

Record of Decision

Environmental Impact Statement for a Proposed Water Treatment Residuals Management Process for the Washington Aqueduct, Washington, D.C.

This Record of Decision (ROD) documents that Alternative E in the Final Environmental Impact Statement (EIS) is the selected alternative for the Washington Aqueduct Water Treatment Residuals Management Process project.

Background and project history

The Washington Aqueduct, a Division of the U.S. Army Corps of Engineers (USACE), Baltimore District, operates the Dalecarlia and McMillan Water Treatment Plants (WTPs) in the District of Columbia (DC), serving over 1 million persons in DC and northern Virginia area (metropolitan service area) with potable water. The water treatment process removes solid particles (e.g., river silt) from the Potomac River supply water, treats and disinfects the water, and then distributes the finished water to the metropolitan service area. The Washington Aqueduct disposes of water treatment residuals, a combination of river silt and a chemical coagulant, by discharging back to the Potomac River under a National Pollutant Discharge Elimination System (NPDES) permit. For all practical purposes, the NPDES permit issued in March 2003 placed effluent limitations on total suspended solids and iron and aluminum. These limitations effectively preclude discharge of water treatment residuals to the river.

The current NPDES permit (DC0000019) was originally issued on March 19, 2003, and amended and reissued on February 27, 2004. It supersedes two previously issued NPDES permits (DC0000019 and DC000329) issued on April 3, 1989, and February 4, 1998, respectively. Because the Clean Water Act does not allow the United States Environmental Protection Agency (USEPA) to include a compliance schedule delaying attainment with discharge limits, and it is recognized that the Washington Aqueduct could not immediately comply, USEPA and the Washington Aqueduct entered into a Federal Facility Compliance Agreement (FFCA) to provide an enforceable compliance schedule for achieving the effluent limitations in NPDES Permit No. DC0000019 as expeditiously as possible. USEPA and Washington Aqueduct entered into the FFCA pursuant to the Clean Water Act, 33 U.S.C. §§1251-1387 and Executive Order No. 12088 (Federal Compliance with Pollution Control Standards). The FFCA provides a legally mandated plan and timeline for the Washington Aqueduct to achieve and maintain compliance with the NPDES Permit and thus the Clean Water Act.

Consequently, Washington Aqueduct has evaluated water treatment residuals management alternatives that minimize or eliminate the discharge of residuals to the river. Washington Aqueduct developed objectives for the proposed residuals management process with the intention of ensuring compliance with all permit and other legal mandates, and preserving or improving upon the safety, reliability, and efficiency of the current water treatment process. In

addition, Washington Aqueduct incorporated into the objectives a concern for minimizing impacts to the human and natural environment.

The following objectives define the purpose and need for the proposed residuals management process assessment and were listed in the Notice of Intent, published in the *Federal Register* on January 12, 2004. (Measurement indicators are shown in parentheses).

- To allow Washington Aqueduct to achieve complete compliance with NPDES Permit DC0000019 and all other federal and local regulations.
- To design a process that will not impact current or future production of safe drinking water reliably for the Washington Aqueduct customers. (Peak design flow of drinking water).
- To reduce, if possible, the quantities of solids generated by the water treatment process through optimized coagulation or other means. (Mass or volume of solids generated).
- To minimize, if possible impacts on various local and regional stakeholders and minimize impacts on the environment. (Traffic, noise, pollutants, etc.).
- To design a process that is cost-effective in design, implementation, and operation. (Capital, operations, and maintenance costs).

Selected Alternative

After a thorough analysis of the full range alternatives as detailed in the EIS, the Washington Aqueduct has decided that the selected alternative is Alternative E. This alternative was identified as both the agency's preferred alternative and the environmentally preferable alternative in the final EIS. Alternative E is the agency's preferred alternative for the reasons detailed in the EIS. Alternative E is also the environmentally preferable alternative because it causes the least damage to the biological and physical environment and best protects, preserves and enhances historic, cultural and natural resources.

The project purpose was to develop, design, and construct a permanent residuals management process that will cost-effectively collect, treat, and dispose of the water treatment residuals in conformance with the purpose and need defined in detail in Section 1 of the EIS. The selected alternative meets those objectives including complying with the Federal Facility Compliance Agreement deadlines, which are presented on the project schedule figure.

The selected alternative also addresses the management of projected residuals quantities for a period of at least 20 years. Table 1 lists the current and future volume of water treatment and Forebay residuals generated daily as estimated for the Engineering Feasibility Study (EFS) (Volume 4 of EIS).

TABLE 1
Washington Aqueduct Basis for Residuals Quantities

Residuals ^c	Daily Generated Volume (Cubic Yards) ^a		Truck Loads/Day ^b	
			22 Cubic Yards/ Truck	
	Current Average	Design Year Average	Current Average	Design Year Average
Water Treatment	94	120	7	8
Forebay	22	28	2	2

^a Based on 7 days per week production.

^b Based on hauling to a final disposal site 5 days per week.

