

Barnwell Complex Update  
Presented at  
Governor's Nuclear Advisory Council  
April 14, 2016



*All you need in radioactive and hazardous waste  
management*

# Safety

## Barnwell Complex

- First aids – 6
- Total Recordable Case Rate (TRC) – 0.0
- Days Away, Restricted or Transferred (DART) – 0.0
- Days Away Case (DAC) – 0.0

## National Safety Council

- 2016 Perfect Record Award
- 2016 Safety Leadership Award

# Compliance

## 44 Years of Uninterrupted Operations

### EnergySolutions Operation Assessments/Observations

- Internal, external, and independent assessments
- Management Field Observations

### DHEC Licensing and Oversight (6 radioactive material licenses)

- On-site inspector – all disposal shipments inspected
- Engineers - weekly disposal site inspections
- Staff – Unannounced semi-annual license inspections
- 2015 – 0 NOV's

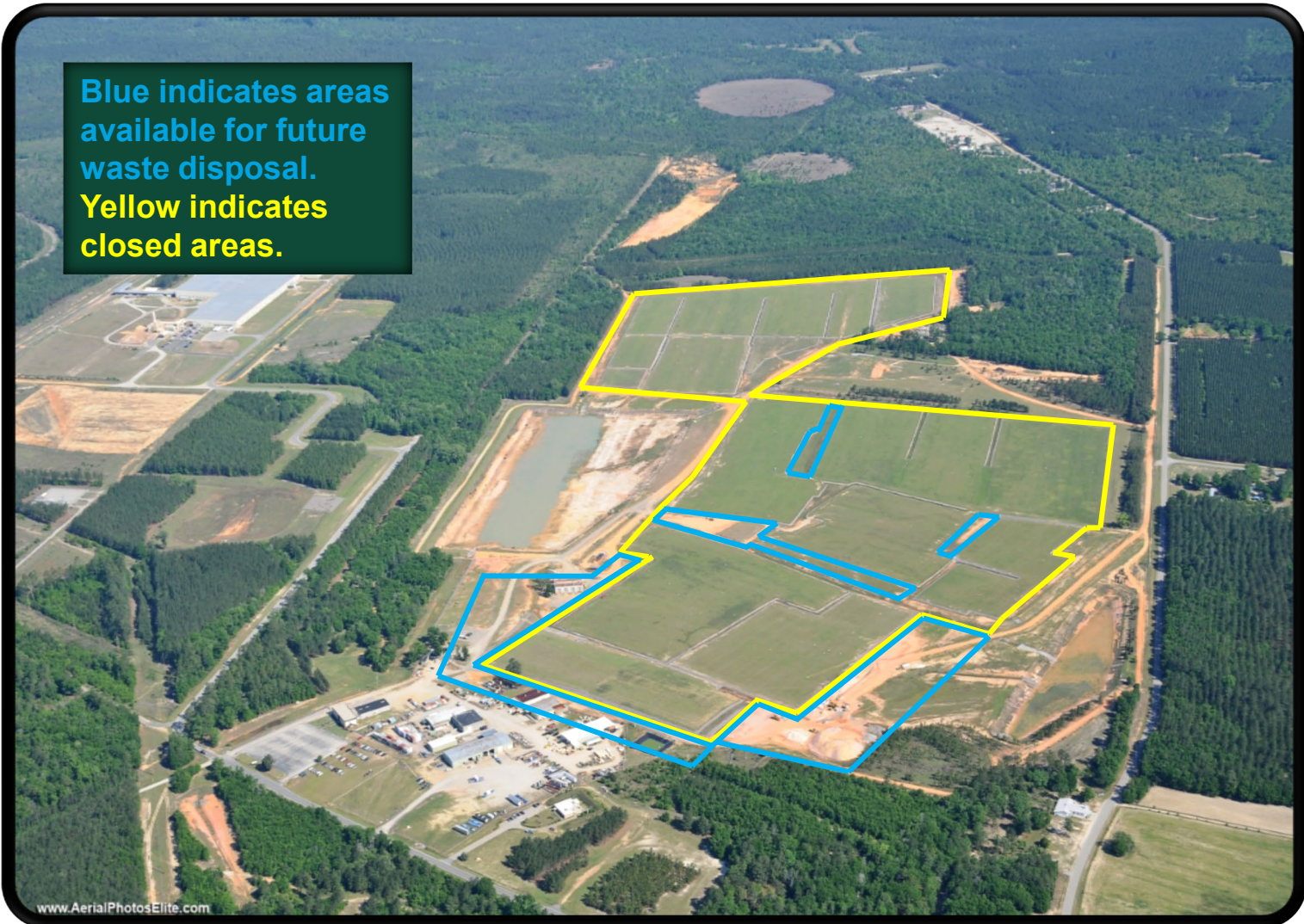
# Barnwell Complex





# Barnwell Disposal Facility (BDF)

Blue indicates areas available for future waste disposal.  
Yellow indicates closed areas.



