LAND USE CONTROL IMPLEMENTATION PLAN

Metropolitan Washington Airports Authority

Washington Dulles International Airport

Prepared by

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EXECUTIVE SUMMARY

Background

Washington-Dulles International Airport (Facility) is located on approximately 10,000 acres of fenced, improved land in southeastern Loudoun County, Virginia. The Facility is owned by the Federal Aviation Administration (FAA) and leased by the Metropolitan Washington Airports Authority (MWAA). Airport activities include those managed by MWAA and those managed by airport tenants, including airlines, car rental facilities, and hotels. In 1992, the U.S. Environmental Protection Agency (EPA) completed a Resource Conservation and Recovery Act (RCRA) Facility Assessment of the Facility. Thirteen solid waste management units (SWMUs) and eleven areas of concern (AOCs) were identified during the site inspection. SWMUs and AOCs included vehicle maintenance shops, drum storage areas, satellite accumulation areas, underground storage tanks (USTs), above-ground storage tanks (ASTs), airport terminal areas, fire station, and clean-up of the fire training facility in accordance with the Virginia Hazardous Waste Management Regulations.

This Land Use Control Implementation Plan (LUCIP) addresses the Virginia Department of Environmental Quality's (VDEQ) concerns regarding the identified SWMUs and AOCs. This document describes the procedures for implementing groundwater monitoring and institutional controls required by the Final Decision and Response to Comments for the Facility, dated 8-24-2016.

Purpose and Objectives

The purpose and objective is to institute Land Use Controls (LUCs) and to monitor the groundwater until it meets Maximum Contaminant Levels (MCLs) established by the United States Environmental Protection Agency (USEPA), 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 methyl tertiary butyl ether (MTBE). MTBE does not currently have a MCL, but the USEPA has established an advisory concentration of 20 to 40 micrograms per liter (ug/l).

Summary of Land Use Controls

The following LUCs are implemented under this LUCIP:

- Education of Authority managers, workers, and contractors by work order review and construction plan review to prevent or limit exposure to groundwater and potentially contaminated soil.
- Prohibit the installation of new groundwater wells at the Facility without prior approval from VDEQ.
- Development of a Soils Management Plan (SMP) for construction activities at or adjacent to existing SWMUs and AOCs.
- Prohibit residential use at or adjacent to the existing SWMUs and AOCs.
- Installation of a vapor intrusion system during new construction of buildings within 100 feet of an identified SWMU or AOC.
- Collect groundwater samples from the existing groundwater monitoring wells.

The LUCs are designed to be easily integrated into the future operating practices at the Facility.

1.0 INTRODUCTION

The purpose of this LUCIP is to describe and define:

- The purpose of the LUCs
- The LUC components by which the Authority, property managers, and workers are made aware of the potential soil and groundwater contaminants.
- The responsible parties for LUC implementation.
- The mechanisms that may be utilized to modify or terminate the LUCs.

The VDEQ's Statement of Basis Document determined that LUCs are necessary to prevent or limit exposure to soil or groundwater that may be present near identified SWMUs and AOC locations.

The specific remedial action objectives that were stated in the Statement of Basis are listed below and further discussed in Section 4.0:

1. Groundwater Monitoring:
2. Groundwater Use Restrictions:
3. SMP:
4. Vapor Intrusion System:

The Manager of the Dulles Airport Engineering and Maintenance Department and the Manager of the Building Codes/Environmental Department are currently tasked with the responsibility for overseeing the LUC implementation through the VDEQ.

2.0 Decision Documents

Based on a review of files maintained by the VDEQ and the USEPA Region 3, the Facility in consultation with USEPA identified a number of SWMUs and AOCs at the Facility. Environmental investigations were conducted on the 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, LUST 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 VDEQ 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. VDEQ 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. On Oct. 13, 1998, the VDEQ confirmed that the requirements for closure of SWMUs 1- 4 had been fulfilled and issued a no further action letter for this area.

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 analytical 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 samples from the seven monitoring wells except for one well that had a total xylenes detection of 1 ug/L, which is below EPA's 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, 1,1-dichloroethene, 1,2-dichloroethane, and 1,1,2-trichloroethane had been detected in the groundwater monitoring wells located at this AOC.

