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STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
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June 20, 2016 16-NWP-110

Mr. Ray J. Corey, Assistant Manager
Richland Operations Office
United States Department of Energy
PO Box 550, MSIN: A5-11
Richland, Washington 99352

Re: Completion of *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement) Target Milestone M-083-24-T01, "Submit Revision 0 of the PFP Complex Surveillance and Maintenance (S&M) Plan to Ecology," due June 30, 2016

Reference: See page 2

Dear Mr. Corey:

The Department of Ecology (Ecology) received the referenced letter from the United States Department of Energy – Richland Operations Office (USDOE-RL) on June 16, 2016. This letter notified Ecology of the completion of the Tri-Party Agreement Target Milestone M-083-24-T01, "Submit Revision 0 of the PFP Complex Surveillance and Maintenance (S&M) Plan to Ecology."

USDOE-RL worked with Ecology to resolve comments to the draft Plutonium Finishing Plant (PFP) Complex S&M Plan prior to formal submittal (reference). Enclosed is Ecology's completed Review Comment Record showing all comments to the draft PFP Complex S&M Plan have been closed out, and USDOE-RL responses have been accepted.

Ecology has completed our review of the final PFP Complex S&M Plan Rev. 0 and have no further comments. Based on Ecology's review of the PFP Complex S&M Plan, we agree that Target Milestone M-083-24-T01 is complete. Enclosed is the final PFP Complex S&M Plan with both Ecology and USDOE-RL signatures.

If you have any questions, please contact me at stephanie.schleif@ecy.wa.gov or (509) 372-7929.

Sincerely,

Stephanie Schleif

Stephanie Schleif
Facility Transition Project Manager
Nuclear Waste Program

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tkb
Enclosures

cc: See page 2

T-2-9

Reference: Letter 16-AMRP-0199, dated June 14, 2016, from R. J. Corey, USDOE-RL, to A. K. Smith, Ecology, "Surveillance and Maintenance Plan for the Plutonium Finishing Plant Complex, DOE/RL-2011-59, Revision 0, Completion of Target Milestone M-083-24-T01"

cc electronic w/ enc:

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Review Comment Record	Washington State Department of Ecology Nuclear Waste Program	Date: May 29, 2016 Page 1 of 9

Document Title(s)/Number(s)

Draft DOE/RL-2011-59, Decisional Draft C-1

Document Manager	Project Manager	Facility Site ID	Cleanup Site ID
	Stephanie Schleif (509) 372-7929		

Item No.	Pg. # Sec. # Para./Sent.	Comment or Question	Modification Needed	Basis/Justification	DOE Response	Ecology Response	Open/Close	Reviewer Initials
1	Pg. 1, Section 1, Line 4	"...as identified in Milestone M-83-20, until implementation of future remedial action."	After the reference to the milestone, include "and associated end point criteria in Plutonium Finishing Plant (PFP) Complex End Point Criteria Rev. 0 (HNF-22401)."	Clarification needed to document the basis of milestone M-83-20, which was to provide the end point criteria document.	Comment incorporated as follows: This Surveillance and Maintenance (S&M) Plan describes the expected conditions of the Plutonium Finishing Plant (PFP) at the beginning of the S&M phase and the actions necessary to maintain safe and stable conditions, as identified in Milestone M-83-20 and associated end point criteria in Plutonium Finishing Plant (PFP) Complex End Point Criteria Rev 0 (HNF-22401), until implementation of future remedial actions.	Accept	Close	SS
2	Pg. 1, Section 1, Line 5	At the end of this paragraph, include language stating this Surveillance and Maintenance (S&M) Plan is a primary document, and the basis behind this status.	Include information in the introduction stating that the PFP Complex S&M Plan is a primary document and Ecology is the Lead Regulatory Agency (LRA) for the PFP Complex S&M Plan.	Clarification on Tri-Party Agreement (TPA) status of PFP Complex S&M Plan.	Comment incorporated as follows: This S&M Plan is being submitted as a primary document to the Washington State Department of Ecology (Ecology) as the Lead Regulatory Agency for S&M. The activities addressed by this S&M plan are applicable to the area within the fence indicated in Figure 1.	Accept	Close	SS
3	Pg. 1, Section 1.1, Line 35-36	"...and the U.S. Environmental Protection Agency (EPA) is the lead regulatory agency for final remedial actions at the PFP complex." This statement contradicts wording in Section 5.2, which states that waste sites could be assigned to different operable units. Ecology may be the LRA for some PFP Complex waste sites.	Revise this statement to state something like "As part of the completion process of the removal action, the remaining components will be evaluated and assigned to the appropriate operable unit in accordance with existing Tri-Party Agreement procedures. Dependent on the operable unit assignment, Ecology or EPA may be the LRA."	Clarification needed.	Comment incorporated as follows: The U.S. Department of Energy (DOE) is the lead agency for CERCLA actions. Ecology is the lead regulatory agency for the removal action, and S&M. As part of the completion process of the removal action, the remaining components will be evaluated and assigned to the appropriate operable unit in accordance with existing Tri-Party Agreement procedures. Dependent on the operable unit assignment, Ecology or U.S. Environmental Protection Agency (EPA) may be the lead regulatory agency	Accept	Close	SS

Item No.	Pg. # Sec. # Para./Sent.	Comment or Question	Modification Needed	Basis/Justification	DOE Response	Ecology Response	Open/Close	Reviewer Initials
					for final remedial actions at the PFP Complex.			
4	Pg. 2, Section 1.3, Lines 28-30	"The scope of this plan is limited to S&M within the fenced area shown in Figure 1." There is also a boundary/fence on Figure 2. Is this this same boundary? There are some slabs/structures on Figure 2 (and on Figure 1) that are outside the fence line but still listed on Tables 1 and 2.	Please clarify the boundaries denoted between Figures 1 and 2. Also clarify the status of the slabs/structures outside the fence on Figure 2. Are these within the scope of S&M? They are listed on either Tables 1 or 2.	Clarification.	The only structures listed in Table 1 or Table 2 that were outside the fence are 2701-ZD and 2705-Z. They have been removed from Table 1. Figure 1 will be removed and figure 2 will be updated to show only appropriate inside the fence items. The purpose and scope was revised as follows: The purpose of this S&M Plan is to identify actions necessary to maintain safe and stable conditions until implementation of future remedial actions. The scope of this plan is limited to S&M of the items listed in Tables 1 and 2 within the fenced area shown in Figure 1. The east side of the PFP Complex (outside the fenced area) is the support area. This area contains mobile offices, parking lots, the 2607-WA Septic System (southwest corner of the intersection of 19th Street and Camden Avenue), and the 212-Z Lag Storage Yard. The mobile offices, parking lots, 212-Z lag storage yard, and septic system will remain active for an extended period and are not addressed by this S&M Plan. The 241-Z-361 tank, while inside the fence has been included in the 200-PW-1/3/6 operable unit (OU) remedial action and, therefore, is not included in this S&M Plan.	Accept	Close	SS
5	Pg. 2, Section 1.3, Lines 28-30	For the reference to 241-Z-361 tank, 216-Z-9 crib, and mining structures, and 241-Z-8 tank, it states that these are in PW-1/3/6 Operable Unit and therefore are not included in this plan. Are they located on Figure 1 or 2? 241-361 is on Figure 2, which is inconsistent with the text in this section.	Please revise text to clarify whether the slabs/underground structures are included in the Figures.	Clarification.	216-Z-9 and 241-Z-8 are outside the fence and have been removed, see comment incorporation to item number 4 above.	Accept	Close	SS
6	Pg. 2, Section 1.3, Lines 31-32	"The scope of this plan may be modified as items transition from active to inactive..."	Revise this section to state that the scope of this plan may be modified in accordance with the TPA as items transition from active to	Clarification.	Comment incorporated as follows: The scope of this plan may be modified in accordance with the TPA process for	Accept	Close	SS

Item No.	Pg. # Sec. # Para./Sent.	Comment or Question	Modification Needed	Basis/Justification	DOE Response	Ecology Response	Open/Close	Reviewer Initials
		Changes in scope will need to be approved by the LRA (Ecology).	inactive status or transition to coverage under other documents if approved by the LRA.		primary document changes as items transition from active to inactive status or transition to coverage under other documents.			
7	Pg. 2, Section 1.4, Lines 36-37	Please provide a copy of DOE G 430.1-2 to Ecology.			Hard copy provided on 5-17-16 with commitment to follow up with electronic copy. Electronic copy provided on 5-18-16.	Accept	Close	SS
8	Pg. 3, Section 2, Lines 9-16	Include a statement similar to the following, "EPCCs for pre-transition will aid the S&M organization during the initial stage of S&M. EPCCs from post-transition will aid the S&M organization during stage 2 of S&M."	Include suggested text change to clarify documentation supporting status of slabs/structures placed into the PFP Complex S&M Plan.	Clarification.	Comment incorporated as follows: The EPCCs for pre-transition will aid the S&M organization during the initial stage of S&M. EPCCs from post-transition will aid the S&M organization during stage 2 of S&M. Added as new sentence at the end of bullet/paragraph.	Accept	Close	SS
9	Pg. 3, Section 2, Line 16	Removal Action Work Plan (RAWP) Section 5.7.1, states documentation required to support transition to a safe and stable S&M mode will be provided in a turnover package at transition to S&M.	Clarify that completed pre and post transition End Point Criteria Checklists (EPCC) will be provided to Ecology in accordance with Section 5.7.1 of the RAWP.	Consistency with RAWP.	RAWP Section 5.7.1 specifies that the turnover package is "provided to the organization responsible for S&M of the PFP Complex..." However, Ecology will be provided with documentation demonstrating milestone completion. Suggest no change be made to the section.	Accept	Close	SS
10	Pg. 3, Section 2, Line 22	"A preliminary report could be developed to document completion of pre-transition..." Why does it state "could" instead of will? If you don't do a Removal Action Report (RAR) what will be provided to Ecology?	Please clarify.	Clarification.	Comment incorporated as follows: Two RARs will be developed; one to document completion of pre-transition actions, followed by another RAR upon completion of post-transition actions.	Accept	Close	SS
11	Pg. 4, Figure 1	There are slabs on Figure 2 that aren't on Figure 1. Also how do the fenced areas between Figures 1 and 2 compare? Are both defining the scope of the S&M?	Please clarify.		Figure 1 will be removed and figure 2 will be updated to show only appropriate inside the fence items.	Accept	Close	SS
12	Pg. 5, Lines 1-21	Rev. B of the S&M plan included "Storm water runoff that currently drains to the Treated Effluent Disposal Facility (TEDF) may continue being collected and drained to TEDF during S&M." This is not in Rev. C.	Is this still relevant? Why or why not? Please revise accordingly.	Clarification.	The decision has been made to terminate all discharges into the TEDF system. Therefore, this option was removed from Draft C. Suggest no changes be made to this section.	Accept	Close	SS
13	Pgs. 5-6, multiple line items that were deleted.	Why were these bullets deleted?	Please clarify.		Repetitive bullets were combined and non-significant actions deleted. This is not intended to be an exhaustive list. Added the following bullet back in: Provide controls to prevent unauthorized access.	Accept	Close	SS

