



Saltstone Disposal Unit (SDU) Construction Program Overview

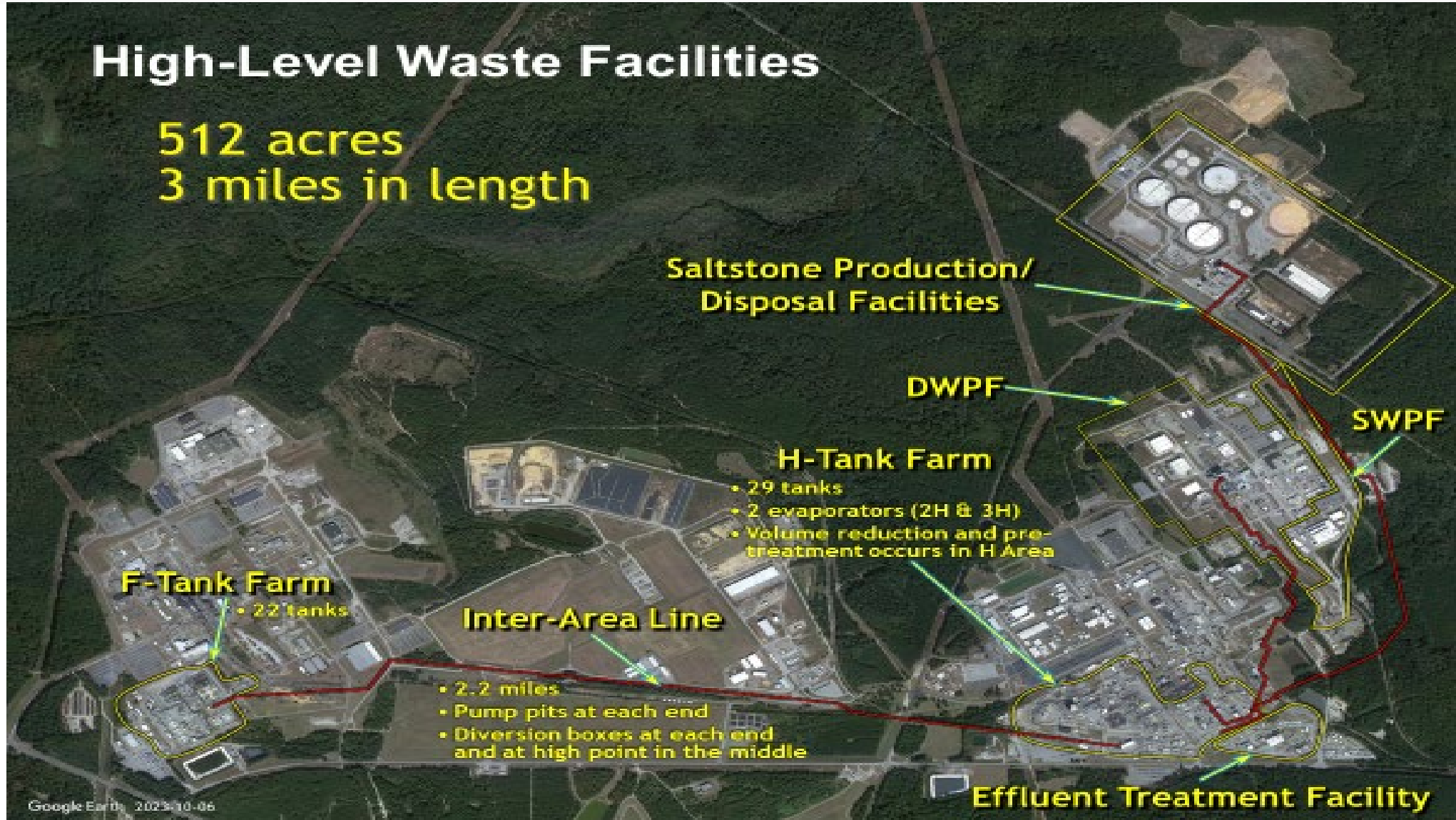
