



**FINAL DECISION AND RESPONSE TO COMMENTS**

**SUNOCO LOGISTICS – MANASSAS TERMINAL FACILITY**

**(FORMER MOBIL TERMINAL)**

**EPA ID NO VAD048565279**

**MANASSAS, VIRGINIA**

## 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 Sunoco Logistics – Manassas Terminal (former Mobil) facility (Facility) located at 10315 Balls Ford Road Manassas Virginia

On February 12 2014 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 three components 1) perform and maintain a groundwater monitoring program 2) conduct vacuum truck extraction events on identified monitoring wells and 3) compliance with and maintenance of institutional controls that restrict certain land and groundwater uses at the Facility

## II PUBLIC COMMENT PERIOD

On February 12 2014 DEQ placed a public notice and the SB on its web page and the Facility published the public notice for the SB in the Northern Virginia Times 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 March 14 2014

## 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 conducting vacuum extraction events 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 Sunoco Logistics – Manassas Terminal (former Mobil) facility DEQ has determined that the Final Remedy selected in this Final Decision and Response to Comments is protective of human health and the environment



Durwood Willis Director  
Office of Remediation Programs  
Virginia Department of Environmental Quality



Date

Attachment A Statement of Basis dated February 12 2014



VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

OFFICE OF REMEDIATION PROGRAMS

STATEMENT OF BASIS

January 2014

**Sunoco Logistics**

**Manassas Terminal Facility**

**10315 Balls Ford Road**

**Manassas, VA 20109**

**EPA ID No VAD048565279**

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## **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 Sunoco Logistics terminal facility (hereinafter referred to as the Site or the Facility) located at 10315 Balls Ford Road in Manassas Virginia. DEQ's proposed remedy for the Facility consists of the following three components: 1) vacuum truck extraction (VTE), 2) groundwater monitoring, and 3) 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, formerly known as the Brennan Farm, was purchased in 1965 by Mobil Oil Corporation (Mobil). From 1965 to 2000, the Site was owned and operated by Mobil. In 1999, Mobil changed its name to ExxonMobil Oil Corporation (ExxonMobil). From 2000 to 2004, Tosco/ConocoPhillips (Tosco) owned and operated the Site. From 2004 through the present, Sunoco Marketing & Terminals, LP owned and operated the Site for the bulk storage and distribution of gasoline. Future land use of the Site is restricted to industrial use, with installation of drinking/irrigation wells and basements prohibited as stipulated in the Special Warranty Deed recorded in 2000 when ExxonMobil sold the assets to Tosco.

The Site occupies 11 acres of an industrial park located approximately 2.5 miles north of downtown Manassas. The Site is bordered to the north by the Pomeroy Company facility, to the south by a commercial building, to the east by the Transcontinental Gas Pipeline Company facility, and to the west by the Interstate 66 Industrial Park and a private warehousing company. Security for the Site is provided by a chain link fence and electronically operated

gate The Site and surrounding areas are shown in Figure 1 and the groundwater contamination plume maps are shown in Figures 2 and 3

## **II a Operations**

The Facility currently has nine aboveground storage tanks (ASTs) and two underground storage tanks providing a total bulk storage capacity of approximately 15.9 million gallons of petroleum. Additional structures on Site include a tank truck loading rack, an office building, a maintenance building, and a fire pump house.

## **II b Spill History**

Two releases that have impacted groundwater occurred in 1974 and 1989 according to the Virginia Water Control Board's Pollution Response Program Database. In both instances, releases to the unnamed tributary (intermittent stream) and to Bull Run were alleged to have occurred on the southwest corner of the Facility. The exact source(s) of the releases could not be determined. There have been no groundwater investigations specifically associated with either of the two releases (Virginia Department of Environmental Quality Technical Services Division 1998).

In 1990, the presence of hydrocarbons was detected through a soil gas survey conducted by Target Environmental Services, Inc. The soil gas survey was deemed necessary after methyl tertiary butyl ether (MTBE) was detected in groundwater samples collected in the Linden Business Center, located immediately west and downgradient of the Facility. Although a release had not been documented, results of the survey indicated two potential source areas on the Site: one downgradient of the loading rack and one downgradient of the oil/water separator (designated as U-3 in Figures 1, 2, and 3).