^c Density of dewatered solids is 67 lbs/cubic foot, thus 1 ton equals 1.1 cubic yards (i.e. 22 cubic yards = 20 tons)

Table 1 also presents the truck loads associated with residuals quantities based on a five day week hauling operation. Of the alternatives evaluated in detail in this EIS only the No Action Alternative does not use trucking for final disposal of dewatered residuals. Trucking for Alternatives B, C, and E, defined in detail below, requires similar haul distances. The larger residuals values listed in the design year columns reflect the larger quantity of water demand anticipated 20 years in the future. The project area figure displays the local surrounding of for the selected alternative evaluated in the EIS.

The residuals collection, conveyance, processing and disposal facilities for the selected alternative include the following elements:

Georgetown Reservoir Residuals Collection, Pumping, and Conveyance Facilities

Two new electric powered dredges and associated cable positioning systems will be installed in Georgetown Reservoir Basins 1 and 2 to collect the residuals that settle out in these basins. These dredges will typically operate 16 hours per day, five days per week over an anticipated 9-month annual dredging period. Each dredge will be programmed to automatically collect residuals from the basins, following a serpentine collection path that covers the entire floor area of each basin. A combination of a semi-submerged flexible hose attached to the dredge and a buried pipeline will be used to transport residuals to a new below-ground residuals transfer pump station located north of Basin 1. This pump station will transfer residuals through a new pipeline installed inside the Georgetown Conduit, which runs beneath the center median of MacArthur Boulevard, to the Dalecarlia WTP residuals processing site. A new aboveground electrical building will be constructed north of Georgetown Reservoir basin 1 (approximately 14 feet wide by 22 feet long by 12 feet high). This building will house the electrical equipment required to power the dredges and the residuals transfer pump station. The new building will be constructed in a low-lying area to minimize the visual impact of the facility.

Dalecarlia Sedimentation Basin Residuals Collection, Pumping, and Conveyance Facilities

New residuals collection mechanisms will be installed inside each of the four existing Dalecarlia WTP sedimentation basins to permit continuous removal of residuals. With the exception of the collection mechanism drive units and associated access walkway, the mechanisms will be installed beneath the water surface in the sedimentation basins.

New residuals pumps and conveyance piping will be installed underground if practicable, either in existing below ground galleries or in a new below ground pump station located south of sedimentation basins 3 and 4. A small building, approximately 6 feet wide by 14 feet long by 12 feet high, may be required to access the stairwell into the below ground pump station. The new residuals pumps will discharge directly to the new residuals processing facility through two dedicated water treatment residuals transfer pipelines.

Residuals Processing, Solids Conveyance and Disposal

Residuals processing, including gravity thickening and dewatering, would occur at the east site for thickening and dewatering of residuals with this alternative. Following processing, the dewatered residuals would be contract hauled to one or more permitted offsite disposal facilities. An estimated eight truck loads per day (5 days per week), in the design year, of dewatered residuals are expected to be transported from the Dalecarlia WTP site on average. Higher numbers of truck loads, as defined in Volume 4 – Engineering Feasibility Study Compendium, would be required during infrequent peak residuals production periods.

Development and Consideration of Alternatives

Origin of Alternatives

The first step in the National Environmental Policy Act (NEPA) alternative identification process was to review the project history and compile a range of possible alternatives that have the potential to meet the stated purpose and need.

Since the inception of NPDES permits in 1972 Washington Aqueduct has applied for and received a permit to discharge solids into the Potomac River from its sedimentation basins. In the late 1970's and in the mid 1990's, USEPA indicated that they would require collection and disposal of these solids in a manner other than to flush them to the Potomac River. Therefore as a result of analysis on those two previous occasions, Washington Aqueduct identified a list of many potential alternatives. The following documents were reviewed to develop the historical list:

- Department of the Army, Baltimore District, Corps of Engineers, Washington Aqueduct. "Report on Water Treatment Plant Waste Disposal Alternatives Dalecarlia Water Treatment Plant and Georgetown Reservoir." Camp, Dresser & McKee, Inc. 1977
- Department of the Army, Baltimore District, Corps of Engineers, Washington Aqueduct. "Dalecarlia Water Treatment Plant and Georgetown Reservoir Residuals Disposal Facilities Residuals Disposal Study." Whitman, Requardt, and Associates in association with Malcolm Pirnie, Inc. September 1995
- Department of the Army, Baltimore District, U.S. Army Corps of Engineers (USACE), Washington Aqueduct. "Dalecarlia Water Treatment Plant and Georgetown Reservoir Residuals Collection and Treatment Engineering Estimate (35 percent Design)." Whitman, Requardt, and Associates. November 1996

- Department of the Army, Baltimore District, Corps of Engineers, Washington Aqueduct. "Draft NPDES Permit Review Memorandum on Residual Solids Evaluations." AH Environmental Consultants, Inc., and Greeley and Hansen LLC. May 30, 2003

Additional alternatives and approaches were also developed and added to the list. Suggestions made by the public during the scoping process, such as plasma heat treatment of residuals, were also added for consideration. This effort culminated in a list of 26 alternatives that were screened following the Scoping Meeting and discussed in more detail in the Description of Proposed Action, and Alternatives (DOPAA) issued in May 2004.