Review Comment Record	Washington State Department of Ecology Nuclear Waste Program	Date: May 29, 2016 Page 4 of 9

Item No.	Pg. # Sec. # Para./Sent.	Comment or Question	Modification Needed	Basis/Justification	DOE Response	Ecology Response	Open/Close	Reviewer Initials
14	Pg. 6, Line 6	"Provide posting as needed." What posting?	Please clarify.		Added "(Radiological, confined space, vehicle restricted area, etc.)" at end of bullet for clarification.	Accept	Close	SS
15	Pg. 6, Line 15	"...and prepare regulatory documentation, as needed." Why is this "as needed?" Documentation needs to be completed as stated in the RAWP and End Point Criteria.	Suggest removing "as needed."		Removed as indicated	Accept	Close	SS
16	Pg. 6, Section 2.2, Line 35-36	"This S&M plan may be retired if other mechanisms for achieving the objectives as stated in Section 1.4 have been identified." The mechanisms to retire the S&M plan should not be in the section. This is already covered in Section 1 which states S&M will continue until implementation of future remedial actions.	Remove this statement. If needed clarify in Section 1 that S&M will continue until final remediation is complete and upon agreement with Ecology and EPA.		Removed as indicated	Accept	Close	SS
17	Pg. 7, Table 1	Entry for Gas Bottle Storage. Identification 2734-ZA, -ZB, through –ZK	Are these slabs notated on Figure 2? They could not be found on the Figure.	Clarification.	They will be added to the new figure 1.	Accept	Close	SS
18	Pg. 8, Section 2.2, Line 8	"Information about other buildings that should be noted are provided..." Are these buildings in Figure 2?	Clarify in this statement that these "other buildings" are listed on Table 2.		This sentence was rewritten as follows: The following subsections provide information about the major underground structures from Table 2.	Accept	Close	SS
19	Pg. 8, Section 2.2, Line 16	To be consistent with other redlines, "clean" backfill is referenced here, but deleted in other sections.	Suggest deleting "clean" if appropriate, to be consistent.		Removed the word "clean".	Accept	Close	SS
20	Pg. 8, Section 2.2.1	Is there a Figure that could be included to show the relationship between the tunnels and trenches? With the two separate figures it is hard to understand the relationship between the two.	Suggest including a Figure denoting the relationship (trenches that connect to the tunnels) between the tunnels and trenches in 234-5.	Clarification.	A new figure will be developed to replace both existing -5 figures that demonstrate this relationship.	Accept	Close	SS
21	Pg. 9, Section 2.2.2	Description of text in this section does not illustrate the equipment shown on Figure 5.	Please denote on Figure 5, the compressor house and air ducts (plenums) to support text in Section 2.2.2.		An updated figure showing the items in question will be incorporated.	Accept	Close	SS
22	Pg. 9, Section 2.2.2	Text in Rev. B for 291-Z stated that openings will have weather tight seals. Is this still accurate?	Please clarify.		The Rev B assumption was that the roof would remain in place so weather tight seals would be needed to protect the space. A decision has been made to remove the roof and backfill the structure making weather tight seals unnecessary.	Accept	Close	SS

Item No.	Pg. # Sec. # Para./Sent.	Comment or Question	Modification Needed	Basis/Justification	DOE Response	Ecology Response	Open/Close	Reviewer Initials
23	Pg. 10, Figure 2	There are slabs noted on Figure 2 that are not noted on Table 1 or 2. What is the status of these? 2702-Z, 267-Z, 2734-Z, 2904-ZA and –ZB, 296-Z-3, 2704Z, MO-2125, 2712-Z, 241-361 and the construction forces trailer.	Please clarify the status of the slabs that are on Figure 2 but not noted on tables 1 or 2. Are these covered under S&M?		2702-Z – active cell tower, in plan pg 6 267-Z – added to table 2734-Z - no slab, remove from fig 2904-ZA, ZB – remove from fig, outside fence boundary on figure 296-Z-3 – added to table 2704-Z – no slab, in plan pg 7 MO-2125 – sits on 2736-ZC slab, no slab, remove from fig 2712-Z – 50 feet up the stack, no slab, remove from fig Also construction forces slabs – add to table	Accept	Close	SS
24	Pg. 11, Section 2.2.3, Lines 6-7	Include a reference to the Resource Conservation ad Recovery Act (RCRA) closure plan in the text, and in Section 12 under references (DOE/RL-96-82 Rev. 1, dated 03/2004).	Include reference.		Comment was incorporated as follows: This facility, which was permitted under the *Resource Conservation and Recovery Act of 1976*, was clean closed per the RCRA Closure plan (DOE/RL-96-82) and the above-grade portion of the building was demolished in 2007. Drain lines that were part of the 241-Z RCRA unit going to 241Z have also been clean closed. Also added to reference list in Sec 12.	Accept	Close	SS
25	Pg. 14, Section 2.5, Line 5	"…to provide confidence that degradation of controls, if any, is identified, and corrected." Is part of "identification of degradation of controls" documentation? If so, include "documented" to "identified and corrected."	Please clarify.		Comment was incorporated as follows: A proper balance of corrective and preventive maintenance is employed to provide confidence that degradation of controls, if any, is identified, corrected and documented. This was also added to the first sentence of Section 2.5.2.	Accept	Close	SS
26	Pg. 14, Section 3, Line 38	This section states, "Quality Assurance requirements in effect at the time of performance of the work, and as identified in the Contractor's contract, will be followed." Provide a reference to the exact document that will be used as the QA/QC plan. Does this plan implement the requirements of EPA QA/R-5?	Revise this section to provide the specific reference for Quality Assurance, and if this document references or follows EPA's Quality Assurance Project Plan.		The EPA QA/R-5 is "…to document the type and quality of data needed for environmental decisions and to describe the methods for collecting and assessing those data." (EPA QA/R-5 Foreward). S&M will not be making environmental decisions, only maintaining the site in a stable condition. Suggest no change be made to the section.	Accept	Close	SS

Item No.	Pg. # Sec. # Para./Sent.	Comment or Question	Modification Needed	Basis/Justification	DOE Response	Ecology Response	Open/Close	Reviewer Initials
27	Pg. 16, Section 5.2.1, Line 5	Reference to 216-Z-9 Crib and 241-Z-361 Tank. In Section 1.3, lines 29-30, it states that this crib and tank are not included in this S&M plan, however they are still referenced in this section.	Why is this tank and crib referenced if these items are not included in the S&M plan? Clarify that this tank and crib are not covered under this S&M plan in this section.		Mention of the tank and the crib has been removed from Sec 1.3 and from Sec 5.2.1.	Accept	Close	SS
28	Pg. 17, Section 5.3, Lines 9-12	"…waste generated during Stage 2 S&M will be managed in accordance with the ERDF ROD amendment, the remedial investigation protocols…" If waste sites are assigned to different operable units, then those sites are subject to the OU-specific decision documents they become a part of, including waste management; therefore, referencing the Environmental Restoration and Disposal Facility (ERDF) Record of Decision (ROD) does not make sense.	Please clarify in the text.		The comment was incorporated as follows: Due to the fact that waste sites within the area covered by this S&M plan could be assigned to different operable units, waste generated during Stage 2 S&M will be managed in accordance with the CERCLA decision document covering the waste site generating the waste.	Accept	Close	SS
29	Pg. 20, Section 11, Lines 9-10	"The frequency of periodic S&M surveillance and preventative maintenance will be implemented in appropriate work packages." Section 2.4 states that routine S&M will consist of annual inspections, not periodic.	Please clarify.		Comment incorporated as follows: The annual S&M surveillance and preventive maintenance will be implemented in appropriate work packages.	Accept	Close	SS
	DOH Comments	**Comments to Draft S&M Rev C**						
1	Section 1, 1st para., last sentence	Recommend citing the reference for 200-PW-1/3/6 Operable Unit RAWP, and include the reference in Section 12 (references). This should ensure the reader can easily find the connection to how the balance of the historical PFP complex facilities will be addressed, when coupled with DOE/RL-2011-03 (RAWP) and DOE/RL-2011-59 (S&M Plan).	Cite the reference for 200-PW-1/3/6 Operable Unit RAWP, and include the reference in Section 12 (references).		A citation to the 200-PW-1/3/6 Record of Decision will be added to the last sentence as follows: The 241-Z-361 tank, while inside the fence has been included in the 200-PW-1/3/6 operable unit (OU) remedial action (EPA et al., 2011, *Record of Decision Hanford 200 Area Superfund Site 200-CW-5 and 200-PW-1, 200-PW-3, and 200-PW-6 Operable Units*) and, therefore, is not included in this S&M Plan. Also, added into References	Accept	Close	SS

Review Comment Record	Washington State Department of Ecology Nuclear Waste Program	Date: May 29, 2016 Page 7 of 9

