

Barnwell LLRW Disposal Facility

Low Level Waste Forum Meeting

March 22-23, 2023



*All you need in radioactive and hazardous waste
management*

Barnwell Disposal Facility (BDF)

- Safety Statistics
- Barnwell Compliance
- BDF Location and History
- Atlantic Compact History and Membership
- Regulatory Oversight
- Disposal Site Access and Rates
- Disposal Facility Capabilities
- H3 Plume Migration
- H3 Concentration Levels Over Time

Barnwell Disposal Safety Stats

■ 2022

- Total Days Away Case = 0
- Total Recordable Cases = 0
- Total First Aid Cases = 4
(3 of those were insect bites/stings)

■ 2023 to date

- Total Days Away Case = 0
- Total Recordable Cases = 0
- Total First Aid Cases = 1

Barnwell Disposal Compliance

- 2022
 - Storm Water Inspection
 - No NOVs
 - Semi Annual DHEC Audits
 - No NOVs
 - DHEC weekly site inspections
 - No major issues of concern
- 2023 to date
 - DHEC weekly site inspections
 - No major issues of concern

BDF's Location

- 235 acres licensed for disposal
- 123 acres in closed condition
- 16 acres available for future disposal (900,000 cu ft)
- 96 acres for other uses
- 28.4 million cubic feet buried since 1971
- 14.4 million curies buried
- ~3.1 million curies remaining (decay correction)
- 180 groundwater monitoring wells



Barnwell Complex



BDF History

- Barnwell Disposal Facility has operated uninterrupted from 1971 to present
- Received waste from across the US until 2008
- Atlantic Compact only operations since 2008

Atlantic Compact History and Membership

- 2000 Atlantic Compact Act
- Atlantic Compact only operations started July 1, 2008 after 8 year transition
- Membership
 - South Carolina
 - New Jersey
 - Connecticut
- Receive about 9,000 cubic feet average yearly volume (excluding large component and IH volume)
- Average 60-70 containerized (only) shipments per year

Barnwell Site Regulatory Agencies

- SC Office of Regulatory Staff (ORS)
 - Detailed audits of actual costs
 - Sets prices for waste disposal

- SC Public Service Commission (PSC)
 - Determines allowable costs
 - Annual hearing process

- SC Dept. of Health & Environmental Control (DHEC)
 - Licenses radioactive materials - disposal

DHEC Oversight

- Licensed by the State of South Carolina Department of Health and Environmental Control (DHEC) for the receipt and disposal of Class A, B, and C low-level radioactive wastes

- DHEC provides
 - On-site Inspector
 - Weekly inspections
 - License inspections (at least 2 per year)

Atlantic Compact Disposal Rates

- Rate Schedule approved by SC Office of Regulatory Staff every Fiscal Year

- Provides 2 Options
 - Option A –Maximum Uniform Rate Schedule
 - Option B – Access Fee Customer, Volume Allocation

Atlantic Compact Disposal Rates

- 3 utilities/customers with 12 reactors in Atlantic Compact use Option B
 - Pay quarterly access fee for disposal
 - Each reactor allocated equal portion of 7,000 cubic feet
 - \$110 per cubic foot over allocated volume
- Non-utilities pay calculated rate (Option A) based on several factors including:
 - Density and weight
 - Dose rate
 - Radioactivity
 - Biological waste

Large Component / Irradiated Hardware Disposal Rates

- Irradiated Hardware and Large Component Shipments
 - Pricing based on Cost Plus