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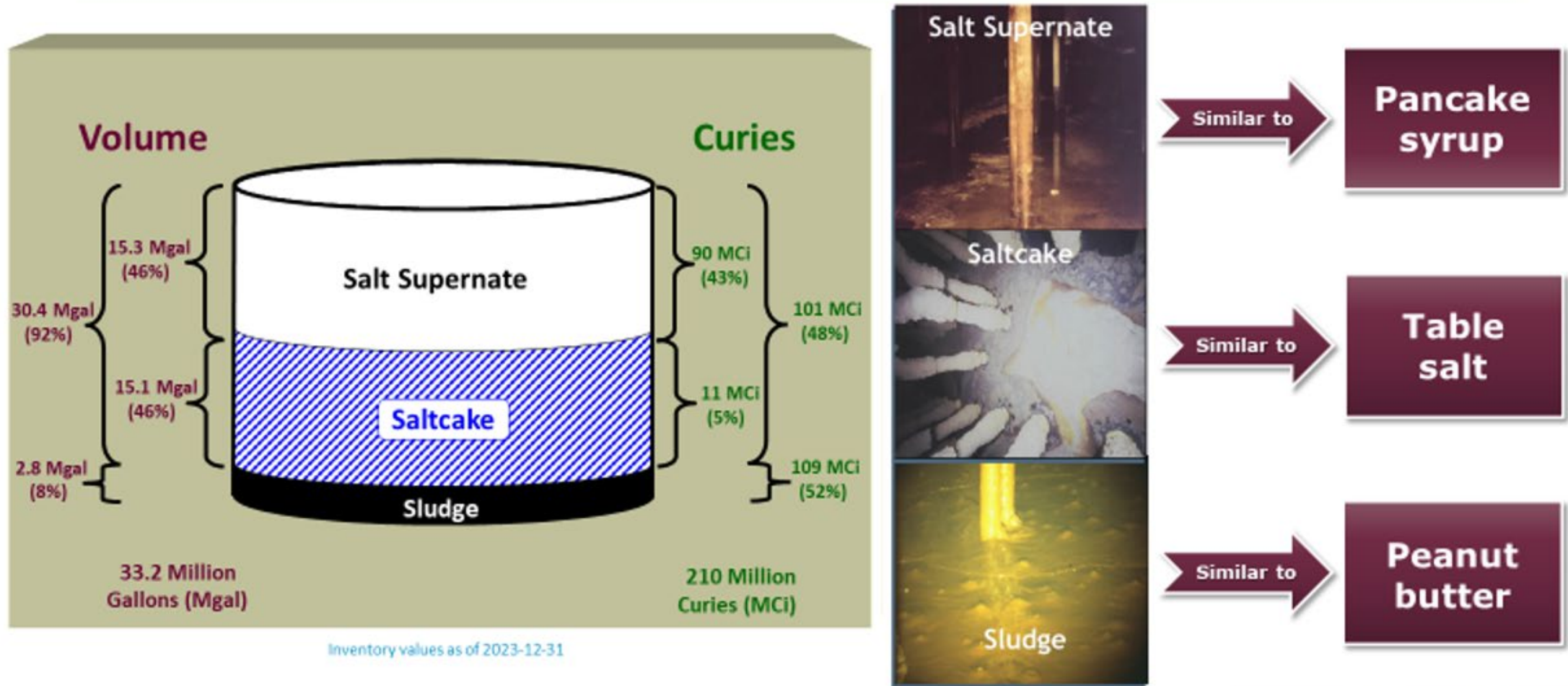
Liquid Waste System





