



OFFICE OF
RIVER PROTECTION
United States Department of Energy

Waste Treatment Plant Transition from Construction to Startup

2017 Waste Management Conference

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March 7, 2017





Low-Activity Waste Facility



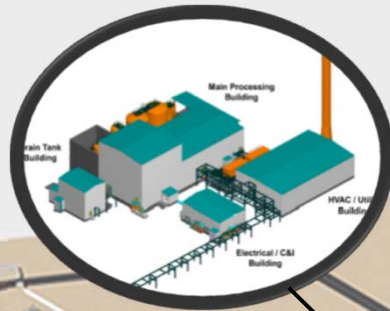
Melter refractory
brick installation

**Low Activity Waste (LAW) Facility and required support facilities
are nearing completion**

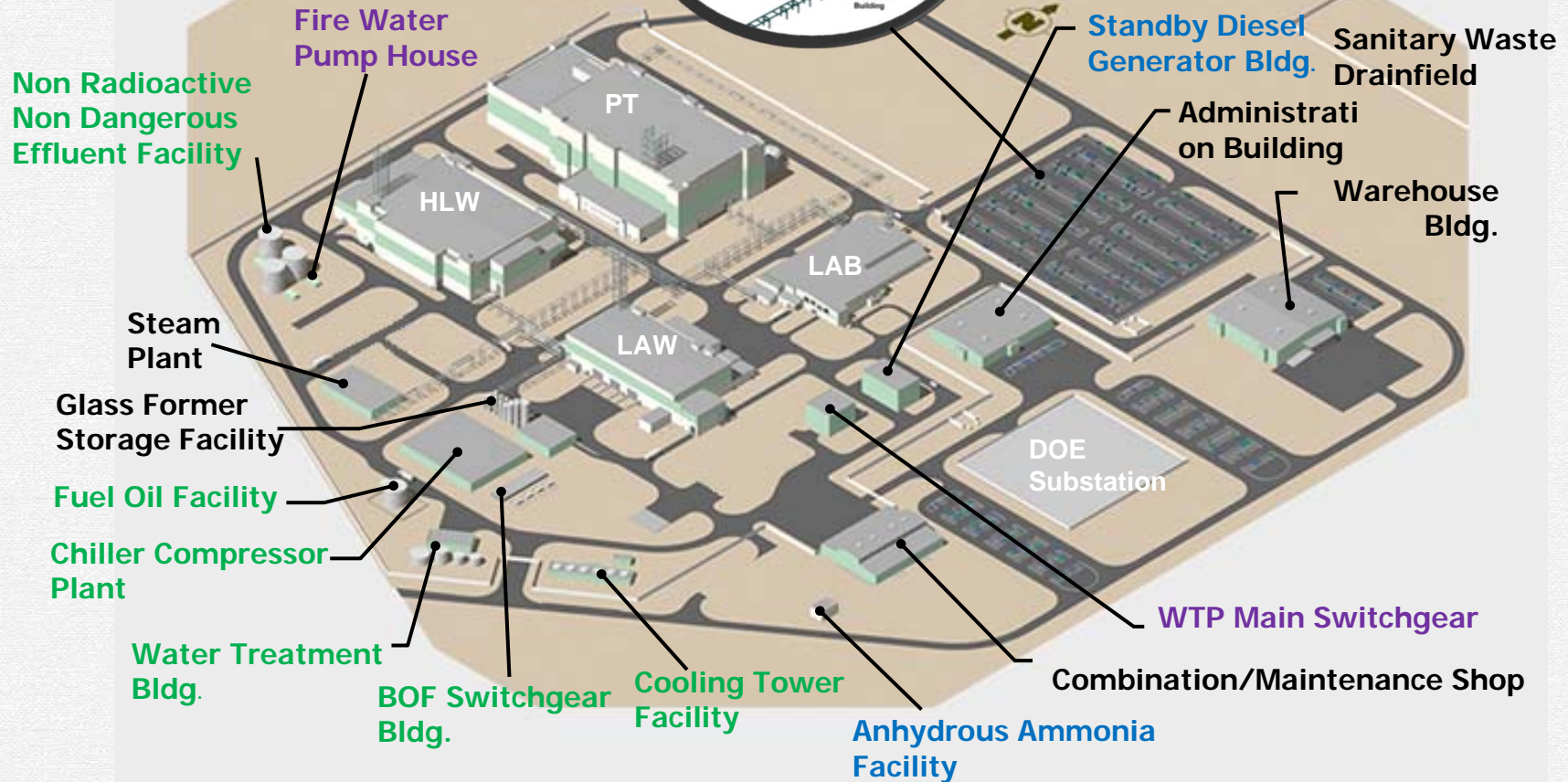




Construction phase
Completed Facilities
Start-up phase
Ready for Operation



Effluent Management Facility





The WTP contractor has developed an integrated management process to successfully conduct facility startup testing