Item No.	Pg. # Sec. # Para./Sent.	Comment or Question	Modification Needed	Basis/Justification	DOE Response	Ecology Response	Open/Close	Reviewer Initials
2	Sections 1.1, 2.1, 2.1, 2.2, 4.0, 5.0, 5.1, 5.2, 12	The RAWP for PFP Complex D4 (DOE/RL-2011-03) is referenced several times in this document (DOE/RL-2011-59, draft C). That document appears to commit to BARCT Section 4.3.1. WDOH made a comment in 2011 on Draft B of DOE/RL-2011-03 on the application of BARCT methodology to PFP Complex demolition (WDOH LB#3344, AIR 11-1008). WDOH requests Ecology seek DOE's BARCT analysis or demonstration document relative to PFP Complex demolition, as requested in 2011.	Please provide DOE's BARCT analysis or demonstration document relative to PFP Complex demolition, as requested in 2011.		To address this comment the wording in Draft B of the RAWP was changed to: "In order to address the substantive aspect of these requirements, best available controls consistent with ARAR requirements (WAC 246-247-040(3)) will be used when economically and technologically feasible..." This wording is in the current version of the RAWP, Section 4.3.1. Adding reference to the ARARs addresses both ALARACT and BARCT substantive requirements. The requirement to prepare separate documentation of the BARCT process for submittal is administrative and not applicable to the CERCLA action. In consideration of the explanation discussed above, no changes to the PFP S&M Plan are deemed necessary.	Agree	Close	SS

Item No.	Pg. # Sec. # Para./Sent.	Comment or Question	Modification Needed	Basis/Justification	DOE Response	Ecology Response	Open/Close	Reviewer Initials
3	Section 5.1	The RAWP for PFP Complex D4 (DOE/RL-2011-03) is referenced several times in this document (DOE/RL-2011-59, Draft C). That document appears to commit to "applying appropriate controls as identified in Section 4.3.1.2 of DOE/RL-2011-03." WDOH made a comment in 2011 on Draft B of DOE/RL-2011-03 that the radiological source term listed in Table 4-2 and 4-3 should list all radionuclides (WDOH LB#3344, AIR 11-1008). WDOH requests Ecology seek DOE's assurance that all radionuclides applicable to the PFP Complex are integrated into the Near-Field Environmental Monitoring System sample analysis plan, consistent with the second comment made in 2011 noted above, to ensure the near-field samples are appropriately analyzed for radionuclides associated with PFP Complex facilities in Stage 1 and 2, as described in DOE/RL-2011-59, draft C.	DOE needs to provide the assurance that all radionuclides applicable to the PFP Complex are integrated into the Near-Field Environmental Monitoring System sample analysis plan, consistent with the second comment made in 2011 noted above, to ensure the near-field samples are appropriately analyzed for radionuclides associated with PFP Complex facilities in Stage 1 and 2, as described in DOE/RL-2011-59, draft C.		This comment was originally addressed by adding foot notes to the Potential to Emit (PTE) tables in the draft RAWP reflecting that certain radionuclides do not contribute to the calculation. In the current version of the RAWP, the PTE tables were replaced in whole. However, a calculation was published (referenced in the RAWP) that demonstrates certain isotopes do not contribute to the dose consequence. The near facility monitors immediately around PFP are currently being analyzed for Sr-90, Cs-137, Pu-238, Pu-239/240, Pu-241, Am-241, U-234, U-235, U-238 among others. Data is available in the ABCASH database. In consideration of the explanation discussed above, no changes to the PFP S&M Plan are deemed necessary.	Agree	Close	SS
4	Section 5.1	This section states that air "emissions will be kept as low as reasonably achievable (ALARA) and will be appropriately monitored by applying the controls identified in Section 4.3.1.2 of the RAWP." There does not appear to be any controls in Section 4.3.1.2 of DOE/RL-2011-03 that are specifically identified to be used for Stage 1 or Stage 2 of the surveillance and maintenance (S&M) phase of demolition of the PFP Complex to be used to maintain emissions ALARA. Is this the intent of Section 5.1.2, and if so, what criteria will determine if and when the controls listed in Section 5.1.3 of DOE/RL-2011-59 will be used?	Provide information on what criteria will determine if and when the controls listed in Section 5.1.3 of DOE/RL-2011-59 will be used.		Section 5 of the S&M Plan has been separated into Stage 1 and Stage 2 S&M. 5.1 is now for Stage 1 S&M and points to the controls from 4.3.1.2 of the RAWP for Stage 1 S&M. Section 5.2 (including subsections) of the S&M Plan is now for Stage 2 S&M. The controls in Section 5.2.3 are used for Stage 2 S&M.	Agree	Close	SS

Review Comment Record	Washington State Department of Ecology Nuclear Waste Program	Date: May 29, 2016 Page 9 of 9

Item No.	Pg. # Sec. # Para./Sent.	Comment or Question	Modification Needed	Basis/Justification	DOE Response	Ecology Response	Open/Close	Reviewer Initials
5	Section 5.1.4	This section states that "monitoring will rely on the near-field ambient air monitoring network" to provide an "indication of changes in emissions at the PFP Complex during Stage 2 S&M." Use of near-field ambient air monitoring network as described in DOE/RL-91-50, Hanford Site Environmental Monitoring Plan, is a general condition of the Hanford Radioactive Air Emissions License #FF-01.			The DOE-RL PFP Closure Division (PCD) Deputy Federal Project Director discussed this comment with DOE-RL's Environmental Safety and Quality Division (ESQ). ESQ re-affirmed the use of near-field ambient air monitors is a general condition of the Hanford Radioactive Air Emissions license #FF-01. No changes to the PFP S&M Plan are deemed necessary.	Agree	Close	SS

DOE/RL-2011-59
Revision 0

Surveillance and Maintenance Plan for the Plutonium Finishing Plant Complex

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

U.S. DEPARTMENT OF ENERGY Richland Operations Office

P.O. Box 550
Richland, Washington 99352

Approved for Public Release;
Further Dissemination Unlimited

DOE/RL-2011-59
Revision 0

Surveillance and Maintenance Plan for the Plutonium Finishing Plant Complex

Date Published
June 2016

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

U.S. DEPARTMENT OF ENERGY Richland Operations Office
P.O. Box 550
Richland, Washington 99352

APPROVED
By Julia Raymer at 8:43 am, Jun 13, 2016

Release Approval Date

Approved for Public Release;
Further Dissemination Unlimited

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Signature Sheet

Title *Surveillance and Maintenance Plan for the Plutonium Finishing Plant Complex*

Ray J. Corey, Assistant Manager for the River and Plateau
U.S. Department of Energy, Richland Operations Office

Signature Date 6/14/16

Stephanie Schleif, Nuclear Waste Program
Washington State Department of Ecology

Signature Date 6/16/16

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Contents

1 Introduction 1

1.1 History and Background 2

1.2 Milestones 3

1.3 Purpose and Scope 3

1.4 Plan Objectives 5

2 Plutonium Finishing Plant Complex Information 5

2.1 Stage 1 S&M Expected Conditions and Activities 6

2.2 Stage 2 S&M Expected Conditions 7

2.2.1 234-5Z Plutonium Fabrication Facility 8

2.2.2 291-Z Exhaust Air Filter Stack Building Description 8

2.2.3 241-Z Tank Cells Description 10

2.3 Stage 2 S&M Activities 10

2.4 Stage 2 S&M Routine S&M 11

2.5 Types of PFP Complex Surveillance and Maintenance 12

2.5.1 General Inspection 12

2.5.2 Maintenance Activities 12

3 Quality Assurance 12

4 Training and Qualifications 12

5 Environmental Compliance/Protection 13

5.1 Stage 1 S&M Radiological Air Emissions 13

5.2 Stage 2 S&M Radiological Air Emissions 13

5.2.1 Airborne Source Information 13

5.2.2 Potential Annual Emissions 13

5.2.3 Airborne Emission Controls 14

5.2.4 Airborne Emission Monitoring 14

5.3 Waste Management 14

5.4 Hazardous Material Management 15

5.5 Record Keeping and Documentation 15

6 Radiological Controls 16

7 Emergency Management and Preparedness 16

8 Health and Safety 16

9 Institutional Controls 17

10 Safeguards and Security 17

11 Schedule 17

12 References 17

Figures

Figure 1. Slabs and Underground Structures in S&M Area 1
Figure 2. 234-5Z Pipe Tunnels and Pipe Trenches 9
Figure 3. Cutaway View of the 291-Z Exhaust Fan and Compressor House 10
Figure 4. 241-Z Building Cutaway View 11
Figure 5. Near-Facility Ambient Air Monitoring (Typical) 15

Tables

Table 1. Building Slabs 3
Table 2. Underground Structures 4

Terms

ALARA	as low as reasonably achievable
ARAR	applicable or relevant and appropriate requirement
CERCLA	*Comprehensive Environmental Response, Compensation, and Liability Act of 1980*
D4	deactivation, decontamination, decommissioning, and demolition
DOE	U.S. Department of Energy
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
EPCC	end point criteria checklist
HASP	health and safety plan
HEPA	high-efficiency particulate air
IC	institutional control
OU	operable unit
PFP	Plutonium Finishing Plant
QA	quality assurance
RAR	removal action report
RAWP	removal action work plan
RCT	radiological control technician
RI/FS	remedial investigation/feasibility study
S&M	surveillance and maintenance
Tri-Party Agreement	*Hanford Federal Facility Agreement and Consent Order*
TRU	transuranic
URMA	underground radioactive material area
WIDS	Waste Information Data System

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1 Introduction

This Surveillance and Maintenance (S&M) Plan describes the expected conditions of the Plutonium Finishing Plant (PFP) at the beginning of the S&M phase and the actions necessary to maintain safe and stable conditions, as identified in Tri-Party Agreement Milestone M-83-20 (Ecology et al., 1989a, *Hanford Federal Facility Agreement and Consent Order*) and associated end point criteria in HNF-22401, *Plutonium Finishing Plant (PFP) Complex End Point Criteria*, until implementation of future remedial actions. This S&M Plan is being submitted as a primary document to the Washington State Department of Ecology (Ecology) as the lead regulatory agency for S&M. The activities addressed by this S&M plan are applicable to the area within the fence indicated in Figure 1.

