

# FINAL DECISION AND RESPONSE TO COMMENTS

# WASHINGTON-DULLES INTERNATIONAL AIRPORT DULLES, VIRGINIA EPA ID NO. VA6690500909

# I. FINAL DECISION

The Virginia Department of Environmental Quality (DEQ) is issuing this Final Decision and Response to Comments (Final Decision) under the authority of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA) of 1976, and the Hazardous and Solid Waste Amendments (HSWA) of 1984, 42 U.S.C. Sections 6901 and 6992k, regarding the remedy for the Washington-Dulles International Airport (Facility) located at 1 Saarinen Circle in Dulles, Virginia.

In July 2016, DEQ issued a Statement of Basis (SB) in which it described its proposed remedy for the Facility. The SB is hereby incorporated in this Final Decision by reference and made a part hereof as Attachment A. DEQ's proposed remedy for the Facility consists of the following two components: 1) perform and maintain a groundwater monitoring program; 2) compliance with and maintenance of institutional controls that restrict certain land and groundwater uses at the Facility.

# II. PUBLIC COMMENT PERIOD

On July 14, 2016, DEQ placed a public notice and the SB on its web page and the Facility published the public notice for the SB in the Loudoun Times Mirror newspaper. The public notice announced a thirty (30)-day public comment period and requested comments from the public on the remedy proposed in the SB. The public comment period ended on August 13, 2016.

# III. RESPONSE TO COMMENTS

DEQ received no comments on its proposed remedy for the Facility. Consequently, DEQ's Final Remedy did not change from the remedy it proposed in the SB.

# IV. FINAL REMEDY

The Final Remedy, the components of which are explained in detail in the SB, requires the performance and maintenance of a groundwater monitoring program and compliance with and maintenance of institutional controls that restrict certain land and groundwater uses at the Facility.

# V. DECLARATION

Based on the Administrative Record compiled for the Corrective Action at the Washington-Dulles International Airport, DEQ has determined that the Final Remedy selected in this Final Decision and Response to Comments is protective of human health and the environment.

8/24/16

Date

Chris Evans, Director Office of Remediation Programs Virginia Department of Environmental Quality

Attachment A: Statement of Basis, dated July 14, 2016



# VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

# OFFICE OF REMEDIATION PROGRAMS

STATEMENT OF BASIS

July 14, 2016

Metropolitan Washington Airports Authority Washington-Dulles International Airport Dulles, VA 20109 EPA ID No. VA6690500909

# Contents

II Facility Background    3      II.a    Operations    4      II.b    Regional Geology and Hydrogeology    5      II.c    Local Topography, Lithology, and Hydrogeology    5      III Summary of Environmental Investigations    6      IV Risk Assessment    8      IV.a    Soil    8      IV.b    Groundwater    8      IV.c    Environmental Indicators    9		
II.b    Regional Geology and Hydrogeology    5      II.c    Local Topography, Lithology, and Hydrogeology    5      III    Summary of Environmental Investigations    6      IV    Risk Assessment    8      IV.a    Soil    8      IV.b    Groundwater    8      IV.c    Environmental Indicators    9		
II.c    Local Topography, Lithology, and Hydrogeology		
III Summary of Environmental Investigations    6      IV Risk Assessment    8      IV.a    Soil      IV.b    Groundwater      IV.c    Environmental Indicators      9		
IV Risk Assessment		
IV.a    Soil		
IV.b Groundwater		
IV.c Environmental Indicators9		
V Corrective Action Objectives		
V.a Groundwater9		
V.b Soil9		
VI Proposed Remedy		
VI.a Groundwater10		
VI.b Soil		
VI.c Vapor Intrusion11		
VII Evaluation of DEQ's Proposed Remedy11		
VII.a Threshold Criteria11		
VII.b Balancing/Evaluation Criteria12		
VIII Financial Assurance		
IX Public Participation13		
Administrative Record – Index of Documents for Statement of Basis		

Figure 1 Site Map

# I. Introduction

The Virginia Department of Environmental Quality (DEQ) has prepared this Statement of Basis (SB) to solicit public comment on its proposed remedy for the Washington-Dulles International Airport (hereinafter referred to as the Site or the Facility) located at 1 Saarinen Circle in Dulles, Virginia. DEQ's proposed remedy for the Facility consists of the following two components: 1) groundwater monitoring and 2) institutional controls. This SB highlights key information relied upon by DEQ in making its proposed decision.