Class A/B/C Waste Disposal

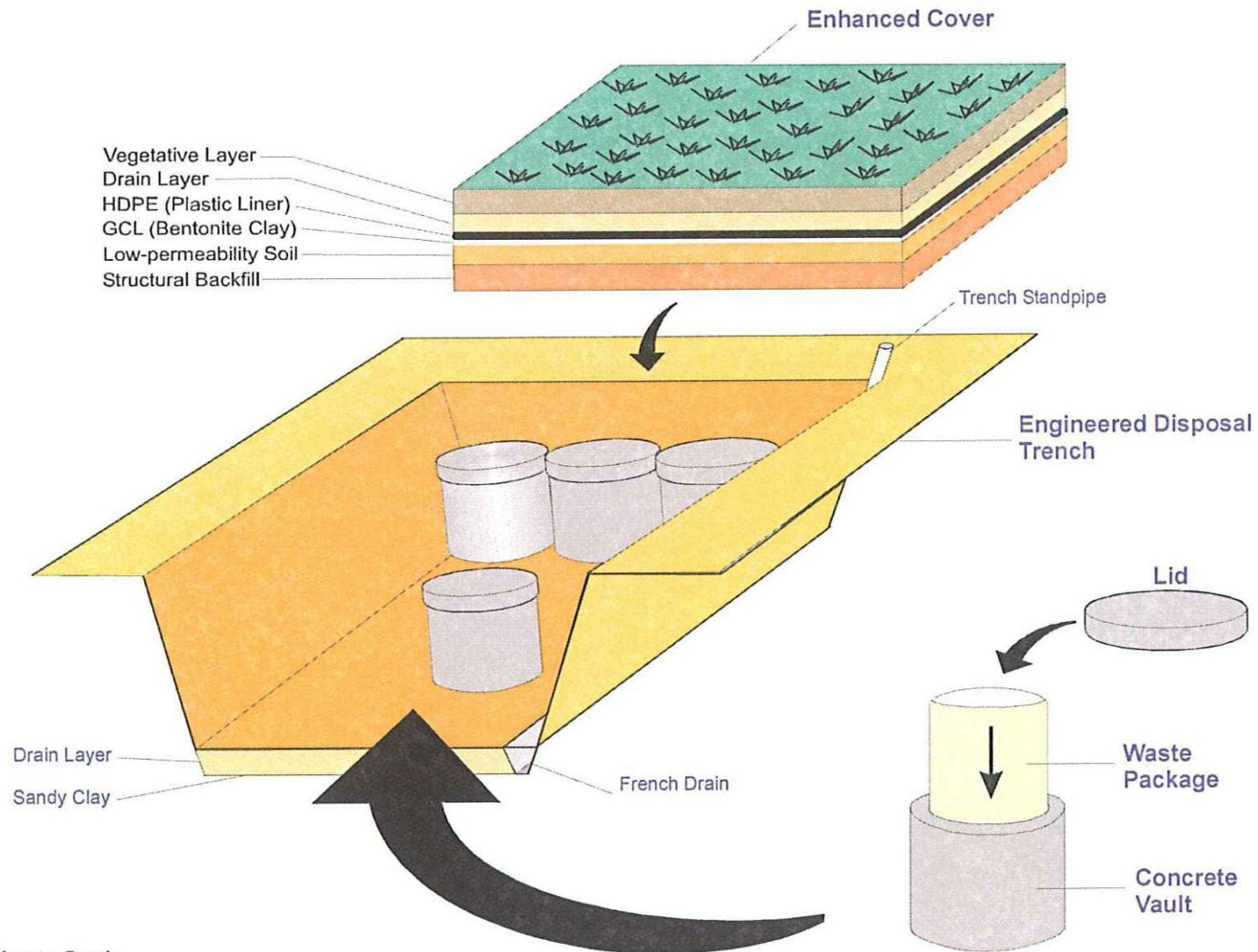
- All waste arrives by truck
- Most shipments are HIC liners
- Vertical crane lift to place liner in prepositioned DHEC approved vault
- All waste classes in same trench - Separate vaults for stable/unstable



Oconee Rotors & Diaphragms



Schematic of Waste Disposal/Isolation



Not to Scale

Closed Engineered Trenches



Institutional Activities

- >90% of facility in closed condition and under institutional monitoring and maintenance