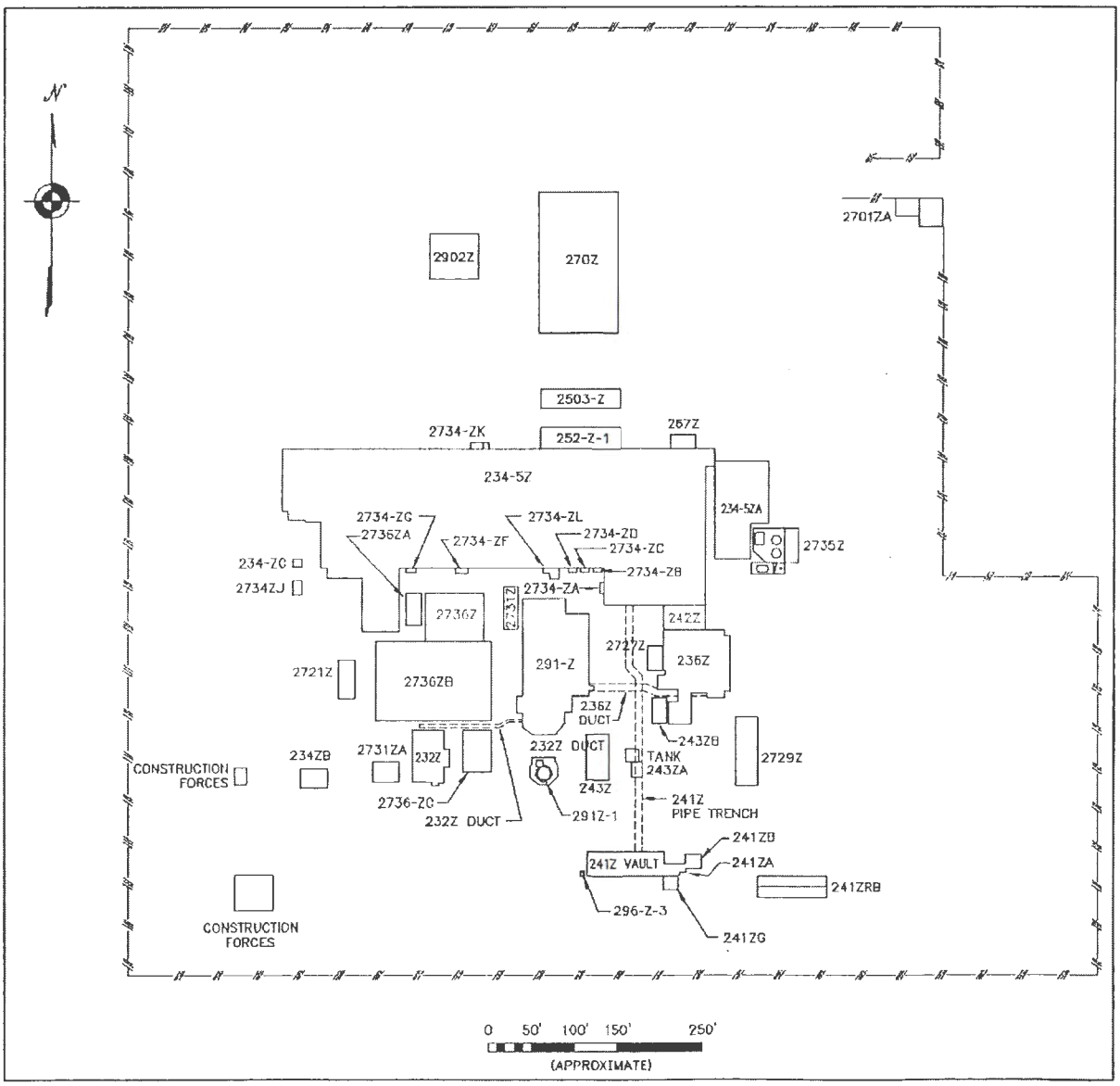

Figure 1. Slabs and Underground Structures in S&M Area

1.1 History and Background

PFP is located on the Central Plateau of the Hanford Site, within the 200 West Area. The PFP Complex included several process and support buildings constructed in 1949 through 1993 that were used to process plutonium solutions or oxides into hockey puck sized plutonium metal "buttons" for shipment to the nation's nuclear weapons production facilities, or the oxide was used to fabricate mixed-oxide reactor fuel. In 1991, the mission changed to plutonium-bearing material stabilization and deactivation and decommissioning. Material stabilization campaigns and the mission for storage of stabilized plutonium materials were completed in December 2009 when the final containers of stored material were shipped from PFP.

The Tri-Party Agreement Action Plan (Ecology et al., 1989b, *Hanford Federal Facility Agreement and Consent Order Action Plan*) identifies the PFP Complex as a key facility. Thus, it is subject to the disposition process of Section 8.0 of the Action Plan. The PFP Complex will be dispositioned under the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA). Potential removal action alternatives for buildings and other structures at the PFP Complex were evaluated in DOE/RL-2004-05, *Engineering Evaluation/Cost Analysis for the Plutonium Finishing Plant Above-Grade Structures*. The preferred alternative is documented in DOE/RL-2005-13, *Action Memorandum for the Plutonium Finishing Plant Above-Grade Structures Non-Time Critical Removal Action* (hereinafter referred to as the Action Memorandum). The selected alternative is demolition of above-grade structures to slab-on-grade, suitable for low cost S&M pending final disposition of the area. Implementation of the selected alternative is described in DOE/RL-2011-03, *Removal Action Work Plan for the Deactivation, Decontamination, Decommissioning, and Demolition of the Plutonium Finishing Plant Complex* (hereinafter referred to as the removal action work plan [RAWP]).

The CERCLA documents cited previously define and make a distinction between the terms above-grade, sub-grade, and below-grade for the purpose of defining the scope of the removal action. When those terms are used in this document, it is within the context of the CERCLA documents[1]. The term underground, as used in this document, encompasses sub-grade and below-grade items and includes building slabs remaining after building demolition.

The U.S. Department of Energy (DOE) is the lead agency for CERCLA actions. Ecology is the lead regulatory agency for the removal action and S&M. As part of the completion process of the removal action, the remaining components will be evaluated and assigned to the appropriate operable unit (OU) in accordance with existing Tri-Party Agreement procedures. Dependent on the OU assignment, Ecology or the U.S. Environmental Protection Agency (EPA) may be the lead regulatory agency for final remedial actions at the PFP Complex.

[1] The term above-grade in this document refers to items that are above or on the elevation of the surrounding ground (e.g., a building or concrete slab). The term below-grade means below the elevation of the surrounding ground but not completely covered by soil. For example, the basement of a building would be below-grade. The term sub-grade is used when referring on an item that is completely covered by soil or other covering (e.g., a floor slab) that is not readily removed. For example, piping that is buried under a building is considered sub-grade.

1.2 Milestones

Tri-Party Agreement Major Milestone M-083-00A, *Proposed Tri-Party Agreement Modifications and Reference Documents for Plutonium Finishing Plant Transition and Selected Disposition Milestones (M-83-00A)*, (Ecology et al., 1989a, *Hanford Federal Facility Agreement and Consent Order*), has three key elements:

1. "Completion of all activities necessary to achieve end point criteria established through Milestone M-83-20 for placing the PFP facility in a safe and stable S&M mode."
2. "Completion of all activities described in the approved M-83 series interim milestones and target date."
3. "Completion of the balance of PFP selected disposition activities pursuant to the final action memoranda and work plans."

Upon completion of Milestone M-083-00A, PFP will transition to S&M under this S&M Plan, which was developed in accordance with Target Milestone M-083-24-T01.

In late 2015, Ecology and the DOE, Richland Operations Office agreed on removal of slabs for the 236-Z and 242-Z Buildings, following removal of the above-grade structures, to reduce potential residual radiological inventory in the PFP Complex area. The RAWP (DOE/RL-2011-03) and End Point Criteria document (HNF-22401) were updated using Tri-Party Agreement change notices (TPA-CN-681 and TPA-CN-682, respectively) to allow this change. Consequently, this plan describes an S&M phase with two distinct stages: an initial stage where post-transition actions, such as slab removal, will take place to reduce hazards further, and a caretaker stage pending final remedial action. These stages are further described in Chapter 2 of this plan.

1.3 Purpose and Scope

The purpose of this S&M Plan is to identify actions necessary to maintain safe and stable conditions until implementation of future remedial actions. The scope of this plan is limited to S&M of the items listed in Tables 1 and 2 within the fenced area shown in Figure 1. The east side of the PFP Complex (outside the fenced area) is the support area. This area contains mobile offices, parking lots, the 2607-WA Septic System (southwest corner of the intersection of 19th Street and Camden Avenue), and the 212-Z Lag Storage Yard. The mobile offices, parking lots, 212-Z lag storage yard, and septic system will remain active for an extended period and are not addressed by this S&M Plan. The 241-Z-361 tank, while inside the fence, has been included in the 200-PW-1/3/6 OU remedial action (EPA et al., 2011, *Record of Decision Hanford 200 Area Superfund Site 200-CW-5 and 200-PW-1, 200-PW-3, and 200-PW-6 Operable Units*) and, therefore, is not included in this S&M Plan.

The scope of this plan may be modified in accordance with the Tri-Party Agreement process for primary document changes as items transition from active to inactive status or transition to coverage under other documents. Activities performed according to this S&M Plan will be conducted in accordance with applicable or relevant and appropriate requirements (ARARs) under CERCLA authorization.

