



Integrated Waste Treatment Unit Update

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Idaho Cleanup Project
Citizens Advisory Board

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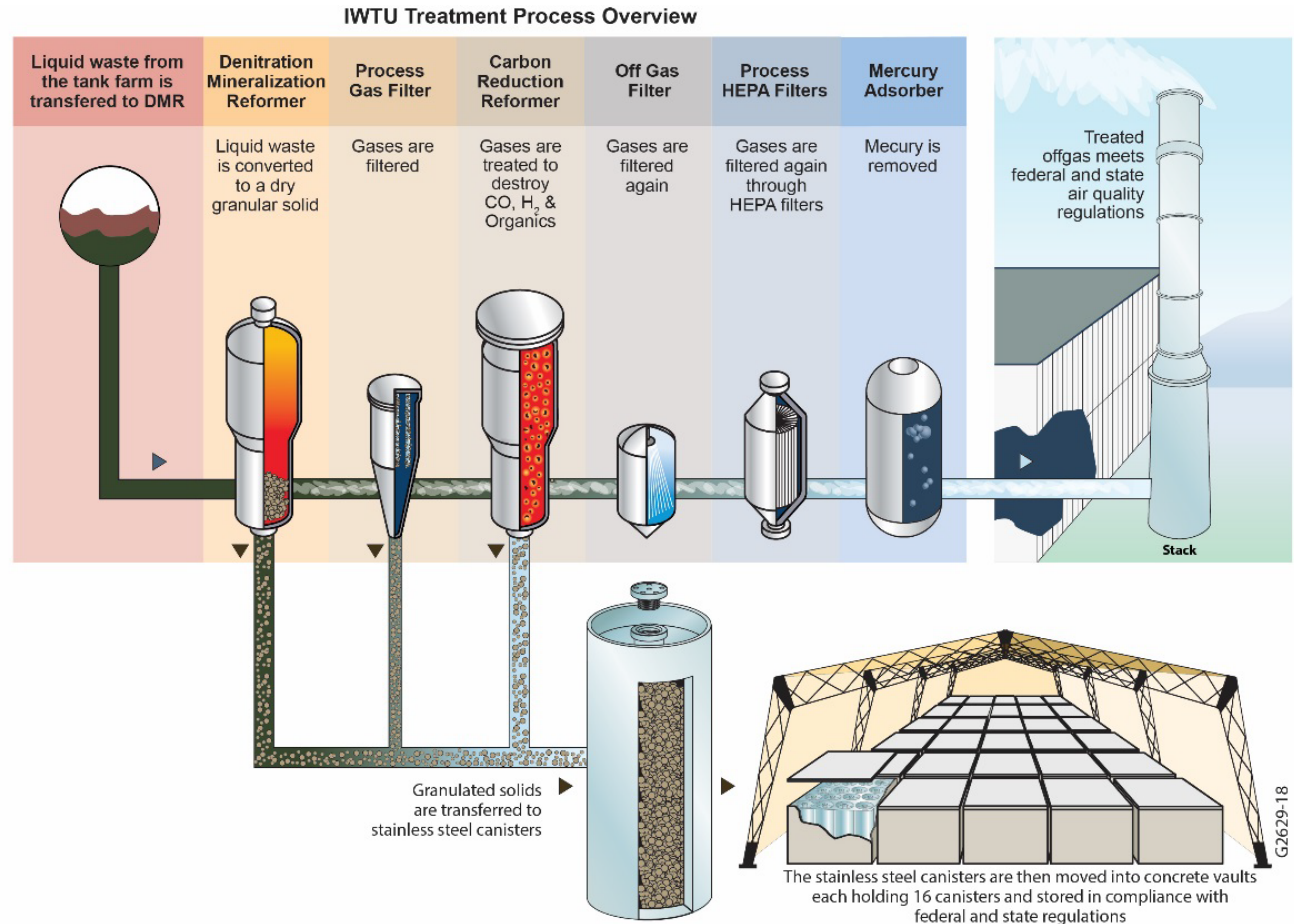
EM *Environmental Management*

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IWTU Mission

- There are about 900,000 gallons of liquid radioactive waste stored in three stainless steel underground tanks at the Idaho Nuclear Technology and Engineering Center.
- The Integrated Waste Treatment Unit (IWTU) was constructed to treat, package and store the waste.



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IWTU Overview

- The process will convert liquid Sodium Bearing Waste (SBW) into a solid, granular, carbonate product for on-site storage pending final disposition.
- Construction was completed in late 2011, initial heat-up occurred in June 2012.
- Process instabilities and equipment issues identified during non-radiological testing have delayed the transition to radiological operations.
- Currently in a planned outage (Outage J). Major outage activities address preparation for radiological operations.
- Pilot Plant testing of alternative Process Gas Filter (PGF) filter elements conducted at Hazen Research, Inc. resulted in selection of replacement filter media.



