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ARCADIS U.S., Inc.
1114 Benfield Boulevard
Suite A
Millersville
Maryland 21108
Tel 410 987 0032
Fax 410 987 4392

Transmittal Letter

To:
Mr. Rob Hill
Maryland Department of the Environment
Land Management Administration
1800 Washington Boulevard, Suite 620
Baltimore, MD 21230-1719

Copies:
S. Bull, MDE
J. Richmond, MDE
K. Brandt, NPS - email
J. Hewitt, NPS - email
M. Carter, NPS - email
R. Chatrathi, CSXT – PS&E Web
S. Jarvela, USEPA
L. Fischbeck, E&E - email
L. Bohn, FCHD

ENVIRONMENT

From:
Megan E. Kellner

Date:
April 30, 2012

Subject:
Combined Well Installation Summary Report/SCM
C&O Canal/CSXT Brunswick Rail Yard, Brunswick, Maryland CSXT Project # 9415381

ARCADIS Project No.:
MD843.10.05

We are sending you:

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☐ Prints ☐ Samples ☐ Copy of Letter ☒ Reports
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Copies	Date	Drawing No.	Rev.	Description	Action*
3	4/30/12			Combined Well Installation Summary Report/Updated Site Conceptual Model	AS

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Comments: Rob/Susan - Enclosed are three copies of the Subject Report with a copy on CD for the Brunswick Rail Yard, Brunswick, Maryland. Please contact me with questions.

Thanks, Megan Kellner

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CSX Transportation, Inc.

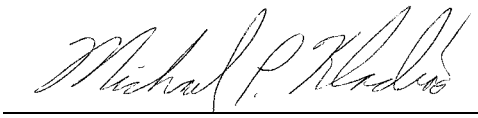
Combined Well Installation Summary Report/Updated Site Conceptual Model

C&O Canal/Brunswick Rail Yard,
Brunswick, Maryland
CSXT Project # 9415381

April 30, 2012

ARCADIS

Albert Buell
Project Scientist



Michael Kladias, P.G.
Principal Hydrogeologist

Megan E. Kellner, P.G.
Project Manager

Combined Well Installation Summary Report/Updated Site Conceptual Model

C&O Canal/Brunswick Rail Yard,
Brunswick, Maryland
CSXT Project # 9415381

Prepared for:
CSX Transportation, Inc.

Prepared by:
ARCADIS U.S., Inc.
1114 Benfield Boulevard
Suite A
Millersville
Maryland 21108
Tel 410 987 0032
Fax 410 987 4392

Our Ref.:
MD000843.0010.0005

Date:
April 30, 2012

ARCADIS

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List of Acronyms and Abbreviations

%	percent
ARCADIS	ARCADIS U.S., Inc.
AST	aboveground storage tank
bgs	below ground surface
BRT	barrier/recovery trench
C&O	Chesapeake and Ohio
CAP	Corrective Action Plan
CIP	Conceptual Investigation Plan
CSXT	CSX Transportation, Inc.
DPE	dual-phase extraction
Eder	Eder Associates
E&E	Ecology and Environment, Inc.
EFR	enhanced fluid recovery
HDPE	high-density polyethylene
Hg	mercury
LPH	liquid-phase hydrocarbon
MDE	Maryland Department of the Environment
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
msl	mean sea level
MTBE	Methyl Tertiary Butyl Ether
MW	Monitoring Well
NPS	National Park Service

Acronyms and Abbreviations (continued)

O&M	Operation and Maintenance
PID	Photoionization Detector
ppm	parts per million
PVC	polyvinyl chloride
SCM	Site Conceptual Model
the Site	CSXT Brunswick Rail Yard
TPH	total petroleum hydrocarbon
TPH-DRO	diesel range total petroleum hydrocarbons
UST	underground storage tank
VOC	volatile organic compound

1. Introduction

On behalf of CSX Transportation, Inc, (CSXT), ARCADIS U.S., Inc. (ARCADIS) has prepared this Combined Well Installation Summary Report / Updated Site Conceptual Model (SCM) for the CSXT Brunswick Rail Yard (the Site) in Brunswick, Maryland, as requested by the Maryland Department of the Environment (MDE) in letter correspondence dated January 25, 2012. Additionally, the January 25, 2012 MDE correspondence documented MDE approval of the Proposed Additional Well Installation Letter Work Plan submitted by ARCADIS on December 5, 2011.

The Updated SCM serves as the primary means to communicate and interpret technical data from both the Site and the National Park Service (NPS) property located adjacent to the Site. The Updated SCM presented herein is a narrative description of groundwater flow and transport at the Site and on NPS Property, including the locations and nature of contaminant sources, and groundwater flow and solute transport. Information from the prior versions of the SCM was used to prepare a Corrective Action Plan (CAP) (ARCADIS, 2008d) as specified in the July 2007 Consent Order. The CAP was submitted to MDE on August 29, 2008, and a CAP Addendum was submitted on March 2, 2009 (ARCADIS, 2009). The CAP addendum was approved by the MDE in letter correspondence dated May 27, 2009.

This document is the third revision of the SCM; the original SCM was submitted to MDE on January 30, 2007, the first SCM revision was submitted on February 8, 2008, and the second SCM revision was submitted on August 29, 2008. In accordance with the approved CAP Addendum, this Combined Well Installation Summary Report / Updated SCM includes historical data, as well as, data collected since the previous SCM submittal. The remedial activities completed from August 2008 to the present include soil boring and well installations, groundwater sampling, liquid-phase hydrocarbon (LPH) monitoring and recovery, and dual-phase extraction (DPE) pilot testing.

LPH recovery activities are currently conducted at the Site as required by the Consent Order between MDE and CSXT, signed on July 18, 2007 (MDE, 2007). The primary goal, stated in the Consent Order, is to remove liquid non-aqueous phase diesel fuel related to the aboveground storage tank (AST) system, to the extent practicable as determined by the MDE, so there is no threat of migration, taking into consideration future rewatering of the Chesapeake and Ohio (C&O) canal. The MDE considers sheen on the groundwater measurable to 1/8th of an inch using an interface probe capable of detecting oil and water to 0.01 feet, as meeting this goal. ARCADIS, on

behalf of CSXT, submitted a CAP Addendum, per the Consent Order (ARCADIS, 2009), on March 2, 2009 and MDE approved it on May 27, 2009 (MDE, 2009). ARCADIS implemented the CAP Addendum in July 2009. The Consent Order specified a deadline for completing the cleanup was no longer than three years from approval of the CAP (Addendum), to be extended as reasonably necessary, by mutual agreement of MDE and CSXT, with modification to the Consent Order. The effectiveness of corrective actions implemented at the Site since July 2009 are discussed further below.

1.1 CSXT Site History and Activities

The Site, which has been an active rail yard since 1892, is located adjacent to the C&O Canal in Brunswick, Maryland (Figure 1). The potential source areas for diesel range total petroleum hydrocarbons (TPH-DRO) in groundwater are the former AST system, which included a fuel pumping house and a 500,000-gallon diesel fuel AST, and a current fueling area located near the former roundhouse (Figure 1). A history of previous and recent environmental activities associated with the Site and the C&O Canal is included as Table 1.

Activities conducted by CSXT and their consultants since 1992 include the removal of a 16,000 gallon diesel fuel underground storage tank (UST) adjacent to the fuel pumping house along with approximately 100 cubic yards of petroleum impacted soil. Analysis of soil confirmation sampling from the excavation showed total petroleum hydrocarbon (TPH) concentrations below the current MDE non-residential cleanup level of 620 milligrams per kilogram (mg/kg) (Eder, 1992). In 1994, four monitoring wells (MWs) including MW-1, MW-2, MW-3, and MW-4, were installed on-Site. LPH was observed at MW-2. In 1995, a second set of monitoring wells including MW-5, MW-6, MW-8, and MW-9 were installed on CSXT(MW-5) and NPS property (MW-6, MW-8, and MW-9).

Efforts to recover LPH observed at MW-2 were initiated in January 1995 and expanded in 1998 to include MW-1, MW-4, and MW-6. A Conceptual Investigation Plan (CIP), dated February 8, 1999, was developed to evaluate any potential threat to surface water and to consider scenarios for adjusting the product recovery program, if necessary. The CIP also included a remedial alternatives analysis. As part of the ongoing product delineation, eleven piezometers (TP-1 through TP-11) were installed between November 1999 and August 2000 in order to delineate the extent of LPH. A more comprehensive remedial alternatives analysis was presented in a Site Investigation Report for the C&O Canal Rewatering Project, dated December 2000.

As requested by MDE in 2002, a CAP prepared by Gannett Fleming, Inc. was submitted to MDE on April 19, 2002. The CAP proposed the installation of a barrier/recovery trench (BRT) with internal collection sumps in order to provide containment of LPH. The CAP was approved by MDE in November 2002, construction of the BRT subsequently began in October 2003 and was completed in March 2004. The BRT was installed to approximately 15 feet below ground surface (bgs), with 60 millimeter high-density polyethylene (HDPE) liner placed on the downgradient side of the trench. A geotextile liner was used, to line both the trench and the HDPE liner, in order to prevent damage to the HDPE. Five collector sumps (CS-1 through CS-5) were installed in the trench, constructed as 6-inch diameter polyvinyl chloride (PVC) screened wells in vault boxes. The trench was then completed with crushed stone backfill placed on the geotextile and around the collector sumps.

Beginning in July 2004, enhanced fluid recovery (EFR) activities were initiated to increase LPH recovery. These activities focused on wells that historically contained measurable LPH (MW-2, EW-3, EW-4, and EW-5) and on the collection sumps that are part of the BRT. Approximately 32,466 gallons of total fluids (LPH and water) were recovered using EFR from July 2004 through June 2009.

In September 2006, an automated product recovery pump was installed in MW-2 as requested by MDE. Recovered LPH, using the automated pump, was collected in a 55-gallon drum and was disposed of in conjunction with EFR events. A total of 54 gallons of product were recovered by the pump from September 2006 through July 2008.

The original SCM was submitted on January 30, 2007 (ARCADIS 2007a). A revised SCM was submitted on February 11, 2008 (ARCADIS 2008b) after the following work was completed:

- In June 2007, temporary wells TP-1, TP-3, TP-4, TP-5, TP-10, and TP-11 were abandoned, and monitoring wells MW-4R, MW-21, MW-22, MW-23, MW-24, MW-25, MW-26, and MW-27 were installed.

- In July/August 2007, a direct-push investigation was conducted, including the installation of 24 borings (GP-20, GP-26 to GP-49) at the site. All data from the June 2007 well installation event and the July/August 2007 direct-push investigation are included in the Data Package Memo dated September 10, 2007 (ARCADIS 2007b).

- In November 2007, monitoring wells MW-20, MW-28, MW-29, MW-30, MW-31, MW-32, MW-33, MW-35, MW-37, MW-38, MW-39, MW-41, MW-43, MW-49, MW-50, MW-51, and MW-52 were installed. Data from the November 2007 well installation is included in the Revised SCM, dated February 11, 2008 (ARCADIS, 2008b).

Boring logs for all on-site direct-push borings and monitoring wells installed after 2006 are included in Appendix A.

Additional investigation activities were conducted as presented in the Additional Site Characterization Work Plan/Request for Corrective Action Plan Extension dated March 12, 2008 (ARCADIS, 2008a) and based on comments from the May 30, 2008 letter from MDE approving the work plan (MDE, 2008a). These activities include:

- Installation of direct-push borings with soil and groundwater samples in June 2008. A total of 21 borings (GP-53 to GP-73) were installed on CSXT Property (see Figure 1 for boring locations). Soil samples were collected from each of the borings at the soil interval with the highest screening readings using a Photoionization Detector (PID). Both soil and groundwater samples were collected from each boring with the exception of GP-69, where samples were collected from the fourth attempted boring at the location after three initial attempted borings hit refusal prior to the target depth (samples were collected on the fourth attempt at this location due to the refusal at the first 3 locations).

- Installation of 3 direct-push borings (GP-74 to GP-76) with soil and groundwater samples in June 2008 at the CSXT Property boundary along East Potomac Street (across from the L. S. Fuel Station located at 128 E. Potomac Street). Boring logs are included in Appendix A.

The results of these activities were presented in a revised SCM submitted on August 29, 2008 (ARCADIS, 2008e). Subsequent to the August 2008 SCM revision, several phases of corrective measures have been completed at the Site which provided data to further refine the SCM. These activities include a DPE pilot study, implementation of the CAP, and additional well installations. These activities are further described in the following sections.

1.1.1 2008/2009 Dual-phase Extraction (DPE) Pilot Study

In 2008/2009, a DPE pilot study was conducted at MW-41 and EW-2 to evaluate the applicability and effectiveness of this remedial alternative at the Site. Data were collected to estimate LPH recovery rates, groundwater recovery rate, and hydraulic and pneumatic radii of influence while extracting from MW-41 and EW-2. Activities associated with the DPE pilot study include:

- A sample of LPH was collected at CSXT MW-49 and CSXT MW-4R in June 2008 to evaluate the physical characteristics of the LPH at the Site, which may affect LPH mobility and recoverability. Samples were analyzed for interfacial tension, viscosity, density, and specific gravity at a range of temperatures.

  The results of the LPH physical characteristics analysis included the following:

  - Surface tension and interfacial tension results for the LPH are within the ranges expected for diesel fuel.
  - The viscosity of the LPH is relatively high (4.15 to 5.48 centipoise at 70 degrees Fahrenheit) with regard to LPH recovery efficiency. A viscosity greater than 2 centipoise may limit LPH recovery efficiency and mobility. This is particularly true in fine grained soils.
  - The specific gravity of the LPH ranges from 0.87 to 0.88, which is in the high end of the range expected for diesel fuel. The LPH has likely weathered over time and lost some of its lighter fractions, which is common for older releases.

- Six new monitoring wells (MW-53 to MW-58) were installed in December 2008, as monitoring points for the DPE pilot study. MW-53, MW-54, and MW-55 were installed within a 15 foot radius of MW-41. MW-56, MW-57, and MW-58 were installed within a 15 foot radius of EW-2.

- In January 2009, DPE pilot testing was conducted at MW-41 and EW-2, as described in the CAP Addendum. All methodology and data collected during the DPE pilot study are presented in the Corrective Action Plan Addendum, Dual Phase Extraction Pilot Test Results (ARCADIS, 2009), which was submitted to the MDE on March 2, 2009. A summary of the DPE results is presented below.

- The total volume of LPH removed from MW-41 during both tests was 1.2 gallons. No LPH was recovered from EW-2 during pilot testing.
- The effective hydraulic and vacuum radius of influence was generally less than 5 to 10 feet for both pilot test areas.
- Heterogeneity within the subsurface affected the ability to enhance LPH recovery using DPE. The variability in hydraulic and vacuum influence, caused by subsurface heterogeneity, was most evident at the EW-2 pilot test area due to the greater number of monitoring wells in varying directions and distances.
- Increased vacuum did not greatly change the magnitude of vacuum observed or the extent to which it was observed in surrounding monitoring wells.
- The most effective applied vacuum was approximately 5 inches mercury (Hg) [30 percent (%)].
- Despite the application of up to 15 inches Hg vacuum at the wellhead, the maximum groundwater recovery flow rates were generally less than 0.2 gallons per minute for both pilot test areas. The relatively high viscosity of the LPH limits the mobility of the LPH in the fine grain soils at the site. This affects the ability to recover product from recovery wells. The potential for migration of LPH from the site is also limited by these properties.

1.1.2 July 2009 CAP Implementation Activities

The CAP Addendum was approved by the MDE on May 27, 2009. In accordance with the CAP Addendum, the following activities associated with the CAP implementation have been completed and resulted in the recovery of approximately 591 gallons of LPH from July 2009 through March 2012:

- Three LPH skimmer pumps and five passive LPH skimmers were installed in July 2009 to facilitate consistent LPH recovery.
- Operation and maintenance (O&M) visits have been completed on a regular basis, typically bi-weekly, at the Site. All wells which contained measureable LPH within the previous six months were gauged on at least a monthly basis. LPH recovery is conducted using a peristaltic pump or absorbent sock as warranted at wells containing measureable LPH where a skimmer pump or absorbent sock was not

installed. All quarterly LPH and water level monitoring data are presented in Appendix E.

- Groundwater sampling was completed on a quarterly basis from December 2006 through August 2008. During that time period, all existing CSXT and NPS wells, that did not contain measureable LPH, were sampled. After the August 2008 groundwater sampling was completed, the MDE approved a reduction in the groundwater sampling monitoring well network and groundwater sampling frequency. The current groundwater sampling monitoring well network consists of CSXT MW-3, CSXT MW-6R, CSXT MW-22, CSXT MW-24, CSXT MW-25, CSXT MW-29, CSXT MW-43, CSXT MW-51, NPS MW-1, NPS MW-2, NPS MW-4, NPS MW-5, NPS MW-13, NPS MW-14, and NPS MW-16, which are sampled on a semi-annual basis.

All historical groundwater sampling data collected by ARCADIS is included in Appendix D.

- Three additional QED Environmental Systems ferret skimmer pumps were installed in September 2010.

All LPH and water level monitoring data are presented in Appendix E. A total of 591 gallons of LPH has been recovered from July 2009 through March 30, 2012. Skimmer pumps have accounted for 475 gallons of the LPH recovery. Appendix F presents LPH recovery data since CAP implementation in July 2009.

1.1.3 March 2012 Well Installation Activities

MDE correspondence dated January 25, 2012 approved CSXT's proposed installation of eight additional monitoring wells to enhance LPH recovery and further delineate subsurface LPH presence in the area west of the roundhouse and around the two existing MARC Commuter Rail Service 20,000 gallon diesel ASTs, which are located just west of the roundhouse. Activities associated with the March 2012 well installations are discussed in further detail in section 2.0.

1.2 NPS Property History and Activities

Soil investigative activities were conducted on NPS property beginning approximately in 1991 as part of the permitting process to restore and re-water a section of the C&O Canal. A history of previous and recent environmental activities associated with the

Site and the C&O Canal is included as Table 1. Based on the results of the soil sampling conducted by NPS, CSXT conducted initial surface soil sampling in March 1992 and additional soil delineation sampling in July 1993. The March 1992 surface soil sampling results indicated elevated concentrations of TPH in three areas, with concentrations ranging from 509 mg/kg at sample location EA-7 to 4,270 mg/kg at location EA-3. Further delineation conducted in July 1993 focused on the three areas: Area 1 near location EA-3, Area 2 near location EA-5, and Area 3 near locations EA-7 and EA-8. As agreed upon by CSXT and NPS at the time of the investigation, each area would be delineated where soil samples had concentrations of TPH in above 400 mg/kg. These areas were not associated with constituent concentrations in groundwater samples. Soil delineation samples collected during the July 1993 event further refined the boundaries of Areas 1, 2, and 3 as described in the investigation report (Eder, 1994).

On behalf of the NPS, In March 1996, Ecology and Environment, Inc. (E&E) prepared a Draft Site Assessment and Characterization Report based on additional sediment and soil sampling. The results of the collection and analysis of subsurface soils within the canal prism indicated that there were no Polycyclic Aromatic Hydrocarbon compounds exceeding the U.S. Environmental Protection Agency Region III Risk-Based Concentrations for industrial exposure (E&E, 1996).

In order to evaluate groundwater quality along the C&O Canal, the NPS installed five monitoring wells (NPS MW-1 through NPS MW-5) along the canal in August 1996 (E&E, 1997). The NPS collected four rounds of groundwater samples from these monitoring wells between 1996 and 1999 before installing additional wells (NPS MW-10 through NPS MW-17) in 2001. Only one NPS well, NPS MW-4, has ever exhibited measurable LPH, at thicknesses ranging from 0.01 to 0.65 feet. From December 2002 through January 2006, the NPS collected groundwater samples from the monitoring wells on their property approximately every six months (December 2002, June 2003, January 2004, July 2004, December 2004, July 2005, and January 2006).

Groundwater samples collected from the NPS wells have historically been analyzed for TPH-DRO. All NPS wells have been incorporated into the CSXT sampling program as requested by MDE. The current sampling program includes seven of the NPS monitoring wells, which are analyzed for TPH-DRO and full-suite volatile organic compounds (VOCs) including fuel oxygenates. Water-level and LPH measurements are collected at all NPS wells on a quarterly basis.

1.2.1 Groundwater Sampling Summary

NPS monitoring wells have been included in the CSXT monitoring well groundwater monitoring and sampling network since the beginning of the fourth quarter of 2006. All existing NPS monitoring wells were sampled during four consecutive quarterly groundwater sampling events. After the August 2008 groundwater sampling was completed, the MDE approved a reduction in the groundwater sampling monitoring well network and groundwater sampling frequency. The current groundwater sampling monitoring well network consists of CSXT MW-3, CSXT MW-6R, CSXT MW-22, CSXT MW-24, CSXT MW-25, CSXT MW-29, CSXT MW-43, CSXT MW-51, NPS MW-1, NPS MW-2, NPS MW-4, NPS MW-5, NPS MW-13, NPS MW-14, and NPS MW-16, which are sampled on a semi-annual basis.

Groundwater samples collected by ARCADIS from NPS monitoring wells are presented in Appendix D. The most recent data collected from each of the NPS monitoring wells includes TPH-DRO concentrations ranging from less than 0.044 milligrams per liter (mg/L) (NPS MW-3, NPS MW-10, NPS MW-11, NPS MW-17) to 2.9 mg/L (NPS MW-4).

2. Well Installation Summary

Seven monitoring wells were installed in March 2012 in accordance with MDE correspondence dated January 25, 2012 approving the installation of the wells. The wells were drilled in the area around the two MARC 20,000 gallon diesel ASTs, located to the west of the roundhouse. Well locations were chosen based on the results of previous geoprobe investigations conducted at the Site and are shown on Figure 1.

2.1 Well Installation/Development

A ground penetrating radar survey of the proposed well installation locations was completed on March 5, 2012 to locate any underground utilities prior to drilling. Well locations were adjusted as needed to avoid underground infrastructure present at the Site. The drilling subcontractor, DTCI of Jarrettsville, Maryland, began drilling on March 13, 2012 using a hollow-stem auger. Seven monitoring wells, MW-59 through MW-65, were installed between March 13 and March 16, 2012. All wells were constructed of 4-inch PVC, and each well was screened from 5 to 25 feet bgs. Well construction details for all CSXT and NPS wells, including the new wells installed in March 2012, are presented on Table 2. Boring and well construction logs are included in Appendix A. Well completion reports are included in Appendix B.

MW-66 was to be located within the footprint of the roundhouse, but was not installed due to subsurface obstacles to drilling at this location. During the first attempt to drill at this location, refusal was encountered at 16 feet bgs. Drilling was attempted at a five foot off-set from the original location, and refusal was encountered at 12 feet bgs. Upon encountering refusal at the second attempted location, the boring began to collapse, and the boring was abandoned.

The new monitoring wells were properly developed on March 19-20, 2012. All purge water/LPH generated during development was containerized and will be properly disposed of off-site. All soil cuttings generated during drilling were containerized and will be properly disposed of off-site.

2.2 Survey

Each well was surveyed on March 20, 2012 by KCI Technologies of Fulton, Maryland. The survey included top of casing and ground surface elevations, and horizontal coordinates (northing and easting) at each new well location. Survey data is included in Table 2 and the survey report is included in Appendix B.

2.3 LPH/Water Level Measurements

Water-level and LPH measurements were completed at all new wells during the regularly scheduled O&M visits. MW-59 through MW-63 contain measureable thicknesses of LPH since installation. LPH thickness measured at the new wells has ranged from 0.01 foot (MW-60 and MW-61) to 2.68 feet (MW-62). LPH has not been detected at new wells MW-64 and MW-65. LPH and water-level measurements will continue to be collected at each of the new monitoring wells during the regularly scheduled O&M visits. LPH occurrence is discussed further in Section 3.3.

2.4 Lithology/Soil Screening Results

Lithology was recorded at each new monitoring well location during drilling. Split-spoon samplers were driven ahead of the hollow-stem auger during drilling, and soil samples were collected at each boring from ground surface to final boring depth, including the proposed monitoring location MW-66 where refusal was encountered at 16 feet bgs and the well was not installed. All soil samples were screened with a PID during logging of the lithology. PID readings ranged from 0 parts per million (ppm) in the surface soils at each boring to a maximum reading of 128.3 ppm, which was observed at boring location MW-62 from 16 to 18 feet bgs, just above the saturated zone of the boring.

The lithology recorded during the March 2012 drilling activities showed little variation from the previous understanding of lithology in the area west of the MARC ASTs. Fill material was observed from ground surface to approximately 6 to 8 feet bgs at borings MW-59 through MW-63, underlain with clay and/or silty clay to approximately 16 to 18 feet bgs. A saturated zone was observed at each of these boring locations just below the clay/silty clay, between 16 to18 feet bgs. Cross-section D-D', included as Appendix C, has been revised to include lithology observed at boring locations MW-59 and MW-61.

Cross-section H-H', included in Appendix C, has been created to illustrate the refined understanding of lithology just west of the roundhouse, including data obtained from new well borings MW-64 through MW-66. Fill material was observed from ground surface to 16 feet bgs at MW-66, where refusal (concrete foundation of roundhouse) was encountered. At MW-64 and MW-65, fill material was observed to approximately 7 to 8 feet bgs. Fill material was underlain by clay/silty clay at both locations, to approximately 21 to 23 feet bgs. A saturated zone was observed from 18 to 20 feet bgs.

Boring logs for all new and existing wells installed after 2006 are included in Appendix A. All cross-sections, A-A' though H-H', are included as Appendix C, and are discussed further in Section 3.1.

2.5 Groundwater Sampling

Groundwater samples were collected at MW-64 and MW-65 on April 3, 2012, in accordance with MDE correspondence dated January 25, 2012. TPH-DRO was detected in both wells, 15 mg/L at MW-64, and 14 mg/L at MW-65. Analytical results from the new well groundwater sampling are included in Appendix D. Any new wells installed in March 2012 that do not contain measureable LPH will be sampled on a quarterly basis. Dissolved phase concentrations in groundwater are discussed further in Section 3.4.

3. Site Conceptual Model

The Site is situated south of the city of Brunswick, Maryland. Immediately south of the Site is the dewatered C&O Canal, which is on NPS property. The Potomac River is approximately 700 feet south of the Site. Information used to revise the SCM is taken from investigations and remedial efforts conducted between August 2008 and April 2012, including data from boring logs included as Appendix A; well construction information, presented on Table 2 and in Appendix A; historical groundwater analytical results, presented on Appendix D; and LPH occurrence and recovery data included in Appendices E and F.

3.1 Local Geology

Borings on and near the Site indicate geologic conditions that are typical of a piedmont and alluvial hydrogeologic setting. The bedrock units underlying the area include a Pre-Cambrian granodiorite and biotite granite gneiss, part of the South Mountain Anticlinorium and Frederick Valley (MGS, 1958). The most common bedrock unit locally is gneissic granodiorite, commonly colored light gray to green and interlayered in places with dark hornblende diorite. This particular unit is generally of low primary porosity and therefore is not a primary source for large water supplies. None of the on-site borings penetrate the bedrock unit; however, some borings, such as NPS MW-5, indicate the presence of a thick saprolite layer at least four feet thick. Saprolite is generally very low permeability weathered rock and is commonly found up to thicknesses of 60 feet in this region.

Quaternary alluvium overlies the saprolite and is composed of heterogeneous layers of clay, silt, sand, and gravel. Alluvium is associated with river depositional environments; at the Site and NPS property, this material is associated with the Potomac River and its tributaries. Underlying the Site and NPS Property are two distinct overburden deposits. Directly overlying the saprolite is an orange-brown medium- to coarse-grained gravelly sand unit that has been observed in soil cores from CSXT MW-5. The gravelly sand unit thins south of the Site approaching the Potomac River (NPS MW-5). Overlying the gravelly sand is a silty clay unit, described as greenish gray or brown and up to 15 feet thick. Although the silty clay is consistently observed in borings across the site, it appears to be thinner in locations near the former AST (GP-27, GP-30, and GP-44). This unit also thins to the south as it approaches the Potomac River. Varying types of fill materials including sand or cinders, about 2 to 4 feet thick overlie the clay unit at different locations. The overburden units are illustrated in a series of geologic cross-sections. Each cross-

section prepared is described in the following sections and included as Appendix C. The locations of the cross-sections are shown on Figure C-1, Appendix C.

3.1.1 Section A-A'

This section (Figure C-2, Appendix C) illustrates the continuity of the lower gravelly sand unit on the western portion of the Site and NPS Property. The wells installed on the western area of the site, including CSXT MW-23, CSXT MW-29 and CSXT MW-20, are screened across the gravelly sand unit. Samples collected from these wells provide data on the western boundary of the dissolved phase TPH-DRO concentrations. In the four consecutive quarters of sampling at CSXT MW-20 there were no reportable concentrations of TPH-DRO.

3.1.2 Section B-B'

This section (Figure C-3, Appendix C) illustrates where the BRT cuts across the entire thickness of the silty clay unit, thereby restricting groundwater flow in the unit and flattening hydraulic gradients upgradient of the BRT. Because the BRT is only 15 feet deep and is completed partially in the lower gravelly sand unit, the increased hydraulic head upgradient of the BRT results in underflow of groundwater in the gravelly sand unit. Water-level data on the east side of the BRT also indicates that underflow of groundwater occurs rather than lateral flow around the BRT.

This section also illustrates the continuity of the lower gravelly sand unit across the canal. Taking into account boring log data from NPS MW-1 and GP-42A, which are proximate to CSXT MW-9, CSXT MW-9 is screened across the same elevation as the gravelly sand unit that was observed in the boring logs for NPS MW-1 and GP-42A. Therefore, CSXT MW-9 is considered to be screened across the sand unit, and historical analytical sample data from CSXT MW-9 is valid for comparison with sample data from other wells also screened in the gravelly sand unit. Historically, samples from this well have shown no pattern of reported concentrations of TPH-DRO, which have always been at least one order of magnitude lower than concentrations in samples from the source area wells. The thickness and continuity of the upper silty clay layer is also evident in this section.

3.1.3 Section C-C'

Similar to Section A-A', this section (Figure C-4, Appendix C) shows the continuity of the upper silty clay and the lower gravelly sand units. The boring log for MW-51 shows

the gravelly sand unit is present at the north boundary of the site. Boring logs for wells on CSXT property (CSXT MW-22, CSXT MW-5, and CSXT MW-4R) and NPS property (NPS MW-4 and CSXT MW-8) also show the gravelly sand unit. At the south end of the cross-section, the boring log for GP-42A, installed adjacent to CSXT MW-8, indicates the top of the sand unit is located at approximately 213 feet above mean sea level (msl), which is across the screened intervals of monitoring wells CSXT MW-8 and CSXT MW-9 (see section 2.1.2 for discussion of the continuity of the sand unit at CSXT MW-9). Therefore, analytical results of groundwater samples from CSXT MW-8 are representative of groundwater quality in the gravelly sand unit downgradient of the former AST System because the unit is continuous.

3.1.4 Section D-D'

Figure C-5, Appendix C demonstrates that NPS monitoring well NPS MW-5 is screened in the gravelly sand unit, making it an acceptable location to collect groundwater samples for TPH-DRO analysis for comparison to other site monitoring wells also screened in that unit. The section also illustrates the presence of saprolite (weathered bedrock) at the base of the sand (and also the base of unconsolidated water-bearing unit south of the canal) as evidenced at NPS MW-5. Comparing this section to the groundwater elevation contours on Figure 2, NPS MW-4, NPS MW-5, and CSXT MW43 are down gradient of the area with measurable LPH thicknesses (CSXT MW-41, CSXT MW-56 through CSXT MW 58, EW-3, and EW-5); however, LPH has not been observed historically at NPS MW-5 or CSXT MW-43, and LPH has not been recently observed at NPS MW-4. This indicates that the TPH-DRO concentrations are stable and have not been increasing. This indicates that the source material is not mobile and is declining in mass.

3.1.5 Section E-E'

This section (Figure C-6, Appendix C) indicates that the geology present here is consistent with the geology across the Site. The upper silty clay unit was observed at all GP locations (GP-53, GP-54, GP-56, GP-61, GP-63, and GP-66) and at NPS MW-11 and NPS MW-13 in this cross-section. The lower gravelly sand unit is continuous in this section and has a greater amount of gravel as described in the boring logs for NPS MW-11 and NPS MW-13. No LPH has been observed in either of these NPS monitoring wells.

3.1.6 Section F-F'

This section (Figure C-7, Appendix C) indicates that the geology in the central area (NPS Area 3) is consistent with the typical Site geology. The upper silty clay unit is observed in all borings on the cross-section. Additionally, three wells in the section (CSXT MW-50, NPS MW-17, and NPS MW-14) are screened at least partially in the lower gravelly sand. Monitoring well CSXT MW-25 is presumed to be screened in the silty clay unit; a small amount of sand at the bottom of the boring and noted in the boring log is not interpreted as the well being screened in the gravelly sand unit.

3.1.7 Section G-G'

This section (Figure C-8, Appendix C) is oriented approximately east to west and shows the consistency of the upper silty clay unit and the gravelly sand unit across the site to the north of the canal. Groundwater elevations measured in these wells show a relatively flat water table that does not favor an easterly or westerly component to the gradient.

3.1.8 Section H-H'

This section (Figure C-9, Appendix C) illustrates the influence of the former roundhouse foundation on groundwater flow. The clay/silty clay layer found approximately 6-8 feet bgs at most boring locations at the Site has been replaced with fill material in the roundhouse foundation area, as observed in borings at CSXT MW-64 through CSXT MW-66. Large sections of concrete foundation remain in the footprint of the roundhouse, creating a slight mounding effect on groundwater flow within the footprint, and slightly redirecting flow around the roundhouse foundation. South of the roundhouse, the clay/silty clay layer returns to elevation consistent with the local Site lithology.

Additionally, two wells in the section (CSXT MW-37 and NPS MW-16) are screened at least partially in the lower gravelly sand. Monitoring well CSXT MW-24 is presumed to be screened in the silty clay unit.

3.2 Local Hydrogeology

The shallow groundwater flow system is of greatest interest to understanding the fate and transport of LPH and dissolved phase TPH-DRO at the Site and NPS property. Hydrogeologic flow regimes in the overburden water-bearing units, the shallow water-

table unit and the lower gravelly sand unit that is semi-confined by the upper silty clay, are influenced primarily by surface-water flow interaction. Although groundwater flow has been observed in both units, the primary groundwater flux occurs in the gravelly sand unit. Groundwater flow directions inferred from water-level measurements in both units are perpendicular to the canal and toward the Potomac River. The saprolite and deeper bedrock units are of low permeability and therefore, do not significantly interact with shallow unconsolidated deposits.

Local perturbations in groundwater elevation and flow direction are attributed to subtle variations in the thickness of the overburden units, and the influence observed around the roundhouse foundation. March 2012 water levels in wells installed before 2009 (i.e., wells with historical water levels) ranged from 224 feet msl to 239 feet msl; since 1995, water levels in these wells have ranged from 219 feet msl to 239 feet msl. This indicates that recent results are consistent with historical data. Groundwater flow is typically below the base of the C&O Canal, which has an elevation of approximately 230 to 231 feet msl.

The BRT was installed through the silty clay unit approximately 15 feet below the water table to provide an effective barrier to migration of LPH. The BRT also behaves as a barrier to groundwater flow in the silty clay unit and therefore, produces some increase in water levels upgradient of the BRT. This slight increase in water level creates downward hydraulic gradients to allow groundwater to enter the underlying sand and gravel and flow below the BRT towards the south. The BRT and Site water levels are indicated on cross-sections B-B' and C-C' (Figures C-3 and C-4, Appendix C).

Groundwater flow directions in the eastern portion of the Site and NPS Property are more variable. Groundwater flow from the Site to the NPS property appears to be southeasterly, as shown in Figure 2. Large sections of concrete foundation remain in the footprint of the roundhouse, creating a slight mounding effect on groundwater flow within the footprint, and slightly redirecting flow around the roundhouse foundation. South of the C&O Canal, groundwater flow appears to transition to a southwesterly flow direction.

3.3 LPH Occurrence and Migration

Based on site conditions and knowledge of historic operations, two source areas for LPH appear to be the former AST System on the western portion of the site, which included a fuel pump house and a 500,000-gallon diesel fuel AST, as well as a current fueling area located north of the former roundhouse and roundhouse. Light petroleum

hydrocarbon transport in the subsurface from the former AST System has resulted in the observed distribution of LPH and dissolved-phase TPH-DRO in the subsurface of the western portion of the site. This is observed historically at monitoring wells CSXT MW-2, CSXT MW-4R, and CSXT MW-28. The presence of the dissolved phase (TPH-DRO) in groundwater from the LPH occurs in the northern and central portions of the site. Within the past six months, LPH presence greater than 0.5 feet of apparent thickness has been observed at monitoring wells CSXT MW-37, CSXT MW-41, CSXT MW-49, CSXT MW 53, CSXT MW-54, CSXT MW-55, CSXT MW-56, CSXT MW-57, and CSXT MW-62, with the recent maximum LPH thickness observed at CSXT MW-56 (4.91 feet) in December 2011.

There have been no recent off-Site LPH observations. The last time LPH was observed off-Site was a thickness of 0.04 feet in October 2007 at NPS MW-4.

Because the LPH specific gravity is less than 1.0, it occurs primarily at the top of the water table and has only been measured at elevations corresponding to the upper silty clay semi-confining unit. Historically, LPH has been consistently observed at the following locations:

- Occurrences near the former AST System (CSXT MW-1, CSXT MW-2, and CSXT MW-4R).
- Minor occurrences to the south-southeast of the former AST System (NPS MW-4 and EW-3, EW-4, and EW-5).
- Minor occurrence to the southwest of the former AST System [CSXT MW-6 (abandoned prior to BRT installation) and replacement well MW-6R] in November 2006.
- Occurrences near the current fueling area [CSXT MW-28, CSXT MW-38, and CSXT MW-41; and recently in monitoring wells installed in 2009/2012 (CSXT MW-56 through CSXT MW-58, CSXT MW-60, CSXT MW-62, and CSXT MW-63)].

Currently at on-Site locations, the LPH distribution is only observed near the current fueling area. The distribution of the LPH near the current fueling area was refined with the addition of monitoring wells CSXT MW-56 through CSXT MW-58, installed in 2009, and monitoring wells CSXT MW-59 through CSXT MW-65, installed in 2012.

Figure 3 shows the current distribution of LPH from measurements obtained on March 20 and 21, 2012. Graphs of select monitoring wells depicting LPH in relation to groundwater and thickness are provided in Appendix E. In general, most of the graphs indicate an overall decrease in apparent LPH thickness. The inverse relationship between groundwater elevations and apparent thickness of LPH in monitoring wells is instrumental in understanding the nature and extent of the LPH (i.e., CSXT MW-49 – Appendix E). However, this is not always apparent due to system operations. During low water table conditions, LPH apparent thicknesses measured in monitoring wells are greater than during high water table conditions. This relationship is the result of vertical variations in lithology and the occurrence of LPH in soil between the high and low water table elevations. During low water table conditions, LPH from a wider range of elevations migrates into the well. However, LPH in soil above the low water table may still remain in place for long periods of time because fine-grained materials, such as those that in the upper silty clay unit, inhibit displacement of LPH by precipitation recharge. The LPH distribution is illustrated in profile in cross section H-H' (Figure C-9, Appendix C).

The LPH recovery activities initially implemented in 1995 and current corrective measures (BRT and recovery system enhancements) have substantially reduced the amount and extent of measurable LPH at the Site. This is illustrated by comparing Figures 3 and 4. The historical maximum thickness distribution of LPH recorded between 1995 (MW-2) and the present is depicted on Figure 4. Current distribution of LPH is depicted on Figure 3 from measurements obtained on March 20 and 21, 2012. The comparison of these two figures shows a significant decrease in the lateral extent of LPH in the subsurface, particularly in the area downgradient of the former AST system where LPH recovery activities have been performed since 1995.

As stated in previous SCMs and demonstrated in the 2009 DPE pilot test (see Section 1.1.1) which was presented in the CAP Addendum (ARCADIS, 2009a), the capillary effects in the silty clay and the water table elevation remaining above the lower gravelly sand unit, restrict LPH from migrating into the gravelly sand unit from the upper silty clay (see cross section H-H', Figure C-9, Appendix C). With the current corrective measures the extent of LPH will continue to decrease:

- The automated product recovery pump at MW-2 has resulted in localized reduction in LPH.

- The BRT prevents future downgradient migration of LPH, though no LPH has been observed in any of the collection sumps since December 2009 (CS-1).

- The enhanced recovery system (skimmer pumps and EFR) is continually collecting LPH.

Overall, as more LPH is removed, the amount of recoverable LPH will become negligible as the total amount approaches residual saturation.

At residual saturation, the LPH will not be mobile in groundwater due to immobilization by capillary forces, but may remain a source of dissolved-phase TPH-DRO. The residual saturation is a relatively immobile source for dissolved-phase contamination, created by leaching of LPH either by precipitation recharge or by groundwater when the water table elevation rises above the elevation of the residually-saturated soils.

3.4 Dissolved phase Concentrations and Migration

3.4.1 TPH-DRO

The dissolved-phase TPH-DRO concentrations have a limited distribution on and off-Site (Figure 5). The highest concentrations of dissolved phase TPH-DRO were detected in samples taken from wells that proximate to the former AST system and the current fueling area where the LPH has been observed. Concentrations in samples from wells downgradient of the known source areas decrease with increasing distance from the source areas (Figure 5). Dissolved-phase TPH-DRO plume migration in groundwater occurs in the upper silty clay unit and potentially the lower gravelly sand unit, although the migration potential likely varies between the two units. Nearly all of the wells on the Site and NPS Property are screened in both the silty clay and sand units and are suitable for determining the presence and distribution of TPH in the subsurface in either unit.

Where detected, TPH-DRO concentration trends are relatively stable or decreasing, indicating that the source of dissolved phase concentrations is also stable or decreasing (Appendix D). Current NPS monitoring wells with minor detections of TPH-DRO are NPS MW-1, NPS MW-2, NPS MW-4, NPS MW-5, NPS MW-13, NPS MW-14, and NPS MW-16. The concentrations measured at these wells have been relatively stable (Appendix D) with current concentrations ranging between 0.53 mg/L at NPS MW-13 and 2.9 mg/L at NPS MW-4.

3.4.2 Other Constituents

Two additional constituents have historically been detected in monitoring wells above the current MDE groundwater standards [TPH-GRO, 0.047 mg/L and Methyl Tertiary Butyl Ether (MTBE), 20 micrograms per liter]. Historical TPH-GRO concentrations at CSXT MW -1, CSXT MW-2, CSXT MW-5, CSXT MW-6R, CSXT MW-8, CSXT MW-21, CSXT MW-23, CSXT MW-26, CSXT MW-28, CSXT MW-29, CSXT MW-31, CSXT MW-37, CSXT MW-43, CSXT MW-51, CSXT MW-64, CSXT MW-65, and NPS MW-4 have exceeded one or both constituents in historical samples. Under the current sampling plan, concentrations of MTBE are detected above the MDE groundwater standard on-site at monitoring wells MW-29 and MW-51. MTBE concentrations are currently detected at off-site monitoring well NPS MW-1, though the concentrations have been below the MDE groundwater standard.

4. Conclusions and Compliance

The following conclusions summarize the current understanding of the site conditions and the effectiveness of the current LPH recovery system to meet the Consent Order objectives.

LPH and Dissolved Phase Distribution and Migration

It has been determined that LPH is present at the Site but is not migrating to NPS property based on the following lines of evidence:

- LPH has not been detected in an off-Site NPS monitoring well since October 2007;
- LPH distribution and thicknesses are stable or decreasing;
- The extent of LPH has been significantly reduced by recovery efforts since 1995, based on comparison of the historic and current distribution footprints;
- The capillary effects in the silty clay unit and established water table elevations above the lower gravelly sand unit inhibit migration of the LPH;
- Groundwater analytical data collected from monitoring wells with historical concentrations of dissolved phase TPH-DRO indicate concentrations are stable or decreasing; and
- The presence of other constituents on-site and the upgradient portion of the Site (TPH-GRO and MTBE) are thought to be from a potential off-site source.

Effectiveness of Corrective Action

Since implementing the CAP Addendum in July 2009, approximately 591 gallons of LPH has been removed from the subsurface through March 2012. The effectiveness of corrective action activities has been demonstrated based on the following:

- Reduction in LPH distribution in both aerial and vertical extent;
- Increase in recovery of LPH and reduction of source material; and

- Reduced potential for migration.

Compliance

The Consent Order between the MDE and CSXT dated July 18, 2007 required CSXT to implement a CAP to remove diesel fuel from the subsurface to the extent practicable, as determined by the MDE, within three years of MDE approval of the CAP. The CAP Addendum prepared by ARCADIS, which detailed remedial plans to recover diesel fuel from the subsurface, was approved by MDE on May 27, 2009.

As discussed in the CAP Addendum and the current SCM, the heterogeneous lithology at the site and the relative immobility of the LPH limit LPH recovery from the subsurface. ARCADIS, on behalf of CSXT, requests that MDE consider extending the Consent Order for an additional three years, allowing CSXT to continue LPH recovery activities through May 2015.

5. References

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ARCADIS

Tables

Table 1
History of Environmental Activities Associated with the Site and the C&O Canal
C&O Canal/Brunswick Rail Yard
Brunswick, Maryland

Date/Year	Company/Agency	Action Type	Description
September 1991	NPS	Investigation	National Park Service (NPS) conducted a soil survey evaluating the presence of petroleum residuals in the C&O canal silt near CSXT property in support of a bid for a rewatering permit. Reportedly, visual identification of petroleum was made in three areas; however, no samples were submitted for analysis of petroleum constituents.
March 1992	CSXT/Eder	Remediation	CSXT/Eder Associates (Eder) provided oversight for removal of a 16,000 gallon diesel underground storage tank (UST) adjacent to the former pump house and 500,000 gallon aboveground storage tank (former AST System). The UST had been previously pumped out and taken out of service in 1974. Approximately 100 cubic yards of impacted soils related to the UST were excavated and properly treated/disposed off-site. Analysis of soil confirmation sampling from the excavation showed total petroleum hydrocarbon (TPH) concentrations below the current MDE non-residential cleanup level of 620 mg/kg.
March 1992	CSXT/Eder	Investigation	CSXT/Eder collected soil samples to characterize soils identified in the 1991 NPS report as petroleum impacted.
July 1993	CSXT/Eder	Investigation	CSXT/Eder conducted a focused sediment/soil boring investigation performed to further investigate the extent of residual petroleum compounds in the C&O Canal in the three primary areas of concern and a small area near Lock #30.
January 20, 1994	MDE	Correspondence	Maryland Department of the Environment (MDE) required that CSXT install four monitoring wells on CSXT property between the C&O Canal and four suspected source areas, including the 500,000 gallon AST, the tank car diesel fuel unloading racks, the diesel fueling pump house, and the roundhouse.
July 1994	CSXT/Eder	Investigation	CSXT/Eder installed four monitoring wells (MW-1, 2, 3, and 4) to investigate the groundwater quality between the suspected source areas and the C&O Canal. Groundwater samples collected from the four monitoring wells were analyzed for BTEX and TPH-DRO. Liquid-phase hydrocarbons (LPH) are later observed at MW-2. CSXT/Eder recommended installation of two additional monitoring wells downgradient of MWs 1, 2, and 4 on the northern canal tow path.
August 30, 1994	MDE	Correspondence	MDE approves the installation of the two additional wells and requests that CSXT install three additional monitoring wells with at least one installed on the south side of the C&O Canal.

Table 1
History of Environmental Activities Associated with the Site and the C&O Canal
C&O Canal/Brunswick Rail Yard
Brunswick, Maryland

Date/Year	Company/Agency	Action Type	Description
November 1994	CSXT/Eder	Investigation	CSXT/Eder conducts a product baildown test at MW-2. Results indicate a very slow LPH recovery rate. Based upon the slow recovery rate, a passive product recovery system was recommended by Eder.
January 1995	CSXT/Eder	Remediation	CSXT/Eder initiated passive free product recovery utilizing a Siphons Without a Pump (SWAP) 4 unit at MW-2.
August-September 1995	CSXT/Eder	Investigation	After coordination with NPS for property access, CSXT/Eder installed additional monitoring wells (MW-5, 6, 8, and 9) to further evaluate groundwater quality downgradient and in the vicinity of the former AST System. Groundwater samples were collected from MW-1, 3, 5, 6, 8, & 9 (LPH at MW-2 and MW-4). Groundwater samples were analyzed for BTEX, naphthalene, and TPH-DRO.
March 1996	NPS/E&E	Site Assessment and Characterization	On behalf of the NPS, Ecology and Environment, Inc. (E&E) prepared a Draft Site Assessment and Characterization Report based on additional sediment and soil sampling. The results of the collection of subsurface soils within the canal prism indicated that there were no PAH compounds exceeding the EPA Region III Risk-Based Concentrations for industrial exposure.
August – September 1996	NPS/E&E	Investigation	E&E installed five monitoring wells (NPS MW-1, 2, 3, 4, and 5) along the Canal on NPS property to determine if there has been any migration of residual petroleum compounds onto NPS property. Groundwater samples were collected from the five NPS wells and three CSXT wells (MW-6, 8, and 9) by NPS and analyzed for VOCs, SVOCs, and TPH. Dissolved phase total petroleum hydrocarbons (TPH) were detected in seven of the eight samples (all except NPS MW-4).
1998	CSXT/Eder/ Gannett-Fleming	Remediation	CSXT/Gannett Fleming (purchased Eder) expanded LPH recovery to include MWs 1, 2, 4, and 6.
February 8, 1999	CSXT/Gannett-Fleming	Investigation	CSXT/Gannett Fleming submitted a Conceptual Investigation Plan (CIP) to evaluate any potential threat to surface water and to consider scenarios for adjusting the product recovery program, if necessary. The CIP also included a remedial alternatives analysis.
November 1999 – August 2000	CSXT/Gannett-Fleming	Investigation	Eleven soil borings and temporary piezometers (TP-1 through TP-11) were installed near the area with LPH to delineate the extent of LPH. Two soil samples are collected for geotechnical purposes.

Table 1
History of Environmental Activities Associated with the Site and the C&O Canal
C&O Canal/Brunswick Rail Yard
Brunswick, Maryland

Date/Year	Company/Agency	Action Type	Description
December 2000	CSXT/Gannett-Fleming	Feasibility Report	CSXT/Gannett-Fleming submitted a Site Investigation Report including feasibility of remedial alternatives. The conclusion of the evaluation of remedial alternatives was that a collection trench recovery system located along the CSXT/NPS property line should be considered, carefully evaluating safety and constructability due to rail operations.
2001	NPS/E&E	Investigation	E&E installed eight additional wells NPS MW-10 through NPS MW-17.
June 2003	NPS/E&E	Investigation	E&E conducted groundwater sampling of the NPS wells for analysis of TPH-DRO, LPH is observed at NPS-MW-4.
October 2003 – March 2004	CSXT/Gannett-Fleming	Remediation	CSXT/Gannett-Fleming constructs a barrier/recovery trench to stop migration of petroleum to NPS property. The initial design was to approximately 525 ft long and 12-15 feet deep. However, the design was revised after it could not be constructed solely on CSXT property. The design was revised a second time when the trench, running from west to east, could not be extended to a point south of TP-4 because construction would subvert a utility pole. The trench as constructed includes five collector sumps, accumulated LPH is removed via a vacuum truck. CSXT/Gannett Fleming installed barrier/recovery trench (BRT) with 5 internal collection sumps (CS-1 through CS-5).
July 2004	CSXT/Gannett-Fleming	Remediation	CSXT/Gannett-Fleming initiated monthly enhanced fluid recovery (EFR) events at monitoring wells/collector sumps with LPH. CSXT/Gannett Fleming began enhanced fluid recovery (EFR) activities to reduce measurable liquid phase hydrocarbons (LPH) at MW-2, EW-3, EW-4, and EW-5 and BRT collections sumps. EFR activities expanded to include all wells with measurable LPH.
January 2005	CSXT/ARCADIS	Remediation	CSXT/ARCADIS continued with monthly EFR events, Approximately 32,466 gallons of total fluids (LPH and water) were removed from July 2004 through June 2009.
September 2006	CSXT/ARCADIS	Remediation	CSXT/ARCADIS installed an automated LPH recovery pump in MW-2. A total of 54 gallons of LPH were recovered from September 2006 through July 2008.
January 30, 2007	CSXT/ARCADIS	SCM and Work Plan Submittal	CSXT/ARCADIS submitted the *Site Conceptual Model and Supplemental Work Plan* including installation of additional monitoring wells and abandonment of temporary wells.
April 16, 2007	MDE	Correspondence	MDE approved the *Site Conceptual Model and Supplemental Work Plan* dated January 30, 2007.

Table 1
History of Environmental Activities Associated with the Site and the C&O Canal
C&O Canal/Brunswick Rail Yard
Brunswick, Maryland

Date/Year	Company/Agency	Action Type	Description
June 2007	CSXT/ARCADIS	Investigation	CSXT/ARCADIS abandoned 6 temporary wells (TP-1, TP-3, TP-4, TP-5, TP-10, and TP-11) and installed 8 permanent groundwater monitoring wells (MW-4R and MW-21 through MW-27).
July 18, 2007	CSXT/MDE	Consent Order	MDE and CSXT signed the Consent Order.
July/August 2007	CSXT/ARCADIS	Investigation	CSXT/ARCADIS installed 24 direct-push borings (GP-20 and GP-26 through GP-49) with soil and groundwater sampling.
October 3, 2007	CSXT/ARCADIS	Work Plan Submittal	CSXT/ARCADIS submitted the *Work Plan for Monitoring Well Installation and Groundwater Sampling*.
November 9, 2007	MDE	Correspondence	MDE approved the *Work Plan for Monitoring Well Installation and Groundwater Sampling* dated October 3, 2007.
November 2007	CSXT/ARCADIS	Investigation	CSXT/ARCADIS installed 17 permanent groundwater monitoring wells (MW-20, MW-28 through MW-33, MW-35, MW-37, MW-38, MW-39, MW-41, MW-43, and MW-49 through MW-52).
February 8, 2008	CSXT/ARCADIS	SCM Submittal	CSXT/ARCADIS submitted the *Revised Site Conceptual Model (SCM)* (second version of the SCM).
March 12, 2008	CSXT/ARCADIS	Work Plan Submittal	CSXT/ARCADIS submitted the *Additional Site Characterization Work Plan*.
May 30, 2008	MDE	Correspondence	MDE approved the *Additional Site Characterization Work Plan* dated March 12, 2008.
June 2008	CSXT/ARCADIS	Investigation	CSXT/ARCADIS installed 24 direct-push borings (GP-53 through GP-76) with soil and groundwater sampling.
August 29, 2008	CSXT/ARCADIS	SCM and CAP Submittal	CSXT/ARCADIS submitted the *Revised SCM* (third version of the SCM) and the *Corrective Action Plan*, including the Dual-Phase Extraction (DPE) pilot test.
October 28, 2008	MDE	Correspondence	MDE approved the DPE pilot test portion of the *Corrective Action Plan*, with modifications.
December 16-18, 2008	CSXT/ARCADIS	Investigation	CSXT/ARCADIS installed 6 permanent groundwater monitoring wells (MW-53 to MW-58) as monitoring points for the DPE pilot test.

Table 1
History of Environmental Activities Associated with the Site and the C&O Canal
C&O Canal/Brunswick Rail Yard
Brunswick, Maryland

Date/Year	Company/Agency	Action Type	Description
January 7 - 13, 2009	CSXT/ARCADIS	Investigation	CSXT/ARCADIS conducted DPE Pilot Test at MW-41 and EW-2.
March 2, 2009	CSXT/ARCADIS	CAP Addendum Submittal	CSXT/ARCADIS submitted the *Corrective Action Plan Addendum* which included the *Dual-Phase Extraction Pilot Test Results*.
May 27, 2009	MDE	Consent Order Milestone	MDE approved the *Corrective Action Plan Addendum* dated March 2, 2009, start of three year remedial goal specified in Consent Order.
July 14, 2009	CSXT/ARCADIS	Remediation	CSXT/ARCADIS implemented LPH removal activities in accordance with the *Corrective Action Plan Addendum* dated March 2, 2009. Activities included the installation of 3 LPH skimmer pumps and 5 passive LPH skimmers.
May 2010	CSXT/ARCADIS	Remediation	Approximately 267 gallons of LPH recovered since implementation of LPH removal activities in accordance with the *Corrective Action Plan Addendum* in July 2009.
June 4, 2010	CSXT/ARCADIS	Remediation	CSXT/ARCADIS submitted *Proposed LPH Recovery System Enhancements.*
July 8, 2010	MDE	Correspondence	MDE approved *Proposed LPH Recovery System Enhancements*, dated June 4, 2010.
September 2, 2010	CSXT/ARCADIS	Remediation	CSXT/ARCADIS installed 3 additional LPH skimmer pumps per the *Proposed LPH Recovery System Enhancements*, dated June 4, 2010.
December 15, 2011	CSXT/ARCADIS	Investigation	CSXT/ARCADIS submitted a Proposed Additional Well Installation Letter Work Plan which included the installation of 8 additional monitoring wells (MW-59 through MW-66).
January 25, 2012	MDE	Correspondence	MDE approved the Proposed Additional Well Installation Letter Work Plan and requested the submittal of a Well Installation Summary Report by March 31, 2012 and an Updated SCM by April 30, 2012. CSXT/ARCADIS requested that the documents be combined into one for submittal on April 30, 2012.
March, 2012	CSXT/ARCADIS	Investigation	Seven of the 8 proposed monitoring wells (MW-59 through MW-65) were installed and developed. MW-66 could not be installed due to subsurface infrastructure obstructions (i.e. the former roundhouse foundation).
April 1, 2012	CSXT/ARCADIS	Remediation	Approximately 600 gallons of LPH have been recovered since implementation of LPH removal activities in accordance with the *Corrective Action Plan Addendum* in July 2009.

Table 2
Well Construction Details
C and O Canal/Brunswick Rail Yard, Brunswick, Maryland

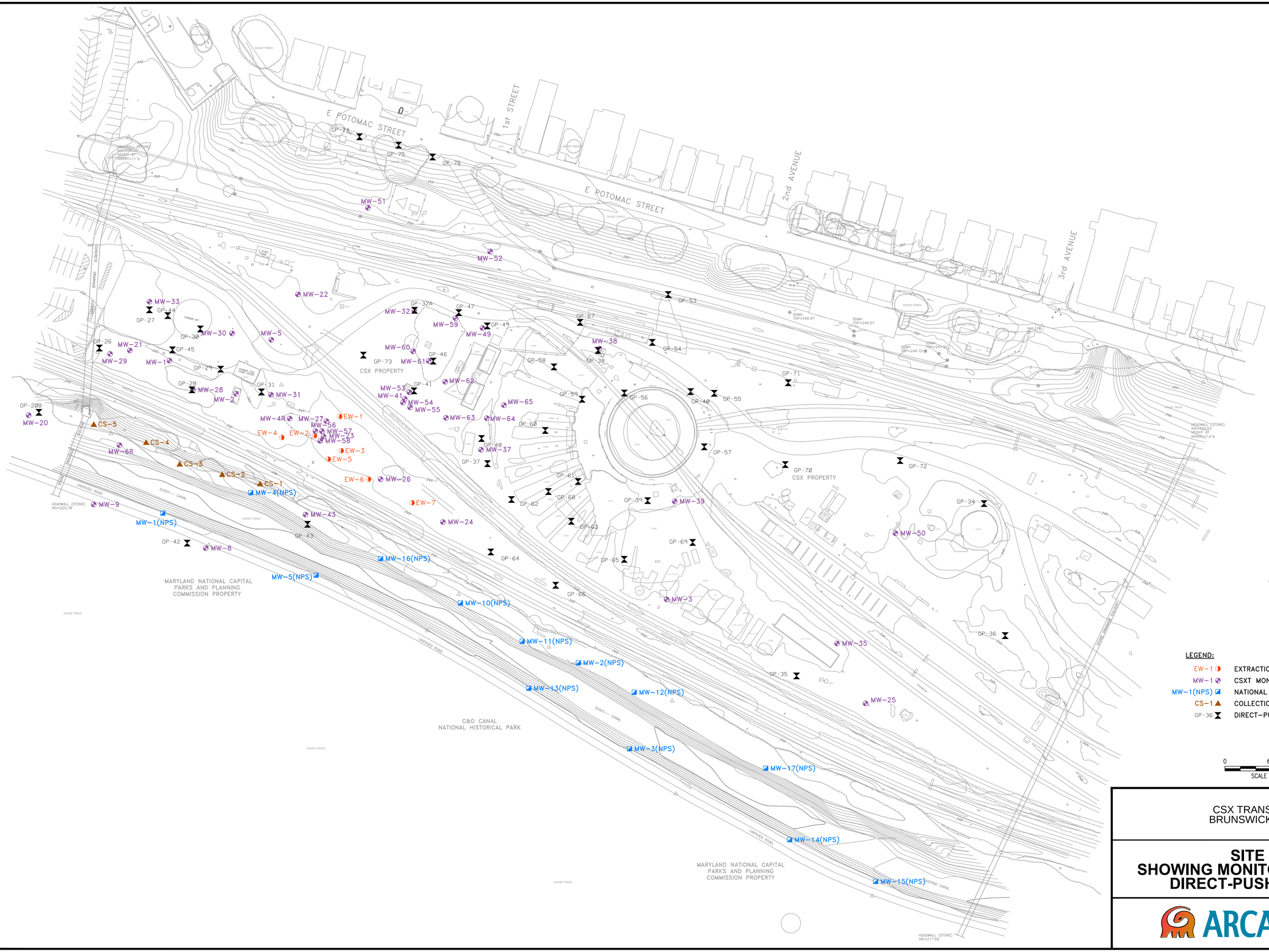
Well ID	Installation Date	Easting Coordinates	Northing Coordinates	Well Diamter (inches)	TOC Elevation (feet)	Depth to Screen (from TOC)	Screen Length	Top of Screen Elevation (feet)	Bottom of Screen Elevation (feet)
MW-1	6/24/1994	1135842.6	599612.4	4.0	247.20	8.7	20	238.50	218.50
MW-2	6/24/1994	1135822.3	599550.1	4.0	247.55	6.5	20	241.05	221.05
MW-3	6/24/1994	1135996.3	599485.0	4.0	248.38	6.0	20	242.38	222.38
MW-4R	6/12/2007	1135354.4	599450.2	4.0	244.68	5.0	20	239.68	219.68
MW-5	8/30/1995	1135145.6	599399.8	4.0	245.37	5.5	20	239.87	219.87
MW-6R	3/29/2004	1135134.6	599418.6	4.0	233.63	5.5	10	228.13	218.13
MW-8	8/31/1995	1135242.3	599287.9	4.0	235.51	6.5	20	229.06	209.06
MW-9	8/31/1995	1135103.7	599355.7	4.0	237.54	8.3	20	229.25	209.25
MW-20	9/27/2007	1135448.4	599530.1	4.0	236.27	2.5	20	233.77	213.77
MW-21	6/15/2007	1135146.8	599538.4	4.0	244.26	6.0	10	238.26	228.26
MW-22	6/13/2007	1135365.0	599611.3	4.0	245.65	9.0	10	236.65	226.65
MW-23	6/18/2007	1135397.5	599425.1	4.0	244.57	4.0	10	240.57	230.57
MW-24	6/18/2007	1135553.2	599316.0	4.0	244.50	4.0	10	240.50	230.50
MW-25	6/15/2007	1136105.5	599078.2	4.0	245.36	9.0	10	236.36	226.36
MW-26	6/13/2007	1135468.6	599370.5	4.0	244.67	10.5	10	234.17	224.17
MW-27	6/18/2007	1135395.9	599452.5	4.0	244.29	3.0	10	241.29	231.29
MW-28	11/12/2007	1135229.0	599487.5	4.0	244.23	7.0	20	237.23	217.23
MW-29	11/13/2007	1135121.4	599534.1	4.0	243.74	3.3	20	240.49	220.49
MW-30	11/16/2007	1135279.6	599560.5	4.0	245.46	3.8	20	241.71	221.71
MW-31	11/16/2007	1135330.3	599481.1	4.0	244.79	4.5	20	240.29	220.29
MW-32	11/16/2007	1135515.9	599590.4	4.0	245.80	4.5	20	241.30	221.30
MW-33	11/12/2007	1135172.4	599601.8	4.0	244.26	3.0	20	241.26	221.26
MW-35	11/21/2007	1135491.0	599802.9	4.0	245.80	4.8	20	240.97	220.97
MW-37	11/20/2007	1135602.6	599409.9	4.0	245.06	5.8	20	239.31	219.31
MW-38	11/26/2007	1135766.1	599342.9	4.0	246.09	5.0	20	241.09	221.09
MW-39	11/21/2007	1135853.6	599342.9	4.0	245.65	4.0	20	241.65	221.65
MW-41	11/19/2007	1135501.5	599471.3	4.0	246.07	2.0	20	244.07	224.07
MW-43	11/26/2007	1135604.3	599325.8	4.0	238.90	6.3	10	232.57	222.57
MW-49	11/19/2007	1135604.3	599567.6	4.0	246.02	4.5	20	241.52	221.52
MW-50	11/14/2007	1136139.9	599301.5	4.0	245.53	4.5	20	241.03	221.03
MW-51	11/20/2007	1135456.1	599723.6	4.0	249.34	5.0	20	244.34	224.34
MW-52	11/14/2007	1135614.3	599666.7	4.0	247.00	5.5	15	241.50	226.50
MW-53	12/17/2008	1135509.7	599484.3	2.0	246.1	10	10	236.32	226.32
MW-54	12/18/208	1135503.7	599475.7	2.0	245.6	10	10	236.42	226.42
MW-55	12/17/2008	1135510.5	599464.8	2.0	246.12	10	10	236.30	226.30
MW-56	12/16/2008	1135387.8	599433.9	2.0	244.63	10	10	234.93	224.93
MW-57	12/16/2008	1135396.2	599433.8	2.0	244.78	8	10	236.93	226.93
MW-58	12/16/2008	1135393.9	599421.3	2.0	244.42	10	10	234.78	224.78
MW-59	3/16/2012	1135569.5	599580.5	4.0	246.07	5	20	241.07	221.07
MW-60	3/16/2012	1135514.6	599537.4	4.0	245.57	5	20	240.57	220.57
MW-61	3/15/2012	1135534.7	599525	4.0	245.63	5	20	240.63	220.63
MW-62	3/14/2012	1135556.1	599498	4.0	246.08	5	20	241.08	221.08
MW-63	3/14/2012	1135557.2	599451.1	4.0	246.25	5	20	241.25	221.25
MW-64	3/14/2012	1135610.1	599450.7	4.0	245.45	5	20	240.45	220.45
MW-65	3/13/2012	1135632.4	599467.6	4.0	245.54	5	20	240.54	220.54
MW-1(NPS)	8/29/1996	1135189.6	599332.9	4.0	234.94	10.0	10	224.94	214.94
MW-2(NPS)	8/30/1996	1135731.2	599137.7	4.0	237.19	12.5	10	224.69	214.69
MW-3(NPS)	8/27/1996	1135790.7	599023.3	4.0	234.50	14.0	10	220.50	210.50
MW-4(NPS)	9/3/1996	1135307.1	599362.9	4.0	238.66	4.0	10	234.66	224.66
MW-5(NPS)	8/28/1996	1135385.6	599247.1	4.0	235.69	15.0	10	220.69	210.69
MW-10(NPS)	11/27/2001	1135580.2	599215.1	2.0	237.73	5.8	15	231.93	216.93

Table 2
Well Construction Details
C and O Canal/Brunswick Rail Yard, Brunswick, Maryland

Well ID	Installation Date	Easting Coordinates	Northing Coordinates	Well Diamter (inches)	TOC Elevation (feet)	Depth to Screen (from TOC)	Screen Length	Top of Screen Elevation (feet)	Bottom of Screen Elevation (feet)
MW-11(NPS)	11/27/2001	1135662.2	599160.3	2.0	234.40	10.8	10	223.60	213.60
MW-12(NPS)	11/28/2001	1135803.6	599097.4	2.0	242.61	16.8	10	225.81	215.81
MW-13(NPS)	11/28/2001	1135662.0	599097.0	2.0	234.72	14.3	10	220.42	210.42
MW-14(NPS)	11/29/2001	1136003.6	598904.9	2.0	234.74	7.3	20	227.44	207.44
MW-15(NPS)	11/30/2001	1136110.0	598850.5	2.0	234.38	7.8	15	226.58	211.58
MW-16(NPS)	12/3/2001	1135475.5	599269.4	2.0	240.09	6.8	15	233.29	218.29
MW-17(NPS)	12/3/2001	1136002.9	598994.5	2.0	242.71	15.8	15	226.91	211.91
EW-1	11/7/2003	1135420.3	599457.7	6.0	243.50	9	15	234.50	219.50
EW-2	11/4/2003	1135388.4	599433.9	6.0	243.30	13	10	230.3	220.30
EW-3	11/5/2003	1136064.4	599413.6	6.0	242.70	10.5	10	232.2	222.20
EW-4	11/6/2003	1135346.6	599430.3	6.0	243.20	10	15	233.2	218.20
EW-5	11/6/2003	1135403.3	599403.8	6.0	243.60	10	15	233.6	218.60
EW-6	11/6/2003	1135456.9	599371.5	6.0	242.40	10	15	232.4	217.40
EW-7	11/5/2003	1135513.3	599341.3	6.0	243.20	10	15	233.2	218.20

ARCADIS

Figures



LEGEND:

EW-1	EXTRACTION WELL
MW-1	CSXT MONITORING WELL
MW-1(NPS)	NATIONAL PARK SERVICE MONITORING WELL
CS-1	COLLECTION SUMP LOCATION
GP-36	DIRECT-PUSH LOCATION

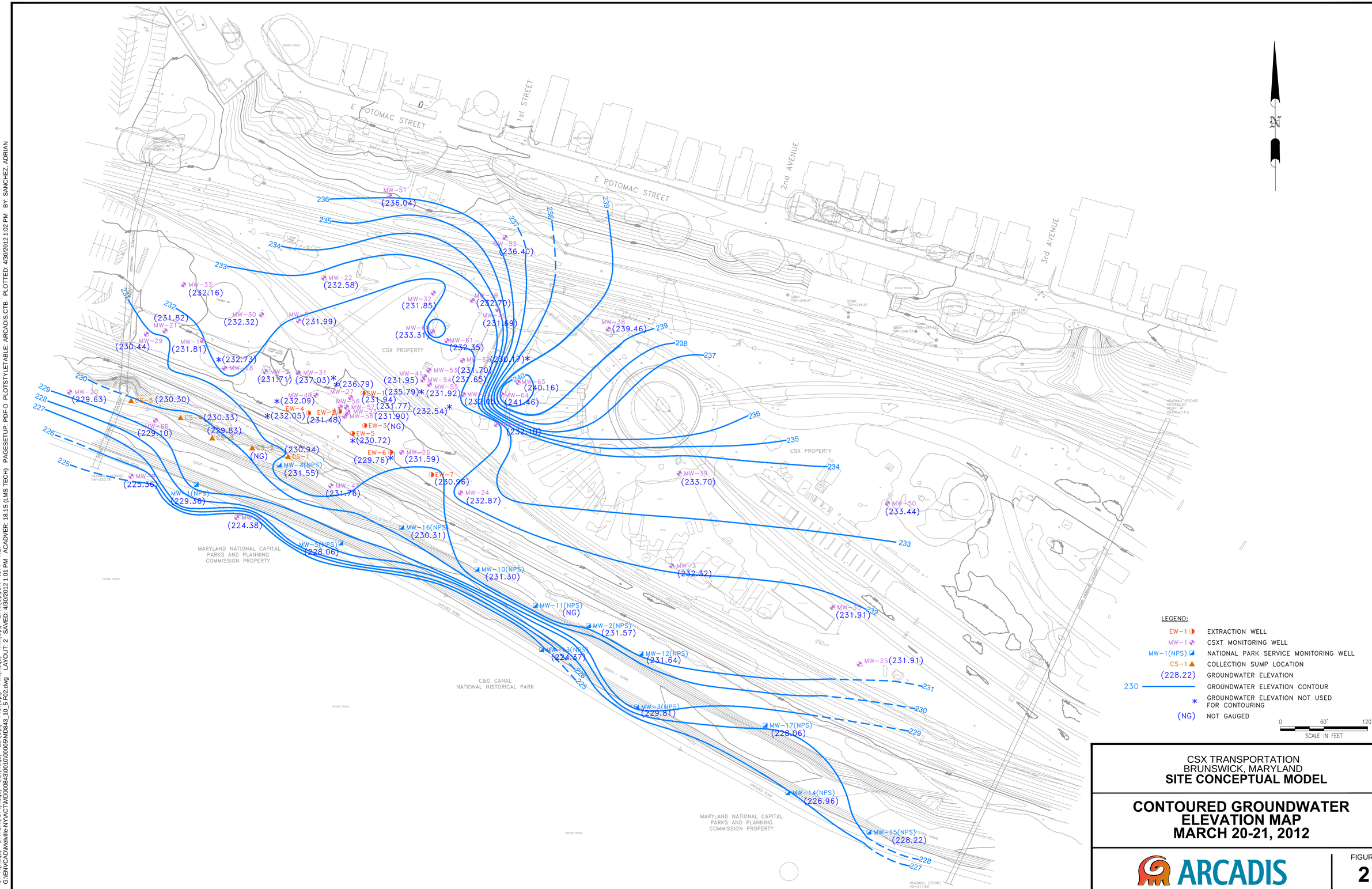
0 60' 120'
SCALE IN FEET

CSX TRANSPORTATION
BRUNSWICK, MARYLAND

SITE PLAN SHOWING MONITORING WELL AND DIRECT-PUSH LOCATIONS

ARCADIS

FIGURE
1



CSX TRANSPORTATION
BRUNSWICK, MARYLAND
SITE CONCEPTUAL MODEL

CONTOURED GROUNDWATER ELEVATION MAP MARCH 20-21, 2012

ARCADIS

FIGURE
2

E POTOMAC STREET
1st STREET
2nd AVENUE
3rd AVENUE
CSX PROPERTY
MARYLAND NATIONAL CAPITAL PARKS AND PLANNING COMMISSION PROPERTY
C&O CANAL NATIONAL HISTORICAL PARK
UNPAVED ROAD
EXISTING CANAL
DENSE TREES

MW-51 (--)
MW-52 (--)
MW-22 (--)
MW-33 (--)
MW-30 (--)
MW-5 (--)
MW-21 (--)
MW-29 (--)
MW-1 (--)
MW-28 (--)
MW-20 (--)
MW-31 (--)
MW-4R (NG)
MW-27 (--)
MW-56 (0.34)
MW-57 (0.12)
MW-58 (0.07)
MW-58 (--)
MW-9 (--)
MW-1(NPS) (--)
MW-8 (--)
MW-5(NPS) (--)
MW-43 (--)
MW-16(NPS) (--)
MW-10(NPS) (--)
MW-11(NPS) (NG)
MW-2(NPS) (--)
MW-13(NPS) (--)
MW-12(NPS) (--)
MW-3(NPS) (--)
MW-17(NPS) (--)
MW-14(NPS) (--)
MW-15(NPS) (--)
MW-24 (--)
MW-26 (--)
MW-39 (--)
MW-50 (--)
MW-23 (--)
MW-35 (--)
MW-25 (--)
MW-62 (0.02)
MW-50 (--)
MW-49 (0.02)
MW-38 (0.07)
MW-63 (0.07)
MW-61 (--)
MW-62 (2.44)
MW-41 (1.22)
MW-53 (0.81)
MW-54 (1.15)
MW-55 (0.42)
MW-63 (0.06)
MW-65 (--)
MW-64 (--)
MW-37 (0.50)
CS-5 (--)
CS-4 (--)
CS-3 (--)
CS-2 (--)
CS-1 (--)
EW-4 (--)
EW-2 (--)
EW-1 (--)
EW-3 (NG)
EW-5 (--)
EW-6 (--)
EW-7 (--)
MW-4(NPS) (--)

2

LEGEND:

- EW-1 — EXTRACTION WELL
- MW-1 — CSXT MONITORING WELL
- MW-1(NPS) — NATIONAL PARK SERVICE MONITORING WELL
- CS-1 — COLLECTION SUMP LOCATION
- (0.02) — LIQUID PHASE HYDROCARBON THICKNESS (FEET)
- (--) — NO LPH DETECTED
- (NG) — NOT GAUGED DURING MARCH 20–21, 2012 EVENT
- SKIMMER PUMP INSTALLED IN WELL
- APPROXIMATE LPH FOOTPRINT – AERIAL EXTENT

0 30 60 1200
SCALE: FEET

CSX TRANSPORTATION
BRUNSWICK, MARYLAND
SITE CONCEPTUAL MODEL

LIQUID PHASE HYDROCARBON (LPH) THICKNESS MARCH 20-21, 2012

ARCADIS

FIGURE
3

E POTOMAC STREET
1st STREET
2nd AVENUE
3rd AVENUE
CSX PROPERTY
MARYLAND NATIONAL CAPITAL PARKS AND PLANNING COMMISSION PROPERTY
C&O CANAL NATIONAL HISTORICAL PARK
UNPAVED ROAD
EXIST. CANAL
DENSE TREES

MW-51 (--)
MW-52 (--)
MW-22 (--)
MW-33 (0.36) 02/16/2009
MW-30 (0.15) 05/19/2008
MW-5 (--)
MW-21 (--)
MW-29 (--)
MW-4 (0.35) 10/17/1997
MW-28 (1.26) 02/04/2008
MW-3 (4.45) 03/31/2005
MW-31 (--)
10/10/2007 (0.02)
MW-20 (--)
CS-5 (--)
CS-4 (--)
MW-58 (0.01) 11/13/2006
07/10/2007 (1.02)
MW-4R
MW-27
EW-4 04/22/2004 (1.17)
EW-2 (0.22) 09/24/2008
MW-56 (3.29) 04/06/2010
MW-57 (5.28) 01/13/2009
MW-53 (--)
MW-54 (1.50) 01/30/2009
EW-3 (2.24) 04/30/2004
EW-5 (0.88) 09/21/2010
CS-3 (0.01) 02/26/2008
10/19/2007 (0.11)
CS-2 (0.02)
CS-1 11/20/2007
MW-4(NPS) (0.12) 07/29/2004
EW-6 (--)
MW-26 (0.12) 09/21/2010
EW-7 (--)
MW-43 (--)
MW-24 (--)
MW-9 (--)
MW-1(NPS) (--)
MW-8 (--)
MW-16(NPS) (--)
MW-5(NPS) (--)
MW-10(NPS) (--)
MW-11(NPS) (NG)
MW-2(NPS) (--)
MW-13(NPS) (--)
MW-12(NPS) (--)
MW-3(NPS) (--)
MW-17(NPS) (--)
MW-14(NPS) (--)
MW-15(NPS) (--)
MW-32 (0.02)
MW-59 (0.04) 03/27/2012
MW-49 (2.76) 07/10/2008
MW-6R (0.07)
MW-61 (0.01) 03/27/2012
MW-62 (2.68) 03/27/2012
MW-41 (3.06) 06/24/2009
MW-53 (3.47) 04/05/2010
MW-54 (3.23) 06/24/2009
MW-55 (3.53) 03/01/2010
MW-63 (0.39) 03/27/2012
MW-64 (--)
MW-65 (--)
MW-37 (1.46) 03/03/2012
MW-38 (7.85) 01/09/2008
MW-39 (--)
MW-50 (--)
MW-23 (--)
MW-35 (--)
MW-25 (--)

N

LEGEND:
- EW-1 EXTRACTION WELL
- MW-1 CSXT MONITORING WELL
- MW-1(NPS) NATIONAL PARK SERVICE MONITORING WELL
- CS-1 COLLECTION SUMP LOCATION
- (0.02) LIQUID PHASE HYDROCARBON THICKNESS (FEET)
- (--) NO LPH DETECTED
- (NG) NOT GAUGED DURING MARCH 20–21, 2012 EVENT
- SKIMMER PUMP INSTALLED IN WELL
- APPROXIMATE LPH FOOTPRINT – AERIAL EXTENT

0 60' 120'
SCALE IN FEET

CSX TRANSPORTATION
BRUNSWICK, MARYLAND
SITE CONCEPTUAL MODEL

MAXIMUM LIQUID PHASE HYDROCARBON (LPH) THICKNESS RECORDED 1995 - PRESENT

ARCADIS

FIGURE
4

E POTOMAC STREET
1st STREET
2nd AVENUE
3rd AVENUE
CSX PROPERTY
MARYLAND NATIONAL CAPITAL PARKS AND PLANNING COMMISSION PROPERTY
C&O CANAL NATIONAL HISTORICAL PARK
UNPAVED ROAD
EXISTING CANAL
DENSE TREES

MW-51 (0.31)
MW-52 (NS)
MW-22 (7.3)
MW-33 (NS)
MW-32 (NS)
MW-30 (NS)
MW-5 (NS)
MW-49 (NS)
MW-38 (NS)
MW-21 (NS)
MW-29 (2.0)
MW-1 (NS)
MW-28 (NS)
MW-3 (NS)
MW-31 (NS)
MW-41 (NS)
MW-53 (NS)
MW-54 (NS)
MW-55 (NS)
MW-20 (NS)
CS-5 (NS)
MW-4R (NS)
MW-27 (NS)
EW-1
MW-56 (NS)
MW-57 (NS)
MW-58 (NS)
EW-4 (NS)
EW-2 (NS)
CS-4 (NS)
MW-6R (1.3)
EW-3 (NS)
EW-5 (NS)
MW-37 (NS)
CS-3 (NS)
CS-2 (NS)
CS-1 (NS)
EW-6 (NS)
MW-26 (NS)
MW-4(NPS) (2.9)
EW-7 (NS)
MW-39 (NS)
MW-50 (NS)
MW-9 (NS)
MW-1(NPS) (1.0)
MW-43 (1.5)
MW-24 (2.1)
MW-8 (NS)
MW-16(NPS) (0.96)
MW-5(NPS) (0.62)
MW-23 (0.14)
MW-10(NPS) (NS)
MW-35 (NS)
MW-11(NPS) (NS)
MW-2(NPS) (1.2)
MW-25 (3.4)
MW-13(NPS) (0.53)
MW-12(NPS) (NS)
MW-3(NPS) (NS)
MW-17(NPS) (NS)
MW-14(NPS) (1.7)
MW-15(NPS) (NS)

HEADWALL (STONE) INV=220.78
HEADWALL (STONE) INV=233.63 HEIGHT AT INVERT=4.7'±
HEADWALL (STONE) INV=233.78 HEIGHT AT INVERT=11'±
SDMH TOP=246.97
SDMH TOP=246.57
SDMH TOP=247.62
SDMH TOP=246.72
NAIL IN

N

LEGEND:

EW-1	EXTRACTION WELL
MW-1	CSXT MONITORING WELL
MW-1(NPS)	NATIONAL PARK SERVICE MONITORING WELL
CS-1	COLLECTION SUMP LOCATION
(6.8)	TOTAL PETROLEUM HYDROCARBON DIESEL RANGE ORGANICS (TPH-DRO) CONCENTRATION IN mg/L AUGUST 2011
(NS)	NOT SAMPLED
(mg\L)	MILLIGRAMS PER LITER

0 30 60 1200
SCALE: FEET

CSX TRANSPORTATION
BRUNSWICK, MARYLAND

TPH-DRO CONCENTRATIONS IN GROUNDWATER MARCH 2012

ARCADIS

FIGURE
5

ARCADIS

Appendix A

Boring and Well Construction Logs

Appendix A-1

Boring Logs

BORING REPORT	EDER ASSOCIATES Locust Valley, NY; Madison, WI; Ann Arbor MI; Augusta, GA; Jacksonville, FL; Tampa, FL; Trenton, NJ	SHEET 1 OF 2

DATE STARTED: 6/23/94	DATE FINISHED: 6/23/94	BORING NO. MW-1
CLIENT: CSXT		PROJECT NO.: 560-44.3
PROJECT NAME & LOCATION: C&O Canal, Brunswick, MD		PREPARED BY: H. Ernst
DRILLING CONTRACTOR: ADT	LOGGED BY: H. Ernst	DRILLER: T. Brown

EQUIPMENT:	CASING:	SOIL SAMPLER: S/SPOON		CORE BARREL	AUGER	MON. WELL (MW) PIPE	MON. WELL (MW) CAP	DRILL RIG AND METHOD
TYPE:		Stainless Steel			H.S.A.			Mobile B-59 Hollow Stem Auger
SIZE:		2" x 24"			6 1/2" ID			
HAMMER WT/FALL		140 lb 30 inch		BIT: Carbide tooth				

SURFACE ELEVATION: SURFACE CONDITIONS: Soil and gravel

WATER LEVEL AT FT. AFTER HRS. FT. AFTER HRS.

DEPTH BELOW GRADE	OVA READINGS	SAMPLE TYPE AND NO.	SAMPLE DEPTH (FROM-TO)	MOISTURE CONTENT	RECOVERY	BLOWS/6" OR CORE TIME	STRATA DEPTH/ ELEV. USCS Class	DESCRIPTION & REMARKS TRACE=0-10% LITTLE=10-20% SOME=20-30% AND=35-50%
0		SS-1	0-2	dry	40%	4,5,5,4	SP	Black, fine to medium sand, some gravel, cinders
		SS-2	2-4	dry	40%	5,5,4,5	SM	Orange-brown, clayey silt, little fine sand, trace gravel
5		SS-3	4-6	dry	50%	5,5,7,9	SM	Same as above
		SS-4	6-8	dry	40%	5,4,3,4	SM	Orange-brown, clayey silt, little fine sand
		SS-5	8-10	moist	50%	4,3,3,4	SP	Same as above, grading into black fine sand, cinders
10		SS-6	10-12	wet	70%	2,2,3,3	CL	Orange-brown and grey, silty clay, little sand
		SS-7	12-14	wet	80%	5,11,13,16	CL	Greenish grey, silty clay, trace fine sand
15		SS-8	14-16	wet	80%	16,45,30,51	CL	Same as above, two 1" gravel layers, odor
		SS-9	16-18	moist	70%	24,44,64,100/45"	CL	Same as above, clay and broken cobbles lowest 0.5', odor, sheen
20		SS-10	18-20	wet. sat.	40%	39,65,93,70	SM	Greenish-grey sand & silt, broken cobbles, sheen with odor
		SS-11	20-22	wet	40%	70,70,55,70	SM	Greenish-grey silt, little sand and gravel
25								USCS - Unified soil classification system

PROJECT NAME: C&O Canal, Brunswick, MD BORING NO.: MW-1 PROJECT NO. 560-44.3

BELOW GRADE	OVA READINGS	TYPE AND NO.	DEPTH (FROM-TO)	MOISTURE CONTENT	RECOVERY	BLOWS/6" OR CORE TIME	STRATA DEPTH/ ELEV.	DESCRIPTION & REMARKS TRACE=0-10% LITTLE=10-20% SOME=0-30% AND=35-50%
		SS-12	25.5-27.5	wet	50%	93,93,36/1"	SP	Orange-brown, medium to fine sand, some gravel

BORING REPORT	EDER ASSOCIATES Locust Valley, NY; Madison, WI; Ann Arbor MI; Augusta, GA; Jacksonville, FL; Tampa, FL; Trenton, NJ	SHEET 1 OF 1

DATE STARTED: 6/23/94	DATE FINISHED: 6/23/94	BORING NO. MW-2
CLIENT: CSXT		PROJECT NO.: 560-44.3
PROJECT NAME & LOCATION: C&O Canal, Brunswick, MD		PREPARED BY: H. Ernst
DRILLING CONTRACTOR: ADT	LOGGED BY: H. Ernst	DRILLER: T. Brown

EQUIPMENT:	CASING:	SOIL SAMPLER: S/SPOON		CORE BARREL	AUGER	MON. WELL (MW) PIPE	MON. WELL (MW) CAP	DRILL RIG AND METHOD
TYPE:		Stainless Steel			H.S.A.			Mobile B-59 Hollow Stem Auger
SIZE:		2" x 24"			6 1/2" ID			
HAMMER WT/FALL		140 lb 30 inch		BIT: Carbide tooth				

SURFACE ELEVATION: SURFACE CONDITIONS: Soil and gravel

WATER LEVEL AT FT. AFTER HRS. FT. AFTER HRS.

