U.S. Department of Energy
Hanford Site

21-PFD-000599 March 2, 2021

Mr. David Bowen, Program Manager
Nuclear Waste Program
Washington State Department of Ecology
3100 Port of Benton Boulevard
Richland, Washington 99354

Mr. Craig E. Cameron, Project Manager
Superfund and Emergency Management Division
Site Cleanup Section 4
U.S. Environmental Protection Agency
825 Jadwin Avenue, Suite 210
Richland, Washington 99352

Addressees:

ACTION MEMORANDUM FOR THE PUREX COMPLEX, DOE/RL-2016-53, REVISION 1

This letter transmits the Action Memorandum for the Plutonium Uranium Extraction (PUREX) Complex, DOE/RL-2016-53, Revision 1 (Attachment 1), for your use. This revision (Rev. 1) was prepared to provide responses to the Oregon Department of Energy's comments on DOE/RL-2016-15, Engineering Evaluation/Cost Analysis for the PUREX Complex that were not addressed in Revision 0. The responses are provided in Appendix B, Public Review Comments (Attachment 2) of this document.

If you have any questions please contact me, or your staff may contact Patty Ensign, of my staff, on (509) 372-3442.

Sincerely,

Mark S. French

Digitally signed by Mark S. French
Date: 2021.03.02 13:46:07 -08'00'

Mark S. French, Director
Project and Facilities Division
Richland Operations Office

PFD-PGE

Attachments
1. DOE-RL-2016-53-Rev 1
2. Review Comment Record

cc: See page 2

cc w/attachs:
J. Bell, NPT
R. Buck, Wanapum
L. Contreras, YN
D. R. Einan, EPA
S. Leckband, HAB
N. M. Menard, Ecology
M. Murphy, CTUIR
S. N. Schleif, Ecology
J. H. Temple, Ecology
B. L. Weese, Ecology
M. Woods, ODOE
Administrative Record
Environmental Portal

cc w/o attachs:
S. G. Austin, CPCCo
S. L. Brasher, HMIS
S. W. Davis, HMIS

DOE/RL-2016-53
Revision 1

Action Memorandum for the PUREX 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-2016-53
Revision 1

Action Memorandum for the PUREX Complex

Date Published
January 2021

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 Sarah Harrison at 1:42 pm, Jan 18, 2021

Release Approval | Date

Approved for Public Release;
Further Dissemination Unlimited

TRADEMARK DISCLAIMER

Reference herein to any specific commercial product, process, or service by tradename, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors.

This report has been reproduced from the best available copy.

Printed in the United States of America

Signature Page

Having considered the extent to which the *Action Memorandum for the PUREX Complex* could be inconsistent with *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* processes or could alter schedules set forth in Appendix D of the *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement), the U.S. Department of Energy and the Washington State Department of Ecology approve this document.

WF HAMEL		1/12/2021
William F. Hamel Jr. U.S. Department of Energy Richland Operations Office	Signature	Date

This page intentionally left blank.

Executive Summary

This action memorandum (AM) documents the selected alternative to perform the non-time-critical removal action (NTCRA) at the Plutonium Uranium Extraction (PUREX) Complex in the 200 East Area of the Hanford Site. The PUREX Complex structures addressed in this AM include the 202A Building (Canyon, East Annex, and West Annex). This AM was prepared in accordance with the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA)[1] as amended by *Superfund Amendments and Reauthorization Act of 1986*[2] and 40 CFR 300.[3] This AM was also prepared to meet the intent of U.S. Environmental Protection Agency guidance (*Superfund Removal Guidance for Preparing Action Memoranda*).[4] This approach satisfies environmental review requirements and provides for stakeholder involvement, while also providing a framework for selecting the removal action alternative. An Administrative Record has been established to record information used to support the selected alternative and provide documentation of decisions and the progress of the removal action.

An engineering evaluation/cost analysis (EE/CA) was prepared and released for public comment on the evaluation of alternatives to accomplish the PUREX Complex removal action.[5] The removal action consists of a combination of surveillance and maintenance, hazard abatement, demolition preparation (demo prep), and demolition activities.

The removal action is proposed to occur before a remedial action in order to mitigate potential threats to human health and the environment. The evaluation and comparison of

---

[1] *Comprehensive Environmental Response, Compensation, and Liability Act of 1980*, Pub. L. 107-377 as amended, 42 USC 9601 et seq., December 31, 2002. Available at: https://www.csu.edu/cerc/researchreports/documents/CERCLASummary1980.pdf.

[2] *Superfund Amendments and Reauthorization Act of 1986*, 42 USC 9601 et seq. Available at: https://www.govinfo.gov/content/pkg/USCODE-2011-title42/pdf/USCODE-2011-title42-chap103.pdf.

[3] 40 CFR 300, "National Oil and Hazardous Substances Pollution Contingency Plan," *Code of Federal Regulations*. Available at: https://www.govinfo.gov/content/pkg/CFR-2010-title40-vol27/xml/CFR-2010-title40-vol27-part300.xml.

[4] EPA, 2009, *Superfund Removal Guidance for Preparing Action Memoranda*, Office of Emergency Management, Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency, Washington, D.C. Available at: https://www.epa.gov/sites/production/files/2014-02/documents/superfund_removal_guide_for_preparing_action_memo.pdf.

[5] DOE/RL-2016-15, 2019, *Engineering Evaluation/Cost Analysis for the PUREX Complex*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: https://pdw.hanford.gov/document/AR-02488.

the removal action alternatives are provided in the PUREX EE/CA, with one alternative presented as the recommended alternative. A public comment and review period (from July 3, 2019, to August 17, 2019) was held for the PUREX EE/CA. All public comments were resolved.

The removal action supports the overall cleanup objectives identified in the *Hanford Federal Facility Agreement and Consent Order*[6] and considers the remedial actions that will be presented in a future PUREX Complex Record of Decision. Without this removal action, contaminated buildings and structures could potentially have an adverse impact to human health and the environment. The buildings/structures addressed by this NTCRA are chemically and radiologically contaminated.

The U.S. Department of Energy (DOE) and Washington State Department of Ecology considered four removal action alternatives for the contaminated structures at the PUREX Complex under a NTCRA (Table ES-1).

Table ES-1. Proposed Alternatives for the PUREX Complex Removal Action

Alternative	Removal Action Description
1	No action
2	• Continued surveillance and maintenance of PUREX Complex • Hazard abatement* of 202A Building (includes canyon, east and west annexes)
3	Alternative 2 actions, plus: • Demo prep of the 202A East and West Annexes
4	Alternative 3 actions, plus: • Demo prep of 202A Canyon Abovegrade Areas • Demolition of the 202A East and West Annexes

*This action memorandum is inclusive of hazard abatement as described in DOE-RL-2019-34, *Removal Action Work Plan for the PUREX Complex: Hazard Abatement Including White Powder Within the 202A Building*.

demo prep = demolition preparation
PUREX = Plutonium Uranium Extraction

[6] Ecology, EPA, and DOE, 1989a, *Hanford Federal Facility Agreement and Consent Order*, 2 vols., as amended, Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Olympia, Washington. Available at: https://www.hanford.gov/?page=81.

Alternative 4 is selected for this NTCRA (Continued Surveillance and Maintenance with Hazard Abatement of 202A Building [Canyon, East Annex and West Annex], Demo Prep and Demolition of 202A East and West Annexes, and Demo Prep of 202A Canyon Abovegrade Areas). Alternative 4 best meets the removal action objectives, stabilizes large amounts of radiological inventory, and supports future remedial decisions and characterization activities. Waste generated during removal action activities may include but is not limited to radiologically and/or chemically contaminated equipment and demolition debris. Equipment includes pumps, pipes, tanks, containers, compressors, ductwork, and electrical components. Demolition debris includes wood, metal, roofing, siding, gypsum, and concrete. The Environmental Restoration Disposal Facility will be the preferred disposal location for waste meeting the facility's acceptance criteria to facilitate cost-effective, environmentally protective, and efficient disposal. As detailed in this AM, the selected alternative is cost-effective and reduces long-term risk to human health and the environment.

As a part of transitioning the Hanford Site facilities and emission units from an Air Operating permit basis, the Hanford Site Air Operating Permit (#00-05-006) includes an agreement for transition contained in the Standard Terms and General Conditions Statement of Basis. This provides an agreed upon process for removing facilities from the Hanford Title V Air Operating Permit upon the start of CERCLA work activities. After public comment of the EE/CA, a signed AM, removal action work plan (RAWP), air monitoring plan, and sampling analysis plan addressing all applicable or relevant and appropriate requirements, are approved and issued prior to start of CERCLA work activities. A notice of transition for the emission unit(s) will be provided to the regulatory agencies for review that will list an effective date (not the approval date) to coincide with the onset of CERCLA field activities covered under this removal action. DOE is no longer required to certify to the air operating permit requirements after the onset of the field activities covered under the removal action. The necessary air emission controls will be described in the RAWP and associated air monitoring plan.

This page intentionally left blank.

Contents

1 Purpose ... 1

2 Facility Description and Background ... 3

2.1 Facility Description ... 3

2.1.1 202A Building ... 3

2.1.2 Anticipated Future Land-Use ... 13

2.2 Other Actions to Date ... 14

2.2.1 Previous Actions ... 14

2.2.2 Current Actions ... 14

2.3 U.S. Environmental Protection Agency, State, and Local Roles ... 15

3 Threats to Human Health or the Environment ... 16

4 Endangerment Determination ... 19

5 Proposed Actions and Estimated Costs ... 19

5.1 Selected Removal Action ... 19

5.2 Contribution to Remedial Performance ... 20

5.3 Alternatives Evaluated in the Engineering Evaluation/Cost Analysis ... 20

5.3.1 Alternative 1 – No Action ... 21

5.3.2 Alternative 2 – Continued S&M/Hazard Abatement 202A ... 21

5.3.3 Alternative 3 – Continued S&M/Hazard Abatement 202A/Demo Prep 202A Annex ... 24

5.3.4 Alternative 4 – Continued S&M/Hazard Abatement 202A/Demo Prep 202A Annex/ Demolition 202A Annex/Demo Prep Abovegrade 202A ... 27

5.4 Applicable or Relevant and Appropriate Requirements and Other Criteria, Advisories, or Guidance to-be-Considered ... 30

5.4.1 Environmental Regulations ... 30

5.4.2 Applicable or Relevant and Appropriate Requirements ... 30

5.4.3 Compliance with Disposal Facility Waste Acceptance Criteria ... 30

5.4.4 Non-Time-Critical Removal Action Objectives ... 31

5.5 Project Costs ... 31

5.6 Project Schedule ... 32

6 Expected Change in the Situation Should Action Be Delayed or Not Taken ... 33

7 Outstanding Policy Issues ... 33

8 Enforcement ... 33

9 Recommendations ... 33

10 References ... 34

Appendices

A Applicable or Relevant and Appropriate Requirements ..... A-i

B Public Review Comments: *DOE/RL-2016-15, Engineering Evaluation/Cost Analysis for the PUREX Complex* ..... B-i

Figures

Figure 1. Hanford Site and PUREX Complex Location 2
Figure 2. PUREX 202A Building 4
Figure 3. 202A Building Length Cross Section 5
Figure 4. 202A Building Cutaway 6
Figure 5. 202A Building Crane Cab Gallery Level Plan View 7
Figure 6. 202A Building P&O Gallery Level Plan View 8
Figure 7. 202A Building Sample Gallery Level Plan View 9
Figure 8. 202A Building Storage Gallery Level Plan View 10
Figure 9. Alternative 2 – Proposed Actions 22
Figure 10. Alternative 2 Plan View – Proposed Actions per Level 23
Figure 11. Alternative 3 – Proposed Actions 25
Figure 12. Alternative 3 Plan View – Proposed Actions per Level 26
Figure 13. Alternative 4 – Proposed Actions 28
Figure 14. Alternative 4 Plan View – Proposed Actions per Level 29

Tables

Table 1. Current Hazard Conditions 17
Table 2. Nonradioactive Material Inventory 18
Table 3. Radioactive Material Inventory 19
Table 4. Proposed Alternatives for the PUREX Complex Removal Action 21
Table 5. Comparison of Total Cost of Removal Action Alternatives in Present Value 32

Terms

AM	action memorandum
AMU	aqueous makeup unit
ARAR	applicable or relevant and appropriate requirement
CERCLA	*Comprehensive Environmental Response, Compensation, and Liability Act of 1980*
demo prep	demolition preparation
DOE	U.S. Department of Energy
DWMU	dangerous waste management unit
Ecology	Washington State Department of Ecology
EE/CA	engineering evaluation/cost analysis
EPA	U.S. Environmental Protection Agency
ERDF	Environmental Restoration Disposal Facility
HCP EIS	Hanford Comprehensive Land-Use Plan Environmental Impact Statement
IC	institutional control
NCP	National Contingency Plan
NTCRA	non-time-critical removal action
P&O	pipe and operating
OU	operable unit
PIV	positive infinitely variable
PR	product removal
PUREX	Plutonium Uranium Extraction
RAO	removal action objective
RAWP	removal action work plan
RCRA	*Resource Conservation and Recovery Act of 1976*
ROD	Record of Decision
S&M	surveillance and maintenance
SAP	sampling and analysis plan

SARA	*Superfund Amendments and Reauthorization Act of 1986*
TBC	to-be-considered
Tri-Parties	DOE, EPA, and Ecology
Tri-Party Agreement	*Hanford Federal Facility Agreement and Consent Order*
TRU	Transuranic

1 Purpose

This revision (Rev. 1) was prepared to provide responses to the Oregon Department of Energy's comments on DOE/RL-2016-15, *Engineering Evaluation/Cost Analysis for the PUREX Complex* (hereinafter referred to as the PUREX engineering evaluation/cost analysis [PUREX EE/CA]). The responses are provided in Appendix B, *Public Review Comments* of this document.

This action memorandum (AM) documents the selected alternative for a non-time-critical removal action (NTCRA) at the Plutonium Uranium Extraction (PUREX) Complex in the 200 East Area of the Hanford Site (Figure 1). The PUREX Complex structure addressed in this removal action includes the 202A Building, which consists of a canyon and east and west annexes. The selected alternative is Alternative 4 (Continued Surveillance and Maintenance [S&M] with Hazard Abatement of 202A Building, Demolition Preparation [Demo Prep] and Demolition of 202A East and West Annexes, and Demo Prep of 202A Canyon Abovegrade; hereinafter called Alternative 4), as recommended in the PUREX EE/CA, which summarized the site characteristics, established the removal action objectives (RAOs), identified the alternatives, and analyzed the alternatives against the established objectives and applicable or relevant and appropriate requirements (ARARs).

This AM was prepared in accordance with the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA), as amended by the *Superfund Amendments and Reauthorization Act of 1986* (SARA); Executive Order 12580, *Superfund Implementation*; and 40 CFR 300, "National Oil and Hazardous Substances Pollution Contingency Plan" (hereinafter called the National Contingency Plan [NCP]). This removal action supports the overall cleanup objectives specified in Ecology et al., 1989a, *Hanford Federal Facility Agreement and Consent Order* (hereinafter called the Tri-Party Agreement). The AM has also been prepared to meet the intent of EPA, 2009, *Superfund Removal Guidance for Preparing Action Memoranda*. The performance of this removal action will place the buildings/structures into a configuration that is protective of human health and the environment. Without remediation of these buildings/structures, a potential threat for release of hazardous substances exists; without action, adverse threats to human health and the environment eventually could occur.

This AM provides a concise written record of the selection and approval of the removal action alternative and includes information related to site history, current activities being performed, threats to human health and the environment, details about the removal action, and project costs. Appendix A identifies the ARARs for this removal action as previously documented in the PUREX EE/CA (DOE/RL-2016-15). A public comment and review period (from July 3, 2019, to August 17, 2019) was held for the PUREX EE/CA. All public comments were resolved and are attached in Appendix B.

This removal action is designed to mitigate the risk of release and exposure to hazardous substances from the 202A Building while awaiting completion of the CERCLA remedial investigation/feasibility study process and issuance of a future PUREX Canyon Record of Decision (ROD). These alternatives were developed with consideration of the eventual disposition of the PUREX Canyon, which are not included in the scope of this removal action.

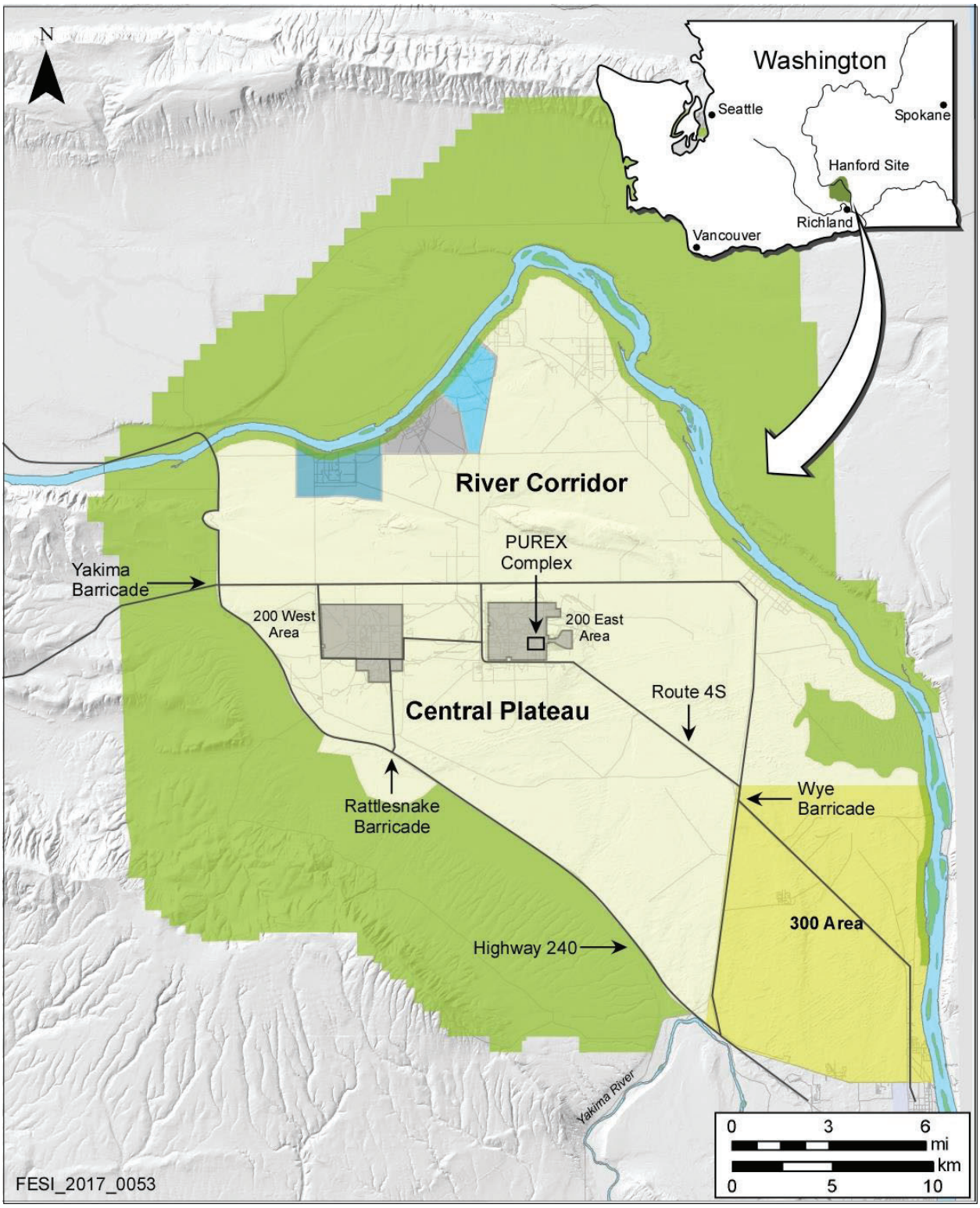


Figure 1. Hanford Site and PUREX Complex Location

2 Facility Description and Background

This chapter provides a brief description of the site, including an overview of the PUREX Complex operational history, a summary of the contaminants, and information regarding the current condition of the 202A Building.

2.1 Facility Description

The Hanford Site encompasses approximately 580 mi^2 in southeastern Washington State north of the confluence of the Columbia, Yakima, and Snake Rivers (Figure 1). The Columbia River flows east through the northern part of the Hanford Site and, turning south, forms the eastern boundary of the site. The Yakima River runs along part of the southern boundary and joins the Columbia River at the City of Richland, which bounds the Hanford Site on the southeast. Highway 240 is to the southwest of the PUREX Complex, and the Columbia River is north-northeast (Figure 1). The buildings/structures in the scope of this NTCRA are located within the PUREX Complex in the 200 East Area of the Hanford Site.

The areas that will be addressed under this removal action are areas that can be accessed, adequately ventilated for worker safety, and have immediate need for near term action. The specific areas of the 202A Building that are in the scope of this removal action include the Canyon Deck, Crane Cab Gallery, West Crane Maintenance Platform, Pipe and Operating (P&O) Gallery, White Room, Canyon Lobby and Storage Room, Sample Gallery, Storage Gallery, Positive Infinitely Variable (PIV) Room, Product Removal (PR) Room, PR Corridor, N Cell, and entire East Annex and West Annex structures The PUREX Complex contains other structures such as chemical tank farms, cribs, retention basins, and two belowgrade storage tunnels; these are not included in the scope of this removal action. Many of the buildings/structures within the PUREX Complex have been or will be demolished under DOE/RL-2010-22, *Action Memorandum for General Hanford Site Decommissioning Activities*, or DOE/RL-2010-102, *Action Memorandum for Decontamination, Deactivation, Decommissioning, and Demolition (D4) Activities for 200 East Tier 2 Buildings/Structures*.

2.1.1 202A Building

Within the 200-CP-1 operable unit (OU), the 202A Building (PUREX) was designed and operated to recover plutonium, uranium, and neptunium from irradiated fuel elements received from reactors on the Hanford Site. Before irradiation in the reactors, the fuel elements were clad with zircaloy (zirconium alloy). At PUREX, this cladding was removed by dissolution in an ammonium fluoride and ammonium nitrate solution. Once declad, the fuel elements were treated with potassium hydroxide and then dissolved in nitric acid. The resultant feed solution then entered the solvent extraction columns where the plutonium, uranium, and neptunium could be extracted.

The PUREX Canyon was constructed between 1952 and 1956 and was in full operation between 1956 and 1972. Plant operations were then downgraded to wet standby until 1978, with process and support equipment operating on a regular basis and failed equipment either upgraded or replaced. From 1978 to 1983, the plant progressed through cold startup tests to full operations for the second time, actively recovering plutonium from irradiated fuel until 1988, when the plant was shut down again. Plant operations transitioned into cold standby from 1990 to 1992, at which time the status of PUREX Canyon changed from cold standby to deactivation (i.e., transition to shutdown).

Deactivation activities included the flushing of vessel system loops and tanks. All flushed vessels were emptied to a minimum heel, and associated piping was drained. Further information on the flushing of these systems can be found in DOE/RL-95-78, *PUREX Facility Preclosure Work Plan*. Other deactivation activities in support of long-term S&M included removing bulk and easily removable

materials (e.g., chemicals, batteries, pump oils, combustibles, and excess tools and equipment), shutting off utilities to the building, consolidating ventilation systems, and removing the need for the building to be occupied. Deactivation was completed in 1998, and the complex has been under S&M since that time.

The 202A Building consists of a canyon and annexes (east and west) (Figure 2) attached to the north side of the canyon. The canyon is a thick walled, heavily shielded concrete area that includes four gallery levels, a canyon deck, a row of process cells, a hot (radioactive) pipe trench, and an air tunnel. The four gallery levels (Crane Cab, P&O, Sample, and Storage) are located parallel to but isolated from the canyon deck and process cells on the north side of the structure (Figure 3 and Figure 4). Figure 5 through Figure 8 depict a plan view of each of these levels. Perpendicular to the east end of the canyon, a railroad spur enters the complex belowgrade. Above the railroad, an extension called the East Crane Maintenance Platform was added to the existing building in 1957. The annexes are service structures: the East Annex is a three-level structure, and the West Annex is a five-level structure. Both annexes include basements.

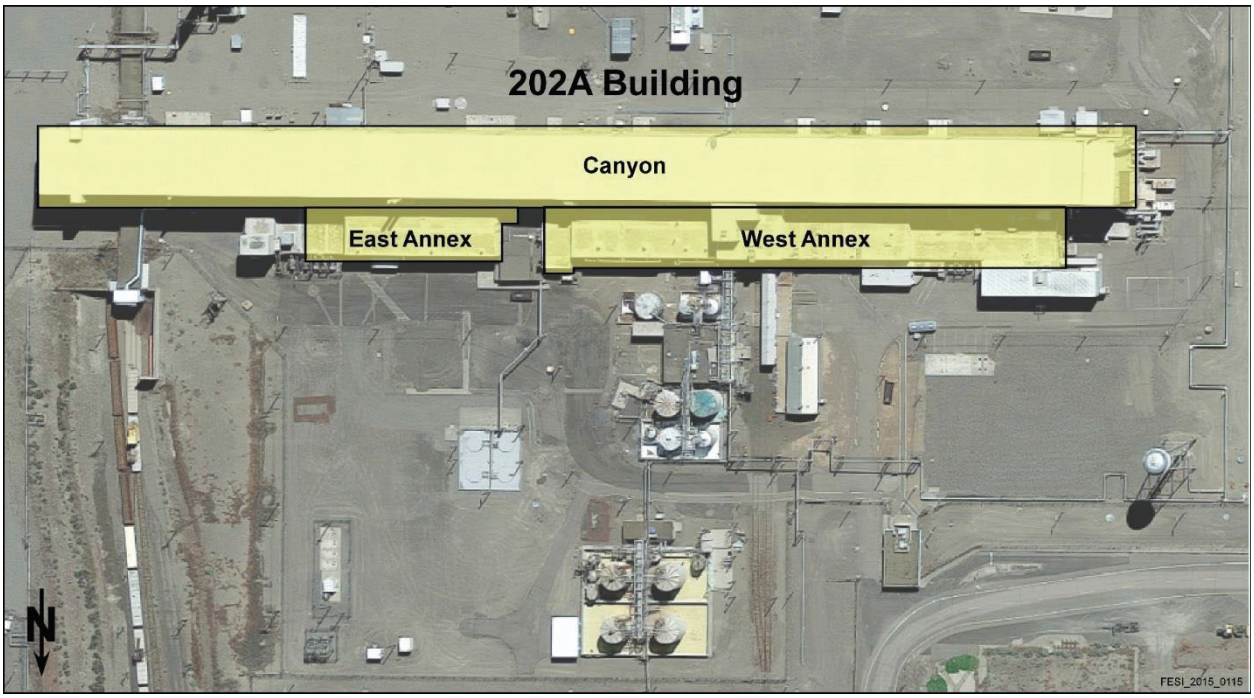


Figure 2. PUREX 202A Building

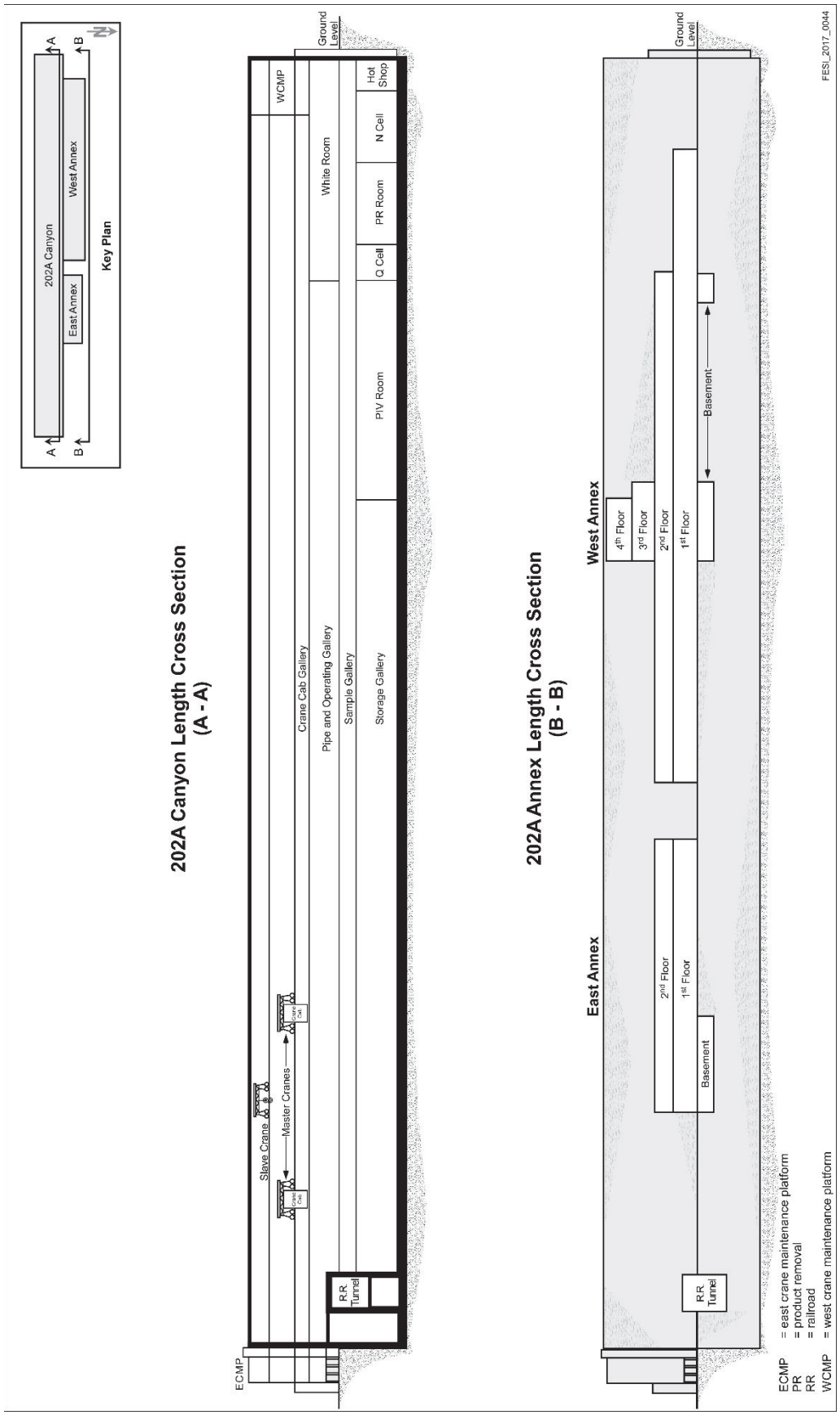


Figure 3. 202A Building Length Cross Section

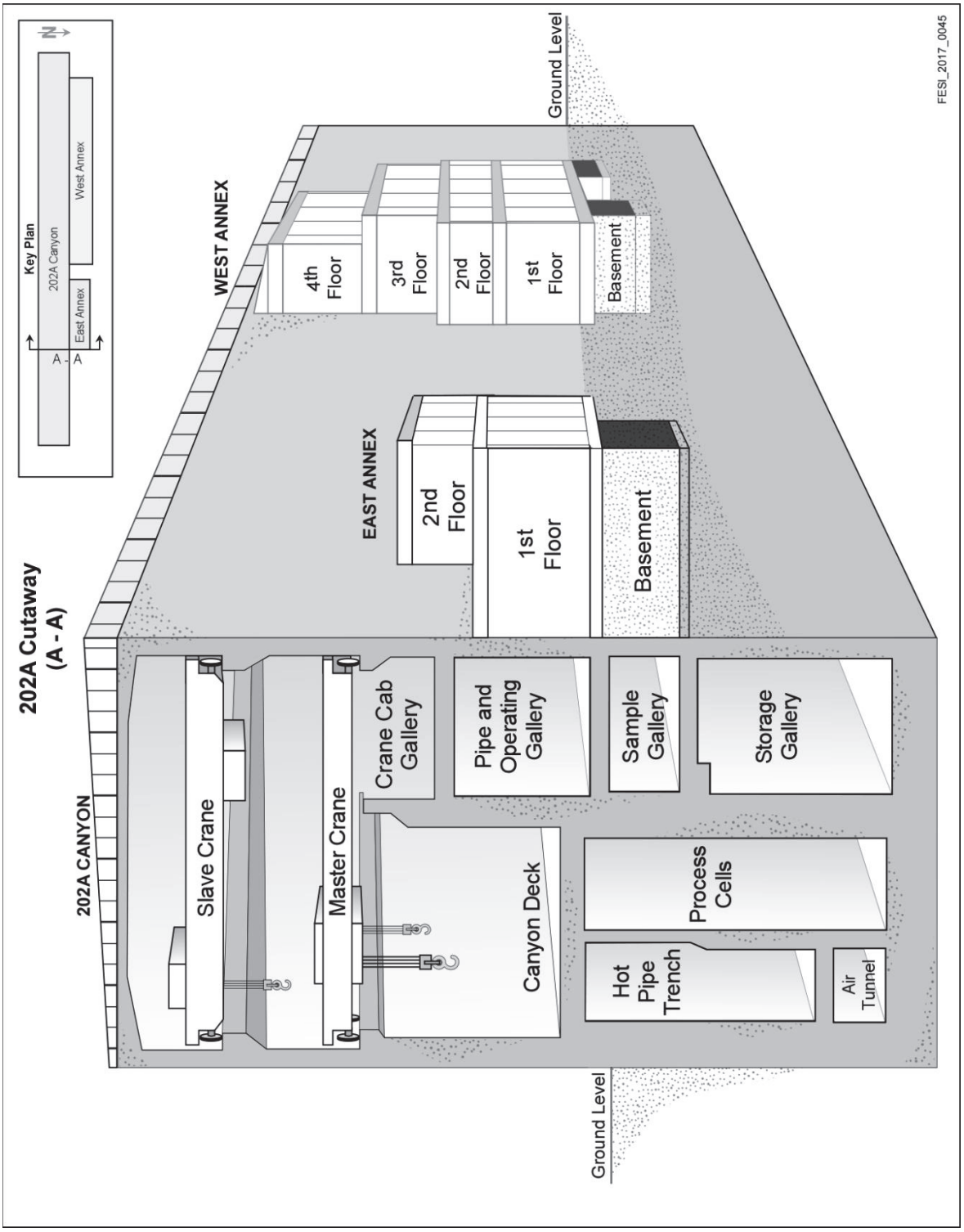


Figure 4. 202A Building Cutaway

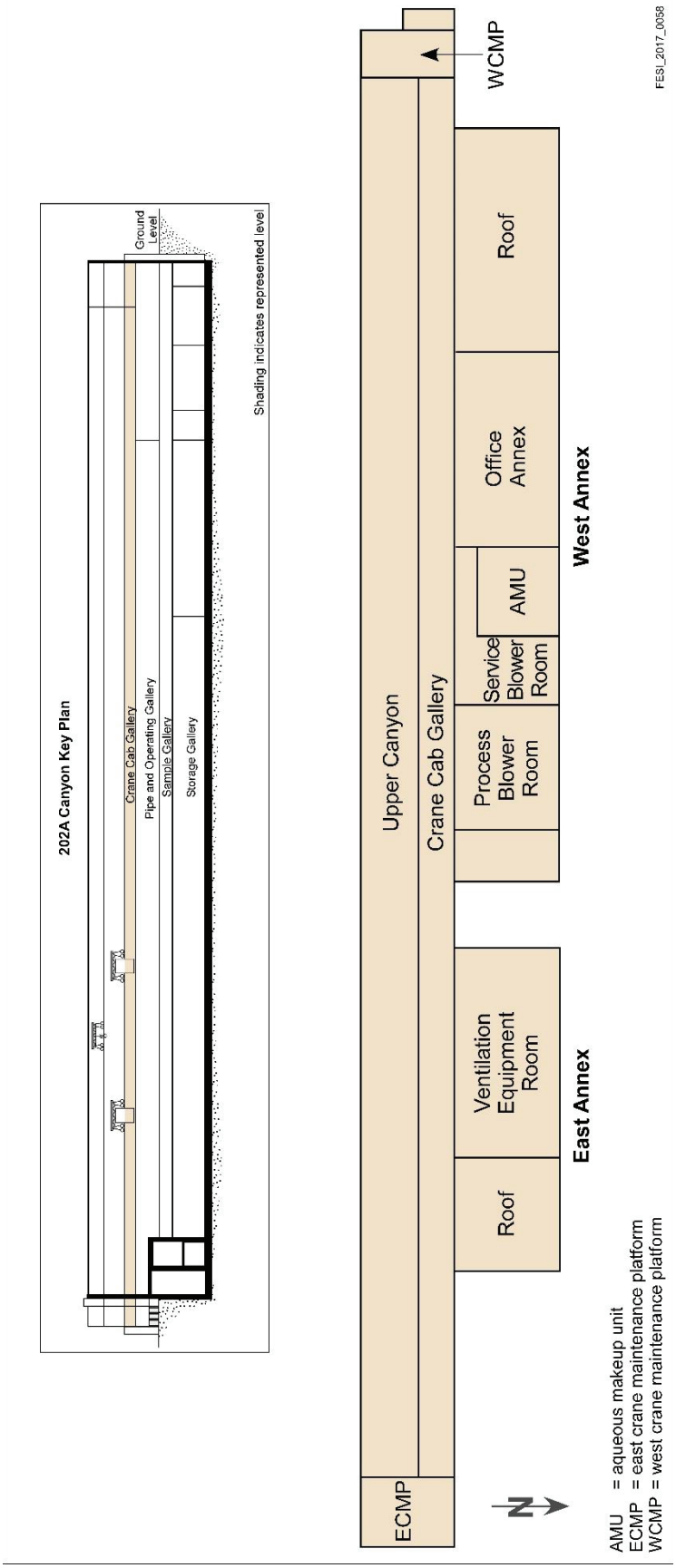


Figure 5. 202A Building Crane Cab Gallery Level Plan View

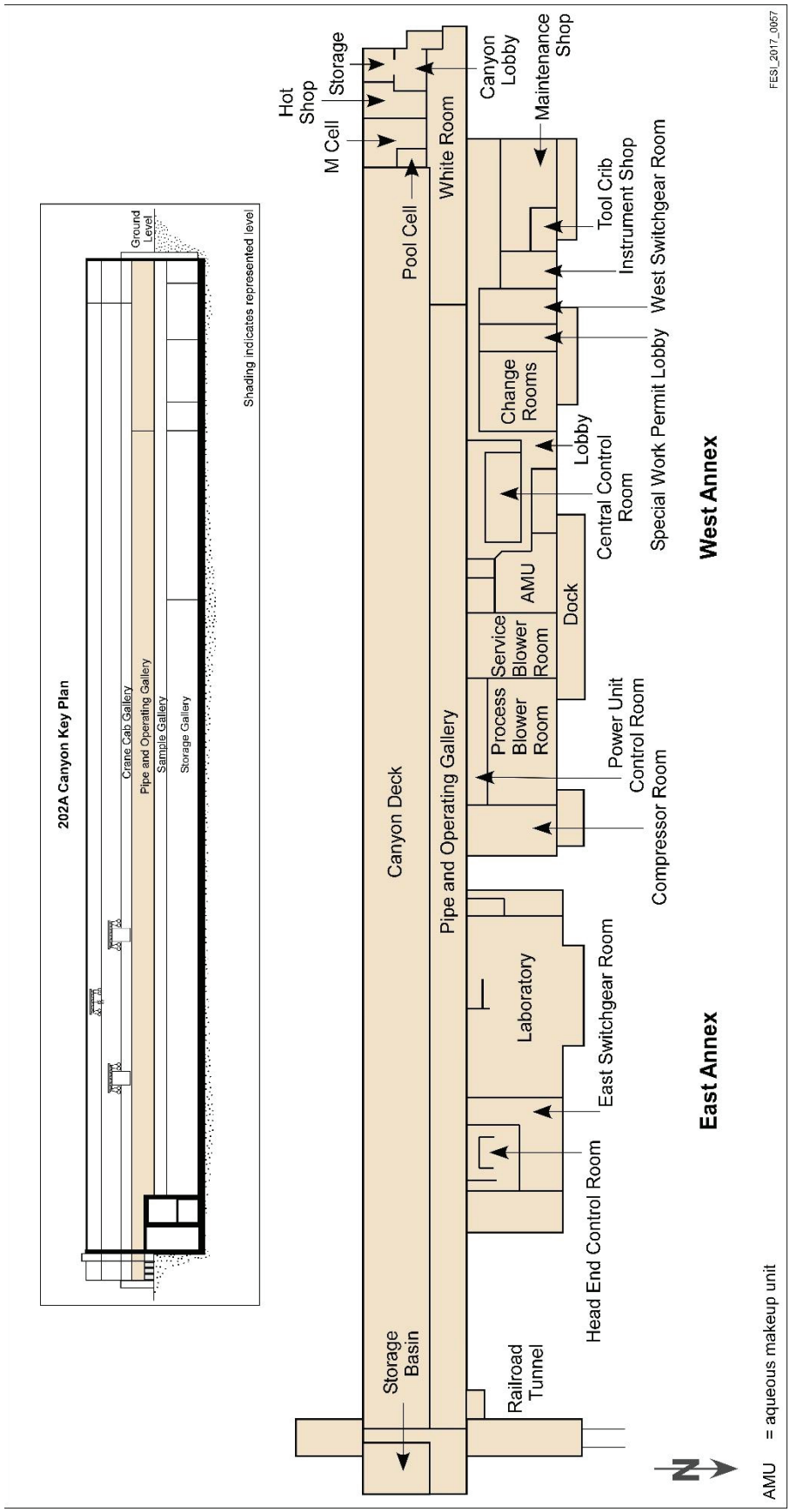


Figure 6. 202A Building P&O Gallery Level Plan View

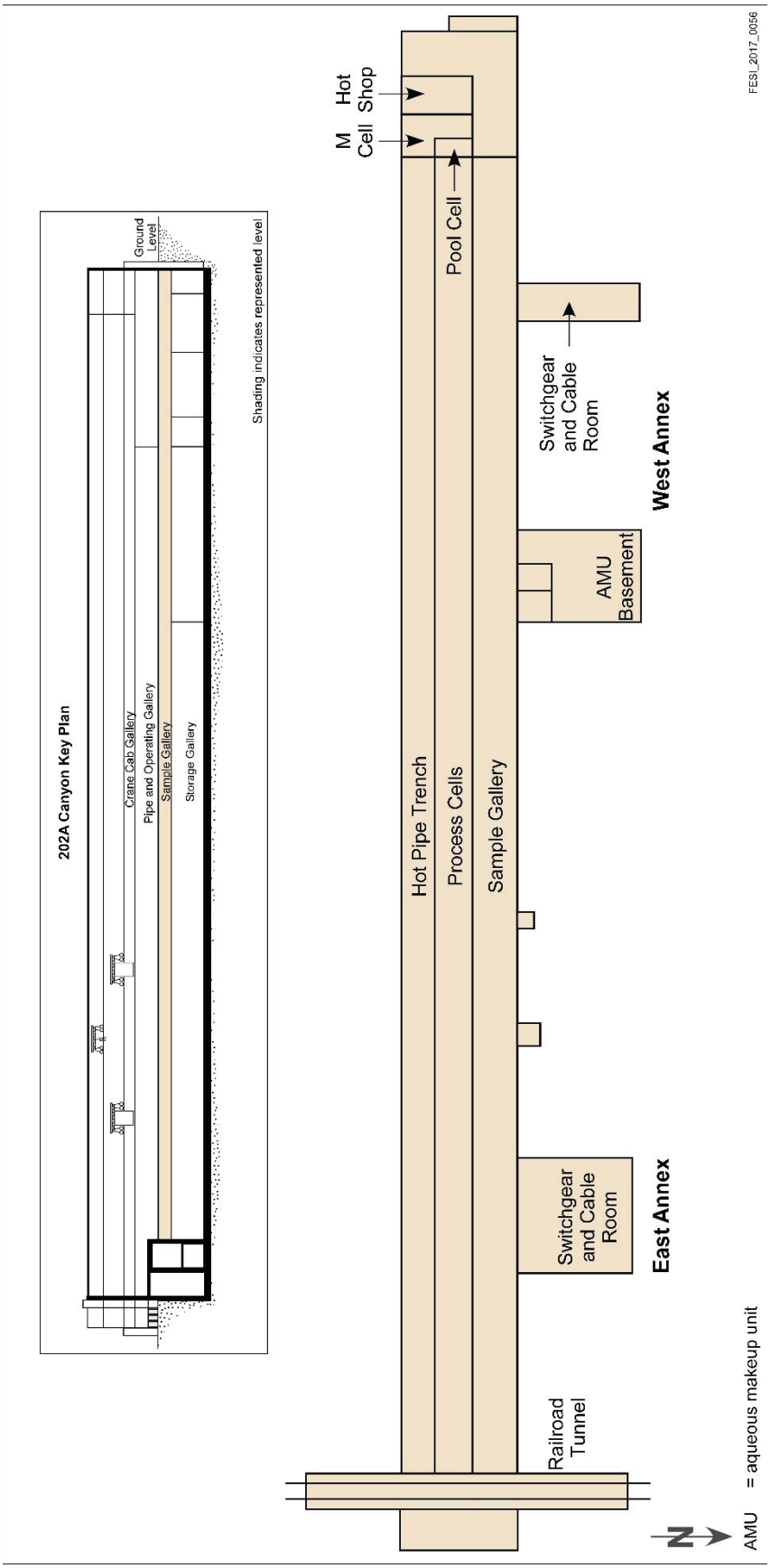


Figure 7. 202A Building Sample Gallery Level Plan View

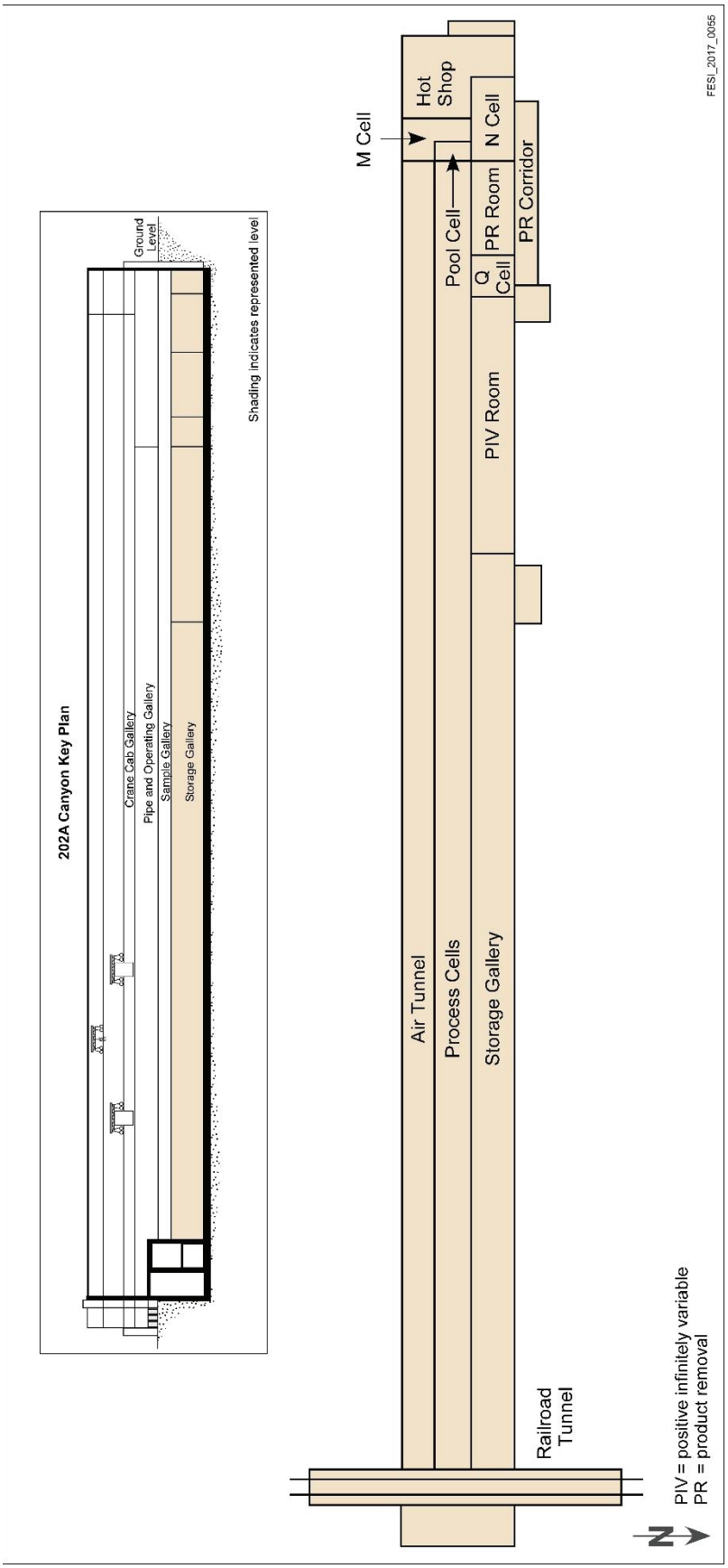


Figure 8. 202A Building Storage Gallery Level Plan View

2.1.1.1 202A Canyon

The 202A Canyon structure is 1,005 by 30.5 by 104 ft with about 40 ft of its height belowgrade. The building is supported on a 5.5 ft thick concrete slab with reinforcement in the top half. The roof is concrete with no internal trusses supporting it. A metal roof was installed over the top of the concrete roof in 2002. There are transverse expansion joints throughout the length of the building.

Contents throughout the building include but are not limited to structural materials, pumps, pipes, tanks, boilers, compressors, gloveboxes, ductwork, electrical components, and other equipment. The canyon is subdivided into a single row of process cells and paralleled on the south side by a hot pipe trench. Underneath the pipe trench is an air tunnel that provides ventilation capability for the process cells and pipe trench. Abovegrade areas include the canyon deck, P&O Gallery, White Room, and above the cells, the concrete shield wall becomes the parapet wall of the shielded crane way (Crane Cab Gallery) for the two master cranes. A heavy concrete shielding wall separates the process cells from the galleries. Approximately one-third of the building is constructed belowgrade, with processes performed below the canyon deck for shielding purposes (Figure 4). Belowgrade areas include the Sample Gallery, PIV Room, PR Room, N Cell, and the Storage Gallery.

Canyon Deck. One large area extends the entire length of the building with walls separating it from galleries on the north side and the floor separating it from the process cells and hot pipe trench. The floor of this area is called the canyon deck and consists of removable process cell cover blocks measuring 6 ft thick. The concrete cover blocks are stepped to eliminate the direct path of radiation streaming. The cover blocks are removable by crane to access the process cells located below the canyon deck. Because the crane has been deactivated, the highly contaminated process cells are not currently accessible.

Crane Area. The canyon has three gantry-style maintenance cranes, two masters, and one slave that are electrically driven and operate on tracks running lengthwise on both sides of the canyon. All three cranes have a 40-ton capacity main hoist. The two master cranes were operated via an attached crane cab east and west that hangs below the southern end of the crane and was located behind a shielding wall. The area behind the shielding wall is referred to as the Crane Cab Gallery located on the south side of the canyon P&O Gallery. These cranes were used to remove the cell cover blocks, charge irradiated fuel into the dissolvers, and move equipment between the canyon deck and process cells.

Process Cells. The process cells contain deactivated processing equipment formerly used in spent fuel separations. Twelve process cells run east and west in rows parallel to ventilation air and pipe tunnels through which inter-cell solutions transfers are made. While preparing for shutdown, all process equipment and piping were flushed to remove much of the chemical and radiological contamination. The process cells are estimated to contain the majority of the remaining chemical and radiological inventory in the 202A Canyon (Chapter 3). The hot pipe trench contains a network of transfer piping used to convey product and waste streams between process cells. During operations, the air tunnel provided exhaust ventilation to all process cells. The hot pipe trench and air tunnel were flushed during shutdown activities to remove and reclaim product and other chemical contaminants.

2.1.1.2 202A Galleries

Storage, Sample, P&O, and Crane Cab Galleries are located along the north side of the canyon. A Storage Gallery is located below all the galleries on the south side of the canyon. Figure 5 through Figure 8 provide plan views of the PUREX galleries.

Storage Gallery. The Storage Gallery is located below the Sample Gallery in the east half of the building. The Storage Gallery was used to store dry chemicals and spare equipment. All of the equipment has been removed.

Sample Gallery. The Sample Gallery is located below the P&O Gallery and extends the entire length of the building. It contains remote samplers that were used for obtaining process samples from the cell equipment. A shielded pipe chase behind the remote sampler boxes contains header piping for recovered nitric acid, organic solvent, drains, and lines to and from the cell equipment. The piping was drained and/or flushed, and the drains were sealed during deactivation. There is minor contamination on the outside of the samplers. Sample hoods and ducts were sealed during deactivation to prevent the migration of contamination.

Pipe and Operating Gallery. Located below the Crane Cab Gallery, the P&O Gallery contains deactivated instrument racks, electrical motor controls, steam and cooling water supply lines, centrifuge bowl spray pumps, dissolver water tanks, and piping and associated valves for transferring nonradioactive chemical solutions that served the in-cell equipment. Due to various process upsets, these chemical lines are contaminated. All chemical lines were flushed and drained during deactivation.

Crane Cab Gallery. The Crane Cab Gallery is located above the P&O Gallery and is the corridor of travel for the two master crane cabs. The south wall of the gallery shields the cabs and the cab operator from canyon radiation. Crane maintenance platforms are located at both ends of the gallery.

2.1.1.3 202A West End Rooms

The West End Rooms include a maintenance area and hot shop located at the west end of the canyon (Figure 5 through Figure 8). In addition, the White Room, Pool Cell, M Cell, PIV room, PR Room, PR Corridor, and N and Q Cells are all located in the west end. These areas have been deactivated by sealing gloveboxes, removing small process equipment, and removing or stabilizing residual radioactive materials.

Canyon Lobby and Storage Area. The Canyon Lobby and Storage Area is located south of the White Room on the west side of the building.

White Room. At the west end of the P&O Gallery, the White Room is separated from the rest of the gallery by a 10 ft high personnel control barrier. The room was isolated shortly after plant startup due to a release of contamination. To stabilize the contamination, several coats of paint were applied to the floor and walls.

PIV Room. The PIV Room houses the PIV frequency motor alternator sets that supply electric power to the pulse generators and the central exchange for the in-plant private telephone system.

PR Room. The PR Room was used for filling containers with plutonium nitrate solution and plutonium oxide product for shipment. The PR Room contains hoods and gloveboxes used for sampling, transfer, loadout, and recycling of plutonium nitrate solution. As a part of deactivation, internal surfaces of the gloveboxes and hoods were painted to affix contamination. The PR Corridor is located north of the PR Room and provides access to the Q Cell, PR Room, and N Cell.

N Cell. N Cell was used to purify plutonium product using ion exchange columns and later modified to process plutonium oxide. Plutonium nitrate solution was transferred to N Cell, where it was treated and calcined to produce plutonium oxide. N Cell contains plutonium processing equipment, six full size gloveboxes, two extra large gloveboxes, four small gloveboxes, process hoods, and equipment to rework substandard product. As a part of deactivation, the internal surfaces of the gloveboxes and hoods were painted to affix contamination. Following cleanout and decontamination, N Cell process hoods and ducts were sealed to prevent migration of radioactive material. A two-story control room is part of the N Cell processing area.

2.1.1.4 202A Annex

The 202A Annex is separated from the main canyon structures by massive concrete wall. Two subannexes comprise the 202A Annex (Figure 2 through Figure 8). These areas contain laboratories, administrative support areas and equipment rooms as described in the following paragraphs.

East Annex. A three-story, steel- and transite-sided structure that includes a basement, the East Annex is attached to the northeast side of the canyon and contains multiple service rooms. It also contains a two-story analytical and control laboratory located on the west side. The first floor of the East Annex contains a laboratory work area, lunchroom, and change rooms, and is on the same level as the P&O Gallery. The floor and walls of the first floor are made of reinforced concrete for radiation shielding. The second floor, which houses the ventilation equipment and service piping, has transite walls. The laboratory hoods and ventilation system are highly contaminated. The laboratory hoods are foamed to stabilize contamination in place. Adjacent to the laboratory is the east switchgear room that houses the electrical distribution system and a battery room used to power switchgear and equipment for converting from normal to standby power. The batteries were removed during the deactivation period. Located at the east end of the East Annex, the head end control room contains controls for acid concentration, fuel decladding, and fuel dissolution processes. The ventilation equipment room located above the laboratory contains controls and equipment for the building ventilation systems.

West Annex. A five-story steel- and transite-sided structure that includes a basement, the West Annex is attached to the northwest side of the canyon and contains multiple service rooms and a maintenance shop located on the west end that includes a central tool crib, instrument shop, clerical office, and overhead monorail system. Adjacent to the instrument shop, the west switchgear room contains electrical distribution system equipment for the building. The special work permit lobby is adjacent to the change rooms and contains a supply room, cabinets, a radiation monitoring station, and step-off pads. The central control room contains controls and instrumentation for the solvent extraction process equipment. In addition, a five-story aqueous makeup unit (AMU) located adjacent to the central control room was used to prepare, store, and transfer chemicals during PUREX processing. The basement of the AMU contains tanks and pumps; the second level contains chemical and service piping and additional makeup tanks and headers; the third level contains additional head tanks and vessels; and the fourth level contains a general utility head tank located in a regulated work area. All 37 AMU makeup tanks were flushed and drained during the deactivation period, and sampling was performed to ensure that the flushed water no longer exhibited dangerous waste characteristics. Tank TK-156 held nitric acid and is a 405 gal dangerous waste management unit (DWMU) located on the second floor of the AMU. Sampling results for tank TK-156 noted a pH of 2.66, with all dangerous waste constituents below the dangerous waste designation threshold. Tank TK-156 is the only DWMU in the scope of this removal action. Service and process blower rooms are located immediately east of the AMU area. Each room contains several air supply blowers, which serviced the different ventilation system loops. Adjacent to the process blower room, a power unit control room contains controls for the building ventilation systems, laboratory ventilation systems, compressor equipment, and instrumentation for the steam and sanitary water utility services. The compressor room houses compressors and dryers that produced instrument, process, and fresh breathing air. The West Annex is used for access to the 202A Canyon for ongoing S&M activities.

2.1.2 Anticipated Future Land-Use

The reasonably anticipated future land-use for the portion of the Central Plateau Inner Area where the 200-CP-1 OU is located is designated as industrial.

The U.S. Department of Energy (DOE) worked for several years with cooperating agencies to define land-use goals for the Hanford Site. The cooperating agencies and stakeholders included the National Park Service; Tribal Nations; the states of Washington and Oregon; local, county, and city governments;

economic and business development interests; environmental groups; and agricultural interests. Drummond, 1992, *The Future for Hanford: Uses and Cleanup: The Final Report of the Hanford Future Site Uses Working Group*, was an early product about the efforts to develop land-use assumptions. The report recognized that the Central Plateau would be used for waste management activities for the foreseeable future. Following the Drummond (1992) report, DOE issued DOE/EIS-0222F, *Final Hanford Comprehensive Land-Use Plan Environmental Impact Statement* (hereinafter called the HCP EIS), the associated ROD in 1999 (64 FR 61615, "Record of Decision: Hanford Comprehensive Land-Use Plan Environmental Impact Statement [HCP EIS]") (hereinafter called the HCP EIS ROD), and a supplement analysis (DOE/EIS-0222-SA-01, *Supplement Analysis: Hanford Comprehensive Land-Use Plan Environmental Impact Statement*) in 2008.

The HCP EIS (DOE/EIS-0222F) analyzed the potential environmental impacts of alternative land-use plans for the Hanford Site and considered the land-use implication of ongoing and proposed activities. Under the preferred land-use alternative selected in the HCP EIS ROD (64 FR 61615), the Central Plateau was designated for industrial-exclusive use and defined as an area "suitable and desirable for management of hazardous, dangerous, radioactive, and nonradioactive waste and related activities." The 2008 supplement analysis (DOE/EIS-0222-SA-01) reconfirmed the land-use designations identified in the HCP EIS and clarified that the comprehensive land-use plan will remain in effect as long as DOE retains legal control of some portion of the Hanford Site, which is expected to exceed 50 years.

The area designated as the Central Plateau in Drummond (1992) and in the HCP EIS (DOE/EIS-0222F) is only a portion of the area now commonly known as the Central Plateau. The current 75 mi^2 area of the Central Plateau also encompasses a portion of the land identified in earlier documents as "all other areas," with a designated land-use of conservation (mining). The Inner Area portion of the Central Plateau is contained within the area designated for industrial/industrial-exclusive land-use. At approximately 10 mi^2, the Inner Area covers about half of the industrial-exclusive area and is defined by DOE as the final footprint area of the Hanford Site that will be dedicated to permanent waste management and containment of residual contamination.

2.2 Other Actions to Date

This section describes previous and current actions implemented at the PUREX Complex.

2.2.1 Previous Actions

Various soil and groundwater investigations have been conducted in the 200 East Area of the Central Plateau. These previous investigations were not related to the 202A Building. Although not a removal action, deactivation activities such as flushing of vessels, columns, and tanks were conducted at the PUREX Complex. The shutdown of operations is discussed further in Section 2.1.1. No additional investigations or removal actions have been performed on the 202A Building.

Multiple buildings/structures within the PUREX Complex that are not part of this removal action have been removed or are planned to be removed under DOE/RL-2010-33, *Removal Action Work Plan for Central Plateau General Decommissioning Activities*, or DOE/RL-2010-102.

2.2.2 Current Actions

S&M activities are being performed in accordance with the current S&M plan (DOE/RL-98-35, *Surveillance and Maintenance Plan for the Plutonium-Uranium Extraction [PUREX] Facility*).

2.3 U.S. Environmental Protection Agency, State, and Local Roles

The President of the United States is given authority by CERCLA Section 104, "Response Authorities," when there is a threat to public health or welfare of the United States or to the environment, to take any appropriate removal action to abate, prevent, minimize, stabilize, mitigate, or eliminate the release or threat of release of contaminants into the environment. This authority is delegated to DOE as the CERCLA lead agency by the NCP (40 CFR 300, Subpart B, "Responsibility and Organization for Response") through Executive Order 12580. Expedited response actions are addressed by Section 7.2.4 of Ecology et al., 1989b, *Hanford Federal Facility Agreement and Consent Order Action Plan* (hereinafter referred to as the Tri-Party Agreement Action Plan), which cites and is consistent with Executive Order 12580.

In anticipation of the National Priorities List designation (Appendix B, "National Priorities List," in 40 CFR 300), DOE, the U.S. Environmental Protection Agency (EPA), and the Washington State Department of Ecology (Ecology) (collectively also known as the Tri-Parties) entered into the Tri-Party Agreement (Ecology et al., 1989a), which established a procedural framework and schedule for developing, implementing, and monitoring CERCLA response actions at the Hanford Site. The Tri-Party Agreement ensures compliance with remedial and removal action requirements under CERCLA and other environmental regulations, including closure and post-closure requirements under *Resource Conservation and Recovery Act of 1976* (RCRA). Section 8.0 of the Tri-Party Agreement Action Plan (Ecology et al., 1989b) outlines the approach for identifying structures that present sufficient potential environmental concern for which coordination of the decommissioning process with cleanup activities under the Tri-Party Agreement would be deemed necessary.

Portions of the 202A Building are a permitted treatment, storage, and disposal unit under RCRA. A PUREX Part A Form (Hanford Facility RCRA Permit, WA7890008967, *Hanford Facility Resource Conservation and Recovery Act [RCRA] Permit, Dangerous Waste Portion for the Treatment, Storage, and Disposal of Dangerous Waste*) was issued in 1988. The PUREX Part A Form delineates the portions of the 202A Building and other outside tank systems that are part of the treatment, storage, and disposal unit. There is only one DWMU planned for removal as part of this removal action: Tank TK-156, which is located in the 202A West Annex AMU. In accordance with Section 6.0 of the Tri-Party Agreement (Ecology et al., 1989a) and WAC 173-303, "Dangerous Waste Regulations," a closure plan will be prepared for the closure of DWMU Tank TK-156. Ecology will approve the closure plan after completion of the public review and comment period, and the closure plan will then be included in the Hanford Facility Dangerous Waste Permit. Any waste generated under this closure activity will be disposed at the Environmental Restoration and Disposal Facility (ERDF) under the authority of this removal action.

Appendix J of the Tri-Party Agreement Action Plan (Ecology et al., 1989b) lists facilities that are not fully addressed under Sections 6.0 or 7.0 of the Tri-Party Agreement (Ecology et al., 1989a) and that have been determined by the Tri-Parties (in accordance with Section 8.0 of the Tri-Party Agreement) to be subject to removal or remedial action under CERCLA. Each facility listed in Appendix J that has undergone evaluation (as required by Section 8.1.4 of the Tri-Party Agreement Action Plan) is designated as a Tier 1 facility, Tier 2 facility, or neither. The 202A Building is designated as a Tier 1 facility in Appendix J of the Tri-Party Agreement Action Plan.

As documented in Appendix J of the Tri-Party Agreement Action Plan (Ecology et al., 1989b), DOE and Ecology have determined that the ultimate CERCLA response action for the 202A Building will be a remedial action. However, the Tri-Party Agreement (Ecology et al., 1989a) does not preclude DOE from undertaking an interim CERCLA removal action to address potential threats of releases from the 202A Building. Any removal action undertaken pursuant to this AM will be consistent with the final

remedial action decisions and will contribute to the efficient performance of any anticipated long-term remedial action as required by the NCP (40 CFR 300.415(d), "Removal Action"). For contaminated solid waste generated in support of Alternative 4, ERDF is the recommended disposal location for waste meeting ERDF waste acceptance criteria (ERDF-00011, *Environmental Restoration Disposal Facility Waste Acceptance Criteria*). ERDF is considered to be onsite for management and/or disposal of waste from removal action activities proposed in this document. CERCLA Section 104(d)(4) states the following:

> where two or more noncontiguous facilities are reasonably related on the basis of geography, or on the basis of the threat or potential threat to the public health or welfare or the environment, the President may, at his discretion, treat these facilities as one.

The preamble to 40 CFR 300 clarifies the stated EPA interpretation that when noncontiguous facilities are reasonably close to one another, and wastes at these sites are compatible for a selected treatment or disposal approach, CERCLA 104(d)(4) allows the lead agency to treat these related facilities as one for response purposes. This allows the lead agency to manage waste transferred between such noncontiguous facilities without having to obtain a permit. ERDF is considered to be onsite for response purposes under this removal action. It should be noted that the scope of work covered in this removal action is for a facility and waste contaminated with hazardous substances. DOE will disposition materials encountered during implementation of the selected removal action that are not contaminated with hazardous substances.

There is no requirement to obtain a permit to manage or dispose of CERCLA waste at ERDF. It is expected that the great majority of the waste generated during the removal action proposed in this document can be disposed onsite at ERDF. In accordance with the ERDF ROD (EPA/ESD/R10-96/145, *Explanation of Significant Differences: USDOE Environmental Restoration Disposal Facility, Hanford Site, Benton County, Washington*), authorization to dispose waste generated during this removal action at ERDF is granted with the issuance of this AM and through EPA approval of the sampling and analysis plan (SAP). Waste that must be sent offsite will be sent to a facility that has been or could be approved by EPA in accordance with 40 CFR 300.440, "Procedures for Planning and Implementing Off-Site Response Actions," for receiving CERCLA waste.

If transuranic (TRU) waste is generated, it would be moved to an EPA approved facility for storage and managed according to applicable waste acceptance criteria prior to disposal at the Waste Isolation Pilot Plant (HNF-EP-0063, *Hanford Site Solid Waste Acceptance Criteria*).

3 Threats to Human Health or the Environment

The PUREX Complex buildings/structures are contaminated to different degrees with radioactive and chemical substances used or generated during facility operations and waste management activities. Resources such as historical information, process knowledge, radiological survey reports, occurrence reports, assessment reports, personnel interviews, characterization reports, vulnerability assessments, inspections, walkdowns, and knowledge of construction and other materials will be used to characterize the remaining hazardous substances (e.g., within equipment and piping/drains) to facilitate removal action activities and associated waste disposal. A Removal Action Work Plan (RAWP) and a SAP are being prepared to provide removal action guidance and to support the characterization of the building/structure waste. The SAP will be submitted for approval by EPA and, as the lead regulatory agency for this action, Ecology will approve both the SAP and the RAWP.

Some hazardous substances were removed during the deactivation period; however, not all hazardous materials were removed at the time. Some of the hazardous substances were removed from the building as part of routine S&M activities. In addition to radiological and chemical hazards, structural hazards exist

due to the degradation in the structural integrity of the building. Structural degradation could potentially result in partial or total loss of radiological material, confinement, and/or worker injury.

The types of waste likely to require disposal under this NTCRA include but are not limited to inorganic and organic chemicals, solid waste, low-level radioactive waste, asbestos, radioactively contaminated asbestos waste, beryllium, and polychlorinated biphenyl (PCB) waste. TRU waste is also anticipated to be present.