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.

A Risk Assessment (RA) Report (1995) prepared by Versar, Inc. 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.

Operations at the Facility include distribution of petroleum product through a hydrant system to fuel commercial aircraft. The bulk storage tanks are refilled from the transcontinental Colonial Pipeline. The Facility 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.

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 chemicals of concern (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, the remediation remedy required is monitoring. Therefore, long term monitoring will be implemented at the Facility.

In January 2008, USEPA prepared the Site's Current Human Exposures Environmental Indicator (EI) and determined that "current human exposures" were under control. In February 2016, VDEQ 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.

3.0 Corrective Action Objectives

Groundwater

The Authority's Corrective Action Objectives for groundwater at the Facility are to control exposure to and monitor attenuation of COCs in groundwater until concentrations meet drinking water standards established by the 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. VDEQ'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
MTBE 40 ug/l
1,1-dichloroethene 7 ug/l

1,2-dichloroethane 70 ug/l
1,1,2-trichloroethane 5 ug/l

Soil
The Authority's Corrective Action Objective for Facility soils is to control exposure to any COCs remaining in subsurface soils by requiring the compliance with and maintenance of land use restrictions at the Facility and adherence to the (SMP.

4.0 Proposed Remedy (Land Use Controls)

Groundwater
The Authority proposes to clean-up the contaminated groundwater to the groundwater cleanup standards described above using the approach described below. Furthermore, until the groundwater cleanup standards are achieved, under the proposed remedy, access to and use of the groundwater (other than for monitoring activities and non-potable use) shall be prohibited via Institutional Controls.

1. Groundwater Monitoring: 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. 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 the Facility may request VDEQ'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 3.0 for AOC #1 are met.

2. Groundwater Use Restrictions: Under this proposed remedy, groundwater remediation may not achieve protective levels for some time. Therefore, the Facility 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 administrative controls that minimize the potential for human exposure to contamination by limiting land or resource use and inform subsequent land users of the environmental condition at the Facility and of VDEQ'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 and non-potable use as required by VDEQ, and

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

Soil Management Plan (SMP)
The Authority will implement the use of IC(s) to include the following land use restrictions:
(1) The Facility property will not be used for residential purposes,

(2) The known AOCs and SWMUs will be incorporated into the Facility SMP. The SMP will include methods for testing and disposal of materials unearthed during future construction activities, if any, at any AOC or SMWU in the future, identify proper personal protective equipment for construction worker, 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.

Vapor Intrusion
To minimize potential occupant exposure to Site-related VOCs in the event that habitable buildings are constructed on Site, the Authority will implement and maintain the following land use restriction:

(1) A vapor intrusion control system. The design of which shall be approved in advance by VDEQ, 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 VDEQ that vapor intrusion does not pose a threat to human health and VDEQ provides prior written approval that no vapor intrusion control system is needed.

5.0 Educational Awareness Program

The Airports Authority conducts employee training that includes annual environmental awareness and pollution prevention training. The LUCs discussed herein will be included as an additional topic for this annual training. Topics currently covered in this training include environmental permits, good housekeeping, hazard communication, material management practices, hazardous waste handing, and spill response.

6.0 Implementation

The sources of the releases have been identified to a prior aboveground petroleum storage tank facility and the former fire training pit. However, there are no identified or existing sources of contamination at the Facility. Groundwater monitoring will continue at the existing groundwater characterization (GCS) wells (Figures 1 and 2). Monitoring includes visual observation, quarterly well vapor monitoring and annual groundwater sampling at all accessible GCS monitoring wells for BTEX, TPH-DRO and MTBE.

The monitoring well at AOC #1 (Figure 3) will be sampled semi-annually for analyses of VOCs by EPA Method 8260, SVOCs via EPA method 8270, and TAL Metals via EPA method 6020. The three wells for AOC #12 identified as DTE-19, S-119 and S-122 (Figure 4) will be sampled semi-annually for analysis for total barium. It should be noted that existing GCS sampling results (2001-present) shows no concentrations above MCLs (See Appendix A).