## **II c 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 d Local Topography, Lithology, and Hydrogeology**

The Facility is located at an elevation of approximately 200 feet above mean sea level. The Site is relatively flat with a single main dike surrounding the ASTs. The surface of the Site is predominantly covered in asphalt. Bore logs indicate that the lithology is comprised of compacted clay and silt (fill) and weathered red siltstone from 0 to 14 feet below ground surface (bgs), overlying 5 to 15 feet of red silt and shale underlain by red, well indurated

fractured siltstone. The frequency of the bedding plane fractures decreases with depth creating less fracture porosity and hence less transmissivity in the siltstone at depth.

The shallowest groundwater was encountered at 0 to 8 feet bgs in the red clay and silt overburden fill material. Groundwater flow in the shallow aquifer is typically southwest from the bedrock high in the northern portion of the Site. North of the pond and west of the AST area, groundwater flow is primarily southwest to west toward the intermittent stream with a larger gradient than flow under the pond.

Deeper groundwater occurs at depths of 20 to 35 feet bgs within the unweathered, well indurated red siltstone. A current potentiometric surface map for the deep aquifer was not generated due to limited data; however, based on gauging data, groundwater in the deep aquifer has flow components to both the southwest and the north.

Based on boring logs and groundwater gauging data, the shallow and deep groundwater aquifers identified during the investigation of the Facility were not horizontally continuous across the Site. Water supply wells throughout this region are typically set in the fractured siltstone at depths greater than 500 feet.

### **III Summary of Environmental Investigations and Pilot Tests**

The goals of environmental activities conducted at the Facility since 1990 have been to delineate the groundwater contamination and determine whether the groundwater contamination poses a potential risk to human health and the environment. On October 11, 2000, ExxonMobil entered into a Facility Lead Agreement with EPA to conduct a RCRA corrective action investigation in response to documented releases of hazardous waste and hazardous constituents that had occurred at or from the Facility. Several phases of Site characterization have been performed since 1990 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.htm>

#### **III a Gasoline Plumes**

Based on results of the Site investigation activities, benzene, toluene, ethylbenzene, xylenes (BTEX) and methyl tert butyl ether (MTBE) are the Contaminants of Concern (COCs) relating to historical gasoline releases at the Site. Geologic and hydrogeologic properties of the Site were evaluated and modeled to determine the migration potential of the identified COCs. The conclusions from the extensive Site investigation activities conducted from 1990 through the present are listed below:

- Two dissolved phase BTEX and MTBE plumes were delineated at the southwest quadrant of the Facility, one down gradient of the tank truck loading rack in the vicinity of MW

11 and the other down gradient of the oil/water separator in the vicinity of MW 3. The two plumes comingled and cover approximately 1.4 acres inside the Facility boundary (Figures 2 and 3). Since groundwater monitoring began in 1990, no free product has been detected and the plumes have been stable.

- Trace levels of diesel grade product were detected in one well, MW 21, located at the southeast corner of the Facility outside the AST farm dike. The source is adjacent to and appears to originate from the Colonial Pipeline. Due to the bailing of MW 21 for a number of years, diesel grade product stopped being detected after the November 11, 2009 gauging event.

- An intermittent stream traverses the western border of the Facility. Stream water samples had been collected quarterly from 2003 to 2011 at three sampling stations along the stream. With rare exceptions, benzene concentrations were either non-detected or detected below the applicable EPA drinking water standard (see Section V below) at the upstream and midstream stations. Sporadic occurrences of low concentrations of benzene and MTBE at or below their respective drinking water or remediation standards (see Section V below) were detected at the downstream station, but trend analyses showed that both constituents have been declining over time, indicating that there is insignificant off-site impact.

### **III b Historical Pilot Tests and Interim Measures**

Two pilot tests/interim measures described below were conducted at the Site to evaluate the effectiveness of the technologies to remediate the dissolved phase plume.

- Enhanced Fluid Recovery Between January 2004 and August 2005, a series of Enhanced Fluid Recovery (EFR) events operated by a vacuum truck were performed on monitoring wells MW 5, MW 11, MW 21, MW 23, MW 28, MW 30, and MW 31 on quarterly intervals. The EFR technology uses a single vacuum pump system from a truck to extract both fluid and vapor from the remediation wells. The purpose of the EFR events was to evaluate the effectiveness of contaminant mass removal near the loading rack source area. The total contaminant mass removed by the EFR events was estimated to be 7.52 pounds of benzene and 23.71 pounds of MTBE in 2004, and 0.00531 pounds of benzene and 0.02614 pounds of MTBE in 2005. The total volatile organic compound (VOC) mass removed during the two-year EFR events was estimated to be 8.19 pounds with significantly greater effectiveness during the first year. The EFR events were discontinued in 2005 and replaced by development of a new pilot test based on oxygen enhancement technology.

