ENERGYSOLUTIONS

Barnwell Low-Level Radioactive Waste Disposal Facility Transition

WM ’08 Session 29
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Barnwell Site Transition Presentation Summary

- Barnwell LLRW Disposal Site Status
- In-Region Operations Transition
- Operational Scenarios Considered
- Post 2008 Cost Estimates
- Phase I Decommissioning Transition

Barnwell Disposal Site
Key Event Dates

- **1971** Disposal license issued and Extended Care Maintenance Fund established
- **1976** Lease amended to 235 acres
- **1980** US LLRW Policy Act passed
- **1981** Decommissioning Trust Fund established
- **1982** SC joined Southeast Compact
- **1985** US LLRW Policy Act Amendment passed
- **1995** SC withdrew from Southeast Compact
- **2000** SC joined Atlantic Compact
- **2004** License Renewal Appealed

Barnwell Site Summary Facts

- 37 Years of uninterrupted operations
- 28 Million cubic feet of waste disposed
- 12 Million Curies buried
- 3 Million Curies remaining inventory
- 119 Acres of disposal trenches
- 96 Acres of trenches capped

Volumes under Atlantic Compact

	Volume Allowed	Actual Volume
FY 2000-2001	160,000 cu ft	125,989 cu ft
FY 2001-2002	80,000 cu ft	57,763 cu ft
FY 2002-2003	70,000 cu ft	65,656 cu ft
FY 2003-2004	60,000 cu ft	59,516 cu ft
FY 2004-2005	50,000 cu ft	43,260 cu ft
FY 2005-2006	45,000 cu ft	44,988 cu ft
FY 2006-2007	40,000 cu ft	37,607 cu ft
FY 2007-2008	35,000 cu ft	(7/1/07 – 2/22/08) 17,677 cu ft

•Members: SC, CT, NJ. No out of compact waste after FY 07/08.

Barnwell Site Class B/C Volumes

	FY 2002/2003	FY 2003/2004	FY 2004/2005	FY 2005/2006	FY 2006/2007
	(cu. ft.)	(cu. ft.)	(cu. ft.)	(cu. ft.)	(cu. ft.)
Atlantic Compact	4,495	11,942[2]	2,894	4,791	4,552
Texas Compact (2 states)	1,081	909	1,127	549	927
34 States w/o Access after 6/30/08	24,694[1]	20,524[3]	16,923	14,761	19,580[4]
Totals	30,270	33,375	20,944	20,101	25,059
Totals w/o RPVs	20,734	23,038	20,944	20,101	21,929

[1] Includes 9,536 cu.ft. for the ME Yankee RPV
[2] Includes 7,507 cu.ft. for the CY RPV
[3] Includes 2,830 cu.ft. for the Big Rock RPV
[4] Includes 3,130 cu.ft. for the LaCrosse RPV

Current Disposal Operations

- **Three Trench Designs**
  - Large (Class A) Waste Trench
  - Class B/C Trench
  - Slit Trench (Irradiated hardware)
- **Concrete Disposal Vaults or equivalent**
  - Liners, drums, boxes in standard vaults (cylindrical, rectangular, and slit trench)
  - Irregular components encapsulated in specifically designed vaults
  - Large components assessed as the vault

In-Region Transition Planning

- Projecting waste volumes
- Evaluating operating approaches
- Evaluating trench design options
- Determining cost assumptions
- Developing various cost estimates
- Identifying funding sources
- Building consensus of the parties

Atlantic Compact Generators

- Dominion, Millstone (2), CT
- Duke, Catawba (2), Oconee (3), SC
- Exelon, Oyster Creek (1), NJ
- Progress, Robinson (1), SC
- PSEG, Hope Creek (1), Salem (2), NJ
- SCE&G, VC Summers (1), SC
- US Navy, New London, CT, Charleston, SC
- Others (non-fuel cycle)

Atlantic Compact Waste Volumes

Waste Class	FY 2003/2004 (cu. ft.)	FY 2004/2005 (cu. ft.)	FY 2005/2006 (cu. ft.)	FY 2006/2007 (cu. ft.)
Class A	8,577	6,080	10,146	3,529
Class B	1,742	1,245	1,998	2,268
Class C	10,144	1,648	2,792	2,284
Total	20,463	8,973	14,936	8,081