The following chemical hazards may be present within the 202A Building: some friable and/or nonfriable asbestos in the form of insulation, ductwork, gasket material, transite siding, and floor tiles, which will be confirmed through process knowledge and/or sampling and analysis. Additional chemical hazards present may include but are not limited to one or more of the following materials:

- Inorganic chemicals (arsenic, beryllium, cadmium, chromium, lead, mercury, nitrate, silver, sodium bicarbonate, uranium, or zinc)
- Organic chemical residues (lubricants, oils, or PCBs)
- Radioactive sources contained in remaining smoke detectors
- Asbestos and asbestos-containing material
- Refrigerants
- Corrosives (including both acids and caustics)

Table 1 summarizes the hazard conditions noted from 2007 to 2017 during annual surveys of PUREX Complex buildings/structures. The primary hazardous substances associated with the 202A Building are radioactive materials. Primary radionuclide contaminants include but are not limited to americium-241, cesium-137, iodine-129, and plutonium-238 through plutonium-242. Radioactively contaminated materials are primarily in the form of contaminated equipment and surfaces, debris, and sludge, with some remaining plutonium oxide dust stabilized in gloveboxes. Table 2 presents the nonradioactive inventory estimates for the 202A Building. Table 3 presents the radioactive inventory estimates of the 202A Building, as reported in the PUREX Safety Analysis (CP-14977, *Plutonium Uranium Extraction Facility Documented Safety Analysis*). Results from a low-level waste radionuclide characterization performed throughout the PUREX Complex can be found in WHC-SD-CP-PLN-028, *PUREX Low-Level Waste Radionuclide Characterization*. The substances noted in these tables pose a potential risk of airborne exposure to human and biota receptors if the 202A Building degrades to a sufficient degree to cause volatilization of the hazardous substances contained within it.

Table 1. Current Hazard Conditions

Area	Documented Conditions
Canyon Deck	The Canyon Deck has not been entered since deactivation in 1998. Current conditions on the deck are not known. There are 30 lb of lead sheets on the Canyon Deck.
West Annex	Brown stains and white powders originating from tanks TK-204 and TK-200, respectively, were observed on the floor. The ceiling at the south and west ends of the blower room is degrading. There is a history of animal intrusion and water accumulation that increase the risk of contamination spreading to other areas. In 2016, 2017, and 2018, bird carcasses were removed, and peeling paint on floors and walls were observed plus white powder and oil stains around pipes and tanks. Asbestos insulation around piping is coming loose, and the concrete ceiling is crumbling. Observations in 2019 included stains from water intrusions, ceiling tiles on the floor of the maintenance shop, and sand coming through holes near a pipe in the AMU basement. A crack was observed in the wall of the first floor maintenance office that extends into the hallway and lunchroom.

Table 1. Current Hazard Conditions

Area	Documented Conditions
East Annex	The ceiling drywall is falling apart in the east switchgear room and equipment room where water has intruded. Water stains on the walls and peeling paint on the floor have been observed. In 2018, asbestos was observed coming loose in the ventilation and equipment room. The annex was last surveyed in 2019. There are 5.5 lb of lead in the mezzanine and 355.3 lb in the laboratories.
N Cell	N Cell is estimated to contain 1,113 Ci of plutonium and 160 Ci of americium. Gloveboxes contain the majority of the inventory. The risk of spread of radiological contamination to other areas is likely because the building air circulates through this cell. Radiological contamination spread from this cell is decontaminated yearly. In 2016, leaks near the second floor gloveboxes were observed and an airlock became loose, which could affect building ventilation. In 2019, a radiological survey found a high contamination area migrating on the second floor of N Cell. There is a total of 14,610 lb of lead, 2,098 lb of which are in the gloveboxes.
Storage Gallery	Elevated beta contamination was measured at an expansion joint near column 38 and on the floor near column 40. The room has a history of reoccurring contamination. In 2018 and 2019, the concrete ceiling was observed to be deteriorating and pieces falling to the floor. Paint is peeling from the front exit door. In 2019, a high contamination area sign was posted on the east end of the gallery, which is entered annually. There is an estimated 530 lb of lead in the room.
Pipe and Operating Gallery	Elevated beta contamination was measured during S&M near columns 26 and 35 and on the floor between columns 30 through 40, 23 and 24, and 27 through 30. The room has a history of reoccurring contamination. Expansion joints near columns 27 and 36 show structural deterioration and asbestos insulation is coming loose. In 2016 and 2017, wet brown liquids and white powders were observed around valves throughout the gallery and near columns 10, 13, 16, and 24. Observations in 2019 included cracked expansion joints and peeling paint. Potential asbestos contaminated insulation is deteriorating on an overhead steam pipe near column 34. The entire gallery is considered a Beryllium Controlled Area. Water stains have been observed. The room was last surveyed in 2019.
Sample Gallery	The Sample Gallery is radiologically contaminated. There are high levels of contamination inside hoods. The Sample Gallery has not been entered since deactivation in 1998; therefore, current conditions of the room are not known. There is 4,101 lb of lead in the Sample Gallery.
White Room	Surveillance of this room is limited due to a 2 ft wide path, and the room is not well lit. In 2015, white powder was found at column 5. From 2016 to 2019, white powder and chips were observed on the floor. In 2018 and 2019, potential asbestos containing material was found deteriorating above the exhaust cabinet. Ongoing corrosion has been noted, and the room is known to contain internally contaminated equipment and fixed alpha contamination under the lead paint surface.
Product Removal Room	The Product Removal Room gloveboxes are highly contaminated. Alpha contamination levels observed in 2012 from one smear at the L-11 hood exceeded the radiological work permit void limit. In 2019, battery acid was observed next to a scissor lift. There is 648 lb of lead in the gloveboxes.
Product Removal Corridor	In 2018 and 2019, a resin-like material was observed on the floor. Caulk is deteriorating from an expansion joint.

S&M = surveillance and maintenance

Table 2. Nonradioactive Material Inventory

Building	Chemical	Chemical Quantity
202A Canyon	Cadmium	335.8 lb
	Lead	52,377 lb
	Mercury	83.6 lb
	Nitrates	--*
	Chromium	--*
	Sodium bicarbonate	--*
202A East and West Annexes	Lead	363.1 lb

Reference: HNF-SD-CP-ISB-004, *Plutonium Uranium Extraction (PUREX) End State Basis for Interim Operation (BIO) for Surveillance and Maintenance*.

*Quantities of these chemicals are currently unknown.

Table 3. Radioactive Material Inventory

Location	Total Pu (Ci)	Am-241 (Ci)	Sr-90 (Ci)	Cs-137 (Ci)	I-129 (Ci)
Process Cells	5,717	999	8,330	10,200	0.007
N Cell	1,113	160	--	--	--
White Room	288	43	--	--	--
Product Removal Room	815	120	--	--	--
Total 202A Building Inventory	**7,933**	**1,322**	**8,330**	**10,200**	**0.007**

4 Endangerment Determination

Security controls, including administrative and physical access controls, are currently in place to limit unauthorized entry to the Hanford Site. Only authorized and trained personnel are allowed entrance into areas with existing hazards. As long as DOE retains control of these areas, existing institutional controls (ICs) will prevent direct contact with and exposure to hazardous substances. However, ICs would not prevent deterioration of the buildings/structures and potential release of contaminants to the environment. Contaminants could be released directly to the environment through a fire; breach in a utility pipe, containment wall, or roof; or building collapse as the buildings/structures age and deteriorate. Contaminants could also be released to the environment indirectly through animal and human intrusions.

As the PUREX Complex buildings/structures continue to age and degrade without active intervention, the likelihood of release of and subsequent exposure to hazardous substances increases. The S&M activities required to confine the hazardous substances may increase the risk of potential exposure to personnel. In some cases, removal of buildings/structures will accommodate access for remediation of identified waste sites. The potential exposure to human health and the environment, the potential threat of future releases, and the substantial risks associated with the hazardous substances in the buildings and structures addressed by this AM justify use of removal action authority in accordance with the NCP (40 CFR 300.415).

5 Proposed Actions and Estimated Costs

The alternatives evaluated in the EE/CA (DOE/RL-2016-15) are discussed in Section 5.3. The purpose of these alternatives is to mitigate the risk of release and exposure to hazardous substances from the 202A Building. These alternatives were developed with consideration for eventual disposition of the 202A Building, which is not included in the scope of this NTCRA.

5.1 Selected Removal Action

The selected removal action is Alternative 4: Continued S&M with Hazard Abatement of 202A, Demo Prep and Demolition of 202A Annex, and Demo Prep of 202A Canyon Abovegrade Areas. Alternative 4 will ensure that hazardous substances are placed in a protective and safe condition for the foreseeable future. The following activities are included in the selected removal action:

- S&M activities would continue at the PUREX Complex in accordance with the most current S&M plan (DOE/RL-98-35). The S&M plan may be revised to reflect the current facility conditions and identify appropriate surveillance requirements, as needed.

- Hazard abatement activities in high priority areas to mitigate hazards in the 202A Building will be performed, which may range from stabilization to complete removal of equipment and waste, as needed, to mitigate hazards. Hazard abatement differs from S&M in that it allows for a proactive response to mitigate or reduce risk before a major response would be required. This AM is inclusive of hazard abatement as described in DOE-RL-2019-34, *Removal Action Work Plan for the PUREX Complex: Hazard Abatement Including White Powder Within the 202A Building*.

- Demo prep of the 202A Annex and 202A Canyon abovegrade areas will occur, including activities such as general housekeeping and removing equipment and waste. Decontamination, fixing/stabilization of contamination, and isolation of systems may be performed.

- Demolition of the 202A Annex includes demolishing the East and West Annexes down to ground level and bringing the basement level to grade with fill material. Demo prep will occur prior to all demolition activities. Demolition will be performed in a manner that is protective of human health and the environment and that reduces or eliminates the need for ongoing S&M activities.

Removal action alternatives for mitigating the risk of release and exposure to hazardous substances from the 202A Building were identified and evaluated in the PUREX EE/CA (DOE/RL-2016-15) for effectiveness, implementability, and cost. The selected removal action is the most cost-effective alternative that reduces long-term risk to human health and the environment and is consistent with and a contributor to the efficient performance of Hanford Site long-term remedial actions. The PUREX EE/CA is available in the Administrative Record.

5.2 Contribution to Remedial Performance

The removal action alternatives were developed in consideration of a future PUREX Canyon ROD, which would include evaluation of remedial actions similar to those described in the 221U Canyon Building ROD (EPA et al., 2005, *Record of Decision, 221-U Facility (Canyon Disposition Initiative), Hanford Site, Washington*). The selected removal action is consistent with and would support a final disposition similar to that described in the 221U Canyon Building ROD. The 221U Canyon Building remedial action is considered a pilot project for the remediation of other Hanford Site Canyon buildings. The 221U Canyon remedial action involved removing waste from abovegrade level galleries and the Canyon Deck, and also grouting the internal spaces below the Canyon Deck level. Both of these actions have been completed. The 221U Canyon Building ROD specified the final state of U Canyon as removal of roof and wall sections down to deck level and construction of an engineered barrier over the remnants of the Canyon. These actions are still ongoing.

5.3 Alternatives Evaluated in the Engineering Evaluation/Cost Analysis

DOE and Ecology considered four removal action alternatives to mitigate the risk of release and exposure to hazardous substances from the 202A Building (Canyon and Annex), as shown in Table 4. The PUREX EE/CA (DOE/RL-2016-15) identified and evaluated each of these alternatives. The removal action recommended in the PUREX EE/CA is Alternative 4.

Table 4. Proposed Alternatives for the PUREX Complex Removal Action

Alternative	Removal Action Description
1	No action
2	• Continued surveillance and maintenance of PUREX Complex • Hazard abatement* of 202A Building (includes canyon, east and west annexes)
3	Alternative 2 actions, plus: • Demo prep of the 202A East and West Annexes
4	Alternative 3 actions, plus: • Demo prep of 202A Canyon Abovegrade Areas • Demolition of the 202A East and West Annexes

*This action memorandum is inclusive of hazard abatement as described in DOE-RL-2019-34, *Removal Action Work Plan for the PUREX Complex: Hazard Abatement Including White Powder Within the 202A Building*.

demo prep = demolition preparation

PUREX = Plutonium Uranium Extraction

5.3.1 Alternative 1 – No Action

CERCLA requires the No Action alternative as a baseline for comparison with other removal action alternatives. Under the No Action alternative, it is assumed that the 202A Building would be abandoned without any further action. No legal restrictions, ICs, or active measures are applied to the 202A Building in this alternative. S&M activities would be discontinued, no additional facility stabilization would be performed, and degradation would continue indefinitely. Initial risks to human health and the environment from the No Action alternative would be minimal and barring an unusual event, contaminants are assumed to remain confined within the buildings/structures. Risks over time are expected to increase as deterioration progresses and structural integrity is compromised. The possibility of chemical and/or radiological contamination spreading would increase due to lack of monitoring and controls. Physical hazards associated with partial structural collapse would also be anticipated.

Alternative 1 is not consistent with DOE obligations under federal law to protect human health and the environment; therefore, this alternative cannot be considered viable.

5.3.2 Alternative 2 – Continued S&M/Hazard Abatement 202A

Under Alternative 2, S&M activities would continue for the entire PUREX Complex. Hazard abatement would take place in the high priority canyon areas in the 202A Building. Figure 9 and Figure 10 provide a general overview of the removal activities that would be implemented under Alternative 2.

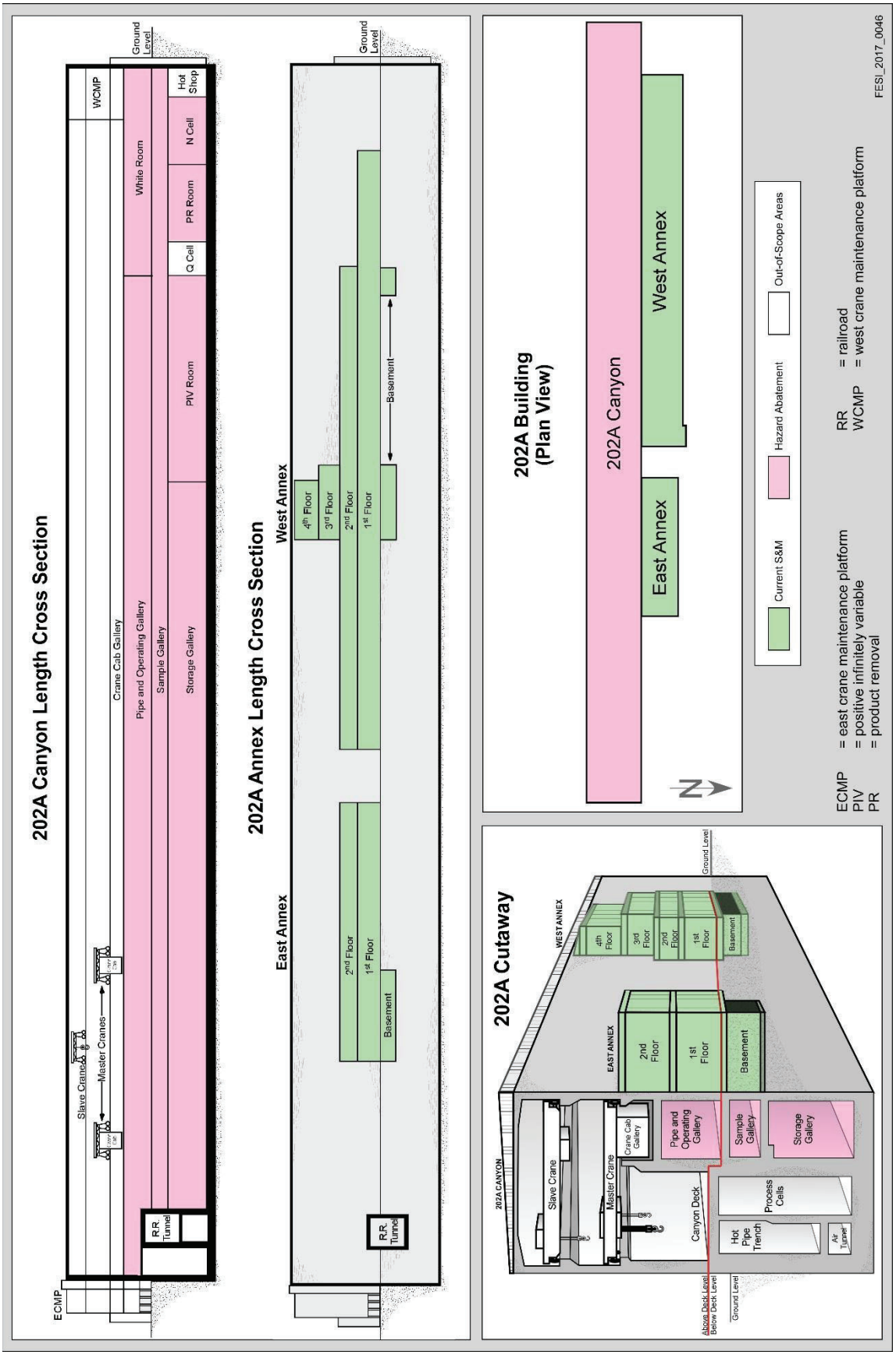


Figure 9. Alternative 2 – Proposed Actions

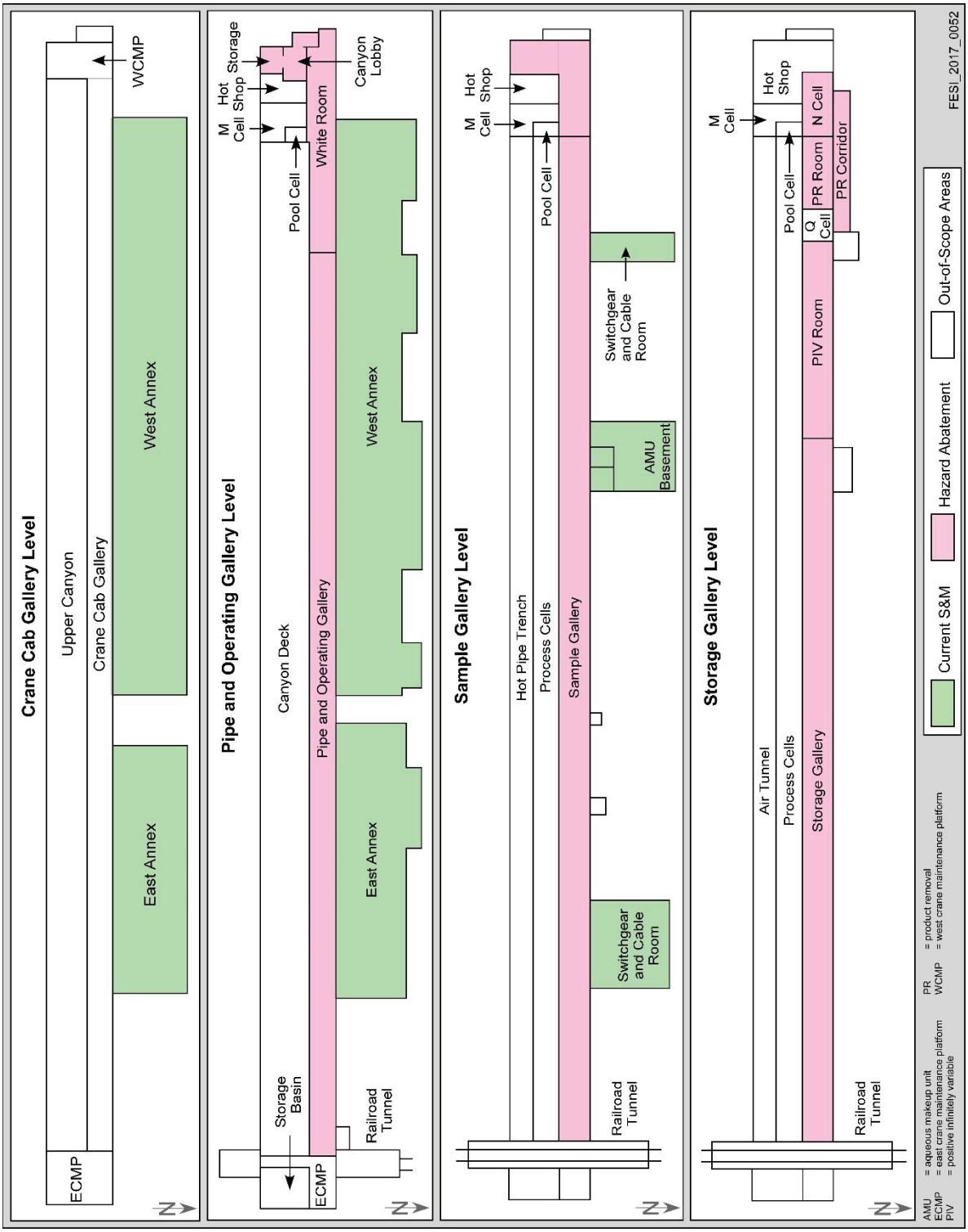


Figure 10. Alternative 2 Plan View – Proposed Actions per Level

At a minimum, the areas that will receive hazard abatement are the P&O Gallery, White Room, Canyon Lobby and Storage Area, Sample Gallery, Storage Gallery, PIV Room, PR Room, PR Corridor, and N Cell. These areas contain pipes, tanks, and equipment that are chemically and/or radiologically contaminated. The Canyon Deck and areas below the cover blocks will not be included in hazard abatement activities. This AM is inclusive of hazard abatement as described in DOE-RL-2019-34. Alternative 2 proposes proactive mitigation of risk from used equipment and waste in these areas that poses a threat to human health and the environment. Hazard abatement includes stabilization or, if possible, complete decontamination and removal of the sources of contamination. Hazard abatement also includes complete removal of all piping and equipment, as necessary. If cleanout is not possible, contamination would be stabilized in place. A modification to the active building ventilation system may be necessary to support hazard abatement.

Alternative 2 offers the least protection for human health and the environment because it provides the least long-term protectiveness through demo prep and demolition compared to Alternatives 3 and 4. Reliance on continued S&M and deferral of demo prep in Alternative 2 could result in increased hazards to workers and human health and the environment from structural degradation. Alternative 2 achieves all of the RAOs but is considered to be least effective among the three viable alternatives.

5.3.3 Alternative 3 – Continued S&M/Hazard Abatement 202A/Demo Prep 202A Annex

Under Alternative 3, S&M activities would continue for the entire PUREX Complex. Hazard abatement would take place in high priority canyon areas in the 202A Building. Demo prep would also be performed in the 202A East and West Annexes. Figure 11 and Figure 12 provide a general overview of the removal activities for Alternative 3.

This alternative includes all activities included in Alternative 2, with the addition of demo prep in the 202A East and West Annexes. Prior to demo prep of the 202A East and West Annexes, some hazard abatement activities may be performed, if necessary. Rooms in each annex structure would be emptied of wastes, equipment, furniture, and nonstructural utilities, such as plumbing and power supply in preparation for eventual demolition. Asbestos removal would also be performed.

Alternative 3 contains the removal action activities included in Alternative 2, with the addition of demo prep in the 202A Annex. Implementation of demo prep in the annex structures will allow for greater reduction of toxicity, mobility, or volume (RAO #1) than achievable under the removal actions included in Alternative 2. It will also reduce future S&M activity and expedite future remedial actions (RAOs #4 and #5) more effectively than Alternative 2. Hazard abatement would reduce or eliminate the release pathways to the environment and reduce future S&M activity. Demo prep provides more interim protectiveness in relation to hazard abatement by removing and disposing of most or all contamination, equipment, and structural material that may otherwise hinder a future remedial action. Demo prep would mitigate the risk of accidental release of contamination by stabilizing contamination.

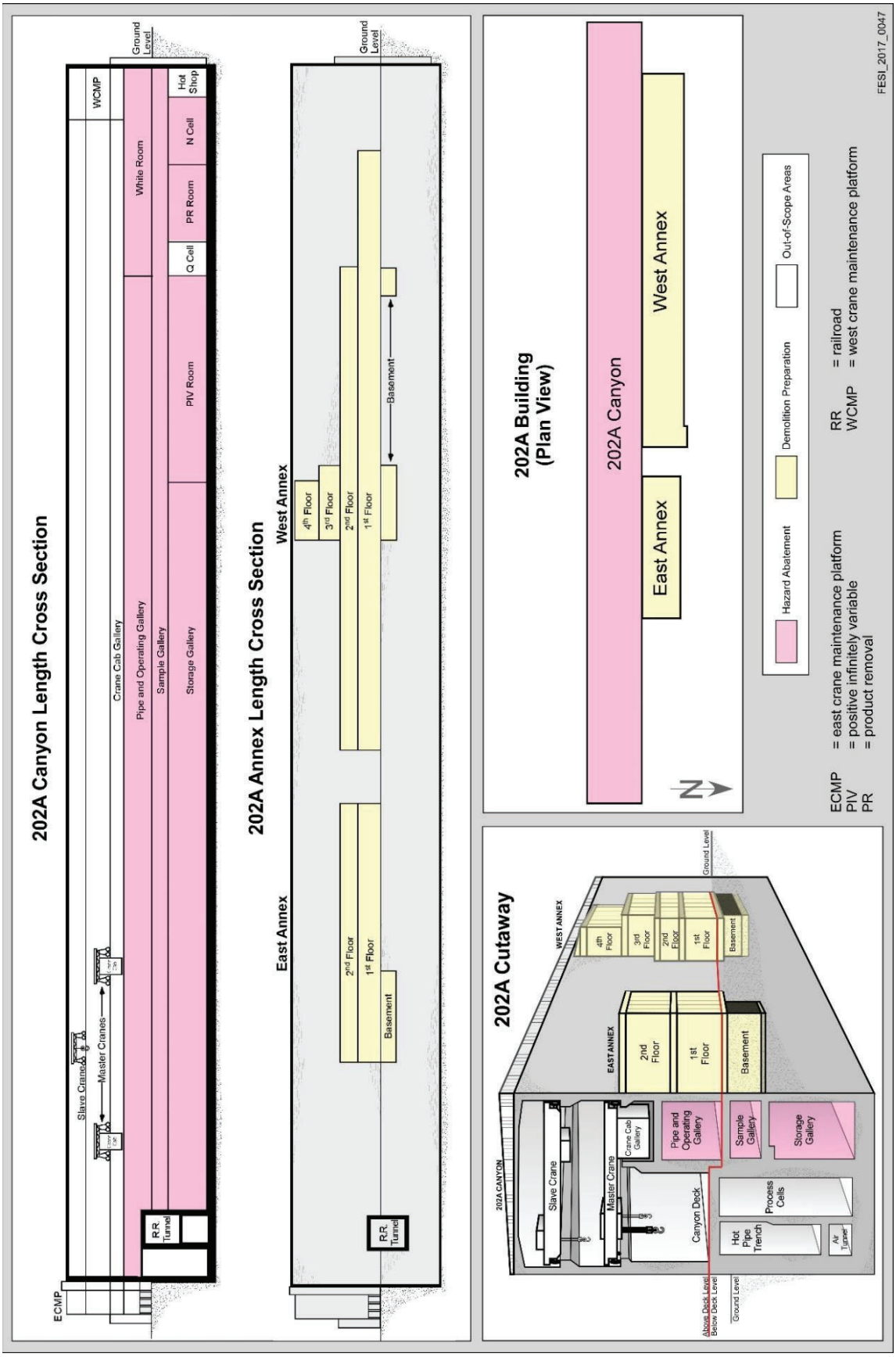


Figure 11. Alternative 3 – Proposed Actions

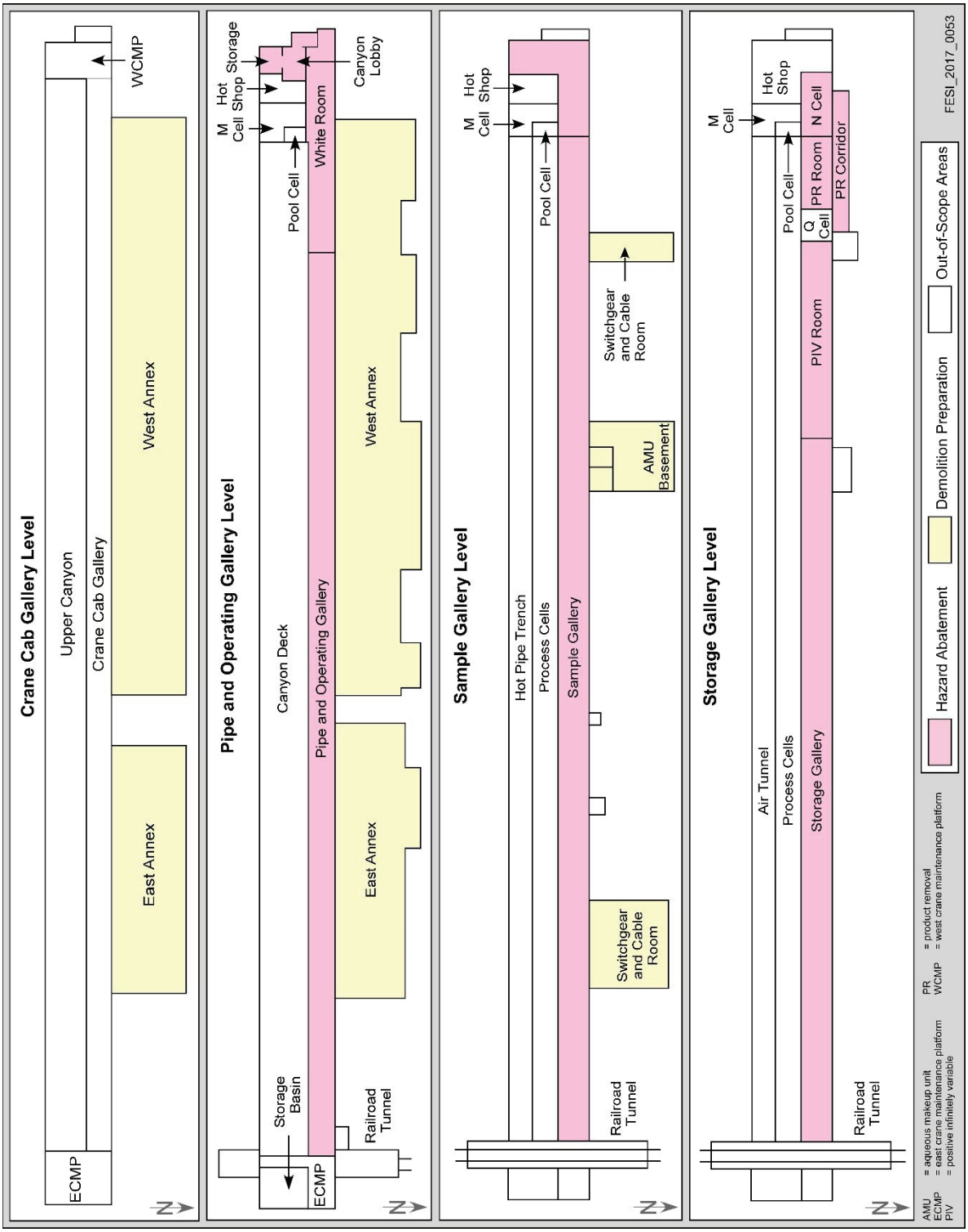


Figure 12. Alternative 3 Plan View – Proposed Actions per Level

5.3.4 Alternative 4 – Continued S&M/Hazard Abatement 202A/Demo Prep 202A Annex/ Demolition 202A Annex/Demo Prep Abovegrade 202A

Under Alternative 4, S&M activities would continue for the entire PUREX Complex. Hazard abatement would take place in high priority canyon areas in the 202A Building. Demo prep would be performed in the 202A East and West Annexes and abovegrade areas of the 202A Canyon, followed by demolition of the 202A East and West Annexes, which includes disposition of Tank TK-156. Figure 13 and Figure 14 provide a general overview of the removal activities for Alternative 4. Alternative 4 adds demo prep of the 202A Canyon abovegrade areas and demolition of the 202A East and West Annexes, including the final disposition of RCRA tank TK-156. The crane will not be activated or removed.

For the 202A Canyon abovegrade areas, demo prep will be performed, as appropriate. These areas are the Crane Cab Gallery, West Crane Maintenance Platform, P&O Gallery, White Room, Canyon Lobby and Storage Area, and Canyon Deck. Prior to demo prep, some hazard abatement activities may be performed, if necessary. Demo prep activities would include removal of wastes, equipment, and nonstructural utilities such as plumbing, in preparation of eventual demolition or grouting.

For the 202A East and West Annexes, demo prep will take place prior to all demolition. Under this alternative, the 202A East and West Annexes would be demolished to ground level, and fill material would bring the basement level to grade. Removal of transite from the exterior walls will be performed as part of the demolition. If utilities or controls located in the 202A East and West Annexes are needed for future actions, they will be reconfigured and relocated prior to demolition. The closure activity for tank TK-156 (removal and disposal at ERDF) will be conducted concurrently with demolition. Following demolition, any access points to the remaining canyon portion will be isolated or sealed, as appropriate. Demolition of the annex structures would improve access for waste stabilization and removal in these areas under the future remedial action, thus increasing future technical and administrative feasibility.

Alternative 4 can achieve the RAOs. Demolition of the 202A Annexes and demo prep of the abovegrade areas in the 202A Canyon would allow for reduction or elimination of the inventory of hazardous and radioactive substances, which eliminates more potential for release of and exposure to hazardous substances (RAO #1) than Alternatives 2 or 3. Demolition of the 202A Annex and demo prep of the 202A Canyon Abovegrade Areas have minimal impact on cultural resources and wildlife habitat (RAO #2). Waste generated from Alternative 4 will be safely disposed of (RAO #3). The actions are consistent with the anticipated remedial action (RAO #4) and result in minimal to no need for future S&M activities in this area (RAO #5).

Alternative 4 provides increasing levels of protectiveness by reducing the interim and long-term chemical, radiological, and physical hazards through direct removal via hazard abatement, demo prep, and demolition. The primary risks to workers with each alternative are waste handling and contaminated materials. Alternative 4 includes implementing approaches and additional activities not addressed in the current S&M program, which will remove many of the identified risks. Implementing the actions in Alternative 4 would place the buildings in a more stable condition than Alternatives 2 and 3 and would minimize hazards to the extent possible to workers and the environment.

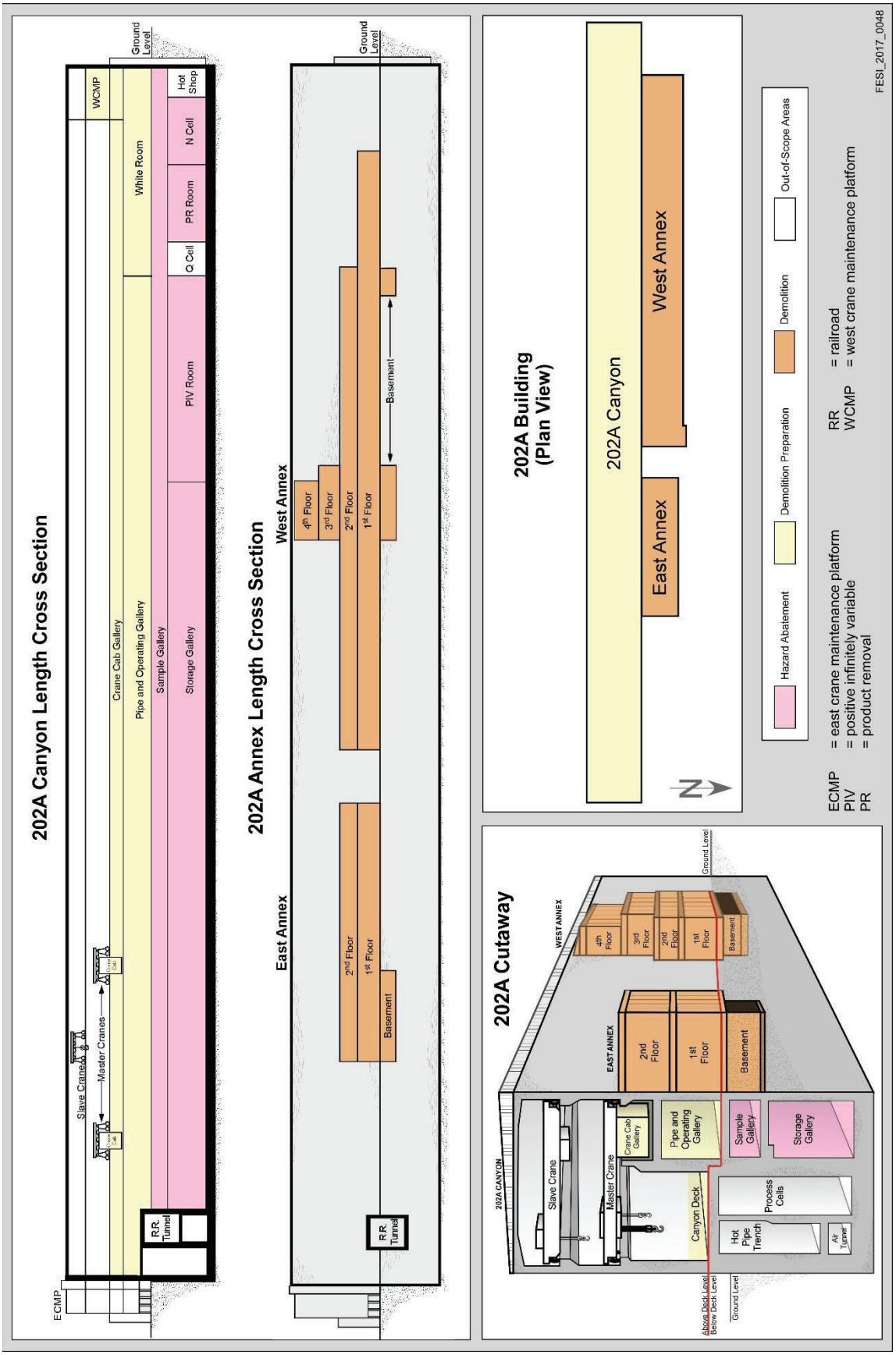


Figure 13. Alternative 4 – Proposed Actions

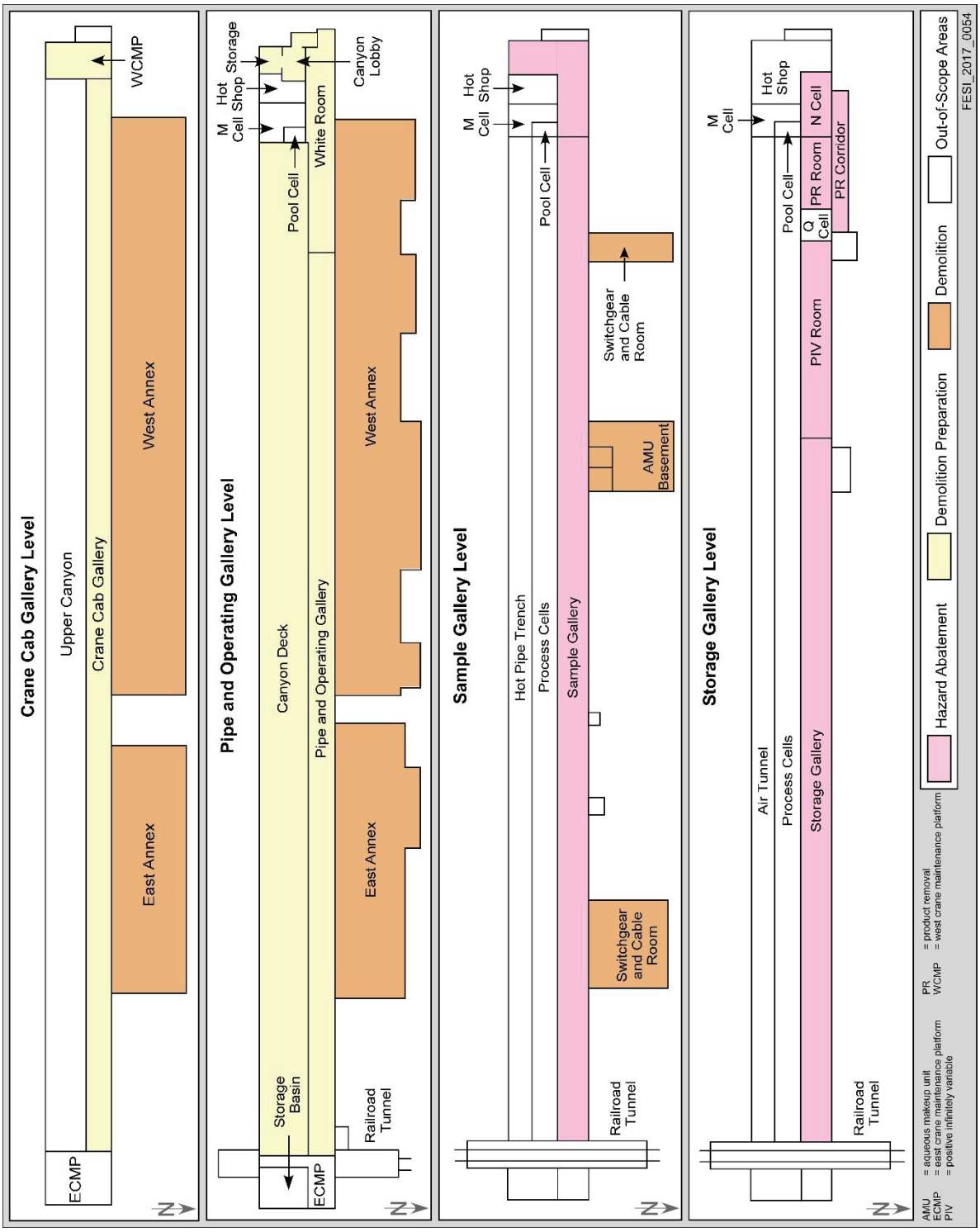


Figure 14. Alternative 4 Plan View – Proposed Actions per Level

5.4 Applicable or Relevant and Appropriate Requirements and Other Criteria, Advisories, or Guidance to-be-Considered

This section discusses the controlling regulations, advisories, and guidance to-be-considered (TBC) for implementing the selected removal action.

5.4.1 Environmental Regulations

CERCLA Section 121, "Cleanup Standards," requires the responsible CERCLA implementing agency to ensure that the substantive standards of RCW 70.105, "Hazardous Waste Management," RCRA, and other applicable laws will be incorporated into the federal agency's design and operation of its long-term remedial actions and to the extent practicable into its more immediate removal actions. DOE is the implementing agency for this NTCRA. Ecology concurs that this NTCRA is warranted to protect human health and the environment.

This NTCRA does not have socioeconomic impacts to offsite populations. Archeological, cultural, and ecological impacts are not expected because the proposed action is conducted in existing structures, located on previously disturbed soil at existing locations.

5.4.2 Applicable or Relevant and Appropriate Requirements

The NCP (40 CFR 300) requires that the removal action described in this AM complies with ARARs to the extent practicable. The ARARs are substantive requirements of environmental standards incorporated in promulgated regulations that have been evaluated and determined to be pertinent to the removal action. Appendix A identifies and describes specific regulatory requirements that are ARARs for this removal action. TBC information is also included in Appendix A for this removal action. TBC information includes nonpromulgated advisories or guidance issued by federal or state governments; TBC information is not binding legally and does not have the status of ARARs.

5.4.3 Compliance with Disposal Facility Waste Acceptance Criteria

For all actions, waste generated during removal action activities may include but is not limited to radiologically and/or chemically contaminated equipment and demolition debris. Equipment includes pumps, pipes, tanks, containers, compressors, ductwork, and electrical components. Demolition debris includes wood, metal, roofing, siding, gypsum, and concrete. ERDF is the preferred location for disposal of this waste.

Waste generated during removal action activities would be characterized and segregated by waste type (e.g., TRU, low-level radioactive, mixed low-level radioactive, hazardous, and nonhazardous). In compliance with WAC 173-303 and the *Atomic Energy Act of 1954*, waste would be dispositioned at approved waste disposal facilities.

ERDF is the preferred disposal location because it is an engineered facility that provides a high degree of protection to human health and the environment. Historically, it has been shown that this disposal location is more cost-effective than other waste disposal sites. Construction of ERDF was authorized using a separate CERCLA ROD (EPA et al., 1995, *Record of Decision: U.S. DOE Hanford Environmental Restoration Disposal Facility*, *Hanford Site, Benton County, Washington*). ERDF is engineered to meet appropriate RCRA technological requirements for landfills, including standards for a double liner, leachate collection system, leak detection, monitoring, and a final cover.

Hazardous, mixed, low-level, asbestos, and *Toxic Substances Control Act of 1976* waste can be accepted for disposal at ERDF (ERDF-00011). Demolition debris will be transported to ERDF or other EPA approved facilities and treated as necessary to meet applicable land disposal restrictions and waste

acceptance criteria prior to disposal. If TRU waste is generated, it would be moved to an EPA approved facility for storage and managed according to applicable waste acceptance criteria prior to disposal at the Waste Isolation Pilot Plant (HNF-EP-0063).

Tank TK-156 is a permitted DWMU. In accordance with Section 6.0 of the Tri-Party Agreement (Ecology et al., 1989a) and WAC 173-303, a closure plan will be prepared for TK-156. The closure plan will present the process for closure in accordance with WAC 173-303-610, "Closure and Post-Closure." Ecology will approve the closure plan after the public review and comment period has been completed, and the closure plan will then be included in the Hanford Facility Dangerous Waste Permit. Waste generated from the closure activities at this DWMU will be disposed at ERDF as part of the removal action.

5.4.4 Non-Time-Critical Removal Action Objectives

Overall protection of human health and the environment is the primary objective of the removal action. The following RAOs for this NTCRA address the identified risks in a manner that would to the extent practicable support the long-term and final cleanup goals for the 200 Areas National Priorities List site (Appendix B in 40 CFR 300):

- **RAO #1**: Reduce the inventory and any potential threat to human health and the environment from an unacceptable exposure to hazardous and radioactive substances.
- **RAO #2**: Minimize the general disruption and adverse impacts to cultural resources and wildlife habitat.
- **RAO #3**: Safely treat, as appropriate, and dispose of waste generated by the removal action.
- **RAO #4**: Be consistent with anticipated remedial actions at the PUREX Complex.
- **RAO #5**: Minimize or eliminate the need for future S&M activities.

5.5 Project Costs

Cost estimates were prepared for the alternatives evaluated in the PUREX EE/CA (DOE/RL-2016-15). The estimates were prepared in accordance with EPA 540-R-00-002, *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study*, as well as DOE G 430.1-1, *Cost Estimating Guide*. ECE-200E15-00005, *Environmental Cost Estimate for the PUREX Complex*, provides an overview of removal action-specific cost inputs, methodology, and results. The information in the cost estimate summary is based on the best available information regarding the anticipated scope of the selected alternative. Changes in the cost elements are likely to occur as a result of new information and data collected during the engineering design and performance of the removal action. This is an order-of-magnitude engineering cost estimate expected to be within -30 to +50% of actual project cost.

The expected duration before the remedial action will be implemented for each of the alternatives is assumed to be 25 years. S&M is expected to continue throughout the duration of the NTCRA at the current yearly cost. In addition to S&M, all of the alternatives include costs for facility safety upgrades, site preparation, ventilation system modifications, and safety document modification. Table 5 provides the cost estimates for the removal action alternatives.

Table 5. Comparison of Total Cost of Removal Action Alternatives in Present Value

Alternative		Present Value
1	No action	N/A[a]
2	• Continued surveillance and maintenance of PUREX Complex • Hazard abatement[b] of the 202A Building (includes canyon, east and west annexes)	$177.9 million
3	Alternative 2 actions, plus: • Demo prep of the 202A East and West Annexes	$190.6 million
4	Alternative 3 actions, plus: • Demo prep of the 202A Canyon Abovegrade Areas • Demolition of the 202A East and West Annexes	$217.7 million

Note: Accuracy range of the cost estimate is expected to be -30% to +50%. No sensitivity analyses were performed, and the following factors could impact the costs: level of contamination, amount and type of equipment in the buildings, and differing structural design.

a. Alternative 1 is not consistent with DOE obligations under federal law to protect human health and the environment; therefore, this alternative cannot be considered viable, was not considered further in this AM, and is included for comparative purposes only. Although Alternative 1 would not have an associated implementation cost under this analysis, it is understood that taking no action would ultimately result in cost to DOE.

b. This action memorandum is inclusive of hazard abatement as described in DOE-RL-2019-34, *Removal Action Work Plan for the PUREX Complex: Hazard Abatement Including White Powder Within the 202A Building*.

demo prep = demolition preparation
DOE = U.S. Department of Energy
N/A = not applicable
PUREX = Plutonium Uranium Extraction

Alternative 1 is presented with no cost solely in the context of No Action being taken to mitigate existing hazardous conditions posed by structural deterioration and contamination spread. In reality, if No Action was taken, costs would ultimately be incurred in terms of adverse impacts to human health and the environment and possibly costlier actions in the future.

For Alternative 2, the significant costs incurred are due to hazard abatement activities within the 202A Building. Hazard abatement action will incur costs from waste disposal, demolition labor, characterization sampling, and air monitoring. This activity will remove contaminated equipment from several areas within the 202A Building.

Alternative 3 adds additional costs due to demo prep work inside the 202A East and West Annexes. Demo prep activities will incur costs from waste treatment and disposal, demolition labor, characterization sampling, and air monitoring.

Alternative 4 cost increases are due to demolition of the 202A East and West Annexes and demo prep of the 202A Canyon abovegrade areas. Costs associated with demolition activities include evaluation and planning, waste disposal, demolition labor, characterization sampling, air monitoring, removal and disposal of tank TK-156. Demo prep activities will incur costs from waste treatment and disposal, demolition labor, characterization sampling, and air monitoring.

5.6 Project Schedule

A RAWP and SAP are being prepared to support this removal action. Following approval of this AM, the RAWP and the SAP will be submitted to Ecology, the lead regulatory agency. The SAP will also be submitted to EPA for approval. The RAWP will provide technical guidance and an implementation schedule for conducting this NTCRA. The SAP will identify building/structure waste for final disposition and to support closure.

6 Expected Change in the Situation Should Action Be Delayed or Not Taken

The PUREX Complex buildings/structures addressed by this NTCRA are contaminated with hazardous substances, including radiological contaminants, metals, organic chemicals, PCBs, beryllium, and asbestos. The buildings/structures were used for radiological and/or chemical processing activities and contain significant inventories of hazardous substances that could present an increased threat to human health and the environment if not addressed.

The PUREX Complex buildings/structures addressed by the PUREX EE/CA (DOE/RL-2016-15) were built in the 1950s and are structurally deteriorating. In 2002, a new roof was placed on the 202A Building to mitigate water intrusion into the building due to structural degradation. While this issue is now fixed, the rest of the building has continued to degrade over time. Contamination could further spread throughout the building or to the environment as the buildings/structures continue to deteriorate. Contaminants could be released directly to the environment through a fire; breach in a utility pipe, containment wall, or roof; or building collapse as the buildings age and deteriorate.

Radiological and chemical conditions in the 202A Building (as described in Chapter 3) indicate that contamination is spreading within locations inside the building that are currently being surveyed. Contamination spreading in these locations indicates that contamination may be spreading in other areas that are not entered. Several locations are radiologically contaminated and need to be addressed before the occurrence of an unpredictable event that could pose a threat to human health and the environment.

Because Tri-Party Agreement (Ecology et al., 1989a) Milestone M-085-80, "Submit Remedial Investigation/Feasibility Study Work Plan for 200-CP-1 to Ecology," is not required until September 30, 2020, the remedial actions are not expected to be implemented for a number of years thereafter. In general, the risk of an accidental release (e.g., from a structure failure) increases the longer the buildings/structures await the eventual remedial action activities for the OU. If near-term hazard mitigation actions are not performed, the structural deterioration and contamination spread could result in an unacceptable release to human health and the environment; therefore, the removal action is needed to alleviate this potential future risk. Radiological and chemical contamination in the PUREX Complex present a sufficient threat of release to human health and the environment to justify an NTCRA.

7 Outstanding Policy Issues

There are no outstanding policy issues associated with this NTCRA.

8 Enforcement

DOE is conducting this removal action as the lead agency under the authority of Executive Order 12580, affirmed by 40 CFR 300.5, "Definitions," and 40 CFR 300.415(b)(1).

9 Recommendations

This AM documents the intent to implement the selected removal action for the PUREX Complex in the 200 East Area of the Hanford Site. This decision document has been developed in accordance with CERCLA as amended by SARA and is consistent with the NCP. Conditions at the site meet NCP (40 CFR 300.415(b)(2)) criteria for a removal action. This decision is based on the alternatives evaluated in the PUREX EE/CA (DOE/RL-2016-15), which is available in the Administrative Record.

The recommended removal action alternative identified in the PUREX EE/CA (DOE/RL-2016-15) is Alternative 4: Continued S&M with Hazard Abatement of 202A Building, Demo Prep and Demolition of 202A Annexes, and Demo Prep of 202A Canyon Abovegrade Areas. This alternative has been selected

for implementation because it is the most cost-effective alternative that reduces long-term risk to human health and the environment. This alternative is consistent with and contributes to the efficient performance of Hanford Site long-term remedial actions.

At the completion of the NTCRA, a completion report will be issued that provides summary information, including the building/structure names, waste generation and disposal information, and the end state.

10 References

40 CFR 300, "National Oil and Hazardous Substances Pollution Contingency Plan," *Code of Federal Regulations*. Available at: https://www.govinfo.gov/content/pkg/CFR-2010-title40-vol27/xml/CFR-2010-title40-vol27-part300.xml.

300.5, "Definitions."

Subpart B, "Responsibility and Organization for Response" (300.100–300.185).

Section 104, "Response Authorities."

300.415, "Removal Action."

300.440, "Procedures for Planning and Implementing Off-Site Response Actions."

Appendix B, "National Priorities List."

64 FR 61615, 1999, "Record of Decision: Hanford Comprehensive Land-Use Plan Environmental Impact Statement (HCP EIS)," *Federal Register*, Vol. 64, No. 218, pp. 61615–61625, November 12. Available at: https://www.govinfo.gov/content/pkg/FR-1999-11-12/pdf/99-29325.pdf.

Atomic Energy Act of 1954, Pub. L. 83-703 as amended, 42 USC 2011 et seq., 68 Stat. 919. Available at: https://www.govinfo.gov/content/pkg/STATUTE-68/pdf/STATUTE-68-Pg919.pdf#page=30.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980, Pub. L. 107-377 as amended, 42 USC 9601 et seq., December 31, 2002. Available at: https://www.csu.edu/cerc/researchreports/documents/CERCLASummary1980.pdf.

Section 104, "Response Authorities."

Section 121, "Cleanup Standards."

CP-14977, 2017, *Plutonium Uranium Extraction Facility Documented Safety Analysis*, Rev. 9, CH2M HILL Plateau Remediation Company, Richland, Washington. Available at: https://pdw.hanford.gov/document/0069237H.

DOE G 430.1-1, 1997, *Cost Estimating Guide*, U.S. Department of Energy, Washington, D.C. Available at: https://www.directives.doe.gov/directives-documents/400-series/0430.01-EGuide-1.

DOE/EIS-0222F, 1999, *Final Hanford Comprehensive Land-Use Plan Environmental Impact Statement*, U.S. Department of Energy, Washington, D.C. Available at:
https://pdw.hanford.gov/document/D199158842.
https://pdw.hanford.gov/document/D199158843.
https://pdw.hanford.gov/document/D199158844.
https://pdw.hanford.gov/document/D199158845.
https://pdw.hanford.gov/document/D199158846.
https://pdw.hanford.gov/document/D199158847.

DOE/EIS-0222-SA-01, 2008, *Supplement Analysis: Hanford Comprehensive Land-Use Plan Environmental Impact Statement*, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: https://www.hanford.gov/files.cfm/SAwith_signed-R1.pdf.

DOE/RL-95-78, 1997, *PUREX Facility Preclosure Work Plan*, Rev. 1, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: https://pdw.hanford.gov/document/D197225297.

DOE/RL-98-35, 2008, *Surveillance and Maintenance Plan for the Plutonium-Uranium Extraction (PUREX) Facility*, Rev. 3, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: https://pdw.hanford.gov/document/0091654.

DOE/RL-2010-22, 2010, *Action Memorandum for General Hanford Site Decommissioning Activities*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: https://pdw.hanford.gov/document/0084445.

DOE/RL-2010-33, 2010, *Removal Action Work Plan for Central Plateau General Decommissioning Activities*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: https://pdw.hanford.gov/document/0084342.

DOE/RL-2010-102, 2011, *Action Memorandum for Decontamination, Deactivation, Decommissioning, and Demolition (D4) Activities for 200 East Tier 2 Buildings/Structures*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: https://pdw.hanford.gov/document/0072140H.

DOE/RL-2016-15, 2019, *Engineering Evaluation/Cost Analysis for the PUREX Complex*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: https://pdw.hanford.gov/document/AR-02488.

DOE/RL-2019-34, *Removal Action Work Plan for the PUREX Complex: Hazard Abatement Including White Powder Within the 202A Building*, Rev. 0 pending, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Drummond, M.E., 1992, *The Future for Hanford: Uses and Cleanup: The Final Report of the Hanford Future Site Uses Working Group*, U.S. Environmental Protection Agency, Washington State Department of Ecology, and U.S. Department of Energy, Richland, Washington. Available at: https://pdw.hanford.gov/document/D196123428.

ECE-200E15-00005, 2017, *Environmental Cost Estimate for the PUREX Complex*, Rev. 0, CH2M HILL Plateau Remediation Company, Richland, Washington. Available at: https://pdw.hanford.gov/document/AR-02654.

Ecology, EPA, and DOE, 1989a, *Hanford Federal Facility Agreement and Consent Order*, 2 vols. as amended, Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Olympia, Washington. Available at: https://www.hanford.gov/?page=81.

Ecology, EPA, and DOE, 1989b, *Hanford Federal Facility Agreement and Consent Order Action Plan*, as amended, Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Olympia, Washington. Available at: https://www.hanford.gov/?page=82.

EPA, 2009, *Superfund Removal Guidance for Preparing Action Memoranda*, Office of Emergency Management, Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency, Washington, D.C. Available at: https://www.epa.gov/sites/production/files/2014-02/documents/superfund_removal_guide_for_preparing_action_memo.pdf.

EPA, DOE, and Ecology, 1995, *Record of Decision: U.S. DOE Hanford Environmental Restoration Disposal Facility*, *Hanford Site, Benton County, Washington*, U.S. Environmental Protection Agency, U.S. Department of Energy, and Washington State Department of Ecology, Seattle, Washington. Available at: https://pdw.hanford.gov/document/D196041064.

EPA, DOE, and Ecology, 2005, *Record of Decision, 221-U Facility (Canyon Disposition Initiative) Hanford Site, Washington*, U.S. Environmental Protection Agency, U.S. Department of Energy, and Washington State Department of Ecology, Olympia, Washington. Available at: https://pdw.hanford.gov/document/DA01060264.

EPA 540-R-00-002, 2000, *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study*, OSWER 9355.0-75, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, Washington, D.C. Available at: https://semspub.epa.gov/work/HQ/174890.pdf.

EPA/ESD/R10-96/145, 1996, *Explanation of Significant Differences: USDOE Environmental Restoration Disposal Facility, Hanford Site, Benton County, Washington*, U.S. Environmental Protection Agency, Washington State Department of Ecology, and U.S. Department of Energy, Seattle, Washington. Available at: https://pdw.hanford.gov/document/0093773.

ERDF-00011, 2018, *Environmental Restoration Disposal Facility Waste Acceptance Criteria*, Rev. 1, CH2M HILL Plateau Remediation Company, Richland, Washington. Available at: https://pdw.hanford.gov/document/AR-01205.

Executive Order 12580, 1987, *Superfund Implementation*, Ronald W. Reagan, January 23. Available at: https://www.archives.gov/federal-register/codification/executive-order/12580.html.

HNF-EP-0063, 2017, *Hanford Site Solid Waste Acceptance Criteria*, Rev. 17, CH2M HILL Plateau Remediation Company, Richland, Washington. Available at: https://www.hanford.gov/files.cfm/HNF-EP-0063_Rev_17_Hanford_Site_Solid_Waste_Accpetance_Criteria.pdf.

HNF-SD-CP-ISB-004, 1999, *Plutonium Uranium Extraction (PUREX) End State Basis for Interim Operation (BIO) for Surveillance and Maintenance*, Rev. 0, B&W Hanford Company, Richland, Washington. Available at: https://inis.iaea.org/collection/NCLCollectionStore/_Public/34/004/34004080.pdf.

Resource Conservation and Recovery Act of 1976, Pub. L. 94-580, 42 USC 6901 et seq. Available at: https://www.govinfo.gov/content/pkg/STATUTE-90/pdf/STATUTE-90-Pg2795.pdf.

RCW 70.105, "Hazardous Waste Management," *Revised Code of Washington*, Olympia, Washington. Available at: https://apps.leg.wa.gov/RCW/default.aspx?cite=70.105.

Superfund Amendments and Reauthorization Act of 1986, 42 USC 9601 et seq. Available at: https://www.govinfo.gov/content/pkg/USCODE-2011-title42/pdf/USCODE-2011-title42-chap103.pdf.*Toxic Substances Control Act of 1976*, Pub. L. 94-469 as amended, 15 USC 2601 et seq. Available at: https://www.govinfo.gov/content/pkg/STATUTE-90/pdf/STATUTE-90-Pg2003.pdf.

WA7890008967, *Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit, Dangerous Waste Portion for the Treatment, Storage, and Disposal of Dangerous Waste*, Revision 8C, as amended, Washington State Department of Ecology, Richland, Washington. Available at: https://fortress.wa.gov/ecy/nwp/permitting/hdwp/rev/8c/.

WAC 173-303, "Dangerous Waste Regulations," *Washington Administrative Code*, Olympia, Washington. Available at: https://apps.leg.wa.gov/WAC/default.aspx?cite=173-303.

303-610, "Closure and Post-Closure."

WHC-SD-CP-PLN-028, 1995, *PUREX Low-Level Waste Radionuclide Characterization*, Rev. 0, Westinghouse Hanford Company, Richland, Washington. Available at: https://www.osti.gov/biblio/10117980.

This page intentionally left blank.

Appendix A

Applicable or Relevant and Appropriate Requirements

This page intentionally left blank.

Contents

A1 Compliance with Applicable or Relevant and Appropriate Requirements A-1

A1.1 Waste Management Standards A-17

A1.2 Standards Controlling Emissions to the Environment A-18

A1.2.1 Radiological Air Emissions A-19

A1.2.2 Criteria/Toxic Air Emissions A-19

A1.3 Standards for the Protection of Cultural and Ecological Resources A-20

A2 References A-20

Tables

Table A-1. Identification of Federal ARARs for the Removal Action A-2

Table A-2. Identification of State ARARs for the Removal Action A-8

This page intentionally left blank.

Terms

ACM	asbestos-containing material
ALARA	as low as reasonably achievable
ARAR	applicable or relevant and appropriate requirement
Cat I	Category I
Cat II	Category II
CERCLA	*Comprehensive Environmental Response, Compensation, and Liability Act of 1980*
COPC	contaminant of potential concern
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
ERDF	Environmental Restoration Disposal Facility
ETF	Effluent Treatment Facility
HHE	human health and the environment
LLW	low-level waste
NESHAP	"National Emission Standards for Hazardous Air Pollutants" (40 CFR 61)
NRC	U.S. Nuclear Regulatory Commission
NTCRA	non-time-critical removal action
OSWER	Office of Solid Waste Emergency Response (EPA)
PCB	polychlorinated biphenyl
PUREX	Plutonium Uranium Extraction
RACM	regulated asbestos-containing material
RACT	reasonably available control technology
RCRA	*Resource Conservation and Recovery Act of 1976*
T-BACT	toxics best available control technology
TAP	toxic air pollutant
TBC	to be considered
TSCA	*Toxic Substances Control Act of 1976*
UIC	underground injection control

This page intentionally left blank.

A1 Compliance with Applicable or Relevant and Appropriate Requirements

For the non-time-critical removal action (NTCRA) at the Plutonium Uranium Extraction (PUREX) Complex identified in this document, implementation of the selected alternative will be designed to comply with the applicable or relevant and appropriate requirements (ARARs) cited in this appendix to the extent practicable. ARARs are defined to include only substantive requirements of environmental standards. ARARs do not include administrative requirements, including requirements to obtain any federal, state, or local permits (40 CFR 300.400(e), "National Oil and Hazardous Substances Pollution Contingency Plan," "General," and *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* [CERCLA], Section 121, "Cleanup Standards").

The ARARs listed in this appendix are the ARARs that the U.S. Department of Energy (DOE) established for implementation of the selected alternative. Selection of these ARARs was based on knowledge regarding the hazardous substances within the PUREX Complex buildings/structures. There are no impacts to groundwater or surface water as a result of this removal action.

Chemical-specific requirements are usually health- or risk-based numerical values or methodologies that, when applied to site-specific conditions, result in the establishment of numerical values. These values establish the acceptable amount or concentration of a contaminant that may be found in, or discharged to, the ambient environment. Action-specific requirements are usually technology- or activity-based requirements or limitations triggered by the removal actions performed at the Hanford Site.

The key ARARs identified for the selected alternative includes waste management standards, standards controlling releases to the environment, standards for protection of natural resources, and safety and health standards.[1] Applicable federal and state ARARs and requirements to be considered (TBC) for the selected removal action are provided in Tables A-1 and A-2, respectively.

[1] Worker safety and health standards are not environmental standards per se and, therefore, not are ARARs. Instead, compliance with applicable safety and health regulations is required external to the CERCLA ARAR process. However, due to the nature and importance of these standards, a discussion of the safety and health requirements is included in this appendix.

Table A-1. Identification of Federal ARARs for the Removal Action

Regulatory Citation	ARAR Category	Description of Regulatory Requirement	Rationale for Consideration
***Clean Air Act of 1990*, as amended, 42 USC 7401 et seq.**			
40 CFR 60, "Standards of Performance for New Stationary Sources" 40 CFR 60, Subpart IIII, "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines" 40 CFR 60, Subpart JJJJ, "Standards of Performance for Stationary Spark Ignition Internal Combustion Engine" 40 CFR 63, "National Emission Standards for Hazardous Air Pollutants for Source Categories" 40 CFR 63, Subpart ZZZZ, "National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines"	ARAR	The requirements for stationary engines changed on May 3, 2013 to include timers, maintenance plans, and meeting monitoring requirements.	This applies to all stationary engines used during this NTCRA. This requirement is action-specific.
40 CFR 61.140, "Applicability" 40 CFR 61.145, "Standard for Demolition and Renovation" Specific subsections: 40 CFR 61.145(a)(1), (a)(2), (a)(5), and (c)	ARAR	These standards apply to demolition activities, including the removal of RACM. The standards of 40 CFR 61.145(a)(1), (a)(2), and (a)(5), are used to determine when the requirements of 40 CFR 61.145(c) apply to demolition activities.	Some buildings/structures addressed under the NTCRA could contain asbestos. The substantive provisions of 40 CFR 61.145(c) would be complied in accordance with 40 CFR 61.145(a)(1), (a)(2), and (a)(5) for the material that contains RACM under this PUREX Complex NTCRA. This requirement is chemical-specific.
40 CFR 61.150(a) through (c), "Standard for Waste Disposal for Manufacturing, Fabricating, Demolition, Renovation, and Spraying Operations"	ARAR	The standards of 40 CFR 61.150(a) through (c) are used to control asbestos emissions during collection, processing, packaging, and transport of any asbestos-containing waste material.	The substantive provisions of 40 CFR 61.150(a) through (c) would be met during activities that involve collection, processing, packaging, and transport of asbestos-containing waste material under the PUREX Complex NTCRA. This requirement is chemical-specific.

Table A-1. Identification of Federal ARARs for the Removal Action

Regulatory Citation	ARAR Category	Description of Regulatory Requirement	Rationale for Consideration
***Archeological and Historic Preservation Act of 1974* (Public Law 93-291, as amended; 16 USC 469a-1 through 469a-2(d))**			
"Applicant Requirements" 16 USC 469a-1 through 469a-2(d)	ARAR	Requires that the removal action at the PUREX Complex does not cause the loss of any archaeological or historic data. This act mandates preservation of the data and does not require protection of the actual historical sites.	Archeological and historic sites have been identified within the 200 Areas; therefore, the substantive requirements of this act are applicable to removal actions that might disturb these sites. This requirement is action-specific.
***National Historic Preservation Act of 1966*, 16 USC 470, Section 106**			
36 CFR 800, "Protection of Historic Properties"	ARAR	Requires federal agencies to consider the impacts of their undertaking on cultural properties through identification, evaluation and mitigation processes.	Based on past identification of cultural and historic sites at the Hanford Site, these types of sites could be encountered during PUREX Complex NTCRA activities. The substantive requirements of this act are potentially applicable to and would be complied with for actions that might disturb these types of sites. This requirement is location-specific.
Native American Graves Protection and Repatriation Act of 1990			
43 CFR 10, "Native American Graves Protection and Repatriation Regulations"	ARAR	These provisions establish federal agency responsibility for discovery of human remains, associated and unassociated funerary objects, sacred objects, and items of cultural patrimony. Requires consultation with area tribes in the event of discovery.	Based on Hanford Site history, these types of sites could be encountered during the PUREX Complex NTCRA. Substantive requirements of this act are potentially applicable if remains and sacred objects are found during NTCRA activities. This requirement is location-specific.
***Endangered Species Act of 1973*, 16 USC 1531 et seq., Subsection 16 USC 1536(c)**			
"*Endangered Species Act of 1973*," as Amended 16 U.S.C. §§ 1531-1544, specifically Sections 7 and 9(a). 50 CFR Part 17	ARAR	Prohibits actions by federal agencies that are likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of habitat critical to them. Also prohibits the taking of any endangered species.	Substantive requirements of this act are applicable if threatened or endangered species are identified in areas where the removal action will occur. This requirement is location-specific.