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, there are not any MTBE concentrations in the groundwater that above the 40 ppb remediation standard. 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.

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.

Termination or significant modifications of the LUCs will occur when VDEQ and the MWAA determine that LUCs are no longer needed to protect employees and workers from the potential groundwater hazards.

FIGURE 1

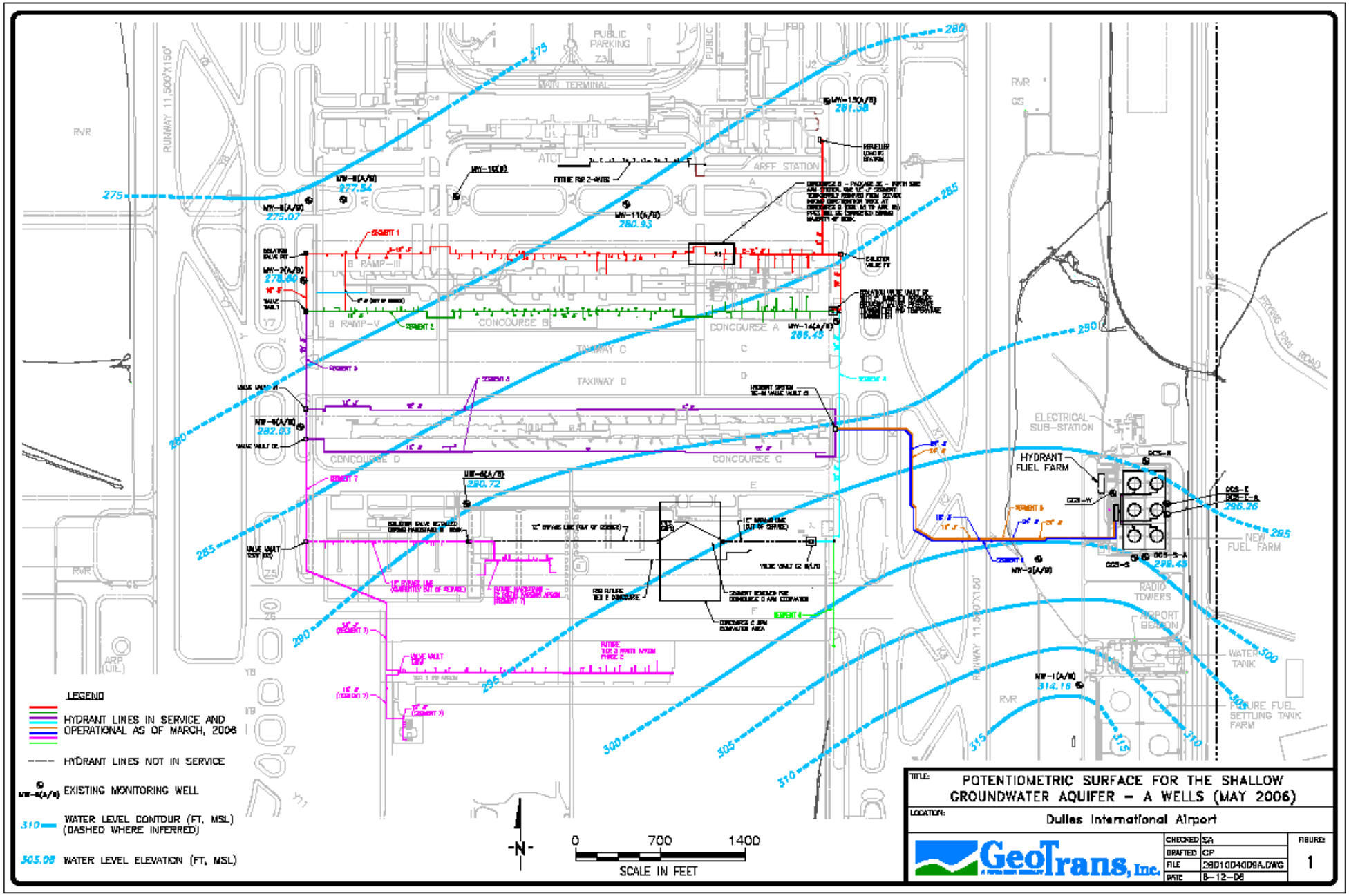
LEGEND
HYDRANT LINES IN SERVICE AND OPERATIONAL AS OF MARCH, 2006
HYDRANT LINES NOT IN SERVICE
EXISTING MONITORING WELL
WATER LEVEL CONTOUR (FT, MSL) (DASHED WHERE INFERRED)
WATER LEVEL ELEVATION (FT, MSL)
N
0
700
1400
SCALE IN FEET
TITLE: POTENTIOMETRIC SURFACE FOR THE SHALLOW GROUNDWATER AQUIFER – A WELLS (MAY 2006)
LOCATION: Dulles International Airport
GeoTrans, Inc.
CHECKED SA
DRAFTED CP
FILE 28D10040D9A.DWG
DATE 8-12-08
FIGURE 1