ORP is Providing Oversight to Ensure:

- Systems and facilities have been constructed in accordance with the design drawings, and processes are in place to accept these systems and facilities from construction
- Contractor processes and procedures are in place to conduct startup testing and perform maintenance
- The contractor has adequately trained and qualified staff to conduct startup testing

Initial startup efforts at WTP are focused on support facilities required prior to startup of the more complex WTP facilities





Startup Care Custody and Control

Operations Care Custody and Control

Component Testing

- Purpose:
 - ✓ Proper installation
 - ✓ Fitness for use
 - ✓ Setup for system testing

- Examples:
 - scheme checks
 - insulation resistance checks
 - I/O loop checks
 - Motor bump and run checks
 - Instrument calibration



Flushing

- Purpose:
 - ✓ System cleanliness

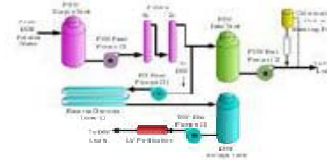
- Examples:
 - water system flushes
 - air system blows
 - steam system blows



System Testing

- Purpose:
 - ✓ System function
 - ✓ System accept criteria
 - ✓ Grooming (tuning)

- Examples:
 - system balancing
 - Functional testing
 - Acceptance testing



Commissioning Testing

- Purpose:
 - ✓ Facility demonstration with:
 - Water
 - simulants
 - hot feed
 - ✓ Environmental compliance
 - ✓ Production capacity

- Examples:
 - Water Runs Testing
 - Cold Commissioning Testing
 - Hot Commissioning Testing



Complexity



- 1 BNI SU Test Engineer
- 10 BNI Craft
- 2 URS Maintenance (Initial Calibrations)

Complexity



- 1 BNI SU Test Engineer
- 4 BNI Craft

Complexity



- 1 URS Shift Manager
- 2 BNI SU Test Engineers
- 2 URS Maintenance
- 3 BNI Craft/ URS Comm Tech

Complexity



- 1 URS Shift Manager
- 1 URS Comm Test Engineer
- 2 URS Maintenance
- 7 URS Comm Tech





WTP Reaching Out for Best Practices and Lessons Learned:

- **SWPF** – Startup Turnover Process, Readiness Process
- **IWTU** – Technical Maturity, Design Review, Complete Startup Testing, Testing with Relevant Simulants, Timing of Readiness Review
- **DWPF and WVDP** – Reality of Issues with Melter Heatup
- **Hanford Tank Farm Contractor** – Readiness Checklist Approach
- **Watts Bar Unit II** – Aging and Obsolescence





Equipment related (>60%)

- Obsolescence (harnesses now 21 wires instead of original 19 wires)
- Aging (stress cones, potential for vacuum seals)
- Maintenance challenges – vendor upgrade needed to prevent harness damage when racking in breakers
- Supplier / installation deficiencies

Procedures, processes and requirements (26%)

- Evolving requirements and processes
- Changes to system scoping and test requirements
- Design freeze challenges
- Requirement flow-down challenges
- Changes in testing processes

Delayed system turnovers (12%)

- Issues realized late in the process
- Late handoffs
- Ineffective transitions





Equipment related

- Identify and procure replacements for obsolete components
- Apply early lessons learned to upcoming systems
- Assume similar systems will have similar problems – plan accordingly
- Establish subcontracts with vendors to provide technical support as needed

Procedures, processes and requirements

- Minimize change – Is it safe? Does it work? Does it meet requirements?
- Gather, organize and communicate the “full” activity scope
- Co-locate engineering & startup to improve communication and timeliness of responses
- Exercise processes to improve efficiency and effectiveness (Joint Testing Group)
- Establish procedures group to improve timeliness and quality of procedures

Delayed system turnovers

- Focus turnovers on downstream demand – establish clear priorities
- Maintain alignment of working level schedules with project baseline to provide improved forecasting
- Re-align organizations with emphasis on completion



NIM1
YML1



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“Driving to Successful DFLAW Startup”

The Hanford Reach
White Bluffs Overlooking the Columbia River



Slide 9

NM1

Are all the slides after this one intended to be backup or deleted?

Nartker, Michael, 21/02/2017

YML1

we can delete

Levardi, Yvonne M, 23/02/2017