FY 03/04 includes 7,508 cu. ft. Class C Large Component

Atlantic Compact Volume Projections
(July 2007)

- **High-end waste volume**
  - 11,344 cubic feet A/B/C 2008/2009
  - 7,500 cubic feet held waste 2008/2009
  - Large components
  - Hardware
- **Low-end waste volume**
  - Less than 4,000 cubic feet B/C only

In-Region Base Case Scenarios

- **4,000 cubic feet Class B,C waste**
  - Waste acceptance and active disposal operations two to three months per year
  - One trench design
- **11,000 cubic feet Class A,B,C waste**
  - Waste acceptance throughout the year
  - Disposal of waste when it is received
  - One trench design
- **Disposal of irradiated hardware and large components not included**

Trench Design / Construction Options Considered for In-Region Operations

- Pre-staged Vault Array (single layer)
- Class A, B, C Progressive Trench
- Existing Class B/C Trench

Trench Option Comparisons

Parameter	Pre-Staged	Class A,B,C	Class B/C
Licensing Effort	High	Medium	Complete
Constructability	Potentially Difficult	Moderately Difficult	Already Established
Personnel Exposures	Potentially Low	Moderate	Low
Stormwater Management	Potentially Difficult	Potentially Low	Low
Enhanced Cap Costs	High	Low	Medium

Class B/C Trench

General Cost Estimating Assumptions

- Existing regulatory and license requirements
- Cost structure for scenarios except institutional costs based on PSC application structure
- Labor and material costs based on FY 06-07 rates
- License fees and other reimbursable costs beyond control of site operator based on FY 06-07 rates
- Waste volume scenarios include costs of trench construction, disposal vaults, and license maintenance

