Waste Treatment and Immobilization Plant Update

Presented by: Joni Grindstaff, WTP Deputy Assistant Manager

August 9, 2017
Waste Treatment and Immobilization Plant

Balance of Facilities (20 support buildings)

High-Level Waste Facility

Low-Activity Waste Facility

Pretreatment Facility

Future Site of LAWPS Facility

Analytical Laboratory

Effluent Management Facility Site

Building 87
Direct-Feed Low-Activity Waste Facility Overview

- **Integrated Disposal Facility (IDF)**: Accepts containers of vitrified low-activity waste for long-term disposal.
- **Tank Farm**: Waste stored and maintained until ready for treatment at the Vitrification Treatment & Immobilization Plant. Includes tank farm upgrades and places new infrastructure to support waste feed delivery to LAWPS.
- **Law Pretreatment System (LAWPS)**: Separates high-level waste from low activity waste for feeding to LAW.
- **Effluent Management Facility (EMF)**: Treats the liquid effluent from the Low Activity Waste Facility.
- **Direct-Feed Low-Activity Waste (DFLAW)**: Vitrifies low-activity waste into stable glass form for permanent disposition.

**Facilities Overview**:
- **Low-Activity Waste Facility (LAW)**: Mines LAW feed with glass-forming materials, vitrifies LAW for storage in containers.
- **Balance of Facilities (BOF)**: 20 buildings providing support for operation of Waste Treatment & Immobilization Plant complex.
- **Analytical Laboratory (AL)**: Samples LAW activity waste feed to ensure meets chemical standards.
Physical Progress at WTP
Dangerous Waste Permit requirements

EMF Secondary Containment (Class 3 modification)
- Permit will authorize construction of basemat, stem walls, low point drain, process walls
- Comment period 1 of 2: Completed January 2017

EMF Transfer Lines (Class 2 modification)
- Permit will authorize installation of piping to transfer waste
- Comment period: Completed June 2017

EMF Processing Equipment
- Permit will authorize installation of the tanks and evaporator
- Comment period: TBD summer/fall 2017

WTP Analytical Laboratory (Class 3 modification)
- Permit will add operating conditions
- Comment period 1 of 2: Open through September 1, 2017
The assembly of Melter No. 1 for the LAW Facility was completed in June. Construction crews are now focused on safely assembling the second LAW melter.

Video:
Assembly of 300-ton melter complete
The WTP Project defines CD-4a, “Approve Start of Initial Waste Treatment,” as the successful completion of cold commissioning, an operational readiness review, and approval to startup the LAW Facility consistent with DOE O 425.1D, *Verification of Readiness to Start Up or Restart Nuclear Facilities.*

* Dates not specified in referenced document.
Balance of Facilities
Construction, Startup, and Commissioning Process Flow

**EPC**
- Engineer, Procure, Construct

**Startup**
- Turnover
- Component Tests
- System Test

**Commissioning Operations**
- Water Runs
- Cold Commissioning
- ORR CD-4
- ORR Startup Plan
- Hot Commissioning
Construction Turnover Progress

**Construction phase**
Completed facilities

**Startup phase**
Ready for operation

1. **Nonradioactive Nondangerous Effluent Facility**
2. **Steam Plant**
3. **Glass Former Storage Facility**
4. **Fuel Oil Facility**
5. **Chiller Compressor Plant**
6. **Water Treatment Building**
7. **BOF Switchgear Building**
8. **Cooling Tower Facility**
9. **Anhydrous Ammonia Facility**
10. **Fire Water Pump House**
11. **Effluent Management Facility**
12. **Standby Diesel Generator Building**
13. **Sanitary Waste Drainfield**
14. **Administration Building**
15. **Warehouse Building**
16. **WTP Main Switchgear**
17. **Combination/Maintenance Shop**
18. **DOE Substation**

**Notes:**
- **Construction phase** completed facilities
- **Startup phase** ready for operation
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<thead>
<tr>
<th>Description</th>
<th>Total</th>
<th>Actual</th>
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<tbody>
<tr>
<td>Construction System Turnover to Startup</td>
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<tr>
<td>• Balance of Facilities</td>
<td>50</td>
<td>27</td>
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<td>• Analytical Laboratory</td>
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<td>• Low-Activity Waste Facility</td>
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<td>• Effluent Management Facility</td>
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<td>Startup System Tests</td>
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<td>Startup System Handover to Operations</td>
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June 2017
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<tr>
<th>Program</th>
<th>Readiness Assurance Group Review</th>
<th>Plant Manager Review</th>
<th>Expected availability for DOE Review</th>
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<td>1. WTCC Training</td>
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<td>2. Requirements Management</td>
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<td>6. Worker Safety and Health</td>
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Denotes kick-off meeting complete & review initiated
Denotes surveillance report complete and CR initiated
Denotes Plant Manager review initiated
Denotes Plant Manager review complete
Denotes DOE review initiated
Denotes DOE review complete and report received
Denotes date for a scheduled review or follow-up meeting

18 programs supporting the commissioning work control program

20 of 21 reviews complete
17 of 20 reviews complete
11 of 21 reviews complete

* The 2016 DOE audit of the WTP QA program (Audit Report U-16-QAD-RPPWTP-001/CCN 290221) was used to satisfy the DOE program review for the EPC QA and software quality programs.

** The plant manager is the RAM for this program.
“Protecting our workers, the public, and the environment”