



U.S. DEPARTMENT OF
ENERGY

OFFICE OF
**ENVIRONMENTAL
MANAGEMENT**

Integrated Waste Treatment Unit

Jack Zimmerman
Deputy Manager
Idaho Cleanup Project
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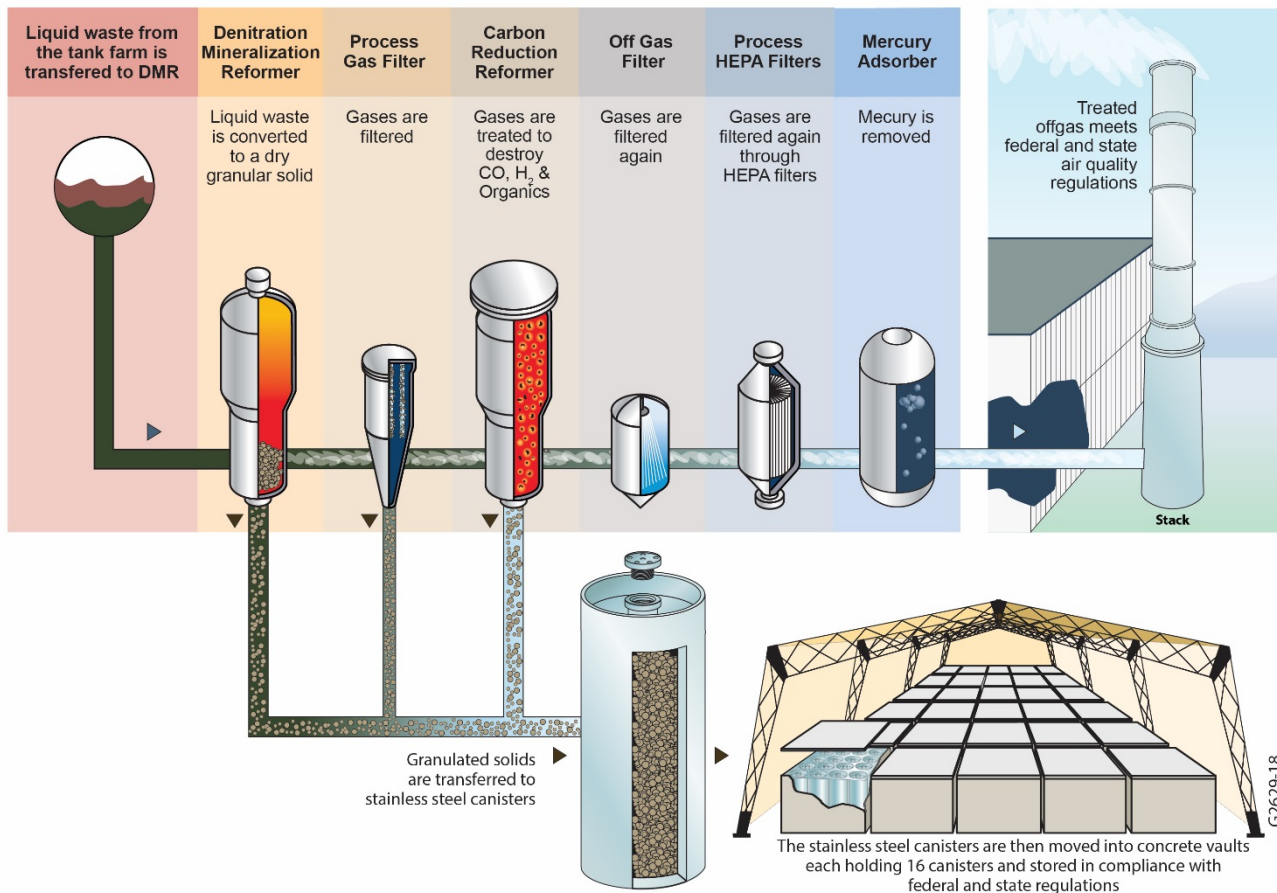
IWTU Regulatory Milestones

- Initial milestone called for completion of waste processing and cease use of waste tanks by **December 31, 2012**.
- A June 2012 operational upset prevented meeting the original milestone.
- A FY-2015 modification of the Notice of Noncompliance Consent Order established the following IWTU milestones:
 - Initiation of waste treatment in IWTU by **September 30, 2016**
 - 30 percent of waste treated by **September 30, 2017**
 - 70 percent of waste treated by **June 30, 2018**
 - Permanently cease use of waste tanks by **December 31, 2018**

DOE notified the State of Idaho on Sept 21, 2016 that it will not meet the Sept. 30, 2016 deadline to begin waste treatment.

IWTU Simplified Flow Sheet

IWTU Treatment Process Overview



Current Status

- Our focus continues to be on completing the necessary modifications to safely operate the facility to complete its mission.
- We've conducted five simulant runs over the last two years, which provide experience to our operators and valuable data on the operation of the facility.
- Commencement of "hot operations" will be based on the testing and analysis results, and data from previous simulant runs.



Comparing "product" from first and last simulant runs

Issues Affecting Safe Start-up



Wall scale, or “bark” formation indicates inconsistent conversion of the simulated waste.