FIGURE 2

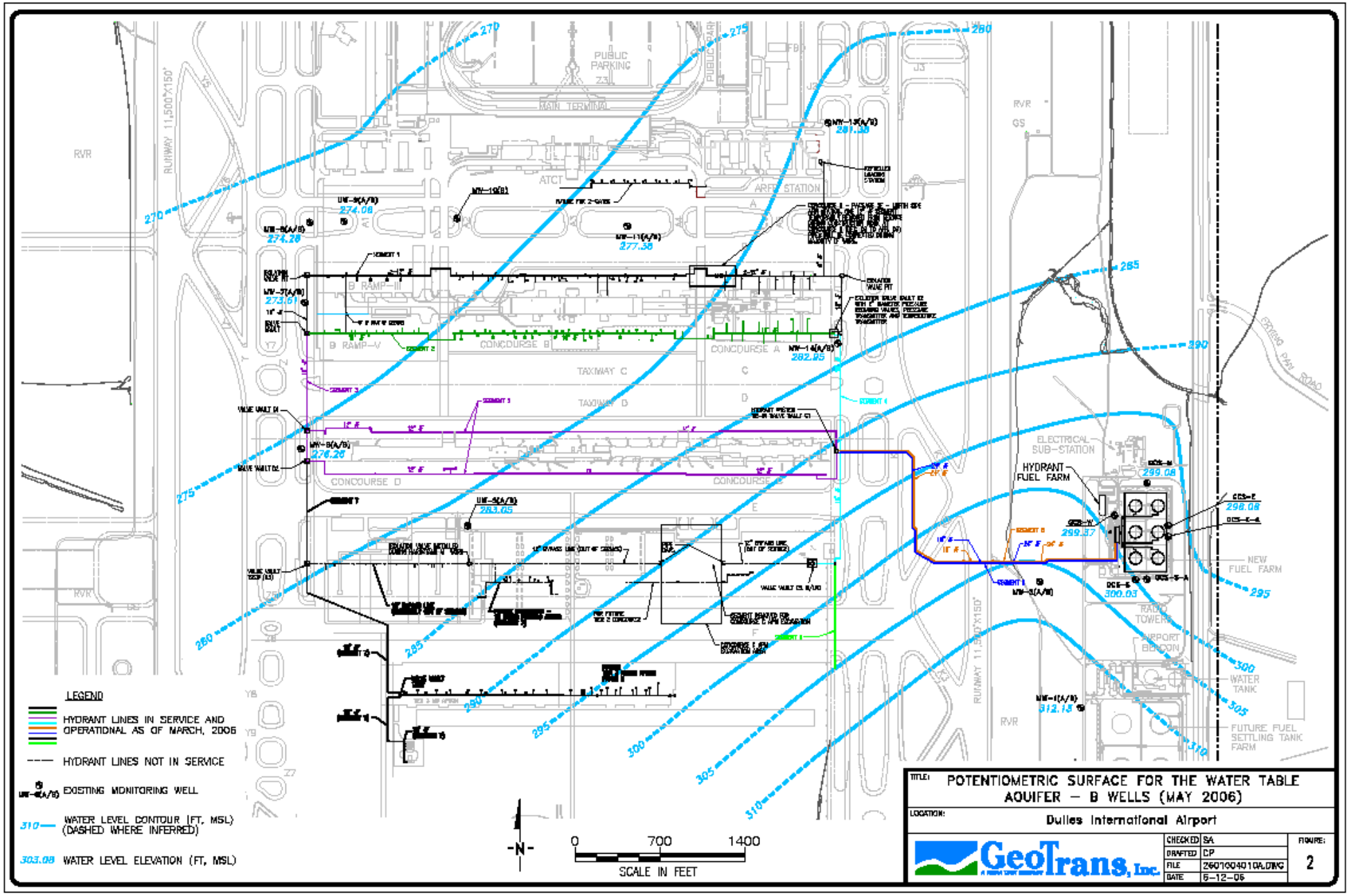
LEGEND
HYDRANT LINES IN SERVICE AND OPERATIONAL AS OF MARCH, 2006
HYDRANT LINES NOT IN SERVICE
EXISTING MONITORING WELL
WATER LEVEL CONTOUR (FT. MSL) (DASHED WHERE INFERRED)
WATER LEVEL ELEVATION (FT, MSL)
-N-
0
700
1400
SCALE IN FEET
TITLE: POTENTIOMETRIC SURFACE FOR THE WATER TABLE AQUIFER – B WELLS (MAY 2006)
LOCATION: Dulles International Airport
GeoTrans, Inc.
CHECKED SA
DRAFTED CP
FILE Z60100401GA.DWG
DATE 5-12-06
FIGURE: 2
MAIN TERMINAL
CONCOURSE A
CONCOURSE B
CONCOURSE C
CONCOURSE D
TAXIWAY C
TAXIWAY D
ATCT
ARFF STATION
PUBLIC PARKING
ELECTRICAL SUB-STATION
HYDRANT FUEL FARM
NEW FUEL FARM
FUTURE FUEL SETTLING TANK FARM
WATER TANK
RADIO TOWER
AIRPORT BEACON
RUNWAY 11,500'X150'
RVR

