Waste Treatment Plant Project

WTP Nuclear Safety Status

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Protecting the environment and the public
Clean up of legacy waste dates back decades

Product of plutonium production for
WWII Manhattan Project and Cold War

56 million gallons radioactive waste

- 149 single-shell tanks built 1943-1964
- 28 double-shell tanks built 1968-1986
- About 60 tanks presumed to have leaked up to 1 million gallons

WTP will have four nuclear facilities

Low-Activity Waste Vitrification Facility

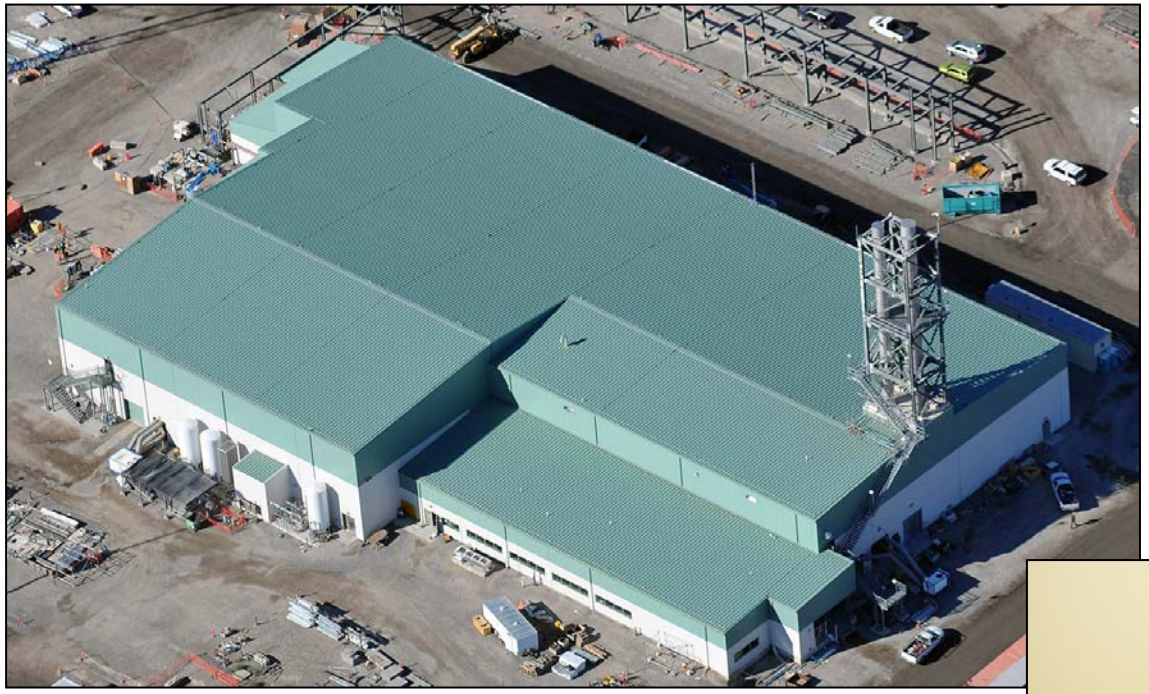
Turn low-activity waste into glass in two 300-ton melters

- Waste and Glass Mixture Heated to 2100 degrees F
- Poured into 4-ft diameter, 7-ft high containers weighing 7 tons
- Produce over 1000 cannisters a year

- 330 feet x 240 feet x 90 feet tall
- 28,500 cubic yards concrete
- 6,200 tons structural steel
- 103,000 feet piping
- 840,000 feet electrical cable
- 945,000 pounds heating and ventilation ductwork

Analytical Laboratory
Ensure glass meets regulatory requirements

Expected to analyze approximately 3,000 WTP process samples each year



- 320 feet x 180 feet x 45 feet tall
- 12,000 cubic yards concrete
- 1,800 tons structural steel
- 35,000 feet piping
- 172,000 feet electrical cable
- 314,500 pounds heating and ventilation ductwork

Will provide sampling of direct feed low-activity waste and glass product

Balance of Facilities
Vast infrastructure to support operations

- Steam plant
- Chiller compressor facility
- Electrical substation & switchgear
- Water treatment facility
- Glass-forming material storage
- Emergency power facility
- Cooling tower
- Underground waste transfer systems
- Effluent Management Facility

Will provide the infrastructure needed to produce low-activity glass

LAW Hazards

- Rad – Consequences to all receptors (Public, CLW, FW) are “Low”
- NO_x - (Co-mingled with Rad)
- Process Waste (NaOH-like, Co-mingled with Rad)
- NaOH – (Cold Chemical)
- Ammonia – (Cold Chemical, PSM quantities in BOF)
- Mercury – (Separated from process waste, no rad)
- CO_2 – (Cold Chemical, hazard is been eliminated from process)

- All consequences of chemical hazards are limited to FW and CLW with the exception of mercury storage which has a public consequence of concern.

STD-1228 and CSMP Implementation

	STD-3009-94 CN3	STD-1228 with CSMP Implmentation
DSA Page Count	1789	621
TSR Page Count	604	36
PrHA Page Count	4891	4672
Safety-Significant SSCs	68 (26 interlocks)	0
SACs	20	2

Key LAW Milestones

- Turnover of All Systems to Plant Management Currently Being Completed
- Start Full Commissioning (Loss of Power Test) March 2021
- Melter 1 Heat-Up April 2021
- DOE ORR Complete May 2022
- Hot Operations July 2022

HLW Facility Status

- Currently at pre-60% Design for Most Major Systems
- Pre-Treat Feed Design Configuration
  - Decision on High-Level Waste Disposition forecast for 9/30/2020
  - AoA currently being conducted
  - Direct-Feed HLW Decision
- PDSA and PrHA being updated as systems progress through 60% Design
- Design Complete Forecast in 2023
- Construction Resumption Forecast in 2024