Table A-1. Identification of Federal ARARs for the Removal Action

Regulatory Citation	ARAR Category	Description of Regulatory Requirement	Rationale for Consideration
***Migratory Bird Treaty Act of 1918*, 16 USC 703 et seq.**			
Migratory Bird Treaty Act of 1918 (16 USC 703-712) 50 CFR Parts 10 and 21	ARAR	Protects all migratory bird species and prevents "take" of protected migratory birds, their young, or their eggs. Federal agencies are required to avoid or minimize impacts to migratory bird resources, restore or enhance their habitat and prevent or abate its detrimental alteration.	Three species of bird protected under the migratory bird treaty act may nest on or near the PUREX Complex. If these bird species are impacted by the selected remedy, this act will be applicable. It is also applicable to endangered or threatened species that may be identified near borrow sites. This requirement is location-specific.
***Toxic Substances Control Act of 1976*; 40 CFR 761, "Polychlorinated Biphenyls Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions"**			
40 CFR 761.50(b)1, 2, 3, 4, and 7, "Applicability," "PCB Waste" 40 CFR 761.50(c), "Storage for Disposal" 40 CFR 761.60(b), "PCB Articles" 40 CFR 761.60(c), "PCB Containers" 40 CFR 761.61, "PCB Remediation Waste" 40 CFR 761.62, "Disposal of PCB Bulk Product Waste" 40 CFR 761.79, "Decontamination Standards and Procedures"	ARAR	These regulations apply to the storage and disposal of PCB waste including liquid PCB waste, PCB items, PCB remediation waste, PCB bulk product waste, and PCB/radioactive waste at concentrations equal to or greater than 50 parts per million. These regulations also provide options for decontamination of materials contaminated with PCBs.	Some buildings/structures addressed under the NTCRA could include various forms of PCB waste, including, but not limited to, PCB items, PCB liquids, and PCB articles, and/or containers that would be managed in accordance with the substantive requirements of these standards if encountered and or generated during the NTCRA. This requirement is chemical-specific.

Table A-1. Identification of Federal ARARs for the Removal Action

Regulatory Citation	ARAR Category	Description of Regulatory Requirement	Rationale for Consideration
Radiological Dose and Cleanup (To Be Considered)			
Luftig and Weinstock, 1997, "Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination" Luftig and Page, 1999, "Distribution of OSWER Radiation Risk Assessment Q&A's Final Guidance"	TBC	This memorandum presents clarification for establishing protective cleanup levels in media for radioactive contamination at CERCLA sites. EPA has determined that the dose limits established by the NRC in 62 FR 39058, "Radiological Criteria for License Termination" (25 mrem/yr, which is equivalent to 5×10^{-4} increase lifetime risk), will not provide a protective basis for establishing preliminary remediation goals under CERCLA. A dose of 15 mrem/yr effective dose (approximately equivalent to 3×10^{-4} increase in lifetime risk) is preferred as the maximum dose limit for humans. In the final guidance, EPA further clarifies that 15 mrem/yr is not a presumptive cleanup level under CERCLA. Rather, site decision makers should continue to use the CERCLA risk range when ARARs are not used to set cleanup levels. This is for several reasons, as using dose based guidance would result in unnecessary inconsistency regarding how radiological and nonradiological (chemical) contaminants are addressed at CERCLA sites.	Soil and debris in the PUREX Complex may contain radioactive contaminants that, if not removed, could pose unacceptable risk to human health.

Table A-1. Identification of Federal ARARs for the Removal Action

Regulatory Citation	ARAR Category	Description of Regulatory Requirement	Rationale for Consideration
EPA/540-R-00-007, *Soil Screening Guidance for Radionuclides: User's Guide* (OSWER Directive 9355.4-16A)	TBC	This soil screening guidance is a tool developed by EPA to help standardize and accelerate the evaluation and cleanup of radioactively contaminated soil sites on the National Priorities List (40 CFR 300, Appendix B) where future residential land use is anticipated. The guidance provides a simple step-by-step methodology for environmental science/engineering professionals to calculated risk-based, site-specific soil screening levels for radionuclides in soil that may be used to identify areas needing further investigation at National Priorities List sites.	This TBC guidance is pertinent to the PUREX Complex NTCRA alternatives that will leave radiological contaminants in place following removal.

Table A-1. Identification of Federal ARARs for the Removal Action

Regulatory Citation	ARAR Category	Description of Regulatory Requirement	Rationale for Consideration
Radiological Dose and Cleanup (To Be Considered)			
OSWER Directive 9285.7-55, *Guidance for Developing Ecological Soil Screening Levels*	TBC	Provides a set of risk-based (ecological) soil screening levels for several soil contaminants that are of ecological concern for terrestrial plants and animals at hazardous waste sites. Also describes the process used to derive these levels and provides guidance for their use.	Soil in the PUREX Complex may contain contaminants that require removal. Comparison to soil screening levels may be appropriate for defining potential COPCs or to default to an ecological soil screening level for COPCs that lacks corresponding published state cleanup criteria.
EPA/540/R/99/006, *Radiation Risk Assessment At CERCLA Sites: Q & A* (OSWER Directive 9200.4-31P)	TBC	This directive provides guidance on radiological cleanup levels at CERCLA sites and states that a cleanup level is protective of human health and the environment when dose limits generally achieve risk levels in the 1×10^{-4} to 1×10^{-6} risk range.	The 1×10^{-4} to 1×10^{-6} risk range identified in this memorandum, although a TBC is considered to be protective in lieu of NRC standards; therefore, it must be considered in the planning for 200 Area remedial actions.
Final Hanford Comprehensive Land-Use Plan Environmental Impact Statement (DOE/EIS-0222-F) *Supplement Analysis: Hanford Comprehensive Land-Use Environmental Impact Statement* (DOE/EIS-0220-SA-01)	TBC	Establishes the future land use projections for the Hanford Site.	Land use, as stated in the Hanford Comprehensive Land Use Plan, is industrial exclusive for the Central Plateau conservation/mining for this area.

ARAR = applicable or relevant and appropriate requirement
CERCLA = *Comprehensive Environmental Response, Compensation, and Liability Act of 1980*
COPC = contaminant of potential concern
EPA = U.S. Environmental Protection Agency
OSWER = Office of Solid Waste Emergency Response (EPA)
NRC = U.S. Nuclear Regulatory Commission
NTCRA = non-time-critical removal action
PCB = polychlorinated biphenyl
PUREX = Plutonium Uranium Extraction
RACM = regulated asbestos-containing material
TBC = to be considered

Table A-2. Identification of State ARARs for the Removal Action

ARAR Citation	ARAR Category	Requirement	Rationale for Consideration
WAC 173-218, "Underground Injection Control Program"			
WAC 173-218-120(3)(b), "Decommissioning a UIC Well"	ARAR	This regulation provides the standards for decommissioning underground injection wells that are not in contact with the aquifer.	There is a potential to encounter UICs associated with buildings/structures during the NTCRA. While these UICs are not expected to be decontaminated, they do need to be decommissioned to the substantive requirements of this regulation. This requirement is action-specific.
Regulations Pursuant to the *Hazardous Waste Management Act* (RCW 70.105, "Hazardous Waste Management")			
WAC 173-303-016, "Identifying Solid Waste" WAC 173-303-017, "Recycling Processes Involving Solid Waste"	ARAR	This regulation applies for determining which materials are and are not solid waste. This determination is used to establish which waste are subject to the designation procedures of WAC 173-303-070(3).	Solid waste will be generated during the NTCRA. Substantive requirements of these regulations are potentially applicable because they define how to determine which materials are subject to the designation regulations. Specifically, materials that are generated for removal from the CERCLA site during the NTCRA would be evaluated using the procedures for identifying solid waste to ensure proper management. This requirement is action-specific.
WAC 173-303-070(3), "Designation of Dangerous Waste"	ARAR	This regulation applies for the evaluation of solid waste to determine if such waste is designated as dangerous or mixed waste. Solid waste that designates as dangerous or mixed waste are subject to management and disposal standards of WAC 173-303.	There is potential for generating solid waste during the NTCRA that would designate as dangerous or mixed waste. Substantive requirements of these regulations are potentially applicable to such solid waste if generated or encountered during the NTCRA. Specifically, solid waste generated for removal from the CERCLA site during this NTCRA would be evaluated using the dangerous waste designation procedures to ensure proper management. This requirement is action-specific.
WAC 173-303-071, "Excluded Categories of Waste"	ARAR	This regulation lists waste categories that are excluded from management in accordance with the requirements of WAC 173-303.	There is potential for generating waste during the NTCRA that would qualify for management under the substantive provisions of these regulations, which would be used as appropriate during the NTRCA. This requirement is action-specific.

Table A-2. Identification of State ARARs for the Removal Action

ARAR Citation	ARAR Category	Requirement	Rationale for Consideration
Regulations Pursuant to the *Hazardous Waste Management Act* (RCW 70.105, "Hazardous Waste Management")			
WAC 173-303-073, "Conditional Exclusion of Special Wastes"	ARAR	This regulation provides for management of waste that pose a relatively low hazard to human health and the environment. The standards provide for management of special waste with a level of protection that is intermediate between dangerous and nondangerous solid waste.	There is potential for generating waste during the NTCRA that would qualify for management under the substantive provisions of these regulations, which would be used as appropriate during the NTCRA. This requirement is action-specific.
WAC 173-303-077, "Requirements for Universal Waste"	ARAR	This regulation provides alternate reduced standards for certain solid waste (that is, batteries, mercury containing equipment, and lamps) as described in WAC 173-303-573, "Standards for Universal Waste Management."	There is potential for generating waste during the NTCRA that would qualify for management under the substantive provisions of these regulations, which would be used as appropriate during the NTCRA. This requirement is action-specific.
WAC 173-303-120, "Recycled, Reclaimed, and Recovered Wastes"	ARAR	This regulation describes requirements for recycling materials that are solid waste and dangerous.	There is potential for generating solid waste during the NTCRA that will designate as dangerous that may be recycled.
WAC 173-303-140(4), "Land Disposal Restrictions"	ARAR	This regulation establishes state standards for land disposal of dangerous waste and incorporates by reference the federal land disposal restrictions of 40 CFR 268, "Land Disposal Restrictions," that are applicable to solid waste designated as dangerous or mixed waste in accordance with WAC 173-303-070(3).	There is potential for generating solid waste during the NTCRA that would designate as dangerous or mixed waste and further require treatment prior to land disposal. The substantive requirements of this regulation are potentially applicable to dangerous and/or mixed waste that is generated or encountered during the NTCRA. Specifically, dangerous and/or mixed waste generated and removed from the CERCLA site during the NTCRA for land disposal (e.g., at Environmental Restoration Disposal Facility or other approved disposal facility) would be evaluated for determination of applicable land disposal restrictions at the point of waste generation. This requirement is action-specific.

Table A-2. Identification of State ARARs for the Removal Action

ARAR Citation	ARAR Category	Requirement	Rationale for Consideration
Regulations Pursuant to the *Hazardous Waste Management Act* (RCW 70.105, "Hazardous Waste Management")			
WAC 173-303-170(3), "Requirements for Generators of Dangerous Waste."	ARAR	This regulation establishes standards for the temporary management of waste that designates as dangerous or mixed waste.	There may be waste generated during the NTCRA that needs to be temporarily accumulated or stored. Substantive requirements of these regulations would be used for management of materials generated and/or encountered during the NTCRA. WAC 173-303-170(3) includes by reference the substantive provisions of both the satellite accumulation standards of WAC 173-303-200, "Accumulating Dangerous Waste On-Site," and the standards for management in containers under WAC 173-303-630, "Use and Management of Containers," and tanks under WAC 173-303-640, "Tank Systems." This requirement is action-specific.
Regulations Pursuant to RCW 70.95, "Solid Waste Management—Reduction and Recycling"			
WAC 173-350-300(2), "Solid Waste Handling Standards," "On-Site Storage, Collection, and Transportation Standards"	ARAR	This regulation describes requirements for management of nondangerous, nonradioactive solid waste.	There is potential for generating nondangerous, nonradioactive solid waste during the NTCRA. This requirement is action-specific.
RCW 70.105D, "Hazardous Waste Cleanup—Model Toxics Control Act"			
WAC 173-340-745(5) and (6), "Soil Cleanup Standards for Industrial Properties"	ARAR	Rules set standards for degree of cleanup required by a remedial action where industrial land use represents the reasonable maximum exposure under both current and future site use conditions. Total excess cancer risk may not exceed 1×10^{-5} or a noncancer hazard index of 1 for chemical contaminants.	The selected NTCRA will comply through removal, treatment, and disposal of contaminants generated from the NTCRA that exceed the standards. This requirement is a chemical-specific.

Table A-2. Identification of State ARARs for the Removal Action

ARAR Citation	ARAR Category	Requirement	Rationale for Consideration
RCW 70.105D, "Hazardous Waste Cleanup—Model Toxics Control Act"			
WAC 173-340-747(3) through (8), "Deriving Soil Concentrations for Groundwater Protection"	ARAR	Establishes soil concentrations that will not cause contamination of groundwater at levels that exceed the groundwater cleanup levels established under WAC 173-340-720, "Groundwater Cleanup Standards." Provides an overview of the methods for deriving these soil concentrations to meet relevant criteria. Certain methods are tailored for particular types of hazardous substances or sites and certain methods are more complex than others and/or require the use of site-specific data.	Soil in the PUREX Complex may contain contaminants that require removal. The requirements corresponding to soil cleanup levels may be used to calculate cleanup levels to ensure protection of groundwater. Although groundwater is not currently used for drinking water, it is a potential drinking water source. This is a chemical-specific requirement.
WAC 173-340-7490, "Terrestrial Ecological Evaluation Procedures" WAC 173-340-7493, "Site-Specific Terrestrial Ecological Evaluation Procedures" WAC 173-340-7494, "Priority Contaminants of Ecological Concern"	TBC	Defines goals and procedures for determining whether a release of hazardous substances to soil may pose a threat to the terrestrial environment. Characterizes existing or potential threats to terrestrial plants or animals exposed to hazardous substances in soil; establishes site-specific cleanup standards for the protection of terrestrial plants and animals. WAC 173-340-7494 provides for numeric concentrations of hazardous substances determined to persist, bioaccumulate, or be highly toxic to terrestrial ecological receptors.	Soil in the PUREX Complex may contain contaminants that require evaluation to determine if ecological exposures have the potential to cause significant adverse effects. This is a chemical-specific action.
Regulations Pursuant to *Washington Clean Air Act of 1967* (RCW 70.94, "Washington Clean Air Act") and RCW 43.21A, "Department of Ecology"			
WAC 173-400, "General Regulations for Air Pollution" Specific subsection: WAC 173-400-040(3) and (8), "General Standards for Maximum Emission"	ARAR	These laws and regulations require all sources of air contaminants to meet standards for visible emissions, fallout, fugitive emissions, odors, emissions detrimental to persons or property, sulfur dioxide, concealment and masking, and fugitive dust. Requires use of RACT.	There is potential for fugitive emissions during the NTCRA activities. Substantive requirements of the general standards for control of fugitive emissions would be applied, as appropriate, to minimize the generation of fugitive dust during NTCRA activities. These requirements are action-specific.

Table A-2. Identification of State ARARs for the Removal Action

ARAR Citation	ARAR Category	Requirement	Rationale for Consideration
Regulations Pursuant to *Washington Clean Air Act of 1967* (RCW 70.94, "Washington Clean Air Act") and RCW 43.21A, "Department of Ecology"			
WAC 173-400-113, "Requirements for New Sources in Attainment or Unclassifiable Areas"	ARAR	This regulation applies to new and modified sources and requires controls to minimize the release of associated criteria and toxic air emissions. Emissions are to be minimized through application of best available control technology.	It is unlikely that the substantive provisions in this regulation would be triggered during the NTCRA. However, substantive requirements of this regulation potentially would be applicable to removal actions performed at the site if a treatment technology that emits regulated air emissions was necessary during the implementation of the NTCRA. This requirement is action-specific.
WAC 173-460, "Controls for New Sources of Toxic Air Pollutants" (adopts, by reference, 40 CFR 61.32, "Emission Standard") Specific subsections: WAC 173-460-060, "Control Technology Requirements" WAC 173-460-070, "Ambient Impact Requirement" WAC 173-460-150, "Table of ASIL, SQER and de Minimis Emission Values"	ARAR	These regulations apply for determination of de minimis emission values and for establishment of control technology as appropriate for new or modified TAP sources likely to increase TAP emission. Requires T-BACT for regulated emissions of TAPs and demonstration that emissions of TAP will not endanger human health or safety.	Beryllium is listed as a TAP and may be encountered during performance of the NTCRA. It is not expected that work performed under the NTCRA will trigger standards for T-BACT. However, substantive requirements of these regulations would potentially be applicable to removal actions performed at the site, if a treatment technology that emits toxic air emissions were necessary during the implementation of the NTCRA. These requirements are action-specific.
RCW 70.98, "Nuclear Energy and Radiation"			
WAC 246-247-035 (1)(a)(i), "National Standards Adopted by Reference for Sources of Radionuclide Emissions" (adopts, by reference, 40 CFR 61.05, "Prohibited Activities")	ARAR	Identifies prohibition of any owner or operator of any stationary source subject to a national emission standard for hazardous air pollutants from constructing or operating the new or existing source in violation of any such standard.	Substantive requirements of this standard are applicable because the PUREX Complex NTCRA may be subject to NESHAP, and resultant requirements have the potential to be detected in, and potentially emitted from, structures, components, debris, soil, or groundwater involved in the NTCRA. This requirement is action-specific.

Table A-2. Identification of State ARARs for the Removal Action

ARAR Citation	ARAR Category	Requirement	Rationale for Consideration
RCW 70.98, "Nuclear Energy and Radiation"			
WAC 246-247-035 (1)(a)(i), "National Standards Adopted by Reference for Sources of Radionuclide Emissions" (adopts, by reference, 40 CFR 61.12, "Compliance with Standards and Maintenance Requirements")	ARAR	Requires the owner or operator of each stationary source of hazardous air pollutants subject to a national emission standard for a hazardous air pollutant to determine compliance with numerical emission limits in accordance with emission tests established in NESHAP (40 CFR 61.13, "Emission Tests and Waiver of Emission Tests") or as otherwise specified in an individual subpart. Compliance with design, equipment, work practice, or operational standards shall be determined as specified in the individual subpart. Also, maintain and operate the source, including associated equipment for air pollution control, in a manner consistent with good air pollution control practice for minimizing emissions.	Hazardous contaminants that would be subject to NESHAP and resultant requirements have the potential to be detected in, and potentially emitted from, structures, components, debris, soil, or groundwater involved in the PUREX Complex NTCRA. Associated design, equipment, work practice, or equipment for air pollution control may also be maintained and operated. This requirement is action-specific.
WAC 246-247-035 (1)(a)(i), "National Standards Adopted by Reference for Sources of Radionuclide Emissions" (adopts, by reference, 40 CFR 61.14, "Monitoring Requirements")	ARAR	Requires the owner or operator to maintain and operate each monitoring system as specified in the applicable subpart, and in a manner consistent with good air pollution control practice for minimizing emissions. Approvals of alternatives to any monitoring requirements or procedures are obtained from the regulatory agency.	Hazardous contaminants that would be subject to NESHAP air pollutant standards and resultant requirements have the potential to be detected in, and emitted from, structures, components, debris, soil, or groundwater involved in the PUREX Complex NTCRA. The hazardous contaminants will be monitored as identified under each applicable NESHAP subpart. This requirement is action-specific.
WAC 246-247-035 (1)(a)(ii), "National Standards Adopted by Reference for Sources of Radionuclide Emissions" (adopts, by reference, 40 CFR 61.92, "Standard")	ARAR	Establishes emission standards for radionuclides equivalent to NESHAP (40 CFR 61, Subpart H, "National Emission Standards for Emissions of Radionuclides Other Than Radon from Department of Energy Facilities"), by reference. Hanford Site radionuclide airborne emissions shall be controlled so as not to exceed amounts that would cause an exposure to any member of the public of greater than 10 mrem/yr effective dose equivalent.	Hazardous radionuclide contaminants that would be subject to NESHAP; radionuclide air pollutant standards and resultant requirements have the potential to be detected in, and emitted from, structures, components, debris, soil or groundwater involved in the NTCRA. This requirement is chemical-specific action.

Table A-2. Identification of State ARARs for the Removal Action

ARAR Citation	ARAR Category	Requirement	Rationale for Consideration
RCW 70.98, "Nuclear Energy and Radiation"			
WAC 246-247-035 (1)(a)(ii), "National Standards Adopted by Reference for Sources of Radionuclide Emissions" (adopts, by reference, 40 CFR 61.93, "Emission Monitoring and Test Procedures")	ARAR	Specifies that radionuclide emissions shall be determined and effective dose equivalent values to members of the public calculated to determine compliance with the 10 mrem/yr effective dose equivalent standard. Radionuclide emissions shall be collected and measured using approved methods. A quality assurance program shall be conducted that meets the performance requirements described in Appendix B, Method 114. Measurement by methods specified in the paragraph (b) shall be made at all release points that have the potential to discharge radionuclides to the air in quantities that cause an effective dose equivalent in excess of 1 percent of the 10 mrem/yr standard. For other release points that have a potential to release radionuclides into the air, periodic confirmatory measurements shall be made to verify the low emissions.	Hazardous radionuclide contaminants that would be subject to NESHAP; radionuclide air pollutant standards and resultant requirements have the potential to be detected in, and emitted from, structures, components, debris, soil, or groundwater involved in the PUREX Complex NTCRA. The hazardous contaminants will be monitored as identified under each applicable NESHAP subpart. This requirement is action-specific report.
WAC 246-247-040(3) and (4), "General Standards"	ARAR	Requires that emissions be controlled to ensure that ALARA-based and best available controls standards are not exceeded.	Hazardous contaminants that would be subject to radionuclide air emission standards and resultant requirements have the potential to be detected in, and emitted from, structures, components, debris, soil, or groundwater involved in the PUREX Complex NTCRA. This requirement is action-specific.

Table A-2. Identification of State ARARs for the Removal Action

ARAR Citation	ARAR Category	Requirement	Rationale for Consideration
RCW 70.98, "Nuclear Energy and Radiation"			
WAC 246-247-075, "Monitoring, Testing and Quality Assurance"	ARAR	Establishes the monitoring, testing, and quality assurance requirements for radioactive air emissions. Emissions from nonpoint and fugitive sources of airborne radioactive material will be measured. Measurement techniques may include but are not limited to sampling, calculation, smears, or other reasonable method for identifying emissions as determined by the lead agency.	Hazardous contaminants at either the PUREX Complex or generated from the NTCRA would be subject to radionuclide air emission standards and resultant requirements have the potential to be detected in, and emitted from, structures, components, debris, soil, or groundwater involved in the removal action. This requirement is action-specific.
WAC 173-480, "Ambient Air Quality Standards and Emission Limits for Radionuclides"			
WAC 173-480-040, "Ambient Standard"	ARAR	Requires that emissions of radionuclides in the air shall not cause a maximum effective dose equivalent of more than 10 mrem/yr to the whole body to any member of the public.	The buildings/structures to be addressed under this NTCRA will contain radioactive constituents. Potential emissions from the NTCRA would be performed in accordance with this standard. This requirement is action-specific.
WAC 173-480-050(1), "General Standards for Maximum Permissible Emissions"	ARAR	This regulation establishes general standards for all radionuclide emission units and requires emission units to meet WAC 246-247 requiring every reasonable effort to maintain radioactive materials in effluents to unrestricted areas ALARA. The regulation indicates that control equipment of sites operating under ALARA shall be defined as RACT and ALARA control technology.	The potential for fugitive and diffuse emissions due to demolition and excavation and related activities potentially will require efforts to minimize those emissions by meeting WAC 246-247. This requirement is action-specific.
WAC 173-480-060, "Emission Standards for New and Modified Emission Units"	ARAR	Requires that construction, installation, or establishment of a new air emission unit shall use best available radionuclide control technology.	The potential for fugitive and diffuse emissions due to demolition and excavation and related activities potentially will require efforts to minimize those emissions by meeting WAC 246-247. This requirement is action-specific.

Table A-2. Identification of State ARARs for the Removal Action

ARAR Citation	ARAR Category	Requirement	Rationale for Consideration
WAC 173-480, "Ambient Air Quality Standards and Emission Limits for Radionuclides"			
WAC 173-480-070(2), "Emission Monitoring and Compliance Procedures"	ARAR	Requires that procedures specified in WAC 246-247 or approved specifically by the regulatory agency shall be used to determine compliance with the 10 mrem/yr standard for dose to any member of the public. Compliance is determined by calculating the dose to members of the public at the point of maximum annual air concentration in an unrestricted area where any member of the public may be located.	The potential for radionuclide emissions from some NTCRAs, such as fugitive and diffuse emissions during demolition and excavation, and related activities would be performed in compliance with the public dose standard. This requirement is action-specific.

ALARA = as low as reasonably achievable
ARAR = applicable or relevant and appropriate requirement
CERCLA = *Comprehensive Environmental Response, Compensation, and Liability Act of 1980*
NESHAP = "National Emissions Standards for Hazardous Air Pollutants"
NTCRA = non-time-critical removal action
PUREX = Plutonium Uranium Extraction
RACT = reasonably available control technology
TAP = toxic air pollutant
T-BACT = toxics best available control technology
TBC = to be considered
UIC = underground injection control

A1.1 Waste Management Standards

A variety of waste streams will be generated under the selected removal action alternative. It is anticipated that the majority of the waste would be determined to be low-level waste (LLW). However, dangerous or mixed waste, polychlorinated biphenyl (PCB) waste, and asbestos-containing material (ACM) could also be generated. The great majority of the waste would be in a solid form. However, some liquid waste might be generated.

Radioactive waste is managed by DOE under the authority of the *Atomic Energy Act of 1954*.

The identification, storage, treatment, and disposal of hazardous waste and the hazardous component of mixed waste are governed by the *Resource Conservation and Recovery Act of 1976* (RCRA). The State of Washington, which implements RCRA requirements under WAC 173-303, "Dangerous Waste Regulations," has been authorized to implement most elements of the RCRA program. The dangerous waste standards for generation and storage would apply to the management of any dangerous or mixed waste generated by removal action activities. Treatment standards for dangerous or mixed waste subject to RCRA land disposal restrictions are specified in WAC 173-303-140, "Land Disposal Restrictions," which incorporates 40 CFR 268, "Land Disposal Restrictions," by reference.

The management and disposal of PCB waste are governed by the *Toxic Substances Control Act of 1976* (TSCA), and 40 CFR 761, "Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions." TSCA regulations contain specific provisions for PCB waste, including PCB waste that contains a radioactive component. PCBs also are considered underlying hazardous constituents under RCRA and thus could be subject to WAC 173-303 and 40 CFR 268 requirements.

Removal and disposal of asbestos and ACM will be performed in accordance with the substantive provisions of the *Clean Air Act of 1990* (40 CFR 61, "National Emission Standards for Hazardous Air Pollutants," hereinafter called NESHAP, Subpart M, "National Emission Standard for Asbestos"), which require special precautions to control airborne emissions of asbestos fibers during asbestos removal activities. Asbestos abatement activities will be performed in full compliance with all substantive NESHAP standards that are ARARs for the work. Prior to the commencement of the demolition, a thorough inspection of the affected facility will be performed and documented for the presence of asbestos, including Category I (Cat I) and Category II (Cat II) nonfriable ACM. All Cat II nonfriable ACM will generally be presumed to be potentially friable and will be removed prior to the start of actual demolition activities. If Cat II ACM is identified and allowed to remain in place, a demolition approach will be provided in advance to the U.S. Environmental Protection Agency (EPA). The demolition approach will describe how the Cat II ACM will not become crumbled, pulverized, reduced to powder, or otherwise friable during the demolition. Cat I nonfriable ACM will also be removed prior to the start of actual demolition activities, except in situations where demolition practices will be used that can be or have been demonstrated to the satisfaction of EPA not to render the Cat I ACM friable, consistent with NESHAP standards. Demonstration can be performed using existing EPA or Washington State guidance regarding asbestos abatement under NESHAP. Such Cat I nonfriable ACM must not be in poor condition, and planned demolition activities must not subject the ACM to sanding, grinding, cutting, or abrading. In all cases, ACM that is either friable or cannot be demonstrated to remain nonfriable during demolition will be removed prior to such demolition as required by NESHAP. Asbestos and ACM would be packaged, as appropriate, and disposed in the Environmental Restoration Disposal Facility (ERDF).

Beryllium may be encountered during performance of the non-time-critical removal action (NTCRA). If encountered, beryllium may be subject to the substantive requirements of NESHAP (40 CFR 61.32, "Emission Standard") or WAC 173-460, "Controls for New Sources of Toxic Air Pollutants."

Waste that is determined to be LLW and meets ERDF[2] waste acceptance criteria (ERDF-00011, *Environmental Restoration Disposal Facility Waste Acceptance Criteria, formerly WCH-191 R4*) would preferentially be disposed at ERDF, because ERDF is an engineered facility that provides a high degree of protection to human health and the environment (HHE). Previous engineering evaluations/cost analyses for other Hanford Site work have shown that this disposal option is more cost effective than disposal at other disposal sites. Construction of ERDF was authorized using a CERCLA record of decision (EPA, 1995, *Record of Decision, U.S. DOE Hanford Environmental Restoration Disposal Facility, Hanford Site, Benton County, Washington*). ERDF is designed, constructed, and operated to meet the ARAR provisions of the minimum technological requirements for a hazardous waste landfill, including standards for double liner, a leachate collection system, leak detection, monitoring, and a final cover. Any potential alternate disposal location will be evaluated for appropriate performance standards to ensure that it is adequately protective of HHE. If the alternate location is offsite, the location must comply with the requirements of 40 CFR 300.440, "Procedures for Planning and Implementing Off-Site Response Actions," which applies to offsite transfer of CERCLA waste and requires that such waste must be placed in a disposal facility operating in compliance with applicable federal or state requirements.

Waste designated as dangerous or mixed waste would be treated, as appropriate, to meet land disposal restrictions and ERDF waste acceptance criteria (ERDF-00011) and then disposed at ERDF. Applicable packaging and pretransportation requirements for dangerous or mixed waste generated by the NTCRA would be identified and implemented before movement of any waste outside of the CERCLA onsite areas.

Some of the aqueous waste determined to be LLW or designated as dangerous or mixed waste would be transported to Effluent Treatment Facility (ETF) or other acceptable facility for treatment and disposal. The ETF is a RCRA-permitted unit authorized to treat aqueous waste streams generated on the Hanford Site and to dispose these streams at a designated state-approved land disposal facility in accordance with applicable requirements.

Waste designated as nonliquid PCB waste would likely be disposed at ERDF if it meets the facility waste acceptance criteria. PCB waste that does not meet ERDF waste acceptance criteria (ERDF-00011) would be retained at a PCB storage area to meet the requirements for TSCA storage and would then be transported for future disposal at an appropriate disposal facility.

Alternative 4 will be performed in compliance with the waste management ARARs. Waste streams will be evaluated, designated, and managed in compliance with the ARAR requirements. Before disposal, waste would be managed in a protective manner to prevent releases to the environment or unnecessary exposure to personnel.

A1.2 Standards Controlling Emissions to the Environment

The selected removal action alternative has the potential to generate both radioactive and nonradioactive airborne emissions.

[2] CERCLA Section 104(d)(4), "Response Authorities," states that where two or more noncontiguous facilities are reasonably related on the basis of geography, or on the basis of the threat or potential threat to the public health or welfare or the environment, the facilities can be treated as one for purposes of CERCLA response actions. Consistent with this, the Hanford buildings/structures and ERDF would be considered to be onsite for purposes of CERCLA Section 104, and waste may be transferred between the facilities without requiring a permit.

A1.2.1 Radiological Air Emissions

The federal *Clean Air Act of 1990* and RCW 70.94, "Washington Clean Air Act," require regulation of radioactive air pollutants. Implementing regulations in 40 CFR 61.92, "Standard," set limits for radionuclide emissions from the DOE Hanford Site, which cannot exceed those amounts that would cause any member of the public to receive an effective does equivalent of 10 mrem/yr. This requirement would be applicable to any aspects of the NTCRA with the potential to emit radionuclides to unrestricted areas. Verification of compliance with this standard is required by the state implementing regulation at WAC 173-480-070, "Ambient Air Quality Standards and Emission Limits for Radionuclides," "Emission Monitoring and Compliance Procedures." Radioactive air emissions are to be controlled through the use of best available radionuclide control technology or as low as reasonably achievable control technology where economically and technologically feasible (WAC 246-247-040(3) and (4), "Radiation Protection—Air Emissions," "General Standards," and associated definitions).

To address the substantive aspect of these potential requirements, best or reasonably achieved control technology could be accomplished by ensuring that applicable emission control technologies (those successfully operated in similar applications) would be used when economically and technologically feasible (i.e., based on cost/benefit). If it is determined that there are substantive aspects of the requirement for control of radioactive airborne emissions once ARARs are finalized, then controls will be administered as appropriate using the best methods from among those that are reasonable and effective. Administrative requirements, like air licensing and permitting, will be discontinued once this CERCLA removal action has been approved, the removal action work plan has been issued, and the removal action is initiated. Existing air permits/licenses will be modified to reflect this removal action decision.

A1.2.2 Criteria/Toxic Air Emissions

WAC 173-400, "General Regulations for Air Pollution Sources," and WAC 173-460 establish requirements for emissions criteria and toxic air pollutants (TAPs). The primary nonradioactive source of emissions resulting from this NTCRA will be fugitive particulate matter. In accordance with WAC 173-400-040, "General Standards for Maximum Emissions," reasonable precautions must be taken to prevent the release of air contaminants associated with fugitive emissions resulting from demolition, materials handling, or other operations and prevent fugitive dust from becoming airborne from fugitive sources of emissions.

The use of treatment technologies that would result in emissions of TAPs that would be subject to the substantive applicable requirements of WAC 173-460 are not anticipated to be a part of this NTCRA.

Treatment of some waste encountered during the NTCRA may be required to meet ERDF waste acceptance criteria. In most cases, the type of treatment anticipated would consist of solidification/stabilization techniques such as macroencapsulation or grouting, and WAC 173-460 would not be considered an ARAR because it would not result in the emission of TAPs. If more aggressive treatment is required that would result in the emission of regulated air pollutants above *de minimis* emission values in WAC 173-460-150, "Table of ASIL, SQER and de Minimis Emission Values," substantive requirements of WAC 173-400-113(2), "Requirements for New Sources in Attainment or Unclassifiable Areas," and WAC 173-460-060, "Control Technology Requirements," would be evaluated to determine applicability and satisfied if determined to be ARAR.

Emissions to the air will be minimized during implementation of the NTCRA through use of standard industry practices as needed, such as the application of water sprays and fixatives. These techniques are considered to be reasonable precautions to control fugitive emissions as required by regulatory standards.

A1.3 Standards for the Protection of Cultural and Ecological Resources

The *National Historic Preservation Act of 1966* (implemented in regulation via 36 CFR 800, "Protection of Historic Properties") requires federal agencies to consider the effect of an activity on any significant cultural resource, including properties listed on or eligible for inclusion on the National Register of Historic Places. The *Native American Graves Protection and Repatriation Act of 1990* establishes statutory provisions for the treatment of inadvertent discoveries of Native American remains and cultural objects. The *Archeological and Historical Preservation Act of 1974* requires action to recover and preserve archaeological or historic data in areas where activity may cause irreparable harm, loss, or destruction of significant data.

The *Endangered Species Act of 1973* (implemented via 50 CFR 402, "Interagency Cooperation-Endangered Species Act of 1973, as amended," and WAC 232-12-297, "Permanent Regulations," "Endangered, Threatened, and Sensitive Wildlife Species Classification") prohibits activities that threaten the continued existence of listed species or destroy critical habitat. The *Migratory Bird Treaty Act of 1918* makes it illegal to take, capture, or kill any migratory bird or any part, nest, or egg of any such bird.

Hanford Site buildings/structures have been evaluated for their National Register of Historic Places eligibility as part of DOE/RL-97-56, *Hanford Site Manhattan Project and Cold War Era Historic District Treatment Plan*. Some buildings/structures have been determined to be contributing properties to the Manhattan Project/Cold War Era Historic District with mitigation in the form of documentation required. DOE/RL-97-56 also requires that walkthroughs be completed of these buildings/structures to identify artifacts that are of educational and interpretive value. The 202A Canyon Building was determined not to be a contributing property and was not recommended for individual documentation.

The area around the PUREX Complex has already been extensively disturbed. The annual ecological review of the facility indicates that three species of birds protected under the *Migratory Bird Treaty Act of 1918* may nest on or near the building. Care will be required with the selected alternative to ensure completion of pre-job surveys and the development of mitigative measures should cultural or natural resources be encountered at the facility and at borrow areas.

A2 References

36 CFR 800, "Protection of Historic Properties," *Code of Federal Regulations*. Available at: http://www.access.gpo.gov/nara/cfr/waisidx_08/36cfr800_08.html.

40 CFR 60, "Standards of Performance for New Stationary Sources." *Code of Federal Regulations*. Available at: http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title40/40cfr60_main_02.tpl.

Subpart IIII, "Standards of Performance for Stationary for Compression Ignition Internal Combustion Engines."

Subpart JJJJ, "Standards of Performance for Stationary Spark Ignition Internal Combustion Engines."

40 CFR 61, "National Emission Standards for Hazardous Air Pollutants," *Code of Federal Regulations*. Available at: http://www.access.gpo.gov/nara/cfr/waisidx_09/40cfr61_09.html.

61.05, "Prohibited Activities."

61.12, "Compliance with Standards and Maintenance Requirements."

61.13, "Emission Tests and Waiver of Emission Tests."

61.14, "Monitoring Requirements."

61.32, "Emission Standard."

61.92, "Standard."

61.93, "Emission Monitoring and Test Procedures"

61.140, "Applicability."

61.145, "Standard for Demolition and Renovation."

61.150, "Standard for Waste Disposal for Manufacturing, Fabricating, Demolition, Renovation, and Spraying Operations."

Subpart H, "National Emission Standards for Emissions of Radionuclides Other Than Radon from Department of Energy Facilities."

Subpart M, "National Emission Standard for Asbestos."

40 CFR 63, "National Emission Standards for Hazardous Air Pollutants for Source Categories," *Code of Federal Regulations*. Available at: http://www.gpo.gov/fdsys/pkg/CFR-2011-title40-vol9/xml/CFR-2011-title40-vol9-part63.xml.

Subpart ZZZZ, "National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines."

40 CFR 268, "Land Disposal Restrictions," *Code of Federal Regulations*. Available at: http://www.access.gpo.gov/nara/cfr/waisidx_09/40cfr268_09.html.

40 CFR 300, "National Oil and Hazardous Substances Pollution Contingency Plan," *Code of Federal Regulations*. Available at: http://www.access.gpo.gov/nara/cfr/waisidx_10/40cfr300_10.html.

300.400, "General."

300.440, "Procedures for Planning and Implementing Off-Site Response Actions."

Appendix B, "National Priorities List."

40 CFR 761, "Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions," *Code of Federal Regulations*. Available at: http://www.access.gpo.gov/nara/cfr/waisidx_09/40cfr761_09.html.

761.50, "Applicability."

761.60, "Disposal Requirements."

761.61, "PCB Remediation Waste."

761.62, "Disposal of PCB Bulk Product Waste."

761.79, "Decontamination Standards and Procedures."

43 CFR 10, "Native American Graves Protection and Repatriation Regulations," *Code of Federal Regulations*. Available at: http://www.access.gpo.gov/nara/cfr/waisidx_09/43cfr10_09.html.

50 CFR, "Wildlife and Fisheries," *Code of Federal Regulations*. Available at: https://www.ecfr.gov/cgi-bin/text-idx?SID=b1ad72566f7cde3545fb74c3d7dc9658&mc=true&tpl=/ecfrbrowse/Title50/50tab_02.tpl.

50 CFR 10, "General Provisions."

50 CFR 17, "Endangered and Threatened Wildlife and Plants."

50 CFR 21, "Migratory Bird Permits."

50 CFR 402, "Interagency Cooperation—Endangered Species Act of 1973, as amended," *Code of Federal Regulations*. Available at: http://www.access.gpo.gov/nara/cfr/waisidx_09/50cfr402_09.html.

62 FR 39058, "Radiological Criteria for License Termination," *Federal Register*, Vol. 62, No. 139, pp. 39058-39092, July 21, 1997. Available at: http://www.gpo.gov/fdsys/pkg/FR-1997-07-21/pdf/97-17752.pdf.

Archeological and Historic Preservation Act of 1974, Pub. L. 93-291, as amended, 16 USC 469a 1 – 469a-2(d). Available at: http://www.nps.gov/history/local-law/fhpl_archhistpres.pdf.

Atomic Energy Act of 1954, as amended, 42 USC 2011, Pub. L. 83-703, 68 Stat. 919. Available at: http://epw.senate.gov/atomic54.pdf.

Clean Air Act of 1990, 42 USC 7401, et seq., Pub. L. 101-549. Available at: https://www.epa.gov/clean-air-act-overview/clean-air-act-text.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 USC 9601, et seq., Pub. L. 107-377, December 31, 2002. Available at: http://epw.senate.gov/cercla.pdf.

Section 104, "Response Authorities."

Section 121, "Cleanup Standards."

DOE/RL-97-56, 1998, *Hanford Site Manhattan Project and Cold War Era Historic District Treatment Plan*, Rev. 1, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: http://pdw.hanford.gov/arpir/index.cfm/viewDoc?accession=0081103H.

DOE/EIS-0222-F, 1999, *Final Hanford Comprehensive Land-Use Plan Environmental Impact Statement*, U.S. Department of Energy, Washington, D.C. Available at:
http://pdw.hanford.gov/arpir/index.cfm/viewDoc?accession=D199158842.
http://pdw.hanford.gov/arpir/index.cfm/viewDoc?accession=D199158843.
http://pdw.hanford.gov/arpir/index.cfm/viewDoc?accession=D199158844.
http://pdw.hanford.gov/arpir/index.cfm/viewDoc?accession=D199158845.
http://pdw.hanford.gov/arpir/index.cfm/viewDoc?accession=D199158846.
http://pdw.hanford.gov/arpir/index.cfm/viewDoc?accession=D199158847.

DOE/EIS-0222-SA-01, 2008, *Supplement Analysis: Hanford Comprehensive Land-Use Plan Environmental Impact Statement*, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: http://www.hanford.gov/files.cfm/SAwith_signed-R1.pdf.

Endangered Species Act of 1973, Pub. L. 93-205, as amended, 7 USC 136, 16 USC 1531, et seq. Available at: http://www.nmfs.noaa.gov/pr/pdfs/laws/esa.pdf.

EPA, 1995, *Record of Decision, U.S. DOE Hanford Environmental Restoration Disposal Facility, Hanford Site, Benton County, Washington*, U.S. Environmental Protection Agency, U.S. Department of Energy, and Washington State Department of Ecology. Available at: http://pdw.hanford.gov/arpir/index.cfm/viewDoc?accession=D196041064.

EPA/540-R-00-007, 2000, *Soil Screening Guidance for Radionuclides: User's Guide*, OSWER 9355.4-16A, Office of Radiation and Indoor Air, Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency, Washington, D.C. Available at: https://rais.ornl.gov/documents/SSG_rad_user.pdf.

EPA/540/R/99/006, 1999, *Radiation Risk Assessment At CERCLA Sites: Q & A*, Directive 9200.4-31P, Office of Emergency and Remedial Response and Office of Radiation and Indoor Air, U.S. Environmental Protection Agency, Washington, D.C. Available at: http://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P1000RP3.txt.

ERDF-00011, 2016, *Environmental Restoration Disposal Facility Waste Acceptance Criteria, formerly WCH-191 R4*, Rev. 0, CH2M HILL Plateau Remediation Company, Richland, Washington. Available at: http://pdw.hanford.gov/arpir/index.cfm/viewDoc?accession=0068234H.

Luftig, S.D. and L. Weinstock, 1997, "Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination" (memorandum to Addressees), OSWER No. 9200.4-18, Office of Emergency and Remedial Response and Office of Radiation and Indoor Air, U.S. Environmental Protection Agency, Washington, D.C., August 22. Available at: http://www.philrutherford.com/Radiation_Cleanup_Standards/OSWER_9200-4-18.pdf.

Luftig, S.D. and S.D. Page, 1999, "Distribution of OSWER Radiation Risk Assessment Q & A's Final Guidance" (memorandum to Addressees distributing OSWER Directive 9200.4-31P), Office of Emergency and Remedial Response and Office of Radiation and Indoor Air, U.S. Environmental Protection Agency, Washington, D.C., December 17. Available at: http://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1000RP3.PDF.

Migratory Bird Treaty Act of 1918, 16 USC 703, et seq. Available at: http://www.animallaw.info/statutes/stusmba.htm.

National Historic Preservation Act of 1966, 16 USC 470, et seq. Available at: http://www.achp.gov/docs/nhpa%202008-final.pdf.

Native American Graves Protection and Repatriation Act of 1990, 25 USC 3001, et seq. Available at: http://www.nps.gov/history/local-law/FHPL_NAGPRA.pdf.

OSWER Directive 9285.7-55, 2005, *Guidance for Developing Ecological Soil Screening Levels*, Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency, Washington, D.C. Available at: http://www.epa.gov/ecotox/ecossl/pdf/ecossl_guidance_chapters.pdf.

RCW 43.21A, "Department of Ecology," *Revised Code of Washington*, Olympia, Washington. Available at: http://apps.leg.wa.gov/RCW/default.aspx?cite=43.21A.

RCW 70.94, "Washington Clean Air Act," *Revised Code of Washington*, Olympia, Washington. Available at: http://apps.leg.wa.gov/RCW/default.aspx?cite=70.94.

RCW 70.95, "Solid Waste Management—Reduction and Recycling," *Revised Code of Washington*, Olympia, Washington. Available at: http://apps.leg.wa.gov/RCW/default.aspx?cite=70.95.

RCW 70.105D, "Hazardous Waste Cleanup—Model Toxics Control Act," *Revised Code of Washington*, Olympia, Washington. Available at: http://apps.leg.wa.gov/RCW/default.aspx?cite=70.105D.

Resource Conservation and Recovery Act of 1976, 42 USC 6901, et seq. Available at: https://elr.info/sites/default/files/docs/statutes/full/rcra.pdf.

Toxic Substances Control Act of 1976, Pub. L. 107-377, as amended, 15 USC 2601, et seq. Available at: http://epw.senate.gov/tsca.pdf.

WAC 173-218, "Underground Injection Control Program," *Washington Administrative Code*, Olympia, Washington. Available at: http://apps.leg.wa.gov/WAC/default.aspx?cite=173-218.

218-120, "Decommissioning a UIC Well."

WAC 173-303, "Dangerous Waste Regulations," *Washington Administrative Code*, Olympia, Washington. Available at: http://apps.leg.wa.gov/WAC/default.aspx?cite=173-303.

303-016, "Identifying Solid Waste."

303-017, "Recycling Processes Involving Solid Waste."

303-070, "Designation of Dangerous Waste."

303-071, "Excluded Categories of Waste."

303-073, "Conditional Exclusion of Special Wastes."

303-077, "Requirements for Universal Waste."

303-120, "Recycled, Reclaimed, and Recovered Wastes."

303-140, "Land Disposal Restrictions."

303-170, "Requirements for Generators of Dangerous Waste."

303-200, "Accumulating Dangerous Waste On-Site."

303-573, "Standards for Universal Waste Management."

303-630, "Use and Management of Containers."

303-640, "Tank Systems."

WAC 173-340, "Model Toxics Control Act—Cleanup," *Washington Administrative Code*, Olympia, Washington. Available at: http://apps.leg.wa.gov/WAC/default.aspx?cite=173-340.

340-720, "Groundwater Cleanup Standards."

340-745, "Soil Cleanup Standards for Industrial Properties."

340-747, "Deriving Soil Concentrations for Groundwater Protection."

340-7490, "Terrestrial Ecological Evaluation Procedures."

340-7493, "Site-Specific Terrestrial Ecological Evaluation Procedures."

340-7494, "Priority Contaminants of Ecological Concern."

WAC 173-350-300, "Solid Waste Handling Standards," "On-Site Storage, Collection and Transportation Standards," *Washington Administrative Code*, Olympia, Washington. Available at: http://apps.leg.wa.gov/WAC/default.aspx?cite=173-350-300.

WAC 173-400, "General Regulations for Air Pollution Sources," *Washington Administrative Code*, Olympia, Washington. Available at: http://apps.leg.wa.gov/WAC/default.aspx?cite=173-400.

400-040, "General Standards for Maximum Emission."

400-113, "Requirements for New Sources in Attainment or Unclassifiable Areas."

WAC 173-460, "Controls for New Sources of Toxic Air Pollutants," *Washington Administrative Code*, Olympia, Washington. Available at: http://apps.leg.wa.gov/WAC/default.aspx?cite=173-460.

460-060, "Control Technology Requirements."

460-070, "Ambient Impact Requirement."

460-150, "Table of ASIL, SQER and de Minimis Emission Values."

WAC 173-480, "Ambient Air Quality Standards and Emission Limits for Radionuclides," *Washington Administrative Code*, Olympia, Washington. Available at: http://apps.leg.wa.gov/WAC/default.aspx?cite=173-480.

480-040, "Ambient Standard."

480-050, "General Standards for Maximum Permissible Emissions."

480-060, "Emission Standards for New and Modified Emission Units."

480-070, "Emission Monitoring and Compliance Procedures."

WAC 232-12-297, "Permanent Regulations," "Endangered, Threatened, and Sensitive Wildlife Species Classification," *Washington Administrative Code*, Olympia, Washington. Available at: http://apps.leg.wa.gov/WAC/default.aspx?cite=232-12-297.

WAC 246-247, "Radiation Protection—Air Emissions," *Washington Administrative Code*, Olympia, Washington. Available at: http://apps.leg.wa.gov/WAC/default.aspx?cite=246-247.

247-035, "National Standards Adopted by Reference for Sources of Radionuclide Emissions."

247-040, "General Standards."

247-075, "Monitoring, Testing and Quality Assurance."

This page intentionally left blank.

Appendix B

Public Review Comments:

DOE/RL-2016-15, *Engineering Evaluation/Cost Analysis for the PUREX Complex*

This page intentionally left blank.

B1 Introduction

The following represents responses from the U. S. Department of Energy, Richland Operations Office, in Richland, Washington.

July 3, 2019, through August 17, 2019

Commenter 1:

Attached are my comments in opposition to the Partial Demolition of the Hanford PUREX Plant without adequate planning.

Opposition to Partial Demolition of Purex Plant without Adequate Planning to Avoid Spread of Plutonium as in 2017 Demolition of Plutonium Finishing Plant

USDOE should prepare a full Remedial Investigation/Feasibility Study for all proposed work so the public can fully review plans amd alternatives for the dangerous work of demolishing portions of the PUREX Plant complex. The "removal" action is a short circuit of the full CERCLA process.

The EE/CA does not meet the basic requirements of transparently disclosing risks or show why a time sensitive removal action is justified.

Response: Both *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA) removal and remedial actions are lawful processes authorized by CERCLA, Section 104, in response to the determination by the U.S. Department of Energy (DOE), as the lead agency, that there exists a "release or threat of release" of hazardous substances. This engineering evaluation/cost analysis (EE/CA) is for the short-term and is not intended to take the place of the long-term comprehensive remedial investigation/feasibility study (RI/FS) process. The removal action does not preclude the final remedial action, which will allow public comment on the final remedy.

CERCLA removal actions are fully authorized under law, and do not "short circuit" the long term and comprehensive remedial action process. Both removal and remedial actions are authorized under the same statutory provision in Section 104. CERCLA allows the non-time critical removal action (NTCRA) as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford site.

The WA Dept. of Ecology should order USDOE to sample the waste remaining in pipes. If dangerous wastes are identified, Ecology should order them to be quickly removed, as should have been done decades ago.

Response: The white powder (sodium hydroxide) has been sampled, issues of *Resource Conservation and Recovery Act of 1976* (RCRA) compliance for the Plutonium-Uranium Extraction (PUREX) and other canyon buildings were addressed through a Washington State Department of Ecology (Ecology) consent order in the *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement) in 1989. In the Tri-Party Agreement, the mixed waste in the PUREX Canyon was not regulated under RCRA prior to August 19, 1987, and the radioactive components of the waste present significant challenges for safe management and disposition. The hazardous substances in the PUREX Canyon would be addressed primarily through the CERCLA response action process. The consent order acts in lieu of ordinary regulatory requirements, which were never designed to apply to structures like the PUREX Canyon. PUREX was created and operated decades before the enactment of RCRA in 1976, and even then, the

provisions of RCRA that defer to the Atomic Energy Act, the regulation of nuclear materials lead to the determination by the federal government that RCRA was not intended to regulate any waste which contained radioactive substances. PUREX and its sister facilities were not designed to facilitate regulation under a future statute focused on chemical, rather than radioactive, materials.

We agree that the EE/CA does not address sampling and removing waste. This EE/CA provides the proper risk evaluation based on currently available information. The subsequent removal action work plan (RAWP) will delineate the plan for sampling and removing waste.

This interim CERCLA action supports mitigation of hazards within the PUREX Complex, which includes evaluation of pipeline hazards and potential removal.

The $217 million the USDOE has earmarked for demolishing part of PUREX, would be much better used to empty leaking Single Shell High Level Nuclear Waste Tanks and to clean up soil contamination right along the Columbia River. As the contamination enters the river, it will bring radioactive contamination to all the areas through which the Columbia flows for thousands of years.

Response: Tank waste management is an important activity at the Hanford Site and is currently funded by Congress under a separate DOE organization. There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor.

Taking shortcuts now in removing the Purex Plant complex to "save" money could result in infinitely more cost, both in dollars and in human suffering, in the immediate future and for endless generations to come. I urge the USDOE to invest the time and money now to do the job right to prevent the spread of deadly radioactive contamination.

Response: Thank you for your comment. Safety and reducing risks is of the utmost importance at the Hanford Site. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

Commenter 2:

Dear Representatives of US DOE and US EPA,

I am writing concerning the planned partial demolition of the Plutonium and Uranium Extraction Plant (PUREX) at the Hanford Nuclear Reservation in Washington State. I have children living in Portland, Oregon. On behalf of all children living downstream of Hanford, I request that you do not use the proposed funds for the demolition of PUREX.

For example, the money could be used instead to empty leaking Single Shell High Level Nuclear Waste tanks and clean up soil contamination right alongside the Columbia River.

If Europe can build an enclosure for the melted reactor at Chernobyl, certainly the United States can prevent more leaking of Plutonium and other toxic waste at Hanford.

I request that US DOE prepare a full Remedial Investigation and Feasibility Study for all proposed PUREX work so we, the public, can fully review plans and alternatives for this dangerous work.

Response: Removal actions are a key part of CERCLA response actions. As an interim step, they reduce threat and potential threats to human health and the environment while allowing the remedial action process to develop for eventual implementation.

Final cleanup remedies will be evaluated under the full CERCLA remedial action process in accordance with the Tri-Party Agreement Milestone M-085 series.

I request that this Study explain the source and content of the of the "white powders" that have been found covering surfaces at PUREX. The sampling and reporting need to follow Washington State Department of Ecology hazardous waste guidelines.

Response: As noted above, the white powder (sodium hydroxide) has been sampled. Issues of RCRA compliance for PUREX and other canyon buildings were addressed through an Ecology consent order in the Tri-Party Agreement in 1989. In the Tri-Party Agreement, the mixed waste in the PUREX Canyon was not regulated under RCRA prior to August 19, 1987, and the radioactive components of the waste present significant challenges for safe management and disposition. The hazardous substances in the PUREX Canyon would be addressed primarily through the CERCLA response action process. The consent order acts in lieu of ordinary regulatory requirements, which were never designed to apply to structures like the PUREX Canyon. PUREX was created and operated decades prior to the enactment of RCRA in 1976, and even then, the provisions of RCRA that defer to the Atomic Energy Act, the regulation of nuclear materials lead to the determination by the federal government that RCRA was not intended to regulate any waste which contained radioactive substances. PUREX and its sister facilities were not designed to facilitate regulation under a future statute focused on chemical, rather than radioactive, materials.

We agree that the EE/CA does not address sampling and removing waste. This EE/CA provides the proper risk evaluation based on currently available information. The subsequent RAWP will delineate the plan for sampling and removing waste.

Commenter 3:

I urge you to consider the safety and health hazards of the proposed partial demolition at PUREX.

Response: The PUREX 202A Canyon Building will not undergo demolition under this removal action. The PUREX annexes are the only structures proposed for demolition. This EE/CA provides the proper risk evaluation based on currently available information. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

There is no immediate danger that requires this removal action rather than carefully reviewed remedial action.

Response: The National Contingency Plan (NCP), 40 CFR 300.415(b)(2), "Removal Action," establishes factors to be considered in determining the appropriateness of a removal action. Those factors include the following:

- Hazardous substances or pollutants or contamination in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release. Hazardous substances, including radioactive substances, are contained within the PUREX Complex pipes and process vessels. These substances pose a threat of accidental release that may result from equipment failure resulting from a fire or seismic event.
- Other situations or factors are present that may pose threats to public health or the environment. Hazardous substances are present as fixed contamination within the cells, equipment, and additional structures. These substances pose a threat of release as fixed contamination becomes exposed and as structural integrity is compromised, resulting in a potential direct exposure of nearby personnel and

the environment, and exposure to the public through airborne radioactive contaminants. Degradation may not be fully addressed by surveillance and maintenance (S&M) activities and the risk of release of hazardous substances will increase as degradation continues or goes undetected.

Threats addressed under a removal action can be potential or imminent. The removal action has been prepared to reduce such threats until a final remedial action has been developed and implemented. DOE has the sole authority, pursuant to Executive Order 12580, *Superfund Implementation*, and CERCLA Section 104, to determine when and how to implement removal actions. See 40 CFR 300, "National Oil and Hazardous Substances Pollution Contingency Plan."

Past demolition has led to extensive plutonium contamination, and the current plan does not adequately address the risk of repeating the same mistake.

Response: Although the Plutonium Finishing Plant (PFP) was technically challenging, work processes are in place to proceed cautiously and safely. Based on current information at PUREX, the risk profiles between PFP demolition and PUREX ancillary structure demolition are not comparable. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

The white powder should be removed as ordered by the WA Dept. of Ecology years ago, rather than used as an excuse to claim imminent danger. The pipes which are the source of this powder should be cleaned up. But there are much better ways to spend $217 million than risking further spread of plutonium.

Response: We agree. This EE/CA supports removal of white powder. It should be noted that the driver for this EE/CA was not the white powder removal. The CERCLA interim removal action was initiated in 2016. Since the interim removal action was already initiated, it was deemed as the proper path forward to address the emergent white powder issue. This interim CERCLA action supports mitigation of hazards within the PUREX Complex, which includes evaluation of pipeline hazards and potential removal.

Regarding Hanford Site funding, tank waste management is an important activity at the Hanford Site and is currently funded by Congress under a separate DOE organization. There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor. Unfortunately, funding does not support all cleanup activities simultaneously.

Commenter 4:

I am a long-time resident of Richland, and I certainly support clean-up activities at PUREX. However, I feel it is unwise to perform such clean-up ahead of activities at locations more likely to impact the public in the near-term. For example, Crib 618-11 and other near-river contamination pose a significantly more immediate threat to downstream communities like Richland. Clean-up priorities and clean-up dollars need to first recognize the likelihood of transport of radionuclides to nearby members of the public. Also, as currently envisioned, it appears the demolition activities themselves will significantly spread radioactive contamination beyond the site of the project.

Response: The PUREX 202A Canyon Building will not undergo demolition under this removal action. The PUREX annexes are the only structures proposed for demolition.

Although PFP was technically challenging, work processes are in place to proceed cautiously and safely. Based on current information at PUREX, the risk profiles between PFP demolition and PUREX ancillary

structure demolition are not comparable. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor.

As learned at a recent Hanford Clean-up public meeting, air filters in the cars of some workers involved with PUREX-area activities contained detectable radioactivity when they were measured at their off-site residences. If preparatory activities at PUREX were/are being conducted with so little regard for off-site transport of radionuclides, I am concerned the proposed demolition activities will show similar disregard for the dangers imposed by radionuclides and on-site containment thereof. Simply put, it is ludicrous to proceed with activities that themselves will spread contamination at a facility that does not now pose a threat to the general public, and at the expense of clean-up projects that have a significant potential to alleviate contamination before such contamination directly impacts nearby residents.

Response: Removal action activities will be conducted using air emission controls to protect human health and the environment from airborne particulate matter.

Commenter 5:

To whom it may concern,

The following are my comments on the proposed USDOE Hanford PUREX Plant partial demolition "Removal Action".

1. The Engineering Evaluation and Cost Analysis (EE/CA) is flawed. It fails to adequately address major safety concerns from demolition. USDOE has not provided adequate documentation of wastes, risks, or a comparison of alternatives relating to meeting health and environmental standards.

Response: This EE/CA provides the proper risk evaluation based on currently available information. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

2. Prior to considering any future action at PUREX, USDOE must fully characterize the amount and type of all hazardous/radioactive substances at the PUREX facility. Only then can proper decisions be made regarding future actions at this site. How can USDOE discuss risks at the site using partial/missing information?

Response: This EE/CA provides the proper risk evaluation based on currently available information. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

3. Why have the wastes in PUREX piping that are producing "white powders" not been sampled? What is the "white powder"?

Response: The white powder (sodium hydroxide) has been sampled.

4. USDOE should first proceed with a full Remedial Investigation/Feasibility Study (RI/FS) before making any proposal for action at this site.

Response: Removal actions are a key part of CERCLA response actions. As an interim step, they reduce threat and potential threats to human health and the environment while allowing the remedial action process to develop for eventual implementation.

Final cleanup remedies will be evaluated under the full CERCLA remedial action process in accordance with the Tri-Party Agreement Milestone M-085 series.

5. Please explain why PUREX was placed on a schedule ahead of cleaning up/containing contamination related to the leaking single shell tanks as well as contamination adjacent to the Columbia River.

Response: Tank waste management is an important activity at the Hanford Site and is currently funded by Congress under a separate DOE organization. There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor.

6. Please describe the amount and type of dangerous wastes stored at Purex. Also describe USDOE plans (if any) to remove this hazardous waste and how this meets all applicable regulations.

Response: For the work scope within the EE/CA, Section 2.4 describes the anticipated dangerous waste inventory.

7. Due to the lack of data/information, the proposed removal action at PUREX could result in release of contamination impacting site workers, people living near Hanford, and the environment.

Thanks for your consideration. I look forward to your response.

Response: Thank you for your comment. The removal action work at the PUREX Complex will be conducted in a manner to protect human health and the environment. Enhanced work practices will be considered based on lessons learned from PFP.

Commenter 6:

Federal law is supposed to ensure the public can review and comment on cleanup and demolition plans before the work is given a green light. However the process USDOE is using for PUREX short circuits the public's ability to review plans and comment to ensure safety. Given the disastrous outcome of the 2017 PFP demolition that resulted in plutonium being spread over many square miles and contaminated workers' cars, which they drove home, it is reasonable to expect that a much more thorough demolition plan would be made to avoid further contamination of the area and endangering the workers.

Response: CERCLA removal actions are fully authorized under law, and do not "short circuit" the long-term and comprehensive remedial action process. Both removal and remedial actions are authorized under the same statutory provision in Section 104. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

Although PFP was technically challenging, work processes are in place to proceed cautiously and safely. Based on current information at PUREX, the risk profiles between PFP demolition and PUREX ancillary

structure demolition are not comparable. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

I believe that:

- USDOE should prepare a full Remedial Investigation / Feasibility Study (RI/FS) for all work proposed so the public can fully review plans and alternatives for the dangerous work of demolishing portions of the PUREX Plant complex. The "removal" action is a "short circuit" of the full CERCLA process.

Response: A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series. The removal action does not preclude the final remedial action that will allow public comment on the final remedy. It should be noted that CERCLA removal actions are fully authorized under law, and do not "short circuit" the long-term and comprehensive remedial action process. Both removal and remedial actions are authorized under the same statutory provision in Section 104. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

- The EE/CA does not meet the basic requirements of honestly disclosing risks or why a time sensitive removal action is justified. USDOE should do a structural analysis rather than make unsupported claims.

Response: The EE/CA proposes a NTCRA. This EE/CA was developed using U.S. Environmental Protection Agency (EPA) NTCRA guidelines applying a graded approach. The PUREX annexes are the only structures proposed for demolition. During the work planning process, ancillary structure demolition will be evaluated by a structural engineer to ensure structural integrity of 202A Building.

- The Washington Department of Ecology should order USDOE to sample the waste remaining in pipes which are the source of the "white powders", using state hazardous waste law authority. If dangerous wastes are identified, Ecology should order them to be quickly removed – as should have been done decades ago. Ironically, the EE/CA fails to include any plan for sampling and removing these dangerous wastes – even though USDOE cites the white powder to justify use of a "removal action."

Response: As noted above, the white powder (sodium hydroxide) has been sampled. RCRA compliance issues for PUREX and other canyon buildings were addressed through an Ecology consent order in the Tri-Party Agreement in 1989. In the Tri-Party Agreement, the mixed waste in the PUREX Canyon was not regulated under RCRA prior to August 19, 1987, and the radioactive components of the waste present significant challenges for safe management and disposition. The hazardous substances in the PUREX Canyon would be addressed primarily through the CERCLA response action process. The consent order acts in lieu of ordinary regulatory requirements, which were never designed to apply to structures like the PUREX Canyon. PUREX was created and operated decades prior to the enactment of RCRA in 1976, and even then, the provisions of RCRA that defer to the Atomic Energy Act, the regulation of nuclear materials lead to the determination by the federal government that RCRA was not intended to regulate any waste which contained radioactive substances. PUREX and its sister facilities were not designed to facilitate regulation under a future statute focused on chemical, rather than radioactive, materials.

We agree that the EE/CA does not address sampling and removing waste. This EE/CA provides the proper risk evaluation based on currently available information. The subsequent RAWP will delineate the plan for sampling and removing waste.

This interim CERCLA action supports mitigation of hazards within the PUREX Complex, which includes evaluation of pipeline hazards and potential removal.

- There are much higher priorities for $217 million than demolishing part of PUREX. USDOE should use those funds to empty leaking Single Shell High Level Nuclear Waste tanks and clean up soil

Response: Tank waste management is an important activity at the Hanford Site and is currently funded by Congress under a separate DOE organization. There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor.

Commenter 7:

I understand that DOE is planning to proceed with PUREX partial demolition actions using the Engineering Evaluation/Cost Analysis (EE/CA) documentation, in advance of a more detailed Remedial Investigation/Feasibility Study (RI/FS) documentation process which is due a year from now.
The estimate for this work in the EE/CA is given as $217 million.

Please note that the Hanford Advisory Board (HAB), which submits budget priority advice each fiscal year to DOE, has not identified the PUREX demolition in either of the last two of these advice submittals as being one of the communities' top Hanford cleanup priorities. Given that the estimated cost of this partial demolition is nearly 10% of the typical annual Hanford appropriated budget, it seems inappropriate to commit these funds to an action that has not been prioritized by the stakeholders representing our communities affected by Hanford activities.

I urge DOE to reconsider plans for spending this high level of funding on an activity which is not high on the community's immediate priority concerns. These funds and efforts could more meaningfully be applied on higher risk activities that are expected to impact environmental safety in the near term.

Note that the HAB Advice is public information, and the comments in this email are made by a private citizen living in the Tri-Cities area.

Thank you for your consideration.

Response: There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor. Unfortunately, funding does not support all cleanup activities simultaneously.

Commenter 8:

USDOE should prepare a full Remedial Investigation / Feasibility Study (RI/FS) for all work proposed so the public can fully review plans and alternatives for the dangerous work of demolishing portions of the PUREX Plant complex. The "removal" action is a "short circuit" of the full CERCLA process.

Response: A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series. The removal action does not preclude

the final remedial action, which will allow public comment on the final remedy. It should be noted that CERCLA removal actions are fully authorized under law, and do not "short circuit" the long-term and comprehensive remedial action process. Both removal and remedial actions are authorized under the same statutory provision in Section 104. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

- The EE/CA does not meet the basic requirements of honestly disclosing risks or why a time sensitive removal action is justified. USDOE should do a structural analysis rather than make unsupported claims.

