



# *Sodium-Bearing Waste Treatment Update*

Presented at the Citizens Advisory Board Meeting,  
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September 10

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## *Acquisition*

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- Idaho Cleanup Project contract contains the Sodium Bearing Waste Treatment Project Scope
  - Design, Construct, and Commission a new treatment facility
  - Total Line Item Project Cost - \$570.9 M
- Contract also includes operational campaign to treat the tank waste
  - Estimated Operations Costs ~ \$30M - \$40M



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## *Artist Rendition – SBW Treatment Facility Location at INTEC*



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## *Sodium Bearing Waste Treatment*

### *Mission*

- New Facility to Treat 900,000 Gallons of Radioactive Liquid Waste currently stored in underground tanks at the INTEC Tank Farm
- Tank Waste Referred to as Sodium Bearing Waste (SBW):
  - A mixture of: Decontamination solutions from cleanup of equipment and facilities, laboratory wastes, Tank heels with solids
  - Highly acidic, radioactive liquid
  - Relatively high in sodium salts from decontamination solutions
- Idaho Settlement Agreement Requires Treatment of Tank Waste by December 2012
- Consent Order requires the remaining INTEC Tank Farm tanks to be emptied by December 2012
  - Tank Farm tanks secondary containments non-compliant with RCRA



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## *Tank Farm Closure Progress*

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## Sodium Bearing Waste Treatment Project Description

- Steam Reforming technology converts acidic radioactive liquid waste to solid carbonate particles
- New facility - includes Process Building with reinforced concrete process cells inside a structural steel building, along with a Product Storage Building
- Produces ~ 650 – 700 remote-handled waste canisters
- Product Storage Building provides interim storage for entire product volume
- Project at times referred to as the Integrated Waste Treatment Unit (IWTU)



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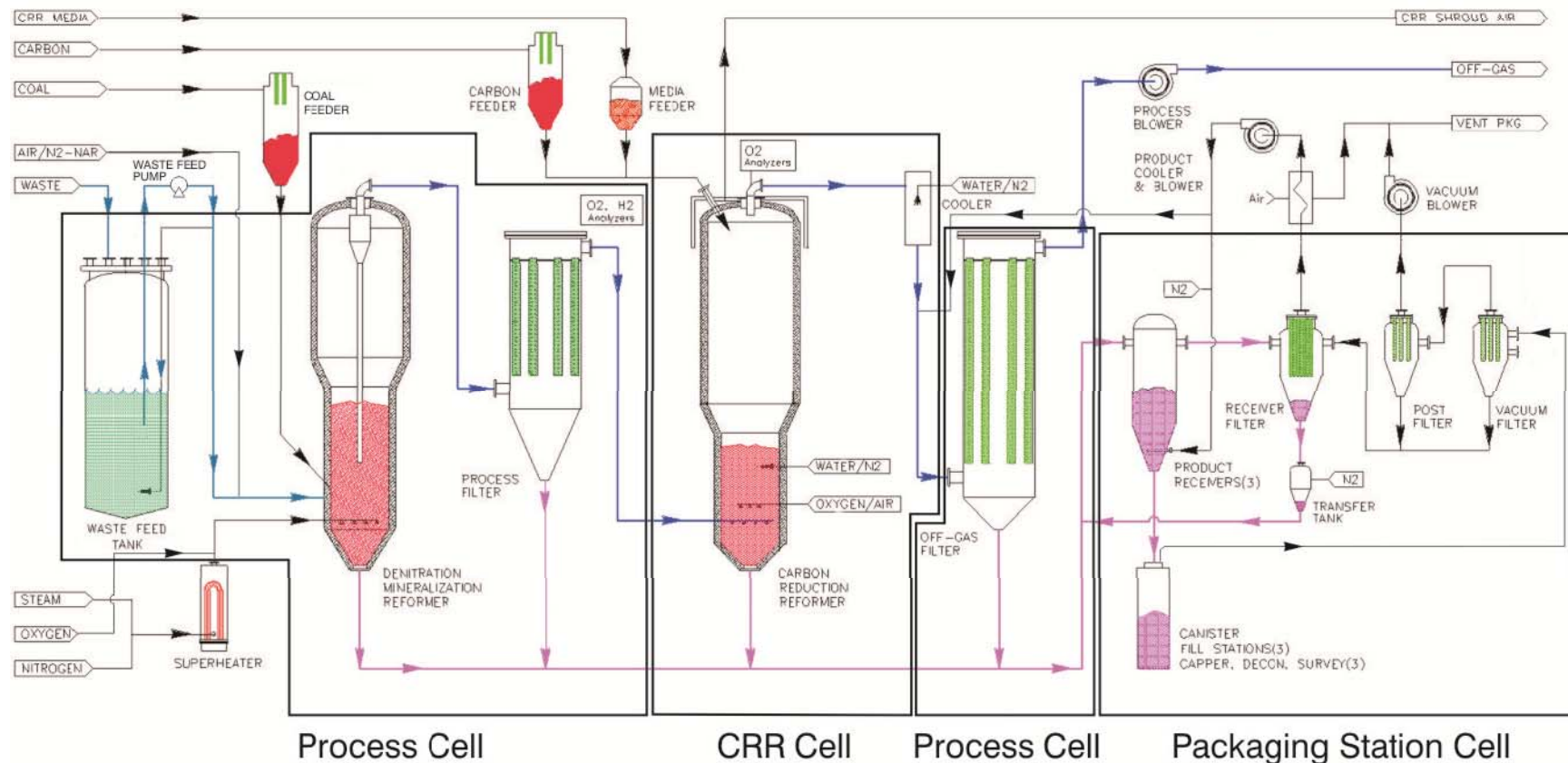
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# Sodium Bearing Waste Treatment Project