Subsequent to the issuance of the DOPAA, the public was given the opportunity to suggest additional residuals alternatives. These represent the second and third alternative suggestion periods to the Environmental Impact Statement (EIS). These additional alternative suggestion periods closed on November 15, 2004, and February 14, 2005, respectively. A total of 134 additional residuals alternatives and 8 options were received from the public during these additional alternative suggestion periods. Two of these alternatives offered during these periods were combined for further consideration of alternate residuals processing sites (i.e., the East Dalecarlia Processing Site adjacent to Little Falls Road). The resulting list of the full range of possible alternatives considered includes 160 alternatives and 8 options.

Screening evaluation process

Screening of alternatives is an approach commonly used as part of the NEPA process to identify the feasible alternatives and ensure a reasonable range of alternatives for detailed evaluation in the EIS. In the EIS each previously or newly identified alternative (or individual component of a residuals management approach) was screened against the established criteria. The draft screening criteria were available for public review and comment during the Scoping Process before they were finalized and applied to all alternatives.

The screening criteria used to determine attainment of purpose and need are:

- Is able to meet the FFCRA, including schedule.
- Preserves the quality, reliability, and redundancy of the existing water treatment and distribution system.
- Uses proven methods (i.e., proven design water treatment processes, construction equipment and techniques, and operating principles).
- Complies with NPDES permit to reduce or eliminate discharge to the Potomac River.
- Does not produce an undue economic hardship on Washington Aqueduct customers for additional facilities that cost more than 30 percent of the baseline 2004 construction cost budget of \$50 million (to increase total project cost beyond \$65 million) that are not needed for other feasible alternatives for the five basic project elements of residuals collection, conveyance, thickening, dewatering, and disposal. (Note: All project costs identified in this EIS were developed in 2004 dollars.)
- Complies with zoning and land use regulations, institutional constraints, and other Federal and local regulations.

- Reduces residual quantities, if possible.
- Meets key schedule milestones included within the FFCA including the following:
 - No later than November 2, 2005 (modified from June 3, 2005), “the Corps shall identify in a notice to USEPA the engineering/best management practices it will implement in order to achieve compliance with the numeric discharge limitations set forth in the NPDES Permit and a schedule for implementing the identified engineering/best management practices as expeditiously as practicable, including selection of a contractor, preliminary design, and final design, as well as the construction phase...”
 - No later than March 1, 2008, “the Corps shall exercise best efforts, consistent with the best engineering judgment, to achieve compliance with the numeric discharge limitations set forth in the NPDES Permit at one or more of the sedimentation basins...”
 - No later than December 30, 2009, “achieve full compliance with the numeric discharge limitations at all basins...”

Alternatives Evaluated in Detail in the EIS

The alternatives screening process concluded that four of the 160 screened alternatives plus the No Action alternative were consistent with the purpose and need of the project. These alternatives were designated alternatives A through E following the completion of the screening process as follows:

- **Alternative A:** Dewatering at Northwest Dalecarlia Processing Site and Disposal by Monofill
- **Alternative B:** Dewatering at Northwest Dalecarlia Processing Site and Disposal by Trucking
- **Alternative C:** Thickening and Piping to Blue Plains Advanced Wastewater Treatment Plant (AWWTP)
- **Alternative D:** No Action Alternative
- **Alternative E:** Dewatering at East Dalecarlia Processing Site and Disposal by Trucking (this alternative described in detail under “Agency Preferred Alternative”)

For all alternatives, Forebay residuals were assumed to be processed by current methods and periodically hauled. The environmental impacts associated with an alternate Forebay residuals processing option is also analyzed in the EIS for each resource area.

The residuals collection, conveyance, processing, and disposal facilities associated with each of these alternatives are described briefly below. A more detailed description of the alternatives, along with the reasons why the remaining alternatives did not satisfy the screening criteria is provided in Section 3 of Volume 4 of this EIS - Engineering Feasibility Study Compendium. The residuals collection, processing, and public options evaluated in this EIS are summarized in Section 4 of Volume 4 of the EIS.

Residuals Facilities Common to All Alternatives except the No Action Alternative

All alternatives, except the No Action alternative, have several common residuals collection and conveyance facilities. These facilities include new residuals dredge collection, pumping, and conveyance facilities located at the Georgetown Reservoir and new residuals collection equipment, pumping, and unthickened conveyance piping located at the Dalecarlia WTP sedimentation basins.

Alternative A—Dewatering at Northwest Dalecarlia Processing Site and Disposal by Monofill

Alternative A does not require continuous off-site trucking for disposal from the Dalecarlia WTP site. With this alternative, residuals would be collected continuously from the Dalecarlia Sedimentation Basins, periodically dredged from the Georgetown Reservoir and pumped to new residuals thickening and dewatering facilities located on the Dalecarlia WTP at a site in the northwestern corner of the property designated the Dalecarlia WTP Northwest site. Following processing, trucks would haul the residuals across MacArthur Boulevard and up Little Falls Road to the monofill disposal site constructed in the Dalecarlia Woods area of the Dalecarlia WTP complex. On average, eight 20-ton truck loads of water treatment residuals would be hauled to the monofill site each day. The residuals disposal monofill would be approximately 50 ft tall on the Dalecarlia Parkway side and 80 ft tall on the Dalecarlia Reservoir side. The footprint of the monofill is anticipated to occupy approximately 30 acres.