Response: The EE/CA proposes a NTCRA. This EE/CA was developed using EPA NTCRA guidelines applying a graded approach. The PUREX annexes are the only structures proposed for demolition. During the work planning process, ancillary structure demolition will be evaluated by a structural engineer to ensure structural integrity of 202A Building.

- The Washington Department of Ecology should order USDOE to sample the waste remaining in pipes which are the source of the "white powders", using state hazardous waste law authority. If dangerous wastes are identified, Ecology should order them to be quickly removed – as should have been done decades ago. Ironically, the EE/CA fails to include any plan for sampling and removing these dangerous wastes – even though USDOE cites the white powder to justify use of a "removal action."

Response: As noted above, the white powder (sodium hydroxide) has been sampled. Issues of RCRA compliance for PUREX and other canyon buildings were addressed through an Ecology consent order in the Tri-Party Agreement in 1989. In the Tri-Party Agreement, the mixed waste in the PUREX Canyon was not regulated under RCRA prior to August 19, 1987, and the radioactive components of the waste present significant challenges for safe management and disposition. The hazardous substances in the PUREX Canyon would be addressed primarily through the CERCLA response action process. The consent order acts in lieu of ordinary regulatory requirements, which were never designed to apply to structures like the PUREX Canyon. PUREX was created and operated decades prior to the enactment of RCRA in 1976, and even then, the provisions of RCRA that defer to the Atomic Energy Act, the regulation of nuclear materials lead to the determination by the federal government that RCRA was not intended to regulate any waste which contained radioactive substances. PUREX and its sister facilities were not designed to facilitate regulation under a future statute focused on chemical, rather than radioactive, materials.

We agree that the EE/CA does not address sampling and removing waste. This EE/CA provides the proper risk evaluation based on currently available information. The subsequent RAWP will delineate the plan for sampling and removing waste.

This interim CERCLA action supports mitigation of hazards within the PUREX Complex, which includes evaluation of pipeline hazards and potential removal.

- There are much higher priorities for $217 million than demolishing part of PUREX. USDOE should use those funds to empty leaking Single Shell High Level Nuclear Waste tanks and clean up soil contamination right alongside the Columbia River (where USDOE cited cost to justify leaving contamination preventing public and tribal access for 200 years).

Response: Tank waste management is an important activity at the Hanford Site and is currently funded by Congress under a separate DOE organization. There is a need to address all potential threats at the

Hanford Site including canyon complexes like PUREX and priorities will continue to be evaluated with risk as a major factor.

Commenter 9:

USDOE priorities are incorrect. Do NOT use remediation funds to demolish the PUREX plant, but to empty leaking Single Shell High Level Nuclear Waste tanks and clean up soil contamination right alongside the Columbia River.

Thank you.

Response: Tank waste management is an important activity at the Hanford Site and is currently funded by Congress under a separate DOE organization. There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor. Unfortunately, funding does not support all cleanup activities simultaneously.

Commenter 10:

I have the following comments regarding USDOE's Hanford PUREX Plant partial demolition "Removal Action":

- USDOE should prepare a full Remedial Investigation / Feasibility Study (RI/FS) for all work proposed so the public can fully review plans and alternatives for the dangerous work of demolishing portions of the PUREX Plant complex. The "removal" action is a "short circuit" of the full CERCLA process.

Response: A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series. The removal action does not preclude the final remedial action, which will allow public comment on the final remedy. It should be noted that CERCLA removal actions are fully authorized under law, and do not "short circuit" the long-term and comprehensive remedial action process. Both removal and remedial actions are authorized under the same statutory provision in Section 104. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

- The EE/CA does not meet the basic requirements of honestly disclosing risks or why a time sensitive removal action is justified. USDOE should do a structural analysis rather than make unsupported claims.

Response: The EE/CA proposes a NTCRA. This EE/CA was developed using EPA NTCRA guidelines applying a graded approach. The PUREX annexes are the only structures proposed for demolition. During the work planning process, ancillary structure demolition will be evaluated by a structural engineer to ensure structural integrity of 202A Building.

- The Washington Department of Ecology should order USDOE to sample the waste remaining in pipes which are the source of the "white powders", using state hazardous waste law authority. If dangerous wastes are identified, Ecology should order them to be quickly removed – as should have been done decades ago. Ironically, the EE/CA fails to include any plan for sampling and removing these dangerous wastes – even though USDOE cites the white powder to justify use of a "removal action."

Response: As noted above, the white powder (sodium hydroxide) has been sampled. Issues of RCRA compliance for PUREX and other canyon buildings were addressed through an Ecology consent order in the Tri-Party Agreement in 1989. In the Tri-Party Agreement, the mixed waste in the PUREX Canyon was not regulated under RCRA prior to August 19, 1987. The radioactive components of the waste present significant challenges for safe management and disposition. The hazardous substances in the PUREX Canyon would be addressed primarily through the CERCLA response action process. The consent order acts in lieu of ordinary regulatory requirements, which were never designed to apply to structures like the PUREX Canyon. PUREX was created and operated decades prior to the enactment of RCRA in 1976, and even then, the provisions of RCRA that defer to the Atomic Energy Act, the regulation of nuclear materials lead to the determination by the federal government that RCRA was not intended to regulate any waste which contained radioactive substances. PUREX and its sister facilities were not designed to facilitate regulation under a future statute focused on chemical, rather than radioactive, materials.

We agree that the EE/CA does not address sampling and removing waste. This EE/CA provides the proper risk evaluation based on currently available information. The subsequent RAWP will delineate the plan for sampling and removing waste.

This interim CERCLA action supports mitigation of hazards within the PUREX Complex, which includes evaluation of pipeline hazards and potential removal.

- There are much higher priorities for $217 million than demolishing part of PUREX. USDOE should use those funds to empty leaking Single Shell High Level Nuclear Waste tanks and clean up soil contamination right alongside the Columbia River (where USDOE cited cost to justify leaving contamination preventing public and tribal access for 200 years).

Thank you for your consideration.

Response: Tank waste management is an important activity at the Hanford Site and is currently funded by Congress under a separate DOE organization. There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor.

Commenter 11:

I am deeply concerned about the proposed removal of nuclear waste from Hanford. The current proposal is inadequate.

Response: Thank you for your comment. Tank waste management is an important activity at the Hanford Site and is currently funded by Congress under a separate DOE organization. There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor. Unfortunately, funding does not support all cleanup activities simultaneously.

Commenter 12:

Dear USDOE,

There are four points that I feel are not addressed in the "removal action".

1. I do not believe major safety concerns from demolition are discussed in the EE/CA;

Response: This EE/CA provides the proper risk evaluation based on currently available information. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

2. I believe that CERCLA does not allow for this major decision with serious potential risks to be made using an EE/CA and "removal" plan;

Response: Both CERCLA removal and remedial actions are lawful processes authorized by CERCLA Section 104, in response to the determination by DOE, as the lead agency, that there exists a "release or threat of release" of hazardous substances. This EE/CA is for the short term and is not intended to take the place of the long-term, comprehensive RI/FS process. The removal action does not preclude the final remedial action which will allow public comment on the final remedy.

3. the EE/CA fails to document the basis for the $217 million cost or to propose a timeline;

Response: There are many unknowns and assumptions that resulted in the cost basis (+50%/-30%) and the funding uncertainly does not support a detailed timeline for the work. An environmental cost estimate was developed for this EE/CA (ECE-200E15-00005, *Environmental Cost Estimate for the PUREX Complex*).

4. USDOE has repeatedly said there is no near term risk of releases from PUREX. So, we question if spending $217 million on demolishing portions of PUREX is a priority when urgent priorities we share with tribes, such as emptying recently leaking Single Shell High Level Waste tanks or cleanup of contaminated soil along the River, are not proposed to be funded by USDOE.

Response: The NCP, 40 CFR 300.415(b)(2), establishes factors to be considered in determining the appropriateness of a removal action. Those factors include the following:

- Hazardous substances or pollutants or contamination in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release. Hazardous substances, including radioactive substances are contained within the PUREX Complex pipes and process vessels. These substances pose a threat of accidental release that may result from equipment failure resulting from a fire or seismic event.

- Other situations or factors are present that may pose threats to public health or the environment. Hazardous substances are present as fixed contamination within the cells, equipment, and additional structures. These substances pose a threat of release as fixed contamination becomes exposed and as structural integrity is compromised, resulting in a potential direct exposure of nearby personnel and the environment, and exposure to the public through airborne radioactive contaminants. Degradation may not be fully addressed by S&M activities and the risk of release of hazardous substances will increase as degradation continues or goes undetected.

Demolition activities associated with this removal action will augment the final remedial action for the 200-CP-1 Operable Unit (OU).

Under the Tri-Party Agreement, priorities for work at the Hanford Site are discussed among the Tri-Parties. The agreement among the Tri-Parties results in development of a report for the lifecycle scope, schedule, and cost for completion of the cleanup mission. Informational briefings are held with affected tribal governments and the Hanford Site stakeholders. Milestones are established in the Tri-Party Agreement Action Plan to implement the results of this report.

It is recognized that funding uncertainties continue to be a concern at the Hanford Site. Unfortunately, funding does not support single shell tanks, river corridor cleanup, and canyon RI/FS activities simultaneously.

This seems like a half worked plan that risks leaking plutonium into the environment again as happened in 2017 when the plutonium finishing plant was demolished.

From a purely conservative viewpoint it would seem we should learn from past mistakes and take responsible steps to ensure an honest success this time around.

Response: The PUREX 202A Canyon Building will not undergo demolition under this removal action. The PUREX annexes are the only structures proposed for demolition.

Although PFP was technically challenging, work processes are in place to proceed cautiously and safely. Based on current information at PUREX, the risk profiles between PFP demolition and PUREX ancillary structure demolition are not comparable. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

Commenter 13:

Clean up at Hanford must be done thoroughly, not sidestepping or delaying safe and acknowledged best practices. USDOE must not repeat the mistakes that led to large scale spread of Plutonium during demolition of Hanford's Plutonium Finishing Plant (PFP) in 2017. PLEASE do the needed work thoroughly, safely, and in a way that is permanent!

Thank you

Response: Thank you for your comment. The removal action work at the PUREX Complex will be conducted in a manner to protect human health and the environment. Enhanced work practices will be considered based on lessons learned from PFP.

Commenter 14:

You might want to wait to do this Purex Plant removal until after the big election of 2020 because if you start now and something goes sideways, there will be no resources or expertise available even to address the calamity.

Response: Thank you for your comment.

It would be like Chernobyl, less the presence and noble actions of the valiant few who rushed into the breach to die saving others. We are led and governed by people with the minds of children, and the stakes are large enough that if you are a thinking person, you will see it is better to accommodate your opposition than to rush something through when the stakes are such as these.

Below are good points with which you should be familiar:

- USDOE should prepare a full Remedial Investigation / Feasibility Study (RI/FS) for all work proposed so the public can fully review plans and alternatives for the dangerous work of demolishing portions of the PUREX Plant complex. The "removal" action is a "short circuit" of the full CERCLA process.

Response: Removal actions are a key part of CERCLA response actions. As an interim step, they reduce threat and potential threats to human health and the environment while allowing the remedial action process to develop for eventual implementation.

Final cleanup remedies will be evaluated under the full CERCLA remedial action process in accordance with the Tri-Party Agreement Milestone M-085 series.

- The EE/CA does not meet the basic requirements of honestly disclosing risks or why a time sensitive removal action is justified. USDOE should do a structural analysis rather than make unsupported claims.

Response: The EE/CA proposes a NTCRA. This EE/CA was developed using EPA NTCRA guidelines applying a graded approach. The PUREX annexes are the only structures proposed for demolition. During the work planning process, ancillary structure demolition will be evaluated by a structural engineer to ensure structural integrity of 202A Building.

- The Washington Department of Ecology should order USDOE to sample the waste remaining in pipes which are the source of the "white powders", using state hazardous waste law authority. If dangerous wastes are identified, Ecology should order them to be quickly removed – as should have been done decades ago. Ironically, the EE/CA fails to include any plan for sampling and removing these dangerous wastes – even though USDOE cites the white powder to justify use of a "removal action."

Response: As noted above, the white powder (sodium hydroxide) has been sampled. Issues of RCRA compliance for PUREX and other canyon buildings were addressed through an Ecology consent order in the Tri-Party Agreement in 1989. In the Tri-Party Agreement, the mixed waste in the PUREX Canyon was not regulated under RCRA prior to August 19, 1987. The radioactive components of the waste present significant challenges for safe management and disposition. The hazardous substances in the PUREX Canyon would be addressed primarily through the CERCLA response action process. The consent order acts in lieu of ordinary regulatory requirements, which were never designed to apply to structures like the PUREX Canyon. PUREX was created and operated decades prior to the enactment of RCRA in 1976, and even then, the provisions of RCRA that defer to the Atomic Energy Act, the regulation of nuclear materials lead to the determination by the federal government that RCRA was not intended to regulate any waste which contained radioactive substances. PUREX and its sister facilities were not designed to facilitate regulation under a future statute focused on chemical, rather than radioactive, materials.

We agree that the EE/CA does not address sampling and removing waste. This EE/CA provides the proper risk evaluation based on currently available information. The subsequent RAWP will delineate the plan for sampling and removing waste.

This interim CERCLA action supports mitigation of hazards within the PUREX Complex, which includes evaluation of pipeline hazards and potential removal.

- There are much higher priorities for $217 million than demolishing part of PUREX. USDOE should use those funds to empty leaking Single Shell High Level Nuclear Waste tanks and clean up soil contamination right alongside the Columbia River (where USDOE cited cost to justify leaving contamination preventing public and tribal access for 200 years).

Response: Tank waste management is an important activity at the Hanford Site and is currently funded by Congress under a separate DOE organization. There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor.

Commenter 15:

USDOE officials,

I see you want to do a partial cleanup of the PUREX plant in the dangerous style of your PFP demolition for a hefty $$ tag of $217 million while spreading plutonium over several square miles (like the PFP did), Hmmm, what's not to like about that? Instead of doing an expensive job with sloppy preparation and execution (like your documents describe), please re-prioritize those mega-bucks to the more pressing issues like emptying recently leaking single shell high level waste storage tanks! Or try cleaning up the contaminated soil along the river.

Please don't contaminate the northwest any more than you already have.

Response: There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor. Unfortunately, funding does not support all cleanup activities simultaneously. Demolition activities will be performed in a manner that is protective of human health and the environment.

Commenter 16:

I am writing as a concerned citizen of Washington State to express disquiet about plans for partial demolition of the PUREX plant at Hanford. I am worried that previous similar actions resulted in unsafe releases of harmful substances and that insufficient preparatory reviews have been conducted. I am also concerned whether the funds devoted to this partial demolition are the best use of scarce government resources at Hanford at a time when leaking waste tanks still need proper attention.

Response: Thank you for your comment. The removal action work at the PUREX Complex will be conducted in a manner to protect human health and the environment. Enhanced work practices will be considered based on lessons learned from PFP.

It is recognized that funding uncertainties continue to be a concern at the Hanford Site. Unfortunately, funding does not support single shell tanks, river corridor cleanup, and canyon RI/FS activities simultaneously. This removal action presents a middle ground. DOE will request appropriate funds for this removal action.

I urge USDOE to conduct a full feasibility study and inform the public about the results before further work is undertaken on the plant demolition.

Response: A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series.

Commenter 17:

USDOE should prepare a full Remedial Investigation / Feasibility Study (RI/FS) for all work proposed so the public can fully review plans and alternatives for the dangerous work of demolishing portions of the PUREX Plant complex. The "removal" action is a "short circuit" of the full CERCLA process.

Response: Removal actions are a key part of CERCLA response actions. As an interim step, they reduce threat and potential threats to human health and the environment while allowing the remedial action process to develop for eventual implementation.

Final cleanup remedies will be evaluated under the full CERCLA remedial action process in accordance with the Tri-Party Agreement Milestone M-085 series.

- The EE/CA does not meet the basic requirements of honestly disclosing risks or why a time sensitive removal action is justified. USDOE should do a structural analysis rather than make unsupported claims.

Response: The EE/CA proposes a NTCRA. This EE/CA was developed using EPA NTCRA guidelines applying a graded approach. The PUREX annexes are the only structures proposed for demolition. During the work planning process, ancillary structure demolition will be evaluated by a structural engineer to ensure structural integrity of 202A Building.

- The Washington Department of Ecology should order USDOE to sample the waste remaining in pipes which are the source of the "white powders", using state hazardous waste law authority. If dangerous wastes are identified, Ecology should order them to be quickly removed – as should have been done decades ago. Ironically, the EE/CA fails to include any plan for sampling and removing these dangerous wastes – even though USDOE cites the white powder to justify use of a "removal action."

Response: As noted above, the white powder (sodium hydroxide) has been sampled. Issues of RCRA compliance for PUREX and other canyon buildings were addressed through an Ecology consent order in the Tri-Party Agreement in 1989. In the Tri-Party Agreement, the mixed waste in the PUREX Canyon was not regulated under RCRA prior to August 19, 1987. The radioactive components of the waste present significant challenges for safe management and disposition. The hazardous substances in the PUREX Canyon would be addressed primarily through the CERCLA response action process. The consent order acts in lieu of ordinary regulatory requirements, which were never designed to apply to structures like the PUREX Canyon. PUREX was created and operated decades prior to the enactment of RCRA in 1976, and even then, the provisions of RCRA that defer to the Atomic Energy Act, the regulation of nuclear materials lead to the determination by the federal government that RCRA was not intended to regulate any waste which contained radioactive substances. PUREX and its sister facilities were not designed to facilitate regulation under a future statute focused on chemical, rather than radioactive, materials.

We agree that the EE/CA does not address sampling and removing waste. This EE/CA provides the proper risk evaluation based on currently available information. The subsequent RAWP will delineate the plan for sampling and removing waste. This interim CERCLA action supports mitigation of hazards within the PUREX Complex, which includes evaluation of pipeline hazards and potential removal.

- There are much higher priorities for $217 million than demolishing part of PUREX. USDOE should use those funds to empty leaking Single Shell High Level Nuclear Waste tanks and clean up soil contamination right alongside the Columbia River (where USDOE cited cost to justify leaving

Response: Tank waste management is an important activity at the Hanford Site and is currently funded by Congress under a separate DOE organization. There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor.

Commenter 18:

Thank you for the opportunity to comment on actions that could endanger workers, local communities, and critical waterways.

I understand that USDOE is preparing to demolish the PUREX plant, but it is not at all clear why demolition is necessary at this time, and it appears that USDOE is on course to repeat the errors that occurred during the removal of the Plutonium Finishing Plant in 2017.

Response: The PUREX annexes are the only structures proposed for demolition. Enhanced work practices will be considered based on lessons learned from PFP.

I urge you to do everything possible to comply with all EPA guidelines (which the EE/CA fails to do), to prepare a full Remedial Investigation/Feasibility Study so the public can review the plans and alternatives, and to prioritize the removal and remediation of actively leaking tanks and soil contamination alongside the Columbia River over the removal of the currently mothballed PUREX plant.

Response: This EE/CA was developed using EPA NTCRA guidelines applying a graded approach.

A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series.

There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor. Unfortunately, funding does not support all cleanup activities simultaneously.

The Washington Department of Ecology should order USDOE to sample the waste remaining in pipes which are the source of the “white powders”, using state hazardous waste law authority. If dangerous wastes are identified, Ecology should order them to be quickly removed – as should have been done decades ago.

Response: As noted above, the white powder (sodium hydroxide) has been sampled. Issues of RCRA compliance for PUREX and other canyon buildings were addressed through an Ecology consent order in the Tri-Party Agreement in 1989. In the Tri-Party Agreement, the mixed waste in the PUREX Canyon was not regulated under RCRA prior to August 19, 1987. The radioactive components of the waste present significant challenges for safe management and disposition. The hazardous substances in the PUREX Canyon would be addressed primarily through the CERCLA response action process. The consent order acts in lieu of ordinary regulatory requirements, which were never designed to apply to structures like the PUREX Canyon. PUREX was created and operated decades prior to the enactment of RCRA in 1976, and even then, the provisions of RCRA that defer to the Atomic Energy Act, the regulation of nuclear materials lead to the determination by the federal government that RCRA was not intended to regulate any waste which contained radioactive substances. PUREX and its sister facilities

were not designed to facilitate regulation under a future statute focused on chemical, rather than radioactive, materials.

We agree that the EE/CA does not address sampling and removing waste. This EE/CA provides the proper risk evaluation based on currently available information. The subsequent RAWP will delineate the plan for sampling and removing waste.

Commenter 19:

Good Morning USDOE, Washington Ecology, and US EPA,

I am writing regarding the plan to demolish the Hanford Purex Plant. I see nothing in the documents assuring me that there is any imminent threat! You need to do more testing, etc to justify addressing this now, let alone spending the budget dollars.

I also encourage you to address what has been proven to be an imminent threat. That is, or those are, the single shell underground tanks, containing deadly poison, that need to be replaced IMMEDIATELY! We all know they are leaking into the groundwater, and into the Columbia River! Now, there's an imminent - or should I say - CURRENT threat.

Response: The PUREX 202A Canyon Building will not undergo demolition under this removal action. The PUREX annexes are the only structures proposed for demolition.

This removal action is deemed as non-time critical and is not considered an imminent threat but a potential threat. Based on the following regulation, DOE is pursuing this interim action to address a potential threat and reduce risks to human health and the environment

The NCP, 40 CFR 300.415(b)(2), establishes factors to be considered in determining the appropriateness of a removal action. Those factors include the following:

- Hazardous substances or pollutants or contamination in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release. Hazardous substances, including radioactive substances are contained within the PUREX Complex pipes and process vessels. These substances pose a threat of accidental release that may result from equipment failure resulting from a fire or seismic event.
- Other situations or factors are present that may pose threats to public health or the environment. Hazardous substances are present as fixed contamination within the cells, equipment and additional structures. These substances pose a threat of release as fixed contamination becomes exposed and as structural integrity is compromised, resulting in a potential direct exposure of nearby personnel and the environment, and exposure to the public through airborne radioactive contaminants. Degradation may not be fully addressed by S&M activities and the risk of release of hazardous substances will increase as degradation continues or goes undetected.

You are allowing the groundwater, and the Columbia River to be polluted, to say nothing of the danger to the Pacific Coast, and all fish, fisheries, and fishermen, if these tanks are not replaced IMMEDIATELY! And while that's being done, the research can be "completed" on the Demolition of the Hanford Purex Plant. That project can be next.

I will pray for the safety of every person involved in addressing the cleanup of the most contaminated site in the USA.

Response: Thank you for your comment. Tank waste management is an important activity at the Hanford Site and is currently funded by Congress under a separate DOE organization. There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor.

Commenter 20:

As DOE has recommended Alternative 4 my comments will focus on Alternative 4.

I have one significant disagreement with this EE/CA. In section 2.2.1.2 Out-of-scope Areas which states "The areas within the 202A Building that are out of scope are considered more difficult to access safely and therefore will be addressed at a later date." The major premise of this document is to be protective of public health and the environment and I don't know how this document successfully achieves that objective without considering the whole PUREX Complex. In my opinion the greatest threat to the public health and environment is the collapse of the East Crane Maintenance Platform (ECMP). The ECMP was added in 1957 and is not part of the original structure. The hazard assessment of the PUREX Final Safety Analysis Report indicated the ECMP was the only major structure of the PUREX Complex that would not survive a Hanford Regional Historic Earthquake. Collapse of the ECMP will spread radioactive contamination from the surfaces of the ECMP, provides a direct route of contamination from the space above the canyon cover blocks to the environment and significantly disrupt the airflow within the 202A building allowing contamination migration into non-contaminated areas. Consideration of the ECMP is consistent with the National Contingency Plan factors described in the introduction (threats resulting from equipment failure from fire or seismic event). I believe that DOE resources identified in this EE/CA would be better spent with the ECMP as the highest priority item. This activity would be difficult but is a scenario that I believe is a greater threat to the public and environment than any of the hazards described within the EE/CA.

Response: The east crane maintenance platform and the remainder of the PUREX Complex will be addressed during the RI/FS process.

In addition, I am not aware of the cause of the PUREX Tunnel #1 collapse and if it were related to any ground vibration/movement the event could also have weakened other structures within the PUREX Complex such as the ECMP, the underground ventilation system, the stack, etc. I also read that water above historical levels has been discovered in the underground filters and could this also be related? Could the filter structure be breached? The source term in the underground ventilation system is a much greater threat to the public and environment than some of the areas considered by the EE/CA and is not contained by a structure as robust as the 202A canyon. By not evaluating these hazards a skeptic could assume that DOE is performing the activities they know how to do but not addressing all of the threats to public health and the environment.

Response: The filters and the remainder of the PUREX Complex will be addressed during the RI/FS process. A structural integrity assessment is currently being performed on the underground filters at PUREX.

I do not believe DOE has demonstrated the benefit to public health and the environment of the hazard abatement activities below grade proposed at PUREX. The hazards as identified in table 2-3, Current Hazard Conditions are not unexpected for a nuclear facility that has the processing history of PUREX and has sat for 20 years. These hazards are well within the control of a robust S&M program (albeit requiring considerable care in dealing with these risks). As long as the 202A containment structure and air flow

remains as configured the only real threat of contamination release from the below grade areas to the environment is during the performance of surveillance and maintenance which DOE has engineering and administrative controls in place to prevent. Granted there are ongoing issues with contamination migration and discovery of residual chemicals but these are well within the control of DOE through the S&M program. Some of these hazard reduction activities may de-risk the S&M tasks for a time but new ones will emerge. DOE should be looking at ways to eliminate routine personnel entry because S&M will not be completely de-risked until PUREX is removed.

Response: Surveillance and maintenance is expected to continue on an annual frequency.

Although the N Cell gloveboxes were attributed to have over 1000 ci of Plutonium, the non-destructive assay of the gloveboxes in their current configuration was most likely an upper limit. Surveys of the gloveboxes during deactivation indicated contamination levels well below the non-destructive assay levels and the contamination was fixed in place. Again there will be ongoing issues of contamination migration but again within the control of the S&M program. The Product Removal (PR) Room may be the exception because the source term is larger and to a much higher degree removable. Some additional contamination control activities may be needed there.

Response: Thank you for your comment.

The hazardous materials and radiological contamination that are currently inventoried throughout the below grade areas could conceivably remain in place if the 221-U approach (as described in the EE/CA) is taken at PUREX and are best left in place until that decision is made. If a different approach is determined to be more effective the ultimate disposition of those hazardous materials can be determined at that point when the demolition program has been developed. The effort, safety risk and personnel radiation dose received does not seem to be balanced by the threat reduction to the public and environment. I also believe the same is true for the areas above the Pipe and Operating Gallery level such as the West Crane Maintenance Platform.

Response: Hazard abatement under this removal action will be conducted to minimize worker exposure and to maximize protection of human health and the environment. The subsequent RAWP will detail work planning and processes to address worker safety and human health and the environment. Final cleanup remedies will be evaluated under the full CERCLA remedial action process in accordance with the Tri-Party Agreement Milestone M-085 series.

I agree the radiological hazards associated with the White Room are a threat to public health and the environment and the effort to immobilize or decontaminate may be beneficial now and will also have to be addressed during any demolition activities.

I agree with performing hazard abatement activities in the Pipe and Operating Gallery, I just don't know the effort required. The expansion joints will continue to degrade and need attention and ongoing surveillance (and potentially the expansion joint leak in the storage gallery). Additional fixative may be needed for some contamination areas. As for asbestos, it is unclear how much is degrading and whether continued patching is adequate or needs removal now. If the condition of the asbestos in the Pipe and Operating Gallery is a threat to public health and the environment, then a number of other facilities are a similar or greater threat including building 203A, building 211A (and the chemical tank farm) and building 206A which had not been evaluated by this EE/CA. The asbestos in building 206A was not in as good a condition as the Pipe and Operating Gallery when the facility was deactivated and the barrier between the asbestos and the environment is similar to the Pipe and Operating Gallery.

Response: Thank you for your insight. Hazard abatement under this removal action will be conducted to minimize worker exposure and to maximize protection of human health and the environment.

I do not believe DOE has demonstrated the threat reduction to public health and the environment by the removal of the West Annex. There is limited radiological contamination (primarily in the head tank room above the Aqueous Makeup Unit). The Aqueous Makeup Unit does contain numerous chemical tanks and chemical piping but each of those was flushed and any chemical residues discovered outside the tanks and piping will be dilute, a low hazard to public health and difficult to migrate to the environment. I acknowledge these are hazards to the S&M workforce but the ability to deal with these instances should be encompassed by the workforce's training and engineering/administrative controls of the S&M program. These are not new hazards being introduced at PUREX and are well documented in the operating procedures, training materials and end point criteria. The West Annex does provide a buffer area between the Pipe and Operating Gallery (including the White Room) and the environment. This area will ultimately be part of the 202A demolition debris and be more efficiently removed during building demolition. Water leaks from the roof are a nuisance but I do not feel an adequate case was made for the West Annex demolition at this time. I do feel that removal of the West Annex will facilitate demolition in the future and could be done in conjunction with the EE/CA activities but I don't believe it meets the criteria and objectives of the EE/CA.

I do agree there is a threat to public health and the environment posed by the East Annex from the radiological contamination within the laboratory hood and gloveboxes although the risk is not substantiated in the EE/CA.

Other considerations: The short exhaust stacks (for instance the east and west sample gallery exhaust stacks) should also be evaluated for removal and disposition at the building exit point. These may contain contamination (which is outside the building containment) and the stacks could come down in a wind event spreading contamination to the environment.

Response: Thank you for your comment.

In conclusion, one of DOE's major premises of preparing nuclear facilities for long term surveillance and maintenance was to not expend resources on activities that could be done, but to perform those activities which needed to be done to provide reduce the threat to public health and the environment. This was done through a disciplined approach utilizing end point criteria. Since the facility is still in long term S&M this premise should still apply.

Response: The NCP, 40 CFR 300.415(b)(2), establishes factors to be considered in determining the appropriateness of a removal action. Those factors include the following:

- Hazardous substances or pollutants or contamination in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release. Hazardous substances, including radioactive substances are contained within the PUREX Complex pipes and process vessels. These substances pose a threat of accidental release that may result from equipment failure resulting from a fire or seismic event. Other situations or factors are present that may pose threats to public health or the environment.
- Hazardous substances are present as fixed contamination within the cells, equipment and additional structures. These substances pose a threat of release as fixed contamination becomes exposed and as structural integrity is compromised, resulting in a potential direct exposure of nearby personnel and the environment, and exposure to the public through airborne radioactive contaminants. Degradation may not be fully addressed by S&M activities and the risk of release of hazardous substances will increase as degradation continues or goes undetected.

With the removal of PUREX probably a minimum of a decade away there are actions that need to be taken to reduce the PUREX Complex threat to public health and the environment. This EE/CA proposes

to spend $200M on Alternative 4. That is a significant portion of the DOE-RL budget and needs to provide a higher benefit than the $200M could provide elsewhere. I do not feel that DOE has successfully demonstrated the need to spend $200M on the activities described in this EE/CA. (Also there should be a breakout of the S&M costs separately so the public can understand the increment between S&M and hazard reduction activities.)

Response: There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor. Unfortunately, funding does not support all cleanup activities simultaneously. Cost for this removal action will be collected separately from surveillance and maintenance.

Additionally I don't think DOE has evaluated all of the threats to public health and the environment from the PUREX Complex regardless of their difficulty. I believe DOE should re-evaluate the entire PUREX Complex and prioritize the threat reduction activity by activity and provide more detail behind their analysis through a revision to this EE/CA.

Response: This EE/CA provides the proper risk evaluation based on current information available. The scope of this removal action is to reduce the threat to human health and the environmental until the final remedial action has been developed and implemented. The final remedial action will contain a risk assessment for the entire 200-CP-1 OU, including the PUREX Complex.

Commenter 21: Heart of America Northwest

Dear USDOE PUREX EECA lead official(s), EPA and Ecology:

I expected a response yesterday to this request for an extension of the comment period for the PUREX Plant removal action / EE/CA plan. The comment period is still scheduled to end tomorrow, August 2nd. Granting an extension is NOT DISCRETIONARY, pursuant to CERCLA regulations cited below. The public should know right away if the comment period will be extended and for how long, rather than being forced to submit comments by tomorrow. Further, our organization needs to know if, and for how long, the comment period will be extended in order for us to provide members and the public with summary materials that will enable the public to comment.

Only today did we discover that USDOE had issued a sampling and analysis plan on July 17 for "white powder" dangerous wastes in the PUREX complex. The presence of this white powder is cited in the EE/CA as justifying the use of a "removal action." Review of the sampling and analysis plan is relevant for commenting. Yet, no public notice of its relationship to the current comment period has been made.

Closing the comment period without extension or disclosure of the plan would provide successful bases for appeal or challenge.

Please ensure that public notice of an extension of the comment period, and availability of the sampling and analysis plan, are provided to the public today.

Response: Pursuant to 40 CFR 300.415(n)(4)(iii), the lead agency (DOE) accommodated the request to extend the comment period by 15 days.

Commenter 22: Heart of America Northwest

On behalf of Heart of America Northwest and our thousands of members across the region who care deeply about Hanford Cleanup and may wish to submit informed comments on the PUREX Plant EE/CA, we request a 30 day extension of the comment period on the PUREX EE/CA.

The PUREX Plant EE/CA involves the massive PUREX plant and complex considerations of what wastes are present in numerous areas / facilities in the Plant, and whether the proposed actions are appropriate for disparate areas and wastes. To assist people in commenting, detailed review of the EE/CA is required,. Such detailed review and preparation of materials for the public to use in offering informed comments takes more than thirty days. The proposed action is not a "time critical" action. USDOE has taken several years to issue the draft EE/CA. Thus, an extension would not harm any timelines while ensuring that the public and our organization has adequate time to review and offer informed comment.

Pursuant to 40 CFR 300.415(n)(4)(3), the lead agency (USDOE) shall extend the comment period by fifteen days. An extension of thirty days is permissible and would provide the appropriate time for review and comment without jeopardizing any removal action or creating any risk. Therefore, we request an extension of thirty days. If thirty days is not granted, we expect that the agencies will issue an extension of fifteen days and provide appropriate notice to the public. Thank you,

Response: Pursuant to 40 CFR 300.415(n)(4)(iii), the lead agency (DOE) accommodated the request to extend the comment period by 15 days.

A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series.

Commenter 23:

CLEAN. IT. UP.
This is a disgrace to every citizen living in the Pacific Northwest.

Response: Thank you for your comment.

Commenter 24:

Hello,

My family lives in Oregon, near the Columbia River and downstream from the Hanford Nuclear site. I am writing to ask that this cleanup be highly prioritized by the Washington State and federal governments. I am worried about the waterways and environmental health in Washington and Oregon! I am worried about how the toxic waste products in the Hanford facility will effect our children and natural resources that we depend on.

Thank you for all your hard work.

With respect and gratitude,

Response: Thank you for your support. Regarding priorities, tank waste management is an important activity at the Hanford Site and is currently funded by Congress under a separate DOE organization.

There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor. Unfortunately, funding does not support all cleanup activities simultaneously.

Commenter 25:

I agree with option 4 and spending the funds to achieve this option. I live in Portland, down the river and downwind from this plant. Hanford needs the federal governments attention! It should be cleaned up and time is of the essence. It's a bit disturbing it has dragged out so long. Fund it, do it, and check it off your list before an environmental disaster takes place. Some may think the site is in the middle of no where but there are people who live near there, recreate there on our weekends, and the gorge and Columbia river are major tourism for both Washington and Oregon. If Hanford leaked anymore then it already has, it will leak into the Columbia eventually and out into the pacific and up and down the coastline and it will all be on the federal governments back. Please help us who are local and approve permit and cleanup quick. It should be a priority and I applaud you all for moving in that direction.

Thank you

Response: Thank you for your support.

Commenter 26:

I know people who grew up in that area with earlier than expected stomach cancer. Living down river, I've allowed my daughter to swim in the Willamette River. Its nauseated to think about my toddler dying in that manner down the road.

Response: Thank you for your comment. DOE will continue to evaluate and prioritize risks to protect human health and the environment.

Commenter 27:

Chernobyl.

Response: Thank you for your comment. DOE will continue to evaluate and prioritize risks to protect human health and the environment.

Commenter 28:

Dear Ms. Call:

The purpose of this letter is to provide comments to the Department of Energy on the recently issued Engineering Evaluation/Cost Analysis for the Purex Plant. The comment period is from July 3rd to August 2nd. I would appreciate if the Department of Energy will consider these comments before a final decision is made.

The EE/CA states that areas that will be addressed under this removal action are areas that can be accessed, adequately ventilated for worker safety, and have immediate need for near term action. The

specific areas of the 202A Building that are in the scope of this EE/CA include the Canyon Deck, Crane Cab Gallery, West Crane Maintenance Platform, P&O Gallery, White Room, Canyon Lobby & Storage Room, Sample Gallery, Storage Gallery, Positive Infinitely Variable (PIV) Room, Product Removal (PR) Room, PR Corridor, N Cell, and entire East Annex and West Annex structures.

The areas within the 202A Building that are out of scope are considered more difficult to access safely, and, therefore, will be addressed at a later date (are out of scope). Specific areas that are not in the scope of this EE/CA include the 12 Process Cells, Hot Pipe Trench, Air Tunnel, Slug Storage Basin, Pool Cell, Q Cell, Hot Shop, two Master Cranes, Slave Crane, East Crane Maintenance Platform, and two railroad tunnels: Storage Tunnel #1 and Storage Tunnel #2.

The preferred actions have a cost of $217.7 million (order of magnitude engineering cost estimate with a range of -30% to +50%).

1. The EE/CA document is published with the number DOE/RL-2016-15 Rev 0. Why a 2016 document number if the document was approved June 6, 2019? Has this document been in draft for a while? Was there actually no urgency about this? Can you show the history of the integrated priority list?

Response: Yes. This EE/CA was initiated during the 2016 time period. This EE/CA was in development when the PUREX Tunnel 1 collapsed in 2017. DOE shifted priorities to address the near-term risk of the PUREX tunnels' structural integrity. DOE completed stabilization of both tunnels in 2019. With the completion of the high-risk tunnel project, priorities shifted back to the PUREX Canyon EE/CA, which resulted in a late comment period on this document. Hanford Site risks are continually evaluated and prioritized and will shift if unforeseen events arise. The integrated priority list has been an internal working document and is not available at this time.

2. The actions affect "easy to reach" places, but the inventories and hazardous conditions identified in Tables 2-1 through 2-3 are all over the plant and do not distinguish the inventories that will specifically be addressed by the proposed actions. Can you show the kg of hazardous materials and curies subject to action versus the amounts in the "not to be touched" areas? The tables appear to overstate the inventories to be acted on, or the source term is actually unknown. For example, leaking oil observed in Q cell will not be addressed.

Response: No, the quantities of hazardous and radioactive materials cannot be shown because the amounts subject to the action versus "not to be touched" have not been evaluated nor are they planned to be evaluated. Hazard abatement under this removal action will be conducted to minimize worker exposure and to maximize protection of human health and the environment. The subsequent RAWP will detail work planning and processes to address worker safety and human health and the environment.

3. Where hazard conditions are not known, how can there be an accurate cost estimate for the work to be performed? How can the risk be known? Is there evidence that the roof replacement was ineffective so that there is water intrusion? Is there a structural analysis to show potential subsidence of the building, as was the case for Purex Tunnel No. 1? Has the U.S. Army Corps of Engineers reviewed the cost estimate? GAO has observed that DOE cost estimates are unreliable. In addition, past experience is that "surprises" such as inaccurate drawings, unverified assumptions, and failure to include risks have caused cost ranges to exceed +50%. In some cases, the increase has exceeded 100%, as in the case of closure actions at WESF. The EE/CA analysis appears to be superficial.

Response: An environmental cost estimate was developed for this EE/CA (ECE-200E15-00005). There are many unknowns and assumptions that resulted in the cost basis (+50%/-30%), and the funding

uncertainly does not support detailed work planning at this time. The estimate is based on current known conditions in accordance with environmental estimating procedures for CERCLA proposed actions. The U.S. Army Corps of Engineers has not reviewed the cost estimate, nor are they required to review environmental estimates.

At this time, there is no evidence that the roof replacement was ineffective. In addition, there is no evidence of potential subsidence of the building at this time. It should be noted for this removal action that during the work planning process, ancillary structure demolition will be evaluated by a structural engineer to ensure structural integrity of 202A Building.

4. The information in Table 2-1 does not have data for chromium, yet DOE has obtained sample data for the "white powder" observed previously by the Department of Ecology. Please see letter 18-ESQ-0019[1]. It would help the cost analysis to know just how much chromium for example, has leached from piping into the white power, so that the hazard can be assessed. What is the total estimated volume of the piles? The total hazardous chemical inventory? Is piping corrosion a hazardous waste elsewhere in the state? Will any of the proposed actions prevent future accumulation of powders?

Response: The white powder has been designated as dangerous waste and will be removed per the subsequent RAWP. The estimated volume of the "piles" has not been attained. This removal action will cover removal of white powder in addition to other hazardous materials within the PUREX Complex. Per CERCLA, specific quantities are not required to be defined. The environmental cost estimate focuses on the cost of execution of the work (e.g., the work approach), not the waste quantities.

It is unknown whether piping corrosion is a hazardous waste elsewhere in the state.

This proposed CERCLA removal action will allow us to address sources of hazardous substances (e.g., pipe and tank removal).

5. RAO #1 to "reduce" the inventory is vague and should be made specific so that the taxpayer knows the amount spent per kilogram of hazardous components removed. Objectives should be specific.

Response: Hanford Site cleanup is very complex and mostly represents challenges due to the uniqueness of the cleanup scope. A per unit cost in one cleanup effort may be significantly different in another effort based on the unique facility configuration, chemical, or radiological hazards present. Although it would be interesting to know, it would be of limited value.

6. RAO #3 is also vague. Safe treatment of Purex waste should be conducted on-site, by methods described in the EE/CA. Otherwise the risks and exposures cannot be estimated. Goals should be accompanied by methods.

Response: The subsequent RAWP will detail work planning and processes to address worker safety and human health and the environment. The risks and potential exposures are identified during work planning in the execution year and appropriate controls will be put in place.

7. What is the actual risk of white powder removal? Letter 18-ESQ-0019 appears to contradict the hazardous conditions expressed in the EE/CA. This letter states that adequate worker protection exists for the white powder with current work control processes. 18-ESQ-0019 also states "the material is in a safe and stable condition within the confines of PUREX, has not been released to the environment, and does not constitute a threat to human health or the environment." This letter could be used to quantify the actual risk. However it was not referenced in the EE/CA. Letter

18-AMRP--0027[2], December 2017, indicated that the white powder analyses were intended for use in the Remedial Investigation/Feasibility Study for Purex Plant disposition. There was no heightened risk identified, except for Ecology's threatened enforcement actions. Letter 17-ESQ-0110[3] indicated that the expected action was to clean the white powder from the tour paths at Purex. This action differs quite a bit from a $218 million (-30% to +50% or more) project.

Response: The white powder was designated as dangerous waste per 17-NWP-113, "Administrative Order Docket #15343." Accordingly, DOE-RL is bound to perform cleanup actions. The scope of this EE/CA includes the PUREX Complex, which includes white powder cleanup. It should be noted that the driver for this EE/CA was not the white powder removal. The CERCLA interim removal action for the PUREX Complex was initiated in 2016. Since the interim removal action was already initiated, it was deemed as the proper path forward to address the emergent white powder issue. This interim CERCLA action supports mitigation of hazards within the PUREX Complex.

8. The EE/CA states that a CERCLA record of decision (ROD) for disposition of the Purex Plant will not occur until "the 2032 time frame." Why such a long delay? The proposed EE/CA actions are intended to be consistent with an unknown decision, so this creates a considerable risk of unnecessary exposure to personnel, even as the State of Washington has required enhanced worker's compensation for waste exposures.

Response: Due to competing Hanford Site priorities, availability of funding, and the complexities of reaching agreement on a Record of Decision on the PUREX Complex, the timeframe for obtaining a ROD for the PUREX Complex continues to be delayed. DOE recognizes the risks of delaying the final decision and is taking action through this interim CERCLA action to mitigate potential risks.

Hazard abatement under this removal action will be conducted to minimize worker exposure and to maximize protection of human health and the environment. The subsequent RAWP will detail work planning and processes to address worker safety and human health and the environment.

9. If there are structures that are truly hazardous (such as crumbling stairs or risk of subsidence, or known water intrusion), a hazards assessment/value engineering results should be provided. The EE/CA is based more on brainstorming what might occur than on objective evidence.

Response: The PUREX Complex under the current S&M plan maintains a safe and compliant condition for the facility via annual walkdowns, preventative and corrective maintenance actions. This EE/CA considers known conditions, as well as potential threats to human health and the environment, and provides a pathway for interim actions to reduce risks.

10. I believe that using the $218 million to proceed with canyon disposition including closure of the facility in place with water intrusion prevention would appear to be a better investment. DOE should provide the public with a quantitative, integrated priority list, for all site structures so that the value of funds used can be placed in perspective. Using Purex actions as a jobs program to "maintain work force experience" (keep people busy), as was pointed out by the Tri-City Herald[4] on July 7, 2019, is contrary to ALARA principles.

Response: Thank you for your comment. This EE/CA evaluates the proposed alternatives for meeting the DOE goal of reducing the risk to human health and the environment at the PUREX Complex by removing or stabilizing waste. The integrated priority list has been an internal working document and is not available at this time.

Thank you for considering these comments.

[1]https:lj pdw.hanford.gov/document/0067522H.

[2]https:ljpdw.hanford.gov/document/0067290H

[3]https:ljpdw.hanford.gov/document/0068217H

[4]https:ljwww.tri-cityherald.com/news/local/hanford/article232328877.htm1

Commenter 29:

I am strongly supportive of option #4 — Taking care of this matter in the BEST manner will be a cost and lives-saving decision.

Thank you

Response: Thank you for your support.

Commenter 30:

This one's a no-brainer. Option 4 is clearly the best option. Obviously No Action is completely unacceptable, and if you can find $177 Million, you can certainly find $217 Million. Whatever it takes to keep radioactive waste contained on the site, considering the proximity to the Columbia River, is of utmost importance.

Thank you

Response: Thank you for your support.

Commenter 31:

I am writing from Minnesota. WA is no where near me, but I care a whole lot. This is a problem we can solve with $218 million dollars before it affects the environment. Then the cost would go up for it will be a mess and cost WA a lot more than just money as well as more money. The recommendation and funds are for right now which would be after Aug 2nd when public commentary closes and Decision is made.

If you can put a deadline and a public demand for no hesitation or delay. That money is needed to start on this now or the $ amount goes up every day due to the dire need to protect the environment there in WA. I ask this of you because you are dealing with a very environmentally unfriendly administration, they are also good at shirking duties and responsibilities and as you know, at providing timely responses. They'll dodge subpoenas and engage in other corrupt behavior all around.

It's time for an administration to take the responsibility for what their bomb - making does to the environment. Let's make nuclear too expensive to use so hazardously again.

This administration is perfect as they have the most lackluster environmental record: Windmill cancer indeed.

Thanks for all the good you do.

Response: Thank you for your support.

Commenter 32:

1) Remove all nuclear waste,

2) Do not allow anymore nuclear waste into the facility,

3) Replace all single storage tanks,

4) Stop all the nuclear leakage from entering the Columbia River

Response: Thank you for your comment.

Commenter 33: Email from Yakama Nation to Paula Call

Good afternoon, Ms. Call,

Attached is Yakama Nation ERWM Comments on Engineering Evaluation/Cost Analysis for the PUREX Complex, DOE/RL-2016-15, Rev. 0.

Thank you!

Attached Yakama Nation ERWM Comments (Letter)

Dear Ms. Call,

Yakama Nation (YN) ERWM appreciates the opportunity to review and provide comments on the Engineering Evaluation/Cost Analysis (EE/CA) for the PUREX Complex. DOEIRL-2016-15, Rev. 0.

The Confederated Tribes and Bands of the Yakama Nation is a federally recognized sovereign pursuant of the Treaty of June 9, 1855 made with the United States of America (12Stat. 951). The U.S. Department of Energy's Hanford Site was developed on land ceded by the Yakama Nation under the 1855 Treaty. The Yakama Nation retains reserved rights to this land under the Treaty.

> The Yakama Nation supports cleanup actions that are complete, permanent, and are based on proven technology. We do not support remedial actions that leave large quantities of long-lived radionuclides or dangerous waste in place and rely on long-term stewardship or institutional controls to address future potential exposure scenarios. Long-term stewardship and institutional controls will not be effective for wastes that remain dangerous for hundreds or thousands of years. Assuming that contaminants remain in place implies that a Long-Term Stewardship Program Plan must be implemented which will remain effective longer than any human institution has ever existed[1].

The PUREX is a massive plant, with an over 1,000 feet long Canyon and other structures, containing radioactive and chemical contaminants, which will pose unique hazards for demolition. However, those

---

[1] Russell Jim, December 31, 2014, Letter to the Tri-Party Agencies, RE: Central Plateau Cleanup Principles; Russell Jim, August 15, 2015, Letter to Ms. Kristen Skopeck, DOE-RL, RE: M-091 Waste Management Milestones; and Russell Jim, December 14, 2015, Letter to Ms. Kristen Skopeck, DOE-RL, RE: Proposed Changes to the TPA M-015, M-016, M-085, M-037, and M-094 Milestones.

hazards are not addressed with the appropriate detail and consideration of alternatives. The YN ERWM Program has identified the following areas of concerns:

- The use of a "Non-Time-Critical Removal Action", instead of a full-fledged "Remedial Action", deprives the Yakama Nation and public of the opportunity to review detailed investigation results, proposed plans, and alternatives with costs. The Treaty Rights of the Yakama Nation and the health of future generations of YN members may be seriously and permanently impacted by the "removal actions" proposed for the PUREX complex in the EE/CA.

Response: Both CERCLA removal and remedial actions are lawful processes authorized by CERCLA Section 104, in response to the determination by DOE, as the lead agency, that there exists a "release or threat of release" of hazardous substances. This EE/CA is for the short-term and is not intended to take the place of the long-term comprehensive RI/FS process. The removal action does not preclude the final remedial action, which will allow public comment on the final remedy.

A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series.

The purpose of this removal action is to reduce the threat to human health and the environment until the final remedial action has been developed and implemented.

- TPA Milestone M-085-80, requires USDOE to submit a full Remedial Investigation / Feasibility Study (RI/FS) for the full PUREX 202A and Canyon facilities to Ecology by September 30, 2020. The current proposal for limited removal action and limited EE/CA cannot supplant the full RI/FS and compliance with the TPA major milestone. The YN ERWM is relying on the TPA Milestone M-085-80 and on Ecology's enforcement of this requirement, to ensure that USDOE submits a full RI/FS for the PUREX canyon in just over one year from now.

Response: A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series. DOE will follow the Tri-Party Agreement process with respect to the associated RI/FS.

- The YN ERWM has serious concerns over the cost estimated for the proposed Preferred Removal Action and how the high cost conflicts with other Hanford cleanup priorities of the Yakama Nation.

Response: There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor. Unfortunately, funding does not support all cleanup activities simultaneously.

The YN ERWM Program recommends DOE/RL to consider the remedial action that includes detailed investigation results, proposed plans for clean closure, and alternatives with costs, not the non-time-critical removal action that would allow USDOE to proceed without the preparation of the plans and alternatives which the YN ERWM would normally expect to be able to review and comment on in a remedial action.

Response: Removal actions are a key part of CERCLA response actions. As an interim step, they reduce threat and potential threats to human health and the environment while allowing the remedial action process to develop for eventual implementation.

Both CERCLA removal and remedial actions are lawful processes authorized by CERCLA Section 104, in response to the determination by DOE, as the lead agency, that there exists a "release or threat of release" of hazardous substances. This EE/CA is for the short term and is not intended to take the place of

the long term, comprehensive RI/FS process. The removal action does not preclude the final remedial action which will allow public comment on the final remedy.

A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series.

Please see the Attachment (Attachment #1) for our detailed comments. The YN ERWM program staff request technical level consultation with DOE/RL. Please contact me to schedule meetings to discuss our comments and resolve our concerns.

Attachment #1: YN ERWM Program Comments on Engineering Evaluation/Cost Analysis for the PUREX Complex, DOE/RL-2016-15 Revision 0

The Treaty Rights of the Yakama Nation and the health of future generations of Yakama Nation members may be seriously and permanently impacted by the "removal actions" proposed for the PUREX Plant complex in the EE/CA. PUREX is a massive plant, over 1,000 feet long, which will pose unique hazards for demolition. However, those hazards are not addressed with the appropriate detail and consideration of alternatives which the Yakama Nation ERWM Program would expect from USDOE, Washington Ecology and US EPA. The use of a "Non-Time Critical Removal Action" (NTCRA), instead of a full-fledged remedial action, deprives the Yakama Nation and public of the opportunity to review detailed investigation results, proposed plans, or alternatives with costs.

Our review of the proposal unveils nothing urgent that justifies use of this short-circuited CERCLA removal action process that would allow USDOE to proceed without the benefit of investigation results, detailed plans and alternatives which the Yakama Nation would normally expect to be able to review and comment on in a remedial action.

Response: CERCLA removal actions are fully authorized under law, and do not "short circuit" the long-term and comprehensive remedial action process. Both removal and remedial actions are authorized under the same statutory provision in Section 104. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

The NCP, 40 CFR 300.415(b)(2), establishes factors to be considered in determining the appropriateness of a removal action. Those factors include the following:

- Hazardous substances or pollutants or contamination in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release. Hazardous substances, including radioactive substances are contained within the PUREX Complex pipes and process vessels. These substances pose a threat of accidental release that may result from equipment failure resulting from a fire or seismic event.
- Other situations or factors are present that may pose threats to public health or the environment. Hazardous substances are present as fixed contamination within the cells, equipment and additional structures. These substances pose a threat of release as fixed contamination becomes exposed and as structural integrity is compromised, resulting in a potential direct exposure of nearby personnel and the environment, and exposure to the public through airborne radioactive contaminants. Degradation may not be fully addressed by S&M activities and the risk of release of hazardous substances will increase as degradation continues or goes undetected.

The Yakama Nation's Treaty rights and interests may be permanently harmed from the spread of further contamination during USDOE's demolition of PUREX and other facilities, as has occurred over the past two years during demolition of the Plutonium Finishing Plant (PFP). To protect those rights, CERCLA

envisions that such demolition will be undertaken after review of detailed alternative plans with tribal and public comment utilizing the remedial action process, not the short-circuited end run of a "removal action."

The Yakama Nation has good reason to be concerned that the potential spread of contamination during demolition of PUREX is a real threat which has not been adequately considered in the EE/CA and that the Yakama Nation will be deprived of its rights to review plans to prevent such contamination if USDOE proceeds using the removal action process.

Response: The PUREX 202A Canyon Building will not undergo demolition under this removal action. The PUREX annexes are the only structures proposed for demolition.

Although PFP was technically challenging, work processes are in place to proceed cautiously and safely. Based on current information at PUREX, the risk profiles between PFP demolition and PUREX ancillary structure demolition are not comparable. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

CERCLA removal actions are fully authorized under law, and do not "short circuit" the long-term and comprehensive remedial action process. Both removal and remedial actions are authorized under the same statutory provision in Section 104. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

The demolition of the Plutonium Finishing Plant demonstrated that USDOE did not plan demolition to prevent the spread of Plutonium contamination over wide areas – covering many square miles. The spread of Plutonium contamination permanently impacted many areas of ceded lands for which our Nation retains rights to use resources, which are critical for our culture. There is no indication that any lessons from demolition of PFP have been incorporated into the PUREX EE/CA in an enforceable manner. Further, PUREX may pose greater risks of contaminant spread than PFP. There are an estimated 7,933 Curies and 1,322 Curies respectively of easily dispersible Plutonium and Americium in the PUREX complex; and, 2,216 Curies Plutonium and 323 Curies Americium in the facility portions that are in the scope of this EE/CA. Table 2-2, page 2-18.

Response: Hazard abatement under this removal action will be conducted to minimize worker exposure and to maximize protection of human health and the environment. The subsequent RAWP will detail work planning and processes to address worker safety and human health and the environment.

Enhanced work practices will be considered based on lessons learned from PFP.

In January 2018, WA Ecology committed to ensure that the PUREX EE/CA would require USDOE to avoid practices that led to the Plutonium spread during PFP demolition and include lessons learned. There are no such conditions included in the EE/CA. There is no discussion of such potential for contamination spread or of lessons learned from the PFP contamination spread in the EE/CA[ii]

Response: The PUREX 202A Canyon Building will not undergo demolition under this removal action. The PUREX annexes are the only structures proposed for demolition.

Although PFP was technically challenging, work processes are in place to proceed cautiously and safely. Based on current information at PUREX, the risk profiles between PFP demolition and PUREX ancillary structure demolition are not comparable. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

The potential for a repeat of releases and spread of Plutonium and other contamination from PUREX, as happened with PFP, is a major concern of the Yakama Nation ERWM in regard to the PUREX EE/CA and inappropriate use of a removal action.

Use of Removal Action Process is Not Appropriate and the Legal Requirements for Removal Action Are Not Met:

USDOE should be proposing a permanent "**Remedial Action**" – which is a CERCLA process that requires far more preparation and tribal and public review.

Use of the "removal action" process is not appropriate. Using a Non-Time Critical Removal Action (NTCRA) process deprives the Yakama Nation and public of the vitally important opportunities to review and comment on plans following sampling to ensure that safer alternative demolition processes are fully considered and adopted (including full disclosure of detailed cost estimates).

Response: A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series.

CERCLA removal actions are fully authorized under law, and do not "short circuit" the long-term and comprehensive remedial action process. Both removal and remedial actions are authorized under the same statutory provision in Section 104. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

The use of a removal action (NTCRA) avoids preparation of a detailed Remedial Investigation/Feasibility Study (RI/FS). Use of the removal action process denies tribes and the public of their rights to review and comment on results of investigations and detailed plans for a full range of alternatives, as we would expect with a remedial action plan.

Response: A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series.

CERCLA removal actions are fully authorized under law, and do not "short circuit" the long-term and comprehensive remedial action process. Both removal and remedial actions are authorized under the same statutory provision in Section 104. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

TPA Milestone M-85-80, requires USDOE to submit a full Remedial Investigation / Feasibility Study (RI/FS) for the full PUREX 202A and Canyon facilities to Ecology by September 30, 2020.[ii] The current proposal for limited removal action and limited EE/CA cannot supplant the full RI/FS and compliance with the TPA major milestone. The YN ERWM are relying on the TPA Milestone M-85-80 and on Ecology's enforcement of this requirement, to ensure that USDOE submits a full RI/FS for the PUREX canyon in just over one year from now.

Response: DOE has the sole authority, pursuant to Executive Order 12580 and CERCLA Section 104, to determine when and how to implement removal actions. See the NCP, 40 CFR 300.

Final cleanup remedies will be evaluated under the full CERCLA remedial action process in accordance with the Tri-Party Agreement Milestone M-085 series.

The legally required conditions to use the short-circuit removal action process instead of a full remedial action are not met for this proposal in any event.

Response: CERCLA removal actions are fully authorized under law, and do not "short circuit" the long-term and comprehensive remedial action process. Both removal and remedial actions are authorized

under the same statutory provision in Section 104. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

Pursuant to 40 CFR § 300.415(b)(2) the lead agency must determine if there is an emergent threat to public health posed by a release.[iii] The threat of release must be "substantial."[iv] The claims made in the EE/CA to justify an emergent threat are not supported in any manner. The agency must also determine that the proposed removal action is consistent with the proposed final remedial action. However, for PUREX, there is no proposed final remedial action plan and no way to determine consistency.

The EE/CA simultaneously says that there is no foreseeable or "anticipated" threat of releases to the environment or to health justifying a removal action, while making unsubstantiated claims of an emergent threat to legally justify a removal action.[v]

Response: DOE has the sole authority, pursuant to Executive Order 12580 and CERCLA Section 104, to determine when and how to implement removal actions. See the NCP, 40 CFR 300.

The NCP, 40 CFR, Section 300.415(b)(2), establishes factors to be considered in determining the appropriateness of a removal action. Those factors include the following:

- Hazardous substances or pollutants or contamination in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release. Hazardous substances, including radioactive substances are contained within the PUREX Complex pipes and process vessels. These substances pose a threat of accidental release that may result from equipment failure resulting from a fire or seismic event.
- Other situations or factors are present that may pose threats to public health or the environment. Hazardous substances are present as fixed contamination within the cells, equipment and additional structures. These substances pose a threat of release as fixed contamination becomes exposed and as structural integrity is compromised, resulting in a potential direct exposure of nearby personnel and the environment, and exposure to the public through airborne radioactive contaminants. Degradation may not be fully addressed by S&M activities and the risk of release of hazardous substances will increase as degradation continues or goes undetected.

Below are the contradictory and unsupported claims for structural failure justifying a Non-Time Critical Removal Action (NTCRA) instead of following the full CERCLA process to develop a Remedial Investigation and Feasibility Study (RI/FS) and propose a range of permanent remedial action options to meet CERCLA standards:

> The PUREX Canyon is adequately monitored by S&M activities; however, there is limited to no coverage in areas that are highly contaminated. In general, the risk of structure failure due to facility degradation would increase over time, and the risk of an accidental release would also increase the longer the structures await the eventual remedial action for the operable unit. Therefore, current conditions present a sufficient threat of release under a continued S&M scenario to justify an NTCRA.

Response: Thank you for your comment.

Section 2.5 Risk Evaluation at page 2-19.

USDOE says continued aging of the structure could result in such an "future unanticipated event." EE/CA at 2-19. **If the threat is "unanticipated", then there isn't a "threat."**

The EE/CA cites the "unanticipated" risk of "structural failure" as a hazard justification for the use of a removal action, instead of developing a remedial action plan. The process for structural failure and timeline are not analyzed. Ecology and EPA should order a structural analysis, including degradation of concrete and structural elements due to high radiation in some areas. The Removal Action proposes expending over $200 million in near term action for a partial demolition to address this "unanticipated" threat, rather than: a) doing a structural integrity study; b) following such a study with a time critical removal action ***if*** there is a risk of failure within a decade or fifteen years. $217 million should be expended only after development of final permanent remedial action plans to ensure consistency of removal / demolition work as required by CERCLA.

Response: Threats addressed under a removal action can be known or unknown/unanticipated. The removal action has been prepared to reduce such threats until a final remedial action has been developed and implemented.

The estimated funding profile includes surveillance and maintenance activities, hazard abatement, and demolition of ancillary structures to the PUREX 202A Building. This funding is prudent to ensure the PUREX Complex is in a safe, environmentally stable condition until the final remedial action has been determined and fully implemented.

Regarding the request for a supplemental structural analysis, DOE, as the lead agency, has the authority to perform a NTCRA under the NCP.

If there are chemical risks, Ecology should order sampling and removal under RCRA / HWMA:

While stating that all tanks and pipes were drained and flushed, the EE/CA claims that threat of release justifying a removal action arises from chemical waste hazards. However, if chemical wastes remain in the tanks and piping, this would be a very serious violation of RCRA and Washington's Hazardous Waste Management Act (HWMA). The appropriate regulatory response should be for Ecology to use its HWMA and RCRA authority to order sampling of the tanks and piping that USDOE says pose a risk – not a CERCLA removal action. The failure to sample these is inexplicable. Hazardous waste law required removal of the wastes from tanks and pipes with flushing within 180 days of when PUREX closed decades ago. If the action is taken by Ecology under RCRA, the Yakama Nation and public would be able to comment and even enforce permit conditions for safe removal. However, under a CERCLA removal action, there is no review or enforcement.

Response: The 1989 Tri-Party Agreement includes a consent order by Ecology, which includes schedules for bringing into compliance facilities that were not regulated by Ecology prior to regulatory amendments of August 19, 1987, that for the first time regulated wastes that are mixtures of dangerous waste and radioactive waste. Dangerous waste management units (DWMUs) in the PUREX complex are managed in accordance with the Tri-Party Agreement.

The pipes and tanks addressed in this removal action are considered past practice and are not considered DWMUs. The draft Rev. 9 PUREX Complex Part A Form identifies the DWMUs. WAC 173-303-610, "Closure and post-closure," is required to be implemented for all RCRA treatment, storage, and disposal (TSD) units and will be conducted separately from this removal action.

The process by which a fire threat would occur is not described to enable review of whether this is a real threat, particularly if Ecology ordered compliance with the legal requirements for USDOE to have removed all flammable, explosive or self-catalytic dangerous wastes decades ago (WAC 173-303-610).

The EE/CA says only one Tank would be removed as a threat under RCRA:

> There is only one Dangerous Waste Management Unit (DWMU) that is planned to be removed as part of this removal action: Tank TK-156, which is located in the 202A West Annex AMU. In accordance with Section 6.0 of the TPA (Ecology et al., 1989a) and WAC 173-303, a closure plan will be prepared for the closure of DWMU Tank TK-156. Ecology will approve the closure plan after the public review and comment period has been completed, and the closure plan will then be included in the Hanford Facility RCRA Permit. Any waste generated under this closure activity will be disposed at ERDF under the authority of this removal action.

Section 1.2, Regulatory Overview at Page 1-3.

In regard to claimed potential chemical release threats from tanks or piping in PUREX, the Yakama Nation ERWM urges the Washington Department of Ecology to take actions to enforce RCRA / HWMA (RCW Chapter 70.105) including ordering sampling and removal of dangerous wastes which were legally required to have been removed decades ago when the facility was shutdown. For all tanks and piping for which USDOE says a chemical hazard may exist, a closure plan and permit modification should be prepared with public review, comment and incorporation into the Hanford permit as described above for TK-156. See discussion below in regard to the requirements of WAC 173-303-610(4).

Response: The pipes and tanks addressed in this removal action are considered past practice and are not considered DWMUs. The draft Part A Form for Rev. 9 for the PUREX Complex indicates the locations of the TSD waste management units. WAC 173-303-610 is required to be implemented for all RCRA TSD units. That will be conducted separate from this removal action.

The only way for the Yakama Nation and public to ensure that lessons learned from the PFP 1997 explosion and 2017 contamination spread are incorporated into work plans is if the closure plans for mixed radioactive and nonradioactive wastes at PUREX are adopted pursuant to the HWMA / RCRA and incorporated into permit conditions (allowing for public review, comment and enforcement).

Response: The remedial action process for 200-CP-1 OU, including the PUREX Complex, will include a proposed plan which will be submitted to the public for review and comment. RCRA and HWMA do not regulate radioactive substances. CERCLA has the authority to address risks related to radioactive substances.

Although PFP was technically challenging, work processes are in place to proceed cautiously and safely. Based on current information at PUREX, the risk profiles between PFP demolition and PUREX ancillary structure demolition are not comparable. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

Enhanced work practices will be considered based on lessons learned from PFP.

USDOE had a legal obligation under Washington's HWMA to remove all dangerous waste (mixed radioactive and nonradioactive wastes) from PUREX, including from tanks, pipelines, gloveboxes, etc. within 90 to 180 days of when USDOE decided that PUREX would be closed and not restarted. WAC 173-303-610(4)[2]

[2] WAC 173-303-610(4) Closure; time allowed for closure.
(a) Within ninety days after receiving the final volume of dangerous wastes, or the final volume of nondangerous wastes if the owner or operator complies with all applicable requirements in (d) and (e) of this subsection, at a

The EE/CA fails to identify self-catalyzing (e.g. hydroxylamine nitrate) or organic chemicals likely to present a serious hazard in Section 2.4. Yet, USDOE asserts that there are unsampled chemical waste risks justifying a removal action.

Response: Under the pre-closure work plan (DOE/RL-95-78, *PUREX Facility Preclosure Work Plan*), removal of dangerous waste was performed to the extent practicable.

Current information does not indicate that any self-catalyzing chemicals remain.

Table 2-3 states that there are "(B)rown stains and white powders originating from Tanks TK-204 and TK-200 respectively." If these are dangerous wastes, the tanks should have been characterized and contents removed years ago. ***The appropriate regulatory response should be for Ecology to issue an order pursuant to the HWMA and RCRA for immediate sampling of the tanks and piping which are the source of stains or white powder, followed by an approved HWMA compliant removal plan if the materials indicate presence of dangerous wastes.***

The presence of brown stains and white powders without analysis does not justify a NTCRA. By definition, this is a "non-time critical" proposed action. Neither a sampling and analysis plan or closure plan is provided. Under RCRA and HWMA, the Yakama Nation and public would be entitled to comment and review of the analysis plan, results and closure plan. None of these vital steps will be available for the Yakama Nation or public under the Removal Action.

Response: This removal action is based on 40 CFR 300.415(b)(2)(i) and (viii).

The pipes and tanks addressed in this removal action are considered past practice and are not considered DWMUs.

The white powder (sodium hydroxide) has been sampled per an approved sampling plan.

The removal action does not preclude the final remedial action, which will allow public comment on the final remedy.

