Barnwell Complex Update
Presented at Governor’s Nuclear Advisory Council

January 9, 2014

Barnwell Complex

Safety and Compliance
Workforce
Barnwell Disposal Facility (BDF)
Barnwell Environmental & Dosimetry Lab (BEDL)
Barnwell Processing Facility (BPF)
Hittman Transport Services
Cask Logistics

Safety

Barnwell Complex
- First aids – 3
- Total Recordable Case Rate (TRC) – 2.0
- Days Away, Restricted or Transferred (DART) – 5.0
- Days Away Case (DAC) – 1.0

Safety Observation Checklist Program

National Safety Council
- 2013 Perfect Record Award
- 2013 Safety Leadership Award

Hittman Transport Services
- 2013 2nd Place Regional Fleet of the Year
Compliance

- 43 Years of Uninterrupted Operations
- EnergySolutions Operation Assessments/Observations
  - Internal, external, and independent assessments
  - Management Field Observations
- DHEC Licensing and Oversight (5 radioactive material licenses)
  - On-site inspector – all disposal shipments inspected
  - Engineers - weekly disposal site inspections
  - Staff - unannounced semi-annual license inspections
    - 2013 – 0 NOV’s

Workforce

- EnergySolutions employees in South Carolina – 232
  - Barnwell Disposal Facility – 36
  - Barnwell Processing Facility – 10
  - Hittman – 4
  - Cask Logistics – 4
  - Other ES Operations in Barnwell – 32
  - Aiken/Columbia Offices – 146
- Average length of employment at Barnwell Complex
  - Over 20 years
BDF

- 235 Acres Owned by the State of South Carolina
  - Energy Solutions leases the facility from South Carolina Budget and Control Board
  - Energy Solutions 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 Configuration

- ENHANCED CAP AREA
- WEST WATER MANAGEMENT POND

Not to Scale

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
Disposal Site Key Event Dates

- 1969 License to receive and store LLRW
- 1971 License to dispose of LLRW in 17.2 acres
  - Extended Care Maintenance Fund established
- 1976 Lease amended to 235 acres
- 1980 US LLRW Policy Act passed
- 1981 Decommissioning Trust Fund established
- 1982 SC joins Southeast Compact
- 1985 US LLRW Policy Act Amendment passed
- 2000 SC joins Atlantic Compact with NJ & CT

Class A/B/C Waste Disposal

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

Irradiated Hardware & Large Component Shipments

- Pricing based on case-by-case basis
- Generators are encouraged to coordinate shipments
Barnwell Site Regulatory Agencies

- SC Budget and Control Board (B&CB)
  - Sets prices for waste disposal
- SC Public Service Commission (PSC)
  - Determines allowable costs
- SC Office of Regulatory Staff (ORS)
  - Detailed audits of actual costs
- SC Dept. of Health & 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, $2.17 m FY13/14) disbursed from Decommissioning Trust 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 2013/2014 approved by SC B&CB on July 1, 2012
- Individual reactors may elect Option B Access Fee pricing
- Interim revenue requirement for Option B participants for 7,000 cubic feet: $4,561,000
  - Each Option B participant allocated an equal share of the volume and equal quarterly access fee
  - Differential to projected interim revenue requirement of $5,829,503 made up from budget proviso funds
- Other generators use Maximum Uniform Rate Schedule
Utility Agreements for FY 2013/2014

- All 5 Utilities with 13 Reactors chose Option B pricing
- Quarterly access fee: $87,711.54 per reactor
- Annual volume allocation: 538.46 cubic feet 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

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)

BEDL

- Environmental Monitoring
- Radiological Laboratory
- Radiation Dosimetry
- Engineering Support
- Site Characterization
- Hazardous Material Management
## Closure Performance Objectives

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

  Phase 1 Closure Completed June 2013

## Long-Term Financial Assurances

- Decommissioning Trust Fund
  - Balance on 9/30/13:
    - $4.185 million
- Extended Care Maintenance Fund
  - Balance on 9/30/13:
    - $145.521 million

## BPF
BPF

• 17-acre facility that consists of two primary buildings
  - 101 – 7,500 ft²
  - 201 – 20,000 ft²

• Services provided
  - High Activity Filter Processing
  - Volume reduction
  - Dewatering
  - Waste treatment
  - Decontamination
  - Water processing

• The BPF shares a boundary from 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 (SSF)
  - 700 square feet

• Super compactor

BPF Building 201

• 20,000 square foot climate controlled concrete facility
• Open floor space for processing radioactive materials and waste
• High Activity Filter 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 Trailers
- Equipment
  - Flat Beds
  - Double & Single Drop Trailers
  - Vans
  - Pup Trailers
  - Curtain Trailers
  - 80-ton Multi Axle Trailer
  - Cask Trailers
  - Tankers
  - Pan Vans

Cask Logistics

- Key Assets
  - Proprietary NRC Type B Shipping Casks
    - 10-160B
    - 8-120B (4 in fabrication)
    - 3-60B - designed not fabricated
  - 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

We own and maintain the largest fleet of licensed shipping casks in the country!