Residuals collection and conveyance would be accomplished by the common facilities

Alternative B—Dewatering at Northwest Dalecarlia Processing Site and Disposal by Trucking

For alternative B, residuals are collected from the Georgetown Reservoir and the Dalecarlia WTP sedimentation basins and conveyed to the Dalecarlia WTP similar to Alternative A. Residuals processing, including gravity thickening and dewatering would occur at the Dalecarlia WTP Northwest site with this alternative. Following processing, the dewatered residuals would be contract hauled to one or more permitted offsite disposal facilities. On average an estimated eight truck loads per day (5 days per week) of dewatered residuals would be transported from the Dalecarlia WTP site. Higher numbers of truck loads, as defined in Volume 4 (Engineering Feasibility Study Compendium), would be required during infrequent peak residuals production periods.

Alternative C—Thickening and Piping to Blue Plains AWWTP

Alternative C does not rely upon trucks to transport dewatered residuals from the Dalecarlia WTP, but it does require transporting dewatered residuals by truck from the Blue Plains AWWTP. Residual processing at the Dalecarlia WTP site would be limited to gravity thickening with this alternative. Thickened residuals would then be pumped through a dedicated pair of pipelines to the Blue Plains AWWTP for dewatering. The pipeline would be approximately 10 miles long and 12-inches in diameter each. The proposed route for the dedicated thickened residuals pipeline follows the east bank of the Potomac River to the Blue Plains AWWTP. Residuals collection and conveyance to the Dalecarlia WTP thickening facility would be accomplished by the common facilities described above. Residuals dewatering would

be accomplished with dedicated dewatering equipment located at the Blue Plains AWWTP. Following dewatering, the residuals would be contract hauled to a permitted off-site disposal facility.

Alternative D—No Action Alternative

Although not consistent with the purpose and need of the project, Alternative D, the No Action Alternative, is retained as a NEPA requirement. This alternative assumes that residuals would continue to be discharged directly from the Dalecarlia WTP sedimentation basins and the Georgetown Reservoir to the Potomac River in the future. This practice would be in violation of the solids concentrations defined in the NPDES permit discharge limits.

Evaluation of Alternatives

Each of the alternatives evaluated (with the exception of the No Action Alternative) necessitates developing infrastructure in an urban setting, characterized by important natural and man-made resources. All five of the alternatives (including the No Action Alternative) evaluated to meet this federally mandated action will carry some degree of impact. Of particular concern is the ability of an alternative to meet the project's purpose and need, while minimizing impacts to the communities surrounding the potential operations, no matter where they are located. Particular emphasis was naturally placed in evaluating impacts near the Dalecarlia Reservoir, Dalecarlia Water Treatment Plant (WTP), Georgetown Reservoir, and Blue Plains AWWTP facilities, as well as intermediate conveyance areas potentially impacted by Alternative C, the pipeline alternative.

The following sources of information were considered by Washington Aqueduct to determine the selected alternative from the five possible residuals alternatives:

- Information in the EIS and Engineering Feasibility Study Compendium,
- Ideas and concerns raised by the public during five open public meetings or comments submitted directly to Washington Aqueduct staff up until the time of the Record of Decision, and
- Consultations with regulatory authorities at the federal, state, and local levels (detailed in Section 4).

Both Alternatives A (Dewatering and Disposal by Monofill) and C (Thickening and Piping to Blue Plains AWWTP) have beneficial elements that contribute to the objectives of the Clean Water Act and NEPA by enabling the Washington Aqueduct to stop discharging residuals into the Potomac River and preventing residuals trucks from traveling on local roads nearest to the Dalecarlia WTP facilities. However, implementation of Alternatives A and C would not allow Washington Aqueduct to comply with the Federal Facility Compliance Agreement schedule issued by USEPA, and they both would have significant long-term adverse environmental impacts on various natural and community resources.

More specifically, during the course of this NEPA process, Washington Aqueduct has learned that the development of Alternative A is not consistent with the schedule for investigations of this site by the U.S. Army Corps of Engineers for its ongoing remediation efforts for the American University Experiment Station (AUES) Formerly Used Defense Site (FUDS) project.

Further, Alternative C is not consistent with the District of Columbia Water and Sewer Authority's (DC WASA's) long-term plans for its Blue Plains AWWTP and therefore DC WASA has declined to accept the piped residuals at their facility. Alternative C is also more than double the cost of each of the other alternatives. In addition, Alternative C would relocate trucking impacts to roads in southeast Washington DC. Both alternatives would have unacceptably large potential visual, cultural, forest habitat, and perhaps recreational impacts.