# BDF

## 235 Acres Owned by the State of South Carolina

- EnergySolutions leases the facility from South Carolina
- EnergySolutions operates the disposal facility under SC DHEC Radioactive Material License 097

## Atlantic Compact member

- Acceptance of Class A/B/C waste shipments 7 days per week
- Acceptance of large components and irradiated hardware shipments

## Institutional Activities

- Site maintenance
- Environmental monitoring



# BDF Current Status

Atlantic Compact Host Site – SC, NJ, & CT

- ~ 95% of the 235 acres under Institutional Care
- 28 million cubic feet of buried waste consisting of 14.3 million curies
- ~ 1 million cubic feet of disposal capacity remaining



# 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 waste





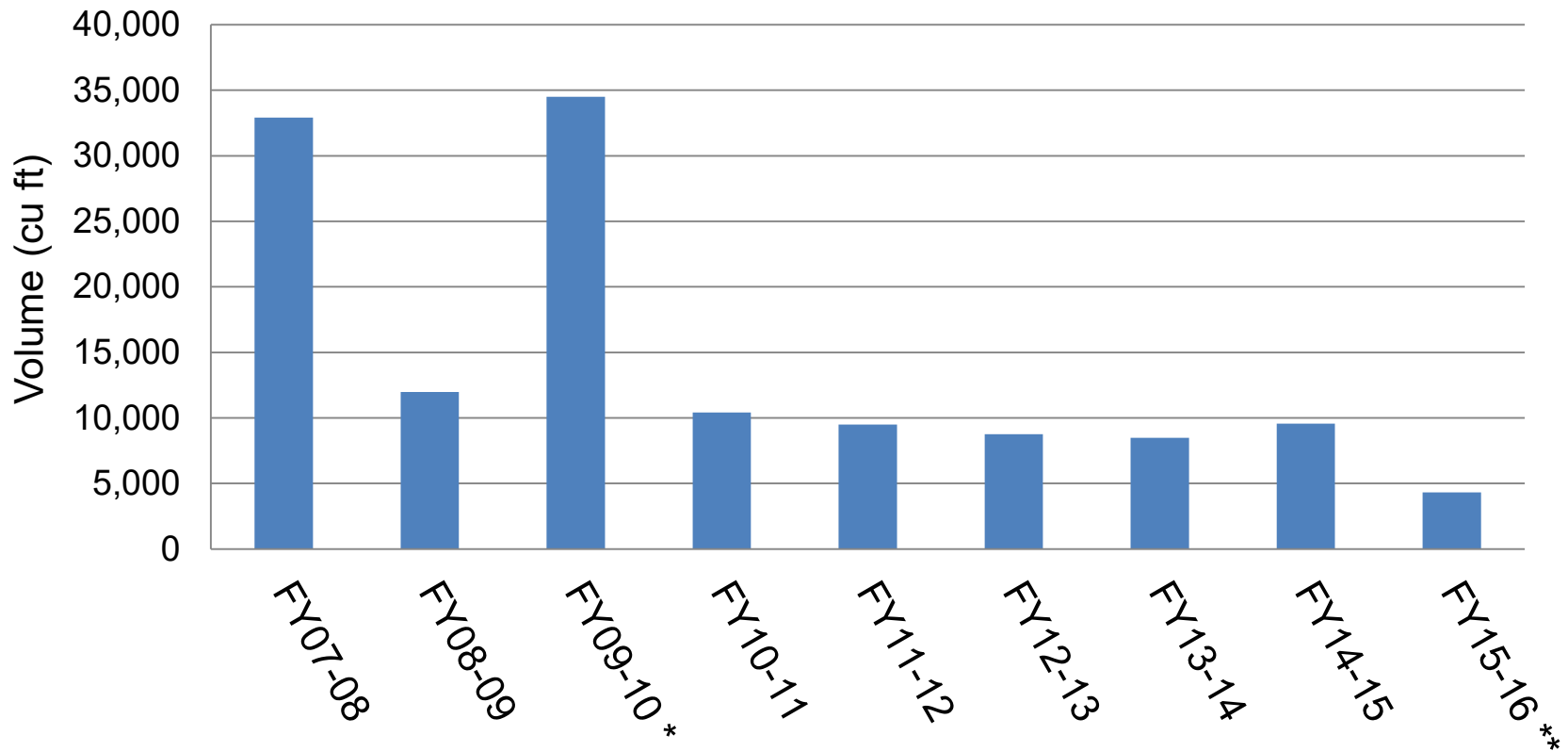
# Large Component Shipments

Pricing based on case-by-case basis

Generators are encouraged to coordinate shipments



# Recent Annual Waste Volumes Received (Fiscal Years)



\* FY09-10 includes large components (27,304 cu ft)