Similar, brown stains and white powders are identified around valves in the Pipe and Operating Gallery. Table 2-3 at page 2-19. This should have resulted in an inspection and order by Ecology to determine if there are illegally remaining residues and liquids or dangerous wastes which were improperly left in the piping following the claimed draining of liquid wastes as part of the legally required removal of all dangerous wastes following shutdown. If the wastes are dangerous waste, then an HWMA enforcement action is the legally appropriate step, coupled with an order for removal. However, approval of a

---

dangerous waste management unit or facility, the owner or operator must treat, remove from the unit or facility, or dispose of on site, all dangerous wastes in accordance with the approved closure plan. The department may approve a longer period if the owner or operator complies with all applicable requirements for requesting a modification to the permit and demonstrates that they have taken and will continue to take all steps to prevent threats to human health and the environment, including compliance with all applicable permit requirements, and either:
The activities required to comply with this paragraph will, of necessity, take longer than ninety days to complete; or
(ii)(A) The dangerous waste management unit or facility has the capacity to receive additional dangerous wastes, or has the capacity to receive nondangerous wastes if the owner or operator complies with (d) and (e) of this subsection; There is a reasonable likelihood that they or another person will recommence operation of the dangerous waste management unit or the facility within one year; and Closure of the dangerous waste management unit or facility would be incompatible with continued operation of the site. The owner or operator must complete partial and final closure activities in accordance with the approved closure plan and within one hundred eighty days after receiving the final volume of dangerous wastes, or the final volume of nondangerous wastes if the owner or operator complies with all applicable requirements in (d) and (e) of this subsection, at the dangerous waste management unit or facility.

CERCLA removal action plan is not appropriate as it bypasses having publicly reviewed sampling plans and review of sampling results before determining how any dangerous wastes will be safely removed.

Response: Waste management is an integral part of CERCLA actions. As a result, the management, including sampling, removal, treatment, and disposal of radioactive waste, will be conducted using pertinent environmental requirements to ensure protection of human health and the environment. Work planning and processes under the RAWP will address these issues.

If chemical hazardous wastes are not anticipated, then there is no justification for the NTCRA. If present, they should have been addressed in legally compliant closure pursuant to RCRA and HWMA provisions. If organic and autocatalytic chemical wastes such as hydroxylamine nitrate and nitric acid solutions remain in violation of HWMA and RCRA, then the appropriate regulatory response would be via an immediate RCRA / HWMA order and compliance action.[3] **However, Table 2-1 "Non-Radioactive Material Inventory" has absolutely no indication of such residual chemicals present.** Nor does the table or EE/CA include the required disclosure of the criteria under which the wastes designated as dangerous wastes. **The identified hazardous substances do not pose a threat of release.** Even the one tank subject to removal and closure under RCRA (Tank 156 in 202-A West) is stated to no longer exceed dangerous waste criteria for pH.

Response: DOE has the sole authority, pursuant to Executive order 12580 and CERCLA Section 104, to determine when and how to implement removal actions. See the NCP, 40 CFR 300.

The EE/CA fails to identify Washington State HWMA RCW Chapter 70.105 and WAC 173-303-610 standards for removal of dangerous wastes from closed facilities, identification of all residual dangerous wastes, permit modification requirements for closure and removal, etc. as ARARS – applicable, relevant and appropriate standards - which are legally required to be met in a CERCLA action. See EE/CA Appendix B.

For all dangerous wastes in facilities covered by the PUREX NTCRA, WAC 173-303-610(3)(a) requires a closure plan identifying the dangerous wastes and specifying the steps to remove and decontaminate, including the pipes, tanks etc. The EE/CA has absolutely no description of inventory or how removal and decontamination will be accomplished. Rather the EE/CA impermissibly says that a plan will be presented to Ecology later in this process. The plan is long overdue.

Response: The pipes and tanks addressed in this removal action are considered past practice and are not considered DWMUs. The draft Rev. 9 PUREX Complex Part A Form identifies the DWMUs. WAC 173-303-610 is required to be implemented for all RCRA TSD units and will be conducted separately from this removal action.

All dangerous wastes were legally required to be removed per HWMA rules which require:

> (iv) A detailed description of the methods to be used during partial closures and final closure, including, but not limited to, methods for removing, transporting, treating, storing, or disposing of all dangerous wastes, and identification of the type(s) of the off-site dangerous waste management units to be used, if applicable;
> (v) A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils

[3] See DOE/EH-0555, 1998, *Technical Report on Hydroxylamine Nitrate* by USDOE, regarding the autocatalytic reaction leading to the PFP explosion, the root cause of which was USDOE's illegal failure to remove the chemical hazardous wastes from PFP within 180 days of the plant's closure.

> during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard;

The required closure plan does not exist. This legal requirement cannot be supplanted by attempting to shoehorn PUREX closure into a CERCLA Removal Action. Removal actions are only permissible when urgency or time considerations justify proceeding without preparing a permanent remedial action plan. Under a remedial action plan, the quantities and plan for how the waste would be removed and treated would be described.

And, indeed, if the TPA is followed, a full RI/FS with the requisite detail of wastes and alternatives for meeting remedial action goals should be delivered in just thirteen months – long before any action proposed in this EE/CA is taken (see discussion M-85-80).

Response: A closure plan for the DWMU under the scope of this EE/CA is currently being prepared for inclusion in Rev. 9 of the RCRA Permit. It is noted that this is a CERCLA NTCRA.

A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series.

The risks from radioactive wastes are not properly described and the risk of radioactive contamination spreading from demolition is not analyzed in the EE/CA.

The N-Cell has an estimated 1,113 Ci of Pu and 160 Ci of Americium, mostly in gloveboxes. The hazard cited to justify the removal action is due to air circulation through the cell. This exemplifies a hazard which should be addressed through a full remedial action plan, for which the public would be able to review and comment in advance on plans to prevent the release of Plutonium. There is no incorporation in the EE/CA of any lessons or new techniques from the contamination spread during demolition of PFP.

Response: A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series.

The PUREX 202A Canyon Building will not undergo demolition under this removal action. The PUREX annexes are the only structures proposed for demolition.

Although PFP was technically challenging, work processes are in place to proceed cautiously and safely. Based on current information at PUREX, the risk profiles between PFP demolition and PUREX ancillary structure demolition are not comparable. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

Enhanced work practices will be considered based on lessons learned from PFP.

There is no discussion in the EE/CA of whether tenting will be utilized to prevent the spread of airborne contamination. Nor is there any discussion of meeting Best Management Practices for other demolition and construction activities in Washington for storm water runoff, in order to prevent contaminant spread in the liquid sprayed on to suppress dust or affix contamination or from precipitation. If USDOE was proceeding via a CERCLA remedial action with an RI/FS, these plans would be described for review and comment in advance.

Response: Hazard abatement under this removal action will be conducted to minimize worker exposure and to maximize protection of human health and the environment. The RAWP will detail work planning and processes to address worker safety and human health and the environment.

Final cleanup remedies will be evaluated under the full CERCLA remedial action process in accordance with the Tri-Party Agreement Milestone M-085 series.

The Yakama Nation's Treaty rights and interests may be permanently harmed from the spread of further contamination during USDOE's demolition of PUREX and other facilities, as has occurred over the past two years during demolition of the Plutonium Finishing Plant (PFP).

Response: The PUREX 202A Canyon Building will not undergo demolition under this removal action. The PUREX annexes are the only structures proposed for demolition. Although PFP was technically challenging, work processes are in place to proceed cautiously and safely. Based on current information at PUREX, the risk profiles between PFP demolition and PUREX ancillary structure demolition are not comparable. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment. Enhanced work practices will be considered based on lessons learned from PFP.

To protect those rights, CERCLA envisions that such demolition will be undertaken after review of detailed alternative plans with tribal and public comment utilizing the remedial action process, not the short-circuited end run of a "removal action."

Response: Both CERCLA removal and remedial actions are lawful processes authorized by CERCLA Section 104, in response to the determination by DOE, as the lead agency, that there exists a "release or threat of release" of hazardous substances. This EE/CA is for the short-term and is not intended to take the place of the long-term comprehensive RI/FS process. The removal action does not preclude the final remedial action which will allow public comment on the final remedy.

CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

The Yakama Nation ERWM Has Serious Concerns Over the Cost Estimated for the Proposed Preferred Removal Action and How the High Cost Conflicts With Other Hanford Cleanup Priorities of the Yakama Nation:

Response: There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor. Unfortunately, funding does not support all cleanup activities simultaneously.

USDOE proposes to spend $217.7 million to demolish 202A East and West Annexes and prepare the remainder for demolition under its Preferred Alternative 4. This is proposed at the same time that USDOE and the Trump Administration have proposed to cut Hanford cleanup funding by over $400 million for the coming fiscal year and failed to provide the Yakama Nation, regulators and public with any proposed funding levels for any Hanford cleanup work in FY 2021, in violation of TPA requirements. How does spending $217.7 million on demolition of a facility that has no time critical threat align with the Yakama Nation's priorities for Hanford cleanup? Or, with Washington State's? $217 million would empty leaking High Level Waste tanks or fully remove the residual contamination immediately alongside the Columbia River at B- C, N and F Reactor areas where the Yakama Nation has objected to USDOE's cost based plans to leave contamination in place.

Response: DOE considers the expressed views of Ecology and the Yakama Nation about priorities for cleanup. Nevertheless, DOE as the lead CERCLA agency, is tasked with making the final determination about such priorities.

The cost claims are utterly unsupported in the EE/CA. The estimated cost for the full demolition alternative is only $40 million more than the alternative for Surveillance and Maintenance combined with immediate hazard removal (which might be justifiable but should mostly be done under RCRA). This implies that the higher costs of safe demolition, without repeating mistakes from the smaller PFP demolition, have not been incorporated into the plans. The removal of material from highly contaminated areas in Alternative 4 coupled with demolition is likely to cost far more than the $40 million increment presented. This increases the concern of the Yakama Nation ERWM over the choice to prioritize the PUREX Plant removal action over other high priority cleanup actions. An RI/FS would have to present detailed cost estimates, unlike this EE/CA.

Response: The PUREX 202A Canyon Building will not undergo demolition under this removal action. The PUREX annexes are the only structures proposed for demolition. Demolition activities associated with this removal action will augment the final remedial action for the 200-CP-1 OU.

Although PFP was technically challenging, work processes are in place to proceed cautiously and safely. Based on current information at PUREX, the risk profiles between PFP demolition and PUREX ancillary structure demolition are not comparable. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor. Unfortunately, funding does not support all cleanup activities simultaneously.

In conclusion, the Yakama Nation ERWM objects to the unjustified use of a "removal action" for PUREX. Use of a removal action instead of a planned remedial action short circuits the CERCLA process and denies the Yakama Nation its legally protected opportunities to review investigation results, detailed plans and alternatives to the proposed action. If chemical waste hazards exist in pipes and tanks, Ecology should be taking enforcement actions and ordering sampling and removal of wastes (as Ecology has done for the white powder on surfaces).

Likewise, if claims of structural failure are to be given credence, then USDOE has had years to perform a structural integrity study instead of proposing to spend over $217 million based on the "unanticipated" failure. A structural analysis would be an expected element for a full RI/FS to provide a sound basis for analyzing safe demolition alternatives. The EE/CA and removal action process fails to provide detailed plans describing how a repeat of Plutonium contamination spread from the demolition of PFP will be prevented.

There are many high priority sites adjacent to the Columbia River and its shorelines for which USDOE proposes to leave contamination in place citing the cost of removal. Leaving those wastes along the shorelines impact the Yakama Nation's members' Treaty rights to live along and utilize the shorelines. If the $217 million for the PUREX removal action is not justified by realistic threats of release, this removal action will divert funds from higher priority cleanup actions.

Response: Thank you for your comment. CERCLA removal actions are fully authorized under law, and do not "short circuit" the long-term and comprehensive remedial action process. Both removal and remedial actions are authorized under the same statutory provision in Section 104. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

The PUREX 202A Canyon Building will not undergo demolition under this removal action. The PUREX annexes are the only structures proposed for demolition. Although PFP was technically challenging, work processes are in place to proceed cautiously and safely. Based on current information at

PUREX, the risk profiles between PFP demolition and PUREX ancillary structure demolition are not comparable. The RAWP will delineate how work will be implemented to be protective of human health and the environment. Enhanced work practices will be considered based on lessons learned from PFP.

It is recognized that funding uncertainties continue to be a concern at the Hanford Site. Funding does not support single shell tanks, river corridor cleanup, and canyon RI/FS activities simultaneously. This removal action presents a middle ground. DOE will request appropriate funds for this removal action.

Commenter 34: Heart of America Northwest

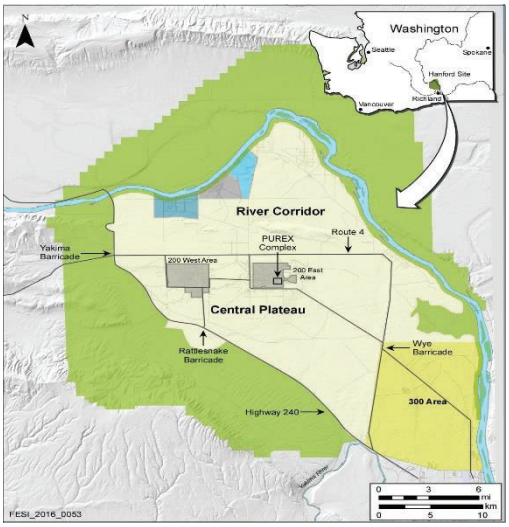
Dear USDOE, EPA and Ecology,

Attached are extensive comments of Heart of America Northwest on the PUREX EE/CA and removal action.

Some of our comments are made to Ecology and EPA as regulators and in their respective roles in regard to authority to approve or disapprove of a removal action or clearly inadequate EE/CA. We look forward to dialogue and responses from Ecology and EPA apart from the joint TPA response.
The following is the attachment from Heart of America Northwest

Heart of America Northwest, Heart of America Northwest Research Center Comments on USDOE's Hanford PUREX Plant partial demolition "Removal Action" EE/CA

(submitted *to PUREX_EECA@RL.gov: PUREX_EECA@RL.gov by August 17, 2019*)



USDOE is proposing to demolish portions of the massive Plutonium Uranium Extraction Plant (PUREX). Will it be safe? The proposal is in the Engineering Evaluation and Cost Analysis (**EE/CA**) report issued under a Superfund law (CERCLA) process called a "**Removal Action**."

We requested USDOE extend the comment period 30 days to enable tribes and organizations to review documents, prepare comments and provide the public with a Guide to commenting. USDOE only extended the comment period 15 days - the minimum allowed by law – despite USDOE having taken years to issue this. USDOE spent four years fighting an order from Washington Dept. of Ecology to remove the "white powders" that USDOE cites as the basis for urgency justifying use of a "removal action." The public deserved more time and meetings for meaningful public involvement. Why wasn't it given?

Summary of Our Strong Concerns:

1) The EE/CA fails to address major safety concerns over demolition. USDOE has failed to provide any plan to avoid repeating the disastrous large-scale spread of Plutonium during the 2017 demolition of PFP;

Response: The PUREX 202A Canyon Building will not undergo demolition under this removal action. The PUREX annexes are the only structures proposed for demolition.

Although PFP was technically challenging, work processes are in place to proceed cautiously and safely. Based on current information at PUREX, the risk profiles between PFP demolition and PUREX ancillary structure demolition are not comparable. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

2) CERCLA does not allow for this major decision with serious potential risks to be made using an EE/CA and "removal action" plan. The EE/CA and "removal action" are an end-run around, and short circuit of, the full CERCLA remedial action process with a detailed remedial investigation and feasibility study (RI/FS). Using the removal action process deprives the public of our rights to review detailed plans and alternatives to ensure work is done safely without repeating the disastrous spread of contamination during demolition of PFP;

Response: Both CERCLA removal and remedial actions are lawful processes authorized by CERCLA Section 104, in response to the determination by DOE, as the lead agency, that there exists a "release or threat of release" of hazardous substances. This EE/CA is for the short term and is not intended to take the place of the long-term, comprehensive RI/FS process. The removal action does not preclude the final remedial action which will allow public comment on the final remedy.

3) The EE/CA fails to document the basis for the $217 million cost or to provide even the most rudimentary timeline for the work. These are fundamental requirements for an EE/CA;

Response: There are many unknowns and assumptions that resulted in the cost basis (+50%/-30%) and the funding uncertainly does not support a detailed timeline for the work. An environmental cost estimate was developed for this EE/CA (ECE-200E15-00005).

4) USDOE has repeatedly said there is no near term risk of releases from PUREX. Washington Ecology has already ordered the removal of "white powder" dangerous waste residues, so a CERCLA "removal action" is not needed to do this. On the other hand, ***we are urging Washington Ecology to issue enforceable orders for USDOE to sample chemical residues remaining in pipes*** which are the source of the "white powder;" ***and, to use state hazardous waste law authority to order removal of any dangerous wastes***. Failing to sample and remove before dismantling equipment and demolishing portions of the plant will increase the dangers.

Response: We agree that the EE/CA does not address sampling and removing waste. This EE/CA provides the proper risk evaluation based on currently available information. The subsequent RAWP will delineate the plan for sampling and removing waste.

5) We question spending $217 million on demolishing portions of PUREX as a priority when urgent priorities, such as emptying recently leaking Single Shell High Level Waste tanks or cleanup of contaminated soil along the River, are not proposed to be funded by USDOE. This concern is exacerbated by USDOE's recent failure to comply with TPA requirements to disclose proposed funding and work plans during the public comment period on USDOE's FY 2021 and out-years' budget and work plans (the comment period ran through June 15, 2019);

Response: It is recognized that funding uncertainties continue to be a concern at the Hanford Site. Unfortunately, funding does not support single shell tanks, river corridor cleanup, and canyon RI/FS activities simultaneously. Concerns with setting priorities under the Tri-Party Agreement may be pointed out during milestone public comment period for these activities.

a. We also question if Ecology and EPA intend to allow USDOE to miss the TPA milestone which requires USDOE to submit a full Remedial Investigation and Feasibility Study for the entire PUREX Complex by September 30, 2020, and the milestone for work to begin that work within the next six years.[vi]

Response: A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series.

The EE/CA should be rejected. Attempts to use a removal action should end. USDOE should be held to submit a full RI/FS in just over a year for the same facilities as required by TPA milestone M-85-80.

Response: Both CERCLA removal and remedial actions are lawful processes authorized by CERCLA Section 104, in response to the determination by DOE, as the lead agency, that there exists a "release or threat of release" of hazardous substances. This EE/CA is for the short term and is not intended to take the place of the long-term, comprehensive RI/FS process. The removal action does not preclude the final remedial action which will allow public comment on the final remedy. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site. Final cleanup remedies will be evaluated under the full CERCLA remedial action process in accordance with the Tri-Party Agreement Milestone M-085 series.

Ecology should use its hazardous waste law authority to ensure white powders are removed per its existing (and hard fought) order; and, issue new orders for sampling all piping for dangerous wastes, starting with piping from which white powders emanated, and for removing all dangerous wastes on an enforceable timeline. A structural analysis of PUREX should be part of the RI/FS process to ensure demolition is done safely.

Response: The white powder (sodium hydroxide) has been sampled and will be removed.

The PUREX annexes are the only structures proposed for demolition. During the work planning process, ancillary structure demolition will be evaluated by a structural engineer to ensure structural integrity of the 202A Building.

USDOE has no documentation on which to claim that "unanticipated" structural failure justifies a removal action. This claim is further undermined by USDOE's lack of funding and schedule plans in the EE/CA for any of the activities proposed.

Response: DOE has the sole authority, pursuant to Executive Order 12580 and CERCLA Section 104, to determine when and how to implement removal actions. See the NCP, 40 CFR 300.

The NCP, 40 CFR 300.415(b)(2), establishes factors to be considered in determining the appropriateness of a removal action. Those factors include the following:

- Hazardous substances or pollutants or contamination in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release. Hazardous substances, including radioactive substances are contained within the PUREX Complex pipes and process vessels. These substances pose a threat of accidental release that may result from equipment failure resulting from a fire or seismic event.
- Other situations or factors are present that may pose threats to public health or the environment. Hazardous substances are present as fixed contamination within the cells, equipment and additional structures. These substances pose a threat of release as fixed contamination becomes exposed and as structural integrity is compromised, resulting in a potential direct exposure of nearby personnel and the environment, and exposure to the public through airborne radioactive contaminants. Degradation

may not be fully addressed by S&M activities and the risk of release of hazardous substances will increase as degradation continues or goes undetected.

Funding uncertainties preclude the development of a detailed schedule for this removal action. The follow-on remedial action will have a more detailed schedule.

How do we prevent a repeat of the disastrous spread of Plutonium from demolition of the Plutonium Finishing Plant during demolition of PUREX?

In 2017, Plutonium was spread over many square miles during demolition of the Plutonium Finishing Plant. How do we prevent a repeat during demolition of PUREX? Plutonium was detected 3 miles away at Highway 240 and on workers' cars after being driven home.

An EE/CA is supposed to include a description of similar removal actions and appropriate lessons. Rather than describing the disastrous spread of Plutonium from PFP in 2017, and having detailed plans for public review on how this will not be repeated at PUREX, USDOE's EE/CA calls the demolition of PFP a "demonstrated success."[vii]

Response: The PUREX 202A Canyon Building will not undergo demolition under this removal action. Although PFP was technically challenging, work processes are in place to proceed cautiously and safely. Based on current information at PUREX, the risk profiles between PFP demolition and PUREX ancillary structure demolition are not comparable. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

A full RI/FS using the remedial action process would ensure that the public and tribes are able to review and comment on detailed analyses of the contamination in PUREX and alternative methods to remove contamination and demolish facilities.

Response: A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series.

Ironically, the TPA agencies agreed just three years ago (May, 2016) to require USDOE to submit a full RI/FS work plan under the full CERCLA remedial action process for all facilities in the PUREX complex by September 30, 2020, and to begin work by September 30, 2025.[viii] Authorizing work without any of the detailed analyses of wastes, safety measures, alternatives and costs which are required to be in a RI/FS makes no sense. This looks like an end-run around that requirement, particularly since USDOE's December 7, 2018 transmittal letter of the EECA says that USDOE has no dedicated funds to carry out removal actions under the EECA and hopes to find $15-$30 million over the next fifteen years.[ix] USDOE's cover letter utterly undermines its ability to claim that there is a time justification to use a "removal action."

Aerial view of PUREX facilities. 202A Canyon with East and West Annexes (blue) is >1,000 feet long. The proposal covered in the EE/CA is for demolition of the annexes and demolition preparation for areas within the canyon. The scope of work does not include the PUREX tunnels or High Level Waste Tanks which took the waste that resulted from melting down reactor fuel rods in nitric acid and other chemicals in PUREX to extract Plutonium and Uranium for nuclear weapons.

USDOE may not legally use the short-circuit CERCLA "removal" action process with EE/CA for PUREX instead of the full CERCLA "remedial" action process with much more detailed RI/FS:

USDOE's effort to shoe-horn demolition of PUREX 202-A East and West annexes and carry out undefined demolition preparation in the 202-A Canyon facility is not permitted by CERCLA. The "**removal**" action short-circuits all public and tribal review of plans for work which has been

demonstrated to be very dangerous. That is why CERCLA requires use of the full "**remedial" action process**, including a much more detailed Remedial Investigation and Feasibility Study (RI/FS), when specific actions are not documented to be time sensitive and there is no on-going release or "immediate," "imminent" or "substantial" "threat of release."

Response: CERCLA removal actions are fully authorized under law, and do not "short circuit" the long-term and comprehensive remedial action process. Both removal and remedial actions are authorized under the same statutory provision in Section 104. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

Nor does use of the removal action and EE/CA meet the requirements of the TPA, which has a milestone for submission of a full RI/FS in just thirteen months. M-85-80 requires submission of a full RI/FS work plan for 200-CP-1 by 9/30/20. 200-CP-1, the unit covered by the milestone, includes 202-A and the PUREX Canyon.[x]

Response: Your comment is noted. Final cleanup remedies will be evaluated under the full CERCLA remedial action process in accordance with the Tri-Party Agreement Milestone M-085 series.

Milestone M-85-82 is a more generic milestone requiring that either a remedial or removal action work plan be submitted for either a Tier 1 or a Tier 2 unit within the geographic scope of PUREX by December 30, 2017.

Response: This EE/CA provided the proposal for a response action as required by the subject milestone M-85-82 for a Tier 1 structure in the PUREX geographic area listed in the Tri-Party Agreement Appendix J.

If Ecology and EPA intend to enforce the M-85-80 Milestone it makes no sense to adopt a much more limited removal action and EE/CA for a portion of the facility to be covered by a much more detailed RI/FS due in one year and one month.

Use of a "removal action" under CERCLA requires either an on-going release or an "imminent" and "substantial" threat of release, as we detail below and would repeat in briefing to challenge use of a "removal action" for the work described in the EE/CA for Alternative 4.

Response: The NCP, 40 CFR 300.415(b)(2), establishes factors to be considered in determining the appropriateness of a removal action. Those factors include the following:

- Hazardous substances or pollutants or contamination in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release. Hazardous substances, including radioactive substances, are contained within the PUREX Complex pipes and process vessels. These substances pose a threat of accidental release that may result from equipment failure resulting from a fire or seismic event.

- Other situations or factors are present that may pose threats to public health or the environment. Hazardous substances are present as fixed contamination within the cells, equipment, and additional structures. These substances pose a threat of release as fixed contamination becomes exposed and as structural integrity is compromised, resulting in a potential direct exposure of nearby personnel and the environment, and exposure to the public through airborne radioactive contaminants. Degradation may not be fully addressed by S&M activities and the risk of release of hazardous substances will increase as degradation continues or goes undetected.

Threats addressed under a removal action can be potential or imminent. The removal action has been prepared to reduce such threats until a final remedial action has been developed and implemented.

DOE has the sole authority, pursuant to Executive Order 12580 and CERCLA Section 104, to determine when and how to implement removal actions. See 40 CFR 300."

USDOE clearly understands that it must show that there is a real time sensitive threat of release to justify the use of a removal action and the short-circuit of the full remedial action process with full RI/FS.

Response: CERCLA removal actions are fully authorized under law, and do not "short circuit" the long-term and comprehensive remedial action process. Both removal and remedial actions are authorized under the same statutory provision in Section 104. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

The EE/CA simultaneously claims there is no real risk justifying a removal action, while having to claim there is some form of emergent threat to legally justify a removal action.[xi]

a. The first set of threats claimed are from chemical waste hazards from "white powder" found on surfaces. However, if chemical wastes remain in the tanks and piping, this would be a very serious violation of RCRA and HWMA. As we discuss in the following section, USDOE was legally required to empty and remove all dangerous wastes from pipes and tanks within 180 days of its decision that the PUREX plant would never resume Plutonium production – over 25 years ago.[xii] The appropriate regulatory response should be for Ecology to use its HWMA and RCRA authority to order sampling of the tanks and piping that USDOE says pose a risk – not a CERCLA removal action. The failure to sample these is inexplicable. If the action is taken by Ecology under RCRA, the Yakama Nation and public would be able to comment and even enforce permit conditions for safe removal. However, under a CERCLA removal action, there is no review or enforcement.

Response: Thank you for your comment. Please keep in mind that this interim CERCLA action supports mitigation of hazards within the PUREX Complex, which includes sampling of pipeline hazards as needed to support potential removal.

i. USDOE admitted in its briefings and submissions to the Washington Pollution Control Hearings Board (PCHB) that the source of the "white powder" now cited in the EE/CA as the potential release justifying a removal action was residues left in piping and inadequately flushed.

The Pollution Control Hearing Board found, as Ecology asked,

> "The Board concludes, based on undisputed facts, that the white powder is solid waste generated by the Appellants."

PCHB Order 17-084 at 15.

The source of the white powder was acknowledged by USDOE to be residues in the piping. PCHB Order at 14:

> "Appellants explain that the white powder is the result of the chemical breakdown of sodium hydroxide, which was used in a water flush applied by Energy's contractors during the deactivation process in the l 990s. Some flushing solution remained in the pipes, the water in the solution evaporated over time, and sodium hydroxide was left behind and fell to the floor under the chemical process lines. Appellants' Motion pp. 5, 6, Ruck Deel., p. 2. The Board concludes that based on Appellants' own

representations of what occurred to create the white powder, the Appellants generated the white powder."

Table 2-3 states that there are "(B)rown stains and white powders originating from Tanks TK-204 and TK-200 respectively."

The white powder was generated in PUREX. It is a dangerous waste. USDOE admits it originated from tanks and piping. We're asking for sampling of the sources for the powder, which are dangerous waste (the EE/CA fails to disclose this). Thus, Ecology has full authority to order sampling and designation of the wastes in pipes and tanks, which are the precursor chemical source of the powder residues. ***Ecology must order sampling and removal of any dangerous wastes remaining in the tanks and piping under its HWMA and RCRA authority.*** The EE/CA has no indication that USDOE even contemplates this work in coming years.

Response: DOE intends to fund this activity in the near term. The removal activity will begin after issuance of the AM, which is anticipated in 2019.

ii. USDOE repeatedly claimed in its objections to the Department of Ecology's Order and penalty regarding the white powder that the powder posed no threat.

For over three years, USDOE refused to follow Ecology's order to sample and designate the white powder and remove it, including taking the time to appeal the order and penalty to the PCHB.

USDOE cannot claim now that the white powder presents an urgent, time sensitive and imminent threat justifying a removal action when it fought tooth and nail against an order to sample and remove the white powder.

Response: DOE is not claiming an urgent, time sensitive, and imminent threat. The EE/CA proposes a NTCRA.

iii. Further, the presence of "white powder" in 202-A cannot justify a removal action whose primary work scope is demolition of the annexes – where there is no white powder.

Response: The EE/CA evaluates a broader approach than just white powder to support Milestone M-85-82.

iv. The process by which a fire threat would occur is not described to enable review of whether this is a real threat. The only credible hypothetical for the fire threat is from a self-catalyzing chemical reaction involving waste remaining in pipes or tanks or exposure of ignitable and flammable dangerous wastes remaining in pipes or tanks. USDOE does not even discuss the potential for such wastes to remain (e.g., hydroxylamine nitrate and "red oil" dangerous wastes which USDOE used in PUREX).

If Ecology orders compliance with the legal requirements for USDOE to sample all pipes and tanks to ensure all flammable, explosive or self-catalytic dangerous wastes are removed (as should have been done decades ago pursuant to WAC 173-303-610), then this hypothetical fire hazard would not exist. In any event, USDOE does not claim that this risk exists, so it cannot justify a removal action, rather than proceeding under a remedial action with full RI/FS following characterization of wastes and presenting fully described plans.

Response: Under the pre-closure work plan (DOE/RL-95-78), removal of dangerous waste was performed to the extent practicable.

Current information does not indicate that any self-catalyzing chemicals or "red oil" remain.

b. Secondly, the EE/CA cites the risk of "structural failure" as a hazard justification for the use of a removal action, instead of developing a remedial action plan. The process for structural failure and timeline are not analyzed in the EE/CA. Indeed, **there is absolutely no factual basis for asserting that structural failure is a time sensitive anticipated risk justifying use of the short-circuit removal action process**.

   USDOE repeatedly classifies the risk of structural failure as "**unanticipated**" (EE/CA at 2-19, 2-20). If a risk is NOT ANTICPATED, and no analysis has been done documenting when or how It may occur, then it fails to meet the clear legal test for authorizing a removal action. Those legal tests are that the threat of release is "imminent" and "substantial." An "unanticipated" event is not "imminent," it is not "substantial," it is not "immediate:" and it cannot justify use of a "removal action" rather than going through the full remedial action process with RI/FS.

   This is the contradictory and unsupported claim for structural failure justifying a Non-Time Critical Removal Action (NTCRA) instead of following the full CERCLA process to develop a Remedial Investigation and Feasibility Study (RI/FS) and propose a range of permanent remedial action options to meet CERCLA standards:

   > "While current S&M activities adequately monitors the PUREX Canyon, continued aging of the structure could result in a future unanticipated event."

Response: The structural integrity evaluation will be performed as part of the RI/FS process.

The NCP, 40 CFR 300.415(b)(2), establishes factors to be considered in determining the appropriateness of a removal action. Those factors include the following:

- Hazardous substances or pollutants or contamination in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release. Hazardous substances, including radioactive substances are contained within the PUREX Complex pipes and process vessels. These substances pose a threat of accidental release that may result from equipment failure resulting from a fire or seismic event.
- Other situations or factors are present that may pose threats to public health or the environment. Hazardous substances are present as fixed contamination within the cells, equipment and additional structures. These substances pose a threat of release as fixed contamination becomes exposed and as structural integrity is compromised, resulting in a potential direct exposure of nearby personnel and the environment, and exposure to the public through airborne radioactive contaminants. Degradation may not be fully addressed by S&M activities and the risk of release of hazardous substances will increase as degradation continues or goes undetected.

A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series.

EE/CA Section 2-5 at 2-19

> "The PUREX Canyon is adequately monitored by S&M activities; however, there is limited to no coverage in areas that are highly contaminated. In general, the risk of structure failure due to facility degradation would increase over time, and the risk of an accidental release would also increase the longer the structures await the eventual

> remedial action for the operable unit. Therefore, current conditions present a sufficient threat of release under a continued S&M scenario to justify an NTCRA."

Section 2.5 Risk Evaluation at page 2-20.

Ecology and EPA could easily order a structural analysis, including degradation of concrete and structural elements due to high radiation in some areas. The Removal Action proposes expending over $217.7 million in near term action for a partial demolition to address this "unanticipated" threat.

USDOE should be performing a structural analysis to support a full remedial action RI/FS in order to determine the best alternatives for demolition. If a structural analysis showed an urgent threat, then revising the remedial action plan would be warranted. That feasibility study is currently required to be submitted already in just thirteen months pursuant to TPA milestone M-85-80.

Instead of spending a relatively small sum now on a structural analysis, USDOE is attempting to justify spending $217.7 million on the basis of a structural threat without any structural analysis.

"A future unanticipated event" includes if PUREX were hit by a meteorite. If "future unanticipated events" were legal justification for removal actions, we would only have removal actions and Congress would not have made remedial actions the norm. Congress reserved remedial actions for when, as federal courts have repeatedly found, there is an immediate, time-sensitive, urgent or imminent threat which is "substantial."

Response: The NCP, 40 CFR 300.415(b)(2), establishes factors to be considered in determining the appropriateness of a removal action. Those factors include the following:

- Hazardous substances or pollutants or contamination in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release. Hazardous substances, including radioactive substances are contained within the PUREX Complex pipes and process vessels. These substances pose a threat of accidental release that may result from equipment failure resulting from a fire or seismic event.

- Other situations or factors are present that may pose threats to public health or the environment. Unanticipated events have occurred which possess a potential threat to support a NTCRA. A removal action supports the most conservative range of remedial action options. Independent of the proposed NTCRA, the final PUREX remedy will be determined though the RI/FS process in accordance with the Tri-Party Agreement.

  CERCLA and Executive Order 12580 assigned to DOE the responsibility to make judgments about the risks presented by hazardous substances. The removal action is a proactive step to prevent release of hazardous substances to the environment. If the structural integrity is compromised, DOE would take immediate action to address the issue, which includes potential stabilization efforts.

Removal actions have been repeatedly found to be limited to temporary measures consistent with the statutory definition which lists different "actions as may be necessary to prevent, minimize, or mitigate damage to the public health or welfare or to the environment, which may otherwise result from a release or threat of release." 42 USC 9601(23).

The 2d Circuit Court in *NY v Next Millenium* provided this detailed support for its holding that removal actions are limited to "immediate" threats:

> Removal actions are clean-up or removal measures taken to respond to immediate threats to public 125*125 health and safety. 42 U.S.C. § 9601(23)[7]; see also *Minnesota v. Kalman W. Abrams Metals, Inc.,* 155 F.3d 1019, 1024 (8th Cir. 1998) (removal actions are those "taken to counter imminent and substantial threats to public health and welfare"); *United States v. W.R. Grace & Co.,* 429 F.3d 1224, 1244 (9th Cir.2005) ("Courts have … stressed the immediacy of a threat in deciding whether a cleanup is a removal action." (collecting cases)). *Accord* Memorandum from Stephen Luftig, Director, Office of Emergency and Remedial Response, Use of Non-Time Critical Removal Authority in Superfund Response Actions, to Regions I-X Program and Legal Division Directors (Feb. 14, 2000) (emphasizing immediate nature of removal actions), available at http://www.epa.gov/ superfund/policy/remedy/pdfs/memofeb 2000-s.pdf (the "EPA Guidance").[8

New York v. Next Millenium Realty, LLC, 732 F. 3d 117, US Court of Appeals, 2nd Circuit 2013; at 124, 125.

40 CFR § 300.415 (b)(2) requires the lead agency to document a time-sensitive ("immediate") threat to public health posed by a release in order to proceed with a removal action.[xiii] As discussed in these comments, the claims made in the EE/CA to justify a time-sensitive, urgent threat are not supported. The agency must also determine that the proposed removal action is consistent with the proposed final remedial action. However, for PUREX, there is no proposed final remedial action plan and no way to determine consistency

Demolition of a facility that poses no immediate, anticipated or definable threat of release to the environment, and which constitutes a permanent action, is not within the allowable scope of "removal" actions rather than a permanent remedial action.

Response: The PUREX Complex does pose a potential threat of release of both hazardous and radiological material to support this NTRCA. The NCP, 40 CFR 300.415(b)(2), establishes factors to be considered in determining the appropriateness of a removal action. Those factors include the following:

- Hazardous substances or pollutants or contamination in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release. Hazardous substances, including radioactive substances are contained within the PUREX Complex pipes and process vessels. These substances pose a threat of accidental release that may result from equipment failure resulting from a fire or seismic event.
- Other situations or factors are present that may pose threats to public health or the environment. Hazardous substances are present as fixed contamination within the cells, equipment and additional structures. These substances pose a threat of release as fixed contamination becomes exposed and as structural integrity is compromised, resulting in a potential direct exposure of nearby personnel and the environment, and exposure to the public through airborne radioactive contaminants. Degradation may not be fully addressed by S&M activities and the risk of release of hazardous substances will increase as degradation continues or goes undetected.

DOE has the sole authority, pursuant to Executive Order 12580 and CERCLA Section 104, to determine when and how to implement removal actions. See the NCP, 40 CFR 300.

USDOE's failure to provide a legally required schedule (see section below) for any of the proposed actions in Alternative 4 of the EE/CA, combined with USDOE's formal transmittal letter which loosely commits USDOE to only expending $1 to $2 million a year for fifteen years to carry out the EE/CA Alternative 4 work,[xiv] totally undermines any ability of USDOE to claim that it may proceed with a

removal action, rather than a remedial action following a full RI/FS, for the work loosely proposed in the EE/CA.

Response: Funding uncertainties preclude the development of a detailed schedule for this removal action. The follow-on remedial action will have a more detailed schedule.

In sum, Ecology and EPA cannot legally approve the use of a removal action based on a meager EE/CA for demolition of portions of PUREX and demolition preparation for decks in the 202-A Canyon of PUREX. **USDOE should be required to submit a full RI/FS for this work, including detailed work plans** (and how chemical wastes will be safely removed and how demolition will be done to avoid repeating the spread of Plutonium), timelines, documented costs and full consideration of alternatives.

Response: DOE has the sole authority, pursuant to Executive Order 12580 and CERCLA Section 104, to determine when and how to implement removal actions. See the NCP, 40 CFR 300.

CERCLA removal actions are fully authorized under law, and do not "short circuit" the long-term and comprehensive remedial action process. Both removal and remedial actions are authorized under the same statutory provision in Section 104. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series.

USDOE attempts to justify use of the short-circuit removal action process and EE/CA, which requires that a threat of release be "immediate" and "substantial," by saying that a "future unanticipated event" meets this test. ***If the threat is "unanticipated", then there isn't a "threat." "Unanticipated" threats are neither "immediate" or "substantial."***

Response: CERCLA removal actions are fully authorized under law, and do not "short circuit" the alternative, long-term and comprehensive remedial action process. Both removal and remedial actions are authorized under the same statutory provision in Section 104. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

The NCP, 40 CFR 300.415(b)(2), establishes factors to be considered in determining the appropriateness of a removal action. Those factors include the following:

- Hazardous substances or pollutants or contamination in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release. Hazardous substances, including radioactive substances are contained within the PUREX Complex pipes and process vessels. These substances pose a threat of accidental release that may result from equipment failure resulting from a fire or seismic event.
- Other situations or factors are present that may pose threats to public health or the environment. Hazardous substances are present as fixed contamination within the cells, equipment and additional structures. These substances pose a threat of release as fixed contamination becomes exposed and as structural integrity is compromised, resulting in a potential direct exposure of nearby personnel and the environment, and exposure to the public through airborne radioactive contaminants. Degradation may not be fully addressed by S&M activities and the risk of release of hazardous substances will increase as degradation continues or goes undetected.

The US Department of Energy's Engineering Evaluation/Cost Analysis (EE/CA) for the PUREX Complex does not meet the legally applicable requirements for an EE/CA from EPA Guidelines.

Response: This EE/CA was developed using EPA NTCRA guidelines applying a graded approach.

The lack of releases and substantial or imminent threat of releases from the facilities in the scope of the PUREX EE/CA require that USDOE follow the full remedial action process under CERCLA. The test for using a short-circuit removal action is not met for the work proposed in the EE/CA, which does not even have a timeline or funding plan, as described in other sections of our comments. However, USDOE failed to meet the most basic legal requirements for an EE/CA, even if it were legally permissible to use the removal action process and an EE/CA.

The Engineering Evaluation/Cost Analysis (EE/CA) for the PUREX Complex does not include required elements for an EE/CA under EPA guidelines.[4] The US Department of Energy (USDOE) is required to follow these guidelines as the lead agency under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).[5] The underlying question is whether there is a legal standard for an EE/CA and if USDOE has complied with that standard. The fact that prior EE/CAs from USDOE may have also ignored EPA guidelines, is not a defense against USDOE's noncompliance for the PUREX plant.

The EPA's guidelines for conducting non-time-critical removal actions under CERCLA are clear and require a level of detail that USDOE has not even come close to including in the EE/CA for the PUREX Complex in six key ways:

1. The EE/CA does not adequately describe previous removal actions at the site;
2. The EE/CA does not include a schedule;

---

4 Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA, Environmental Protection Agency (August 1993), https://nepis.epa.gov/Exe/ZyNET.exe/9100SN02.TXT?ZyActionD=ZyDocument&Client=EPA&Index=1991+Thru+1994&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C91thru94%5CTxt%5C00000025%5C9100SN02.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL

5 In discussing the role of federal "lead agencies" for preparing CERCLA documents at federal facilities, EPA specifies: "Federal agency response actions are expected to be consistent with this and other EPA guidance, as specified in CERCLA §120(a)." US Environmental Protection Agency (EPA), "Guide to Preparing Superfund Proposed Plans, Records of Decision and Other Remedy Selection Decision Documents, EPA 540-R-98-031, OSWER 9200.1-23P, July 1999; Section 1.2.2. Viewable at: https://www.epa.gov/sites/production/files/2015-02/documents/rod_guidance.pdf "EPA retains final remedy selection authority for all 'Fund-financed' actions, and for Federal facility-lead actions taken at NPL sites." EPA cannot sign off on any superfund plan, including a removal action EE/CA if the document is not completed in accordance with EPA's own guidelines. Substantial deference under administrative law regarding CERCLA is given to EPA guidelines, see Wickland Oil Terminals v. Asarco, Inc., 797 F.2d 887, 891 (9th Cir. 1986) ("We must accord very great deference to an agency's interpretation of its regulations…. An agency's interpretation of its regulations is 'of controlling weight unless it is plainly erroneous or inconsistent with [regulations]'") (citing Udall, 380 U.S. at 16-17, quoting Bowles v. Seminole Rock & Sand Co., 325 U.S. 410, 414 (1945)).

3. The EE/CA does not discuss the technologies or methods required in USDOE's recommended alternatives;
4. The document is riddled with statements not supported by any evidence;
5. The EE/CA does not provide any basis for the various costs presented for each alternative. Indeed, the December 2017 formal transmittal letter for the draft EE/CA from USDOE to Ecology presented a total cost which was a fraction of the cost presented in the EE/CA;[6]
6. The EE/CA fails to disclose the "regulatory history" of the facilities and units covered within the scope of the proposed EE/CA. This includes USDOE failing to disclose regulatory enforcement orders from the Washington Department of Ecology, the Pollution Control Hearings Board order rejecting USDOE's appeal, the results of Washington Ecology ordered sampling of the "white powders", and TPA milestones. Disclosure of each of these was essential for meaningful public and tribal comment because the regulatory actions taken to date obviate the claimed justification for use of a Non-Time Critical Removal Action and EE/CA, rather than proceed with a full RI/FS pursuant to CERCLA remedial action requirements (TPA Milestone M-85-80 requires submission of the full RI/FS by September 30, 2020).

Response: This EE/CA was developed using EPA NTCRA guidelines applying a graded approach.

1. Lessons learned from previous removal actions have not been discussed.

First, the EPA requires that all EE/CAs include a detailed discussion of previous removal actions applicable to the current removal action plan.[7] The guidelines include the following table explaining how much detail is required of the discussion of previous removal actions at the site[8]:

6 USDOE, Douglas Shoop, to WA Ecology transmittal of Draft EE/CA for PUREX Complex, December 7, 2017, 17-AMRP-0248.

7 *Id.* at 26.

8 *Id.* at 27.

EXHIBIT 6
Information From Previous Removal Actions Applicable To Current EE/CA

Information From Previous Removals	Applicability To Current EE/CA
Nature and Extent of Contaminants	This information may allow the OSC/RPM to narrow the scope of evaluation to certain areas of the site or to specific analyses.
Treatability of Compounds	Previous use of a technology may affect the decision to use the same technology again.
Equipment/Utilities at Site	If the previous removal action resulted in supplies and equipment being left at the site or provision of specific utilities (e.g., electrical power, sewer line), this information may affect the choice of treatment/control options employed.
Site-Specific Conditions	Lessons learned from a previous removal action are valuable to the current EE/CA. Specific examples could include seasonal weather patterns affecting technology applications or site access limitations because of vehicle transportation routes.

This table specifically identifies that an EE/CA must include a discussion of lessons learned from previous removal actions similar to the recommended alternative in the current EE/CA. The current EE/CA includes only two short paragraphs regarding previous removal activities. Moreover, that section of the EE/CA includes only a brief discussion of soil and groundwater investigation without explaining other removal actions at Hanford.[9]

[9] The problems encountered and lessons learned from demolition of PFP 324 and other facilities are clearly within the scope of the legal requirement to describe and discuss similar removal actions at the site.

It is nothing short of ironic that USDOE identifies the Plutonium Finishing Plant (PFP) as a "successful" example when, in reality, that removal action resulted in a gross amount of exposure and spreading of Plutonium over multiple miles from PFP during the removal demolition.[10] **USDOE's failure to discuss the lessons learned from the catastrophic demolition of PFP, during which Plutonium contamination was spread for miles with worker exposures, and how this will not be repeated, are a major violation of EPA guidelines** as expressed in the previous table (EXHIBIT 6).

As described in subsection 3 below, USDOE also fails to discuss previous removal actions with any detail. EPA's guidelines require that the EE/CA include all data "necessary to support the selection of a response alternative."[11] Since the EE/CA is recommending demolition of parts of the PUREX Complex, it is clear that to be in compliance with EPA guidelines, the EE/CA must also include data and details regarding how that demolition will occur. This would clearly include a discussion of PFP as a similar site that used demolition for its removal action. It is a clear lesson from the PFP disaster that demolition involves a high level of risk for greater contamination of hazardous substances. While Section 5.1.1.5 of the EE/CA identifies that demolition prep and demolition would "increase potential near-term exposure to hazardous substances during removal" and "temporarily increase environmental emission and potential fugitive dust during facility stabilization, demolition, and waste removal," it includes no discussion of how to mitigate those threats.[12] After the demolition at PFP, and the resulting spread of Plutonium over numerous miles, USDOE claims it has adopted new procedures and requirements to safely conduct a demolition of a highly contaminated facility. The fact that the EE/CA includes no discussion of those lessons is not only a failure to follow guidelines, it is grossly negligent. The failure to specify how a repeat of the spread of contamination will be prevented also leaves regulators and the public without any enforceable review to protect safety.[13]

Ecology made a commitment to Heart of America Northwest that PUREX Demolition EE/CA would not proceed without discussion and applying PFP lessons – the EE/CA and removal action process fail to meet that commitment:

Heart of America Northwest wrote to Ecology over concerns that PFP demolition would be allowed to resume without proper controls and review; and, that this would be a precedent allowing for demolition to occur at the PUREX complex under the upcoming EE/CA.

On January 23, 2018, Ecology Nuclear Waste Program Manager Alex Smith responded to Gerry Pollet, Executive Director, Heart of America Northwest:

> "Given the recent contamination events associated with the Plutonium Finishing Plant demolition, we understand your concern about proposed demolition activities at the PUREX Complex.

---

10 *Engineering Evaluation/Cost Analysis for the PUREX Complex*, US Department of Energy (2016), Sections 5.2.1 and 6.2: "The methods for performing S&M, hazard abatement, demo prep, and demolition are consistent with Hanford Site projects of similar scope (i.e., disposition of PFP and U Plant)." (this language appears in both Sections 5.2.1 and 6.2) "Alternatives 2 through 4 are administratively feasible because all actions would adhere to applicable laws and permits and would have demonstrated success at the Hanford Site under projects of similar scope." Section 6.2

11 *Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA* at P.19.

12 *Engineering Evaluation/Cost Analysis for the PUREX Complex* at Section 5.1.1.5.

13 For example, such specific steps should be incorporated into RCRA permit provisions for closure and TSD units regarding worker health and safety regarding dangerous wastes (the prevention of contaminant spread is applicable to dangerous wastes such as beryllium, not just Plutonium).

> "We wanted to assure you that despite DOE's submittal of the draft EE/CA, no demolition activity at the PUREX facility will begin until several regulatory processes, and reviews and approvals of key documents, have occurred.
>
> "Ecology will expect DOE to incorporate any lessons it learned from contamination events at the Plutonium Finishing Plant, and any additional protective measures it developed to prevent such contamination events, into the work plans and work controls that it proposes for any future demolition activities on site, including those at the PUREX Complex."

The EE/CA fails to provide any commitment to improved or best management practices and legal compliance for demolition of such dangerous facilities. Only with a full RI/FS will we and other stakeholders or affected tribal nations be able to review and comment on whether USDOE has adopted such practices that will prevent long-term contamination of ceded lands or public exposure from repeating the spread of Plutonium or other contamination during demolition.

USDOE has not adopted the most basic best management practices (and they are certainly not in any enforceable plan) which Ecology routinely imposes on dangerous demolition or construction sites; e.g., removal of all chemical wastes from piping and tanks before the equipment is removed or demolition; maximum removal of contamination and application of fixatives; tenting; capture and treatment of all runoff, including ensuring that runoff from spray as well as precipitation landing on debris is captured on impervious surfaces and routed for treatment…

Under the removal action process, unlike the remedial action process or a RCRA closure permit, we will not have any right to review and comment on work plans to ensure that such basic safety measures are incorporated. It is also clear that USDOE intends to continue to (wrongly) assert that Ecology will lack RCRA / HWMA authority to impose such conditions once a removal action is underway, even though the law is clear that Ecology does not yield up its jurisdiction.

Response: This removal action does not propose demolition of the PUREX 202A Canyon Building. The PUREX annexes are the only structures proposed for demolition. Although PFP was technically challenging, work processes are in place to proceed cautiously and safely. Based on current information at PUREX, the risk profiles between PFP demolition and PUREX ancillary structure demolition are not comparable. But nonetheless, enhanced work practices will be considered based on lessons learned from PFP.

Final cleanup remedies will be evaluated under the full CERCLA remedial action process in accordance with the Tri-Party Agreement Milestone M-085 series.

This EE/CA was developed using EPA NTCRA guidelines applying a graded approach.

2. USDOE's EE/CA for the PUREX Complex fails to include any schedule.

EPA guidelines are very clear regarding the requirement for an EE/CA to include a schedule for the removal action, stating that "[t]he general schedule for removal activities, including both the start and completion time for the non-time-critical removal action, should be a part of the EE/CA."[14] This is a flagrant example of USDOE's noncompliance since no dates are included in the EE/CA for the PUREX Complex.

14 *Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA* at P.32.

The lack of schedule for even an estimated timeline to begin any work,[15] much less for demolition of the annexes, demonstrates that the entire proposal fails to meet the test for being conducted as a removal action.[16]

As noted above, in USDOE's formal EE/CA transmittal letter of December 7, 2018 (a formal part of the record), USDOE provided only the vaguest commitment of funding over fifteen years. The amount of funds which USDOE said it would seek to fund the EE/CA actions via "efficiencies" is between 6.9% and 13.8% of the entire estimated cost of the preferred alternative (Alternative 4). This does not meet the legal test for a removal action, nor the smell test for USDOE commitment. It bears the hallmark of seeking approval to have an undefined scope of work for contractors with an end-run around the scrutiny of specific plans that would accompany a full RI/FS pursuant to CERCLA remedial action requirements.

Removal actions must be shown to have some release or near-term threat of release to which the agency is responding in order to justify not proceeding under the full Remedial Investigation/Feasibility Study (RI/FS) process for remedial actions.[17]

We look forward to USDOE explaining in federal court how a vague commitment to $15 to $30 million of work over fifteen years without any specific schedule to do any specific work is a response to a time sensitive, "imminent" and "substantial" threat of release.

Response: This EE/CA was developed using EPA NTCRA guidelines applying a graded approach.

DOE has the sole authority, pursuant to Executive Order 12580 and CERCLA Section 104, to determine when and how to implement removal actions. See the NCP, 40 CFR 300. This EE/CA is for the short-term and is not intended to take the place of the long-term, comprehensive RI/FS process. The removal action does not preclude the final remedial action which will allow public comment on the final remedy.

Funding uncertainties preclude the development of a detailed schedule for this removal action. The follow-on remedial action will have a more detailed schedule.

3. USDOE fails to explain in any detail how each alternative will be conducted.

The EE/CA does not adequately describe the technologies and methods needed for each alternative proposed by USDOE. If the goal of the removal action is the demolition of areas of the PUREX Complex, shouldn't that require that the EE/CA include the details for the demolition plan? The answer is yes because the EPA guidelines require that each alternative explain the technologies and methods needed to complete those plans.[18]

Discussion of each alternative in the EE/CA is incredibly brief and does not include nearly the amount of detail required under EPA guidelines. There is no discussion in alternatives related to technologies, equipment or personnel required. Later sections in the EE/CA address implementability and feasibility only briefly. For example, section 5.2.1 of the EE/CA states that "[a]ll proposed removal activities could

15 The timeline for the removal of the "white powder," is governed by an enforcement order pursuant to Washington State Hazardous Waste Management Act (HWMA) and federal Resource Conservation and Recovery Act (RCRA) authority as a dangerous waste.
16 As discussed above, 40 CFR § 300.415(b)(2) the lead agency must determine if there is an emergent threat to public health posed by a release.
17 *Id.*
18 *Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA* at 34-36 ("only the most qualified technologies" should be discussed in the EE/CA. And the effectiveness of each alternative plan must include a discussion of its implementability and technical feasibility).

be performed using existing knowledge and procedures that have proven successful at the Hanford Site,"[19] yet does not detail what those "procedures" are.

This statement that the proposed removal action can be "executed with existing knowledge and procedures that have proven successful at the Hanford site" is highly ironic.[20]

USDOE does not have adequate knowledge of what chemical or radionuclides are in piping and tanks in the areas which will be demolished or be prepared for demolition - as evidenced by the reality that USDOE does not know the chemical reactions and sources of the extensive white powders. Again, USDOE fails to present any new procedures put into place following the disastrous spread of contamination from the demolition of PFP. The former example is why we urge that sampling of piping and tanks be conducted, pursuant to an enforceable HWMA/RCRA order, prior to developing a compliant RI/FS. Only under those steps will USDOE be able to meet CERCLA's requirements to adequately consider the wastes present and design appropriate remedies.

The risks from radioactive wastes are not properly described and the risk of radioactive contamination spreading from demolition is not analyzed in the EE/CA.

During demolition of the Plutonium Finishing Plant, USDOE and its contractors spread Plutonium across dozens of square miles, exposed hundreds of workers, and even contaminated personal cars driven offsite.

The N-Cell has an estimated 1,113 Ci of Pu and 160 Ci of Americium, mostly in gloveboxes. The hazard cited to justify the removal action is due to air circulation through the cell. This exemplifies a hazard which should be addressed through a full remedial action plan detailed in an RI/FS, for which the public would be able to review and comment in advance on plans to prevent the release of Plutonium. There is no incorporation in the EE/CA of any lessons or new techniques from the contamination spread during demolition of PFP.

Indeed, USDOE has not adopted basic best management practices for containment of contaminated runoff that Ecology requires at construction and demolition sites across Washington; e.g., having impermeable surface for collecting contaminated runoff and ensuring that it is treated, use of tenting, debris control…

There is no discussion in the EE/CA of whether tenting will be utilized to prevent the spread of airborne contamination. Nor is there any discussion of meeting Best Management Practices for other demolition and construction activities in Washington for storm water runoff in order to prevent contaminant spread in the liquid sprayed on to suppress dust or affix contamination or from precipitation. If USDOE was proceeding via a CERCLA remedial action with an RI/FS, these plans would be described for review and comment in advance.

To protect those rights for review and comment, CERCLA envisions that such demolition will be undertaken after review of detailed alternative plans with tribal and public comment utilizing the remedial action process, not the short-circuited end run of a "removal action."

Response: This EE/CA was developed using EPA NTCRA guidelines applying a graded approach.

---

19 *Engineering Evaluation/Cost Analysis for the PUREX Complex at Section 5.2.1*. Again, this section even identified PFP as an example of demolition with Hanford Site projects of similar scope as a "successful" example without any discussion of the environmental and health issues with PFP demolition. This is also an instance where the EE/CA identifies the relevant site as the entire "Hanford Site" rather than just the PUREX Complex which indicates that a discussion of removal actions elsewhere at Hanford, including PFP, should have been included in the current EE/CA for the PUREX Complex.
20 *Id*.

Although PFP was technically challenging, work processes are in place to proceed cautiously and safely. Based on current information at PUREX, the risk profiles between PFP demolition and PUREX ancillary structure demolition are not comparable. This EE/CA provides the proper risk evaluation based on currently available information. The RAWP will delineate how work will be implemented to be protective of human health and the environment. Enhanced work practices will be considered based on lessons learned from PFP.

Hazard abatement under this removal action will be conducted to minimize worker exposure and to maximize protection of human health and the environment. The subsequent RAWP will detail work planning and processes to address worker safety and human health and the environment.

CERCLA removal actions are fully authorized under law, and do not "short circuit" the long-term and comprehensive remedial action process. Both removal and remedial actions are authorized under the same statutory provision in Section 104. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

4. USDOE's recommendations are unsupported by any articulated evidence.

The EE/CA for the PUREX Complex is filled with statements not backed up by facts or evidence. For example, Section 5.1.1.3 simply states that "[a]lternatives 2, 3, and 4 support future remedial objectives because they provide interim to long-term protectiveness until a final remedial action or inventory removal occurs at a future time."[21] However, it does not describe how each alternative will do so. USDOE fails to identify remedial objectives, so how can they be expected to meet those goals?

If USDOE proceeded under the remedial action requirements, not removal, the public, tribes and regulators would have remedial action goals to comment on and compare with the proposed actions.

Section 5.1.1.4 of the EE/CA says that "the treatment or removal of contamination via hazard abatement, demo prep, and demolition" would "transfer long-term impacts of contamination from one area to another" and would be environmentally protective.[22] However, there is no discussion of the environmental hazards of demolition and transportation. Nor is there any detail given to how or why these actions would be more environmentally protective than some unnamed alternative. Under the Tri-Party Agreement (TPA), CERCLA and RCRA, Transuranic wastes must eventually be treated and disposed of in the Waste Isolation Pilot Plant, and other wastes in the Environmental Restoration Disposal Facility. There is no alternative to which this section applies for comparison of reducing volumes or mobility.

Later in the EE/CA, USDOE attempts to discuss the EPA's requirement that each alternative "contributes to the efficient performance of any anticipated remedial activities"[23] by saying that "[a]lternatives 2, 3, and 4 support future remedial objectives because they provide interim to long-term protectiveness until a final remedial action or inventory removal occurs at a future time."[24] Yet, USDOE fails to describe how each alternative will do so. Further, failure to include specifics on how Plutonium, beryllium or other contamination spread will be avoided, again, violates the requirements for an EE/CA.

USDOE fails to identify beryllium as a dangerous waste in the text or appendix of ARARs. Beryllium spreads easily. It is extremely dangerous. USDOE fails to discuss how it will properly test for, remove or

21 *Id.* at Section 5.1.1.3.
22 *Id.* at Section 5.1.1.4.
23 *Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA* at P.41.
24 *Engineering Evaluation/Cost Analysis for the PUREX Complex at Section 5.1.1.3.*

affix beryllium prior to moving equipment or demolition. USDOE has a history of moving equipment without proper characterization, resulting in release and worker exposure (e.g., 222-S and in many other facilities… PUREX is a beryllium facility). A minute exposure can lead to development of fatal chronic beryllium disease. Failure to identify beryllium as a dangerous waste, failure to describe how characterization and removal will occur and failure to identify how it will be disposed in compliance with HWMA and RCRA (the EECA clearly shows that USDOE fails to recognize that it must be disposed as a dangerous waste) are all violations of the CERCLA requirements for content in an EE/CA. This level of detail would be fully vetted with pubic review in a remedial action and RI/FS.

Response: This EE/CA was developed using EPA NTCRA guidelines applying a graded approach. Both CERCLA removal and remedial actions are lawful processes authorized by CERCLA Section 104 in response to the determination by DOE, as the lead agency, that there exists a "release or threat of release" of hazardous substances. This EE/CA is for the short-term and is not intended to take the place of the long-term, comprehensive RI/FS process. The removal action does not preclude the final remedial action which will allow public comment on the final remedy.

This EE/CA provides the proper risk evaluation based on currently available information. The RAWP will delineate how work will be implemented to be protective of human health and the environment.

5. USDOE fails to explain the EE/CA's projected costs: where they came from, or how and why they differ from previous figures provided by USDOE.

The EPA requires that EE/CAs evaluate each alternative to determine its projected costs.[25] This should include a discussion of direct costs (construction, equipment and materials, land and site acquisition, buildings, services, relocation, transportation, disposal, analytical, contingency allowances, and treatment and operation costs) and indirect costs (engineering and design expenses, legal fees, licenses or permit costs, and start-up and shakedown costs).[26] As with many other portions of the current EE/CA, Section 5.3.2's discussion of cost estimates for each alternative is incredibly brief and essentially provides estimated costs without explaining where the cost figures originated.[27]

Additionally, in a letter from USDOE to Ecology transmitting the draft EE/CA, USDOE stated that the:

> "maximum expenditure would be in the range of $15 million - $30 million over the 15 year time period."[28]

Yet, in the current EE/CA provided by USDOE, the predicted costs are listed as $217.7 million to accomplish Alternative 4.[29]

Essentially, the cover letter demonstrates that there is no legal basis for using the time-sensitive "removal action" process since USDOE stated that "[Department of Energy, Richland] will attempt to provide funding of $1-$2 million per year through efficiencies" to carry out the proposed activities. At that funding level, only 6.9% to 13.8% of the work in the preferred Alternative 4 would be accomplished before 2033. Obviously, USDOE's own funding non-commitment belies the required legal requirement for USDOE to demonstrate that timeliness justifies proceeding with a removal action instead of going through the full remedial action process.

---

25 *Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA* at P.43.
26 *Id.*
27 *Engineering Evaluation/Cost Analysis for the PUREX Complex* at Section 5.3.2.
28 USDOE, Douglas Shoop, to WA Ecology transmittal of Draft EE/CA for PUREX Complex, December 7, 2017, 17-AMRP-0248.
29 *Engineering Evaluation/Cost Analysis for the PUREX Complex* at Section 5.3 (Table 5-3).

Not only does the current EE/CA fail to explain where these figures originated, but USDOE also fails to identify why there is such a colossal difference in the figures provided in the cover letter transmitting the draft EE/CA with the figures in the EE/CA itself.

The injury to the public from USDOE's failure to provide meaningful cost estimates for any elements of the proposed work and failure to provide any schedule in the EE/CA is exacerbated by the USDOE's violation of the requirements of TPA Paragraphs 148 and 149 to disclose and take comment each spring on USDOE's upcoming one year out proposed budget and work scope for Hanford cleanup. USDOE claims that urgency justifies a removal action but has failed to say when any actions would be taken. At the same time, USDOE has prevented us from reviewing if it intends to undertake any of the work in Fiscal Year 2021 (for which the required comment period ended on June 15), and how much such work would cost. Therefore, we cannot comment on the appropriate priority and if USDOE seeks to bump other work which the public and our organization would prioritize in order to carry out undefined work under the removal action for PUREX.

USDOE proposes to spend $217.7 million to demolish 202 A East and West Annexes and prepare the remainder for demolition under its Preferred Alternative 4. This is proposed at the same time that USDOE and the Trump Administration have proposed to cut Hanford cleanup funding by over $400 million for the coming fiscal year and failed to provide the regulators, tribes and the public with any proposed funding levels for any Hanford cleanup work in FY 2021, in violation of TPA requirements. How does spending $217.7 million on demolition of a facility that has no time critical threat align with other priorities for Hanford cleanup?

$217 million could empty leaking High Level Waste tanks, speed up construction of High Level Waste Vitrification Plant, or fully remove the residual contamination immediately alongside the Columbia River at B-C, N and F Reactor areas we have objected to USDOE's cost based plans to leave contamination in place – where USDOE estimates it will take one hundred to over two hundred years to meet CERCLA and MTCA risk based cancer risk standards.

The cost claims are utterly unsupported in the EE/CA. The estimated cost for the full demolition alternative is only $40 million more than the alternative for Surveillance and Maintenance combined with immediate hazard removal (which might be justifiable but should mostly be done under RCRA). This implies that the higher costs of safe demolition, without repeating mistakes from the smaller PFP demolition, have not been incorporated into the plans. The removal of material from highly contaminated areas in Alternative 4 coupled with demolition is likely to cost far more than the $40 million increment presented. This increases our concern over USDOE's decision to prioritize the PUREX Plant removal action (with only "unanticipated" threats of release) over cleanup actions to actually stop on-going releases to the Columbia River and exposures to people using River shorelines for decades to come. An RI/FS would have to present detailed cost estimates, unlike this EE/CA.

There are many high priority sites adjacent to the Columbia River and its shorelines for which USDOE proposes to leave contamination in place citing the cost of removal. Leaving those wastes along the shorelines impact the Yakama Nation's members' Treaty rights to live along and utilize the shorelines. If the $217 million for the PUREX removal action is not justified by realistic threats of release, this removal action will divert funds from higher priority cleanup actions.

Ultimately, the entire EE/CA for the PUREX Complex is as short as some executive summaries for CERCLA RI/FS documents under the full Remedial Action process. The sheer lack of detail in the document is evident and is not in compliance with EPA guidelines that have been available since 1993. Finally, it is an inadequate response for USDOE to say they will provide more detail in later documents because such future documents will not be subject to public comment.

Response: An environmental cost estimate was developed for this EE/CA (ECE-200E15-00005). There are many unknowns and assumptions that resulted in the cost basis (+50%/-30%).

The expedited response action letter (17-AMRP-0248, "Proposal to Perform Hazard Abatement and Demolition Activities at the PUREX Canyon Complex") assumed minimal funding would be provided for this PUREX removal action due to the Hanford Site competing priorities (e.g. tank waste disposition). It also assumed that the CERCLA remedial action documents would be completed within the 15 years. Once completed, the remedial action would take the place of this removal action.

This EE/CA was developed using EPA NTCRA guidelines applying a graded approach.

6. The EE/CA fails to disclose the essential "regulatory history" of the facilities and units covered within the scope of the proposed EE/CA – depriving the public of essential information for commenting:

EPA's guidance for contents of an EE/CA, as with all CERCLA response action documents, requires disclosure and discussion of the "regulatory history" of the unit or site which is the subject of the EE/CA. The required disclosure is for "regulatory history, including responses, investigations and litigation by State, local and Federal agencies." [30]

The history of the orders and USDOE's refusal to follow those orders undermines the entire premise that the presence of the white powder can justify use of a removal action and EE/CA as an imminent or substantial threat.

USDOE refused to carry out Washington Department of Ecology's enforcement order to sample and remove the "white powder" on PUREX surfaces pursuant to HWMA, RCW Chapter 70.105, embarking on three years of appeals resulting in the PCHB Order 17-084, June 26, 2018. That Order upheld Ecology's orders for sampling, upheld the penalty; and, held that USDOE's "failure to designate the white powder, in the face of Ecology's repeated requests to do so, was a serious violation." Order at 21.

Throughout the appeal – for over three years – USDOE repeatedly claimed that the white powder posed no serious or substantial risk. This entirely undermines USDOE's claim in the EE/CA that the presence of the white powder is such a time sensitive risk as to justify use of a removal action and EE/CA rather than going through the full remedial action process and a complete RI/FS.

