

## **Appendix A - Item 21**

PPL Bell Bend Nuclear Power Plant  
Salem Township, Luzerne County, PA

### ***ACOE Information Requirement:***

"Indicate the method of dredging."

### ***Applicant Response:***

#### BBNPP - Dredging Methodology

Mechanical dredging is the preferred method for removal of 24,000 to 35,000 cubic yards (c.y.) of dredged material (DM) required for installation of the BBNPP Intake Structure and diffuser at BBNPP. Mechanical dredging typically employs a crane or excavator mounted on a deck barge to remove DM. The deck barge is accompanied by at least one other barge for temporary containment of the dredged material, and a work boat to support the dredging operation. This method of dredging will entrain some site water with the DM and add to the total volume of DM removed. A bulking factor of 1.4 is assumed to account for expansion of the silty gravel material following removal, producing a total estimated volume of material for disposal of 24,000 to 35,000 c.y.

Mechanical dredging methods used at BBNPP will likely include a combination of a barge mounted excavator supplemented as needed with a crane operated clamshell bucket or excavator driven cable arm bucket. This alternative has been selected based upon its overall efficacy in working under the water depths and conditions present, and for protection of the environment and acceptability to regulatory agencies.

#### Preparation for Dredging

The approximate aerial extent of DM to be dredged is depicted in sheet CS 3116 of the plan set included with this application. Before dredging work begins in the Susquehanna River, a braced, steel sheet pile coffer dam will be installed around the perimeter of the dredge footprint. This temporary structure will be kept in place throughout the duration of the dredging and in-water structure installation, and will allow the work to be done in a semi-dry environment without

significant risk of a release of sediment-laden water to the Susquehanna River. The coffer dam will be installed (and later removed) using a pile driver mounted on a crane located on the river shoreline. Sediment will be allowed to settle within the coffer dam prior to water being pumped out to the Susquehanna River. Seal concrete will be applied as needed to reduce seepage of river water back into the work area. If rock is encountered or bottom substrate found unsuitable for coffer dam installation, a bottom-weighted floating siltation curtain will be installed in those specific areas of the dredge perimeter.

The upland staging area for sheet pile installation and dredging is presently vegetated and stable. This area, upon which the BBNPP Intake Structure components will ultimately be situated, will be cleared, graded and prepared for use prior to initiation of dredging and associated support activities (coffer dam installation, BBNPP Intake Structure and dewatering basin construction, and DM dewatering and management). The DM dewatering basin will also be situated within this area, and will employ passive dewatering to aid in preparing the DM for upland disposal, as described in Appendix A, Item 25. "Disposal" as described herein refers to beneficial use of the DM as allowed under the Pennsylvania Clean Fill Policy.

Sedimentation and erosion control barriers will be installed around the area of work prior to any land clearing or vegetation removal activities.

#### Water Quality Monitoring

To ensure the protection of aquatic resources and water quality during the dredging and return of dewatering fluid to the Susquehanna River, a monitoring program will be implemented to monitor water quality when dredging within the coffer dam cannot be completed under dry conditions, or when dewatering fluid is introduced to the river. Turbidity monitoring 10 feet downstream of the point of discharge will be initiated prior to starting fluid discharge and continued every 3 hours during dredging/dewatering activities. The threshold of exceedance for turbidity is proposed to be 25 nephelometric turbidity units (NTU) above background turbidity observed in the Susquehanna River at the upstream SSES Intake Structure. Background turbidity will be established daily by sampling at this location prior to initiation of dredging or return of dewatering fluid. If turbidity is found to be greater than 25 NTU above background, mitigative actions will be initiated and the frequency of turbidity monitoring increased. Potential mitigative actions for turbidity exceedances include stopping or decreasing the rate of dredging or fluid discharge or increasing the residence time of the water in the settling basin or tanks allowing for a longer period for fines to settle out. The turbidity monitoring frequency will

increase to every half-hour after an exceedance is noted and return to every 3 hours once turbidity has dropped below 25 NTU above background.