DEPTH BELOW GRADE	OVA READINGS	SAMPLE TYPE AND NO.	SAMPLE DEPTH (FROM-TO)	SAMPLE MOISTURE CONTENT	SAMPLE RECOVERY	BLOWS/6" OR CORE TIME	STRATA DEPTH/ ELEV. USCS Class	DESCRIPTION & REMARKS TRACE=0-10% LITTLE=10-20% SOME=20-30% AND=35-50%
0		SS-1	0-2	dry	50%	4,5,3,2	SM	Upper 0.5: black, medium to fine sand and cinders Lower 0.4" orange-brown clayey silt, little fine sand
5		SS-2	5-7	moist	50%	2,2,2,3	SM	Greenish-grey, clayey silt, little fine sand, trace gravel, odor
10		SS-3	10-12	moist	40%	3,5,24,14	CL	Greenish-grey, silty clay, trace fine sand, slight odor
15	150 ppm	SS-4	15-17	wet	20%	12,12,82,44	SM	Grey clayey silt, little sand, odor, product
20		SS-5	20-22	wet	80%	24,34,24,15	SP	Grey medium to fine sand, little silt and gravel, odor
25								USCS - Unified soil classification system

BORING REPORT	EDER ASSOCIATES Locust Valley, NY; Madison, WI; Ann Arbor MI; Augusta, GA; Jacksonville, FL; Tampa, FL; Trenton, NJ	SHEET 1 OF 1

DATE STARTED: 6/24/94	DATE FINISHED: 6/24/94	BORING NO. MW-3
CLIENT: CSXT		PROJECT NO.: 560-44.3
PROJECT NAME & LOCATION: C&O Canal, Brunswick, MD		PREPARED BY: H. Ernst
DRILLING CONTRACTOR: ADT	LOGGED BY: H. Ernst	DRILLER: T. Brown

EQUIPMENT:	CASING:	SOIL SAMPLER: S/SPOON		CORE BARREL	AUGER	MON. WELL (MW) PIPE	MON. WELL (MW) CAP	DRILL RIG AND METHOD
TYPE:		Stainless Steel			H.S.A.			Mobile B-59 Hollow Stem Auger
SIZE:		2" x 24"			6 1/2" ID			
HAMMER WT/FALL		140 lb 30 inch		BIT: Carbide tooth				

SURFACE ELEVATION: SURFACE CONDITIONS: Gravel and cinders

WATER LEVEL AT FT. AFTER HRS. FT. AFTER HRS.

DEPTH BELOW GRADE	OVA READINGS	SAMPLE TYPE AND NO.	SAMPLE DEPTH (FROM-TO)	SAMPLE MOISTURE CONTENT	SAMPLE RECOVERY	BLOWS/6" OR CORE TIME	STRATA DEPTH/ ELEV. USCS Class	DESCRIPTION & REMARKS TRACE=0-10% LITTLE=10-20% SOME=20-30% AND=35-50%
0		SS-1	0-2	dry	20%	6,5,9,12	SM	Black, medium to fine sand and silt, cinders
5								
10		SS-2	5-7	dry	40%	4,4,4,4	CL	Grey silty clay, little fine sand
15		SS-3	10-12	moist	40%	3,1,3,3	CL	Same as above
20		SS-4	15-17	wet	80%	7,12,15,19	SM	Red-brown clayey silt, little fine sand
25		SS-5	20-22	wet	10%	23,26,36,56	SM	Same as above, pushed cobble USCS - Unified soil classification system

BORING REPORT

EDER ASSOCIATES

Locust Valley, NY; Madison, WI; Ann Arbor MI;
Augusta, GA; Jacksonville, FL; Tampa, FL; Trenton, NJ

SHEET 1 OF 1

DATE STARTED: 6/24/94 | DATE FINISHED: 6/24/94 | BORING NO. MW-4

CLIENT: CSXT | PROJECT NO.: 560-44.3

PROJECT NAME & LOCATION: C&O Canal, Brunswick, MD | PREPARED BY: H. Ernst

DRILLING CONTRACTOR: ADT | LOGGED BY: H. Ernst | DRILLER: T. Brown

EQUIPMENT:	CASING:	SOIL SAMPLER: S/SPOON		CORE BARREL	AUGER	MON. WELL (MW) PIPE	MON. WELL (MW) CAP	DRILL RIG AND METHOD
TYPE:		Stainless Steel			H.S.A.			Mobile B-59 Hollow Stem Auger
SIZE:		2" x 24"			6 1/2" ID			
HAMMER WT/FALL		140 lb 30 inch		BIT: Carbide tooth				

SURFACE ELEVATION: | SURFACE CONDITIONS: Gravel and cinders

WATER LEVEL AT FT. AFTER HRS. | FT. AFTER HRS.

DEPTH BELOW GRADE	OVA READINGS	SAMPLE TYPE AND NO.	SAMPLE DEPTH (FROM-TO)	SAMPLE MOISTURE CONTENT	SAMPLE RECOVERY	BLOWS/6" OR CORE TIME	STRATA DEPTH/ ELEV. USCS Class	DESCRIPTION & REMARKS TRACE=0-10% LITTLE=10-20% SOME=20-30% AND=35-50%
0		SS-1	0-2	dry	30%	3,3,2,2	SP	Black, medium to fine sand, cinders
5		SS-2	5-7	dry	40%	2,5,4,2	CL	Red-brown, silty clay, little fine sand, trace gravel
10		SS-3	10-12	moist	70%	5,8,8,16	CL	Grey and brown silty clay, trace gravel, odor
15		SS-4	15-17	wet	20%	5,13,9,9	SM	Grey clayey silt and fine sand, odor
20		SS-5	20-22	wet	60%	22,59,69,89	SP	Grey, medium to fine sand, some gravel
25								USCS - Unified soil classification system

ORING REPORT

EDER ASSOCIATES
Locust Valley, NY; Madison, WI; Ann Arbor MI;
Augusta, GA; Jacksonville, FL; Tampa, FL; Trenton, NJ

SHEET 1 OF 2

TE STARTED: 8/28/95 | DATE FINISHED: 8/30/95 | BORING NO.: MW-5

CLIENT: CSX Transportation | PROJECT NO.: 560-44.5

JECT NAME & LOCATION: C & O Canal, Brunswick, Maryland | PREPARED BY: Herb Ernst

DRILLING CONTRACTOR: Froehling & Robertson | LOGGED BY: Herb Ernst | DRILLER: Nate Lazaro, Tim Jackson

EQUIPMENT:	CASING:	SOIL SAMPLER:		CORE BARREL	AUGER	MON. WELL (MW) PIPE	MON. WELL (MW) CAP	DRILL RIG AND METHOD
TYPE:		Split-Spoon			H.S.A.			CME
E:		2" x 24"			3 1/4" & 6 1/4" I.D.			Truck-Mounted
HAMMER		140 lb.		BIT: Carbide Tooth				Hollow Stem Auger
/FALL		30"						

URFACE ELEVATION: | SURFACE CONDITIONS:

TER LEVEL AT | FT. AFTER | HRS. | FT. AFTER | HRS.

DEPTH BELOW GRADE	PID READINGS (ppm)	SAMPLE TYPE AND NO.	SAMPLE DEPTH (FROM-TO)	SAMPLE MOISTURE CONTENT	SAMPLE RECOVERY	BLOWS/6" OR CORE TIME	STRATA DEPTH/ELEV. USCS CLASS	DESCRIPTION & REMARKS TRACE=0-10% LITTLE=10-20% SOME=20-30% AND=35-50%
0			0-2	dry	0.5	17,15,9,6	SM	upper 0.2': gravel bed
								lower 0.3': SAND, fine to coarse,
								little silt, black
5								
			5-7	dry	1.2	2,2,3,1	ML	CLAYEY SILT, trace fine black
								sand, grey-brown, no odor
10								
			10-12	dry	1.5	5,4,4,5	ML	CLAYEY SILT, some fine
								sand, trace gravel, grey-brown
15								
			15-17	moist/wet	1.5	2,2,4,3	SM	CLAYEY SILT & SAND, fine,
								grey-brown, black staining, odor
20			19.5-21.5	wet	1.3	15,14,17,12	SM	same as above, some coarse
								gravel in lowest 0.4'
25								

OJECT NAME: CSXT Brunswick BORING NO. MW-5 **PROJECT NO. 560-44.5** **SHEET 2 OF 2**

BELOW GRADE	OVA READINGS	TYPE AND NO.	DEPTH (FROM-TO)	MOISTURE CONTENT	RECOVERY	BLOWS/6" OR CORE TIME	STRATA DEPTH/ELEV. USCS CLASS	DESCRIPTION & REMARKS TRACE=0-10% LITTLE=10-20% SOME=0-30% AND=35-50%
			24.5-26.5	wet	0.5	38,50/3"	SP	SAND, medium to fine, some quartz cobbles, light brown
30			28-30	wet	0.4	15,18,12,10	SP	SAND, medium to fine, some gravel, little silt
								Bottom of Boring - 30 feet
35								
40								
45								
50								
55								
60								

ING REPORT	EDER ASSOCIATES Locust Valley, NY; Madison, WI; Ann Arbor MI; Augusta, GA; Jacksonville, FL; Tampa, FL; Trenton, NJ	SHEET 1 OF 1

STARTED: 8/29/95	DATE FINISHED: 8/30/95	BORING NO.: MW-6
LIENT: CSX Transportation		PROJECT NO.: 560-44.5
CT NAME & LOCATION: C & O Canal, Brunswick, Maryland		PREPARED BY: Herb Ernst
RILLING CONTRACTOR: Froehling & Robertson	LOGGED BY: Herb Ernst	DRILLER: Nate Lazaro, Tim Jackson

EQUIPMENT:	CASING:	SOIL SAMPLER:		CORE BARREL	AUGER	MON. WELL (MW) PIPE	MON. WELL (MW) CAP	DRILL RIG AND METHOD
		Split-Spoon			H.S.A.			CME
		2" x 24"			4 1/4" I.D.			ATV-Mounted
AMMER LL		140 lb. 30"		BIT: Carbide Tooth				Hollow Stem Auger

RFACE ELEVATION: SURFACE CONDITIONS:

LEVEL AT FT. AFTER HRS. FT. AFTER HRS.

DEPTH BELOW RADE	PID READINGS (ppm)	SAMPLE TYPE AND NO.	SAMPLE DEPTH (FROM-TO)	SAMPLE MOISTURE CONTENT	SAMPLE RECOVERY	BLOWS/6" OR CORE TIME	STRATA DEPTH/ELEV. USCS CLASS	DESCRIPTION & REMARKS TRACE=0-10% LITTLE=10-20% SOME=20-30% AND=35-50%
0	0		0-2	dry	1.2	2,2,2,3	SM	SAND & SILT, fine, some organics, black
5	119		4-6	dry	1.8	4,8,6,10	ML	CLAYEY SILT, little fine sand, dark brown
10	220		9-11	moist	1.2	4,8,10,15	ML	CLAYEY SILT,some gravel, little sand, dark brown and red hard drilling at 11', cuttings - coarse gravel
15	0		14-15.5	wet	0.8	26,24,50/4"	SP	SAND & GRAVEL, medium to coarse, trace clay, light brown
20								Bottom of Boring - 22 feet
25								

RING REPORT

EDER ASSOCIATES
Locust Valley, NY; Madison, WI; Ann Arbor MI; Augusta, GA; Jacksonville, FL; Tampa, FL; Trenton, NJ

SHEET 1 OF 1

STARTED: 8/31/95	DATE FINISHED: 8/31/95	BORING NO.: MW-8	
LIENT: CSX Transportation		PROJECT NO.: 560-44.5	
CT NAME & LOCATION: C & O Canal, Brunswick, Maryland		PREPARED BY: Herb Ernst	
RILLING CONTRACTOR: Froehling & Robertson	LOGGED BY: Herb Ernst	DRILLER: Nate Lazaro, Tim Jackson	

EQUIPMENT:	CASING:	SOIL SAMPLER:		CORE BARREL	AUGER	MON. WELL (MW) PIPE	MON. WELL (MW) CAP	DRILL RIG AND METHOD
		Split-Spoon			H.S.A.			CME Truck-Mounted Hollow Stem Auger
		2" x 24"			6 1/4" I.D.			
AMMER		140 lb.		BIT: Carbide Tooth				
ALL		30"						

RFACE ELEVATION: SURFACE CONDITIONS:

R LEVEL AT FT. AFTER HRS. FT. AFTER HRS.

DEPTH BELOW GRADE	PID READINGS (ppm)	SAMPLE TYPE AND NO.	SAMPLE DEPTH (FROM-TO)	SAMPLE MOISTURE CONTENT	SAMPLE RECOVERY	BLOWS/6" OR CORE TIME	STRATA DEPTH/ELEV. USCS CLASS	DESCRIPTION & REMARKS TRACE=0-10% LITTLE=10-20% SOME=20-30% AND=35-50%
0	0		0-2	dry	1	2,2,4,4	ML	SILT, some fine sand, organics, black
5	0		5-7	dry	1.2	5,7,10,11	SM	SAND & SILT, fine, brown
10	0		10-12	dry	0.2	6,5,5,7	ML	CLAYEY SILT, trace silt, reddish brown
15	0		15-17	wet	1.5	1,2,2,3	CL	SILTY CLAY, trace fine sand, reddish brown
20								
25								Bottom of Boring - 25 feet

BORING REPORT	EDER ASSOCIATES Locust Valley, NY; Madison, WI; Ann Arbor MI; Augusta, GA; Jacksonville, FL; Tampa, FL; Trenton, NJ	SHEET 1 OF 1

DATE STARTED: 8/31/95	DATE FINISHED: 8/31/95	BORING NO.: MW-9
CLIENT: CSX Transportation		PROJECT NO.: 560-44.5
PROJECT NAME & LOCATION: C & O Canal, Brunswick, Maryland		PREPARED BY: Herb Ernst
DRILLING CONTRACTOR: Froehling & Robertson	LOGGED BY: Herb Ernst	DRILLER: Nate Lazaro, Tim Jackson

		SOIL SAMPLER:		CORE		MON. WELL (MW)		DRILL RIG
EQUIPMENT:	CASING:			BARREL	AUGER	PIPE	CAP	AND METHOD
TYPE:		Split-Spoon			H.S.A.			CME
SIZE:		2" x 24"			6 1/4" I.D.			Truck-Mounted
HAMMER WT/FALL		140 lb. 30"		BIT: Carbide Tooth				Hollow Stem Auger

SURFACE ELEVATION: SURFACE CONDITIONS:

WATER LEVEL AT FT. AFTER HRS. FT. AFTER HRS.

DEPTH BELOW GRADE	PID READINGS (ppm)	SAMPLE TYPE AND NO.	SAMPLE DEPTH (FROM-TO)	SAMPLE MOISTURE CONTENT	SAMPLE RECOVERY	BLOWS/6" OR CORE TIME	STRATA DEPTH/ELEV. USCS CLASS	DESCRIPTION & REMARKS TRACE=0-10% LITTLE=10-20% SOME=20-30% AND=35-50%
0	0		0-2	dry	0.5	5,7,2,8	SM	upper 0.3': SILT&SAND, fine, some organics, dark brown
							SP	lower 0.2: SAND, medium to fine, little gravel, light brown
5								
	0		5-7	dry	0.2	4,4,13,15	SP	SAND & GRAVEL, fine to coarse, light brown
10								
	0		10-12	dry	0.2	15,8,5,4	GP	SAND & GRAVEL, coarse, broken cobbles, brown
15								
	0		14-15.5	wet	0.8	26,24,50/4"	CL	SILTY CLAY, trace sand, grey, no odor
20								
25								Bottom of Boring - 25 feet

ARCADIS

Sample Log

Well/Boring MW-4R **Project Name and No.** MD000843.0005.00003

Site Location CSXT Brunswick Rail yard **Drilling Started** 6/12/2007 **Drilling Completed** 6/12/2007

Total Depth Drilled 25 feet **Hole Diameter** 6 1/4 inches **Sampling Interval** 16-18 feet

Length and Diameter of Sampling Device 2', 2" **Type of Sampling Device** split spoon

Drilling Method HSA **Drilling Fluid Used** None

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** George Martin

Prepared By Andrew McDonald **Hammer Weight** _____ **Hammer Drop** 48 inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
0	2	0.6	1,1,1,1	Gravel fill	2.3
2	4	0.6	1,1,1,1	Darkgray, very soft, clayey silts, dry, (ML)	1.8
4	6	0.6	1,1,1,1	Darkgray, very soft, clayey silts, dry, (ML)	0.7
6	8	0.6	1,4,3,2	Yellowish orange, soft, clayey sand, moist, (SC)	1.8
8	10	2	4,3,2,6	Yellowish orange, soft, clayey sand, moist, (SC)	0
10	12	0	6,4,3,7	No recovery broken spoon	0
12	14	2	4,4,4,4	Olivegray, soft, clayey silt, moist, (ML)	33.3
14	16	2	4,4,4,6	(14-15.5) Same as above	44.7
				(15.5-16) Greenish gray, medium stiff, silty sand, wet, (SM)	
16	17	2	2,2,14,11	Same as Above	49.3
17	18			Greenish gray, silty gravel, stiff, wet, (GM)	43.8
18	20	1	14,13,2,1	Greenish gray, silty sand, stiff, wet, (SM)	9.2
20	22	1	2,4,15,33	Olivegray, hard, silty sand, wet, (SM)	3.7
22	24	1.5	5,11,36,55	Olivegray, hard, silty sand, wet, (SM)	1.7
24	25	1	37,41	Same as Above	1

Sample Log

Well/Boring MW-21 **Project Name and No.** MD000843.0005.00003

Site Location CSXT Brunswick Rail yard **Drilling Started** 6/15/2007 (1145) **Drilling Completed** 6/15/2007 (1350)

Total Depth Drilled 18 feet **Hole Diameter** 6 1/4 inches **Sampling Interval** 12-13 feet

Length and Diameter of Sampling Device 2', 2" **Type of Sampling Device** split spoon **Time:** 0945

Drilling Method HSA **Drilling Fluid Used** None

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** George Martin

Prepared By Sandra Grabowski **Hammer Weight** _____ **Hammer Drop** 48 inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
2	4	1	3,5,5,4	(2-2.25) black cinders	NR
				(2.25-4) yellowish orange, stiff, clayey silt w/ some sand & gravel, dry, (ML)	
4	6	0.8	4,4,4,3	(4-4.5) black cinders	NR
				(4.5-6) yellowish orange, soft, sandy silt, dry (ML)	
6	8	1.2	3,3,2,3	Yellowish orange, stiff, clayey silt, w/some sand & gravel, moist, (ML)	NR
8	10	2	2,3,2,3	(8-9) yellowish orange, sandy clay, w/gravel, slightly moist (ML)	NR
				(9-10) yellowish orange, sandy silt, w/black cinders, dry, (ML)	
10	12	1	2,2,1,2	black, sandy silt, moderatly stiff, moist, *black cinders	NR
12	14	1.6	6,3,3,1	(12-13.3) black, sandy silt, moderatly stiff, moist, *black cinders	NR
				(13.3-14) olive grey, sandy silt (30% gravel), wet (ML)	
14	16	1	11,22,6,11	(14-15) olive grey, clayey silt w/ some gravel, wet (ML)	NR
				(15-16) olive grey, clayey silt, moderatly stiff, moist (ML)	
16	18	1.5	29,10,14,36	(16-17.5) olive grey, clayey silt w/gravel (25%), wet (ML)	NR
				(17.5-18) olive grey, sandy silt, moist (ML)	

Sample Log

Well/Boring MW-22 **Project Name and No.** MD000843.0005.00003

Site Location CSXT Brunswick Rail yard **Drilling Started** 6/13/2007 (0810) **Drilling Completed** 6/13/2007 (1100)

Total Depth Drilled 20 feet **Hole Diameter** 6 1/4 inches **Sampling Interval** 12-13 feet

Length and Diameter of Sampling Device 2', 2" **Type of Sampling Device** split spoon

Drilling Method HSA **Drilling Fluid Used** None

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** George Martin

Prepared By Sandra Grabowski **Hammer Weight** _____ **Hammer Drop** 48 inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
5	7	1.5	2,1,3,4	Olive gray, soft, clayey silt, dry, (ML)	0
7	9	1.5	5,7,9,5	Olive gray, soft, clayey silt, dry, (ML)	0
9	11	1.7	1,3,4,7	(9-9.5) olive gray, soft, clayey silt, dry, (ML)	18.5
				(9.5-11) olive gray, stiff, clayey silt, dry, (ML)	
11	13	2	4,8,7,9	(11-12.5) olive gray, stiff, sandy silt, dry, (ML)	19.4
				(12.5-13) olive gray, stiff, sandy silt, dry, (ML)	
13	15	2	1,3,4,3	(13-14) olive gray, stiff, sandy silt, dry, (ML)	18.9
				(14-15) olive gray, stiff, sandy silt, moist, (ML)	
15	17	2	3,3,5,7	(15-16.5) olive gray, stiff, clayey silt, dry, (ML)	16.8
				(16.5-17) dark gray, stiff, sandy silt, moist, (ML)	
17	19	1	37,10,22,5	(17-17.5) olive gray, medium stiff, clayey silt, dry (ML)	2.5
				(17.5-19) crumbly, olive gray, gravel clayey silt(10%), dry, (ML)	
19	21	0.5	29,50,13	Same as above; atz cobble	

Sample Log

Well/Boring MW-23 **Project Name and No.** MD000843.0005.00003

Site Location CSXT Brunswick Rail yard **Drilling Started** 6/18/2007 (0905) **Drilling Completed** 6/18/2007 (1030)

Total Depth Drilled 16 feet **Hole Diameter** 6 1/4 inches **Sampling Interval** 8-9 feet

Length and Diameter of Sampling Device 2', 2" **Type of Sampling Device** split spoon

Drilling Method HSA **Drilling Fluid Used** None

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** George Martin

Prepared By Sandra Grabowski **Hammer Weight** _____ **Hammer Drop** 48 inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
2	4	1.5	2,3,4,3	Olive gray, soft, clayey silt, dry, (ML)	11.6
4	6	0.8	4,4,7,6	olive gray, soft, clayey silt, dry, (ML)	5.9
6	8	1.5	5,7,3,5	same as above w/ some cinders top 6 inches	10.2
8	10	2	5,8,2,1	(8-9.5) olive gray, stiff, clayey silt, slightly moist (ML)	5.8
				(9.5-10) olive gray,s tiff, clayey silt, wet (ML)	
10	12	1.5	7,10,9,10	(10-10.5) same as above	0
				(10.5-12) olive gray, stiff, clayey silt, dry, (ML)	
12	14	2	11,14,10,15	same as above	1.5
14	16	1	1,2,4,7	(14-14.5) same as above w/cobble 1-3cm (ML)	7.9
				(14.5-16) olive gray, gravely, sandy silt, moist	

Sample Log

Well/Boring MW-24 **Project Name and No.** MD000843.0005.00003

Site Location CSXT Brunswick Rail yard **Drilling Started** 6/18/2007 (1320) **Drilling Completed** 6/18/2007 (1530)

Total Depth Drilled 14 feet **Hole Diameter** 6 1/4 inches **Sampling Interval** 12-14 feet

Length and Diameter of Sampling Device 2', 2" **Type of Sampling Device** split spoon

Drilling Method HSA **Drilling Fluid Used** None

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** George Martin

Prepared By Sandra Grabowski **Hammer Weight** _____ **Hammer Drop** 48 inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
2	4	1	4,6,10,8	(2-2.5) black cinders	0
				(2.5-4) light brown, stiff, clayey silt, dry (ML)	
				(3.5-4) cobbles 5-20 mm	
4	6	1	3,8,9,5	(4-4.5) black, clayey silt, stiff, dry (ML)	0
				(4.5-6) light brown, stiff, clayey silt, dry (ML); atz cobble 1-3 cm	
6	8	1.2	4,5,6,4	same as above w/ some cinders at top	0
8	10	1.5	6,7,10,7	(8-8.5) black, clayey silt w/ cinders bits, dry (ML)	0.1
				(8.5-10) light brown, stiff, clayey silt, dry (ML)	
10	12	0.4	50/5	same as above	0
12	14	1.3	5,9,11,9	(12-12.5) light brown, stiff, clayey silt, dry (ML)	6.3
				(12.5-14) olive gray, stiff, clay silt, dry (ML)	
				[small amount of the sand at bottom few inches]	

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Sample Log

Well/Boring MW-25 **Project Name and No.** MD000843.0005.00003

Site Location CSXT Brunswick Rail yard **Drilling Started** 6/15/2007 (0815) **Drilling Completed** 6/15/2007 (1035)

Total Depth Drilled 19 feet **Hole Diameter** 6 1/4 inches **Sampling Interval** 10-12 feet

Length and Diameter of Sampling Device 2', 2" **Type of Sampling Device** split spoon

Drilling Method HSA **Drilling Fluid Used** None

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** George Martin

Prepared By Sandra Grabowski **Hammer Weight** _____ **Hammer Drop** 48 inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
2	4	1.5	1,1,2,3	(2-2.75) black, soft, crumby, dry	NR
				(2.75-4) yellowish orange, hard, clayey silt, dry (ML)	
4	6	1.25	4,4,5,3	same as above	NR
6	8	0.5	2,3,3,3	(top 3") black cinders	NR
				(3"-6") yellowish orange, stiff, clayey silt, dry (ML)	
8	10	1.5	3,3,5,6	yellowish orange, stiff, clayey silt, slightly moist (ML)	NR
				w/ black cinders from [2-6] inches	
10	12	1.5	1,2,3,5	(10-10.3) same as above	NR
				(10.3-12) olive gray, stiff, clayey silt, dry (ML)	
12	14	1.5	3,6,9,11	(12-12.5) black cinders	NR
				(12.5-14) olive gray, stiff, clayey silt, dry (ML)	
14	16	2	5,3,9,7	(14-14.5) yellowish orange, stiff, clayey silt, dry (ML) w/ cinders	NR
				(14.5-15) olive gray, stiff, clayey cilt, dry (moist 7-14 inch) (ML)	
16	18	1.8	5,6,11,10	olive gray, stiff, clayey silt, moist (ML)	NR
				[very small amount of sand from (17.5-18)]	

ARCADIS

Sample Log

Well/Boring MW-26 **Project Name and No.** MD000843.0005.00003

Site Location CSXT Brunswick Rail yard **Drilling Started** 6/13/2007 (1225) **Drilling Completed** 6/13/2007 (1540)

Total Depth Drilled 21 feet **Hole Diameter** 6 1/4 inches **Sampling Interval** 13-14 feet

Length and Diameter of Sampling Device 2', 2" **Type of Sampling Device** split spoon

Drilling Method HSA **Drilling Fluid Used** None

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** George Martin

Prepared By Sandra Grabowski **Hammer Weight** _____ **Hammer Drop** 48 inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
5	7	1	1,2,2,3	olive gray, clayey silt, stiff, dry (ML)	NR
7	9	1.5	2,3,3,7	(7-7.5) dark gray, crumbly, clayey silt, dry (ML)	
				(7.5-9) light brown, stiff, clayey silt, dry (ML)	NR
9	11	1.3	9,4,5,3	(top 2") olive gray, soft, clayey silt, moist (ML)	NR
				(9.2-11) olive gray, stiff, clayey silt, dry (ML)	
11	13	1	9,7,7,6	(11-11.5) olive gray, soft, clayey silt, dry (ML)	NR
				(11.5-12) olive gray, stiff, clayey silt, dry (ML)	
13	15	1.3	5,7,7,4	olive gray, stiff, clayey silt, dry (ML)	NR
15	17	2	6,6,12,11	(15-16.5) olive gray, stiff, clayey silt, dry (ML)	
				(16.5-17) olive gray, stiff, sandy silt, moist (ML)	NR
17	19	0.5	18,25	olive gray, soft(loose), silty gravel, moist (GM)	
19	21	1.5	28,24,50/5	(19-19.5) same as above	NR
				(19.5-21) olive gray, silty gravel (cobbles 1-3 cm) (GM)	
21	23	2	10,23,50/3	olive gray, gravely sand, wet, cobbles @ 22' (SP)	NR

ARCADIS

Sample Log

Well/Boring MW-27 **Project Name and No.** MD000843.0005.00003

Site Location CSXT Brunswick Rail yard **Drilling Started** 6/18/2007 (1125) **Drilling Completed** 6/18/2007 (1240)

Total Depth Drilled 14 feet **Hole Diameter** 6 1/4 inches **Sampling Interval** 11-12 feet

Length and Diameter of Sampling Device 2', 2" **Type of Sampling Device** split spoon

Drilling Method HSA **Drilling Fluid Used** None

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** George Martin

Prepared By Sandra Grabowski **Hammer Weight** _____ **Hammer Drop** 48 inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
2	4	1.75	1,1,2,3	light brown, stiff, clayey silt, dry (ML)	0
				(2-2.5) black cinders	
4	6	0.5	3,4,7,3	same as above w/ black cinders thoughout	0
6	8	1	5,4,3,2	same as above	0
8	10	1.5	1,1,4,6	(8-8.5) black, gravely silt, wet (GM)	0
				(8.5-10) olive gray, stiff, clayey silt, moist (ML)	
10	12	2	3,4,4,5	black cinders	0
				olive gray, stiff, clayey silt, dry (ML)	
12	14	2	4,5,6,4	(12-13) same as above	0
				(13-14) olive gray, stiff, sandy silt, moist (ML)	

Sample Log

Well/Boring GP-20 **Project Name and No.** MD000843.0005.00003

Site Location CSXT Brunswick Rail yard **Drilling Started** 7/26/2007 (1122) **Drilling Completed** 7/26/2007 (1138)

Total Depth Drilled 16 feet **Hole Diameter** 2 1/2 inches **Sampling Interval** 16-17.5 feet

Length and Diameter of Sampling Device 4',1.5" **Type of Sampling Device** Encore **Time:** 1250

Drilling Method Geoprobe **Drilling Fluid Used** none

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** George Martin

Prepared By Josh Wilson **Hammer Weight** _____ **Hammer Drop** _____ inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
0	4	3.5	1125	0-3.5 fill, light brown, gravel and clay	0
				3.5-4 fill, drak gray, organic material	0
4	8	3	1130	4-5 no recovery	0
				5-6.5 fill, dark gray, organic material	0
				6.5-8 light brown, clayey gravel, dry	0
8	12	4	1134	8-9.5 light brown, silty clay	0
				9.5-12 light brown, clay	0
12	16	4	1138	12-12.5 light brown, clay	0
				12.5-13 dark gray, organic material	0
				13-14 light brown, sand, gravel, clay, moist	0
				14-16 light brown, sand, gravel, clay, wet	0
				refusal @ 16'	

Sample Log

Well/Boring GP-20B Project Name and No. MD000843.0005.00003

Site Location CSXT Brunswick Rail yard Drilling Started 7/26/2007 (1223) Drilling Completed 7/26/2007 (1245)

Total Depth Drilled 19 feet Hole Diameter 2 1/2 inches Sampling Interval 17-19 feet

Length and Diameter of Sampling Device 4',1.5" Time 1250 Type of Sampling Device Encore

Drilling Method Geoprobe Drilling Fluid Used none

Drilling Contractor SGS Environmental Driller Mike Kroury Helper George Martin

Prepared By Josh Wilson Hammer Weight _____ Hammer Drop _____ inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
0	4	4	1225	0-4 light brown, fill, gravel and sand	0
4	8	3	1230	4-5 no recovery	0
				5-6 fill, dark gray, organic material	0
				6-6.5 sitly clay	0
				6.5-8 light brown, gravelly silt fill	0
8	12	4	1236	8-9 fill light brown, gravelly silt fill	0
				9-12 light brown, clayey silt	0
12	16	4	1240	12-14 light brown, clayey silt	0
				14-15 light brown, clay	0
				15-15.5 light brown, clay, moist	0
				15.5-16 light brown, gravelly clay (50% clay) moist	0
16	19	1	1245	16-18 no recovery	0
				18-18.8 light brown, clayey sandy gravel, saturated	0
				18.8-19 dry cobble	
				refusal @ 19'	

Sample Log

Well/Boring GP-26 **Project Name and No.** CSX Transportation - Brunswick / MD000843.0005.0003

Site Location Brunswick, MD **Drilling Started** 7/31/2007 (1425) **Drilling Completed** 7/31/2007 (1530)

Total Depth Drilled 24 feet **Hole Diameter** 2.5 inches **Sampling Interval** 19-20 feet

Length and Diameter of Sampling Device 4', 1.5" **Time** 1540 **Type of Sampling Device** Encore

Drilling Method Geoprobe **Drilling Fluid Used** none

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** _____

Prepared By Josh Wilson **Hammer Weight** _____ **Hammer Drop** _____ inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
0	4	3	14:31	0-1 no recovery	
				1-3.3 fill, silt and gravel, dark grey	0.7
				3.3-4 sandy clay and gravel, light brown	1.0
4	8	3	14:42	4-5 no recovery	
				5-5.7 sandy clay, stiff, orangish brown	1.3
				5.7-7.2 sand (well sorted) and gravel (50%), light brown	1.6
				7.2-8 silty sand and gravel (25%) light brown	1.6
8	12	3	14:50	8-9 no recovery	
				9-11 silty sand and gravel (25%), light brown	1.9
				11-11.5 silt and gravel (10%), loose, dry, light brown	2.0
				11.5-12 silty sand, moist, light brown	1.8
12	16	4	14:59	12-14 sandy clay, loose, moist, light brown	2.8
				14-16 sandy clay and gravel (25%), moist, stiff, light brown	4.9
16	20	3	15:09	16-17 no recovery	
				17-18 sandy clay and gravel (25%), moist, stiff, light brown	9.7

Sample Log (Cont.d)

Well/Boring GP26 **Project Name and No.** CSX Brunswick/MD000843.05.03

Prepared By JW

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
16	20	3	15:21	18-19 Silt and gravel (10%), soft, moist, olive grey	53.7
				19-20 sandy silt and gravel (25%), moist, olive grey	59.7
20	24	3.5	15:30	20-20.5 no recovery	
				20.5 - 21 sandy clay, light brown	47.2
				21 - 22.5 sand and gravel (50%)/saturated, olive grey	17.7
				22.5 - 24 sandy silt, moist, olive grey	3.2
				refusal @ 24'	

Sample Log

Well/Boring GP-27 **Project Name and No.** CSX Transportation - Brunswick / MD000843.0005.0003

Site Location Brunswick, MD **Drilling Started** 7/31/2007 (1550) **Drilling Completed** 7/31/2007 (1625)

Total Depth Drilled 20 feet **Hole Diameter** 2.5 inches **Sampling Interval** 15-16 feet

Length and Diameter of Sampling Device 4', 1.5" **Time:** 1630 **Type of Sampling Device** Encore

Drilling Method Geoprobe **Drilling Fluid Used** none

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** _____

Prepared By Josh Wilson **Hammer Weight** _____ **Hammer Drop** _____ inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
0	4	3.5	15:53	0-0.5 no recovery	
				0.5-4.0 fill, silt and gravel, dark grey	0.0
4	8	3.5	15:59	4-4.5 no recovery	
				4.5-8 silty sand and gravel (25%), light brown	0.0
8	12	2.5	16:06	8-9.5 no recovery	
				9.5-11 fill, silt and gravel, dark grey	0.1
				11-12 silty sand, loose, light brown	0.6
12	16	2	16:14	12-14 no recovery	
				14-14.5 gravel and sand, well sorted, wet dark grey, odor	17.6
				14.5-15 gravel, loose, wet, well sorted, dark grey, odor	38.4
				15-16 silty clay, moist, soft, olive grey	7.1
16	20	2	16:25	16-18 no recovery	
				18-19.3 sand, (well sorted) and gravel (50%), some clay, saturated, olive gray	105.0
				19.3-20 sand (poorly sorted) and gravel (10%), tight, moist	120.0
				refusal @ 20'	

Sample Log

Well/Boring GP-28 **Project Name and No.** CSX Transportation - Brunswick / MD000843.0005.0003

Site Location Brunswick, MD **Drilling Started** 7/31/2007 (1323) **Drilling Completed** 7/31/2007 (1348)

Total Depth Drilled 16 feet **Hole Diameter** 2.5 inches **Sampling Interval** 11.5-12 feet

Length and Diameter of Sampling Device 4', 1.5" **Time** 1410 **Type of Sampling Device** Encore

Drilling Method Geoprobe **Drilling Fluid Used** none

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** _____

Prepared By Josh Wilson **Hammer Weight** _____ **Hammer Drop** _____ inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
0	4	2.5	13:26	0-1.5 no recovery	
				1.5-2.5 fill, silt and gravel, dark grey	0.0
				2.5-4.0 clayey sand and gravel (25% gravel), light brown	0.3
4	8	3	13:31	4-5 no recovery	
				5-7.4 clayey sand & gravel (25% gravel), light brown	0.1
				7.4-8 clayey silt, moist, olive grey	117.0
8	12	4	13:38	8-9 clayey silt, moist,soft, olive grey	110.0
				9-10.3 silty clay, stiff, dry, light brown	20.1
				10.3-10.9 sand, clay and gravel, light brown, dry	6.1
				10.9-11.5 clayey silt, light brown	3.7
				11.5-12 clayey silt and gravel (25%), light brown	2.3
12	16	4	13:48	12-12.4 sand and gravel (50%)	37.4
				12.4-14.3 clay, sand and gravel (25%), saturated, light brown	20.4
				14.3-15.8 sandy clay, stiff, moist	120.7
				15.8-16 weathered rock, green	71.1

Sample Log

Well/Boring GP-29 **Project Name and No.** CSX Transportation - Brunswick / MD000843.0005.0003

Site Location Brunswick, MD **Drilling Started** 7/31/2007 (1155) **Drilling Completed** 7/31/2007 (1241)

Total Depth Drilled 20 feet **Hole Diameter** 2.5 inches **Sampling Interval** 17.4-18 feet

Length and Diameter of Sampling Device 4', 1.5" **Time** 1250 **Type of Sampling Device** Encore

Drilling Method Geoprobe **Drilling Fluid Used** none

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper**

Prepared By Josh Wilson **Hammer Weight** **Hammer Drop** inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
0	4	3	12:00	0-1 no recovery	
				1-4 fill, gravel and silt, dark grey	2.9
4	8	2	12:07	4-6 no recovery	
				6-8, fill, gravel and silt, dark grey and lght brown	5.0
8	12	2.5	12:16	8-9.5 no recovery	
				9.5-10.5 silty clay and gravel (25% gravel), light brown	4.4
				10.5-11.5 silty clay, light brown	30.1
				11.5-12 silty clay and gravel (50% gravel), light brown	33.4
12	16	4	12:24	12-13 silty clay and gravel (50% gravel), light brown, dry	112.0
				13-16 clayey silt, soft, light brown, moist, odor	161.0
16	20	3	12:41	16-17 no recovery	
				17-17.4 clayey silt, soft, light brown, moist, odor	31.7
				17.4-18 sand and gravel(50%), moist, dark grey	78.8
				18-19.5 sand and gravel (25%), saturated, light brown, sheen	125.0
				19.5-20 sand and gravel (poorly sorted) (75%), moist, light brown	30.1

Sample Log

Well/Boring GP-30 **Project Name and No.** CSX Transportation - Brunswick / MD000843.0005.0003

Site Location Brunswick, MD **Drilling Started** 8/1/2007 (0825) **Drilling Completed** 8/1/2007 (0915)

Total Depth Drilled 22 feet **Hole Diameter** 2.5 inches **Sampling Interval** 15-16 feet

Time 0930

Length and Diameter of Sampling Device 4', 1.5" **Type of Sampling Device** Encore

Drilling Method Geoprobe **Drilling Fluid Used** none

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** _____

Prepared By Josh Wilson **Hammer Weight** _____ **Hammer Drop** _____ inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
0	4	2.5	08:30	0-1.5 no recovery	
				1.5-4 fill, silt and gravel, light grey	0.0
4	8	2.5	08:40	4-5.5 no recovery	
				5.5-8 fill, silt and gravel, dark grey, dry	0.0
8	12	2.5	08:47	8-9.5 no recovery	
				9.5-12 fill, silt and gravel, moist	0.0
12	16	3.5	08:53	12-12.5 no recovery	
				12.5-13 fill, silt and gravel, dark grey	
				13-14 clayey silt, wet, dark grey, odor	64.9
				14-16 clayey silt, moist, olive grey, odor	98.7
16	20	3	09:04	16-17 no recovery	
				17-18.3 sand (well sorted) and gravel (10%) & clay, saturated, dark grey	58.2
				18.3-18.6 sand (poorly sorted), moist, olive grey	108.0
				18.6-19.8 sand (well sorted) and gravel (25%), olive grey, moist	114.0
				19.8-20 gravel (75%) and sand, light brown, dry	44.7

Sample Log (Cont.d)

Well/Boring GP-30 **Project Name and No.** CSX Brunswick / MD000843.0005.0003

Prepared By Josh Wilson

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
20	22	2	09:15	20-21 silty sand and gravel (25%0, olive grey, moist	19.1
				21-21.5 sand, well sorted, moist, olive grey	69.1
				21.5-22 sand, well sorted, gravel (25%), light brown, moist	33.1
				refusal at 22'	

Sample Log

Well/Boring GP-31 **Project Name and No.** CSX Transportation - Brunswick / MD000843.0005.0003

Site Location Brunswick, MD **Drilling Started** 7/31/2007 (1305) **Drilling Completed** 7/31/2007 (1315)

Total Depth Drilled 8 feet **Hole Diameter** ____ inches **Sampling Interval** ____ feet

Length and Diameter of Sampling Device 4', 1.5" **Type of Sampling Device** ____

Drilling Method Geoprobe **Drilling Fluid Used** ____

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** ____

Prepared By Josh Wilson **Hammer Weight** ____ **Hammer Drop** ____ inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
0	4	2	13:10	0-2 no recovery	
				2-4 fill, gravel	
4	8	2	13:15	4-6 no recovery	
				6-8 fill, silt and gravel, boring is collapsing, filling to 1'	
				*attempt twice more, 1 10' S, 1 10' E, same result	

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Sample Log

Well/Boring GP-32 **Project Name and No.** MD000843.0005.00003

Site Location CSXT Brunswick Rail yard **Drilling Started** 7/30/2007 (0950) **Drilling Completed** 7/30/2007 (1003)

Total Depth Drilled 10 feet **Hole Diameter** 2 1/2 inches **Sampling Interval** _____ feet

Length and Diameter of Sampling Device 4',1.5" **Type of Sampling Device** _____

Drilling Method Geoprobe **Drilling Fluid Used** None

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** George Martin

Prepared By Josh Wilson **Hammer Weight** _____ **Hammer Drop** _____ inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
0	4	2.5	954	0-1.5 no recovery	
				1.5-4 fill, gravel and silt, dark gray	4.6
4	8	3.5	958	4-4.5 no recovery	
				4.5-6.5 clay, light gray, moist, soft	34.8
				6.5-8 clay, light brown and gray, stiff	22.1
8	10	2	1083	8-9.5 clay, light brown an dgray, stiff	54.2
				9.5-10 gravelly clay (50% gravel), dark gray	31.1
				refusal @ 10'	

Sample Log

Well/Boring GP-32A **Project Name and No.** MD000843.0005.00003

Site Location CSXT Brunswick Rail yard **Drilling Started** 7/30/2007 (1010) **Drilling Completed** 7/30/2007 (1050)

Total Depth Drilled 19 feet **Hole Diameter** 2 1/2 inches **Sampling Interval** 13-14 feet

Length and Diameter of Sampling Device 4',1.5" **Time** 1120 (sample labeled as GP32) **Type of Sampling Device** Encore

Drilling Method Geoprobe **Drilling Fluid Used** None

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** George Martin

Prepared By Josh Wilson **Hammer Weight** _____ **Hammer Drop** _____ inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
0	4	3	1014	0-1 no recovery	
				1-4 fill, gravel and silt, dark gray	1.1
4	8	3.5	1017	4-4.5 no recovery	
				4.5-5 fill, gravel and silt, dark gray	146
				5-6.5 clay, light gray, soft, moist	33.8
				6.5-8 clay, light brown and gray, stiff	16.1
8	12	4	1023	8-10 clay, light brown and gray, stiff	54.3
				10-10.7 sandy clay, light brown	56.8
				10.7-11 sandy clay and gravel (50% gravel), light brown	79.4
				11-11.3 sand, poorly sorted, saturated, light brown	76.1
				11.3-12 sandy clay, light brown, stiff	119
12	16	4	1031	12-14 sandy clay and gravel (50% gravel), light brown, stiff, moist	83.4
				14-15 sand, poorly sorted, light brown, saturated	72.3
				15-16 sandy clay, light brown, stiff, moist	110
16	19	3	1047	16-17 silty sandy gravel, light brown, moist	121
				17-19 silty clay and gravel (50% gravel), light brown, moist/ (refusal @19')	47.9

Sample Log

Well/Boring GP-34 **Project Name and No.** CSX Transportation - Brunswick / MD000843.0005.0003

Site Location Brunswick, MD **Drilling Started** 7/30/2007 (1654) **Drilling Completed** 7/30/2007 (1728)

Total Depth Drilled 24 feet **Hole Diameter** 2.5 inches **Sampling Interval** 18.5-19 feet

Length and Diameter of Sampling Device 4', 1.5" **Time:** 1735 **Type of Sampling Device** Encore

Drilling Method Geoprobe **Drilling Fluid Used** none

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** _____

Prepared By Josh Wilson **Hammer Weight** _____ **Hammer Drop** _____ inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
0	4	2.5	16:56	0-1.5 no recovery	
				1.5-4 fill, silt and gravel, dark grey	0.0
4	8	2.5	16:58	4-5.5 no recovery	
				5.5-8 fill, silt and gravel, dark grey	0.0
8	12	2.5	17:07	8-9.5 no recovery	
				9.5-11 fill, silt and gravel, dark grey	0.0
				11-12 sand and gravel (25% gravel), light brown	0.0
12	16	2.5	17:12	12-13.5 no recovery	
				13.5-16 sand and gravel (25% gravel), light brown	0.0
16	20	1.5	17:19	16-18.5 no recovery	
				18.5-19 silty clay,light brown, stiff, moist	0.0
				19-19.7 sand, poorly sorted, saturated, light brown	0.0
				19.7-20 sand and gravel (50% gravel), light brown, moist	0.0
20	24	3	17:28	20-21 no recovery	
				21-24 sand and gravel (50% gravel), light brown, dry	

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Sample Log

Well/Boring GP-35 **Project Name and No.** MD000843.0005.00003

Site Location CSXT Brunswick Rail yard **Drilling Started** 7/30/2007 (1340) **Drilling Completed** 7/30/2007 (1416)

Total Depth Drilled 20 feet **Hole Diameter** 2 1/2 inches **Sampling Interval** 15-16 feet

Length and Diameter of Sampling Device 4',1.5" **Time** 1530 **Type of Sampling Device** Encore

Drilling Method Geoprobe **Drilling Fluid Used** None

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** George Martin

Prepared By Josh Wilson **Hammer Weight** _____ **Hammer Drop** _____ inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
0	4	3	1343	0-1 no recovery	0
				1.5 fill, gravel and silt, dark gray	0.5
				1.5-3.5 clay and gravel, stiff, light brown	2.8
				3.5-4 sand and gravel, well sorted, moist, gray	6
4	8	2.5	1348	4-5.5 no recovery	
				5.5-6 sand and gravel, sell sorted, moist gray	46.8
				6-8 silty clay, stiff, olive gray	4.3
8	12	3	1359	8-9 no recovery	
				9-9.5 silty clay, stiff, olive gray	8.5
				9.5-10.5 silty sand, moist, olive gray	1.1
				10.5-12 clayey silt, some gravel, olive gray, stiff	1.8
12	16	3.5	1408	12.5-16 silty, clay, light brown, stiff	1.6
16	20	4	1416	16-18 sand, some gravel, well sorted, saturated, gray	25.8
				18-19.5 clay,light brown, stiff	1.8
				19.5-20 sand, some gravel, light brown, poorly sorted	2.4

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Sample Log

Well/Boring GP-36 **Project Name and No.** MD000843.0005.00003

Site Location CSXT Brunswick Rail yard **Drilling Started** 7/30/2007 (1552) **Drilling Completed** 7/30/2007 (1628)

Total Depth Drilled 20 feet **Hole Diameter** 2 1/2 inches **Sampling Interval** 17-18 feet

Length and Diameter of Sampling Device 4',1.5" **Time** 1635 **Type of Sampling Device** Encore

Drilling Method Geoprobe **Drilling Fluid Used** None

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** George Martin

Prepared By Josh Wilson **Hammer Weight** _____ **Hammer Drop** _____ inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
0	4	2.5	1554	1.5-4 silt and gravel, dark gray	0
4	8	2.5	1558	5.8-8 silt and gravel, dark gray	0
8	12	2.5	1605	8-10.5 fill, silt and gravel, dark gray	0
				10.5 12 no recovery	
12	16	3	1610	12-13 no recovery	
				13-14.5 fill, silt and gravel, dark gray	0
				14.5-16 sandy clay, light brown, wet	0
16	20	3	1628	16-17 no recovery	
				17-18 clayey silt, some gravel (10% gravel), moist, light brown	0
				18-19.5 sand, poorly sorted, light brown, saturated	0
				19.5-20 sand and gravel (50% gravel), light brown, moist	0

ARCADIS

Sample Log

Well/Boring GP-37 **Project Name and No.** MD000843.0005.00003

Site Location CSXT Brunswick Rail yard **Drilling Started** 7/27/2007 (1100) **Drilling Completed** 7/27/2007 (1145)

Total Depth Drilled 24 feet **Hole Diameter** 2 1/2 inches **Sampling Interval** 21-22.5 feet

Length and Diameter of Sampling Device 4',1.5" **Type of Sampling Device** Time: 1150 Encore

Drilling Method Geoprobe **Drilling Fluid Used** None

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** George Martin

Prepared By Josh Wilson **Hammer Weight** _____ **Hammer Drop** _____ inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
0	4	3	1103	0-2 fill, organic material, dark gray	0
				2-3 clayey silt, light brown	0
				3-4 no recovery	
4	8	3	1110	4-4.5 clayey silt, light brown	1.7
				4.5-7 silt, olive gray, moist	4.3
				7-8 no recovery	
8	12	3.5	1115	8-10.5 silt, olive gray, moist	22.8
				10.5-11.5 clayey silt, light brown	23.1
				11.5-12 no recovery	
12	16	4	1125	12-16 clayey silt, olive gray, moist	36.1
16	20	4	1132	16-17 clayey silt, olive gray, moist	7.5
				17-17.5 clayey silty gravel, olive gray, moist (50% gravel)	48.3
				17.5-18.5 clayey silty gravel, olive gray, saturated (50% gravel)	24.8
				18.5-20 clayey silt, olive gray, moist	4.7
20	24	3	1142	20-22 silty sandy gravel (25% gravel), light brown, moist	3.1
				22-22.5 sand, poorly sorted, olive gray, moist	9.9

Sample Log (Cont.d)

Well/Boring GP37 **Project Name and No.** MD000843.0005.00003

Prepared By Josh Wilson

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
20	24			22.5-23 sand, poorly sorted, olive gray, saturated	1.8
				23-24 no recovery	

Sample Log

Well/Boring GP-38 **Project Name and No.** CSX Transportation - Brunswick / MD000843.0005.0003

Site Location Brunswick, MD **Drilling Started** 7/31/2007 (0838) **Drilling Completed** 7/31/2007 (0936)

Total Depth Drilled 23.5 feet **Hole Diameter** 2.5 inches **Sampling Interval** 16-17 feet

Length and Diameter of Sampling Device 4', 1.5" **Time:** 0945 **Type of Sampling Device** Encore

Drilling Method Geoprobe **Drilling Fluid Used** None

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** _____

Prepared By Josh Wilson **Hammer Weight** _____ **Hammer Drop** _____ inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
0	4	2.5	08:42	0.-1.5 no recovery	
				1.5-4 fill, gravel and silt, dark grey	342.0
4	8	3	08:55	4-5 no recovery	
				5-7 silty clay, soft, wet, olive grey, odor	35.5
				7-8 silty clay, stiff, olive grey, odor	42.3
8	12	4	09:04	8-12 silty clay, stiff, olive grey	73.1
12	16	4	09:15	12-13 silty clay, some gravel, soft, moist, olive gray	52.1
				13-14 silty clay and gravel (10%), (50% gravel) stiff, moist light brown	38.2
				14-16 silty sandy clay, moist, light brown	61.4
16	20	4	09:24	16-17 silty clay, soft, moist, lgiht brown	42.5
				17-17.8 sand and gravel (10%), saturated, light brown	46.8
				17.8-18.5 silt (poorly sorted), stiff, dry, greenish brown	12.1
				18.5-19.5 clayey sand and gravel (25% gravel) moist, light brown	9.4
				19.5-20 sand and gravel, (50% gravel), light brown	3.4
20	23.5	3.5	09:36	20-23.5 sand and gravel (50%) gravel), light brown (refusal at 23.5)	5.6

Sample Log

Well/Boring GP-39 **Project Name and No.** MD000843.0005.00003

Site Location CSXT Brunswick Rail yard **Drilling Started** 7/30/2007 (1245) **Drilling Completed** 7/30/2007 (1313)

Total Depth Drilled 14 feet **Hole Diameter** 2 1/2 inches **Sampling Interval** _____ feet

Length and Diameter of Sampling Device 4',1.5" **Type of Sampling Device** _____

Drilling Method Geoprobe **Drilling Fluid Used** None

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** George Martin

Prepared By Josh Wilson **Hammer Weight** _____ **Hammer Drop** _____ inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
0	4	2	1248	2-4 fill, gravel and silt, dark gray	0
4	8	1	1253	7-8 silty clay, light brown, moist	0
8	12	4	1303	8-9 silty clay, light brown, stiff	0
				9-11 clay, light brown, stiff	0
				11-12 silty sandy clay, stiff, light brown	0
12	14	2	1313	12-12.5 sandy clay, light brown, stiff	0
				12.5-14 sandy clay, moist, soft, light brown	0
				refusal @ 14'	

Sample Log

Well/Boring GP-40 **Project Name and No.** CSX Transportation - Brunswick / MD000843.0005.0003

Site Location Brunswick, MD **Drilling Started** 7/31/2007 (1005) **Drilling Completed** 7/31/2007 (1108)

Total Depth Drilled 24 feet **Hole Diameter** 2.5 inches **Sampling Interval** 16-16.8 feet

Length and Diameter of Sampling Device 4', 1.5" **Time:** 1105 **Type of Sampling Device** Encore

Drilling Method Geoprobe **Drilling Fluid Used** None

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** _____

Prepared By Josh Wilson **Hammer Weight** _____ **Hammer Drop** _____ inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
0	4	2	10:10	0-2 no recovery	
				2-4 fill, silt and gravel, dark grey	1.5
4	8	2	10:15	4-6 no recovery	
				6-8 silty clay, soft, light brown	2.1
8	12	4	10:24	8-9 silty clay, soft, light brown	1.6
				9-11 clayey silt, stiff, light brown	3.4
				11-12 silty clay, soft, light brown	1.6
12	16	4	10:35	12-13 silty clay, soft, light	1.6
				13-14.5 clayey silt, moist, light brown	9.6
				14.5-16 sandy clayey silt, stiff, light brown, dry	2.5
16	20	4	10:48	16-16.8 sandy clayey silt, stiff, light brown	8.0
				16.8-17.4 sand and gravel (75% gravel), saturated, light brown	1.9
				17.4-18.5 sandy clay, stiff, dry, light brown	1.4
				18.5-20 sand and gravel (50% gravel) light brown, dry	1.1
20	24	2.5	11:08	20-21.5 no recovery	

Sample Log (Cont.d)

Well/Boring GP40 **Project Name and No.** CSX Brunswick / MD000843.05.03

Prepared By Josh Wilson

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
				21.5-24 sand (well sorted) and gravel (50%), moist, light brown	3.7

Sample Log

Well/Boring GP-41 **Project Name and No.** MD000843.0005.00003

Site Location CSXT Brunswick Rail yard **Drilling Started** 7/30/2007 (0820) **Drilling Completed** 7/30/2007 (0905)

Total Depth Drilled 23.8 feet **Hole Diameter** 2 1/2 inches **Sampling Interval** 16-17.5 feet

Length and Diameter of Sampling Device 4',1.5" **Time** 0910 **Type of Sampling Device** Encore

Drilling Method Geoprobe **Drilling Fluid Used** None

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** George Martin

Prepared By Josh Wilson **Hammer Weight** _____ **Hammer Drop** _____ inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
0	4	3	823	0-1 no recovery	
				1-3 fill, gravel and silt, dark gray	3.1
				3-4 gravelly clay, light brown, 25% gravel	18.5
4	8	4	832	4-8 silty clay, light brown, odor	19.3
8	12	4	836	8-8.5 silty clay, light brown	2.1
				8.5-9 fill, organic material, dark gray	3.8
				9-10.5 silty clay, some gravel, light brown, odor	86.1
				10.5-12 silty clay, light brown, moist, odor	121
12	16	4	843	12-16 silty clay, light brown, moist	(12-15) 81.3
					(15-16) 127
16	20	4	851	16-17.5 silty clay, light brown, moist	63.1
				17.5-19.5 silty sand, light brown, saturated, sheen	78.4
				19.5-20 silty sand, light brown, moist	58.4
20	23.8	3	902	20-22 silty sand, light brown, saturated	33.8
				22-23.8 sand and gravel (sand poorly sorted) 25% gravel, light brown, moist	40.9

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Sample Log

Well/Boring GP-42 10'W **Project Name and No.** MD000843.0005.00003

Site Location CSXT Brunswick Rail yard **Drilling Started** 7/26/2007 (0900) **Drilling Completed** 7/26/2007 (1005)

Total Depth Drilled 22 feet **Hole Diameter** 2 1/2 inches **Sampling Interval** 15-16 feet

Length and Diameter of Sampling Device 4',1.5" **Type of Sampling Device** Encore **Time:** 0950

Drilling Method Geoprobe **Drilling Fluid Used** None

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** George Martin

Prepared By Josh Wilson **Hammer Weight** _____ **Hammer Drop** _____ inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
0	4	3.5	908	0-1 fill, gravel and silt	0
				1-4 brownish gray, silt	0
4	8	4	913	4-8 light brown, clay	0
8	12	4	920	8-12 light brown, clay	
12	16	4	930	12-16 light brown, clay	
16	20	0	935	no reocovery	
20	22	2	945	20-21 light brown, clayey gravel (75% clay)	0
				21-22 light brown, clayey gravel (50% clay)	0
				refusal @ 22'	

Sample Log

Well/Boring GP-42A 5'W **Project Name and No.** MD000843.0005.00003

Site Location CSXT Brunswick Rail yard **Drilling Started** 7/26/2007 (1030) **Drilling Completed** 7/26/2007 (1055)

Total Depth Drilled 22 feet **Hole Diameter** 2 1/2 inches **Sampling Interval** _____ feet

Length and Diameter of Sampling Device 4',1.5" **Type of Sampling Device** _____

Drilling Method Geoprobe **Drilling Fluid Used** None

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** George Martin

Prepared By Josh Wilson **Hammer Weight** _____ **Hammer Drop** _____ inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
0	4	3	1030	0-1 fill, gravel and silt	
				1-4 brownish gray, silt	
4	8	4	1035	4-7.5 light brownish gray	
				7.5-8 brownish gray, clay w/some gravel	
8	12	4	1040	8-9 light brown, clayey gravel	
				9-12 light brown, clay	
12	16	3.5	1045	12-13 light brown, clayey gravel, well graded	
				13-15 light brown, clay	
				15-16 light brown, clay, soft, moist	
16	20	4	1050	16-18 light brown, clay, soft ,moist	
				18-20 light brown, clay, soft, very moist	
20	22	2	1055	20-21.5 light brown, clay, soft, moist	
				21.5-22 brownish gray, medium to fine sands, moist	
				refusal @ 22'	

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Sample Log

Well/Boring GP-43 **Project Name and No.** MD000843.0005.00003

Site Location CSXT Brunswick Rail yard **Drilling Started** 7/26/2007 (1350) **Drilling Completed** 7/26/2007 (1435)

Total Depth Drilled 24 feet **Hole Diameter** 2 1/2 inches **Sampling Interval** 14-15 feet

Length and Diameter of Sampling Device 4',1.5" **Time** 1440 **Type of Sampling Device** Encore

Drilling Method Geoprobe **Drilling Fluid Used** None

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** George Martin

Prepared By Josh Wilson **Hammer Weight** _____ **Hammer Drop** ____ inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
0	4	2.5	1355	0-4 fill, dark gray, organic material, silt	0
4	8	3	1400	4-7 fill, light brown, organic material	0
				7-8 no recovery	0
8	12	3.5	1405	8-10.5 fill, dark gray, organic material	0
				10.5-12 brownish gray, clayey silt, odor	2.5
12	16	2.5	1410	12-13 brownish gray, clayey silt, odor	11.3
				13-14 brownish gray, gravelly clay (25% clay, large cobbles)	13.4
				14-15 light brown, gravelly clayey silt, (25% gravel, smaller, odor)	34.7
				15-16 no recovery	
16	20	3.5	1420	16-17.5 light brown, clayey sand, saturated	0.6
				17.5-19 light brown, gravelly sandy silt, well graded moist	0.3
				19-20 light brown, gravelly sandy clay, well graded moist	0.2
20	24	3.5	1435	20-24 light brown, gravelly sandy clay, well graded moist	0.2

Sample Log

Well/Boring GP-44 **Project Name and No.** CSX Transportation - Brunswick / MD000843.0005.0003

Site Location Brunswick, MD **Drilling Started** 8/1/2007 **Drilling Completed** 8/1/2007

Total Depth Drilled 18 feet **Hole Diameter** _____ inches **Sampling Interval** 15.5-16 feet

Length and Diameter of Sampling Device 4', 1.5" **Time:** 1105 **Type of Sampling Device** Encore

Drilling Method Geoprobe **Drilling Fluid Used** None

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** _____

Prepared By Josh Wilson **Hammer Weight** _____ **Hammer Drop** _____ inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
0	4	3	09:55	0-1 no recovery	
				1-4 fill, silt and gravel, light grey	2.5
4	8	3	10:09	4-5 no recovery	
				5-8 fill, silt and gravel, light grey	3.0
8	12	2.5	10:23	8-9.5 no recovery	
				9.5-12 fill, silt and gravel, light grey to dark grey	14.7
12	16	3	10:37	12-13 no recovery	
				13-13.5 fill, silt and gravel, dark grey	39.4
				13.5-14.2 silty sand and gravel (10%), olive grey, wet	82.4
				14.2-14.5 sand and gravel, well sorted, wet, dark grey	21.3
				14.5-14.8 silty sand and gravel (10%), olive grey, wet	137.0
				14.8-15.2 silty clay, firm, moist, olive grey	114.0
				15.2-15.8 sandy silt, soft, moist, olive grey	108.0
				15.8-16 clayey sandy silt, soft, moist, olive grey	101.0

Sample Log

Well/Boring GP-45 **Project Name and No.** CSX Transportation - Brunswick / MD000843.0005.0003

Site Location Brunswick, MD **Drilling Started** 8/1/2007 (1150) **Drilling Completed** 8/1/2007 (1222)

Total Depth Drilled 19.5 feet **Hole Diameter** 2.5 inches **Sampling Interval** 15-16 feet

Length and Diameter of Sampling Device 4', 1.5" **Time:** 1230 **Type of Sampling Device** Encore

Drilling Method Geoprobe **Drilling Fluid Used** None

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** _____

Prepared By Josh Wilson **Hammer Weight** _____ **Hammer Drop** _____ inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
0	4	2.5	11:53	0-1.5 no recovery	
				1.5-4 fill, silt and gravel, dark grey	0.8
4	8	2.5	11:59	4-5.5 no recovery	
				5.5-7 clayey silt, soft, light brown	1.1
				7-8 clayey silt and gravel (10%), loose, light brown	0.0
8	12	2.5	12:07	8-9.5 no recovery	
				9.5-10.2 clayey silt and gravel (10%), loose, light brown	1.3
				10.2-11.4 silty clay, soft, moist, light brown	1.2
				11.4-12 silty clay, firm, moist, olive grey	0.8
12	16	4	12:14	12-13.7 clayey silt, firm, dry, olive grey	0.8
				13.7-16 silty sandy clay and gravel (10%), soft, moist, olive grey	33.8
16	19	2.5	12:22	16-17 no recovery	
				17-17.8 sand (well sorted) and gravel (25%), saturated, olive grey, odor	113.0
				17.8-19.5 sand (poorly sorted) and gravel (50%), stiff, moist, olive grey	199.0
				refusal @ 19.5	

Sample Log

Well/Boring GP-46 **Project Name and No.** CSX Transportation - Brunswick / MD000843.0005.0003

Site Location Brunswick, MD **Drilling Started** 8/1/2007 (1242) **Drilling Completed** 8/1/2007 (1320)

Total Depth Drilled 19.5 feet **Hole Diameter** 2.5 inches **Sampling Interval** 15.5-16.5 feet

Length and Diameter of Sampling Device 4', 1.5" **Time:** 1325 **Type of Sampling Device** Encore

Drilling Method Geoprobe **Drilling Fluid Used** None

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** _____

Prepared By Josh Wilson **Hammer Weight** _____ **Hammer Drop** _____ inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
0	4	3	12:45	0-1 no recovery	
				1-4 fill, silt and gravel	143.0
4	8	3		4-5 no recovery	
				5-5.8 clay, firm, light brown	52.2
				5.8-8 silty clay, firm, light brown	116.0
8	12	4		8-12 silty clay, firm, light brown	127.0
12	16	4		12-13 silty clay, soft, light brown	157.0
				13-14 silty sandy clay, soft, light brown	98.6
				14-15.5 sandy clay, firm, light brown	148.0
				15.5-16 sand (poorly sorted), firm, moist, light brown	189.0
16	19.5	3.5		16-16.5 sandy clay, firm, moist, light brown	124.0
				16.5-17.3 sand (well sorted) and gravel (25%), saturated, light brown	149.0
				17.3-19.3 sand (poorly sorted), firm, moist, light brown	145.0
				19.3-19.5 sand (poorly sorted) and gravel (50%), dry, light brown	166.0
				refusal at 19.5'	

Sample Log

Well/Boring GP-47 **Project Name and No.** CSX Transportation - Brunswick / MD000843.0005.0003

Site Location Brunswick, MD **Drilling Started** 8/1/2007 (1355) **Drilling Completed** 8/1/2007 (1452)

Total Depth Drilled 18 feet **Hole Diameter** 2.5 inches **Sampling Interval** 15-16 feet

Length and Diameter of Sampling Device 4', 1.5" **Type of Sampling Device** Time: 1500 Encore

Drilling Method Geoprobe **Drilling Fluid Used** None

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** _____

Prepared By Josh Wilson **Hammer Weight** _____ **Hammer Drop** _____ inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
0	4	2.5	13:58	0-1.5 no recovery	
				1.5-4 fill, silt and gravel, dark grey	87.9
4	8	2.5	14:04	4-5.5 no recovery	
				5.5-5.8 fill, silt and gravel, dark grey	134.0
				5.8-6 sand (well sorted), gravel (25%), wet, dark grey	170.0
				6-6.4 sand (poorly sorted), wet, dark grey	144.0
				6.4-8 clay, firm, moist, olive grey	48.9
8	12	4	14:14	8-8.5 sand (well sorted) and gravel (25%), wet, dark grey	120.0
				8.5-10 clay, firm, moist, light brown	122.0
				10-11 sand (poorly sorted), tight, olive grey	45.4
				11-12 clay, firm, moist, light brown	23.2
12	16	4	14:42	12-13 sand (well sorted) and gravel (25%), saturated, dark grey	106.0
				13-16 silty clay, firm, moist, olive grey	62.3
16	18	2	14:52	16-16.8 sand (well sorted) and gravel (25%), saturated, free product, olive gr	127.0
				16.8-17.8 sand (poorly sorted) tight, moist, olive grey	134.0
				17.8-18 sand and gravel (50%), moist, olive grey (refusal at 18)	111.0

Sample Log

Well/Boring GP-48 **Project Name and No.** CSX Transportation - Brunswick / MD000843.0005.0003

Site Location Brunswick, MD **Drilling Started** 8/1/2007 (1520) **Drilling Completed** 8/1/2007

Total Depth Drilled 20 feet **Hole Diameter** ____ inches **Sampling Interval** 17.5-18.5 feet

Length and Diameter of Sampling Device 4', 1.5" **Time:** 1625 **Type of Sampling Device** Encore

Drilling Method Geoprobe **Drilling Fluid Used** None

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** _____

Prepared By Josh Wilson **Hammer Weight** _____ **Hammer Drop** ____ inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
0	4	3.5	15:23	0-0.5 no recovery	
				0.5-2 fill, silt and gravel, dark grey	11.9
				2-4 silty clay, dry, firm, light brown	21.7
4	8	4	15:31	4-6 silty clay, dry, firm, light brown	4.4
				6-8 clayey silt, soft, moist, olive grey	8.8
8	12	4	15:38	8-12 clayey silt, soft, moist, olive grey	88.7
12	16	4	15:44	12-16 clayey silt, soft, moist, olive grey	146.0
16	20	3.5	15:49	16-16.5 no recovery	
				16.5-17.5 clayey silt, soft, moist, olive grey	81.3
				17.5-18.5 sandy silt, gravel (10%), soft, moist, olive grey	111.0
				18.5-18.8 sand (poorly sorted) and gravel (50%), saturated, olive grey	99.2
				18.8-20 silty sand, soft, moist, olive grey	75.3
20	22.5	2.5	16:03	20-20.5 sandy clay, soft, moist, olive grey	76.8
				20.5-21 sand, poorly sorted, wet, olive grey	33.1
				21-22.5 sand (well sorted) and gravel (50%), moist, light brown (refusal at 22.5)	10.2

Sample Log

Well/Boring GP-49 **Project Name and No.** CSX Transportation - Brunswick / MD000843.0005.0003

Site Location Brunswick, MD **Drilling Started** 9/1/2007 (1625) **Drilling Completed** 8/1/2007

Total Depth Drilled 19 feet **Hole Diameter** _____ inches **Sampling Interval** 15-16 feet

Length and Diameter of Sampling Device 4', 1.5" **Type of Sampling Device** Time: 1705 Encore

Drilling Method Geoprobe **Drilling Fluid Used** None

Drilling Contractor SGS Environmental **Driller** Mike Kroury **Helper** _____

Prepared By Josh Wilson **Hammer Weight** _____ **Hammer Drop** _____ inches

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
0	4	3	14:31	0-1 no recovery	
				1-4 fill, silt and gravel, dark grey	67.4
4	8	2.5	14:38	4-5.5 no recovery	
				5.5-6.5 sand (well sorted) and gravel (25%), wet, loose, dark grey	164.0
				6.5-8 clay, firm, light brown	53.2
8	12	4	14:45	8-9.5 silty clay, firm, light brown, dry	71.8
				9.5-12 silty clay, soft, moist, light brown	89.2
12	16	0:00	14:53	12-12.8 silty clay, firm, dry, light brown	74.3
				12.8-13.2 sand (well sorted) and gravel (25%) moist, dark grey	92.9
				13.2-16 silty clay, soft, moist, olive grey	106.8
16	19	3	15:03	16-17 sand (well sorted) gravel (25%) with some clay, saturated, sheen, olive	80.9
				17-18 silty sand, poorly sorted, moist olive grey	117.0
				18-19 sand (well sorted) and gravel (50%), light brown, moist	61.4
				refusal at 19'	

ARCADIS

Sample/Core Log

Well/Boring MW-28 **Project Name and No.** CSXT Brunswick/ MD 843.06.01

Site Location CSXT Brunswick, MD **Drilling Started** 11/12/07 0815 **Drilling Completed** 11/12/07 1215

Total Depth Drilled 27 **feet** **Hole Diameter** 6 **inches** **Sampling Interval** 2 **feet**

Length and Diameter of Sampling Device 2 ft/ 2 in **Type of Sampling Device** split spoon

Drilling Method HSA **Drilling Fluid Used** N/A

Drilling Contractor SGS **Driller** Mike K **Helper** George M

Prepared By RK **Hammer Weight** N/A **Hammer Drop** N/A **inches**

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
				auger to 23' rough drilling at 16' - 17'	
23	25	2	27, 37, 33, 42	23-23.5 CLAY olive gray moist with some dry sand	0.0
				23.5-24 CLAY silty with trace gravel olive gray	0.0
				24-24.5 GRAVEL fragments beige and white	0.0
				24.5-25 SILT clayey orange brown with trace red gravel	0.0
27	28	1	27 50/4 in	27-28 GRAVEL brown wet poorly sorted with sand and silt	0.0
				End of boring	

ARCADIS

Sample/Core Log

Well/Boring MW-29 **Project Name and No.** CSXT Brunswick/ MD 843.06.01

Site Location CSXT Brunswick, MD **Drilling Started** 11/13/07 1400 **Drilling Completed** 11/12/07 1500

Total Depth Drilled 24 **feet** **Hole Diameter** 6 **inches** **Sampling Interval** _____ **feet**

Length and Diameter of Sampling Device 2 ft/ 2 in **Type of Sampling Device** split spoon

Drilling Method HSA **Drilling Fluid Used** N/A

Drilling Contractor SGS **Driller** Mike K **Helper** George M

Prepared By RK **Hammer Weight** N/A **Hammer Drop** N/A **inches**

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
				auger to 23'	
23	25	1.5	2 32 30 28	23-23.5 CLAY silty orange brown moist	0.0
				23.5-23.8 GRAVEL and SAND poorly sorted light brown semi-dry	0.0
				23.8-24.5 GRAVEL sandy moist with some silt, olive brown, slight odor	0.0
				End of boring (25')	
				Well set at 24' due to formation heave	

ARCADIS

Sample/Core Log

Well/Boring MW-30 **Project Name and No.** CSXT Brunswick/ MD 843.06.01

Site Location CSXT Brunswick, MD **Drilling Started** 11/16/07 0850 **Drilling Completed** 11/16/07 1045

Total Depth Drilled 27 **feet** **Hole Diameter** 6 5/8 **inches** **Sampling Interval** N/A **feet**

Length and Diameter of Sampling Device 2 ft/ 2 in **Type of Sampling Device** split spoon

Drilling Method HSA **Drilling Fluid Used** N/A

Drilling Contractor SGS **Driller** Mike K **Helper** George M

Prepared By SG **Hammer Weight** N/A **Hammer Drop** N/A **inches**

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
				auger to 25' (hit gravel ~19 ft)	
25	27	0.5	50/3	25-25.5 olive grey, sandy SILT with some gravel, wet	7.7
				*hit refusal first 0.5 ft	
				End of boring (25')	
				Well set at 24'	

ARCADIS

Sample/Core Log

Well/Boring MW-31 **Project Name and No.** CSXT Brunswick/ MD 843.06.01

Site Location CSXT Brunswick, MD **Drilling Started** 11/16/07 1145 **Drilling Completed** 11/16/07 1225

Total Depth Drilled 25 **feet** **Hole Diameter** 6 5/8 **inches** **Sampling Interval** N/A **feet**

Length and Diameter of Sampling Device 2 ft/ 2 in **Type of Sampling Device** split spoon

Drilling Method HSA **Drilling Fluid Used** N/A

Drilling Contractor SGS **Driller** Mike K **Helper** George M

Prepared By SG **Hammer Weight** N/A **Hammer Drop** N/A **inches**

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
				auger to 25' (hit gravel ~17 ft)	
25	**27**		**5, 19, 33, 18**	**silty SAND and GRAVEL, wet, light brown**	**0.5**
				End of Boring	

ARCADIS

Sample/Core Log

Well/Boring MW-32 **Project Name and No.** CSXT Brunswick/ MD 843.06.01

Site Location CSXT Brunswick, MD **Drilling Started** 11/16/07 1430 **Drilling Completed** 11/16/07 1520

Total Depth Drilled 25 **feet** **Hole Diameter** 6 5/8 **inches** **Sampling Interval** N/A **feet**

Length and Diameter of Sampling Device 2 ft/ 2 in **Type of Sampling Device** split spoon

Drilling Method HSA **Drilling Fluid Used** N/A

Drilling Contractor SGS **Driller** Mike K **Helper** George M

Prepared By SG **Hammer Weight** N/A **Hammer Drop** N/A **inches**

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
				auger to 22'	
20	22	1.85	6, 11, 22, 21	20-20.5 olive grey, silty CLAY, stiff, moist	3.1
				20.5-21.5 olive grey, sandy SILT with gravel (50%), wet	5.3
					0.0
				End of boring	
				hit refusal ~25ft, well set at 25'	

ARCADIS

Sample/Core Log

Well/Boring MW-33 **Project Name and No.** CSXT Brunswick/ MD 843.06.01

Site Location CSXT Brunswick, MD **Drilling Started** 11/12/07 0815 **Drilling Completed** 11/12/07

Total Depth Drilled 23 **feet** **Hole Diameter** 6 5/8 **inches** **Sampling Interval** N/A **feet**

Length and Diameter of Sampling Device 2 ft/ 2 in **Type of Sampling Device** split spoon

Drilling Method HSA **Drilling Fluid Used** N/A

Drilling Contractor SGS **Driller** Mike K **Helper** George M

Prepared By SG **Hammer Weight** N/A **Hammer Drop** N/A **inches**

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
				auger to 20'	
20	**22**	**2**	**50, 30, 43, 17**	**dark brown sandy CLAY with some gravel (30%)**	**0.0**
				End of boring	

ARCADIS

Sample/Core Log

Well/Boring MW-35 **Project Name and No.** CSXT Brunswick/ MD 843.06.01

Site Location CSXT Brunswick, MD **Drilling Started** 11/21/07 1230 **Drilling Completed** 11/21/07 1310

Total Depth Drilled 25 **feet** **Hole Diameter** 6 5/8 **inches** **Sampling Interval** N/A **feet**

Length and Diameter of Sampling Device 2 ft/ 2 in **Type of Sampling Device** split spoon

Drilling Method HSA **Drilling Fluid Used** N/A

Drilling Contractor SGS **Driller** Mike K **Helper** George M

Prepared By SG **Hammer Weight** N/A **Hammer Drop** N/A **inches**

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
				auger to 20'	
				~2' augered through an old railroad tie, wood in recovery	
20	**22**	**0.5**	**11,17,11, 14**	**light brown poorly sorted SAND and GRAVEL, wet**	**0.1**
				well set at 25'	
				End of boring	

ARCADIS

Sample/Core Log

Well/Boring MW-37 **Project Name and No.** CSXT Brunswick/ MD 843.06.01

Site Location CSXT Brunswick, MD **Drilling Started** 11/20/07 0915 **Drilling Completed** 11/20/07 1010

Total Depth Drilled 25 **feet** **Hole Diameter** 6 5/8 **inches** **Sampling Interval** N/A **feet**

Length and Diameter of Sampling Device 2 ft/ 2 in **Type of Sampling Device** split spoon

Drilling Method HSA **Drilling Fluid Used** N/A

Drilling Contractor SGS **Driller** Mike K **Helper** George M

Prepared By SG **Hammer Weight** N/A **Hammer Drop** N/A **inches**

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
				auger to 20' (hit some gravel ~15 ft)	
20	22	1.5	5, 6, 8, 10	20-20.5 light brown silty SAND, well sortedl wet	
				20.5-21.5 light brown SAND and GRAVEL, wet	
				End of boring	

ARCADIS

Sample/Core Log

Well/Boring MW-38 **Project Name and No.** CSXT Brunswick/ MD 843.06.01

Site Location CSXT Brunswick, MD **Drilling Started** 11/26/07 1305 **Drilling Completed** 11/26/07 1415

Total Depth Drilled 26 **feet** **Hole Diameter** 6 5/8 **inches** **Sampling Interval** N/A **feet**

Length and Diameter of Sampling Device 2 ft/ 2 in **Type of Sampling Device** split spoon

Drilling Method HSA **Drilling Fluid Used** N/A

Drilling Contractor SGS **Driller** Mike K **Helper** George M

Prepared By SG **Hammer Weight** N/A **Hammer Drop** N/A **inches**

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
				auger to 23'	
23	25	2	12, 16, 50/5	23-24.5 olive grey, CLAY, wet (from bottom of boring)	
				24.5-25 light brown, clayey SILT with gravel (25%), wet	
25	27	2	23, 37, 33, 14	25-26.5 olive grey, CLAY, wet (from bottom of boring)	
				26.5-27 SAND and GRAVEL with large qtz. cobbles, wet, odor	
				End of boring	

ARCADIS

Sample/Core Log

Well/Boring MW-41 **Project Name and No.** CSXT Brunswick/ MD 843.06.01

Site Location CSXT Brunswick, MD **Drilling Started** 11/19/07 1255 **Drilling Completed** 11/19/07 1344

Total Depth Drilled _____ **feet** **Hole Diameter** 6 5/8 **inches** **Sampling Interval** N/A **feet**

Length and Diameter of Sampling Device 2 ft/ 2 in **Type of Sampling Device** split spoon

Drilling Method HSA **Drilling Fluid Used** N/A

Drilling Contractor SGS **Driller** Mike K **Helper** George M

Prepared By SG **Hammer Weight** N/A **Hammer Drop** N/A **inches**

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
				auger to 22'	
22	**24**		**8, 14, 24, 26**	**light brown, poorly sorted SAND, with gravel (25%), wet****	**1.9**
				End of boring	
				*****Note:*** **added water (~50 gals) during augering**	

ARCADIS

Sample/Core Log

Well/Boring MW-43 **Project Name and No.** CSXT Brunswick/ MD 843.06.01

Site Location CSXT Brunswick, MD **Drilling Started** 11/26/07 1010 **Drilling Completed** 11/26/07 1100

Total Depth Drilled 16 **feet** **Hole Diameter** 6 5/8 **inches** **Sampling Interval** N/A **feet**

Length and Diameter of Sampling Device 2 ft/ 2 in **Type of Sampling Device** split spoon

Drilling Method HSA **Drilling Fluid Used** N/A

Drilling Contractor SGS **Driller** Mike K **Helper** George M

Prepared By SG **Hammer Weight** N/A **Hammer Drop** N/A **inches**

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
				auger to 13'	
13	15	0.5	5, 12, 12, 18	olive grey, poorly sorted SAND and GRAVEL (50%) wet, with large cobbles	0.6
				and some clay	
				hit auger refusal ~16'	
				End of boring	

ARCADIS

Sample/Core Log

Well/Boring MW-49 **Project Name and No.** CSXT Brunswick/ MD 843.06.01

Site Location CSXT Brunswick, MD **Drilling Started** 11/19/07 0920 **Drilling Completed** 11/19/07 1005

Total Depth Drilled 25 **feet** **Hole Diameter** 6 5/8 **inches** **Sampling Interval** N/A **feet**

Length and Diameter of Sampling Device 2 ft/ 2 in **Type of Sampling Device** split spoon

Drilling Method HSA **Drilling Fluid Used** N/A

Drilling Contractor SGS **Driller** Mike K **Helper** George M

Prepared By SG **Hammer Weight** N/A **Hammer Drop** N/A **inches**

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
				auger to 23'	
23	**25**	**1**	**20, 16, 18, 26**	**olive grey and light brown, sandy SILT with gravel (30%) wet**	**0.9**
				End of boring	

Sample/Core Log

Well/Boring MW-50 **Project Name and No.** CSXT Brunswick/ MD 843.06.01

Site Location CSXT Brunswick, MD **Drilling Started** 11/14/07 1350 **Drilling Completed** 11/14/07 1505

Total Depth Drilled 24 **feet** **Hole Diameter** 6 3/8 **inches** **Sampling Interval** 2 **feet**

Length and Diameter of Sampling Device 2 ft/ 2 in **Type of Sampling Device** split spoon

Drilling Method HSA **Drilling Fluid Used** N/A

Drilling Contractor SGS **Driller** Mike K **Helper** George M

Prepared By SG **Hammer Weight** N/A **Hammer Drop** N/A **inches**

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
0	2	1.2	5, 4, 5, 5	0-0.5 light brown clayey SILT, stiff, dry	0.0
				0.5-1.2 fill /black cinders	
2	4	1	3, 1, 1, 1	2-2.2 light brown, sandy SILT, soft, dry	0.0
				2.2-3 black cinders	
4	6	1.2	4, 3, 4, 3	black cinders	0.0
6	8	0.5	1, 1, 1, 2	black cinders	0.0
8	10	1	2, 1, 2, 3	black cinders with some sandy gravel	0.0
10	12	1.5	3, 4, 5, 5	10-10.5 black cinders	0.0
				10.5-11.5 olive grey sandy SILT with some clay, moderally stiff, dry	11.5
12	14	2	6, 4, 5, 5	12-12.5 cinders	0.0
				12.5-13.7 olive grey, sandy SILT, moderate stiff, moist	11.5
				13.7-14 orangish brown, sandy SILT, soft, moist	0.3
14	16		4, 2, 2, 3	14-14.5 cinders	0.0
				14.5-15 orangish brown, sandy SILT, soft, moist	0.0
				15-16 orangish brown, sandy SILT, wet	0.0

Sample/Core Log (Cont.d)

Well/Boring MW-50 **Project Name and No.** CSXT Brunswick/ MD 843.06.01

Prepared By SG

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
16	18	1	37, 8, 5, 9	same as above with gravel (50%)	0.0
18	20	2	8, 10, 14, 25	same as above with gravel (25%)	0.0
20	22	2	17, 23, 22, 21	same as above with gravel (~50%)	0.0
22	24	2		same as above	0.0
				End of boring	

Sample/Core Log

Well/Boring MW-51 **Project Name and No.** CSXT Brunswick/ MD 843.06.01

Site Location CSXT Brunswick, MD **Drilling Started** 11/20/07 1255 **Drilling Completed** 11/20/07 1455

Total Depth Drilled 25 **feet** **Hole Diameter** 6 5/8 **inches** **Sampling Interval** 2 **feet**

Length and Diameter of Sampling Device 2 ft/ 2 in **Type of Sampling Device** split spoon

Drilling Method HSA **Drilling Fluid Used** N/A

Drilling Contractor SGS **Driller** Mike K **Helper** George M

Prepared By SG **Hammer Weight** N/A **Hammer Drop** N/A **inches**

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
3	5	1.75	5, 3, 4, 5	orangish brown clayey SILT, stiff, dry with some gravel	NR
5	7	1.75	10, 15, 8, 9	same as above	NR
7	9	1.5	9, 12, 17, 26	orangish brown clayey SILT, very stiff, moist	NR
9	11	0.5	8, 12, 10, 13	same as above; hit cobble at 11 ft	NR
11	13	2	7, 6, 6, 10	11-13 same as above	NR
				12-13 orangish brown clayey SILT with some gravel and sand	NR
13	15	1.5	3, 4, 11, 6	13-14 orangish brown clayey SILT, stiff, moist	NR
				14-14.5 sandy SILT with gravel, wet, brown	NR
15	17	1	1, 2, 12, 5	15-15.7 orangish brown clayey SILT, stiff, wet	NR
				15.7-16 olive grey silty SAND, well sorted, moist, with some gravel (10%)	NR
17	19	2	12, 4, 4, 6	17-17.8 orangish brown clayey SILT, moist, stiff	0.2
				17.8-19 grey silty SAND, well sorted, moist	NR
19	21	1	1, 7, 6, 11	19-19.5 orangish borwn, clayey SILT, medium stiff, wet	0.4
				19.5-20 olive grey, wet, poorly sorted SAND and GRAVEL (50%), wet	0.7
21	23	1.5	15, 26, 20, 28	21-21.5 orangish brown, clayey SILTwith some sand, stiff, wet	0.2

Sample/Core Log (Cont.d)

Well/Boring MW-51 **Project Name and No.** CSXT Brunswick/ MD 843.06.01

Prepared By SG

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
				21.5-22.5 poorly sorted SAND and GRAVEL with some clay, stiff	**0.2**
23	**25**	**1.8**	**12, 11, 20, 50/2**	**same as above**	**0.2**
				End of boring	

Sample/Core Log

Well/Boring MW-52 **Project Name and No.** CSXT Brunswick/ MD 843.06.01

Site Location CSXT Brunswick, MD **Drilling Started** 11/14/07 0900 **Drilling Completed** 11/14/07 1100

Total Depth Drilled 22 **feet** **Hole Diameter** 6 5/8 **inches** **Sampling Interval** 2 **feet**

Length and Diameter of Sampling Device 2 ft/ 2 in **Type of Sampling Device** split spoon

Drilling Method HSA **Drilling Fluid Used** N/A

Drilling Contractor SGS **Driller** Mike K **Helper** George M

Prepared By SG **Hammer Weight** N/A **Hammer Drop** N/A **inches**

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
0	2	1	5, 8, 10, 6	cinders with light brown silty clay and gravel (30%) dry	0.6
2	4	2	19, 4, 3	2-2.5 black cinder	
				2.5-3 light brown, silty CLAY, very stiff, dry	0.3
				3-4 light brown, silty CLAY, stiff, slightly moist	0.2
4	6	2	4, 4, 4, 5	light brown, silty CLAY, stiff, dry	0.0
6	8	2	8, 10, 12, 13	6-6.5 olive gray, silty CLAY, soft, moist	0.0
				6.5-8 orangish brown, clayey SILT, stiff, dry	0.0
8	10	2	4, 4, 4, 3	8-8.5 olive gray, silty CLAY, stiff moist	
				8.5-8.8 orangish brown, clayey SILT, stiff	0.3
				8.8-10 light brown, silty CLAY, stiff, moist	
10	12	2	4, 4, 5, 4	10-11.8 light brown, silty CLAY, stiff, moist	0.3
				11.8-12 olive gray, sandy SILT, wet	
12	14	2	5, 10, 32, 20	12-13 olive gray, sandy SILT, wet	2.2
				13-14 light brown, silty SAND and GRAVEL (50%), wet	4.6
14	16	1.3	wt. of hammer/12, 5, 5	14-15 olive gray, clayey SILT, soft, wet	2.4

Sample/Core Log (Cont.d)