The Facility is subject to the Corrective Action program under the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA) of 1976, and the Hazardous and Solid Waste Amendments (HSWA) of 1984, 42 U.S.C. §§ 6901 et seq. (Corrective Action Program). The Corrective Action Program is designed to ensure that certain facilities subject to RCRA have investigated and cleaned up any releases of hazardous waste and hazardous constituents that have occurred at their respective facilities. For this Facility, the DEQ retains primary authority in Virginia for the Corrective Action Program.

DEQ has prepared this SB in cooperation with the United States Environmental Protection Agency (EPA).

The Administrative Record (AR) for the Facility contains all documents, including the data and quality assurance information, on which DEQ's proposed decision is based. See Section IX, Public Participation, for information on how you may review the AR.

# **II. Facility Background**

The Facility is located on approximately 11,830 acres of fenced, improved land in western Fairfax and southeastern Loudoun County, Virginia. The Facility is owned by the United States Government acting through the Federal Aviation Administration (FAA) and leased by the Metropolitan Washington Airports Authority (MWAA). The Facility is a civilian aviation facility for domestic and international flights. Airport activities include those managed by MWAA and those managed by airport tenants, including airlines, car rental facilities, and hotels. In 1993, the U.S. Environmental Protection Agency (EPA) contracted a RCRA Facility Assessment of the Facility. The Site and surrounding areas are shown in Figure 1.

Areas immediately to the north, south, east and west consist of commercial to light industrial development. Dulles Lake and Horsepen run are located to the north of the main terminal building while Cub Run and Dead Run are located to the south.

Potable water for the Airport is obtained from the Fairfax County Water Authority and is delivered to users via a municipal public water supply distribution system. Sanitary and storm sewer lines transect the Facility. All sanitary waste water from the Facility is

discharged to the public sanitary sewer system. As of 2016, there were no drinking water wells in the vicinity of the Facility or any plans for proposed drinking water wells. Any future development within the immediate vicinity of the facility will be served by the municipal water system.

## II.a **Operations**

The Facility currently has ten aboveground storage tanks (ASTs) providing a total bulk storage capacity of approximately 38.5 million gallons of petroleum. Additional structures on Site include terminals, air traffic control center, firefighting facility pump house, administrative office buildings, maintenance buildings, and airplane hangars.

Hazardous waste generating activities conducted at the Facility include facility maintenance, vehicle repair, paint shop and bulk petroleum storage. Wastes generated at the Facility include maintenance of the oil/water separators, used antifreeze, batteries, parts washer solvents and solvent rags, fuel and fuel filters, paint wastes, used paint booth filters and used fluorescent light bulbs. The Facility has been categorized as a large quantity generator of hazardous waste in accordance with the Virginia Hazardous Waste Management Regulations (VHWMR) and RCRA Regulations.

The following areas comprise facility maintenance and daily operations where hazardous waste is generated:

- Shop 1
- Shop 1 Annex
- Utility Building
- Pipe Shop
- Exterior Electric Shop
- Interior Electric Shop
- Shop 2
- Body Shop; Paint Shop
- BG-380 Terminal

There are five main facilities that comprise the airport, which include:

- Main and satellite terminals
- Air traffic control tower
- AST fuel farm
- Maintenance facilities
- Fire training center

## II.b Regional Geology and Hydrogeology

The Facility is situated within the Culpeper Basin of the Piedmont Physiographic Province. This province is characterized by Triassic age siltstone, sandstone, and conglomerates intruded by diabase dikes and sills. This formation is typically well indurated and exhibits little matrix porosity. The sedimentary rocks dip west, typically between 20 to 40 degrees from the horizon, and exhibit fractures both parallel to the bedding plane and dipping 75 to 85 degrees.

## II.c Local Topography, Lithology, and Hydrogeology

The Facility is located at an elevation of approximately 313 feet above mean sea level. The Site is relatively flat with a single main dike surrounding the ASTs. The surface of the Site is covered with a mixture of asphalt, concrete and grass.

Dulles International Airport is located within two individual watersheds. The Broad Run Watershed drains surface water to the north into the Potomac River, and the Bull Run Watershed drains surface water to the south eventually ending up in the Occoquan River. The surface water divide is at the approximate center of the airport operations area, extending in a straight east/west line just south of the midfield terminal.