- Extended Care Fund
 - Balance as of September 30, 2022 \$153,763,804

- Projected Cost of Phase II Decommissioning \$8,130,165

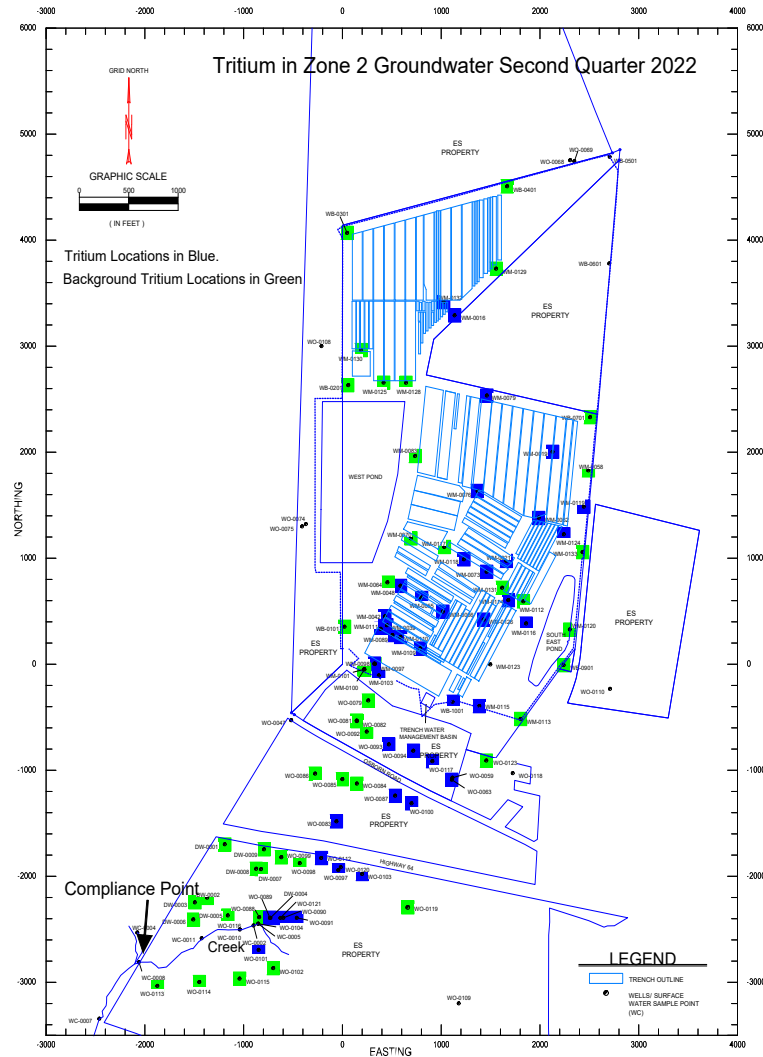
Status of BDF Operating License

- Renewal license was submitted in 2019
- We have addressed DHEC's comments
- Awaiting Issuance from DHEC on our 097 Operating License