- iSOC® Oxygen Enhancement In July 2007, a pilot test plan based on a proprietary system known as the in situ Submerged Oxygen Curtain (iSOC) was initiated to evaluate enhanced biodegradation of VOCs in groundwater. iSOC is an oxygen enhancement technology.



operated by injection of compressed oxygen through infusion devices in remediation wells. Two iSOC devices were installed in MW 33 and MW 34 immediately down gradient of the loading rack source area. In June 2009, the iSOC devices were relocated to wells MW 11 and MW 35 further down gradient from MW 33 and MW 34 and operated there for another two years.

The iSOC test results have shown temporary reduction in COCs in the remediation wells, but the reduction was unsustainable upon removal of the devices, and the effect had a limited area of influence beyond the remediation wells. Based on the test results, EPA determined that the iSOC technology had limited effectiveness due to the tightness of the formation, and determined on February 21, 2012, that operation of this technology should be terminated.

#### **IV Risk Assessment**

The Risk Assessment Report (1992b) prepared by Engineering Science, Inc. documented the evaluation of potential human health and environmental risks associated with Site contamination. The assessment incorporated analytical data from groundwater, soil, and stream samples collected from 1990 through 1992, as well as an evaluation of sources, release mechanisms, transport media, exposure points, receptors, and exposure routes.

##### **IV a Soil**

Operations at the Facility include dispensing of petroleum product to tank trucks at the loading rack, and refilling the bulk storage tanks from the transcontinental Colonial Pipeline. The Site is largely paved, including the loading rack and surrounding area, and 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, except for the former stormwater pond that received oil-water separator treated runoff from the Site. The sediments of the former stormwater pond were sampled, and the results were submitted to DEQ for closure permitting. On August 3, 2005, DEQ documented that "Clean Closure" was achieved for the former stormwater pond, which was later drained and built over with two new bulk storage tanks. "Clean Closure" as defined by DEQ for the stormwater pond means that direct contact with residual soil in the former pond footprint would not pose unacceptable risks to human health or the environment under an industrial land use exposure scenario.

##### **IV b Groundwater**

The Site and surrounding properties are serviced by public water, so there is no human exposure via consumption of contaminated groundwater. Groundwater fate and transport modeling was performed for the COCs identified at the Site to evaluate offsite impact. The

model was used to simulate the migration of contaminants through the groundwater and estimate the volume of contaminant discharges to the intermittent stream over a 50 year period. To ensure that the model predicted the maximum impact on the stream, it was assumed that the intermittent stream was continuously flowing and served as a discharge point for all groundwater migrating through the Site.

Results of the risk assessment indicated that the risks to the intermittent stream were at or below the drinking water or remediation standards (see Section V below). The intermittent stream was not used for recreation or drinking water, therefore risks posed by direct contact on Site were minimal. Fate and transport modeling predicted that natural attenuation and dilution would reduce contaminant concentration to non-detect levels within 500 feet of the Facility boundary.

Trend analyses of COCs in groundwater at the Site have shown stability or declining trends since the risk assessment was conducted in 1992. The concentrations are low, but still above drinking water standards and, therefore, remediation is necessary.

#### **IV c Stormwater Runoff Pond**

Based on a human health risk assessment, groundwater statistical calculations, fate and transport modeling, and comparison to EPA Region III Soil Screening Levels, the Pond Closure Report (revised June 2005) concluded that direct contact with residual surface-contaminated soil would not pose an unacceptable human health risk under an industrial exposure scenario. As discussed in more detail in Section IV a above by letter dated August 3, 2005, DEQ determined that clean closure performance standards for the former stormwater pond had been met for both soils and groundwater. The pond has since then been drained and built over with two new bulk storage tanks.

#### **IV d Environmental Indicators**

In 2005, EPA prepared the Site's Current Human Exposures, Environmental Indicator (EI) and Migration of Contaminated Groundwater EI assessments and determined that current human exposures and migration of contaminated groundwater were under control.

