



U.S. DEPARTMENT OF
ENERGY

OFFICE OF
**ENVIRONMENTAL
MANAGEMENT**

Integrated Waste Treatment Unit Update

Jack Zimmerman

Deputy Manager
Idaho Cleanup Project

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Integrated Waste Treatment Unit

Key Activities/Actions:

- Prepared test plan for second simulant run.
- Completed facility modifications to address wall scale formation and off-gas filter material transfer issues.
- Commenced second simulant run to verify effectiveness of modifications.

Upcoming Activities:

- Evaluate existing filter issues.
- Complete second simulant run.
- After next simulant run, begin Outage G and engineering evaluation to confirm modifications were effective.

Status of IWTU Adjustments

1. “Bark” (wall scale) Formation in the Denitration/Mineralization Reformer (DMR): Changed DMR bed material from bauxite to alumina and adjusted operating parameters. So far no indication of bark formation.
2. Carbon Reduction Reformer (CRR) Refractory Lining: Repairs and curing to refractory lining completed.
3. Off-Gas Filter (OGF) Material Transfer: Installation of larger transfer jet and air flow upgrades to gas cannons have shown transfer improvements.
4. Off-Gas Blowers: Vendor has replaced two of the four blower shafts and completed testing.

Status of Second Simulant Run

- Initiated second simulant run on Aug. 4, 2015.
- Ran about 8,500 gallons of simulant when operators observed PGF filter element blow back cycles were trending in the negative direction.
 - The PGF vessel was inspected for potential cause and solids were observed adhering to the filter bundle elements.
 - The vessel was flushed with water and nitric acid to remove the deposits on the filter elements.
- Plant heat-up for the simulant run was commenced on Sept. 10, 2015.
 - Observed abnormal operating conditions during heat-up in the PGF filter. The plant was cooled back down for investigation and inspection.

Status of Second Simulant Run

- The head was removed to inspect the PGF vessel and carbon solids were observed.
 - All 18 of the filter bundles were removed and inspected.
 - Candle sticks (sintered powder type) were found damaged on 10 of the filter bundles.
- Extent of condition inspections were initiated to inspect the Off-Gas Filter, (OGF), Product Receiver Filter (PRF) and Product Handling Vacuum Filter (PHVF) filter vessels.
- Inspection of the PRF and OGF showed no issues. Two candle sticks in the PHVF failed.
- Consulting with industry experts to fully characterize the cause and provide recommendations.

Next Steps

- The next simulant run will verify whether modifications to the system and operating procedures have solved problems identified.
- Results of the next simulant run will determine path forward.
- Agreement with the State establishes Sept. 30, 2016 as milestone date to begin treatment of radioactive waste.