Alternative D, the no-action alternative, cannot be selected by the Washington Aqueduct because it would place it in future violation of the Federal Clean Water Act, the terms of its NPDES permit, and the FFCA issued by USEPA. Throughout the EIS preparation process, USEPA has confirmed that they would be unwilling to modify the NPDES permit to allow the Washington Aqueduct to return to a residuals disposal practice consistent with the No Action alternative, despite the Washington Aqueduct's consideration of it and a number of similar river discharge alternatives during this process.

Rationale for selecting Alternative E over Alternative B

The Washington Aqueduct selected between Alternatives B and E for the proposed action. Both alternatives can be implemented within the required timeframe with a much greater degree of certainty than is possible for either Alternative A or C. The costs of Alternatives B and E are consistent with the project budget, which is wholly dependent for financial support from the three local wholesale customers and the rate-paying public. All action alternatives feature some trucking. They differ in the location of the processing facilities and the location of the trucking. Alternative B would construct the residuals processing facility at the Northwest Dalecarlia WTP location and the trucks would enter the local roadways at the existing facility entrance to MacArthur Boulevard. Alternative E would construct the residuals processing facilities at the East Dalecarlia WTP location and trucks would enter the local roadways at the existing intersection of Little Falls Road and Dalecarlia Parkway. These differences form the basis of the tradeoffs between each alternative.

Alternatives B and E present equally feasible options, from an engineering perspective, for a residuals management program that eliminates residuals discharges to the Potomac River. Each would enable the Aqueduct to meet the conditions of the recent NPDES Permit No. DC0000019 within the schedule put forth in its Federal Facility Compliance Agreement with the USEPA. Alternative E offers advantages in the following areas:

- Less visual impact to surrounding residential neighbors
- Site topography allows impacts to be minimized
- Less truck noise attributable to loaded residuals trucks traveling uphill on Loughboro Road
- Greater distance between surrounding neighborhoods and proposed residuals processing facilities

Therefore, Alternative E— Dewatering at East Dalecarlia Processing Site and Disposal by Trucking is chosen in this Record Of Decision as the selected alternative for the management of Washington Aqueduct water treatment residuals.

Agency and Public Participation

During the preparation of the EIS, a public scoping period was held in January 2004. Also in 2004, four additional public forums were hosted by the Washington Aqueduct to provide interested members of the public with an opportunity to better understand the project and the proposed alternatives. The Washington Aqueduct also consulted with numerous local and federal agencies and elected officials as well as participated by invitation in a variety of forums hosted by community groups to continue to describe the project and the alternatives being evaluated in the EIS. Throughout the process, the Washington Aqueduct created and maintained a public web site devoted exclusively to this project.

Members of the public, elected officials, and regulatory agencies in the District of Columbia and Maryland used the public involvement process leading up to the Record of Decision to provide input about the project and its proposed alternatives.

A summary of major public concern on EIS alternatives A through E communicated during this process is as follows:

Alternative A—Dewatering at Northwest Dalecarlia Processing Site and Disposal by Monofill

There was significant public concern about removing a 30-acre stand of mature, mixed hardwood forest and replacing it with a residuals monofill with a 20 year life span. Specific issues centered on the visual impact to nearby Maryland residences, operational impacts of light, noise and dust, the loss of biological resources that are currently protected from human activity, and the potential for the water quality in the reservoir to be affected. Some area residents characterized this alternative as creating a permanent impact (clear cutting the forest) for a temporary solution (a monofill with capacity for 20 years of disposal).

The U.S. Army Corps of Engineers, Baltimore District, is leading the AUES FUDS environmental restoration project. Public information available during the scoping and alternatives screening phase of the EIS indicated that portions of Dalecarlia, including the monofill footprint, contained solids with elevated arsenic concentrations. Surface arsenic remediation at the few areas where it is present in Area 13 of the AUES FUDS would be achievable within the timeframe required to build on the Dalecarlia Reservoir property. Subsequent to the screening phase, a meeting was held with the US Army Corps of Engineers Baltimore District office responsible for the AUES FUDS to further discuss this project. During this meeting, it was learned that an area within the monofill footprint historically known as the "Government Woods" may have been associated with the AUES World War One era research and testing activities. This suspicion has led the managers of the AUES FUDS project to schedule soil investigation of portions of the Dalecarlia Reservoir property. This testing is scheduled in 2008 and the resulting remedial actions, if any, conflict with the Washington Aqueduct's timetable for FFCA compliance.

Alternative B—Dewatering at Northwest Dalecarlia Processing Site and Disposal by Trucking

Public concern focused on the appearance of the processing facilities. Specifically its' potential to impact the visual character of the immediate area and to be seen by residents of Maryland's Brookmont neighborhood down gradient of the site's western boundary, residents of Windward Place and Leeward Place overlooking the site's northern boundary, and users of the portion of the Capital Crescent Trail passing through the Aqueduct's WTP property. Nearby

residents have also provided input regarding operational issues of noise, light pollution, and the potential for odors and air pollutants.