Composite Inventory

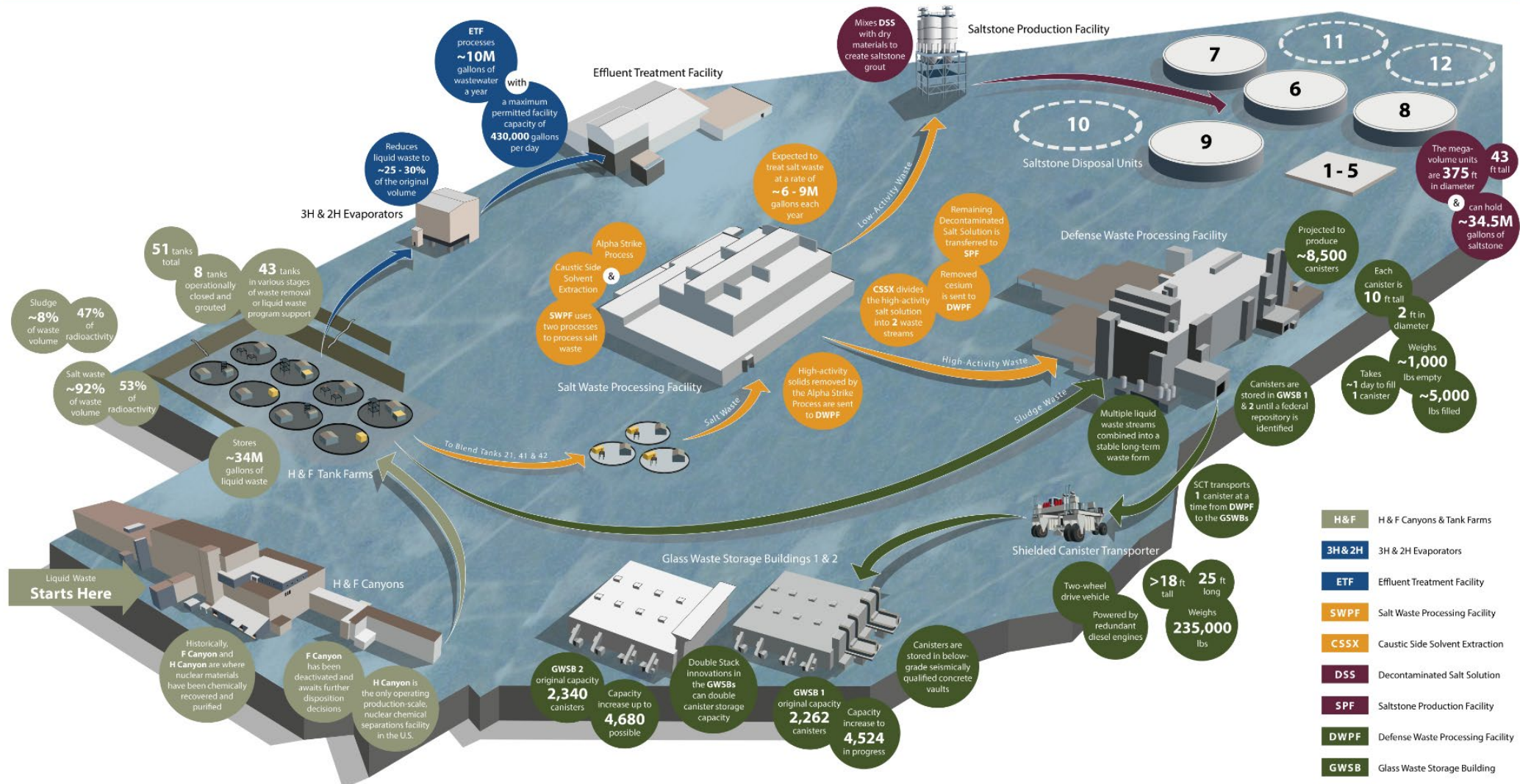
Inside the Tanks





Liquid Waste Flowsheet

SRS Liquid Waste Facilities





Saltstone Disposal Facility

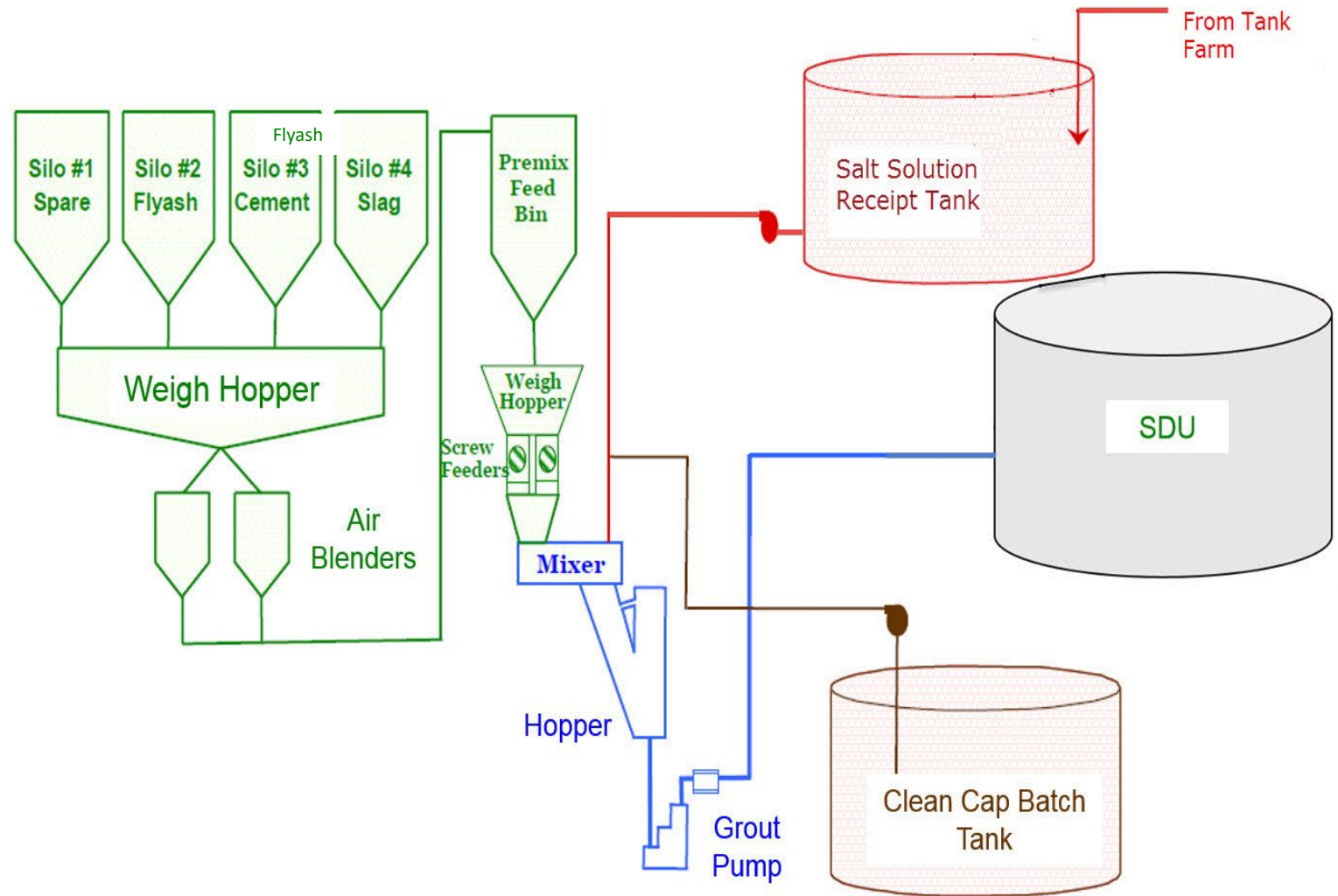
- Saltstone Disposal Facility (SDF)
 - Consists of Saltstone Disposal Units for safe, long-term storage of saltstone
 - Supported by performance assessment (PA) that analyzes environmental and public impacts of saltstone grout storage





Saltstone Production Facility Flowsheet

- Saltstone Production Facility (SPF)
 - Treats decontaminated salt solution (DSS)
 - SPF process mixes dry materials and DSS, produces “saltstone grout”
 - Pumps saltstone grout to a Saltstone Disposal Unit (SDU)





SDF SDU Current Status

- Mega-SDUs
 - SDU 6: operational
 - SDU 7: operational
 - SDU 8: operational
 - SDU 9: operational
 - SDU 10: cell construction
 - SDU 11-12: site preparation
- Other SDUs
 - Vault 1: operationally closed
 - Vault 4: operationally closed
 - SDU 2A & 2B: filled/closed
 - SDU 5A & 5B: filled/closed
 - SDU 3A & 3B: filled/closed





