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UniStar NUCLEAR ENERGY

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UN#09-524

Kathy Anderson, Section Chief
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10 S. Howard Street
Baltimore, Maryland 21201

Subject: Summary - Conceptual Phase II Non-Tidal Wetland and Stream Mitigation Plan for Calvert Cliffs Nuclear Power Plant, Unit 3 in Calvert County, Maryland,
MDE Project Number 08-WL-1462 (T), 09-NT-0191 (NT),
USACE Tracking No. NAB-2007-08123-M05

Per your request, enclosed please find a summary of the Conceptual Phase II Non-Tidal Wetland and Stream Mitigation Plan dated December 2009, for the proposed Calvert Cliffs Nuclear Power Plant, Unit 3 in Calvert County, Maryland.

If you have any questions concerning the attached document, please call Mr. Dimitri Lutchenkov at (410) 470-5524.

Sincerely,

Greg Gibson

Enclosure – Summary - Conceptual Phase II Non-Tidal Wetland and Stream Mitigation Plan for the Calvert Cliffs Nuclear Power Plant, Unit 3, Calvert County, Maryland, December 2009

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UN#09-524

Enclosure

Summary - Conceptual Phase II Non-Tidal Wetland and Stream Mitigation Plan
for the
Calvert Cliffs Nuclear Power Plant, Unit 3
Calvert County, Maryland
December 2009

Summary – Conceptual Phase II Nontidal Wetland and Stream Mitigation Plan
Calvert Cliffs Nuclear Power Plant, Unit 3
December 2009

The Conceptual Phase II Nontidal Wetland and Stream Mitigation Plan for the Calvert Cliffs Nuclear Power Plant, Unit 3 (CCNPP) has been prepared in accordance with the Final Compensatory Mitigation Rule issued by the USACE and the Environmental Protection Agency (EPA), published April 10, 2008. The Conceptual Phase II Mitigation Plan has been refined from the Phase I Mitigation Plan (MACTEC, 2009) which was approved by the USACE on July 30, 2009 and the Maryland Department of the Environment (MDE) on March 30, 2009.

The limit of disturbance for the construction of the CCNPP Unit 3 facility has been designed to avoid and minimize impacts to natural resources to the greatest extent practical while still meeting the project needs. However, the construction of the project would not be possible without permanently impacting Waters of the United States, including federally regulated wetlands and streams. Therefore, the mitigation strategy chosen for the CCNPP Unit 3 project is onsite, in-kind mitigation.

The previously submitted permit application for the project proposes no more than 8,350 linear feet of stream impacts and impacts to no more than 11.72 acres of jurisdictional wetlands and open water ponds. A comprehensive description of the impact sites has been provided in the previously submitted wetland delineation report dated May 2007 and the Joint Permit Application (JPA) submitted on May 16, 2008. The overall goal of the Conceptual Phase II Mitigation Plan is to replace functions and values lost due to proposed development.

Nontidal Wetland Mitigation

To meet a "no net loss" goal of nontidal wetland mitigation, the nontidal wetland impacts caused by the construction of the proposed project must be mitigated by creating, restoring, or enhancing an equal area of nontidal wetlands. The Conceptual Phase II Mitigation Plan for the Calvert Cliffs Unit 3 project includes the creation of new wetland areas onsite as well as enhancing existing wetlands. The wetland creation areas will include creation of both forested and emergent wetlands. A portion of open water creation is also proposed in order to replace functions and values lost from the impacted areas, as well as create a wetland mosaic within the mitigation area.

The following is a list of the proposed wetland creation and wetland enhancement areas proposed to meet the mitigation requirements.

- WC-1 – Creation of an approximate 2.20-acre forested head water wetland system at the head of Woodland Branch, near the open field north of the old visitor's center.
- WC-2 – The creation of approximately 1.61 acres of emergent wetland and approximately 7.22 acres of forested wetland within the middle man-made sediment basin of the Lake Davies

Dredged Material Disposal Area. In addition, this design will include the creation of approximately 0.90 acres of open water habitat.

- WE-1 – The enhancement of approximately 2.53 acres of existing wetland located within a smaller man-made, abandoned, sediment basin within the Lake Davies Area.
- WC-3 – The creation of two small forested wetland areas (0.5 acres) adjacent to WE-1.
- WE-2 – The enhancement of approximately 15.89 acres of existing wetlands located along portions of Johns Creek and a linear drainage way extension occurring to the south of the Lake Davies Area.
- WE-3 and WC-4 – The creation of approximately 1.33 acres of forested wetland and the enhancement of approximately 1.08 acres of forested wetlands in the location of the old open water ponds situated below Camp Conoy Pond.
- WE-4, WC-5, and WC-6 – The creation of approximately 1.12 acres and enhancement of approximately 0.09 acres of forested wetlands along Johns Creek, in the area of two proposed stormwater management (SWM) outfalls.

The following mitigation credit ratios are proposed for the Conceptual Phase II Mitigation Plan:

- Forested Wetland Creation = 2:1 credit ratio
- Wetland Enhancement = 4:1 credit ratio
- Emergent Wetland Creation = 1:1 credit ratio

Wetland enhancement will consist of the removal and control of common reed (*Phragmites australis*, commonly referred to as Phragmites), along with planting of native bottomland hardwood species within existing wetlands. Based on comments received by MDE on December 2, 2009, it has been determined that this technique will yield mitigation credits at a 4:1 ratio. Please note that this determination of the 4:1 credit ratio was established after the submittal of the Conceptual Phase II Mitigation Plan to the agencies for review, and this change from the 3:1 credit ratio proposed in the Phase I Mitigation Plan will be addressed in the next level of the design plans. This revision to the mitigation credit ratio will not alter the proposed mitigation design.