Beyond the immediate neighbors, this alternative attracts public concern about truck traffic on area roads, which is viewed as a congestion, pedestrian safety, and residential foundation hazard. Various community representatives in comments have mirrored the concerns expressed by individuals, particularly related to an increase of truck traffic.

Alternative C—Thickening and Piping to Blue Plains AWWTP

Maryland and District of Columbia residents from the neighborhoods surrounding the Dalecarlia Reservoir and WTP have been largely supportive of this alternative because it involves the smallest amount of visibly-observed facility development in this geographic area and does not involve trucks carrying residuals on their area roads. In Alternative C the impacts associated with trucking residuals would be moved to Southeast Washington, D C. Under this alternative, the potential operational impacts of the residuals processing facility would be transferred to the Blue Plains AWWTP approximately 12 miles to the south east.

Three regional offices of the NPS have expressed significant concern about the pipeline corridor as it passes through the C&O National Historical Park and Georgetown Historic District, and areas adjacent to the Lincoln Memorial, the Franklin Delano Roosevelt Memorial, and Thomas Jefferson Memorial.

DC WASA evaluated the prospect of hosting the residuals processing facility at its Blue Plains AWWTP facility. They have determined that all potentially available site space must be reserved for planned facilities to accomplish greater wastewater nutrient removal and store and treat Combined Sewer Overflows (CSOs) (see Engineering Feasibility Study Compendium – Volume 4 of the EIS for more detail on this issue). As a result, they cannot host the Washington Aqueduct's facilities as part of this alternative.

Alternative D—No Action Alternative

A portion of the public dialog has focused on whether it is necessary for the Washington Aqueduct to change its current and historical practice of Potomac River residuals disposal. There has been some public support for this alternative, with the argument that a new residuals management process creates a set of land-based impacts that are greater than the impacts associated with water-based disposal. Neither the impact balancing that occurred during this NEPA process, nor the Clean Water Act support this argument.

USEPA has repeatedly expressed concern that continuation of the current process of returning residuals to the river would have undesirable impacts. USEPA's commitment to implement the best available technology provisions of the Clean Water Act resulted in the development of the current NPDES Permit No. DC0000019. From a resource agency perspective, the Washington Aqueduct received the current NPDES Permit No. DC0000019, and entered into an FFCA following 9 years of research and detailed discussion over the need to alter the residual disposal process from river discharges to an alternate process. An extensive administrative record was created by USEPA Region 3 to support this decision. Once made, the FFCA was needed to set forth a timetable for the Washington Aqueduct to meet NPDES Permit No. DC0000019. This permit for all practical purposes precludes continuation of river disposal. The failure to enter

into the FFCA would have most likely resulted in USEPA revoking Permit No. DC0000019, or USEPA entering a unilateral order and schedule.

Alternative E—Dewatering at East Dalecarlia Processing Site and Disposal by Trucking

This alternative was derived from recommendations for several members of the public during the extended public comment period ending in mid-November 2004. It has the benefit of moving the facility further from the Brookmont neighborhood and will have better access to the Dalecarlia Parkway, reducing the local noise from the expected truck traffic. The building would be visible from the Westmoreland neighborhood that faces the reservoir, but it would be in the same sight line as the existing hospital high rise buildings. The topography of the site offers opportunities to minimize the visibility of the structures.

The concerns expressed by members of the public and various community representatives for Alternative E were similar to those expressed for Alternative B. Specifically, some members of the public indicated a concern related to the appearance and operational aspects of the facilities with respect to their location near a largely residential area and adjacent to Sibley Memorial Hospital. Emissions of pollutants such as light, noise, odors and air pollutants were a common concern expressed by members of the public. Any increase to truck traffic on the roads in the District of Columbia and in Maryland, and the perceived potential increase on associated impacts, was objectionable to members of the public.

Beyond the immediate neighbors, this alternative created some public concern about additional truck traffic on area roads, which is viewed as a congestion, pedestrian safety, and residential foundation hazard. Various community representatives in comments have mirrored the concerns expressed by individuals, particularly related to an increase of truck traffic.

Measures to Avoid or Minimize Harm

The Washington Aqueduct recognizes that residents from the neighborhoods bordering the Dalecarlia facilities are concerned about the potential for the Agency's Selected Alternative to impact their community. The Washington Aqueduct is interested in continuing their historic cooperative relationship with residential neighbors during both the construction and entire life-cycle of the residuals management process.

Based on the analysis in the EIS, implementation of the Agency's Preferred Alternative (Alternative E) does not result in any long-term significant impacts. As such this section is not a formal impacts mitigation plan. However, the following steps will be taken to further reduce either short term or long-term, non-significant impacts.

Air Quality

- Construction and operation of facilities, trucks, and other equipment will be in compliance with air quality and emissions requirements.
- Exposed soils will be moistened with watering trucks as necessary to minimize dusty site conditions during the construction period.
- A construction entrance will be installed at truck exit points to minimize dirt tracked from the site.