Cement-like materials damaged the auger-grinder.



The ring header will have to be replaced because of erosion impacts.

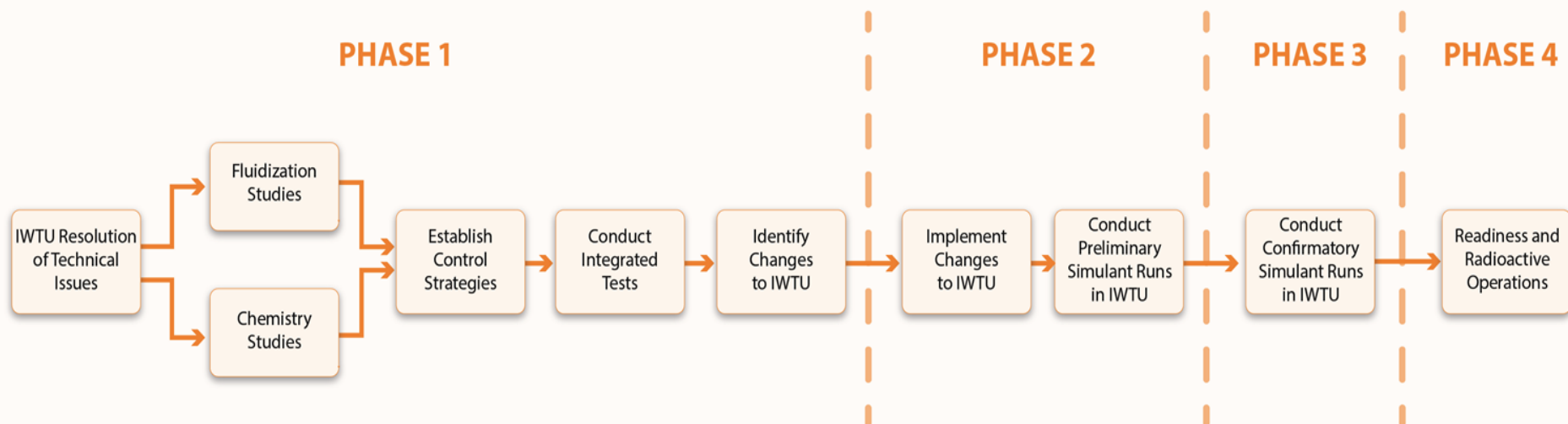
- Mechanical problems – auger-grinder, ring header require replacement.
- Formation of wall scale indicates inconsistent conversion of the simulated waste and interferes with temperature indications in processing vessel.
- Testing is being done to establish operations parameters, such as waste feed flowrate and canister production rates.

Fluor Idaho Approach to Start-Up

- Phase 1 (June 1 – Oct. 21, 2016): Chemistry and fluidization studies and bench-scale tests to establish process control strategies and identify plant modifications.
- Phase 2: Pilot Plant testing at Hazen Research facility in Colorado, and additional simulant testing at IWTU. This phase will focus on verifying effectiveness of changes to process control strategies and plant modifications.
- Phase 3: Conduct a confirmatory simulant run, and contractor and DOE readiness reviews.
- Phase 4: System performance testing and radioactive waste treatment.

Fluor Idaho Approach (continued)

- Approximately 5 months scheduled for Phase 1 – includes monthly project reviews and decision points.
- Schedule for subsequent phases will be developed based on test results, required modifications to IWTU, etc.



Fluor Idaho Progress

Since taking over on June 1, Fluor Idaho has achieved:

- Replication of the conditions that resulted in the failure of the auger-grinder. This will allow us to directly address problems with the operation of the auger-grinder.
- Computer analysis of the new ring header. This analysis indicates that the ring header will provide acceptable fluidization of material in the bottom of the DMR, which supports effective operation of the auger-grinder to remove product from the DMR.
- Modification of the product sampling system and other systems to support verification of product quality and composition.

Work Ongoing

The following items are currently being addressed:

- The ring header in the DMR will be replaced to ensure the necessary fluidization of material within the bed.
- Modifications to the auger-grinder in the DMR are underway to ensure that treated product transfer to the product receiver vessels can be reliably achieved for sustained IWTU operations.
- Additional testing is underway to better understand the formation of wall scale in the DMR that occurred during simulant testing.
- Testing and engineering analysis is ongoing to determine operating parameters that will be used to formulate the testing and operating plans for future simulant waste processing.

Safe Storage in the Mean Time

- INTEC Tank Farm consists of 11 300,000-gallon stainless steel tanks contained in concrete vaults.
- The tanks have never leaked.
- Seven of the tanks have been emptied, cleaned, closed and grouted. Photo at right shows general state of the tank after it was emptied and cleaned. There is no evidence of corrosion.
- Four tanks remain in use – three contain the remaining 900,000 gallons of liquid radioactive waste. A fourth is kept empty as a spare.
- A fitness-for-service analysis performed in 2002 concluded minimum tank life would last until 2050. This was based on corrosion coupon measurements, visual examination and laboratory studies, and was performed by an independent engineering firm.



Photo of a previously emptied and cleaned waste tank shows no corrosion issues.