### **V Corrective Action Objectives**

#### **V a Groundwater**

DEQ's Corrective Action Objectives for groundwater at the Facility are to remediate groundwater to 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

ppb 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
MTBE	40 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

**VI Proposed Remedy**

**VI a Groundwater**

DEQ proposes to clean up the contaminated groundwater to the groundwater cleanup standards described in Section V above using a two phase 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) shall be prohibited via Institutional Controls

Phase I Vacuum truck extraction (VTE) VTE will be employed to recover contaminated vapor and fluid using a technology similar to the pilot test EFR events except that a submersible pump will be used in conjunction with vacuum extraction at the well head This two pump system provides more effective vapor extraction than the one pump EFR system VTE involves the simultaneous removal of free product (not present at the Site) impacted groundwater and soil vapor from the subsurface The VTE events will be conducted in MW 33 MW 34 MW 11 MW 35 MW 28 MW 30 and MW 31 at annual intervals during late summer months when the water table is deepest and the well screens are exposed to the thickest unsaturated zone Summer operation is preferred to optimize vapor extraction component of the operation because data have shown that volatile gasoline constituents in groundwater are more effectively removed by vapor extraction than by fluid extraction Groundwater samples will be collected prior to commencement of the VTE events to monitor the concentration trend If the monitoring results demonstrate that groundwater concentrations are declining in three consecutive years the VTE events will be suspended while annual monitoring will continue

Phase II – Groundwater Monitoring If monitoring results after suspension of the VTE events demonstrate that groundwater concentrations continue to decline in three consecutive years it suggests that natural attenuation is occurring at a sustainable rate and ExxonMobil may request DEQ's approval to reduce the scope and frequency of monitoring. If monitoring results show a reversal of concentration trend decline VTE events will resume in the same year in accordance with the protocol described in Phase I. Monitoring is required until the cleanup standards listed in Section V are met.

Disposal of Recovered Fluid Recovered vapors and groundwater will be conveyed to and separated in the truck holding tank. Recovered fluid will be transported off site for treatment and disposal at a RCRA permitted treatment, storage and disposal facility. Recovered soil vapors will be discharged onsite in accordance with local, state, and federal regulations. A summary report documenting the VTE events, volume and concentrations of fluid and vapor recovered, and groundwater monitoring results will be submitted to DEQ annually.

Groundwater Use Restrictions Under this proposed remedy, groundwater remediation will not achieve protective levels for some time. Therefore, DEQ proposes to prohibit access to and use of the groundwater (other than for monitoring activities) 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, and
- (2) 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 100 feet around 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. VTE and possibly 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 tank truck loading rack, which has been upgraded with above-ground piping, leak prevention, and containment measures to prevent future releases. The resulting plume is 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 VTE in conjunction with 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 presently is small about 100 square feet and one fifth the size of the benzene plume 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 permit 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 \$61,600 if the VTE and monitoring events are terminated in 2017 and \$123,200 if the VTE events and GW monitoring events are continued through 2021.

## **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 of 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](mailto:kurt.kochan@deq.virginia.gov)


It is also available for public review during normal business hours by appointment at the Facility at

Sunoco Logistics  
10315 Balls Ford Road  
Manassas VA 20109  
Contact John Humphreys Phone 703 368 9055

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 *January 28, 2014*

  
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Durwood Willis, Director  
Office of Remediation Programs

