% relative percent difference when the result is >5 times the minimum detectable activity.
- b Performance evaluation sample/analysis results should meet the minimum acceptability scores specified by the required evaluation studies. Evaluation study requirements are specified in Section 4.0.
- c MDCs shall be as low as reasonably attainable, but shall not exceed the values specified in the table.
- d Sample frequency may be reduced during the calendar year. A reduction in the sample frequency may result in less samples delivered to PNNL for analysis.
- e Turnaround times are expressed as calendar days.
- α = alpha.
 β = beta.
 cfm = cubic feet per meter.
 MDC = minimum detectable concentrations.
 % = percent.
 $\mu\text{Ci/cc}$ = microcuries per cubic centimeter.
 TT = turnaround time.
 < = less than.
 > = greater than.

Table 7. Environmental Release Summary Reporting Parameters.
(sheet 1 of 2)

EDP code	File title	Stack code or Stream code	Companion files	Reportable radionuclides
F002	340 Vault Tank Exhaust	340-NT-EX	F602 F017	alpha beta
F008	340 B Building	340-B-BLD	none	alpha beta
F009	340 Decontamination Facility	340-DECON	none	alpha beta
F011	FFTF Combined Exhaust	FFTF-CB-E	F018 F024	alpha beta
F012	FFTF Lower Reactor Service Building	FFTF-RESB	F016	alpha beta
F013	FFTF Reactor Heat Transport System	FFTF-HT-T	none	alpha beta
F014	MASF 437-MN&ST	437-MN&ST	none	alpha beta
F016	FFTF Lower Reactor Service Building I-131	FFTF-RESB	F012	I-131
F017	340 Vault Tank Exhaust I-131 Charcoal Cart	340-NT-EX	F002 F602	I-131
F018	FFTF Combined Exhaust I-131	FFTF-CB-E	F011 F024	I-131
F019	MASF 437-1-61	437-1-61	none	alpha beta
F602	340 Vault Tank Exhaust Quarterly, Composite	340-NT-EX	F002 F017	Cs-137 Pu-239,240 Pu-238 Am-241
F024	FFTF Combined Exhaust H-3	FFTF-CB-E	F011 F018	H-3
F025	EP-324-01-S	324-01-S	F028, F603	alpha beta
F026	EP-327-01-S	327-01-S	F029, F604	alpha beta
F027	EP-327-02-V	327-02-V	F030, F605	alpha beta

Table 7. Environmental Release Summary Reporting Parameters.
(sheet 2 of 2)

EDP code	File title	Stack code or Stream code	Companion files	Reportable radionuclides
F603	EP-324-01-S Quarterly Composite	324-01-S	F025, F028	Pu-238 Am-241 Sr-90 Pu-239,240 Cs-137 Cs-134 Eu-154 Eu-155 Co-60
F604	EP-327-01-S Quarterly Composite	327-01-S	F026, F029	Pu-238 Am-241 Sr-90 Pu-239,240 Cs-137 Cs-134 Eu-154 Eu-155 Co-60
F605	EP-327-02-V Quarterly Composite	327-02-V	F027, F030	Pu-238 Am-241 Sr-90 Pu-239,240 Cs-137 Cs-134 Eu-154 Eu-155 Co-60
F028	EP-324-01-S H-3	324-01-S	F603, F025	H-3
F029	EP-327-01-S H-3	327-01-S	F604, F026	H-3
F030	309-PRTR	309-PRTR	NA	alpha beta

EDP = electronic data processing.
 FFTF = Fast Flux Test Facility.
 MASF = Maintenance and Storage Facility.
 MN&ST = Maintenance and Storage.
 NA = Not applicable.
 PRTR = Plutonium Recycle Test Reactor.

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