Table 1. Building Slabs

Identification	Description	Identification	Description
232-Z	Waste Incinerator Facility	267-Z	Fire Riser Valve House
234-5Z	Plutonium Fabrication Facility	296-Z-3	241-Z Stack

Table 1. Building Slabs

Identification	Description	Identification	Description
234-5ZA	Change Room Addition	2721-Z	Emergency Generator Building
234-ZB	Clean Special Work Permit (Protective Clothing) Storage	2727-Z	Supply Storage Building
234-ZC	Barrel Storage	2729-Z	Maintenance Storage Building
236-Z	Plutonium Reclamation Facility (slab to be removed during Stage 1 S&M)	2731-Z	Plutonium Drum Storage Building
241-Z	Tank Farm Waste Disposal Building	Not numbered	Construction Forces Buildings
241-ZA	Sample Building	2731-ZA	Container Storage Building
241-ZB	Sodium Hydroxide Tank	2734-ZA, -ZB, -ZC, -ZD, -ZF, -ZG, -ZK	Gas Bottle Storage
241-ZG	Change Facility	2734-ZJ	Liquid Nitrogen Storage and Supply
242-Z	Waste Treatment Facility (Slab to Be Removed during Stage 1 S&M)	2734-ZL	Hydrogen Fluoride Facility
243-Z	Low-Level Waste Treatment Facility	2735-Z	Bulk Chemical Storage Tanks
243-ZB	Cooling Towers	2736-Z	Plutonium Storage Building
252-Z-1	Electrical Substation	2736-ZA	Plutonium Storage Ventilation Structure
270-Z	Operations and Support Facility	2736-ZB	Plutonium Storage Support Facility
2503-Z	Electrical Switchyard	2736-ZC	Cargo Restraint Transport Dock
2701-ZA	Central Alarm Station	2902-Z	Water Tower

1

Table 2. Underground Structures

Structure Identification	Name/Description	Status During Stage 2 S&M
232-Z Ventilation Duct	232-Z to 291-Z Ventilation Duct	Filled with grout
236-Z Ventilation Duct	236-Z to 291-Z Ventilation Duct	Sealed at each end
234-5Z	Pipe Tunnels	Filled with backfill material
241-Z	Tank Farm Waste Disposal Building	Vaults and tanks remain (Section 2.2.3)
241-Z Pipe Trench	241-Z Pipe Trench	Depth ranges from approximately 1.5 m (5 ft) to approximately 2.1 m (7 ft)
241-Z-RB	Retention Basin and Valve Pit	Both filled with grout
243-ZA	Low-Level Waste Storage Tanks Sump	Filled with backfill (tanks removed)

Table 2. Underground Structures

Structure Identification	Name/Description	Status During Stage 2 S&M
291-Z	Ventilation Fan Building	Filled with backfill material
291-Z-1	Stack and Monitoring Building	Base of stack (elbow) remain. Filled with backfill material.
2902-Z	Valve Pit	Filled with grout

1.4 Plan Objectives

Objectives of the S&M program, as enumerated in DOE G 430.1-2, *Implementation Guide for Surveillance and Maintenance during Facility Transition and Disposition*, are as follows:

- Ensure adequate containment of remaining radioactive and hazardous material.
- Provide security control for access to the area and physical safety to surveillance personnel.
- Maintain remaining components in a manner that will minimize potential hazards to the public, environment, and surveillance personnel.
- Provide a plan for identification and compliance with applicable environmental, safety, health, and security requirements.

2 Plutonium Finishing Plant Complex Information

Information related to the deactivation, decontamination, decommissioning, and demolition (D4) of the PFP Complex will be available to guide activities undertaken during the S&M phase and to support the process for determining the final CERCLA remedial action. Key documents include the following:

- End point criteria checklists (EPCCs)—These checklists identify the actions required to complete D4 for specific buildings and the PFP Complex area inside the boundary fence to comply with the end point criteria defined in HNF-22401. The EPCC documents specify which actions will be completed prior to transition to the S&M phase (pre-transition) and which actions will be completed after transition to the S&M phase (post-transition). Documentation supporting pre-transition end point completion will be incorporated into EPCC documents upon completion of the relevant pre-transition actions. Similarly, the checklist documents will also incorporate documentation of post-transition actions when completed. The EPCCs for pre-transition will aid the S&M organization during the initial stage of S&M. EPCCs from post-transition will aid the S&M organization during Stage 2 of S&M.
- Removal action report (RAR)—This report documents the review described in Section 5.7 of the RAWP (DOE/RL-2011-03). The RAR documents the end state of the PFP Complex after D4 and validates that the Action Memorandum (DOE/RL-2005-13) is completed, the S&M Plan is approved, the property is turned over to S&M (for long-term care following completion of post-transition actions), and appropriate documents are incorporated into the Administrative Record. Two RARs will be developed, one to document completion of pre-transition actions, followed by another RAR upon completion of post-transition actions.
- S&M turnover package—This package is compiled following completion of post-transition actions for use by the S&M organization during the second stage of the S&M phase. It includes essential

drawings, available characterization information, location and condition of remaining features, and similar information of particular importance during longer term S&M.

2.1 Stage 1 S&M Expected Conditions and Activities

At the time of transition to S&M, all end point criteria pre-transition actions will have been completed. Documentation verifying completion will be provided in appendices to each of the EPCC documents. A brief summary of expected conditions at the beginning of Stage 1 S&M follows:

- Process and storage facilities, and their supporting ancillary structures, will have been removed to slab on grade.
- Areas with residual radioactive contamination will have been placed in a safe and stable condition that satisfies underground radioactive material area (URMA) requirements.
- Radiological and other required postings (e.g., vehicle exclusion areas and confined spaces) will be in place.
- Hazardous materials and transuranic (TRU) wastes will have been removed from accessible below-grade spaces.
- Ventilation ducting will have been isolated and sealed at building boundaries.
- Buried piping that entered or exited buildings will have been checked for liquids and drained if needed.
- Process drains to 243Z/ZA will have been flushed.
- The 241Z RCRA unit will have been clean closed (see Section 2.2.3).
- Drain lines, vents, and penetrations will have been isolated and sealed.
- No plutonium that poses a significant security risk or criticality potential will remain in underground systems.
- Unattached materials and equipment in below-grade spaces in buildings will have been removed and the space stabilized to prevent release of contamination and structural collapse.
- Manhole covers to inactive systems will be isolated or sealed to prevent water intrusion and removal from confined space listing.
- PFP Complex electrical supply will be isolated at a point minimizing dead legs.
- Septic tanks 2607-Z and 2607-Z1 will be backfilled.
- Above-grade steam lines will be removed.
- Inactive PFP Complex utility poles will be removed.
- TRU waste (e.g., equipment, piping, and ducting) in accessible below-grade spaces will have been removed or decontaminated to the point that remaining equipment, piping, and ducting could be dispositioned as low-level waste.

During Stage 1 S&M, slab removal and other EPC post-transition actions will take place. The following is a summary of actions that will be conducted in accordance with the RAWP (DOE/RL-2011-03).

- Remove 242-Z and 236-Z slabs.
- Finalize characterization data for remaining tubing, piping, ducting, and drain lines and identify and label those containing contamination.
- Remove, fix, and contain any radiological contamination.
- Install contamination control caps where required.
- Perform final radiological survey to document radiological conditions.
- Remove miscellaneous above-grade structures and materials.
- Remove and dispose of waste and verify/document elimination of waste accumulation areas.
- Isolate the PFP Complex water supply at a point minimizing isolation points and dead legs.
- Grade soil to promote drainage away from below-grade structures.
- Stabilize soil to mitigate dust and erosion.
- Provide posting as needed (e.g., radiological, confined space, vehicle restrictions).
- Provide controls to prevent unauthorized access.
- Compile documentation for remaining industrial hazards, radiological issues, and hazardous substances.
- Develop S&M procedures.
- Fulfill remaining RAWP (DOE/RL-2011-03) and End Point Criteria document (HNF-22401) regulatory commitments, and prepare regulatory documentation.

2.2 Stage 2 S&M Expected Conditions

Following completion of remaining RAWP and end point criteria document requirements, the PFP Complex will transition to Stage 2 S&M (i.e., long-term S&M pending final remediation). All remaining components (structure slabs, underground portions of the original structures, pipelines, tanks, and potentially contaminated soil below or around the original structures) will be evaluated under the CERCLA process to determine potential threats to human health and the environment and, if determined to need further action, assigned to an OU and added to Appendix C of the Tri-Party Agreement Action Plan (Ecology et al., 1989b).

The area subject to this S&M Plan will be controlled with a continuous chain link fence with locked access points. High mast lights may remain in place. The following active structures and equipment will remain in place and are not covered by this S&M Plan:

- 2702-Z cell tower and support building, along with associated active utility poles
- 2607-Z-1 sewage lift station and associated main sewer line through the PFP Complex
- Groundwater monitoring well 299-W15-42

Actions taken during Stage 1 S&M will facilitate an S&M program that will require minimal resources to execute. Radioactive contamination will be maintained in URMAs with a robust contamination control cap, where needed, and the area will be graded to promote drainage. Posting and labeling of remaining hazards will have been completed. Void spaces will have been identified, posted, and stabilized as necessary or backfilled to prevent structural collapse.

Table 1 provides a list of building slabs that are expected to remain, and Table 2 provides a list of underground structures. Figure 1 provides the location of slabs and underground structures.

Slabs and underground structures and components left in place may be covered by one or more contamination control covers, in accordance with the RAWP (DOE/RL-2011-03) and End Point Criteria document (HNF-22401), and will be stabilized to meet URMA requirements. In the case of 232-Z and 236-Z, there are underground ventilation ducts that go to the 291-Z exhaust facility. The 2704-Z safeguards and security building is not included in this list because there is no slab associated with this building.

Underground portions of the 234-5Z, 241-Z, and 291-Z Buildings will be left in a configuration such that human entry will not be possible, thus minimizing S&M of these locations. Other significant underground structures in this area include the 232-Z underground ventilation duct, 236-Z underground ventilation duct, 241-Z-RB retention basin and valve pit, 243-ZA sump, and 2902-Z valve pit. If not removed with the slab, the piping and exhaust ducts under 236-Z (H-2-29620, *Structural Concrete Foundation Plan & Details*) would remain in place. The following subsections provide information about the major underground structures from Table 2. (NOTE: Turnover packages and other documentation, described at the beginning of Chapter 2, will provide additional details.)

2.2.1 234-5Z Plutonium Fabrication Facility

The main plutonium processing facility was 234-5Z. The first floor slab and basement are constructed of reinforced poured concrete. The basement consists of pipe tunnels (Figure 2). Pipe trenches that connect to the pipe tunnels are embedded in the slab and will have been filled with grout prior to transition to S&M. All materials that require disposition as TRU waste will have been removed from the tunnels, and they will be filled with backfill prior to transition to S&M. There will be no access to the pipe tunnels during S&M because the doors will have been sealed, and the tunnels and stairwells will have been backfilled.

