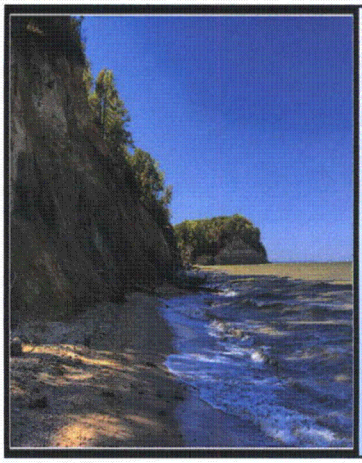

Conceptual Phase II Nontidal Wetland and Stream Mitigation Plan for CCNPP Unit 3 & Discussion of Tidal Impacts and Mitigation

Prepared for: UniStar Nuclear Energy

Prepared by: EA Engineering, Science, & Technology, Inc.

April 28, 2010

Presentation Overview

1

- Recent Mitigation Plan Timeline and Schedule
- Phase II Mitigation Plan – Conceptual Design
  - Goals and Objectives
  - Proposed Mitigation Overview
  - Mitigation Credits
- Tidal Wetland Impacts and Proposed Mitigation
- Future Milestones/Project Schedule
- Questions and Comments

Conceptual Phase II Nontidal Wetland and Stream Mitigation Plan

2

Timeline and Schedule

- December 2009 – Submittal of Phase II Concept Plan and associated memos.
- January 2010 – Received the formal MDE review comments.
- February 2010 – Met with USACE and MDE to discuss project schedule and timeline.
- Present – Submitted Phase II Concept Plan to additional agencies and waiting for comments to proceed with design.

Conceptual Phase II Nontidal Wetland and Stream Mitigation Plan

3

- Goals & Objectives
  - Maintain a "No Net Loss" of wetland (acreage)
  - Replace wetland functions and values lost from development impacts
  - Restore channel and floodplain connectivity
  - Restore channel dimensions and profile to stable form

Goals and Objectives (Cont'd)

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- Restore and enhance floodplain and riparian vegetation
- Attenuate effects from treated stormwater related to proposed site-development
- Preserve existing American eel habitat

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Impacts From the Proposed Development

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Wetland Type	Area of Impact	Impact Type
Forested Wetland	7.88 acres	Permanent Grading/Fill
Emergent Wetland	1.21 acres	Permanent Grading/Fill
Open Water	2.63 acres	Permanent Grading/Fill
Total Area of Permanent Impacts = 11.72 acres		

Stream Reach Identification	Impact Length (linear feet)
RA-I-A	729
RA-IVC-A	1,595
RA-IVN-A	102
RA-IVN-B	2,943
RA-IVN-C	555
RA-IVN-D	1,342
RA-VIIN-A	521
RA-VIIS-A	563
Total Impact Length = 8,350 linear feet	

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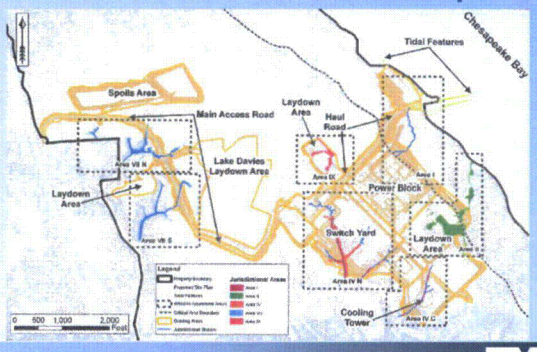
Nontidal Wetland and Stream Impacts

6



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Mitigation Areas

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- Lake Davies Sediment Basins
- Johns Creek
- Woodland Branch
- Camp Conoy

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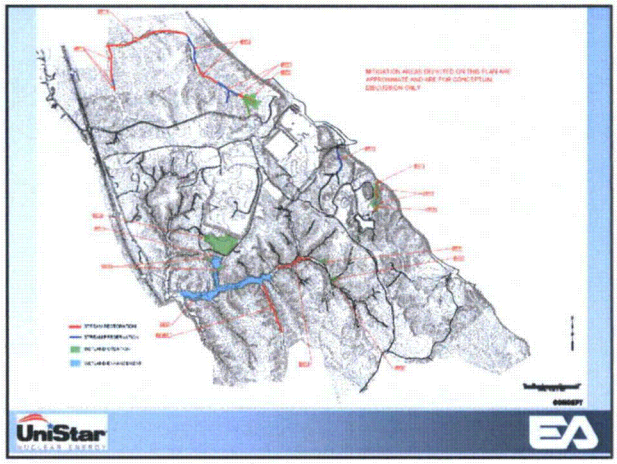

Impaired Streams

- Banks: Incised, vertical, fresh erosion
- Bed: sand, with a silt veneer cover (commonly over 1')
- Floodplain: drained, disturbance, breaks in canopy, lack of woody debris

Stable Streams

- Banks: Low, less than 1', vegetated with roots and trees
- Bed: clean sand beds, some gravel beds on site (SR-3)
- Floodplain: Connected, moist, well established wetlands, woody debris, limbs, roots, leaves, etc. in channel

