Plutonium Finishing Plant Closure Project

Overview and Project Status
September 2016
HANFORD ATOMIC PRODUCTS OPERATION PRODUCT FLOW

URANIUM IRRADIATION

REACTOR 105 BUILDING

CANNED URANIUM SLUGS

300 AREA

EXTRUDED URANIUM RODS

PLUTONIUM SEPARATION

URANIUM METAL PREPARATION

100 AREAS

CASKS CONTAINING IRRADIATED URANIUM SLUGS

200 AREAS

Z PLANT 234-5 BUILDING

PLUTONIUM METAL FABRICATION

PR CAN CONTAINING PLUTONIUM NITRATE SOLUTION

PLUTONIUM METAL SHAPES FOR OFF-SITE SHIPMENT
Plutonium Finishing Plant (PFP) Current Status

- Final internal hazard reduction
- Demolition zone preparations
- Employee transition planning
- Employee training
- Employee communication effort
- Demolition preparations

We don’t proceed until we are certain we can do it safely
PFP DOE-RL Project Key Risks

RL-EMP-001.01 Bump and Roll of Bargaining Unit Employees
• If a significant number of bargaining unit employees at PFP are replaced due to bump and roll, retirement or other personnel action, productivity may be impacted.

RL-EQ-01 – Catastrophic Safety Equipment Failure
• Details: Aging equipment and/or components create a catastrophic safety system failure that shuts down D4 operations at PFP.

DEMO-009 – Stakeholder Concern Delays Work
• Details: If a key stakeholder raises a significant concern during demolition, then work may be interrupted, resulting in schedule delays.

DEMO-001 – Airborne/Shipping Off-Normal Event During Demolition.
• Details: Airborne or Shipping Off-Normal Event During Demolition while performing demolition of the major buildings at PFP. EPA and Ecology will be monitoring demolition events. May affect adjacent working projects or off-site areas.
PFP: The Lay of the Land

236-Z
Plutonium Reclamation Facility (PRF)

242-Z
McCluskey Room

234-5Z
Plutonium Finishing Plant (PFP)

291-Z
Fan House, Stack
Status: 242-Z (McCluskey Room)
Status: 236-Z (Plutonium Reclamation Facility)
Status: Ongoing Work Prior to Demolition

- Process Vacuum Piping
- Filter Boxes
- Ventilation Duct
- Asbestos
- Ancillary Building Demolition and Site Prep
Status: Employee Transition Planning

- 263 HAMTC employees to transition based on Collective Bargaining Agreement
- 113 non-bargaining employees to transition to other scope and projects where possible

Execution:
- Dates identified based on project needs and skill mix
- Three phases planned
- One-on-one meetings
Status: Employee Training
Goals: address questions and concerns about PFP demolition

40+ briefings conducted

- CHPRC employees
- Other Hanford contractor employees
- Hanford Atomic Metal Trades Council employees
- Stakeholders
- Regulators

Online presence for questions and multimedia

Intranet presence for project status updates and frequently asked questions
## Hazard Mitigation: Summary

<table>
<thead>
<tr>
<th>Beryllium</th>
<th>Asbestos</th>
<th>Radiological</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintaining beryllium controls as a conservative measure</td>
<td>Removed 26,176 of 28,890 ft(^2) of asbestos insulation (7/18/16)</td>
<td>Source term removed or prepared for removal during demolition</td>
</tr>
<tr>
<td>Postings as necessary</td>
<td>All friable (easily crushed) asbestos removed</td>
<td>Extensive fogging, water suppression and fixative used</td>
</tr>
<tr>
<td>Extensive fogging, water suppression and fixative used</td>
<td>All transite (asbestos-containing) panels to be removed prior to demolition</td>
<td>Boundaries modeled by PNNL based on conditions</td>
</tr>
<tr>
<td>Fully characterized according to Hanford Site Chronic Beryllium Disease Prevention Program (CBDPP)</td>
<td>Will be fully characterized according to EPA demolition standards (40 CFR 61.145) and CHPRC guidance for demolition (PRC-GD-EP-52776)</td>
<td>Will be fully characterized according to sampling and analysis plan (DOE/RL-2004-29)</td>
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</tbody>
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### Air Monitoring for All Hazards
Keeping Employees and Environment Safe