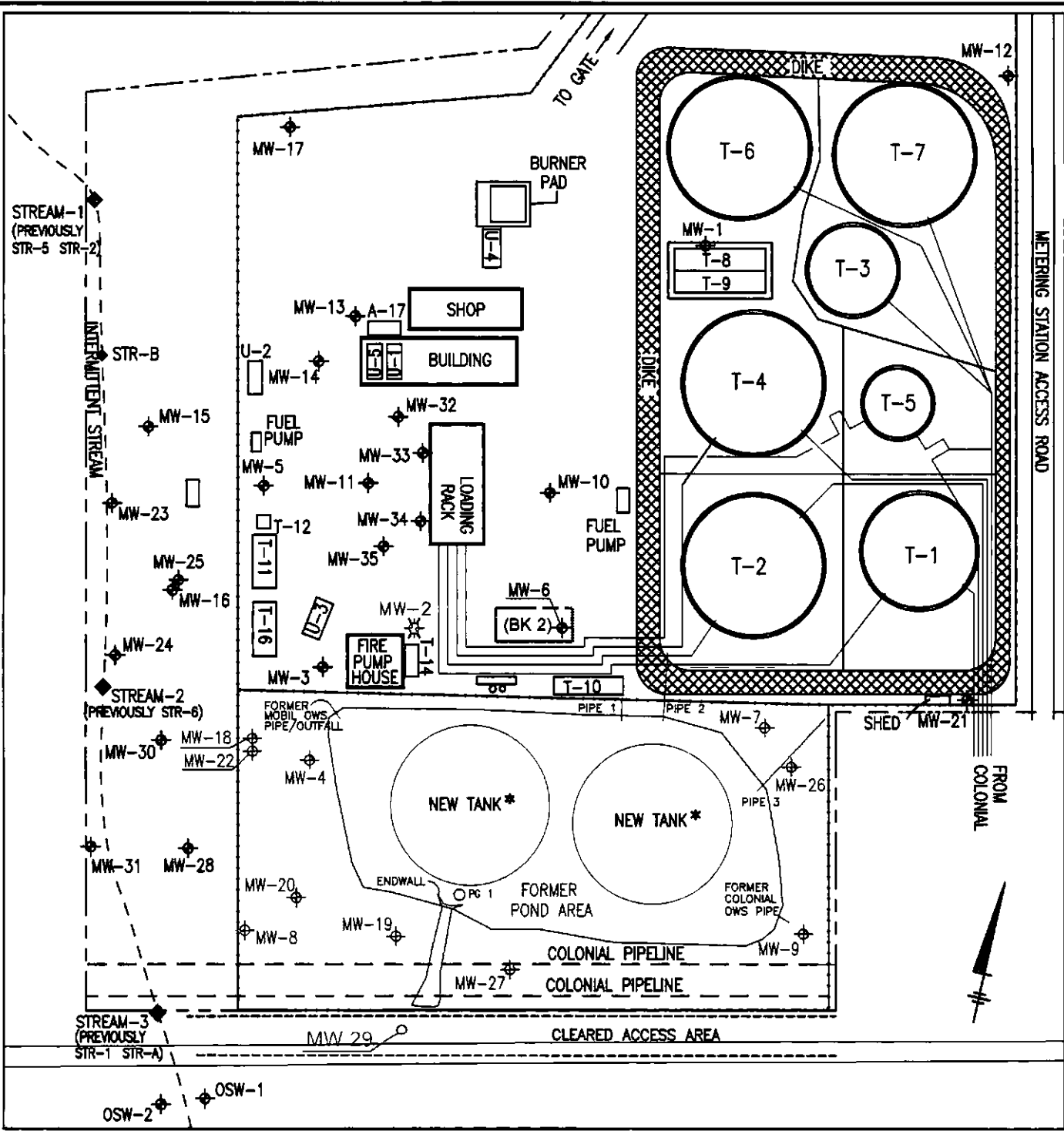


Administrative Record – Index of Documents for Statement of Basis

- 1 ARCADIS 2011a First Semi Annual 2011 Monitoring and Sampling Report July 18
- 2 ARCADIS 2011b Second Semi Annual 2011 Monitoring and Sampling Report December 29
- 3 Engineering Science Inc 1992a Site Characterization Report Mobil Terminal 45 070 Manassas  
Virginia February
- 4 Engineering Science Inc 1992b Risk Assessment Report Mobil Terminal 45 070 Manassas  
Virginia June
- 5 GeoTrans Inc 2001 Delineation of Dissolved Benzene Plume Work Plan May
- 6 GeoTrans Inc 2002a RCRA Site Investigation Work Plan Addendum June
- 7 GeoTrans Inc 2002b Closure Plan (revised in September and November 2003) September
- 8 GeoTrans Inc 2002c Groundwater Monitoring Plan October
- 9 GeoTrans Inc 2003a Results of Site Investigation Activities and Annual Progress Report April  
2003
- 10 GeoTrans Inc 2003b Alternative Source Demonstration – VDEQ Letter Dated August 12 2003  
Former ExxonMobil Manassas Terminal October 7
- 11 GeoTrans Inc 2003c Pond Characterization Summary Report August
- 12 GeoTrans Inc 2003d Results of Site Investigation Activities and Annual Progress Report RCRA  
Facility Lead Corrective Action Manassas Terminal Facility (#45 070) April
- 13 GeoTrans Inc 2003e First Quarter 2003 Groundwater Monitoring Report May 16
- 14 GeoTrans Inc 2003f Second Quarter 2003 Groundwater Monitoring Report September 4
- 15 GeoTrans Inc 2003g Third Quarter 2003 Groundwater Monitoring Report November 20
- 16 GeoTrans Inc 2003h Additional Delineation and Interim Corrective Measures (ICM) Work Plan  
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- 17 GeoTrans Inc 2004a 2003 Annual Progress Report RCRA Facility Lead Corrective Action  
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- 18 GeoTrans Inc 2004b Fourth Quarter 2003 Groundwater Monitoring Report January 28
- 19 GeoTrans Inc 2004c First Quarter 2004 Groundwater Monitoring Report April 15
- 20 GeoTrans Inc 2004d Second Quarter 2004 Groundwater Monitoring Report August 9
- 21 GeoTrans Inc 2004e Third Quarter 2004 Groundwater Monitoring Report October 14
- 22 GeoTrans Inc 2005a Fourth Quarter 2004 Groundwater Monitoring Report January 21
- 23 GeoTrans Inc 2005b 2004 Annual Progress Report RCRA Facility Lead Corrective Action  
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- 24 GeoTrans Inc 2005c Proposed Corrective Measures (MW 11) August 30
- 25 GeoTrans Inc 2006a 2005 Annual Progress Report RCRA Facility Lead Corrective Action  
Manassas Terminal (#45 070) April
- 26 GeoTrans Inc 2006b RCRA Site Investigation Work Plan Addendum Revised June