## Flowsheet



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# ***Sodium Bearing Waste Treatment Project Progress***

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- Construction efforts nearing completion
  - Construction complete on several individual systems - turned over from construction group to test organization
  - Construction Substantially Complete milestone – 10/31/10
    - Systems necessary to demonstrate mission capability turned over to test group
    - DOE Deputy Secretary/Stakeholders celebration planned in November
  - Remaining construction complete - 12/31/10
- System test program commencing
  - Testing phase to run through February 2011
- Forecasted Readiness Review dates
  - Contractor Management Self-Assessment (MSA) – late February 2011
  - Contractor Operational Readiness Review – May 2011
  - Federal Operational Readiness Review – July 2011
- Waste Treatment Campaign to begin late August 2011, and estimated to complete as early as July/August 2012



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## Installation of Insulation on Mercury Adsorber Vessel



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## *Off-gas Blowers and Piping Installation*



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## *Vault Loading Hatch Installation*



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## *Electrical Cable Installation at Power Distribution Center*



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## *Product Storage Building Progress*



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## *Electrical Switchgear Work at Power Distribution Center*



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## *Implementing a More Efficient Startup Sequence*

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- **Original approach**

- Integrated system testing with water and waste feed simulant to show functionality/mission capability and fine tune systems prior to final Operational Readiness Reviews (ORRs)
- Tests with water/waste feed simulant require controls in place for hydrogen generation hazards, mercury release hazards, and nitrous oxide release hazards - required additional up-front reviews/approvals to introduce hazards prior to ORRs
- Comprehensive Performance Test (required as part of regulatory permit) planned to be performed during readiness review activities
- Waste treatment campaign would begin by August 2011

- **New approach**

- Uses less hazardous heated nitrogen gas for integrated system testing to show functionality/mission capability prior to ORRs
- Defers potential of hydrogen generation hazards, mercury release hazards, and nitrous oxide release hazards until after final ORRs
- Uses a Transition to Operations period after final ORRs to fine tune systems using water and waste simulant prior to actual waste treatment
- Permit-required Comprehensive Performance Test performed during Transition to Operations period
- Waste treatment campaign would begin by August 2011, following Transition to Operations period