\*\* as of February 29, 2016

# Recent Waste Volumes

Waste Type	FY 10/11 cubic feet	FY 11/12 cubic feet	FY 12/13 cubic feet	FY 13/14 cubic feet	FY 14/15 cubic feet	FY 15/16* cubic feet
Routine Utility Waste	10,357	9,201	8,582	8,366	9,424	4,175
Non-Utility Waste	67	120	171	13	140	21
Large Components	0	0	0	0	0	0
Irradiated Hardware	0	173	0	115	0	113
<b>Total</b>	<b>10,424</b>	<b>9,494</b>	<b>8,753</b>	<b>8,494</b>	<b>9,564</b>	<b>4,309</b>

\* as of February 29, 2016

# BDF Regulatory Agencies

SC Office of Regulatory Staff (ORS)

- Sets prices for waste disposal
- Detailed audits of actual costs

SC Public Service Commission (PSC)

- Determines allowable costs

SC Department of Health and Environmental Control

- Licenses Radioactive Materials – Disposal



# Memorandum of Understanding

- SC Budget & Control Board, SC Department of Revenue and Chem-Nuclear Systems signed MOU June 30, 2009
- Disposal rates and/or access fees cover operating costs only (Revenue neutral for SC)
- Institutional costs of \$2.02 million (increased yearly by PPI, \$2.21 m FY14/15) disbursed from Decommissioning Trust Fund or Extended Care Fund for maintenance and monitoring of site closed portions
- No use of public funds to cover operational cost shortfalls other than as allowed by law

# Atlantic Compact Disposal Rates

- Alternative Rate Schedule for FY 2015/2016 approved by SC Energy Office – effective July 1, 2015
- Maximum Uniform Rate Schedule
  - Permanent ceiling on disposal rates applicable to Atlantic Compact waste
  - Adjusted each year in accordance with PPI
  - Pricing based on several factors including:
    - Density and weight
    - Dose rate
    - Radioactivity
    - Biological waste
    - Other charges (Irradiated hardware, SNM, Atlantic Compact Commission)

# Atlantic Compact Disposal Rates

- Option B provides Access Fee pricing
  - Annual volume allocation: 538.46 cubic feet per reactor
  - Current Quarterly Access Fee: \$87,711.54 per reactor
  - Additional volume: \$133 per cubic foot (11,500 cubic feet maximum total volume)
  - Utilities can share annual volume allocation with appropriate contract changes

# Utility Agreements for FY 2015/2016

- All 5 utilities with 13 reactors chose Option B pricing
- Access Fee determined by Cost of Operations plus statutory margin (29%)
- Budget base is 7,000 cubic feet
- Access Fee has not changed in 5 years with Proviso funds
- Proviso fund exhausted at end of FY 15/16
- Access Fee to be reassessed in FY 16/17



# Closure Performance Objectives

- Phase I Closure Performance Objective Plan
- License 097, Condition 98, 16 performance objectives
- License 097, Condition 99, requires closure plan and adequate financial assurance
- Ensure compliance with closure performance objectives