Mega-SDU versus Smaller SDUs

- Smaller SDUs design (SDUs 2,3, & 5)
 - 11.35 ML (3Mgal) capacity tanks
 - 45.7m diameter, 6.8m tall (150', 22.5' tall)
 - 82 tanks required to complete LW mission at SRS
- Mega-SDU design (SDUs 6-12)
 - 124.9 ML (33 Mgal) capacity tanks
 - 114m diameter, 12.8m tall (375', 42' tall)
 - 7 tanks required to complete LW mission at SRS
 - Estimated cost savings of \$520 million versus former design





Mega-SDU Construction Stages

1. Site Preparation (Fixed Price Contract)
2. Mud Mat Installation (Fixed Price Contract)
3. Cell Construction (Fixed Price Contract)
4. Liner Installation (Fixed Price Contract)
5. Balance of Plant (LW Contractor Self-Perform)
6. Leak Testing (LW Contractor Self-Perform)
7. Balance of Plant Testing (LW Contractor-Self Perform)

Total Construction Time: 4-5 years



Site Prep, Mud Mats, and HDPE/GCL



Site Prep Work

- ~ 169,000 cubic yards of excavation
- ~ 1,400 linear feet of sub-surface drainage
- Lays foundation for SDU mud mats
- ~8 months for site preparation