Ecology retains full authority under HWMA, RCRA and the FFCA to enforce its standing order for removal of the white powder. Ecology can order sampling and removal of the white powder and of any mixed or hazardous chemical wastes in the piping from which the white powder originated (which sampling confirmed to be a dangerous waste) consistent with CERCLA response actions, and not in conflict. The Courts and the PCHB clearly found that RCRA and state HWMA authority does not evaporate prior to a remedial action being taken. The HWMA / RCRA order for sampling and removing white powder would be considered consistent with and part of "response" under CERCLA.[31]

---

30 *Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA* at P.25.

31 *ASARCO LLC v. Atlantic Richfield Co., 866 F. 3d 1108 - Court of Appeals, 9th Circuit 2017*.
In *Asarco*, the Ninth Circuit determined that a RCRA settlement for action to remove wastes could give rise to a contribution claim under CERCLA because the RCRA and state hazardous waste law settlement and actions pursuant to the settlement "involves a cleanup activity that qualifies as a "response action" within the meaning of CERCLA § 101(25), 42 U.S.C. § 9601(25).'" *Id.* at 126 n.15 (quoting Brief for the United States as Amicus Curiae Supporting Appellant at 15 in *Niagara Mohawk Power Corp. v. Chevron, U.S.A., Inc.,* 596 F.3d 112 (2d Cir. 2010)). The *ASARCO* and *Niagara* courts found this is consistent with EPA's own opinion per cited briefing. Asarco at 1119.

A RCRA / state HWMA order to take corrective action is a "response action" under CERCLA.[32] WA Ecology and PCHB have already rejected USDOE's effort to assert that Ecology does not have authority under CERCLA or the TPA to issue corrective action orders for PUREX as a facility within the CERCLA 200 Area NPL site when there is no remedial action plan.

In sum, removal of the white powder has already been ordered by Ecology. That order is enforceable. It does not end with USDOE asserting that it is proceeding with either a removal or remedial action for the facility. USDOE's EE/CA adds nothing, including no description of how the waste will be removed. A CERCLA removal action is NOT necessary to promptly remove the white powder. Ecology's order will accomplish removal on an enforceable timeline.

Furthermore, **we urge Ecology to issue an additional order for sampling of all piping which may still (illegally) contain dangerous wastes, particularly the piping from which the white powders clearly originated.** Based on those sampling results, if the residues designate as dangerous wastes, **Ecology should order draining and removal** with appropriate precautions on an expedited timeline.

Table 2-1 "Non-Radioactive Material Inventory" has absolutely no indication that residual chemicals are present in tanks and piping, even while USDOE has admitted that the tanks and piping are the source of the white powder. Nor does the table or EE/CA include the required disclosure of the criteria under which the wastes designated as dangerous wastes.

USDOE's proposal in the EE/CA utterly and completely ignores the likelihood of dangerous wastes in the piping, from which the white powder emanated. This is inexcusable. This willful ignorance, or cover-up, of the failure to remove all dangerous wastes shows the importance of Ecology proceeding with orders for sampling and action on enforceable timelines, rather than leaving it up to USDOE to set its own timeline for undefined activities pursuant to the EE/CA.

PUREX utilized numerous ignitable, flammable, explosive, corrosive and self-catalyzing (i.e., leading to potential explosion, such as hydroxylamine nitrate, which was similarly illegally abandoned in PFP – leading to the 1997 explosion) chemical dangerous wastes, which are likely held up in the piping. Safety demands that Ecology order sampling and removal of wastes in piping and tanks – which USDOE and the EE/CA utterly ignore.

The EE/CA is required to identify all applicable and relevant regulations and standards. However, the PUREX EE/CA fails to identify Washington State HWMA RCW Chapter 70.105 and WAC 173-303-610 standards for removal of dangerous wastes from closed facilities, identification of all residual dangerous wastes, permit modification requirements for closure and removal, etc. as ARARS – applicable, relevant and appropriate standards - which are legally required to be met in a CERCLA action. See EE/CA Appendix B.

Response: RCRA closure will not be performed under this NTCRA; therefore, WAC 173-303-610 is not pertinent.

For all dangerous wastes in facilities covered by the PUREX EE/CA, WAC 173-303-610(3)(a) requires a closure plan identifying the dangerous wastes and specifying the steps to remove and decontaminate, including the pipes, tanks etc. The EE/CA has absolutely no description of inventory or how removal and decontamination will be accomplished. Rather the EE/CA impermissibly says that a plan will be presented to Ecology later in this process. The plan is long overdue. All dangerous wastes were legally required to be removed per HWMA rules which require:

32 *Asarco* at 1121, citing CERCLA 42 USC 6928(h)

(iv) A detailed description of the methods to be used during partial closures and final closure, including, but not limited to, methods for removing, transporting, treating, storing, or disposing of all dangerous wastes, and identification of the type(s) of the off-site dangerous waste management units to be used, if applicable;

(v) A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard;

The required closure plan does not exist. A CERCLA removal action does not eliminate the HWMA and RCRA requirements or Ecology's authority to enforce them. Without a RCRA closure plan or RI/FS, Heart of America Northwest, our members, tribes and the public are all deprived of our rights to review and comment on such a plan for the sake of ensuring safety.

Finally, the relevant regulatory background and history of the PUREX complex must include the TPA milestone M-85-80 – signed in May 2016 – requiring USDOE to submit a full RI/FS work plan by September 30, 2020 for the entire PUREX Complex, specifically including the 202-A Canyon and annexes which are the scope of the EE/CA. [33]Work must begin pursuant to the RI/FS by September 30, 2025.[34]

In just thirteen months, USDOE is required to submit a complete Remedial Investigation / Feasibility Study (RIFS) and work plan for all of the portions of PUREX covered by the EE/CA and all the related portions of the complex. The level of information in this EE/CA is less than is required for the executive summary of a RI/FS. The RI/FS must include results of much more extensive sampling and analyses, and detailed plans with comparisons of alternatives and costs. Thus, why should EPA and Ecology concur with proceeding with a removal action under the EE/CA when a full RI/FS is required in just thirteen months, and the EE/CA fails to include any commitment to do any work before work would be undertaken under the full remedial action process and RI/FS (and under Ecology's enforcement order for removal of white powder)???

Response: In accordance with the Tri-Party Agreement, the Tri-Parties agreed that the PUREX Complex as a whole would be addressed through the CERCLA response action process in accordance with 40 CFR 300. A comprehensive remedial action will be planned pursuant to the RI/FS work plan, which DOE will submit to Ecology in accordance with the Tri-Party Agreement Milestone M-085 series.

Both CERCLA removal and remedial actions are lawful processes authorized by CERCLA Section 104, in response to the determination by DOE, as the lead agency, that there exists a "release or threat of release" of hazardous substances. This EE/CA is for the short term and is not intended to take the place of

33 TPA M-85-80 and M-85-84. M-85-80 requires submission of a full RI/FS work plan for 200-CP-1 by 9/30/20. 200-CP-1, the unit covered by the milestone, includes 202-A and the PUREX Canyon. See TPA Unit lists, Appendix C, at page C-84. Heart of America Northwest is a Third Party Beneficiary entitled to rely on the Milestone for Ecology to ensure that USDOE submits a full RI-FS, pursuant to the CERCLA remedial action process, for the entire PUREX 202-A and Canyon.
Milestone M-85-82 is a more generic milestone requiring that either a remedial or removal action work plan be submitted for either a Tier 1 or a Tier 2 unit within the geographic scope of PUREX by December 30, 2017.
If Ecology intends to enforce the M-85-80 Milestone it makes no sense to adopt a much more limited removal action and EE/CA for a portion of the facility to be covered by a much more detailed RI/FS due in one year and one month.
34 M-85-84.

the long-term, comprehensive RI/FS process. The removal action does not preclude the final remedial action, which will allow public comment on the final remedy.

Thank you for your comment on background and history. DOE will consider adding reference to the Tri-Party Agreement Milestone M-085-80 within the subsequent interim CERCLA documents.

The draft Rev. 9 PUREX Complex Part A Form identifies the DWMUs. WAC 173-303-610 is required to be implemented for all RCRA TSD units and will be conducted separately from this removal action.

This EE/CA was developed using EPA NTCRA guidelines applying a graded approach.

Public Involvement Was a Failure for this Removal Action / EE/CA Proposal:

As documented extensively in our comments, the EE/CA fails to provide legally required information for the public to review and comment – and, for the regulators to review and approve. The effort to use a removal action is not supported by CERCLA and short-circuits the public and tribes' ability to review and comment on specific plans or alternatives. This will prevent us from effectively participating in the proposed response action as CERCLA and the TPA are intended to guarantee we can participate.

Public meetings should be held on demolition plans for PUREX, particularly to answer public questions and concerns over whether demolition will result in the repeat of contamination being spread as occurred during demolition of PFP. A proposal regarding a massive facility following on the heels of the disastrous spread of Plutonium from similar work demolishing PFP should have public meetings and at least a 60 day comment period. The extension of the comment period for the minimum legally required fifteen days was inadequate since USDOE failed to disclose the existence of key records, including failing to provide notice of the sampling and analysis plan issued on. July 17, just two weeks before the end of the initial comment period.

The TPA agencies have failed to provide any answer as to why a removal action with a miniscule EE/CA is being issued when the TPA requires that a complete RI/FS for the entirety of the 200-CP-1 unit (which includes all of 202-A, Canyon and PUREX) be issued in just thirteen months (September 30, 2020, M-85-80).[xv] We insist that this milestone be met and not supplanted by this short-circuit EE/CA and removal action.

The EE/CA failed to provide the public with information that was legally required to be disclosed, as detailed extensively above. This included:

- failing to disclose that the "white powder" which is highlighted in the EE/CA to justify removal has been already sampled and designated as dangerous waste;
- failing to disclose the white powder's dangerous waste characteristics which are vital for public comment on the proposal (e.g., ignitable);
- failing to disclose that a legally binding order had already been issued by Washington Ecology under HWMA authority requiring USDOE to sample, designate and remove the dangerous waste white powders;
- failing to disclose during the comment period to the notice list that the sampling and analysis plan was issued – which is an essential element of the plans that we had been explicitly promised to be able to review;
- failing to provide any link to the Ecology Order to USDOE to sample and remove the white powders, and decision of the Pollution Control Hearings Board regarding USDOE's appeal of the Order;

- failing to include any disclosure of the relevant TPA milestone for submission of a complete RI/FS by September 30, 2020;
- failing to ensure that the EE/CA and fact sheet provided either links to other key documents or were provided on a web page allowing all relevant materials to be viewed.

The TPA Public Involvement Plan should be amended to specify that these last, obvious, requirements are met in all subsequent CERCLA actions: disclosure of all relevant TPA milestones, investigations and orders; having a web page for the proposed action with all relevant documents provided. Searching through the Administrative Record searching for records relating to the EE/CA would not disclose to the public the existence of the TPA milestone, Order, appeal and Order of PCHB, or the Sampling and Analysis Plan issued July 17. Most importantly, the public should not be expected to search through USDOE's entire Hanford Administrative Record database to view and comment on documents related to a pending proposal.[xvi]

Response: Pursuant to 40 CFR 300.415(n)(4)(iii), the lead agency (DOE) accommodated the request to extend the comment period by 15 days.

Conclusion:

Use of a *removal action* instead of a planned *remedial action* short circuits the CERCLA process, denying our members, the public, tribes and our organization our rights to review and comment on investigation results, detailed plans and alternatives to the proposed actions at PUREX.

Ecology should be taking enforcement actions and ordering sampling and removal of wastes remaining in pipes and tanks in PUREX (as Ecology has done for the white powder on surfaces). This would eliminate any threat of future worker exposure, chemical reactions or fire related to the wastes. USDOE, in violation of EPA's guidance for EE/CA contents, failed to disclose that the wastes designated as dangerous waste or that USDOE has already been ordered to remove the white powder on surfaces. If those orders are enforced, there is no time-sensitive justification for a **removal action** instead of preparing a full, detailed RI/FS pursuant to CERCLA **remedial action** authority.

USDOE has had years to perform a structural integrity study. Without any study or documentation, USDOE attempts to justify use of the short-circuit removal action and EE/CA process on the basis of what it refers to as "unanticipated future events."

CERCLA requires documentation of "immediate" and "substantial" threats to public health and safety or of release to justify use of the short-circuit removal action process instead of the full remedial action process with full RI/FS.

Under USDOE's scheme, the threat of a meteorite hitting PUREX – "a future unanticipated event" – would justify use of the removal action process at any facility.

USDOE should be preparing a structural integrity analysis for PUREX as part of the complete RI/FS process.

If EPA and USDOE agree to let USDOE use a removal action on the basis of such ridiculous claims of immediate and substantial threats of releases, nothing would be left of the requirement to use the full remedial action process for permanent remedies. We believe courts will scoff at USDOE's claims.

USDOE should be held to TPA milestones M-85-80 and M-85-84 to submit an RI/FS work plan by September 30, 2020 and to start work by September 30, 2025. As "third party beneficiaries" of the TPA and citizens, we are entitled to rely on, and enforce, this requirement. USDOE must not be allowed

to claim this inadequate EE/CA supplants the require RI/FS. There is absolutely no need or justification for adopting a removal action and this legally inadequate EE/CA at this time, since a much more detailed RI/FS is due in just over one year. There is no need to adopt this EE/CA since USDOE failed to propose a timeline or funding to carry out any removal action work ahead of the work which would be detailed for review in the required RI/FS.

As we have documented in these comments, **the EE/CA fails to meet the most basic legal requirements for content of an EE/CA**. USDOE failed to document wastes, failed to document costs, failed to provide any timeline for action, failed to disclose the regulatory history (including failing to disclose the TPA milestone for submitting a full RI/FS and failing to disclose that USDOE had been ordered to sample and remove the white powders), failed to disclose and address numerous applicable laws and standards, failed to document any proposed work, failed to disclose how similar demolition activity at PFP spread Plutonium for miles, and failed to disclose how it would do the undefined work safely without repeating the disastrous spread of Plutonium as occurred less than two years ago at PFP.

If USDOE is given approval for this removal action, Ecology and EPA will be giving USDOE a blank check for $217.7 million and a blank timeline without accountability for how it is spent and if the work is a priority. If USDOE only proposes to spend $1 to $2 million per year over fifteen years on the work loosely described in a few sentences as Alternative 4, per DOE-RL Manager Shoop's letter formally transmitting the EE/CA to Ecology (December 7, 2018), EPA and Ecology should see the need to reject the removal action approach and inadequate EE/CA and enforce the requirements for detailed work plans and schedules in a full RI/FS due next year.

Response: The use of a NTCRA helps support future remedial action planning and mitigates potential threats to human health and the environment. Final cleanup remedies will be evaluated under the full CERCLA remedial action process in accordance with the Tri-Party Agreement Milestone M-085 series.

End Notes: (EE/CA Section has footnotes on the same page as discussion)

i "Given the recent contamination events associated with the Plutonium Finishing Plant demolition, we understand your concern about proposed demolition activities at the PUREX Complex.
"We wanted to assure you that despite DOE's submittal of the draft EE/CA, no demolition activity at the PUREX facility will begin until several regulatory processes, and reviews and approvals of key documents, have occurred. "Ecology will expect DOE to incorporate any lessons it learned from contamination events at the Plutonium Finishing Plant, and any additional protective measures it developed to prevent such contamination events, into the work plans and work controls that it proposes for any future demolition activities on site, including those at the PUREX Complex." Ecology Nuclear Waste Program Director Alex Smith to Gerry Pollet, Heart of America Northwest, January 23, 2018.

ii M-085-80 was amended to require submission of the full RI/FS with subsequent onset of remedial action on September 30, 2020. 200-CP-1, the unit covered by the milestone, includes 202-A and the PUREX Canyon. See TPA Unit lists, Appendix C, version of 4/02/2019, at page C-84. YNERWM is entitled to rely on the Milestone for Ecology to ensure that USDOE submits a full RI-FS, following the remedial action process for the entire PUREX 202-A and Canyon. Milestone M-085-82 is a more generic milestone requiring that either a remedial or removal action work plan be submitted for either a Tier 1 or a Tier 2 unit within the geographic scope of PUREX by December 30, 2017. If Ecology intends to enforce the M-085-80 Milestone, it makes no sense to adopt a much more limited removal action and EE/CA for a portion of the facility to be covered by a much more detailed RI/FS due in one year and one month.

iii The criteria that has to be met for a removal action in regard to the emergent threat pursuant to 40 CFR § 300.415 (b)(2): (1) actual or potential exposure to nearby human populations; (2) actual or potential contamination of drinking water supplies or sensitive ecosystems; (3) hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release; (4) high levels of contaminants in soils near the surface that may migrate; (5) the threat of fire or explosion; (6) availability of federal or state response to potential release; and (7) other situations or factors that may pose threats to public welfare of the US or the environment. USDOE attempts to justify potential release from fire, explosion or structural failure over unspecified time periods. This does not meet the test for a realistic threat justifying a removal action instead of following the full process for a remedial action. USDOE's case is further weakened by seeking to use a process called "non-time critical removal action" (NTCRA). USDOE acknowledged that the threat of fire or explosion is presently low and being monitored. However, in the EE/CA USDOE said continued aging of the structure could result in such a "future unanticipated event." DOE/RL-2016-15, Engineering Evaluation/Cost Analysis for the PUREX Complex, pages 2-19, 2-20 Section 2.5. If the threat is "unanticipated", then there isn't a "threat." "Unanticipated" threats are certainly not "substantial."

iv USDOE cites the joint 1995 USDOE-EPA Policy on Decommissioning of Department of Energy Facilities Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) for authority to proceed with a Non-Time Critical Removal Action (NTCRA); https://www.energy.gov/em/policy-decommissioning-department-energy-facilities-under-comprehensive. This 24 year old policy, however, was adopted to guide stabilizing facilities at a time when weapons complex facilities were being shutdown or were recently placed on the CERCLA National Priorities List (NPL). It does not, and cannot, supercede the legal requirements of the statute which differentiate between removal and remedial action in regard to requiring a "substantial threat" of some immediacy for use of the limited removal action process. See discussion supra. Nor does this joint policy supplant the requirements in EPA Guidance in regard to the necessary elements for an EE/CA or determining when full remedial investigations and feasibility studies are to be conducted.
The requirements of the Policy on Decommissioning are not met for PUREX, even if it were the governing authority. The administrative record does not include or reveal "any results of the removal site evaluation and other factual information and analyses upon which the decision to conduct response action was based," as required by the cited Policy. Nor, as discussed supra, does the EE/CA or Administrative Record include any basis for concluding that the threat of release is "substantial." Policy, Background Section, Paragraph 4. The EE/CA and record are devoid of any evidence that a threat of release is present, much less substantial.

v This is the contradictory and unsupported claim for structural failure justifying a Non-Time Critical Removal Action (NTCRA) instead of following the full CERCLA process to develop a Remedial Investigation and Feasibility Study (RI/FS) and propose a range of permanent remedial action options to meet CERCLA standards:

The PUREX Canyon is adequately monitored by S&M activities; however, there is limited to no coverage in areas that are highly contaminated. In general, the risk of structure failure due to facility degradation would increase over time, and the risk of an accidental release would also increase the longer the structures await the eventual remedial action for the operable unit. Therefore, current conditions present a sufficient threat of release under a continued S&M scenario to justify an NTCRA. (Section 2.5 Risk Evaluation at page 2-20.)

vi TPA M-85-80 and M-85-84. M-85-80 requires submission of a full RI/FS work plan for 200-CP-1 by 9/30/20. 200-CP-1, the unit covered by the milestone, includes 202-A and the PUREX Canyon. See TPA Unit lists, Appendix C, at page C-84. Heart of America Northwest is a Third Party Beneficiary entitled to rely on the Milestone for Ecology to ensure that USDOE submits a full RI-FS, pursuant to the CERCLA remedial action process, for the entire PUREX 202-A and Canyon.
Milestone M-85-82 is a more generic milestone requiring that either a remedial or removal action work plan be submitted for either a Tier 1 or a Tier 2 unit within the geographic scope of PUREX by December 30, 2017.
If Ecology intends to enforce the M-85-80 Milestone it makes no sense to adopt a much more limited removal action and EE/CA for a portion of the facility to be covered by a much more detailed RI/FS due in one year and one month.

vii EE/CA at Section 5.2.1 and 6.2. Quote from section 6.2.

viii M-85-80 and M-85-84 per end note above.

ix USDOE, Douglas Shoop, to WA Ecology transmittal of Draft EE/CA for PUREX Complex, December 7, 2017, 17-AMRP-0248.

x See TPA Unit lists, Appendix C, at page C-84. Heart of America Northwest is a Third Party Beneficiary entitled to rely on the Milestone for Ecology to ensure that USDOE submits a full RI-FS, pursuant to the CERCLA remedial action process, for the entire PUREX 202-A and Canyon.

xi This is the contradictory and unsupported claim for structural failure justifying a Non-Time Critical Removal Action (NTCRA) instead of following the full CERCLA process to develop a Remedial Investigation and Feasibility Study (RI/FS) and propose a range of permanent remedial action options to meet CERCLA standards:
The PUREX Canyon is adequately monitored by S&M activities; however, there is limited to no coverage in areas that are highly contaminated. In general, the risk of structure failure due to facility degradation would increase over time, and the risk of an accidental release would also increase the longer the structures await the eventual remedial action for the operable unit. Therefore, current conditions present a sufficient threat of release under a continued S&M scenario to justify an NTCRA.
Section 2.5 Risk Evaluation at page 2-20.

xii WAC 173-303-610

xiii The criteria that has to be met for a removal action in regard to the emergent threat pursuant to
40 CFR § 300.415 (b)(2):
(1) actual or potential exposure to nearby human populations; (2) actual or potential contamination of drinking water supplies or sensitive ecosystems; (3) hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release; (4) high levels of contaminants in soils near the surface that may migrate; (5) the threat of fire or explosion; (6) availability of federal or state response to potential release; and (7) other situations or factors that may pose threats to public welfare of the US or the environment.
USDOE attempts to justify use of a removal action based on the undocumented, hypothetical potential release from fire, explosion or structural failure over unspecified time periods. This does not meet the test for a realistic threat justifying a removal action instead of following the full process for a remedial action. USDOE acknowledged that the threat of fire or explosion is presently low and being monitored. In the Draft EE/CA USDOE said continued aging of the structure could result in such an "future unanticipated event." DOE/RL, Draft Engineering Evaluation Cost Analysis for the PUREX Complex, pages 2-19, 2-20 Section 2.5.
If the threat is "unanticipated", then there isn't a "threat." "Unanticipated" threats are certainly not "substantial."

xiv USDOE Dog Shoop to Ecology Alex Smith, December 7, 2018.

xv M-85-80 requires submission of the RI/FS for 200-CP-1 by September 30, 2020. Appendix C of the TPA, Identification of Units, includes "202-A; PUREX Canyon; PUREX Facility" within the scope of 200-CP-1. Thus, all of the scope of the EE/CA is within the milestone for submission of a complete RI/FS in thirteen months.

xvi Since these documents are not linked to the removal action proposal in the Administrative Record, USDOE, EPA and Ecology are not able to legally claim they are part of the administrative record considered by the agencies for this decision.

Commenter 35: Oregon Department of Energy

Dear Mr. Hamel,

Thank you for the opportunity to provide comment on DOE/RL-2016-15 – *Engineering Evaluation/Cost Analysis for the PUREX Complex.* While canyon demolition remains relatively low on Oregon's cleanup priorities list, we appreciate the need to maintain a workforce with the extensive training and unique skills to conduct demolition of highly contaminated facilities. To maximize this benefit, we recommend DOE begin the pre-demolition work either immediately following or concurrent with the completion of the Plutonium Finishing Plant (PFP) demolition. This work continuity will allow the workforce to retain the technical skills and experience gained during PFP demolition, saving time and on-boarding expenses.

Response: Thank you for your support. DOE plans to utilize the qualified and trained Hanford workforce in the most efficient manner.

The work proposed at PUREX will also reduce the risk of spreading contamination and reduce "hotel costs" associated with aging infrastructure – both of which we support.

We endorse the U.S. Department of Energy's preferred alternative, number 4, which includes hazard abatement of the 202A Building; demolition of the 202A East and West Annexes; and "demo prep" of the 202A Canyon above deck areas. Unfortunately, the analysis failed to include the anticipated hotel costs associated with each option, which would be helpful both for decisionmakers and external reviewers to better understand the specific savings that can be accrued from each action.

Response: The annual Surveillance and Maintenance cost (i.e. hotel cost) is provided for each alternative in ECE-200E15-00005, *Environmental Cost Estimate for the PUREX Complex*. The document is available at https://pdw.hanford.gov/document/AR-02654.

As the PUREX abatement, demo prep, and annex demolition proceeds, we urge DOE to carefully consider and implement lessons learned from the demolition of PFP. Contamination in the PUREX complex is widespread, requiring deliberate characterization, decontamination, and demo prep to minimize the risk of unintended contaminant spread.

Following annex demolition to slab-on-grade, we suggest at least a screening-level survey to look for evidence of past releases and assist in future contaminant removal actions.

Response: Enhanced work practices will be considered based on lessons learned from PFP. Pre- and post-demolition activities will be carefully planned by DOE to minimize the risk of unintended contaminant spread, identify evidence of past releases, and assist in future contaminant removal actions.

This page intentionally left blank.

Appendix B

Public Review Comments:

DOE/RL-2016-15, *Engineering Evaluation/Cost Analysis for the PUREX Complex*

This page intentionally left blank.

B1 Introduction

The following represents responses from the U. S. Department of Energy, Richland Operations Office, in Richland, Washington.

July 3, 2019, through August 17, 2019

Commenter 1:

Attached are my comments in opposition to the Partial Demolition of the Hanford PUREX Plant without adequate planning.

Opposition to Partial Demolition of Purex Plant without Adequate Planning to Avoid Spread of Plutonium as in 2017 Demolition of Plutonium Finishing Plant

USDOE should prepare a full Remedial Investigation/Feasibility Study for all proposed work so the public can fully review plans amd alternatives for the dangerous work of demolishing portions of the PUREX Plant complex. The "removal" action is a short circuit of the full CERCLA process.

The EE/CA does not meet the basic requirements of transparently disclosing risks or show why a time sensitive removal action is justified.

Response: Both *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA) removal and remedial actions are lawful processes authorized by CERCLA, Section 104, in response to the determination by the U.S. Department of Energy (DOE), as the lead agency, that there exists a "release or threat of release" of hazardous substances. This engineering evaluation/cost analysis (EE/CA) is for the short-term and is not intended to take the place of the long-term comprehensive remedial investigation/feasibility study (RI/FS) process. The removal action does not preclude the final remedial action, which will allow public comment on the final remedy.

CERCLA removal actions are fully authorized under law, and do not "short circuit" the long term and comprehensive remedial action process. Both removal and remedial actions are authorized under the same statutory provision in Section 104. CERCLA allows the non-time critical removal action (NTCRA) as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford site.

The WA Dept. of Ecology should order USDOE to sample the waste remaining in pipes. If dangerous wastes are identified, Ecology should order them to be quickly removed, as should have been done decades ago.

Response: The white powder (sodium hydroxide) has been sampled, issues of *Resource Conservation and Recovery Act of 1976* (RCRA) compliance for the Plutonium-Uranium Extraction (PUREX) and other canyon buildings were addressed through a Washington State Department of Ecology (Ecology) consent order in the *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement) in 1989. In the Tri-Party Agreement, the mixed waste in the PUREX Canyon was not regulated under RCRA prior to August 19, 1987, and the radioactive components of the waste present significant challenges for safe management and disposition. The hazardous substances in the PUREX Canyon would be addressed primarily through the CERCLA response action process. The consent order acts in lieu of ordinary regulatory requirements, which were never designed to apply to structures like the PUREX Canyon. PUREX was created and operated decades before the enactment of RCRA in 1976, and even then, the

provisions of RCRA that defer to the Atomic Energy Act, the regulation of nuclear materials lead to the determination by the federal government that RCRA was not intended to regulate any waste which contained radioactive substances. PUREX and its sister facilities were not designed to facilitate regulation under a future statute focused on chemical, rather than radioactive, materials.

We agree that the EE/CA does not address sampling and removing waste. This EE/CA provides the proper risk evaluation based on currently available information. The subsequent removal action work plan (RAWP) will delineate the plan for sampling and removing waste.

This interim CERCLA action supports mitigation of hazards within the PUREX Complex, which includes evaluation of pipeline hazards and potential removal.

The $217 million the USDOE has earmarked for demolishing part of PUREX, would be much better used to empty leaking Single Shell High Level Nuclear Waste Tanks and to clean up soil contamination right along the Columbia River. As the contamination enters the river, it will bring radioactive contamination to all the areas through which the Columbia flows for thousands of years.

Response: Tank waste management is an important activity at the Hanford Site and is currently funded by Congress under a separate DOE organization. There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor.

Taking shortcuts now in removing the Purex Plant complex to "save" money could result in infinitely more cost, both in dollars and in human suffering, in the immediate future and for endless generations to come. I urge the USDOE to invest the time and money now to do the job right to prevent the spread of deadly radioactive contamination.

Response: Thank you for your comment. Safety and reducing risks is of the utmost importance at the Hanford Site. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

Commenter 2:

Dear Representatives of US DOE and US EPA,

I am writing concerning the planned partial demolition of the Plutonium and Uranium Extraction Plant (PUREX) at the Hanford Nuclear Reservation in Washington State. I have children living in Portland, Oregon. On behalf of all children living downstream of Hanford, I request that you do not use the proposed funds for the demolition of PUREX.

For example, the money could be used instead to empty leaking Single Shell High Level Nuclear Waste tanks and clean up soil contamination right alongside the Columbia River.

If Europe can build an enclosure for the melted reactor at Chernobyl, certainly the United States can prevent more leaking of Plutonium and other toxic waste at Hanford.

I request that US DOE prepare a full Remedial Investigation and Feasibility Study for all proposed PUREX work so we, the public, can fully review plans and alternatives for this dangerous work.

Response: Removal actions are a key part of CERCLA response actions. As an interim step, they reduce threat and potential threats to human health and the environment while allowing the remedial action process to develop for eventual implementation.

Final cleanup remedies will be evaluated under the full CERCLA remedial action process in accordance with the Tri-Party Agreement Milestone M-085 series.

I request that this Study explain the source and content of the of the "white powders" that have been found covering surfaces at PUREX. The sampling and reporting need to follow Washington State Department of Ecology hazardous waste guidelines.

Response: As noted above, the white powder (sodium hydroxide) has been sampled. Issues of RCRA compliance for PUREX and other canyon buildings were addressed through an Ecology consent order in the Tri-Party Agreement in 1989. In the Tri-Party Agreement, the mixed waste in the PUREX Canyon was not regulated under RCRA prior to August 19, 1987, and the radioactive components of the waste present significant challenges for safe management and disposition. The hazardous substances in the PUREX Canyon would be addressed primarily through the CERCLA response action process. The consent order acts in lieu of ordinary regulatory requirements, which were never designed to apply to structures like the PUREX Canyon. PUREX was created and operated decades prior to the enactment of RCRA in 1976, and even then, the provisions of RCRA that defer to the Atomic Energy Act, the regulation of nuclear materials lead to the determination by the federal government that RCRA was not intended to regulate any waste which contained radioactive substances. PUREX and its sister facilities were not designed to facilitate regulation under a future statute focused on chemical, rather than radioactive, materials.

We agree that the EE/CA does not address sampling and removing waste. This EE/CA provides the proper risk evaluation based on currently available information. The subsequent RAWP will delineate the plan for sampling and removing waste.

Commenter 3:

I urge you to consider the safety and health hazards of the proposed partial demolition at PUREX.

Response: The PUREX 202A Canyon Building will not undergo demolition under this removal action. The PUREX annexes are the only structures proposed for demolition. This EE/CA provides the proper risk evaluation based on currently available information. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

There is no immediate danger that requires this removal action rather than carefully reviewed remedial action.

Response: The National Contingency Plan (NCP), 40 CFR 300.415(b)(2), "Removal Action," establishes factors to be considered in determining the appropriateness of a removal action. Those factors include the following:

- Hazardous substances or pollutants or contamination in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release. Hazardous substances, including radioactive substances, are contained within the PUREX Complex pipes and process vessels. These substances pose a threat of accidental release that may result from equipment failure resulting from a fire or seismic event.
- Other situations or factors are present that may pose threats to public health or the environment. Hazardous substances are present as fixed contamination within the cells, equipment, and additional structures. These substances pose a threat of release as fixed contamination becomes exposed and as structural integrity is compromised, resulting in a potential direct exposure of nearby personnel and

the environment, and exposure to the public through airborne radioactive contaminants. Degradation may not be fully addressed by surveillance and maintenance (S&M) activities and the risk of release of hazardous substances will increase as degradation continues or goes undetected.

Threats addressed under a removal action can be potential or imminent. The removal action has been prepared to reduce such threats until a final remedial action has been developed and implemented. DOE has the sole authority, pursuant to Executive Order 12580, *Superfund Implementation*, and CERCLA Section 104, to determine when and how to implement removal actions. See 40 CFR 300, "National Oil and Hazardous Substances Pollution Contingency Plan."

Past demolition has led to extensive plutonium contamination, and the current plan does not adequately address the risk of repeating the same mistake.

Response: Although the Plutonium Finishing Plant (PFP) was technically challenging, work processes are in place to proceed cautiously and safely. Based on current information at PUREX, the risk profiles between PFP demolition and PUREX ancillary structure demolition are not comparable. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

The white powder should be removed as ordered by the WA Dept. of Ecology years ago, rather than used as an excuse to claim imminent danger. The pipes which are the source of this powder should be cleaned up. But there are much better ways to spend $217 million than risking further spread of plutonium.

Response: We agree. This EE/CA supports removal of white powder. It should be noted that the driver for this EE/CA was not the white powder removal. The CERCLA interim removal action was initiated in 2016. Since the interim removal action was already initiated, it was deemed as the proper path forward to address the emergent white powder issue. This interim CERCLA action supports mitigation of hazards within the PUREX Complex, which includes evaluation of pipeline hazards and potential removal.

Regarding Hanford Site funding, tank waste management is an important activity at the Hanford Site and is currently funded by Congress under a separate DOE organization. There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor. Unfortunately, funding does not support all cleanup activities simultaneously.

Commenter 4:

I am a long-time resident of Richland, and I certainly support clean-up activities at PUREX. However, I feel it is unwise to perform such clean-up ahead of activities at locations more likely to impact the public in the near-term. For example, Crib 618-11 and other near-river contamination pose a significantly more immediate threat to downstream communities like Richland. Clean-up priorities and clean-up dollars need to first recognize the likelihood of transport of radionuclides to nearby members of the public. Also, as currently envisioned, it appears the demolition activities themselves will significantly spread radioactive contamination beyond the site of the project.

Response: The PUREX 202A Canyon Building will not undergo demolition under this removal action. The PUREX annexes are the only structures proposed for demolition.

Although PFP was technically challenging, work processes are in place to proceed cautiously and safely. Based on current information at PUREX, the risk profiles between PFP demolition and PUREX ancillary

structure demolition are not comparable. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor.

As learned at a recent Hanford Clean-up public meeting, air filters in the cars of some workers involved with PUREX-area activities contained detectable radioactivity when they were measured at their off-site residences. If preparatory activities at PUREX were/are being conducted with so little regard for off-site transport of radionuclides, I am concerned the proposed demolition activities will show similar disregard for the dangers imposed by radionuclides and on-site containment thereof. Simply put, it is ludicrous to proceed with activities that themselves will spread contamination at a facility that does not now pose a threat to the general public, and at the expense of clean-up projects that have a significant potential to alleviate contamination before such contamination directly impacts nearby residents.

Response: Removal action activities will be conducted using air emission controls to protect human health and the environment from airborne particulate matter.

Commenter 5:

To whom it may concern,

The following are my comments on the proposed USDOE Hanford PUREX Plant partial demolition "Removal Action".

1. The Engineering Evaluation and Cost Analysis (EE/CA) is flawed. It fails to adequately address major safety concerns from demolition. USDOE has not provided adequate documentation of wastes, risks, or a comparison of alternatives relating to meeting health and environmental standards.

Response: This EE/CA provides the proper risk evaluation based on currently available information. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

2. Prior to considering any future action at PUREX, USDOE must fully characterize the amount and type of all hazardous/radioactive substances at the PUREX facility. Only then can proper decisions be made regarding future actions at this site. How can USDOE discuss risks at the site using partial/missing information?

Response: This EE/CA provides the proper risk evaluation based on currently available information. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

3. Why have the wastes in PUREX piping that are producing "white powders" not been sampled? What is the "white powder"?

Response: The white powder (sodium hydroxide) has been sampled.

4. USDOE should first proceed with a full Remedial Investigation/Feasibility Study (RI/FS) before making any proposal for action at this site.

Response: Removal actions are a key part of CERCLA response actions. As an interim step, they reduce threat and potential threats to human health and the environment while allowing the remedial action process to develop for eventual implementation.

Final cleanup remedies will be evaluated under the full CERCLA remedial action process in accordance with the Tri-Party Agreement Milestone M-085 series.

5. Please explain why PUREX was placed on a schedule ahead of cleaning up/containing contamination related to the leaking single shell tanks as well as contamination adjacent to the Columbia River.

Response: Tank waste management is an important activity at the Hanford Site and is currently funded by Congress under a separate DOE organization. There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor.

6. Please describe the amount and type of dangerous wastes stored at Purex. Also describe USDOE plans (if any) to remove this hazardous waste and how this meets all applicable regulations.

Response: For the work scope within the EE/CA, Section 2.4 describes the anticipated dangerous waste inventory.

7. Due to the lack of data/information, the proposed removal action at PUREX could result in release of contamination impacting site workers, people living near Hanford, and the environment.

Thanks for your consideration. I look forward to your response.

Response: Thank you for your comment. The removal action work at the PUREX Complex will be conducted in a manner to protect human health and the environment. Enhanced work practices will be considered based on lessons learned from PFP.

Commenter 6:

Federal law is supposed to ensure the public can review and comment on cleanup and demolition plans before the work is given a green light. However the process USDOE is using for PUREX short circuits the public's ability to review plans and comment to ensure safety. Given the disastrous outcome of the 2017 PFP demolition that resulted in plutonium being spread over many square miles and contaminated workers' cars, which they drove home, it is reasonable to expect that a much more thorough demolition plan would be made to avoid further contamination of the area and endangering the workers.

Response: CERCLA removal actions are fully authorized under law, and do not "short circuit" the long-term and comprehensive remedial action process. Both removal and remedial actions are authorized under the same statutory provision in Section 104. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

Although PFP was technically challenging, work processes are in place to proceed cautiously and safely. Based on current information at PUREX, the risk profiles between PFP demolition and PUREX ancillary

structure demolition are not comparable. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

I believe that:

- USDOE should prepare a full Remedial Investigation / Feasibility Study (RI/FS) for all work proposed so the public can fully review plans and alternatives for the dangerous work of demolishing portions of the PUREX Plant complex. The "removal" action is a "short circuit" of the full CERCLA process.

Response: A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series. The removal action does not preclude the final remedial action that will allow public comment on the final remedy. It should be noted that CERCLA removal actions are fully authorized under law, and do not "short circuit" the long-term and comprehensive remedial action process. Both removal and remedial actions are authorized under the same statutory provision in Section 104. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

- The EE/CA does not meet the basic requirements of honestly disclosing risks or why a time sensitive removal action is justified. USDOE should do a structural analysis rather than make unsupported claims.

Response: The EE/CA proposes a NTCRA. This EE/CA was developed using U.S. Environmental Protection Agency (EPA) NTCRA guidelines applying a graded approach. The PUREX annexes are the only structures proposed for demolition. During the work planning process, ancillary structure demolition will be evaluated by a structural engineer to ensure structural integrity of 202A Building.

- The Washington Department of Ecology should order USDOE to sample the waste remaining in pipes which are the source of the "white powders", using state hazardous waste law authority. If dangerous wastes are identified, Ecology should order them to be quickly removed – as should have been done decades ago. Ironically, the EE/CA fails to include any plan for sampling and removing these dangerous wastes – even though USDOE cites the white powder to justify use of a "removal action."

Response: As noted above, the white powder (sodium hydroxide) has been sampled. RCRA compliance issues for PUREX and other canyon buildings were addressed through an Ecology consent order in the Tri-Party Agreement in 1989. In the Tri-Party Agreement, the mixed waste in the PUREX Canyon was not regulated under RCRA prior to August 19, 1987, and the radioactive components of the waste present significant challenges for safe management and disposition. The hazardous substances in the PUREX Canyon would be addressed primarily through the CERCLA response action process. The consent order acts in lieu of ordinary regulatory requirements, which were never designed to apply to structures like the PUREX Canyon. PUREX was created and operated decades prior to the enactment of RCRA in 1976, and even then, the provisions of RCRA that defer to the Atomic Energy Act, the regulation of nuclear materials lead to the determination by the federal government that RCRA was not intended to regulate any waste which contained radioactive substances. PUREX and its sister facilities were not designed to facilitate regulation under a future statute focused on chemical, rather than radioactive, materials.

We agree that the EE/CA does not address sampling and removing waste. This EE/CA provides the proper risk evaluation based on currently available information. The subsequent RAWP will delineate the plan for sampling and removing waste.

This interim CERCLA action supports mitigation of hazards within the PUREX Complex, which includes evaluation of pipeline hazards and potential removal.

- There are much higher priorities for $217 million than demolishing part of PUREX. USDOE should use those funds to empty leaking Single Shell High Level Nuclear Waste tanks and clean up soil

Response: Tank waste management is an important activity at the Hanford Site and is currently funded by Congress under a separate DOE organization. There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor.

Commenter 7:

I understand that DOE is planning to proceed with PUREX partial demolition actions using the Engineering Evaluation/Cost Analysis (EE/CA) documentation, in advance of a more detailed Remedial Investigation/Feasibility Study (RI/FS) documentation process which is due a year from now.
The estimate for this work in the EE/CA is given as $217 million.

Please note that the Hanford Advisory Board (HAB), which submits budget priority advice each fiscal year to DOE, has not identified the PUREX demolition in either of the last two of these advice submittals as being one of the communities' top Hanford cleanup priorities. Given that the estimated cost of this partial demolition is nearly 10% of the typical annual Hanford appropriated budget, it seems inappropriate to commit these funds to an action that has not been prioritized by the stakeholders representing our communities affected by Hanford activities.

I urge DOE to reconsider plans for spending this high level of funding on an activity which is not high on the community's immediate priority concerns. These funds and efforts could more meaningfully be applied on higher risk activities that are expected to impact environmental safety in the near term.

Note that the HAB Advice is public information, and the comments in this email are made by a private citizen living in the Tri-Cities area.

Thank you for your consideration.

Response: There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor. Unfortunately, funding does not support all cleanup activities simultaneously.

Commenter 8:

USDOE should prepare a full Remedial Investigation / Feasibility Study (RI/FS) for all work proposed so the public can fully review plans and alternatives for the dangerous work of demolishing portions of the PUREX Plant complex. The "removal" action is a "short circuit" of the full CERCLA process.

Response: A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series. The removal action does not preclude

the final remedial action, which will allow public comment on the final remedy. It should be noted that CERCLA removal actions are fully authorized under law, and do not "short circuit" the long-term and comprehensive remedial action process. Both removal and remedial actions are authorized under the same statutory provision in Section 104. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

- The EE/CA does not meet the basic requirements of honestly disclosing risks or why a time sensitive removal action is justified. USDOE should do a structural analysis rather than make unsupported claims.

Response: The EE/CA proposes a NTCRA. This EE/CA was developed using EPA NTCRA guidelines applying a graded approach. The PUREX annexes are the only structures proposed for demolition. During the work planning process, ancillary structure demolition will be evaluated by a structural engineer to ensure structural integrity of 202A Building.

- The Washington Department of Ecology should order USDOE to sample the waste remaining in pipes which are the source of the "white powders", using state hazardous waste law authority. If dangerous wastes are identified, Ecology should order them to be quickly removed – as should have been done decades ago. Ironically, the EE/CA fails to include any plan for sampling and removing these dangerous wastes – even though USDOE cites the white powder to justify use of a "removal action."

Response: As noted above, the white powder (sodium hydroxide) has been sampled. Issues of RCRA compliance for PUREX and other canyon buildings were addressed through an Ecology consent order in the Tri-Party Agreement in 1989. In the Tri-Party Agreement, the mixed waste in the PUREX Canyon was not regulated under RCRA prior to August 19, 1987, and the radioactive components of the waste present significant challenges for safe management and disposition. The hazardous substances in the PUREX Canyon would be addressed primarily through the CERCLA response action process. The consent order acts in lieu of ordinary regulatory requirements, which were never designed to apply to structures like the PUREX Canyon. PUREX was created and operated decades prior to the enactment of RCRA in 1976, and even then, the provisions of RCRA that defer to the Atomic Energy Act, the regulation of nuclear materials lead to the determination by the federal government that RCRA was not intended to regulate any waste which contained radioactive substances. PUREX and its sister facilities were not designed to facilitate regulation under a future statute focused on chemical, rather than radioactive, materials.

We agree that the EE/CA does not address sampling and removing waste. This EE/CA provides the proper risk evaluation based on currently available information. The subsequent RAWP will delineate the plan for sampling and removing waste.

This interim CERCLA action supports mitigation of hazards within the PUREX Complex, which includes evaluation of pipeline hazards and potential removal.

- There are much higher priorities for $217 million than demolishing part of PUREX. USDOE should use those funds to empty leaking Single Shell High Level Nuclear Waste tanks and clean up soil contamination right alongside the Columbia River (where USDOE cited cost to justify leaving contamination preventing public and tribal access for 200 years).

Response: Tank waste management is an important activity at the Hanford Site and is currently funded by Congress under a separate DOE organization. There is a need to address all potential threats at the

Hanford Site including canyon complexes like PUREX and priorities will continue to be evaluated with risk as a major factor.

Commenter 9:

USDOE priorities are incorrect. Do NOT use remediation funds to demolish the PUREX plant, but to empty leaking Single Shell High Level Nuclear Waste tanks and clean up soil contamination right alongside the Columbia River.

Thank you.

Response: Tank waste management is an important activity at the Hanford Site and is currently funded by Congress under a separate DOE organization. There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor. Unfortunately, funding does not support all cleanup activities simultaneously.

Commenter 10:

I have the following comments regarding USDOE's Hanford PUREX Plant partial demolition "Removal Action":

- USDOE should prepare a full Remedial Investigation / Feasibility Study (RI/FS) for all work proposed so the public can fully review plans and alternatives for the dangerous work of demolishing portions of the PUREX Plant complex. The "removal" action is a "short circuit" of the full CERCLA process.

Response: A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series. The removal action does not preclude the final remedial action, which will allow public comment on the final remedy. It should be noted that CERCLA removal actions are fully authorized under law, and do not "short circuit" the long-term and comprehensive remedial action process. Both removal and remedial actions are authorized under the same statutory provision in Section 104. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

- The EE/CA does not meet the basic requirements of honestly disclosing risks or why a time sensitive removal action is justified. USDOE should do a structural analysis rather than make unsupported claims.

Response: The EE/CA proposes a NTCRA. This EE/CA was developed using EPA NTCRA guidelines applying a graded approach. The PUREX annexes are the only structures proposed for demolition. During the work planning process, ancillary structure demolition will be evaluated by a structural engineer to ensure structural integrity of 202A Building.

- The Washington Department of Ecology should order USDOE to sample the waste remaining in pipes which are the source of the "white powders", using state hazardous waste law authority. If dangerous wastes are identified, Ecology should order them to be quickly removed – as should have been done decades ago. Ironically, the EE/CA fails to include any plan for sampling and removing these dangerous wastes – even though USDOE cites the white powder to justify use of a "removal action."

Response: As noted above, the white powder (sodium hydroxide) has been sampled. Issues of RCRA compliance for PUREX and other canyon buildings were addressed through an Ecology consent order in the Tri-Party Agreement in 1989. In the Tri-Party Agreement, the mixed waste in the PUREX Canyon was not regulated under RCRA prior to August 19, 1987. The radioactive components of the waste present significant challenges for safe management and disposition. The hazardous substances in the PUREX Canyon would be addressed primarily through the CERCLA response action process. The consent order acts in lieu of ordinary regulatory requirements, which were never designed to apply to structures like the PUREX Canyon. PUREX was created and operated decades prior to the enactment of RCRA in 1976, and even then, the provisions of RCRA that defer to the Atomic Energy Act, the regulation of nuclear materials lead to the determination by the federal government that RCRA was not intended to regulate any waste which contained radioactive substances. PUREX and its sister facilities were not designed to facilitate regulation under a future statute focused on chemical, rather than radioactive, materials.

We agree that the EE/CA does not address sampling and removing waste. This EE/CA provides the proper risk evaluation based on currently available information. The subsequent RAWP will delineate the plan for sampling and removing waste.

This interim CERCLA action supports mitigation of hazards within the PUREX Complex, which includes evaluation of pipeline hazards and potential removal.

- There are much higher priorities for $217 million than demolishing part of PUREX. USDOE should use those funds to empty leaking Single Shell High Level Nuclear Waste tanks and clean up soil contamination right alongside the Columbia River (where USDOE cited cost to justify leaving contamination preventing public and tribal access for 200 years).

Thank you for your consideration.

Response: Tank waste management is an important activity at the Hanford Site and is currently funded by Congress under a separate DOE organization. There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor.

Commenter 11:

I am deeply concerned about the proposed removal of nuclear waste from Hanford. The current proposal is inadequate.

Response: Thank you for your comment. Tank waste management is an important activity at the Hanford Site and is currently funded by Congress under a separate DOE organization. There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor. Unfortunately, funding does not support all cleanup activities simultaneously.

Commenter 12:

Dear USDOE,

There are four points that I feel are not addressed in the "removal action".

1. I do not believe major safety concerns from demolition are discussed in the EE/CA;

Response: This EE/CA provides the proper risk evaluation based on currently available information. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

2. I believe that CERCLA does not allow for this major decision with serious potential risks to be made using an EE/CA and "removal" plan;

Response: Both CERCLA removal and remedial actions are lawful processes authorized by CERCLA Section 104, in response to the determination by DOE, as the lead agency, that there exists a "release or threat of release" of hazardous substances. This EE/CA is for the short term and is not intended to take the place of the long-term, comprehensive RI/FS process. The removal action does not preclude the final remedial action which will allow public comment on the final remedy.

3. the EE/CA fails to document the basis for the $217 million cost or to propose a timeline;

Response: There are many unknowns and assumptions that resulted in the cost basis (+50%/-30%) and the funding uncertainly does not support a detailed timeline for the work. An environmental cost estimate was developed for this EE/CA (ECE-200E15-00005, *Environmental Cost Estimate for the PUREX Complex*).

4. USDOE has repeatedly said there is no near term risk of releases from PUREX. So, we question if spending $217 million on demolishing portions of PUREX is a priority when urgent priorities we share with tribes, such as emptying recently leaking Single Shell High Level Waste tanks or cleanup of contaminated soil along the River, are not proposed to be funded by USDOE.

Response: The NCP, 40 CFR 300.415(b)(2), establishes factors to be considered in determining the appropriateness of a removal action. Those factors include the following:

- Hazardous substances or pollutants or contamination in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release. Hazardous substances, including radioactive substances are contained within the PUREX Complex pipes and process vessels. These substances pose a threat of accidental release that may result from equipment failure resulting from a fire or seismic event.

- Other situations or factors are present that may pose threats to public health or the environment. Hazardous substances are present as fixed contamination within the cells, equipment, and additional structures. These substances pose a threat of release as fixed contamination becomes exposed and as structural integrity is compromised, resulting in a potential direct exposure of nearby personnel and the environment, and exposure to the public through airborne radioactive contaminants. Degradation may not be fully addressed by S&M activities and the risk of release of hazardous substances will increase as degradation continues or goes undetected.

Demolition activities associated with this removal action will augment the final remedial action for the 200-CP-1 Operable Unit (OU).

Under the Tri-Party Agreement, priorities for work at the Hanford Site are discussed among the Tri-Parties. The agreement among the Tri-Parties results in development of a report for the lifecycle scope, schedule, and cost for completion of the cleanup mission. Informational briefings are held with affected tribal governments and the Hanford Site stakeholders. Milestones are established in the Tri-Party Agreement Action Plan to implement the results of this report.

It is recognized that funding uncertainties continue to be a concern at the Hanford Site. Unfortunately, funding does not support single shell tanks, river corridor cleanup, and canyon RI/FS activities simultaneously.

This seems like a half worked plan that risks leaking plutonium into the environment again as happened in 2017 when the plutonium finishing plant was demolished.

From a purely conservative viewpoint it would seem we should learn from past mistakes and take responsible steps to ensure an honest success this time around.

Response: The PUREX 202A Canyon Building will not undergo demolition under this removal action. The PUREX annexes are the only structures proposed for demolition.

Although PFP was technically challenging, work processes are in place to proceed cautiously and safely. Based on current information at PUREX, the risk profiles between PFP demolition and PUREX ancillary structure demolition are not comparable. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

Commenter 13:

Clean up at Hanford must be done thoroughly, not sidestepping or delaying safe and acknowledged best practices. USDOE must not repeat the mistakes that led to large scale spread of Plutonium during demolition of Hanford's Plutonium Finishing Plant (PFP) in 2017. PLEASE do the needed work thoroughly, safely, and in a way that is permanent!

Thank you

Response: Thank you for your comment. The removal action work at the PUREX Complex will be conducted in a manner to protect human health and the environment. Enhanced work practices will be considered based on lessons learned from PFP.

Commenter 14:

You might want to wait to do this Purex Plant removal until after the big election of 2020 because if you start now and something goes sideways, there will be no resources or expertise available even to address the calamity.

Response: Thank you for your comment.

It would be like Chernobyl, less the presence and noble actions of the valiant few who rushed into the breach to die saving others. We are led and governed by people with the minds of children, and the stakes are large enough that if you are a thinking person, you will see it is better to accommodate your opposition than to rush something through when the stakes are such as these.

Below are good points with which you should be familiar:

- USDOE should prepare a full Remedial Investigation / Feasibility Study (RI/FS) for all work proposed so the public can fully review plans and alternatives for the dangerous work of demolishing portions of the PUREX Plant complex. The "removal" action is a "short circuit" of the full CERCLA process.

Response: Removal actions are a key part of CERCLA response actions. As an interim step, they reduce threat and potential threats to human health and the environment while allowing the remedial action process to develop for eventual implementation.

Final cleanup remedies will be evaluated under the full CERCLA remedial action process in accordance with the Tri-Party Agreement Milestone M-085 series.

- The EE/CA does not meet the basic requirements of honestly disclosing risks or why a time sensitive removal action is justified. USDOE should do a structural analysis rather than make unsupported claims.

Response: The EE/CA proposes a NTCRA. This EE/CA was developed using EPA NTCRA guidelines applying a graded approach. The PUREX annexes are the only structures proposed for demolition. During the work planning process, ancillary structure demolition will be evaluated by a structural engineer to ensure structural integrity of 202A Building.

- The Washington Department of Ecology should order USDOE to sample the waste remaining in pipes which are the source of the "white powders", using state hazardous waste law authority. If dangerous wastes are identified, Ecology should order them to be quickly removed – as should have been done decades ago. Ironically, the EE/CA fails to include any plan for sampling and removing these dangerous wastes – even though USDOE cites the white powder to justify use of a "removal action."

Response: As noted above, the white powder (sodium hydroxide) has been sampled. Issues of RCRA compliance for PUREX and other canyon buildings were addressed through an Ecology consent order in the Tri-Party Agreement in 1989. In the Tri-Party Agreement, the mixed waste in the PUREX Canyon was not regulated under RCRA prior to August 19, 1987. The radioactive components of the waste present significant challenges for safe management and disposition. The hazardous substances in the PUREX Canyon would be addressed primarily through the CERCLA response action process. The consent order acts in lieu of ordinary regulatory requirements, which were never designed to apply to structures like the PUREX Canyon. PUREX was created and operated decades prior to the enactment of RCRA in 1976, and even then, the provisions of RCRA that defer to the Atomic Energy Act, the regulation of nuclear materials lead to the determination by the federal government that RCRA was not intended to regulate any waste which contained radioactive substances. PUREX and its sister facilities were not designed to facilitate regulation under a future statute focused on chemical, rather than radioactive, materials.

We agree that the EE/CA does not address sampling and removing waste. This EE/CA provides the proper risk evaluation based on currently available information. The subsequent RAWP will delineate the plan for sampling and removing waste.

This interim CERCLA action supports mitigation of hazards within the PUREX Complex, which includes evaluation of pipeline hazards and potential removal.

- There are much higher priorities for $217 million than demolishing part of PUREX. USDOE should use those funds to empty leaking Single Shell High Level Nuclear Waste tanks and clean up soil contamination right alongside the Columbia River (where USDOE cited cost to justify leaving contamination preventing public and tribal access for 200 years).

Response: Tank waste management is an important activity at the Hanford Site and is currently funded by Congress under a separate DOE organization. There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor.

Commenter 15:

USDOE officials,

I see you want to do a partial cleanup of the PUREX plant in the dangerous style of your PFP demolition for a hefty $$ tag of $217 million while spreading plutonium over several square miles (like the PFP did), Hmmm, what's not to like about that? Instead of doing an expensive job with sloppy preparation and execution (like your documents describe), please re-prioritize those mega-bucks to the more pressing issues like emptying recently leaking single shell high level waste storage tanks! Or try cleaning up the contaminated soil along the river.

Please don't contaminate the northwest any more than you already have.

Response: There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor. Unfortunately, funding does not support all cleanup activities simultaneously. Demolition activities will be performed in a manner that is protective of human health and the environment.

Commenter 16:

I am writing as a concerned citizen of Washington State to express disquiet about plans for partial demolition of the PUREX plant at Hanford. I am worried that previous similar actions resulted in unsafe releases of harmful substances and that insufficient preparatory reviews have been conducted. I am also concerned whether the funds devoted to this partial demolition are the best use of scarce government resources at Hanford at a time when leaking waste tanks still need proper attention.

Response: Thank you for your comment. The removal action work at the PUREX Complex will be conducted in a manner to protect human health and the environment. Enhanced work practices will be considered based on lessons learned from PFP.

It is recognized that funding uncertainties continue to be a concern at the Hanford Site. Unfortunately, funding does not support single shell tanks, river corridor cleanup, and canyon RI/FS activities simultaneously. This removal action presents a middle ground. DOE will request appropriate funds for this removal action.

I urge USDOE to conduct a full feasibility study and inform the public about the results before further work is undertaken on the plant demolition.

Response: A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series.

Commenter 17:

USDOE should prepare a full Remedial Investigation / Feasibility Study (RI/FS) for all work proposed so the public can fully review plans and alternatives for the dangerous work of demolishing portions of the PUREX Plant complex. The "removal" action is a "short circuit" of the full CERCLA process.

Response: Removal actions are a key part of CERCLA response actions. As an interim step, they reduce threat and potential threats to human health and the environment while allowing the remedial action process to develop for eventual implementation.

Final cleanup remedies will be evaluated under the full CERCLA remedial action process in accordance with the Tri-Party Agreement Milestone M-085 series.

- The EE/CA does not meet the basic requirements of honestly disclosing risks or why a time sensitive removal action is justified. USDOE should do a structural analysis rather than make unsupported claims.

Response: The EE/CA proposes a NTCRA. This EE/CA was developed using EPA NTCRA guidelines applying a graded approach. The PUREX annexes are the only structures proposed for demolition. During the work planning process, ancillary structure demolition will be evaluated by a structural engineer to ensure structural integrity of 202A Building.

- The Washington Department of Ecology should order USDOE to sample the waste remaining in pipes which are the source of the "white powders", using state hazardous waste law authority. If dangerous wastes are identified, Ecology should order them to be quickly removed – as should have been done decades ago. Ironically, the EE/CA fails to include any plan for sampling and removing these dangerous wastes – even though USDOE cites the white powder to justify use of a "removal action."

Response: As noted above, the white powder (sodium hydroxide) has been sampled. Issues of RCRA compliance for PUREX and other canyon buildings were addressed through an Ecology consent order in the Tri-Party Agreement in 1989. In the Tri-Party Agreement, the mixed waste in the PUREX Canyon was not regulated under RCRA prior to August 19, 1987. The radioactive components of the waste present significant challenges for safe management and disposition. The hazardous substances in the PUREX Canyon would be addressed primarily through the CERCLA response action process. The consent order acts in lieu of ordinary regulatory requirements, which were never designed to apply to structures like the PUREX Canyon. PUREX was created and operated decades prior to the enactment of RCRA in 1976, and even then, the provisions of RCRA that defer to the Atomic Energy Act, the regulation of nuclear materials lead to the determination by the federal government that RCRA was not intended to regulate any waste which contained radioactive substances. PUREX and its sister facilities were not designed to facilitate regulation under a future statute focused on chemical, rather than radioactive, materials.

We agree that the EE/CA does not address sampling and removing waste. This EE/CA provides the proper risk evaluation based on currently available information. The subsequent RAWP will delineate the plan for sampling and removing waste. This interim CERCLA action supports mitigation of hazards within the PUREX Complex, which includes evaluation of pipeline hazards and potential removal.

- There are much higher priorities for $217 million than demolishing part of PUREX. USDOE should use those funds to empty leaking Single Shell High Level Nuclear Waste tanks and clean up soil contamination right alongside the Columbia River (where USDOE cited cost to justify leaving

Response: Tank waste management is an important activity at the Hanford Site and is currently funded by Congress under a separate DOE organization. There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor.

Commenter 18:

Thank you for the opportunity to comment on actions that could endanger workers, local communities, and critical waterways.

I understand that USDOE is preparing to demolish the PUREX plant, but it is not at all clear why demolition is necessary at this time, and it appears that USDOE is on course to repeat the errors that occurred during the removal of the Plutonium Finishing Plant in 2017.

Response: The PUREX annexes are the only structures proposed for demolition. Enhanced work practices will be considered based on lessons learned from PFP.

I urge you to do everything possible to comply with all EPA guidelines (which the EE/CA fails to do), to prepare a full Remedial Investigation/Feasibility Study so the public can review the plans and alternatives, and to prioritize the removal and remediation of actively leaking tanks and soil contamination alongside the Columbia River over the removal of the currently mothballed PUREX plant.

Response: This EE/CA was developed using EPA NTCRA guidelines applying a graded approach.

A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series.

There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor. Unfortunately, funding does not support all cleanup activities simultaneously.

The Washington Department of Ecology should order USDOE to sample the waste remaining in pipes which are the source of the "white powders", using state hazardous waste law authority. If dangerous wastes are identified, Ecology should order them to be quickly removed – as should have been done decades ago.

Response: As noted above, the white powder (sodium hydroxide) has been sampled. Issues of RCRA compliance for PUREX and other canyon buildings were addressed through an Ecology consent order in the Tri-Party Agreement in 1989. In the Tri-Party Agreement, the mixed waste in the PUREX Canyon was not regulated under RCRA prior to August 19, 1987. The radioactive components of the waste present significant challenges for safe management and disposition. The hazardous substances in the PUREX Canyon would be addressed primarily through the CERCLA response action process. The consent order acts in lieu of ordinary regulatory requirements, which were never designed to apply to structures like the PUREX Canyon. PUREX was created and operated decades prior to the enactment of RCRA in 1976, and even then, the provisions of RCRA that defer to the Atomic Energy Act, the regulation of nuclear materials lead to the determination by the federal government that RCRA was not intended to regulate any waste which contained radioactive substances. PUREX and its sister facilities

were not designed to facilitate regulation under a future statute focused on chemical, rather than radioactive, materials.

We agree that the EE/CA does not address sampling and removing waste. This EE/CA provides the proper risk evaluation based on currently available information. The subsequent RAWP will delineate the plan for sampling and removing waste.

Commenter 19:

Good Morning USDOE, Washington Ecology, and US EPA,

I am writing regarding the plan to demolish the Hanford Purex Plant. I see nothing in the documents assuring me that there is any imminent threat! You need to do more testing, etc to justify addressing this now, let alone spending the budget dollars.

I also encourage you to address what has been proven to be an imminent threat. That is, or those are, the single shell underground tanks, containing deadly poison, that need to be replaced IMMEDIATELY! We all know they are leaking into the groundwater, and into the Columbia River! Now, there's an imminent - or should I say - CURRENT threat.

Response: The PUREX 202A Canyon Building will not undergo demolition under this removal action. The PUREX annexes are the only structures proposed for demolition.

This removal action is deemed as non-time critical and is not considered an imminent threat but a potential threat. Based on the following regulation, DOE is pursuing this interim action to address a potential threat and reduce risks to human health and the environment

The NCP, 40 CFR 300.415(b)(2), establishes factors to be considered in determining the appropriateness of a removal action. Those factors include the following:

- Hazardous substances or pollutants or contamination in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release. Hazardous substances, including radioactive substances are contained within the PUREX Complex pipes and process vessels. These substances pose a threat of accidental release that may result from equipment failure resulting from a fire or seismic event.
- Other situations or factors are present that may pose threats to public health or the environment. Hazardous substances are present as fixed contamination within the cells, equipment and additional structures. These substances pose a threat of release as fixed contamination becomes exposed and as structural integrity is compromised, resulting in a potential direct exposure of nearby personnel and the environment, and exposure to the public through airborne radioactive contaminants. Degradation may not be fully addressed by S&M activities and the risk of release of hazardous substances will increase as degradation continues or goes undetected.

You are allowing the groundwater, and the Columbia River to be polluted, to say nothing of the danger to the Pacific Coast, and all fish, fisheries, and fishermen, if these tanks are not replaced IMMEDIATELY! And while that's being done, the research can be "completed" on the Demolition of the Hanford Purex Plant. That project can be next.

I will pray for the safety of every person involved in addressing the cleanup of the most contaminated site in the USA.

Response: Thank you for your comment. Tank waste management is an important activity at the Hanford Site and is currently funded by Congress under a separate DOE organization. There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor.

Commenter 20:

As DOE has recommended Alternative 4 my comments will focus on Alternative 4.

I have one significant disagreement with this EE/CA. In section 2.2.1.2 Out-of-scope Areas which states "The areas within the 202A Building that are out of scope are considered more difficult to access safely and therefore will be addressed at a later date." The major premise of this document is to be protective of public health and the environment and I don't know how this document successfully achieves that objective without considering the whole PUREX Complex. In my opinion the greatest threat to the public health and environment is the collapse of the East Crane Maintenance Platform (ECMP). The ECMP was added in 1957 and is not part of the original structure. The hazard assessment of the PUREX Final Safety Analysis Report indicated the ECMP was the only major structure of the PUREX Complex that would not survive a Hanford Regional Historic Earthquake. Collapse of the ECMP will spread radioactive contamination from the surfaces of the ECMP, provides a direct route of contamination from the space above the canyon cover blocks to the environment and significantly disrupt the airflow within the 202A building allowing contamination migration into non-contaminated areas. Consideration of the ECMP is consistent with the National Contingency Plan factors described in the introduction (threats resulting from equipment failure from fire or seismic event). I believe that DOE resources identified in this EE/CA would be better spent with the ECMP as the highest priority item. This activity would be difficult but is a scenario that I believe is a greater threat to the public and environment than any of the hazards described within the EE/CA.

Response: The east crane maintenance platform and the remainder of the PUREX Complex will be addressed during the RI/FS process.

In addition, I am not aware of the cause of the PUREX Tunnel #1 collapse and if it were related to any ground vibration/movement the event could also have weakened other structures within the PUREX Complex such as the ECMP, the underground ventilation system, the stack, etc. I also read that water above historical levels has been discovered in the underground filters and could this also be related? Could the filter structure be breached? The source term in the underground ventilation system is a much greater threat to the public and environment than some of the areas considered by the EE/CA and is not contained by a structure as robust as the 202A canyon. By not evaluating these hazards a skeptic could assume that DOE is performing the activities they know how to do but not addressing all of the threats to public health and the environment.

Response: The filters and the remainder of the PUREX Complex will be addressed during the RI/FS process. A structural integrity assessment is currently being performed on the underground filters at PUREX.

I do not believe DOE has demonstrated the benefit to public health and the environment of the hazard abatement activities below grade proposed at PUREX. The hazards as identified in table 2-3, Current Hazard Conditions are not unexpected for a nuclear facility that has the processing history of PUREX and has sat for 20 years. These hazards are well within the control of a robust S&M program (albeit requiring considerable care in dealing with these risks). As long as the 202A containment structure and air flow

remains as configured the only real threat of contamination release from the below grade areas to the environment is during the performance of surveillance and maintenance which DOE has engineering and administrative controls in place to prevent. Granted there are ongoing issues with contamination migration and discovery of residual chemicals but these are well within the control of DOE through the S&M program. Some of these hazard reduction activities may de-risk the S&M tasks for a time but new ones will emerge. DOE should be looking at ways to eliminate routine personnel entry because S&M will not be completely de-risked until PUREX is removed.

Response: Surveillance and maintenance is expected to continue on an annual frequency.

