

Application NAB-2007-08123-M05
Response to U.S. Army Corps of Engineers Information Request Dated 01/16/09
Calvert Cliffs 3 Project, LLC and UniStar Nuclear Operating Services, LLC
February 12, 2009

Question 11

Provide information on how the beavers and phragmites control will impact water levels in St. Johns Creek and how this will be dealt with to ensure survival of the proposed forest mitigation plantings in the area.

RESPONSE

During site reconnaissance in 2008, beaver (*Castor canadensis*) dam and tree and shrub girdling/cuttings were observed within the downstream portion of the Johns Creek reach. Beaver ponds and the establishment of dams within riverine systems generally slow the water flow from drainage areas and alter silt deposition. The control of beaver within Johns Creek is a component of the compensatory mitigation plan for the CCNPP Unit 3 project. Rather than trapping with a body gripping/conibear device or live trapping with relocation, passive means will be utilized to control the activities of beavers in Johns Creek. The removal of beaver dams is generally not successful, as beavers will readily construct new dams as long as sufficient building material is available. Dam destruction may also release a surge of water and silt, which will impact downstream waters. With these considerations, a water control flow device will be used to regulate water flow through the beaver dam(s) within Johns Creek. The beaver control activities will be implemented within the proposed wetland mitigation enhancement area in Johns Creek.

Beavers require ponded conditions to feel secure. When beavers lose the ability to store and control water depth, they abandon a site. Therefore, a water control flow device, or beaver pipe, will lower the water held behind the beaver dam causing the beavers to lose control of storing water, thereby abandoning the site. Various water control flow devices are designed to be installed through beaver dams, are readily available. The beaver pipe is installed through the dam with a wire cage constructed around the inlet and outlet to prevent beavers from clogging the pipe with debris. The installation of the water control flow devices within Johns Creek (beaver dams) may not eliminate the activities of beavers, but their use will reduce depth of flooding from impoundment activities by beavers, as well as the duration and extent of flooding. The survivorship of the woody species plantings (wetland trees and shrubs) within the proposed wetland mitigation enhancement area in Johns Creek will increase with the control of the flow regime (via the water control flow device) within the floodplain of the creek. Without the control of the flow regime, impounded conditions will become more pronounced. Under impounded conditions, the depth of the water in the planting area will exceed recommended threshold water depths for planting. Finally, the installation of the water control flow device within Johns Creek (beaver dams) will allow for periods of seasonal drawdown within the floodplain, thereby allowing for the recruitment of wetland hardwood seedlings.

To enhance the bottomland hardwood habitat for wildlife within the proposed wetland mitigation enhancement area in Johns Creek, wetland fill material may be deposited along the floodplain, in a non-uniform pattern, to create a mosaic of hummocks. These hummocks will be planted with native hydrophytic trees and shrubs. The selected tree species will consist of containerized and/or bare root stock protected by tree shelters (i.e., TUBEX® or Miracle Tube tree shelters). The tree shelters will provide protection from beavers and is an important component of the passive control of this species. The tree shelters will also reduce depredation of the planted material by other wildlife species.

The control of phragmites (*Phragmites communis*) through herbicide application is proposed under the compensatory mitigation plan for the CCNPP Unit 3 project. Phragmites is a large, coarse, perennial grass that usually forms large, dense stands reducing the diversity of plant and wildlife species. These stands exist in various locations within the CCNPP property. Phragmites can grow to more than 10 ft in height. Flowering and seed set occur between July and September. Germination occurs in spring on exposed moist soils. Vegetative spread by below-ground rhizomes (roots) can result in dense patches with up to 20 stems per square foot. Phragmites is capable of vigorous vegetative reproduction and often forms dense, nearly monospecific stands, as has occurred in the sediment basins of the Lake Davies Disposal Area and within Johns Creek and other forested wetland areas on the CCNPP Unit 3 site. The eradication of phragmites within the mitigation sites will include multiple treatment events, as the density/biomass of this nuisance species within the mitigation sites is very high. With the control of phragmites and the growth of the planted woody species, the bottomland hardwood forest community of Johns Creek will thrive. Water levels within the mitigation sites are not expected to be impacted as a result of the implementation of the phragmites control program.