FIGURE 3

Prepared by MWAA GIS Div.
For plan use only.

Figure # 3
AOC # 1
Sample Location

METROPOLITAN WASHINGTON AIRPORTS AUTHORITY

0 50 100 200 Feet

N
W E
S

FIGURE 4

applied environmental inc.

FIGURE 2
AOC#12 MONITORING WELL LOCATIONS

METROPOLITAN WASHINGTON AIRPORTS AUTHORITY

LIMITED RCRA FACILITY INVESTIGATION REPORT

APPENDIX A

Table 1
Groundwater Monitoring Well Details
AOC #1 and AOC #12

Facility Investigation Report
Washington Dulles International Airport
Dulles, Virginia

Sample ID	Date	Depth to Water (feet)	Total Depth of Well (feet)	Well Diameter (inches)	Purge Volume (gallons)
AOC #1/GW-1	07/09/2015	12.20	27.15	2 inch	7.3
AOC #12/DTE-A1-019	07/08/2015	5.95	24.86	1 inch	2.31
AOC #12/DRC-D1-S122	07/08/2015	12.76	80.56	1.375 inch	10.23
AOC #12/DRC-D1-S119	07/08/2015	9.71	55.68	1.375 inch	6.94

Notes:
Depth to water and total depth are measured in feet below the top of the well casing.
Three well casing volumes were purged from each well prior to sample collection.