- Trucks will be washed as necessary to minimize the movement of dirt from the construction site to the local roadways.
- Washington Aqueduct will require that all residuals hauling contractors use low sulfur fuels for the fleet vehicles coming to and departing from the residuals management facility.
- Washington Aqueduct will investigate the use of diesel retrofits for reduction of PM 2.5 in haul trucks and will include contract specifications these and other emission reducing technologies as they become available and cost effective in the area's commercial hauling marketplace.

Hazardous, Toxic and Radioactive Materials

- An underground concrete structure, discovered during the installation of a groundwater monitoring well on Washington Aqueduct Property, has been found to contain an oily material containing lead. This material will be pumped out and disposed of in accordance with applicable regulations. The remaining structure will either be filled with inert material or removed.

Biological Resources (Terrestrial)

- Wetland delineation and or determination will be conducted prior to any ground-disturbing activities if wetlands are suspected to be present. If wetlands are confirmed, and avoidance is not practicable, mitigation will be provided in order to meet USACE's policy of no net loss of wetlands.

Noise

- Construction activities will comply with Chapter 28 of the District of Columbia Municipal Regulations details for construction in residential zones. Noise from construction will not be permitted on Sundays or legal holidays or from 7:00 pm to 7:00 am.
- Operational noise will be minimized through a combination of site planning that allows topography to serve as a noise control feature, architectural design, and noise control methods applicable during construction.
- Appropriate building materials will be used, such as sound absorbing CMU. Poured concrete floors will also be incorporated into the building to lessen the transmission of vibrations and noise outside the facility.
- Closed truck bays will control residuals loading and truck start-up noise. Trucks will be loaded and started with doors closed.
- The placement of the dewatered residuals hoppers proposed to be installed on an intermediate floor of the dewatering facility will also act as sound buffers and minimize the transmission of dewatering equipment noise to the truck loading floor.
- A display sign will be posted at the facility exit point to remind truck drivers to be considerate as they drive through a residential neighborhood.

Visual Resources

- The exterior facade of the residuals processing facility and the thickener tanks will be given an architectural treatment intended to make it visually compatible with the existing and future structures at the Sibley Memorial Hospital Complex.
- The Georgetown Reservoir modifications (electrical building) and the Dalecarlia Treatment Plant modifications (pump station stair access shaft) will be designed to match the shape of the existing influent Gate House, and the water treatment complex, respectfully.
- Exterior architectural concepts will be reviewed by the National Capital Planning Commission and the Commission of Fine Arts.
- Light fixtures will be hooded and directed downward to minimize offsite impacts.

Transportation

- An estimated average of eight truckloads of dewatered water treatment residuals are expected daily (5 days per week). In addition, Washington Aqueduct will construct residuals management facilities with sufficient storage capacity to limit the peak truck trips to a daily maximum of 25 inbound and 25 outbound trucks under very infrequent extreme operating conditions, reducing the number of trucks calculated in the original analysis.
- Trucks accessing Little Falls Road will be provided with adequate stacking space on-site and restricted from parking or standing along the adjacent roadways.
- Route A will only be used during off-peak hours (9:30 am to 3:00 pm).
- Residuals hauling on all other viable routes (B, D, E and H) will be restricted to hauling typically from 7:00 am to 7:00 pm.
- Washington Aqueduct is aware of the public concern over traffic and will closely monitor the operation of residuals disposal and will make adjustments as needed.
- Annual meeting with interested stakeholders.

Socioeconomic and Environmental Justice

- Barriers and no trespassing signs will be placed around construction sites to deter children from playing in these areas.
- All construction vehicles, equipment and materials will be stored in fenced areas and secured when not in use.
- During construction, safety measures stated in 29 CFR 1926, Safety and Health Regulations for Construction will be followed to protect the health and safety of residents surrounding the treatment facilities, as well as construction workers.

Future Studies

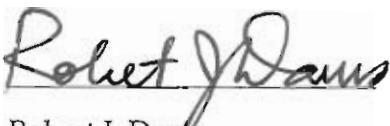
- Periodic future assessments of newly available technology for potentially reducing the quantities of water treatment residuals collection and disposal will be studied at a 5-year frequency.

Responses to Comments

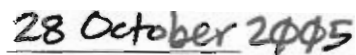
All public comments received at the public hearing, as well as those submitted during the public comment periods, which were extended three times to allow more time for public input, are addressed in the EIS Comments and Responses, Volumes 3C and 3D. Comments and Responses, Volumes 3A and 3B, address the public input provided prior to issuance of the DEIS. The Response to Comments table, included in Volume 3 of the EIS, was extensively modified to fully address the comments received. These responses include discussions of new sub-topics in the areas of Facility (BH through BM), Pipeline (DK through DM), Schedule (FF through FG), Trucking (GJ through GK), Human Health and the Environment (KD), Government (MD), EIS Process (NE through NH), Residuals Handling in Other Metropolitan Areas (PB) and Residuals Alternatives (QB through QD.) Comments received between the filing of the EIS and the signing of the ROD were considered and presented to the District Engineer. These comments were processed appropriately and added to the Administrative Record.