Surface water drainage in the northern portion of the site consists primarily of two main tributaries, Horsepen Run and Stallion Branch. Horsepen Run enters the site along the eastern boundary approximately 1/2 mile south of the Dulles Access Road and 650 feet east and parallel to State Route 28. Horsepen Run then travels due north beyond the Dulles Access Road where it turns in a northwesterly direction and continues on this course until it exits the site along the northwest boundary. Horsepen Run forms a surface water impoundment immediately prior to exiting the site. Stallion Branch is located along the western boundary of the site and flows north in to Horsepen Run. Horsepen Run empties into Broad Run which flows north into the Potomac River (see Figure 2-2).

The southern portion of the site (Bull Run Watershed) consists of three named tributaries. These tributaries are Cub Run, Dead Run, and Cain Branch. Dead Run and Cain Branch both empty into Cub Run after leaving the southern boundary of IAD. Several unnamed intermittent tributaries on the IAD property empty into Dead Run and Cain Branch. Cub Run originates within the northern extent of the Bull Run watershed and flows south into Bull Run which empties into the Occoquan River. The confluence of Bull Run and the Occoquan River is approximately 15 miles downstream from Dulles Airport.

The hydrogeology beneath Dulles Airport consists of two water-bearing zones - a shallow zone within the weathering profile and a deeper zone within the joints and fractures of the competent bedrock. The upper zone is the shallow unconfined aquifer which is a perched water table within the weathering profile. Ground water commonly occurs throughout the

lower part of the saprolite with marked seasonal fluctuations in water table elevation (up to several meters) influenced by seasonal variations in rainfall. During periods of high seasonal water tables, the depth to the shallow aquifer varies from 0.5 to 2.0 feet below the ground surface.

The bedrock aquifer includes the joints, fractures, and parting planes of the siltstone and shale sedimentary rocks. The average depth to competent bedrock ranges from 3 to 8 feet in the facility area. The deeper bedrock aquifer varies from semi-confined to unconfined. Wells completed within the Triassic sedimentary rocks range in depth from 22 to 479 feet below ground surface with an average depth of 116 feet (Versar, 1991). Interconnection between the shallow aquifer system and the deeper bedrock aquifer is possible for areas in which the weathering profile is thin. Communication between the two aquifers depends on the distribution, nature and extent of joints and fractures at the interface between the saprolite and the competent bedrock. Water supply wells throughout this region are typically set in the fractured siltstone at depths greater than 500 feet.

# **III. Summary of Environmental Investigations**

Based on a review of files maintained by the DEQ and EPA Region 3, the Facility in consultation with EPA identified a number of solid waste management units (SWMU) and areas of concern (AOC) at the Dulles International Airport. Environmental investigations were conducted on SWMUs and AOCs identified at the Facility and investigation and cleanup activities focused on the following;

- SWMU 1- 4 Former Fire Training Facility
- SWMU 16 Former Drum Storage Area #2
- AOC 1 Large Fire Training Pit
- AOC 8 Ogden Former AST Fuel Tanks (new Fuel Settling Facility)
- AOC 11 Ogden-Allied Aviation UST Farm
- AOC 12 Metrorail Line
- Site Wide Groundwater

Environmental investigations and cleanup activities at the Facility were performed in accordance with closure standards of the VHWMR, the Leaking Underground Storage Tank (LUST) Program, and the Corrective Action program. Specifically, SWMUs 1 - 4 were investigated and closed in accordance with the VHWMR, AOCs 3, 4, 5, 6, 8 and 11 were investigated and closed under the LUST program, and SWMU-16, AOCs 1, 2, 7, 9, 10 and site wide groundwater were investigated under Corrective Action. The Administrative Record (AR) contains detailed documents regarding the investigations and cleanup activities. The goals of environmental activities conducted at the Facility since 1996 have been to delineate the groundwater contamination and determine whether the groundwater contamination poses a

potential risk to human health and the environment. Several phases of Site characterization have been performed since 1996 which are listed in the References, below. In addition, information on the Corrective Action Program as well as a fact sheet for the Facility can be found at http://www.epa.gov/reg3wcmd/correctiveaction.html.