Table 2
Summary of Soil Analytical Results
AOC #1 and AOC #2

Facility Investigation Report
Washington Dulles International Airport
Dulles, Virginia

Sample ID/Depth / Date / Parameter	AOC #1/P-1/0-6" 07/09/2015	AOC #1/P-1/10" 07/09/2015	AOC #1/P-2/0-6" 07/09/2015	AOC #1/P-2/9-12" 07/09/2015	AOC #1/P-3/0-6" 07/09/2015	AOC #1/P-3/2' 07/09/2015	AOC #1/P-4/0-6" 07/09/2015	AOC #1/P-7/0-6"* 07/09/2015 (Duplicate)	EPA Regional Screening Levels for Industrial Soil
VOCs (µg/kg)									
Acetone	33	42	51	31	32	<23	64	69	670,000,000
Toluene	<6.1	15	6.9	<6.0	<4.9	<5.8	73	77	47,000,000
PAH SVOCs by SIM (µg/kg)									
Benzo(g,h,i)perylene	<4.5	12	<4.5	<4.7	<4.5	<4.5	<4.6	<4.3	--
Indeno(1,2,3-c,d)Pyrene	<4.5	15	<4.5	<4.7	<4.5	<4.5	<4.6	<4.3	2,900
TAL Metals (mg/kg)									
Aluminum	9,700	6,600	36,000	36,000	50,000	77,000	20,000	12,000	1,100,000
Arsenic	2.1	1.6	**4.7**	**3.6**	**6.3**	2.7	2.6	2.1	3.0
Barium	45	32	80	72	150	200	63	44	220,000
Beryllium	<2.3	<2.4	<2.4	<2.6	<2.7	<2.5	<2.6	<2.9	2,300
Calcium	1,200	570	1,000	760	1,000	400	1,000	1,400	--
Chromium	19	14	41	35	41	46	28	21	--
Cobalt	7.2	3.6	13	12	6.4	7.5	12	8.3	350
Copper	15	7.0	13	11	23	23	8.4	8.1	47,000
Iron	13,000	10,000	49,000	41,000	43,000	38,000	29,000	17,000	820,000
Lead	39	21	26	23	28	17	20	20	800
Magnesium	3,200	1,900	10,000	10,000	4,300	7,700	7,100	3,700	--
Manganese	150	69	180	160	100	54	200	170	26,000
Mercury	<0.093	<0.097	<0.097	<0.11	<0.11	0.12	<0.10	<0.12	40
Nickel	11	6.5	26	23	14	18	19	12	--
Potassium	1,000	840	1,800	1,900	1,700	2,100	1,600	1,500	--
Sodium	80	79	110	130	270	510	88	73	--
Thallium	0.50	<0.48	<0.48	<0.53	<0.53	<0.49	<0.52	<0.58	--
Vanadium	15	13	36	34	72	74	20	17	5,800
Zinc	71	35	91	67	47	44	63	54	350,000

Notes:

Only analytes detected above method reporting limits are presented.

mg/kg = Milligrams per Kilogram

µg/kg = Micrograms per Kilogram

Concentrations in bold and shaded exceed the EPA Regional Screening Levels for Industrial Soils.

* - Sample AOC #1/P-7/0-6" is a field duplicate sample for soil for AOC #1/P-4/0-6".

Table 2
Summary of Soil Analytical Results
AOC #1 and AOC #2

Facility Investigation Report
Washington Dulles International Airport
Dulles, Virginia