Although the N Cell gloveboxes were attributed to have over 1000 ci of Plutonium, the non-destructive assay of the gloveboxes in their current configuration was most likely an upper limit. Surveys of the gloveboxes during deactivation indicated contamination levels well below the non-destructive assay levels and the contamination was fixed in place. Again there will be ongoing issues of contamination migration but again within the control of the S&M program. The Product Removal (PR) Room may be the exception because the source term is larger and to a much higher degree removable. Some additional contamination control activities may be needed there.

Response: Thank you for your comment.

The hazardous materials and radiological contamination that are currently inventoried throughout the below grade areas could conceivably remain in place if the 221-U approach (as described in the EE/CA) is taken at PUREX and are best left in place until that decision is made. If a different approach is determined to be more effective the ultimate disposition of those hazardous materials can be determined at that point when the demolition program has been developed. The effort, safety risk and personnel radiation dose received does not seem to be balanced by the threat reduction to the public and environment. I also believe the same is true for the areas above the Pipe and Operating Gallery level such as the West Crane Maintenance Platform.

Response: Hazard abatement under this removal action will be conducted to minimize worker exposure and to maximize protection of human health and the environment. The subsequent RAWP will detail work planning and processes to address worker safety and human health and the environment. Final cleanup remedies will be evaluated under the full CERCLA remedial action process in accordance with the Tri-Party Agreement Milestone M-085 series.

I agree the radiological hazards associated with the White Room are a threat to public health and the environment and the effort to immobilize or decontaminate may be beneficial now and will also have to be addressed during any demolition activities.

I agree with performing hazard abatement activities in the Pipe and Operating Gallery, I just don't know the effort required. The expansion joints will continue to degrade and need attention and ongoing surveillance (and potentially the expansion joint leak in the storage gallery). Additional fixative may be needed for some contamination areas. As for asbestos, it is unclear how much is degrading and whether continued patching is adequate or needs removal now. If the condition of the asbestos in the Pipe and Operating Gallery is a threat to public health and the environment, then a number of other facilities are a similar or greater threat including building 203A, building 211A (and the chemical tank farm) and building 206A which had not been evaluated by this EE/CA. The asbestos in building 206A was not in as good a condition as the Pipe and Operating Gallery when the facility was deactivated and the barrier between the asbestos and the environment is similar to the Pipe and Operating Gallery.

Response: Thank you for your insight. Hazard abatement under this removal action will be conducted to minimize worker exposure and to maximize protection of human health and the environment.

I do not believe DOE has demonstrated the threat reduction to public health and the environment by the removal of the West Annex. There is limited radiological contamination (primarily in the head tank room above the Aqueous Makeup Unit). The Aqueous Makeup Unit does contain numerous chemical tanks and chemical piping but each of those was flushed and any chemical residues discovered outside the tanks and piping will be dilute, a low hazard to public health and difficult to migrate to the environment. I acknowledge these are hazards to the S&M workforce but the ability to deal with these instances should be encompassed by the workforce's training and engineering/administrative controls of the S&M program. These are not new hazards being introduced at PUREX and are well documented in the operating procedures, training materials and end point criteria. The West Annex does provide a buffer area between the Pipe and Operating Gallery (including the White Room) and the environment. This area will ultimately be part of the 202A demolition debris and be more efficiently removed during building demolition. Water leaks from the roof are a nuisance but I do not feel an adequate case was made for the West Annex demolition at this time. I do feel that removal of the West Annex will facilitate demolition in the future and could be done in conjunction with the EE/CA activities but I don't believe it meets the criteria and objectives of the EE/CA.

I do agree there is a threat to public health and the environment posed by the East Annex from the radiological contamination within the laboratory hood and gloveboxes although the risk is not substantiated in the EE/CA.

Other considerations: The short exhaust stacks (for instance the east and west sample gallery exhaust stacks) should also be evaluated for removal and disposition at the building exit point. These may contain contamination (which is outside the building containment) and the stacks could come down in a wind event spreading contamination to the environment.

Response: Thank you for your comment.

In conclusion, one of DOE's major premises of preparing nuclear facilities for long term surveillance and maintenance was to not expend resources on activities that could be done, but to perform those activities which needed to be done to provide reduce the threat to public health and the environment. This was done through a disciplined approach utilizing end point criteria. Since the facility is still in long term S&M this premise should still apply.

Response: The NCP, 40 CFR 300.415(b)(2), establishes factors to be considered in determining the appropriateness of a removal action. Those factors include the following:

- Hazardous substances or pollutants or contamination in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release. Hazardous substances, including radioactive substances are contained within the PUREX Complex pipes and process vessels. These substances pose a threat of accidental release that may result from equipment failure resulting from a fire or seismic event. Other situations or factors are present that may pose threats to public health or the environment.

- Hazardous substances are present as fixed contamination within the cells, equipment and additional structures. These substances pose a threat of release as fixed contamination becomes exposed and as structural integrity is compromised, resulting in a potential direct exposure of nearby personnel and the environment, and exposure to the public through airborne radioactive contaminants. Degradation may not be fully addressed by S&M activities and the risk of release of hazardous substances will increase as degradation continues or goes undetected.

With the removal of PUREX probably a minimum of a decade away there are actions that need to be taken to reduce the PUREX Complex threat to public health and the environment. This EE/CA proposes

to spend $200M on Alternative 4. That is a significant portion of the DOE-RL budget and needs to provide a higher benefit than the $200M could provide elsewhere. I do not feel that DOE has successfully demonstrated the need to spend $200M on the activities described in this EE/CA. (Also there should be a breakout of the S&M costs separately so the public can understand the increment between S&M and hazard reduction activities.)

Response: There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor. Unfortunately, funding does not support all cleanup activities simultaneously. Cost for this removal action will be collected separately from surveillance and maintenance.

Additionally I don't think DOE has evaluated all of the threats to public health and the environment from the PUREX Complex regardless of their difficulty. I believe DOE should re-evaluate the entire PUREX Complex and prioritize the threat reduction activity by activity and provide more detail behind their analysis through a revision to this EE/CA.

Response: This EE/CA provides the proper risk evaluation based on current information available. The scope of this removal action is to reduce the threat to human health and the environmental until the final remedial action has been developed and implemented. The final remedial action will contain a risk assessment for the entire 200-CP-1 OU, including the PUREX Complex.

Commenter 21: Heart of America Northwest

Dear USDOE PUREX EECA lead official(s), EPA and Ecology:

I expected a response yesterday to this request for an extension of the comment period for the PUREX Plant removal action / EE/CA plan. The comment period is still scheduled to end tomorrow, August 2nd. Granting an extension is NOT DISCRETIONARY, pursuant to CERCLA regulations cited below. The public should know right away if the comment period will be extended and for how long, rather than being forced to submit comments by tomorrow. Further, our organization needs to know if, and for how long, the comment period will be extended in order for us to provide members and the public with summary materials that will enable the public to comment.

Only today did we discover that USDOE had issued a sampling and analysis plan on July 17 for "white powder" dangerous wastes in the PUREX complex. The presence of this white powder is cited in the EE/CA as justifying the use of a "removal action." Review of the sampling and analysis plan is relevant for commenting. Yet, no public notice of its relationship to the current comment period has been made.

Closing the comment period without extension or disclosure of the plan would provide successful bases for appeal or challenge.

Please ensure that public notice of an extension of the comment period, and availability of the sampling and analysis plan, are provided to the public today.

Response: Pursuant to 40 CFR 300.415(n)(4)(iii), the lead agency (DOE) accommodated the request to extend the comment period by 15 days.

Commenter 22: Heart of America Northwest

On behalf of Heart of America Northwest and our thousands of members across the region who care deeply about Hanford Cleanup and may wish to submit informed comments on the PUREX Plant EE/CA, we request a 30 day extension of the comment period on the PUREX EE/CA.

The PUREX Plant EE/CA involves the massive PUREX plant and complex considerations of what wastes are present in numerous areas / facilities in the Plant, and whether the proposed actions are appropriate for disparate areas and wastes. To assist people in commenting, detailed review of the EE/CA is required,. Such detailed review and preparation of materials for the public to use in offering informed comments takes more than thirty days. The proposed action is not a "time critical" action. USDOE has taken several years to issue the draft EE/CA. Thus, an extension would not harm any timelines while ensuring that the public and our organization has adequate time to review and offer informed comment.

Pursuant to 40 CFR 300.415(n)(4)(3), the lead agency (USDOE) shall extend the comment period by fifteen days. An extension of thirty days is permissible and would provide the appropriate time for review and comment without jeopardizing any removal action or creating any risk. Therefore, we request an extension of thirty days. If thirty days is not granted, we expect that the agencies will issue an extension of fifteen days and provide appropriate notice to the public. Thank you,

Response: Pursuant to 40 CFR 300.415(n)(4)(iii), the lead agency (DOE) accommodated the request to extend the comment period by 15 days.

A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series.

Commenter 23:

CLEAN. IT. UP.
This is a disgrace to every citizen living in the Pacific Northwest.

Response: Thank you for your comment.

Commenter 24:

Hello,

My family lives in Oregon, near the Columbia River and downstream from the Hanford Nuclear site. I am writing to ask that this cleanup be highly prioritized by the Washington State and federal governments. I am worried about the waterways and environmental health in Washington and Oregon! I am worried about how the toxic waste products in the Hanford facility will effect our children and natural resources that we depend on.

Thank you for all your hard work.

With respect and gratitude,

Response: Thank you for your support. Regarding priorities, tank waste management is an important activity at the Hanford Site and is currently funded by Congress under a separate DOE organization.

There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor. Unfortunately, funding does not support all cleanup activities simultaneously.

Commenter 25:

I agree with option 4 and spending the funds to achieve this option. I live in Portland, down the river and downwind from this plant. Hanford needs the federal governments attention! It should be cleaned up and time is of the essence. It's a bit disturbing it has dragged out so long. Fund it, do it, and check it off your list before an environmental disaster takes place. Some may think the site is in the middle of no where but there are people who live near there, recreate there on our weekends, and the gorge and Columbia river are major tourism for both Washington and Oregon. If Hanford leaked anymore then it already has, it will leak into the Columbia eventually and out into the pacific and up and down the coastline and it will all be on the federal governments back. Please help us who are local and approve permit and cleanup quick. It should be a priority and I applaud you all for moving in that direction.

Thank you

Response: Thank you for your support.

Commenter 26:

I know people who grew up in that area with earlier than expected stomach cancer. Living down river, I've allowed my daughter to swim in the Willamette River. Its nauseated to think about my toddler dying in that manner down the road.

Response: Thank you for your comment. DOE will continue to evaluate and prioritize risks to protect human health and the environment.

Commenter 27:

Chernobyl.

Response: Thank you for your comment. DOE will continue to evaluate and prioritize risks to protect human health and the environment.

Commenter 28:

Dear Ms. Call:

The purpose of this letter is to provide comments to the Department of Energy on the recently issued Engineering Evaluation/Cost Analysis for the Purex Plant. The comment period is from July 3rd to August 2nd. I would appreciate if the Department of Energy will consider these comments before a final decision is made.

The EE/CA states that areas that will be addressed under this removal action are areas that can be accessed, adequately ventilated for worker safety, and have immediate need for near term action. The

specific areas of the 202A Building that are in the scope of this EE/CA include the Canyon Deck, Crane Cab Gallery, West Crane Maintenance Platform, P&O Gallery, White Room, Canyon Lobby & Storage Room, Sample Gallery, Storage Gallery, Positive Infinitely Variable (PIV) Room, Product Removal (PR) Room, PR Corridor, N Cell, and entire East Annex and West Annex structures.

The areas within the 202A Building that are out of scope are considered more difficult to access safely, and, therefore, will be addressed at a later date (are out of scope). Specific areas that are not in the scope of this EE/CA include the 12 Process Cells, Hot Pipe Trench, Air Tunnel, Slug Storage Basin, Pool Cell, Q Cell, Hot Shop, two Master Cranes, Slave Crane, East Crane Maintenance Platform, and two railroad tunnels: Storage Tunnel #1 and Storage Tunnel #2.

The preferred actions have a cost of $217.7 million (order of magnitude engineering cost estimate with a range of -30% to +50%).

1. The EE/CA document is published with the number DOE/RL-2016-15 Rev 0. Why a 2016 document number if the document was approved June 6, 2019? Has this document been in draft for a while? Was there actually no urgency about this? Can you show the history of the integrated priority list?

Response: Yes. This EE/CA was initiated during the 2016 time period. This EE/CA was in development when the PUREX Tunnel 1 collapsed in 2017. DOE shifted priorities to address the near-term risk of the PUREX tunnels' structural integrity. DOE completed stabilization of both tunnels in 2019. With the completion of the high-risk tunnel project, priorities shifted back to the PUREX Canyon EE/CA, which resulted in a late comment period on this document. Hanford Site risks are continually evaluated and prioritized and will shift if unforeseen events arise. The integrated priority list has been an internal working document and is not available at this time.

2. The actions affect "easy to reach" places, but the inventories and hazardous conditions identified in Tables 2-1 through 2-3 are all over the plant and do not distinguish the inventories that will specifically be addressed by the proposed actions. Can you show the kg of hazardous materials and curies subject to action versus the amounts in the "not to be touched" areas? The tables appear to overstate the inventories to be acted on, or the source term is actually unknown. For example, leaking oil observed in Q cell will not be addressed.

Response: No, the quantities of hazardous and radioactive materials cannot be shown because the amounts subject to the action versus "not to be touched" have not been evaluated nor are they planned to be evaluated. Hazard abatement under this removal action will be conducted to minimize worker exposure and to maximize protection of human health and the environment. The subsequent RAWP will detail work planning and processes to address worker safety and human health and the environment.

3. Where hazard conditions are not known, how can there be an accurate cost estimate for the work to be performed? How can the risk be known? Is there evidence that the roof replacement was ineffective so that there is water intrusion? Is there a structural analysis to show potential subsidence of the building, as was the case for Purex Tunnel No. 1? Has the U.S. Army Corps of Engineers reviewed the cost estimate? GAO has observed that DOE cost estimates are unreliable. In addition, past experience is that "surprises" such as inaccurate drawings, unverified assumptions, and failure to include risks have caused cost ranges to exceed +50%. In some cases, the increase has exceeded 100%, as in the case of closure actions at WESF. The EE/CA analysis appears to be superficial.

Response: An environmental cost estimate was developed for this EE/CA (ECE-200E15-00005). There are many unknowns and assumptions that resulted in the cost basis (+50%/-30%), and the funding

uncertainly does not support detailed work planning at this time. The estimate is based on current known conditions in accordance with environmental estimating procedures for CERCLA proposed actions. The U.S. Army Corps of Engineers has not reviewed the cost estimate, nor are they required to review environmental estimates.

At this time, there is no evidence that the roof replacement was ineffective. In addition, there is no evidence of potential subsidence of the building at this time. It should be noted for this removal action that during the work planning process, ancillary structure demolition will be evaluated by a structural engineer to ensure structural integrity of 202A Building.

4. The information in Table 2-1 does not have data for chromium, yet DOE has obtained sample data for the "white powder" observed previously by the Department of Ecology. Please see letter 18-ESQ-0019[1]. It would help the cost analysis to know just how much chromium for example, has leached from piping into the white power, so that the hazard can be assessed. What is the total estimated volume of the piles? The total hazardous chemical inventory? Is piping corrosion a hazardous waste elsewhere in the state? Will any of the proposed actions prevent future accumulation of powders?

Response: The white powder has been designated as dangerous waste and will be removed per the subsequent RAWP. The estimated volume of the "piles" has not been attained. This removal action will cover removal of white powder in addition to other hazardous materials within the PUREX Complex. Per CERCLA, specific quantities are not required to be defined. The environmental cost estimate focuses on the cost of execution of the work (e.g., the work approach), not the waste quantities.

It is unknown whether piping corrosion is a hazardous waste elsewhere in the state.

This proposed CERCLA removal action will allow us to address sources of hazardous substances (e.g., pipe and tank removal).

5. RAO #1 to "reduce" the inventory is vague and should be made specific so that the taxpayer knows the amount spent per kilogram of hazardous components removed. Objectives should be specific.

Response: Hanford Site cleanup is very complex and mostly represents challenges due to the uniqueness of the cleanup scope. A per unit cost in one cleanup effort may be significantly different in another effort based on the unique facility configuration, chemical, or radiological hazards present. Although it would be interesting to know, it would be of limited value.

6. RAO #3 is also vague. Safe treatment of Purex waste should be conducted on-site, by methods described in the EE/CA. Otherwise the risks and exposures cannot be estimated. Goals should be accompanied by methods.

Response: The subsequent RAWP will detail work planning and processes to address worker safety and human health and the environment. The risks and potential exposures are identified during work planning in the execution year and appropriate controls will be put in place.

7. What is the actual risk of white powder removal? Letter 18-ESQ-0019 appears to contradict the hazardous conditions expressed in the EE/CA. This letter states that adequate worker protection exists for the white powder with current work control processes. 18-ESQ-0019 also states "the material is in a safe and stable condition within the confines of PUREX, has not been released to the environment, and does not constitute a threat to human health or the environment." This letter could be used to quantify the actual risk. However it was not referenced in the EE/CA. Letter

18-AMRP--0027[2], December 2017, indicated that the white powder analyses were intended for use in the Remedial Investigation/Feasibility Study for Purex Plant disposition. There was no heightened risk identified, except for Ecology's threatened enforcement actions. Letter 17-ESQ-0110[3] indicated that the expected action was to clean the white powder from the tour paths at Purex. This action differs quite a bit from a $218 million (-30% to +50% or more) project.

Response: The white powder was designated as dangerous waste per 17-NWP-113, "Administrative Order Docket #15343." Accordingly, DOE-RL is bound to perform cleanup actions. The scope of this EE/CA includes the PUREX Complex, which includes white powder cleanup. It should be noted that the driver for this EE/CA was not the white powder removal. The CERCLA interim removal action for the PUREX Complex was initiated in 2016. Since the interim removal action was already initiated, it was deemed as the proper path forward to address the emergent white powder issue. This interim CERCLA action supports mitigation of hazards within the PUREX Complex.

8. The EE/CA states that a CERCLA record of decision (ROD) for disposition of the Purex Plant will not occur until "the 2032 time frame." Why such a long delay? The proposed EE/CA actions are intended to be consistent with an unknown decision, so this creates a considerable risk of unnecessary exposure to personnel, even as the State of Washington has required enhanced worker's compensation for waste exposures.

Response: Due to competing Hanford Site priorities, availability of funding, and the complexities of reaching agreement on a Record of Decision on the PUREX Complex, the timeframe for obtaining a ROD for the PUREX Complex continues to be delayed. DOE recognizes the risks of delaying the final decision and is taking action through this interim CERCLA action to mitigate potential risks.

Hazard abatement under this removal action will be conducted to minimize worker exposure and to maximize protection of human health and the environment. The subsequent RAWP will detail work planning and processes to address worker safety and human health and the environment.

9. If there are structures that are truly hazardous (such as crumbling stairs or risk of subsidence, or known water intrusion), a hazards assessment/value engineering results should be provided. The EE/CA is based more on brainstorming what might occur than on objective evidence.

Response: The PUREX Complex under the current S&M plan maintains a safe and compliant condition for the facility via annual walkdowns, preventative and corrective maintenance actions. This EE/CA considers known conditions, as well as potential threats to human health and the environment, and provides a pathway for interim actions to reduce risks.

10. I believe that using the $218 million to proceed with canyon disposition including closure of the facility in place with water intrusion prevention would appear to be a better investment. DOE should provide the public with a quantitative, integrated priority list, for all site structures so that the value of funds used can be placed in perspective. Using Purex actions as a jobs program to "maintain work force experience" (keep people busy), as was pointed out by the Tri-City Herald[4] on July 7, 2019, is contrary to ALARA principles.

Response: Thank you for your comment. This EE/CA evaluates the proposed alternatives for meeting the DOE goal of reducing the risk to human health and the environment at the PUREX Complex by removing or stabilizing waste. The integrated priority list has been an internal working document and is not available at this time.

Thank you for considering these comments.

[1]https:lj pdw.hanford.gov/document/0067522H.

[2]https:ljpdw.hanford.gov/document/0067290H

[3]https:ljpdw.hanford.gov/document/0068217H

[4]https:ljwww.tri-cityherald.com/news/local/hanford/article232328877.htm1

Commenter 29:

I am strongly supportive of option #4 — Taking care of this matter in the BEST manner will be a cost and lives-saving decision.

Thank you

Response: Thank you for your support.

Commenter 30:

This one's a no-brainer. Option 4 is clearly the best option. Obviously No Action is completely unacceptable, and if you can find $177 Million, you can certainly find $217 Million. Whatever it takes to keep radioactive waste contained on the site, considering the proximity to the Columbia River, is of utmost importance.

Thank you

Response: Thank you for your support.

Commenter 31:

I am writing from Minnesota. WA is no where near me, but I care a whole lot. This is a problem we can solve with $218 million dollars before it affects the environment. Then the cost would go up for it will be a mess and cost WA a lot more than just money as well as more money. The recommendation and funds are for right now which would be after Aug 2nd when public commentary closes and Decision is made.

If you can put a deadline and a public demand for no hesitation or delay. That money is needed to start on this now or the $ amount goes up every day due to the dire need to protect the environment there in WA. I ask this of you because you are dealing with a very environmentally unfriendly administration, they are also good at shirking duties and responsibilities and as you know, at providing timely responses. They'll dodge subpoenas and engage in other corrupt behavior all around.

It's time for an administration to take the responsibility for what their bomb - making does to the environment. Let's make nuclear too expensive to use so hazardously again.

This administration is perfect as they have the most lackluster environmental record: Windmill cancer indeed.

Thanks for all the good you do.

Response: Thank you for your support.

Commenter 32:

1) Remove all nuclear waste,

2) Do not allow anymore nuclear waste into the facility,

3) Replace all single storage tanks,

4) Stop all the nuclear leakage from entering the Columbia River

Response: Thank you for your comment.

Commenter 33: Email from Yakama Nation to Paula Call

Good afternoon, Ms. Call,

Attached is Yakama Nation ERWM Comments on Engineering Evaluation/Cost Analysis for the PUREX Complex, DOE/RL-2016-15, Rev. 0.

Thank you!

Attached Yakama Nation ERWM Comments (Letter)

Dear Ms. Call,

Yakama Nation (YN) ERWM appreciates the opportunity to review and provide comments on the Engineering Evaluation/Cost Analysis (EE/CA) for the PUREX Complex. DOEIRL-2016-15, Rev. 0.

The Confederated Tribes and Bands of the Yakama Nation is a federally recognized sovereign pursuant of the Treaty of June 9, 1855 made with the United States of America (12Stat. 951). The U.S. Department of Energy's Hanford Site was developed on land ceded by the Yakama Nation under the 1855 Treaty. The Yakama Nation retains reserved rights to this land under the Treaty.

> The Yakama Nation supports cleanup actions that are complete, permanent, and are based on proven technology. We do not support remedial actions that leave large quantities of long-lived radionuclides or dangerous waste in place and rely on long-term stewardship or institutional controls to address future potential exposure scenarios. Long-term stewardship and institutional controls will not be effective for wastes that remain dangerous for hundreds or thousands of years. Assuming that contaminants remain in place implies that a Long-Term Stewardship Program Plan must be implemented which will remain effective longer than any human institution has ever existed[1].

The PUREX is a massive plant, with an over 1,000 feet long Canyon and other structures, containing radioactive and chemical contaminants, which will pose unique hazards for demolition. However, those

---

[1] Russell Jim, December 31, 2014, Letter to the Tri-Party Agencies, RE: Central Plateau Cleanup Principles; Russell Jim, August 15, 2015, Letter to Ms. Kristen Skopeck, DOE-RL, RE: M-091 Waste Management Milestones; and Russell Jim, December 14, 2015, Letter to Ms. Kristen Skopeck, DOE-RL, RE: Proposed Changes to the TPA M-015, M-016, M-085, M-037, and M-094 Milestones.

hazards are not addressed with the appropriate detail and consideration of alternatives. The YN ERWM Program has identified the following areas of concerns:

- The use of a "Non-Time-Critical Removal Action", instead of a full-fledged "Remedial Action", deprives the Yakama Nation and public of the opportunity to review detailed investigation results, proposed plans, and alternatives with costs. The Treaty Rights of the Yakama Nation and the health of future generations of YN members may be seriously and permanently impacted by the "removal actions" proposed for the PUREX complex in the EE/CA.

Response: Both CERCLA removal and remedial actions are lawful processes authorized by CERCLA Section 104, in response to the determination by DOE, as the lead agency, that there exists a "release or threat of release" of hazardous substances. This EE/CA is for the short-term and is not intended to take the place of the long-term comprehensive RI/FS process. The removal action does not preclude the final remedial action, which will allow public comment on the final remedy.

A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series.

The purpose of this removal action is to reduce the threat to human health and the environment until the final remedial action has been developed and implemented.

- TPA Milestone M-085-80, requires USDOE to submit a full Remedial Investigation / Feasibility Study (RI/FS) for the full PUREX 202A and Canyon facilities to Ecology by September 30, 2020. The current proposal for limited removal action and limited EE/CA cannot supplant the full RI/FS and compliance with the TPA major milestone. The YN ERWM is relying on the TPA Milestone M-085-80 and on Ecology's enforcement of this requirement, to ensure that USDOE submits a full RI/FS for the PUREX canyon in just over one year from now.

Response: A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series. DOE will follow the Tri-Party Agreement process with respect to the associated RI/FS.

- The YN ERWM has serious concerns over the cost estimated for the proposed Preferred Removal Action and how the high cost conflicts with other Hanford cleanup priorities of the Yakama Nation.

Response: There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor. Unfortunately, funding does not support all cleanup activities simultaneously.

The YN ERWM Program recommends DOE/RL to consider the remedial action that includes detailed investigation results, proposed plans for clean closure, and alternatives with costs, not the non-time-critical removal action that would allow USDOE to proceed without the preparation of the plans and alternatives which the YN ERWM would normally expect to be able to review and comment on in a remedial action.

Response: Removal actions are a key part of CERCLA response actions. As an interim step, they reduce threat and potential threats to human health and the environment while allowing the remedial action process to develop for eventual implementation.

Both CERCLA removal and remedial actions are lawful processes authorized by CERCLA Section 104, in response to the determination by DOE, as the lead agency, that there exists a "release or threat of release" of hazardous substances. This EE/CA is for the short term and is not intended to take the place of

the long term, comprehensive RI/FS process. The removal action does not preclude the final remedial action which will allow public comment on the final remedy.

A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series.

Please see the Attachment (Attachment #1) for our detailed comments. The YN ERWM program staff request technical level consultation with DOE/RL. Please contact me to schedule meetings to discuss our comments and resolve our concerns.

Attachment #1: YN ERWM Program Comments on Engineering Evaluation/Cost Analysis for the PUREX Complex, DOE/RL-2016-15 Revision 0

The Treaty Rights of the Yakama Nation and the health of future generations of Yakama Nation members may be seriously and permanently impacted by the "removal actions" proposed for the PUREX Plant complex in the EE/CA. PUREX is a massive plant, over 1,000 feet long, which will pose unique hazards for demolition. However, those hazards are not addressed with the appropriate detail and consideration of alternatives which the Yakama Nation ERWM Program would expect from USDOE, Washington Ecology and US EPA. The use of a "Non-Time Critical Removal Action" (NTCRA), instead of a full-fledged remedial action, deprives the Yakama Nation and public of the opportunity to review detailed investigation results, proposed plans, or alternatives with costs.

Our review of the proposal unveils nothing urgent that justifies use of this short-circuited CERCLA removal action process that would allow USDOE to proceed without the benefit of investigation results, detailed plans and alternatives which the Yakama Nation would normally expect to be able to review and comment on in a remedial action.

Response: CERCLA removal actions are fully authorized under law, and do not "short circuit" the long-term and comprehensive remedial action process. Both removal and remedial actions are authorized under the same statutory provision in Section 104. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

The NCP, 40 CFR 300.415(b)(2), establishes factors to be considered in determining the appropriateness of a removal action. Those factors include the following:

- Hazardous substances or pollutants or contamination in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release. Hazardous substances, including radioactive substances are contained within the PUREX Complex pipes and process vessels. These substances pose a threat of accidental release that may result from equipment failure resulting from a fire or seismic event.
- Other situations or factors are present that may pose threats to public health or the environment. Hazardous substances are present as fixed contamination within the cells, equipment and additional structures. These substances pose a threat of release as fixed contamination becomes exposed and as structural integrity is compromised, resulting in a potential direct exposure of nearby personnel and the environment, and exposure to the public through airborne radioactive contaminants. Degradation may not be fully addressed by S&M activities and the risk of release of hazardous substances will increase as degradation continues or goes undetected.

The Yakama Nation's Treaty rights and interests may be permanently harmed from the spread of further contamination during USDOE's demolition of PUREX and other facilities, as has occurred over the past two years during demolition of the Plutonium Finishing Plant (PFP). To protect those rights, CERCLA

envisions that such demolition will be undertaken after review of detailed alternative plans with tribal and public comment utilizing the remedial action process, not the short-circuited end run of a "removal action."

The Yakama Nation has good reason to be concerned that the potential spread of contamination during demolition of PUREX is a real threat which has not been adequately considered in the EE/CA and that the Yakama Nation will be deprived of its rights to review plans to prevent such contamination if USDOE proceeds using the removal action process.

Response: The PUREX 202A Canyon Building will not undergo demolition under this removal action. The PUREX annexes are the only structures proposed for demolition.

Although PFP was technically challenging, work processes are in place to proceed cautiously and safely. Based on current information at PUREX, the risk profiles between PFP demolition and PUREX ancillary structure demolition are not comparable. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

CERCLA removal actions are fully authorized under law, and do not "short circuit" the long-term and comprehensive remedial action process. Both removal and remedial actions are authorized under the same statutory provision in Section 104. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

The demolition of the Plutonium Finishing Plant demonstrated that USDOE did not plan demolition to prevent the spread of Plutonium contamination over wide areas – covering many square miles. The spread of Plutonium contamination permanently impacted many areas of ceded lands for which our Nation retains rights to use resources, which are critical for our culture. There is no indication that any lessons from demolition of PFP have been incorporated into the PUREX EE/CA in an enforceable manner. Further, PUREX may pose greater risks of contaminant spread than PFP. There are an estimated 7,933 Curies and 1,322 Curies respectively of easily dispersible Plutonium and Americium in the PUREX complex; and, 2,216 Curies Plutonium and 323 Curies Americium in the facility portions that are in the scope of this EE/CA. Table 2-2, page 2-18.

Response: Hazard abatement under this removal action will be conducted to minimize worker exposure and to maximize protection of human health and the environment. The subsequent RAWP will detail work planning and processes to address worker safety and human health and the environment.

Enhanced work practices will be considered based on lessons learned from PFP.

In January 2018, WA Ecology committed to ensure that the PUREX EE/CA would require USDOE to avoid practices that led to the Plutonium spread during PFP demolition and include lessons learned. There are no such conditions included in the EE/CA. There is no discussion of such potential for contamination spread or of lessons learned from the PFP contamination spread in the EE/CA[ii]

Response: The PUREX 202A Canyon Building will not undergo demolition under this removal action. The PUREX annexes are the only structures proposed for demolition.

Although PFP was technically challenging, work processes are in place to proceed cautiously and safely. Based on current information at PUREX, the risk profiles between PFP demolition and PUREX ancillary structure demolition are not comparable. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

The potential for a repeat of releases and spread of Plutonium and other contamination from PUREX, as happened with PFP, is a major concern of the Yakama Nation ERWM in regard to the PUREX EE/CA and inappropriate use of a removal action.

Use of Removal Action Process is Not Appropriate and the Legal Requirements for Removal Action Are Not Met:

USDOE should be proposing a permanent "**Remedial Action**" – which is a CERCLA process that requires far more preparation and tribal and public review.

Use of the "removal action" process is not appropriate. Using a Non-Time Critical Removal Action (NTCRA) process deprives the Yakama Nation and public of the vitally important opportunities to review and comment on plans following sampling to ensure that safer alternative demolition processes are fully considered and adopted (including full disclosure of detailed cost estimates).

Response: A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series.

CERCLA removal actions are fully authorized under law, and do not "short circuit" the long-term and comprehensive remedial action process. Both removal and remedial actions are authorized under the same statutory provision in Section 104. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

The use of a removal action (NTCRA) avoids preparation of a detailed Remedial Investigation/Feasibility Study (RI/FS). Use of the removal action process denies tribes and the public of their rights to review and comment on results of investigations and detailed plans for a full range of alternatives, as we would expect with a remedial action plan.

Response: A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series.

CERCLA removal actions are fully authorized under law, and do not "short circuit" the long-term and comprehensive remedial action process. Both removal and remedial actions are authorized under the same statutory provision in Section 104. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

TPA Milestone M-85-80, requires USDOE to submit a full Remedial Investigation / Feasibility Study (RI/FS) for the full PUREX 202A and Canyon facilities to Ecology by September 30, 2020.[ii] The current proposal for limited removal action and limited EE/CA cannot supplant the full RI/FS and compliance with the TPA major milestone. The YN ERWM are relying on the TPA Milestone M-85-80 and on Ecology's enforcement of this requirement, to ensure that USDOE submits a full RI/FS for the PUREX canyon in just over one year from now.

Response: DOE has the sole authority, pursuant to Executive Order 12580 and CERCLA Section 104, to determine when and how to implement removal actions. See the NCP, 40 CFR 300.

Final cleanup remedies will be evaluated under the full CERCLA remedial action process in accordance with the Tri-Party Agreement Milestone M-085 series.

The legally required conditions to use the short-circuit removal action process instead of a full remedial action are not met for this proposal in any event.

Response: CERCLA removal actions are fully authorized under law, and do not "short circuit" the long-term and comprehensive remedial action process. Both removal and remedial actions are authorized

under the same statutory provision in Section 104. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

Pursuant to 40 CFR § 300.415(b)(2) the lead agency must determine if there is an emergent threat to public health posed by a release.[iii] The threat of release must be "substantial."[iv] The claims made in the EE/CA to justify an emergent threat are not supported in any manner. The agency must also determine that the proposed removal action is consistent with the proposed final remedial action. However, for PUREX, there is no proposed final remedial action plan and no way to determine consistency.

The EE/CA simultaneously says that there is no foreseeable or "anticipated" threat of releases to the environment or to health justifying a removal action, while making unsubstantiated claims of an emergent threat to legally justify a removal action.[v]

Response: DOE has the sole authority, pursuant to Executive Order 12580 and CERCLA Section 104, to determine when and how to implement removal actions. See the NCP, 40 CFR 300.

The NCP, 40 CFR, Section 300.415(b)(2), establishes factors to be considered in determining the appropriateness of a removal action. Those factors include the following:

- Hazardous substances or pollutants or contamination in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release. Hazardous substances, including radioactive substances are contained within the PUREX Complex pipes and process vessels. These substances pose a threat of accidental release that may result from equipment failure resulting from a fire or seismic event.
- Other situations or factors are present that may pose threats to public health or the environment. Hazardous substances are present as fixed contamination within the cells, equipment and additional structures. These substances pose a threat of release as fixed contamination becomes exposed and as structural integrity is compromised, resulting in a potential direct exposure of nearby personnel and the environment, and exposure to the public through airborne radioactive contaminants. Degradation may not be fully addressed by S&M activities and the risk of release of hazardous substances will increase as degradation continues or goes undetected.

Below are the contradictory and unsupported claims for structural failure justifying a Non-Time Critical Removal Action (NTCRA) instead of following the full CERCLA process to develop a Remedial Investigation and Feasibility Study (RI/FS) and propose a range of permanent remedial action options to meet CERCLA standards:

> The PUREX Canyon is adequately monitored by S&M activities; however, there is limited to no coverage in areas that are highly contaminated. In general, the risk of structure failure due to facility degradation would increase over time, and the risk of an accidental release would also increase the longer the structures await the eventual remedial action for the operable unit. Therefore, current conditions present a sufficient threat of release under a continued S&M scenario to justify an NTCRA.

Response: Thank you for your comment.

Section 2.5 Risk Evaluation at page 2-19.

USDOE says continued aging of the structure could result in such an "future unanticipated event." EE/CA at 2-19. **If the threat is "unanticipated", then there isn't a "threat."**

The EE/CA cites the "unanticipated" risk of "structural failure" as a hazard justification for the use of a removal action, instead of developing a remedial action plan. The process for structural failure and timeline are not analyzed. Ecology and EPA should order a structural analysis, including degradation of concrete and structural elements due to high radiation in some areas. The Removal Action proposes expending over $200 million in near term action for a partial demolition to address this "unanticipated" threat, rather than: a) doing a structural integrity study; b) following such a study with a time critical removal action ***if*** there is a risk of failure within a decade or fifteen years. $217 million should be expended only after development of final permanent remedial action plans to ensure consistency of removal / demolition work as required by CERCLA.

Response: Threats addressed under a removal action can be known or unknown/unanticipated. The removal action has been prepared to reduce such threats until a final remedial action has been developed and implemented.

The estimated funding profile includes surveillance and maintenance activities, hazard abatement, and demolition of ancillary structures to the PUREX 202A Building. This funding is prudent to ensure the PUREX Complex is in a safe, environmentally stable condition until the final remedial action has been determined and fully implemented.

Regarding the request for a supplemental structural analysis, DOE, as the lead agency, has the authority to perform a NTCRA under the NCP.

If there are chemical risks, Ecology should order sampling and removal under RCRA / HWMA:

While stating that all tanks and pipes were drained and flushed, the EE/CA claims that threat of release justifying a removal action arises from chemical waste hazards. However, if chemical wastes remain in the tanks and piping, this would be a very serious violation of RCRA and Washington's Hazardous Waste Management Act (HWMA). The appropriate regulatory response should be for Ecology to use its HWMA and RCRA authority to order sampling of the tanks and piping that USDOE says pose a risk – not a CERCLA removal action. The failure to sample these is inexplicable. Hazardous waste law required removal of the wastes from tanks and pipes with flushing within 180 days of when PUREX closed decades ago. If the action is taken by Ecology under RCRA, the Yakama Nation and public would be able to comment and even enforce permit conditions for safe removal. However, under a CERCLA removal action, there is no review or enforcement.

Response: The 1989 Tri-Party Agreement includes a consent order by Ecology, which includes schedules for bringing into compliance facilities that were not regulated by Ecology prior to regulatory amendments of August 19, 1987, that for the first time regulated wastes that are mixtures of dangerous waste and radioactive waste. Dangerous waste management units (DWMUs) in the PUREX complex are managed in accordance with the Tri-Party Agreement.

The pipes and tanks addressed in this removal action are considered past practice and are not considered DWMUs. The draft Rev. 9 PUREX Complex Part A Form identifies the DWMUs. WAC 173-303-610, "Closure and post-closure," is required to be implemented for all RCRA treatment, storage, and disposal (TSD) units and will be conducted separately from this removal action.

The process by which a fire threat would occur is not described to enable review of whether this is a real threat, particularly if Ecology ordered compliance with the legal requirements for USDOE to have removed all flammable, explosive or self-catalytic dangerous wastes decades ago (WAC 173-303-610).

The EE/CA says only one Tank would be removed as a threat under RCRA:

> There is only one Dangerous Waste Management Unit (DWMU) that is planned to be removed as part of this removal action: Tank TK-156, which is located in the 202A West Annex AMU. In accordance with Section 6.0 of the TPA (Ecology et al., 1989a) and WAC 173-303, a closure plan will be prepared for the closure of DWMU Tank TK-156. Ecology will approve the closure plan after the public review and comment period has been completed, and the closure plan will then be included in the Hanford Facility RCRA Permit. Any waste generated under this closure activity will be disposed at ERDF under the authority of this removal action.

Section 1.2, Regulatory Overview at Page 1-3.

In regard to claimed potential chemical release threats from tanks or piping in PUREX, the Yakama Nation ERWM urges the Washington Department of Ecology to take actions to enforce RCRA / HWMA (RCW Chapter 70.105) including ordering sampling and removal of dangerous wastes which were legally required to have been removed decades ago when the facility was shutdown. For all tanks and piping for which USDOE says a chemical hazard may exist, a closure plan and permit modification should be prepared with public review, comment and incorporation into the Hanford permit as described above for TK-156. See discussion below in regard to the requirements of WAC 173-303-610(4).

Response: The pipes and tanks addressed in this removal action are considered past practice and are not considered DWMUs. The draft Part A Form for Rev. 9 for the PUREX Complex indicates the locations of the TSD waste management units. WAC 173-303-610 is required to be implemented for all RCRA TSD units. That will be conducted separate from this removal action.

The only way for the Yakama Nation and public to ensure that lessons learned from the PFP 1997 explosion and 2017 contamination spread are incorporated into work plans is if the closure plans for mixed radioactive and nonradioactive wastes at PUREX are adopted pursuant to the HWMA / RCRA and incorporated into permit conditions (allowing for public review, comment and enforcement).

Response: The remedial action process for 200-CP-1 OU, including the PUREX Complex, will include a proposed plan which will be submitted to the public for review and comment. RCRA and HWMA do not regulate radioactive substances. CERCLA has the authority to address risks related to radioactive substances.

Although PFP was technically challenging, work processes are in place to proceed cautiously and safely. Based on current information at PUREX, the risk profiles between PFP demolition and PUREX ancillary structure demolition are not comparable. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

Enhanced work practices will be considered based on lessons learned from PFP.

USDOE had a legal obligation under Washington's HWMA to remove all dangerous waste (mixed radioactive and nonradioactive wastes) from PUREX, including from tanks, pipelines, gloveboxes, etc. within 90 to 180 days of when USDOE decided that PUREX would be closed and not restarted. WAC 173-303-610(4)[2]

[2] WAC 173-303-610(4) Closure; time allowed for closure.
(a) Within ninety days after receiving the final volume of dangerous wastes, or the final volume of nondangerous wastes if the owner or operator complies with all applicable requirements in (d) and (e) of this subsection, at a

The EE/CA fails to identify self-catalyzing (e.g. hydroxylamine nitrate) or organic chemicals likely to present a serious hazard in Section 2.4. Yet, USDOE asserts that there are unsampled chemical waste risks justifying a removal action.

Response: Under the pre-closure work plan (DOE/RL-95-78, *PUREX Facility Preclosure Work Plan*), removal of dangerous waste was performed to the extent practicable.

Current information does not indicate that any self-catalyzing chemicals remain.

Table 2-3 states that there are "(B)rown stains and white powders originating from Tanks TK-204 and TK-200 respectively." If these are dangerous wastes, the tanks should have been characterized and contents removed years ago. ***The appropriate regulatory response should be for Ecology to issue an order pursuant to the HWMA and RCRA for immediate sampling of the tanks and piping which are the source of stains or white powder, followed by an approved HWMA compliant removal plan if the materials indicate presence of dangerous wastes.***

The presence of brown stains and white powders without analysis does not justify a NTCRA. By definition, this is a "non-time critical" proposed action. Neither a sampling and analysis plan or closure plan is provided. Under RCRA and HWMA, the Yakama Nation and public would be entitled to comment and review of the analysis plan, results and closure plan. None of these vital steps will be available for the Yakama Nation or public under the Removal Action.

Response: This removal action is based on 40 CFR 300.415(b)(2)(i) and (viii).

The pipes and tanks addressed in this removal action are considered past practice and are not considered DWMUs.

The white powder (sodium hydroxide) has been sampled per an approved sampling plan.

The removal action does not preclude the final remedial action, which will allow public comment on the final remedy.

Similar, brown stains and white powders are identified around valves in the Pipe and Operating Gallery. Table 2-3 at page 2-19. This should have resulted in an inspection and order by Ecology to determine if there are illegally remaining residues and liquids or dangerous wastes which were improperly left in the piping following the claimed draining of liquid wastes as part of the legally required removal of all dangerous wastes following shutdown. If the wastes are dangerous waste, then an HWMA enforcement action is the legally appropriate step, coupled with an order for removal. However, approval of a

---

dangerous waste management unit or facility, the owner or operator must treat, remove from the unit or facility, or dispose of on site, all dangerous wastes in accordance with the approved closure plan. The department may approve a longer period if the owner or operator complies with all applicable requirements for requesting a modification to the permit and demonstrates that they have taken and will continue to take all steps to prevent threats to human health and the environment, including compliance with all applicable permit requirements, and either:
The activities required to comply with this paragraph will, of necessity, take longer than ninety days to complete; or
(ii)(A) The dangerous waste management unit or facility has the capacity to receive additional dangerous wastes, or has the capacity to receive nondangerous wastes if the owner or operator complies with (d) and (e) of this subsection; There is a reasonable likelihood that they or another person will recommence operation of the dangerous waste management unit or the facility within one year; and Closure of the dangerous waste management unit or facility would be incompatible with continued operation of the site. The owner or operator must complete partial and final closure activities in accordance with the approved closure plan and within one hundred eighty days after receiving the final volume of dangerous wastes, or the final volume of nondangerous wastes if the owner or operator complies with all applicable requirements in (d) and (e) of this subsection, at the dangerous waste management unit or facility.

CERCLA removal action plan is not appropriate as it bypasses having publicly reviewed sampling plans and review of sampling results before determining how any dangerous wastes will be safely removed.

Response: Waste management is an integral part of CERCLA actions. As a result, the management, including sampling, removal, treatment, and disposal of radioactive waste, will be conducted using pertinent environmental requirements to ensure protection of human health and the environment. Work planning and processes under the RAWP will address these issues.

If chemical hazardous wastes are not anticipated, then there is no justification for the NTCRA. If present, they should have been addressed in legally compliant closure pursuant to RCRA and HWMA provisions. If organic and autocatalytic chemical wastes such as hydroxylamine nitrate and nitric acid solutions remain in violation of HWMA and RCRA, then the appropriate regulatory response would be via an immediate RCRA / HWMA order and compliance action.[3] **However, Table 2-1 "Non-Radioactive Material Inventory" has absolutely no indication of such residual chemicals present.** Nor does the table or EE/CA include the required disclosure of the criteria under which the wastes designated as dangerous wastes. **The identified hazardous substances do not pose a threat of release.** Even the one tank subject to removal and closure under RCRA (Tank 156 in 202-A West) is stated to no longer exceed dangerous waste criteria for pH.

Response: DOE has the sole authority, pursuant to Executive order 12580 and CERCLA Section 104, to determine when and how to implement removal actions. See the NCP, 40 CFR 300.

The EE/CA fails to identify Washington State HWMA RCW Chapter 70.105 and WAC 173-303-610 standards for removal of dangerous wastes from closed facilities, identification of all residual dangerous wastes, permit modification requirements for closure and removal, etc. as ARARS – applicable, relevant and appropriate standards - which are legally required to be met in a CERCLA action. See EE/CA Appendix B.

For all dangerous wastes in facilities covered by the PUREX NTCRA, WAC 173-303-610(3)(a) requires a closure plan identifying the dangerous wastes and specifying the steps to remove and decontaminate, including the pipes, tanks etc. The EE/CA has absolutely no description of inventory or how removal and decontamination will be accomplished. Rather the EE/CA impermissibly says that a plan will be presented to Ecology later in this process. The plan is long overdue.

Response: The pipes and tanks addressed in this removal action are considered past practice and are not considered DWMUs. The draft Rev. 9 PUREX Complex Part A Form identifies the DWMUs. WAC 173-303-610 is required to be implemented for all RCRA TSD units and will be conducted separately from this removal action.

All dangerous wastes were legally required to be removed per HWMA rules which require:

> (iv) A detailed description of the methods to be used during partial closures and final closure, including, but not limited to, methods for removing, transporting, treating, storing, or disposing of all dangerous wastes, and identification of the type(s) of the off-site dangerous waste management units to be used, if applicable;
> (v) A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils

[3] See DOE/EH-0555, 1998, *Technical Report on Hydroxylamine Nitrate* by USDOE, regarding the autocatalytic reaction leading to the PFP explosion, the root cause of which was USDOE's illegal failure to remove the chemical hazardous wastes from PFP within 180 days of the plant's closure.

> during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard;

The required closure plan does not exist. This legal requirement cannot be supplanted by attempting to shoehorn PUREX closure into a CERCLA Removal Action. Removal actions are only permissible when urgency or time considerations justify proceeding without preparing a permanent remedial action plan. Under a remedial action plan, the quantities and plan for how the waste would be removed and treated would be described.

And, indeed, if the TPA is followed, a full RI/FS with the requisite detail of wastes and alternatives for meeting remedial action goals should be delivered in just thirteen months – long before any action proposed in this EE/CA is taken (see discussion M-85-80).

Response: A closure plan for the DWMU under the scope of this EE/CA is currently being prepared for inclusion in Rev. 9 of the RCRA Permit. It is noted that this is a CERCLA NTCRA.

A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series.

The risks from radioactive wastes are not properly described and the risk of radioactive contamination spreading from demolition is not analyzed in the EE/CA.

The N-Cell has an estimated 1,113 Ci of Pu and 160 Ci of Americium, mostly in gloveboxes. The hazard cited to justify the removal action is due to air circulation through the cell. This exemplifies a hazard which should be addressed through a full remedial action plan, for which the public would be able to review and comment in advance on plans to prevent the release of Plutonium. There is no incorporation in the EE/CA of any lessons or new techniques from the contamination spread during demolition of PFP.

Response: A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series.

The PUREX 202A Canyon Building will not undergo demolition under this removal action. The PUREX annexes are the only structures proposed for demolition.

Although PFP was technically challenging, work processes are in place to proceed cautiously and safely. Based on current information at PUREX, the risk profiles between PFP demolition and PUREX ancillary structure demolition are not comparable. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

Enhanced work practices will be considered based on lessons learned from PFP.

There is no discussion in the EE/CA of whether tenting will be utilized to prevent the spread of airborne contamination. Nor is there any discussion of meeting Best Management Practices for other demolition and construction activities in Washington for storm water runoff, in order to prevent contaminant spread in the liquid sprayed on to suppress dust or affix contamination or from precipitation. If USDOE was proceeding via a CERCLA remedial action with an RI/FS, these plans would be described for review and comment in advance.

Response: Hazard abatement under this removal action will be conducted to minimize worker exposure and to maximize protection of human health and the environment. The RAWP will detail work planning and processes to address worker safety and human health and the environment.

Final cleanup remedies will be evaluated under the full CERCLA remedial action process in accordance with the Tri-Party Agreement Milestone M-085 series.

The Yakama Nation's Treaty rights and interests may be permanently harmed from the spread of further contamination during USDOE's demolition of PUREX and other facilities, as has occurred over the past two years during demolition of the Plutonium Finishing Plant (PFP).

Response: The PUREX 202A Canyon Building will not undergo demolition under this removal action. The PUREX annexes are the only structures proposed for demolition. Although PFP was technically challenging, work processes are in place to proceed cautiously and safely. Based on current information at PUREX, the risk profiles between PFP demolition and PUREX ancillary structure demolition are not comparable. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment. Enhanced work practices will be considered based on lessons learned from PFP.

To protect those rights, CERCLA envisions that such demolition will be undertaken after review of detailed alternative plans with tribal and public comment utilizing the remedial action process, not the short-circuited end run of a "removal action."

Response: Both CERCLA removal and remedial actions are lawful processes authorized by CERCLA Section 104, in response to the determination by DOE, as the lead agency, that there exists a "release or threat of release" of hazardous substances. This EE/CA is for the short-term and is not intended to take the place of the long-term comprehensive RI/FS process. The removal action does not preclude the final remedial action which will allow public comment on the final remedy.

CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

The Yakama Nation ERWM Has Serious Concerns Over the Cost Estimated for the Proposed Preferred Removal Action and How the High Cost Conflicts With Other Hanford Cleanup Priorities of the Yakama Nation:

Response: There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor. Unfortunately, funding does not support all cleanup activities simultaneously.

USDOE proposes to spend $217.7 million to demolish 202A East and West Annexes and prepare the remainder for demolition under its Preferred Alternative 4. This is proposed at the same time that USDOE and the Trump Administration have proposed to cut Hanford cleanup funding by over $400 million for the coming fiscal year and failed to provide the Yakama Nation, regulators and public with any proposed funding levels for any Hanford cleanup work in FY 2021, in violation of TPA requirements. How does spending $217.7 million on demolition of a facility that has no time critical threat align with the Yakama Nation's priorities for Hanford cleanup? Or, with Washington State's? $217 million would empty leaking High Level Waste tanks or fully remove the residual contamination immediately alongside the Columbia River at B- C, N and F Reactor areas where the Yakama Nation has objected to USDOE's cost based plans to leave contamination in place.

Response: DOE considers the expressed views of Ecology and the Yakama Nation about priorities for cleanup. Nevertheless, DOE as the lead CERCLA agency, is tasked with making the final determination about such priorities.

The cost claims are utterly unsupported in the EE/CA. The estimated cost for the full demolition alternative is only $40 million more than the alternative for Surveillance and Maintenance combined with immediate hazard removal (which might be justifiable but should mostly be done under RCRA). This implies that the higher costs of safe demolition, without repeating mistakes from the smaller PFP demolition, have not been incorporated into the plans. The removal of material from highly contaminated areas in Alternative 4 coupled with demolition is likely to cost far more than the $40 million increment presented. This increases the concern of the Yakama Nation ERWM over the choice to prioritize the PUREX Plant removal action over other high priority cleanup actions. An RI/FS would have to present detailed cost estimates, unlike this EE/CA.

Response: The PUREX 202A Canyon Building will not undergo demolition under this removal action. The PUREX annexes are the only structures proposed for demolition. Demolition activities associated with this removal action will augment the final remedial action for the 200-CP-1 OU.

Although PFP was technically challenging, work processes are in place to proceed cautiously and safely. Based on current information at PUREX, the risk profiles between PFP demolition and PUREX ancillary structure demolition are not comparable. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

There is a need to address all potential threats at the Hanford Site, including canyon complexes like PUREX, and priorities will continue to be evaluated with risk as a major factor. Unfortunately, funding does not support all cleanup activities simultaneously.

In conclusion, the Yakama Nation ERWM objects to the unjustified use of a "removal action" for PUREX. Use of a removal action instead of a planned remedial action short circuits the CERCLA process and denies the Yakama Nation its legally protected opportunities to review investigation results, detailed plans and alternatives to the proposed action. If chemical waste hazards exist in pipes and tanks, Ecology should be taking enforcement actions and ordering sampling and removal of wastes (as Ecology has done for the white powder on surfaces).

Likewise, if claims of structural failure are to be given credence, then USDOE has had years to perform a structural integrity study instead of proposing to spend over $217 million based on the "unanticipated" failure. A structural analysis would be an expected element for a full RI/FS to provide a sound basis for analyzing safe demolition alternatives. The EE/CA and removal action process fails to provide detailed plans describing how a repeat of Plutonium contamination spread from the demolition of PFP will be prevented.

There are many high priority sites adjacent to the Columbia River and its shorelines for which USDOE proposes to leave contamination in place citing the cost of removal. Leaving those wastes along the shorelines impact the Yakama Nation's members' Treaty rights to live along and utilize the shorelines. If the $217 million for the PUREX removal action is not justified by realistic threats of release, this removal action will divert funds from higher priority cleanup actions.

Response: Thank you for your comment. CERCLA removal actions are fully authorized under law, and do not "short circuit" the long-term and comprehensive remedial action process. Both removal and remedial actions are authorized under the same statutory provision in Section 104. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

The PUREX 202A Canyon Building will not undergo demolition under this removal action. The PUREX annexes are the only structures proposed for demolition. Although PFP was technically challenging, work processes are in place to proceed cautiously and safely. Based on current information at

PUREX, the risk profiles between PFP demolition and PUREX ancillary structure demolition are not comparable. The RAWP will delineate how work will be implemented to be protective of human health and the environment. Enhanced work practices will be considered based on lessons learned from PFP.

It is recognized that funding uncertainties continue to be a concern at the Hanford Site. Funding does not support single shell tanks, river corridor cleanup, and canyon RI/FS activities simultaneously. This removal action presents a middle ground. DOE will request appropriate funds for this removal action.

Commenter 34: Heart of America Northwest

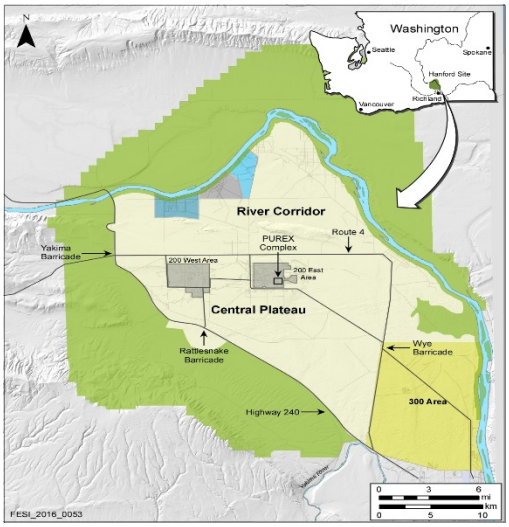
Dear USDOE, EPA and Ecology,

Attached are extensive comments of Heart of America Northwest on the PUREX EE/CA and removal action.

Some of our comments are made to Ecology and EPA as regulators and in their respective roles in regard to authority to approve or disapprove of a removal action or clearly inadequate EE/CA. We look forward to dialogue and responses from Ecology and EPA apart from the joint TPA response.
The following is the attachment from Heart of America Northwest

Heart of America Northwest, Heart of America Northwest Research Center Comments on USDOE's Hanford PUREX Plant partial demolition "Removal Action" EE/CA

(submitted *to PUREX_EECA@RL.gov: PUREX_EECA@RL.gov by August 17, 2019*)



USDOE is proposing to demolish portions of the massive Plutonium Uranium Extraction Plant (PUREX). Will it be safe? The proposal is in the Engineering Evaluation and Cost Analysis (**EE/CA**) report issued under a Superfund law (CERCLA) process called a "**Removal Action**."

We requested USDOE extend the comment period 30 days to enable tribes and organizations to review documents, prepare comments and provide the public with a Guide to commenting. USDOE only extended the comment period 15 days - the minimum allowed by law – despite USDOE having taken years to issue this. USDOE spent four years fighting an order from Washington Dept. of Ecology to remove the "white powders" that USDOE cites as the basis for urgency justifying use of a "removal action." The public deserved more time and meetings for meaningful public involvement. Why wasn't it given?

Summary of Our Strong Concerns:

1) The EE/CA fails to address major safety concerns over demolition. USDOE has failed to provide any plan to avoid repeating the disastrous large-scale spread of Plutonium during the 2017 demolition of PFP;

Response: The PUREX 202A Canyon Building will not undergo demolition under this removal action. The PUREX annexes are the only structures proposed for demolition.

Although PFP was technically challenging, work processes are in place to proceed cautiously and safely. Based on current information at PUREX, the risk profiles between PFP demolition and PUREX ancillary structure demolition are not comparable. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

2) CERCLA does not allow for this major decision with serious potential risks to be made using an EE/CA and "removal action" plan. The EE/CA and "removal action" are an end-run around, and short circuit of, the full CERCLA remedial action process with a detailed remedial investigation and feasibility study (RI/FS). Using the removal action process deprives the public of our rights to review detailed plans and alternatives to ensure work is done safely without repeating the disastrous spread of contamination during demolition of PFP;

Response: Both CERCLA removal and remedial actions are lawful processes authorized by CERCLA Section 104, in response to the determination by DOE, as the lead agency, that there exists a "release or threat of release" of hazardous substances. This EE/CA is for the short term and is not intended to take the place of the long-term, comprehensive RI/FS process. The removal action does not preclude the final remedial action which will allow public comment on the final remedy.

3) The EE/CA fails to document the basis for the $217 million cost or to provide even the most rudimentary timeline for the work. These are fundamental requirements for an EE/CA;

Response: There are many unknowns and assumptions that resulted in the cost basis (+50%/-30%) and the funding uncertainly does not support a detailed timeline for the work. An environmental cost estimate was developed for this EE/CA (ECE-200E15-00005).

4) USDOE has repeatedly said there is no near term risk of releases from PUREX. Washington Ecology has already ordered the removal of "white powder" dangerous waste residues, so a CERCLA "removal action" is not needed to do this. On the other hand, ***we are urging Washington Ecology to issue enforceable orders for USDOE to sample chemical residues remaining in pipes*** which are the source of the "white powder;" ***and, to use state hazardous waste law authority to order removal of any dangerous wastes***. Failing to sample and remove before dismantling equipment and demolishing portions of the plant will increase the dangers.

Response: We agree that the EE/CA does not address sampling and removing waste. This EE/CA provides the proper risk evaluation based on currently available information. The subsequent RAWP will delineate the plan for sampling and removing waste.

5) We question spending $217 million on demolishing portions of PUREX as a priority when urgent priorities, such as emptying recently leaking Single Shell High Level Waste tanks or cleanup of contaminated soil along the River, are not proposed to be funded by USDOE. This concern is exacerbated by USDOE's recent failure to comply with TPA requirements to disclose proposed funding and work plans during the public comment period on USDOE's FY 2021 and out-years' budget and work plans (the comment period ran through June 15, 2019);

Response: It is recognized that funding uncertainties continue to be a concern at the Hanford Site. Unfortunately, funding does not support single shell tanks, river corridor cleanup, and canyon RI/FS activities simultaneously. Concerns with setting priorities under the Tri-Party Agreement may be pointed out during milestone public comment period for these activities.

a. We also question if Ecology and EPA intend to allow USDOE to miss the TPA milestone which requires USDOE to submit a full Remedial Investigation and Feasibility Study for the entire PUREX Complex by September 30, 2020, and the milestone for work to begin that work within the next six years.[vi]

Response: A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series.

The EE/CA should be rejected. Attempts to use a removal action should end. USDOE should be held to submit a full RI/FS in just over a year for the same facilities as required by TPA milestone M-85-80.

Response: Both CERCLA removal and remedial actions are lawful processes authorized by CERCLA Section 104, in response to the determination by DOE, as the lead agency, that there exists a "release or threat of release" of hazardous substances. This EE/CA is for the short term and is not intended to take the place of the long-term, comprehensive RI/FS process. The removal action does not preclude the final remedial action which will allow public comment on the final remedy. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site. Final cleanup remedies will be evaluated under the full CERCLA remedial action process in accordance with the Tri-Party Agreement Milestone M-085 series.

Ecology should use its hazardous waste law authority to ensure white powders are removed per its existing (and hard fought) order; and, issue new orders for sampling all piping for dangerous wastes, starting with piping from which white powders emanated, and for removing all dangerous wastes on an enforceable timeline. A structural analysis of PUREX should be part of the RI/FS process to ensure demolition is done safely.

Response: The white powder (sodium hydroxide) has been sampled and will be removed.

The PUREX annexes are the only structures proposed for demolition. During the work planning process, ancillary structure demolition will be evaluated by a structural engineer to ensure structural integrity of the 202A Building.

USDOE has no documentation on which to claim that "unanticipated" structural failure justifies a removal action. This claim is further undermined by USDOE's lack of funding and schedule plans in the EE/CA for any of the activities proposed.

Response: DOE has the sole authority, pursuant to Executive Order 12580 and CERCLA Section 104, to determine when and how to implement removal actions. See the NCP, 40 CFR 300.

The NCP, 40 CFR 300.415(b)(2), establishes factors to be considered in determining the appropriateness of a removal action. Those factors include the following:

- Hazardous substances or pollutants or contamination in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release. Hazardous substances, including radioactive substances are contained within the PUREX Complex pipes and process vessels. These substances pose a threat of accidental release that may result from equipment failure resulting from a fire or seismic event.
- Other situations or factors are present that may pose threats to public health or the environment. Hazardous substances are present as fixed contamination within the cells, equipment and additional structures. These substances pose a threat of release as fixed contamination becomes exposed and as structural integrity is compromised, resulting in a potential direct exposure of nearby personnel and the environment, and exposure to the public through airborne radioactive contaminants. Degradation

may not be fully addressed by S&M activities and the risk of release of hazardous substances will increase as degradation continues or goes undetected.

Funding uncertainties preclude the development of a detailed schedule for this removal action. The follow-on remedial action will have a more detailed schedule.

How do we prevent a repeat of the disastrous spread of Plutonium from demolition of the Plutonium Finishing Plant during demolition of PUREX?

In 2017, Plutonium was spread over many square miles during demolition of the Plutonium Finishing Plant. How do we prevent a repeat during demolition of PUREX? Plutonium was detected 3 miles away at Highway 240 and on workers' cars after being driven home.

An EE/CA is supposed to include a description of similar removal actions and appropriate lessons. Rather than describing the disastrous spread of Plutonium from PFP in 2017, and having detailed plans for public review on how this will not be repeated at PUREX, USDOE's EE/CA calls the demolition of PFP a "demonstrated success."[vii]

Response: The PUREX 202A Canyon Building will not undergo demolition under this removal action. Although PFP was technically challenging, work processes are in place to proceed cautiously and safely. Based on current information at PUREX, the risk profiles between PFP demolition and PUREX ancillary structure demolition are not comparable. The subsequent RAWP will delineate how work will be implemented to be protective of human health and the environment.

A full RI/FS using the remedial action process would ensure that the public and tribes are able to review and comment on detailed analyses of the contamination in PUREX and alternative methods to remove contamination and demolish facilities.

Response: A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series.

Ironically, the TPA agencies agreed just three years ago (May, 2016) to require USDOE to submit a full RI/FS work plan under the full CERCLA remedial action process for all facilities in the PUREX complex by September 30, 2020, and to begin work by September 30, 2025.[viii] Authorizing work without any of the detailed analyses of wastes, safety measures, alternatives and costs which are required to be in a RI/FS makes no sense. This looks like an end-run around that requirement, particularly since USDOE's December 7, 2018 transmittal letter of the EECA says that USDOE has no dedicated funds to carry out removal actions under the EECA and hopes to find $15-$30 million over the next fifteen years.[ix] USDOE's cover letter utterly undermines its ability to claim that there is a time justification to use a "removal action."

Aerial view of PUREX facilities. 202A Canyon with East and West Annexes (blue) is >1,000 feet long. The proposal covered in the EE/CA is for demolition of the annexes and demolition preparation for areas within the canyon. The scope of work does not include the PUREX tunnels or High Level Waste Tanks which took the waste that resulted from melting down reactor fuel rods in nitric acid and other chemicals in PUREX to extract Plutonium and Uranium for nuclear weapons.

USDOE may not legally use the short-circuit CERCLA "removal" action process with EE/CA for PUREX instead of the full CERCLA "remedial" action process with much more detailed RI/FS:

USDOE's effort to shoe-horn demolition of PUREX 202-A East and West annexes and carry out undefined demolition preparation in the 202-A Canyon facility is not permitted by CERCLA. The "**removal**" action short-circuits all public and tribal review of plans for work which has been

demonstrated to be very dangerous. That is why CERCLA requires use of the full "**remedial" action process**, including a much more detailed Remedial Investigation and Feasibility Study (RI/FS), when specific actions are not documented to be time sensitive and there is no on-going release or "immediate," "imminent" or "substantial" "threat of release."

Response: CERCLA removal actions are fully authorized under law, and do not "short circuit" the long-term and comprehensive remedial action process. Both removal and remedial actions are authorized under the same statutory provision in Section 104. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

Nor does use of the removal action and EE/CA meet the requirements of the TPA, which has a milestone for submission of a full RI/FS in just thirteen months. M-85-80 requires submission of a full RI/FS work plan for 200-CP-1 by 9/30/20. 200-CP-1, the unit covered by the milestone, includes 202-A and the PUREX Canyon.[x]

Response: Your comment is noted. Final cleanup remedies will be evaluated under the full CERCLA remedial action process in accordance with the Tri-Party Agreement Milestone M-085 series.

Milestone M-85-82 is a more generic milestone requiring that either a remedial or removal action work plan be submitted for either a Tier 1 or a Tier 2 unit within the geographic scope of PUREX by December 30, 2017.

Response: This EE/CA provided the proposal for a response action as required by the subject milestone M-85-82 for a Tier 1 structure in the PUREX geographic area listed in the Tri-Party Agreement Appendix J.

If Ecology and EPA intend to enforce the M-85-80 Milestone it makes no sense to adopt a much more limited removal action and EE/CA for a portion of the facility to be covered by a much more detailed RI/FS due in one year and one month.

Use of a "removal action" under CERCLA requires either an on-going release or an "imminent" and "substantial" threat of release, as we detail below and would repeat in briefing to challenge use of a "removal action" for the work described in the EE/CA for Alternative 4.

Response: The NCP, 40 CFR 300.415(b)(2), establishes factors to be considered in determining the appropriateness of a removal action. Those factors include the following:

- Hazardous substances or pollutants or contamination in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release. Hazardous substances, including radioactive substances, are contained within the PUREX Complex pipes and process vessels. These substances pose a threat of accidental release that may result from equipment failure resulting from a fire or seismic event.

- Other situations or factors are present that may pose threats to public health or the environment. Hazardous substances are present as fixed contamination within the cells, equipment, and additional structures. These substances pose a threat of release as fixed contamination becomes exposed and as structural integrity is compromised, resulting in a potential direct exposure of nearby personnel and the environment, and exposure to the public through airborne radioactive contaminants. Degradation may not be fully addressed by S&M activities and the risk of release of hazardous substances will increase as degradation continues or goes undetected.