Lower Mud Mat

- ~ 1,830 cubic yards of concrete
 - 4" minimum thickness



HDPE/GCL and Upper Mud Mat

- High Density Polyethylene/Geosynthetic Clay Liner
- ~ 123,000 square feet of HDPE/GCL liner and 4 sumps
 - ~ 2,500 cubic yards of concrete
 - 6" minimum thickness

~ 3 months for mud mats and HDPE/GCL installation



Cell Construction



← Floors, Walls and Columns

- 14 Floor Sections
- 25 Walls
- 208 Columns

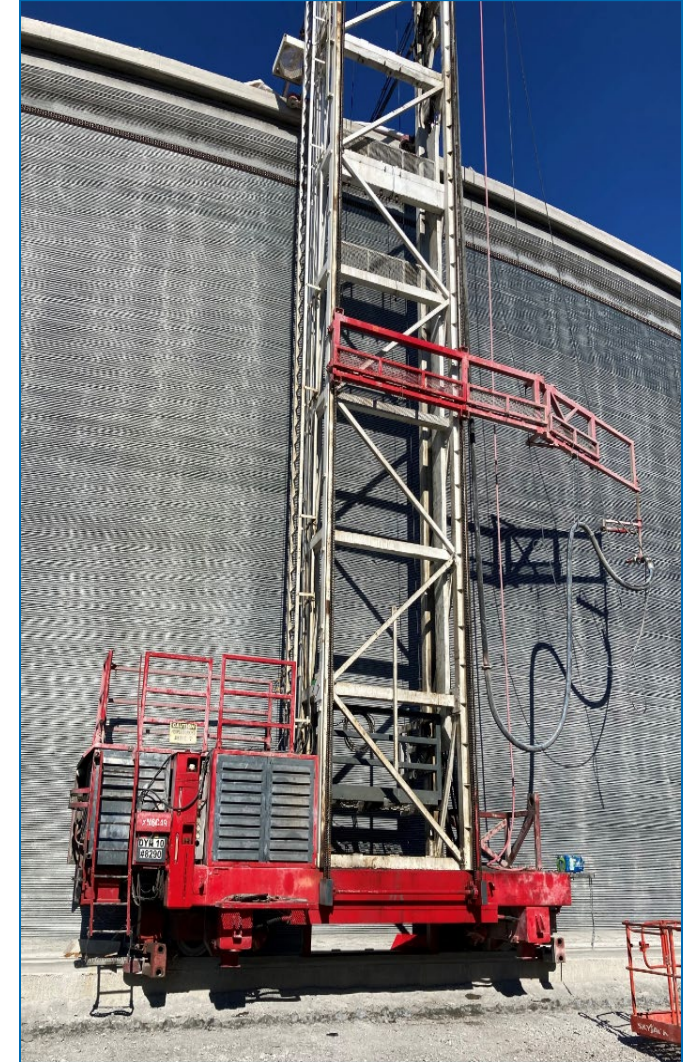
Pre-Stressing Machine →

- Hydro blasting
- Cabling
- Shotcrete Application
- Water Curing



← Roof and Horizontal Pre-Stressing

- 7 Roof Sections including penetrations for BoP connections
- 341 miles of pre-stressing cable



~20 months to complete cell construction



Interior Liner, Balance of Plant, Leak Tightness Test



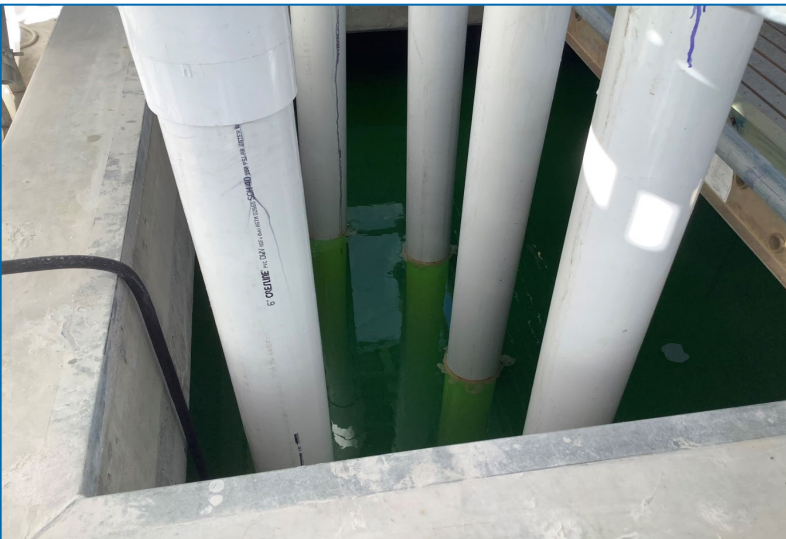
Interior Liner
Bromobutyl liner system completely covers the floor and walls of the entire SDU
~7 months to install