- 27 GeoTrans Inc 2006c RCRA Corrective Measures Study Pilot Test Work Plan Addendum  
September 29
- 28 GeoTrans Inc 2007 Pilot Test Technology Implementation (iSOC® System Installation) Report  
August

- 29 GeoTrans Inc 2007a RCRA Corrective Measures Pilot Study Work Plan Addendum Report February 16
- 30 GeoTrans Inc 2007b 2006 Annual Progress Report RCRA Facility Lead Corrective Action Manassas Terminal (#45 070) April
- 31 GeoTrans Inc 2007c Implementation Recommendations for RCRA Corrective Measures Study Pilot Test Work Plan June 29
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- 35 GeoTrans Inc 2009b Pilot Test Progress Report #6 March 27
- 36 GeoTrans Inc 2009c Pilot Test Progress Report #7 June 26
- 37 GeoTrans Inc 2009d Pilot Test Progress Report #8 October 1
- 38 GeoTrans Inc 2009e Pilot Test Progress Report #9 December 22
- 39 GeoTrans Inc 2010 2009 Annual Progress Report RCRA Facility Lead Corrective Action Manassas Terminal (#45 070) April
- 40 GeoTrans Inc 2011 2010 Annual Progress Report RCRA Facility Lead Corrective Action Manassas Terminal (#45 070) April
- 41 Radian Corporation 1991 Removal of Underground Storage Tanks Mobil Oil Terminal #45070 August 14
- 42 Ralston and Associates 1990 Site Assessment Report October
- 43 RCRA Site Investigation Work Plan Addendum (June 2002a) (GeoTrans Inc )
- 44 Target Environmental Services Inc 1991 Soil Gas Survey Mobil Terminal Manassas Virginia February 1990
- 45 URS Corporation 2000 Closure Plan Stormwater Runoff Pond Manassas Terminal Facility (#45 070) Manassas Virginia December
- 46 URS Corporation 2001a Delineation of Dissolved Benzene Plume Work Plan December
- 47 URS Corporation 2001b Draft RCRA Facility Investigation Report Dissolved Benzene Delineation Manassas Terminal Facility (#45 070) Manassas Virginia December
- 48 USEPA 1999 Migration of Contaminated Groundwater Under Control Environmental Indicator (EI) RCRIS code (CA750) Document of Environmental Indicator Interim Final 2/5/99 Former Mobil Manassas Terminal EPA ID #VAD048565279
- 49 USEPA 2005 Current Human Exposures Environmental Indicator [www.epa.gov/reg3wcmd/ca/va/webpages/vad048565279.html](http://www.epa.gov/reg3wcmd/ca/va/webpages/vad048565279.html) August
- 50 USEPA 2006 Migration of Contaminated Groundwater Under Control Environmental Indicator [www.epa.gov/reg3wcmd/ca/va/webpages/vad048565279.html](http://www.epa.gov/reg3wcmd/ca/va/webpages/vad048565279.html) January
- 51 Virginia Department of Environmental Quality Technical Services Division Office of Waste Permitting 1998 Corrective Action Prioritization System (NCAPS) Site Assessment Report April