Since 1992, shallow groundwater beneath the facility has been investigated under several regulatory cleanup programs including RCRA closure, UST Program, and RCRA Corrective Action. SWMUs #1, #2, #3, #4, and AOC #2 make up what used to be the fire training facility (FTF). MWAA conducted a DEQ approved risk assessment that demonstrated that groundwater risk associated with these SWMUs and AOC is within EPA Region 3's acceptable risk range of 10-4 to 10-6 for carcinogens and less than EPA's acceptable hazard index of 1 for non-carcinogens. DEQ Department of Waste Resource Management issued a closure letter for groundwater for the FTF on September 6, 1995. In addition, the Facility Investigation Report, dated October 2015, for AOC #1 (Large Fire Training Pit) indicated that previously identified constituents of concern were no longer present in the groundwater beneath this AOC.

The groundwater in the vicinity of AOC#3, AOC#4, and AOC#6 was monitored in November 2000. This monitoring was performed in conjunction with the routine monitoring of groundwater performed to detect releases from the subsurface fuel distribution system that surrounds the main airport operations. That monitoring indicated that concentrations of methyl tertiary butyl ether (MtBE) and total petroleum hydrocarbons –diesel range organics (TPH-DRO) were present below levels of concern, and that there were no concentrations of benzene, toluene, ethylbenzene, and total xylenes (BTEX) above detection limits.

The Results of Investigation, Phase I Environmental Indicator Information Needs report dated August 2, 2007 indicated that levels of previously detected propylene glycol have attenuated in the area of AOC#7 (Runoff and Oil/Water Separators) and the monitoring results from five wells in that area indicate that propylene glycol was not detected during the last monitoring event. In addition, seven monitoring wells were sampled in the area of AOC#8. BTEX constituents were not detected in any sample from the seven monitoring wells except for one well that had a detection of total xylenes of 1 ug/L, which is below EPA's Maximum Contaminant Level (MCL) of 10,000 ug/L for total xylenes. MtBE was detected in three monitoring wells at concentrations (ranging from 1 to 29 ug/L), which is within the same risk range as the EPA Region 3 screening level for ingestion of 43ug/L.

Groundwater monitoring of AOC#1 was completed in August 2015. Previously, 1,1dichloroethene, 1,2-dichloroethane, and 1,1,2-trichloroethane had been detected in the groundwater monitoring wells located at this AOC.

7

Results of the most recent sampling events indicate that groundwater contaminants observed above Regional Screening Levels (RSLs) have attenuated since initially observed in 1992 and will likely continue to attenuate. In addition, these results confirm the limited horizontal and vertical extent of the contaminants and indicate that practically no migration has occurred since 1992. Groundwater monitoring will be conducted periodically in the future to verify stability and evaluate ongoing attenuation and/or dissipation of contaminants present in groundwater.

## **IV. Risk Assessment**

A Risk Assessment (RA) Report (1995) prepared by Versar documented the evaluation of potential human health and environmental risks associated with contamination at the Fire Training Facility. The assessment incorporated analytical data from groundwater and soil, as well as an evaluation of sources, release mechanisms, transport media, exposure points, receptors, and exposure routes. This RA report is included in the AR.

## IV.a Soil

Operations at the Facility include distribution of petroleum product through a hydrant system to fuel commercial airplanes. The bulk storage tanks are refilled from the transcontinental Colonial Pipeline. The Site is largely paved, including the terminal area, parking lots, runways and maintenance facilities. The tank farm is protected by secondary containment.

There is no unpaved, exposed soil at the active areas that would pose unacceptable risks to human health. On Oct. 13, 1998 the DEQ confirmed that the requirements for closure of SWMUs 1- 4 had been fulfilled and issued a no further action letter for this area.

#### IV.b Groundwater

The Site and surrounding properties are serviced by public water, so there is no human exposure via consumption of contaminated groundwater.

The surface water bodies located at the Facility are not used for recreation or drinking water; therefore, risks posed by direct contact on Site are minimal.

Trend analyses of COCs in groundwater at the Site have shown stable or declining trends. The concentrations are low, but some are above drinking water standards and, therefore, remediation is necessary. Therefore, long term monitoring will be implemented at the Facility.

# **IV.c** Environmental Indicators

In January 2008, EPA prepared the Site's Current Human Exposures Environmental Indicator (EI) and determined that "current human exposures" was under control. In February 2016, DEQ prepared the Site's Migration of Contaminated Groundwater EI and determined that "migration of contaminated groundwater" was under control. These EIs are included in the AR and more information regarding EIs can be found online at https://www3.epa.gov/reg3wcmd/ca/va/webpages/va6690500909.html.