Wetland Mitigation Credit Summary

Mitigation Type	Mitigation Amount (acres)	Mitigation Ratio	Mitigation Credit (acres)
Forested Creation	12.37	2:1	6.19
Emergent Creation	1.61	1:1	1.61
Forested Enhancement	19.59	4:1	4.90
Total Credit Amount = 12.70 acres			

The proposed wetland creation and enhancement areas will be planted with native hydrophytic vegetation after excavation for the establishment of bottom elevations. The plant material selected to be installed will predominantly be representative of the species composition of the wetlands within the CCNPP property and native to the region. In addition, the plant material will include species that have been identified as suitable for installation on wetland mitigation projects by the Chesapeake Bay Critical Area Commission.

Dense stands of Phragmites have been observed in the sediment basins of the Lake Davies Dredged Material Disposal Area, Johns Creek, and other forested wetland areas on the CCNPP Unit 3 site. The control of Phragmites through herbicide application, mowing practices, and flooding of the sediment basins is proposed under the compensatory mitigation plan for the wetland creation and enhancement areas presently containing the invasive species. Reducing Phragmites populations will replace the existing impacted plant community with a more diverse community through the planting and natural regeneration of more desirable native plant species.

Stream Mitigation

Stream mitigation credits will be achieved through restoration, enhancement, and preservation techniques with the goal of protecting and improving aquatic resource functions and returning natural/historic functions to degraded aquatic resources. The Conceptual Phase II Mitigation Plan includes 9,688 linear feet of stream restoration and 2,538 linear feet of stream preservation in order to obtain the required stream mitigation credits. Furthermore, the Conceptual Phase II Mitigation plan is also designed to reduce secondary impacts from the proposed development and promote habitat and the establishment of American eel populations on-site.

Stream Mitigation Credit Summary

Mitigation Type	Mitigation Amount (linear feet)	Mitigation Ratio	Mitigation Credit (linear feet)
Stream Restoration	9,688	1:1	9,688
Stream Preservation	2,538	1:1	2,538
			Total Credit Amount = 12,226 linear feet

Stream mitigation work is designed to meet the goals and objectives of this Conceptual Phase II Mitigation Plan in accordance with the guidance of regulating entities. In-channel work will be performed in intermittent channels during periods of little or no base flow, and work will be performed in accordance with an approved Erosion and Sediment Control Plan. The Conceptual Phase II Mitigation Plan proposes to utilize restoration and preservation techniques to meet the mitigation objectives and goals. Restoration practices throughout the project include Priority 1 restoration by introducing flow into abandoned floodplain channels, planting of riparian wetland species throughout the stream reaches, and the placement of log and root structures in an effort to raise groundwater elevations in some reaches and

reduce the entrenchment of existing reaches of stream. A similar technique to Regenerative Stormwater Conveyance (RSC) will be utilized in some stream restoration reaches. RSC is an infiltration practice that uses a series of open channel, sand seepage step pools and riffle weirs, through which stormwater flows are conveyed. The purpose of these systems is to reduce the commonly seen erosion in ordinary stormwater conveyances and convert stormwater to groundwater, mitigating nutrient pollution and thermal impacts to the receiving waters. This approach is similar to a Priority 1 stream restoration, which replaces an incised channel with a re-dimensioned channel at a higher elevation. Priority 1 restoration techniques are employed in this restoration plan, usually in re-establishing flow in an abandoned floodplain channel which meets the pattern and dimension criteria appropriate for the reach.

The Conceptual Phase II Mitigation Plan includes the creation and enhancement of nontidal wetlands, as well as the restoration, enhancement, and preservation of nontidal stream channels. The compensatory mitigation is proposed to be onsite and shall be protected in perpetuity through the use of a Conservation Easement or a Declaration of Restrictions.

After the onsite wetland creation and enhancement activities are complete, a 5-year annual monitoring program will be implemented in accordance with the *Maryland Compensatory Mitigation Guidance* (IMTF, 1994), and the guidance provided in RGL No. 08-03 (USACE, October 2008). Performance standards for the wetland mitigation monitoring program will be conducted in accordance with the MDE guidelines and with consideration of other permitting agencies as mandated by the State of Maryland.

Monitoring of the stream channels proposed within the mitigation plan will be performed in an effort to compare post-construction conditions to pre-construction baseline data, for the purpose of assessing the success of the mitigation in relation to the mitigation goals, and determine the degree of success the mitigation project has achieved in meeting the objectives of providing proper channel function and increased habitat quality. Monitoring data based on success criteria established in the Monitoring and Performance Plan will be gathered annually to document the success of the proposed mitigation. Monitoring reports will be submitted in accordance with the wetland mitigation monitoring requirements.

The Conceptual Phase II Mitigation Plan anticipates 12.70 acres of wetland credits and 12,226 linear feet of stream credits, creating a surplus of 0.98 acres of wetland credits and 3,876 linear feet of stream credits. UniStar Nuclear Energy has elected to include the additional mitigation areas into this Conceptual Phase II Mitigation Plan in an effort to create a reserve of mitigation credits for potential future use for impacts that may arise for future projects on-site.