Sample ID/Depth / Date / Parameter	AOC #1/P-4/2' 07/09/2015	AOC #1/P-5/0-6" 07/09/2015	AOC #1/P-5/2' 07/09/2015	AOC #1/P-6/0-6" 07/09/2015	AOC #1/P-6/2' 07/09/2015	AOC #2/S-1 07/08/2015	AOC #2/S-2 07/08/2015	AOC #2/S-3 07/08/2015	EPA Regional Screening Levels for Industrial Soil
VOCs (µg/kg)									
Acetone	20	29	38	<23	<24	190	320	260	670,000,000
Toluene	12	<5.3	5.7	<5.7	<6.0	<5.0	<6.1	<5.4	47,000,000
PAH SVOCs by SIM (µg/kg)									
Benzo(g,h,i)perylene	<4.3	<4.1	11	<4.6	<4.5	<3.9	10	10	--
Indeno(1,2,3-c,d)Pyrene	<4.3	<4.1	14	<4.6	<4.5	<3.9	<4.0	13	2,900
TAL Metals (mg/kg)									
Aluminum	25,000	2,500	5,600	71,000	44,000	20,000	32,000	25,000	1,100,000
Arsenic	**4.4**	1.1	1.4	**5.7**	**6.3**	1.9	**3.2**	**3.6**	3.0
Barium	140	15	32	160	150	44	80	74	220,000
Beryllium	2.2	<2.4	<2.5	<2.5	<2.4	<2.2	<2.2	<2.7	2,300
Calcium	3,300	130	400	960	610	5,500	4,000	7,000	--
Chromium	37	13	16	46	44	31	39	38	--
Cobalt	19	2.6	4.5	6.6	11	13	22	20	350
Copper	8.2	6.2	7.5	36	21	23	8.5	21	47,000
Iron	43,000	6100	13000	48,000	58,000	25,000	46,000	38,000	820,000
Lead	14	25	44	20	24	8.9	15	45	800
Magnesium	13,000	620	2000	4,400	9,700	8,400	16,000	14,000	--
Manganese	790	48	82	84	100	410	1,100	720	26,000
Mercury	<0.088	<0.098	<0.099	<0.099	<0.096	<0.089	<0.089	<0.11	40
Nickel	41	3.6	8.5	16	23	23	34	30	--
Potassium	3,700	290	710	2,200	3,300	1,600	4,700	3,700	--
Sodium	220	<49	55	180	230	700	92	200	--
Thallium	<0.44	<0.49	<0.50	0.53	<0.48	<0.45	<0.45	<0.53	--
Vanadium	27	9.7	17	79	71	54	42	68	5,800
Zinc	86	72	93	57	60	38	63	61	350,000

Notes:

Only analytes detected above method reporting limits are presented.

mg/kg = Milligrams per Kilogram

µg/kg = Micrograms per Kilogram

Concentrations in bold and shaded exceed the EPA Regional Screening Levels for Industrial Soils.

Table 3
Summary of Groundwater Analytical Results
AOC #1

Facility Investigation Report
Washington Dulles International Airport
Dulles, Virginia

Sample ID / Date / Parameter	AOC #1/GW-1 Total	AOC #1/GW-1 Dissolved	AOC #1/GW-2 Total*	EPA MCL
Date	07/09/2015	07/09/2015	07/09/2015	
Parameter			(Field Blank)	
TAL Metals (µg/L)				
Aluminum	950	<100	<100	--
Arsenic	1.2	<1.0	<1.0	10
Barium	1,100	970	<1.0	2,000
Calcium	160,000	160,000	<100	--
Cobalt	1.0	<1.0	<1.0	--
Copper	1.8	2.1	<1.0	1,300
Iron	860	<100	<100	--
Lead	1.4	<1.0	<1.0	15
Magnesium	53,000	47,000	<100	--
Manganese	140	64	<1.0	--
Nickel	1.4	1.1	<1.0	--
Potassium	1,000	850	<100	--
Sodium	100,000	87,000	140	--
Vanadium	4.1	3.9	<1.0	--
Zinc	29	<20	<20	--

Notes:
Only analytes detected above method reporting limits are presented.
µg/L= Micrograms per Liter
MCL = Maximum Contaminant Level
* - Sample GW-2 is a Field Equipment Blank.

Table 4
Summary of Groundwater Analytical Results
AOC #12

Facility Investigation Report
Washington Dulles International Airport
Dulles, Virginia

Sample ID / Date / Parameter	AOC #12/ DTE-A1-019 Total	AOC #12/ DTE-A1-019 Dissolved	AOC #12/ DTE-A1-019D Dissolved	AOC #12/ DRC-D1-S122 Total	AOC #12/ DRC-D1-S122 Dissolved	AOC #12/ DRC-D1-S119 Total	AOC #12/ DRC-D1-S119 Dissolved	EPA MCL
Date	07/08/2015	07/08/2015	07/08/2015	07/08/2015	07/08/2015	07/08/2015	07/08/2015	
Parameter			(Duplicate)					
TAL Metals (µg/L)								
Barium	**8,000**	**7,500**	**7,300**	**2,300**	**2,200**	**4,600**	**3,800**	2,000

Notes:
µg/L = Micrograms per Liter
Concentrations in bold and shaded exceed the EPA MCL
MCL = Maximum Contaminant Level