Threats addressed under a removal action can be potential or imminent. The removal action has been prepared to reduce such threats until a final remedial action has been developed and implemented.

DOE has the sole authority, pursuant to Executive Order 12580 and CERCLA Section 104, to determine when and how to implement removal actions. See 40 CFR 300."

USDOE clearly understands that it must show that there is a real time sensitive threat of release to justify the use of a removal action and the short-circuit of the full remedial action process with full RI/FS.

Response: CERCLA removal actions are fully authorized under law, and do not "short circuit" the long-term and comprehensive remedial action process. Both removal and remedial actions are authorized under the same statutory provision in Section 104. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

The EE/CA simultaneously claims there is no real risk justifying a removal action, while having to claim there is some form of emergent threat to legally justify a removal action.[xi]

a. The first set of threats claimed are from chemical waste hazards from "white powder" found on surfaces. However, if chemical wastes remain in the tanks and piping, this would be a very serious violation of RCRA and HWMA. As we discuss in the following section, USDOE was legally required to empty and remove all dangerous wastes from pipes and tanks within 180 days of its decision that the PUREX plant would never resume Plutonium production – over 25 years ago.[xii] The appropriate regulatory response should be for Ecology to use its HWMA and RCRA authority to order sampling of the tanks and piping that USDOE says pose a risk – not a CERCLA removal action. The failure to sample these is inexplicable. If the action is taken by Ecology under RCRA, the Yakama Nation and public would be able to comment and even enforce permit conditions for safe removal. However, under a CERCLA removal action, there is no review or enforcement.

Response: Thank you for your comment. Please keep in mind that this interim CERCLA action supports mitigation of hazards within the PUREX Complex, which includes sampling of pipeline hazards as needed to support potential removal.

i. USDOE admitted in its briefings and submissions to the Washington Pollution Control Hearings Board (PCHB) that the source of the "white powder" now cited in the EE/CA as the potential release justifying a removal action was residues left in piping and inadequately flushed.

The Pollution Control Hearing Board found, as Ecology asked,

> "The Board concludes, based on undisputed facts, that the white powder is solid waste generated by the Appellants."

PCHB Order 17-084 at 15.

The source of the white powder was acknowledged by USDOE to be residues in the piping. PCHB Order at 14:

> "Appellants explain that the white powder is the result of the chemical breakdown of sodium hydroxide, which was used in a water flush applied by Energy's contractors during the deactivation process in the 1990s. Some flushing solution remained in the pipes, the water in the solution evaporated over time, and sodium hydroxide was left behind and fell to the floor under the chemical process lines. Appellants' Motion pp. 5, 6, Ruck Decl., p. 2. The Board concludes that based on Appellants' own

representations of what occurred to create the white powder, the Appellants generated the white powder."

Table 2-3 states that there are "(B)rown stains and white powders originating from Tanks TK-204 and TK-200 respectively."

The white powder was generated in PUREX. It is a dangerous waste. USDOE admits it originated from tanks and piping. We're asking for sampling of the sources for the powder, which are dangerous waste (the EE/CA fails to disclose this). Thus, Ecology has full authority to order sampling and designation of the wastes in pipes and tanks, which are the precursor chemical source of the powder residues. ***Ecology must order sampling and removal of any dangerous wastes remaining in the tanks and piping under its HWMA and RCRA authority.*** The EE/CA has no indication that USDOE even contemplates this work in coming years.

Response: DOE intends to fund this activity in the near term. The removal activity will begin after issuance of the AM, which is anticipated in 2019.

ii. USDOE repeatedly claimed in its objections to the Department of Ecology's Order and penalty regarding the white powder that the powder posed no threat.

For over three years, USDOE refused to follow Ecology's order to sample and designate the white powder and remove it, including taking the time to appeal the order and penalty to the PCHB.

USDOE cannot claim now that the white powder presents an urgent, time sensitive and imminent threat justifying a removal action when it fought tooth and nail against an order to sample and remove the white powder.

Response: DOE is not claiming an urgent, time sensitive, and imminent threat. The EE/CA proposes a NTCRA.

iii. Further, the presence of "white powder" in 202-A cannot justify a removal action whose primary work scope is demolition of the annexes – where there is no white powder.

Response: The EE/CA evaluates a broader approach than just white powder to support Milestone M-85-82.

iv. The process by which a fire threat would occur is not described to enable review of whether this is a real threat. The only credible hypothetical for the fire threat is from a self-catalyzing chemical reaction involving waste remaining in pipes or tanks or exposure of ignitable and flammable dangerous wastes remaining in pipes or tanks. USDOE does not even discuss the potential for such wastes to remain (e.g., hydroxylamine nitrate and "red oil" dangerous wastes which USDOE used in PUREX).

If Ecology orders compliance with the legal requirements for USDOE to sample all pipes and tanks to ensure all flammable, explosive or self-catalytic dangerous wastes are removed (as should have been done decades ago pursuant to WAC 173-303-610), then this hypothetical fire hazard would not exist. In any event, USDOE does not claim that this risk exists, so it cannot justify a removal action, rather than proceeding under a remedial action with full RI/FS following characterization of wastes and presenting fully described plans.

Response: Under the pre-closure work plan (DOE/RL-95-78), removal of dangerous waste was performed to the extent practicable.

Current information does not indicate that any self-catalyzing chemicals or "red oil" remain.

b. Secondly, the EE/CA cites the risk of "structural failure" as a hazard justification for the use of a removal action, instead of developing a remedial action plan. The process for structural failure and timeline are not analyzed in the EE/CA. Indeed, **there is absolutely no factual basis for asserting that structural failure is a time sensitive anticipated risk justifying use of the short-circuit removal action process**.

   USDOE repeatedly classifies the risk of structural failure as "**unanticipated**" (EE/CA at 2-19, 2-20). If a risk is NOT ANTICPATED, and no analysis has been done documenting when or how It may occur, then it fails to meet the clear legal test for authorizing a removal action. Those legal tests are that the threat of release is "imminent" and "substantial." An "unanticipated" event is not "imminent," it is not "substantial," it is not "immediate:" and it cannot justify use of a "removal action" rather than going through the full remedial action process with RI/FS.

   This is the contradictory and unsupported claim for structural failure justifying a Non-Time Critical Removal Action (NTCRA) instead of following the full CERCLA process to develop a Remedial Investigation and Feasibility Study (RI/FS) and propose a range of permanent remedial action options to meet CERCLA standards:

   > "While current S&M activities adequately monitors the PUREX Canyon, continued aging of the structure could result in a future unanticipated event."

Response: The structural integrity evaluation will be performed as part of the RI/FS process.

The NCP, 40 CFR 300.415(b)(2), establishes factors to be considered in determining the appropriateness of a removal action. Those factors include the following:

- Hazardous substances or pollutants or contamination in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release. Hazardous substances, including radioactive substances are contained within the PUREX Complex pipes and process vessels. These substances pose a threat of accidental release that may result from equipment failure resulting from a fire or seismic event.
- Other situations or factors are present that may pose threats to public health or the environment. Hazardous substances are present as fixed contamination within the cells, equipment and additional structures. These substances pose a threat of release as fixed contamination becomes exposed and as structural integrity is compromised, resulting in a potential direct exposure of nearby personnel and the environment, and exposure to the public through airborne radioactive contaminants. Degradation may not be fully addressed by S&M activities and the risk of release of hazardous substances will increase as degradation continues or goes undetected.

A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series.

EE/CA Section 2-5 at 2-19

> "The PUREX Canyon is adequately monitored by S&M activities; however, there is limited to no coverage in areas that are highly contaminated. In general, the risk of structure failure due to facility degradation would increase over time, and the risk of an accidental release would also increase the longer the structures await the eventual

> remedial action for the operable unit. Therefore, current conditions present a sufficient threat of release under a continued S&M scenario to justify an NTCRA."

Section 2.5 Risk Evaluation at page 2-20.

Ecology and EPA could easily order a structural analysis, including degradation of concrete and structural elements due to high radiation in some areas. The Removal Action proposes expending over $217.7 million in near term action for a partial demolition to address this "unanticipated" threat.

USDOE should be performing a structural analysis to support a full remedial action RI/FS in order to determine the best alternatives for demolition. If a structural analysis showed an urgent threat, then revising the remedial action plan would be warranted. That feasibility study is currently required to be submitted already in just thirteen months pursuant to TPA milestone M-85-80.

Instead of spending a relatively small sum now on a structural analysis, USDOE is attempting to justify spending $217.7 million on the basis of a structural threat without any structural analysis.

"A future unanticipated event" includes if PUREX were hit by a meteorite. If "future unanticipated events" were legal justification for removal actions, we would only have removal actions and Congress would not have made remedial actions the norm. Congress reserved remedial actions for when, as federal courts have repeatedly found, there is an immediate, time-sensitive, urgent or imminent threat which is "substantial."

Response: The NCP, 40 CFR 300.415(b)(2), establishes factors to be considered in determining the appropriateness of a removal action. Those factors include the following:

- Hazardous substances or pollutants or contamination in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release. Hazardous substances, including radioactive substances are contained within the PUREX Complex pipes and process vessels. These substances pose a threat of accidental release that may result from equipment failure resulting from a fire or seismic event.

- Other situations or factors are present that may pose threats to public health or the environment. Unanticipated events have occurred which possess a potential threat to support a NTCRA. A removal action supports the most conservative range of remedial action options. Independent of the proposed NTCRA, the final PUREX remedy will be determined though the RI/FS process in accordance with the Tri-Party Agreement.

  CERCLA and Executive Order 12580 assigned to DOE the responsibility to make judgments about the risks presented by hazardous substances. The removal action is a proactive step to prevent release of hazardous substances to the environment. If the structural integrity is compromised, DOE would take immediate action to address the issue, which includes potential stabilization efforts.

Removal actions have been repeatedly found to be limited to temporary measures consistent with the statutory definition which lists different "actions as may be necessary to prevent, minimize, or mitigate damage to the public health or welfare or to the environment, which may otherwise result from a release or threat of release." 42 USC 9601(23).

The 2d Circuit Court in *NY v Next Millenium* provided this detailed support for its holding that removal actions are limited to "immediate" threats:

> Removal actions are clean-up or removal measures taken to respond to immediate threats to public 125*125 health and safety. 42 U.S.C. § 9601(23)[7]; see also *Minnesota v. Kalman W. Abrams Metals, Inc.,* 155 F.3d 1019, 1024 (8th Cir. 1998) (removal actions are those "taken to counter imminent and substantial threats to public health and welfare"); *United States v. W.R. Grace & Co.,* 429 F.3d 1224, 1244 (9th Cir.2005) ("Courts have … stressed the immediacy of a threat in deciding whether a cleanup is a removal action." (collecting cases)). *Accord* Memorandum from Stephen Luftig, Director, Office of Emergency and Remedial Response, Use of Non-Time Critical Removal Authority in Superfund Response Actions, to Regions I-X Program and Legal Division Directors (Feb. 14, 2000) (emphasizing immediate nature of removal actions), available at http://www.epa.gov/ superfund/policy/remedy/pdfs/memofeb 2000-s.pdf (the "EPA Guidance").[8]

New York v. Next Millenium Realty, LLC, 732 F. 3d 117, US Court of Appeals, 2nd Circuit 2013; at 124, 125.

40 CFR § 300.415 (b)(2) requires the lead agency to document a time-sensitive ("immediate") threat to public health posed by a release in order to proceed with a removal action.[xiii] As discussed in these comments, the claims made in the EE/CA to justify a time-sensitive, urgent threat are not supported. The agency must also determine that the proposed removal action is consistent with the proposed final remedial action. However, for PUREX, there is no proposed final remedial action plan and no way to determine consistency

Demolition of a facility that poses no immediate, anticipated or definable threat of release to the environment, and which constitutes a permanent action, is not within the allowable scope of "removal" actions rather than a permanent remedial action.

Response: The PUREX Complex does pose a potential threat of release of both hazardous and radiological material to support this NTRCA. The NCP, 40 CFR 300.415(b)(2), establishes factors to be considered in determining the appropriateness of a removal action. Those factors include the following:

- Hazardous substances or pollutants or contamination in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release. Hazardous substances, including radioactive substances are contained within the PUREX Complex pipes and process vessels. These substances pose a threat of accidental release that may result from equipment failure resulting from a fire or seismic event.
- Other situations or factors are present that may pose threats to public health or the environment. Hazardous substances are present as fixed contamination within the cells, equipment and additional structures. These substances pose a threat of release as fixed contamination becomes exposed and as structural integrity is compromised, resulting in a potential direct exposure of nearby personnel and the environment, and exposure to the public through airborne radioactive contaminants. Degradation may not be fully addressed by S&M activities and the risk of release of hazardous substances will increase as degradation continues or goes undetected.

DOE has the sole authority, pursuant to Executive Order 12580 and CERCLA Section 104, to determine when and how to implement removal actions. See the NCP, 40 CFR 300.

USDOE's failure to provide a legally required schedule (see section below) for any of the proposed actions in Alternative 4 of the EE/CA, combined with USDOE's formal transmittal letter which loosely commits USDOE to only expending $1 to $2 million a year for fifteen years to carry out the EE/CA Alternative 4 work,[xiv] totally undermines any ability of USDOE to claim that it may proceed with a

removal action, rather than a remedial action following a full RI/FS, for the work loosely proposed in the EE/CA.

Response: Funding uncertainties preclude the development of a detailed schedule for this removal action. The follow-on remedial action will have a more detailed schedule.

In sum, Ecology and EPA cannot legally approve the use of a removal action based on a meager EE/CA for demolition of portions of PUREX and demolition preparation for decks in the 202-A Canyon of PUREX. **USDOE should be required to submit a full RI/FS for this work, including detailed work plans** (and how chemical wastes will be safely removed and how demolition will be done to avoid repeating the spread of Plutonium), timelines, documented costs and full consideration of alternatives.

Response: DOE has the sole authority, pursuant to Executive Order 12580 and CERCLA Section 104, to determine when and how to implement removal actions. See the NCP, 40 CFR 300.

CERCLA removal actions are fully authorized under law, and do not "short circuit" the long-term and comprehensive remedial action process. Both removal and remedial actions are authorized under the same statutory provision in Section 104. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

A comprehensive remedial action will be planned pursuant to the RI/FS work plan in accordance with the Tri-Party Agreement Milestone M-085 series.

USDOE attempts to justify use of the short-circuit removal action process and EE/CA, which requires that a threat of release be "immediate" and "substantial," by saying that a "future unanticipated event" meets this test. ***If the threat is "unanticipated", then there isn't a "threat." "Unanticipated" threats are neither "immediate" or "substantial."***

Response: CERCLA removal actions are fully authorized under law, and do not "short circuit" the alternative, long-term and comprehensive remedial action process. Both removal and remedial actions are authorized under the same statutory provision in Section 104. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

The NCP, 40 CFR 300.415(b)(2), establishes factors to be considered in determining the appropriateness of a removal action. Those factors include the following:

- Hazardous substances or pollutants or contamination in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release. Hazardous substances, including radioactive substances are contained within the PUREX Complex pipes and process vessels. These substances pose a threat of accidental release that may result from equipment failure resulting from a fire or seismic event.
- Other situations or factors are present that may pose threats to public health or the environment. Hazardous substances are present as fixed contamination within the cells, equipment and additional structures. These substances pose a threat of release as fixed contamination becomes exposed and as structural integrity is compromised, resulting in a potential direct exposure of nearby personnel and the environment, and exposure to the public through airborne radioactive contaminants. Degradation may not be fully addressed by S&M activities and the risk of release of hazardous substances will increase as degradation continues or goes undetected.

The US Department of Energy's Engineering Evaluation/Cost Analysis (EE/CA) for the PUREX Complex does not meet the legally applicable requirements for an EE/CA from EPA Guidelines.

Response: This EE/CA was developed using EPA NTCRA guidelines applying a graded approach.

The lack of releases and substantial or imminent threat of releases from the facilities in the scope of the PUREX EE/CA require that USDOE follow the full remedial action process under CERCLA. The test for using a short-circuit removal action is not met for the work proposed in the EE/CA, which does not even have a timeline or funding plan, as described in other sections of our comments. However, USDOE failed to meet the most basic legal requirements for an EE/CA, even if it were legally permissible to use the removal action process and an EE/CA.

The Engineering Evaluation/Cost Analysis (EE/CA) for the PUREX Complex does not include required elements for an EE/CA under EPA guidelines.[4] The US Department of Energy (USDOE) is required to follow these guidelines as the lead agency under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).[5] The underlying question is whether there is a legal standard for an EE/CA and if USDOE has complied with that standard. The fact that prior EE/CAs from USDOE may have also ignored EPA guidelines, is not a defense against USDOE's noncompliance for the PUREX plant.

The EPA's guidelines for conducting non-time-critical removal actions under CERCLA are clear and require a level of detail that USDOE has not even come close to including in the EE/CA for the PUREX Complex in six key ways:

1. The EE/CA does not adequately describe previous removal actions at the site;
2. The EE/CA does not include a schedule;

---

4 Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA, Environmental Protection Agency (August 1993), https://nepis.epa.gov/Exe/ZyNET.exe/9100SN02.TXT?ZyActionD=ZyDocument&Client=EPA&Index=1991+Thru+1994&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C91thru94%5CTxt%5C00000025%5C9100SN02.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL

5 In discussing the role of federal "lead agencies" for preparing CERCLA documents at federal facilities, EPA specifies: "Federal agency response actions are expected to be consistent with this and other EPA guidance, as specified in CERCLA §120(a)." US Environmental Protection Agency (EPA), "Guide to Preparing Superfund Proposed Plans, Records of Decision and Other Remedy Selection Decision Documents, EPA 540-R-98-031, OSWER 9200.1-23P, July 1999; Section 1.2.2. Viewable at: https://www.epa.gov/sites/production/files/2015-02/documents/rod_guidance.pdf "EPA retains final remedy selection authority for all 'Fund-financed' actions, and for Federal facility-lead actions taken at NPL sites." EPA cannot sign off on any superfund plan, including a removal action EE/CA if the document is not completed in accordance with EPA's own guidelines. Substantial deference under administrative law regarding CERCLA is given to EPA guidelines, see Wickland Oil Terminals v. Asarco, Inc., 797 F.2d 887, 891 (9th Cir. 1986) ("We must accord very great deference to an agency's interpretation of its regulations…. An agency's interpretation of its regulations is 'of controlling weight unless it is plainly erroneous or inconsistent with [regulations]'") (citing Udall, 380 U.S. at 16-17, quoting Bowles v. Seminole Rock & Sand Co., 325 U.S. 410, 414 (1945)).

3. The EE/CA does not discuss the technologies or methods required in USDOE's recommended alternatives;
4. The document is riddled with statements not supported by any evidence;
5. The EE/CA does not provide any basis for the various costs presented for each alternative. Indeed, the December 2017 formal transmittal letter for the draft EE/CA from USDOE to Ecology presented a total cost which was a fraction of the cost presented in the EE/CA;[6]
6. The EE/CA fails to disclose the "regulatory history" of the facilities and units covered within the scope of the proposed EE/CA. This includes USDOE failing to disclose regulatory enforcement orders from the Washington Department of Ecology, the Pollution Control Hearings Board order rejecting USDOE's appeal, the results of Washington Ecology ordered sampling of the "white powders", and TPA milestones. Disclosure of each of these was essential for meaningful public and tribal comment because the regulatory actions taken to date obviate the claimed justification for use of a Non-Time Critical Removal Action and EE/CA, rather than proceed with a full RI/FS pursuant to CERCLA remedial action requirements (TPA Milestone M-85-80 requires submission of the full RI/FS by September 30, 2020).

Response: This EE/CA was developed using EPA NTCRA guidelines applying a graded approach.

1. Lessons learned from previous removal actions have not been discussed.

First, the EPA requires that all EE/CAs include a detailed discussion of previous removal actions applicable to the current removal action plan.[7] The guidelines include the following table explaining how much detail is required of the discussion of previous removal actions at the site[8]:

6 USDOE, Douglas Shoop, to WA Ecology transmittal of Draft EE/CA for PUREX Complex, December 7, 2017, 17-AMRP-0248.

7 *Id.* at 26.

8 *Id.* at 27.

EXHIBIT 6
Information From Previous Removal Actions Applicable To Current EE/CA

Information From Previous Removals	Applicability To Current EE/CA
Nature and Extent of Contaminants	This information may allow the OSC/RPM to narrow the scope of evaluation to certain areas of the site or to specific analyses.
Treatability of Compounds	Previous use of a technology may affect the decision to use the same technology again.
Equipment/Utilities at Site	If the previous removal action resulted in supplies and equipment being left at the site or provision of specific utilities (e.g., electrical power, sewer line), this information may affect the choice of treatment/control options employed.
Site-Specific Conditions	Lessons learned from a previous removal action are valuable to the current EE/CA. Specific examples could include seasonal weather patterns affecting technology applications or site access limitations because of vehicle transportation routes.

This table specifically identifies that an EE/CA must include a discussion of lessons learned from previous removal actions similar to the recommended alternative in the current EE/CA. The current EE/CA includes only two short paragraphs regarding previous removal activities. Moreover, that section of the EE/CA includes only a brief discussion of soil and groundwater investigation without explaining other removal actions at Hanford.[9]

[9] The problems encountered and lessons learned from demolition of PFP 324 and other facilities are clearly within the scope of the legal requirement to describe and discuss similar removal actions at the site.

It is nothing short of ironic that USDOE identifies the Plutonium Finishing Plant (PFP) as a "successful" example when, in reality, that removal action resulted in a gross amount of exposure and spreading of Plutonium over multiple miles from PFP during the removal demolition.[10] **USDOE's failure to discuss the lessons learned from the catastrophic demolition of PFP, during which Plutonium contamination was spread for miles with worker exposures, and how this will not be repeated, are a major violation of EPA guidelines** as expressed in the previous table (EXHIBIT 6).

As described in subsection 3 below, USDOE also fails to discuss previous removal actions with any detail. EPA's guidelines require that the EE/CA include all data "necessary to support the selection of a response alternative."[11] Since the EE/CA is recommending demolition of parts of the PUREX Complex, it is clear that to be in compliance with EPA guidelines, the EE/CA must also include data and details regarding how that demolition will occur. This would clearly include a discussion of PFP as a similar site that used demolition for its removal action. It is a clear lesson from the PFP disaster that demolition involves a high level of risk for greater contamination of hazardous substances. While Section 5.1.1.5 of the EE/CA identifies that demolition prep and demolition would "increase potential near-term exposure to hazardous substances during removal" and "temporarily increase environmental emission and potential fugitive dust during facility stabilization, demolition, and waste removal," it includes no discussion of how to mitigate those threats.[12] After the demolition at PFP, and the resulting spread of Plutonium over numerous miles, USDOE claims it has adopted new procedures and requirements to safely conduct a demolition of a highly contaminated facility. The fact that the EE/CA includes no discussion of those lessons is not only a failure to follow guidelines, it is grossly negligent. The failure to specify how a repeat of the spread of contamination will be prevented also leaves regulators and the public without any enforceable review to protect safety.[13]

Ecology made a commitment to Heart of America Northwest that PUREX Demolition EE/CA would not proceed without discussion and applying PFP lessons – the EE/CA and removal action process fail to meet that commitment:

Heart of America Northwest wrote to Ecology over concerns that PFP demolition would be allowed to resume without proper controls and review; and, that this would be a precedent allowing for demolition to occur at the PUREX complex under the upcoming EE/CA.

On January 23, 2018, Ecology Nuclear Waste Program Manager Alex Smith responded to Gerry Pollet, Executive Director, Heart of America Northwest:

> "Given the recent contamination events associated with the Plutonium Finishing Plant demolition, we understand your concern about proposed demolition activities at the PUREX Complex.

---

10 *Engineering Evaluation/Cost Analysis for the PUREX Complex*, US Department of Energy (2016), Sections 5.2.1 and 6.2: "The methods for performing S&M, hazard abatement, demo prep, and demolition are consistent with Hanford Site projects of similar scope (i.e., disposition of PFP and U Plant)." (this language appears in both Sections 5.2.1 and 6.2) "Alternatives 2 through 4 are administratively feasible because all actions would adhere to applicable laws and permits and would have demonstrated success at the Hanford Site under projects of similar scope." Section 6.2

11 *Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA* at P.19.

12 *Engineering Evaluation/Cost Analysis for the PUREX Complex* at Section 5.1.1.5.

13 For example, such specific steps should be incorporated into RCRA permit provisions for closure and TSD units regarding worker health and safety regarding dangerous wastes (the prevention of contaminant spread is applicable to dangerous wastes such as beryllium, not just Plutonium).

> "We wanted to assure you that despite DOE's submittal of the draft EE/CA, no demolition activity at the PUREX facility will begin until several regulatory processes, and reviews and approvals of key documents, have occurred.
>
> "Ecology will expect DOE to incorporate any lessons it learned from contamination events at the Plutonium Finishing Plant, and any additional protective measures it developed to prevent such contamination events, into the work plans and work controls that it proposes for any future demolition activities on site, including those at the PUREX Complex."

The EE/CA fails to provide any commitment to improved or best management practices and legal compliance for demolition of such dangerous facilities. Only with a full RI/FS will we and other stakeholders or affected tribal nations be able to review and comment on whether USDOE has adopted such practices that will prevent long-term contamination of ceded lands or public exposure from repeating the spread of Plutonium or other contamination during demolition.

USDOE has not adopted the most basic best management practices (and they are certainly not in any enforceable plan) which Ecology routinely imposes on dangerous demolition or construction sites; e.g., removal of all chemical wastes from piping and tanks before the equipment is removed or demolition; maximum removal of contamination and application of fixatives; tenting; capture and treatment of all runoff, including ensuring that runoff from spray as well as precipitation landing on debris is captured on impervious surfaces and routed for treatment…

Under the removal action process, unlike the remedial action process or a RCRA closure permit, we will not have any right to review and comment on work plans to ensure that such basic safety measures are incorporated. It is also clear that USDOE intends to continue to (wrongly) assert that Ecology will lack RCRA / HWMA authority to impose such conditions once a removal action is underway, even though the law is clear that Ecology does not yield up its jurisdiction.

Response: This removal action does not propose demolition of the PUREX 202A Canyon Building. The PUREX annexes are the only structures proposed for demolition. Although PFP was technically challenging, work processes are in place to proceed cautiously and safely. Based on current information at PUREX, the risk profiles between PFP demolition and PUREX ancillary structure demolition are not comparable. But nonetheless, enhanced work practices will be considered based on lessons learned from PFP.

Final cleanup remedies will be evaluated under the full CERCLA remedial action process in accordance with the Tri-Party Agreement Milestone M-085 series.

This EE/CA was developed using EPA NTCRA guidelines applying a graded approach.

2. USDOE's EE/CA for the PUREX Complex fails to include any schedule.

EPA guidelines are very clear regarding the requirement for an EE/CA to include a schedule for the removal action, stating that "[t]he general schedule for removal activities, including both the start and completion time for the non-time-critical removal action, should be a part of the EE/CA."[14] This is a flagrant example of USDOE's noncompliance since no dates are included in the EE/CA for the PUREX Complex.

14 *Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA* at P.32.

The lack of schedule for even an estimated timeline to begin any work,[15] much less for demolition of the annexes, demonstrates that the entire proposal fails to meet the test for being conducted as a removal action.[16]

As noted above, in USDOE's formal EE/CA transmittal letter of December 7, 2018 (a formal part of the record), USDOE provided only the vaguest commitment of funding over fifteen years. The amount of funds which USDOE said it would seek to fund the EE/CA actions via "efficiencies" is between 6.9% and 13.8% of the entire estimated cost of the preferred alternative (Alternative 4). This does not meet the legal test for a removal action, nor the smell test for USDOE commitment. It bears the hallmark of seeking approval to have an undefined scope of work for contractors with an end-run around the scrutiny of specific plans that would accompany a full RI/FS pursuant to CERCLA remedial action requirements.

Removal actions must be shown to have some release or near-term threat of release to which the agency is responding in order to justify not proceeding under the full Remedial Investigation/Feasibility Study (RI/FS) process for remedial actions.[17]

We look forward to USDOE explaining in federal court how a vague commitment to $15 to $30 million of work over fifteen years without any specific schedule to do any specific work is a response to a time sensitive, "imminent" and "substantial" threat of release.

Response: This EE/CA was developed using EPA NTCRA guidelines applying a graded approach.

DOE has the sole authority, pursuant to Executive Order 12580 and CERCLA Section 104, to determine when and how to implement removal actions. See the NCP, 40 CFR 300. This EE/CA is for the short-term and is not intended to take the place of the long-term, comprehensive RI/FS process. The removal action does not preclude the final remedial action which will allow public comment on the final remedy.

Funding uncertainties preclude the development of a detailed schedule for this removal action. The follow-on remedial action will have a more detailed schedule.

3. USDOE fails to explain in any detail how each alternative will be conducted.

The EE/CA does not adequately describe the technologies and methods needed for each alternative proposed by USDOE. If the goal of the removal action is the demolition of areas of the PUREX Complex, shouldn't that require that the EE/CA include the details for the demolition plan? The answer is yes because the EPA guidelines require that each alternative explain the technologies and methods needed to complete those plans.[18]

Discussion of each alternative in the EE/CA is incredibly brief and does not include nearly the amount of detail required under EPA guidelines. There is no discussion in alternatives related to technologies, equipment or personnel required. Later sections in the EE/CA address implementability and feasibility only briefly. For example, section 5.2.1 of the EE/CA states that "[a]ll proposed removal activities could

15 The timeline for the removal of the "white powder," is governed by an enforcement order pursuant to Washington State Hazardous Waste Management Act (HWMA) and federal Resource Conservation and Recovery Act (RCRA) authority as a dangerous waste.
16 As discussed above, 40 CFR § 300.415(b)(2) the lead agency must determine if there is an emergent threat to public health posed by a release.
17 *Id.*
18 *Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA* at 34-36 ("only the most qualified technologies" should be discussed in the EE/CA. And the effectiveness of each alternative plan must include a discussion of its implementability and technical feasibility).

be performed using existing knowledge and procedures that have proven successful at the Hanford Site,"[19] yet does not detail what those "procedures" are.

This statement that the proposed removal action can be "executed with existing knowledge and procedures that have proven successful at the Hanford site" is highly ironic.[20]

USDOE does not have adequate knowledge of what chemical or radionuclides are in piping and tanks in the areas which will be demolished or be prepared for demolition - as evidenced by the reality that USDOE does not know the chemical reactions and sources of the extensive white powders. Again, USDOE fails to present any new procedures put into place following the disastrous spread of contamination from the demolition of PFP. The former example is why we urge that sampling of piping and tanks be conducted, pursuant to an enforceable HWMA/RCRA order, prior to developing a compliant RI/FS. Only under those steps will USDOE be able to meet CERCLA's requirements to adequately consider the wastes present and design appropriate remedies.

The risks from radioactive wastes are not properly described and the risk of radioactive contamination spreading from demolition is not analyzed in the EE/CA.

During demolition of the Plutonium Finishing Plant, USDOE and its contractors spread Plutonium across dozens of square miles, exposed hundreds of workers, and even contaminated personal cars driven offsite.

The N-Cell has an estimated 1,113 Ci of Pu and 160 Ci of Americium, mostly in gloveboxes. The hazard cited to justify the removal action is due to air circulation through the cell. This exemplifies a hazard which should be addressed through a full remedial action plan detailed in an RI/FS, for which the public would be able to review and comment in advance on plans to prevent the release of Plutonium. There is no incorporation in the EE/CA of any lessons or new techniques from the contamination spread during demolition of PFP.

Indeed, USDOE has not adopted basic best management practices for containment of contaminated runoff that Ecology requires at construction and demolition sites across Washington; e.g., having impermeable surface for collecting contaminated runoff and ensuring that it is treated, use of tenting, debris control…

There is no discussion in the EE/CA of whether tenting will be utilized to prevent the spread of airborne contamination. Nor is there any discussion of meeting Best Management Practices for other demolition and construction activities in Washington for storm water runoff in order to prevent contaminant spread in the liquid sprayed on to suppress dust or affix contamination or from precipitation. If USDOE was proceeding via a CERCLA remedial action with an RI/FS, these plans would be described for review and comment in advance.

To protect those rights for review and comment, CERCLA envisions that such demolition will be undertaken after review of detailed alternative plans with tribal and public comment utilizing the remedial action process, not the short-circuited end run of a "removal action."

Response: This EE/CA was developed using EPA NTCRA guidelines applying a graded approach.

---

19 *Engineering Evaluation/Cost Analysis for the PUREX Complex at Section 5.2.1.* Again, this section even identified PFP as an example of demolition with Hanford Site projects of similar scope as a "successful" example without any discussion of the environmental and health issues with PFP demolition. This is also an instance where the EE/CA identifies the relevant site as the entire "Hanford Site" rather than just the PUREX Complex which indicates that a discussion of removal actions elsewhere at Hanford, including PFP, should have been included in the current EE/CA for the PUREX Complex.

20 *Id.*

Although PFP was technically challenging, work processes are in place to proceed cautiously and safely. Based on current information at PUREX, the risk profiles between PFP demolition and PUREX ancillary structure demolition are not comparable. This EE/CA provides the proper risk evaluation based on currently available information. The RAWP will delineate how work will be implemented to be protective of human health and the environment. Enhanced work practices will be considered based on lessons learned from PFP.

Hazard abatement under this removal action will be conducted to minimize worker exposure and to maximize protection of human health and the environment. The subsequent RAWP will detail work planning and processes to address worker safety and human health and the environment.

CERCLA removal actions are fully authorized under law, and do not "short circuit" the long-term and comprehensive remedial action process. Both removal and remedial actions are authorized under the same statutory provision in Section 104. CERCLA allows the NTCRA as an interim step to the full CERCLA process. This process has been successfully used to reduce risks for decades on the Hanford Site.

4. USDOE's recommendations are unsupported by any articulated evidence.

The EE/CA for the PUREX Complex is filled with statements not backed up by facts or evidence. For example, Section 5.1.1.3 simply states that "[a]lternatives 2, 3, and 4 support future remedial objectives because they provide interim to long-term protectiveness until a final remedial action or inventory removal occurs at a future time." [21]However, it does not describe how each alternative will do so. USDOE fails to identify remedial objectives, so how can they be expected to meet those goals?

If USDOE proceeded under the remedial action requirements, not removal, the public, tribes and regulators would have remedial action goals to comment on and compare with the proposed actions.

Section 5.1.1.4 of the EE/CA says that "the treatment or removal of contamination via hazard abatement, demo prep, and demolition" would "transfer long-term impacts of contamination from one area to another" and would be environmentally protective.[22] However, there is no discussion of the environmental hazards of demolition and transportation. Nor is there any detail given to how or why these actions would be more environmentally protective than some unnamed alternative. Under the Tri-Party Agreement (TPA), CERCLA and RCRA, Transuranic wastes must eventually be treated and disposed of in the Waste Isolation Pilot Plant, and other wastes in the Environmental Restoration Disposal Facility. There is no alternative to which this section applies for comparison of reducing volumes or mobility.

Later in the EE/CA, USDOE attempts to discuss the EPA's requirement that each alternative "contributes to the efficient performance of any anticipated remedial activities"[23] by saying that "[a]lternatives 2, 3, and 4 support future remedial objectives because they provide interim to long-term protectiveness until a final remedial action or inventory removal occurs at a future time."[24] Yet, USDOE fails to describe how each alternative will do so. Further, failure to include specifics on how Plutonium, beryllium or other contamination spread will be avoided, again, violates the requirements for an EE/CA.

USDOE fails to identify beryllium as a dangerous waste in the text or appendix of ARARs. Beryllium spreads easily. It is extremely dangerous. USDOE fails to discuss how it will properly test for, remove or

21 *Id.* at Section 5.1.1.3.
22 *Id.* at Section 5.1.1.4.
23 *Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA* at P.41.
24 *Engineering Evaluation/Cost Analysis for the PUREX Complex at Section 5.1.1.3.*

affix beryllium prior to moving equipment or demolition. USDOE has a history of moving equipment without proper characterization, resulting in release and worker exposure (e.g., 222-S and in many other facilities… PUREX is a beryllium facility). A minute exposure can lead to development of fatal chronic beryllium disease. Failure to identify beryllium as a dangerous waste, failure to describe how characterization and removal will occur and failure to identify how it will be disposed in compliance with HWMA and RCRA (the EECA clearly shows that USDOE fails to recognize that it must be disposed as a dangerous waste) are all violations of the CERCLA requirements for content in an EE/CA. This level of detail would be fully vetted with pubic review in a remedial action and RI/FS.

Response: This EE/CA was developed using EPA NTCRA guidelines applying a graded approach. Both CERCLA removal and remedial actions are lawful processes authorized by CERCLA Section 104 in response to the determination by DOE, as the lead agency, that there exists a "release or threat of release" of hazardous substances. This EE/CA is for the short-term and is not intended to take the place of the long-term, comprehensive RI/FS process. The removal action does not preclude the final remedial action which will allow public comment on the final remedy.

This EE/CA provides the proper risk evaluation based on currently available information. The RAWP will delineate how work will be implemented to be protective of human health and the environment.

5. USDOE fails to explain the EE/CA's projected costs: where they came from, or how and why they differ from previous figures provided by USDOE.

The EPA requires that EE/CAs evaluate each alternative to determine its projected costs.[25] This should include a discussion of direct costs (construction, equipment and materials, land and site acquisition, buildings, services, relocation, transportation, disposal, analytical, contingency allowances, and treatment and operation costs) and indirect costs (engineering and design expenses, legal fees, licenses or permit costs, and start-up and shakedown costs).[26] As with many other portions of the current EE/CA, Section 5.3.2's discussion of cost estimates for each alternative is incredibly brief and essentially provides estimated costs without explaining where the cost figures originated.[27]

Additionally, in a letter from USDOE to Ecology transmitting the draft EE/CA, USDOE stated that the:

> "maximum expenditure would be in the range of $15 million - $30 million over the 15 year time period."[28]

Yet, in the current EE/CA provided by USDOE, the predicted costs are listed as $217.7 million to accomplish Alternative 4.[29]

Essentially, the cover letter demonstrates that there is no legal basis for using the time-sensitive "removal action" process since USDOE stated that "[Department of Energy, Richland] will attempt to provide funding of $1-$2 million per year through efficiencies" to carry out the proposed activities. At that funding level, only 6.9% to 13.8% of the work in the preferred Alternative 4 would be accomplished before 2033. Obviously, USDOE's own funding non-commitment belies the required legal requirement for USDOE to demonstrate that timeliness justifies proceeding with a removal action instead of going through the full remedial action process.

---

25 *Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA* at P.43.
26 *Id.*
27 *Engineering Evaluation/Cost Analysis for the PUREX Complex* at Section 5.3.2.
28 USDOE, Douglas Shoop, to WA Ecology transmittal of Draft EE/CA for PUREX Complex, December 7, 2017, 17-AMRP-0248.
29 *Engineering Evaluation/Cost Analysis for the PUREX Complex* at Section 5.3 (Table 5-3).

Not only does the current EE/CA fail to explain where these figures originated, but USDOE also fails to identify why there is such a colossal difference in the figures provided in the cover letter transmitting the draft EE/CA with the figures in the EE/CA itself.

The injury to the public from USDOE's failure to provide meaningful cost estimates for any elements of the proposed work and failure to provide any schedule in the EE/CA is exacerbated by the USDOE's violation of the requirements of TPA Paragraphs 148 and 149 to disclose and take comment each spring on USDOE's upcoming one year out proposed budget and work scope for Hanford cleanup. USDOE claims that urgency justifies a removal action but has failed to say when any actions would be taken. At the same time, USDOE has prevented us from reviewing if it intends to undertake any of the work in Fiscal Year 2021 (for which the required comment period ended on June 15), and how much such work would cost. Therefore, we cannot comment on the appropriate priority and if USDOE seeks to bump other work which the public and our organization would prioritize in order to carry out undefined work under the removal action for PUREX.

USDOE proposes to spend $217.7 million to demolish 202 A East and West Annexes and prepare the remainder for demolition under its Preferred Alternative 4. This is proposed at the same time that USDOE and the Trump Administration have proposed to cut Hanford cleanup funding by over $400 million for the coming fiscal year and failed to provide the regulators, tribes and the public with any proposed funding levels for any Hanford cleanup work in FY 2021, in violation of TPA requirements. How does spending $217.7 million on demolition of a facility that has no time critical threat align with other priorities for Hanford cleanup?

$217 million could empty leaking High Level Waste tanks, speed up construction of High Level Waste Vitrification Plant, or fully remove the residual contamination immediately alongside the Columbia River at B-C, N and F Reactor areas we have objected to USDOE's cost based plans to leave contamination in place – where USDOE estimates it will take one hundred to over two hundred years to meet CERCLA and MTCA risk based cancer risk standards.

The cost claims are utterly unsupported in the EE/CA. The estimated cost for the full demolition alternative is only $40 million more than the alternative for Surveillance and Maintenance combined with immediate hazard removal (which might be justifiable but should mostly be done under RCRA). This implies that the higher costs of safe demolition, without repeating mistakes from the smaller PFP demolition, have not been incorporated into the plans. The removal of material from highly contaminated areas in Alternative 4 coupled with demolition is likely to cost far more than the $40 million increment presented. This increases our concern over USDOE's decision to prioritize the PUREX Plant removal action (with only "unanticipated" threats of release) over cleanup actions to actually stop on-going releases to the Columbia River and exposures to people using River shorelines for decades to come. An RI/FS would have to present detailed cost estimates, unlike this EE/CA.

There are many high priority sites adjacent to the Columbia River and its shorelines for which USDOE proposes to leave contamination in place citing the cost of removal. Leaving those wastes along the shorelines impact the Yakama Nation's members' Treaty rights to live along and utilize the shorelines. If the $217 million for the PUREX removal action is not justified by realistic threats of release, this removal action will divert funds from higher priority cleanup actions.

Ultimately, the entire EE/CA for the PUREX Complex is as short as some executive summaries for CERCLA RI/FS documents under the full Remedial Action process. The sheer lack of detail in the document is evident and is not in compliance with EPA guidelines that have been available since 1993. Finally, it is an inadequate response for USDOE to say they will provide more detail in later documents because such future documents will not be subject to public comment.

Response: An environmental cost estimate was developed for this EE/CA (ECE-200E15-00005). There are many unknowns and assumptions that resulted in the cost basis (+50%/-30%).

The expedited response action letter (17-AMRP-0248, "Proposal to Perform Hazard Abatement and Demolition Activities at the PUREX Canyon Complex") assumed minimal funding would be provided for this PUREX removal action due to the Hanford Site competing priorities (e.g. tank waste disposition). It also assumed that the CERCLA remedial action documents would be completed within the 15 years. Once completed, the remedial action would take the place of this removal action.

This EE/CA was developed using EPA NTCRA guidelines applying a graded approach.

6. The EE/CA fails to disclose the essential "regulatory history" of the facilities and units covered within the scope of the proposed EE/CA – depriving the public of essential information for commenting:

EPA's guidance for contents of an EE/CA, as with all CERCLA response action documents, requires disclosure and discussion of the "regulatory history" of the unit or site which is the subject of the EE/CA. The required disclosure is for "regulatory history, including responses, investigations and litigation by State, local and Federal agencies." [30]

The history of the orders and USDOE's refusal to follow those orders undermines the entire premise that the presence of the white powder can justify use of a removal action and EE/CA as an imminent or substantial threat.

USDOE refused to carry out Washington Department of Ecology's enforcement order to sample and remove the "white powder" on PUREX surfaces pursuant to HWMA, RCW Chapter 70.105, embarking on three years of appeals resulting in the PCHB Order 17-084, June 26, 2018. That Order upheld Ecology's orders for sampling, upheld the penalty; and, held that USDOE's "failure to designate the white powder, in the face of Ecology's repeated requests to do so, was a serious violation." Order at 21.

Throughout the appeal – for over three years – USDOE repeatedly claimed that the white powder posed no serious or substantial risk. This entirely undermines USDOE's claim in the EE/CA that the presence of the white powder is such a time sensitive risk as to justify use of a removal action and EE/CA rather than going through the full remedial action process and a complete RI/FS.

Ecology retains full authority under HWMA, RCRA and the FFCA to enforce its standing order for removal of the white powder. Ecology can order sampling and removal of the white powder and of any mixed or hazardous chemical wastes in the piping from which the white powder originated (which sampling confirmed to be a dangerous waste) consistent with CERCLA response actions, and not in conflict. The Courts and the PCHB clearly found that RCRA and state HWMA authority does not evaporate prior to a remedial action being taken. The HWMA / RCRA order for sampling and removing white powder would be considered consistent with and part of "response" under CERCLA. [31]

---

30 *Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA* at P.25.

31 *ASARCO LLC v. Atlantic Richfield Co., 866 F. 3d 1108 - Court of Appeals, 9th Circuit 2017.*
In *Asarco*, the Ninth Circuit determined that a RCRA settlement for action to remove wastes could give rise to a contribution claim under CERCLA because the RCRA and state hazardous waste law settlement and actions pursuant to the settlement "involves a cleanup activity that qualifies as a "response action" within the meaning of CERCLA § 101(25), 42 U.S.C. § 9601(25).'" *Id.* at 126 n.15 (quoting Brief for the United States as Amicus Curiae Supporting Appellant at 15 in *Niagara Mohawk Power Corp. v. Chevron, U.S.A., Inc.,* 596 F.3d 112 (2d Cir. 2010)). The *ASARCO* and *Niagara* courts found this is consistent with EPA's own opinion per cited briefing. Asarco at 1119.

A RCRA / state HWMA order to take corrective action is a "response action" under CERCLA.[32] WA Ecology and PCHB have already rejected USDOE's effort to assert that Ecology does not have authority under CERCLA or the TPA to issue corrective action orders for PUREX as a facility within the CERCLA 200 Area NPL site when there is no remedial action plan.

In sum, removal of the white powder has already been ordered by Ecology. That order is enforceable. It does not end with USDOE asserting that it is proceeding with either a removal or remedial action for the facility. USDOE's EE/CA adds nothing, including no description of how the waste will be removed. A CERCLA removal action is NOT necessary to promptly remove the white powder. Ecology's order will accomplish removal on an enforceable timeline.

Furthermore, **we urge Ecology to issue an additional order for sampling of all piping which may still (illegally) contain dangerous wastes, particularly the piping from which the white powders clearly originated.** Based on those sampling results, if the residues designate as dangerous wastes, **Ecology should order draining and removal** with appropriate precautions on an expedited timeline.

Table 2-1 "Non-Radioactive Material Inventory" has absolutely no indication that residual chemicals are present in tanks and piping, even while USDOE has admitted that the tanks and piping are the source of the white powder. Nor does the table or EE/CA include the required disclosure of the criteria under which the wastes designated as dangerous wastes.

USDOE's proposal in the EE/CA utterly and completely ignores the likelihood of dangerous wastes in the piping, from which the white powder emanated. This is inexcusable. This willful ignorance, or cover-up, of the failure to remove all dangerous wastes shows the importance of Ecology proceeding with orders for sampling and action on enforceable timelines, rather than leaving it up to USDOE to set its own timeline for undefined activities pursuant to the EE/CA.

PUREX utilized numerous ignitable, flammable, explosive, corrosive and self-catalyzing (i.e., leading to potential explosion, such as hydroxylamine nitrate, which was similarly illegally abandoned in PFP – leading to the 1997 explosion) chemical dangerous wastes, which are likely held up in the piping. Safety demands that Ecology order sampling and removal of wastes in piping and tanks – which USDOE and the EE/CA utterly ignore.

The EE/CA is required to identify all applicable and relevant regulations and standards. However, the PUREX EE/CA fails to identify Washington State HWMA RCW Chapter 70.105 and WAC 173-303-610 standards for removal of dangerous wastes from closed facilities, identification of all residual dangerous wastes, permit modification requirements for closure and removal, etc. as ARARS – applicable, relevant and appropriate standards - which are legally required to be met in a CERCLA action. See EE/CA Appendix B.

Response: RCRA closure will not be performed under this NTCRA; therefore, WAC 173-303-610 is not pertinent.

For all dangerous wastes in facilities covered by the PUREX EE/CA, WAC 173-303-610(3)(a) requires a closure plan identifying the dangerous wastes and specifying the steps to remove and decontaminate, including the pipes, tanks etc. The EE/CA has absolutely no description of inventory or how removal and decontamination will be accomplished. Rather the EE/CA impermissibly says that a plan will be presented to Ecology later in this process. The plan is long overdue. All dangerous wastes were legally required to be removed per HWMA rules which require:

32 *Asarco* at 1121, citing CERCLA 42 USC 6928(h)

(iv) A detailed description of the methods to be used during partial closures and final closure, including, but not limited to, methods for removing, transporting, treating, storing, or disposing of all dangerous wastes, and identification of the type(s) of the off-site dangerous waste management units to be used, if applicable;

(v) A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard;

The required closure plan does not exist. A CERCLA removal action does not eliminate the HWMA and RCRA requirements or Ecology's authority to enforce them. Without a RCRA closure plan or RI/FS, Heart of America Northwest, our members, tribes and the public are all deprived of our rights to review and comment on such a plan for the sake of ensuring safety.

Finally, the relevant regulatory background and history of the PUREX complex must include the TPA milestone M-85-80 – signed in May 2016 – requiring USDOE to submit a full RI/FS work plan by September 30, 2020 for the entire PUREX Complex, specifically including the 202-A Canyon and annexes which are the scope of the EE/CA. [33]Work must begin pursuant to the RI/FS by September 30, 2025.[34]

In just thirteen months, USDOE is required to submit a complete Remedial Investigation / Feasibility Study (RIFS) and work plan for all of the portions of PUREX covered by the EE/CA and all the related portions of the complex. The level of information in this EE/CA is less than is required for the executive summary of a RI/FS. The RI/FS must include results of much more extensive sampling and analyses, and detailed plans with comparisons of alternatives and costs. Thus, why should EPA and Ecology concur with proceeding with a removal action under the EE/CA when a full RI/FS is required in just thirteen months, and the EE/CA fails to include any commitment to do any work before work would be undertaken under the full remedial action process and RI/FS (and under Ecology's enforcement order for removal of white powder)???

Response: In accordance with the Tri-Party Agreement, the Tri-Parties agreed that the PUREX Complex as a whole would be addressed through the CERCLA response action process in accordance with 40 CFR 300. A comprehensive remedial action will be planned pursuant to the RI/FS work plan, which DOE will submit to Ecology in accordance with the Tri-Party Agreement Milestone M-085 series.

Both CERCLA removal and remedial actions are lawful processes authorized by CERCLA Section 104, in response to the determination by DOE, as the lead agency, that there exists a "release or threat of release" of hazardous substances. This EE/CA is for the short term and is not intended to take the place of

33 TPA M-85-80 and M-85-84. M-85-80 requires submission of a full RI/FS work plan for 200-CP-1 by 9/30/20. 200-CP-1, the unit covered by the milestone, includes 202-A and the PUREX Canyon. See TPA Unit lists, Appendix C, at page C-84. Heart of America Northwest is a Third Party Beneficiary entitled to rely on the Milestone for Ecology to ensure that USDOE submits a full RI-FS, pursuant to the CERCLA remedial action process, for the entire PUREX 202-A and Canyon.
Milestone M-85-82 is a more generic milestone requiring that either a remedial or removal action work plan be submitted for either a Tier 1 or a Tier 2 unit within the geographic scope of PUREX by December 30, 2017.
If Ecology intends to enforce the M-85-80 Milestone it makes no sense to adopt a much more limited removal action and EE/CA for a portion of the facility to be covered by a much more detailed RI/FS due in one year and one month.
34 M-85-84.

the long-term, comprehensive RI/FS process. The removal action does not preclude the final remedial action, which will allow public comment on the final remedy.

Thank you for your comment on background and history. DOE will consider adding reference to the Tri-Party Agreement Milestone M-085-80 within the subsequent interim CERCLA documents.

The draft Rev. 9 PUREX Complex Part A Form identifies the DWMUs. WAC 173-303-610 is required to be implemented for all RCRA TSD units and will be conducted separately from this removal action.

This EE/CA was developed using EPA NTCRA guidelines applying a graded approach.

Public Involvement Was a Failure for this Removal Action / EE/CA Proposal:

As documented extensively in our comments, the EE/CA fails to provide legally required information for the public to review and comment – and, for the regulators to review and approve. The effort to use a removal action is not supported by CERCLA and short-circuits the public and tribes' ability to review and comment on specific plans or alternatives. This will prevent us from effectively participating in the proposed response action as CERCLA and the TPA are intended to guarantee we can participate.

Public meetings should be held on demolition plans for PUREX, particularly to answer public questions and concerns over whether demolition will result in the repeat of contamination being spread as occurred during demolition of PFP. A proposal regarding a massive facility following on the heels of the disastrous spread of Plutonium from similar work demolishing PFP should have public meetings and at least a 60 day comment period. The extension of the comment period for the minimum legally required fifteen days was inadequate since USDOE failed to disclose the existence of key records, including failing to provide notice of the sampling and analysis plan issued on. July 17, just two weeks before the end of the initial comment period.

The TPA agencies have failed to provide any answer as to why a removal action with a miniscule EE/CA is being issued when the TPA requires that a complete RI/FS for the entirety of the 200-CP-1 unit (which includes all of 202-A, Canyon and PUREX) be issued in just thirteen months (September 30, 2020, M-85-80).[xv] We insist that this milestone be met and not supplanted by this short-circuit EE/CA and removal action.

The EE/CA failed to provide the public with information that was legally required to be disclosed, as detailed extensively above. This included:

- failing to disclose that the "white powder" which is highlighted in the EE/CA to justify removal has been already sampled and designated as dangerous waste;
- failing to disclose the white powder's dangerous waste characteristics which are vital for public comment on the proposal (e.g., ignitable);
- failing to disclose that a legally binding order had already been issued by Washington Ecology under HWMA authority requiring USDOE to sample, designate and remove the dangerous waste white powders;
- failing to disclose during the comment period to the notice list that the sampling and analysis plan was issued – which is an essential element of the plans that we had been explicitly promised to be able to review;
- failing to provide any link to the Ecology Order to USDOE to sample and remove the white powders, and decision of the Pollution Control Hearings Board regarding USDOE's appeal of the Order;

- failing to include any disclosure of the relevant TPA milestone for submission of a complete RI/FS by September 30, 2020;
- failing to ensure that the EE/CA and fact sheet provided either links to other key documents or were provided on a web page allowing all relevant materials to be viewed.

The TPA Public Involvement Plan should be amended to specify that these last, obvious, requirements are met in all subsequent CERCLA actions: disclosure of all relevant TPA milestones, investigations and orders; having a web page for the proposed action with all relevant documents provided. Searching through the Administrative Record searching for records relating to the EE/CA would not disclose to the public the existence of the TPA milestone, Order, appeal and Order of PCHB, or the Sampling and Analysis Plan issued July 17. Most importantly, the public should not be expected to search through USDOE's entire Hanford Administrative Record database to view and comment on documents related to a pending proposal. [xvi]

Response: Pursuant to 40 CFR 300.415(n)(4)(iii), the lead agency (DOE) accommodated the request to extend the comment period by 15 days.

Conclusion:

Use of a *removal action* instead of a planned *remedial action* short circuits the CERCLA process, denying our members, the public, tribes and our organization our rights to review and comment on investigation results, detailed plans and alternatives to the proposed actions at PUREX.

Ecology should be taking enforcement actions and ordering sampling and removal of wastes remaining in pipes and tanks in PUREX (as Ecology has done for the white powder on surfaces). This would eliminate any threat of future worker exposure, chemical reactions or fire related to the wastes. USDOE, in violation of EPA's guidance for EE/CA contents, failed to disclose that the wastes designated as dangerous waste or that USDOE has already been ordered to remove the white powder on surfaces. If those orders are enforced, there is no time-sensitive justification for a **removal action** instead of preparing a full, detailed RI/FS pursuant to CERCLA **remedial action** authority.

USDOE has had years to perform a structural integrity study. Without any study or documentation, USDOE attempts to justify use of the short-circuit removal action and EE/CA process on the basis of what it refers to as "unanticipated future events."

CERCLA requires documentation of "immediate" and "substantial" threats to public health and safety or of release to justify use of the short-circuit removal action process instead of the full remedial action process with full RI/FS.

Under USDOE's scheme, the threat of a meteorite hitting PUREX – "a future unanticipated event" – would justify use of the removal action process at any facility.

USDOE should be preparing a structural integrity analysis for PUREX as part of the complete RI/FS process.

If EPA and USDOE agree to let USDOE use a removal action on the basis of such ridiculous claims of immediate and substantial threats of releases, nothing would be left of the requirement to use the full remedial action process for permanent remedies. We believe courts will scoff at USDOE's claims.

USDOE should be held to TPA milestones M-85-80 and M-85-84 to submit an RI/FS work plan by September 30, 2020 and to start work by September 30, 2025. As "third party beneficiaries" of the TPA and citizens, we are entitled to rely on, and enforce, this requirement. USDOE must not be allowed

to claim this inadequate EE/CA supplants the require RI/FS. There is absolutely no need or justification for adopting a removal action and this legally inadequate EE/CA at this time, since a much more detailed RI/FS is due in just over one year. There is no need to adopt this EE/CA since USDOE failed to propose a timeline or funding to carry out any removal action work ahead of the work which would be detailed for review in the required RI/FS.

As we have documented in these comments, **the EE/CA fails to meet the most basic legal requirements for content of an EE/CA**. USDOE failed to document wastes, failed to document costs, failed to provide any timeline for action, failed to disclose the regulatory history (including failing to disclose the TPA milestone for submitting a full RI/FS and failing to disclose that USDOE had been ordered to sample and remove the white powders), failed to disclose and address numerous applicable laws and standards, failed to document any proposed work, failed to disclose how similar demolition activity at PFP spread Plutonium for miles, and failed to disclose how it would do the undefined work safely without repeating the disastrous spread of Plutonium as occurred less than two years ago at PFP.

If USDOE is given approval for this removal action, Ecology and EPA will be giving USDOE a blank check for $217.7 million and a blank timeline without accountability for how it is spent and if the work is a priority. If USDOE only proposes to spend $1 to $2 million per year over fifteen years on the work loosely described in a few sentences as Alternative 4, per DOE-RL Manager Shoop's letter formally transmitting the EE/CA to Ecology (December 7, 2018), EPA and Ecology should see the need to reject the removal action approach and inadequate EE/CA and enforce the requirements for detailed work plans and schedules in a full RI/FS due next year.

Response: The use of a NTCRA helps support future remedial action planning and mitigates potential threats to human health and the environment. Final cleanup remedies will be evaluated under the full CERCLA remedial action process in accordance with the Tri-Party Agreement Milestone M-085 series.

End Notes: (EE/CA Section has footnotes on the same page as discussion)

i "Given the recent contamination events associated with the Plutonium Finishing Plant demolition, we understand your concern about proposed demolition activities at the PUREX Complex.
"We wanted to assure you that despite DOE's submittal of the draft EE/CA, no demolition activity at the PUREX facility will begin until several regulatory processes, and reviews and approvals of key documents, have occurred. "Ecology will expect DOE to incorporate any lessons it learned from contamination events at the Plutonium Finishing Plant, and any additional protective measures it developed to prevent such contamination events, into the work plans and work controls that it proposes for any future demolition activities on site, including those at the PUREX Complex." Ecology Nuclear Waste Program Director Alex Smith to Gerry Pollet, Heart of America Northwest, January 23, 2018.

ii M-085-80 was amended to require submission of the full RI/FS with subsequent onset of remedial action on September 30, 2020. 200-CP-1, the unit covered by the milestone, includes 202-A and the PUREX Canyon. See TPA Unit lists, Appendix C, version of 4/02/2019, at page C-84. YNERWM is entitled to rely on the Milestone for Ecology to ensure that USDOE submits a full RI-FS, following the remedial action process for the entire PUREX 202-A and Canyon. Milestone M-085-82 is a more generic milestone requiring that either a remedial or removal action work plan be submitted for either a Tier 1 or a Tier 2 unit within the geographic scope of PUREX by December 30, 2017. If Ecology intends to enforce the M-085-80 Milestone, it makes no sense to adopt a much more limited removal action and EE/CA for a portion of the facility to be covered by a much more detailed RI/FS due in one year and one month.

iii The criteria that has to be met for a removal action in regard to the emergent threat pursuant to 40 CFR § 300.415 (b)(2): (1) actual or potential exposure to nearby human populations; (2) actual or potential contamination of drinking water supplies or sensitive ecosystems; (3) hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release; (4) high levels of contaminants in soils near the surface that may migrate; (5) the threat of fire or explosion; (6) availability of federal or state response to potential release; and (7) other situations or factors that may pose threats to public welfare of the US or the environment. USDOE attempts to justify potential release from fire, explosion or structural failure over unspecified time periods. This does not meet the test for a realistic threat justifying a removal action instead of following the full process for a remedial action. USDOE's case is further weakened by seeking to use a process called "non-time critical removal action" (NTCRA). USDOE acknowledged that the threat of fire or explosion is presently low and being monitored. However, in the EE/CA USDOE said continued aging of the structure could result in such a "future unanticipated event." DOE/RL-2016-15, Engineering Evaluation/Cost Analysis for the PUREX Complex, pages 2-19, 2-20 Section 2.5. If the threat is "unanticipated", then there isn't a "threat." "Unanticipated" threats are certainly not "substantial."

iv USDOE cites the joint 1995 USDOE-EPA Policy on Decommissioning of Department of Energy Facilities Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) for authority to proceed with a Non-Time Critical Removal Action (NTCRA); https://www.energy.gov/em/policy-decommissioning-department-energy-facilities-under-comprehensive. This 24 year old policy, however, was adopted to guide stabilizing facilities at a time when weapons complex facilities were being shutdown or were recently placed on the CERCLA National Priorities List (NPL). It does not, and cannot, supercede the legal requirements of the statute which differentiate between removal and remedial action in regard to requiring a "substantial threat" of some immediacy for use of the limited removal action process. See discussion supra. Nor does this joint policy supplant the requirements in EPA Guidance in regard to the necessary elements for an EE/CA or determining when full remedial investigations and feasibility studies are to be conducted.
The requirements of the Policy on Decommissioning are not met for PUREX, even if it were the governing authority. The administrative record does not include or reveal "any results of the removal site evaluation and other factual information and analyses upon which the decision to conduct response action was based," as required by the cited Policy. Nor, as discussed supra, does the EE/CA or Administrative Record include any basis for concluding that the threat of release is "substantial." Policy, Background Section, Paragraph 4. The EE/CA and record are devoid of any evidence that a threat of release is present, much less substantial.

v This is the contradictory and unsupported claim for structural failure justifying a Non-Time Critical Removal Action (NTCRA) instead of following the full CERCLA process to develop a Remedial Investigation and Feasibility Study (RI/FS) and propose a range of permanent remedial action options to meet CERCLA standards:

The PUREX Canyon is adequately monitored by S&M activities; however, there is limited to no coverage in areas that are highly contaminated. In general, the risk of structure failure due to facility degradation would increase over time, and the risk of an accidental release would also increase the longer the structures await the eventual remedial action for the operable unit. Therefore, current conditions present a sufficient threat of release under a continued S&M scenario to justify an NTCRA. (Section 2.5 Risk Evaluation at page 2-20.)

vi TPA M-85-80 and M-85-84. M-85-80 requires submission of a full RI/FS work plan for 200-CP-1 by 9/30/20. 200-CP-1, the unit covered by the milestone, includes 202-A and the PUREX Canyon. See TPA Unit lists, Appendix C, at page C-84. Heart of America Northwest is a Third Party Beneficiary entitled to rely on the Milestone for Ecology to ensure that USDOE submits a full RI-FS, pursuant to the CERCLA remedial action process, for the entire PUREX 202-A and Canyon.
Milestone M-85-82 is a more generic milestone requiring that either a remedial or removal action work plan be submitted for either a Tier 1 or a Tier 2 unit within the geographic scope of PUREX by December 30, 2017.
If Ecology intends to enforce the M-85-80 Milestone it makes no sense to adopt a much more limited removal action and EE/CA for a portion of the facility to be covered by a much more detailed RI/FS due in one year and one month.

vii EE/CA at Section 5.2.1 and 6.2. Quote from section 6.2.

viii M-85-80 and M-85-84 per end note above.

ix USDOE, Douglas Shoop, to WA Ecology transmittal of Draft EE/CA for PUREX Complex, December 7, 2017, 17-AMRP-0248.

x See TPA Unit lists, Appendix C, at page C-84. Heart of America Northwest is a Third Party Beneficiary entitled to rely on the Milestone for Ecology to ensure that USDOE submits a full RI-FS, pursuant to the CERCLA remedial action process, for the entire PUREX 202-A and Canyon.

xi This is the contradictory and unsupported claim for structural failure justifying a Non-Time Critical Removal Action (NTCRA) instead of following the full CERCLA process to develop a Remedial Investigation and Feasibility Study (RI/FS) and propose a range of permanent remedial action options to meet CERCLA standards:
The PUREX Canyon is adequately monitored by S&M activities; however, there is limited to no coverage in areas that are highly contaminated. In general, the risk of structure failure due to facility degradation would increase over time, and the risk of an accidental release would also increase the longer the structures await the eventual remedial action for the operable unit. Therefore, current conditions present a sufficient threat of release under a continued S&M scenario to justify an NTCRA.
Section 2.5 Risk Evaluation at page 2-20.

xii WAC 173-303-610

xiii The criteria that has to be met for a removal action in regard to the emergent threat pursuant to
40 CFR § 300.415 (b)(2):
(1) actual or potential exposure to nearby human populations; (2) actual or potential contamination of drinking water supplies or sensitive ecosystems; (3) hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release; (4) high levels of contaminants in soils near the surface that may migrate; (5) the threat of fire or explosion; (6) availability of federal or state response to potential release; and (7) other situations or factors that may pose threats to public welfare of the US or the environment.
USDOE attempts to justify use of a removal action based on the undocumented, hypothetical potential release from fire, explosion or structural failure over unspecified time periods. This does not meet the test for a realistic threat justifying a removal action instead of following the full process for a remedial action. USDOE acknowledged that the threat of fire or explosion is presently low and being monitored. In the Draft EE/CA USDOE said continued aging of the structure could result in such an "future unanticipated event." DOE/RL, Draft Engineering Evaluation Cost Analysis for the PUREX Complex, pages 2-19, 2-20 Section 2.5.
If the threat is "unanticipated", then there isn't a "threat." "Unanticipated" threats are certainly not "substantial."

xiv USDOE Dog Shoop to Ecology Alex Smith, December 7, 2018.

xv M-85-80 requires submission of the RI/FS for 200-CP-1 by September 30, 2020. Appendix C of the TPA, Identification of Units, includes "202-A; PUREX Canyon; PUREX Facility" within the scope of 200-CP-1. Thus, all of the scope of the EE/CA is within the milestone for submission of a complete RI/FS in thirteen months.

xvi Since these documents are not linked to the removal action proposal in the Administrative Record, USDOE, EPA and Ecology are not able to legally claim they are part of the administrative record considered by the agencies for this decision.

Commenter 35: Oregon Department of Energy

Dear Mr. Hamel,

Thank you for the opportunity to provide comment on DOE/RL-2016-15 – *Engineering Evaluation/Cost Analysis for the PUREX Complex.* While canyon demolition remains relatively low on Oregon's cleanup priorities list, we appreciate the need to maintain a workforce with the extensive training and unique skills to conduct demolition of highly contaminated facilities. To maximize this benefit, we recommend DOE begin the pre-demolition work either immediately following or concurrent with the completion of the Plutonium Finishing Plant (PFP) demolition. This work continuity will allow the workforce to retain the technical skills and experience gained during PFP demolition, saving time and on-boarding expenses.

Response: Thank you for your support. DOE plans to utilize the qualified and trained Hanford workforce in the most efficient manner.

The work proposed at PUREX will also reduce the risk of spreading contamination and reduce "hotel costs" associated with aging infrastructure – both of which we support.

We endorse the U.S. Department of Energy's preferred alternative, number 4, which includes hazard abatement of the 202A Building; demolition of the 202A East and West Annexes; and "demo prep" of the 202A Canyon above deck areas. Unfortunately, the analysis failed to include the anticipated hotel costs associated with each option, which would be helpful both for decisionmakers and external reviewers to better understand the specific savings that can be accrued from each action.

Response: The annual Surveillance and Maintenance cost (i.e. hotel cost) is provided for each alternative in ECE-200E15-00005, *Environmental Cost Estimate for the PUREX Complex*. The document is available at https://pdw.hanford.gov/document/AR-02654.

As the PUREX abatement, demo prep, and annex demolition proceeds, we urge DOE to carefully consider and implement lessons learned from the demolition of PFP. Contamination in the PUREX complex is widespread, requiring deliberate characterization, decontamination, and demo prep to minimize the risk of unintended contaminant spread.

Following annex demolition to slab-on-grade, we suggest at least a screening-level survey to look for evidence of past releases and assist in future contaminant removal actions.

Response: Enhanced work practices will be considered based on lessons learned from PFP. Pre- and post-demolition activities will be carefully planned by DOE to minimize the risk of unintended contaminant spread, identify evidence of past releases, and assist in future contaminant removal actions.

This page intentionally left blank.