Record of Decision Approval

Baltimore District, U.S. Army Corps of Engineers, finds that Alternative E best meets the project's purpose and need, as stated in the Notice of Intent published in the *Federal Register* on January 12, 2004, while minimizing impacts to the communities surrounding the potential operations. This selection was based on an adoption of all practical means to avoid or minimize environmental impacts and a consideration of public and agency comments received during the NEPA process. All practicable measures to avoid or minimize environmental harm identified have been incorporated into this decision. The design of the selected alternative will begin immediately in order to allow for implementation of the alternative to begin in accordance with the requirements of the FFCA.



Robert J. Davis
Colonel, U.S. Army Corps of Engineers
Commander, Baltimore District



Date

Contact:

Washington Aqueduct
5900 MacArthur Boulevard, NW
Washington, DC 20016-2514
202-764-2753

michael.c.peterson@usace.army.mil

Appendix



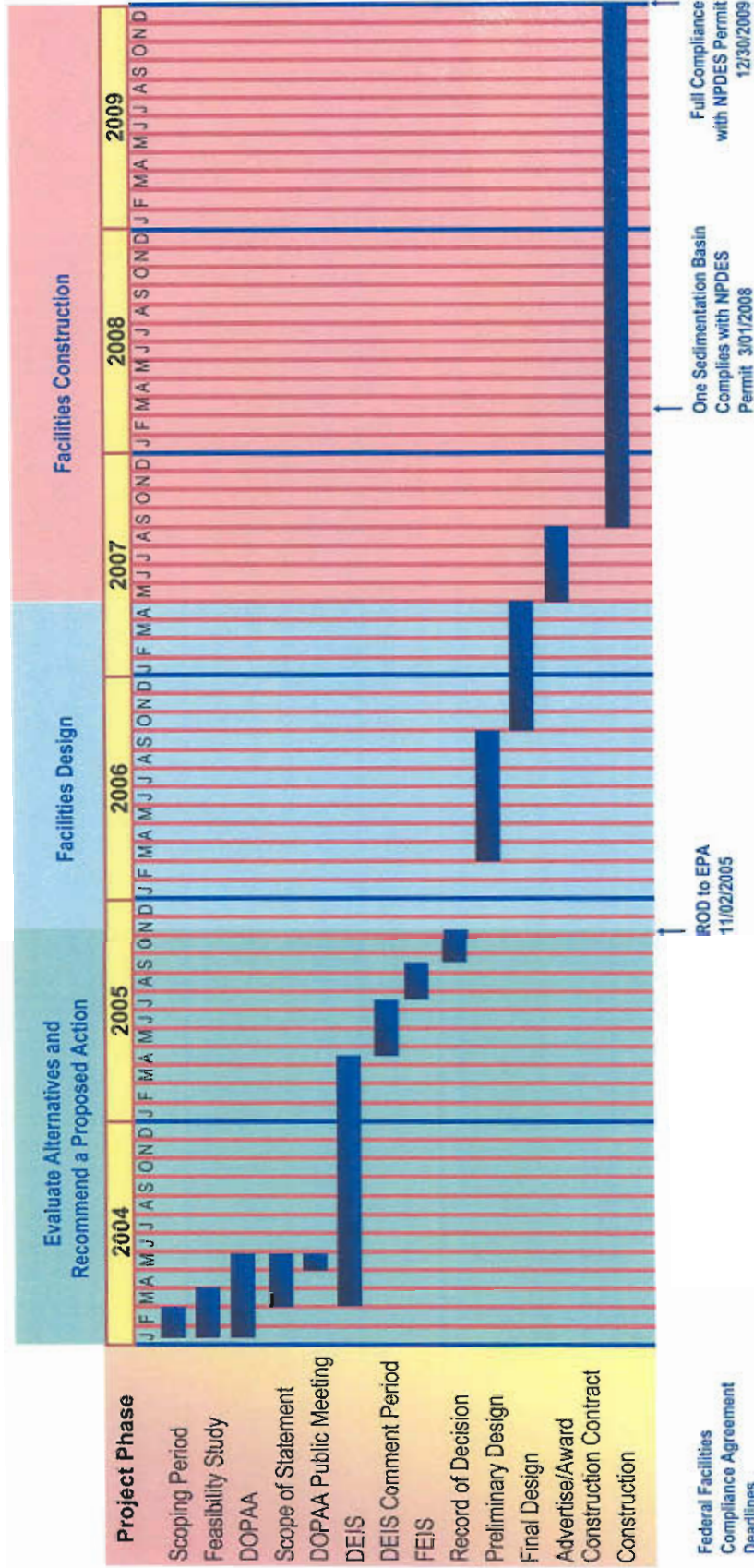
Legend

- Area of Potential Modifications
- District Boundary
- Existing Buildings
- Roads
- Capital Crescent Bike Trail

The geographic information shown on this map is based on publicly available information from Montgomery County Maryland and the District of Columbia. Geographic Information System (GIS) with GIS layers updated at different times. This figure not intended to be a precise representation of the existing project site. Technical information on land use is evaluated elsewhere in the EIS. The District Government makes no warranty, express or implied, and disclaims all implied

0 300 600 1,200 Feet

Project Area



Project Schedule