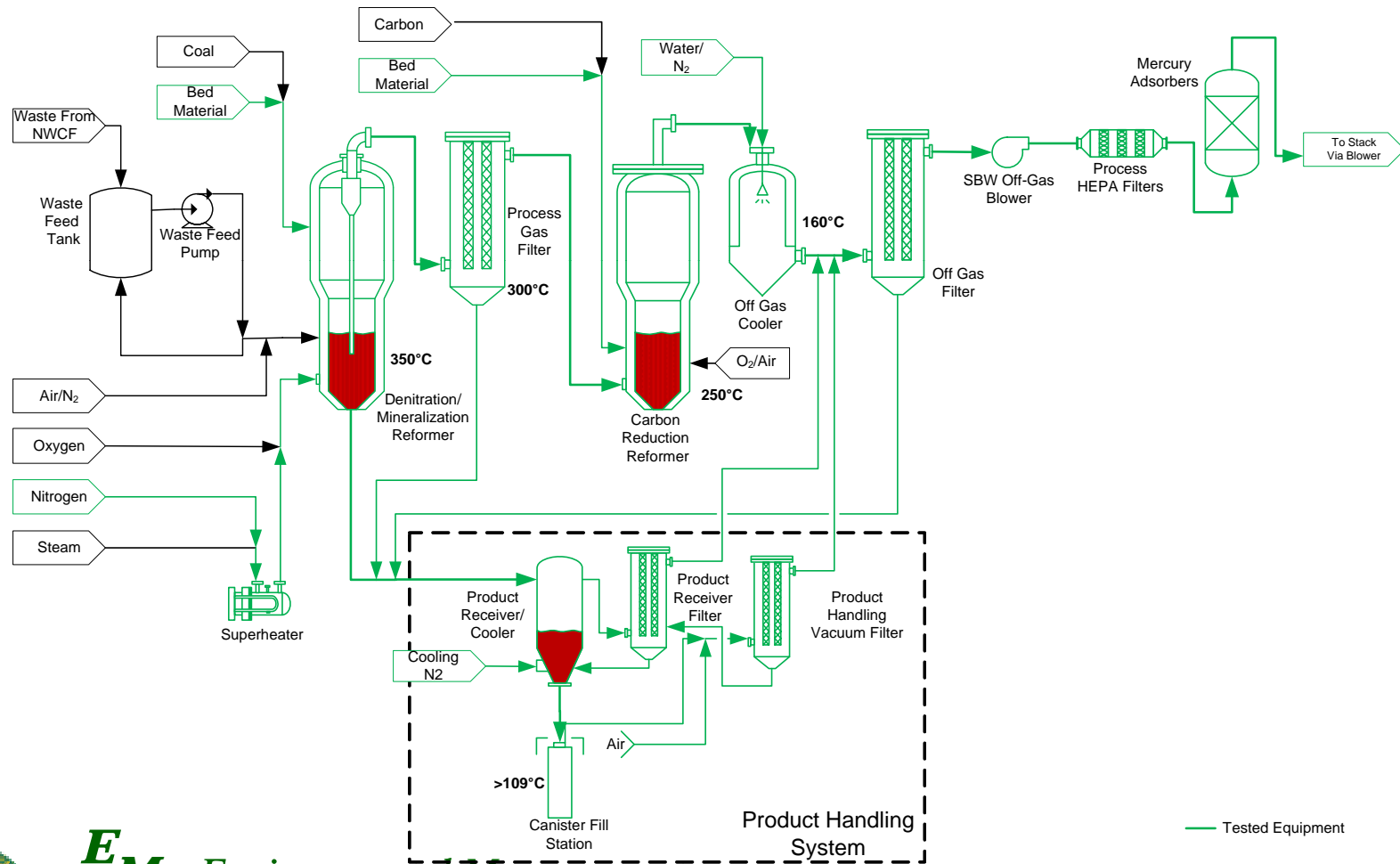


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# Core Systems Startup Demonstration Flowsheet

## MSA Demonstration Flowsheet



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## *Air Pallet Discussion*

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- Animation/Discussion- [Aerogo](#) website



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## *Air Pallet Construction*



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## *Air Pallet Construction/Testing*



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## *Air Pallet Tug Vehicle*

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## *Summary Points*

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- Wrapping up construction activities this calendar year
- Sequence of construction turnover of individual facility systems for testing/verification is in progress
- Testing Program and Readiness Review Activities will occur over the next eleven months
- Full Operations Planned to commence in August 2011
- Waste Treatment Campaign to complete by December 2012 Settlement Agreement Milestone



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