Well/Boring MW-52 **Project Name and No.** CSXT Brunswick/ MD 843.06.01

Prepared By SG

Sample Depth (feet below land surface) From	To	Sample Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample Description	PID (ppm)
				15-16 olive gray clayey SILT with sand and gravel (50%)	9.1
16	18	0.2	5, 10, 11, 6	olive gray sandy SILT with gravel (25%)	3.7
18	20	0.3	50/2	olive gray sandy SILT with gravel (25%) (qtz cobbles)	3.8
20	22	0.6	48, 50/3	olive gray sandy SILT with gravel (25%) (qtz cobbles)	5.4
				*hit auger refusal at 22'	
				End of boring	

ARCADIS

Sample/Core Log

Boring/Well GP-53 Project/No. MD000843.0006.0002 Page ____ of ____

Site Location Brunswick, MD Drilling Started 6/5/2008 7:55 Drilling Completed 6/5/2008 8:40

Total Depth Drilled 18 Feet Hole Diameter 2 inches Type of Sample/ Coring Device ____

Length and Diameter of Coring Device 4 ft / 2 in Sampling Interval 16-17 feet

Land-Surface Elev. N/A feet ☐ Surveyed ☐ Estimated Datum N/A

Drilling Fluid Used N/A Drilling Method Geoprobe

Drilling Contractor SGS Environmental Driller Mike K Helper Brian B

Prepared By Sandra Grabowski Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	4	36	0	0-6" - peat and gravel (2-5 mm), moist
			0	6-24" - fill
			0	24-36" - orange brown clay with some silt, moist, stiff
4	8	48	0	0-48"-orange brown clay with some silt and gravel (>1mm), moist, stiff
				*PID head space reading - 0.0ppm (5 ft bgs)
8	12	48	0	0-48" - orange brown clay with some silt and gravel, moist, stiff
				*PID head space reading - 0.0ppm
12	16	48	0	0-48"- orange brown clay with some silt and gravel, moist, stiff
16	20	36		0-12" -orange brown clay with some silt and gravel, moist, stiff
				12-36"- brown fine sand with clay, wet, dense,
				*hit refusal @ 18ft
				END BORING

ARCADIS

Sample/Core Log

Boring/Well GP-54 Project/No. MD000843.0006.0002 Page ____ of ____

Site Location Brunswick, MD Drilling Started 6/4/2008 2:10 Drilling Completed 6/4/2008 2:45

Total Depth Drilled 18 Feet Hole Diameter 2 inches Type of Sample/ Coring Device ____

Length and Diameter of Coring Device 4 ft / 2 in Sampling Interval 8-9 feet

Land-Surface Elev. N/A feet ☐ Surveyed ☐ Estimated Datum N/A

Drilling Fluid Used N/A Drilling Method Geoprobe

Drilling Contractor SGS Environmental Driller Mike K Helper Brian B

Prepared By Sandra Grabowski Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	4	16	0	0-16"-fill, moist
			0	0-24" fill, moist
			0	24-27"- SAND and GRAVEL, moist, med loose
			0	27-36" - olive grey, clay with gravel (1-3mm) med loose,
			0	36-48" - SAND and GRAVEL, wet (1-5mm)
				*PID head space reading - 0.0ppm
8	12	48	0	0-12" - olive grey to orange brown clay, with some fill, dense, moist
				12-48" - olive grey to orange brown clay, with some fill, dense, moist

ARCADIS

Sample/Core Log

Boring/Well GP-55 Project/No. MD000843.0006.0002 Page ____ of ____

Site Location Brunswick, MD Drilling Started 6/4/2008 1:30 Drilling Completed 6/4/2008 2:00

Total Depth Drilled 18 Feet Hole Diameter 2 inches Type of Sample/ Coring Device ____

Length and Diameter of Coring Device 4 ft / 2 in Sampling Interval 15-16 feet

Land-Surface Elev. N/A feet ☐ Surveyed ☐ Estimated Datum N/A

Drilling Fluid Used N/A Drilling Method Geoprobe

Drilling Contractor SGS Environmental Driller Mike K Helper Brian B

Prepared By Sandra Grabowski Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	4	36	0	0-36" - fill (black) dry
4	8	30	0	0-18" - fill (black) dry
			0	18-30" - brown to olive grey CLAY, stiff, moist
			0	*PID head space reading - 0.0ppm (5 ft bgs)
8	12	48	0	0-18" -brown to olive grey CLAY, stiff, moist
				18-20" - brown to olive grey clay with gravel, stiff, moist
				20-48"- brown to olive grey CLAY, stiff, moist
				*PID head space reading - 0.0ppm (10 ft bgs)
12	16	48	0	0-12" - brown to olive grey clay with fill material , stiff, moist
				12-48" - orange brown silty clay, stiff with some gravel (2-3mm) moist
				*PID head space reading - 0.0ppm (15 ft bgs)
16	20	36	0	0-6" - range brown silty clay, with some gravel (2-3mm), stiff wet
				6-12" - SAND and GRAVEL, loose, wet
				12-36" -clayey stiff sand with gravel, wet (2-5mm)
				*refusal at 18ft
				END BORING

ARCADIS

Sample/Core Log

Boring/Well GP-56 Project/No. MD000843.0006.0002 Page ____ of ____

Site Location Brunswick, MD Drilling Started 6/5/2008 3:30 Drilling Completed 6/5/2008 2:00

Total Depth Drilled 18 Feet Hole Diameter 2 inches Type of Sample/ Coring Device ____

Length and Diameter of Coring Device 4 ft / 2 in Sampling Interval 11-12 feet

Land-Surface Elev. N/A feet ☐ Surveyed ☐ Estimated Datum N/A

Drilling Fluid Used N/A Drilling Method Geoprobe

Drilling Contractor SGS Environmental Driller Mike K Helper Brian B

Prepared By Sandra Grabowski Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	4	36	0	0-18" fill
				18-36"- orange brown CLAY, dry, stiff
4	8	42	269, 487, 404	0-6" - clay with sand and gravel, wet
				6-12" - brick
				12-42" - olive grey silty CLAY, med soft, odor, moist
				*PID head space reading - 890 ppm
8	12	48	100, 79, 382, 1495	0-48" - brown to olive grey clayey SILT, wet, dense odor
				*PID head space reading - 1117 ppm (10 ft bgs)
12	16	48	679, 716, 793, 410	0-36" - brown to olive grey clayey SILT, wet, dense odor
				36-48" - clay with gravel, wet, odor,brown
				*PID head space reading - 1077ppm (15 ft bgs)
16	20	36	214, 56.1, 13.2	0-24" - loose clayey silt with gravel, wet, odor
				24-36" - brown clayey sand with some gravel

ARCADIS

Sample/Core Log

Boring/Well GP-57 Project/No. MD000843.0006.0002 Page ____ of ____

Site Location Brunswick, MD Drilling Started 6/4/2008 11:25 Drilling Completed 6/4/2008 12:05

Total Depth Drilled 18 Feet Hole Diameter 2 inches Type of Sample/ Coring Device ____

Length and Diameter of Coring Device 4 ft / 2 in Sampling Interval 12-13 feet

Land-Surface Elev. N/A feet ☐ Surveyed ☐ Estimated Datum N/A

Drilling Fluid Used N/A Drilling Method Geoprobe

Drilling Contractor SGS Environmental Driller Mike K Helper Brian B

Prepared By Sandra Grabowski Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	4	24	0	0-24" - black fill, dry to slightly moist
4	8	42	0	0-6" black fill, dry to slightly moist
			0	6-36" - brown clay with some gravel (2-6mm) moist med loose
			0	36-42" - brown silty CLAY, moist med loose
				*PID head space reading - 0.0ppm (5 ft bgs)
4	8	48	292, 302, 471, 269	0-12" - brown silty CLAY, moist med loose
				12-48" - brown to olive grey silty CLAY, odor, moist, little gravel
				*PID head space reading - 228ppm (10 ft bgs)
12	16	48	718, 680, 326, 106	0-36" - brown to olive grey silty CLAY, odor, moist, little gravel(1-4 mm)
				36-40" - silt with gravel wet,
				*PID head space reading - 232ppm (13 ft bgs)
16	20	48	0.0, 0.0, 18	sand with gravel (1-3mm), brown, wet (sheen) slight odor
				*PID head space reading - (20 ft bgs)
20	24	36		0-36" sand gravel (1-3mm), wet, slight odor, sheen on water
				END BORING

ARCADIS

Sample/Core Log

Boring/Well GP-58 Project/No. MD000843.0006.0002 Page ____ of ____

Site Location Brunswick, MD Drilling Started 6/3/2008 12:30 Drilling Completed 6/3/2008 1:45

Total Depth Drilled 24 Feet Hole Diameter 2 inches Type of Sample/ Coring Device ____

Length and Diameter of Coring Device 4 ft / 2 in Sampling Interval 15-16 feet

Land-Surface Elev. N/A feet ☐ Surveyed ☐ Estimated Datum N/A

Drilling Fluid Used N/A Drilling Method Geoprobe

Drilling Contractor SGS Environmental Driller Mike K Helper Brian B

Prepared By Sandra Grabowski Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	4	12	0	0-6" - concrete
				6-12" - fill, dry
4	8	36	3, 7,	0-12" - gravel and fill, moist
			241, 270	12-36" - olive CLAY with gravel and little silt, moist med soft, slight odor
				*PID head space reading - 340ppm (5 ft bgs)
8	12	48	204, 343, 204, 733	0-18" - orange brown silty clay with some fill, stiff
				18-48" - olive grey/brown clayey SILT, moist, stiff, odor
				*PID head space reading - 1599ppm (10 ft bgs)
12	16	48	272, 739, 1043, 1229	0-24" - moist olivegrey clay with silt med loose, odor
				24-40" - olive grey clayey SILT, moist stiff odor
				*PID head space reading - 3338ppm (15 ft bgs)
16	20	36	594, 817, 340	0-30" - live grey clayey SILT, moist stiff odor
				30-36" - silt with sand and some gravel (1-3mm) wet, odor
				*refusal at 20ft bgs
				END BORING

ARCADIS

Sample/Core Log

Boring/Well GP-59 Project/No. MD000843.0006.0002 Page ____ of ____

Site Location Brunswick, MD Drilling Started 6/3/2008 10:50 Drilling Completed 6/3/2008 11:40

Total Depth Drilled 24 Feet Hole Diameter 2 inches Type of Sample/ Coring Device ____

Length and Diameter of Coring Device 4 ft / 2 in Sampling Interval 15-16 feet

Land-Surface Elev. N/A feet ☐ Surveyed ☐ Estimated Datum N/A

Drilling Fluid Used N/A Drilling Method Geoprobe

Drilling Contractor SGS Environmental Driller Mike K Helper Brian B

Prepared By Sandra Grabowski Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	4	48	0	0-18" - fill dry
			0	18-36" - orange brown clayey SILT, stiff, dry
			0	36-48" - olive brown CLAY, stiff, dry
4	8	48	0	0-42" - olive brown CLAY, stiff, dry (moist 6-36)
			0	42-48"- brown silty clay, stiff, moist
				*PID head space reading - 9.8ppm (5 ft bgs)
8	12	40	0, 38.6, 67.8, 303	0-36" - brown clay with some silt; gravel med soft, moist
				36-48" - brown clayey silt with little gravel, slight odor,moist
				*PID head space reading - 28.5ppm (10 ft bgs)
12	16	48	162, 317, 645, 1209	0-12" - brown clay with silt, moist med loose
				12-48" - brown clayey SILT, wet, med soft, odor
				*PID head space reading - 51.4ppm (15 ft bgs)
16	20	42	371, 509, 671, 737	0-6" - brown CLAY, med soft, moist
				6-42" - SAND and GRAVEL loose, wet slime
				12-42" - sandy SILT, wet, olive brown, med loose, odor
				*PID head space reading - 231ppm (20 ft bgs)
20	24	48	15, 76, 144, 241	0-24" - sandy silt, with gravel wet, olive brown, med loose, odor
				24-48" - SAND and GRAVEL (1-5mm), loose, wet, slight odor
				END BORING

ARCADIS

Sample/Core Log

Boring/Well: GP-60 | Project/No.: MD000843.0006.0002 | Page: ____ of ____

Site Location: Brunswick, MD | Drilling Started: 6/3/2008 9:30 | Drilling Completed: 6/3/2008 10:40

Total Depth Drilled: 24 Feet | Hole Diameter: 2 inches | Type of Sample/ Coring Device: ____

Length and Diameter of Coring Device: 4 ft / 2 in | Sampling Interval: 14-15 feet

Land-Surface Elev.: N/A feet | ☐ Surveyed | ☐ Estimated | Datum: N/A

Drilling Fluid Used: N/A | Drilling Method: Geoprobe

Drilling Contractor: SGS Environmental | Driller: Mike K | Helper: Brian B

Prepared By: Sandra Grabowski | Hammer Weight: ____ | Hammer Drop: ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	4	18	0	0-6" - concrete
			0	6-18" - black fill, dry
4	8	36	0.0, 0.0, 13.3, 69.5	0-3" - black fill, dry
				3-12" - orange brown clay with some silt and fill, moist, med loose
				12-24" - brown silty clay with some sand and gravel, wet, loose
				24-36" - brown silty clay, stiff, moist
				*PID head space reading - 5.3ppm (5 ft bgs)
8	12	48	0, 25.4, 284, 193	0-6" - sand and gravel with some clay, wet, med loose, slight odor
				6-24" - brown CLAY, possible strong odor, wet, med loose
				24-48" - brown silty, clay, odor, stiff, moist
				*PID head space reading - 217ppm (10 ft bgs)
12	16		47, 333, 195	0-6" - sand and gravel with some clay, wet, med loose, odor
				6-36" - clayey SILT, brown to olive grey, med loose, wet, strong odor
				*PID head space reading - 380ppm (15 ft bgs)
16	20	36	678, 866, 47.2	0-6" - SAND and GRAVEL, wet, med loose
				6-30" - clayey SILT with some sand, wet, med loose, oilve grey, odor
				*PID head space reading - 587ppm (20 ft bgs)
				30-36" - silty SAND with some gravel, olivegrey, odor, wet
20	24	2	-	0-24" - sand with gravel, some clay, wet, slight odor, med loose
				END BORING

ARCADIS

Sample/Core Log

Boring/Well GP-61 Project/No. MD000843.0006.0002 Page ____ of ____

Site Location Brunswick, MD Drilling Started 6/2/2008 1:20 Drilling Completed 6/2/2008 2:30

Total Depth Drilled ____ Feet Hole Diameter 2 inches Type of Sample/ Coring Device ____

Length and Diameter of Coring Device 4 ft / 2 in Sampling Interval 13-14 feet

Land-Surface Elev. N/A feet ☐ Surveyed ☐ Estimated Datum N/A

Drilling Fluid Used N/A Drilling Method Geoprobe

Drilling Contractor SGS Environmental Driller Mike K Helper Brian B

Prepared By Sandra Grabowski Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	4	24	0	0-6" - concrete
				6-8' - fill, sand (black to brown) dry
				8-24' - brown clay with gravel, dry
4	8	24	0	0-4" - fill
				4-24" - brown silty, clay with little gravel, med loose
				*PID head space reading - 4.3ppm (5 ft bgs)
8	12	48	0	0-24" - brown silty clay with some gravel stiff, wet
				24-36" - brown silty clay with some sand and gravel
				*PID head space reading - 0.0ppm (6 ft bgs)
				36-42" -clayey sand,look wet, some gravel
				42-48" - silty clay, med loose, wet, brown
12	16	48	266, 458, 14.4	0-24" -olive grey silty CLAY, odor, wet, med soft
				24-36" - brown sand, med to loose grey, wet, little gravel
16	20	48	26.9	0-12" - brown sandy silt, wet med loose
				12-48" - sandy gravel, brown, wet,
				*PID head space reading - 90.4ppm (15 ft bgs)
20	24	24		0-24" - sandy gravel, brown, wet,

ARCADIS

Sample/Core Log

Boring/Well GP-62 Project/No. MD000843.0006.0002 Page ____ of ____

Site Location Brunswick, MD Drilling Started 6/2/2008 12:20 Drilling Completed 6/2/2008 1:10

Total Depth Drilled ____ Feet Hole Diameter 2 inches Type of Sample/ Coring Device ____

Length and Diameter of Coring Device 4 ft / 2 in Sampling Interval ____ feet

Land-Surface Elev. N/A feet ☐ Surveyed ☐ Estimated Datum N/A

Drilling Fluid Used N/A Drilling Method Geoprobe

Drilling Contractor SGS Environmental Driller Mike K Helper Brian B

Prepared By Sandra Grabowski Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	4	48	0	0-12"- gravel and concrete
				12-13" - red brick
				13-36" - black cinders and fill
				railroad tie ~ 2ft bgs
				36-48" - brown silt with some sand gravel (1mm), dry
4	8	24	0	0-18" - brown silt with some sand gravel (1mm), dry
				18-20" - black fill, wet
				20-22" - concrete
				22-24" - brown clay with some silt,stiff, dry
				*PID head space reading - 11.2ppm (5 ft bgs)
8	12	30	4.3, 101, 41.6	0-12 dark grey CLAY, loose, moist
				12-30 brown silty CLAY, moist, stiff, odor
				*PID head space reading - 97.1ppm (10 ft bgs)
12	16	48	65,101, 237, 642	0-6" - dark grey CLAY, loose,moist, odor
				6-48" - olive grey to brown silty CLAY, med loose,moist, odor
				*PID head space reading - 1310ppm (15 ft bgs)
16	20	48	64.7, 104, 237, 141	0-24" - olive grey to brown silty CLAY, med loose,moist, odor
				24-48" - olive grey clayey SILT, wet, odor, stiff
				*PID head space reading - 817ppm (20 ft bgs)
20	24	24	29.5, 22.1	brown sand with some gravel (1-3 mm) wet, med loose
				END BORING

ARCADIS

Sample/Core Log

Boring/Well GP-63 Project/No. MD000843.0006.0002 Page ____ of ____

Site Location Brunswick, MD Drilling Started 6/2/2008 11:20 Drilling Completed 6/2/2008 12:00

Total Depth Drilled 24 Feet Hole Diameter 2 inches Type of Sample/ Coring Device ____

Length and Diameter of Coring Device 4 ft / 2 in Sampling Interval ____ feet

Land-Surface Elev. N/A feet ☐ Surveyed ☐ Estimated Datum N/A

Drilling Fluid Used N/A Drilling Method Geoprobe

Drilling Contractor SGS Environmental Driller Mike K Helper Brian B

Prepared By Sandra Grabowski Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	4	48	0	0-6" - concrete
				6-48" - light brown silty clay with little gravel and fill material, dry to slightly moist
4	8	30	0	0-8" - light brown silty clay with little gravel and fill material, dry to slightly moist
				8-30" - olive grey CLAY, moist, med soft
				*PID head space reading - 4.7ppm (15 ft bgs)
8	12	36	0	0-8" - brown CLAY, soft, slightly moist, some silty
				8-16" - concrete
				16-30" - olive grey CLAY, some silty,med soft, slightly moist
				30-36" - dark brown clayey SILT,med stiff, slightly moist
				*PID head space reading - 5.1ppm (10 ft bgs)
12	16	48	0	0-24" - dark brown clayey SILT,med stiff, slightly moist
				24-30" - olive grey brown CLAY, soft, moist
				30-42" - clay and gravel, loose,
				42-48" - moist clay
				*PID head space reading - 4.4ppm (15 ft bgs)
16	20	48	0	0-48" - brown clayey SILT, little gravel, wet, loose/soft
				*PID head space reading - 5.1ppm (20 ft bgs)
20	24	48	0	0-12" - brown to olivegrey silty clay med loose, moist to wet
				12-42" - brown sand and gravel, wet, dense, medium gravel (~1mm)
				42-48" - brown sand and gravel, wet, dense, larger gravel (2-3mm)
				END BORING

ARCADIS

Sample/Core Log

Boring/Well GP-64 Project/No. MD000843.0006.0002 Page ____ of ____

Site Location Brunswick, MD Drilling Started 6/4/2008 9:45 Drilling Completed 6/4/2008 10:25

Total Depth Drilled 18 Feet Hole Diameter 2 inches Type of Sample/ Coring Device ____

Length and Diameter of Coring Device 4 ft / 2 in Sampling Interval 15-16 feet

Land-Surface Elev. N/A feet ☐ Surveyed ☐ Estimated Datum N/A

Drilling Fluid Used N/A Drilling Method Geoprobe

Drilling Contractor SGS Environmental Driller Mike K Helper Brian B

Prepared By Sandra Grabowski Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	4	36	0	0-36" - fill (black cinders, dry)
4	8	12	0	0-12" - fill (black cinders, dry)
				*PID head space reading - 0.0ppm (5 ft bgs)
8	12	12	0	0-12 fill (black cinders, dry), moist
				*PID head space reading - 0.0ppm (10 ft bgs)
12	16	20	0, 37.3	0-6" - fill (black cinders, dry)
				6-20' - brown to olive grey CLAY, moist, loose, odor
				*PID head space reading - 62.7ppm (10 ft bgs)
16	20	24	12.5, 13.7, 10.1	0-12" - brown to olive grey CLAY, moist, loose, odor
				12-24" - brown silty clay with gravel, wet, med loose
				refusal at 19ft bgs
				END BORING

ARCADIS

Sample/Core Log

Boring/Well GP-65 Project/No. MD000843.0006.0002 Page ____ of ____

Site Location Brunswick, MD Drilling Started 6/5/2008 10:40 Drilling Completed 6/5/2008 11:30

Total Depth Drilled 18 Feet Hole Diameter 2 inches Type of Sample/ Coring Device ____

Length and Diameter of Coring Device 4 ft / 2 in Sampling Interval 16-17 feet

Land-Surface Elev. N/A feet ☐ Surveyed ☐ Estimated Datum N/A

Drilling Fluid Used N/A Drilling Method Geoprobe

Drilling Contractor SGS Environmental Driller Mike K Helper Brian B

Prepared By Sandra Grabowski Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	4	38	0	0-9" - concrete and brick
				9-12" - grey, fine to medium SAND
				12-20" - dark grey silty CLAY, stiff, dry
				20-38' - brown clay with some gravel (0-2mm) slight moist, stiff
4	8	34	0	0-16" - brown clay with some gravel (0-2mm) slight moist, stiff
				16-34" - olive grey CLAY, moist, med loose
				*PID head space reading - 0.0ppm (5 ft bgs)
8	12	48	0	0-24" - olive grey CLAY, moist, med loose
				24-46" - brown clay with some gravel, stiff,moist
				46-48" - brown clay with some gravel and silt, stiff,moist
				*PID head space reading - 0.0ppm (10 ft bgs)
12	16	48	0	0-48" - brown clay with some gravel and silt, stiff, moist
				*PID head space reading - 0.0ppm (15 ft bgs)
16	20	36	0	0-12" - brown clay with some gravel and silt, stiff, moist
				12-36' - brown clayey sand, wet, gravel (1-4 mm)
				refusal at ~19.5 ft
				END BORING

ARCADIS

Sample/Core Log

Boring/Well GP-66 Project/No. MD000843.0006.0002 Page ____ of ____

Site Location Brunswick, MD Drilling Started 6/5/2008 8:50 Drilling Completed 6/5/2008 9:30

Total Depth Drilled 19 Feet Hole Diameter 2 inches Type of Sample/ Coring Device ____

Length and Diameter of Coring Device 4 ft / 2 in Sampling Interval 16-17 feet

Land-Surface Elev. N/A feet ☐ Surveyed ☐ Estimated Datum N/A

Drilling Fluid Used N/A Drilling Method Geoprobe

Drilling Contractor SGS Environmental Driller Mike K Helper Brian B

Prepared By Sandra Grabowski Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	4	36	0	0-36" - fill (black cinders, dry)
4	8	36	0	0-36" - fill (black cinders, dry to slightly moist)
				*PID head space reading - 0.0ppm
8	12	24	0	0-12" - fill, moist, some clay
				12-24" - fill, gravel, black, wet
				*PID head space reading - 0.0ppm
12	16	48	0	0-12" - gravel fill, black, wet
				12-24" - olive grey to dark grey CLAY, stiff, wet
				24-48" - brown clay with some sand and gravel (1-3mm), moist
16	20	36	131, 74.1	0-18" - GRAVEL and SAND, odor, wet
				18-36" - brown clayey SILT, stiff, wet, some sand
				refusal at ~19.5 ft
				END BORING

ARCADIS

Sample/Core Log

Boring/Well: GP-67 | Project/No.: MD000843.0006.0002 | Page ____ of ____

Site Location: Brunswick, MD | Drilling Started: 6/5/2008 12:20 | Drilling Completed: 6/5/2008 1:15

Total Depth Drilled: ____ Feet | Hole Diameter: 2 inches | Type of Sample/ Coring Device: ____

Length and Diameter of Coring Device: 4 ft / 2 in | Sampling Interval: ____ feet

Land-Surface Elev.: N/A feet | ☐ Surveyed | ☐ Estimated | Datum: N/A

Drilling Fluid Used: N/A | Drilling Method: Geoprobe

Drilling Contractor: SGS Environmental | Driller: Mike K | Helper: Brian B

Prepared By: Sandra Grabowski | Hammer Weight: ____ | Hammer Drop: ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	4	36	217, 598, 1165, 65	0-12" - concrete, asphalt, fill
				12-36" - black fill, moist, odor
4	8	24	718, 937, 342	0-18" - dark grey CLAY with fill material, wet, odor, med loose
				18-24' - brown to olive brown CLAY with silty sand, loose, wet
				*PID head space reading -1264ppm (5ft bgs)
8	12	48	633, 533, 656, 665	0-24" - brown to olive brown CLAY with silty sand, loose, wet
				24-48" - dark grey CLAY with silt, moist to wet, dense
				*PID head space reading -394ppm (10ft bgs)
12	16	48	1227, 617, 1136, 372	0-48" - dark grey CLAY with silt, wet, odor
				*PID head space reading -860ppm (15ft bgs)
16	20	12	212	0-12" dark grey CLAY with gravel, wet, odor
				refusal at 19 ft (large cobbles)
				END BORING

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Sample/Core Log

Boring/Well GP-68 Project/No. MD000843.0006.0002 Page ____ of ____

Site Location Brunswick, MD Drilling Started 6/2/2008 1:15 Drilling Completed 6/2/2008 2:00

Total Depth Drilled 24 Feet Hole Diameter 2 inches Type of Sample/ Coring Device ____

Length and Diameter of Coring Device 4 ft / 2 in Sampling Interval 4 feet

Land-Surface Elev. N/A feet ☐ Surveyed ☐ Estimated Datum N/A

Drilling Fluid Used N/A Drilling Method Geoprobe

Drilling Contractor SGS Environmental Driller Mike K Helper Brian B

Prepared By Sandra Grabowski Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	4	36	-	0-6" - concrete
			8.1	6-30" - brown clay with some silty sand , stiff, dry, some fill
			6.1	30-36" - black fill, wet
4	8	36	0	0-6'"- brown to olive grey clay with some silt and gravel (1-3mm), slightly moist
			5.6	6-32" - olive grey to brown clay, stiff slightly moist
			4.1	32-36" - olivegrey silty clay, stiff, slightly moist
				*PID head space reading - 43.4ppm (5 ft bgs)
8	12	24	4.1, 0	0-24" - olive grey clay with some silt and gravel (<1mm), slightly moist, med loose
			126, 344	olive grey to brown clay with little silt, stiff, slight odor, dry
				*PID head space reading - 10.3ppm (10 ft bgs)
12	16	48	115, 404, 668, 1061	0-12" - brown silt clay with little gravel (~1mm), moist, stiff
				12-48" - brown clayey silt, stiff, moist
				*PID head space reading - 596ppm (15 ft bgs)
16	20	48	91.4, 49.2, 42.8, 39.1	0-12" - olive grey clayey silt, wet
				12-24" - olive grey clayey silt, wet, very loose
				24-48" - olive grey silt with some clay and gravel, wet, loose
				*PID head space reading - 400ppm (20 ft bgs)
20	24	48	0	0-6" - olive grey silt with some clay and gravel, wet, loose
				6-48" - sand and gravel, very loose, wet,
				END BORING

ARCADIS

Sample/Core Log

Boring/Well GP-69 Project/No. MD000843.0006.0002 Page ____ of ____

Site Location Brunswick, MD Drilling Started 6/3/2008 2:10 Drilling Completed 6/3/2008 2:45

Total Depth Drilled ____ Feet Hole Diameter 2 inches Type of Sample/ Coring Device ____

Length and Diameter of Coring Device 4 ft / 2 in Sampling Interval 12-13 feet

Land-Surface Elev. N/A feet ☐ Surveyed ☐ Estimated Datum N/A

Drilling Fluid Used N/A Drilling Method Geoprobe

Drilling Contractor SGS Environmental Driller Mike K Helper Brian B

Prepared By Sandra Grabowski Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	4	30	0	0-30" - fill, black cinders, dry
4	8	24	0	0-20" - fill, black cinders (moist 17-20")
			0	20-24" - brown CLAY, med soft, moist
.				*PID head space reading - 0.0ppm (5 ft bgs)
8	12	48	0	0-12" - brown to dark grey CLAY, med soft
			0	12-36" - brown CLAY, stiff
			0	36-48"- brown CLAY with some silt
				*PID head space reading - 5.4ppm (10 ft bgs)
12	16	16	102, 11, 3.4, 5.1	0-12" - brown to grey clayey SILT,wet, odor, stiff
				12-16" - brown clayey SILT, little gravel, moist, slight odor
				*PID head space reading - 3.7ppm (15 ft bgs)
16	20	0	N/A	no recovery (wet)
20	224	36	0	0-18" - SAND and GRAVEl, wet, dark grey
				18-36" - sand with little gravel
				END BORING

ARCADIS

Sample/Core Log

Boring/Well GP-69a Project/No. MD000843.0006.0002 Page ____ of ____

Site Location Brunswick, MD Drilling Started 6/2/2008 10:20 Drilling Completed 6/2/2008 10:40

Total Depth Drilled 9 Feet Hole Diameter 2 inches Type of Sample/ Coring Device ____

Length and Diameter of Coring Device 4 ft / 2 in Sampling Interval 4 feet

Land-Surface Elev. N/A feet ☐ Surveyed ☐ Estimated Datum N/A

Drilling Fluid Used N/A Drilling Method Geoprobe

Drilling Contractor SGS Environmental Driller Mike K Helper Brian B

Prepared By Sandra Grabowski Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	4	36	-	0-4" -concrete
			2.3	4-30" - black fill, gravel and cinders, dry
				30-36" - concrete
4	8	24		0-2" - concrete
			14	2-16" - orange brown clay, med loose,moist, with cinder fill
			0	16-24" - black cinder, wet
				*PID head space reading - 7.2ppm (~5 ft bgs)
8	12	6	0	0-6" - dark grey to black, wet fill, gravel with some sand
				*PID head space reading - 7.2ppm (8 ft bgs)
				refusal at 9ft

ARCADIS

Sample/Core Log

Boring/Well GP-70 Project/No. MD000843.0006.0002 Page ____ of ____

Site Location Brunswick, MD Drilling Started 6/4/2008 10:40 Drilling Completed 6/4/2008 11:15

Total Depth Drilled ____ Feet Hole Diameter 2 inches Type of Sample/ Coring Device ____

Length and Diameter of Coring Device 4 ft / 2 in Sampling Interval 13-14 feet

Land-Surface Elev. N/A feet ☐ Surveyed ☐ Estimated Datum N/A

Drilling Fluid Used N/A Drilling Method Geoprobe

Drilling Contractor SGS Environmental Driller Mike K Helper Brian B

Prepared By Sandra Grabowski Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	4	36	0	0 -18 - FILL; black cinders, gravel
			0	18 - 36" - brown clayey SILT, stiff, dry
4	8	42	0	0 - 22" - brown clayey SILT, stiff, dry
				22 - 42" - brown clayey SILT, stiff, moist
				*PID head space reading - 0.0ppm (5 ft bgs)
8	12	42	0	0 - 6" - brown clayey SILT, stiff, moist
				6 - 36" - olive grey silty CLAY, medium soft, moist, some gravel (~2-3mm)
			96	36 - 42" - olive grey to dark grey clayey SILT, moist, medium loose, odor
				*PID head space reading - 0.0ppm (10 ft bgs)
12	16	48	310, 1595, 1776, 984	0 - 6" - brown to olive grey silty CLAY, moist, medium loose
				6 - 24" - dark grey silty CLAY, medium loose, moist to wet, strong odor
				24 - 48" - dark brown to olive grey clayey SILT, wet, medium loose, odor
				*PID head space reading - 5402ppm (15 ft bgs)
16	20	48	264, 173, 1108, 205	0 - 42" - dark brown to olive grey clayey SILT with some gravel (2-5mm), wet, odor
				42 - 48" - olive grey SAND and GRAVEL (1-5mm), wet
				*PID head space reading - 680ppm (20 ft bgs)
20	24	24	182, 14	0 - 24" - brown SAND and GRAVEL (1-5mm), loose, wet
				END BORING
				TP PVC set at 20 ft bgs (15 ft screen)

ARCADIS

Sample/Core Log

Boring/Well GP-71 Project/No. MD000843.0006.0002 Page ____ of ____

Site Location Brunswick, MD Drilling Started 6/4/2008 12:40 Drilling Completed 6/4/2008 1:20

Total Depth Drilled 18 Feet Hole Diameter 2 inches Type of Sample/ Coring Device ____

Length and Diameter of Coring Device 4 ft / 2 in Sampling Interval 10-11 feet

Land-Surface Elev. N/A feet ☐ Surveyed ☐ Estimated Datum N/A

Drilling Fluid Used N/A Drilling Method Geoprobe

Drilling Contractor SGS Environmental Driller Mike K Helper Brian B

Prepared By Sandra Grabowski Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	4	24	0	0 - 18" - FILL; black cinders, gravel
			0	18 - 24" - brown CLAY, medium soft, dry to slightly moist
4	8	36	0	0 - 30" - brown CLAY with gravel (1-11mm) and some fill material (brick 24"), moist to we
				30 - 36" - olive grey CLAY, soft, most to wet
				*PID head space reading - 0.0ppm
8	12	48	0	0 - 36" - brown to grey brown CLAY, very stiff , moist
				36 - 48" - olive grey silty CLAY, loose, wet
				*PID head space reading - 0.0ppm (10 ft bgs)
12	16	48	0	0 - 12" - SAND and GRAVEL, wet
				12 - 48" - orange brown silty CLAY with some gravel (2-5 mm), wet
				*PID head space reading - 0.0ppm (15 ft bgs)
16	20	36	0	0 - 6" - SAND and GRAVEL
				6 - 18" - sandy CLAY, brown, loose, wet, some gravel
				18 - 36" -sandy CLAY, brown, soft, medium loose to stiff
				refusal at 18 ft bgs
				END BORING

ARCADIS

Sample/Core Log

Boring/Well: GP-72 | Project/No.: MD000843.0006.0002 | Page: 1 of 1

Site Location: Brunswick, MD | Drilling Started: 6/4/2008 9:45 | Drilling Completed: 6/4/2008 10:30

Total Depth Drilled: 24 Feet | Hole Diameter: 2 inches | Type of Sample/ Coring Device:

Length and Diameter of Coring Device: 4 ft / 2 in | Sampling Interval: 12.5-13.5 feet

Land-Surface Elev.: N/A feet | ☐ Surveyed | ☐ Estimated | Datum: N/A

Drilling Fluid Used: N/A | Drilling Method: Geoprobe

Drilling Contractor: SGS Environmental | Driller: Mike K | Helper: Brian B

Prepared By: Sandra Grabowski | Hammer Weight: | Hammer Drop: ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	4	36	0	0 - 36" - FILL, black
4	8	24	0	0 - 24" - FILL, black
				*PID head space reading - 0.0ppm (5 ft bgs)
8	12	24	0	0 - 24" - FILL, black with some gravel, dry
				*PID head space reading - 0.0ppm (10 ft bgs)
12	16	48	0	0 - 6" - FILL
				6 - 42" - brown silty CLAY, medium loose, moist to wet
				42 - 48" - SAND and GRAVEL (1-2mm) with clay, brown , wet
				*PID head space reading - 0.0ppm (15 ft bgs)
16	20	48	0	0 - 6" - silty CLAY with gravel and some sand (1-3mm), brown, moist
				6 -12" - GRAVEL with sand and some clay (3-5mm)
				12 - 30" - brown silty CLAY, wet, med loose
				30 - 48" - SAND and GRAVEL (0-2mm), wet, black
				*PID head space reading - 0.0ppm (20 ft bgs)
20	24	36	0	0 - 36" - SAND and GRAVEL (1-2mm) brown, wet
				END BORING

ARCADIS

Sample/Core Log

Boring/Well GP-73 Project/No. MD000843.0006.0002 Page 1 of 1

Site Location Brunswick, MD Drilling Started 6/6/2008 7:55 Drilling Completed 6/6/2008 8:25

Total Depth Drilled 20 Feet Hole Diameter 2 inches Type of Sample/ Coring Device

Length and Diameter of Coring Device 4 ft / 2 in Sampling Interval 11-12 feet

Land-Surface Elev. N/A feet ☐ Surveyed ☐ Estimated Datum N/A

Drilling Fluid Used N/A Drilling Method Geoprobe

Drilling Contractor SGS Environmental Driller Mike K Helper Brian B

Prepared By Sandra Grabowski Hammer Weight Hammer Drop ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	4	42	0	0 - 6" - gravel
				6 - 26" - fill (black, dry)
				26 - 42" - brown CLAY, stiff, dry
4	8	48	0	0 - 48" - brown CLAY, stiff, dry, odor
				*PID head space reading - 5.8ppm (5 ft bgs)
8	12	48	429, 365, 432, 515	0 - 24" - brown CLAY, stiff, dry, odor
				24 - 48" - brown CLAY with silt, stiff, moist, odor
				*PID head space reading - 347ppm (10 ft bgs)
12	16	48	382, 302, 319, 341	0 - 16" - brown CLAY with silt, stiff, moist, odor
				16-48" brown silty CLAY, soft, wet, odor
				*PID head space reading - 546ppm (15 ft bgs)
16	20	0	N/A	no recovery
				END BORING

ARCADIS

Sample/Core Log

Boring/Well GP-74 Project/No. MD000843.0007.0001 Page 1 of 1

Site Location Brunswick, MD Drilling Started 6/27/08 08:00am Drilling Completed 6/27/08 9:15am

Total Depth Drilled 26 Feet Hole Diameter 2 inches Type of Sample/ Coring Device

Length and Diameter of Coring Device 4 ft / 2 in Sampling Interval 23-24 feet

Land-Surface Elev. N/A feet ☐ Surveyed ☐ Estimated Datum N/A

Drilling Fluid Used N/A Drilling Method Geoprobe

Drilling Contractor SGS Environmental Driller Mike K Helper Brian B

Prepared By Josh Wilson Hammer Weight Hammer Drop ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	4	42	0	0-6" - no recovery
			0	6-12" - topsoil, brown, dry, loose
			0	12-18" - organic fill, gray, dry, loose
			0	18-48" - silty clay, moist, light brown, stiff
4	8	48	0	0-48" -silty clay, light brown, stiff
8	12	48	0	0-48" - silty clay, light brown, stiff
12	16	48	0	0-48" - silty clay, light brown, trace sands, stiff
16	20	48	0	0-12" - silty clay, light brown, stiff
			0	12-16" - silt and gravel (25%), dark brown, dry
			1.5	16-48" - sandy silty clay, light brown, moist
20	24	42		0-6" - no recovery
			0.0 (6-36") 17.4 (36-48")	6-48" - sandy silty clay, light brown, moist
24	26	24	626	0-7" - sand, light brown, wet, poorly sorted, strong odor
			2.5	7-18" - sandy clay, grayish brown, stiff, moist, slight odor
			2.4	18-24" - silty sandy clay, (25% cobbles), light brown, dry, slight odor

ARCADIS

Sample/Core Log

Boring/Well GP-75 Project/No. MD000843.0007.0001 Page 1 of 1

Site Location Brunswick, MD Drilling Started 6/27/08 9:40am Drilling Completed 6/27/08 13:55pm

Total Depth Drilled 26 Feet Hole Diameter 2 inches Type of Sample/ Coring Device

Length and Diameter of Coring Device 4 ft / 1.5 in Sampling Interval 24-24.5 feet

Land-Surface Elev. N/A feet ☐ Surveyed ☐ Estimated Datum N/A

Drilling Fluid Used N/A Drilling Method Geoprobe

Drilling Contractor SGS Environmental Driller Mike K Helper Brian B

Prepared By Josh Wilson Hammer Weight Hammer Drop ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	4	48	0	0-18" - topsoil, grayish brown, loose dry
			0	18-30" - organic fill, cinders, grayish brown, loose dry
			0	30-48" - silty clay, light brown, stiff, dry
4	8	48	0	0-48" -silty clay, light brown, stiff, dry
8	12	48	0	0-48" - silty clay, light brown, stiff, dry
12	16	48	0	0-48" - silty clay, light brown, stiff, dry
16	20	48	0	0-48" - silty clay, trace sands, light brown, stiff, dry
20	23	36	0	0-36" - silty clay, trace sands, light brown, stiff, dry
				geoprobe can't drive any deeper
				using a pt tip, were able to drive to 26'. No sample 23-24'
24	26	24	0	0-6" - sandy clay, light brown, moist, odor
			0	6-14.4" - sand, poorly sorted, gray, wet, odor
			0	14.4-24" - sandy clay and cobble (10%), grayish brown, dry, odor

ARCADIS

Sample/Core Log

Boring/Well GP-76 Project/No. MD000843.0007.0001 Page 1 of 1

Site Location Brunswick, MD

Drilling Started 6/27/08 10:20am

Drilling Completed 6/27/08 11:45am

Total Depth Drilled 27 Feet

Hole Diameter 2 inches

Type of Sample/ Coring Device

Length and Diameter of Coring Device 4 ft / 1.5 in

Sampling Interval 24-24.5 feet

Land-Surface Elev. N/A feet ☐ Surveyed ☐ Estimated

Datum N/A

Drilling Fluid Used N/A

Drilling Method Geoprobe

Drilling Contractor SGS Environmental

Driller Mike K

Helper Brian B

Prepared By Josh Wilson

Hammer Weight

Hammer Drop ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	4	36	0	0-12" - no recovery
			0	12-36" - top soil, light brown
4	8	48	0	0-12" - silty clay, light brown, stiff
			0	12-24" - concrete
			0	24-48" - silty clay, light brown, stiff, dry
8	12	48	0	0-48" - silty clay, light brown, stiff, dry
12	16	48	0	0-48" - silty clay, light brown, stiff, dry
16	20	48	0	0-48" - silty clay, trace sands, light brown, stiff, dry
20	24	48		0-30" - silty clay, trace sand, light brown,moist
				30-48" - silty clay, some sand, light brown, moist
24	27	36	0	0-6" - clayey sand, poorly sorted, light brown, wet
			0	6-26.4" - sandy clay, stiff, light brown moist
			0	26.4-33.6" - clay, light brown, stiff
				33.6-36" - sandy silt and cobble (10%), light brown, stiff, dry

ARCADIS

Sample/Core Log

Boring/Well: MW-59 | Project/No.: CSXT Brunswick Drilling, MD000843.0010.00001 | Page 1 of 2

Site Location: CSXT, Brunswick, MD | Drilling Started: 3/15/2012 11:13 | Drilling Completed: 3/15/2012 12:05

Total Depth Drilled: 25 Feet | Hole Diameter: 6.625 inches | Type of Sample/ Coring Device: Split Spoon

Length and Diameter of Coring Device: 2' by 2" | Sampling Interval: N/A feet

Land-Surface Elev.: N/A feet ☐ Surveyed ☐ Estimated | Datum: N/A

Drilling Fluid Used: N/A | Drilling Method: Hollow Stem

Drilling Contractor: Drill Tech | Driller: Bob Atkinson | Helper: Tom & Gric

Prepared By: Justin Radford/Sandy Kamas | Hammer Weight: 140 lb | Hammer Drop: 30 ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	2	1.5	0.9	0-1.5 Fill, Black cinder, Grey, Ashy, Gravel, Sand, Dry
				1.5 - 2.0 No Recovery, Dry
2	4	0.7	0	2.0 - 2.2 Fill, Gray, Gravel, Sandy Ash, Dry
			0	2.2 - 2.4 Fill, Red Brick Fragment, Dry
			0.4	2.4 - 2.7 Fill, Black Cinder w/some coal, Dry
				2.7 - 4.0 No Recovery, Dry
4	6	0.8	0	4.0 - 4.4 Fill, Black cinder/coal & coal dust, sand & gravel, Dry, Black
			0	4.4 - 4.8 Fill, Red Brick Frag, Moist
				4.8 -6.0 No Recovery, Dry
6	8	2	6	6.0 - 6.1 Fill, Black cinder, sand, gravel, Moist
			20.2-36.8	6.1 - 7.7 Clay, High Plastic, Moist, Med Stiff, Slight Odor, Dk Grey 10YR 4/1
				7.7 - 8.0 No Recovery, Dry
8	10	2	8.2	8.0 - 8.1 Fill, SAA, Black Cinder
			74.9	8.1 - 8.7 Clay, H Plastic, Moist, Soft, DK Grey 10YR 4/1, Slight Odor
			40.2	8.7 - 10.0 Clay, Med Plastic, Moist, Stiff, Slight Odor, Brown 7.5YR 4/3
10	12	1.4	31.7	10.0 - 11.2 SAA, Clay, Low Plastic, Moist, Stiff, Brown
			72.3	11.2 - 11.4 Silty Clay, High Plastic, Moist, Soft, DK GY 10YR 4/1
				11.4 - 12.0 No Recovery, Dry
12	14	2	11.2-59.1	12.0 - 14.0 Silty Clay, Non Plastic, Moist, Soft w/some brick, DK GY, slight Odor
14	16	1.3	22.8	14-15.3 Clay-SiltyClay,LowPlastic,Moist,Med Stiff, soft w/15% Med subAng Pebble
				Slight odor
				15.3 - 16.0 No Recovery, Dry
16	18	1.1	39.6-59.4	16.0 - 16.4 Silty w/some Clay, Wet, Saturated, brown, sheen, slight odor
				16.4 - 17.1 Silty w/Clay, Moist-Wet, Brown w/med Pebble, Slight Odor

ARCADIS

Sample/Core Log

Boring/Well MW-59 | Project/No. CSXT Brunswick Drilling, MD000843.0010.00001 | Page 2 of 2

Site Location: CSXT, Brunswick, MD | Drilling Started: 3/15/2012 11:13 | Drilling Completed: 3/15/2012 12:05

Total Depth Drilled: 25 Feet | Hole Diameter: 6.625 inches | Type of Sample/Coring Device: Split Spoon

Length and Diameter of Coring Device: 2' by 2" | Sampling Interval: N/A feet

Land-Surface Elev.: N/A feet ☐ Surveyed ☐ Estimated | Datum: N/A

Drilling Fluid Used: N/A | Drilling Method: Hollow Stem

Drilling Contractor: Drill Tech | Driller: Bob Atkinson | Helper: Tom & Gric

Prepared By: Justin Radford/Sandy Kamas | Hammer Weight: 140 lb | Hammer Drop: 30 ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
				17.1 - 18.0 No Recovery, Dry
18	20	1	34.5-42.4	18.0 - 18.5 SiltyClay, Moist-Wet, Non Plastic, slight Odor, Brown 10YR 4/3
				18.5 - 18.7 Sandy Green Schist, Breaks along planes, Greenish Grey
				18.7 - 19.0 Med-Sml, Fill, Gravel, PRLY SRTD, Quarry Gry Limestone
				19.0 - 20.0 No Recovery, Dry
20	22	0.8	16.9-36.8	20.0 - 20.4 SAA, SiltyClay, slight odor, Moist, Brown 10YR 4/3
				20.4 - 20.8 Red Brick, Sml-Med Gravel&Fine Sand, Red Brown
				20.8 - 22.0 No Recovery, Dry
22	24	1.4	3.4-5.9	22.0 - 23.4 VF-course Sand, silty Clay & sml-med SubAng Pebbles, PRLY SRTED
				w/Brick Fragments <5%, Brown-Greenish Gray
				23.4 - 24.0 No Recovery, Wet w/Sheen, Slight Odor
24	25	--	--	Augered down to 25' due to Split Spoon Refusal

ARCADIS

Sample/Core Log

Boring/Well: MW-60 | Project/No.: CSXT Brunswick Drilling, MD000843.0010.00001 | Page 1 of 2

Site Location: CSXT, Brunswick, MD | Drilling Started: 3/15/2012 9:00 | Drilling Completed: 3/15/2012 10:10

Total Depth Drilled: 25 Feet | Hole Diameter: 6.625 inches | Type of Sample/ Coring Device: Split Spoon

Length and Diameter of Coring Device: 2' by 2" | Sampling Interval: N/A feet

Land-Surface Elev.: N/A feet ☐ Surveyed ☐ Estimated | Datum: N/A

Drilling Fluid Used: N/A | Drilling Method: Hollow Stem

Drilling Contractor: Drill Tech | Driller: Bob Atkinson | Helper: Tom & Gric

Prepared By: Justin Radford/Sandy Kamas | Hammer Weight: 140 lb | Hammer Drop: 30 ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	2	1.4	0	0-1.4 Fill, Black cinder, sand, gravel, Dry, Black to Brown
				1.4 - 2.0 No Recovery, Dry
2	4	1.5	13.6	2.0-2.4 Clay, low plastic, moist, Med Stiff w/sml pebbles, yellowish brn 10YR 4/4
			13.6	2.4 - 3.5 Fill, SAA
				3.5 - 4.0 No Recovery, Dry
4	6	1.5	6.3	4.0 - 4.4 Fill, SAA except all black and moist
			28.8	4.4 - 5.5 Clay, SAA except soft and brown, 10YR 4/3
				5.5 -6.0 No Recovery, Dry
6	8	2	20.3-59.9	6.0 - 8.0 Clay, High Plastic, Moist, Med Stiff, Slight Odor
				w/trace sml Sub Ang Pebbles, Brn 10YR 4/3
8	10	1.35	36.4-53.7	8.0 - 8.7 SiltyClay, non Plastic, Saturated, very soft, high odor, Dk grey, 10YR 5/1
				8.7 - 9.35 Clay, Med Plastic, Moist, Med Stiff, High Odor, Brown, 10YR 4/3
				9.35 - 10.0 No Recovery, Dry
10	12	0.6	5.6	10.0 - 10.6 Clay w/some fill & sub ang. Pebbles, soft, Moist, Brn 10YR 4/3
				10.6 - 12.0 No Recovery, Dry, Slight Odor
12	14	0.9	12.5-63.2	12.0 - 12.9 Clay, High Plastic, Moist, Soft, Dk Brown 10YR 3/3, Moderate Odor
				12.9 - 14.0 No Recovery, Dry
14	16	0.8	22.8	14.0-14.8 Clay, SAA, MedPlastic w/sml SubRnd Pebbles, v. soft, slight odor,moist
				14.8 - 16.0 No Recovery, Damp
16	18	1	47.9	16.0 - 17.0 SiltyClay, Non Plastic w/sml-med sub rnd pebbles, saturated, very soft
				slight odor, brown 10YR 4/3
				17.0 - 18.0 No Recovery, Damp to Wet
18	20	1	52.7-69.8	18.0 - 19.0 SAA, Silty Clay, Med Plastic w/40-45% med subRnd Pebbles, Moist,
				Soft, slight odor, brown 10YR 4/3
				19.0 - 20.0 No Recovery Damp to Wet

ARCADIS

Sample/Core Log

Boring/Well: MW-60 | Project/No.: CSXT Brunswick Drilling, MD000843.0010.00001 | Page 2 of 2

Site Location: CSXT, Brunswick, MD | Drilling Started: 3/15/2012 9:00 | Drilling Completed: 3/15/2012 10:10

Total Depth Drilled: 25 Feet | Hole Diameter: 6.625 inches | Type of Sample/Coring Device: Split Spoon

Length and Diameter of Coring Device: 2' by 2" | Sampling Interval: N/A feet

Land-Surface Elev.: N/A feet ☐ Surveyed ☐ Estimated | Datum: N/A

Drilling Fluid Used: N/A | Drilling Method: Hollow Stem

Drilling Contractor: Drill Tech | Driller: Bob Atkinson | Helper: Tom & Gric

Prepared By: Justin Radford/Sandy Kamas | Hammer Weight: 140 lb | Hammer Drop: 30 ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
20	22	1	38.3-57.9	20.0 - 20.6 SAA, SiltyClay w/little 30% Med Round Pebbles
				20.6-21.0 Silt-F Sand w/some sml-med subAng Pebble,Moist,Slt Odor,grn red brn
				21.1 - 22.0 No Recovery, Dry
22	24	0.2	27.4	22.0 - 22.2 SiltyClay-F Sand, Saturated, wet w/40-50% sml-med subAng Pebble
				Brown 10YR 4/3
				22.2 - 24.0 No Recovery, Wet, Slight Odor
24	25	--	--	Augered down to 25' due to Split Spoon Refusal

ARCADIS

Sample/Core Log

Boring/Well: MW-61 | Project/No.: CSXT Brunswick Drilling, MD000843.0010.00001 | Page 1 of 1

Site Location: CSXT, Brunswick, MD | Drilling Started: 3/14/2012 14:55 | Drilling Completed: 3/15/2012 7:20

Total Depth Drilled: 25 Feet | Hole Diameter: 6.625 inches | Type of Sample/Coring Device: Split Spoon

Length and Diameter of Coring Device: 2' by 2" | Sampling Interval: N/A feet

Land-Surface Elev.: N/A feet ☐ Surveyed ☐ Estimated | Datum: N/A

Drilling Fluid Used: N/A | Drilling Method: Hollow Stem

Drilling Contractor: Drill Tech | Driller: Bob Atkinson | Helper: Tom & Gric

Prepared By: Justin Radford/Sandy Kamas | Hammer Weight: 140 lb | Hammer Drop: 30 ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	2	1.8	0	0.0 - 0.6 Gravel/Road Bed/Silt
				0.6 - 1.8 Fill, Black cinders, silt, sand, some clay and gravel
				1.8 - 2.0 No Recovery, Dry
2	4	0.9	0	2.0 -2.9 SAA
				2.9 - 4.0 No Recovery, Dry
4	6	0.8	0.6	4.0 - 4.6 Fill, Black cinders, silt, sand, Gravel
			12.2	4.6 - 4.8 Clay, Med Plastic, Moist, Slight Odor, Med Stiff, 10YR 4/3
				4.8 -6.0 No Recovery, Dry
6	8	2	15.0-59.4	6.0 - 8.0 Clay, Med Plastic, Moist, Slight Odor, Med Stiff, 10YR 4/3
				Trace Med Sub Rounded Pebbles and Track Black Cinder
8	10	2	18.6-123.6	8.0 - 10.0 SAA, Slt Odor w/trace Med Pebbles&trace blk cinders, 10YR 4/3 Brown
10	12	1	50.8	10.0 - 10.5 Fill, Black cinder, Brick fragments, gravel, sand
			29.9	10.5 - 11.0 SAA, Clay, Low Plastic, Stiff, Moist, 10YR 4/3
				11.0 - 12.0 No Recovery, Dry
12	14	2	21.3-71.4	12.0 - 14.0 Clay, Med Plastic, Soft, Moist, Brown
14	16	1.6	52.6-86.3	14.0 - 15.6 Silty Clay-Silt w/vf sand, moist, soft, moderate odor, 10YR 4/2
				15.6 - 16.0 No Recovery, Dry
16	18	2	94.3-108.0	16.0 - 17.5 SAA, Silty Clay, moderate odor, very soft, wet, 10YR 4/2
				17.6 - 18.0 Green Sandy Schist, Breaks easily along planes
18	20	0.7	75.1	18-18.7 Silt w/vf sand&30% med-lge Pebbles,wet,10YR 4/2 Dk greyish brn,slt odor
				18.7 - 20.0 No Recovery, Wet
20	22	0.1	9.8-20.7	20.0 - 20.1 SAA w/white ss, slight odor
				20.1 - 22.0 No Recovery, Wet
22	24	1	35.5	22.0 - 22.6 SAA, silty clay/sand, saturated, slight odor, Sheen, Brown
				22.6 - 24.0 Green Sandy Schist w/sub angular med pebbles

ARCADIS

Sample/Core Log

Boring/Well: MW-62 | Project/No.: CSXT Brunswick Drilling, MD000843.0010.00001 | Page 1 of 2

Site Location: CSXT, Brunswick, MD | Drilling Started: 3/14/2012 12:04 | Drilling Completed: 3/14/2012 13:30

Total Depth Drilled: 25 Feet | Hole Diameter: 6.625 inches | Type of Sample/Coring Device: Split Spoon

Length and Diameter of Coring Device: 2' by 2" | Sampling Interval: N/A feet

Land-Surface Elev.: N/A feet ☐ Surveyed ☐ Estimated | Datum: N/A

Drilling Fluid Used: N/A | Drilling Method: Hollow Stem

Drilling Contractor: Drill Tech | Driller: Bob Atkinson | Helper: Tom & Gric

Prepared By: Justin Radford/Sandy Kamas | Hammer Weight: 140 lb | Hammer Drop: 30 ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	2	1.6	0	0-1.6 Fill, Black cinder, Ashy white cinder w/some red dry brick chips
				1.6 - 2.0 No Recovery, Dry
2	4	1	0	2.0 -3.0 Fill, SAA Except no Trace of Brick Chips
				3.0 - 4.0 No Recovery, Dry
4	6	0		4.0 -6.0 No Recovery, Dry
6	8	0.55	0	6.0 - 6.25 Fill, Black cinder, Dry, Black
			5.4	6.25 - 6.55 Clay, High Plastic, Moist, 10YR 4/3 Brown
				6.55 - 8.0 No Recovery, Dry
8	10	1.15	13.8-28.7	8.0 - 9.15 Clay, High Plastic, Moist, Slight Odor, 10YR 4/3 Brown
				9.15 - 10.0 No Recovery, Dry
10	12	1	0.4	10.0 - 10.6 Fill, Moist, Black cinder (possible coal), Black
			55.6	10.6 - 11.0 Silty Clay, Low Plastic, Moist, Slight Odor, 10YR 3/2
				11.0 - 12.0 No Recovery, Dry
12	14	0.3	27.5	12.0-12.3 Clay, High Plastic, Moist, Odor, 10YR 3/3
				12.3 - 14.0 No Recovery, Dry
14	16	1.3	0.6	14.0 - 14.4 Fill, Black cinder, Moist, Black
			111.3	14.4 - 15.3 Clay, High Plastic, Moist, Soft, 10YR 3/3
				15.3 - 16.0 No Recovery, Dry
16	18	1	20.6-128.3	16.0-17.0 SiltyClay,Med Plastic, Moist,Soft w/trace sml SubAng Pebbles, 10YR 3/3
				17.0 - 18.0 No Recovery, Wet
18	20	2	17.8-73.4	18.0 - 20.0 Silty Clay, Very Fine-Fine Sandy mix, Saturated, very Soft
				w/trace sml SubAng Pebbles, mod. odor, slight sheen,10YR 4/2 Dk greyish brn
20	22	1.1	15.4-28.3	20.0 - 21.1 Clay w/40% sml-med Sub Rounded Pebbles
				w/silt to vf sand, wet, slight odor 10YR 4/2

ARCADIS

Sample/Core Log

Boring/Well: MW-62 | Project/No.: CSXT Brunswick Drilling, MD000843.0010.00001 | Page 2 of 2

Site Location: CSXT, Brunswick, MD | Drilling Started: 3/14/2012 12:04 | Drilling Completed: 3/14/2012 13:30

Total Depth Drilled: 25 Feet | Hole Diameter: 6.625 inches | Type of Sample/Coring Device: Split Spoon

Length and Diameter of Coring Device: 2' by 2" | Sampling Interval: N/A feet

Land-Surface Elev.: N/A feet ☐ Surveyed ☐ Estimated | Datum: N/A

Drilling Fluid Used: N/A | Drilling Method: Hollow Stem

Drilling Contractor: Drill Tech | Driller: Bob Atkinson | Helper: Tom & Gric

Prepared By: Justin Radford/Sandy Kamas | Hammer Weight: 140 lb | Hammer Drop: 30 ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
				21.1 - 22.0 No Recovery, Wet
22	24	1.4	5.9	22.0 - 23.0 Med-Coarse Sand w/15% Med Sub Rounded Pebbles, Moist
				Moderately sorted, very slight odor, 10YR 6/4 yellowish brown
			2.6	23.0-23.4 SiltyClay-VF Sand w/Trace med Sub Rounded Pebbles, Moist, 10YR 3/3
				23.4 - 24.0 No Recovery, Wet
24	25	--	--	No split spoon sample collected. Drill auger to 25' and set well

ARCADIS

Sample/Core Log

Boring/Well MW-63 Project/No. CSXT Brunswick Drilling, MD000843.0010.00001 Page 1 of 2

Site Location CSXT, Brunswick, MD Drilling Started 3/14/2012 9:04 Drilling Completed 3/15/2012 10:55

Total Depth Drilled 25 Feet Hole Diameter 6.625 inches Type of Sample/ Coring Device Split Spoon

Length and Diameter of Coring Device 2' by 2" Sampling Interval N/A feet

Land-Surface Elev. N/A feet ☐ Surveyed ☐ Estimated Datum N/A

Drilling Fluid Used N/A Drilling Method Hollow Stem

Drilling Contractor Drill Tech Driller Bob Atkinson Helper Tom & Gric

Prepared By Justin Radford/Sandy Kamas Hammer Weight 140 lb Hammer Drop 30 ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	2	1.6	0	0-1.6 Fill, Black cinder w/white-grey ash, dry, black w/light gret
				1.6 - 2.0 No Recovery, Dry
2	4	1.75	0	2.0 -2.75 Fill, SAA
			0	2.75 - 3.75 Clay, Low Plastic, Moist, Med Stiff, 10YR 4/6 Dark Yellow Brown
				3.75 - 4.0 No Recovery, Dry
4	6	0.75	0	4.0 - 4.75 Fill, Black cinder Fill w/some SAA, Trace Clay Mixed In
				4.75 -6.0 No Recovery, Dry
6	8	1.6	0	6.0 - 7.6 Clay, Low Plastic, Moist, Soft w/Trace black fill, 10YR 3/2
				7.6 - 8.0 No Recovery, Dry
8	10	1.2	0.0-7.3	8.0 - 9.2 Clay, SAA w/Trace Med Subangular Pebbles
				9.2 - 10.0 No Recovery, Dry
10	12	1	2.8-10.8	10.0 - 11.0 Clay, Low Plastic, Moist, Slight Stiff, 10YR 4/3 Brown
				11.0 - 12.0 No Recovery, Dry
12	14	1	11.8-43.7	12.0-13.0 Clay, SAA w/some Trace Black cinder fill@top of spoon, moderate odor
				13.0 - 14.0 No Recovery, Dry, sample has odor
14	16	1.4	33.4-92.6	14.0 - 14.4 Fill, Black Cinder, top of spoon
				14.4-15.4 SiltyClay, Non Plastic, Very Moist, Mod. Odor, 10YR 4/2 DK Grey-Brown
				15.4 - 16.0 No Recovery
16	18	2	59.5-87.9	16.0-18.0 SiltyClay, SAA, Very Moist, Mod-High Odor, 10YR 4/2 Dark Grey-Brown
18	20	2	6.4-27.4	18.0 - 20.0 Silty Clay, Saturated, Sheen, Wet, Slight Odor, 10YR 4/2
20	22	0.6	6.1	20.0 - 20.6 Silty Clay, Wet, Soft w/some sml-med Pebbles 10YR 4/2
				20.6 - 22.0 No Recovery, Damp
22	24	2	0.6	22-24 FineSand,Wet w/15% sml-med SubAngPebbles,10YR 4/4 Dk yellowish brn
24	25	1	0.6	24.0 - 24.5 Fine-Med Sand w/30% Med sub round Pebble, 10YR 4/2
			0.6	24.5-25 VeryFineSand w/45-50% Large-Med rounded Pebbles,qtzite/SS,10YR 4/2

ARCADIS

Sample/Core Log

Boring/Well: MW-63 | Project/No.: CSXT Brunswick Drilling, MD000843.0010.00001 | Page 2 of 2

Site Location: CSXT, Brunswick, MD | Drilling Started: 3/14/2012 9:04 | Drilling Completed: 3/15/2012 10:55

Total Depth Drilled: 25 Feet | Hole Diameter: 6.625 inches | Type of Sample/Coring Device: Split Spoon

Length and Diameter of Coring Device: 2' by 2" | Sampling Interval: N/A feet

Land-Surface Elev.: N/A feet ☐ Surveyed ☐ Estimated | Datum: N/A

Drilling Fluid Used: N/A | Drilling Method: Hollow Stem

Drilling Contractor: Drill Tech | Driller: Bob Atkinson | Helper: Tom & Gric

Prepared By: Justin Radford/Sandy Kamas | Hammer Weight: 140 lb | Hammer Drop: 30 ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
				with very slight odor, (sand&stone in sample) seem to simulate river bed

ARCADIS

Sample/Core Log

Boring/Well MW-64 Project/No. CSXT Brunswick Drilling, MD000843.0010.00001 Page 1 of 2

Site Location CSXT, Brunswick, MD Drilling Started 3/13/2012 14:25 Drilling Completed 3/13/2012 16:00

Total Depth Drilled 24 Feet Hole Diameter 6.625 inches Type of Sample/ Coring Device Split Spoon

Length and Diameter of Coring Device 2' by 2" Sampling Interval N/A feet

Land-Surface Elev. N/A feet ☐ Surveyed ☐ Estimated Datum N/A

Drilling Fluid Used N/A Drilling Method Hollow Stem

Drilling Contractor Drill Tech Driller Bob Atkinson Helper Tom & Gric

Prepared By Justin Radford/Sandy Kamas Hammer Weight 140 lb Hammer Drop 30 ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	2	0.8	0	0-0.8 Fill, Black cinder, dry and black
				0.8 - 2.0 No Recovery, Dry
2	4	1.1	0	2.0 -3.1 Fill, Black cinder w/some brick, dry, black, dark red
				3.1 - 4.0 No Recovery, Dry
4	6	0		4.0 -6.0 No Recovery, Dry
6	8	2	0	6.0 - 6.2 Fill, Black cinder, wet, black
			0	6.2 - 8.0 Clay, High Plastic, Moist, Med Stiff, 10YR 3/2
8	10	2	0.4	8.0 - 9.1 Silty Clay, Saturdated, wet, very soft, 10YR 3/2
			0.5	9.1 - 10.0 Clay, Med Plastic, Moist, stiff, 10YR 3/2 and Yellowish
10	12	1.3	1.2-3.7	10.0 - 10.3 Clay/Black Coal Dust, Moist-Dry, stiff, Black
				10.3 - 11.3 Clay, Med Plastic, Moist, Stiff, 10YR 3/2
				11.3 - 12.0 No Recovery,Wet
12	14	0.8	0.7	12 - 12.8 Clay, High Plastic, Moist, Soft 10YR 4/2
				12.8 - 14.0 No Recovery, Dry
14	16	1.5	0.8-13.8	14.0 - 15.5 Silty Clay, High Plastic, Wet, Very Soft, 10YR 3/2
				15.5 - 16.0 No Recovery
16	18	2	3.0-4.9	16.0-18.0 SiltyClay, High Plastic,Wet,Very Soft-Soft, 10YR 3/2 (sheen&slight odor)
18	20	1.4	0.8-1.1	18.0 - 18.8 Silty Clay, Saturated, Sheen, Wet, Very Soft, Odor, 10YR 4/2
				18.8-19.4 SiltyClay&Small-Med Subangular Pebbles, Moist, Slight Odor, 10YR 4/2
				19.4 - 20.0 No Recovery, Dry
20	22	1.35	0.4	20.0 - 21.35 Silty Clay&Small-Med Sub Round Pebbles, Wet, 10YR 3/3
				21.35 - 22.0 No Recovery, Wet
22	24	1.6	0.2	22.0 - 22.5 Med Sand, Well Sorted, Moist, 10YR 4/4
			0.2	22.5 - 23.6 Med Sand & 20-30% Large Sub Round Pebbles, 10YR 4/4
				23.6 - 24.0 No Recovery, Wet

ARCADIS

Sample/Core Log

Boring/Well: MW-64 | Project/No.: CSXT Brunswick Drilling, MD000843.0010.00001 | Page 2 of 2

Site Location: CSXT, Brunswick, MD | Drilling Started: 3/13/2012 14:25 | Drilling Completed: 3/13/2012 16:00

Total Depth Drilled: 24 Feet | Hole Diameter: 6.625 inches | Type of Sample/Coring Device: Split Spoon

Length and Diameter of Coring Device: 2' by 2" | Sampling Interval: N/A feet

Land-Surface Elev.: N/A feet ☐ Surveyed ☐ Estimated | Datum: N/A

Drilling Fluid Used: N/A | Drilling Method: Hollow Stem

Drilling Contractor: Drill Tech | Driller: Bob Atkinson | Helper: Tom & Gric

Prepared By: Justin Radford/Sandy Kamas | Hammer Weight: 140 lb | Hammer Drop: 30 ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
				**Refusal, Had to auger down from 24' to 25'

ARCADIS

Sample/Core Log

Boring/Well MW-65 Project/No. CSXT Brunswick Drilling, MD000843.0010.00001 Page 1 of 2

Site Location CSXT, Brunswick, MD Drilling Started 3/13/12 11:55am Drilling Completed 3/13/2012 13:00

Total Depth Drilled 25 Feet Hole Diameter 6.625 inches Type of Sample/ Coring Device Split Spoon

Length and Diameter of Coring Device 2' by 2" Sampling Interval N/A feet

Land-Surface Elev. N/A feet ☐ Surveyed ☐ Estimated Datum N/A

Drilling Fluid Used N/A Drilling Method Hollow Stem

Drilling Contractor Drill Tech Driller Bob Atkinson Helper Tom & Gric

Prepared By Justin Radford/Sandy Kamas Hammer Weight 140 lb Hammer Drop 30 ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	2	1.5	0	0-0.6 Fill, Black cinder, silt, sand, dry, black/dark grey
			0	0.6 - 1.0 Fill, Sand/Gravel, Ashy, dry, light grey
			0	1.0 - 1.5 Fill, black cinder, silt, dry, black
				1.5 - 2.0 No Recovery, Dry
2	4	1	0	2.0 -3.0 Fill, Black cinder, silt, dry, black, some grey
				3.0 - 4.0 No Recovery, Dry
4	6	0.4	0	4.0 -4.4 Fill, SAA
				4.4 - 6.0 No Recovery
6	8	1.35	7.2	6.0 - 7.0 Fill SAA, Wet and Slight Odor
			5.4	7.0 - 7.35 Clay, High Plastic, Moist. Soft, Dark Reddish Brown, Slight Odor
				7.35 - 8.0 No Recovery
8	10	2	8	8.0 - 8.5 Fill, SAA, wet and Slight Odor
			11	8.5 - 10.0 Clay, High Plastic, Moist, Soft, Slight Odor, Dark Olive
10	12	1.7	2.6	10.0 - 11.7 Clay, High Plastic, Moist, Soft, Slight Odor, Dark Olive Brown
				11.7 - 12.0 No Recovery
12	14	2	2.8	12 - 14 Clay, Medium Plastic, Moist, Soft, Slight Odor Light Brown
14	16	1.1	0.4	14 - 15.1 Silty Clay, Medium Plastic, Moist, Odor, Dark Grey Brown 10YR 3/2
				15.1 - 16.0 No Recovery
16	18	2	0.8	16.0-16.9 Silty Clay, Saturated, Wet, Very Soft, Slight Odor, 10YR 3/2
			0.8	16.9-18.0 SiltyClay, High Plastic, Moist, Soft, Dk Grey Brown 10YR 3/2
18	20	2	1.8	18.0 - 20.0 Silty Clay, Saturated, Wet, Sheen, Slight Odor, Dk GreyBrown 10YR 3/2
20	22	0.7	4.4	20.0 - 20.3 SAA, No Sheen, No Odor, 10YR 3/2
			3.4	20.3 - 20.7 Med-Large Pebble, Subangular 50%, Silt, Dry, 10YR 5/4
				20.7 - 22.0 No Recovery, Dry

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Sample/Core Log

Boring/Well MW-65 Project/No. CSXT Brunswick Drilling, MD000843.0010.00001 Page 2 of 2

Site Location CSXT, Brunswick, MD Drilling Started 3/13/12 11:55am Drilling Completed 3/13/2012 13:00

Total Depth Drilled 25 Feet Hole Diameter 6.625 inches Type of Sample/ Coring Device Split Spoon

Length and Diameter of Coring Device 2' by 2" Sampling Interval N/A feet

Land-Surface Elev. N/A feet ☐ Surveyed ☐ Estimated Datum N/A

Drilling Fluid Used N/A Drilling Method Hollow Stem

Drilling Contractor Drill Tech Driller Bob Atkinson Helper Tom & Gric

Prepared By Justin Radford/Sandy Kamas Hammer Weight 140 lb Hammer Drop 30 ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
22	24	1.5	0.4	22.0-22.7 SiltyClay, Saturated w/20% AngularMedPebble, Wet, No Odor, 10YR 3/2
			0.4	22.7 - 23.5 Silty Clay, Med Plastic, 30-40% AngularMedPebble, Moist 10YR 3/2
				23.5 - 24.0 No Recovery
24	25	1	0.3	24.0 - 24.3 Coarse Sand, Moist, Well Sorted, Sub Round, Light Brown
			0.3	24.3 - 24.7 Med-Fine Sand, Moist, Well Sorted, Sub Round, Brown
			0.3	24.7 - 25.0 Silty Clay w/Med-Large Sub Angular Pebbles, Light Brown

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Sample/Core Log

Boring/Well MW-66 Project/No. CSXT Brunswick Drilling, MD000843.0010.00001 Page 1 of 1

Site Location CSXT, Brunswick, MD Drilling Started 3/13/12 9:38am Drilling Completed 3/13/2012 11:30

Total Depth Drilled 16 Feet Hole Diameter 6.625 inches Type of Sample/ Coring Device Split Spoon

Length and Diameter of Coring Device 2' by 2" Sampling Interval N/A feet

Land-Surface Elev. N/A feet ☐ Surveyed ☐ Estimated Datum N/A

Drilling Fluid Used N/A Drilling Method Hollow Stem

Drilling Contractor Drill Tech Driller Bob Atkinson Helper Tom & Gric

Prepared By Justin Radford/Sandy Kamas Hammer Weight 140 lb Hammer Drop 30 ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (inches)	PID Reading (ppm)	Sample/Core Description
0	2	1.5	0	0-0.6 Fill, Black cinder, silt, gravel, dry and black
			0	0.6 - 1.0 Fill, Sand/Gravel, Brick fragments, dark red and dry
			0	1.0 - 1.5 Fill, sand/gravel, dry, ashy, grey (light)
				1.5 - 2.0 No Recovery, Dry
2	4	0.9	0	2.0 -2.9 Fill, same as above (SAA), moist
				2.9 - 4.0 No Recovery, Dry
4	6	0		4.0 -6.0 No Recovery, Dry
6	8	0		6.0 - 8.0 No Recovery, Dry
8	10	1	0	8.0 - 9.0 Fill, Sand/Gravel, Trash, wet, light grey
				9.0 - 10.0 No Recovery, Wet
10	12	1.4	0	10.0 - 11.4 Fill, Gravel/Sand/Brick/Trash, Wet, Light Grey
			0	11.4 - 12.0 No Recovery, Wet
12	14	1	0	12 - 12.5 Fill, Very Coarse Sand, Subangular with Brick, Wet, Grey
			0	12.5 - 12.85 Fill, Small Pebble, Subangular, Wet, Grey
			0	12.85 - 13.0 Fill, Brick, Medium Pebble, Subangular, Moist, Dark Red
				13.0 - 14.0 No Recovery, Wet
14	16	1.3	0	14.0 - 14.9 Fill, Small to Medium Subangular Prebble/Brick, Moist, Grey, Dark Red
				14.9 - 15.3 Fill, Brick, Blocky, Moist, Red to Dark Red
				15.3 - 16.0 No Recovery, Wet
				**Boring caved in

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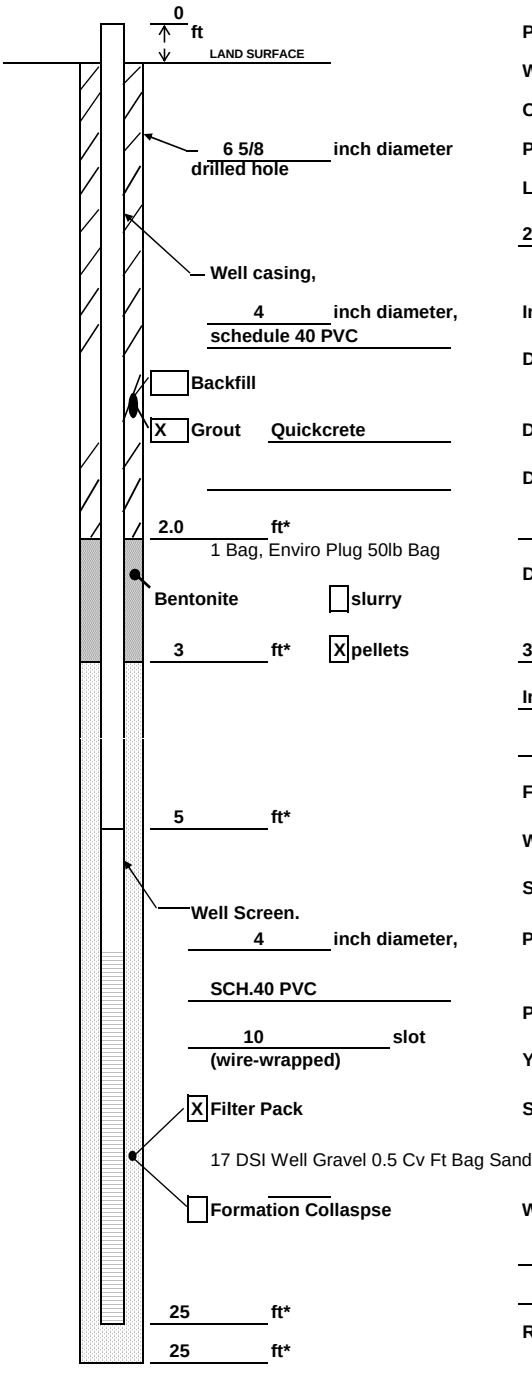
Appendix A-2

Well Construction Logs

ARCADIS

Well Construction Log

(Unconsolidated)



Project Name and No. CSX Brunswick, MD000843.0010.00001

Well MW-59 **Town/City** Brunswick

County Frederick **State** MD

Permit No. FR-95-1960

Land-Surface Elevation and Datum:

246.33 feet [X] Surveyed [ ] Estimated

Installation Date(s) 3/15/2012 - 3/16/2012

Drilling Method HSA

Drilling Contractor Drilling Tech

Drilling Fluid N/A

Development Technique(s) and Date(s)

3/20/2012, Water RA Pump and Submersible Pump

Into 55 Gallon Drums

Fluid Loss During Drilling 0 gallons

Water Removed During Development 55 gallons

Static Depth to Water feet below M.P.**

Pumping Depth to Water feet below M.P.**

Pumping Duration 1 HR 40 MIN mins

Yield 0.55 gpm **Date** 3/20/2012

Specific Capacity gpm/ft

Well Purpose Monitoring Well

Remarks

* Depth Below Land Surface

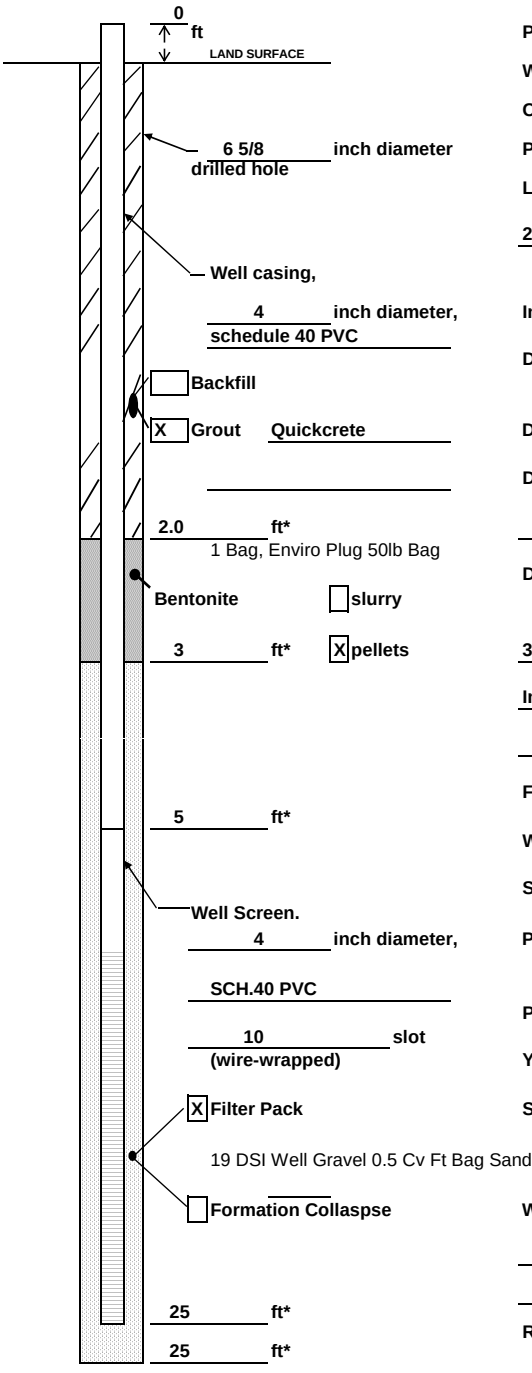
**Measuring Point is Top of Well Casing Unless Otherwise Noted.

Prepared by Justin Radford

ARCADIS

Well Construction Log

(Unconsolidated)



Project Name and No. CSX Brunswick, MD000843.0010.00001

Well MW-60 **Town/City** Brunswick

County Frederick **State** MD

Permit No. FR-95-1961

Land-Surface Elevation and Datum:

246.02 feet [X] Surveyed [ ] Estimated

Installation Date(s) 3/15/2012 - 3/16/2012

Drilling Method HSA

Drilling Contractor Drilling Tech

Drilling Fluid N/A

Development Technique(s) and Date(s)

3/19/2012, Water RA Pump and Submersible Pump

Into 55 Gallon Drums

Fluid Loss During Drilling 0 gallons

Water Removed During Development 110 gallons

Static Depth to Water feet below M.P.**

Pumping Depth to Water feet below M.P.**

Pumping Duration 1 HR 45 MIN mins

Yield 1.05 gpm **Date** 3/20/2012

Specific Capacity gpm/ft

Well Purpose Monitoring Well

Remarks

* Depth Below Land Surface

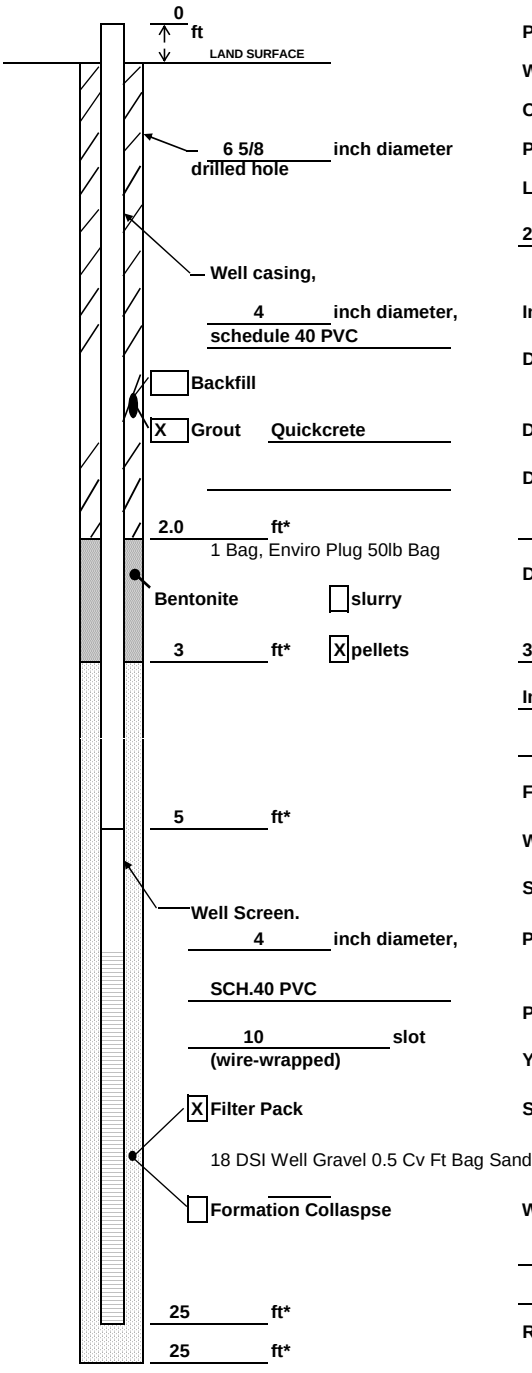
**Measuring Point is Top of Well Casing Unless Otherwise Noted.

Prepared by Justin Radford

ARCADIS

Well Construction Log

(Unconsolidated)



Project Name and No. CSX Brunswick, MD000843.0010.00001

Well MW-61 **Town/City** Brunswick

County Frederick **State** MD

Permit No. FR-95-1962

Land-Surface Elevation and Datum:

246.07 feet [X] Surveyed [ ] Estimated

Installation Date(s) 3/15/2012

Drilling Method HSA

Drilling Contractor Drilling Tech

Drilling Fluid N/A

Development Technique(s) and Date(s)

3/19/2012, Water RA Pump and Submersible Pump

Into 55 Gallon Drums

Fluid Loss During Drilling 0 gallons

Water Removed During Development 55 gallons

Static Depth to Water _____ feet below M.P.**

Pumping Depth to Water _____ feet below M.P.**

Pumping Duration 1 HR 50 MIN mins

Yield 0.5 gpm **Date** 3/19/2012

Specific Capacity _____ gpm/ft

Well Purpose Monitoring Well

Remarks _____

* Depth Below Land Surface

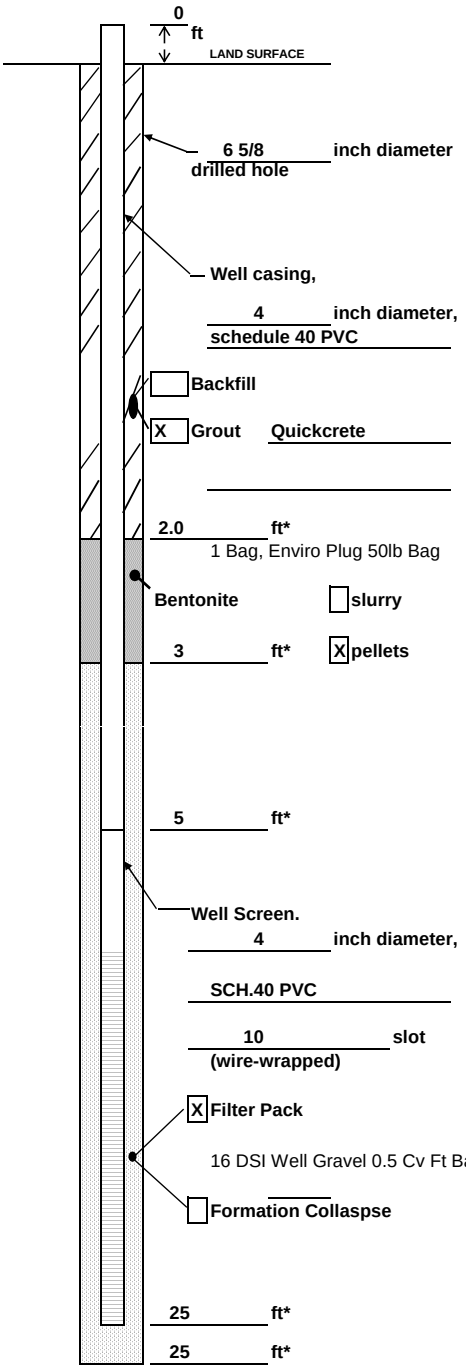
**Measuring Point is Top of Well Casing Unless Otherwise Noted.