General Techniques and Practices

- Minimize disturbance – Treat only where needed
- Use of construction mats vs. stone construction entrances
- Extensive hand and small machinery work
- Low ground pressure equipment
- Minimize grading – uplift channel rather than re-create floodplain

Stream Restoration Techniques

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- Log and root grade control structures
- Re-shaping and re-sizing
- Priority 1 restoration / use of abandoned floodplain channels
- Riparian plantings
- Energy-dissipation structures (logs, roots, and stone)
- Channel cut-offs, uplift, and profile modification
- Log and root habitat and overhead cover structures

Wetland Mitigation Techniques

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- Wetland Creation
  - Emergent 1:1, Forested 2:1 credit ratios
- Wetland Enhancement
  - 4:1 credit ratio* - Revised per MDE comments
- Detailed Phragmites and Beaver Management Plan included in the Draft Final Mitigation Plan

Potentially Available Mitigation Credits

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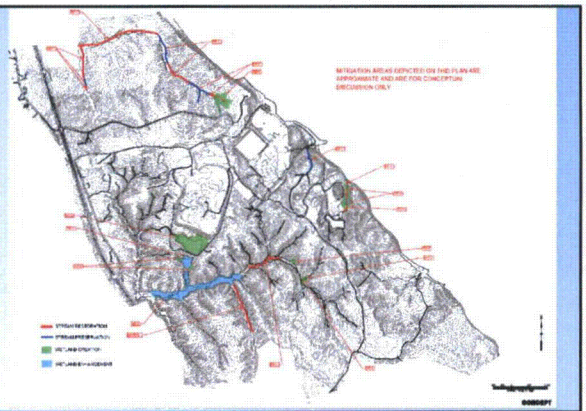
Stream Credits

	Mitigation Area	LF
Restoration	SR-1	2156
	SE-1	1218
	SE-2	900
	SR-2	1671
	SE-4	976
	SR-4	1200
	SR/SE-5	1567
	Total Restoration =	9688
Preservation	SE-1	182
	SE-2	1079
	SR-2	477
	SR-3	800
	Total Preservation =	2538

**Preservation options being discussed for revisions in the Draft Final Mitigation Plan

Wetland Credits

	Mitigation Area	Type	Acreage	Ratio	Credit
Creation	WC-1	Forest	2.2	2:1	1.10
	WC-2	Forest	7.22	2:1	3.61
	WC-2	Emergent	1.61	1:1	1.61
	WC-2	Open water	0.9	**	**
	WC-3	Forest	0.5	2:1	0.25
	WC-4	Forest	1.33	2:1	0.67
	WC-5	Forest	0.72	2:1	0.36
	WC-6	Forest	0.4	2:1	0.20
Enhancement	WE-1	Forest	2.53	4:1	0.63
	WE-2	Forest	15.89	4:1	3.97
	WE-3	Emergent	1.08	4:1	0.27
	WE-4	Forest	0.09	4:1	0.02
			Total wetland credit available =		12.69



Tidal Impacts and Mitigation

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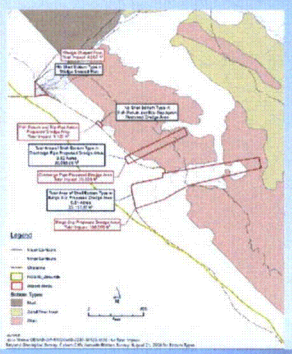
- **248,000 sq ft (5.7 ac.) of Tidal Open Water Impacts**
- **Work associated with Tidal Impacts**
  - New Unit 3 intake at existing forebay
  - Discharge pipe
  - Fish Return
  - Dredging
    - 3.2 ac. = maintenance dredging
    - 2.5 ac. = new dredging area w/ 1.2 ac. Backfilled

Oyster Bar Habitat

17



Construction	Oyster Bar Impact
Wedge shaped pool	0
Fish return	0
Discharge pipe	35,566
Barge Slip	22,108
Total Area of Oyster Habitat Impacts = 57,674 sq ft (1.33 ac.)	

- **No impacts to sand/shell hash bottom types**

CPCN Conditions

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- **Condition 53**
  - UniStar shall pay for cost of mapping substrate, as well as the cost of moving, creating, or restoring oyster bar habitat.
  - Capped amount of $45,000 per acre
  - Completed within 2 years of completion of tidal impacts
- **Condition 44**
  - Appropriate time of year restrictions for dredging will apply in an effort to minimize impacts to the natural oyster bar habitat

Future Milestones/Project Schedule

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- May 25, 2010 – DEIS Public Meeting
- July 2010 – Receive formal comments from USACE on Conceptual Phase II Mitigation Plan
- August/September 2010 – Submit Draft Final Phase II Mitigation Plan
- September 2010 – MDE Public Meeting
- November 2010 – Submit Final Phase II Mitigation Plan
- February 2011 – Final EIS issued to EPA (Tentative NRC Date)
- USACE and MDE to issue permits after the FEIS (early spring 2011)

Questions?

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Joint Evaluation

Date: 4/28/10

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Joint Evaluation

Date: 4/28/10

Project Name: Calvert Cliffs 3

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