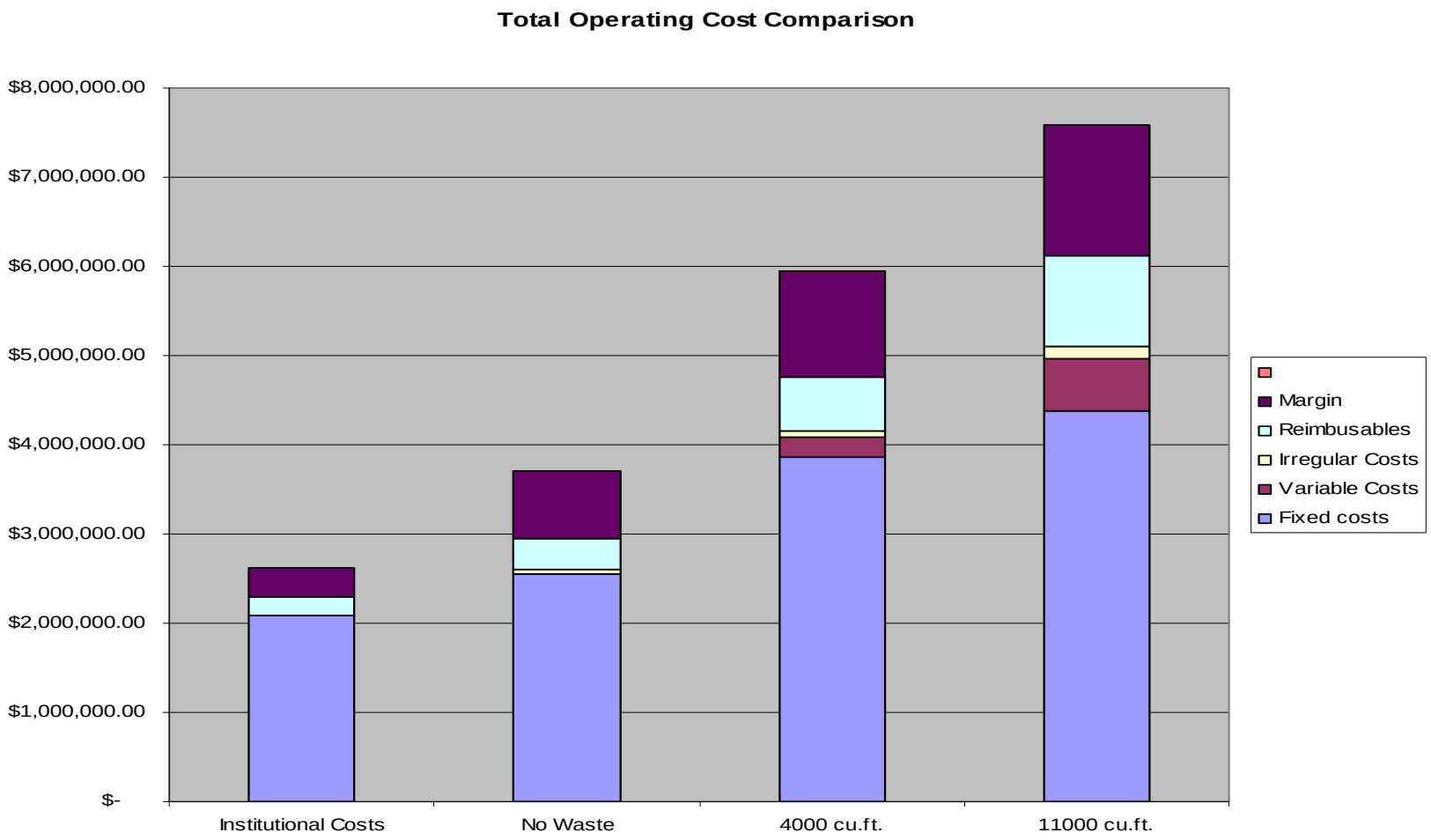
Cost Scenarios Estimated

- **Institutional Costs for Completed Site Areas**
  - Site maintenance and monitoring
- **Operating Costs with No Waste Acceptance**
  - Disposal operating license maintenance
- **4,000 Cubic Feet Class B, C Only**
  - One trench, no hardware or components
- **11,000 Cubic Feet Class A, B, C**
  - One trench, no hardware or components

Summary Costs Table (in $000s)

Cost Category	Institutional Costs	No waste	4,000 cu. ft.	11,000 cu. ft.
Fixed	$2,081	$2,548	$3,863	$4,377
Variable	0	0	$216	$592
Irregular	0	$49	$77	$126
Site Operator Costs Total	$2,081	$2,597	$4,156	$5,095
Margin	$321	$753	$1,205	$1,478
Reimbursable	$215	$353	$595	$1,019
Total Op Costs	$2,617	$3,704	$5,956	$7,592

Total Operating Cost Comparison



Approximate Labor Resources
(Full Time Equivalents – not staffing levels)

Labor Categories	Institutional	No Waste	4,000 cu. ft.	11,000 cu. ft.
Management/Accounting/ Support Staff	2	2	3	5
Security	4	4	5	5
Environmental	6	7	7	7
Compliance & HP	1	3	4	5
Operations	1	3	5	7
Total	14	19	24	29