2.2.2 291-Z Exhaust Air Filter Stack Building Description

A cutaway of the 291-Z exhaust fan and compressor house is shown in Figure 3. Most of the 291-Z Building is underground and will remain in place. Prior to transition to S&M, above-grade ductwork from 234-5Z and the roof of 291-Z will be removed. Segments of the 66 cm (26 in.) vacuum line that require disposition as TRU waste will have been removed. The walls will be removed down to existing grade. Asbestos and other hazardous materials will have been removed, but the fans and other equipment will remain in place. The structure including access stairs will be filled with backfill. The air ducts (plenums) under 291-Z will not be void filled, but the duct will be filled with backfill at the vertical transition point to the stack after stack removal.

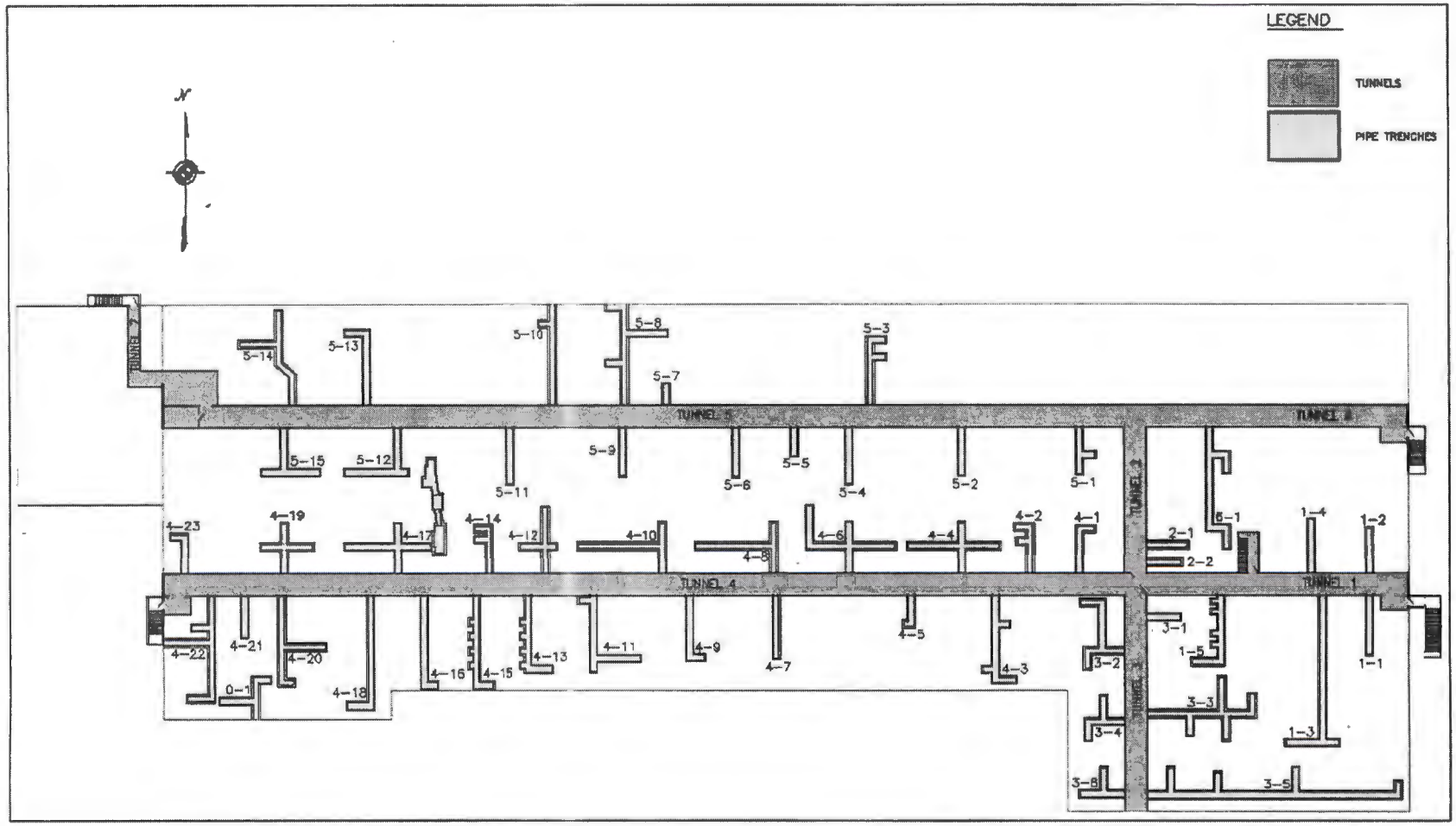

Figure 2. 234-5Z Pipe Tunnels and Pipe Trenches

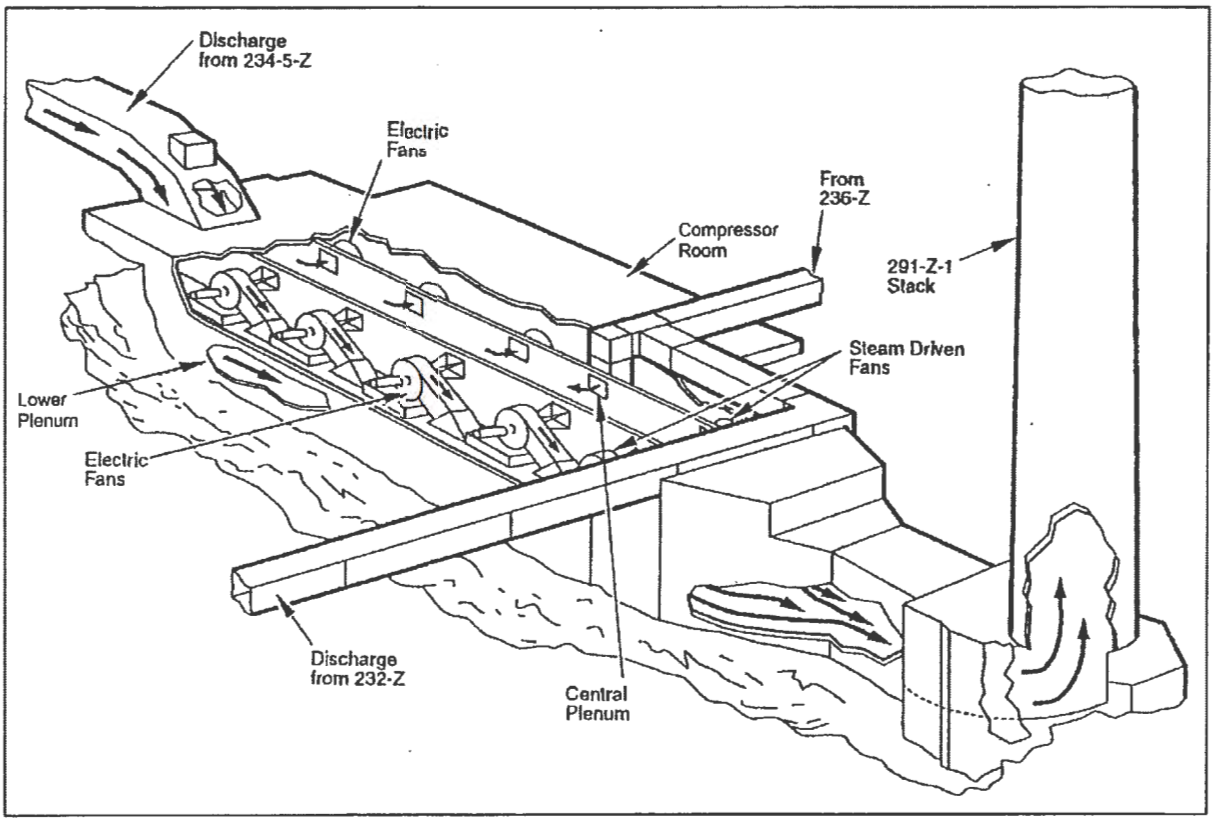

Figure 3. Cutaway View of the 291-Z Exhaust Fan and Compressor House

2.2.3 241-Z Tank Cells Description

The 241-Z Liquid Waste Treatment Facility was a reinforced concrete structure with below-grade vaults and tanks (Figure 4). This facility, which was permitted under the *Resource Conservation and Recovery Act of 1976*, was clean closed per the RCRA Closure plan (DOE/RL-96-82) and the above-grade portion of the building was demolished in 2007. Drain lines that were part of the 241-Z RCRA unit going to 241Z have also been clean closed. All drain lines entering 241Z have been verified empty at 241Z.

The remaining underground structure consists of five separate cells (vaults), each containing a 16,277.3 L (4,300 gal) tank. The tanks were cleaned out and stabilized as part of the facility deactivation and closure; HNF-33999, *241-Z As Left Characterization*, provides a detailed description of conditions. The cell access hatches are sealed and covered with grout and gravel. The cell for the TK-D6 tank has about 0.6 m (2 ft) of grout in the bottom. The underground cells, tanks, and associated piping remain in place. A concrete contamination control cover was placed over the underground portion of the structure in 2007.

2.3 Stage 2 S&M Activities

Stage 2 S&M will include actions to keep the PFP Complex area in a safe and stable condition pending final remediation. The focus will be on ensuring that contamination control measures remain in place to avoid the spread of contamination, but actions may be taken to reduce hazards further or minimize S&M costs.