CITY SYRACUSE DIV/GROUP 141 DB W JONES LD (Dgr) PIC (OPM) PM (Res) TM (OPM) LVL (OPM) OFF REF  
 G:\ENV\CAUSTRA\CLURE\ACT\B06858101000000\UDW\G5851802.dwg LAYOUT 2 SAVED 12/20/2011 10:48 AM ACADVER 18 IS (LMS TECH) PAGES 10 PLOTSETUP - PLOTSTYLETABLE PLT-FULL CFB PLOTTED 12/20/2011 10:48 AM BY JONES WENDY



**LEGEND**

- ◆ MONITORING WELL
- ◆ STREAM WATER QUARTERLY SAMPLING (STREAM 1 STREAM 2 STREAM 3)
- POND WATER GAUGE LOCATION
- T-11 ABOVEGROUND STORAGE TANK
- U-4 UNDERGROUND VAPOR PROCESS TANK
- U-3 UNDERGROUND FLOW THROUGH PROCESS TANK
- U-2 FORMER UST (REMOVED)
- CHAIN LINK FENCE
- ⊕ PERMANENTLY ABANDONED 11/14/08
- FORMER TEMPORARY MONITORING POINT

**NOTE**

1 NEW 2 6 MILLION GALLON TANKS OPERATIONAL AS OF JULY 2009 (NOT TO SCALE)



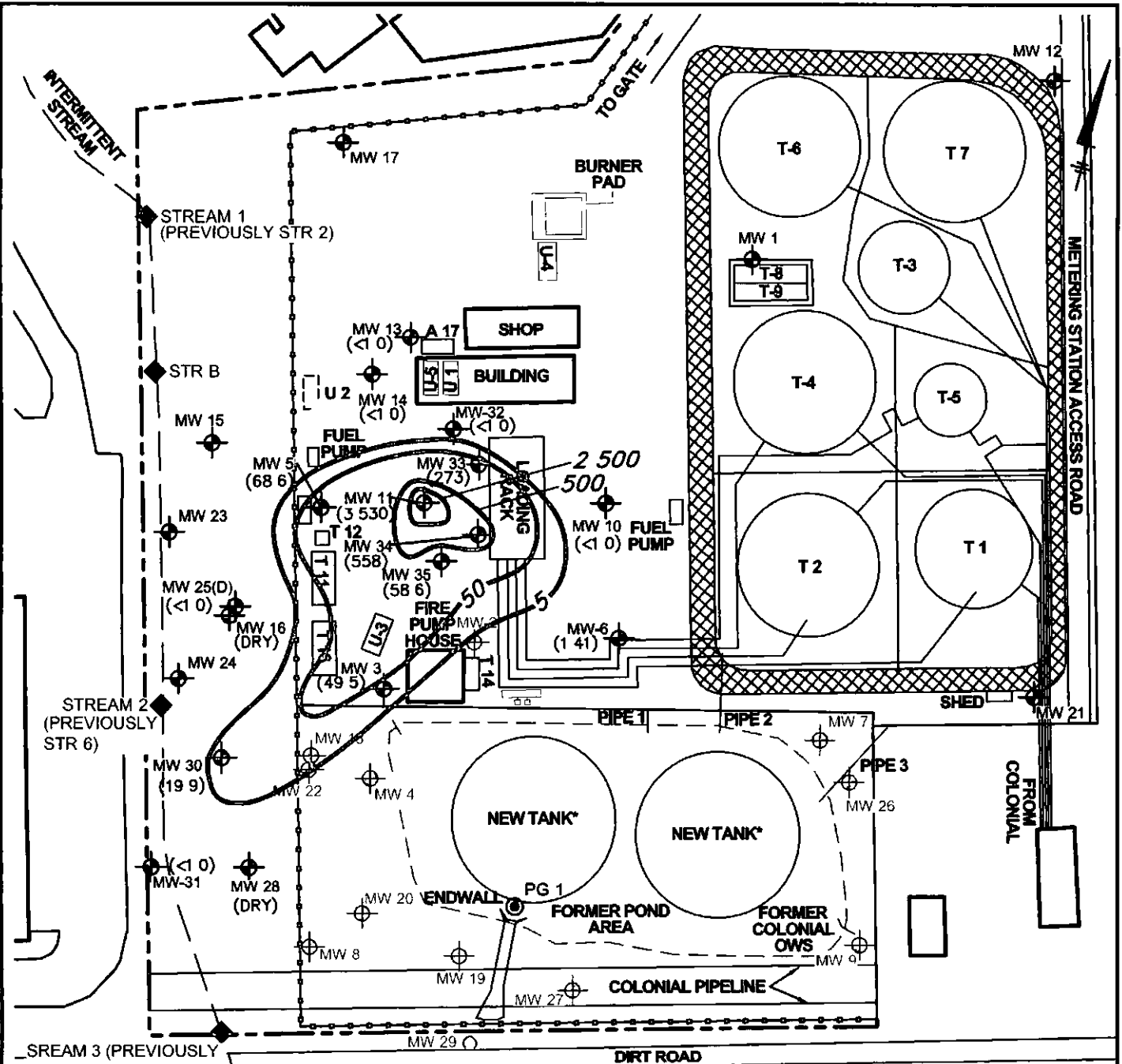
EXXONMOBIL TERMINAL 45070  
 10315 BALLS FORD ROAD  
 MANASSAS VIRGINIA  
**SECOND SEMI-ANNUAL 2011 MONITORING AND SAMPLING REPORT**