Balance of Plant

- Piping
- Supports
- Bridge
- Stair Tower
- Equipment
- Cable Trays
- Conduit

~ 5 months



Leak Tightness Test
~24 Days to Fill
~18 Days to drain



Completion
of Leak Detection System after Leak tightness test



Saltstone Disposal Unit Fact Sheet

Key Physical Characteristics

- Tank Dimensions = 375' ID X 43' Tall
- Volume = 34.5 Million gallons (Mgal)
- Mud Mat Concrete = 4,252 yd³
- SDU Concrete = 16,872 yd³
- Wall Panels = 25 (24" @ base and 12" @ top)
- Floor Area = 110,000 sq ft (14 sections @ 24")
- Columns = 208 @ 24" diameter
- Roof Coating System to reflect solar absorption & minimize thermal stress
- 425 post tensioning rods in walls (17 per)
- 7 layers of prestress cables = 341 miles
- Liner panels = 7,000+ pieces @ 11' X 41" X 3mm thick
- Piping = 2,400 linear feet and 17 valves
- HEPA filters = 4 Passive ventilation units



SDU Key Performance Parameters (KPPs)

- Provide Saltstone grout containment capacity of no less than 30 Million gallons (Mgal).
- Provide infrastructure capable of delivering Saltstone grout at 100 gallons per minute minimum.
- Install a single leak detection system in accordance with the Z-Area Industrial Solid Waste Landfill Permit requirements.

Project Cost and Schedule Data

SDU 6

Total Project Cost (TPC) Approved: \$143.2M
 TPC Actual: \$121.7M
 CD-4 Approved: 11/30/18
 CD-4 Actual: 7/18/17
FPD: Carl Lanigan

SDU 7

TPC Approved: \$159M
 TPC Actual: \$127
 CD-4 Approved: 3/31/22
 CD-4 Actual: 7/21/21
FPD: Shayne Farrell

SDU 8/9

TPC Approved: \$280M
 TPC Actual: \$217.7M
 CD-4 Approved: 9/30/24
 CD-4 Actual: 3/19/24
FPD: Charles Comeau

SDU 10-12

TPC Approved: \$496M
 SDU 10 CD-4A Scheduled: 4/10/27
 SDU 11 CD-4B Scheduled: 11/7/28
 SDU 12 CD-4 Scheduled :7/8/30
FPD: Charles Comeau



Continuous Improvement

Concrete Operations – New Concrete Source

- The cell construction subcontractor established a new source for concrete batching and delivery. A batch plant was established with proximity to the site. During initial start-up, the cell construction subcontractor worked closely with the concrete vendor to improve reliability and cycle times for batching and delivery. Once initial start-up activities were completed, the result has been improved efficiency and quality of concrete operations and a direct, positive impact on overall quality and schedule performance.

Concrete Operations - Site Accessibility

- A decision was made to provide 24/7 support at the Williston Barricade to improve efficiency during concrete placements. This has saved time for trucks in route from the Batch Plant and had an overall favorable impact on the following factors;
 - Impacts from adverse weather (e.g., storms, extreme temperatures)
 - Availability / limitations of equipment, materials, skilled labor



Continuous Improvement

Multiple Sources for Liner Installation

- Establish relationships with additional vendors capable of installing our approved liner system. Having multiple vendors available to compete for upcoming liner installation activities has resulted in improved methods for installation and has yielded a higher quality installation.

Efficiency in Contracting

- Leveraged the use of options for cell contract awards to reduce cycling of the procurement processes. This reduced the number of bid evaluations for repetitive scope and resulted in cost avoidance and reduced schedule risk.

Design Improvements

- Changes in floor design (flat floor vs. sloped floor) eliminated need for pedestals and increased capacity by over 750k gallons.



Results to Date

The cost per SDU, escalated to 2024 dollars, shows the project team has significantly decreased the cost per SDU.

SDU	CD-4 Date	TPC	Cost/SDU in 2024 Dollars
SDU 6	July 2017	\$122M	\$152M
SDU 7	July 2021	\$127M	\$143M
SDU 8/9	March 2024	\$218M	\$109M

M = Millions



Conclusion

Questions?