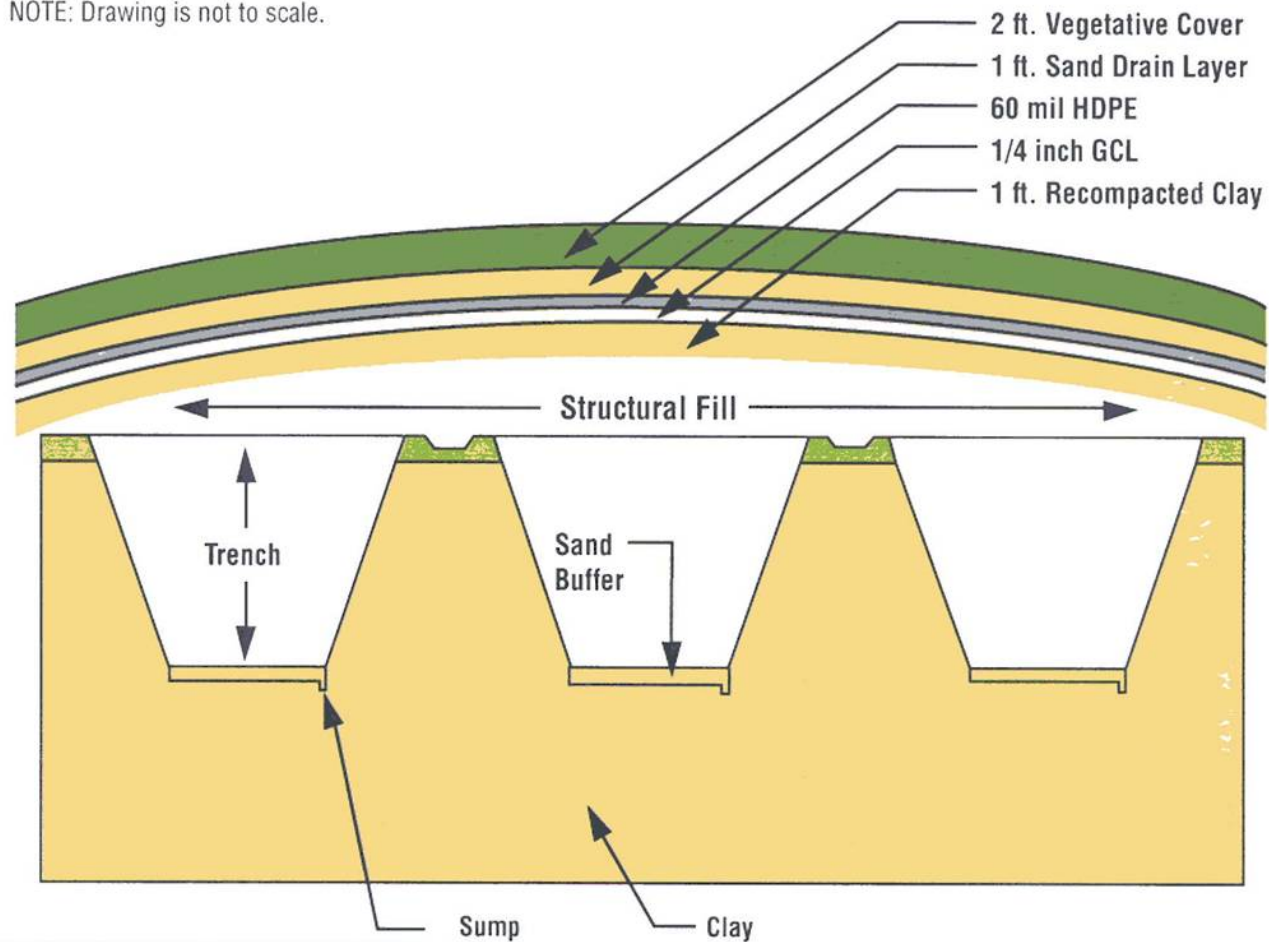
Phase 1 Closure Performance Objectives completed June 2013

# Enhanced Cap

**FIGURE 7**

**Enhanced Cover Construction Details**

NOTE: Drawing is not to scale.



# Barnwell Environmental and Dosimetry Laboratory

- Environmental Monitoring
- Radiological Laboratory
- Radiation Dosimetry
- Engineering Support
- Site Characterization
- Hazardous Material Management



# Trust Funds

## Decommissioning Trust Fund

Balance as of December 31, 2015 \$585,787.14

## Extended Care Fund

Balance as of December 31, 2015 \$149,425,438.59

## FY14/15 Institutional Cap

\$2,237,094

## Projected Cost of Phase II Decommissioning

\$5,000,000



# Barnwell Processing Facility (BPF)





# BPF

17-acre facility consists of two primary buildings

- 101 – 7,500 ft<sup>2</sup>
- 201 – 24,500 ft<sup>2</sup>

Services provided:

- Volume reduction
- Dewatering
- Waste treatment
- Decontamination
- Water processing



BPF shares a boundary to the west with the Department of Energy Savannah River Site

# BPF Building 101

## Climate controlled concrete facility

- 7,500 square feet
- Large open work bay for processing and compacting various radioactive material and waste streams

## Sort and Segregation Facility

- 700 square feet

## Super compactor



# BPF Building 201

- 24,500 square foot climate controlled concrete facility
- Radioactive Water Processing
- Radiological waste testing laboratory
- 80-ton overhead bridge crane





# Hittman Transport Services

- Two Dispatch Terminals
  - Barnwell and Tennessee
- 92 Drivers (Company & Owner Operator)
- 82 Tractors
- Equipment
  - Flat Beds
  - Double & Single Drop Trailers
  - Vans
  - Pup Trailers
  - Curtain Trailers
  - 65-ton Multi Axle Trailer
  - Cask Trailers
  - Tankers
  - Pan Vans



# Cask Logistics

## Key Assets

- Proprietary NRC Type B Shipping Casks
  - 10-160B
  - 8-120B
  - 3-60B
- DOT Type A and IP-II Shipping Casks
  - 8-120A
  - 10-142
  - 14-170 Series
  - 14-190
  - 14-195H
  - 21-300

## Capabilities

- Cask Rental
- Cask Sales and Maintenance
- Specialty Package Design, Fabrication, and Licensing



***EnergySolutions  
maintains the largest fleet  
of licensed shipping  
casks in the country!***

# Questions

*Thank you*