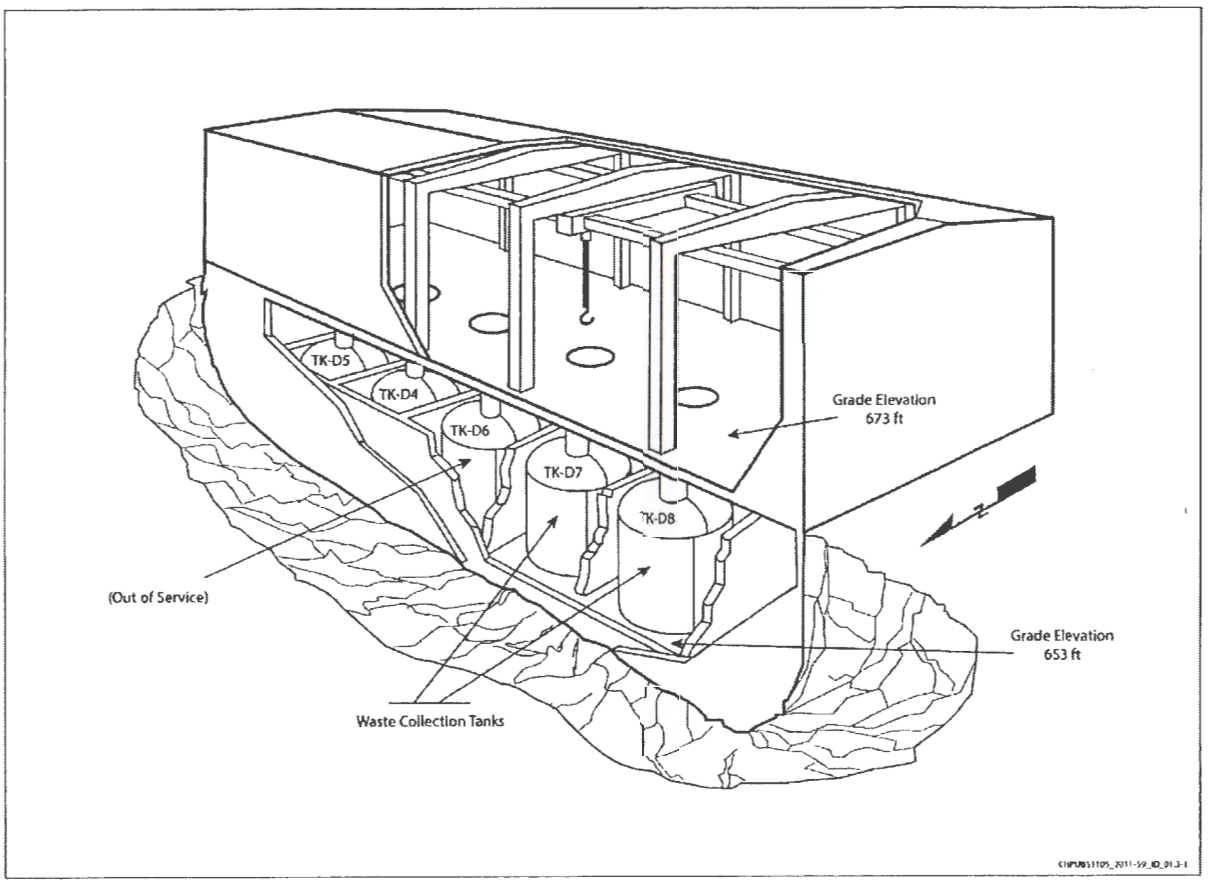

Figure 4. 241-Z Building Cutaway View

Activities associated with future remedial action for the PFP Complex (e.g., remedial investigation/feasibility study [RI/FS] process) will be conducted under remedial action authority and will not be addressed by this S&M Plan.

2.4 Stage 2 S&M Routine S&M

Routine S&M will consist of performing an annual surveillance of the area, within the scope of this S&M Plan to verify that conditions have not changed, and will address actions necessary to resolve issues as identified. The primary focus will be to perform radiological surveys to ensure that no contamination from URMAs has migrated to the surface. The surveillance will identify indications of changed site conditions, such as subsidence or vegetation changes. Signs or other postings and security features will also be checked to ensure that appropriate controls are in place and remain effective.

The primary S&M activity for the PFP Complex is periodic surveillance to ensure that structural integrity and hazardous substance confinement is maintained. The surveillance frequency is annual but may be adjusted later based on actual inspection history. Routine S&M activities will include periodic general inspections, radiological surveys, erosion control, pest control, vegetation and weed control, and specialized inspections (e.g., covers over underground structures remain sound). Nonroutine activities may include necessary repair work on installed covers. These activities are addressed in the following subsections.

2.5 Types of PFP Complex Surveillance and Maintenance

A proper balance of corrective and preventive maintenance is employed to provide confidence that degradation of controls, if any, is identified, corrected and documented. This section summarizes the types of S&M conducted during the Stage 2 S&M phase of the PFP Complex.

2.5.1 General Inspection

An annual inspection will be conducted to determine how site conditions have changed from the initial site transfer and from the previous inspection. Changes identified during the annual inspection will be evaluated to determine if maintenance or repair activities are necessary. These annual inspections will include the following elements.

- Fence condition and access controls
- Slab and cover condition
- Postings
- Evidence of contamination migration
- Erosion control
- Suspect hazardous materials
- Hazardous conditions
- Excess combustible materials
- Excess equipment or material
- Ground subsidence
- Housekeeping
- Occupational hazards
- Previously unidentified hazards
- Unidentified or unlabeled containers
- Animal or insect intrusion
- Vegetation and weed control

2.5.2 Maintenance Activities

Deficiencies identified during surveillance activities will be evaluated, and corrective maintenance will be planned, implemented, and documented, as needed. Preventive maintenance activities may include, but are not limited to, regular herbicide application, slab resealing, pesticide application, tumbleweed and loose vegetation removal, and fence repair.

3 Quality Assurance

Activities performed during S&M that will require implementation of quality assurance principles and processes (e.g., inspections, periodic maintenance) will be planned and implemented in a graded approach, based on the potential effect on the environment, safety, health, reliability, and continuity of operations. Quality assurance requirements in effect at the time of performance of the work, and as identified in the Contractor's contract, will be followed.

4 Training and Qualifications

The company's training program will provide workers with the knowledge and skills necessary to execute assigned duties safely. A graded approach is used to ensure that workers receive a level of training

commensurate with their responsibility. During Stage 1 S&M activities, workers will meet the training and qualification requirements outlined in the RAWP (DOE/RL-2011-03). Thereafter, training requirements will be established based on the complexity and risk associated with the work being performed. Routine surveillance activities will typically require training in the following areas:

- Radiological worker
- Site-specific conditions and hazards
- Potential emergency conditions and appropriate responses
- Waste management
- Job-specific duties and responsibilities

5 Environmental Compliance/Protection

During Stage 1 of the PFP S&M phase, actions will be conducted in accordance with the ARARs and other provisions of the RAWP (DOE/RL-2011-03). After completion of the post-transition actions and initiation of Stage 2 S&M, environmental compliance will transition to CERCLA authority for the investigative phase of the remedial action process. Record keeping and document control will be maintained for all field activities conducted.

5.1 Stage 1 S&M Radiological Air Emissions

Slab removal (i.e., 236-Z and 242-Z slabs) presents the most significant potential for radioactive air emissions after slab-on-grade conditions are achieved. Air dispersion modeling will be performed to evaluate potential emissions from slab removal. Other S&M activities, such as excavating and backfilling, have the potential to release radioactive contaminants into the air. Emissions will be kept as low as reasonably achievable (ALARA) and will be appropriately monitored by applying the controls identified in Section 4.3.1.2 of the RAWP (DOE/RL-2011-03).

5.2 Stage 2 S&M Radiological Air Emissions

After slab removal and completion of remaining RAWP and End Point Criteria document requirements, S&M activities at the PFP Complex will have low potential for generating airborne contamination. Building belowgrade spaces (e.g., basements) will be sealed to preclude entry, and slabs with remaining radiological contamination will be fixed and covered.

5.2.1 Airborne Source Information

Potential emissions from the PFP Complex would mainly be diffuse and fugitive from the general area. If used during S&M, portable temporary radioactive air emission units would represent point sources.

The primary radionuclides of concern are americium-241 and plutonium-238, -239, -240, -241, and -242. Other radioisotopes may be present because of activation products, fission products, and decay products. The remaining contamination associated with PFP demolition will be stabilized in underground spaces or slabs.

5.2.2 Potential Annual Emissions

Other than site maintenance activities, there are no planned active S&M processes or anticipated disturbances of the remaining radiological material that could cause meaningful emissions. Underground spaces (building basements) left after the current removal action will be sealed, and contamination remaining on building slabs will be fixed and covered with a contamination control cover. Therefore, the PFP Complex will represent a minor emissions area source during Stage 2 S&M. The annual unabated

potential-to-emit and resultant effective dose calculations for the maximally exposed individual from diffuse and fugitive sources associated with Stage 2 S&M is anticipated to be much less than 0.1 mrem/yr.

Activities such as sampling, excavation, or other required intrusive work would need to be evaluated for air emissions and appropriate monitoring and controls, based on the site-specific conditions prior to performing the work.

5.2.3 Airborne Emission Controls

Based on analysis of the potential emissions and evaluation of available control technologies, the following controls of diffuse and fugitive emissions have been selected for use during S&M activities:

- Water will be applied in the most effective method, as needed, for suppression of fugitive emissions and dust.
- Radiological surveys (e.g., smear samples) will be taken of external areas where there is the potential for emissions.
- Appropriate controls such as fixatives, covers, containment tents, windscreens, or other controls will be applied, if needed, as determined by the radiological control organization, based on conditions in the area of work.
- Fixatives or cover material (e.g., soil, gravel, and plastic) will be applied to exposed and/or disturbed contaminated soils.
- Any vacuum cleaners and portable exhausters used for maintenance activities will be equipped with high-efficiency particulate air (HEPA) filters. These systems will be used in a manner consistent with Hanford Site HEPA vacuum and portable exhauster practices for similar maintenance activities, including confirmation surveys of system outlets.

5.2.4 Airborne Emission Monitoring

Monitoring will be performed via the near-facility ambient air monitoring network, which has an array of monitoring stations near the PFP Complex and throughout the 200 West Area of the Hanford Site (Figure 5). This system will act as indication of changes in emissions at the PFP Complex during Stage 2 S&M. The Hanford Site protocol established for emission monitoring includes provisions for data collection, sampling frequencies, sample analysis, and data reporting (DOE/RL-91-50, *Hanford Site Environmental Monitoring Plan*). Emissions will continue to be reported as part of the Hanford Site annual reporting.

5.3 Waste Management

Wastes generated during slab removal and other post-transition actions during Stage 1 S&M will be managed in accordance with Section 4.2, "Waste Management," and the associated ARARs of the RAWP (DOE/RL-2011-03). Due to the fact that waste sites within the area covered by this S&M plan could be assigned to different OUs, waste generated during Stage 2 S&M will be managed in accordance with the CERCLA decision document covering the waste site generating the waste.