Prepared by Justin Radford

ARCADIS

Well Construction Log

(Unconsolidated)



Project Name and No. CSX Brunswick, MD000843.0010.00001

Well MW-62 **Town/City** Brunswick

County Frederick **State** MD

Permit No. FR-95-1963

Land-Surface Elevation and Datum:

246.57 **feet** [X] **Surveyed** [ ] **Estimated**

Installation Date(s) 3/14/2012

Drilling Method HSA

Drilling Contractor Drilling Tech

Drilling Fluid N/A

Development Technique(s) and Date(s)

3/19/2012, Water RA Pump and Submersible Pump

Into 55 Gallon Drums

Fluid Loss During Drilling 0 **gallons**

Water Removed During Development 70 **gallons**

Static Depth to Water _____ **feet below M.P.****

Pumping Depth to Water _____ **feet below M.P.****

Pumping Duration 1 HR **mins**

Yield 1.17 **gpm** **Date** 3/19/2012

Specific Capacity _____ **gpm/ft**

Well Purpose Monitoring Well

Remarks

* Depth Below Land Surface

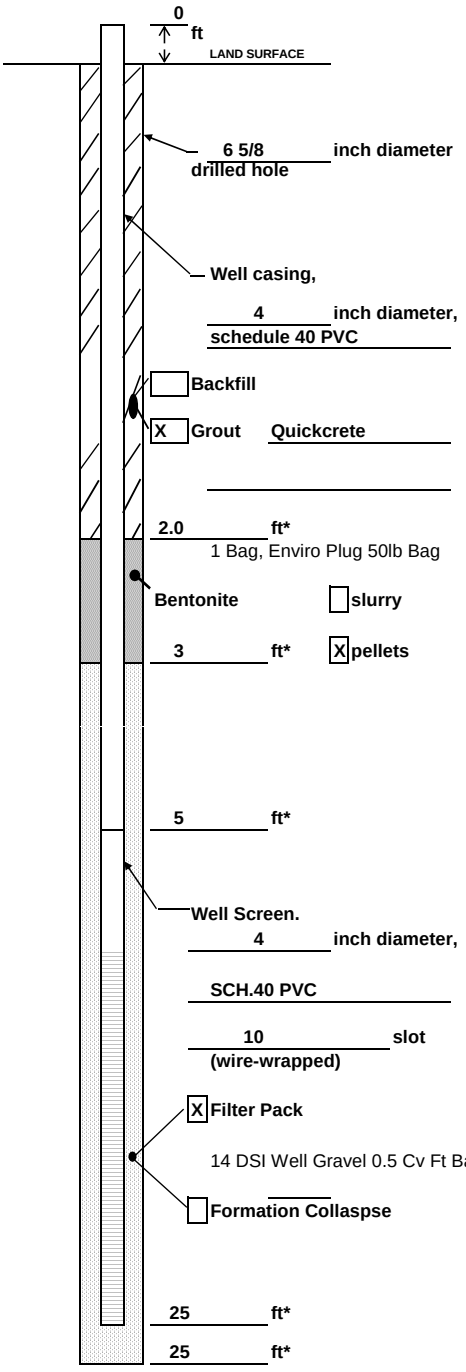
**Measuring Point is Top of Well Casing Unless Otherwise Noted.

Prepared by Justin Radford

ARCADIS

Well Construction Log

(Unconsolidated)



Project Name and No. CSX Brunswick, MD000843.0010.00001

Well MW-63 **Town/City** Brunswick

County Frederick **State** MD

Permit No. FR-95-1964

Land-Surface Elevation and Datum:

246.6 **feet** [X] **Surveyed** [ ] **Estimated**

Installation Date(s) 3/14/2012

Drilling Method HSA

Drilling Contractor Drilling Tech

Drilling Fluid N/A

Development Technique(s) and Date(s)

3/19/2012, Water RA Pump and Submersible Pump

Into 55 Gallon Drums

Fluid Loss During Drilling 0 **gallons**

Water Removed During Development 45 **gallons**

Static Depth to Water _____ **feet below M.P.****

Pumping Depth to Water _____ **feet below M.P.****

Pumping Duration 1 HR 15 MIN **mins**

Yield 0.6 **gpm** **Date** 3/19/2012

Specific Capacity _____ **gpm/ft**

Well Purpose Monitoring Well

Remarks

* Depth Below Land Surface

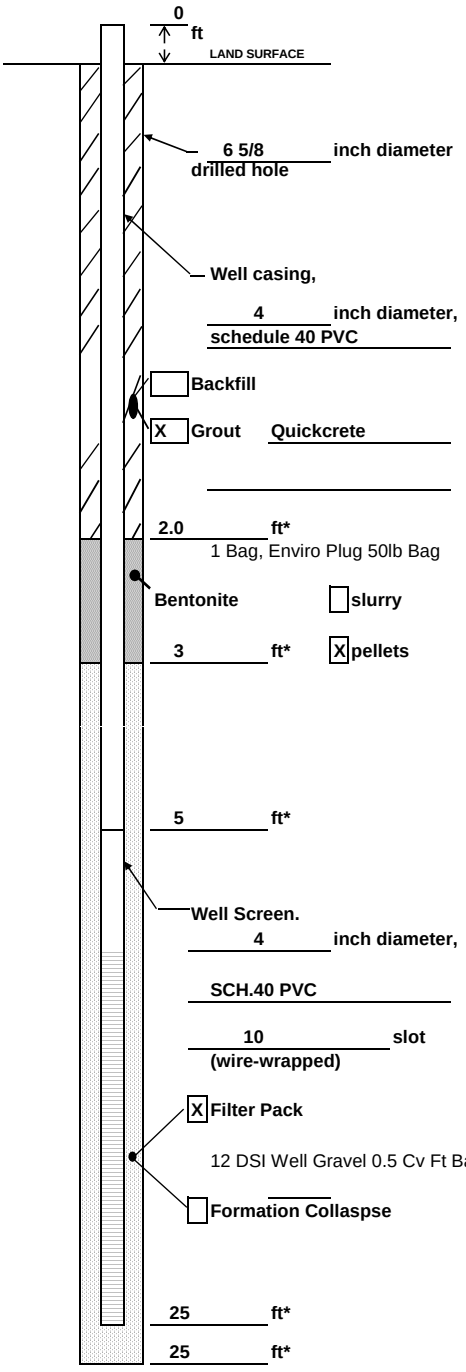
**Measuring Point is Top of Well Casing Unless Otherwise Noted.

Prepared by Justin Radford

ARCADIS

Well Construction Log

(Unconsolidated)



Project Name and No. CSX Brunswick, MD000843.0010.00001

Well MW-64 **Town/City** Brunswick

County Frederick **State** MD

Permit No. FR-95-1965

Land-Surface Elevation and Datum:

246.01 **feet** [X] **Surveyed** [ ] **Estimated**

Installation Date(s) 3/14/2012

Drilling Method HSA

Drilling Contractor Drilling Tech

Drilling Fluid N/A

Development Technique(s) and Date(s)

3/19/2012, Water RA Pump and Submersible Pump

Into 55 Gallon Drums

Fluid Loss During Drilling 0 **gallons**

Water Removed During Development 95 **gallons**

Static Depth to Water _____ **feet below M.P.****

Pumping Depth to Water _____ **feet below M.P.****

Pumping Duration 2 HR 30 MIN **mins**

Yield 0.63 **gpm** **Date** 3/19/2012

Specific Capacity _____ **gpm/ft**

Well Purpose Monitoring Well

Remarks _____

* Depth Below Land Surface

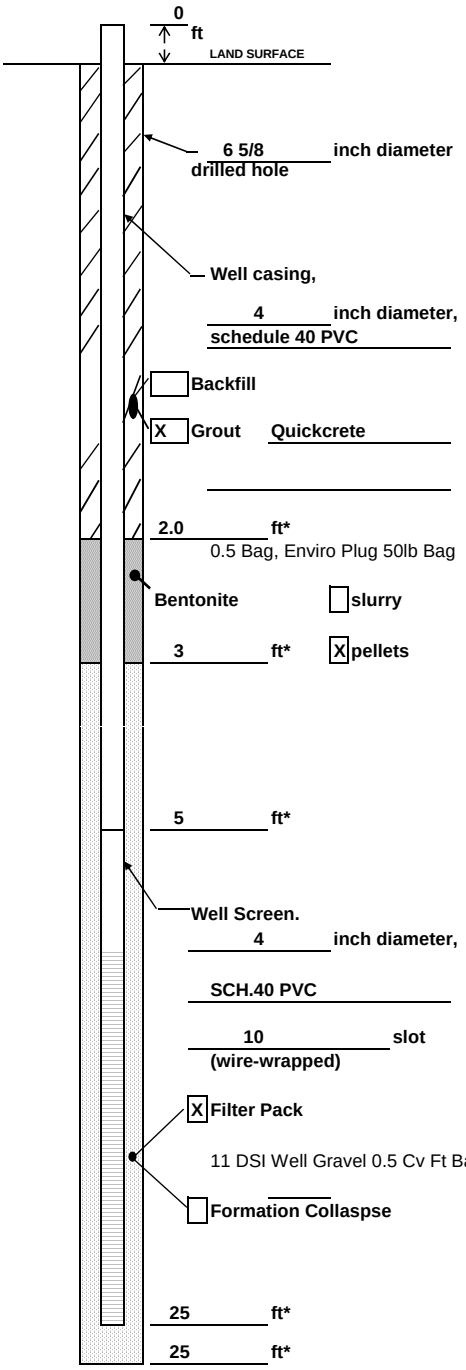
**Measuring Point is Top of Well Casing Unless Otherwise Noted.

Prepared by Justin Radford

ARCADIS

Well Construction Log

(Unconsolidated)



Project Name and No. CSX Brunswick, MD000843.0010.00001

Well MW-65 **Town/City** Brunswick

County Frederick **State** MD

Permit No. FR-95-1966

Land-Surface Elevation and Datum:

245.98 feet [X] Surveyed [ ] Estimated

Installation Date(s) 3/13/2012

Drilling Method HSA

Drilling Contractor Drilling Tech

Drilling Fluid N/A

Development Technique(s) and Date(s)

3/19/2012, Water RA Pump and Submersible Pump

Into 55 Gallon Drums

Fluid Loss During Drilling 0 gallons

Water Removed During Development 110 gallons

Static Depth to Water feet below M.P.**

Pumping Depth to Water feet below M.P.**

Pumping Duration 1 HR 49 MIN mins

Yield 1.01 gpm **Date** 3/19/2012

Specific Capacity gpm/ft

Well Purpose Monitoring Well

Remarks

* Depth Below Land Surface

**Measuring Point is Top of Well Casing Unless Otherwise Noted.

Prepared by Justin Radford

ARCADIS

Appendix B

Well Completion and Survey Reports

ARCADIS

Appendix B-1

Well Completion Reports

C 1 **2539** SEQUENCE NO. (MDE USE ONLY)

1 2 3 6 (THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

COUNTY NUMBER

ST/CO USE ONLY
DATE Received MM DD YY (8–13)

DATE WELL COMPLETED MM DD YY (15–20)

Depth of Well (22–26) (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL" (28–37)

OWNER (last name, first name)

WELL SITE ADDRESS TOWN

SUBDIVISION SECTION LOT

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	check if water bearing

NUMBER OF UNSUCCESSFUL WELLS:

WELL HYDROFRACTURED yes Y no N

CIRCLE APPROPRIATE LETTER
- A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
- E ELECTRIC LOG OBTAINED
- P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 26.04.04 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS LIC. NO.: M __ D ____

DRILLERS SIGNATURE
(MUST MATCH SIGNATURE ON APPLICATION)

LIC. NO.: __ __ D ____

SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box) yes Y (44) no N (44)

TYPE OF GROUTING MATERIAL (Circle one)

CEMENT CM (45 46) BENTONITE CLAY BC (45 46)

NO. OF BAGS ____ NO. OF POUNDS ____

GALLONS OF WATER ____

DEPTH OF GROUT SEAL (to nearest foot)

from ____ ft. (48 TOP 52) to ____ ft. (54 BOTTOM 58)
(enter 0 if from surface)

CASING RECORD
casing types insert appropriate code below

ST STEEL; CO CONCRETE; PL PLASTIC; OT OTHER

MAIN CASING TYPE	Nominal diameter top (main) casing (nearest inch)!	Total depth of main casing (nearest foot)
(60 61)	(63 64)	(66 70)

OTHER CASING (if used)

EACH CASING	diameter inch	depth (feet) from	to

SCREEN RECORD
screen type or open hole — insert appropriate code below

ST STEEL; BR BRASS BRONZE; HO OPEN HOLE; PL PLASTIC; OT OTHER

C 2 (1 2)

DEPTH (nearest ft.)

EACH SCREEN			
1	(8 9)	(11 15)	(17 21)
2	(23 24)	(26 30)	(32 36)
3	(38 39)	(41 45)	(47 51)

SLOT SIZE 1 ____ 2 ____ 3 ____

DIAMETER OF SCREEN ____ (56 60) (NEAREST INCH)

GRAVEL PACK IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68	from	to
		(68)

MDE USE ONLY
(NOT TO BE FILLED IN BY DRILLER)

T (70) (E.R.O.S.) (72) W Q (74 75 76)

TELESCOPE CASING | LOG INDICATOR | OTHER DATA

C 3 (1 2)

PUMPING TEST
HOURS PUMPED (nearest hour) (8 9)

PUMPING RATE (gal. per min.) (11 15)

METHOD USED TO MEASURE PUMPING RATE

WATER LEVEL (distance from land surface)

BEFORE PUMPING ____ ft. (17 20)

WHEN PUMPING ____ ft. (22 25)

TYPE OF PUMP USED (for test)

A air (27); P piston (27); T turbine (27); C centrifugal (27); R rotary (27); O other (describe below) (27); J jet (27); S submersible (27)

PUMP INSTALLED
DRILLER INSTALLED PUMP (CIRCLE) (YES or NO) YES (NO)

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS.

TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX 29. (29)

CAPACITY: GALLONS PER MINUTE (to nearest gallon) (31 35)

PUMP HORSE POWER (37 41)

PUMP COLUMN LENGTH (nearest ft.) (43 47)

CASING HEIGHT (circle appropriate box and enter casing height)

+ (49) above LAND SURFACE

− (49) below

____ (nearest foot) (50 51)

LATITUDE 39.2445451

LONGITUDE 76.6244494

(DEFAULT COORD. WGS 84)

NOTES:

C 1 **2538** SEQUENCE NO. (MDE USE ONLY)

1 2 3 6 (THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

COUNTY NUMBER

ST/CO USE ONLY DATE Received MM DD YY (8–13)

DATE WELL COMPLETED MM DD YY (15–20)

Depth of Well (22–26) (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL" (28–37)

OWNER (last name) (first name)

WELL SITE ADDRESS TOWN

SUBDIVISION SECTION LOT

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	check if water bearing

NUMBER OF UNSUCCESSFUL WELLS: 4

WELL HYDROFRACTURED yes Y / no N

CIRCLE APPROPRIATE LETTER
- A — A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
- E — ELECTRIC LOG OBTAINED
- P — TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 26.04.04 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS LIC. NO.: M 4 D [illegible]

DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)

LIC. NO.: ___ D ____

SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box) yes Y (44) / no N (44)

TYPE OF GROUTING MATERIAL (Circle one)

CEMENT CM (45 46) BENTONITE CLAY BC (45 46)

NO. OF BAGS 1 NO. OF POUNDS 94

GALLONS OF WATER 10

DEPTH OF GROUT SEAL (to nearest foot)

from 0 (48 TOP 52) ft. to 2 (54 BOTTOM 58) ft.

(enter 0 if from surface)

CASING RECORD
casing types insert appropriate code below

ST STEEL / CO CONCRETE / PL PLASTIC / OT OTHER

MAIN CASING TYPE	Nominal diameter top (main) casing (nearest inch)!	Total depth of main casing (nearest foot)
W (60 61)	4 (63 64)	5 (66 70)

OTHER CASING (if used)

EACH CASING	diameter inch	depth (feet) from	depth (feet) to

SCREEN RECORD
screen type or open hole — insert appropriate code below

ST STEEL / BR BRASS BRONZE / HO OPEN HOLE / PL PLASTIC / OT OTHER

C 2

DEPTH (nearest ft.)

EACH SCREEN					
1	PL (8 9)	3 (11 15)	25 (17 21)		
2	(23 24)	(26 30)	(32 36)		
3	(38 39)	(41 45)	(47 51)		

SLOT SIZE 1 2 2 2 3 ____

DIAMETER OF SCREEN 4 (56 60) (NEAREST INCH)

GRAVEL PACK IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68

from	to
3	25

(68)

MDE USE ONLY (NOT TO BE FILLED IN BY DRILLER)

T (70) (E.R.O.S.) (72) W Q (74 75 76)

TELESCOPE CASING / LOG INDICATOR / OTHER DATA

C 3

PUMPING TEST
HOURS PUMPED (nearest hour) 4 (8 9)

PUMPING RATE (gal. per min.) ____ (11 15)

METHOD USED TO MEASURE PUMPING RATE

WATER LEVEL (distance from land surface)

BEFORE PUMPING ____ ft. (17 20)

WHEN PUMPING ____ ft. (22 25)

TYPE OF PUMP USED (for test)

A air (27) / P piston (27) / T turbine (27)

C centrifugal (27) / R rotary (27) / O other (describe below) (27)

J jet (27) / S submersible (27)

PUMP INSTALLED
DRILLER INSTALLED PUMP (CIRCLE) (YES or NO) YES / NO

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS.

TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX 29. (29)

CAPACITY: GALLONS PER MINUTE (to nearest gallon) (31 35)

PUMP HORSE POWER (37 41)

PUMP COLUMN LENGTH (nearest ft.) (43 47)

CASING HEIGHT (circle appropriate box and enter casing height)

+ (49) above / – (49) below LAND SURFACE

6 (50 51) (nearest) foot)

LATITUDE 39.211834

LONGITUDE 72.624443

(DEFAULT COORD. WGS 84)

NOTES:

MW-60

C 1 **2537** SEQUENCE NO. (MDE USE ONLY)

1 2 3 6 (THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

COUNTY NUMBER

ST/CO USE ONLY
DATE Received MM DD YY (8–13)

DATE WELL COMPLETED MM DD YY (15–20)

Depth of Well (22–26) (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL" (28–37)

OWNER (last name) (first name)

WELL SITE ADDRESS TOWN

SUBDIVISION SECTION LOT

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	check if water bearing

NUMBER OF UNSUCCESSFUL WELLS:

WELL HYDROFRACTURED yes Y no N

CIRCLE APPROPRIATE LETTER
- A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
- E ELECTRIC LOG OBTAINED
- P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 26.04.04 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS LIC. NO.: M D

DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)

LIC. NO.: D

SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box) yes Y (44) no N (44)

TYPE OF GROUTING MATERIAL (Circle one)

CEMENT CM (45 46) BENTONITE CLAY BC (45 46)

NO. OF BAGS 1 NO. OF POUNDS 94

GALLONS OF WATER 10

DEPTH OF GROUT SEAL (to nearest foot)

from 0 (48 TOP 52) ft. to 2 (54 BOTTOM 58) ft.

(enter 0 if from surface)

CASING RECORD
casing types insert appropriate code below

ST STEEL; CO CONCRETE; PL PLASTIC; OT OTHER

MAIN CASING TYPE	Nominal diameter top (main) casing (nearest inch)	Total depth of main casing (nearest foot)
PL (60 61)	4 (63 64)	5 (66 70)

OTHER CASING (if used)

EACH CASING	diameter inch	depth (feet) from	depth (feet) to

SCREEN RECORD
screen type or open hole — insert appropriate code below

ST STEEL; BR BRASS BRONZE; HO OPEN HOLE; PL PLASTIC; OT OTHER

C 2

DEPTH (nearest ft.)

EACH SCREEN					
1	PL (8 9)	3 (11 15)	4 (17 21)		
2	(23 24)	(26 30)	(32 36)		
3	(38 39)	(41 45)	(47 51)		

SLOT SIZE 1 20 2 3

DIAMETER OF SCREEN 4 (56 60) (NEAREST INCH)

	from	to
GRAVEL PACK IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68	3	25 (68)

MDE USE ONLY (NOT TO BE FILLED IN BY DRILLER)

T (70) (E.R.O.S.) (72) W Q (74 75 76)

TELESCOPE CASING; LOG INDICATOR; OTHER DATA

C 3

PUMPING TEST
HOURS PUMPED (nearest hour) 24 (8 9)

PUMPING RATE (gal. per min.) (11 15)

METHOD USED TO MEASURE PUMPING RATE

WATER LEVEL (distance from land surface)

BEFORE PUMPING (17 20) ft.

WHEN PUMPING (22 25) ft.

TYPE OF PUMP USED (for test)

A air (27); P piston (27); T turbine (27); C centrifugal (27); R rotary (27); O other (describe below) (27); J jet (27); S submersible (27)

PUMP INSTALLED
DRILLER INSTALLED PUMP (CIRCLE) (YES or NO) YES NO

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS.

TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX 29. (29)

CAPACITY: GALLONS PER MINUTE (to nearest gallon) (31 35)

PUMP HORSE POWER (37 41)

PUMP COLUMN LENGTH (nearest ft) (43 47)

CASING HEIGHT (circle appropriate box and enter casing height)

+ above (49); 2 below (49) LAND SURFACE (nearest foot) 2 (50 51)

LATITUDE 39.311777

LONGITUDE 77.624463

(DEFAULT COORD. WGS 84)

NOTES:

MW-61

C 1 **2536** SEQUENCE NO. (MDE USE ONLY)

1 2 3 6 (THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT

FILL IN THIS FORM COMPLETELY
PLEASE TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

COUNTY NUMBER

ST/CO USE ONLY DATE Received MM DD YY (8–13)

DATE WELL COMPLETED MM DD YY: 12 15 2012 (15–20)

Depth of Well: 5 (22–26) (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL": [illegible] - 05 - 1163 (28–37)

OWNER [illegible] (last name, first name)

WELL SITE ADDRESS [illegible] TOWN [illegible]

SUBDIVISION _____ SECTION _____ LOT _____

WELL LOG

Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	check if water bearing
[illegible]	0	2	
[illegible]	2	14	8
[illegible]	14	25	

NUMBER OF UNSUCCESSFUL WELLS: 0

WELL HYDROFRACTURED yes [Y] no [N]

CIRCLE APPROPRIATE LETTER

- A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
- E ELECTRIC LOG OBTAINED
- P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 26.04.04 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS LIC. NO.: M D [illegible]

DRILLERS SIGNATURE
(MUST MATCH SIGNATURE ON APPLICATION)

LIC. NO.: ___ D ___

SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

GROUTING RECORD

WELL HAS BEEN GROUTED (Circle Appropriate Box) yes [Y] (44) no [N] (44)

TYPE OF GROUTING MATERIAL (Circle one)

CEMENT [CM] (45 46) BENTONITE CLAY [BC] (45 46)

NO. OF BAGS 1 NO. OF POUNDS 40

GALLONS OF WATER 10

DEPTH OF GROUT SEAL (to nearest foot)

from 0 (48 TOP 52) ft. to 2 (54 BOTTOM 58) ft.

(enter 0 if from surface)

CASING RECORD

casing types insert appropriate code below

[ST] STEEL [CO] CONCRETE [PL] PLASTIC [OT] OTHER

MAIN CASING TYPE	Nominal diameter top (main) casing (nearest inch)!	Total depth of main casing (nearest foot)
PL (60 61)	4 (63 64)	5 (66–70)

OTHER CASING (if used) — EACH CASING

	diameter inch	depth (feet) from	depth (feet) to

SCREEN RECORD

screen type or open hole — insert appropriate code below

[ST] STEEL [BR] BRASS BRONZE [HO] OPEN HOLE [PL] PLASTIC [OT] OTHER

C 2 (1 2)

DEPTH (nearest ft.) — EACH SCREEN

		from	to
1	PL (8 9)	15 (11–15)	25 (17–21)
2		(23 24)	(26–30) (32–36)
3		(38 39)	(41–45) (47–51)

SLOT SIZE 1 20 2 ___ 3 ___

DIAMETER OF SCREEN 4 (56–60) (NEAREST INCH)

GRAVEL PACK IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68: from 3 to 25 (68)

MDE USE ONLY (NOT TO BE FILLED IN BY DRILLER)

T (70) (E.R.O.S.) (72) W Q (74 75 76)

TELESCOPE CASING | LOG INDICATOR | OTHER DATA

C 3 (1 2)

PUMPING TEST

HOURS PUMPED (nearest hour) 1 2 (8 9)

PUMPING RATE (gal. per min.) ___ (11–15)

METHOD USED TO MEASURE PUMPING RATE ___

WATER LEVEL (distance from land surface)

BEFORE PUMPING ___ (17–20) ft.

WHEN PUMPING ___ (22–25) ft.

TYPE OF PUMP USED (for test)

- [A] air (27)
- [P] piston (27)
- [T] turbine (27)
- [C] centrifugal (27)
- [R] rotary (27)
- [O] other (describe below) (27)
- [J] jet (27)
- [S] submersible (27)

PUMP INSTALLED

DRILLER INSTALLED PUMP (CIRCLE) (YES or NO) YES NO

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS.

TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX 29. (29)

CAPACITY: GALLONS PER MINUTE (to nearest gallon) (31–35)

PUMP HORSE POWER (37–41)

PUMP COLUMN LENGTH (nearest ft) (43–47)

CASING HEIGHT (circle appropriate box and enter casing height)

[+] above [–] below (49) LAND SURFACE

6" (nearest foot) (50 51)

LATITUDE 39.211167

LONGITUDE 77.624803

(DEFAULT COORD. WGS 84)

NOTES:

MW-62

C 1 | 2535 | SEQUENCE NO. (MDE USE ONLY)

1 2 3 6 (THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

COUNTY NUMBER

ST/CO USE ONLY
DATE Received MM DD YY
8 13

DATE WELL COMPLETED MM DD YY: 23 4 12 (15 20)

Depth of Well: 25 (22 26) (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL": PR- 23 - 1964 (28 29 30 31 32 33 34 35 36 37)

OWNER [illegible] (last name) (first name)

WELL SITE ADDRESS [illegible] TOWN Pocomoke

SUBDIVISION ____ SECTION ____ LOT ____

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	check if water bearing
[illegible]	0	6	
[illegible]	6	14	
[illegible]	14	25	

NUMBER OF UNSUCCESSFUL WELLS: 10

WELL HYDROFRACTURED (yes Y / no N): N (44)

CIRCLE APPROPRIATE LETTER
- A — A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
- E — ELECTRIC LOG OBTAINED
- P — TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 26.04.04 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS LIC. NO.: M D 062

DRILLERS SIGNATURE
(MUST MATCH SIGNATURE ON APPLICATION)

LIC. NO.: __ __ D __ __ __

SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box) yes Y (44) / no N (44)

TYPE OF GROUTING MATERIAL (Circle one)

CEMENT C M (45 46) BENTONITE CLAY B C (45 46)

NO. OF BAGS 1 NO. OF POUNDS 94

GALLONS OF WATER 16

DEPTH OF GROUT SEAL (to nearest foot)

from 0 (48 TOP 52) ft. to 2 (54 BOTTOM 58) ft.

(enter 0 if from surface)

CASING RECORD
casing types insert appropriate code below

S T STEEL | C O CONCRETE | P L PLASTIC | O T OTHER

MAIN CASING TYPE	Nominal diameter top (main) casing (nearest inch)!	Total depth of main casing (nearest foot)
PL (60 61)	4 (63 64)	5 (66 70)

EACH CASING — OTHER CASING (if used)

	diameter inch	depth (feet) from	depth (feet) to

SCREEN RECORD
screen type or open hole — insert appropriate code below

S T STEEL | B R BRASS BRONZE | H O OPEN HOLE | P L PLASTIC | O T OTHER

C 2 (1 2)

DEPTH (nearest ft.)

EACH SCREEN

1	PL (8 9)	5 (11 15)	25 (17 21)
2	(23 24)	(26 30)	(32 36)
3	(38 39)	(41 45)	(47 51)

SLOT SIZE 1 20 2 ____ 3 ____

DIAMETER OF SCREEN 4 (56 60) (NEAREST INCH)

	from	to
GRAVEL PACK IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68	3	25 (68)

MDE USE ONLY (NOT TO BE FILLED IN BY DRILLER)

T (70) (E.R.O.S.) (72) W Q (74 75 76)

TELESCOPE CASING | LOG INDICATOR | OTHER DATA

C 3 (1 2)

PUMPING TEST
HOURS PUMPED (nearest hour) 4 (8 9)

PUMPING RATE (gal. per min.) ____ (11 15)

METHOD USED TO MEASURE PUMPING RATE ____

WATER LEVEL (distance from land surface)

BEFORE PUMPING ____ ft. (17 20)

WHEN PUMPING ____ ft. (22 25)

TYPE OF PUMP USED (for test)

A (27) air | P (27) piston | T (27) turbine | C (27) centrifugal | R (27) rotary | O (27) other (describe below) | J (27) jet | S (27) submersible

PUMP INSTALLED
DRILLER INSTALLED PUMP (CIRCLE) (YES or NO): YES / NO

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS.

TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX 29. (29)

CAPACITY: GALLONS PER MINUTE (to nearest gallon) (31 35)

PUMP HORSE POWER (37 41)

PUMP COLUMN LENGTH (nearest ft.) (43 47)

CASING HEIGHT (circle appropriate box and enter casing height)

+ (49) above / − (49) below LAND SURFACE

5 (50 51) (nearest foot)

LATITUDE 37.311018

LONGITUDE 75.624750

(DEFAULT COORD. WGS 84)

NOTES:

nw-63

C 1 **2534** SEQUENCE NO. (MDE USE ONLY)

1 2 3 6 (THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

COUNTY NUMBER

ST/CO USE ONLY
DATE Received MM DD YY
8 13

DATE WELL COMPLETED MM DD YY: 03 11 12 (15 20)

Depth of Well: 24 (TO NEAREST FOOT) (22 26)

PERMIT NO. FROM "PERMIT TO DRILL WELL": [illegible] - 1965 (28 29 30 31 32 33 34 35 36 37)

OWNER [illegible] (last name) (first name)

WELL SITE ADDRESS [illegible] TOWN [illegible]

SUBDIVISION _____ SECTION _____ LOT _____

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	check if water bearing
Fill	0	6	
[illegible]	6	14	
[illegible]	14	20	
[illegible]	20	24	

NUMBER OF UNSUCCESSFUL WELLS: 0

WELL HYDROFRACTURED: yes [Y] no [N]

CIRCLE APPROPRIATE LETTER
- A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
- E ELECTRIC LOG OBTAINED
- P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 26.04.04 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS LIC. NO.: M D 4067

DRILLERS SIGNATURE
(MUST MATCH SIGNATURE ON APPLICATION)

LIC. NO.: ___ D ___

SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box): yes [Y] (44) no [N] (44)

TYPE OF GROUTING MATERIAL (Circle one)

CEMENT [C M] (45 46) BENTONITE CLAY [B C] (45 46)

NO. OF BAGS 1 NO. OF POUNDS _____

GALLONS OF WATER 10

DEPTH OF GROUT SEAL (to nearest foot)

from 0 (48 TOP 52) ft. to 2 (54 BOTTOM 58) ft.

(enter 0 if from surface)

CASING RECORD
casing types insert appropriate code below

[S T] STEEL [C O] CONCRETE [P L] PLASTIC [O T] OTHER

MAIN CASING TYPE	Nominal diameter top (main) casing (nearest inch)	Total depth of main casing (nearest foot)
PL (60 61)	4 (63 64)	4 (66 70)

OTHER CASING (if used) — EACH CASING

	diameter inch	depth (feet) from	depth (feet) to

SCREEN RECORD
screen type or open hole — insert appropriate code below

[S T] STEEL [B R] BRASS BRONZE [H O] OPEN HOLE [P L] PLASTIC [O T] OTHER

C 2 (1 2)

DEPTH (nearest ft.) — EACH SCREEN

1	PL (8 9)	4 (11 15)	24 (17 21)
2	(23 24)	(26 30)	(32 36)
3	(38 39)	(41 45)	(47 51)

SLOT SIZE 1 .20 2 ____ 3 ____

DIAMETER OF SCREEN 4 (56 60) (NEAREST INCH)

GRAVEL PACK IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68

from	to
4	24

(68)

MDE USE ONLY (NOT TO BE FILLED IN BY DRILLER)

T (70) (E.R.O.S.) (72) W Q (74 75 76)

TELESCOPE CASING — LOG INDICATOR — OTHER DATA

C 3 (1 2)

PUMPING TEST
HOURS PUMPED (nearest hour): 24 (8 9)

PUMPING RATE (gal. per min.): _____ (11 15)

METHOD USED TO MEASURE PUMPING RATE: _____

WATER LEVEL (distance from land surface)

BEFORE PUMPING: _____ ft. (17 20)

WHEN PUMPING: _____ ft. (22 25)

TYPE OF PUMP USED (for test)

[A] air (27) [P] piston (27) [T] turbine (27)

[C] centrifugal (27) [R] rotary (27) [O] other (describe below) (27)

[J] jet (27) [S] submersible (27)

PUMP INSTALLED
DRILLER INSTALLED PUMP (CIRCLE) (YES or NO): YES NO

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS.

TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX 29. (29)

CAPACITY: GALLONS PER MINUTE (to nearest gallon) (31 35)

PUMP HORSE POWER (37 41)

PUMP COLUMN LENGTH (nearest ft.) (43 47)

CASING HEIGHT (circle appropriate box and enter casing height)

[+] above (49) / [−] below (49) LAND SURFACE

5 (nearest foot) (50 51)

LATITUDE 39.310792

LONGITUDE 77.624610

(DEFAULT COORD. WGS 84)

NOTES:

MW-64

C 1 **2533** SEQUENCE NO. (MDE USE ONLY)

1 2 3 6 (THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

COUNTY NUMBER

ST/CO USE ONLY
DATE Received MM DD YY
8 13

DATE WELL COMPLETED MM DD YY: 0 [illegible] 12
15 20

Depth of Well: [illegible] (TO NEAREST FOOT)
22 26

PERMIT NO. FROM "PERMIT TO DRILL WELL": [illegible] - 1966
28 29 30 31 32 33 34 35 36 37

OWNER [illegible] (last name, first name)

WELL SITE ADDRESS [illegible] TOWN [illegible]

SUBDIVISION SECTION LOT

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	check if water bearing
[illegible]	0	6	
[illegible]	[illegible]	[illegible]	
[illegible]	15	25	

NUMBER OF UNSUCCESSFUL WELLS: 0

WELL HYDROFRACTURED yes (Y) no (N)

CIRCLE APPROPRIATE LETTER
- A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
- E ELECTRIC LOG OBTAINED
- P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 26.04.04 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS LIC. NO.: M D [illegible]

[illegible]
DRILLERS SIGNATURE
(MUST MATCH SIGNATURE ON APPLICATION)

LIC. NO.: __ __ D __ __ __

SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box) yes (Y) 44 no (N) 44

TYPE OF GROUTING MATERIAL (Circle one)

CEMENT (CM) 45 46 BENTONITE CLAY (BC) 45 46

NO. OF BAGS 1 NO. OF POUNDS 94

GALLONS OF WATER 10

DEPTH OF GROUT SEAL (to nearest foot)

from 0 (48 TOP 52) ft. to 3 (54 BOTTOM 58) ft.

(enter 0 if from surface)

CASING RECORD
casing types insert appropriate code below

ST STEEL | CO CONCRETE | PL PLASTIC | OT OTHER

MAIN CASING TYPE	Nominal diameter top (main) casing (nearest inch)!	Total depth of main casing (nearest foot)
PL	4	5
60 61	63 64	66 70

OTHER CASING (if used) — EACH CASING

diameter inch	depth (feet) from	to

SCREEN RECORD
screen type or open hole — insert appropriate code below

ST STEEL | BR BRASS BRONZE | HO OPEN HOLE | PL PLASTIC | OT OTHER

C 2

DEPTH (nearest ft.) — EACH SCREEN

1	PL 5	25
	8 9 11 15	17 21
2		
	23 24 26 30	32 36
3		
	38 39 41 45	47 51

SLOT SIZE 1 .10 2 ____ 3 ____

DIAMETER OF SCREEN 4 (NEAREST INCH)
56 60

from	to
3	25

GRAVEL PACK IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68 — 68

MDE USE ONLY (NOT TO BE FILLED IN BY DRILLER)

T (E.R.O.S.) W Q

70 72 74 75 76

TELESCOPE CASING | LOG INDICATOR | OTHER DATA

C 3

PUMPING TEST
HOURS PUMPED (nearest hour) 4 (8 9)

PUMPING RATE (gal. per min.) ____ (11 15)

METHOD USED TO MEASURE PUMPING RATE ____

WATER LEVEL (distance from land surface)

BEFORE PUMPING 7 ft. (17 20)

WHEN PUMPING ____ ft. (22 25)

TYPE OF PUMP USED (for test)

A air (27) | P piston (27) | T turbine (27)

C centrifugal (27) | R rotary (27) | O other (describe below) (27)

J jet (27) | S submersible (27)

PUMP INSTALLED
DRILLER INSTALLED PUMP (CIRCLE) (YES or NO) YES NO

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS.

TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX 29. (29)

CAPACITY: GALLONS PER MINUTE (to nearest gallon) (31 35)

PUMP HORSE POWER (37 41)

PUMP COLUMN LENGTH (nearest ft.) (43 47)

CASING HEIGHT (circle appropriate box and enter casing height)

+ above (49) / − below (49) LAND SURFACE

0 (nearest foot) (50 51)

LATITUDE 39.[illegible]

LONGITUDE 76.[illegible]

(DEFAULT COORD. WGS 84)

NOTES:

MW-65

ARCADIS

Appendix B-2

Survey Report

Exhibit A-2
Survey Report

SURVEY REPORT

LOCATION: CSX Brunswick Yard **DATE:** 21 March 2012

SITE: Brunswick, Maryland

SURVEYOR: C. Allen Paugh, Kci Technologies Inc. Fulton Md.

SURVEY DATUMS:

Horizontal Coordinates: NAD 83/91, US Feet

Vertical Elevations: NAVD88, US Feet

SOFTWARE: None, #s are direct from NGS stations by gps

SURVEY DATA:

Point #	Northing	Easting	Measuring Point Elevation	Ground Elev. (Top of Lid)	Location ID	Notes
9513	599580.5	1135569.5	246.07	246.33	WELL	MW59
9502	599537.4	1135514.6	245.57	246.02	WELL	MW60
9503	599525.0	1135534.7	245.63	246.07	WELL	MW61
9504	599498.0	1135556.1	246.08	246.57	WELL	MW62
9505	599451.1	1135557.2	246.25	246.60	WELL	MW63
9506	599450.7	1135610.1	245.45	246.01	WELL	MW64
9516	599467.6	1135632.4	245.54	245.98	WELL	MW65

STATE OF MARYLAND
CARROLL ALLEN PAUGH
No. 475
REGISTERED
PROPERTY LINE SURVEYOR

C. Allen Paugh
3/21/12

Exhibit A-2
Survey Report

NOTE:

(1) The following NGS control points have been used for this survey:

JV3191	83/91	N 39-19-08	83/91	W 76-37-36	1988 Elev. 265.49
GAIT	83/91	N 534457.86	83/91	E 1249651.23	1988 Elev. 461.7
HAG2	83/91	N 687962.26	83/91	E 1110970.52	1988 Elev. N/A

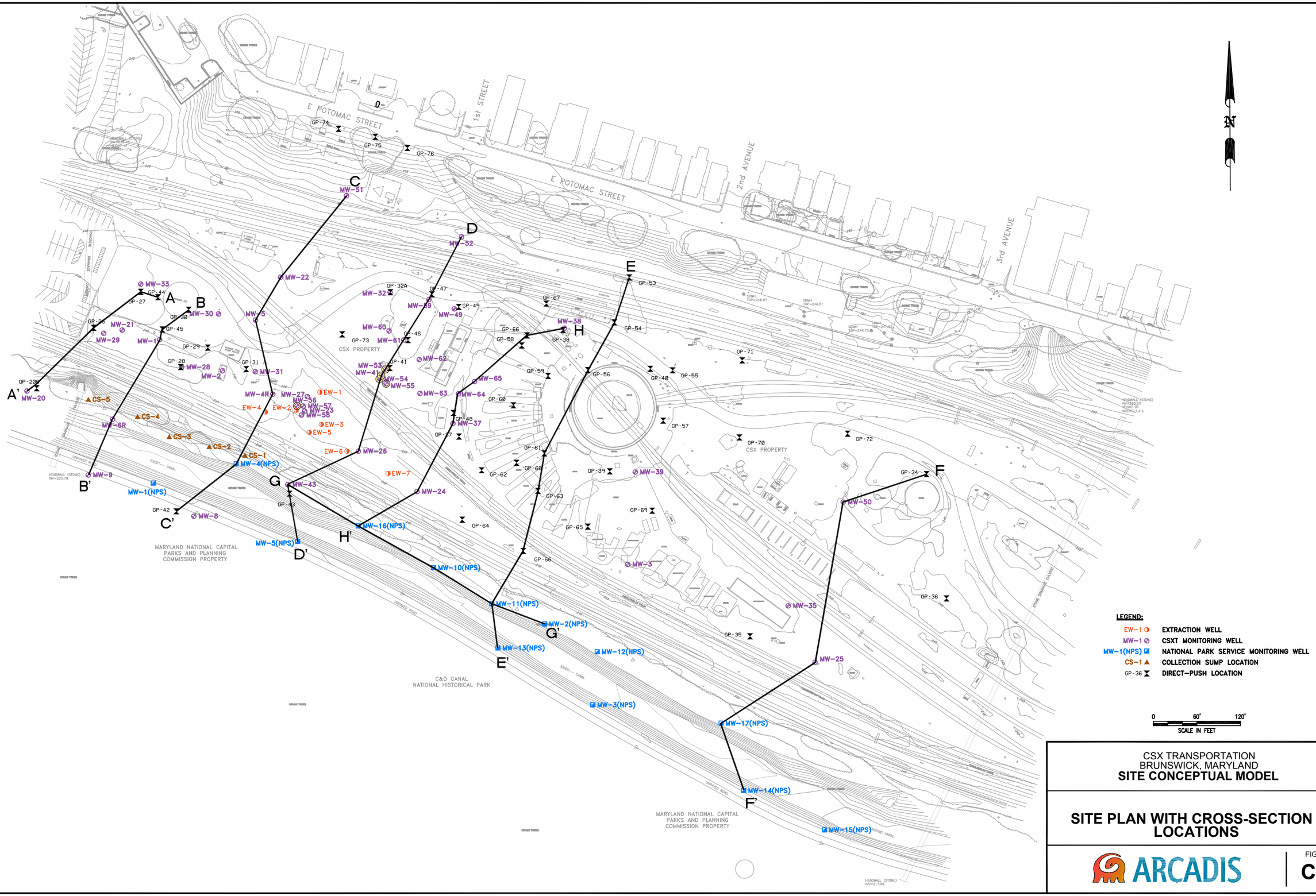
(2) Well lids are approximately level with ground.

(3) Measured point is top of well pipe under lid.

ARCADIS

Appendix C

Geologic Cross Sections



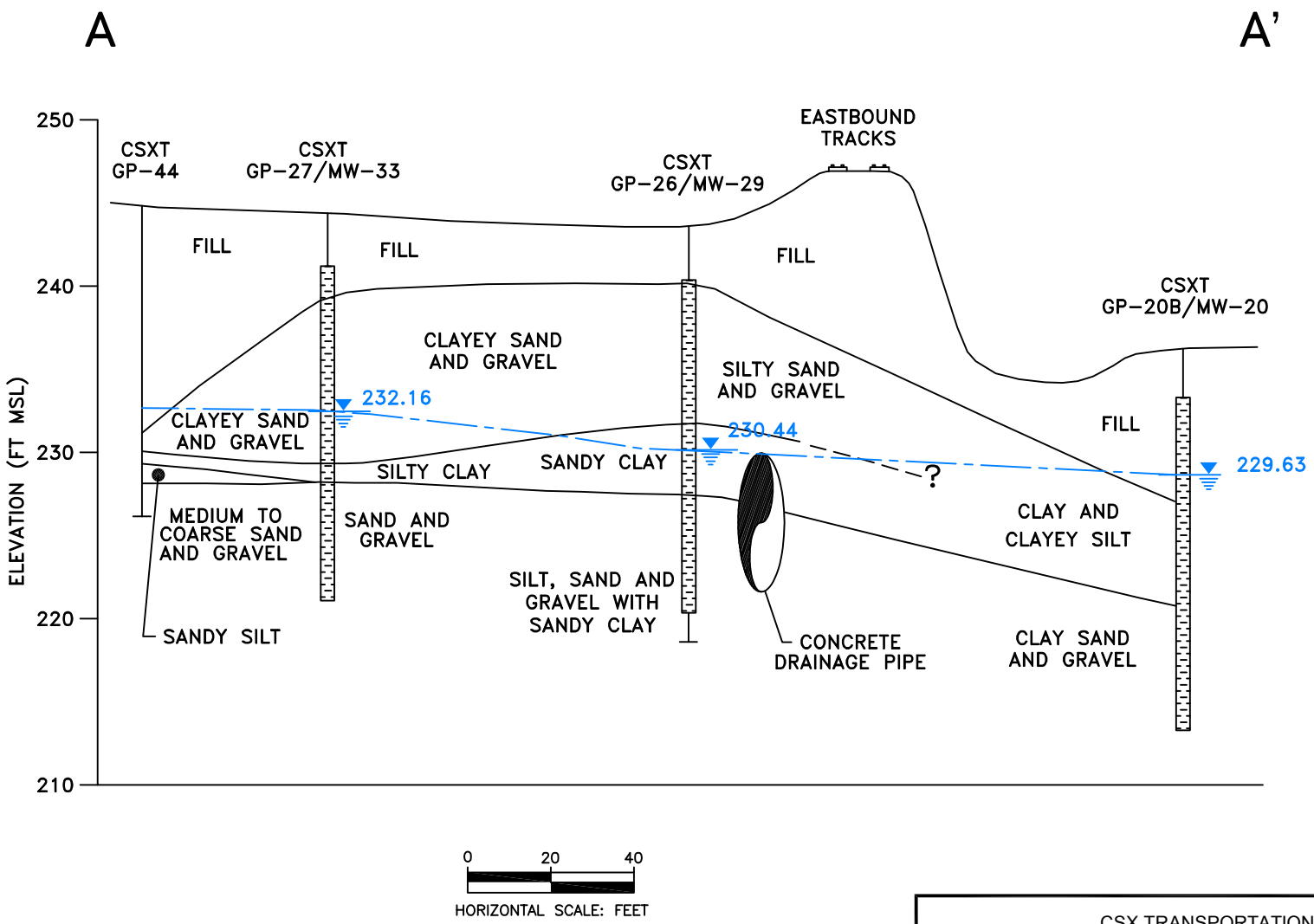
CSX TRANSPORTATION
BRUNSWICK, MARYLAND
SITE CONCEPTUAL MODEL

SITE PLAN WITH CROSS-SECTION LOCATIONS

ARCADIS

FIGURE
C-1

CITY:MELVILLE-NY DIV/GROUP:ENVCAD DB:ASANCHEZ LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\HOUSTON\RETURN-TO\Melville-NY\MD000843\0010\00005\Sect's-A-thru-G.dwg LAYOUT: C-2 SAVED: 4/27/2012 5:48 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 4/30/2012 12:05 PM BY: INNISS, HAYDEN
XREFS: IMAGES: PROJECTNAME: ----



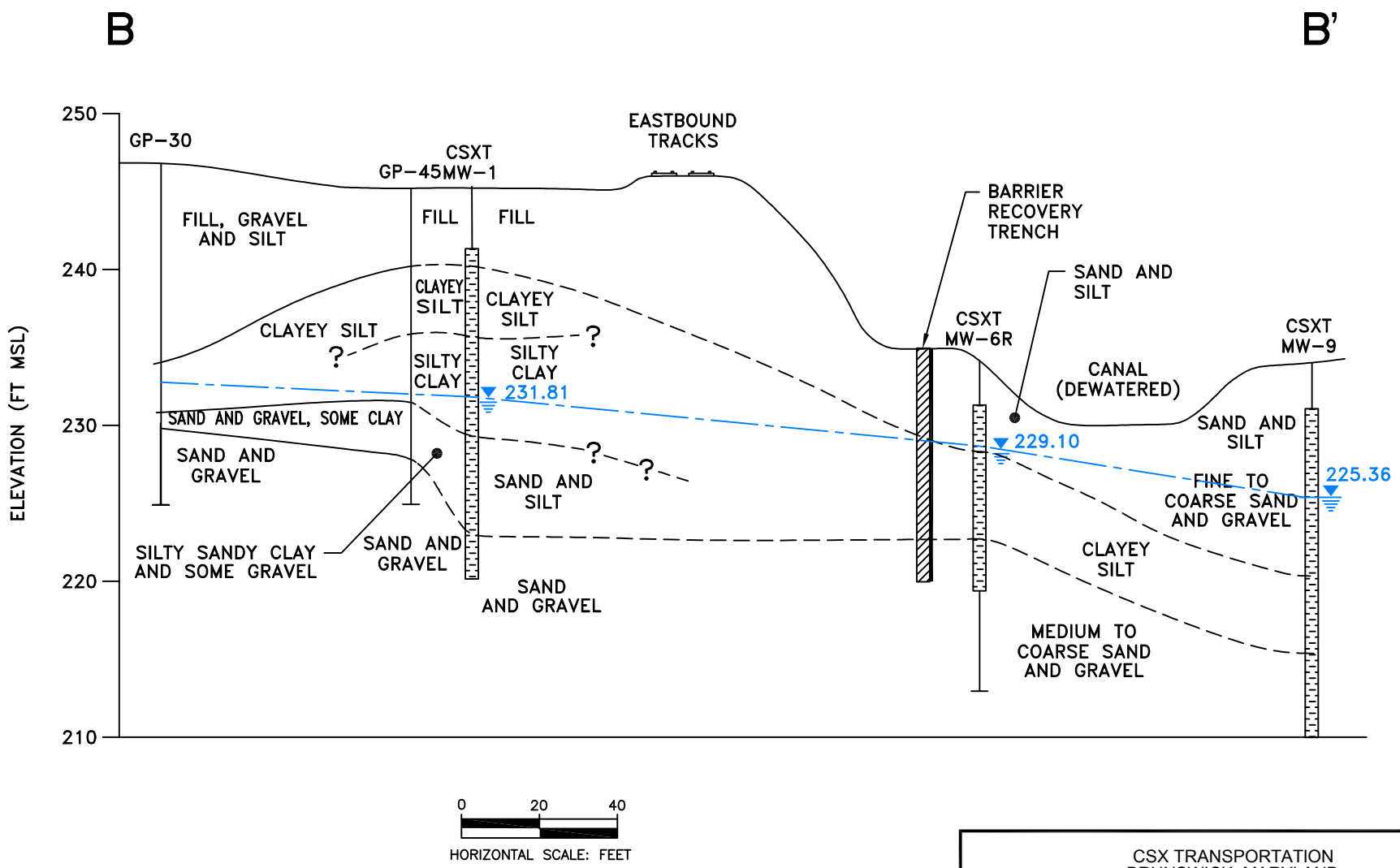
CSX TRANSPORTATION
BRUNSWICK, MARYLAND
SITE CONCEPTUAL MODEL

SECTION A - A'

ARCADIS

FIGURE
C-2

CITY:MELVILLE-NY DIV/GROUP:ENVCAD DB:ASANCHEZ LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\HOUSTON\RETURN-TO\Melville-NY\MD000843\0010\00005\Sect's-A-thru-G.dwg LAYOUT: C-3 SAVED: 4/27/2012 5:48 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 4/30/2012 12:05 PM BY: INNISS, HAYDEN
XREFS: IMAGES: PROJECTNAME: ----



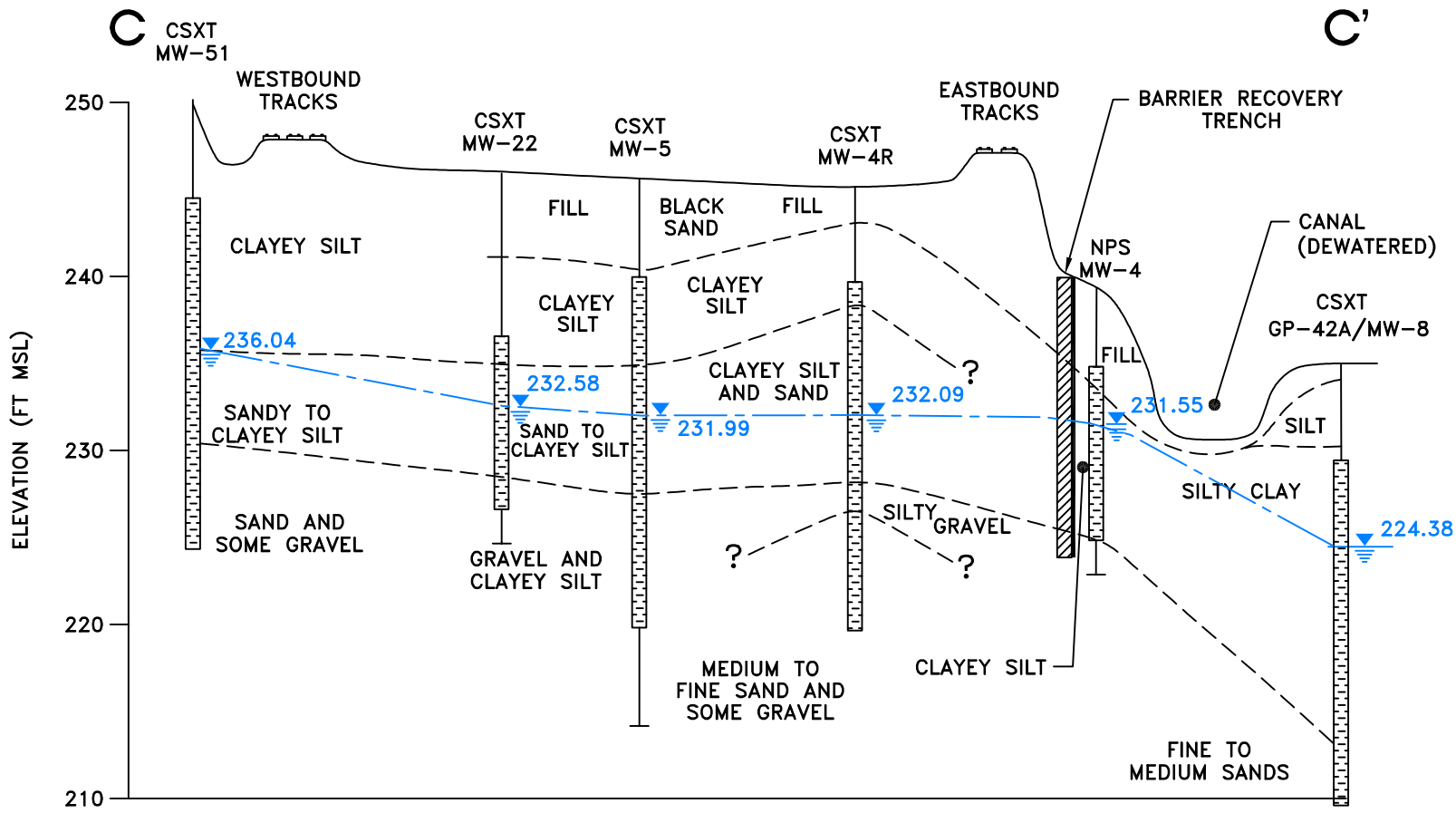
CSX TRANSPORTATION
BRUNSWICK, MARYLAND
SITE CONCEPTUAL MODEL

SECTION B - B'

ARCADIS

FIGURE
C-3

CITY:MELVILLE-NY DIV/GROUP:ENVCAD DB:ASANCHEZ LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\HOUSTON\RETURN-TO\Melville-NY\MD000843\0010\00005\Sect's-A-thru-G.dwg LAYOUT: C-4 SAVED: 4/27/2012 5:48 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 4/30/2012 12:05 PM BY: INNISS, HAYDEN
XREFS: IMAGES: PROJECTNAME: ----



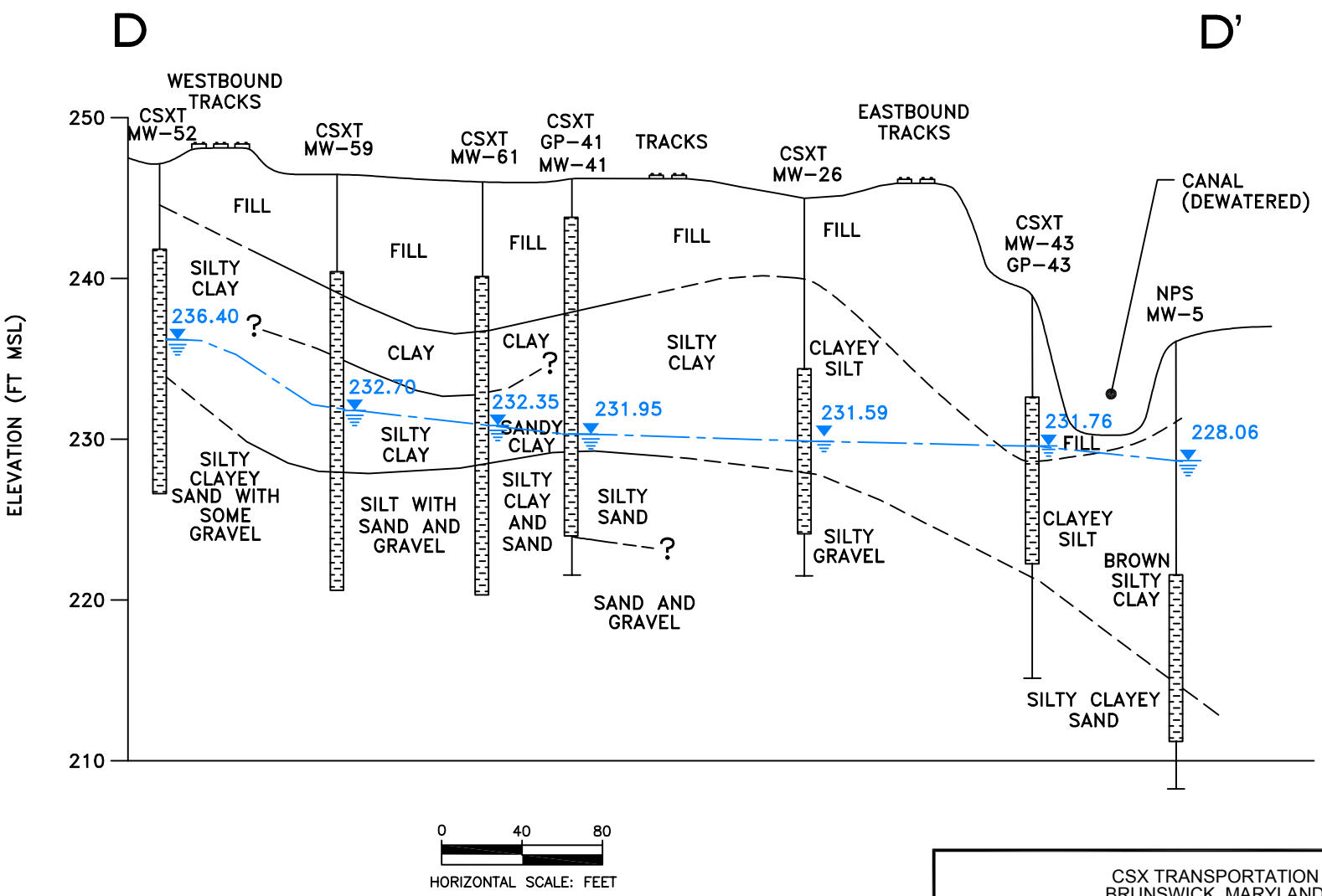
CSX TRANSPORTATION
BRUNSWICK, MARYLAND
SITE CONCEPTUAL MODEL

SECTION C - C'

ARCADIS

FIGURE
C-4

CITY:MELVILLE-NY DIV/GROUP:ENVCAD DB:ASANCHEZ LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\HOUSTON\RETURN-TO\Melville-NY\MD000843\0010\00005\Sect's-A-thru-G.dwg LAYOUT: C-5 SAVED: 4/27/2012 5:48 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 4/30/2012 12:06 PM BY: INNISS, HAYDEN
XREFS: IMAGES: PROJECTNAME: ----



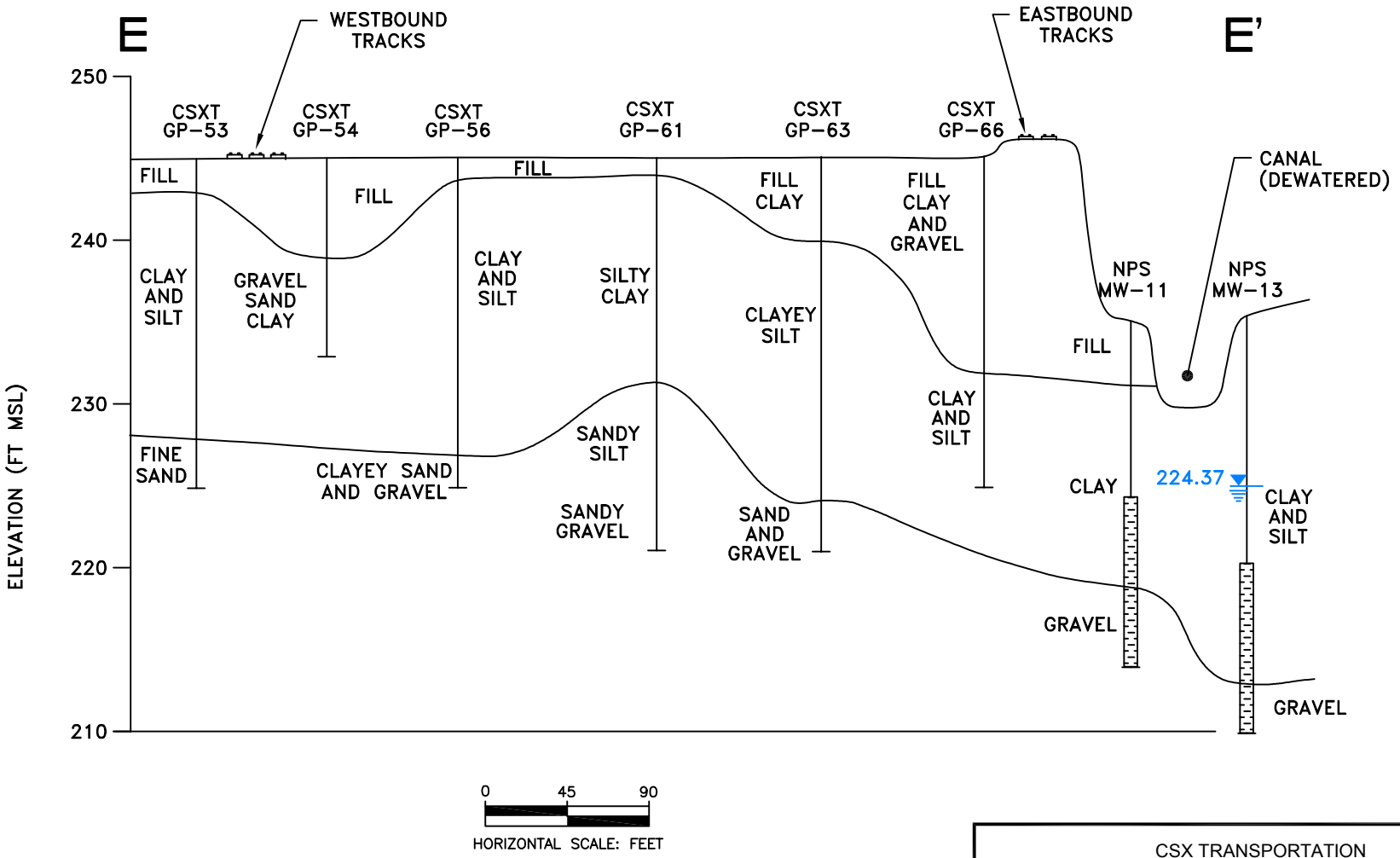
CSX TRANSPORTATION
BRUNSWICK, MARYLAND
SITE CONCEPTUAL MODEL

SECTION D - D'

ARCADIS

FIGURE
C-5

CITY:MELVILLE-NY DIV/GROUP:ENVCAD DB:ASANCHEZ LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\HOUSTON\RETURN-TO\Melville-NY\MD000843\0010\00005\Sect's-A-thru-G.dwg LAYOUT: C-6 SAVED: 4/27/2012 5:48 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 4/30/2012 12:06 PM BY: INNISS, HAYDEN
XREFS: IMAGES: PROJECTNAME: ----



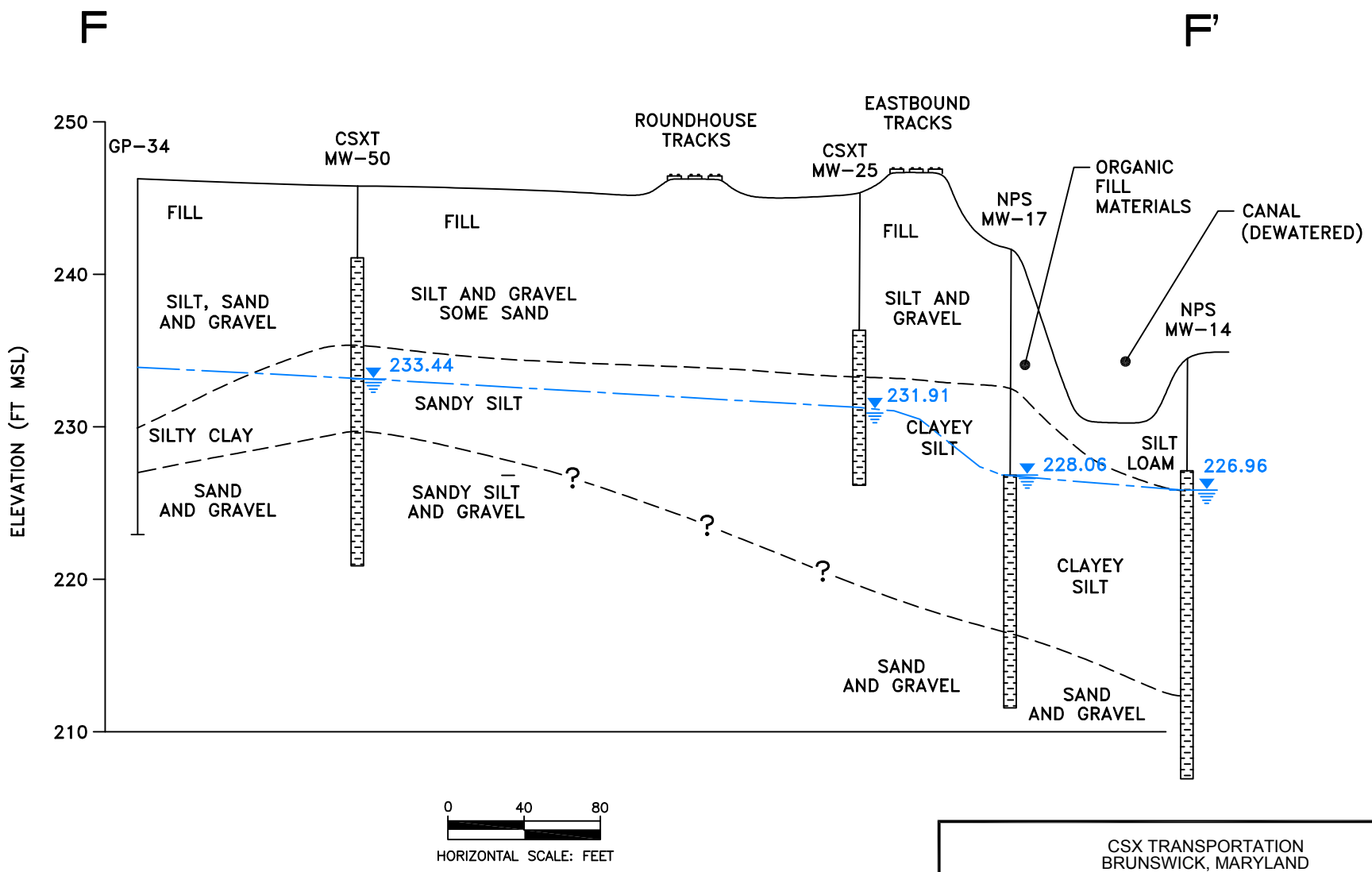
CSX TRANSPORTATION
BRUNSWICK, MARYLAND
SITE CONCEPTUAL MODEL

SECTION E - E'

ARCADIS

FIGURE
C-6

CITY:MELVILLE-NY DIV/GROUP:ENVCAD DB:ASANCHEZ LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\HOUSTON\RETURN-TO\Melville-NY\MD000843\0010\00005\Sect's-A-thru-G.dwg LAYOUT: C-7 SAVED: 4/27/2012 5:48 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 4/30/2012 12:06 PM BY: INNISS, HAYDEN
XREFS: IMAGES: PROJECTNAME: ----



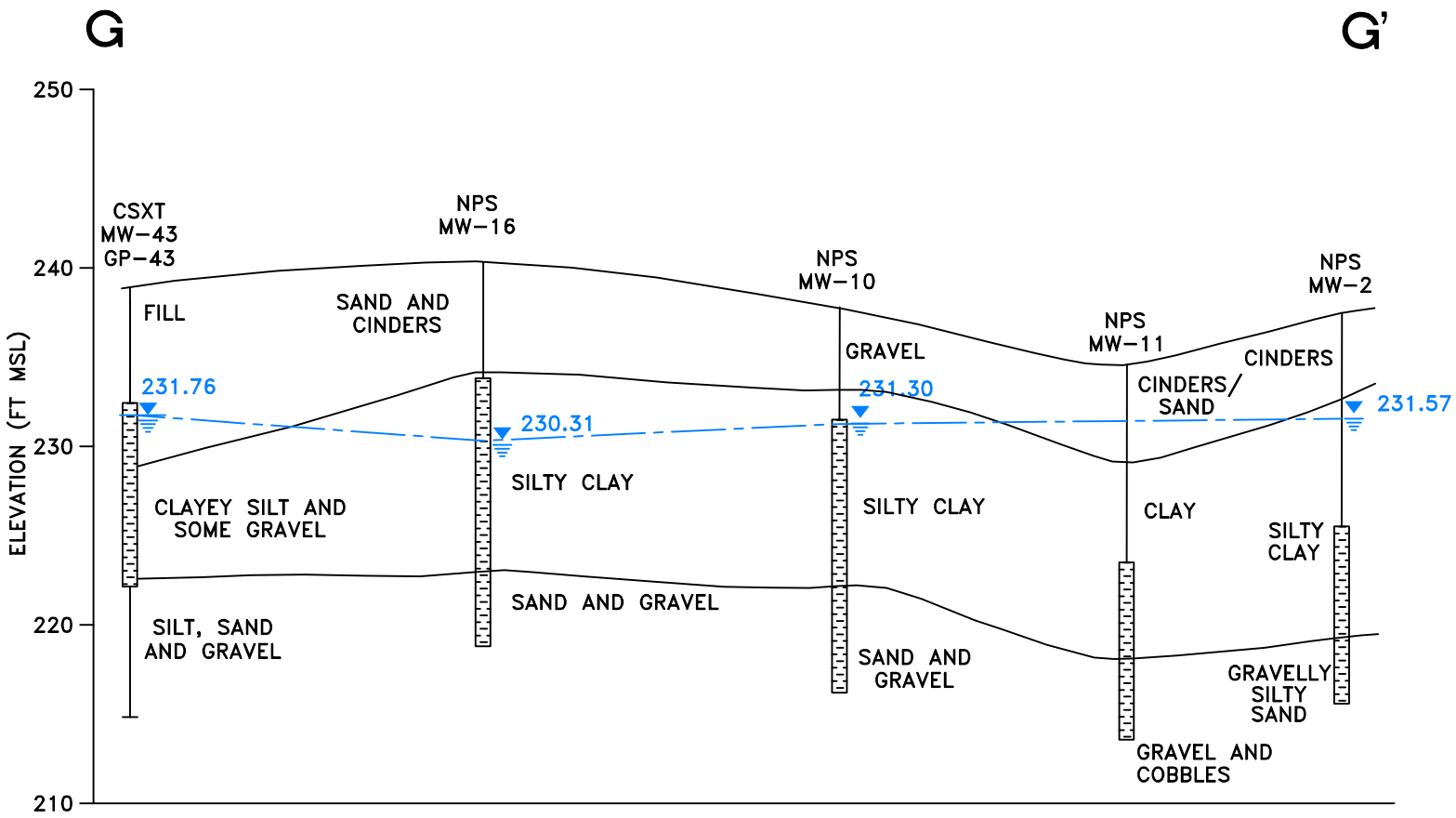
CSX TRANSPORTATION
BRUNSWICK, MARYLAND
SITE CONCEPTUAL MODEL

SECTION F - F'

ARCADIS

FIGURE
C-7

CITY:MELVILLE-NY DIV/GROUP:ENVCAD DB:ASANCHEZ LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\HOUSTON\RETURN-TO\Melville-NY\MD000843\0010\00005\Sect's-A-thru-G.dwg LAYOUT: C-8 SAVED: 4/27/2012 5:48 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 4/30/2012 12:07 PM BY: INNISS, HAYDEN
XREFS: IMAGES: PROJECTNAME: ----



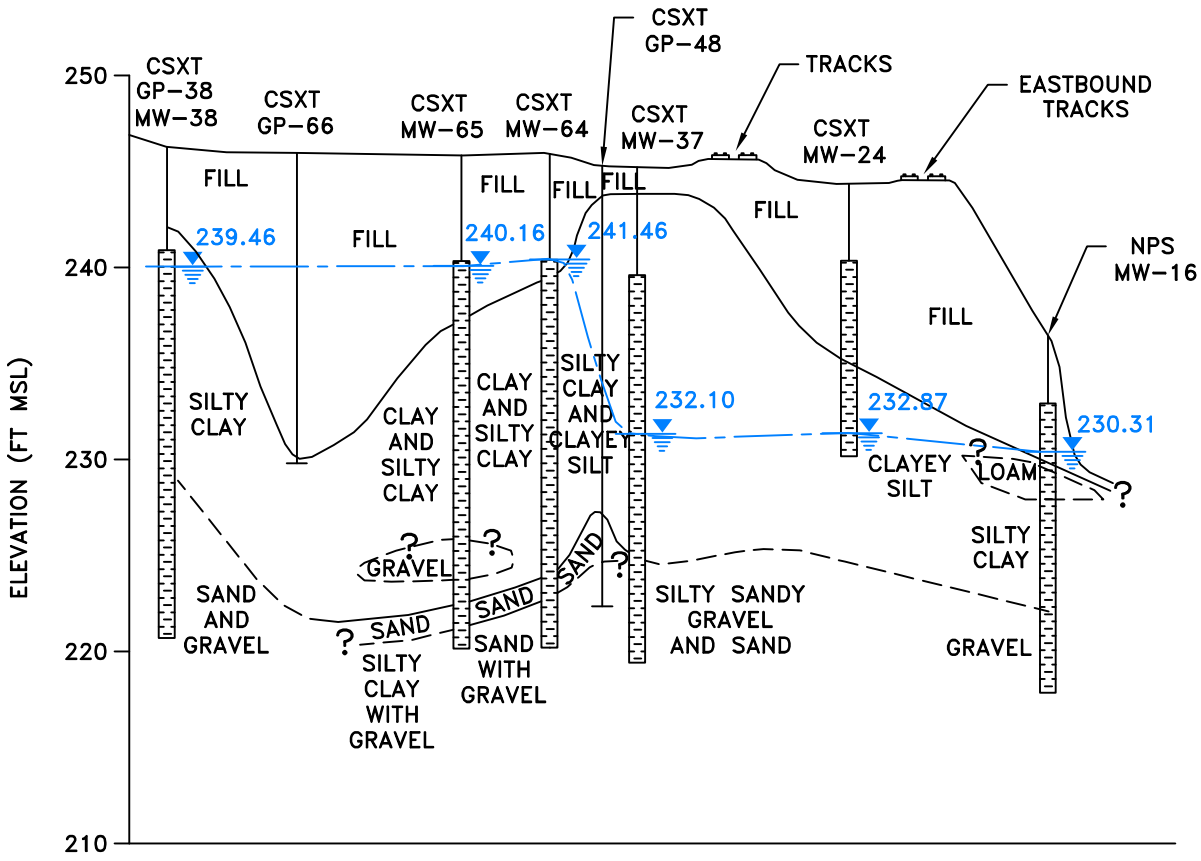
0 30 60
HORIZONTAL SCALE: FEET

CSX TRANSPORTATION
BRUNSWICK, MARYLAND
SITE CONCEPTUAL MODEL

SECTION G - G'

ARCADIS

FIGURE
C-8



0 40 80
HORIZONTAL SCALE: FEET

CSX TRANSPORTATION
BRUNSWICK, MARYLAND
SITE CONCEPTUAL MODEL

SECTION H - H'

ARCADIS

FIGURE
C-9

ARCADIS

Appendix D

Historical Groundwater Analytical Data and Graphs

ARCADIS

Appendix D-1

Data Table

Appendix D, Table D-1
Historical Groundwater Data
C and O Canal/Brunswick Rail Yard, Brunswick, Maryland

CSXT MW-1

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
7/5/1994		0.002	<0.001	<0.001	<0.003	NA	NA	9.7	NA	NA	NA	NA	NA
8/29/1995		<0.005	<0.005	<0.005	<0.01	NA	<0.01	19	NA	NA	NA	NA	NA
3/10/1997		<0.001	<0.001	<0.001	<0.001	NA	<0.001	13	NA	NA	NA	NA	NA
3/12/1998		<0.002	<0.002	<0.002	<0.002	NA	<0.01	25.7	NA	NA	NA	NA	NA
11/9/1999		<0.001	<0.001	<0.001	<0.002	NA	0.006	7.56	NA	NA	NA	NA	NA
4/11/2000		<0.001	<0.001	<0.001	<0.002	NA	<0.001	9.58	NA	NA	NA	NA	NA
5/16/2001		NS											
5/7/2002	1	<0.001	<0.001	<0.001	<0.002	NA	<0.01	37.3	NA	NA	NA	NA	NA
5/15/2003		<0.001	<0.001	<0.001	<0.002	NA	<0.008	2.51	NA	NA	NA	NA	NA
5/7/2004		<0.001	<0.001	<0.001	<0.002	NA	<0.001	<0.10	NA	NA	NA	NA	NA
5/16/2005		<0.001	<0.001	<0.001	<0.002	NA	<0.005	0.75	NA	NA	NA	NA	NA
6/6/2006		<0.001	<0.001	<0.001	<0.002	NA	<0.005	11	NA	NA	NA	NA	NA
12/27/2006		<0.005	<0.005	<0.005	<0.010	0.097	<0.025	12	0.69	NA	NA	NA	NA
3/5/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	11	0.068	NA	NA	NA	NA
5/22/2007		<0.001	<0.001	<0.001	<0.002	0.09	<0.005	NA	<0.050	NA	NA	NA	NA
8/9/2007		<0.001	<0.001	<0.001	<0.002	0.21	<0.005	3.7	<0.050	NA	NA	NA	NA
12/5/2007		<0.001	<0.001	<0.001	<0.003	0.21 E	<0.001	8.3	0.16	0.66	< 1	9.2	24
2/28/2008		<0.00035	<0.00051	<0.00034	<0.00093	0.16 D	0.0027	3.8	0.17	0.72	< 0.6	7.1	10
5/23/2008		<0.0007	<0.001	<0.00069	<0.0019	0.28 D	<0.00087	0.91	0.24	1.2	< 1.2 U	9.6	42
8/6/2008		<0.00035	<0.00051	<0.00034	<0.00093	0.16	<0.00043	1.9	0.1	< 0.17 U	< 0.6 U	3.9	< 3.6 U
2/26/2009		NSP											
9/3/2009		NSP											
3/8/2010		NSP											
9/21/2010		NSP											
2/15/2011		NSP											
8/9/2011		NSP											
3/22/2012		NSP											

CSXT MW-2

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
7/5/1994		0.031	0.002	0.009	0.022	NA	NA	110	NA	NA	NA	NA	NA
8/29/1995		NS											
3/10/1997		NS											
3/12/1998		NS											
11/9/1999		NS											
4/11/2000		NS											
5/16/2001		NS											
5/7/2002	1	0.0133	0.0058	0.0012	0.0623	NA	0.063	222	NA	NA	NA	NA	NA
5/15/2003	1	<0.005	0.0191	<0.005	0.103	NA	<0.009	188	NA	NA	NA	NA	NA
5/6/2004	1	<0.001	<0.001	<0.001	<0.002	NA	0.01	4.12	NA	NA	NA	NA	NA
5/16/2005		NS											
6/6/2006		NS											
12/21/2006		NS											
2/27/2007		NS											
8/9/2007		NS											
12/4/2007		NS											
2/25/2008		NS											
5/21/2008		NS											
8/12/2008		0.0007	0.00066	<0.00034	<0.00093	<0.00028	0.007	250	0.12	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
2/26/2009		NSP											
9/3/2009		NSP											
3/8/2010		NSP											
9/21/2010		NSP											
2/15/2011		NSP											
8/9/2011		NSP											
3/22/2012		NSP											

Notes:
Notes are on last page of table.