# V. Corrective Action Objectives

#### V.a Groundwater

DEQ's Corrective Action Objectives for groundwater at the Facility are to control exposure to and monitor attenuation of hazardous constituents in groundwater until concentrations meet drinking water standards established by the Maximum Contaminant Levels (MCLs) promulgated at 40 C.F.R. Part 141 pursuant to Section 1412 of the Safe Drinking Water Act, 42 U.S.C. Section 300g-1, except for MTBE. MTBE does not have a MCL. The proposed remediation standard for MTBE is based on EPA's health advisory range of 20 to 40 ug/l pertaining to taste and odor thresholds in drinking water. DEQ's proposed groundwater cleanup standards for the Facility are list below:

Benzene	5 micrograms per liter (ug/l)
Toluene	1,000 ug/l
Ethylbenzene	700 ug/l
Xylenes	10,000 ug/l
МТВЕ	40 ug/l
1,1-dichloroethene	7 ug/l
1,2-dichloroethane	70 ug/l
1,1,2-trichloroethane	5 ug/l

## V.b Soil

DEQ's Corrective Action Objective for Facility soils is to control exposure to any hazardous constituents remaining in subsurface soils by requiring the compliance with and maintenance of land use restrictions at the Facility and adherence to the Soil Management Plan.

# **VI.** Proposed Remedy

## VI.a Groundwater

DEQ proposes to cleanup the contaminated groundwater to the groundwater cleanup standards described in Section V, above, using the approach described below. Furthermore, until the groundwater cleanup standards are achieved, under DEQ's proposed remedy, access to and use of the groundwater (other than for monitoring activities and non-potable use) shall be prohibited via Institutional Controls.

<u>Phase I – Groundwater Monitoring</u>: If monitoring results demonstrate that groundwater concentrations continue to decline in three consecutive years, it suggests that natural attenuation is occurring at a sustainable rate and Washington Dulles International Airport may request DEQ's approval to reduce the scope and frequency of monitoring. If monitoring results show a reversal of concentration trend decline, supplemental remediation may be required. Monitoring is required until the cleanup standards listed in Section V are met.

<u>Groundwater Use Restrictions:</u> Under this proposed remedy, groundwater remediation may not achieve protective levels for some time. Therefore, DEQ proposes to prohibit access to and use of the groundwater (other than for monitoring activities and non-potable use) until cleanup objectives have been achieved. The groundwater use restrictions will be implemented through institutional controls (ICs). ICs are non-engineered instruments such as administrative and/or legal controls that minimize the potential for human exposure to contamination by limiting land or resource use and inform subsequent purchasers of the environmental condition at the Facility and of DEQ's final remedy for the Facility.

The ICs shall include the following groundwater use restrictions:

(1) Until such time as the Corrective Action Objectives are achieved, groundwater at the Facility shall not be used for any purpose other than monitoring activities required by DEQ, and

(2) No new wells shall be installed on Facility property without prior, written approval by DEQ.

## VI.b Soil

DEQ's proposed remedy requires that an IC(s) be implemented and maintained to include the following land use restrictions:

(1) The Facility property shall not be used for residential purposes,

- (2) The Facility should incorporate the known AOCs and SWMUs into the SMP for the facility. The SMP should include methods for testing and disposal of materials unearthed during future construction activities, if any, at any AOC or SMWU in the future, and
- (3) The Facility property will not be used in a way that will adversely affect or interfere with the integrity or protectiveness of the final remedy.

#### VI.c Vapor Intrusion

There are currently no unacceptable risks to human health due to vapor intrusion from the plumes because there are no building structures currently located above the plume. To minimize potential occupant exposure to Site-related VOCs in the event that habitable buildings are constructed on Site, DEQ's proposed remedy requires that an IC be implemented and maintained to include the following land use restriction:

A vapor intrusion control system, the design of which shall be approved in advance by DEQ, shall be installed in each new structure constructed above the contaminated groundwater plume or within 100feet of the perimeter of the contaminated groundwater plume, unless it is demonstrated to DEQ that vapor intrusion does not pose a threat to human health and DEQ provides prior written approval that no vapor intrusion control system is needed.