Process Gas Filter Testing

Completed Hazen Research Filter Media Tests on Replacement Filter Media Research - Full Bundle Tests

- Test results indicate uncoated ceramic media meet performance requirements (Refractron monolithic SiC)



Refractron monolithic SiC

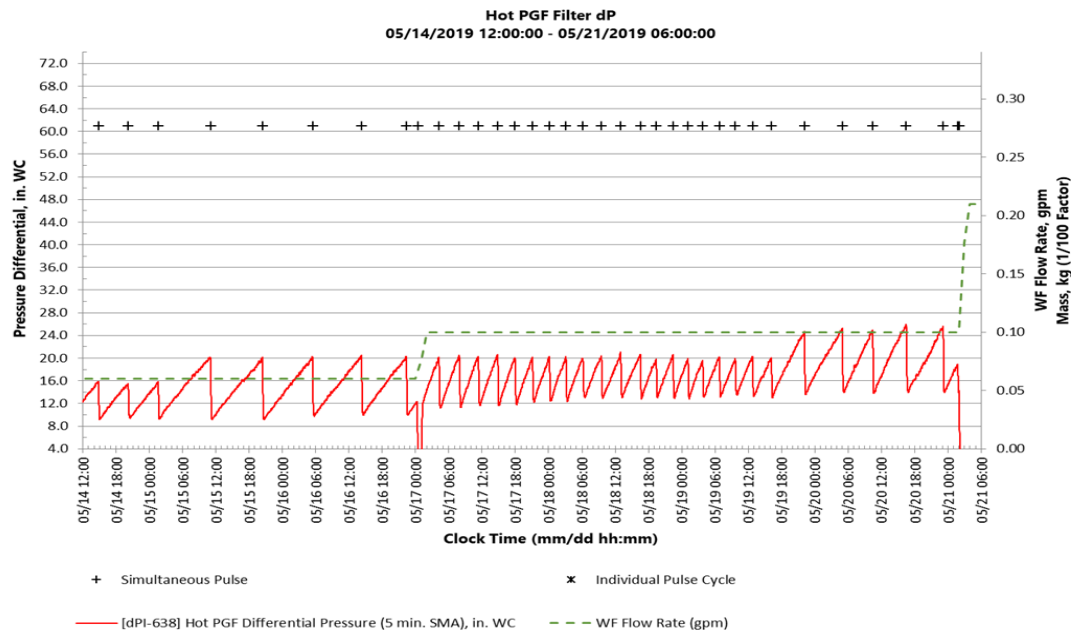


IWTU PGF filters – Sim Run 2



Hazen Pilot-Scale PGF Testing Refractron SF-15

- No bridging observed
- Blowback pulsing remained effective during entire run with very small incremental increase in dP (manageable)
- Recovery in differential pressure acceptable



Refractron SF-15 Filters at Hazen



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Process Gas Filter Path Forward

➤ Hazen Long Term Filter Run

- Fifty (50) Refractron SF15 elements on order with delivery date of October 10
- Fuses in final stage of specification for procurement
- Pilot plant mods on track for completion for startup late October
- Scope of PGF long-term testing (expected duration 60-70 days)
 - Test mating between ceramic filters and metallic fuses (spring packs and seals)
 - Test efficacy of modified IWTU blowback system
 - Test Refractron SF15 filter elements at various feed rates
- Design Efforts
 - Filter and PGF modification design changes currently underway
 - Blowback system design and analysis are in progress



Radiological Control Modifications

- Original design assumed 10 months operation and minimal Rad Controls
- Enhancing in-cell canister DECON capabilities
 - Canister surveying and cleaning will utilize robot suction and wiping
 - Plan to install and test DECON system during outage
- Designing wet and dry DECON systems
 - Reduces source term prior to maintenance of process vessels and piping
 - Wet decontamination system collects nitric “wash” from process vessels
 - To be returned to waste feed tank or NWCF
- Dry decontamination system removes product material from DMR dual plenum
 - To be returned to solids handling system



Product canister
in fill cell



Can fill decon system testing



Canister Decontamination System

◆ Status

- Completed Factory Acceptance Test
- Completed System Integration Test
- Facility installation initiated in September



FAT (factory acceptance test) at Oakland Automation



System Shakedown Test at Columbia Energy



Wet and Dry Decontamination System

◆ Status

- Installation of the wet & dry decon systems has started
- Dry decon system will provide secondary transport of process vessel solids to the canister filling system.



Area in 4-pack is ready for decon conditioning system installation



The old decon tank has been removed

- Process optimization continues at the mockup



Upcoming Activities

- Continue with Outage J activities
 - Outage J – Additional plant modifications and equipment maintenance
 - Upgrade cell, vessel, and canister de-con capability
 - Resolve Process Gas Filter performance issues
 - Modify system as needed to accommodate new filters
- Conduct Confirmatory Run
 - Verify Outage J modifications and conduct a contractor readiness assessment in preparation for radioactive waste operations
- Conduct System Performance Test
 - DEQ oversight – establish final permit conditions using tank waste

