

Citizens Advisory Board Presentation

Integrated Waste Treatment Unit

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EM *Environmental Management*

Facility Description

- **New Hazard Category 2 Nuclear Facility:**
 - First of its kind, full scale steam reforming process; reformer vessels use superheated steam and nitrogen gas, along with coal and coke, to convert acidic radioactive liquid waste to solid carbonate particles
- **Mission:**
 - To treat ~900,000 gallons of radioactive liquid waste stored in the Idaho Tank Farm Facility into a stable form suitable for disposal outside of Idaho.



Event Corrective Actions

- After the event of June 16th 2012, eleven facility modifications were recommended by the independent review team.
- All eleven of these initial modifications have been completed.
- Additional reviews were completed to evaluate plant status resulting in additional recovery actions.



Facility Recovery

Recovery Actions Include:

- ✓ Key Parameters and Green Band Strategy
- ✓ Denitration Mineralization Reformer (DMR) Feed Nozzle modifications completed
- ✓ Off Gas Blower Seal Upgrades completed ready for install
- Check valve inspections
- Flushing of sensing/instrument lines
- Evaluate plugging of fluidizing rails and ring header using a four phase testing plan with testing vessels.

✓ = Completed Activity

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Facility Recovery - DMR

- Four testing phases:
 - ✓ 1) Proof of concept – complete
 - ✓ 2) Test in ASME vessel - analyzing results
 - 3) Final design w/instrumentation
 - 4) Full scale test in DMR



EM ✓ = Completed Activity
Environmental Management

Facility Recovery - DMR

- ✓ Completed evaluation of Fluidizing Gas Ring Header in DMR, no modifications required.
- ✓ Completed phase 2 testing of Fluidizing Gas Rails in DMR to prevent solids plugging.

✓ = Completed Activity



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Phase 2 Testing Summary

- Existing ring header visual inspection showed no clogged orifices
- Ring header blow-down successful in removing the majority of solids from existing ring header
- DMR fluidizing rails successfully self cleaned and fluidized bed material



Phase 3 Testing

- Involves full scale testing of the single selected fluidizing gas distributor design from Phase 2.
- The Phase 3 DMR mockup will provide an identical ring header and four main fluidizing gas distributors as would be used in the DMR during TI-102 system startup testing.
- The Phase 2 stainless steel mockup vessel will be used as the Phase 3 mockup DMR.
- Testing will include full DMR bed depths with alumina/bauxite bed media with all tests performed at ambient temperature.
- The Phase 3 mockup will be instrumented so that the bed and distributor pressures, fluidizing gas supply temperature and flow will be recorded.
- Test results will be reported at the end of phase 3 testing and operating procedures modified based upon those results.



Current Status

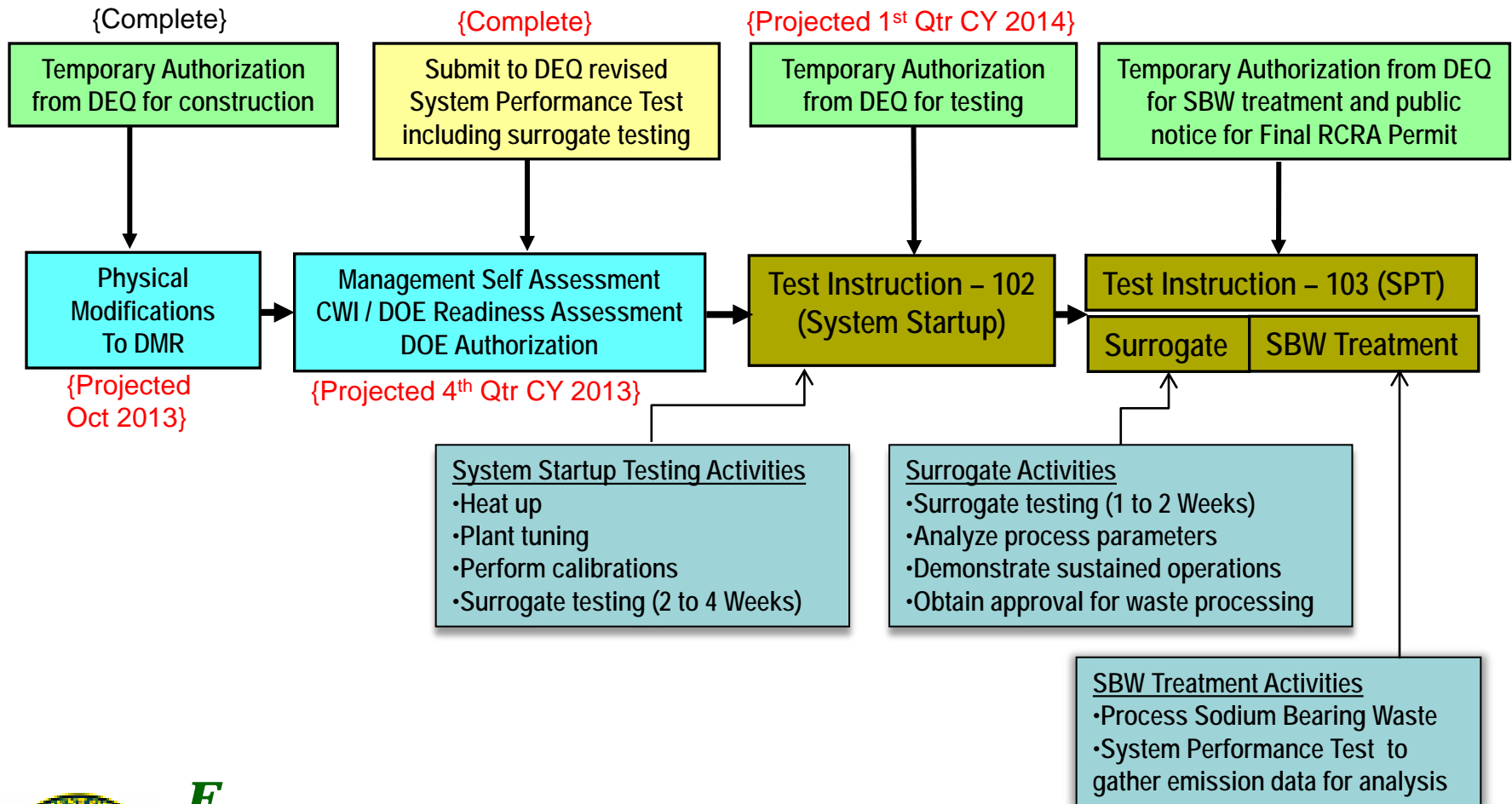
- DEQ and EPA Region 10 are monitoring our progress and working with the project on permit modifications.
- Idaho DEQ visited the site on 20-21 May 2013
- Phase 2 testing is nearly complete and a report is being prepared
- Phase 3 testing will begin after phase 2 analysis is complete
- To Be Done:
 - Finalize phase 2 testing and analyze results to select final configuration
 - Complete Phase 3 Testing of DMR ring header and rails
 - Reassemble DMR based on ring and rail tests
 - Revise the Safety Basis Documents
 - Initiate Contractor and DOE Readiness Reviews

✓ = Completed Activity

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Permitting and Startup Strategy



Questions?



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Integrated Waste Treatment Unit Process