Appendix D, Table D-1
Historical Groundwater Data
C and O Canal/Brunswick Rail Yard, Brunswick, Maryland

CSXT MW-3

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
7/5/1994		<0.001	<0.001	<0.001	<0.003	NA	NA	0.83	NA	NA	NA	NA	NA
8/29/1995		<0.005	<0.005	<0.005	<0.01	NA	<0.01	<0.6	NA	NA	NA	NA	NA
3/10/1997		<0.001	<0.001	<0.001	<0.001	NA	<0.001	0.47	NA	NA	NA	NA	NA
3/12/1998		<0.002	<0.002	<0.002	<0.002	NA	<0.01	<0.1	NA	NA	NA	NA	NA
11/9/1999		<0.001	<0.001	<0.001	<0.002	NA	<0.001	0.54	NA	NA	NA	NA	NA
4/11/2000		<0.001	<0.001	<0.001	<0.002	NA	<0.001	<0.1	NA	NA	NA	NA	NA
5/16/2001		<0.001	<0.001	<0.001	<0.002	NA	<0.011	<0.1	NA	NA	NA	NA	NA
5/7/2002		<0.001	<0.001	<0.001	<0.002	NA	<0.009	<0.1	NA	NA	NA	NA	NA
5/15/2003		<0.001	<0.001	<0.001	<0.002	NA	<0.011	<0.11	NA	NA	NA	NA	NA
5/6/2004		<0.001	<0.001	<0.001	<0.002	NA	<0.001	<0.10	NA	NA	NA	NA	NA
5/16/2005		<0.001	<0.001	<0.001	<0.002	NA	<0.005	<0.095	NA	NA	NA	NA	NA
6/6/2006		<0.001	<0.001	<0.001	<0.002	NA	<0.005	<0.10	NA	NA	NA	NA	NA
12/14/2006		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	<0.094	<0.050	NA	NA	NA	NA
3/5/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	<0.097	<0.050	NA	NA	NA	NA
5/22/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	<0.096	<0.050	NA	NA	NA	NA
8/9/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.18	<0.050	NA	NA	NA	NA
12/3/2007		<0.001	<0.001	<0.001	<0.003	<0.001	<0.001	<0.096	<0.050	< 1	< 1	< 1	< 20
12/3/2007	Dup	<0.001	<0.001	<0.001	<0.003	<0.001	<0.001	<0.096	<0.050	< 1	< 1	< 1	< 20
2/26/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.22	<0.0042	< 0.17	< 0.6	< 0.53	< 3.6
5/21/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	<0.04	<0.0042	< 0.17	< 0.6	< 0.53	< 3.6
8/7/2008		<0.00035	<0.00051	<0.00035	<0.00093	<0.00029	<0.00043	< 0.043	< 0.0042	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
3/3/2009		<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.47	NA	< 1 U		< 1 U	< 20 U
9/8/2009		< 0.001	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	0.16	NA	< 5 U	< 5 U	< 5 U	< 5 U
3/9/2010	Dup	< 0.001	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	0.18	NA	< 5 U	< 5 U*	< 5 U	< 5 U*
3/9/2010		< 0.001	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	0.16	NA	< 5 U	< 5 U*	< 5 U	< 5 U*
9/23/2010	Dup	< 0.001	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	0.26	NA	< 5 U	< 5 U	< 5 U	< 5 U
9/23/2010		< 0.001	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	0.27	NA	< 5 U	< 5 U	< 5 U	< 5 U
2/16/2011		< 0.001	< 0.005	< 0.005	< 0.010	< 0.005	< 0.005	0.23	NA	< 5	< 5	< 5	< 5
8/10/2011		< 0.001	< 0.001	< 0.001	< 0.01	< 0.001	< 0.001	0.13	NA	< 1	< 1	< 1	< 5
3/22/2012		<0.001	< 0.001	< 0.001	< 0.01	< 0.001	< 0.001	0.14	NA	< 1	< 1	< 1	< 5

CSXT MW-4 (Abandoned)

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
7/5/1994		0.094	<0.001	0.007	0.012	NA	NA	210	NA	NA	NA	NA	NA
7/5/94 dup		0.083	<0.001	0.007	0.013	NA	NA	150	NA	NA	NA	NA	NA
8/29/1995		NS											
3/10/1997		NS											
3/12/1998		<0.002	<0.002	<0.002	<0.002	NA	<0.01	78.8	NA	NA	NA	NA	NA
11/9/1999		<0.001	<0.001	<0.001	<0.002	NA	136	53.4	NA	NA	NA	NA	NA
4/11/2000		<0.001	<0.001	<0.001	<0.002	NA	<0.001	13.1	NA	NA	NA	NA	NA
5/16/2001		<0.001	<0.001	<0.001	<0.002	NA	<0.011	1.27	NA	NA	NA	NA	NA
5/7/2002	1	<0.001	<0.001	<0.001	<0.002	NA	<0.01	2.66	NA	NA	NA	NA	NA
5/15/2003		<0.001	<0.001	<0.001	<0.002	NA	<0.009	<0.08	NA	NA	NA	NA	NA
5/6/2004		<0.001	<0.001	<0.001	<0.002	NA	<0.001	<0.11	NA	NA	NA	NA	NA
5/16/2005		<0.001	<0.001	<0.001	<0.002	NA	<0.005	3.9	NA	NA	NA	NA	NA
6/6/2006		Well Damaged											

Appendix D, Table D-1
Historical Groundwater Data
C and O Canal/Brunswick Rail Yard, Brunswick, Maryland

CSXT MW-4R (Replacement Well)

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
6/25/2007		NS											
8/9/2007		NS											
12/4/2007		NS											
2/26/2008		NS											
5/21/2008		NS											
8/6/2008		NS											
2/26/2009		NSP											
9/3/2009		NSP											
3/8/2010		NSP											
9/21/2010		NSP											
2/15/2011		NSP											
8/9/2011		NSP											
3/22/2012		NSP											

CSXT MW-5

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
8/29/1995		<0.005	<0.005	<0.005	<0.01	NA	0.023	4.3	NA	NA	NA	NA	NA
8/29/95 dup		<0.005	<0.005	<0.005	<0.01	NA	0.023	4.3	NA	NA	NA	NA	NA
3/10/1997		<0.001	<0.001	<0.001	<0.001	NA	<0.001	1.16	NA	NA	NA	NA	NA
3/12/1998		<0.002	<0.002	<0.002	<0.002	NA	<0.01	77.3	NA	NA	NA	NA	NA
11/9/1999		NS											
4/11/2000		<0.001	<0.001	<0.001	<0.002	NA	<0.001	28.9	NA	NA	NA	NA	NA
5/16/2001		<0.001	<0.001	<0.001	<0.002	NA	<0.011	13.9	NA	NA	NA	NA	NA
5/7/2002	1	<0.001	<0.001	<0.001	<0.002	NA	<0.009	36.7	NA	NA	NA	NA	NA
5/15/2003	1	<0.001	<0.001	<0.001	<0.002	NA	<0.009	8.22	NA	NA	NA	NA	NA
5/6/2004	1	<0.001	<0.001	<0.001	<0.002	NA	<0.001	2.31	NA	NA	NA	NA	NA
5/16/2005		<0.001	<0.001	<0.001	<0.002	NA	<0.005	20	NA	NA	NA	NA	NA
5/16/2005 Dup		<0.001	<0.001	<0.001	<0.002	NA	<0.005	11	NA	NA	NA	NA	NA
6/6/2006		<0.001	<0.001	<0.001	<0.002	NA	<0.005	21	NA	NA	NA	NA	NA
12/14/2006		<0.001	<0.001	<0.001	<0.002	0.11	<0.005	14	<0.050	NA	NA	NA	NA
3/5/2007		<0.001	<0.001	<0.001	<0.002	0.052	<0.005	9	<0.050	NA	NA	NA	NA
5/22/2007		<0.001	<0.001	<0.001	<0.002	0.047	<0.005	1.5	<0.050	NA	NA	NA	NA
5/22/2007 Dup		<0.001	<0.001	<0.001	<0.002	0.039	<0.005	1.5	<0.050	NA	NA	NA	NA
8/9/2007		<0.001	<0.001	<0.001	<0.002	0.14	<0.005	2.5	<0.050	NA	NA	NA	NA
12/5/2007		<0.001	<0.001	<0.001	<0.003	0.084	<0.001	3.4	0.07	0.65	< 1	0.78	4.7
2/26/2008		<0.00035	<0.00051	<0.00034	<0.00093	0.058	<0.00043	10	0.061	0.69	< 0.6	< 0.53	< 3.6
5/22/2008		<0.00035	<0.00051	<0.00034	<0.00093	0.0052	<0.00043	6.2	0.0082	0.40	< 0.6 U	< 0.53 U	< 3.6 U
8/6/2008		<0.00035	<0.00051	<0.00034	<0.00093	0.0092	<0.00043	14	0.018	0.79	< 0.6 U	< 0.53 U	< 3.6 U
2/26/2009		NSP											
9/3/2009		NSP											
3/8/2010		NSP											
9/21/2010		NSP											
2/15/2011		NSP											
8/9/2011		NSP											
3/22/2012		NSP											

Appendix D, Table D-1
Historical Groundwater Data
C and O Canal/Brunswick Rail Yard, Brunswick, Maryland

CSXT MW-6 (Abandoned)

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
8/29/1995		<0.005	<0.005	<0.005	<0.01	NA	<0.01	6.8	NA				
3/10/1997		NS											
3/12/1998		NS											
11/9/1999		0.01	<0.001	<0.001	<0.002	NA	0.02	251	NA				
4/11/2000		0.0168	<0.005	<0.005	<0.010	NA	<0.005	79.4	NA				
5/16/2001		0.0102	0.0038	0.0023	0.0347	NA	<0.011	45	NA				
5/7/2002	1	0.0066	0.0062	<0.001	0.187	NA	<0.01	150	NA				
5/15/2003	1	0.0118	0.0543	0.0129	0.253	NA	<0.011	250	NA				

CSXT MW-6R (Replacement Well)

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
5/7/2004	1	<0.001	<0.001	<0.001	<0.002	NA	0.0099	15.4	NA	NA	NA	NA	NA
5/16/2005		<0.005	<0.005	<0.005	<0.0010	NA	<0.025	24	NA	NA	NA	NA	NA
6/6/2006		<0.001	<0.001	<0.001	<0.002	NA	<0.005	2.2	NA	NA	NA	NA	NA
12/15/2006		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	5.1	0.14	NA	NA	NA	NA
3/2/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	2.4	0.067	NA	NA	NA	NA
5/23/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	1.3	0.05	NA	NA	NA	NA
8/10/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	2.5	0.064	NA	NA	NA	NA
12/7/2007		<0.001	<0.001	<0.001	<0.003	0.0037	<0.005	2.2	<0.25	1.2	1.1	< 1	6.3
3/3/2008		<0.00035	<0.00051	<0.00034	<0.00093	0.0035	<0.00043	1.5	0.055	0.82	0.79	< 0.53	3.9
5/27/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	1.9	0.13	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
8/11/2008		<0.00035	<0.00051	<0.00034	<0.00093	0.0068	0.00046	2.4	0.10	0.58	< 0.6 U	< 0.53 U	< 3.6 U
8/11/2008	Dup	<0.00035	<0.00051	<0.00034	<0.00093	0.0066	0.00058	14	0.11	0.56	< 0.6 U	< 0.53 U	< 3.6 U
2/26/2009		<0.001	<0.001	<0.001	<0.002	0.002	<0.001	4	NA	0.77 J		< 1 U	< 20 U
9/3/2009		< 0.001	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	3.9	NA	< 5 U	< 5 U	< 5 U	< 5 U
3/9/2010		< 0.001	< 0.005	< 0.005	< 0.01	0.0019 J	< 0.005	4.2	NA	< 5 U	< 5 U*	< 5 U	< 5 U*
9/23/2010		< 0.001	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	2.4	NA	< 5 U	< 5 U	< 5 U	< 5 U
2/15/2011		< 0.001	< 0.005	< 0.005	< 0.010	< 0.005	< 0.005	11	NA	< 5	< 5	< 5	< 5
2/15/2011	Dup	< 0.001	< 0.005	< 0.005	< 0.010	< 0.005	< 0.005	11	NA	< 5	< 5	< 5	< 5
8/10/2011		< 0.001	< 0.001	< 0.001	< 0.01	< 0.001	< 0.001	4.8	NA	< 1	< 1	< 1	< 5
8/10/2011	Dup	< 0.001	< 0.001	< 0.001	< 0.01	0.0016	< 0.001	3.5	NA	< 1	< 1	< 1	< 5
3/26/2012	Dup	< 0.001	< 0.001	< 0.001	< 0.01	< 0.001	< 0.001	11	NA	< 1	< 1	< 1	29
3/26/2012		< 0.001	< 0.001	< 0.001	< 0.01	< 0.001	< 0.001	13	NA	< 1	< 1	< 1	< 5

Appendix D, Table D-1
Historical Groundwater Data
C and O Canal/Brunswick Rail Yard, Brunswick, Maryland

CSXT MW-8

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
8/29/1995		<0.005	<0.005	<0.005	<0.01	NA	<0.01	<0.6	NA	NA	NA	NA	NA
3/10/1997		<0.001	<0.001	<0.001	<0.001	NA	<0.001	<0.1	NA	NA	NA	NA	NA
3/12/1998		<0.002	<0.002	<0.002	<0.002	NA	<0.01	<0.1	NA	NA	NA	NA	NA
11/9/1999		<0.001	<0.001	<0.001	<0.002	NA	<0.001	0.42	NA	NA	NA	NA	NA
4/11/2000		<0.001	<0.001	<0.001	<0.002	NA	<0.001	<0.1	NA	NA	NA	NA	NA
5/16/2001		<0.001	<0.001	<0.001	<0.002	NA	<0.011	<0.1	NA	NA	NA	NA	NA
5/7/2002		<0.001	<0.001	<0.001	<0.002	NA	<0.01	<0.11	NA	NA	NA	NA	NA
5/15/2003		<0.001	<0.001	<0.001	<0.002	NA	<0.012	<0.12	NA	NA	NA	NA	NA
5/7/2004		<0.001	<0.001	<0.001	<0.002	NA	<0.001	<0.1	NA	NA	NA	NA	NA
5/16/2005		<0.001	<0.001	<0.001	<0.002	NA	<0.005	0.14	NA	NA	NA	NA	NA
6/6/2006		<0.001	<0.001	<0.001	<0.002	NA	<0.005	<0.098	NA	NA	NA	NA	NA
6/6/2006 Dup		<0.001	<0.001	<0.001	<0.002	NA	<0.005	<0.10	NA	NA	NA	NA	NA
12/15/2006		<0.001	<0.001	<0.001	<0.002	0.038	<0.005	0.097	<0.050	NA	NA	NA	NA
2/28/2007		<0.001	<0.001	<0.001	<0.002	0.017	<0.005	0.15	<0.050	NA	NA	NA	NA
5/24/2007		<0.001	<0.001	<0.001	<0.002	0.021	<0.005	<0.097	<0.050	NA	NA	NA	NA
8/9/2007		<0.001	<0.001	<0.001	<0.002	0.037	<0.005	0.19	<0.050	NA	NA	NA	NA
11/30/2007		<0.001	<0.001	<0.001	<0.003	0.030	<0.001	<0.096	<0.050	1.0	0.93 J	0.81 J	< 20 U
2/27/2008		<0.00035	<0.00051	<0.00034	<0.00093	0.026	<0.00043	0.14	0.027	1.5	1.4	0.69	< 3.6
5/21/2008		<0.00035	<0.00051	<0.00034	<0.00093	0.022	<0.00043	<0.041	0.02	< 0.17	0.66	< 0.53	< 3.6
8/7/2008		<0.00035	<0.00051	<0.00034	<0.00093	0.04	0.0015	<0.04	0.026	1.4	1.9	1.5	< 3.6 U
8/7/08 DUP		<0.00035	<0.00051	<0.00034	<0.00093	0.036	<0.00043	<0.04	0.025	1.8	1.7	0.80	< 3.6 U
2/26/2009		NSP											
9/3/2009		NSP											
3/8/2010		NSP											
9/21/2010		NSP											
2/15/2011		NSP											
8/9/2011		NSP											
3/22/2012		NSP											

CSXT MW-9

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
8/29/1995		<0.005	<0.005	<0.005	<0.01	NA	<0.01	<0.6	NA	NA	NA	NA	NA
3/10/1997		<0.001	<0.001	<0.001	<0.001	NA	<0.001	<0.1	NA	NA	NA	NA	NA
3/12/1998		<0.002	<0.002	<0.002	<0.002	NA	<0.01	<0.1	NA	NA	NA	NA	NA
11/9/1999		<0.001	<0.001	<0.001	<0.002	NA	<0.001	1.5	NA	NA	NA	NA	NA
4/11/2000		<0.001	<0.001	<0.001	<0.002	NA	<0.001	1.69	NA	NA	NA	NA	NA
5/16/2001		<0.001	<0.001	<0.001	<0.002	NA	<0.011	<0.1	NA	NA	NA	NA	NA
5/7/2002		<0.001	<0.001	<0.001	<0.002	NA	<0.01	<0.1	NA	NA	NA	NA	NA
5/15/2003		<0.001	<0.001	<0.001	<0.002	NA	<0.017	<0.12	NA	NA	NA	NA	NA
5/7/2004		<0.001	<0.001	<0.001	<0.002	NA	<0.001	<0.11	NA	NA	NA	NA	NA
5/16/2005		<0.001	<0.001	<0.001	<0.002	NA	<0.005	0.38	NA	NA	NA	NA	NA
6/6/2006		<0.001	<0.001	<0.001	<0.002	NA	<0.005	0.16	NA	NA	NA	NA	NA
12/18/2006		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.39	<0.050	NA	NA	NA	NA
2/28/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.68	<0.050	NA	NA	NA	NA
5/24/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.56	<0.050	NA	NA	NA	NA
8/10/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.48	<0.050	NA	NA	NA	NA
11/30/2007		<0.005	<0.005	<0.005	<0.015	<0.005	<0.005	<0.096	<0.050	< 5 U	< 5 U	< 5 U	< 100 U
2/27/2008		<0.00035	<0.00051	<0.00034	<0.00093	0.0007	<0.00043	0.15	0.0094	1.5	1.1	< 0.53	4.9
5/21/2008		<0.00035	<0.00051	<0.00034	<0.00093	0.0046	<0.00043	<0.041	0.0079	< 0.17	< 0.6	< 0.53	< 3.6
8/7/2008		<0.00035	<0.00051	<0.00034	<0.00093	0.0044	<0.00053	<0.039	0.0074	0.99	0.85	< 0.53 U	< 3.6 U
2/26/2009		NSP											
9/3/2009		NSP											
3/8/2010		NSP											
9/21/2010		NSP											
2/15/2011		NSP											
8/9/2011		NSP											
3/22/2012		NSP											

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CSXT MW-20

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
12/7/2007		<0.001	<0.001	<0.001	<0.003	0.001	<0.001	<0.098	<0.050	< 1	< 1	< 1	< 20
3/3/2008		<0.00035	<0.00051	<0.00034	<0.00093	0.0005	<0.00043	<0.039	<0.0042	< 0.17	< 0.6	< 0.53	< 3.6
5/27/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	<0.038	<0.0042	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
8/11/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	0.00047	<0.044	<0.0042	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
2/26/2009		NSP											
9/3/2009		NSP											
3/8/2010		NSP											
9/21/2010		NSP											
2/15/2011		NSP											
8/9/2011		NSP											
3/22/2012		NSP											

CSXT MW-21

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
6/26/2007		<0.0010	<0.0010	<0.0010	<0.0020	<0.01	<0.0050	2.2	<0.050	NA	NA	NA	NA
8/8/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	NB	<0.050	NA	NA	NA	NA
12/5/2007		<0.001	<0.001	<0.001	<0.003	<0.001	<0.001	5	0.07	< 1	< 1	< 1	< 20
2/26/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.57	<0.0042	< 0.17	< 0.6	< 0.53	< 3.6
5/23/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	1.8	0.0082	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
8/6/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	1.7	0.0082	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
2/26/2009		NSP											
9/3/2009		NSP											
3/8/2010		NSP											
9/21/2010		NSP											
2/15/2011		NSP											
8/9/2011		NSP											
3/22/2012		NSP											

CSXT MW-22

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
6/25/2007		<0.0010	0.0040	<0.0010	<0.0020	<0.01	0.016	17	0.20	NA	NA	NA	NA
8/9/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	9.1	<0.050	NA	NA	NA	NA
12/5/2007		<0.004	<0.004	<0.004	<0.012	<0.004	<0.004	8.5	<0.050	< 4	< 4	< 4	< 80
2/26/2008		<0.0014	<0.002	<0.0014	<0.0037	<0.0011	0.0026	8	0.026	< 0.67	< 2.4	< 2.1	< 14
5/22/2008		<0.0014	<0.002	<0.0014	<0.0037	<0.0011	<0.0017	6	0.019	< 0.67 U	< 2.4 U	< 2.1 U	< 14 U
8/7/2008		<0.0014	<0.002	<0.0014	<0.0093	<0.0011	0.004	3.3	0.017	< 0.67 U	< 2.4 U	< 2.1 U	< 14 U
3/3/2009		0.0022 J	<0.001	<0.001	<0.002	<0.001	0.0025	7.5	NA	< 1 U		< 1 U	< 20 U
9/4/2009		< 0.001	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	8.4	NA	< 5 U	< 5 U	< 5 U	< 5 U
3/9/2010		< 0.001	< 0.005	< 0.005	< 0.01	< 0.005	0.0012 J	6.8	NA	< 5 U	< 5 U*	< 5 U	< 5 U*
9/23/2010		< 0.001	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	7.6	NA	< 5 U	< 5 U	< 5 U	< 5 U
2/16/2011		< 0.001	< 0.005	< 0.005	< 0.010	< 0.005	< 0.005	7.3	NA	< 5	< 5	< 5	< 5
8/11/2011		< 0.001	< 0.001	< 0.001	< 0.01	< 0.001	< 0.001	5.7	NA	< 1	< 1	< 1	< 5
3/26/2012		< 0.001	< 0.001	< 0.001	< 0.01	< 0.001	< 0.001	7.3	NA	< 1	< 1	< 1	< 5

CSXT MW-23

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
6/25/2007	Insufficient water volume for sample												
8/9/2007	Insufficient water volume for sample												
12/4/2007	Insufficient water volume for sample												
2/28/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	0.007	6.1	0.021	< 0.17	< 0.6	< 0.53	< 3.6
5/27/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.54	<0.0042	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
8/8/2008		0.0011	<0.00051	0.006	<0.00093	<0.00028	0.061	IW	0.054	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
2/26/2009		NSP											
9/3/2009		NSP											
3/8/2010		NSP											
9/21/2010		NSP											
2/16/2011		NSP											
8/9/2011		NSP											
3/22/2012		NSP											

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Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
6/25/2007		<0.0010	0.0033	<0.0010	<0.0020	<0.01	<0.0050	ND	0.056	NA	NA	NA	NA
8/9/2007	Insufficient water volume for sample												
12/6/2007		<0.001	<0.001	<0.001	<0.003	<0.001	<0.001	2	<0.050	< 1	< 1	< 1	< 20
2/28/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.26	<0.0042	< 0.17	< 0.6	< 0.53	< 3.6
5/27/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.26	<0.00042	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
8/11/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.31	<0.0042	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
3/3/2009		<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	0.58	NA	< 1 U		< 1 U	< 20 U
9/8/2009		< 0.001	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	0.63	NA	< 5 U	< 5 U	< 5 U	< 5 U
3/9/2010		< 0.001	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	0.25	NA	< 5 U	< 5 U*	< 5 U	< 5 U*
9/21/2010	Insufficient water volume for sample												
2/16/2011		< 0.001	< 0.005	< 0.005	< 0.010	< 0.005	< 0.005	0.62	NA	< 5	< 5	< 5	< 5
8/11/2011		< 0.001	< 0.001	< 0.001	< 0.01	< 0.001	< 0.001	2.3	NA	< 1	< 1	< 1	< 5
3/27/2012	Insufficient water volume for analysis other than TPH-DRO							2.1					

CSXT MW-25

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
6/25/2007		<0.0010	<0.0010	<0.0010	<0.0020	<0.01	<0.0050	3.8	<0.050	NA	NA	NA	NA
8/8/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	3	<0.050	NA	NA	NA	NA
12/4/2007		<0.001	<0.001	<0.001	<0.003	<0.001	<0.001	0.79	ND	< 1	< 1	< 1	< 20
2/26/2008		<0.0014	<0.0051	<0.0014	<0.0037	<0.0011	<0.0017	2	<0.0042	< 0.67	< 2.4	< 2.1	< 14
5/22/2008		<0.0014	<0.002	<0.0014	<0.0037	<0.0011	<0.0017	1.9	<0.0042	< 0.67 U	< 2.4 U	< 2.1 U	< 14 U
8/8/2008		<0.0035	<0.0051	<0.0034	<0.0093	<0.0028	<0.00043	1.8	0.01	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
3/3/2009		<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	2	NA	< 1 U		< 1 U	< 20 U
9/8/2009		< 0.001	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	8	NA	< 5 U	< 5 U	< 5 U	< 5 U
3/9/2010		< 0.001	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	5.5	NA	< 5 U	< 5 U*	< 5 U	< 5 U*
9/23/2010		< 0.001	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	7.1	NA	< 5 U	< 5 U	< 5 U	< 5 U
2/16/2011		< 0.001	< 0.005	< 0.005	< 0.010	< 0.005	< 0.005	5.5	NA	< 5	< 5	< 5	< 5
8/10/2011		< 0.001	< 0.001	< 0.001	< 0.01	< 0.001	< 0.001	3.8	NA	< 1	< 1	< 1	< 5
3/21/2012		< 0.001	< 0.001	< 0.001	< 0.01	< 0.001	< 0.001	3.4	NA	< 1	< 1	< 1	< 5

CSXT MW-26

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
6/25/2007		<0.0010	0.0011	<0.0010	<0.0020	<0.01	<0.0050	5.4	0.13	NA	NA	NA	NA
8/9/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	13.0	1.10	NA	NA	NA	NA
12/6/2007		<0.001	<0.001	<0.001	<0.003	<0.001	<0.001	15	<0.50	< 1	< 1	< 1	< 20
2/26/2008		NS											
5/26/2008		NS											
8/6/2008		NS											
3/4/2009		<0.001	<0.001	<0.001	<0.002	<0.001	0.0014	1000 J	NA	< 1 U		< 1 U	< 20 U
9/3/2009		NS/NSP											
3/8/2010		NSP											
9/21/2010		NS/NSP											
2/16/2011		NS/NSP											
8/9/2011		NSP											
3/22/2012		NSP											

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Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
6/26/2007		<0.0010	<0.0010	<0.0010	<0.0020	<0.01	<0.0050	6.8	<0.050	NA	NA	NA	NA
8/9/2007	Insufficient water volume for sample												
12/7/2007		<0.001	<0.001	<0.001	<0.003	<0.001	<0.001	1.5	<0.050	< 1	< 1	< 1	< 20
2/28/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.94	0.007	< 0.17	< 0.6	< 0.53	< 3.6
2/28/2008 DUP		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.68	0.0082	< 0.17	< 0.6	< 0.53	< 3.6
5/27/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.36	<0.0042	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
8/7/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.96	0.007	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
2/26/2009		NSP											
9/3/2009		NSP											
3/8/2010		NSP											
9/21/2010		NSP											
2/16/2011		NSP											
8/9/2011		NSP											
3/22/2012		NSP											

CSXT MW-28

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
6/26/2007		NS											
8/9/2007		NS											
12/4/2008		NS											
2/28/2008		0.011	<0.00051	<0.00034	<0.00093	0.0019	0.079	62	0.19	< 0.17	< 0.6	< 0.53	< 3.6
5/23/2008		NS											
8/8/2008		0.0036	<0.00051	0.0060	<0.00093	<0.0028	0.061	160	0.007	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
2/26/2009		NSP											
9/3/2009		NSP											
3/8/2010		NSP											
9/21/2010		NSP											
2/16/2011		NSP											
8/9/2011		NSP											
3/22/2012		NSP											

CSXT MW-29

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
12/5/2007		<0.004	<0.004	<0.004	<0.012	0.09	<0.004	7.1	0.12	< 4	< 4	4.4	< 80
2/26/2008		<0.00035	<0.00051	<0.00034	<0.00093	0.059	<0.00043	4.1	0.066	< 0.17	< 0.6	3.4	< 3.6
5/23/2008		<0.00035	<0.00051	<0.00034	<0.00093	0.088	<0.00043	5.7	0.09	0.39	< 0.6 U	2.7	< 3.6 U
8/6/2008		<0.00035	<0.00051	<0.00034	<0.00093	0.16	<0.00043	5.9	0.16	< 0.17 U	< 0.6 U	5.1	4.5
3/3/2009		<0.001	<0.001	<0.001	<0.002	0.16 J	0.0019	18	NA	0.82 J		3.9	18 J
9/4/2009		< 0.001	< 0.005	< 0.005	< 0.01	0.14	< 0.005	2.8	NA	< 5 U	< 5 U	< 5 U	12
9/22/2010		< 0.001	< 0.005	< 0.005	< 0.01	0.066	< 0.005	5.9	NA	< 5 U	< 5 U	< 5 U	< 5 U
2/16/2011		< 0.001	< 0.005	< 0.005	< 0.010	0.061	< 0.005	23	NA	< 5	< 5	< 5	< 5
8/10/2011		< 0.001	< 0.001	< 0.001	< 0.01	0.031	< 0.001	2.1	NA	< 1	< 1	< 1	< 5
3/26/2012		< 0.001	< 0.001	< 0.001	< 0.01	0.015	< 0.001	2	NA	< 1	< 1	< 1	20

CSXT MW-30

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
12/6/2007		<0.001	<0.001	<0.001	<0.003	0.35 E	<0.001	2.7	0.28	1.2	< 1	15	45
2/26/2008	1	NS											
5/23/2008		NS											
8/6/2008		<0.0035	<0.0051	<0.0034	<0.0093	0.0073	<0.93	4.7	0.0073	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
3/3/2009		<0.001	<0.001	<0.001	<0.002	0.051	<0.001	1.9	NA	< 1 U		1.1	< 20 U
9/3/2009		NSP											
3/8/2010		NSP											
9/21/2010		NSP											
2/16/2011		NSP											
8/9/2011		NSP											
3/22/2012		NSP											

Appendix D, Table D-1
Historical Groundwater Data
C and O Canal/Brunswick Rail Yard, Brunswick, Maryland

CSXT MW-31

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
12/6/2007		<0.004	<0.004	<0.004	<0.012	<0.004	<0.004	2.2	0.1	< 4	< 4	< 4	< 80
2/28/2008		0.018	<0.00051	<0.00034	<0.00093	<0.00028	0.0028	1.4	0.2	< 0.17	< 0.6	< 0.53	< 3.6
5/27/2008		<0.00035	<0.0051	<0.00034	<0.00093	<0.00028	<0.00043	0.38	<0.0042	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
8/6/2008		<0.00035	<0.0051	<0.00034	<0.00093	<0.00028	<0.00043	1	0.023	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
2/26/2009		NSP											
9/3/2009		NSP											
3/8/2010		NSP											
9/21/2010		NSP											
2/16/2011		NSP											
8/9/2011		NSP											
3/22/2012		NSP											

CSXT MW-32

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
12/5/2007		<0.004	<0.004	<0.004	<0.012	<0.004	<0.004	190	<0.50	< 4	< 4	< 4	< 80
2/26/2008		NS											
5/27/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.0027	7.1	0.026	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
8/6/2008	Well not sampled-covered by gravel												
2/26/2009		NSP											
9/3/2009		NSP											
3/8/2010		NSP											
9/21/2010		NSP											
2/16/2011		NSP											
8/9/2011		NSP											
3/22/2012		NSP											

CSXT MW-33

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
12/5/2007		<0.004	<0.004	<0.004	<0.012	<0.004	<0.004	12	<0.25	< 4	< 4	< 4	< 80
2/27/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.0028	<0.00043	9.7	0.017	< 0.17	< 0.6	< 0.53	< 3.6
5/27/2008		NS											
8/6/2008		NS											
2/26/2009		NS											
9/3/2009		NSP											
3/8/2010		NSP											
9/21/2010		NSP											
2/16/2011		NSP											
8/9/2011		NSP											
3/22/2012		NSP											

CSXT MW-35

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
12/4/2007		<0.001	<0.001	<0.001	<0.003	<0.001	0.072	0.5	<0.050	< 1	< 1	< 1	< 20
2/26/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.0028	0.0007	0.57	0.0084	< 0.17	< 0.6	< 0.53	< 3.6
5/22/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	0.0025	0.4	0.0076	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
8/8/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	0.00054	0.28	0.0082	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
2/26/2009		NSP											
9/3/2009		NSP											
3/8/2010		NSP											
9/21/2010		NSP											
2/16/2011		NSP											
8/9/2011		NSP											
3/22/2012		NSP											

Appendix D, Table D-1
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CSXT MW-37

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
12/4/2007		<0.0010	<0.0010	<0.0010	<0.003	<0.001	0.021	31	0.077	< 1	< 1	< 1	< 20
2/26/2008		NS											
5/28/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	23	0.056	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
5/28/2008 DUP		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	8.3	0.062	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
8/6/2008		NS											
2/26/2009		NSP											
9/3/2009		NSP											
3/8/2010		NSP											
9/21/2010		NSP											
2/16/2011		NSP											
8/9/2011		NSP											
3/22/2012		NSP											

CSXT MW-38

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
12/5/2007		<0.004	<0.004	<0.004	<0.012	<0.004	<0.004	8.5	<0.25	< 4	< 4	< 4	< 80
2/26/2008		NS											
5/28/2008		NS											
8/6/2008		NS											
2/26/2009		NSP											
9/3/2009		NSP											
3/8/2010		NSP											
9/21/2010		NSP											
2/16/2011		NSP											
8/9/2011		NSP											
3/22/2012		NSP											

CSXT MW-39

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
12/4/2007		<0.001	<0.001	<0.001	<0.003	<0.001	<0.001	0.92	<0.050	< 1	< 1	< 1	3.6
2/26/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.33	0.029	< 0.17	< 0.6	< 0.53	6.6
5/21/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.15	<0.0042	< 0.17	< 0.6	< 0.53	< 3.6
8/7/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	<0.043	<0.0042	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
2/26/2009		NSP											
9/3/2009		NSP											
3/8/2010		NSP											
9/21/2010		NSP											
2/16/2011		NSP											
8/9/2011		NSP											
3/22/2012		NSP											

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CSXT MW-41

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
12/4/2008		NS											
2/26/2008		NS											
5/21/2008		NS											
8/6/2008		NS											
2/26/2009		NS											
9/3/2009		NS											
3/8/2010		NS											
9/21/2010		NS											
2/16/2011		NS											
8/9/2011		NSP											
3/22/2012		NSP											

CSXT MW-43

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
12/7/2007		<0.001	<0.001	<0.001	<0.003	0.057	<0.001	2.6	<0.25	< 1	< 1	< 1	< 20
12/7/2007 Dup		<0.001	<0.001	<0.001	<0.003	0.058	<0.001	3.3	<0.25	< 1	< 1	< 1	< 20
2/29/2008		<0.00035	<0.00051	<0.00034	<0.00093	0.034	<0.00043	0.93	0.029	< 0.17	< 0.6	0.57	< 3.6
5/23/2008		<0.00035	<0.00051	<0.00034	<0.00093	0.056	<0.00043	0.83	0.053	< 0.17 U	< 0.6 U	0.95	4.6
8/11/2008		<0.00035	<0.00051	<0.00034	<0.00093	0.085	<0.00043	0.84	0.069	0.26	< 0.6 U	1.3	< 3.6 U
3/4/2009		<0.001	<0.001	<0.001	<0.002	0.04	<0.001	0.55	NA	< 1 U		0.53 J	< 20 U
9/3/2009		< 0.001	< 0.005	< 0.005	< 0.01	0.062	< 0.005	1.4	NA	< 5 U	< 5 U	< 5 U	< 5 U
3/9/2010		< 0.001	< 0.005	< 0.005	< 0.01	0.017	< 0.005	1.1	NA	< 5 U	< 5 U*	< 5 U	< 5 U*
9/22/2010		< 0.001	< 0.005	< 0.005	< 0.01	0.017	< 0.005	1.1	NA	< 5 U	< 5 U	< 5 U	< 5 U
2/15/2011		< 0.001	< 0.005	< 0.005	< 0.010	< 0.005	< 0.005	3.9	NA	< 5	< 5	< 5	< 5
8/9/2011		< 0.001	< 0.001	< 0.001	< 0.01	0.002	< 0.001	0.89	NA	< 1	< 1	< 1	< 5
3/23/2012		< 0.001	< 0.001	< 0.001	< 0.01	< 0.001	< 0.001	1.5	NA	< 1	< 1	< 1	< 5

CSXT MW-49

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
12/5/2007		<0.005	<0.005	<0.005	<0.015	<0.005	<0.005	7.9	<0.25	< 5	< 5	< 5	< 100
2/26/2008		NS											
5/21/2008		NS											
8/6/2008		NS											
2/26/2009		NSP											
9/3/2009		NSP											
3/8/2010		NSP											
9/21/2010		NSP											
2/15/2011		NSP											
8/9/2011		NSP											
3/26/2012		NSP											

CSXT MW-50

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
12/4/2007		<0.001	<0.001	<0.001	<0.003	<0.001	<0.001	5.4	<0.050	< 1	< 1	< 1	< 20
2/25/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.27	<0.0042	< 0.17	< 0.6	< 0.53	< 3.6
5/21/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	<0.041	<0.0042	< 0.17	< 0.6	< 0.53	< 3.6
8/11/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.29	<0.0042	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
2/26/2009		NSP											
8/9/2011		NSP											
3/22/2012		NSP											

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CSXT MW-51

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
12/6/2007		<0.001	<0.001	<0.001	<0.003	0.79 E	<0.001	0.64	0.7	3.6	1.2	32	75
2/25/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.37	1.5	6.8	2.8	56	< 3.6
5/28/2008		0.001	<0.00051	<0.00034	<0.00093	1.2 D	<0.00043	0.38	0.84	2.8	1.3	24	54
8/8/2008		0.001	<0.00051	<0.00034	<0.00093	1.4 D	<0.00043	0.045	0.47	4.7	4.2	44	88
3/4/2009		<0.001	<0.001	<0.001	<0.002	1.1 D	<0.001	0.17	NA	3.2		22	110
9/8/2009		< 0.001	< 0.005	< 0.005	< 0.01	0.069	< 0.005	0.49	NA	< 5 U	< 5 U	< 5 U	410
3/9/2010		< 0.001	< 0.005	< 0.005	< 0.01	0.0096	< 0.005	0.22	NA	< 5 U	< 5 U*	< 5 U	< 5 U*
9/23/2010		0.001	< 0.005	< 0.005	< 0.01	0.03	< 0.005	0.61	NA	< 5 U	< 5 U	< 5 U	6.9
2/16/2011		< 0.001	< 0.005	< 0.005	< 0.010	0.026	< 0.005	0.48	NA	< 5	< 5	< 5	< 5
8/10/2011		< 0.001	< 0.001	< 0.001	< 0.01	0.034	< 0.001	0.3	NA	1.8	1.2	1.1	120
3/26/2012		< 0.001	< 0.001	< 0.001	< 0.01	0.027	< 0.001	0.31	NA	1.8	1.4	1.0	110

CSXT MW-52

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
12/6/2007		<0.001	<0.001	<0.001	<0.003	<0.001	<0.001	0.9	<0.050	< 1	< 1	< 1	< 20
2/25/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	1.2	0.0058	< 0.17	< 0.6	< 0.53	< 3.6
5/28/2008		<0.00035	<0.00051	<0.000034	<0.000093	<0.00028	<0.00043	1.1	<0.0042	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
8/8/2008		<0.00035	<0.00051	<0.000034	<0.000093	<0.00028	<0.00043	0.34	<0.0042	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
2/26/2009		NSP											
9/3/2009		NSP											
3/8/2010		NSP											
9/21/2010		NSP											
2/16/2011		NSP											
8/9/2011		NSP											
3/22/2012		NSP											

CSXT MW-64

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
4/3/2012		<0.001	<0.001	<0.001	<0.01	<0.001	<0.001	15	0.11	< 1	< 1	< 1	< 5

CSXT MW-65

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
4/3/2012	DUP	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001	13	0.1	< 1	< 1	< 1	< 5
4/3/2012		<0.001	<0.001	<0.001	<0.01	<0.001	<0.001	14	0.14	< 1	< 1	< 1	< 5

NPS MW-1

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
12/18/2006		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.18	<0.050	NA	NA	NA	NA
2/28/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.45	<0.050	NA	NA	NA	NA
5/24/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.25	<0.050	NA	NA	NA	NA
8/9/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.24	<0.050	NA	NA	NA	NA
11/29/2007		<0.001	<0.001	<0.001	<0.003	0.0045	<0.005	0.096	<0.050	1.6	1.2	< 1 U	< 20 U
3/3/2008		<0.00035	<0.00051	<0.00034	<0.00093	0.0027	<0.00043	1.8	0.0064	0.86	0.88	< 0.53	< 3.6
5/21/2008		<0.00035	<0.00051	<0.00034	<0.00093	0.0028	<0.00043	0.16	0.0056	< 0.17	0.74	< 0.53	< 3.6
8/7/2008		<0.00035	<0.00051	<0.00034	<0.00093	0.0028	<0.00043	0.039	0.0054	1.6	1.8	< 0.53 U	< 3.6 U
2/26/2009		<0.001	<0.001	<0.001	<0.002	0.0023	<0.001	0.52	NA	0.91 J		< 1 U	< 20 U
9/4/2009		< 0.001	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	0.57	NA	< 5 U	< 5 U	< 5 U	< 5 U
3/10/2010		< 0.001	< 0.005	< 0.005	< 0.01	0.0017 J	< 0.005	0.62	NA	< 5 U	1.0 J*	< 5 U	< 5 U*
9/22/2010		< 0.001	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	0.42	NA	< 5 U	< 5 U	< 5 U	8.4
2/15/2011		< 0.001	< 0.005	< 0.005	< 0.010	< 0.005	< 0.005	1.1	NA	< 5	< 5	< 5	5.4
8/9/2011		< 0.001	< 0.001	< 0.001	< 0.01	< 0.001	< 0.001	0.34	NA	< 1	< 1	< 1	< 5
3/23/2012		< 0.001	< 0.001	< 0.001	< 0.01	0.0012	< 0.001	1	NA	< 1	< 1	< 1	< 5

Appendix D, Table D-1
Historical Groundwater Data
C and O Canal/Brunswick Rail Yard, Brunswick, Maryland

NPS MW-2

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
12/14/2006		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.93	<0.050	NA	NA	NA	NA
3/1/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	1.4	<0.050	NA	NA	NA	NA
5/25/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.81	<0.050	NA	NA	NA	NA
8/10/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.67	<0.050	NA	NA	NA	NA
12/3/2007		<0.001	<0.001	<0.001	<0.003	<0.001	<0.001	0.096	<0.050	< 1	< 1	< 1	< 20
2/27/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.3	<0.0042	< 0.17	< 0.6	< 0.53	< 3.6
5/22/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.64	<0.0042	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
8/12/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.46	<0.0042	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
3/4/2009		<0.004	<0.004	<0.004	<0.008	<0.004	<0.004	0.42	NA	< 4 J		< 4 J	< 80 J
3/4/2009	Dup	<0.004	<0.004	<0.004	<0.008	<0.004	<0.004	0.49	NA	< 4 J		< 4 J	< 80 J
9/3/2009	Dup	< 0.001	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	1.3	NA	< 5 U	< 5 U	< 5 U	< 5 U
9/3/2009		< 0.001	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	1.4	NA	< 5 U	< 5 U	< 5 U	< 5 U
3/9/2010		< 0.001	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	1.5	NA	< 5 U	< 5 U*	< 5 U	< 5 U*
9/22/2010		< 0.001	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	1.3	NA	< 5 U	< 5 U	< 5 U	< 5 U
2/15/2011		< 0.001	< 0.005	< 0.005	< 0.010	< 0.005	< 0.005	1.2	NA	< 5	< 5	< 5	< 5
8/9/2011		< 0.001	< 0.001	< 0.001	< 0.01	< 0.001	< 0.001	0.94	NA	< 1	< 1	< 1	< 5
3/23/2012		< 0.001	< 0.001	< 0.001	< 0.01	< 0.001	< 0.001	1.2	NA	< 1	< 1	< 1	< 5

NPS MW-3

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
12/15/2006		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.19	<0.050	NA	NA	NA	NA
2/27/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.34	<0.050	NA	NA	NA	NA
5/23/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.17	<0.050	NA	NA	NA	NA
8/8/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.29	<0.050	NA	NA	NA	NA
11/30/2007		<0.001	<0.001	<0.001	<0.003	<0.001	<0.005	<0.096	<0.050	< 1 U	< 1 U	< 1 U	< 20 U
2/29/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	<0.038	<0.0042	< 0.17	< 0.6	< 0.53	< 3.6
5/20/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	<0.04	<0.0042	< 0.17	< 0.6	< 0.53	< 3.6
8/12/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	<0.043	<0.0042	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
2/26/2009		NSP											
9/3/2009		NSP											
3/8/2010		NSP											
9/21/2010		NSP											
2/15/2011		NSP											
8/9/2011		NSP											
3/22/2012		NSP											

NPS MW-4

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
5/16/2005		<0.001	<0.001	<0.001	<0.002	NA	<0.005	30	NA	NA	NA	NA	NA
6/6/2006		<0.001	<0.001	<0.001	<0.002	NA	<0.005	21	NA	NA	NA	NA	NA
12/18/2006		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	10	0.17	NA	NA	NA	NA
3/2/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	33	0.092	NA	NA	NA	NA
5/23/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	3.2	<0.050	NA	NA	NA	NA
8/7/2007		NS											
12/7/2007		<0.001	<0.001	<0.001	<0.003	<0.001	<0.001	6.7	<0.25	NA	NA	NA	NA
3/3/2008		0.0061	<0.002	<0.0014	<0.0037	<0.0011	<0.0017	9.6	0.058	< 0.67	< 2.4	< 2.1	< 14
5/27/2008		0.016	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	11	0.11	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
8/12/2008		0.012	<0.00051	<0.00034	<0.00093	<0.00028	0.00089	2	0.11	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
3/4/2009		<0.004	<0.004	<0.004	<0.008	<0.004	<0.004	6.10	NA	< 4 J		< 4 J	< 80 J
9/3/2009		0.0021	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	4.5	NA	< 5 U	< 5 U	< 5 U	< 5 U
3/9/2010		< 0.001	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	5.4	NA	< 5 U	< 5 U*	< 5 U	< 5 U*
9/23/2010		< 0.001	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	3	NA	< 5 U	< 5 U	< 5 U	< 5 U
2/15/2011		< 0.001	< 0.005	< 0.005	< 0.010	< 0.005	< 0.005	12	NA	< 5	< 5	< 5	< 5
8/10/2011		< 0.001	< 0.001	< 0.001	< 0.01	< 0.001	< 0.001	3.2	NA	< 1	< 1	< 1	< 5
3/23/2012		< 0.001	< 0.001	< 0.001	< 0.01	< 0.001	< 0.001	2.9	NA	< 1	< 1	< 1	< 5

Appendix D, Table D-1
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NPS MW-5

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
12/15/2006		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.90	<0.050	NA	NA	NA	NA
2/28/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	1.1	<0.050	NA	NA	NA	NA
2/28/2007	Dup	<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	1.3	<0.050	NA	NA	NA	NA
5/23/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.83	<0.050	NA	NA	NA	NA
8/9/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.91	<0.050	NA	NA	NA	NA
11/29/2007		<0.005	<0.005	<0.005	<0.015	<0.005	<0.005	0.096	<0.050	< 5 U	< 5 U	< 5 U	< 100 U
3/3/2008		<0.00035	<0.00051	<0.00034	<0.00093	0.0018	<0.00043	0.26	<0.0042	< 0.17	< 0.6	< 0.53	< 3.6
3/3/2008	Dup	<0.00035	<0.00051	<0.00034	<0.00093	0.0018	<0.00043	0.42	<0.0042	< 0.17	< 0.6	< 0.53	< 3.6
5/20/2008		<0.00035	<0.00051	<0.00034	<0.00093	0.0069	<0.00043	0.25	0.0066	< 0.17	< 0.6	< 0.53	< 3.6
5/20/2008	Dup	<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.039	<0.0042	< 0.17	< 0.6	< 0.53	< 3.6
8/7/2008		<0.00035	<0.00051	<0.00034	<0.00093	0.007	<0.00043	0.044	0.0054	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
2/26/2009		<0.001	<0.001	<0.001	<0.002	0.0032	<0.001	0.51	NA	< 1 U		< 1 U	< 20 U
9/4/2009		< 0.001	< 0.005	< 0.005	< 0.01	0.0066	< 0.005	1.2	NA	< 5 U	< 5 U	< 5 U	< 5 U
3/10/2010		< 0.001	< 0.005	< 0.005	< 0.01	0.0042 J	< 0.005	0.82	NA	< 5 U	< 5 U*	< 5 U	< 5 U*
9/22/2010		< 0.001	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	1.1	NA	< 5 U	< 5 U	< 5 U	< 5 U
2/15/2011		< 0.001	< 0.005	< 0.005	< 0.010	< 0.005	< 0.005	0.89	NA	< 5	< 5	< 5	< 5
8/9/2011		< 0.001	< 0.001	< 0.001	< 0.01	0.0011	< 0.001	0.7	NA	< 1	< 1	< 1	< 5
3/23/2012		< 0.001	< 0.001	< 0.001	< 0.01	< 0.001	< 0.001	0.62	NA	< 1	< 1	< 1	< 5

NPS MW-10

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
12/15/2006		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.41	<0.050	NA	NA	NA	NA
3/1/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.70	<0.050	NA	NA	NA	NA
5/22/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.5	<0.050	NA	NA	NA	NA
8/10/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.66	<0.050	NA	NA	NA	NA
12/3/2007		<0.001	<0.001	<0.001	<0.003	<0.001	<0.001	<0.096	<0.050	< 1	< 1	< 1	< 20
2/29/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.5	<0.0042	< 0.17	< 0.6	< 0.53	< 3.6
5/22/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.28	<0.0042	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
8/12/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	<0.047	<0.0042	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
2/26/2009		NSP											
9/3/2009		NSP											
3/8/2010		NSP											
9/21/2010		NSP											
2/15/2011		NSP											
8/9/2011		NSP											
3/22/2012		NSP											

NPS MW-11

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
12/15/2006		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.43	<0.050	NA	NA	NA	NA
3/1/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.77	<0.050	NA	NA	NA	NA
5/22/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.37	<0.050	NA	NA	NA	NA
8/10/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.41	<0.050	NA	NA	NA	NA
12/3/2007		<0.001	<0.001	<0.001	<0.003	<0.001	<0.001	<0.096	<0.050	< 1	< 1	< 1	< 20
2/27/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	<0.040	<0.0042	< 0.17	< 0.6	< 0.53	< 3.6
5/27/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	<0.038	<0.0042	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
8/12/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	<0.048	<0.0042	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
2/26/2009		NSP											
9/3/2009		NSP											
3/8/2010		NSP											
9/21/2010		NSP											
2/15/2011		NSP											
8/9/2011		NSP											
3/22/2012		NSP											

Appendix D, Table D-1
Historical Groundwater Data
C and O Canal/Brunswick Rail Yard, Brunswick, Maryland

NPS MW-12

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
12/14/2006		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.59	<0.050	NA	NA	NA	NA
3/1/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.93	<0.050	NA	NA	NA	NA
5/25/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.61	<0.050	NA	NA	NA	NA
8/10/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.56	<0.050	NA	NA	NA	NA
11/30/2007		<0.001	<0.001	<0.001	<0.003	<0.001	<0.005	<0.096	<0.050	< 1 U	< 1 U	< 1 U	< 20 U
2/27/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.38	<0.0042	< 0.17	< 0.6	< 0.53	< 3.6
5/22/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.25	<0.0042	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
8/12/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.43	<0.0042	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
2/26/2009		NSP											
9/3/2009		NSP											
3/8/2010		NSP											
9/21/2010		NSP											
2/15/2011		NSP											
8/9/2011		NSP											
3/22/2012		NSP											

NPS MW-13

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
12/21/2006		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.53	<0.050	NA	NA	NA	NA
2/27/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.65	<0.050	NA	NA	NA	NA
5/23/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.42	<0.050	NA	NA	NA	NA
8/9/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.56	<0.050	NA	NA	NA	NA
11/29/2007		<0.001	<0.001	<0.001	<0.003	<0.001	<0.005	0.096	<0.050	< 1 U	< 1 U	< 1 U	< 20 U
2/29/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.26	<0.0042	< 0.17	< 0.6	< 0.53	< 3.6
5/20/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.3	<0.0042	< 0.17	< 0.6	< 0.53	< 3.6
8/12/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.042	<0.0042	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
2/26/2009		<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	0.28	NA	< 1 U		< 1 U	< 20 U
9/4/2009		< 0.001	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	0.74	NA	< 5 U	< 5 U	< 5 U	< 5 U
3/10/2010		< 0.001	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	0.57	NA	< 5 U	< 5 U*	< 5 U	< 5 U*
9/22/2010		< 0.001	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	0.71	NA	< 5 U	< 5 U	< 5 U	< 5 U
2/15/2011		< 0.001	< 0.005	< 0.005	< 0.010	< 0.005	< 0.005	0.79	NA	< 5	< 5	< 5	< 5
8/9/2011		< 0.001	< 0.001	< 0.001	< 0.01	< 0.001	< 0.001	0.45	NA	< 1	< 1	< 1	< 5
3/22/2012		< 0.001	< 0.001	< 0.001	< 0.01	< 0.001	< 0.001	0.53	NA	< 1	< 1	< 1	< 5

NPS MW-14

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
12/14/2006		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	1.7	<0.050	NA	NA	NA	NA
12/14/2006	Dup	<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	2.3	<0.050	NA	NA	NA	NA
3/2/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	2.4	<0.050	NA	NA	NA	NA
5/23/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	1.8	<0.050	NA	NA	NA	NA
8/9/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	1.0	<0.050	NA	NA	NA	NA
11/29/2007		<0.001	<0.001	<0.001	<0.003	<0.001	<0.005	0.096	<0.050	< 1 U	< 1 U	< 1 U	< 20 U
2/29/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	0.00061	0.9	0.012	< 0.17	< 0.6	< 0.53	< 3.6
5/27/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.88	0.02	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
8/11/2008		<0.00035	<0.0017	<0.00034	<0.00093	<0.00028	<0.00043	0.71	0.0082	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
2/26/2009		<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	0.64	NA	< 1 U		< 1 U	< 20 U
9/4/2009		< 0.001	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	2.5	NA	< 5 U	< 5 U	< 5 U	< 5 U
3/10/2010		< 0.001	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	2	NA	< 5 U	< 5 U*	< 5 U	< 5 U*
9/22/2010		< 0.001	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	1.2	NA	< 5 U	< 5 U	< 5 U	< 5 U
2/15/2011		< 0.001	< 0.005	< 0.005	< 0.010	< 0.005	< 0.005	3.4	NA	< 5	< 5	< 5	< 5
8/9/2011		< 0.001	< 0.001	< 0.001	< 0.01	< 0.001	< 0.001	1	NA	< 1	< 1	< 1	< 5
3/22/2012		< 0.001	< 0.001	< 0.001	< 0.01	< 0.001	< 0.001	1.7	NA	< 1	< 1	< 1	< 5

Appendix D, Table D-1
Historical Groundwater Data
C and O Canal/Brunswick Rail Yard, Brunswick, Maryland

NPS MW-15

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
12/18/2006		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	1.8	<0.050	NA	NA	NA	NA
3/2/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	1.8	<0.050	NA	NA	NA	NA
5/23/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	1.0	<0.050	NA	NA	NA	NA
8/9/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	1.5	<0.050	NA	NA	NA	NA
11/30/2007		<0.005	<0.005	<0.005	<0.015	<0.005	<0.005	1	<0.050	< 5 U	< 5 U	< 5 U	< 100 U
2/27/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.76	0.028	< 0.17	< 0.6	< 0.53	< 3.6
5/20/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	1.1	0.021	< 0.17	< 0.6	< 0.53	< 3.6
8/7/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.59	0.027	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
2/26/2009		NSP											
9/3/2009		NSP											
3/8/2010		NSP											
9/21/2010		NSP											
2/15/2011		NSP											
8/9/2011		NSP											
3/22/2012		NSP											

NPS MW-16

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
12/15/2006		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	1.3	<0.050	NA	NA	NA	NA
3/2/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	1.4	<0.050	NA	NA	NA	NA
5/25/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	1.4	<0.050	NA	NA	NA	NA
8/10/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	1.3	<0.050	NA	NA	NA	NA
11/30/2007		<0.001	<0.001	<0.001	<0.003	<0.001	<0.005	0.096	<0.050	< 1 U	< 1 U	< 1 U	< 20 U
2/29/2008		<0.00035	<0.00051	<0.00034	<0.00093	0.00057	<0.00043	0.28	0.0043	< 0.17	< 0.6	< 0.53	< 3.6
5/23/2008		<0.00035	<0.00051	<0.00034	<0.00093	0.0005	<0.00043	0.57	<0.0042	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
8/12/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.46	<0.0042	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
3/4/2009		<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	0.58	NA	< 1 U		< 1 U	< 20 U
9/3/2009		< 0.001	< 0.005	< 0.005	< 0.01	< 0.005	< 0.005	0.88	NA	< 5 U	< 5 U	< 5 U	< 5 U
3/9/2010		< 0.001 U	< 0.005 U	< 0.005 U	< 0.01 U	< 0.005 U	< 0.005 U	1.9	NA	< 5 U	< 5 U*	< 5 U	< 5 U*
9/22/2010		< 0.001 U	< 0.005 U	< 0.005 U	< 0.01 U	< 0.005 U	< 0.005 U	1.5	NA	< 5 U	< 5 U	< 5 U	< 5 U
2/15/2011		< 0.001	< 0.005	< 0.005	< 0.010	< 0.005	< 0.005	0.53	NA	< 5	< 5	< 5	< 5
8/9/2011		< 0.001	< 0.001	< 0.001	< 0.01	< 0.001	< 0.001	0.91	NA	< 1	< 1	< 1	< 5
3/23/2012		< 0.001	< 0.001	< 0.001	< 0.01	< 0.001	< 0.001	0.96	NA	< 1	< 1	< 1	< 5

NPS MW-17

Date	Note	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	TPH DRO	TPH GRO	Diisopropy Ether (DIPE)	Ethyl-t-butyl ether (ETBE)	tert-Amyl Methyl Ether (TAME)	Tert-Butyl Alcohol (TBA)
12/14/2006		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.12	<0.050	NA	NA	NA	NA
3/1/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.21	<0.050	NA	NA	NA	NA
5/24/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.13	<0.050	NA	NA	NA	NA
8/10/2007		<0.001	<0.001	<0.001	<0.002	<0.010	<0.005	0.17	<0.050	NA	NA	NA	NA
11/30/2007		<0.001	<0.001	<0.001	<0.003	<0.001	<0.005	<0.096	<0.050	< 1 U	< 1 U	< 1 U	< 20 U
2/27/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	<0.038	<0.0042	< 0.17	< 0.6	< 0.53	< 3.6
5/22/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	0.12	<0.0042	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
8/12/2008		<0.00035	<0.00051	<0.00034	<0.00093	<0.00028	<0.00043	<0.044	<0.0042	< 0.17 U	< 0.6 U	< 0.53 U	< 3.6 U
2/26/2009		NSP											
9/3/2009		NSP											
3/8/2010		NSP											
9/21/2010		NSP											
2/15/2011		NSP											
8/9/2011		NSP											
3/22/2012		NSP											

Notes:
1. Sheen or measurable LPH present at time of sampling.
All results are mg/L.
B - Analyte was detected in the associated blank.
D - This flag indicates compounds identified at the secondary dilution factor.
E - Concentration of this compound exceeds the calibration range of the instrument for this analysis.
J - Value estimated.
< 0.001 -Concentration is below the reporting limit

TPH-Total Petroleum Hydrocarbons
GRO-Gasoline Range Organics
DRO-Deisel Range Organics

Dup - Duplicate sample
NS - Not sampled due to measurable liquid phase hydrocarbons in the well.
NA - Not analyzed per approved sampling plan.
ND - Not detected.
NSP - Not sampled per approved sampling plan.

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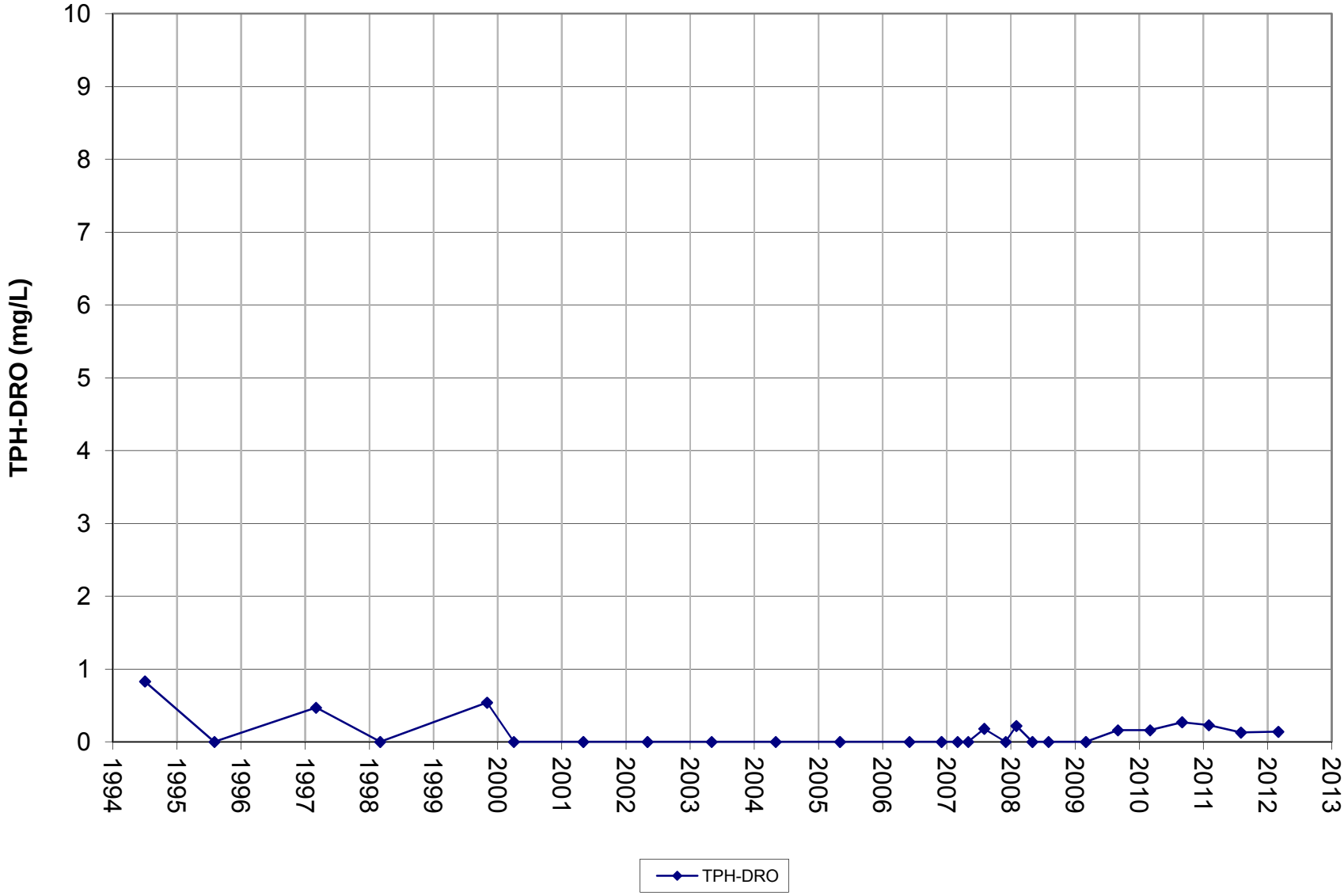
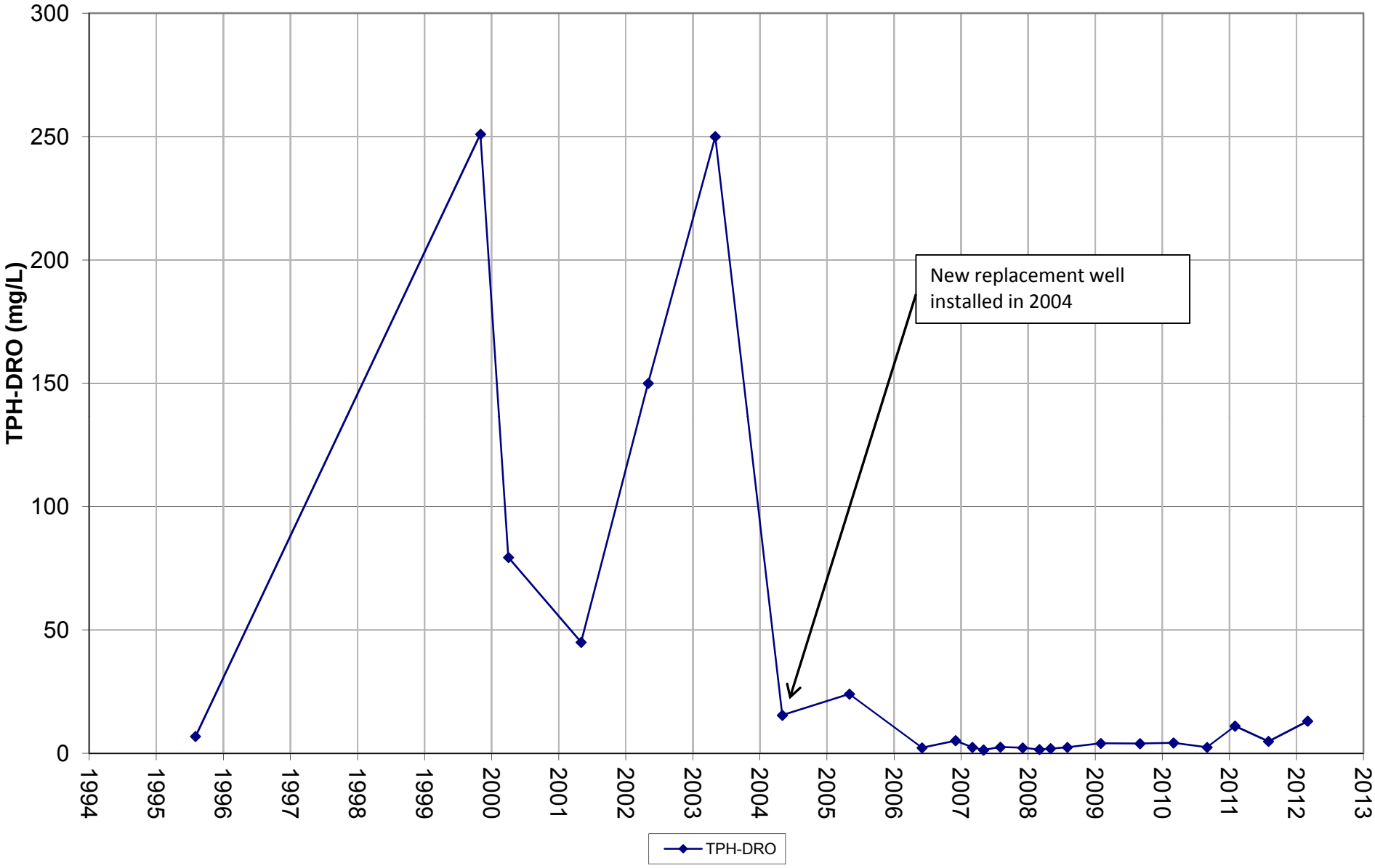
Appendix D-2

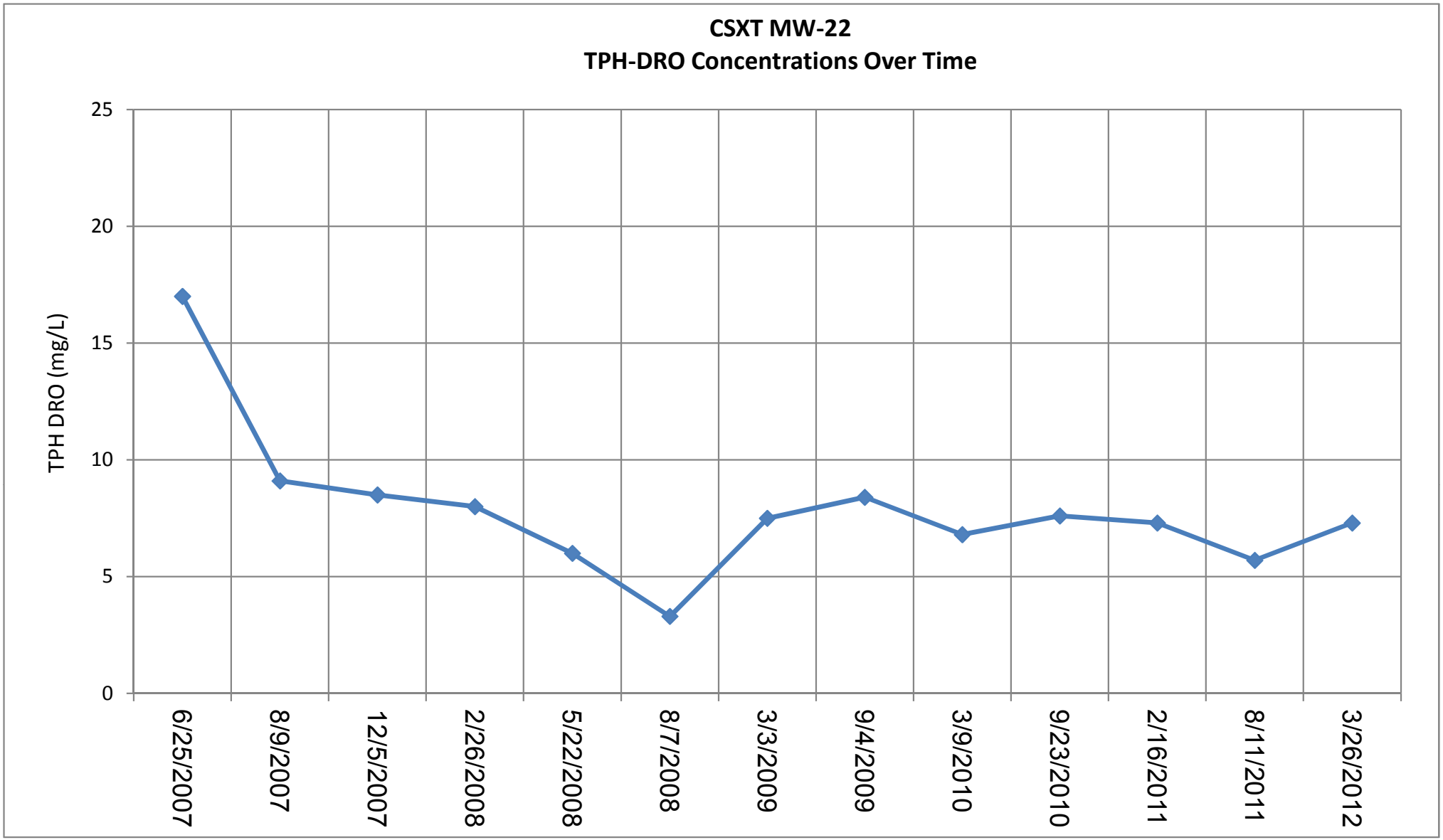
Graphs

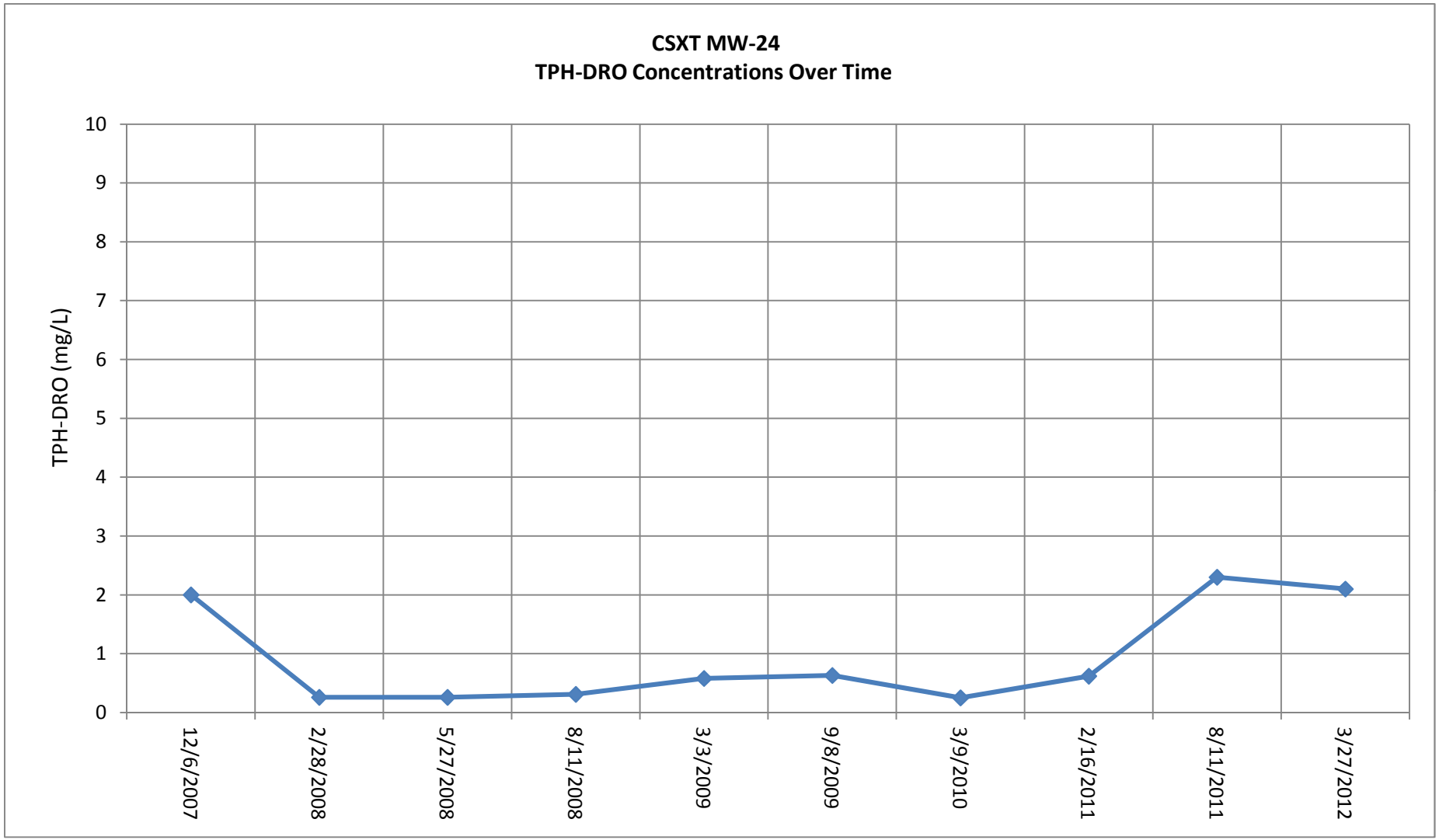
CSXT MW-3
TPH-DRO Concentrations Over Time

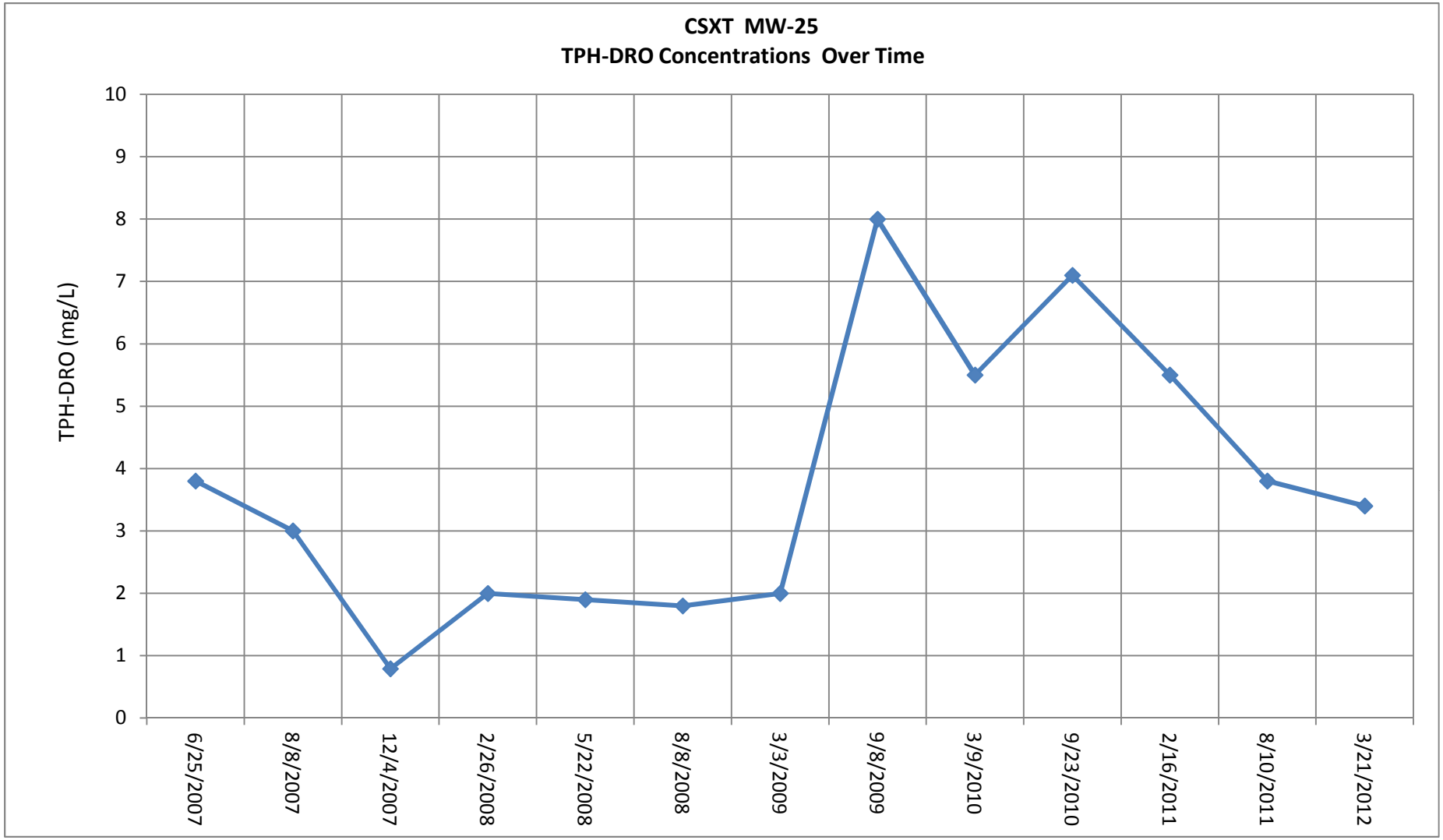


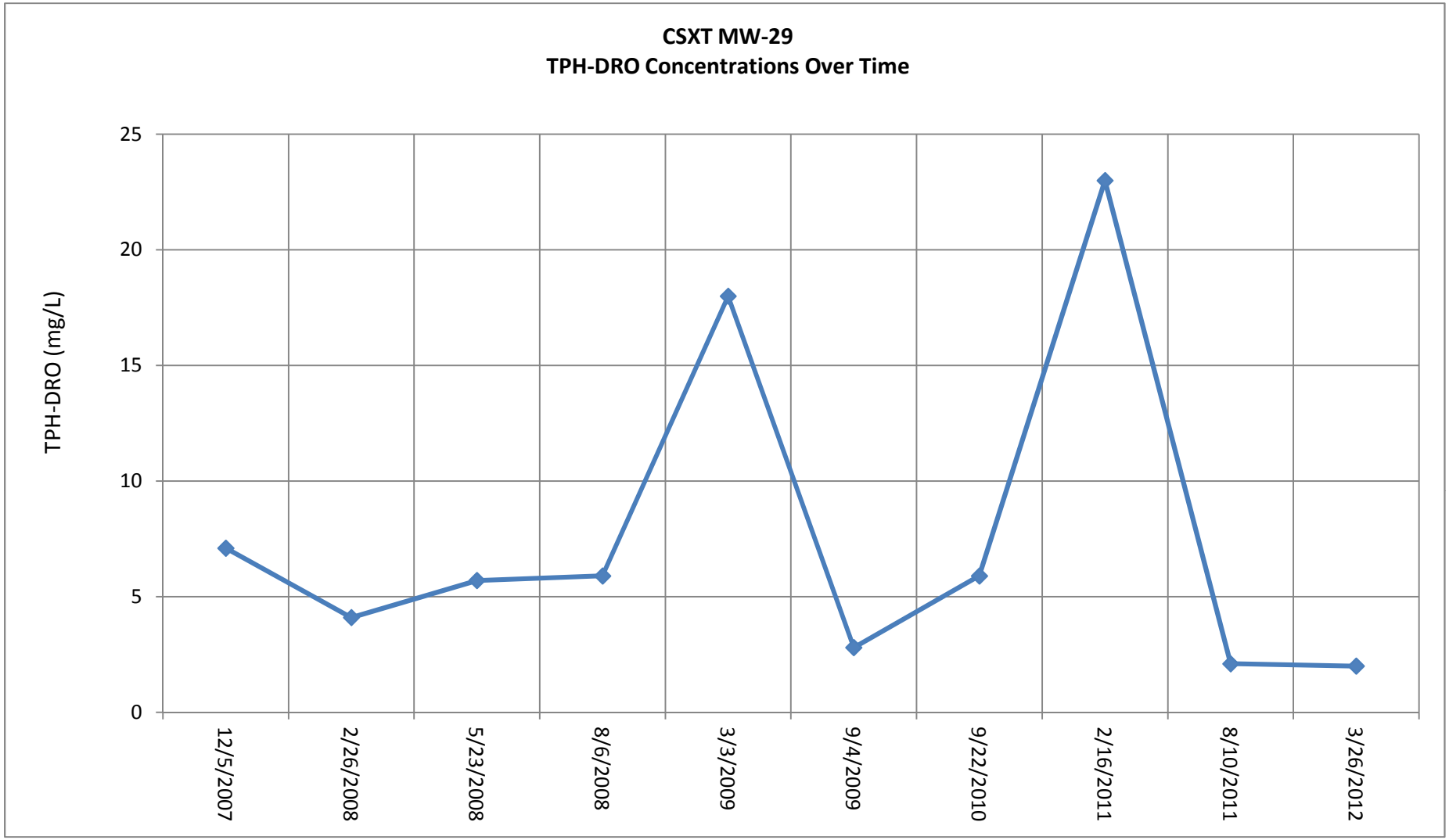
CSXT MW-6/6R
TPH-DRO Concentrations Over Time

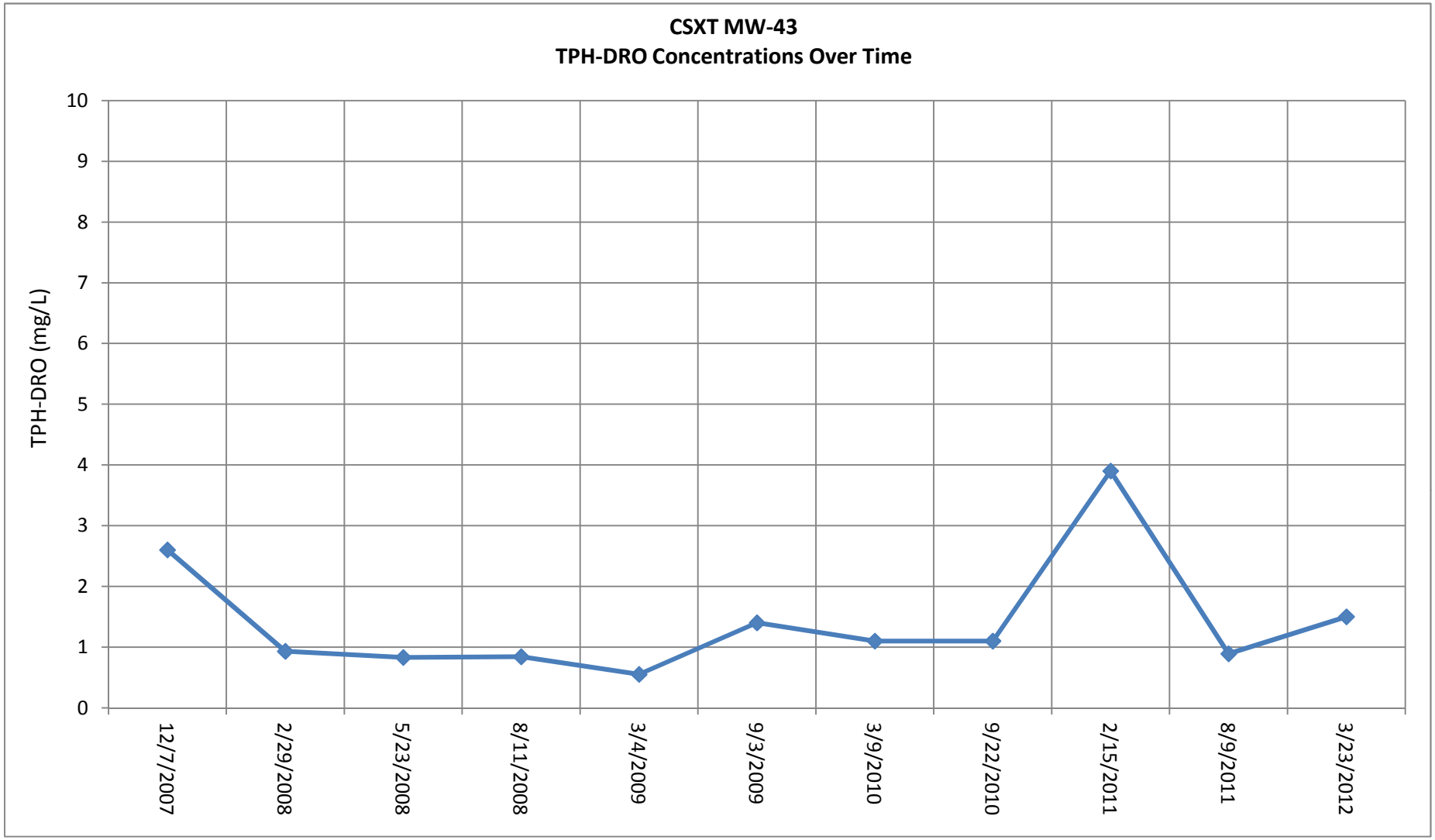


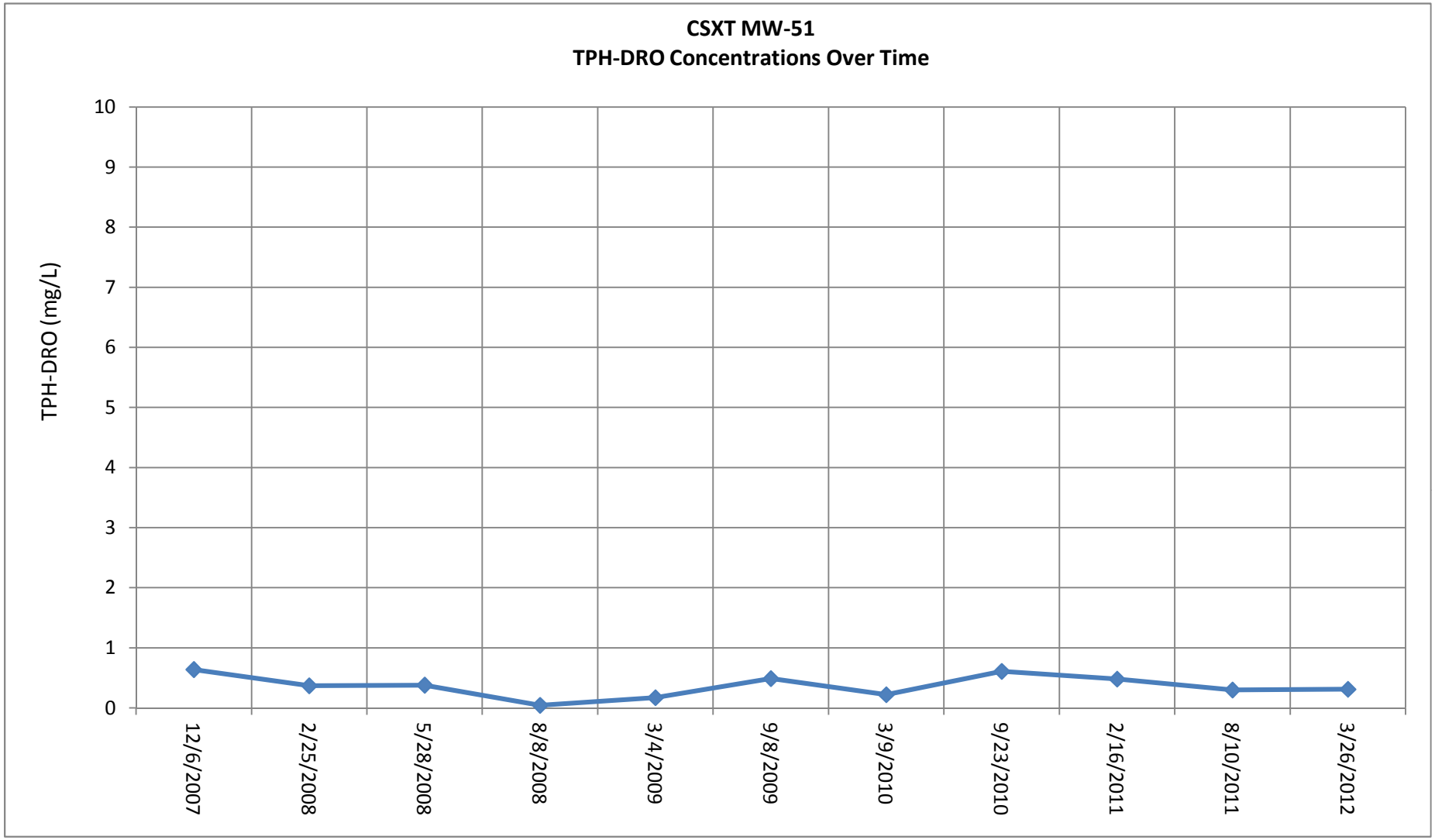

CSXT MW-22
TPH-DRO Concentrations Over Time
TPH DRO (mg/L)
25
20
15
10
5
0
6/25/2007
8/9/2007
12/5/2007
2/26/2008
5/22/2008
8/7/2008
3/3/2009
9/4/2009
3/9/2010
9/23/2010
2/16/2011
8/11/2011
3/26/2012

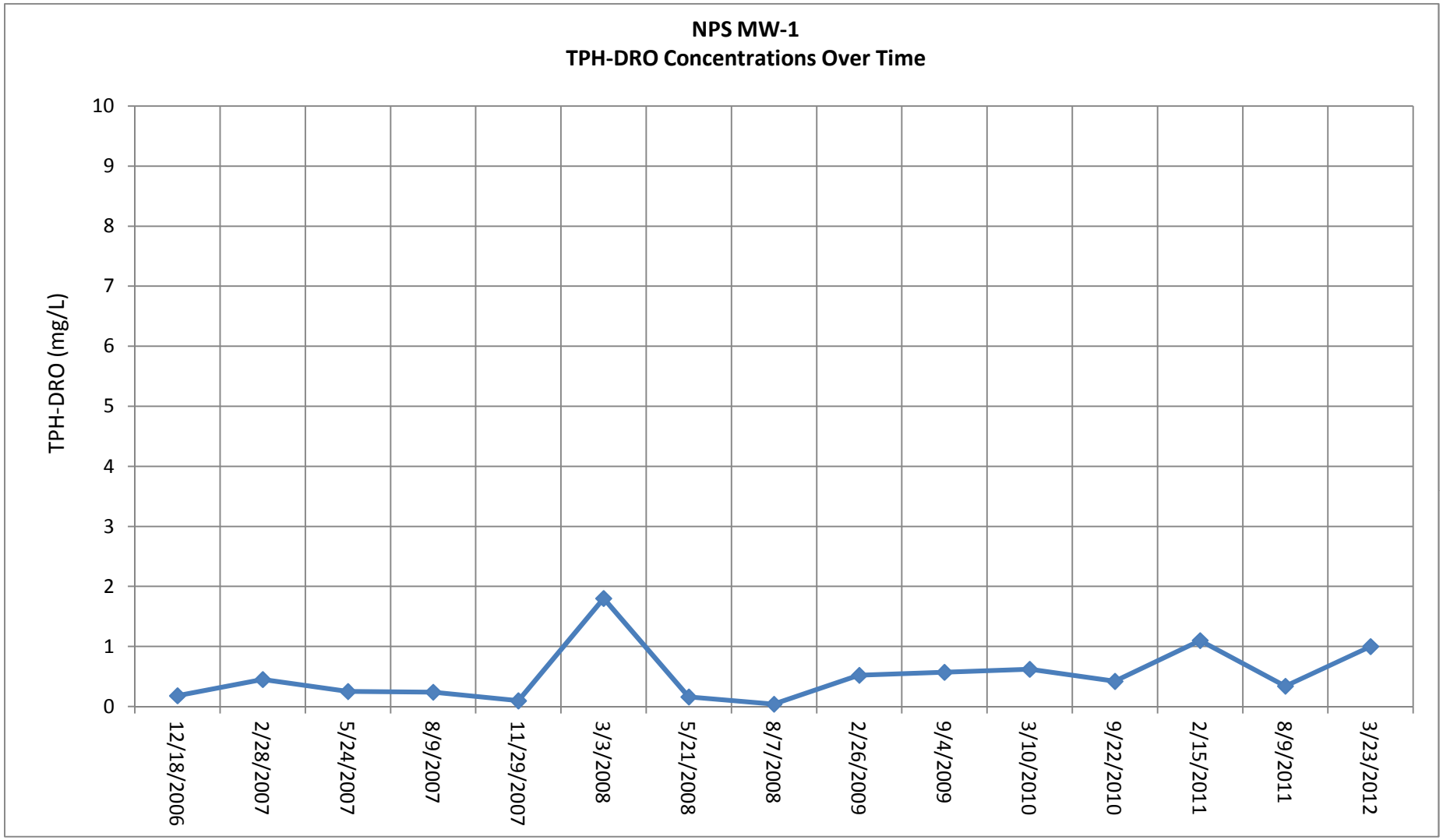

CSXT MW-24
TPH-DRO Concentrations Over Time
TPH-DRO (mg/L)
10
9
8
7
6
5
4
3
2
1
0
12/6/2007
2/28/2008
5/27/2008
8/11/2008
3/3/2009
9/8/2009
3/9/2010
2/16/2011
8/11/2011
3/27/2012

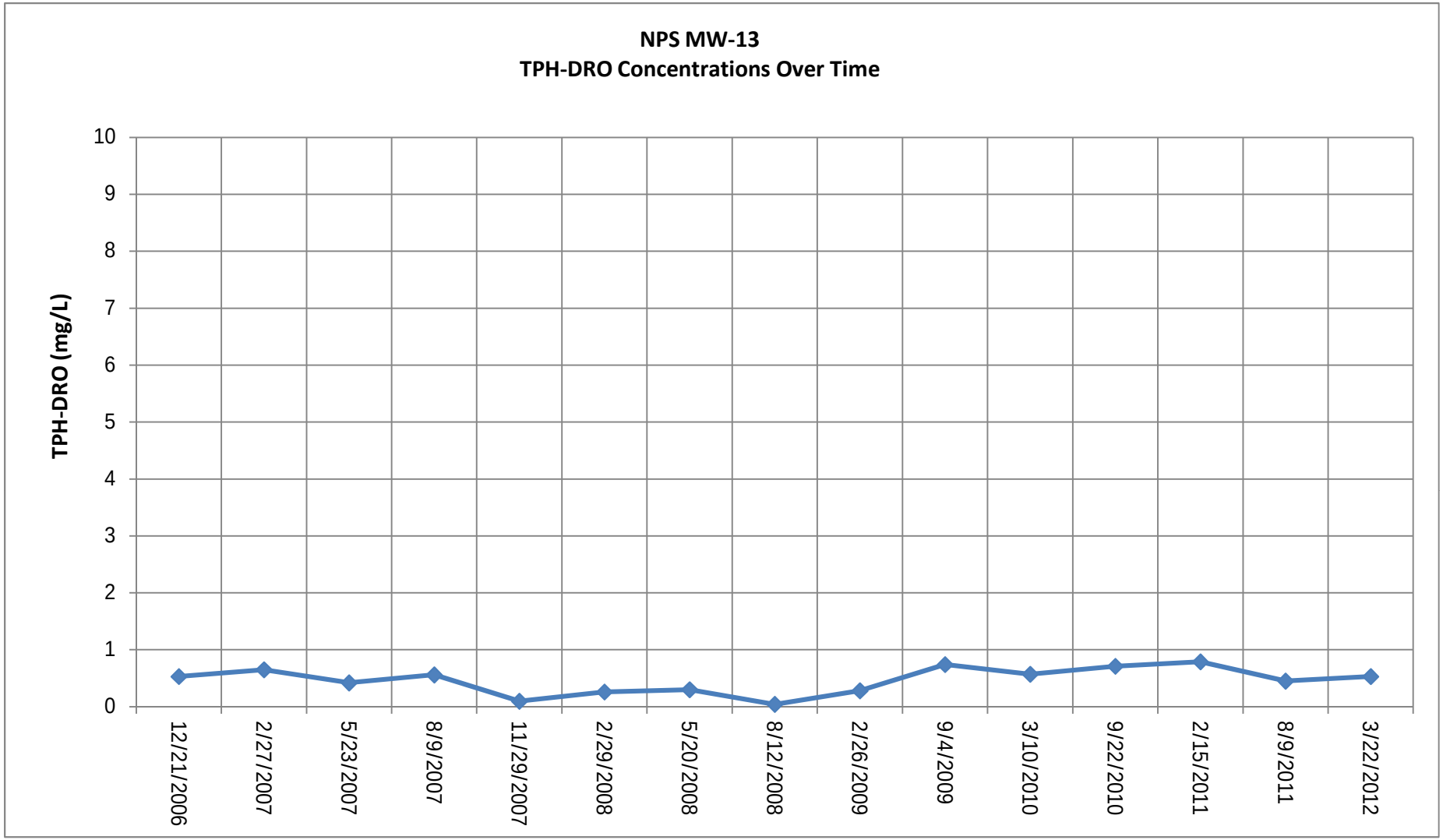

CSXT MW-25
TPH-DRO Concentrations Over Time
TPH-DRO (mg/L)
10
9
8
7
6
5
4
3
2
1
0
6/25/2007
8/8/2007
12/4/2007
2/26/2008
5/22/2008
8/8/2008
3/3/2009
9/8/2009
3/9/2010
9/23/2010
2/16/2011
8/10/2011
3/21/2012