# **VII.** Evaluation of DEQ's Proposed Remedy

## VII.a Threshold Criteria

#### **1. Protect Human Health and the Environment**

The primary human health and environmental threats are potential human consumption of contaminated groundwater, and migration of vapor from the plume to homes constructed above the plume. The proposed remedy will achieve protection of human health and the environment by restoring groundwater to drinking water or remediation standards, as applicable. In addition, land and groundwater use restrictions will prohibit future uses that would pose an unacceptable risk through the use of an environmental covenant or other administrative mechanism.

## 2. Achieve Media Cleanup Objectives

The proposed remedy will achieve the media cleanup objectives. Monitored Natural Attenuation will be used to restore groundwater to drinking water or remediation standards, as applicable. Land use restrictions will control exposure to any hazardous constituents remaining in subsurface soils.

## 3. Remediating the Source of Releases

The source of the releases has been identified to be the AST farm and former fire training pit. However, there are no identified continuing or existing sources of contamination at the Facility. The resulting plumes are targeted for remediation by the proposed remedy.

# VII.b Balancing/Evaluation Criteria

## 4. Long-Term Effectiveness

The proposed remedy will provide long-term protection of human health and the environment. Monitored natural attenuation will restore the groundwater to remediation standards over time. BTEX are readily biodegradable under aerobic conditions in shallow groundwater. Although MTBE is slower to biodegrade, the extent of the MTBE plume above the 40 ppb remediation standard is not currently present. Further, 1,1-dichloroethene, 1,2-dichloroethane and 1,1,2-trichloroethane will attenuate over time. In addition, land and groundwater use restrictions prohibiting residential land use and consumption of contaminated groundwater will be maintained until the groundwater is restored to drinking water or remediation standards, as applicable.

## 5. Reduction of Toxicity, Mobility, or Volume of the Hazardous Constituents

The hazardous constituents are confined within the plume inside the Facility boundary and will continue to diminish by implementation of the proposed remedy.

## 6. Short-Term Effectiveness

Under the proposed remedy, land and groundwater use restrictions prohibiting residential land use and consumption of contaminated groundwater will be filed shortly after selection of the remedy to provide short term effectiveness in protecting human health until the groundwater is restored to drinking water or remediation standards, as applicable.

#### 7. Implementability

DEQ's proposed remedy is readily implementable. No regulatory constraints are anticipated for the engineering measures to be implemented in the proposed remedy. With respect to the implementation of the ICs, DEQ expects to use an enforceable mechanism such as an order, facility master plans, or an Environmental covenant, pursuant to the Virginia Uniform Environmental Covenants Act, Title 10.1, Chapter 12.2, Sections 10.1-1238-10.1-1250 of the Code of Virginia. Therefore, DEQ does not anticipate any regulatory constraints in implementing its proposed remedy.

## 8. Cost

DEQ's proposed remedy is cost effective. Estimated time and materials cost for the proposed remedy is \$50-65,000 if monitoring events are terminated in 2019 and \$100,000 if the GW monitoring events are continued through 2022.

## 9. Community Acceptance

DEQ will evaluate Community acceptance of the proposed remedy during the public comment period and will be addressed in the Final Decision and Response to Comments (FDRTC).

## 10. Federal Agency Acceptance

DEQ and EPA coordinated on the proposed remedy. EPA will be notified of the proposed remedy. If EPA provides comments during the public comment period, DEQ will address them in the FDRTC.

# **VIII. Financial Assurance**

DEQ will require financial assurance annually to cover the costs of implementing the proposed remedy.

## **IX.** Public Participation

Before DEQ makes a final decision on its proposal for the Facility, the public may participate in the remedy selection process by reviewing this SB and documents contained in the Administrative Record (AR) for the Facility. The AR contains all information considered by DEQ in reaching this proposed decision. The Administrative Record, including the SB, is available for review during normal business hours at:

Virginia Department of Environmental Quality 629 East Main Street Richmond, Virginia 23218 Contact: Kurt Kochan Phone 703-583-3825 Fax 703-583-3821 Email kurt.kochan@deq.virginia.gov It is also available for public review during normal business hours by appointment at the Facility at:

Metropolitan Washington Airports Authority Dulles International Airport Building Codes/Environmental Department 45045 Aviation Drive, Rm. 347 Dulles, VA 20166 Contact: Thomas Beatty, P.E., Phone (703)572-0253

Interested parties are encouraged to review the AR and comment on DEQ's proposed remedy. The public comment period will last thirty (30) calendar days from the date that notice is published in a local newspaper. You may submit comments by mail, fax, or e-mail to Kurt Kochan, DEQ corrective action project manager. DEQ will hold a public meeting to discuss this proposed remedy upon request which should also be made to Kurt Kochan whose contact information is listed above

DEQ will respond to all relevant comments received during the comment period. If DEQ determines that new information warrants a modification to the proposed remedy, DEQ will modify the proposed remedy or select other alternatives based on such new information and/or public comments. DEQ will announce its final remedy and explain the rationale for any changes in a document entitled the FDRTC. All persons who comment on this proposed remedy will receive a copy of the FDRTC. Others may obtain a copy by contacting Kurt Kochan at the address listed above.

