Washington Aqueduct Residuals Processing Alternatives

The Washington Aqueduct operates the Dalecarlia and McMillan water treatment plants in Washington, D.C., serving over one million persons in the District of Columbia and Northern Virginia area with potable water. The treatment process adds coagulant to remove solid particles (river silt) from the water withdrawn from the Potomac River, filters and disinfects the water, and distributes the finished water to the metropolitan service area. The solids generated during the treatment process have historically been returned to the Potomac River, but a recently reissued version of Washington Aqueduct's National Pollutant Discharge Elimination System permit (Permit No. DC 0000019) effectively precludes the return of the of water treatment solids to the river.

Consequently, Washington Aqueduct is in the process of evaluating water treatment residuals management options to minimize or eliminate the discharge of residuals to the Potomac River. The residuals management option that will ultimately be selected has the potential to affect the human environment, and thus development of the residuals management plan must comply with the National Environmental Policy Act and also Section 106 of the National Historic Preservation Act.

A description of proposed actions and alternatives as well as an engineering feasibility study have been completed. This process has narrowed the list of potential alternatives from 26 alternatives to four, including the no-action alternative. These remaining alternatives will be evaluated in the Draft Environmental Impact Statement that is currently being prepared.

The Draft Environmental Impact Statement will consider a 20-year period of operations. Consequently, residuals quantities and sizing of facilities will be based on anticipated water production over the 20-year period. Similarly, the evaluation of impacts of the alternatives will be based on the 20-year period of examination.

Alternative A: Process Water Treatment Residuals at Dalecarlia Water Treatment Plant and Dispose in a Newly Constructed Dalecarlia Monofill. Process Dalecarlia Reservoir Forebay Residuals by Current Methods and Periodically Haul

Residuals from the Dalecarlia sedimentation basins and the Georgetown sedimentation basins would be collected and thickened/dewatered at the Dalecarlia water treatment plant before being disposed of in a newly constructed Dalecarlia monofill. Residuals from the Dalecarlia Reservoir forebay would be processed separately as is currently practiced and periodically hauled offsite or could also be disposed of in the Dalecarlia monofill.

Facilities. Sedimentation basins at Dalecarlia and Georgetown would be upgraded. A residuals thickening and dewatering facility has been preliminarily located west of the Capital Crescent Trail as it passes through the Dalecarlia water treatment plant. The approximate location of the monofill is between the Dalecarlia Reservoir and the Dalecarlia Parkway. As currently conceived, the monofill would rise approximately 50 feet from ground level on the Dalecarlia Parkway side and 80 feet on the Dalecarlia Reservoir side. For comparison, the existing trees in that area are in the range of 100 feet tall. The monofill would occupy about 30 acres.

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Conveyance and Transport. Pipelines would convey coagulated residuals from both the Dalecarlia sedimentation basins and the Georgetown sedimentation basins to the Dalecarlia thickening facility. After thickening and dewatering, the solids would be moved by truck across MacArthur Boulevard to the monofill. On average, six onsite truck trips per day (six days per week) would be required.

Alternative B: Process Water Treatment Residuals at the Dalecarlia Water Treatment Plant and Dispose via Contract Hauling. Process Dalecarlia Reservoir Forebay Residuals by Current Methods and Periodically Haul

This alternative consists of thickening and dewatering water treatment residuals at the Dalecarlia water treatment plant. Residuals from the Dalecarlia sedimentation basins and the Georgetown sedimentation basins would be collected and thickened/dewatered at the Dalecarlia water treatment plant. The disposal method would be contract hauling from Dalecarlia water treatment plant to a permitted disposal facility. Residuals from the Dalecarlia Reservoir forebay would be processed separately as is currently practiced and periodically hauled offsite or could also be disposed of onsite.

Facilities. The facilities to complete this option are similar to alternative B, but without the creation of the monofill on the Dalecarlia Reservoir grounds.

Conveyance and Transport. Pipelines would convey water treatment residuals from both the Dalecarlia sedimentation basins and the Georgetown sedimentation basins to the Dalecarlia thickening facility. After thickening and dewatering, the residuals would be hauled by truck to a permitted offsite disposal facility. The estimated average number of trucks for handling the residuals is approximately ten per day (during the five-day workweek) at the 20-year predicted residuals production level.

Alternative C: Thicken Water Treatment Residuals at Dalecarlia Water Treatment Plant, then Pump via a New Pipeline to Blue Plains. Process Dalecarlia Reservoir Forebay Residuals by Current Methods and Periodically Haul

This alternative would eliminate truck traffic associated with residuals on the roads surrounding the Washington Aqueduct Dalecarlia and Georgetown operations by conveying coagulated residuals to the Blue Plains advanced wastewater treatment plant for further processing and disposal. Residuals from the Dalecarlia Reservoir forebay would be processed separately as is currently practiced.

Facilities. This alternative would involve similar sedimentation basin modifications and new thickening facilities. Dewatering facilities would be located at Blue Plains.

Conveyance and Transport. Pipelines would convey coagulated residuals from both the onsite sedimentation basins and the Georgetown sedimentation basins to the Dalecarlia thickening facility. Another dedicated pair of pipelines within the right-of-way of the Potomac Interceptor sewer would convey the thickened residuals to Blue Plains for final processing. These buried pipes would be approximately 10 miles in length and 12 inches in diameter.