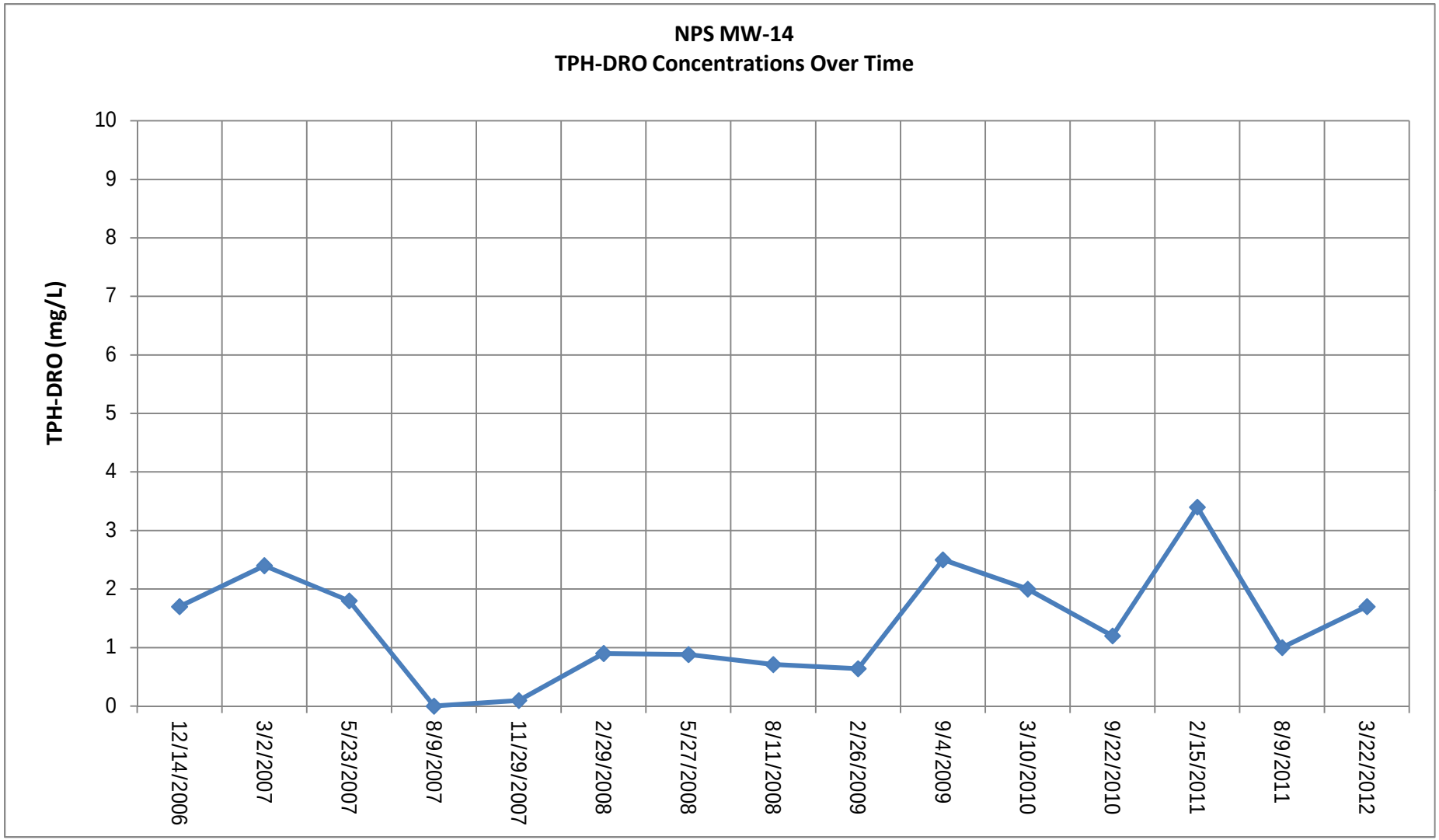

CSXT MW-29
TPH-DRO Concentrations Over Time
TPH-DRO (mg/L)
25
20
15
10
5
0
12/5/2007
2/26/2008
5/23/2008
8/6/2008
3/3/2009
9/4/2009
9/22/2010
2/16/2011
8/10/2011
3/26/2012

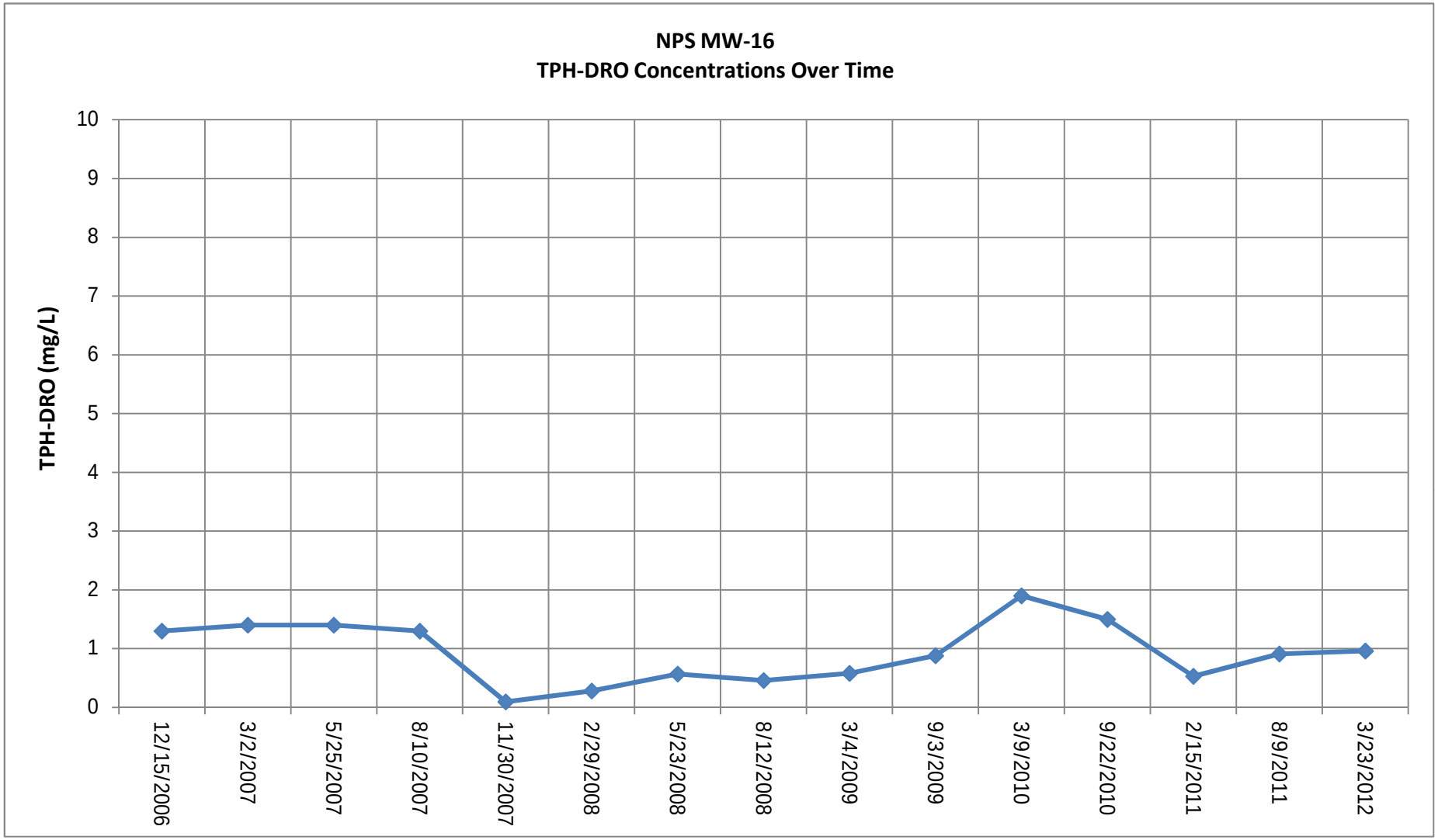

CSXT MW-43
TPH-DRO Concentrations Over Time
TPH-DRO (mg/L)
10
9
8
7
6
5
4
3
2
1
0
12/7/2007
2/29/2008
5/23/2008
8/11/2008
3/4/2009
9/3/2009
3/9/2010
9/22/2010
2/15/2011
8/9/2011
3/23/2012

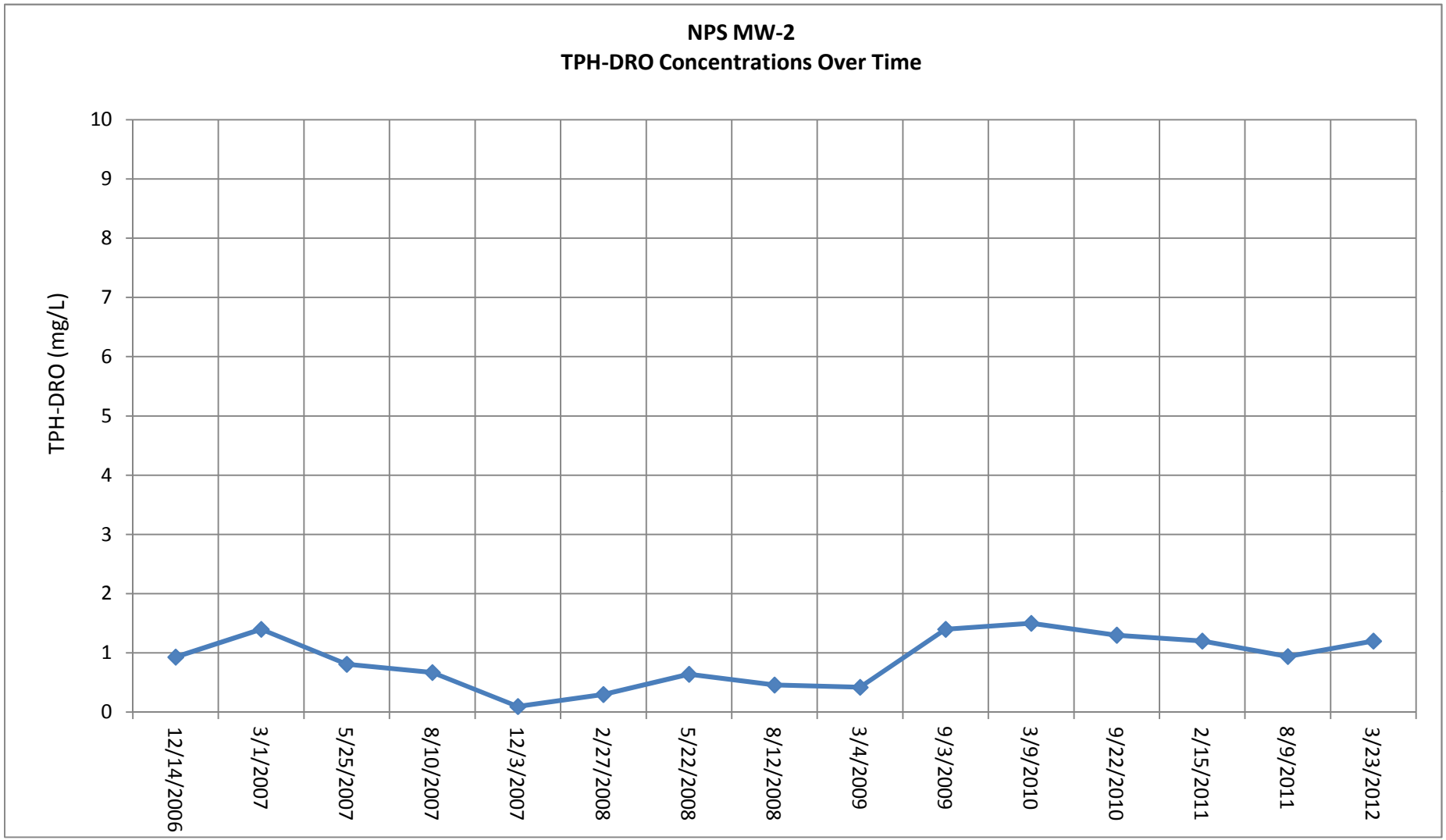

CSXT MW-51
TPH-DRO Concentrations Over Time
TPH-DRO (mg/L)
10
9
8
7
6
5
4
3
2
1
0
12/6/2007
2/25/2008
5/28/2008
8/8/2008
3/4/2009
9/8/2009
3/9/2010
9/23/2010
2/16/2011
8/10/2011
3/26/2012

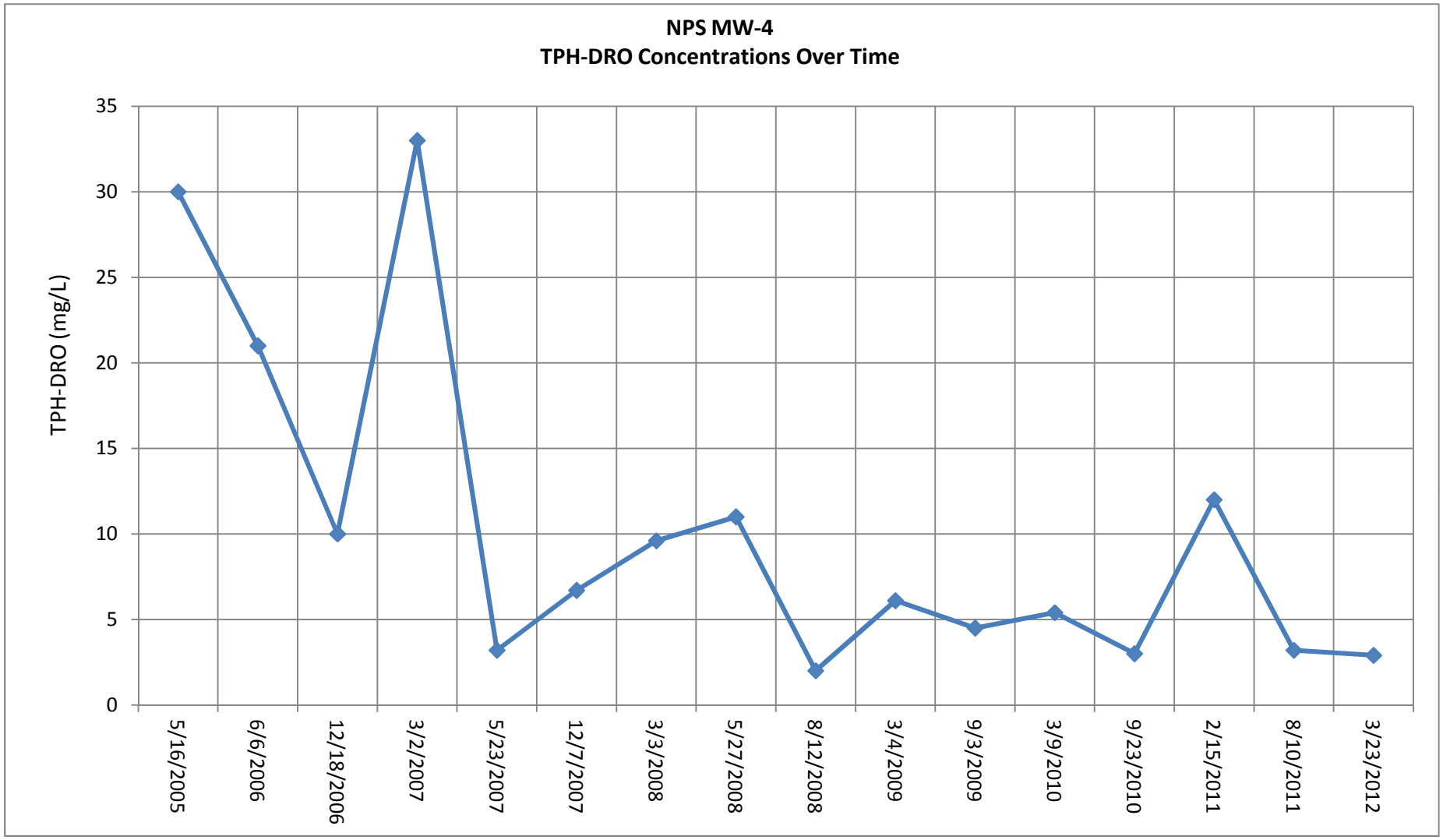

NPS MW-1
TPH-DRO Concentrations Over Time
TPH-DRO (mg/L)
10
9
8
7
6
5
4
3
2
1
0
12/18/2006
2/28/2007
5/24/2007
8/9/2007
11/29/2007
3/3/2008
5/21/2008
8/7/2008
2/26/2009
9/4/2009
3/10/2010
9/22/2010
2/15/2011
8/9/2011
3/23/2012

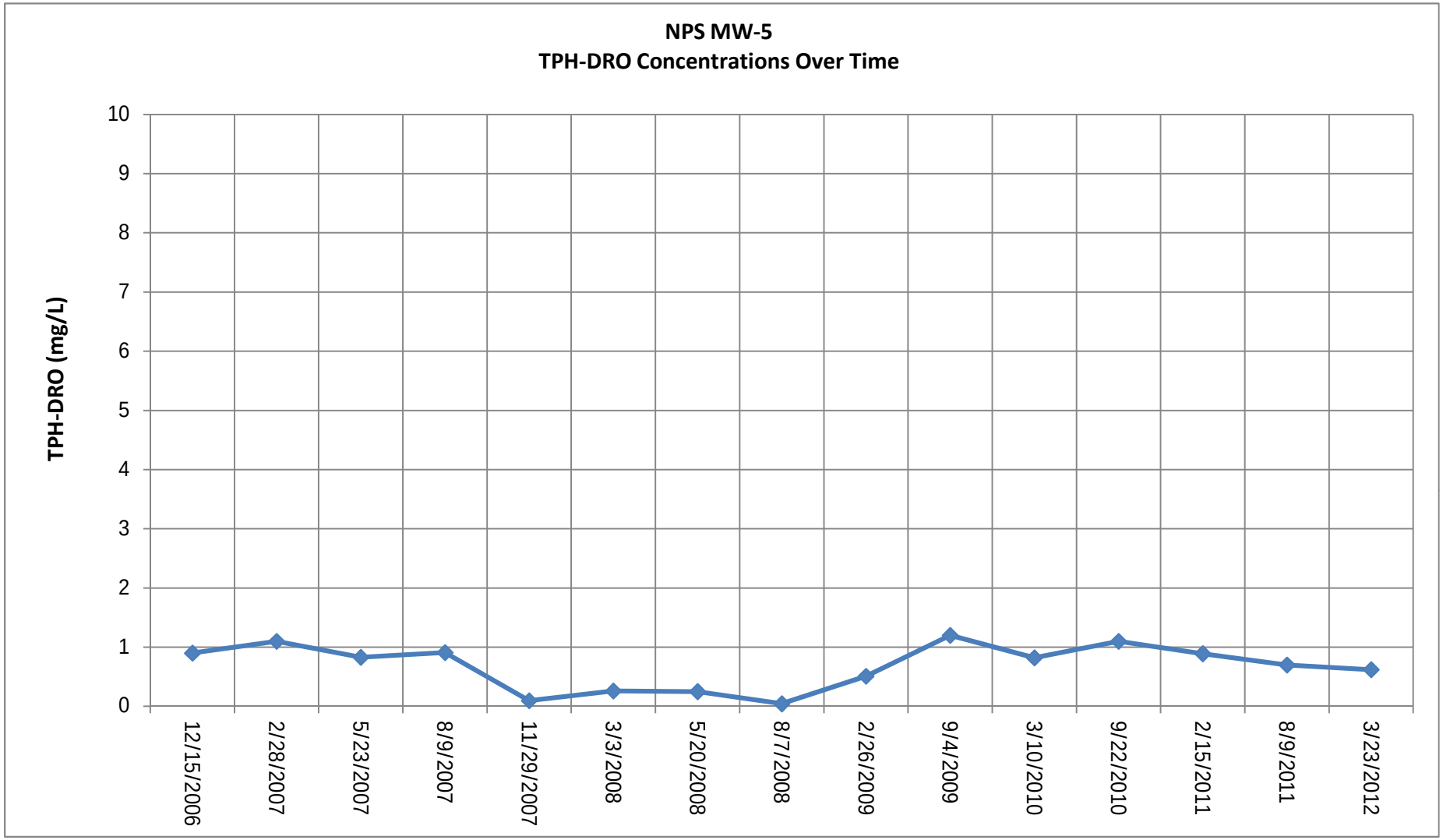

NPS MW-13
TPH-DRO Concentrations Over Time
TPH-DRO (mg/L)
10
9
8
7
6
5
4
3
2
1
0
12/21/2006
2/27/2007
5/23/2007
8/9/2007
11/29/2007
2/29/2008
5/20/2008
8/12/2008
2/26/2009
9/4/2009
3/10/2010
9/22/2010
2/15/2011
8/9/2011
3/22/2012


NPS MW-14
TPH-DRO Concentrations Over Time
TPH-DRO (mg/L)
10
9
8
7
6
5
4
3
2
1
0
12/14/2006
3/2/2007
5/23/2007
8/9/2007
11/29/2007
2/29/2008
5/27/2008
8/11/2008
2/26/2009
9/4/2009
3/10/2010
9/22/2010
2/15/2011
8/9/2011
3/22/2012


NPS MW-16
TPH-DRO Concentrations Over Time
TPH-DRO (mg/L)
10
9
8
7
6
5
4
3
2
1
0
12/15/2006
3/2/2007
5/25/2007
8/10/2007
11/30/2007
2/29/2008
5/23/2008
8/12/2008
3/4/2009
9/3/2009
3/9/2010
9/22/2010
2/15/2011
8/9/2011
3/23/2012


NPS MW-2
TPH-DRO Concentrations Over Time
TPH-DRO (mg/L)
10
9
8
7
6
5
4
3
2
1
0
12/14/2006
3/1/2007
5/25/2007
8/10/2007
12/3/2007
2/27/2008
5/22/2008
8/12/2008
3/4/2009
9/3/2009
3/9/2010
9/22/2010
2/15/2011
8/9/2011
3/23/2012


NPS MW-4
TPH-DRO Concentrations Over Time
TPH-DRO (mg/L)
35
30
25
20
15
10
5
0
5/16/2005
6/6/2006
12/18/2006
3/2/2007
5/23/2007
12/7/2007
3/3/2008
5/27/2008
8/12/2008
3/4/2009
9/3/2009
3/9/2010
9/23/2010
2/15/2011
8/10/2011
3/23/2012


NPS MW-5
TPH-DRO Concentrations Over Time
TPH-DRO (mg/L)
10
9
8
7
6
5
4
3
2
1
0
12/15/2006
2/28/2007
5/23/2007
8/9/2007
11/29/2007
3/3/2008
5/20/2008
8/7/2008
2/26/2009
9/4/2009
3/10/2010
9/22/2010
2/15/2011
8/9/2011
3/23/2012

ARCADIS

Appendix E

Historical LPH and Water Level Data

ARCADIS

Appendix E-1

Data Tables

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
MW-01	10/17/1997	247.20	17.63	18.01	0.38	229.52
	11/10/1997			14.61		232.59
	11/24/1997			15.65		231.55
	12/12/1997			16.88		230.32
	12/29/1997			15.76		231.44
	1/29/1998			12.33		234.87
	3/2/1998			13.30		233.90
	4/30/1998			14.27		232.93
	5/29/1998			15.50		231.70
	6/29/1998			15.50		231.70
	9/2/1998		17.17	17.18	0.01	230.02
	9/30/1998		17.82	18.15	0.01	229.06
	10/15/1998		18.10	18.21	0.33	229.28
	10/23/1998		18.24	18.30	0.11	229.00
	10/30/1998			18.31		228.89
	11/6/1998			18.47		228.73
	11/13/1998			18.47		228.73
	11/20/1998			18.55		228.65
	12/4/1998			18.79		228.41
	12/11/1998			18.83		228.37
	12/18/1998			18.96		228.24
	1/16/1999			18.84		228.36
	1/30/1999			17.51		229.69
	2/26/1999			17.29		229.91
	3/29/1999			15.91		231.29
	4/27/1999			16.17		231.03
	5/28/1999			17.19		230.01
	7/2/1999		18.02	18.18	0.16	229.16
	7/9/1999		17.96	18.00	0.04	229.23
	7/24/1999			18.46		228.74
	8/19/1999			18.65		228.55
	9/14/1999			17.57		229.63
	9/27/1999			16.87		230.33
	10/14/1999			15.15		232.05
	11/6/1999			16.40		230.80
	12/10/1999			16.95		230.25
	2/22/2000			15.57		231.63
	3/3/2000			15.33		231.87
	4/30/2000			14.71		232.49
	5/26/2000			15.92		231.28
	6/26/2000			15.17		232.03
	7/24/2000			15.34		231.86
	8/21/2000			15.67		231.53

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	8/30/2000			16.23		230.97
	9/8/2000			16.42		230.78
	9/14/2000			15.67		231.53
	9/21/2000			16.33		230.87
	9/29/2000			15.60		231.60
	10/6/2000			15.71		231.49
	10/13/2000			16.27		230.93
	10/20/2000			16.66		230.54
	10/26/2000			16.74		230.46
	11/3/2000			18.97		228.23
	11/10/2000			17.07		230.13
	11/17/2000			17.23		229.97
	11/28/2000			17.42		229.78
	12/1/2000			17.57		229.63
	12/8/2000			17.57		229.63
	12/15/2000			17.86		229.34
	12/29/2000			16.44		230.76
	1/19/2001			17.05		230.15
	1/26/2001			16.53		230.67
	2/2/2001			15.76		231.44
	2/9/2001			16.02		231.18
	3/9/2001			16.06		231.14
	4/9/2001			14.66		232.54
	5/18/2001			16.29		230.91
	6/21/2001			15.45		231.75
	7/11/2001			15.44		231.76
	8/14/2001			15.89		231.31
	9/12/2001			17.04		230.16
	10/12/2001			16.92		230.28
	11/30/2001		17.59	17.87	0.28	229.57
	12/13/2001			17.85		229.35
	1/28/2002		17.99	18.06	0.07	229.20
	2/18/2002		18.00	18.03	0.03	229.20
	3/22/2002			17.39		229.81
	4/26/2002			16.47		230.73
	5/9/2002			15.79		231.41
	6/7/2002			16.75		230.45
	7/19/2002			16.66		230.54
	8/19/2002			17.23		229.97
	9/6/2002			17.24		229.96
	10/10/2002			16.97		230.23
	11/8/2002			15.27		231.93
	12/17/2002			14.10		233.10

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	1/30/2003			15.46		231.74
	3/28/2003			13.78		233.42
	4/25/2003			13.85		233.35
	5/15/2003			14.42		232.78
	5/22/2003			12.78		234.42
	6/27/2003			13.89		233.31
	7/24/2003			14.97		232.23
	8/19/2003			14.86		232.34
	9/10/2003			14.25		232.95
	10/17/2003			14.74		232.46
	11/7/2003			15.03		232.17
	12/31/2003			14.30		232.90
	3/10/2004			14.65		232.55
	4/22/2004			13.93		233.27
	5/7/2004			13.83		233.37
	6/11/2004			13.42		233.78
	7/9/2004			15.27		231.93
	8/12/2004			16.39		230.81
	9/14/2004			16.72		230.48
	10/28/2004			15.33		231.87
	11/23/2004			15.04		232.16
	12/20/2004			14.33		232.87
	2/22/2005			15.03		232.17
	3/31/2005			12.47		234.73
	5/17/2005			15.38		231.82
	8/19/2005			16.31		230.89
	11/16/2005			15.38		231.82
	2/17/2006			13.95		233.25
	5/23/2006			16.48		230.72
	6/27/2006			15.10		232.10
	8/16/2006			16.42		230.78
	12/4/2006			16.85		230.35
	12/27/2006			15.22		231.98
	2/26/2007			15.13		232.07
	5/21/2007			15.73		231.47
	8/7/2007			17.49		229.71
	12/3/2007			17.09		230.11
	2/25/2008			15.60		231.60
	5/19/2008			13.39		233.81
	2/25/2009			16.45		230.75
MW-02	1/17/1995	247.55	14.18	14.42	0.24	233.34
	1/23/1995		13.82	13.89	0.07	233.72
	2/20/1995		15.41	15.43	0.02	232.14

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	3/20/1995		14.69	14.84	0.15	232.84
	4/28/1995		14.52	14.52	0.00	233.03
	7/21/1995		16.90	17.02	0.12	230.63
	8/28/1995		16.93	16.93	0.00	230.62
	10/25/1995		15.10	15.28	0.18	232.43
	1/31/1996		11.01	11.01	0.00	236.54
	2/23/1996		13.78	13.79	0.01	233.77
	3/15/1996		13.90	13.91	0.01	233.65
	3/29/1996		13.55	13.55	0.00	234.00
	4/26/1996		13.90	13.90	0.00	233.65
	5/29/1996		13.59	13.66	0.07	233.95
	7/2/1996		13.25	13.27	0.02	234.30
	7/29/1996		12.73	12.73	0.00	234.82
	8/30/1996		14.84	14.93	0.09	232.70
	11/1/1996		14.10	14.10	0.00	233.45
	12/2/1996		11.47	11.47	0.00	236.08
	1/3/1997		14.04	14.05	0.01	233.51
	2/7/1997		15.23	15.73	0.50	232.26
	3/10/1997		13.41	13.98	0.57	234.07
	5/21/1997		16.31	18.34	2.03	230.98
	7/24/1997		18.32	18.53	0.21	229.20
	8/12/1997		18.41	18.52	0.11	229.13
	8/26/1997		18.63	18.76	0.13	228.90
	9/12/1997		16.22	16.23	0.01	231.33
	9/19/1997		16.21	16.23	0.02	231.34
	9/25/1997		17.72	17.73	0.01	229.83
	10/3/1997		17.69	17.71	0.02	229.86
	10/17/1997			17.48		230.07
	10/24/1997		18.35	18.43	0.08	229.19
	12/12/1997			15.83		231.72
	12/29/1997			15.47		232.08
	1/29/1998		10.23	10.25	0.02	237.32
	3/2/1998		12.71	12.83	0.12	234.82
	4/30/1998		14.10	14.16	0.06	233.44
	5/29/1998		15.05	15.13	0.08	232.49
	6/29/1998		15.54	15.60	0.06	232.00
	9/2/1998		17.64	19.11	1.47	229.72
	9/30/1998		18.47	19.53	1.06	228.94
	10/15/1998		18.19	18.49	0.30	229.32
	10/23/1998		18.15	18.24	0.09	229.39
	10/30/1998			17.25		230.30
	11/6/1998			18.43		229.12
	11/13/1998			18.40		229.15

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	11/20/1998			18.39		229.16
	12/4/1998			18.64		228.91
	12/11/1998			17.81		229.74
	12/18/1998			18.83		228.72
	1/16/1999			18.74		228.81
	1/30/1999			17.28		230.27
	2/26/1999			17.82		229.73
	3/29/1999			15.40		232.15
	4/27/1999			15.73		231.82
	5/28/1999		17.10	17.66	0.56	230.38
	7/2/1999		17.89	18.77	0.88	229.55
	7/9/1999		17.92	18.06	0.14	229.61
	7/24/1999		18.36	18.45	0.09	229.18
	8/19/1999			18.67		228.88
	9/14/1999			17.30		230.25
	9/27/1999			16.62		230.93
	10/14/1999			14.64		232.91
	11/6/1999		16.19	16.41	0.22	231.33
	12/10/1999		16.68	18.20	1.52	230.67
	2/22/2000		14.83	15.27	0.44	232.66
	3/3/2000		14.83	15.01	0.18	232.70
	4/30/2000		14.16	14.26	0.10	233.38
	5/26/2000		15.55	15.58	0.03	232.00
	6/26/2000		14.73	14.82	0.09	232.81
	7/24/2000		15.52	15.73	0.21	232.00
	8/21/2000		15.18	15.20	0.02	232.37
	8/30/2000		15.82	15.86	0.04	231.72
	9/8/2000		16.12	16.13	0.01	231.43
	9/14/2000		16.41	16.54	0.13	231.12
	9/21/2000			15.97		231.58
	9/29/2000			14.96		232.59
	10/6/2000			15.17		232.38
	10/13/2000			15.88		231.67
	10/20/2000		16.47	16.50	0.03	231.08
	10/26/2000		16.56	16.62	0.06	230.98
	11/3/2000		16.90	17.09	0.19	230.63
	11/10/2000		16.95	17.19	0.24	230.57
	11/17/2000		17.24	17.30	0.06	230.30
	11/28/2000		17.35	17.80	0.45	230.14
	12/1/2000		17.50	17.61	0.11	230.04
	12/8/2000		17.50	17.75	0.25	230.02
	12/15/2000		17.62	17.85	0.23	229.90
	12/29/2000			16.36		231.19

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	1/19/2001		17.00	17.71	0.71	230.46
	1/26/2001		16.42	16.49	0.07	231.12
	2/2/2001		14.93	14.95	0.02	232.62
	2/9/2001		15.21	15.24	0.03	232.34
	3/9/2001		15.72	15.84	0.12	231.81
	4/9/2001		14.11	14.20	0.09	233.43
	5/18/2001		15.99	16.25	0.26	231.53
	6/21/2001		14.97	15.05	0.08	232.57
	7/11/2001			15.02		232.53
	8/14/2001		15.24	15.35	0.11	232.30
	9/12/2001		16.85	18.18	1.33	230.53
	10/12/2001		16.73	17.73	1.00	230.69
	11/30/2001		17.74	18.94	1.20	229.65
	12/13/2001		17.83	18.02	0.19	229.70
	1/28/2002		17.95	18.35	0.40	229.55
	2/18/2002		17.94	18.13	0.19	229.59
	3/22/2002			17.22		230.33
	4/26/2002		16.44	16.61	0.17	231.09
	5/9/2002			15.41		232.14
	6/7/2002		16.75	17.35	0.60	230.72
	7/19/2002		16.61	17.84	1.23	230.78
	8/19/2002		17.23	18.20	0.97	230.19
	9/6/2002		17.45	17.94	0.49	230.04
	10/10/2002		16.97	17.80	0.83	230.47
	11/8/2002			14.04		233.51
	12/17/2002			10.28		237.27
	1/30/2003			14.90		232.65
	3/28/2003			11.24		236.31
	4/25/2003			12.58		234.97
	5/15/2003			13.61		233.94
	5/22/2003			9.00		238.55
	6/27/2003		12.95	12.97	0.02	234.60
	7/24/2003			14.40		233.15
	8/19/2003			14.24		233.31
	9/10/2003			13.61		233.94
	10/17/2003		14.08	14.11	0.03	233.47
	11/7/2003			14.47		233.08
	12/31/2003			13.34		234.21
	3/10/2004			13.84		233.71
	4/22/2004			12.72		234.83
	5/7/2004			12.80		234.75
	6/11/2004			12.04		235.51
	7/9/2004			14.85		232.70

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	7/15/2004		15.05	15.07	0.02	232.50
	7/29/2004			12.20		235.35
	8/12/2004		16.22	16.34	0.12	231.31
	8/29/2004		16.32	16.43	0.11	231.22
	9/14/2004		16.61	16.71	0.10	230.93
	9/24/2004		15.37	15.69	0.32	232.14
	10/22/2004		14.66	14.99	0.33	232.85
	10/28/2004		14.99	15.21	0.22	232.53
	11/10/2004		15.11	16.11	1.00	232.31
	11/23/2004		14.63	15.37	0.74	232.82
	12/6/2004		13.95	14.76	0.81	233.49
	12/20/2004		13.94	14.32	0.38	233.56
	12/27/2004		14.09	14.29	0.20	233.43
	1/28/2005		14.54	16.10	1.56	232.81
	2/22/2005		14.63	16.43	1.80	232.69
	3/31/2005		10.32	14.77	4.45	236.65
	4/25/2005		14.15	14.17	0.02	233.40
	5/17/2005		15.15	15.59	0.44	232.34
	6/30/2005		15.80	16.18	0.38	231.70
	7/22/2005		14.30	15.25	0.95	233.13
	8/19/2005		15.83	18.82	2.99	231.33
	9/7/2005		16.08	18.31	2.23	231.18
	10/18/2005		14.68	15.62	0.94	232.75
	11/16/2005		15.11	15.91	0.80	232.34
	12/20/2005		13.46	15.38	1.92	233.84
	1/12/2006		13.80	15.54	1.74	233.52
	2/17/2006		13.33	15.88	2.55	233.89
	3/29/2006		15.34	18.90	3.56	231.75
	4/21/2006		15.98	17.96	1.98	231.31
	5/23/2006		16.15	18.90	2.75	231.04
	6/27/2006		14.18	15.88	1.70	233.15
	7/7/2006		13.40	13.47	0.07	234.14
	7/26/2006		15.14	15.34	0.20	232.38
	9/11/2006		15.45	16.05	0.60	232.02
	10/26/2006			16.06		231.49
	11/13/2006		14.60	15.27	0.67	232.86
	7/10/2008			16.99		230.56
	8/25/2008		18.04	18.05	0.01	229.51
	9/5/2008		18.13	18.13	0.00	229.42
	9/24/2008		17.08	17.10	0.02	230.47
	10/10/2008		17.56	17.58	0.02	229.99
	10/23/2008		18.07	18.14	0.07	229.47
	11/24/2008		17.67	17.85	0.18	229.86

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	12/9/2008		17.70	17.78	0.08	229.84
	12/23/2008			15.83		231.72
	1/13/2009		15.54	15.55	0.01	232.01
	2/16/2009		17.35	17.38	0.03	230.20
	2/25/2009		17.59	17.61	0.02	229.96
	3/5/2009		17.75	17.85	0.10	229.79
	3/18/2009		17.95	18.35	0.40	229.55
	3/27/2009		18.06	18.20	0.14	229.47
	4/17/2009		16.97	17.99	1.02	230.45
	4/23/2009		14.68	15.90	1.22	232.71
	5/4/2009		16.12	16.24	0.12	231.41
	5/22/2009		15.61	15.62	0.01	231.94
	6/5/2009		15.09	15.10	0.01	232.46
	6/24/2009		15.53	15.55	0.02	232.02
	7/14/2009		17.18	17.19	0.01	230.37
	7/22/2009		17.33	17.43	0.10	230.21
MW-03	3/10/1997	248.38		12.28		236.10
	3/2/1998			13.59		234.79
	11/6/1999			16.81		231.57
	4/30/2000			14.76		233.62
	5/18/2001			16.26		232.12
	5/9/2002			15.96		232.42
	5/15/2003			14.66		233.72
	5/7/2004			14.21		234.17
	3/31/2005			13.10		235.28
	5/17/2005			15.76		232.62
	8/19/2005			16.69		231.69
	11/16/2005			15.85		232.53
	5/23/2006			17.12		231.26
	8/16/2006			16.67		231.71
	12/4/2006			15.16		233.22
	2/26/2007			16.08		232.30
	5/21/2007			16.16		232.22
	8/7/2007			18.26		230.12
	12/3/2007			17.95		230.43
	2/25/2008			16.22		232.16
	5/19/2008			14.03		234.35
	2/25/2009			17.12		231.26
MW-04	11/29/1995	247.63	14.49	14.90	0.41	
	12/8/1995		14.88	15.47	0.59	
	12/21/1995		13.23	13.50	0.27	
	1/18/1996		13.79	13.91	0.12	
	1/31/1996		10.65	10.66	0.01	

Table E-1a
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January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	2/9/1996			12.43		
	2/23/1996			12.06		
	3/15/1996			13.15		
	3/29/1996			12.80		
	4/26/1996			13.10		
	5/29/1996			12.64		
	7/2/1996		13.35	13.37	0.02	
	7/29/1996		12.83	12.87	0.04	
	8/30/1996		14.10	14.30	0.20	
	10/1/1996			12.57		
	11/1/1996		13.42	13.47	0.05	
	12/2/1996		10.78	10.82	0.04	
	1/3/1997		13.16	13.17	0.01	
	2/7/1997		14.76	14.90	0.14	
	3/10/1997		12.15	12.17	0.02	
	4/14/1997		14.60	14.76	0.16	
	5/21/1997		15.76	16.15	0.39	
	6/26/1997		16.55	17.04	0.49	
	7/24/1997		17.25	17.81	0.56	
	8/12/1997		17.45	17.79	0.34	
	8/26/1997		17.70	17.80	0.10	
	9/12/1997		16.14	16.20	0.06	
	9/19/1997			16.15		
	9/25/1997		16.68	16.69	0.01	
	10/3/1997		16.70	16.71	0.01	
	10/10/1997		16.90	16.92	0.02	
	10/17/1997		17.11	17.12	0.01	
	10/24/1997		17.08	17.10	0.02	
	11/10/1997			13.46		
	11/24/1997			14.43		
	12/12/1997			15.38		
	12/29/1997			14.44		
	1/29/1998			7.52		
	3/2/1998			11.30		
	4/30/1998			13.01		
	5/29/1998			14.35		
	6/29/1998			14.35		
	9/2/1998		16.67	16.68	0.01	
	9/30/1998		17.48	17.50	0.02	
	10/15/1998		17.73	17.74	0.01	
	10/23/1998		17.88	17.89	0.01	
	10/30/1998			17.96		
	11/6/1998			18.13		

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	11/13/1998			18.13		
	11/20/1998		18.21	18.25	0.04	
	12/4/1998			18.45		
	12/11/1998			18.53		
	12/18/1998			18.65		
	1/16/1999			16.52		
	1/30/1999			16.28		
	2/26/1999			16.54		
	3/29/1999			14.98		
	4/27/1999			15.40		
	5/28/1999			16.68		
	7/2/1999			17.61		
	7/9/1999			17.70		
	7/24/1999			17.99		
	8/19/1999			18.36		
	9/14/1999			16.97		
	9/27/1999			16.29		
	10/14/1999			13.92		
	11/6/1999			15.85		
	12/10/1999			16.55		
	2/22/2000			16.95		
	3/3/2000			14.39		
	4/30/2000			14.71		
	5/26/2000			14.52		
	6/26/2000			14.33		
	7/24/2000			16.03		
	8/21/2000			14.95		
	8/30/2000			15.59		
	9/8/2000			15.83		
	9/14/2000			16.17		
	9/21/2000			14.87		
	9/29/2000			14.20		
	10/6/2000			14.98		
	10/13/2000			15.62		
	10/20/2000			16.07		
	10/26/2000			16.18		
	11/3/2000			14.64		
	11/10/2000			16.58		
	11/17/2000			16.73		
	11/28/2000			16.94		
	12/1/2000			17.00		
	12/8/2000			17.04		
	12/15/2000			16.72		

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	12/29/2000			15.94		
	1/19/2001			16.63		
	1/26/2001			15.68		
	2/2/2001			14.21		
	2/9/2001			15.07		
	3/9/2001			15.48		
	4/9/2001			13.80		
	5/18/2001			15.71		
	6/21/2001			14.74		
	7/11/2001			14.52		
	8/14/2001			13.97		
	9/12/2001			16.61		
	10/12/2001			16.43		
	11/30/2001			17.22		
	12/13/2001			17.44		
	1/28/2002			16.97		
	2/18/2002			17.53		
	3/22/2002			14.73		
	4/26/2002			15.76		
	5/9/2002			15.17		
	6/7/2002			16.27		
	7/19/2002			16.08		
	8/19/2002			16.77		
	9/6/2002			16.77		
	10/10/2002			16.49		
	11/8/2002			13.20		
	12/17/2002			11.57		
	1/30/2003			14.87		
	3/28/2003			12.45		
	4/25/2003			12.58		
	5/15/2003			13.30		
	5/22/2003			10.14		
	6/27/2003			12.74		
	7/24/2003			12.85		
	8/19/2003			13.11		
	9/10/2003			13.33		
	10/17/2003			13.22		
	11/7/2003			13.69		
	12/31/2003			13.27		
	3/10/2004			12.83		
	4/22/2004			13.00		
	5/7/2004			12.62		
	6/11/2004			12.13		

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	7/9/2004			13.64		
	8/12/2004			12.52		
	9/14/2004			16.40		
	10/28/2004			14.35		
	11/23/2004			14.07		
	12/20/2004			13.20		
	12/27/2004			11.63		
	1/28/2005			14.38		
	2/22/2005			14.38		
	3/31/2005			6.90		
	5/17/2005			14.92		
	8/19/2005			15.95		
	11/16/2005			14.83		
	2/17/2006			12.39		
MW-04R	6/27/2007	244.68	14.30	14.66	0.36	230.33
	7/10/2007		14.58	15.60	1.02	229.97
	7/23/2007		14.75	15.44	0.69	229.84
	8/7/2007		14.99	15.63	0.64	229.61
	8/15/2007		15.12	16.04	0.92	229.44
	8/28/2007		14.33	14.83	0.50	230.29
	9/12/2007		14.81	14.90	0.09	229.86
	9/25/2007		9.80	9.81	0.01	234.88
	10/10/2007		15.45	15.78	0.33	229.19
	10/19/2007		15.63	15.90	0.27	229.01
	10/29/2007		15.24	15.52	0.28	229.40
	11/15/2007		15.10	15.15	0.05	229.57
	11/20/2007		14.65	14.80	0.15	230.01
	12/3/2007		14.74	14.75	0.01	229.94
	12/12/2007		14.49	14.50	0.01	230.19
	12/28/2007		14.06	14.09	0.03	230.62
	1/9/2008		13.73	14.12	0.39	230.90
	2/4/2008		13.06	13.80	0.74	231.52
	2/26/2008		12.68	13.22	0.54	231.93
	3/14/2008		11.90	12.28	0.38	232.73
	3/25/2008		12.29	12.60	0.31	232.35
	4/7/2008		12.40	13.31	0.91	232.16
	4/28/2008		10.95	11.80	0.85	233.62
	5/19/2008		10.35	10.57	0.22	234.30
	6/12/2008		12.12	12.28	0.16	232.54
	6/30/2008		12.94	13.34	0.40	231.69
	7/10/2008		13.25	13.40	0.15	231.41
	7/24/2008		13.18	13.84	0.66	231.41
	8/8/2008		13.80	13.96	0.16	230.86

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	8/25/2008		14.32	14.67	0.35	230.31
	9/5/2008		14.34	14.76	0.42	230.29
	9/24/2008		13.41	13.80	0.39	231.22
	10/10/2008		13.90	14.05	0.15	230.76
	10/23/2008		14.44	14.63	0.19	230.22
	11/6/2008		14.20	14.68	0.48	230.42
	11/24/2008		14.16	14.94	0.78	230.42
	12/9/2008		14.16	14.31	0.15	230.50
	12/23/2008		12.82	13.55	0.73	231.77
	1/13/2009		12.30	12.74	0.44	232.32
	1/30/2009			13.25		231.43
	2/16/2009			13.71		230.97
	2/25/2009		13.89	14.11	0.22	230.76
	3/5/2009		14.01	14.52	0.51	230.60
	3/18/2009		14.44	14.69	0.25	230.21
	3/27/2009		14.37	14.69	0.32	230.27
	4/17/2009		13.38	13.74	0.36	231.25
	4/23/2009		11.94	12.76	0.82	232.63
	5/4/2009		12.40	12.44	0.04	232.27
	5/22/2009		12.00	12.20	0.20	232.65
	6/5/2009		11.78	11.81	0.03	232.90
	6/24/2009		12.08	12.25	0.17	232.58
	7/14/2009			13.50		231.18
	7/22/2009			13.70		230.98
MW-05	3/10/1997	245.37		11.60		233.77
	3/2/1998			10.95		234.42
	11/6/1999		14.47	14.49	0.02	230.90
	4/30/2000			12.50		232.87
	5/18/2001			14.15		231.22
	5/9/2002			13.55		231.82
	5/15/2003			12.18		233.19
	5/7/2004			11.75		233.62
	2/22/2005			12.79		232.58
	3/31/2005			10.17		235.20
	5/17/2005			13.31		232.06
	8/19/2005			14.43		230.94
	11/16/2005			13.42		231.95
	5/23/2006			14.63		230.74
	8/16/2006			14.53		230.84
	12/4/2006			12.77		232.60
	2/26/2007			13.14		232.23
	5/21/2007			13.78		231.59
	8/7/2007			15.67		229.70

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	12/3/2007			15.35		230.02
	2/25/2008			13.37		232.00
	5/19/2008			10.20		235.17
	2/25/2009			14.54		230.83
MW-06R	4/22/2004	233.63		4.41		229.22
	5/7/2004			4.61		229.02
	6/11/2004			4.18		229.45
	7/9/2004			5.80		227.83
	8/12/2004			7.45		226.18
	9/14/2004			8.49		225.14
	10/28/2004			5.76		227.87
	11/23/2004			5.40		228.23
	12/20/2004			4.93		228.70
	2/22/2005			5.18		228.45
	3/31/2005			2.97		230.66
	5/17/2005			6.03		227.60
	8/19/2005			7.71		225.92
	11/16/2005			6.32		227.31
	5/23/2006			7.52		226.11
	8/16/2006			7.68		225.95
	11/13/2006		5.74	5.75	0.01	227.89
	12/4/2006			5.88		227.75
	5/21/2007			6.13		227.50
	8/7/2007			8.72		224.91
	12/3/2007			8.11		225.52
	2/25/2008			5.82		227.81
	5/19/2008			4.67		228.96
	2/25/2009			6.14		227.49
MW-08	3/10/1997	235.51		9.92		225.59
	3/2/1998			9.25		226.26
	11/6/1999			13.48		222.03
	4/30/2000			10.36		225.15
	5/18/2001			12.72		222.79
	5/9/2002			11.85		223.66
	5/15/2003			13.38		222.13
	5/7/2004			10.27		225.24
	5/17/2005			21.32		214.19
	12/4/2006			11.36		224.15
	2/26/2007			11.47		224.04
	5/21/2007			12.11		223.40
	8/7/2007			15.09		220.42
	12/3/2007			14.33		221.18
	2/25/2008			12.15		223.36

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	5/19/2008			9.54		225.97
	2/25/2009			12.71		222.80
MW-09	3/10/1997	237.54		12.74		224.80
	3/2/1998			12.00		225.54
	11/6/1999			13.64		223.90
	4/30/2000			10.36		227.18
	5/18/2001			14.25		223.29
	5/9/2002			13.38		224.16
	5/15/2003			10.47		227.07
	5/7/2004			12.20		225.34
	5/17/2005			13.15		224.39
	12/4/2006			12.77		224.77
	2/26/2007			12.71		224.83
	5/21/2007			13.12		224.42
	8/7/2007			14.82		222.72
	12/3/2007			14.29		223.25
	2/25/2008			12.85		224.69
	5/19/2008			11.78		225.76
	2/25/2009			13.19		224.35
MW-20	6/27/2007	236.27		13.43		222.84
	7/10/2007			13.69		222.58
	7/23/2007			12.34		223.93
	8/7/2007			12.65		223.62
	8/15/2007			12.76		223.51
	8/28/2007			11.32		224.95
	9/12/2007			12.23		224.04
	9/25/2007			12.63		223.64
	10/10/2007			10.10		226.17
	10/19/2007			10.21		226.06
	10/29/2007			10.12		226.15
	12/3/2007			9.59		226.68
	2/25/2008			8.12		228.15
	5/19/2008			16.15		220.12
	2/25/2009			8.77		227.50
MW-21	6/27/2007	244.26		13.43		230.83
	7/10/2007			13.69		230.57
	7/23/2007			12.34		231.92
	8/7/2007			12.65		231.61
	8/15/2007			12.76		231.50
	8/28/2007			11.32		232.94
	9/12/2007			12.23		232.03
	9/25/2007			12.63		231.63
	10/10/2007			10.10		234.16

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	10/19/2007			10.21		234.05
	10/29/2007			10.12		234.14
	12/3/2007			9.59		234.67
	2/25/2008			11.90		232.36
	5/19/2008			11.37		232.89
	2/25/2009			12.92		231.34
MW-22	6/27/2007	245.65		14.55		231.10
	7/10/2007			14.89		230.76
	7/23/2007			15.02		230.63
	8/7/2007			15.32		230.33
	8/15/2007			14.25		231.40
	8/28/2007			14.66		230.99
	9/12/2007			15.04		230.61
	9/25/2007			15.33		230.32
	10/10/2007			12.79		232.86
	10/19/2007			12.95		232.70
	10/29/2007			11.52		234.13
	11/20/2007			11.74		233.91
	12/3/2007			12.10		233.55
	12/12/2007			12.31		233.34
	2/25/2008			13.19		232.46
	5/19/2008			10.65		235.00
	2/25/2009			14.28		231.37
MW-23	10/10/2007	244.57		15.70		228.87
	10/19/2007			15.89		228.68
	10/29/2007			15.58		228.99
	11/20/2007			15.01		229.56
	12/3/2007			15.04		229.53
	1/9/2008			13.46		231.11
	2/4/2008			13.15		231.42
	2/25/2008			12.65		231.92
	2/26/2008			12.50		232.07
	3/14/2008			11.50		233.07
	3/25/2008			11.92		232.65
	4/7/2008			12.51		232.06
	5/19/2008			9.73		234.84
	6/12/2008			11.81		232.76
	6/30/2008			12.60		231.97
	7/10/2008			12.85		231.72
	7/24/2008			13.10		231.47
	8/8/2008			14.06		230.51
	8/25/2008			13.76		230.81
	9/5/2008			13.84		230.73

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	9/24/2008		13.11	13.13	0.02	231.46
	10/10/2008		13.44	13.49	0.05	231.12
	10/23/2008		13.76	13.80	0.04	230.80
	1/30/2009		12.80	13.01	0.21	231.74
	2/25/2009		13.60	13.66	0.06	230.96
	3/5/2009		13.70	13.75	0.05	230.86
	4/17/2009			12.99		231.58
	4/23/2009		10.54	10.56	0.02	234.03
	5/22/2009			11.75		232.82
	6/24/2009			11.84		232.73
	7/14/2009			13.20		231.37
	7/22/2009		13.49	13.50	0.01	231.08
MW-24	6/27/2007	244.50		14.22		230.28
	7/10/2007			14.20		230.30
	7/23/2007			13.70		230.80
	8/7/2007			14.14		230.36
	8/15/2007			14.14		230.36
	8/28/2007			9.70		234.80
	9/12/2007			13.80		230.70
	9/25/2007			14.21		230.29
	10/10/2007			14.14		230.36
	10/19/2007			14.14		230.36
	11/20/2007			14.14		230.36
	12/3/2007			14.15		230.35
	12/12/2007			14.12		230.38
	12/28/2007			13.78		230.72
	2/25/2008			8.70		235.80
	5/19/2008			1.64		242.86
	2/25/2009			12.88		231.62
MW-25	6/27/2007	245.36		14.52		230.84
	7/10/2007			14.88		230.48
	7/23/2007			15.10		230.26
	8/7/2007			15.43		229.93
	8/15/2007			15.57		229.79
	8/28/2007			14.74		230.62
	9/12/2007			15.02		230.34
	9/25/2007			15.45		229.91
	10/10/2007			14.20		231.16
	10/19/2007			14.21		231.15
	10/29/2007			3.49		241.87
	11/20/2007			8.59		236.77
	12/3/2007			2.59		242.77
	12/12/2007			10.45		234.91

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	2/25/2008			13.58		231.78
	5/19/2008			11.70		233.66
	2/25/2009			14.34		231.02
MW-26	6/27/2007	244.67		14.56		230.11
	7/10/2007			14.99		229.68
	7/23/2007			15.08		229.59
	8/7/2007			15.36		229.31
	8/15/2007			15.54		229.13
	8/28/2007			14.65		230.02
	9/12/2007			15.11		229.56
	9/25/2007			15.36		229.31
	10/10/2007			15.57		229.10
	10/19/2007			15.80		228.87
	10/29/2007			15.46		229.21
	11/20/2007			15.25		229.42
	12/3/2007			15.18		229.49
	12/12/2007			15.10		229.57
	2/4/2008		13.53	13.58	0.05	231.13
	2/25/2008			13.20		231.47
	2/26/2008		12.95	12.96	0.01	231.72
	3/14/2008			12.24		232.43
	3/25/2008			12.63		232.04
	4/7/2008			13.14		231.53
	5/19/2008		11.70	11.72	0.02	232.97
	6/12/2008		12.42	12.43	0.01	232.25
	6/30/2008		13.39	13.40	0.01	231.28
	7/10/2008		13.55	13.90	0.35	231.07
	7/24/2008		13.53	13.78	0.25	231.11
	8/8/2008		14.06	14.14	0.08	230.60
	8/25/2008		14.61	14.73	0.12	230.04
	9/5/2008		14.60	14.79	0.19	230.05
	9/24/2008		13.69	13.70	0.01	230.98
	10/10/2008		14.14	14.22	0.08	230.52
	10/23/2008		14.65	14.72	0.07	230.01
	11/6/2008		14.57	14.69	0.12	230.08
	11/24/2008		14.50	14.54	0.04	230.16
	12/9/2008		14.43	14.45	0.02	230.24
	12/23/2008		13.14	13.18	0.04	231.52
	1/13/2009		12.59	12.60	0.01	232.08
	2/16/2009		13.88	13.89	0.01	230.79
	2/25/2009			14.06		230.61
	3/5/2009			14.28		230.39
	3/18/2009		14.55	14.60	0.05	230.11

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	3/27/2009			14.49		230.18
	4/17/2009		13.79	13.94	0.15	230.86
	4/23/2009		12.42	12.46	0.04	232.24
	5/4/2009		12.78	12.80	0.02	231.89
	5/22/2009		12.20	12.21	0.01	232.47
	6/24/2009		12.27	12.29	0.02	232.40
	7/22/2009		13.88	13.89	0.01	230.79
MW-27	6/27/2007	244.29		12.22		232.07
	7/10/2007			12.80		231.49
	7/23/2007			13.81		230.48
	8/7/2007			12.82		231.47
	8/15/2007			12.81		231.48
	8/28/2007			7.43		236.86
	9/12/2007			7.78		236.51
	9/25/2007			11.52		232.77
	10/10/2007		15.73	15.75	0.02	228.56
	10/19/2007		15.92	15.93	0.01	228.37
	10/29/2007			15.56		228.73
	11/20/2007			14.99		229.30
	12/3/2007			14.89		229.40
	12/12/2007			14.86		229.43
	1/9/2008			7.37		236.92
	2/4/2008			7.28		237.01
	2/25/2008			7.10		237.19
	2/26/2008			7.34		236.95
	3/14/2008			7.26		237.03
	3/25/2008			7.29		237.00
	4/7/2008			7.08		237.21
	4/28/2008			6.04		238.25
	5/19/2008			7.16		237.13
	6/12/2008			7.30		236.99
	6/30/2008			7.40		236.89
	7/10/2008			7.49		236.80
	7/24/2008			7.41		236.88
	8/25/2008			7.81		236.48
	2/25/2009			9.75		234.54
	3/27/2009			7.93		236.36
MW-28	12/3/2007	244.23	14.30	14.33	0.03	229.93
	12/12/2007		14.16	14.23	0.07	230.06
	12/28/2007		13.48	13.50	0.02	230.75
	1/9/2008		13.34	14.20	0.86	230.78
	2/4/2008		12.59	13.85	1.26	231.48
	2/25/2008			12.60		231.63

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	2/26/2008		12.19	12.40	0.21	232.01
	3/14/2008		11.26	11.54	0.28	232.93
	3/25/2008		11.71	11.76	0.05	232.51
	4/7/2008		12.66	12.70	0.04	231.56
	5/19/2008		10.34	10.90	0.56	233.82
	6/12/2008		11.43	11.44	0.01	232.80
	6/30/2008		12.48	12.49	0.01	231.75
	7/10/2008			12.60		231.63
	7/24/2008			12.72		231.51
	8/8/2008			13.25		230.98
	8/25/2008		13.75	14.50	0.75	230.38
	9/5/2008		13.83	14.48	0.55	230.23
	9/24/2008		12.89	13.10	0.21	231.31
	10/10/2008		13.30	13.42	0.12	230.91
	10/23/2008		13.90	14.05	0.15	230.31
	11/6/2008		13.59	13.73	0.14	230.62
	11/24/2008		13.59	13.61	0.02	230.64
	12/9/2008		13.54	13.55	0.01	230.69
	12/23/2008		12.31	12.33	0.02	231.92
	1/13/2009			11.71		232.52
	1/30/2009			13.27		230.96
	2/16/2009		13.19	13.23	0.04	231.03
	2/25/2009		13.43	13.44	0.01	230.80
	3/5/2009		13.59	13.62	0.03	230.64
	3/18/2009		13.82	13.86	0.04	230.40
	3/27/2009		13.91	14.11	0.20	230.29
	4/17/2009		12.62	12.75	0.13	231.59
	4/23/2009		11.42	11.43	0.01	232.81
	5/22/2009		11.55	11.56	0.01	232.68
	6/24/2009		11.45	11.46	0.01	232.78
	7/14/2009		12.97	12.98	0.01	231.26
	7/22/2009		13.14	13.20	0.06	231.08
MW-29	12/3/2007	243.74		15.22		228.52
	2/25/2008			14.00		229.74
	5/19/2008			12.44		231.30
	2/25/2009			14.79		228.95
MW-30	12/3/2007	245.46		15.16		230.30
	2/25/2008			13.65		231.81
	5/19/2008		10.90	11.05	0.15	234.54
	6/12/2008			12.73		232.73
	6/30/2008			13.73		231.73
	7/10/2008			13.72		231.74
	7/24/2008			13.90		231.56

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	8/8/2008		14.31	14.32	0.01	231.15
	8/25/2008		14.83	14.92	0.09	230.62
	9/5/2008		14.89	14.94	0.05	230.56
	9/24/2008		13.98	13.99	0.01	231.48
	10/10/2008		14.34	14.34	0.00	231.12
	10/23/2008		14.95	14.96	0.01	230.51
	11/6/2008			14.76	0.00	230.70
	11/24/2008		14.63	14.64	0.01	230.83
	12/9/2008			14.39		231.07
	12/23/2008			13.27		232.19
	1/13/2009		12.32	12.33	0.01	233.14
	1/30/2009			13.99		231.47
	2/16/2009		14.17	14.18	0.01	231.29
	2/25/2009			14.45		231.01
	3/5/2009			14.63		230.83
	3/18/2009			14.85		230.61
	3/27/2009			14.93		230.53
	4/17/2009			13.63		231.83
	4/23/2009			12.39		233.07
	5/4/2009			12.97		232.49
	5/22/2009			12.53		232.93
	6/5/2009			11.95		233.51
	6/24/2009			12.57		232.89
	7/22/2009			14.23		231.23
MW-31	12/3/2007	244.79		14.44		230.35
	12/12/2007			14.13		230.66
	12/28/2007			13.29		231.50
	1/9/2008			13.49		231.30
	2/4/2008			12.42		232.37
	2/25/2008			12.20		232.59
	2/26/2008			12.08		232.71
	3/14/2008			10.50		234.29
	3/25/2008			10.85		233.94
	4/7/2008			11.67		233.12
	4/28/2008			8.82		235.97
	5/19/2008			9.20		235.59
	6/12/2008			10.37		234.42
	6/30/2008			11.74		233.05
	7/10/2008			12.12		232.67
	7/24/2008			12.23		232.56
	8/8/2008			13.41		231.38
	8/25/2008			13.92		230.87
	9/5/2008			14.12		230.67

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	9/24/2008			12.61		232.18
	10/10/2008			12.63		232.16
	10/23/2008			14.00		230.79
	11/6/2008			13.79		231.00
	2/25/2009			12.74		232.05
	3/5/2009			13.70		231.09
	3/18/2009			14.21		230.58
	3/27/2009			14.33		230.46
	4/17/2009			6.86		237.93
	4/23/2009			6.47		238.32
	5/4/2009			5.87		238.92
	5/22/2009			7.25		237.54
	6/5/2009			6.02		238.77
	6/24/2009			7.27		237.52
	7/22/2009			12.81		231.98
MW-32	12/3/2007	245.80		14.95		230.85
	2/25/2008			12.89		232.91
	5/19/2008			3.89		241.91
	2/25/2009		14.11	14.20	0.09	231.68
	3/5/2009		14.36	14.46	0.10	231.43
	3/18/2009		14.56	14.70	0.14	231.22
	5/22/2009		12.20	12.30	0.10	233.59
	7/14/2009		13.65	13.90	0.25	232.12
	7/16/2009		13.54	13.75	0.21	232.23
	7/22/2009		13.85	14.03	0.18	231.93
MW-33	12/3/2007	244.26		14.14		230.12
	2/25/2008			12.80		231.46
	5/19/2008		11.35	11.37	0.02	232.91
	7/10/2008			13.71		230.55
	7/24/2008			13.78		230.48
	8/8/2008			13.07		231.19
	9/5/2008			13.29		230.97
	2/16/2009		12.88	13.24	0.36	231.33
	2/25/2009		13.25	13.46	0.21	230.98
	3/27/2009		13.47	13.80	0.33	230.75
	6/24/2009			11.75		232.51
	7/14/2009		12.49	12.50	0.01	231.77
MW-35	12/3/2007	245.80		15.65		230.15
	2/25/2008			14.10		231.70
	5/19/2008			12.06		233.74
	2/25/2009			14.84		230.96
MW-37	12/3/2007	245.06		15.09		229.97
	2/25/2008			13.19		231.87

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	5/19/2008			11.04		234.02
	6/30/2008		13.22	13.23	0.01	231.84
	7/10/2008		13.45	13.60	0.15	231.59
	7/24/2008		13.50	13.71	0.21	231.53
	8/8/2008		13.99	14.74	0.75	230.97
	8/25/2008		14.63	14.85	0.22	230.40
	9/5/2008			14.12		230.94
	9/24/2008		13.70	13.74	0.04	231.35
	11/6/2008		14.52	15.18	0.66	230.45
	11/24/2008		14.66	14.75	0.09	230.39
	12/9/2008			14.64		230.42
	12/23/2008		13.32	13.34	0.02	231.74
	1/13/2009			12.85		232.21
	2/16/2009		14.03	14.13	0.10	231.02
	2/25/2009		14.22	14.23	0.01	230.84
	3/5/2009		14.41	14.46	0.05	230.64
	3/18/2009		14.65	14.76	0.11	230.40
	3/27/2009		14.45	14.59	0.14	230.59
	4/17/2009			12.85		232.21
	4/23/2009		12.83	12.92	0.09	232.22
	5/22/2009			12.35		232.71
	6/24/2009		12.15	12.53	0.38	232.86
	7/14/2009		13.61	14.09	0.48	231.39
	7/16/2009		13.54	13.75	0.51	231.75
	7/22/2009		13.88	14.60	0.72	231.09
MW-38	12/3/2007	246.09		4.93		241.16
	12/12/2007		4.87	4.88	0.01	241.22
	12/28/2007		5.01	5.18	0.17	241.06
	1/9/2008		5.05	12.90	7.85	240.02
	2/4/2008		5.20	12.05	6.85	240.00
	2/25/2008		9.47	10.52	1.05	236.48
	2/26/2008		9.90	10.45	0.55	236.12
	3/14/2008		4.93	7.89	2.96	240.78
	3/25/2008		13.20	15.22	2.02	232.63
	4/7/2008		12.43	15.40	2.97	233.27
	4/28/2008		4.44	5.43	0.99	241.52
	5/19/2008		4.10	4.12	0.02	241.99
	6/12/2008		4.55	4.56	0.01	241.54
	6/30/2008		4.92	5.04	0.12	241.15
	7/10/2008		4.80	5.13	0.33	241.25
	7/24/2008		4.74	5.10	0.36	241.30
	8/8/2008		10.17	17.05	6.88	235.03
	8/25/2008		13.15	19.85	6.70	232.07

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	9/5/2008		13.24	19.94	5.70	231.11
	9/24/2008		5.68	7.70	2.02	240.15
	10/10/2008		8.47	8.78	0.31	237.58
	10/23/2008		13.48	17.59	4.11	232.08
	11/6/2008		12.08	15.02	2.94	233.63
	11/24/2008		12.52	15.46	2.94	233.19
	12/9/2008		11.35	13.78	2.43	234.42
	12/23/2008		5.08	5.95	0.87	240.90
	1/13/2009		5.32	7.44	2.12	240.49
	2/16/2009		14.44	15.69	1.25	231.49
	2/25/2009		14.77	15.42	0.65	231.24
	3/18/2009		15.22	15.95	0.73	230.78
	3/27/2009		14.96	16.07	1.11	230.99
	4/17/2009		5.32	7.44	2.12	240.49
	4/23/2009		4.98	5.16	0.18	241.09
	5/4/2009		4.94	5.06	0.12	241.13
	5/22/2009		4.90	4.99	0.09	241.18
	6/5/2009		4.55	4.62	0.07	241.53
	6/24/2009		4.63	4.65	0.02	241.46
	7/14/2009		5.22	9.60	4.38	240.30
MW-39	12/3/2007	245.65		15.37		230.28
	2/25/2008			12.80		232.85
	5/19/2008			10.75		234.90
	2/25/2009			11.21		234.44
MW-41	12/3/2007	246.07	15.87	15.88	0.01	230.20
	12/12/2007		15.71	15.72	0.01	230.36
	12/28/2007		15.03	15.04	0.01	231.04
	1/9/2008		14.73	15.91	1.18	231.19
	2/4/2008		14.45	16.00	1.55	231.42
	2/25/2008		13.97	15.19	1.22	231.94
	2/26/2008		13.82	15.13	1.31	232.08
	3/14/2008		12.96	14.08	1.12	232.96
	3/25/2008		6.92	7.72	0.80	239.05
	4/7/2008		13.80	16.12	2.32	231.97
	4/28/2008		12.08	13.80	1.72	233.77
	5/19/2008		11.23	14.01	2.78	234.48
	6/12/2008		13.00	14.80	1.80	232.84
	6/30/2008		13.73	16.20	2.47	232.02
	7/10/2008		14.15	15.35	1.20	231.76
	7/24/2008		14.19	14.58	0.39	231.83
	8/8/2008		14.72	15.56	0.84	231.24
	8/25/2008		15.32	15.83	0.51	230.68
	9/5/2008		15.48	16.00	0.52	230.52

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	9/24/2008		14.42	15.35	0.93	231.53
	10/10/2008		14.89	14.99	0.10	231.17
	10/23/2008		15.48	15.88	0.40	230.54
	11/6/2008		15.34	15.55	0.21	230.70
	11/24/2008		15.48	15.67	0.19	230.57
	12/9/2008		15.47	15.55	0.08	230.59
	12/23/2008		14.13	14.55	0.42	231.89
	1/13/2009		13.59	13.87	0.28	232.44
	1/30/2009		14.18	16.10	1.92	231.64
	2/16/2009		14.64	16.58	1.94	231.18
	2/25/2009		14.90	16.17	1.27	231.00
	3/5/2009		15.03	16.70	1.67	230.82
	3/18/2009		15.30	16.74	1.44	230.58
	3/27/2009		15.50	15.95	0.45	230.51
	4/17/2009		14.71	15.02	0.31	231.32
	4/23/2009		13.54	14.00	0.46	232.47
	5/4/2009		13.74	14.52	0.78	232.23
	5/22/2009		12.84	14.98	2.14	232.95
	6/5/2009		12.92	15.45	2.53	232.82
	6/24/2009		12.52	15.58	3.06	233.15
	7/14/2009		14.30	16.13	1.83	231.53
	7/16/2009		14.25	16.13	1.88	231.58
	7/22/2009		14.75	15.33	0.58	231.24
MW-43	12/3/2007	238.90		9.55		229.35
	2/25/2008			7.50		231.40
	5/19/2008			5.51		233.39
	2/25/2009			8.54		230.36
MW-49	12/3/2007	246.02		13.93		232.09
	2/25/2008		11.89	12.60	0.71	234.04
	5/19/2008		5.44	6.60	1.16	240.43
	6/12/2008		6.19	6.55	0.36	239.78
	6/30/2008		8.77	9.11	0.34	237.21
	7/10/2008		9.25	12.01	2.76	236.41
	7/24/2008		9.74	12.18	2.44	235.96
	8/8/2008		14.11	15.11	1.00	231.78
	8/25/2008		14.84	15.77	0.93	231.06
	9/5/2008		14.99	16.10	1.11	230.89
	9/24/2008		6.37	7.07	0.70	239.56
	10/10/2008		13.89	14.24	0.35	232.08
	10/23/2008		14.98	15.40	0.42	230.99
	11/6/2008		14.88	15.41	0.53	231.07
	11/24/2008		14.99	15.18	0.19	231.01
	12/9/2008		14.97	15.12	0.15	231.03

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	12/23/2008		5.68	6.45	0.77	240.24
	1/13/2009		8.43	8.82	0.39	237.54
	2/16/2009		14.32	15.20	0.88	231.59
	2/25/2009		14.55	14.91	0.36	231.42
	3/5/2009		14.77	15.21	0.44	231.19
	3/18/2009		15.01	15.39	0.38	230.96
	4/17/2009		8.43	8.82	0.39	237.54
	4/23/2009		7.60	7.83	0.23	238.39
	5/4/2009			9.06		236.96
	5/22/2009		5.10	5.15	0.05	240.91
	6/5/2009		5.07	5.65	0.58	240.87
	6/24/2009		4.92	5.25	0.33	241.06
	7/14/2009		12.25	13.68	1.43	233.58
	7/16/2009		13.00	14.35	1.35	232.84
	7/22/2009		13.98	14.56	0.58	231.96
MW-50	12/3/2007	245.53		14.88		230.65
	2/25/2008			13.39		232.14
	5/19/2008			11.53		234.00
	2/25/2009			14.04		231.49
MW-51	12/3/2007	249.34		15.21		234.13
	2/25/2008			13.73		235.61
	5/19/2008			10.18		239.16
	2/25/2009			14.78		234.56
MW-52	12/3/2007	247.00		11.17		235.83
	2/25/2008			10.29		236.71
	5/19/2008			8.16		238.84
	2/25/2009			11.36		235.64
MW-53	1/13/2009	246.10	13.54	14.43	0.89	232.44
	2/16/2009		14.70	16.71	2.01	231.14
	2/25/2009		14.89	16.56	1.67	230.99
	3/5/2009		15.07	17.04	1.97	230.77
	3/18/2009		14.92	16.27	1.35	231.00
	3/27/2009		15.50	17.40	1.90	230.35
	4/17/2009		14.71	15.72	1.01	231.26
	4/23/2009		13.62	13.79	0.17	232.46
	5/4/2009		13.65	15.12	1.47	232.26
	5/22/2009		12.97	15.11	2.14	232.85
	6/5/2009		12.81	15.50	2.69	232.94
	6/24/2009		12.95	15.91	2.96	232.77
	7/14/2009		14.30	16.75	2.45	231.48
MW-54	1/13/2009	245.60	13.05	13.91	0.86	232.44
	1/30/2009		13.75	15.81	2.06	231.58
	2/16/2009		14.25	15.94	1.69	231.13

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	2/25/2009		14.53	15.35	0.82	230.96
	3/5/2009		14.66	15.92	1.26	230.78
	3/18/2009		15.32	17.23	1.91	230.03
	3/27/2009		15.15	16.39	1.24	230.29
	4/17/2009		14.23	15.08	0.85	231.26
	4/23/2009		13.10	13.42	0.32	232.46
	5/4/2009		13.17	14.50	1.33	232.26
	5/22/2009		12.52	14.43	1.91	232.83
	6/5/2009		12.28	14.80	2.52	232.99
	6/24/2009		12.47	15.70	3.23	232.71
	7/14/2009		13.78	16.67	2.91	231.46
	7/16/2009		13.73	16.48	2.75	231.51
MW-55	1/13/2009	246.12	13.39	15.23	1.84	232.49
	1/30/2009		14.11	17.00	2.89	231.63
	2/16/2009		14.67	17.27	2.60	231.11
	2/25/2009		14.90	16.94	2.04	230.95
	3/5/2009		15.05	17.28	2.23	230.78
	3/18/2009		15.33	17.63	2.30	230.49
	3/27/2009		15.74	17.29	1.55	230.18
	4/17/2009		14.76	15.61	0.85	231.25
	4/23/2009		13.63	14.03	0.40	232.44
	5/4/2009		13.56	15.97	2.41	232.25
	5/22/2009		12.82	16.40	3.58	232.83
	6/5/2009		12.85	14.95	2.10	233.00
	6/24/2009		12.91	16.75	3.84	232.71
	7/14/2009		14.29	17.25	2.96	231.45
	7/16/2009		14.22	17.10	2.88	231.53
	7/22/2009		14.58	17.10	2.52	231.21
MW-56	1/13/2009	244.63	12.43	13.60	1.17	232.05
	1/30/2009		14.00	14.90	0.90	230.51
	2/16/2009		13.34	16.98	3.64	230.82
	2/25/2009		13.44	16.78	3.34	230.76
	3/5/2009		13.60	17.03	3.43	230.58
	3/18/2009		13.89	16.79	2.90	230.36
	3/27/2009		14.12	16.30	2.18	230.23
	4/17/2009		13.01	16.37	3.36	231.18
	4/23/2009		12.08	13.40	1.32	232.38
	5/4/2009		12.04	15.78	3.74	232.10
	5/22/2009		11.44	16.31	4.87	232.56
	6/5/2009		11.50	15.22	3.72	232.65
	6/24/2009		11.58	15.25	3.67	232.57
	7/14/2009		13.06	16.25	3.19	231.16
	7/16/2009		12.99	16.33	3.34	231.21

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	7/22/2009		13.35	15.82	2.47	230.96
MW-57	1/13/2009	244.52	11.85	17.13	5.28	231.98
	1/30/2009		12.50	17.30	4.80	231.40
	2/16/2009		13.23	17.41	4.18	230.75
	2/25/2009		13.39	16.81	3.42	230.69
	3/5/2009		13.54	16.98	3.44	230.53
	3/18/2009		13.83	16.75	2.92	230.31
	3/27/2009		13.99	16.52	2.53	230.20
	4/17/2009		12.96	16.28	3.32	231.13
	4/23/2009		11.95	13.72	1.77	232.34
	5/4/2009		12.02	15.44	3.42	232.06
	5/22/2009		11.43	15.76	4.33	232.53
	6/5/2009		11.41	15.27	3.86	232.61
	6/24/2009		11.53	15.50	3.97	232.47
	7/14/2009		12.98	16.24	3.26	231.12
	7/16/2009		12.89	16.40	3.51	231.17
	7/22/2009		13.33	15.63	2.30	230.89
MW-58	1/13/2009	244.42	12.33	13.21	0.88	231.98
	1/30/2009		12.90	14.40	1.50	231.33
	2/16/2009		13.55	14.59	1.04	230.73
	2/25/2009		13.67	14.18	0.51	230.68
	3/5/2009		13.80	14.56	0.76	230.52
	3/18/2009		14.04	14.66	0.62	230.30
	3/27/2009		14.18	14.55	0.37	230.19
	4/17/2009		13.26	13.49	0.23	231.13
	4/23/2009		12.03	12.11	0.08	232.38
	5/22/2009		11.82	12.44	0.62	232.52
	6/24/2009		12.27	12.90	0.63	232.07
	7/14/2009		13.23	13.93	0.70	231.10
	7/16/2009		13.23	13.94	0.71	231.10
	7/22/2009		13.49	13.96	0.47	230.87
EW-1	4/22/2004	243.50		9.19		234.31
	4/30/2004			9.32		234.18
	5/7/2004			9.16		234.34
	5/14/2004			9.69		233.81
	5/28/2004			9.72		233.78
	6/11/2004			9.02		234.48
	6/25/2004			9.42		234.08
	7/9/2004			10.58		232.92
	7/15/2004			10.80		232.70
	8/12/2004			12.38		231.12
	9/14/2004			12.84		230.66
	10/28/2004			11.06		232.44

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	11/23/2004			10.84		232.66
	12/20/2004			9.90		233.60
	1/28/2005			10.58		232.92
	2/22/2005			10.64		232.86
	3/31/2005			8.41		235.09
	4/25/2005			9.94		233.56
	5/17/2005		11.59	11.69	0.10	231.90
	6/30/2005			12.08		231.42
	7/22/2005			10.42		233.08
	8/19/2005			12.46		231.04
	9/7/2005			12.65		230.85
	10/18/2005			11.75		231.75
	11/16/2005			11.39		232.11
	12/20/2005			10.46		233.04
	1/12/2006			10.38		233.12
	2/17/2006			10.45		233.05
	3/29/2006			12.24		231.26
	4/21/2006			12.72		230.78
	5/23/2006			12.98		230.52
	6/27/2006			12.32		231.18
	7/7/2006			10.23		233.27
	7/26/2006			11.83		231.67
	8/16/2006			12.94		230.56
	8/31/2006			13.62		229.88
	9/11/2006			12.02		231.48
	9/22/2006			12.06		231.44
	10/26/2006			13.52		229.98
	11/13/2006			11.37		232.13
	12/6/2006			11.38		232.12
	12/27/2006			11.60		231.90
	1/10/2007			10.88		232.62
	1/25/2007			11.72		231.78
	2/7/2007			12.28		231.22
	2/22/2007			12.58		230.92
	2/26/2007			11.90		231.60
	3/9/2007			10.94		232.56
	3/22/2007			10.07		233.43
	4/5/2007			10.95		232.55
	4/19/2007			10.44		233.06
	5/4/2007			10.98		232.52
	5/21/2007			12.09		231.41
	6/1/2007			12.42		231.08
	6/12/2007			12.96		230.54

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	6/27/2007			13.54		229.96
	7/10/2007			14.00		229.50
	7/23/2007			14.19		229.31
	8/7/2007			14.53		228.97
	8/15/2007			14.71		228.79
	8/28/2007			13.77		229.73
	9/12/2007			13.99		229.51
	9/25/2007			14.45		229.05
	10/10/2007			14.93		228.57
	10/19/2007			15.17		228.33
	10/29/2007			14.82		228.68
	11/15/2007			14.45		229.05
	11/20/2007			14.01		229.49
	12/12/2007			13.69		229.81
	12/28/2007			13.07		230.43
	1/9/2008			12.71		230.79
	2/4/2008			12.46		231.04
	2/26/2008			11.86		231.64
	3/14/2008			10.86		232.64
	3/25/2008			11.18		232.32
	4/7/2008			11.90		231.60
	4/28/2008			10.04		233.46
	5/19/2008			9.59		233.91
	6/4/2008			11.17		232.33
	6/12/2008			11.25		232.25
	6/30/2008			12.09		231.41
	7/10/2008			12.23		231.27
	7/24/2008			12.24		231.26
	8/8/2008			12.95		230.55
	8/25/2008			13.60		229.90
	9/5/2008			13.68		229.82
	9/24/2008			7.53		235.97
	10/10/2008			7.61		235.89
	10/23/2008			7.81		235.69
	11/6/2008			7.90		235.60
	11/24/2008			11.47		232.03
	12/9/2008			12.02		231.48
	12/23/2008			8.17		235.33
	1/13/2009			8.07		235.43
	1/30/2009			12.10		231.40
	2/16/2009			9.61		233.89
	2/25/2009			12.71		230.79
	3/5/2009			13.18		230.32

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	3/18/2009			13.55		229.95
	3/27/2009			10.27		233.23
	4/17/2009			10.81		232.69
	4/23/2009			7.66		235.84
	5/22/2009			10.33		233.17
	6/5/2009			10.50		233.00
	6/24/2009			10.34		233.16
	7/22/2009			8.78		234.72
EW-2	4/22/2004	243.30		8.85		234.45
	4/30/2004			9.34		233.96
	5/7/2004			8.96		234.34
	5/14/2004			9.61		233.69
	5/28/2004			9.95		233.35
	6/11/2004			8.44		234.86
	6/25/2004			9.28		234.02
	7/9/2004			10.77		232.53
	7/15/2004			10.98		232.32
	8/12/2004			12.90		230.40
	9/14/2004			13.31		229.99
	10/28/2004			10.61		232.69
	11/23/2004			10.19		233.11
	12/20/2004			9.22		234.08
	1/28/2005			10.02		233.28
	2/22/2005			10.35		232.95
	3/31/2005			7.37		235.93
	4/25/2005			9.55		233.75
	5/17/2005			10.79		232.51
	6/30/2005			12.45		230.85
	7/22/2005			10.30		233.00
	8/19/2005			12.63		230.67
	9/7/2005			13.07		230.23
	10/18/2005			10.98		232.32
	11/16/2005			11.36		231.94
	12/20/2005			9.38		233.92
	1/12/2006			9.12		234.18
	2/17/2006			8.91		234.39
	3/29/2006			12.11		231.19
	4/21/2006			12.88		230.42
	5/23/2006			13.15		230.15
	6/27/2006			12.86		230.44
	7/7/2006			7.90		235.40
	8/16/2006			11.49		231.81
	8/31/2006			13.16		230.14

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	9/11/2006			11.16		232.14
	9/22/2006			8.98		234.32
	10/12/2006			10.17		233.13
	10/26/2006			9.30		234.00
	11/13/2006			8.78		234.52
	12/6/2006			7.56		235.74
	12/27/2006			10.70		232.60
	1/10/2007			8.74		234.56
	1/25/2007			10.13		233.17
	2/7/2007			11.51		231.79
	2/22/2007			12.34		230.96
	3/9/2007			10.14		233.16
	3/22/2007			7.13		236.17
	4/5/2007			8.06		235.24
	4/19/2007			9.33		233.97
	5/4/2007			9.39		233.91
	5/21/2007			11.32		231.98
	6/1/2007			12.16		231.14
	6/12/2007			12.88		230.42
	6/27/2007			13.45		229.85
	7/10/2007			13.83		229.47
	7/23/2007			14.09		229.21
	8/7/2007			14.43		228.87
	8/15/2007			14.61		228.69
	8/28/2007			13.76		229.54
	9/12/2007			14.18		229.12
	9/25/2007			14.46		228.84
	10/10/2007		14.84	14.85	0.01	228.46
	10/19/2007		15.06	15.07	0.01	228.24
	10/29/2007			14.62		228.68
	11/15/2007			14.45		228.85
	11/20/2007		14.00	14.01	0.01	229.30
	12/12/2007			14.11		229.19
	12/28/2007			13.50		229.80
	1/9/2008		13.16	13.17	0.01	230.14
	2/4/2008			12.62		230.68
	2/26/2008		11.99	12.00	0.01	231.31
	3/14/2008		11.24	11.27	0.03	232.06
	3/25/2008		11.55	11.58	0.03	231.75
	4/7/2008			12.28		231.02
	4/28/2008			10.41		232.89
	5/19/2008			8.90		234.40
	6/4/2008			12.01		231.29

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	6/12/2008			11.35		231.95
	6/30/2008			12.36		230.94
	7/10/2008		12.60	12.60		230.70
	7/24/2008		12.28	12.38	0.10	231.01
	8/8/2008			13.39		229.91
	8/25/2008		14.73	14.75	0.02	228.57
	9/5/2008		14.84	14.84		228.46
	9/24/2008		12.86	13.00	0.22	230.49
	10/10/2008		13.28	13.42	0.14	230.00
	10/23/2008		14.00	14.01	0.01	229.30
	11/6/2008		13.62	13.64	0.02	229.68
	11/24/2008		13.62	13.70	0.08	229.67
	12/9/2008		13.53	13.69	0.16	229.75
	12/23/2008		12.28	12.35	0.07	231.01
	1/13/2009		11.70	11.71	0.01	231.60
	1/30/2009		12.55	12.65	0.10	230.74
	2/16/2009		13.00	13.11	0.11	230.29
	2/25/2009			13.19		230.11
	3/5/2009			13.35		229.95
	3/18/2009			14.09		229.21
	3/27/2009			13.72		229.58
	4/17/2009			12.78		230.52
	4/23/2009			11.55		231.75
	5/4/2009		11.86	11.87	0.01	231.44
	5/22/2009			11.32		231.98
	6/5/2009			11.20		232.10
	6/24/2009		11.45	11.48	0.03	231.85
	7/22/2009			13.03		230.27
EW-3	4/22/2004	242.70		9.98		232.72
	4/30/2004		10.21	12.45	2.24	232.20
	5/7/2004		10.18	11.05	0.87	232.41
	5/14/2004		10.94	11.34	0.40	231.71
	5/28/2004		10.99	11.47	0.48	231.65
	6/11/2004		9.84	10.24	0.40	232.81
	6/25/2004		10.70	11.25	0.55	231.93
	7/9/2004		11.73	12.45	0.72	230.88
	7/15/2004		11.98	12.40	0.42	230.67
	7/29/2004		12.69	13.33	0.64	229.93
	8/12/2004		13.00	13.65	0.65	229.62
	8/29/2004		13.18	14.03	0.85	229.41
	9/14/2004		13.36	13.98	0.62	229.26
	9/24/2004		12.19	12.38	0.19	230.49
	10/22/2004		11.75	12.25	0.50	230.89