Date: 8/24/16

Chris Evans, Director Office of Remediation Programs

Administrative Record - Index of Documents for Statement of Basis

- <sup>1.</sup> Versar Inc. 1991a. Closure Plan, Contingent Closure Plan, And Contingent Post Closure Plan for the Waste Pile and Surface Impoundments at The Fire Training Facility, Dulles International Airport.
- <sup>2</sup> Versar Inc. 1991b. Closure Plan for the Storage Tanker at the Fire Training Facility. Prepared for Dulles International Airport.
- <sup>3.</sup> Versar, Inc. 1991c. Revised Closure Plan for the Container Storage Units at the Fire Training Facility, Dulles International Airport.
- <sup>4.</sup> Versar, Inc. 1992. Drum Storage Site Cleanup, Task 5, Tier 1, Closeout Report.
- <sup>5.</sup> Versar, Inc. 1992a. Interim Report, Washington Dulles International Airport, Storm Sewer Line Fuel Release, Initial Abatement and Source Investigation.
- <sup>6.</sup> Versar, Inc. 1992c. Site Characterization, Bravo Ramp, Washington Dulles International Airport, Chantilly, Virginia.
- <sup>7.</sup> Washington Dulles International Airport Site Assessment for Contaminated Soil Utilities Building Expansion Project.
- <sup>8</sup> Versar, Inc. 1992e. Site Characterization Report for Ogden Aviation Underground Tank Farm IAD.
- <sup>9.</sup> Versar, Inc. 1992d. Corrective Action Plan for Ogden Aviation Aboveground Tank Farm Site, Washington Dulles International Airport.
- <sup>10.</sup> 1993 CDM Preliminary Assessment/RCRA Facility Assessment.
- <sup>11.</sup> Virginia Department of Environmental Quality's UST Program files, 1993-2015.
- <sup>12.</sup> Versar 1993, Site Investigation Report.
- <sup>13.</sup> Versar April 1994, Site Characterization Report for Utilities Building Expansion.
- <sup>14.</sup> Versar 1995, Risk Assessment of Residual Soils.
- <sup>15.</sup> Versar 1995, Compilation of Groundwater Risk Assessment Support.
- <sup>16.</sup> CH2MHill January 1996, New Midfield Concourse Site Investigation Report.
- <sup>17.</sup> Virginia Department of Environmental Quality Technical Services Division, Office of Waste Permitting, September 1996, Corrective Action Prioritization System (NCAPS) Site Assessment Report.
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- <sup>19.</sup> URS Corporation, November 2007, Phase I Environmental Indicator Information Needs, Supplemental Investigation of Pre-regulation Areas andAOC#2.
   <sup>20.</sup> URS Corporation Newspace 2007, Page 45, and ACC#2.
- URS Corporation, November 2007, Results of Investigation, Phase I Environmental Indicator Information Needs, Addendum 2.
   URS Corporation August 2, 2007, Results of Investigation, Phase I Environmental Indicator
- <sup>21.</sup> URS Corporation, August 2, 2007, Results of Investigation, Phase I Environmental Indicators
- <sup>22.</sup> URS Corporation, October 2007, Groundwater Characterization Study, New Fuel Settling Facility
  <sup>23.</sup> USEPA. 2007. Current Human Exposures Environmental Indicator.
- CooTrans, Inc. July 2000, Croundwater Characterization Study, Air D
- <sup>24.</sup> GeoTrans, Inc., July 2009, Groundwater Characterization Study, Air BP Fueling Operations
- <sup>25.</sup> Applied Environmental October 2015, Facility Investigation Report AOC #1, 2 and 12.
- <sup>26.</sup> VADEQ, February 2016. Migration of Contaminated Groundwater Under Control Environmental Indicator.