Tritium Plume Migration

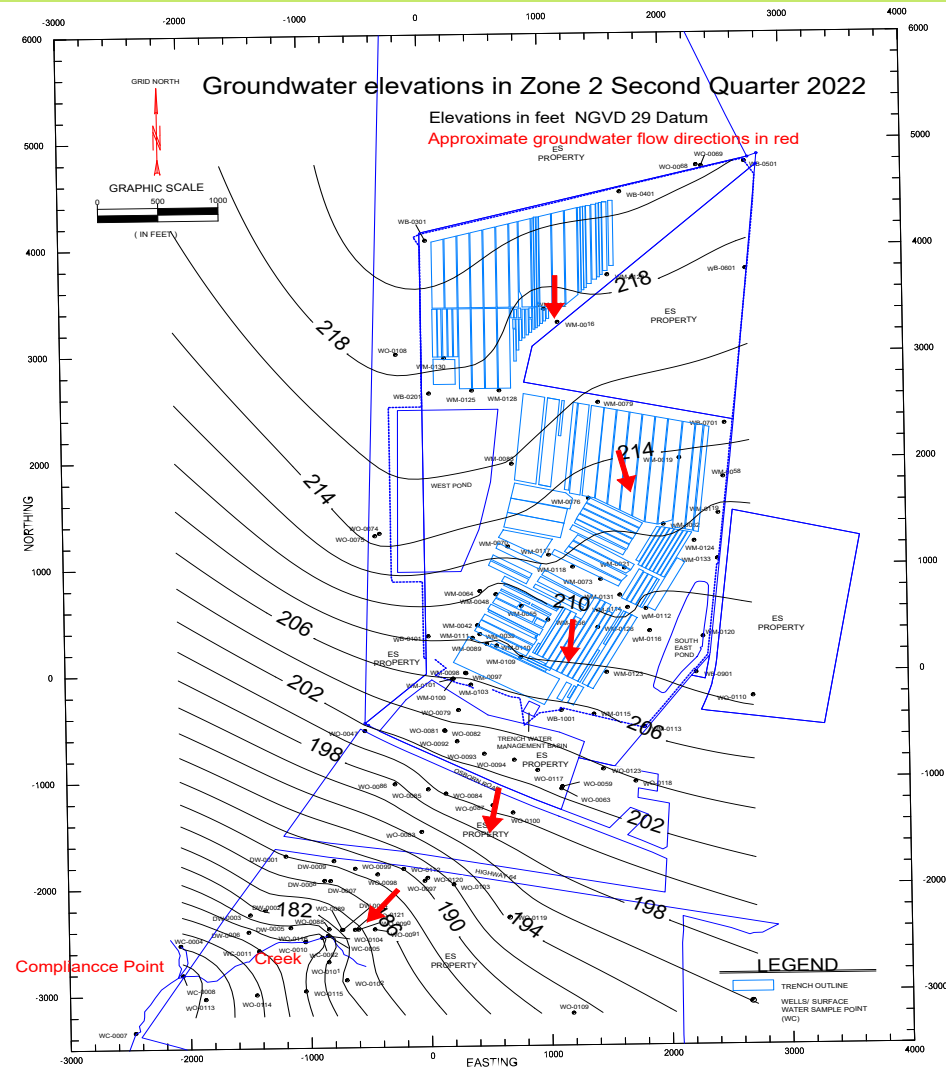
Blue squares
 = Tritium
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Green squares
 = Tritium
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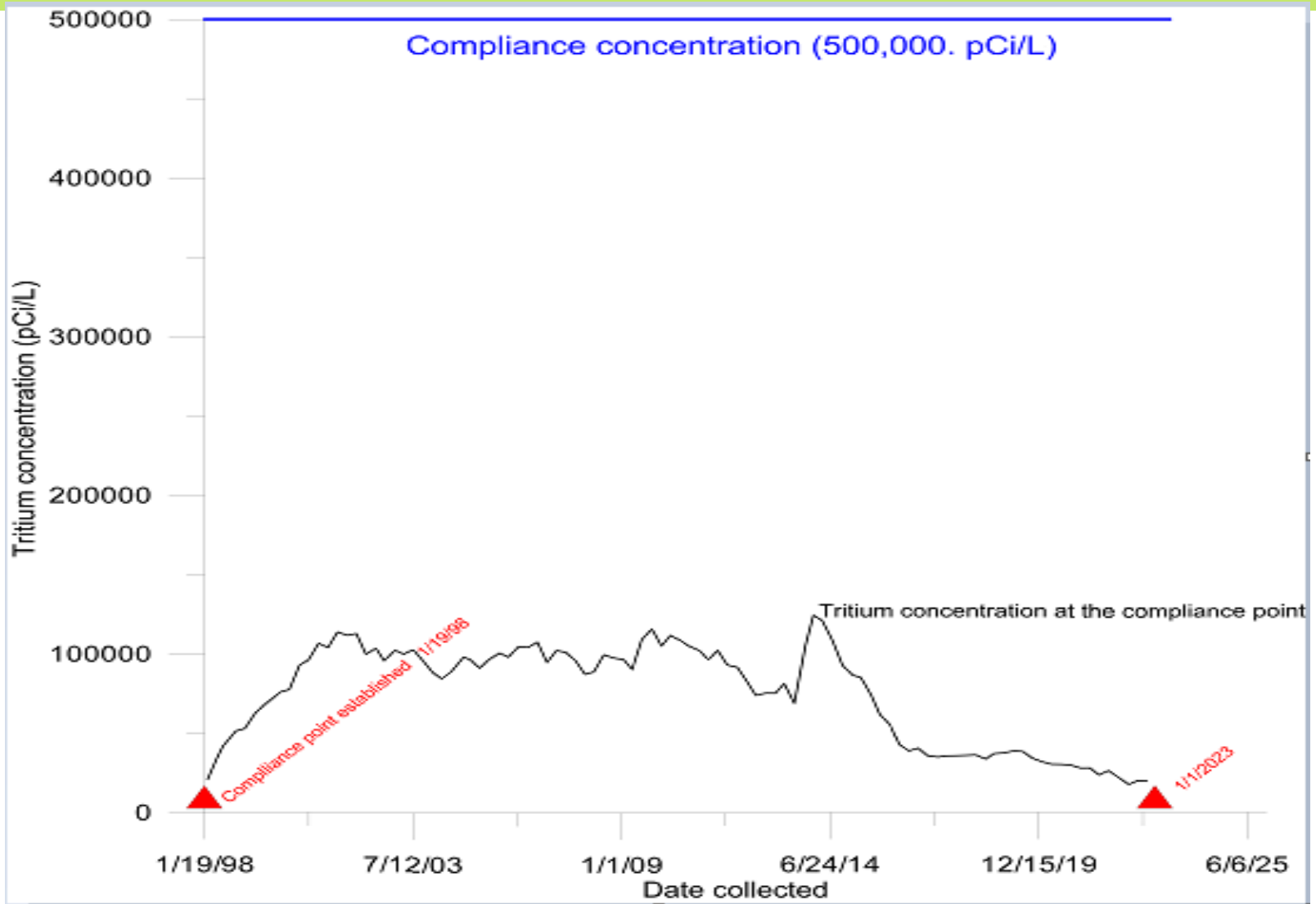


Ground Water Flow Direction

Ground Water Flow Direction moves from the North towards the Southwest



Tritium Plume Concentrations Since Establishment of Compliance Point on January 19, 1998



Thank You