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	10/28/2004		11.81	12.04	0.23	230.86
	11/10/2004		11.99	12.22	0.23	230.68
	11/23/2004		11.64	11.93	0.29	231.02
	12/6/2004		11.02	11.06	0.04	231.67
	12/20/2004		10.77	10.98	0.21	231.90
	12/27/2004		10.94	11.08	0.14	231.74
	1/28/2005		11.49	11.91	0.42	231.16
	2/22/2005		11.55	11.88	0.33	231.11
	3/31/2005		8.98	9.24	0.26	233.69
	4/25/2005		10.90	11.29	0.39	231.75
	5/17/2005		11.96	12.34	0.38	230.69
	6/30/2005		12.93	13.74	0.81	229.66
	7/22/2005		11.28	11.45	0.17	231.40
	8/19/2005		13.02	13.54	0.52	229.61
	9/7/2005		13.16	13.54	0.38	229.49
	10/18/2005		12.02	12.27	0.25	230.65
	11/16/2005		11.69	12.03	0.34	230.97
	12/20/2005		10.72	10.99	0.27	231.94
	1/12/2006		10.82	11.07	0.25	231.85
	3/29/2006		12.52	13.11	0.59	230.10
	4/21/2006		12.98	13.46	0.48	229.66
	5/23/2006		13.30	13.90	0.60	229.32
	6/27/2006		12.39	12.68	0.29	230.27
	7/7/2006		10.48	10.60	0.12	232.20
	8/16/2006		13.12	13.64	0.52	229.51
	8/31/2006		13.75	14.31	0.56	228.88
	9/11/2006		12.26	12.43	0.17	230.42
	9/22/2006		12.29	12.54	0.25	230.38
	10/12/2006		12.33	12.81	0.48	230.31
	10/26/2006		12.75	12.98	0.23	229.92
	11/13/2006		11.34	11.60	0.26	231.33
	12/6/2006		11.43	11.80	0.37	231.22
	12/27/2006		11.95	12.26	0.31	230.71
	1/10/2007		11.29	11.45	0.16	231.39
	1/25/2007		11.89	12.04	0.15	230.79
	2/7/2007		12.49	12.58	0.09	230.20
	2/22/2007		12.39	12.42	0.03	230.31
	3/9/2007		11.31	11.37	0.06	231.38
	3/22/2007		10.33	10.35	0.02	232.37
	4/5/2007		11.29	11.41	0.12	231.39
	4/19/2007		10.73	10.86	0.13	231.95
	5/4/2007		11.29	11.39	0.10	231.40
	5/21/2007		12.30	12.55	0.25	230.37

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	6/1/2007		12.63	13.10	0.47	230.01
	6/12/2007		13.14	13.29	0.15	229.54
	6/27/2007		13.52	13.87	0.35	229.13
	7/10/2007		13.90	14.17	0.27	228.76
	7/23/2007		14.08	14.10	0.02	228.62
	8/7/2007		14.29	14.56	0.27	228.37
	8/15/2007		14.49	14.89	0.40	228.16
	8/28/2007		13.65	13.73	0.08	229.04
	9/12/2007		14.12	14.36	0.24	228.55
	9/25/2007		14.33	14.56	0.23	228.34
	10/10/2007		14.74	14.80	0.06	227.95
	10/19/2007		14.93	15.18	0.25	227.74
	10/29/2007		14.53	14.59	0.06	228.16
	11/15/2007		14.39	14.52	0.13	228.29
	11/20/2007		13.93	14.20	0.27	228.73
	12/12/2007		13.89	13.91	0.02	228.81
	12/28/2007		13.38	13.55	0.17	229.30
	1/9/2008		13.04	13.35	0.31	229.62
	2/4/2008		12.55	13.20	0.65	230.07
	2/26/2008		12.02	12.25	0.23	230.65
	3/14/2008		11.22	11.33	0.11	231.47
	3/25/2008		11.55	11.62	0.07	231.14
	4/7/2008			12.22		230.48
	4/28/2008			10.32		232.38
	5/19/2008		10.00	10.28	0.28	232.66
	6/4/2008			11.51		231.19
	6/12/2008		11.36	11.53	0.17	231.32
	6/30/2008		12.26	12.35	0.09	230.43
	7/10/2008		12.53	13.10	0.57	230.10
	7/24/2008			13.04		229.66
	8/8/2008		12.99	13.61	0.62	229.63
	8/25/2008		13.60	13.82	0.22	229.07
	9/5/2008		13.61	13.91	0.30	229.05
	9/24/2008		12.71	12.93	0.22	229.96
	10/10/2008		13.18	13.38	0.20	229.49
	10/23/2008		13.61	13.70	0.09	229.08
	11/6/2008		13.50	13.69	0.19	229.18
	11/24/2008		13.53	13.73	0.20	229.14
	12/9/2008		13.42	13.58	0.16	229.26
	12/23/2008		12.20	12.29	0.09	230.49
	1/13/2009		11.55	11.74	0.19	231.13
	1/30/2009			13.23		229.47
	2/16/2009		12.95	13.24	0.29	229.71

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	2/25/2009			13.11		229.59
	3/5/2009		13.23	13.27	0.04	229.46
	3/18/2009		13.69	13.75	0.06	229.00
	3/27/2009			13.57		229.13
	4/17/2009		12.90	13.16	0.26	229.77
	4/23/2009			11.42		231.28
	5/4/2009		11.78	11.88	0.10	230.91
	5/22/2009		11.25	11.38	0.13	231.43
	6/5/2009		11.11	11.30	0.19	231.57
	6/24/2009		11.35	11.48	0.13	231.33
	7/16/2009		12.55	12.73	0.18	230.13
	7/22/2009		12.81	12.90	0.09	229.88
EW-4	4/22/2004	243.20	9.89	11.06	1.17	233.16
	4/30/2004		10.25	10.54	0.29	232.91
	5/7/2004		9.90	10.04	0.14	233.28
	5/14/2004		10.68	10.87	0.19	232.50
	5/28/2004		10.71	11.02	0.31	232.45
	6/11/2004		9.47	9.93	0.46	233.67
	6/25/2004		10.43	10.78	0.35	232.72
	7/9/2004		11.48	12.03	0.55	231.65
	7/15/2004		11.75	11.98	0.23	231.42
	7/29/2004		12.43	13.20	0.77	230.67
	8/12/2004		12.75	13.03	0.28	230.41
	8/29/2004		12.99	13.39	0.40	230.16
	9/14/2004		13.17	13.88	0.71	229.94
	9/24/2004		11.95	11.97	0.02	231.25
	10/22/2004		11.68	11.78	0.10	231.51
	10/28/2004		11.52	11.60	0.08	231.67
	11/10/2004		11.73	11.91	0.18	231.45
	11/23/2004		11.24	11.37	0.13	231.94
	12/6/2004		10.71	10.71		232.49
	12/20/2004		10.47	10.50	0.03	232.73
	12/27/2004		10.55	10.56	0.01	232.65
	1/28/2005		11.16	11.17	0.01	232.04
	2/22/2005		11.28	11.35	0.07	231.91
	3/31/2005		7.95	8.40	0.45	235.19
	4/25/2005		10.51	10.59	0.08	232.68
	5/17/2005		11.69	11.76	0.07	231.50
	6/30/2005		12.32	13.08	0.76	230.78
	7/22/2005		10.81	10.81		232.39
	8/19/2005		12.69	12.91	0.22	230.48
	9/7/2005		12.79	13.21	0.42	230.36
	10/18/2005		11.56	11.63	0.07	231.63

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	11/16/2005		11.23	11.73		231.47
	12/20/2005		9.98	10.07	0.09	233.21
	1/12/2006		10.23	10.29	0.06	232.96
	3/29/2006		12.17	12.95	0.78	230.93
	4/21/2006		12.70	12.98	0.28	230.46
	5/23/2006		12.95	13.35	0.40	230.20
	6/27/2006		11.79	11.95	0.16	231.39
	7/7/2006		9.03	9.05	0.02	234.17
	8/16/2006		12.73	12.84	0.11	230.46
	8/31/2006		13.41	13.56	0.15	229.77
	9/11/2006		8.94	8.98	0.04	234.25
	9/22/2006		11.86	11.89	0.03	231.34
	10/12/2006		11.85	11.86	0.01	231.35
	10/26/2006			12.32		230.88
	12/6/2006		10.72	10.77	0.05	232.47
	12/27/2006			10.00		233.20
	1/10/2007			9.29		233.91
	1/25/2007		11.57	11.58	0.01	231.63
	2/7/2007			12.18		231.02
	3/9/2007		10.55	10.56	0.01	232.65
	3/22/2007		8.48	8.49	0.01	234.72
	4/5/2007		10.58	10.59	0.01	232.62
	4/19/2007			9.13		234.07
	5/4/2007		10.21	10.22	0.01	232.99
	5/21/2007		11.98	11.99	0.01	231.22
	6/1/2007		12.40	12.42	0.02	230.80
	6/12/2007		12.85	13.03	0.18	230.33
	6/27/2007		13.24	13.28	0.04	229.95
	7/10/2007			13.62		229.58
	7/23/2007			13.72		229.48
	8/7/2007		13.99	14.01	0.02	229.21
	8/15/2007		14.19	14.20	0.01	229.01
	8/28/2007			13.31		229.89
	9/12/2007			13.64		229.56
	9/25/2007			13.99		229.21
	10/10/2007		14.39	14.42	0.03	228.81
	10/19/2007		14.61	14.65	0.04	228.58
	10/29/2007			14.19		229.01
	11/20/2007			13.20		230.00
	12/12/2007			12.77		230.43
	12/28/2007			12.45		230.75
	1/9/2008			11.60		231.60
	2/4/2008			11.30		231.90

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	2/26/2008			9.45		233.75
	3/14/2008		8.29	8.30	0.01	234.91
	3/25/2008			9.55		233.65
	4/7/2008			11.04		232.16
	5/19/2008			7.37		235.83
	6/12/2008			9.64		233.56
	6/30/2008		10.67	10.68	0.01	232.53
	7/10/2008			11.99		231.21
	7/24/2008			12.06		231.14
	8/8/2008			14.37		228.83
	8/25/2008			13.19		230.01
	9/5/2008			13.28		229.92
	9/24/2008			12.19		231.01
	10/10/2008			12.60		230.60
	10/23/2008			13.22		229.98
	11/6/2008			13.08		230.12
	11/24/2008			13.08		230.12
	12/9/2008			12.84		230.36
	12/23/2008			10.59		232.61
	1/13/2009			9.72		233.48
	1/30/2009			11.81		231.39
	2/16/2009			12.53		230.67
	2/25/2009			12.67		230.53
	3/5/2009			12.84		230.36
	3/18/2009			13.15		230.05
	3/27/2009			13.12		230.08
	4/17/2009			11.71		231.49
	4/23/2009			7.35		235.85
	5/22/2009			9.15		234.05
	6/24/2009			8.88		234.32
	7/22/2009			12.49		230.71
EW-5	4/22/2004	243.60		11.05		232.55
	4/30/2004			11.31		232.29
	5/7/2004			10.96		232.64
	5/14/2004			11.69		231.91
	5/28/2004			11.76		231.84
	6/11/2004			10.58		233.02
	6/25/2004			11.48		232.12
	7/9/2004			12.56		231.04
	7/15/2004		12.74	12.76	0.02	230.86
	7/29/2004		13.51	13.56	0.05	230.08
	8/12/2004		13.82	13.85	0.03	229.78
	8/29/2004			14.07		229.53

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	9/14/2004		14.20	14.29	0.09	229.39
	9/24/2004			12.97		230.63
	10/22/2004			12.60		231.00
	10/28/2004		12.58	12.59	0.01	231.02
	11/10/2004		12.77	12.78	0.01	230.83
	11/23/2004		12.26	12.27	0.01	231.34
	12/6/2004			11.74		231.86
	12/20/2004		11.50	11.51	0.01	232.10
	12/27/2004			11.65		231.95
	1/28/2005		12.24	12.27	0.03	231.36
	2/22/2005		12.35	12.49	0.14	231.23
	3/31/2005		9.70	9.72	0.02	233.90
	4/25/2005		11.62	11.70	0.08	231.97
	5/17/2005		12.69	12.88	0.19	230.89
	6/30/2005		13.74	14.00	0.26	229.83
	7/22/2005		12.01	12.07	0.06	231.58
	8/19/2005		13.83	13.98	0.15	229.75
	9/7/2005		13.93	14.00	0.07	229.66
	10/18/2005		12.79	12.84	0.05	230.80
	11/16/2005		12.46	12.52	0.06	231.13
	12/20/2005		11.52	11.58	0.06	232.07
	1/12/2006		11.61	11.67	0.06	231.98
	3/29/2006		13.32	13.62	0.30	230.24
	4/21/2006		13.80	13.90	0.10	229.79
	5/23/2006		14.05	14.22	0.17	229.53
	6/27/2006		13.10	13.19	0.09	230.49
	7/7/2006		11.27	11.28	0.01	232.33
	8/16/2006		13.90	14.08	0.18	229.68
	8/31/2006		14.46	14.60	0.14	229.12
	9/11/2006		13.05	13.11	0.06	230.54
	9/22/2006		13.10	13.11	0.01	230.50
	10/12/2006		13.17	13.27	0.10	230.42
	10/26/2006		13.49	13.55	0.06	230.10
	11/13/2006		11.70	11.95	0.25	231.87
	12/6/2006		12.27	12.31	0.04	231.32
	12/27/2006		12.66	12.68	0.02	230.94
	1/10/2007		11.99	12.02	0.03	231.61
	1/25/2007		12.68	12.70	0.02	230.92
	2/7/2007		13.28	13.32	0.04	230.31
	2/22/2007		13.18	13.22	0.04	230.41
	2/26/2007		12.74	12.77	0.03	230.86
	3/9/2007		12.09	12.10	0.01	231.51
	3/22/2007			11.04		232.56

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	4/5/2007		12.08	12.10	0.02	231.52
	4/19/2007		11.45	11.46	0.01	232.15
	5/4/2007		12.04	12.06	0.02	231.56
	5/21/2007		13.10	13.15	0.05	230.49
	6/1/2007		13.49	13.63	0.14	230.09
	6/12/2007		13.98	14.10	0.12	229.60
	6/27/2007		14.33	14.43	0.10	229.26
	7/10/2007		14.73	14.85	0.12	228.85
	7/23/2007			14.85		228.75
	8/7/2007		15.06	15.23	0.17	228.52
	8/15/2007			15.28		228.32
	8/28/2007		14.44	14.60	0.16	229.14
	9/12/2007		14.91	15.01	0.10	228.68
	9/25/2007		15.14	15.24	0.10	228.45
	10/10/2007		15.55	15.56	0.01	228.05
	10/19/2007		15.73	15.84	0.11	227.86
	10/29/2007			15.31		228.29
	11/15/2007		15.14	15.20	0.06	228.45
	11/20/2007		14.69	14.71	0.02	228.91
	12/12/2007		14.76	14.77	0.01	228.84
	12/28/2007		14.14	14.16	0.02	229.46
	1/9/2008		13.84	13.90	0.06	229.75
	2/4/2008		13.36	13.42	0.06	230.23
	2/26/2008		12.80	12.81	0.01	230.80
	3/14/2008		12.01	12.02	0.01	231.59
	3/25/2008		12.42	12.43	0.01	231.18
	4/7/2008			12.98		230.62
	4/28/2008			11.21		232.39
	5/19/2008			10.73		232.87
	6/4/2008			12.59		231.01
	6/12/2008		12.24	12.25	0.01	231.36
	6/30/2008		13.18	13.19	0.01	230.42
	7/10/2008			13.30		230.30
	7/24/2008		13.15	13.30	0.15	230.43
	8/8/2008			13.85		229.75
	8/25/2008		14.40	14.44	0.04	229.19
	9/5/2008		14.42	14.53	0.11	229.17
	9/24/2008		13.52	13.53	0.01	230.08
	10/10/2008		13.96	14.01	0.05	229.63
	10/23/2008			14.46		229.14
	11/6/2008		14.27	14.32	0.05	229.32
	11/24/2008		14.29	14.31	0.02	229.31
	12/9/2008		14.21	14.23	0.02	229.39

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	12/23/2008			12.93		230.67
	1/13/2009		12.39	12.40	0.01	231.21
	2/16/2009		13.70	13.71	0.01	229.90
	2/25/2009			13.86		229.74
	3/5/2009		13.99	14.00	0.01	229.61
	3/18/2009		14.53	14.56	0.03	229.07
	3/27/2009			14.39		229.21
	4/17/2009		13.71	13.72	0.01	229.89
	4/23/2009			12.19		231.41
	5/4/2009			12.66		230.94
	5/22/2009			12.02		231.58
	6/5/2009		11.91	11.93	0.02	231.69
	6/24/2009		12.15	12.16	0.01	231.45
	7/16/2009		13.35	13.36	0.01	230.25
	7/22/2009			13.65		229.95
EW-6	4/22/2004	242.40		9.90		232.50
	4/30/2004			10.41		231.99
	5/7/2004			9.79		232.61
	5/14/2004			10.89		231.51
	5/28/2004			10.97		231.43
	6/11/2004			9.44		232.96
	6/25/2004			10.58		231.82
	7/9/2004			11.95		230.45
	7/15/2004			12.17		230.23
	8/12/2004			13.52		228.88
	9/14/2004			13.88		228.52
	10/28/2004			11.64		230.76
	11/23/2004			11.17		231.23
	12/20/2004			10.15		232.25
	1/28/2005			11.27		231.13
	2/22/2005			10.81		231.59
	3/31/2005			8.23		234.17
	4/25/2005			10.20		232.20
	5/17/2005			11.90		230.50
	6/30/2005			13.32		229.08
	7/22/2005			9.80		232.60
	8/19/2005			13.32		229.08
	9/7/2005			13.55		228.85
	10/18/2005			11.27		231.13
	11/16/2005			10.25		232.15
	12/20/2005			9.39		233.01
	1/12/2006			9.51		232.89
	2/17/2006			9.74		232.66

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	3/29/2006			12.91		229.49
	4/21/2006			13.45		228.95
	5/23/2006			13.74		228.66
	6/27/2006			12.88		229.52
	7/7/2006			9.05		233.35
	8/16/2006			13.20		229.20
	8/31/2006			14.18		228.22
	9/11/2006			10.27		232.13
	9/22/2006			10.47		231.93
	10/12/2006			10.53		231.87
	10/26/2006			11.41		230.99
	11/13/2006			9.39		233.01
	12/6/2006			9.84		232.56
	12/27/2006			10.14		232.26
	1/10/2007			9.58		232.82
	1/25/2007			10.68		231.72
	2/7/2007			11.92		230.48
	2/22/2007			12.76		229.64
	2/26/2007			11.02		231.38
	3/9/2007			9.57		232.83
	3/22/2007			8.70		233.70
	4/5/2007			9.76		232.64
	4/19/2007			9.02		233.38
	5/4/2007			9.72		232.68
	5/21/2007			12.12		230.28
	6/1/2007			12.91		229.49
	6/12/2007			13.56		228.84
	6/27/2007			13.98		228.42
	7/10/2007			14.41		227.99
	7/23/2007			14.55		227.85
	8/7/2007			14.63		227.77
	8/15/2007			14.99		227.41
	8/28/2007			13.73		228.67
	9/12/2007			14.13		228.27
	9/25/2007			14.80		227.60
	10/10/2007			15.23		227.17
	10/19/2007			15.41		226.99
	10/29/2007			15.05		227.35
	11/15/2007			14.48		227.92
	11/20/2007			13.13		229.27
	12/12/2007			14.85		227.55
	12/28/2007			12.53		229.87
	1/9/2008			12.11		230.29

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	2/4/2008			11.78		230.62
	2/26/2008			11.75		230.65
	3/14/2008			10.81		231.59
	3/25/2008			11.25		231.15
	4/7/2008			12.09		230.31
	4/28/2008			10.32		232.08
	5/19/2008			9.48		232.92
	6/4/2008			11.43		230.97
	6/12/2008			10.95		231.45
	6/30/2008			12.02		230.38
	7/10/2008			12.36		230.04
	7/24/2008			12.10		230.30
	8/8/2008			13.52		228.88
	8/25/2008			14.11		228.29
	9/5/2008			14.20		228.20
	9/24/2008			13.17		229.23
	10/10/2008			13.63		228.77
	10/23/2008			14.14		228.26
	11/6/2008			13.94		228.46
	11/24/2008			14.00		228.40
	12/9/2008			13.95		228.45
	12/23/2008			12.64		229.76
	1/13/2009			12.13		230.27
	2/16/2009			13.39		229.01
	2/25/2009			13.55		228.85
	3/5/2009			13.74		228.66
	3/18/2009			13.99		228.41
	3/27/2009			14.07		228.33
	4/17/2009			13.24		229.16
	4/23/2009			11.91		230.49
	5/4/2009			12.27		230.13
	5/22/2009			11.67		230.73
	6/5/2009			11.55		230.85
	6/24/2009			11.80		230.60
	7/22/2009			13.33		229.07
EW-7	4/22/2004	243.20		10.64		232.56
	4/30/2004			10.92		232.28
	5/7/2004			10.50		232.70
	5/14/2004			11.24		231.96
	5/28/2004			11.32		231.88
	6/11/2004			9.94		233.26
	6/25/2004			11.07		232.13
	7/9/2004			12.08		231.12

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	8/12/2004			13.37		229.83
	9/14/2004			13.74		229.46
	10/28/2004			17.11		226.09
	11/23/2004			11.81		231.39
	12/20/2004			11.07		232.13
	1/28/2005			11.76		231.44
	2/22/2005			11.87		231.33
	3/31/2005			9.22		233.98
	4/25/2005			11.17		232.03
	5/17/2005			12.24		230.96
	6/30/2005			13.32		229.88
	7/22/2005			11.58		231.62
	8/19/2005			13.36		229.84
	9/7/2005			13.49		229.71
	10/18/2005			12.33		230.87
	11/16/2005			12.05		231.15
	12/20/2005			11.13		232.07
	1/12/2006			11.18		232.02
	2/17/2006			11.23		231.97
	3/29/2006			12.94		230.26
	4/21/2006			13.39		229.81
	5/23/2006			13.68		229.52
	6/27/2006			12.87		230.33
	7/7/2006			10.83		232.37
	7/26/2006			10.83		232.37
	8/16/2006			13.46		229.74
	8/31/2006			14.05		229.15
	9/11/2006			12.63		230.57
	9/22/2006			12.60		230.60
	10/26/2006			13.03		230.17
	11/13/2006			12.66		230.54
	12/6/2006			11.80		231.40
	12/27/2006			12.24		230.96
	1/10/2007			11.69		231.51
	1/25/2007			12.23		230.97
	2/7/2007			12.81		230.39
	2/22/2007			8.62		234.58
	3/9/2007			11.69		231.51
	3/22/2007			10.77		232.43
	4/5/2007			11.61		231.59
	4/19/2007			11.09		232.11
	5/4/2007			11.61		231.59
	5/21/2007			12.63		230.57

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	6/1/2007			12.98		230.22
	6/12/2007			13.48		229.72
	6/27/2007			13.98		229.22
	7/10/2007			14.26		228.94
	7/23/2007			14.42		228.78
	8/7/2007			14.70		228.50
	8/15/2007			14.87		228.33
	8/28/2007			14.02		229.18
	9/12/2007			14.44		228.76
	9/25/2007			14.73		228.47
	10/10/2007			15.11		228.09
	10/19/2007			15.29		227.91
	10/29/2007			14.90		228.30
	11/15/2007			14.78		228.42
	11/20/2007			14.35		228.85
	12/12/2007			14.18		229.02
	12/28/2007			13.69		229.51
	1/9/2008			13.34		229.86
	2/4/2008			12.99		230.21
	2/26/2008			12.45		230.75
	3/14/2008			11.63		231.57
	3/25/2008			11.87		231.33
	4/7/2008			12.44		230.76
	4/28/2008			10.79		232.41
	5/19/2008			10.24		232.96
	6/4/2008			12.16		231.04
	6/12/2008			11.73		231.47
	6/30/2008			12.54		230.66
	8/8/2008			13.36		229.84
	8/25/2008			13.95		229.25
	9/5/2008			14.04		229.16
	9/24/2008			13.02		230.18
	10/10/2008			13.47		229.73
	11/6/2008			13.85		229.35
	11/24/2008			13.94		229.26
	12/9/2008			13.88		229.32
	12/23/2008			12.61		230.59
	1/13/2009			12.09		231.11
	2/16/2009			13.30		229.90
	2/25/2009			13.50		229.70
	3/5/2009			13.65		229.55
	3/18/2009			13.86		229.34
	3/27/2009			13.94		229.26

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	4/17/2009			13.12		230.08
	4/23/2009			11.93		231.27
	5/4/2009			12.21		230.99
	5/22/2009			11.60		231.60
	6/5/2009			11.51		231.69
	6/24/2009			11.70		231.50
	7/22/2009			13.22		229.98
CS-1	9/12/2007	239.38		9.84		229.54
	9/25/2007			9.99		229.39
	10/19/2007		10.80	10.91	0.11	228.57
	10/29/2007		9.83	9.84	0.01	229.55
	11/20/2007		9.81	9.82	0.01	229.57
	12/3/2007			9.84		229.54
	12/12/2007			9.81		229.57
	12/28/2007		9.61	9.62	0.01	229.77
	1/9/2008			9.58		229.80
	2/4/2008		9.14	9.16	0.02	230.24
	2/26/2008			8.43		230.95
	3/14/2008			8.48		230.90
	3/25/2008			8.58		230.80
	4/7/2008			8.85		230.53
	4/28/2008			8.63		230.75
	5/19/2008			7.85		231.53
	6/4/2008			8.13		231.25
	6/12/2008		8.59	8.60	0.01	230.78
	6/30/2008			8.78		230.60
	7/10/2008			9.65		229.73
	7/24/2008			9.81		229.57
	8/8/2008			9.70		229.68
	8/25/2008			9.81		229.57
	9/5/2008			9.90		229.48
	9/24/2008			9.28		230.10
CS-2	9/12/2007	236.90		7.73		229.17
	9/25/2007		7.97	7.98	0.01	228.93
	10/10/2007			6.30		230.60
	10/19/2007			8.48		228.42
	10/29/2007		8.00	8.01	0.01	228.90
	11/20/2007		7.74	7.76	0.02	229.16
	12/3/2007		7.64	7.65	0.01	229.26
	12/12/2007			7.54		229.36
	12/28/2007		7.13	7.14	0.01	229.77
	1/9/2008			7.11		229.79
	2/4/2008			6.65		230.25

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	2/26/2008			6.44		230.46
	3/14/2008			6.02		230.88
	3/25/2008			6.10		230.80
	4/7/2008			6.37		230.53
	4/28/2008			6.27		230.63
	5/19/2008			5.42		231.48
	6/4/2008			5.79		231.11
	6/12/2008			6.12		230.78
	6/30/2008			6.23		230.67
	7/10/2008			7.20		229.70
	7/24/2008			7.35		229.55
	8/8/2008			7.25		229.65
	8/25/2008			7.65		229.25
	9/5/2008			7.73		229.17
	9/24/2008			6.81		230.09
CS-3	9/12/2007	235.13		6.04		229.09
	9/25/2007			6.29		228.84
	10/10/2007			6.62		228.51
	10/19/2007			6.80		228.33
	10/29/2007			6.32		228.81
	11/20/2007			6.09		229.04
	12/3/2007			5.95		229.18
	12/12/2007			5.88		229.25
	12/28/2007			5.49		229.64
	1/9/2008			5.05		230.08
	2/4/2008			5.05		230.08
	2/26/2008		4.95	4.96	0.01	230.18
	3/14/2008			4.55		230.58
	3/25/2008			4.63		230.50
	4/7/2008			4.83		230.30
	4/28/2008			4.61		230.52
	5/19/2008			4.04		231.09
	6/4/2008			4.26		230.87
	6/12/2008			4.61		230.52
	6/30/2008			4.74		230.39
	7/10/2008			5.50		229.63
	7/24/2008			6.62		228.51
	8/8/2008			5.62		229.51
	8/25/2008			6.02		229.11
	9/5/2008			6.13		229.00
	9/24/2008			5.20		229.93
CS-4	9/12/2007	234.81		5.69		229.12
	9/25/2007			5.93		228.88

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	10/10/2007			6.25		228.56
	10/19/2007			6.43		228.38
	10/29/2007			5.95		228.86
	11/20/2007			5.72		229.09
	12/3/2007			5.61		229.20
	12/12/2007			5.49		229.32
	12/28/2007			5.14		229.67
	1/9/2008			5.11		229.70
	2/4/2008			4.69		230.12
	2/26/2008			4.61		230.20
	3/14/2008			4.24		230.57
	3/25/2008			4.29		230.52
	4/7/2008			4.49		230.32
	4/28/2008			4.31		230.50
	5/19/2008			3.71		231.10
	6/4/2008			3.94		230.87
	6/12/2008			4.29		230.52
	6/30/2008			4.39		230.42
	7/10/2008			5.24		229.57
	7/24/2008			5.39		229.42
	8/8/2008			5.29		229.52
	8/25/2008			5.67		229.14
	9/5/2008			5.76		229.05
	9/24/2008			4.85		229.96
CS-5	9/12/2007	232.45		5.91		226.54
	9/25/2007			6.92		225.53
	10/10/2007			7.41		225.04
	10/19/2007			7.53		224.92
	10/29/2007			5.88		226.57
	11/20/2007			4.94		227.51
	12/3/2007			5.41		227.04
	12/12/2007			4.93		227.52
	12/28/2007			2.73		229.72
	1/9/2008			4.77		227.68
	2/4/2008			2.25		230.20
	2/26/2008			2.19		230.26
	3/14/2008			1.82		230.63
	3/25/2008			1.90		230.55
	4/7/2008			2.08		230.37
	4/28/2008			2.28		230.17
	5/19/2008			1.35		231.10
	6/4/2008			1.65		230.80
	6/12/2008			1.88		230.57

Table E-1a
Well Gauging Data Summary Table
January 1995 through June 2009
C and O Canal/Brunswick Railyard, Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)
	6/30/2008			2.11		230.34
	7/10/2008			2.94		229.51
	7/24/2008			3.09		229.36
	8/8/2008			2.99		229.46
	8/25/2008			4.70		227.75
	9/5/2008			4.79		227.66
	9/24/2008			2.43		230.02

Table E-1b
Well Gauging Data and LPH Recovery Summary Table
July 2009 (CAP Implementation) through March 2012
C and O Canal/Brunswick Rail Yard Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)	LPH Recovery Method (SP,PS, PP, or AS)	LPH Recovered (gallons)	Total LPH Recovered Since July 2009 (gallons)	Notes
MW-01	6/15/2010	247.2		15.81		231.39	--			
	9/21/2010			17.67		229.53	--			
	12/10/2010			15.81		231.39	--			
	2/14/2011			15.97		231.23	--			
	5/27/2011			14.09		233.11	--			
	8/8/2011			16.98		230.22	--			
	12/15/2011			14.34		232.86	--			
	3/21/2012			15.39		231.81	--		0	
MW-02	7/14/2009	247.55	17.18	17.19	0.01	230.37	--			
	7/22/2009		17.33	17.43	0.1	230.21	--			
	8/3/2009			15.38		232.17	--			
	8/18/2009			17.37		230.18	--			
	9/3/2009		17.23	17.32	0.09	230.31	PP	0.026		
	9/18/2009		17.76	17.93	0.17	229.77	PP	0.066		
	10/6/2009		17.98	18.32	0.34	229.53	PP	0.251		
	10/19/2009		16.15	16.44	0.29	231.36	PS			Placed PS in well
	11/5/2009		16.07	16.08	0.01	231.48	PS			
	11/12/2009			16.55		231	PS			
	12/4/2009			15.36		232.19	--			
	12/11/2009			12.94		234.61	--			
	12/16/2009			14.25		233.3	--			
	1/20/2010			14.86		232.69	--			
	2/16/2010			13.3		234.25	--			
	3/1/2010			12.7		234.85	--			
	3/8/2010		14.37	14.38	0.01	233.18	--			
	4/5/2010			14.47		233.08	--			
	5/3/2010			15.35		232.2	--			
	5/26/2010			13.6		233.95	--			
	6/15/2010		16.81	16.82	0.01	230.74	--			
	6/18/2010		16.8	16.81	0.01	230.75	AS	0.003		
	7/30/2010			18.21		229.34	--			
	9/2/2010		19.05	19.11	0.06	228.49	AS	0.02		
	9/21/2010		18.85	19.42	0.57	228.63	PP	0.106		
	10/13/2010		17.65	17.72	0.07	229.89	AS	0.02		
	11/4/2010			17.63		229.92	--			
	12/10/2010			16.69		230.86	--			
	1/28/2011			18.75		228.8	--			
	2/14/2011		16.71	16.76	0.05	230.83	--			
	3/4/2011		16.45	16.5	0.05	231.09	--			
	4/13/2011		12.6	12.62	0.02	234.95	AS	0.007		
	4/29/2011		11.32	11.38	0.06	236.22	--			
	5/13/2011			15.61		231.94	AS	0.013		
	5/27/2011			14.38		233.17	--			
	6/15/2011			16.86		230.69	--			
	7/14/2011			17.51		230.04	--			
	8/8/2011			17.62		229.93	--			
	9/14/2011			13.82		233.73	--			
	10/25/2011			14.37		233.18	--			
	12/15/2011						--			Inaccessible
	1/6/2012			15.43		232.12	--			
	1/27/2012			14.95		232.6	--			
	2/28/2012			16.5		231.05	--			
	3/21/2012			15.84		231.71	--		0.512	
MW-03	6/15/2010	248.38		16.3		232.08	--			
	9/21/2010			18.76		229.62	--			
	12/10/2010			16.74		231.64	--			
	2/14/2011			17.21		231.17	--			
	5/26/2011			14.57		233.81	--			
	8/8/2011			17.72		230.66	--			
	12/15/2011						--			Inaccessible
	3/21/2012			16.06		232.32	--		0	
MW-04R	7/14/2009	244.68		13.5		231.18	--			
	7/22/2009			13.7		230.98	--			
	8/3/2009		12.78	13.01	0.23	231.87	--			Installed PS
	8/18/2009		14.18	14.25	0.07	230.49	PS	0.145		
	9/3/2009		13.6	13.97	0.37	231.03	PS	0.066		
	9/18/2009		14.14	14.23	0.09	230.53	PS	0.568		
	10/6/2009		14.32	14.61	0.29	230.32	PS	0.092		
	10/19/2009		13.39	13.42	0.03	231.29	PS	0.713		
	11/5/2009		12.76	12.8	0.04	231.91	PS	0.174		
	11/12/2009		12.7	12.78	0.08	231.97	PS	0.066		
	12/4/2009		12.29	23.32	0.03	221.39	PS	0.264		
	12/11/2009			11.04		233.64	PS	0.026		
	12/16/2009		11.81	11.82	0.01	232.87	--			
	1/20/2010			11.28		233.4	--			
	2/16/2010			12		232.68	--			
	3/1/2010			3.9		240.78	--			
	4/5/2010			10.21		234.47	--			
	5/3/2010			11.6		233.08	--			
	5/26/2010			9.92		234.76	--			
	6/15/2010			13.15		231.53	--			
	7/30/2010			14.57		230.11	--			
	9/2/2010		15.29	15.35	0.06	229.38	AS	0.013		
	9/21/2010		15.29	15.74	0.45	229.33	PP	0.092		
	10/13/2010		13.98	14.19	0.21	230.67	AS	0.04		
	11/4/2010		13.65	13.72	0.07	231.02	AS	0.02		
	12/10/2010		13.16	13.24	0.08	231.51	--			
	1/28/2011			14.65		230.03	--			
	2/14/2011		12.93	13.13	0.2	231.72	--			
	3/4/2011		11.74	12.03	0.29	232.9	--			
	4/13/2011			8.4		236.28	--			
	4/29/2011		8.15	8.16	0.01	236.53	--			
	5/26/2011			13.63		231.05	--			
	6/15/2011		12.86	12.94	0.08	231.81	--			
	7/14/2011			13.35		231.33	--			
	8/8/2011		14.5	14.51	0.01	230.18	--			

Table E-1b
Well Gauging Data and LPH Recovery Summary Table
July 2009 (CAP Implementation) through March 2012
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Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)	LPH Recovery Method (SP,PS, PP, or AS)	LPH Recovered (gallons)	Total LPH Recovered Since July 2009 (gallons)	Notes
	9/14/2011			10.94		233.74	--			
	10/25/2011			11.19		233.49	--			
	12/15/2011			10.71		233.97	--			
	1/27/2012			10.41		234.27	--			
	2/28/2012			13.25		231.43	--			
	3/21/2012			12.59		232.09	--		2.279	
MW-05	6/15/2010	245.37		13.85		231.52	--			
	9/21/2010			15.93		229.44	--			
	12/10/2010			13.97		231.4	--			
	2/14/2011			14.22		231.15	--			
	5/27/2011			11.98		233.39	--			
	8/8/2011			15.12		230.25	--			
	12/15/2011			12.33		233.04	--			
	3/20/2012			13.38		231.99	--		0	
MW-06R	6/15/2010	233.63		6.55		227.08	--			
	9/21/2010			8.98		224.65	--			
	12/10/2010			6.42		227.21	--			
	2/14/2011			6.19		227.44	--			
	5/26/2011			4.68		228.95	--			
	8/8/2011			8.34		225.29	--			
	12/15/2011			4.53		229.1	--			
	3/21/2012			5		228.63	--		0	
MW-08	6/15/2010	235.51		12.98		222.53	--			
	9/21/2010			15.74		219.77	--			
	12/10/2010			13.96		221.55	--			
	2/14/2011			13.28		222.23	--			
	5/26/2011			9.94		225.57	--			
	8/8/2011			15.11		220.4	--			
	12/15/2011			10.11		225.4	--			
	3/20/2012			11.13		224.38	--		0	
MW-09	6/15/2010	237.54		13.45		224.09	--			
	9/21/2010			15.11		222.43	--			
	12/10/2010			13.41		224.13	--			
	2/14/2011			13.03		224.51	--			
	5/26/2011			11.92		225.62	--			
	8/8/2011			14.53		223.01	--			
	12/15/2011			11.84		225.7	--			
	3/20/2012			12.18		225.36	--		0	
MW-20	6/15/2010	236.27		8.68		227.59	--			
	9/21/2010			9.99		226.28	--			
	12/10/2010			8.3		227.97	--			
	2/14/2011			8.4		227.87	--			
	5/26/2011			6.33		229.94	--			
	8/8/2011			9.62		226.65	--			
	12/15/2011			6.64		229.63	--			
	3/20/2012			7.34		228.93	--		0	
MW-21	6/15/2010	244.26		12.38		231.88	--			
	9/21/2010			12.73		231.53	--			
	12/10/2010			11.92		232.34	--			
	2/14/2011			12.7		231.56	--			
	5/27/2011			11.62		232.64	--			
	8/8/2011			12.68		231.58	--			
	12/15/2011			11.81		232.45	--			
	3/21/2012			12.44		231.82	--		0	
MW-22	6/15/2010	245.65		13.52		232.13	--			
	9/21/2010			15.61		230.04	--			
	12/10/2010			13.72		231.93	--			
	2/14/2011			13.95		231.7	--			
	5/26/2011			11.25		234.4	--			
	8/8/2011			14.7		230.95	--			
	12/15/2011			11.45		234.2	--			
	3/21/2012			13.07		232.58	--		0	
MW-23	7/14/2009	244.57		13.2		231.37	--			
	7/22/2009		13.49	13.5	0.01	231.08	--			
	8/18/2009		13.51	13.53	0.02	231.06	PP	0.026		
	9/18/2009			13.75		230.82	--			
	10/6/2009			13.78		230.79	--			
	10/19/2009			10.83		233.74	--			
	11/5/2009		12.28	12.29	0.01	232.29	--			
	11/12/2009			12.83		231.74	--			
	12/4/2009			9.48		235.09	--			
	1/20/2010			4.41		240.16	--			
	2/16/2010			11.04		233.53	--			
	4/5/2010			10.81		233.76	--			
	5/3/2010			11.45		233.12	--			
	5/26/2010			9.62		234.95	--			
	6/15/2010			12.95		231.62	--			
	7/30/2010			13.77		230.8	--			
	9/2/2010			13.19		231.38	--			
	9/21/2010			13.75		230.82	--			
	10/13/2010			13.75		230.82	--			
	11/4/2010			13.57		231	--			
	12/10/2010			13.07		231.5	--			
	1/28/2011			13.77		230.8	--			
	2/14/2011			12.1		232.47	--			
	3/4/2011			11.14		233.43	--			
	4/13/2011						--			
	5/26/2011			12.84		231.73	--			
	6/15/2011			12.65		231.92	--			
	7/14/2011			13.03		231.54	--			
	8/8/2011			13.74		230.83	--			
	9/14/2011			12.51		232.06	--			
	10/25/2011			11.05		233.52	--			
	12/15/2011			10.42		234.15	--			
	1/27/2012			8.52		236.05	--			
	2/28/2012			12.89		231.68	--			

Table E-1b
Well Gauging Data and LPH Recovery Summary Table
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Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)	LPH Recovery Method (SP,PS, PP, or AS)	LPH Recovered (gallons)	Total LPH Recovered Since July 2009 (gallons)	Notes
	3/21/2012			12.03		232.54	--		0.026	
MW-24	6/15/2010	244.5		11.85		232.65	--			
	9/21/2010			11.02		233.48	--			
	12/10/2010			8.52		235.98	--			
	2/14/2011			8.2		236.3	--			
	5/26/2011						--			
	8/8/2011			12.34		232.16	--			
	12/15/2011						--			In standing water
	3/20/2012			11.63		232.87	--		0	
MW-25	6/15/2010	245.36		13.55		231.81	--			
	9/21/2010			15.85		229.51	--			
	12/10/2010			14.04		231.32	--			
	2/14/2011			14.63		230.73	--			
	5/26/2011			12.19		233.17	--			
	8/8/2011			14.83		230.53	--			
	12/15/2011			12.54		232.82	--			
	3/21/2012			13.45		231.91	--		0	
MW-26	7/22/2009	244.67	13.88	13.89	0.01	230.79	--			
	9/3/2009		13.92	14.06	0.14	230.73	PP	0.04		
	9/18/2009		14.35	14.5	0.15	230.3	PP	0.03		
	10/6/2009		14.61	14.67	0.06	230.05	AS			
	10/19/2009		13.83	14.08	0.25	230.81	AS	0.106		
	11/5/2009			12.99		231.68	AS	0.007		
	12/4/2009			13.08		231.59	--			
	1/20/2010			12.39		232.28	--			
	4/5/2010			11.6		233.07	--			
	5/3/2010			11.95		232.72	--			
	5/26/2010		11.59	11.75	0.16	233.06	AS	0.066		
	6/15/2010			13.6		231.07	--			
	7/30/2010		14.95	14.97	0.02	229.72	AS	0.003		
	9/2/2010		15.77	16.01	0.24	228.87	PP	0.066		
	9/21/2010		15.58	16.03	0.45	229.03	PP	0.079		
	10/13/2010		14.46	14.48	0.02	230.21	AS	0.264		
	11/4/2010			14.33		230.34	--			
	11/24/2010			14.16		230.51	AS	0.04		
	12/10/2010			13.78		230.89	--			
	1/28/2011		15.15	15.16	0.01	229.52	AS	0.003		
	2/14/2011		13.75	13.96	0.21	230.89	--			
	3/4/2011		14.46	14.66	0.2	230.18	--			
	4/13/2011		12.11	12.36	0.25	232.53	PP	0.053		
	4/20/2011		10.55	10.82	0.27	234.08	--			
	4/29/2011			11.29		233.38	AS	0.079		
	5/13/2011			12.42		232.25	AS	0.053		
	5/26/2011			13.23		231.44	--			
	6/15/2011			13.14		231.53	AS	0.053		
	7/14/2011		13.98	13.99	0.01	230.69	AS	0.026		
	8/8/2011		14.73	14.84	0.11	229.93	--			
	9/14/2011		13.3	13.5	0.2	231.34	AS	0.132		
	10/25/2011			12.51		232.16	--			
	12/15/2011			10.43		234.24	--			
	1/6/2012		12.5	12.51	0.01	232.17	AS	0.066		
	1/27/2012			12.59		232.08	--			
	2/7/2012			12.99		231.68	AS	0.079		Installed AS
	2/28/2012			13.55		231.12	--			
	3/21/2012			13.08		231.59	--		1.245	
MW-27	6/15/2010	244.29		7.5		236.79	--			
	9/21/2010			12.71		231.58	--			
	12/10/2010			7.39		236.9	--			
	2/14/2011			7.36		236.93	--			
	5/26/2011			7.32		236.97	--			
	8/8/2011						--			"Well inaccessible, yard construction"
	12/15/2011						--			Graded over
	3/21/2012			7.5		236.79	--		0	
MW-28	7/14/2009	244.23	12.97	12.98	0.01	231.26	--			
	7/22/2009		13.14	13.2	0.06	231.08	--			
	8/3/2009			11.71		232.52	--			installed PS
	8/18/2009		13.25	13.32	0.07	230.97	PP	0.053		
	9/3/2009		12.98	13.05	0.07	231.24	PP	0.013		
	9/18/2009		13.48	13.57	0.09	230.74	PP	0.026		
	10/6/2009		13.77	13.8	0.03	230.46	AS			
	10/19/2009		12.85	12.9	0.05	231.37	AS	0.007		
	11/5/2009			12.33		231.9	AS	0.001		
	12/4/2009			11.71		232.52	AS	0.001		
	1/20/2010			11.48		232.75	--			
	4/5/2010			10.4		233.83	--			
	5/3/2010			11.07		233.16	--			
	5/26/2010			10.22		234.01	--			
	6/15/2010		12.6	12.61	0.01	231.63	--			
	6/18/2010		12.61	12.63	0.02	231.62	AS	0.003		
	7/30/2010			13.94		230.29	--			
	9/2/2010			14.36		229.87	--			
	9/21/2010		14.73	14.74	0.01	229.5	AS	0.003		
	10/13/2010		13.45	13.49	0.04	230.77	AS	0.006		
	12/10/2010			12.54		231.69	--			
	1/28/2011			14.35		229.88	--			
	2/14/2011			12.59		231.64	--			
	3/4/2011			12.28		231.95	--			
	4/13/2011			8.27		235.96	--			
	4/29/2011			9.53		234.7	--			
	5/27/2011			10.24		233.99	--			
	6/15/2011			12.32		231.91	--			
	7/14/2011			12.75		231.48	--			
	8/8/2011			13.83		230.4	--			
	9/14/2011		11.35	11.36	0.01	232.88	AS	0.005		
	10/25/2011		12.74	12.75	0.01	231.49	--			

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Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)	LPH Recovery Method (SP,PS, PP, or AS)	LPH Recovered (gallons)	Total LPH Recovered Since July 2009 (gallons)	Notes
	12/15/2011			10.35		233.88	--			
	1/6/2012			10.78		233.45	--			
	1/27/2012			10.78		233.45	--			
	2/28/2012			12.43		231.8	--			
	3/21/2012			11.5		232.73	--		0.118	
MW-29	6/15/2010	243.74		13.89		229.85	--			
	9/21/2010			15.48		228.26	--			
	12/10/2010			13.81		229.93	--			
	2/14/2011			14.07		229.67	--			Under water
	5/27/2011			12.64		231.1	--			
	8/8/2011			14.63		229.11	--			
	12/15/2011			12.68		231.06	--			
	3/21/2012			13.3		230.44	--		0	
MW-30	7/22/2009	245.46		14.23		231.23	--			
	8/18/2009			14.28		231.18	--			
	9/18/2009			14.6		230.86	--			
	10/6/2009			14.81		230.65	--			
	10/19/2009			13.22		232.24	--			
	11/5/2009			12.83		232.63	--			
	12/4/2009			12.1		233.36	--			
	1/20/2010			12.41		233.05	--			
	2/16/2010			11.55		233.91	--			
	4/5/2010			11.37		234.09	--			
	5/3/2010			11.94		233.52	--			
	5/26/2010			10.24		235.22	--			
	6/15/2010			13.66		231.8	--			
	9/2/2010			15.49		229.97	--			
	9/21/2010		15.78	15.79	0.01	229.68	--			
	10/13/2010			14.19		231.27	--			
	11/4/2010			14.5		230.96	--			
	12/10/2010			13.56		231.9	--			
	1/28/2011			15.19		230.27	--			
	2/14/2011			12.74		232.72	--			
	3/4/2011			11.93		233.53	--			
	4/13/2011			9.42		236.04	--			
	5/27/2011			10.18		235.28	--			
	6/15/2011			15.38		230.08	--			
	7/14/2011			13.43		232.03	--			
	8/8/2011			14.94		230.52	--			
	9/14/2011			11.8		233.66	--			
	10/25/2011			11.39		234.07	--			
	12/15/2011			11.91		233.55	--			
	1/27/2012			11.54		233.92	--			
	2/28/2012			13.79		231.67	--			
	3/20/2012			13.14		232.32	--			
MW-31	7/22/2009	244.79		12.81		231.98	--			
	9/18/2009			11.6		233.19	--			
	10/6/2009			9.94		234.85	--			
	10/19/2009			6.44		238.35	--			
	11/5/2009			7.03		237.76	--			
	12/4/2009			6.57		238.22	--			
	1/20/2010			6.33		238.46	--			
	4/5/2010			7.14		237.65	--			
	5/3/2010			7.12		237.67	--			
	5/26/2010			6.79		238	--			
	6/15/2010			9.64		235.15	--			
	7/30/2010			11.28		233.51	--			
	9/2/2010			14.13		230.66	--			
	9/21/2010			14.35		230.44	--			
	11/4/2010			7.29		237.5	--			
	12/10/2010			7.29		237.5	--			
	2/14/2011			6.84		237.95	--			
	3/4/2011			6.62		238.17	--			
	4/13/2011						--			
	5/27/2011			7.11		237.68	--			
	7/14/2011			10.36		234.43	--			
	8/8/2011			13.55		231.24	--			
	12/15/2011			7.15		237.64	--			
	3/21/2012			7.76		237.03	--		0	
MW-32	7/14/2009	245.8	13.65	13.9	0.25	232.12	--			
	7/16/2009		13.54	13.75	0.21	232.23	PP	0.238		
	7/22/2009		13.85	14.03	0.18	231.93	--			
	8/3/2009		12.99	13.3	0.31	232.77	--			
	8/18/2009		13.96	13.98	0.02	231.84	PS	0.317		
	9/3/2009		13.82	13.86	0.04	231.97	PS	0.132		
	9/18/2009		14.56	14.65	0.09	231.23	PS	0.159		
	10/6/2009		14.82	14.84	0.02	230.98	PS	0.291		
	10/19/2009		13.76	13.78	0.02	232.04	PS	0.159		
	11/5/2009		13	13.01	0.01	232.8	PS	0.066		
	11/12/2009			13.17		232.63	PS			
	12/4/2009		12.93	12.95	0.02	232.87	PS	0.198		
	12/11/2009			11.74		234.06	PS	0.007		
	12/16/2009		11.88	11.91	0.03	233.92	PS	0.003		
	12/29/2009		10.43	10.58	0.1	235.31	PS	0.003		
	1/20/2010		12.24	12.25	0.01	233.56	PS	0.003		
	2/16/2010		11.8	11.97	0.17	233.98	--			
	3/1/2010		9.65	9.97	0.32	236.11	--			Place PS from MW-38
	3/8/2010		11.27	11.29	0.02	234.53	PS	0.225		
	4/5/2010		11.3	11.33	0.03	234.5	PS	0.001		
	5/3/2010		12.07	12.09	0.02	233.73	PS			
	5/26/2010			11.75		234.05	PS	0.003		
	6/15/2010						--			Under water
	6/18/2010		14.23	14.24	0.01	231.57	PS	0.003		
	10/13/2010						--			Can not locate
	11/4/2010						--			Can not locate

Table E-1b
Well Gauging Data and LPH Recovery Summary Table
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Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)	LPH Recovery Method (SP,PS, PP, or AS)	LPH Recovered (gallons)	Total LPH Recovered Since July 2009 (gallons)	Notes
	12/3/2010		13.42	13.47	0.05	232.37	PS	0.003		
	12/10/2010		14.09	14.11	0.02	231.71	--			
	12/21/2010		14.2	14.21	0.01	231.6	PS	0.003		
	1/6/2011		14.63	14.74	0.11	231.16	PS	0.001		
	1/28/2011		14.78	14.79	0.01	231.02	PS	0.007		
	2/14/2011		14.46	14.47	0.01	231.34	--			
	2/18/2011		14.58	14.6	0.02	231.22	PS	0.396		
	3/4/2011		14.35	14.36	0.01	231.45	PS	0.053		
	3/22/2011		12.25	12.27	0.02	233.55	PS	0.005		
	4/13/2011		12.45	12.46	0.01	233.35	PS	0.005		
	4/20/2011		9.76	9.81	0.05	236.03	PS	0.026		
	4/29/2011		10.9	10.93	0.03	234.9	PS	0.003		
	5/13/2011		12.33	12.34	0.01	233.47	PS	0.003		
	5/26/2011		13.31	13.33	0.02	232.49	--			
	6/15/2011		13.09	13.1	0.01	232.71	PS	0.005		
	7/21/2011			14.15		231.65	PS	0.026		
	8/8/2011		14.93	14.95	0.02	230.87	--			
	8/17/2011		14.95	15	0.05	230.84	PS	0.003		
	8/24/2011		14.97	15.01	0.04	230.82	PS	0.005		
	9/1/2011		15.2	15.23	0.03	230.6	PS	0.005		
	9/14/2011		13.15	13.2	0.05	232.64	PS	0		
	10/6/2011		12.66	12.7	0.04	233.13	PP	0.003		
	10/25/2011		12.34	12.35	0.1	233.54	PS	0		
	11/15/2011			13.63		232.17	PS	0.013		
	12/8/2011		12.61	12.62	0.01	233.19	PS	0		
	12/15/2011		11.88	11.93	0.05	233.91	--			
	12/21/2011		12.89	12.9	0.01	232.91	PS	0.003		
	1/6/2012		12.8	12.83	0.03	233	PS	0.003		
	1/27/2012						--			inaccessible
	2/7/2012		13.24	13.32	0.08	232.55	PS	0.001		
	2/28/2012		13.34	13.36	0.02	232.46	PS	0.007		
	3/3/2012		12.32	12.35	0.03	233.48	PS	0.159		
	3/21/2012		13.95	13.97	0.02	231.85	--			
	3/27/2012		13.5	13.54	0.04	232.29	PS	0.013	2.559	AS in well
MW-33	7/14/2009	244.26	12.49	12.5	0.01	231.77	--			
	8/3/2009			12.19		232.07	--			
	9/18/2009			12.97		231.29	--			
	10/6/2009		13.24	13.25	0.01	231.02	--			
	12/4/2009						--			Well covered by new gravel
	5/3/2010						--			Covered
	5/11/2010						--			
	5/26/2010			11.6		232.66	--			
	6/15/2010						--			Under water
	7/30/2010			13		231.26	--			
	9/2/2010			12.47		231.79	--			
	10/13/2010			12.72		231.54	--			
	11/4/2010						--			Underwater
	12/10/2010			12.25		232.01	--			
	1/28/2011			13.51		230.75	--			
	2/14/2011			13.14		231.12	--			Under water
	3/4/2011			12.81		231.45	--			
	4/13/2011						PS			Under water
	5/26/2011			11.49		232.77	--			
	6/15/2011			12.05		232.21	--			
	7/14/2011			12.3		231.96	--			
	8/8/2011			12.71		231.55	--			
	9/14/2011			12.25		232.01	--			
	10/25/2011						--			Inaccessible
	12/15/2011						--			Inaccessible
	1/27/2012						--			inaccessible
	2/7/2012						--			inaccessible
	2/28/2012						--			inaccessible
	3/20/2012			12.1		232.16	--		0	
MW-35	6/15/2010			14		231.8	--			
	9/21/2010			16.37		229.43	--			
	12/10/2010			14.51		231.29	--			
	2/14/2011			15.03		230.77	--			
	5/26/2011			12.58		233.22	--			
	8/8/2011			15.29		230.51	--			
	12/15/2011			12.84		232.96	--			
	3/21/2012			13.89		231.91	--		0	
MW-37	7/14/2009	245.06	13.61	14.09	0.48	231.39	--			
	7/16/2009		13.54	13.75	0.51	231.75	PP	0.264		
	7/22/2009		13.88	14.6	0.72	231.09	--			
	8/3/2009		13.16	13.58	0.42	231.85	--			Installed PS
	8/18/2009		13.95	14.35	0.4	231.06	PS	0.238		
	9/3/2009		13.9	13.94	0.04	231.15	PS	0.608		
	9/18/2009		14.41	14.67	0.26	230.62	PS			
	10/6/2009		14.66	14.86	0.2	230.37	PS	0.37		
	10/19/2009		13.9	13.91	0.01	231.16	PS	0.363		
	11/5/2009		13.18	13.19	0.01	231.88	PS	0.079		
	11/12/2009		13.28	13.32	0.04	231.77	PS			
	12/4/2009		13.02	13.06	0.04	232.03	PS	0.225		
	12/11/2009		12.05	12.11	0.06	233	PS	0.004		
	12/16/2009		12.1	12.11	0.01	232.96	PS	0.003		
	12/29/2009		11.48	11.5	0.02	233.58	PS	0.003		
	1/20/2010		12.47	12.83	0.36	232.54	--			Installed PS from MW-32 on 1/20/2010
	2/16/2010		12.2	12.45	0.25	232.83	PS	0.211		
	3/1/2010		11.37	11.39	0.02	233.69	PS	0.036		
	3/8/2010		11.55	11.65	0.1	233.5	PS	0.003		
	4/5/2010		11.61	11.76	0.15	233.43	PS			
	5/3/2010		12.21	12.97	0.76	232.75	PS	0.013		
	5/11/2010		12.57	12.7	0.19	232.53	PS	0.581		
	5/26/2010						--			Could not locate well, new fill in the area arou
	6/15/2010						--			Buried
	7/30/2010		14.68	15.82	1.14	230.23	PS	0.132		

Table E-1b
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Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)	LPH Recovery Method (SP,PS, PP, or AS)	LPH Recovered (gallons)	Total LPH Recovered Since July 2009 (gallons)	Notes
	9/2/2010		16.17	16.21	0.04	228.88	PS	0.053		
	9/21/2010		15.62	16.75	1.13	229.29	PS	0.132		
	10/13/2010		14.34	15.1	0.76	230.62	--			
	11/4/2010						PS			Underwater
	11/12/2010		13.78	13.83	0.05	231.27	PS	0.106		
	11/19/2010		13.41	13.6	0.19	231.63	PS	0.476		
	12/3/2010		13.63	14.09	0.46	231.37	PS	0.793		
	12/10/2010		13.75	13.98	0.23	231.28	--			
	12/21/2010		14.09	14.27	0.18	230.95	PS	0.793		
	1/6/2011		14.53	14.82	0.29	230.49	PS	0.007		
	1/28/2011		13.21	13.24	0.03	231.85	PS	0.317		
	2/14/2011						--			Well accessible
	3/4/2011						PS			Inaccessible - Rail ties
	3/22/2011		12.33	12.35	0.02	232.73	PS	0.793		
	4/13/2011						PS			Under water
	4/20/2011		10.95	10.98	0.03	234.11	PS	0.005		
	4/29/2011		11.43	11.52	0.09	233.62	PS	0.003		
	5/13/2011		12.41	12.69	0.28	232.61	PS	0.005		
	5/26/2011		13.94	13.98	0.04	231.11	--			
	6/9/2011		12.97	13.38	0.41	232.04	PS	0.198		
	6/15/2011		13.15	13.47	0.32	231.87	PS	0.264		
	7/14/2011						PS			
	7/21/2011		14.16	14.4	0.24	230.87	PS	0.423		
	8/8/2011		15.15	15.3	0.15	229.89	--			
	8/17/2011		14.98	15.31	0.33	230.04	PS	0.005		
	8/24/2011		15.08	15.31	0.23	229.95	PS	0.172		
	9/1/2011		15.22	15.25	0.03	229.84	PS	0.172		
	9/14/2011		13.55	13.58	0.03	231.51	PS	0.106		
	10/6/2011		12.89	13.01	0.12	232.15	PP	0.211		
	10/25/2011						--			Inaccessible
	11/15/2011						--			Inaccessible
	12/15/2011						--			Inaccessible
	1/27/2012						--			inaccessible
	2/7/2012						--			inaccessible
	2/28/2012						--			inaccessible
	3/3/2012		12.41	13.87	1.46	232.46	PS	0.251		
	3/21/2012		14	14.5	0.5	231	--			
	3/27/2012		13.3	13.95	0.65	231.68	PS	0.343	8.761	
MW-38	7/14/2009	246.09	5.22	9.6	4.38	240.3	--			
	8/3/2009		4.67	9.25	4.58	240.82	SP	10		
	8/18/2009		5.6	12.6	7	239.58	SP	2.316		
	8/20/2009		5.44	11.67	6.23	239.84	SP	3.281		
	9/3/2009		5.11	11.61	6.5	240.14	SP	1.93		
	9/8/2009						SP	9.843		
	9/9/2009		5.65	6.15	0.5	240.38	--			
	9/18/2009		7.13	7.58	0.45	238.9	SP	6.8		
	10/6/2009		7.24	7.87	0.63	238.77	SP	15.2		
	10/19/2009		4.67	5.15	0.48	241.36	SP	3.47		
	11/5/2009		4.9	4.99	0.09	241.18	--			
	11/12/2009		5.12	5.13	0.01	240.97	SP	1.93		
	12/4/2009		4.92	5.2	0	240.89	SP			
	12/11/2009		4.52	4.6	0.08	241.56	SP	0.58		
	12/16/2009		4.73	4.74	0.01	241.36	SP	0.19		
	12/24/2009		4.94	5.13	0.19	241.13	SP			
	12/29/2009		4.31	4.35	0.04	241.77	SP	0.2		Removed SP
	1/20/2010		4.59	4.6	0.01	241.5	PS	0.026		
	2/16/2010		4.77	4.8	0.02	241.31	PS	0.013		
	3/1/2010		4.24	4.25	0.01	241.85	PS	0.003		Removed PS
	3/8/2010		4.45	4.48	0.03	241.64	--			
	4/5/2010			4.46		241.63	--			
	5/3/2010		4.73	4.77	0.04	241.35	--			
	5/26/2010		4.52	4.62	0.1	241.56	AS	0.053		
	6/15/2010		5.1	5.26	0.16	240.97	--			
	6/18/2010		5.43	5.61	0.18	240.64	PP	0.066		
	7/30/2010		8.39	8.65	0.26	237.67	AS	0.079		
	9/2/2010		9.89	10.05	0.16	236.18	PP	0.026		
	9/21/2010		9.67	10.35	0.66	236.31	PP	0.119		
	10/13/2010		4.79	5.25	0.46	241.24	--			Placed PS in well.
	11/4/2010		5.09	5.2	0.11	240.99	PS	0.007		
	11/12/2010		5.03	5.21	0.18	241.04	PS	0.026		
	11/19/2010		5.09	5.16	0.07	240.99	PS	0.026		
	12/3/2010		4.68	5.01	0.33	241.37	PS	0.079		
	12/10/2010		4.97	5.04	0.07	241.11	--			
	12/21/2010		5.2	5.42	0.22	240.86	PS	0.003		
	1/6/2011		14.89	14.99	0.1	231.19	--			
	1/28/2011		15.01	15.04	0.03	231.08	PS	0.053		
	2/14/2011		14.09	14.26	0.17	231.98	--			
	2/18/2011		15.15	15.23	0.08	230.93	PS	0.132		
	3/4/2011		5.4	5.58	0.18	240.67	PS	0.449		
	3/22/2011		4.73	4.76	0.03	241.36	PS	0.211		
	4/13/2011		4.67	4.7	0.03	241.42	PS	0.092		
	4/20/2011		4.29	4.3	0.01	241.8	PS	0.026		
	4/29/2011		4.38	4.4	0.02	241.71	PS	0.007		
	5/13/2011		4.74	4.77	0.03	241.35	PS	0.007		
	5/26/2011		5.16	5.17	0.01	240.93	--			
	6/15/2011		4.93	4.95	0.02	241.16	PS	0.066		
	7/14/2011						PS			
	7/21/2011			5.2		240.89	PS	0.317		
	8/8/2011		6.11	6.24	0.13	239.96	--			
	8/17/2011		5.17	5.8	0.63	240.84	PS	0.581		
	8/24/2011		5.17	6.58	1.41	240.74	PS	0.132		
	9/1/2011		4.98	6.02	1.04	240.97	PS	0.74		
	9/14/2011		4.61	4.62	0.01	241.48	PS	0.793		
	10/6/2011		4.5	4.55	0.05	241.58	PP	0.119		
	10/25/2011		4.52	4.54	0.02	241.57	PS	0.013		

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Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)	LPH Recovery Method (SP,PS, PP, or AS)	LPH Recovered (gallons)	Total LPH Recovered Since July 2009 (gallons)	Notes
	11/15/2011		4.85	4.87	0.02	241.24	PS	0.066		
	12/8/2011		4.54	4.56	0.02	241.55	PS	0.211		
	12/15/2011		4.67	4.69	0.02	241.42	--			
	12/21/2011		4.82	4.84	0.02	241.27	PS	0.172		
	1/6/2012		5.03	5.06	0.03	241.06	PS	0.343		
	1/27/2012		5.05	5.07	0.02	241.04	PS	0.634		
	2/7/2012		5.15	5.3	0.15	240.92	PS	0.145		
	2/28/2012			13.89		232.2	PS			
	3/3/2012		5.08	5.22	0.14	240.99	PS	0.74		
	3/21/2012		6.62	6.69	0.07	239.46	--			
	3/27/2012		9.61	9.88	0.27	236.44	PS	0.079	62.394	
MW-39	6/15/2010	245.65		13.22		232.43	--			
	9/21/2010			16.38		229.27	--			
	12/10/2010			13.95		231.7	--			
	2/14/2011			14.73		230.92	--			
	5/26/2011			11.95		233.7	--			
	8/8/2011			15.16		230.49	--			
	12/15/2011			11.95		233.7	--			
	3/21/2012			13.45		232.2	--		0	
MW-41	7/14/2009	246.07	14.3	16.13	1.83	231.53	--			
	7/16/2009		14.25	16.13	1.88	231.58	PP	1.268		
	7/22/2009		14.75	15.33	0.58	231.24	--			
	8/3/2009		13.96	14.69	0.73	232.02	PP	0.502		
	8/18/2009		14.76	15.53	0.77	231.21	PP	0.37		
	9/3/2009		14.74	15.3	0.56	231.26	PP	0.423		
	9/18/2009		15.21	15.71	0.5	230.8	PP			Placed PS
	10/6/2009		17.39	17.41	0.02	228.68	PS	0.476		
	10/19/2009		16.73	16.81	0.08	229.33	PS	0.003		
	11/5/2009		14.5	14.81	0.31	231.53	PP	0.608		
	11/5/2009		14.5	14.81	0.31	231.53	AS	0.264		
	11/12/2009						AS	0.211		
	11/12/2009		14.57	15.22	0.65	231.42	PP	0.291		
	12/4/2009		14.42	15.55	1.13	231.5	PP	0.872		
	12/4/2009		14.42	15.55	1.13	231.5	AS	0.264		
	12/11/2009		12.7	13.64	0.94	233.25	--			Placed PS in well from MW-4R
	12/16/2009		14.12	14.71	0.59	231.87	PS	0.779		
	12/29/2009		13.13	14.54	1.41	232.76	PS	0.079		
	1/20/2010		13.25	14.33	1.08	232.68	PS	0.119		
	2/16/2010		13.65	14.78	1.13	232.27	PS	0.004		
	3/1/2010		12.4	13.68	1.28	233.5	PS	0.449		
	3/8/2010		13.68	13.89	0.21	232.36	PS	0.793		
	4/5/2010		13.25	14.5	1.25	232.66	PS	0.449		
	5/3/2010			14.28		231.79	PS	0.872		
	5/11/2010		14.45	15.8	1.35	231.44	PS	0.925		
	5/26/2010		13.68	14.93	1.25	232.23	PS	0.793		
	6/15/2010		16.04	17.48	1.44	229.84	--			
	6/18/2010		16.03	17.39	1.36	229.86	PS	0.449		
	7/30/2010		16.46	17.74	1.28	229.44	PS	0.317		
	9/2/2010		15.57	16.32	0.75	230.4	--			Installed SP
	9/9/2010		16.66	16.67	0.01	229.41	SP	0.193		
	9/21/2010		16.83	16.88	0.05	229.23	SP			
	10/13/2010		15.62	15.81	0.19	230.43	SP	1.158		
	11/4/2010		15	15.97	0.97	230.94	SP			
	11/12/2010		15.38	15.73	0.35	230.64	SP	0.386		
	12/3/2010		14.55	14.81	0.26	231.49	SP	0.193		
	12/10/2010		14.65	15.31	0.66	231.33	--			
	12/21/2010		14.37	14.51	0.16	231.7	SP			
	1/6/2011		15.31	15.89	0.58	230.68	SP	1.544		
	1/28/2011		15.97	16.65	0.69	230.02	SP	0.193		
	2/14/2011		15.18	15.31	0.13	230.87	--			
	2/18/2011		15.2	15.53	0.33	230.83	SP	0.193		
	3/4/2011		14.75	14.82	0.07	231.31	SP	1.158		Cut off well casing 0.12 inches
	3/22/2011		13.07	13.65	0.58	232.92	SP	0.386		
	4/13/2011		13.33	13.47	0.14	232.72	SP	4.632		
	4/20/2011		11.59	11.73	0.14	234.46	SP	0		
	4/29/2011		12.11	13.78	1.67	233.74	SP	0.193		
	5/13/2011		13.44	14.05	0.61	232.55	SP	6.755		
	5/20/2011		10.94	11	0.06	235.12	SP	0.193		
	5/26/2011		13.36	13.94	0.48	232.55	--			
	6/9/2011		13.63	14.66	1.03	232.31	SP	0.193		
	6/15/2011		14.34	14.35	0.01	231.73	SP	2.316		
	7/14/2011		14.93	16.2	1.27	230.97	SP	6.176		
	7/29/2011						SP	5.018		
	8/8/2011		15.54	15.95	0.41	230.48	--			
	8/17/2011		16.1	16.2	0.1	229.96	SP	1.544		
	8/24/2011		16.05	16.2	0.15	230	SP	0.386		
	9/1/2011		16.12	16.23	0.11	229.94	SP	0.193		
	9/14/2011		14.5	14.54	0.04	231.56	SP	0.386		
	10/6/2011		13.74	14.15	0.41	232.28	SP	0.386		
	10/25/2011		13.19	13.55	0.36	232.83	SP	0.193		
	11/15/2011		13.98	14.8	0.82	231.98	SP	0.193		
	12/8/2011		12.68	13.61	0.93	233.27	SP	1.351		
	12/15/2011		12.42	12.95	0.53	233.58	--			
	12/21/2011		13.13	14.28	1.15	232.79	SP	0.386		
	1/6/2012		13.39	13.67	0.28	232.64	SP	1.544		
	1/27/2012		13.13	14.4	1.27	232.77	SP	1.544		
	2/7/2012		14.04	14.41	0.37	231.98	SP	3.667		
	2/28/2012		14.62	14.64	0.02	231.45	SP	0.193		
	3/3/2012		13.53	13.78	0.25	232.51	SP	0.965		
	3/21/2012		13.96	15.18	1.22	231.95	--			
	3/27/2012		14.21	15.45	1.24	231.7	SP	0	55.391	
MW-43	6/15/2010	238.9		7.94		230.96	--			
	9/21/2010			10.22		228.68	--			
	12/10/2010			8.05		230.85	--			
	2/14/2011			8.24		230.66	--			

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	5/26/2011			5.91		232.99	--			
	8/8/2011			9.12		229.78	--			
	12/15/2011			5.66		233.24	--			
	3/21/2012			7.14		231.76	--		0	
MW-49	7/14/2009	246.02	12.25	13.68	1.43	233.58	--			
	7/16/2009		13	14.35	1.35	232.84	PP	0.5		
	7/22/2009		13.98	14.56	0.58	231.96	--			
	8/3/2009		5.58	5.65	0.07	240.43	--			Installed PS
	8/18/2009		12.93	14	1.07	232.95	PS	0.793		
	9/3/2009		11.43	11.85	0.42	234.54	PS	0.793		
	9/18/2009		14.62	15.5	0.88	231.29	PP	0.82		
	10/6/2009		14.91	15.74	0.83	231	PP	0.74		
	10/19/2009		5.62	5.82	0.2	240.37	PP	0.528		
	11/5/2009		5.2	5.45	0.25	240.79	PP	1.4		
	11/12/2009		5.7	5.85	0.15	240.3	PP	0.317		
	12/4/2009		5.63	5.93	0.3	240.35	PP	0.449		
	12/11/2009		4.71	5.15	0.44	241.25	--			Placed PS in well from MW-2
	12/16/2009		4.82	4.85	0.03	241.2	PS	0.502		
	12/29/2009		4.42	4.44	0.02	241.6	PS	0.238		
	1/20/2010		4.77	4.78	0.01	241.25	PS	0.04		
	2/16/2010		4.94	4.95	0.01	241.08	PS	0.013		
	3/1/2010		4.31	4.33	0.02	241.71	PS	0.005		
	3/8/2010		4.58	4.59	0.01	241.44	PS	0.003		
	4/5/2010			4.61		241.41	PS	0.003		
	5/3/2010		4.93	4.95	0.02	241.09	PS			
	5/11/2010		5.3	5.33	0.03	240.72	PS	0.013		
	5/26/2010		4.7	4.72	0.02	241.32	PS	0.159		
	6/15/2010		10.04	10.25	0.21	235.95	--			
	6/18/2010		10	10.27	0.27	235.98	PS	0.04		
	7/30/2010		15.08	15.22	0.14	230.92	PS	0.003		
	9/2/2010		15.87	16.04	0.17	230.13	PS	0.026		
	9/21/2010		15.97	16.6	0.63	229.97	PP	0.092		
	10/13/2010		5.06	5.06	0.01	240.97	--			
	11/4/2010		10.67	11.18	0.51	235.28	PS	0.001		
	11/12/2010		8.63	8.71	0.08	237.38	AS	0.013		
	11/19/2010		9.14	9.29	0.15	236.86	AS	0.053		
	12/3/2010		5.29	5.52	0.23	240.7	PS	0.502		
	12/10/2010		8.17	8.18	0.01	237.85	--			
	12/21/2010		14.09	14.27	0.45	232.14	PP	0.74		
	12/21/2010		14.09	14.27	0.45	232.14	PS	0.026		
	1/6/2011		14.86	15.22	0.36	231.11	SP			
	1/28/2011		14.35	14.36	0.01	231.67	PS	0.026		
	2/14/2011		14.41	14.79	0.38	231.56	PS			
	2/18/2011		14.44	14.8	0.36	231.53	PS			
	3/4/2011		14.2	14.78	0.58	231.74	PP	0.396		
	3/22/2011		4.84	5.11	0.27	241.14	PS	0.003		
	4/13/2011		4.97	5.1	0.13	241.03	PS	0.132		
	4/20/2011		4.38	4.39	0.01	241.64	PS	0.066		
	4/29/2011		4.49	4.51	0.02	241.53	PS	0.026		
	5/13/2011		4.93	4.95	0.02	241.09	PS	0.013		
	5/26/2011		6.38	6.41	0.03	239.64	--			
	6/15/2011		5.31	5.33	0.02	240.71	PS	0.026		
	7/14/2011						PS			
	7/21/2011		12.3	13.1	0.8	233.62	PS	0		
	8/8/2011		14.95	16.33	1.38	230.89	--			
	8/17/2011		15.2	16.45	1.25	230.66	PP	0.898		
	8/17/2011		15.2	16.45	1.25	230.66	PS	0		
	8/24/2011		15.38	15.45	0.07	230.63	PS	0.793		
	9/1/2011		14.99	15.08	0.09	231.02	PS	0.793		
	9/14/2011		4.73	5.1	0.37	241.24	PS	0.793		
	10/6/2011		4.71	4.76	0.05	241.3	PP	0.396		
	10/25/2011		4.7	4.71	0.1	241.4	PS	0.066		
	11/15/2011		5.65	5.9	0.25	240.34	PS	0.026		
	12/8/2011		4.82	4.93	0.11	241.19	PS	0.793		
	12/15/2011		5.93	5.94	0.01	240.09	--			
	12/21/2011		5.44	5.59	0.15	240.56	PS	0.132		
	1/6/2012		5.88	6.05	0.17	240.12	PS	0.66		
	1/27/2012		10.84	12.44	1.6	234.97	PS	0.026		
	2/7/2012		13.43	13.88	0.45	232.53	PS	0.528		
	2/28/2012		14.12	14.17	0.05	231.89	PS	0.7		
	3/3/2012		12.58	13.1	0.52	233.37	PS	0.132		
	3/21/2012		14.33	14.35	0.02	231.69	--			
	3/27/2012		13.78	13.82	0.04	232.23	PS	0.449	16.685	
MW-50	6/15/2010	245.53		13.23		232.3	--			
	9/21/2010			15.88		229.65	--			
	12/10/2010			13.81		231.72	--			
	2/14/2011			14.44		231.09	--			
	5/26/2011			12.04		233.49	--			
	8/8/2011			14.16		231.37	--			
	12/15/2011			12.09		233.44	--			
	3/21/2012			12.94		232.59	--		0	
MW-51	6/15/2010	249.34		13.63		235.71	--			
	9/21/2010			15.75		233.59	--			
	12/10/2010			14.08		235.26	--			
	2/14/2011			14.04		235.3	--			
	5/26/2011			11.03		238.31	--			
	8/8/2011			14.74		234.6	--			
	12/15/2011			11.39		237.95	--			
	3/20/2012	249.34		13.3		236.04	--		0	
MW-52	6/15/2010	247		10.68		236.32	--			
	9/21/2010			12.63		234.37	--			
	12/10/2010			10.78		236.22	--			
	2/14/2011			10.72		236.28	--			
	5/26/2011			9.59		237.41	--			
	8/8/2011			11.46		235.54	--			
	12/15/2011						--			Could not locate

Table E-1b
Well Gauging Data and LPH Recovery Summary Table
July 2009 (CAP Implementation) through March 2012
C and O Canal/Brunswick Rail Yard Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)	LPH Recovery Method (SP,PS, PP, or AS)	LPH Recovered (gallons)	Total LPH Recovered Since July 2009 (gallons)	Notes
	3/20/2012			10.6		236.4	--		0	
MW-53	7/14/2009	246.1	14.3	16.75	2.45	231.48	--			
	8/3/2009		14.25	14.6	0.35	231.8	SP	6		
	8/18/2009		14.95	16.35	1.4	230.97	SP	6.948		
	8/20/2009		15.12	15.64	0.52	230.91	SP	1.159		
	9/3/2009		15	15.38	0.32	231	SP	2.702		
	9/8/2009						SP	0.579		
	9/9/2009		15.24	15.86	0.62	230.78	--			
	9/18/2009		15.42	15.98	0.56	230.61	SP	2.2		
	10/6/2009		15.56	16.32	0.76	230.44	SP	5.02		
	10/19/2009		14.92	15.15	0.23	231.15	SP	5.7		
	11/5/2009		14.16	14.34	0.18	231.92	SP	0.58		
	11/12/2009		14.03	15.42	1.39	231.89	SP	7.92		
	12/4/2009		13.98	14.8	0.82	232.01	SP	4.63		
	12/11/2009		12.84	12.94	0.1	233.25	SP	0.97		
	12/16/2009		12.9	13	0.1	233.19	SP			Moved pump to MW-55
	12/29/2009		12.1	13.49	1.39	233.82	PP	0.449		
	1/20/2010		13.05	15.57	2.52	232.72	PP	0.845		
	2/16/2010		12.74	15.55	2.81	232.99	PP	1.004		
	3/1/2010		11.85	14.28	2.43	233.93	PP	0.608		
	3/8/2010		11.95	14.9	2.95	233.77	--			
	4/5/2010		12	15.47	3.47	233.65	PP	1.057		
	5/3/2010		12.76	15.6	2.84	232.97	PP	0.925		
	5/26/2010		12.52	14.2	1.68	233.36	PP	0.449		
	6/15/2010		13.96	17.06	3.1	231.74	--			
	6/18/2010		13.95	16.98	3.03	231.76	PP	0.634		
	7/30/2010		15.36	17.99	2.63	230.4	PP	0.819		
	9/2/2010		16.13	18.26	2.13	229.69	--			Installed SP
	9/9/2010		16.37	18.46	2.09	229.46	SP	3.28		
	9/21/2010		16.37	18.53	2.16	229.45	SP			
	10/13/2010		15.48	16.05	0.57	230.55	SP	1.545		
	11/4/2010		15.2	15.23	0.03	230.9	SP	4.246		
	11/12/2010		15.24	16.77	1.53	230.66	SP	1.158		
	12/3/2010		14.29	14.33	0.04	231.8	SP	3.763		
	12/10/2010		14.5	14.96	0.46	231.54	--			
	12/21/2010		14.11	14.15	0.04	231.98	SP	0.869		
	1/6/2011		15.1	16.93	1.83	230.76	SP	0.965		
	1/28/2011		15.89	17.94	2.05	229.94	SP	0.869		
	2/14/2011		14.94	15.91	0.97	231.03	--			
	2/18/2011		14.95	15.26	0.31	231.11	SP	2.509		
	3/4/2011		14.65	14.8	0.15	231.43	SP	2.702		
	3/22/2011		13.1	13.2	0.1	232.99	SP	1.351		
	4/13/2011		13.04	14.42	1.38	232.88	SP	0.386		
	4/20/2011		11.51	11.73	0.22	234.56	SP	0.579		
	4/29/2011		12.12	13.44	1.32	233.81	SP	0.097		
	5/13/2011		13.03	15.33	2.3	232.77	SP	0.869		
	5/20/2011		10.88	11	0.12	235.2	SP	1.641		
	5/26/2011		13.91	14.23	0.32	232.15	--			
	6/9/2011		13.72	13.93	0.21	232.35	SP	1.641		
	6/15/2011		13.93	15.62	1.69	231.95	SP	0.097		
	7/14/2011		14.74	16.65	1.91	231.11	SP	2.123		
	7/29/2011						SP	1.255		
	8/8/2011		15.56	18.4	2.84	230.17	--			
	8/17/2011		15.87	16.25	0.38	230.18	SP	3.378		
	8/24/2011		15.79	17.62	1.83	230.07	SP	0.386		
	9/1/2011		15.91	17.9	1.99	229.93	SP	0		
	9/14/2011			14.35		231.75	SP	0.193		
	10/6/2011		13.75	13.91	0.16	232.33	SP	0.29		
	10/25/2011		13.2	14.52	1.32	232.73	SP	0.097		
	11/15/2011		13.9	15.48	1.58	231.99	SP	3.185		
	12/8/2011		12.89	13.55	0.66	233.12	SP	1.351		
	12/15/2011		12.23	13.48	1.25	233.71	--			
	12/21/2011		12.97	15.1	2.13	232.85	SP	0.386		
	1/6/2012		13.22	14.67	1.45	232.69	SP	0.579		
	1/27/2012		13.02	15.16	2.14	232.8	SP	3.281		
	2/7/2012		13.95	14.16	0.21	232.12	SP	3.11		
	2/28/2012		14.33	16.28	1.95	231.52	SP	0		
	3/3/2012		13.23	14.65	1.42	232.69	SP	0.94		
	3/21/2012		14.29	15.1	0.81	231.7	--			
	3/27/2012		14.16	15.84	1.68	231.72	SP	0.865	101.184	
MW-54	7/14/2009	245.6	13.78	16.67	2.91	231.46	--			
	7/16/2009		13.73	16.48	2.75	231.51	PP	1.427		
	8/3/2009		13.42	14.55	1.13	232.03	PP	0.594		Installed PS
	8/18/2009		14.14	16.62	2.48	231.14	PP	1.374		
	9/3/2009		14.16	16.05	1.89	231.19	PP	0.713		
	9/18/2009		14.6	16.59	1.99	230.74	PP	0.845		
	10/6/2009		14.86	16.81	1.95	230.49	PP	0.77		
	10/19/2009		14.27	15.45	1.18	231.18	PP	0.185		
	11/5/2009		13.43	13.85	0.42	232.12	PP	0.079		
	11/12/2009		13.51	14.78	1.27	231.92	PP	0.581		
	12/4/2009		13.2	14.95	1.75	232.17	PP	1.057		
	12/11/2009		12.32	12.76	0.44	233.22	--			Placed PS in well from MW-58
	12/16/2009		12.39	12.58	0.46	233.42	PS	0.12		
	12/29/2009		11.76	12.85	1.09	233.7	PS	0.396		
	1/20/2010		12.75	15.45	2.7	232.5	PS	0.264		
	2/16/2010		12.7	14.1	1.4	232.72	PS	1.057		
	3/1/2010		11.63	13.73	2.1	233.7	PS	0.67		
	3/8/2010		11.73	13.1	1.37	233.69	--			
	4/5/2010		11.05	14.85	3.8	234.06	PS	0.793		
	5/3/2010		12.72	14.9	2.18	232.6	ps	0.528		
	5/11/2010		13.58	15.81	2.23	231.73	PS	0.264		
	5/26/2010		12.12	13.3	1.18	233.33	PS	0.132		
	6/15/2010		14.12	16.4	2.28	231.18	--			
	6/18/2010		14.09	16.31	2.22	231.22	PS	0.555		
	7/30/2010		15.08	15.89	0.81	230.41	PS	0.132		
	9/2/2010		16.24	17.33	1.09	229.22	--			installed SP