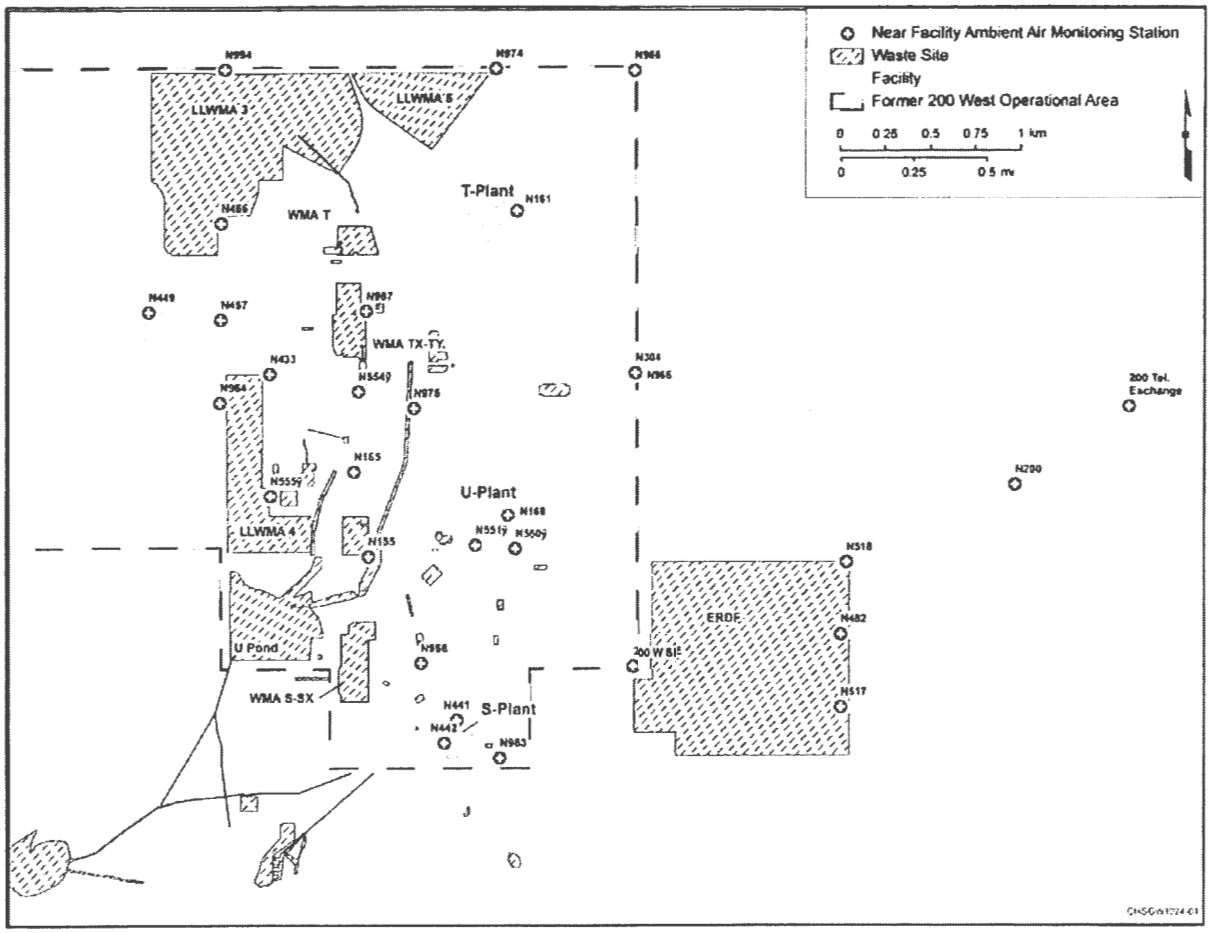

Figure 5. Near-Facility Ambient Air Monitoring (Typical)

5.4 Hazardous Material Management

Hazardous materials present during Stage 1 S&M will be managed in accordance with the RAWP. The amount of hazardous material remaining after transitioning to Stage 2 S&M should be minimal and would consist of those materials described in WIDS site descriptions or be associated with surveillance, maintenance, or site investigation activities. During Stage 2 S&M, these materials would be managed in accordance with Hanford Site standard methods.

During both Stage 1 and Stage 2 S&M, applicable requirements for occupational safety, nuclear safety, and radiological safety will be implemented for control of potential personnel exposures to hazardous materials or conditions.

Work instructions will integrate occupational safety, nuclear safety, criticality safety, and radiological safety, as applicable, to ensure worker protection.

5.5 Record Keeping and Documentation

Records generated from S&M activities are managed in accordance with Section 9.4 of the Tri-Party Agreement Action Plan (Ecology et al., 1989b). The End Point Criteria document (HNF-22401) specifies required documentation for turnover to S&M.

6 Radiological Controls

The radiological controls and protection program reduces the risks to personnel safety and/or health to ALARA levels and ensures adequate protection of workers. The radiological protection program meets the requirements of 10 CFR 835, "Occupational Radiation Protection."

Before S&M is performed, the proposed activity will be discussed with the radiological controls organization to determine the scope and necessary radiological survey requirements. Technical assessment documentation may be issued by the radiological controls organization to provide direction concerning the isotopes of concern and any specific survey and/or air sampling requirements. Dependent upon work scope and expected radiological conditions, an ALARA review may be performed as well. Radiological control technicians (RCTs) will assess radiological conditions of the work/surveillance area in accordance with standard practices and issued technical assessments, document survey results, and ensure correct radiological postings/boundaries of the area.

Based upon the results of the radiological survey, a radiological work plan is issued describing the appropriate personal protective clothing, dosimeter requirements, respiratory protection, and RCT coverage requirements.

7 Emergency Management and Preparedness

The Emergency Management Program establishes a coordinated emergency response organization capable of planning for, responding to, and recovering from industrial, security, and hazardous material incidents. Emergency action plans identify the capabilities necessary to respond to emergency conditions, provide guidance and instruction for initiating emergency response actions, and serve as a basis for training personnel in emergency actions. An emergency response plan (or Building Emergency Plan) may continue to be in effect during slab removal but is likely to be discontinued as hazards are reduced and work transitions into Stage 2 S&M. Emergency response actions within the emergency action plan are provided for recognizing incidents and/or abnormal conditions, initiating protective actions, and making the proper notifications. The emergency action plans are consistent with Hanford Site emergency processes and meet the requirements of state and federal regulations.

The potential hazards expected to be present during slab removal may warrant the staging of emergency equipment in support of that activity. Subsequent to slab removal and other post-transition activities, the S&M area of the PFP Complex will be unoccupied. Therefore, no permanent emergency equipment, communication equipment, warning systems, personal protective equipment, or spill control and containment supplies will be located within the fenced S&M area at the PFP Complex.

Prior to periodic entries during Stage 2 S&M, personnel will review appropriate procedures and attend pre-job safety meetings. The procedures, emergency plans, and meetings dictate the appropriate emergency equipment to be taken into the work areas and will identify PFP Complex specific hazards, appropriate evacuation routes, and notifications to be made if an accident occurs.

8 Health and Safety

DOE self-implements the requirements of 29 CFR 1910.120, "Occupational Safety and Health Standards," "Hazardous Waste Operations and Emergency Response," under the 10 CFR 851, "Worker Safety and Health Program," regulatory program, which requires a fully developed health and safety program. A health and safety plan (HASP), required under CERCLA, is developed when the decisions and documents (e.g., RI/FS, RAWP, and other documents) are completed for the final disposition of the facility in question. During Stage 1 S&M, the PFP HASP used during above-grade structure demolition

will continue to be used with modifications as necessary to reflect the nature and hazard of the activities performed during that stage.

The safety and health program requirements for CERCLA work being performed on a hazardous waste site are included in 29 CFR 1910.120. However, there is a note at the start of Section b of the standard:

> "NOTE TO (b): *Safety and health programs developed and implemented to meet other federal, state, or local regulations are considered acceptable in meeting this requirement if they cover or are modified to cover the topics required in this paragraph. An additional or separate safety and health program is not required by this paragraph.*"

During Stage 2 S&M, DOE may elect to continue to have a HASP to cover the Stage 2 activities or may decide to use this provision to perform work under the overall safety and health program. The latter approach is more commonly used for long-term S&M activities with less significant hazards.

9 Institutional Controls

Institutional controls (ICs) are nonengineered instruments, such as administrative and legal controls, that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy. The current controlling CERCLA document is an interim removal action. Decisions for ICs will be documented within the final CERCLA remedial action decision document for the PFP Complex, as needed. Until a final remedy is in place for the PFP Complex, existing access and other controls may be used to minimize human exposure and to contain contaminants.

10 Safeguards and Security

Subsequent to transition to Stage 2 S&M, the area of the PFP Complex inside the fence (Figure 1) will not be occupied except at those times when periodic S&M activities are occurring. There will be no intrusion alarms or routine security patrols within the perimeter fence of the PFP Complex. Hanford Patrol will provide routine security patrols throughout the 200 West Area, including checks of the PFP Complex area. No specific safeguards and security requirements have been identified for the PFP Complex area during Stage 2 S&M.

Access to the Hanford Site is controlled by checkpoints on authorized vehicle access roads. All personnel entering the Hanford Site must display a DOE-issued identification badge. Personnel on the Hanford Site are also subject to random searches. A single fence will remain around portions the PFP Complex with locked access gates controlled by the S&M organization.

11 Schedule

Pre-transition portions of the removal action are scheduled to be completed by September 30, 2016, per Tri-Party Agreement Milestone M-083-00A (Ecology et al., 1989a). Transition to Stage 1 S&M will occur upon achievement of a safe and stable condition and completion of other actions required by Milestone M-083-00A. Select removal actions will continue during Stage 1 S&M with completion of removal of the 236-Z and 242-Z slabs and post-transition End Point Criteria document (HNF-22401) activities by September 30, 2017, in accordance with the RAWP (DOE/RL-2011-03). The annual S&M surveillance and preventive maintenance will be implemented in appropriate work packages.

12 References

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