**SITE MAP**

**ARCADIS**

FIGURE 1

CITY, SYRACUSE DIV/GROUP 141, DB, BASSETT, LD (Dwg), PIC (Op), PM (Regd), TM (Op), LTR (CONV), OFF (R), ACADVER, 3/28/2012 10:54 AM, PAGES: 18, 18 (LMS TECH), PLOTSTYLE: LTABLE, PLOTTED: PLTFULL CTB, BY: 3/28/2012 10:54 AM  
 4, LAYOUT, 4, SAVED, (W:\syracuse\arcadis\syra\env\cad\as\ra\cuse\act\101000000\DWG\B551C01.dwg)

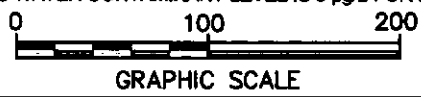


**LEGEND**

- MONITORING WELL
- STREAM WATER QUARTERLY SAMPLING (STREAM 1, STREAM 2, STREAM 3)
- POND WATER GAUGE LOCATION
- ABOVEGROUND STORAGE TANK
- UNDERGROUND VAPOR PROCESS TANK
- UNDERGROUND FLOW THROUGH PROCESS TANK
- FORMER UST (REMOVED)
- CHAIN LINK FENCE
- PERMANENTLY ABANDONED 11/14/06
- FORMER TEMPORARY MONITORING POINT
- (49.5) BENZENE CONCENTRATION IN GROUNDWATER IN MICROGRAMS PER LITER ( $\mu\text{g/L}$ )
- 50 ——— BENZENE CONCENTRATION CONTOUR IN  $\mu\text{g/L}$  (DASHED WHERE INFERRED)

**NOTES**

- 1 BASEMAP DERIVED FROM GEOTRANS, INC. DRAWING NUMBER 2 ENTITLED "TOPOGRAPHIC MAP OF THE MANASSAS TERMINAL FACILITY" DATED 2/26/03
- 2 NEW 2.6 MILLION GALLON TANKS OPERATIONAL AS OF JULY 2009 (NOT TO SCALE)
- 3 MW 25 MONITORS THE DEEP AQUIFER. ANALYTICAL DATA WAS NOT USED TO GENERATE THIS MAP.
- 4 US EPA MAXIMUM DRINKING WATER CONTAMINANT LEVEL IS  $5 \mu\text{g/L}$  FOR BENZENE



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**BENZENE ISOCONCENTRATION MAP**  
**AUGUST 24, 2011**

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FIGURE  
2