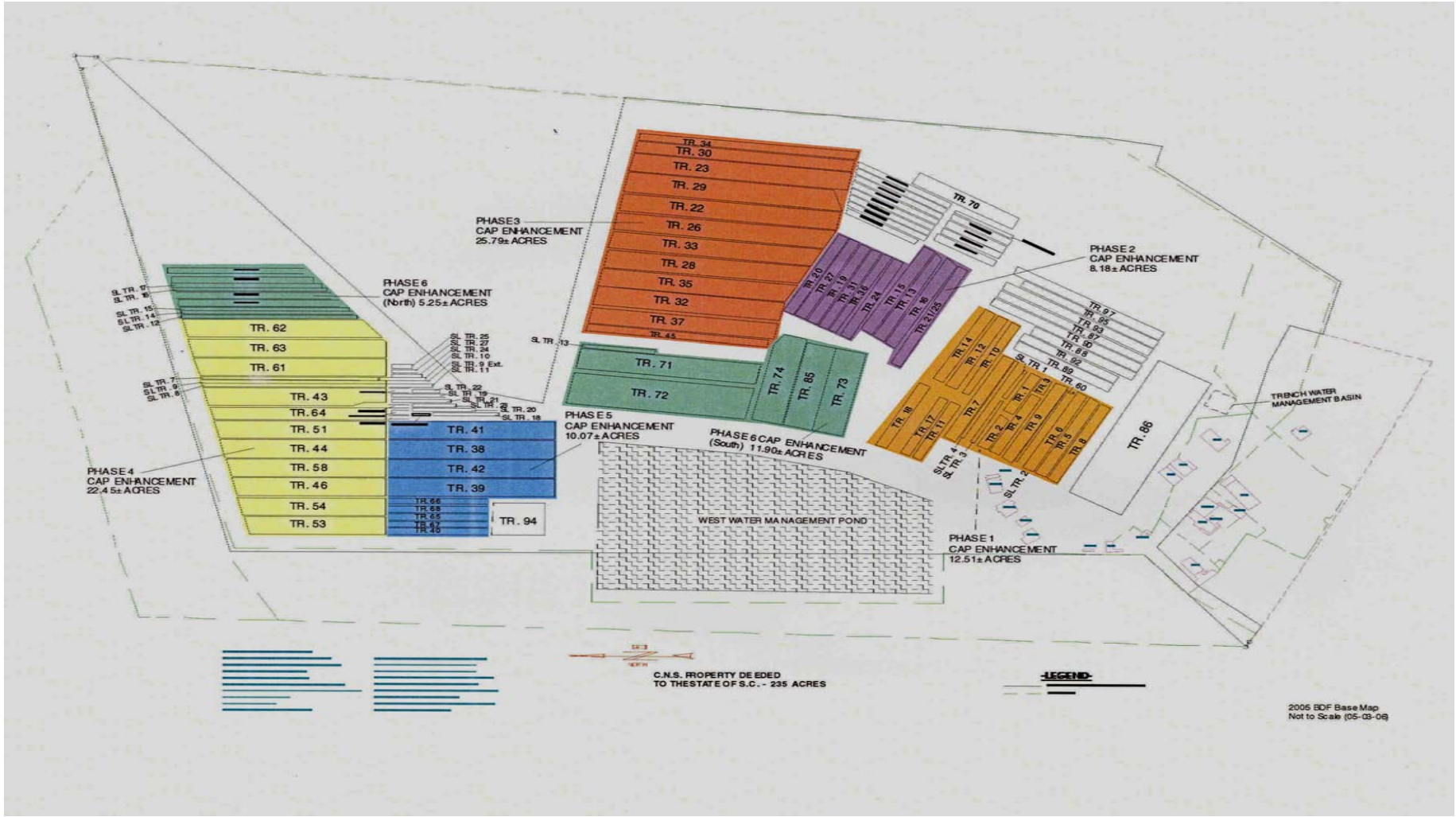
In-Region Transition Status

- **Cost estimates presented to primary parties**
  - Budget and Control Board
  - Atlantic Compact Commission
  - Compact Generators (utilities)
  - Department of Health and Env. Control
- **Continue working toward an economically viable In-Region operations scenario**
  - Waste volume and financial commitments
  - Stabilize costs beyond site operator's control
  - Institutional cost reimbursement mechanism

Decommissioning Transition Planning

- Updated 2005 Closure Plan cost estimates
- Received financial authorization for decommissioning activities from Budget and Control Board
- Capping project (7 acres) in spring 2008
- Preparing decommissioning activities work plans for DHEC review
- Phase I Closure is 15-month project starting July, 2008

Barnwell Site Configuration



Phase I Closure Cost Estimate

(November, 2007)

Category of Costs	Project Estimate
Structures & Equipment D&D	$1,280,185
Enhanced Capping	$7,015,577
Site Maintenance and Monitoring	$1,735,383
Performance Objective Verification	$853,002
Grading, Stormwater, Land, Fences	$1,137,434
Security, Wells, Records, Other	$2,620,123
Project Management	$3,197,869
Total Phase I Closure Costs	$17,839,573

State Budget and Control Board

- Accepts break-even operating scenario, but must implement suspended operations if the condition arises
- Issued letter to Compact generators asking for commitment to support the Site
- Supports paying institutional costs from Extended Care and Maintenance Fund
- Meeting in March with Compact generators and Chem-Nuclear to confirm commitments

Transition Period 2008 - 2010

- Accept 35,000 cu. ft. waste through June, 2008
- Accept In-Region operating wastes and held waste
- Continue using existing trenches
- Finalize In-Region volumes and operations plans
- Finalize primary commitments and agreements
- Perform Phase I Decommissioning activities
- Establish actual institutional costs and reimbursement mechanism
- Reduce staff for institutional activities and In-Region disposal operations