- Real time radiological monitoring
- Airborne hazard control through fixatives, fogging and deluge sprays
- Fixatives and ground maintenance to avoid contamination spread
- Expeditious packaging and load out of contaminated debris
- Water runoff management
- Demolition won’t start until building conditions comply with the air dispersion model
  - Estimates of contamination and emission levels for various potential demolition activities
Animation of Detailed Demolition Sequence for 234-5Z

https://www.youtube.com/watch?v=81XNw6wwZ6I
Site Map

- Outer Fence/Laydown Area
- Radiological Buffer Area
- HCA/ARA
- Contamination Area
Extended Air Monitoring Near PFP
Environmental Air Sampling Locations Near PFP
## The Schedule

<table>
<thead>
<tr>
<th>Event</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plutonium Reclamation Facility Canyon Grouted</td>
<td></td>
<td></td>
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<tr>
<td>High-Hazard Glove Boxes Removed</td>
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<td></td>
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<tr>
<td>Pre-Demo Glove Box Removal Starts</td>
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<tr>
<td>Level B Suit Work Complete</td>
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<tr>
<td>Ancillary Building Demolition (2729)</td>
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<td></td>
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<tr>
<td>Ancillary Building Demolition (2727)</td>
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<tr>
<td>Readiness Assessment</td>
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<td></td>
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<tr>
<td>McCluskey Room (242-Z) Demo Ready</td>
<td></td>
<td></td>
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<tr>
<td>Plutonium Reclamation Facility (236-Z) Demo Ready</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plutonium Reclamation Facility (236-Z) Demolition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>McCluskey Room (242-Z) Demolition</td>
<td></td>
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<tr>
<td>First Phase Employee Transition Out</td>
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<tr>
<td>Main Processing Facility (234-5Z) Demo Ready</td>
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<tr>
<td>Main Processing Facility (234-5Z) Demolition</td>
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<tr>
<td>Fan House/Ventilation Stack (291-Z) Demo Ready</td>
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<tr>
<td>Fan House/Ventilation Stack (291-Z) Demolition</td>
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<tr>
<td>Second Phase Employee Transition Out</td>
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<tr>
<td>Site Demobilization</td>
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<tr>
<td>Third Phase Employee Transition Out</td>
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### Challenges
- Open Air Demo Concerns
- Workforce Transition and Skills Mix
- Unexpected Contamination Discovery
- Aging Infrastructure
PFP Post “Slab on Grade” Remediation Work to Go

- Upon completion of demolishing the Plutonium Finishing Plant (PFP) complex to “slab on grade,” substantial subgrade work remains to remediate pipelines, waste sites and waste water discharge ditches, and cribs.

- The drivers for this post slab-on-grade cleanup at PFP are Tri-Party Agreement (TPA) milestones and enforceable schedules within approved RCRA/CERCLA decision documents (e.g., work plans). Each of the waste sites and RCRA treatment, storage and disposal (TSD) units related to PFP are assigned to an operable unit (OU) for cleanup as detailed and scheduled in an approved decision document that has been developed or is under development.

- Remediation planning, sampling and characterization of the PFP area subgrade structures and waste sites is underway and will continue until FY2023. Field work to remediate the PFP subgrade items is scheduled to start in FY2024, funding dependent, and continue through FY2035+.

- Many of these milestones encompass areas of the Central Plateau beyond the PFP area. The TPA milestones to develop the decision documents for remediation are listed on slide No. 21.
Background – 200-CW-5, 200-PW-1 and 6
PFP Post “Slab on Grade” TPA Milestones

1. **M-016-125** - Submit remedial design/remedial action work plans for 200-CW-5 and 200-PW-1/3/6 OUs to EPA as described in Section 12.4 of the associated final record of decision, due 9/30/2015.

2. **M-015-99** - Complete remedial investigation of PFP related waste sites located in 200-WA-1 OU in accordance with the associated remedial investigation/feasibility study (RI/FS) work plan, due 6/30/2019.

3. **M-015-91B** - Submit feasibility study(s) and proposed plan(s) for the 200-BC-1/200-WA-1 OUs (200 West Inner Area) to EPA, due 7/31/2021.