Table E-1b
Well Gauging Data and LPH Recovery Summary Table
July 2009 (CAP Implementation) through March 2012
C and O Canal/Brunswick Rail Yard Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)	LPH Recovery Method (SP,PS, PP, or AS)	LPH Recovered (gallons)	Total LPH Recovered Since July 2009 (gallons)	Notes
	9/21/2010		15.9	16.89	0.99	229.57	SP			
	10/13/2010		14.68	16	1.32	230.75	--			
	11/4/2010		14.48	15.99	1.54	230.95	SP			
	11/12/2010		14.58	16.1	1.52	230.82	--			
	12/3/2010		13.81	14.07	0.26	231.76	SP	3.764		
	12/10/2010		14.11	14.39	0.28	231.45	--			
	12/21/2010						SP	0.868		
	1/6/2011		14.64	16.14	1.5	230.77	PP	0.872		
	1/6/2011		14.64	16.14	1.5	230.77	SP	0.965		
	1/28/2011		15.45	16.77	1.32	229.98	SP	0.868		
	2/14/2011		14.48	15.78	1.3	230.95	--			
	2/18/2011		14.41	15.76	1.35	231.01	SP	2.509		
	3/4/2011		14.13	14.47	0.34	231.43	SP	2.702		
	3/22/2011			12.68		232.92	--			
	4/13/2011		12.69	13.2	0.51	232.84	SP	0.386		
	4/20/2011		11.13	11.19	0.06	234.46	SP	0.579		
	4/29/2011		11.8	12.02	0.22	233.77	SP	0.096		
	5/13/2011		12.72	13.92	1.2	232.72	SP	0.868		
	5/20/2011		10.44	10.45	0.01	235.16	SP	1.64		
	5/26/2011		13.86	14.88	1.02	231.61	--			
	6/9/2011		13.22	14.15	0.93	232.26	SP	1.64		
	6/15/2011		13.54	15.09	1.55	231.86	SP	0.096		
	7/14/2011		14.4	14.65	0.25	231.17	SP	2.123		
	7/29/2011						SP	1.254		
	8/8/2011		15.2	16.32	1.12	230.25	--			
	8/17/2011		15.25	16.48	1.23	230.19	SP	3.377		
	8/24/2011		15.34	16.56	1.22	230.1	SP	0.386		
	9/1/2011		15.42	16.52	1.1	230.04	SP	0		
	9/14/2011			13.89		231.71	SP	0.193		
	10/6/2011		13.11	13.89	0.78	232.39	SP	0.289		
	10/25/2011		12.81	13.61	0.8	232.69	SP	0.096		
	11/15/2011		13.63	13.83	0.2	231.94	SP	3.184		
	12/8/2011		12.43	12.99	0.56	233.1	SP	1.351		
	12/15/2011		12.04	12.21	0.17	233.54	--			
	12/21/2011		12.68	13.98	1.3	232.75	SP	0.386		
	1/6/2012		12.88	13.32	0.44	232.66	SP	0.579		
	1/27/2012		12.7	13.94	1.24	232.74	SP	3.281		
	2/7/2012		13.35	14.3	0.95	232.13	SP	3.11		
	2/28/2012		13.97	15.55	1.58	231.42	SP	0		
	3/3/2012		12.94	12.98	0.04	232.65	SP	0.94		
	3/21/2012		13.8	14.95	1.15	231.65	--			
	3/27/2012		13.76	14.72	0.96	231.72	SP	0.865	51.803	
MW-55	7/14/2009	246.12	14.29	17.25	2.96	231.45	--			
	7/16/2009		14.22	17.1	2.88	231.53	PP	1.374		
	7/22/2009		14.58	17.1	2.52	231.21	--			
	8/3/2009		13.92	15.72	1.8	231.97	--			
	8/18/2009		14.69	16.9	2.21	231.14	PS	0.132		
	9/3/2009		14.62	16.6	1.98	231.24	PS	0.132		
	9/18/2009		15.14	17.05	1.91	230.73	PS	0.132		
	9/18/2009		14.6	16.59	1.91	231.19	PP	0.687		
	10/6/2009		15.12	17.68	2.56	230.67	PP	0.96		
	10/19/2009		14.82	15.65	0.83	231.19	PP	0.37		
	11/5/2009		13.79	15.82	2.03	232.07	PP	0.55		
	11/12/2009		13.92	16.16	2.24	231.91	PP	0.819		
	12/4/2009		13.68	15.82	2.14	232.16	PP	0.687		
	12/11/2009		12.65	14.85	2.2	233.18	PP	1.268		
	12/16/2009		12.6	15.51	2.91	233.14	PP	1.347		
	12/29/2009		12.2	14.45	2.25	233.63	SP	0.2		
	1/14/2010		13.16	16.25	3.09	232.56	SP	0.77		
	1/20/2010		13.25	15.55	2.3	232.57	SP	3.28		
	2/16/2010		12.82	16	3.18	232.89	SP	9.65		
	3/1/2010		12.01	15.54	3.53	233.65	--			
	3/8/2010		12.42	13.39	0.97	233.57	SP			
	4/5/2010		12.34	15.92	3.55	233.29	SP	6.36		
	5/3/2010		13	15.15	2.15	232.84	SP	9.46		
	5/11/2010		13.9	15.2	1.3	232.05	SP	3.08		
	5/26/2010		12.8	14.13	1.33	233.15	SP	6.76		
	6/15/2010		14.63	15.39	0.76	231.39	--			
	6/18/2010		14.59	15.37	0.78	231.43	SP	11.19		
	7/30/2010		15.62	17.81	2.19	230.22	SP	4.06		
	9/2/2010		16.98	18.01	1.03	229.01	SP	1.86		
	9/9/2010		16.32	18.19	1.87	229.56	SP			
	9/21/2010		16.44	18.08	1.64	229.47	SP			
	10/13/2010		15.26	16.06	0.8	230.76	SP	4.053		
	11/4/2010		15.14	16.55	1.41	230.8	SP	0.579		
	11/12/2010		15.18	16.08	0.9	230.82	SP	0.193		
	11/24/2010		15.09	16.62	1.43	230.74	PP	0.872		
	12/3/2010						SP	0.965		
	12/10/2010		14.62	14.98	0.36	231.45	--			
	12/21/2010		15.06	15.61	0.55	230.99	SP	1.544		
	1/6/2011		15.17	15.18	0.1	231.03	SP	1.737		
	1/28/2011		15.85	17.76	1.91	230.02	SP	0.579		
	2/14/2011		15.07	15.08	0.01	231.05	--			
	2/18/2011						SP	1.158		
	3/4/2011		14.67	14.91	0.24	231.42	SP	1.544		
	3/22/2011		12.88	13.86	0.98	233.11	SP	1.93		
	4/13/2011		13.05	13.19	0.14	233.05	SP	4.246		
	4/20/2011		11.49	11.5	0.01	234.63	SP	0.772		
	4/29/2011		11.91	13.79	1.88	233.97	SP	0.193		
	5/13/2011		13.13	13.74	0.61	232.91	SP	3.86		
	5/20/2011		10.84	10.85	0.01	235.28	SP	1.544		
	5/26/2011		13.79	14.98	1.19	232.18	--			
	6/9/2011		13.24	16.25	3.01	232.49	SP	0.193		
	6/15/2011		13.95	14.47	0.52	232.1	SP	1.93		
	7/14/2011		14.7	15.65	0.95	231.3	SP	3.667		
	7/29/2011						SP	0		

Table E-1b
Well Gauging Data and LPH Recovery Summary Table
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Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)	LPH Recovery Method (SP,PS, PP, or AS)	LPH Recovered (gallons)	Total LPH Recovered Since July 2009 (gallons)	Notes
	8/8/2011		15.27	17.47	2.2	230.56	--			
	8/17/2011		15.59	17.27	1.68	230.31	SP	4.632		
	8/24/2011		15.64	17.33	1.69	230.26	SP	0.193		
	9/1/2011		15.73	17.24	1.51	230.19	SP	0.193		
	9/14/2011		14.21	14.28	0.07	231.9	SP	0.386		
	10/6/2011		13.44	14.6	1.16	232.53	SP	1.93		
	10/25/2011		12.97	15.26	2.29	232.85	SP	0.965		
	11/15/2011		13.61	16.45	2.84	232.14	SP	2.193		
	12/8/2011		12.77	13.32	0.55	233.28	SP	1.158		
	12/15/2011		12.12	13.68	1.56	233.8	--			
	12/21/2011		12.85	15.64	2.74	232.86	SP	0.579		
	1/6/2012		13.19	13.78	0.59	232.85	SP	5.211		
	1/27/2012		13.06	13.77	0.71	232.97	SP	4.439		
	2/7/2012		13.84	14.44	0.6	232.2	SP	7.52		
	2/28/2012		14.47	14.49	0.02	231.65	SP	4.63		
	3/3/2012		13.21	13.83	0.62	232.83	SP	1.73		
	3/21/2012		14.15	14.57	0.42	231.92	--			
	3/27/2012		14.13	14.73	0.6	231.91	SP	2.5	134.946	
MW-56	7/14/2009	244.63	13.06	16.25	3.19	231.16	--			
	7/16/2009		12.99	16.33	3.34	231.21	PP	1.294		
	7/22/2009		13.35	15.82	2.47	230.96	--			
	8/3/2009		12.44	15.9	3.46	231.74	--			
	8/18/2009		13.32	16.74	3.42	230.87	PP	2.061		
	8/20/2009		13.61	15.42	1.81	230.78	SP			
	9/3/2009		13.4	15.55	2.15	230.95	SP	0.965		
	9/8/2009						SP	0.965		
	9/9/2009		13.9	15.26	1.36	230.55	SP			
	9/18/2009		13.86	16.02	2.16	230.49	SP	0.001		
	10/6/2009		14.38	14.39	0.01	230.25	SP	3.08		
	10/19/2009		13.65	13.66	0.01	230.98	SP	1.16		
	11/5/2009		12.45	15.16	2.71	231.83	PP	0.489		
	11/12/2009		12.59	15.11	2.52	231.71	SP	7.72		
	12/4/2009		12.42	14.49	2.07	231.94	SP	2.12		
	12/11/2009		11.1	14.61	3.51	233.07	--			
	12/16/2009		11.59	12.76	1.17	232.89	SP	1.35		
	12/24/2009		10.48	14.18	3.7	233.67	SP	0.77		
	1/14/2010		11.7	15.35	3.65	232.46	SP	3.47		System inoperable
	1/20/2010		11.62	15.76	4.14	232.47	--			System on
	2/16/2010		11.34	15.34	4	232.77	SP	18.72		
	3/1/2010		10.67	11.65	0.98	233.83	--			
	3/8/2010		10.71	13.54	2.83	233.55	SP			
	4/5/2010		10.4	16	5.6	233.5	--			System inoperable
	4/6/2010		10.6	15.89	5.29	233.34	--			
	5/3/2010		11.46	15.9	4.44	232.59	PS			
	5/3/2010		11.46	15.9	4.44	232.59	SP	0.38		System on
	5/11/2010		12.09	15.95	3.86	232.04	SP			
	5/26/2010		11.5	12.28	0.78	233.03	SP	3.28		
	6/15/2010		12.88	15.3	2.42	231.44	--			
	6/18/2010		12.97	15.01	2.04	231.39	SP	0.97		
	7/30/2010		14.23	16.78	2.55	230.07	SP	5.01		
	9/2/2010		14.96	15.37	0.41	229.62	SP	2.38		
	9/9/2010		14.84	16.99	2.15	229.51	SP	0.386		
	9/21/2010		15.23	15.79	0.56	229.33	SP			
	10/13/2010		14.17	14.41	0.24	230.43	SP	4.246		
	11/4/2010		13.8	14.12	0.32	230.79	SP	2.316		
	11/12/2010		13.96	14.35	0.39	230.62	SP	0.772		
	12/3/2010		12.84	13.68	0.84	231.68	SP	1.93		
	12/10/2010		13.25	13.72	0.47	231.32	--			
	12/21/2010		12.96	13.24	0.28	231.63	SP	0.965		
	1/6/2011		13.8	15.82	2.02	230.57	SP	0.772		
	1/28/2011		14.37	16.59	2.22	229.97	SP	0.386		
	2/14/2011		13.23	15.88	2.65	231.06	--			
	2/18/2011		13.37	15.92	2.55	230.93	SP	0.386		
	3/4/2011		13.22	13.24	0.02	231.41	SP	2.316		
	3/22/2011		11.86	12	0.14	232.75	SP			
	4/13/2011		11.36	15.54	4.18	232.73	SP	0		
	4/20/2011		10.05	11.22	1.17	234.43	SP	3.088		
	4/29/2011		10.88	11.6	0.72	233.66	SP	0.193		
	5/13/2011		11.78	14.3	2.52	232.52	SP	1.158		
	5/20/2011		9.02	12.57	3.55	235.15	SP	0		
	5/26/2011		12.94	13.85	0.91	231.57	--			
	6/9/2011		12.08	16.29	4.21	232	SP	0		
	6/15/2011		12.92	13.23	0.31	231.67	SP	2.123		
	7/14/2011		13.76	14.12	0.36	230.82	SP	2.316		
	7/29/2011						SP	0.579		
	8/8/2011		14.45	14.81	0.36	230.13	--			
	8/17/2011		14.6	15.01	0.41	229.98	SP	0.965		
	8/24/2011		14.64	15.1	0.46	229.93	SP	1.158		
	9/1/2011		14.75	15.08	0.33	229.84	SP	0.386		
	9/14/2011		13.05	13.1	0.05	231.57	SP	0.579		
	10/6/2011		11.96	15.33	3.37	232.23	SP	0		
	10/25/2011		11.61	15.37	3.76	232.53	SP	0.386		
	11/15/2011		12.85	12.87	0.02	231.78	SP	3.667		
	12/8/2011		11.09	15.03	3.94	233.03	PS	0.264		
	12/15/2011		11.03	15.8	4.77	232.98	--			
	12/21/2011		11.28	16.19	4.91	232.71	PP	1.215		
	1/6/2012		11.83	15.67	3.84	232.3	PP			Volume of product recovered not recorded
	1/27/2012		11.5	15.45	3.95	232.62	PS	0.132		Reinstalled Skimmer Pump
	2/7/2012		12.52	13.57	1.05	231.97	SP	1.73		
	2/28/2012		12.97	16.1	3.13	231.25	SP	0		
	3/3/2012		11.87	13.5	1.63	232.55	SP	2.32		
	3/21/2012		12.65	12.99	0.34	231.94	--			
	3/27/2012		12.94	13.1	0.16	231.67	SP	1.54	94.459	
MW-57	7/14/2009	244.52	12.98	16.24	3.26	231.12	--			
	7/16/2009		12.89	16.4	3.51	231.17	PP	1.4		
	7/22/2009		13.33	15.63	2.3	230.89	--			

Table E-1b
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Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)	LPH Recovery Method (SP,PS, PP, or AS)	LPH Recovered (gallons)	Total LPH Recovered Since July 2009 (gallons)	Notes
	8/3/2009		12.39	15.76	3.37	231.69	PP	1.11		
	8/18/2009		13.29	16.45	3.16	230.82	PP	1.11		
	9/3/2009		13.25	16.25	3	230.88	PP	0.977		
	9/18/2009		13.72	16.45	2.73	230.45	PP	1.189		
	10/6/2009		14.01	16.49	2.48	230.19	PP	0.82		
	10/19/2009		13.22	15.92	2.7	230.95	--			Moved pump from MW-56 to MW-57
	11/5/2009		12.66	13.78	1.12	231.71	SP	2.1		
	11/12/2009		12.63	14.33	1.7	231.67	PP	0.37		
	12/4/2009		12.12	15.83	3.71	231.92	PP	1.11		
	12/11/2009		11.05	14.2	3.15	233.06	PP	0.74		
	12/16/2009		11.31	13.8	2.49	232.89	PP	0.502		
	12/29/2009		10.42	13.3	2.88	233.73	--			
	1/14/2010		12.03	12.2	0.17	232.47	SP	1.16		
	1/20/2010		12.06	12.46	0.4	232.41	SP	2.31		
	2/16/2010		11.76	12.21	0.45	232.7	SP	3.66		
	3/1/2010		10.9	11.9	1	233.49	--			
	3/8/2010		10.92	11.3	0.38	233.55	SP			
	4/5/2010		11.05	11.4	0.35	233.42	SP	1.93		
	5/3/2010		11.48	15.05	3.57	232.58	SP			
	5/3/2010		11.48	15.05	3.57	232.58	PS			
	5/11/2010		12.1	15	2.9	232.04	SP	0.97		
	5/26/2010		11.43	11.46	0.03	233.09	SP	1.93		
	6/15/2010		12.84	15.05	2.21	231.39	--			
	6/18/2010		12.86	14.21	1.35	231.48	SP			
	7/30/2010		14.18	16.74	2.56	230.01	SP	2.12		
	9/2/2010		14.89	15.98	1.09	229.49	SP	0.98		
	9/9/2010		14.8	16.81	2.01	229.46	SP	1.158		
	9/21/2010		15.13	16.35	1.22	229.23	SP			
	10/13/2010		13.79	16.18	2.39	230.42	SP	0.579		
	11/4/2010		13.52	15.82	2.3	230.7	SP			System inoperable
	11/12/2010		13.64	16.12	2.46	230.54	--			
	11/19/2010		13.05	14.81	1.76	231.24	PP	0.37		
	12/3/2010		12.44	15.5	3.06	231.68	SP	1.544		
	12/3/2010		12.44	15.5	3.06	231.68	PP	0.925		
	12/10/2010		13.07	14.95	1.88	231.21	--			
	12/21/2010		13.27	15.78	2.51	230.92	PP	0.872		SP inoperable
	1/6/2011		13.74	16.03	2.29	230.48	SP			Inoperable
	1/28/2011		14.42	15.85	1.43	229.91	SP	0.965		
	2/14/2011		13.3	15.16	1.86	230.98	--			
	2/18/2011		13.37	15.44	2.07	230.88	SP	1.351		
	3/4/2011		12.76	15.8	3.04	231.36	SP			
	3/22/2011		11.5	13.78	2.28	232.72	SP	2.123		Inoperable
	4/13/2011		11.4	14.29	2.89	232.74	SP	0		Inoperble
	4/20/2011		9.83	11.64	1.81	234.45	SP	0		
	4/29/2011		10.59	12.45	1.86	233.69	SP	0.193		
	5/13/2011		11.78	13.24	1.46	232.55	SP	0.772		
	5/20/2011		9.24	10.03	0.79	235.18	SP	0		
	5/26/2011		13.07	14.59	1.52	231.25	--			
	6/9/2011		12.17	14.74	2.57	232.02	SP	0.193		
	6/15/2011		12.87	12.88	0.01	231.65	SP	0.193		
	7/14/2011		13.45	15.48	2.03	230.81	SP	1.351		
	7/14/2011		13.45	15.48	2.03	230.81	PP	0.476		
	7/29/2011						SP	0		
	8/8/2011		14.2	16.09	1.89	230.07	--			
	8/17/2011		14.37	16.32	1.95	229.9	SP	0		
	8/24/2011		14.43	16.22	1.79	229.86	SP	0		
	9/1/2011		14.53	16.14	1.61	229.78	SP	0		
	9/14/2011		12.73	15.53	2.8	231.43	PP	0.845		
	10/6/2011		12.08	13.82	1.74	232.21	PP	0.386		
	10/25/2011		11.91	12.47	0.56	232.54	PP	0.159		SP not operational
	11/15/2011		12.7	13.23	0.53	231.75	PP	0.264		
	12/8/2011		10.96	10.97	0.01	233.56	PS	0.003		
	12/15/2011		11.43	11.46	0.02	233.08	--			
	12/21/2011		11.73	11.74	0.01	232.79	PS	0.005		
	1/6/2012		11.93	11.95	0.02	232.59	PS	0.013		
	1/27/2012		11.29	11.37	0.08	233.22	--			
	2/7/2012		12.73	12.79	0.06	231.78	PS	0.007		
	2/28/2012		13.23	13.36	0.13	231.27	PS	0.013		
	3/3/2012		12.19	12.24	0.05	232.32	PS	0		
	3/21/2012		12.73	12.85	0.12	231.77	--			
	3/27/2012		13.08	13.23	0.15	231.42	PS	0.007	41.255	
MW-58	7/14/2009	244.42	13.23	13.93	0.7	231.1	--			
	7/16/2009		13.23	13.94	0.71	231.1	PP	0.119		
	7/22/2009		13.49	13.96	0.47	230.87	--			
	8/3/2009		12.71	13.1	0.39	231.66	PP	0.066		
	8/18/2009		13.52	14.28	0.76	230.8	PP	0.159		
	9/3/2009		13.6	14.04	0.44	230.76	PP	0.079		
	9/18/2009		13.91	14.55	0.64	230.43	--			Placed PS from MW-55 into MW-58
	10/6/2009		14.14	14.68	0.54	230.21	PS	0.132		
	10/19/2009		13.38	13.63	0.25	231.01	PS	0.132		
	11/5/2009		12.61	12.9	0.29	231.77	PS	0.003		
	11/12/2009						--			Well under water
	12/4/2009		12.49	12.52	0.03	231.93	PS	0.132		
	12/11/2009			11.39		233.03	PS	0.079		
	12/16/2009		11.57	11.64	0.07	232.84	--			
	1/20/2010			12.02		232.4	--			
	2/16/2010			11.75		232.67	AS			
	3/1/2010			10.65		233.77	--			
	4/5/2010		11	11.11	0.11	233.41	PP	0.053		
	5/3/2010		11.73	12	0.27	232.65	PP	0.053		
	5/26/2010		11.33	11.42	0.09	233.08	AS	0.013		
	6/15/2010		13.21	13.38	0.26	231.27	--			
	6/18/2010		13.14	13.36	0.22	231.25	PP	0.106		
	7/30/2010		14.26	15.52	1.26	230	PP	0.317		
	9/2/2010		15.54	15.83	0.29	228.84	PP	0.079		

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	9/21/2010		14.98	16.41	1.43	229.25	PP	0.211		
	10/13/2010		13.87	14.93	1.06	230.41	PP	0.304		Placed PS in well.
	11/4/2010						--			Underwater
	11/12/2010		13.26	13.31	0.05	231.15	PS	0.132		
	11/19/2010		13.08	13.2	0.12	231.32	PS	0.132		
	11/24/2010						PS	0.079		
	12/3/2010		12.84	13.05	0.21	231.55	PS	0.003		
	12/10/2010		13.35	13.36	0.01	231.07	--			
	12/21/2010		13.57	13.59	0.02	230.85	PS	0.132		
	1/6/2011		14.03	14.2	0.17	230.37	PS	0.003		
	1/28/2011		14.43	14.98	0.55	229.92	PS	0.132		
	2/14/2011		13.48	13.5	0.02	230.94	--			
	2/18/2011		13.57	13.59	0.02	230.85	PS	0.106		
	3/4/2011		13.07	13.09	0.02	231.35	PS	0.132		
	3/22/2011		11.73	11.74	0.01	232.69	PS	0.003		
	4/13/2011			11.73		232.69	PS	0		
	4/20/2011		10.08	10.1	0.02	234.34	PS	0.003		
	4/29/2011			10.83		233.59	PS	0		
	5/13/2011		11.83	11.98	0.05	232.48	PS	0.003		
	5/20/2011		9.32	9.33	0.01	235.1	PS	0.003		
	5/26/2011		13.32	13.33	0.01	231.1	--			
	6/9/2011		12.44	12.49	0.05	231.97	PS	0.003		
	6/15/2011		12.79	12.88	0.09	231.62	PS	0.003		
	7/14/2011		13.79	13.8	0.01	230.63	PS	0.053		
	7/21/2011		13.72	13.77	0.05	230.69	PS	0.079		
	8/8/2011		14.4	14.51	0.11	230.01	--			
	8/17/2011		14.48	14.73	0.25	229.91	PS	0.053		
	8/24/2011		14.56	14.58	0.02	229.86	PS	0.132		
	9/1/2011		14.67	14.69	0.02	229.75	PS	0.04		
	9/14/2011		12.96	12.99	0.03	231.46	PS	0.003		
	10/6/2011			12.24		232.18	PP			
	10/25/2011		12.1	12.12	0.02	232.32	PS	0.001		
	11/15/2011		12.73	12.74	0.01	231.69	PS	0.003		
	12/15/2011		11.51	11.53	0.02	232.91	--			
	12/21/2011			11.75		232.67	--			
	1/6/2012		11.9	11.91	0.01	232.52	--			
	1/27/2012		11.81	11.82	0.01	232.61	--			
	2/7/2012		12.45	12.53	0.08	231.96	--			
	2/28/2012		13.19	13.25	0.06	231.22	--			
	3/3/2012		11.88	11.9	0.02	232.54	--			
	3/21/2012		12.51	12.58	0.07	231.9	--		3.27	
MW-59	3/21/2012	246.07		13.29		232.78	--			
	3/27/2012		13.6	13.64	0.04	232.43	--		0	AS in well
MW-60	3/21/2012	246.57	13.19	13.26	0.07	233.31	--			
	3/27/2012		13.48	13.53	0.05	233.04	--		0	AS in well
MW-61	3/21/2012	245.63		13.28		232.35	--			
	3/27/2012		13.59	13.6	0.01	232.03	--		0	AS in well
MW-62	3/21/2012	246.08	13.45	15.89	2.44	230.19	--			
	3/27/2012		13.73	16.41	2.68	229.67	PP	2.404		Installed PS in well
MW-63	3/21/2012	246.25	14.12	14.2	0.08	232.05	--			
	3/27/2012		14.38	14.77	0.39	231.48	--		2.404	AS in well
MW-64	3/21/2012	245.45		4.39		241.06	--			
	3/27/2012			4.57		240.88	--		0	
MW-65	3/21/2012	245.54		5.38		240.16	--			
	3/27/2012			5.61		239.93	--		0	
EW-1	7/22/2009	243.5		8.78		234.72	--			
	8/18/2009		13.04	13.05	0.01	230.46	PP	0.026		
	9/18/2009			8.59		234.91	--			
	10/6/2009			8.85		234.65	--			
	10/19/2009			9.79		233.71	--			
	11/5/2009			11.41		232.09	--			
	12/4/2009			11.49		232.01	--			
	1/20/2010			7.35		236.15	--			
	3/1/2010			10.2		233.3	--			
	4/5/2010			8.11		235.39	--			
	5/3/2010			6.19		237.31	--			
	5/26/2010			8.72		234.78	--			
	6/15/2010			8.33		235.17	--			
	7/30/2010			8.74		234.76	--			
	9/2/2010			15.12		228.38	--			
	9/21/2010			14.8		228.7	--			
	10/13/2010			8.9		234.6	--			
	11/4/2010						--			Underwater
	12/10/2010			7.39		236.11	--			
	2/14/2011			7.35		236.15	--			
	4/13/2011						--			Under water
	5/26/2011			7.28		236.22	--			
	6/15/2011			7.37		236.13	--			
	7/14/2011			7.46		236.04	--			
	8/8/2011			7.71		235.79	--			
	9/14/2011			7.35		236.15	--			
	10/25/2011						--			Inaccessible
	12/15/2011						--			Graded over
	1/27/2012						--			inaccessible
	2/7/2012						--			inaccessible
	2/28/2012			7.78		235.72	--			
	3/21/2012			7.71		235.79	--		0.026	
EW-2	7/22/2009	243.3		13.03		230.27	--			
	9/18/2009		13.49	13.5	0.01	229.81	AS	0.003		
	10/6/2009		13.71	13.73	0.02	229.59	AS			
	10/19/2009		12.99	13.02	0.03	230.31	AS	0.005		
	11/5/2009			12.09		231.21	--			
	12/4/2009			11.96		231.34	--			
	12/16/2009			11.1		232.2	--			

Table E-1b
Well Gauging Data and LPH Recovery Summary Table
July 2009 (CAP Implementation) through March 2012
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Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)	LPH Recovery Method (SP,PS, PP, or AS)	LPH Recovered (gallons)	Total LPH Recovered Since July 2009 (gallons)	Notes
	1/20/2010			11.37		231.93	--			
	2/16/2010			11.9		231.4	--			
	4/5/2010			10.44		232.86	--			
	5/3/2010			11.05		232.25	--			
	5/26/2010			10.93		232.37	--			
	6/15/2010			12.4		230.9	--			
	7/30/2010			13.92		229.38	--			
	9/2/2010			15.06		228.24	--			
	9/21/2010		14.63	14.64	0.01	228.67	AS	0.003		
	10/13/2010		13.39	13.4	0.01	229.91	AS	0.003		
	11/4/2010		12.99	13	0.01	230.31	AS	0.003		
	12/3/2010		13.04	13.05	0.01	230.26	AS	0.002		
	12/10/2010			12.53		230.77	--			
	1/28/2011			13.95		229.35	--			
	2/14/2011		12.82	12.83	0.01	230.48	--			
	3/4/2011			12.85		230.45	--			
	4/13/2011		10.93	10.94	0.01	232.37	AS	0.003		
	4/20/2011		9.1	9.11	0.01	234.2	--			
	4/29/2011			9.65		233.65	--			
	5/13/2011			11.15		232.15	--			
	5/26/2011			12.1		231.2	--			
	6/9/2011			11.72		231.58	--			
	6/15/2011			12.14		231.16	--			
	7/14/2011		12.95	12.96	0.01	230.35	--			
	8/8/2011		13.75	13.76	0.01	229.55	--			
	9/14/2011		12.08	12.1	0.02	231.22	AS	0.013		
	10/25/2011		10.98	10.99	0.01	232.32	AS	0.001		
	12/15/2011			9.77		233.53	--			
	1/6/2012			10.94		232.36	--			
	1/27/2012		10.77	10.78	0.01	232.53	--			
	2/7/2012			11.75		231.55	--			
	2/28/2012			12.52		230.78	--			
	3/21/2012			11.87		231.43	--		0.036	
EW-3	7/16/2009	242.7	12.55	12.73	0.18	230.13	PP	0.238		
	7/22/2009		12.81	12.9	0.09	229.88	--			
	8/3/2009		12.13	12.38	0.25	230.54	PP	0.132		
	9/3/2009		12.8	13.3	0.5	229.84	PP	0.423		
	9/18/2009		13.35	13.6	0.25	229.32	PP	0.172		
	10/6/2009		13.6	13.95	0.35	229.05	PP	0.476		
	10/19/2009		12.91	13.06	0.15	229.77	AS	0.079		
	11/5/2009		12.32	12.33	0.01	230.38	AS	0.159		
	12/4/2009		12.03	12.23	0.2	230.64	AS	0.178		
	12/11/2009			10.95		231.75	--			
	12/16/2009			11.03		231.67	AS	0.053		
	1/20/2010			11.51		231.19	--			
	2/16/2010			11.17		231.53	--			
	3/8/2010		10.24	10.45	0.21	232.43	--			
	4/5/2010		10.4	10.65	0.25	232.27	PP	0.092		
	5/3/2010		11.11	11.5	0.39	231.54	PP	0.106		
	5/26/2010		10.69	11.13	0.44	231.95	PP	0.476		
	6/15/2010		12.31	12.73	0.42	230.34	--			
	6/18/2010		12.24	12.69	0.45	230.4	PP	0.317		
	7/30/2010		13.73	13.75	0.02	228.97	AS	0.013		
	9/2/2010		14.99	15.33	0.34	227.67	PP	0.159		
	9/21/2010		14.58	15.46	0.88	228.01	PP	0.317		
	10/13/2010		13.26	14.02	0.76	229.34	PP	0.951		
	11/4/2010		13.01	13.44	0.43	229.63	--			
	11/12/2010		13.01	13.48	0.48	229.64	PP	0.74		
	11/19/2010		12.86	13.31	0.45	229.78	PP	0.687		
	11/24/2010		12.93	13.57	0.64	229.69	PP	0.845		
	12/3/2010		12.14	12.27	0.13	230.54	--			
	12/10/2010		12.45	12.62	0.17	230.23	--			
	1/28/2011		13.82	14.3	0.48	228.82	PP	0.198		
	2/14/2011		12.75	13.2	0.45	229.89	--			
	3/4/2011		12.38	12.97	0.59	230.24	PP	0.819		
	4/13/2011		11.15	11.3	0.15	231.53	PP	0.185		
	4/20/2011		9.43	9.58	0.15	233.25	--			
	4/29/2011			10.35		232.35	AS	0.159		
	5/13/2011		11.35	11.36	0.01	231.35	AS	0.159		
	5/26/2011		12.99	13.04	0.05	229.7	--			
	6/9/2011		11.87	11.88	0.01	230.83	AS	0.079		
	6/15/2011			12.95		229.75	AS	0.053		
	7/14/2011		12.98	13.2	0.22	229.69	AS	0.053		
	7/21/2011		13	13.22	0.22	229.67	AS	0.396		
	8/8/2011		13.73	13.95	0.22	228.94	--			
	8/17/2011		14.71	14.73	0.02	227.99	AS	0.079		
	9/1/2011		14.09	14.35	0.26	228.58	AS	0.185		
	9/14/2011		12.5	12.59	0.09	230.19	AS	0.132		
	10/25/2011			11.6		231.1	AS	0.172		
	12/15/2011						--			Graded over
	12/21/2011			11.3		231.4	AS	0.053		
	1/27/2012						--			inaccessible
	2/7/2012						--			Damaged Vault
	2/28/2012						--			inaccessible
	3/21/2012						--		9.335	well inaccessible
EW-4	7/22/2009	243.2		12.49		230.71	--			
	9/18/2009			12.79		230.41	--			
	10/6/2009			12.62		230.58	--			
	10/19/2009			8.26		234.94	--			
	11/5/2009			9.83		233.37	--			
	12/4/2009			3.23		239.97	--			
	1/20/2010			9.05		234.15	--			
	2/16/2010			11.75		231.45	--			
	4/5/2010			8.52		234.68	--			

Table E-1b
Well Gauging Data and LPH Recovery Summary Table
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Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)	LPH Recovery Method (SP,PS, PP, or AS)	LPH Recovered (gallons)	Total LPH Recovered Since July 2009 (gallons)	Notes
	5/3/2010			8.85		234.35	--			
	5/26/2010			8.8		234.4	--			
	6/15/2010						--			Underwater
	7/30/2010			13.33		229.87	--			
	9/2/2010			14.98		228.22	--			
	9/21/2010			14.21		228.99	--			
	10/13/2010			11.95		231.25	--			
	11/4/2010						--			Underwater
	12/10/2010			10.17		233.03	--			
	1/28/2011			13.52		229.68	--			
	2/14/2011			10.86		232.34	--			
	4/13/2011						--			Under water
	5/26/2011			12.07		231.13	--			
	6/15/2011			11.2		232	--			
	7/14/2011						--			Under water
	8/8/2011						--			"Well inaccessible, yard construction"
	9/14/2011			9.22		233.98	--			
	10/25/2011						--			Could not locate
	12/15/2011						--			Graded over
	1/27/2012			10.07		233.13	--			
	2/28/2012			11.99		231.21	--			
	3/20/2012			11.15		232.05	--		0	
EW-5	7/16/2009	243.6	13.35	13.36	0.01	230.25	PP			
	7/22/2009			13.65		229.95	--			
	8/3/2009			12.91		230.69	--			
	9/3/2009		13.7	13.81	0.11	229.89	PP	0.106		
	9/18/2009		14.08	14.25	0.17	229.5	PP	0.291		
	10/6/2009		14.4	14.5	0.1	229.19	AS			
	10/19/2009		13.65	13.76	0.11	229.94	AS	0.04		
	11/5/2009			12.85		230.75	--			
	12/4/2009		12.8	12.82	0.02	230.8	AS	0.145		
	12/16/2009			11.75		231.85	AS	0.013		
	1/20/2010			12.08		231.52	--			
	3/8/2010		11.05	11.06	0.01	232.55	--			
	4/5/2010		11.22	11.24	0.02	232.38	AS	0.026		
	5/3/2010		11.43	12	0.07	231.66	PP	0.053		
	5/26/2010		11.48	11.54	0.06	232.11	AS	0.106		
	6/15/2010			13.14		230.46	--			
	7/30/2010		14.58	14.73	0.15	229	AS	0.106		
	9/2/2010		15.36	15.49	0.13	228.22	PP	0.079		
	9/21/2010		15.3	15.7	0.4	228.25	PP	0.264		
	10/13/2010		14.12	14.5	0.38	229.43	PP	0.277		
	11/4/2010		13.81	13.95	0.14	229.77	AS	0.03		
	11/12/2010		13.52	13.55	0.03	230.08	AS	0.007		
	11/19/2010		13.61	13.71	0.1	229.98	AS	0.04		
	11/24/2010		13.75	13.95	0.2	229.82	PP	0.185		
	12/10/2010		13.3	13.35	0.5	230.69	--			
	1/28/2011		14.66	14.75	0.09	228.93	AS	0.053		
	2/14/2011		13.56	13.66	0.1	230.03	--			
	3/4/2011		13.2	13.27	0.07	230.39	AS	0.026		
	4/13/2011		11.89	12.03	0.14	231.69	PP	0.106		
	4/29/2011		10.93	11.12	0.19	232.65	--			
	5/13/2011			12.2		231.4	AS	0.225		
	5/26/2011		12.7	12.72	0.02	230.9	--			
	6/9/2011		12.61	12.62	0.01	230.99	PS	0.092		
	6/15/2011			12.19		231.41	AS	0.003		
	7/14/2011			13.78		229.82	--			
	7/21/2011			13.9		229.7	AS	0		
	8/8/2011		14.47	15.53	1.06	228.99	--			
	8/17/2011		13.88	14.18	0.3	229.68	AS	0.106		
	9/14/2011			13.2		230.4	AS	0.106		
	10/25/2011						--			Buried under sediment
	12/15/2011						--			Graded over
	12/21/2011		11.95	11.98	0.03	231.65	AS	0.159		
	1/6/2012			12.17		231.43	--			
	1/27/2012			12.21		231.39	--			
	2/7/2012			12.78		230.82	AS	0.066		Installed AS
	2/28/2012			13.35		230.25	--			
	3/21/2012			12.88		230.72	--		2.71	
EW-6	7/22/2009	242.4		13.33		229.07	--			
	9/18/2009			13.86		228.54	--			
	10/6/2009			14.13		228.27	--			
	10/19/2009			13.4		229	--			
	11/5/2009			12.51		229.89	--			
	12/4/2009			12.42		229.98	--			
	1/20/2010			11.73		230.67	--			
	4/5/2010			10.86		231.54	--			
	5/3/2010			11.6		230.8	--			
	5/26/2010			11.15		231.25	--			
	6/15/2010			12.78		229.62	--			
	7/30/2010			14.3		228.1	--			
	9/2/2010			15.01		227.39	--			
	9/21/2010			5.1		237.3	--			
	10/13/2010			13.8		228.6	--			
	11/4/2010			14.49		227.91	--			
	12/10/2010			12.97		229.43	--			
	1/28/2011			14.35		228.05	--			
	2/14/2011			13.26		229.14	--			
	4/13/2011			11.37		231.03	--			
	5/26/2011			13.24		229.16	--			
	6/15/2011			12.6		229.8	--			
	7/14/2011			13.43		228.97	--			
	8/8/2011			14.2		228.2	--			

Table E-1b
Well Gauging Data and LPH Recovery Summary Table
July 2009 (CAP Implementation) through March 2012
C and O Canal/Brunswick Rail Yard Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)	LPH Recovery Method (SP,PS, PP, or AS)	LPH Recovered (gallons)	Total LPH Recovered Since July 2009 (gallons)	Notes
	9/14/2011			12.74		229.66	--			
	10/25/2011			11.82		230.58	--			
	12/15/2011			11.35		231.05	--			
	1/27/2012			11.68		230.72	--			
	2/28/2012			13.02		229.38	--			
	3/21/2012			12.43		229.97	--		0	
EW-7	7/22/2009	243.2		13.22		229.98	--			
	9/18/2009			13.75		229.45	--			
	10/6/2009			14.05		229.15	--			
	10/19/2009			13.3		229.9	--			
	11/5/2009			12.51		230.69	--			
	12/4/2009			12.34		230.86	--			
	1/20/2010			11.72		231.48	--			
	4/5/2010			10.87		232.33	--			
	5/3/2010			11.57		231.63	--			
	5/26/2010			11.15		232.05	--			
	6/15/2010			12.71		230.49	--			
	7/30/2010			14.2		229	--			
	9/2/2010			14.96		228.24	--			
	9/21/2010			15		228.2	--			
	10/13/2010			13.74		229.46	--			
	11/4/2010			13.49		229.71	--			
	12/10/2010			13.01		230.19	--			
	2/14/2011			13.29		229.91	--			
	4/13/2011			11.55		231.65	--			
	5/26/2011			13.17		230.03	--			
	6/15/2011			12.51		230.69	--			
	7/14/2011			13.34		229.86	--			
	8/8/2011			14.13		229.07	--			
	9/14/2011			12.78		230.42	--			
	10/25/2011						--			Inaccessible
	12/15/2011						--			Graded over
	1/27/2012						--			inaccessible
	2/28/2012						--			inaccessible
	3/20/2012			12.24		230.96	--		0	
CS-1	9/18/2009	239.38		9.83		229.55	--			
	10/6/2009			9.82		229.56	--			
	10/19/2009			9.26		230.12	--			
	11/5/2009			8.6		230.78	--			
	12/4/2009		9.55	9.57	0.02	229.83	AS	0.007		
	1/20/2010			8.45		230.93	--			
	4/5/2010			7.69		231.69	--			
	5/3/2010			8.24		231.14	--			
	5/26/2010			7.95		231.43	--			
	6/15/2010			9.41		229.97	--			
	7/30/2010			10.85		228.53	--			
	9/2/2010			10.31		229.07	--			
	9/21/2010			10.35		229.03	--			
	10/13/2010			9.65		229.73	--			
	11/4/2010			9.7		229.68	--			
	12/10/2010			9.14		230.24	--			
	1/28/2011			9.82		229.56	--			
	2/14/2011			9.16		230.22	--			
	4/13/2011			7.97		231.41	--			
	5/26/2011			7.76		231.62	--			
	6/15/2011			8.92		230.46	--			
	7/14/2011			9.4		229.98	--			
	8/8/2011			9.8		229.58	--			
	9/14/2011			8.89		230.49	--			
	10/25/2011			7.6		231.78	--			
	12/15/2011			7.33		232.05	--			
	12/21/2011			5.51		233.87	--			
	1/27/2012			8.14		231.24	--			
	2/28/2012			8.95		230.43	--			
	3/21/2012			8.44		230.94	--		0.007	
CS-2	9/18/2009	236.9		7.5		229.4	--			
	10/6/2009			7.66		229.24	--			
	10/19/2009			6.81		230.09	--			
	11/5/2009			6.13		230.77	--			
	12/4/2009			6.09		230.81	--			
	1/20/2010			5.96		230.94	--			
	4/5/2010			5.22		231.68	--			
	5/3/2010			5.73		231.17	--			
	5/26/2010			5.45		231.45	--			
	6/15/2010			6.9		230	--			
	7/30/2010			8.38		228.52	--			
	9/2/2010			8.16		228.74	--			
	9/21/2010			8.22		228.68	--			
	10/13/2010			7.44		229.46	--			
	11/4/2010			7.2		229.7	--			
	12/10/2010			6.61		230.29	--			
	1/28/2011			7.42		229.48	--			
	2/14/2011			6.68		230.22	--			
	4/13/2011			5.47		231.43	--			
	5/26/2011			5.3		231.6	--			
	6/15/2011			6.42		230.48	--			
	7/14/2011			6.98		229.92	--			
	8/8/2011			7.48		229.42	--			
	9/14/2011			6.38		230.52	--			
	10/25/2011			5.32		231.58	--			
	12/15/2011						--			Graded over
	1/27/2012			5.63		231.27	--			
	2/28/2012			6.47		230.43	--			
	3/21/2012			6.01		230.89	--		0	

Table E-1b
Well Gauging Data and LPH Recovery Summary Table
July 2009 (CAP Implementation) through March 2012
C and O Canal/Brunswick Rail Yard Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)	LPH Recovery Method (SP,PS, PP, or AS)	LPH Recovered (gallons)	Total LPH Recovered Since July 2009 (gallons)	Notes
CS-3	9/18/2009	235.13		6.16		228.97	--			
	10/6/2009			6.25		228.88	--			
	10/19/2009			5.62		229.51	--			
	11/5/2009			5.29		229.84	--			
	12/4/2009			5.06		230.07	--			
	1/20/2010			4.85		230.28	--			
	4/5/2010			4.62		230.51	--			
	5/3/2010			5		230.13	--			
	5/26/2010			4.85		230.28	--			
	6/15/2010			5.92		229.21	--			
	7/30/2010			6.91		228.22	--			
	9/2/2010			6.43		228.7	--			
	9/21/2010			6.77		228.36	--			
	10/13/2010			5.99		229.14	--			
	11/4/2010			6.09		229.04	--			
	12/10/2010			5.8		229.33	--			
	1/28/2011			6.24		228.89	--			
	2/14/2011			5.86		229.27	--			
	4/13/2011			4.81		230.32	--			
	5/26/2011			4.87		230.26	--			
	6/15/2011			5.87		229.26	--			
	7/14/2011			6.08		229.05	--			
	8/8/2011			6.3		228.83	--			
	9/14/2011			6		229.13	--			
	10/25/2011			5		230.13	--			
	12/15/2011			4.86		230.27	--			
	1/27/2012			5		230.13	--			
	2/28/2012			5.84		229.29	--			
	3/21/2012			5.3		229.83	--		0	
CS-4	9/18/2009	234.81		5.75		229.06	--			
	10/6/2009			5.83		228.98	--			
	10/19/2009			5.21		229.6	--			
	11/5/2009			4.89		229.92	--			
	12/4/2009			4.7		230.11	--			
	1/20/2010			4.5		230.31	--			
	4/5/2010			4.29		230.52	--			
	5/3/2010			4.65		230.16	--			
	5/26/2010			4.49		230.32	--			
	6/15/2010			5.53		229.28	--			
	7/30/2010			6.5		228.31	--			
	9/2/2010			6.21		228.6	--			
	9/21/2010			6.4		228.41	--			
	10/13/2010			5.73		229.08	--			
	11/4/2010			6.74		228.07	--			
	12/10/2010			5.47		229.34	--			
	1/28/2011			5.84		228.97	--			
	2/14/2011			5.5		229.31	--			
	4/13/2011			4.5		230.31	--			
	5/26/2011			4.52		230.29	--			
	6/15/2011			5.48		229.33	--			
	7/14/2011			5.73		229.08	--			
	8/8/2011			5.94		228.87	--			
	9/14/2011			5.63		229.18	--			
	10/25/2011			4.65		230.16	--			
	12/15/2011			4.48		230.33	--			
	1/27/2012			4.67		230.14	--			
	2/28/2012			5.49		229.32	--			
	3/21/2012			4.96		229.85	--		0	
CS-5	9/18/2009	232.45		4.57		227.88	--			
	10/6/2009			5.1		227.35	--			
	10/19/2009			2.87		229.58	--			
	11/5/2009			2.55		229.9	--			
	12/4/2009			2.33		230.12	--			
	1/20/2010			2.15		230.3	--			
	4/5/2010			1.91		230.54	--			
	5/3/2010			2.3		230.15	--			
	5/26/2010			2.1		230.35	--			
	6/15/2010			3.55		228.9	--			
	7/30/2010			3.47		228.98	--			
	9/2/2010			6.39		226.06	--			
	9/21/2010			7.45		225	--			
	10/13/2010			5.89		226.56	--			
	11/4/2010			4.82		227.63	--			
	12/10/2010			3.31		229.14	--			
	1/28/2011			5.9		226.55	--			
	2/14/2011			4.15		228.3	--			
	4/13/2011			2.1		230.35	--			
	5/26/2011			2.15		230.3	--			
	6/15/2011			3.38		229.07	--			
	7/14/2011			5.2		227.25	--			
	8/8/2011			6.78		225.67	--			
	9/14/2011			3.49		228.96	--			
	10/25/2011			2.31		230.14	--			
	12/15/2011			2.15		230.3	--			
	1/27/2012			2.29		230.16	--			
	2/28/2012			3.25		229.2	--			
	3/21/2012			2.56		229.89	--		0	
NPS MW-01	6/15/2010	234.94		5.2		229.74	--			
	9/21/2010			10.43		224.51	--			
	12/10/2010			8.4		226.54	--			
	2/14/2011			8.23		226.71	--			
	5/26/2011			5.32		229.62	--			
	8/8/2011			8.15		226.79	--			
	12/15/2011			5.5		229.44	--			
	3/20/2012			5.58		229.36	--		0	

Table E-1b
Well Gauging Data and LPH Recovery Summary Table
July 2009 (CAP Implementation) through March 2012
C and O Canal/Brunswick Rail Yard Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)	LPH Recovery Method (SP,PS, PP, or AS)	LPH Recovered (gallons)	Total LPH Recovered Since July 2009 (gallons)	Notes
NPS MW-02	6/15/2010	237.19		5.78		231.41	--			
	9/21/2010			8.36		228.83	--			
	12/10/2010			6.32		230.87	--			
	2/14/2011			6.69		230.5	--			
	5/26/2011			4.35		232.84	--			
	8/8/2011			7.27		229.92	--			
	12/15/2011			4.31		232.88	--			
	3/21/2012			5.62		231.57	--		0	
NPS MW-03	6/15/2010	234.5		6.25		228.25	--			
	9/21/2010			14.94		219.56	--			
	12/10/2010			9.61		224.89	--			
	2/14/2011			8.86		225.64	--			
	5/26/2011			4.5		230	--			
	8/8/2011			13.17		221.33	--			
	12/15/2011			4.56		229.94	--			
	3/20/2012			4.69		229.81	--		0	
NPS MW-04	9/18/2009	238.5		8.55		229.95	--			
	10/6/2009			8.8		229.7	--			
	10/19/2009			8.08		230.42	--			
	11/5/2009			7.25		231.25	--			
	12/4/2009			7.07		231.43	--			
	1/20/2010			6.49		232.01	--			
	4/5/2010			5.8		232.7	--			
	5/3/2010			6.34		232.16	--			
	5/26/2010			5.98		232.52	--			
	6/15/2010			7.62		230.88	--			
	7/30/2010			10.43		228.07	--			
	9/2/2010			9.51		228.99	--			
	9/21/2010			9.74		228.76	--			
	10/13/2010			9.39		229.11	--			
	11/4/2010			8.13		230.37	--			
	12/10/2010			7.7		230.8	--			
	1/28/2011			8.89		229.61	--			
	2/14/2011			7.81		230.69	--			
	4/13/2011			6.24		232.26	--			
	5/26/2011			5.76		232.74	--			
	6/15/2011			7.35		231.15	--			
	7/14/2011			8.22		230.28	--			
	8/8/2011			8.92		229.58	--			
	9/14/2011			7.56		230.94	--			
	10/25/2011			6.45		232.05	--			
	12/15/2011			5.54		232.96	--			
	1/27/2012			6.36		232.14	--			
	2/28/2012			7.59		230.91	--			
	3/21/2012			6.95		231.55	--		0	
NPS MW-05	6/15/2010	235.69		8.99		226.7	--			
	9/21/2010			10.83		224.86	--			
	12/10/2010			9.18		226.51	--			
	2/14/2011			10		225.69	--			
	5/26/2011			6.2		229.49	--			
	8/8/2011			10.28		225.41	--			
	12/15/2011			6.83		228.86	--			
	3/20/2012			7.63		228.06	--		0	
NPS MW-10	6/15/2010	237.73		6.72		231.01	--			
	9/21/2010			9.07		228.66	--			
	12/10/2010			7.11		230.62	--			
	2/14/2011			7.35		230.38	--			
	5/27/2011			5.49		232.24	--			
	8/8/2011			8.19		229.54	--			
	12/15/2011			5.49		232.24	--			
	3/21/2012			6.43		231.3	--		0	
NPS MW-11	6/15/2010	234.4		0.6		233.8	--			
	9/21/2010			5.75		228.65	--			
	12/10/2010			3.72		230.68	--			
	2/14/2011			4.04		230.36	--			
	5/27/2011			1.77		232.63	--			
	8/8/2011						--			Well damaged, casing mangled
	12/15/2011						--			Well damaged
	3/21/2012						--		0	well damaged
NPS MW-12	6/15/2010	242.61		11.23		231.38	--			
	9/21/2010			13.77		228.84	--			
	12/10/2010			11.65		230.96	--			
	2/14/2011			12.1		230.51	--			
	5/27/2011			9.71		232.9	--			
	8/8/2011			12.63		229.98	--			
	12/15/2011			9.67		232.94	--			
	3/21/2012			10.97		231.64	--		0	
NPS MW-13	6/15/2010	234.72		12.35		222.37	--			
	9/21/2010			15.13		219.59	--			
	12/10/2010			13.7		221.02	--			
	2/14/2011			13.3		221.42	--			
	5/26/2011			9.51		225.21	--			
	8/8/2011			14.49		220.23	--			
	12/15/2011			9.55		225.17	--			
	3/20/2012			10.35		224.37	--		0	
NPS MW-14	6/15/2010	234.74		9.3		225.44	--			
	9/21/2010			12.32		222.42	--			
	12/10/2010			10.34		224.4	--			
	2/14/2011			10.4		224.34	--			
	5/26/2011			6.44		228.3	--			
	8/8/2011			11.35		223.39	--			
	12/15/2011			7.01		227.73	--			
	3/20/2012			7.78		226.96	--		0	
NPS MW-15	6/15/2010	234.38		7.53		226.85	--			
	9/21/2010			13.02		221.36	--			

Table E-1b
Well Gauging Data and LPH Recovery Summary Table
July 2009 (CAP Implementation) through March 2012
C and O Canal/Brunswick Rail Yard Brunswick, Maryland

Well ID	Measurement Date	Top of Casing Elevation (ft msl)	DTLPH (ft TOC)	DTW (ft TOC)	LPH Thickness (feet)	Groundwater Elevation (ft msl)	LPH Recovery Method (SP,PS, PP, or AS)	LPH Recovered (gallons)	Total LPH Recovered Since July 2009 (gallons)	Notes
	12/10/2010			8.78		225.6	--			
	2/14/2011			8.96		225.42	--			
	5/26/2011			6.14		228.24	--			
	8/8/2011			11.79		222.59	--			
	12/15/2011			6.11		228.27	--			
	3/20/2012			6.16		228.22	--		0	
NPS MW-16	6/15/2010	240.09		9.43		230.66	--			
	9/21/2010			11.72		228.37	--			
	12/10/2010			9.6		230.49	--			
	2/14/2011			9.79		230.3	--			
	5/27/2011			7.76		232.33	--			
	8/8/2011			10.83		229.26	--			
	12/15/2011			8.54		231.55	--			Well damaged
	3/21/2012			9.78		230.31	--		0	protective casing damaged
NPS MW-17	6/15/2010	242.71		15.6		227.11	--			
	9/21/2010			18.65		224.06	--			
	12/10/2010			16.37		226.34	--			
	2/14/2011			16.51		226.2	--			
	5/27/2011			13.14		229.57	--			
	8/8/2011			17.22		225.49	--			
	12/15/2011			13.62		229.09	--			Well damaged
	3/21/2012			14.65		228.06	--		0	
										591.405

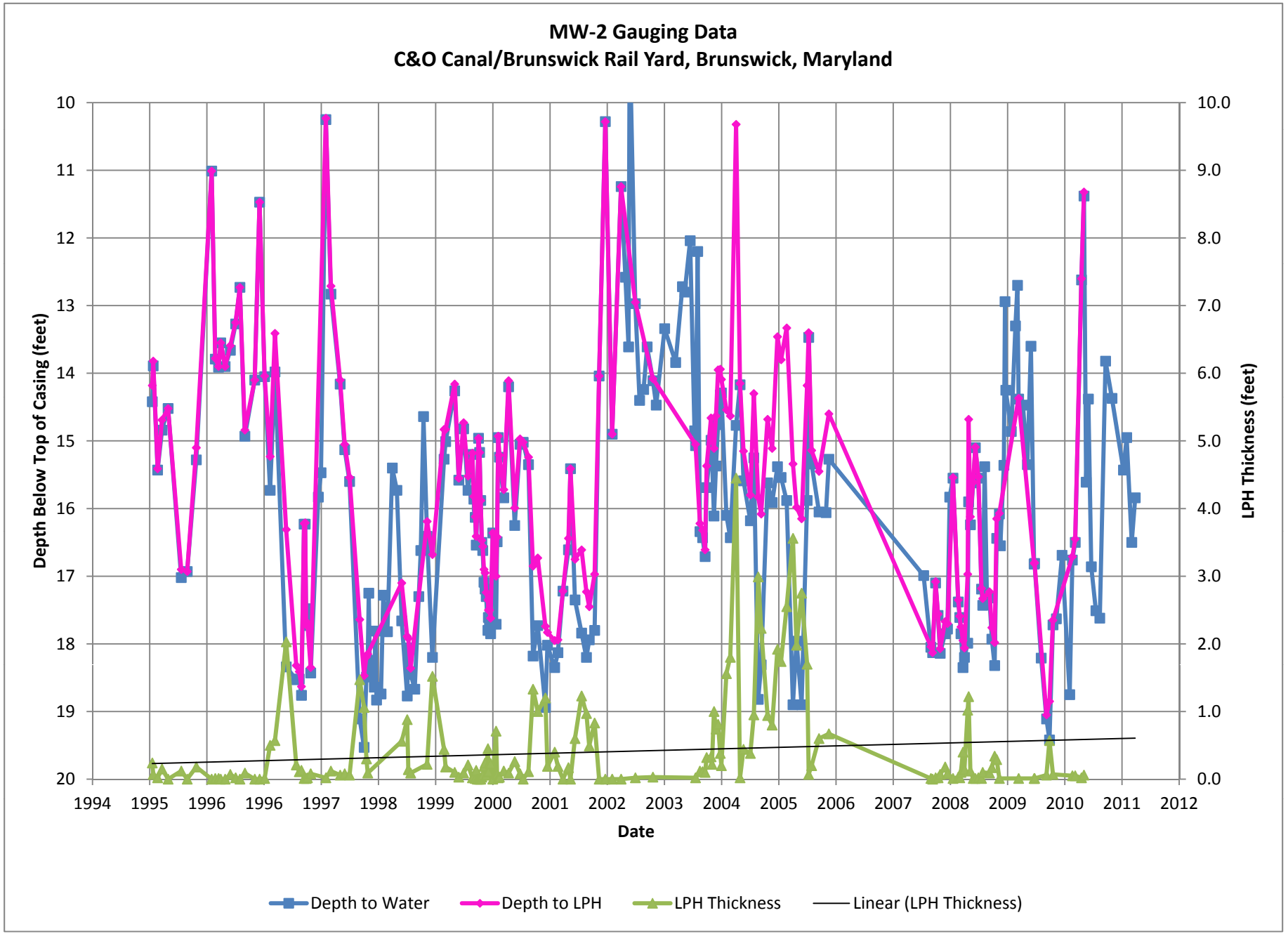
Notes:
msl - mean sea level
DTLPH- depth to liquid phase hydrocarbons
DTW - depth to water
ft TOC - feet from top of well casing
ND - not detected
NM - not measured
LPH - liquid phase hydrocarbon

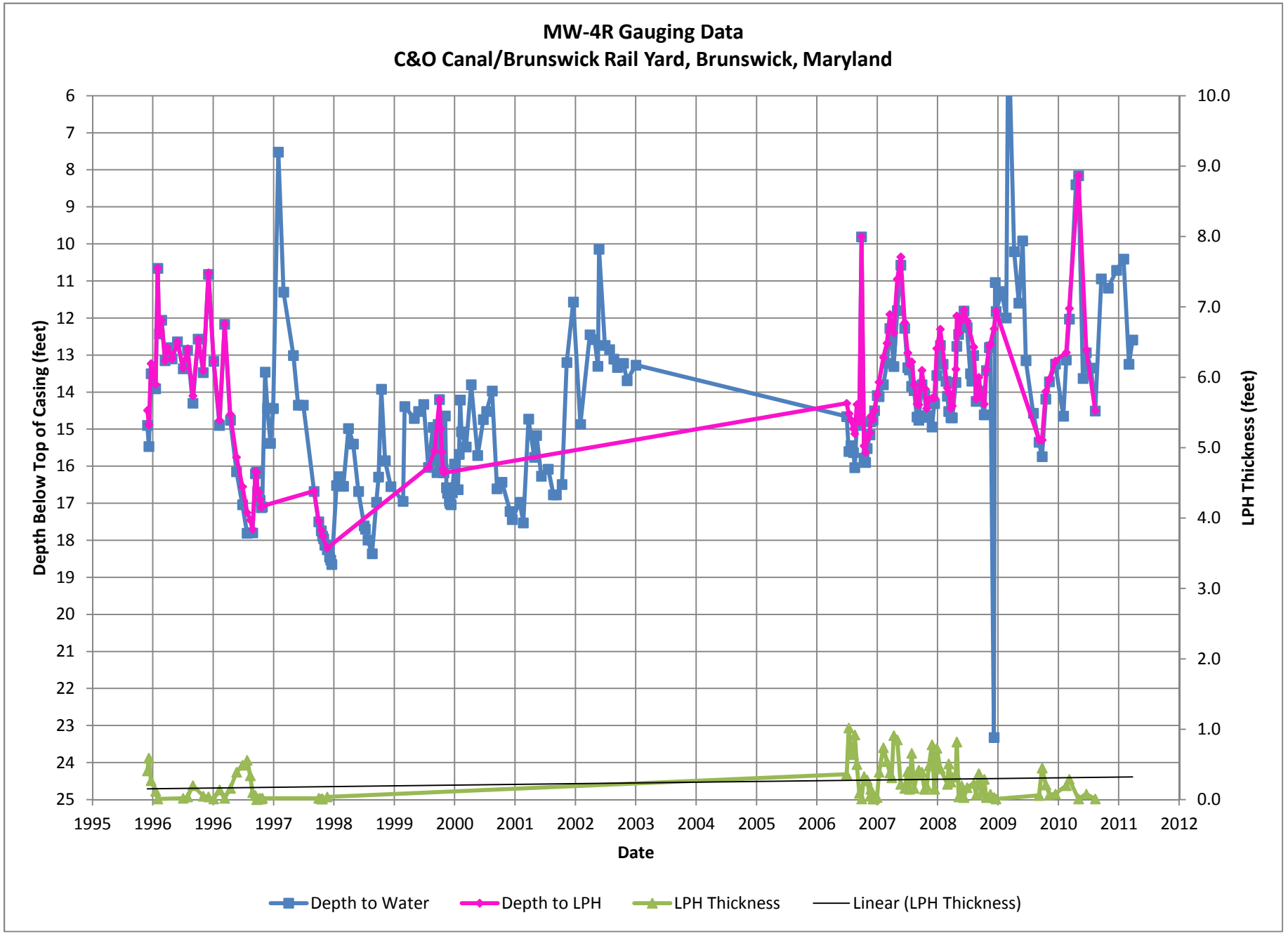
SP - Skimmer pump
PS - Passive skimmer
PP - Peristaltic pump
AS - Absorbent sock

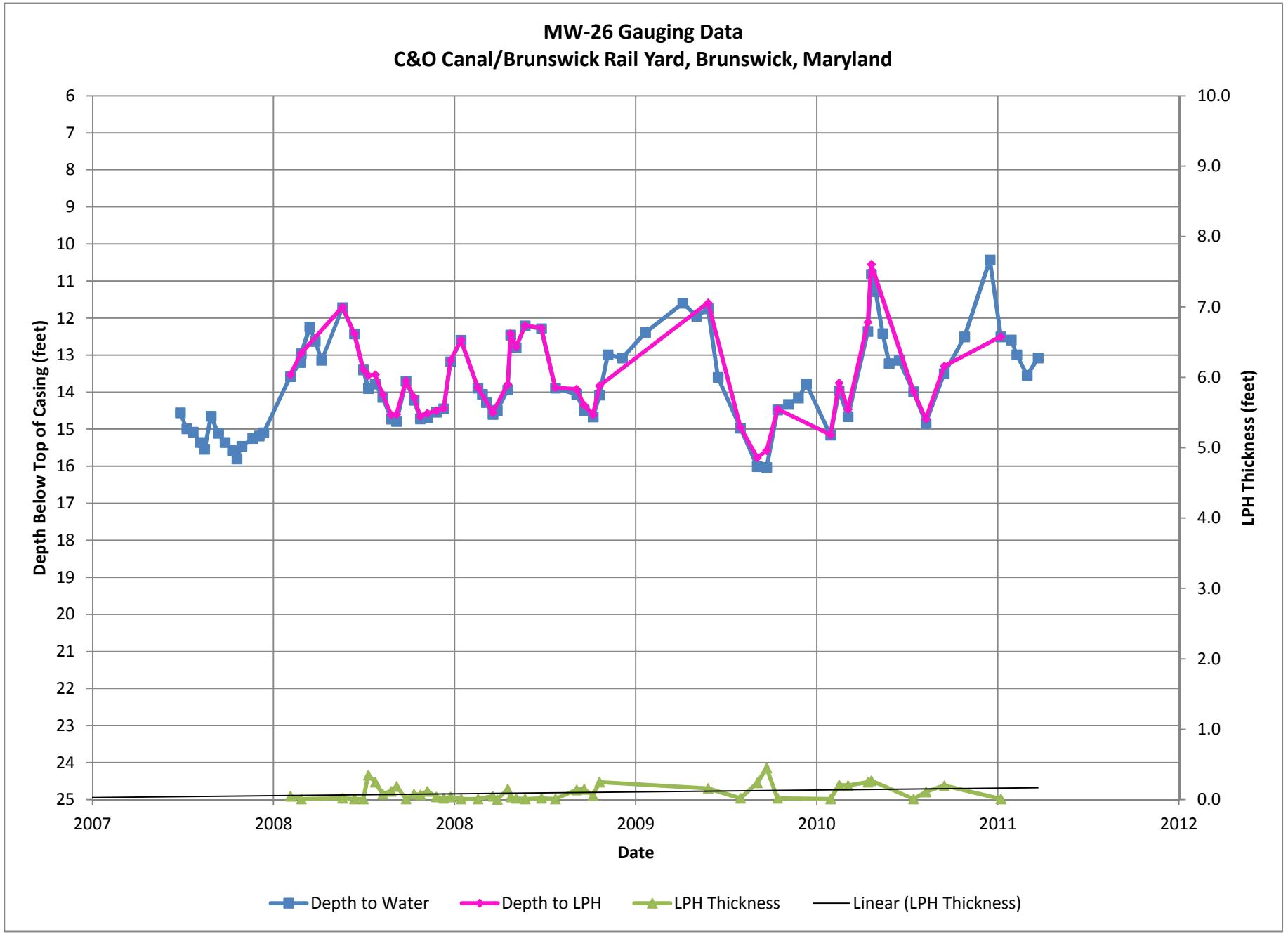
ARCADIS

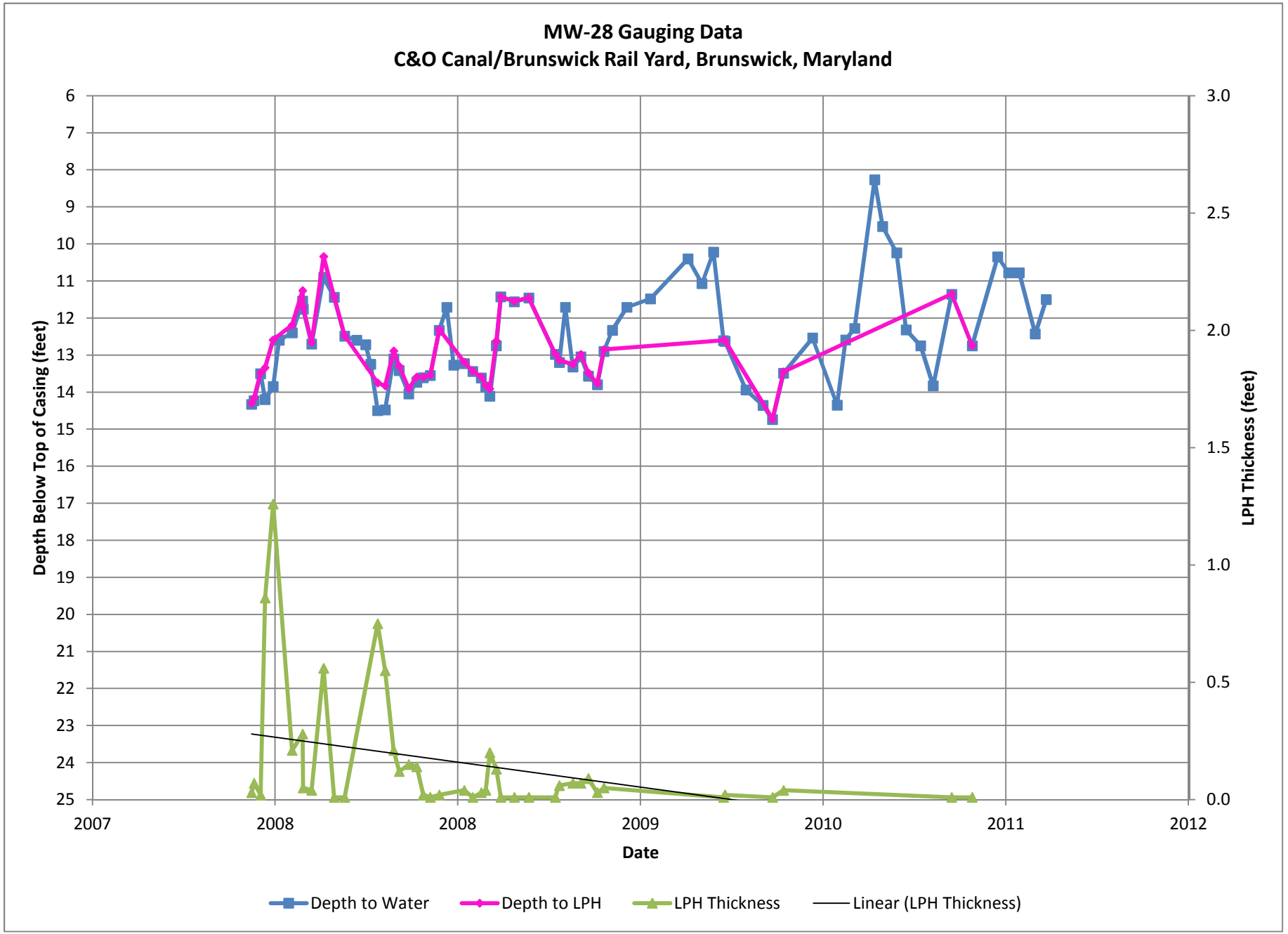
Appendix E-2

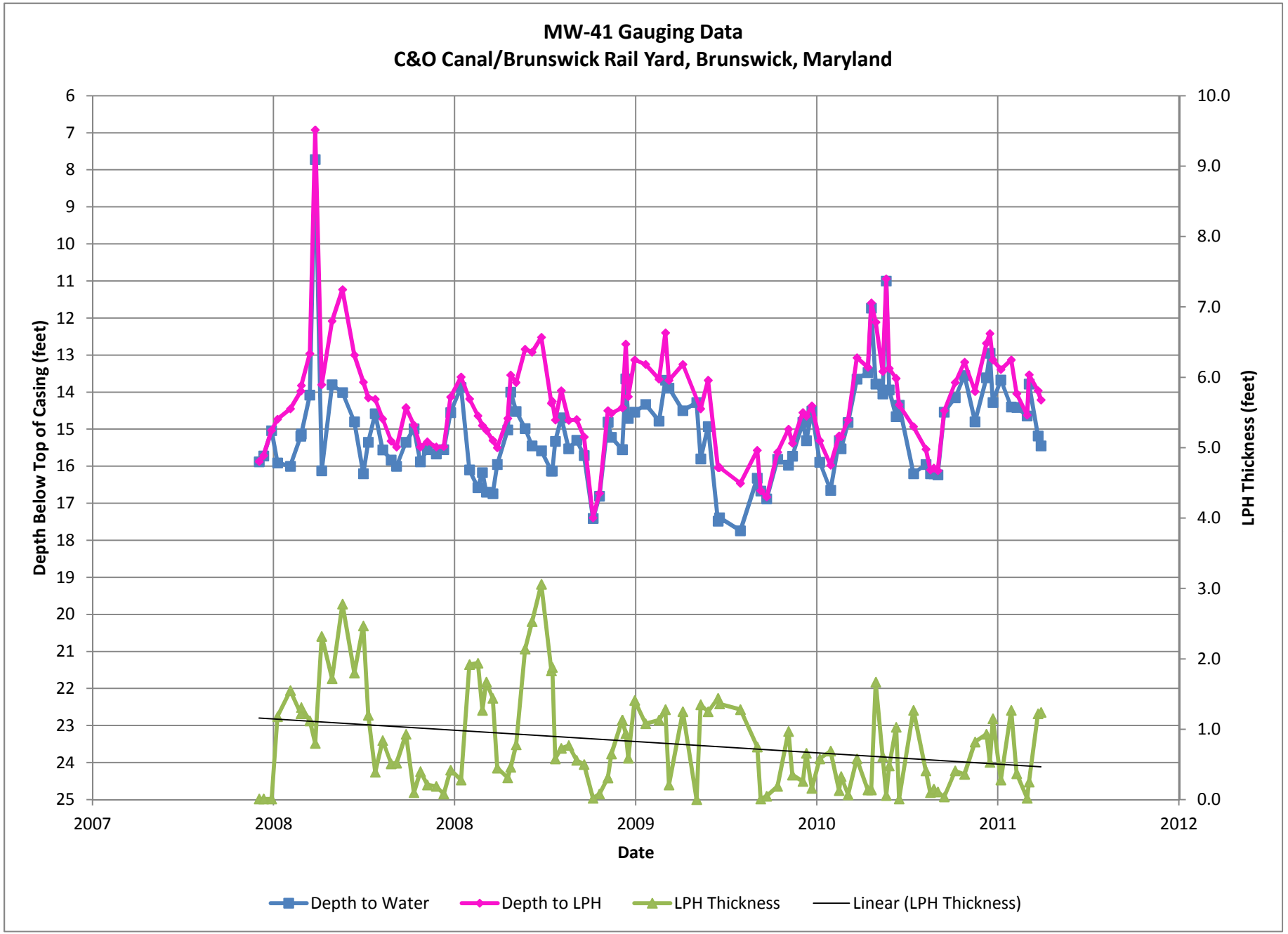
Graphs for Select Monitoring Wells

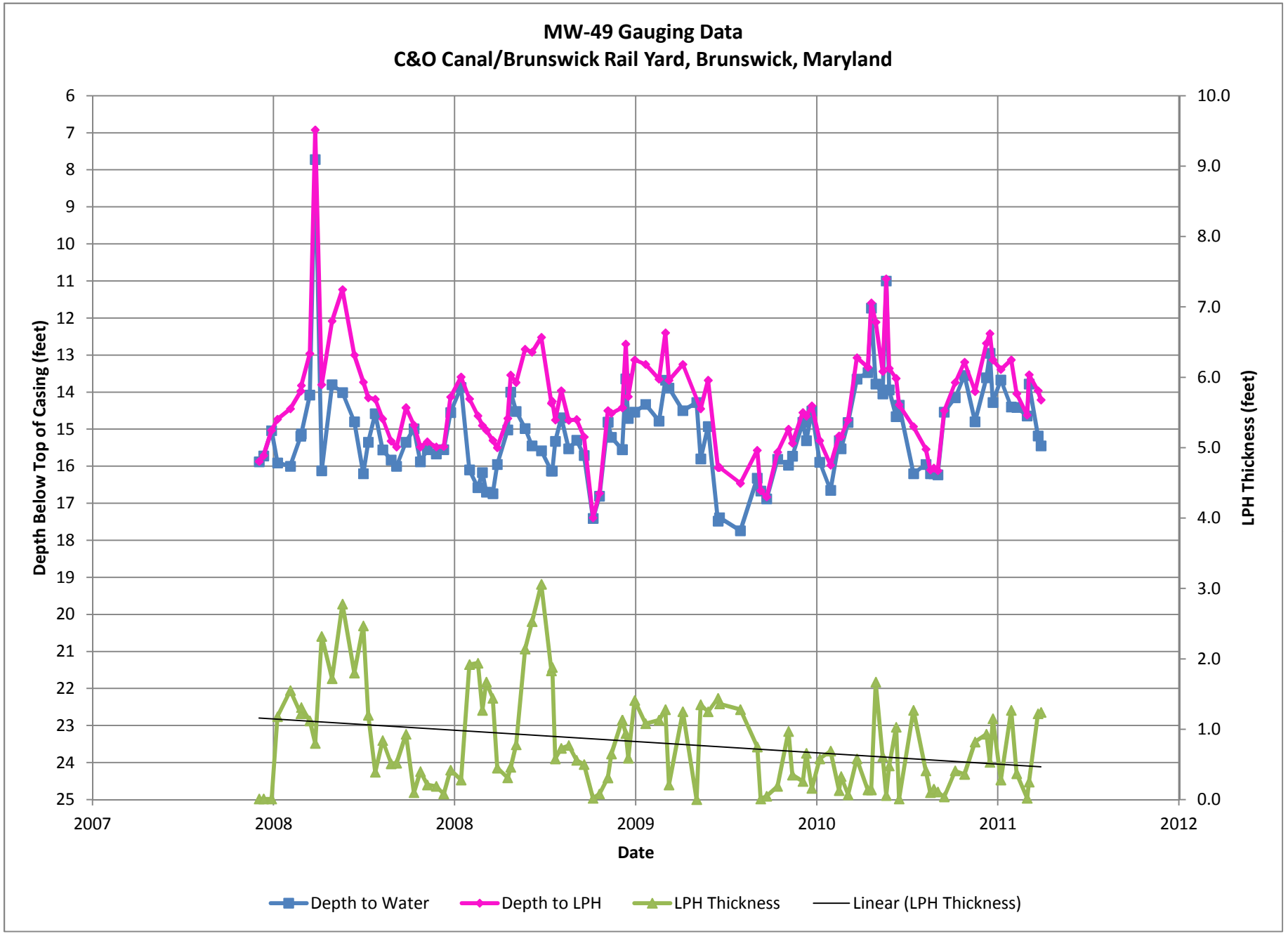

MW-2 Gauging Data
C&O Canal/Brunswick Rail Yard, Brunswick, Maryland
Depth Below Top of Casing (feet)
LPH Thickness (feet)
Date
10
11
12
13
14
15
16
17
18
19
20
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1994
1995
1996
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
Depth to Water
Depth to LPH
LPH Thickness
Linear (LPH Thickness)

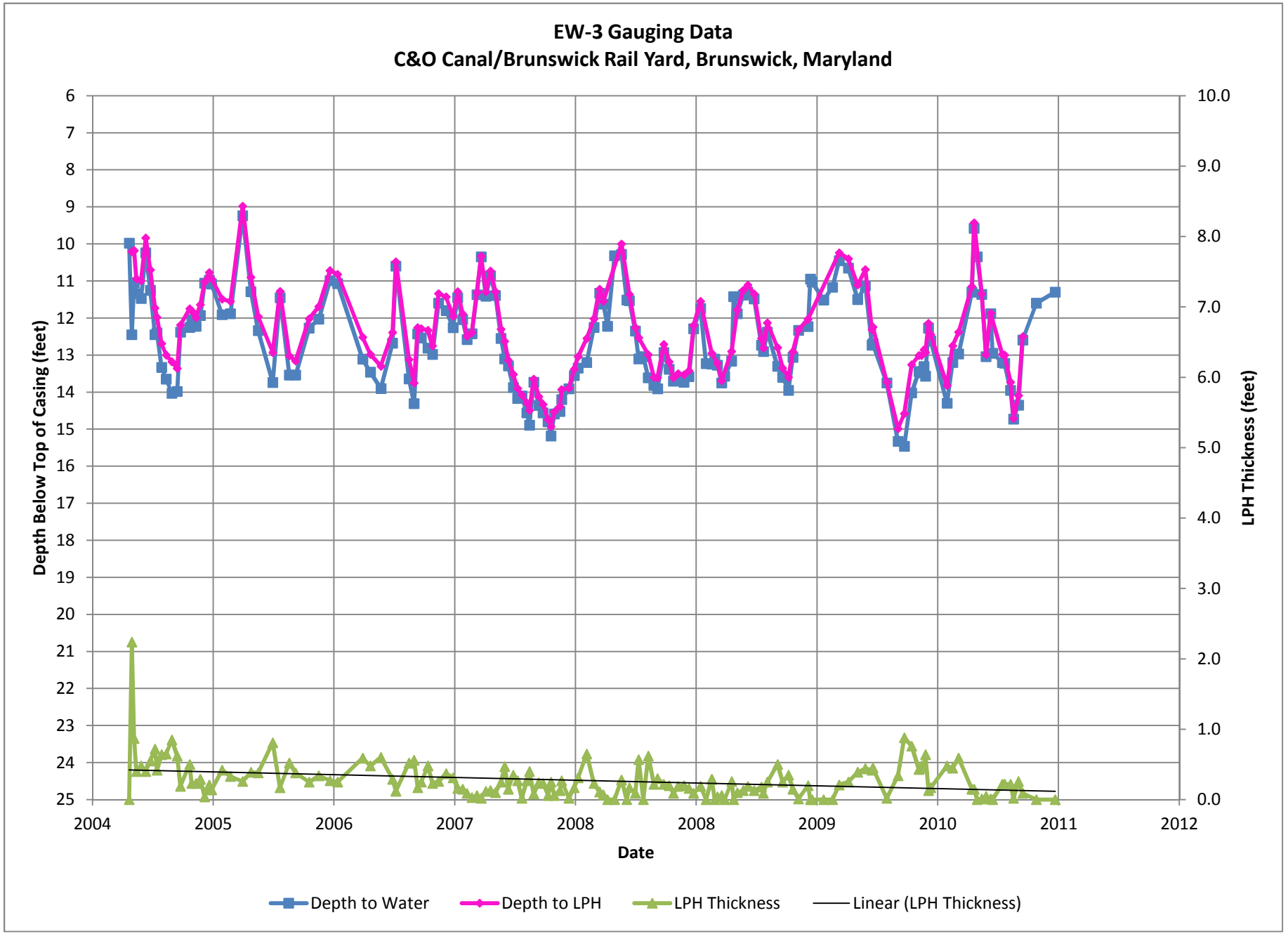

MW-4R Gauging Data
C&O Canal/Brunswick Rail Yard, Brunswick, Maryland
Depth Below Top of Casing (feet)
LPH Thickness (feet)
Date
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1995
1996
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
Depth to Water
Depth to LPH
LPH Thickness
Linear (LPH Thickness)

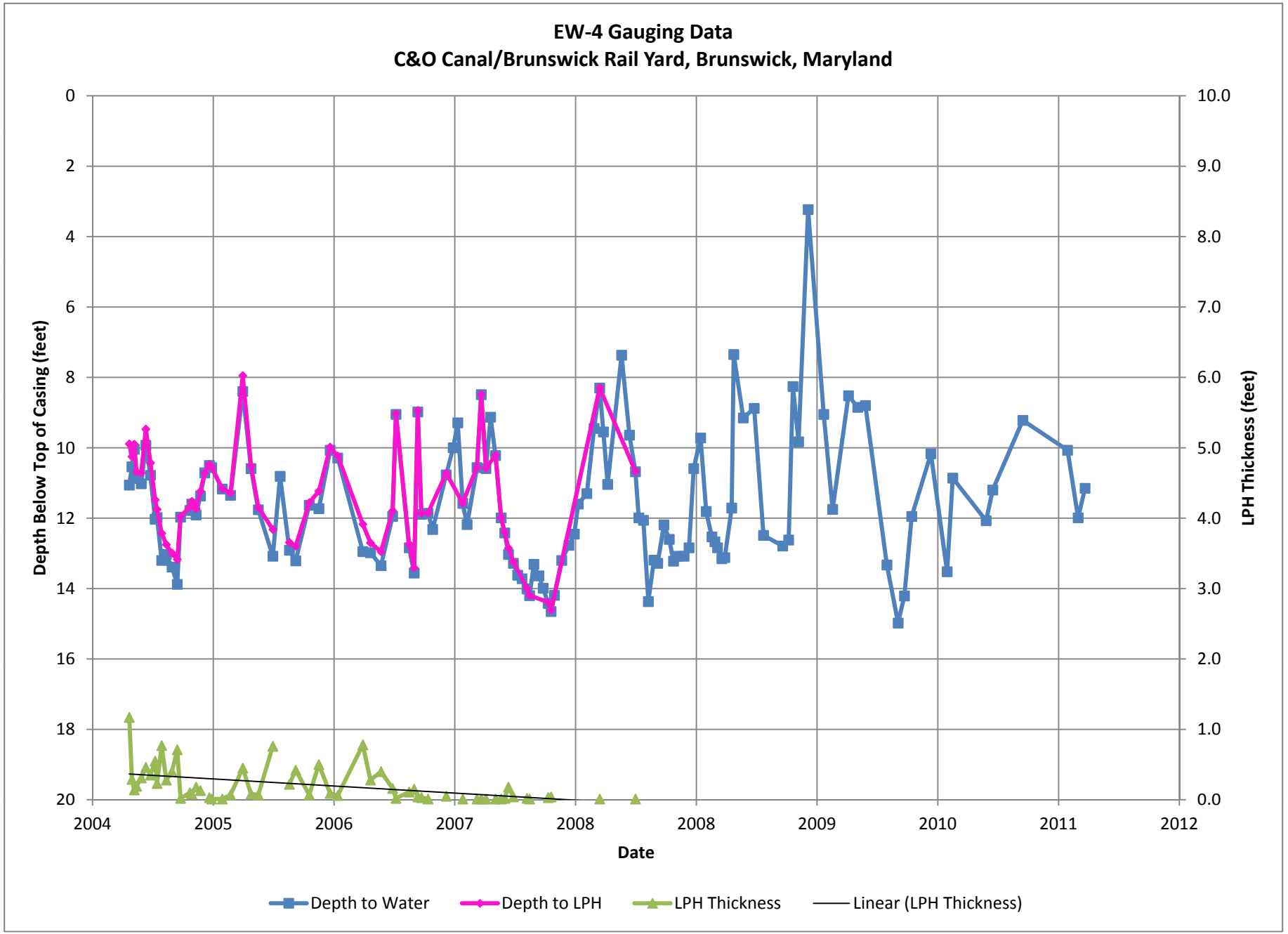

MW-26 Gauging Data
C&O Canal/Brunswick Rail Yard, Brunswick, Maryland
Depth Below Top of Casing (feet)
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
LPH Thickness (feet)
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
2007
2008
2008
2009
2010
2011
2012
Date
Depth to Water
Depth to LPH
LPH Thickness
Linear (LPH Thickness)

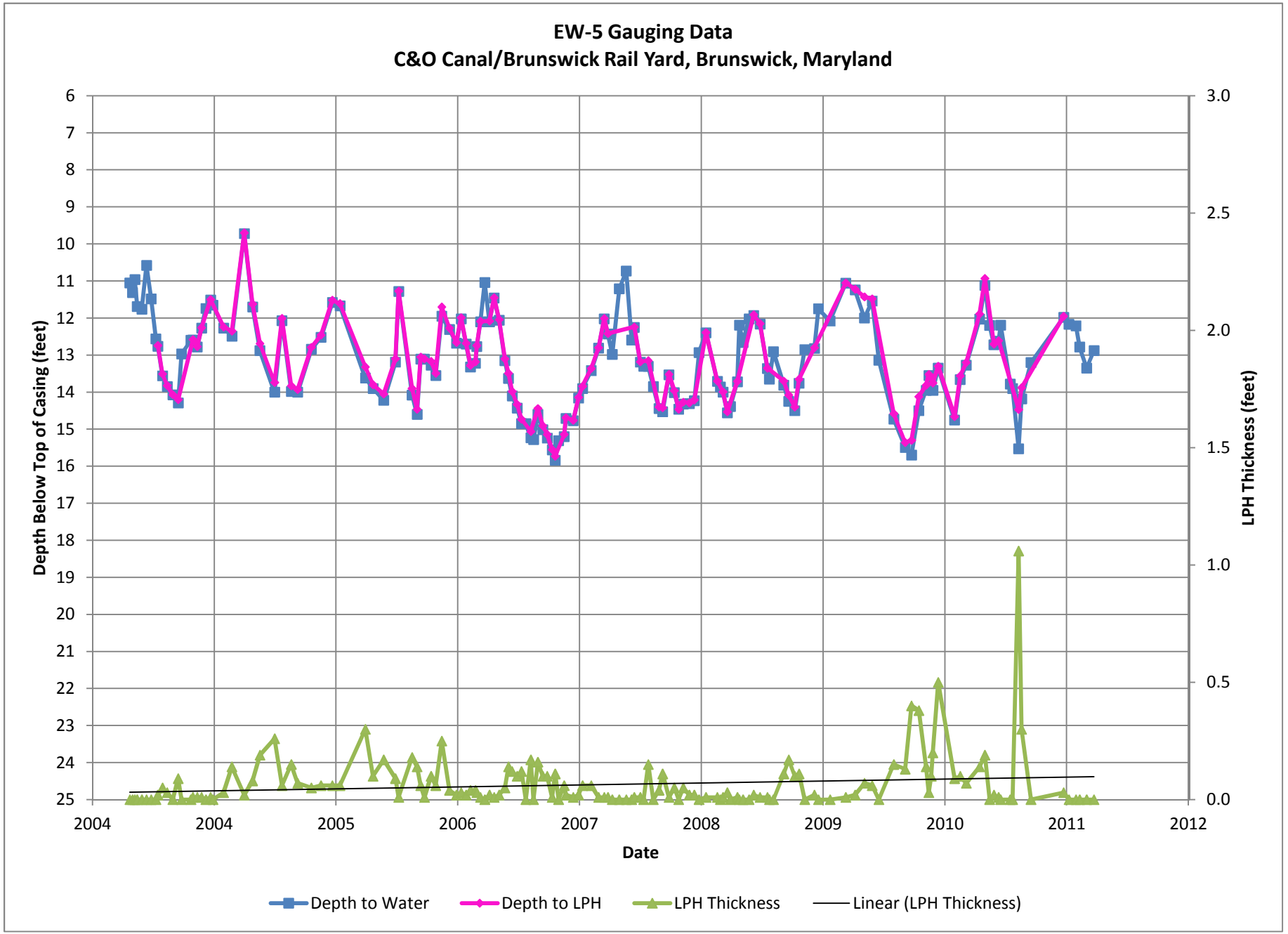

MW-28 Gauging Data
C&O Canal/Brunswick Rail Yard, Brunswick, Maryland
Depth Below Top of Casing (feet)
LPH Thickness (feet)
Date
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
3.0
2.5
2.0
1.5
1.0
0.5
0.0
2007
2008
2008
2009
2010
2011
2012
Depth to Water
Depth to LPH
LPH Thickness
Linear (LPH Thickness)


MW-41 Gauging Data
C&O Canal/Brunswick Rail Yard, Brunswick, Maryland
Depth Below Top of Casing (feet)
LPH Thickness (feet)
Date
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
2007
2008
2008
2009
2010
2011
2012
Depth to Water
Depth to LPH
LPH Thickness
Linear (LPH Thickness)


MW-49 Gauging Data
C&O Canal/Brunswick Rail Yard, Brunswick, Maryland
Depth Below Top of Casing (feet)
LPH Thickness (feet)
Date
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
2007
2008
2008
2009
2010
2011
2012
Depth to Water
Depth to LPH
LPH Thickness
Linear (LPH Thickness)


EW-3 Gauging Data
C&O Canal/Brunswick Rail Yard, Brunswick, Maryland
Depth Below Top of Casing (feet)
LPH Thickness (feet)
Date
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
2004
2005
2006
2007
2008
2008
2009
2010
2011
2012
Depth to Water
Depth to LPH
LPH Thickness
Linear (LPH Thickness)


EW-4 Gauging Data
C&O Canal/Brunswick Rail Yard, Brunswick, Maryland
Depth Below Top of Casing (feet)
LPH Thickness (feet)
0
2
4
6
8
10
12
14
16
18
20
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
2004
2005
2006
2007
2008
2008
2009
2010
2011
2012
Date
Depth to Water
Depth to LPH
LPH Thickness
Linear (LPH Thickness)


EW-5 Gauging Data
C&O Canal/Brunswick Rail Yard, Brunswick, Maryland
Depth Below Top of Casing (feet)
LPH Thickness (feet)
Date
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
3.0
2.5
2.0
1.5
1.0
0.5
0.0
2004
2004
2005
2006
2007
2008
2009
2010
2011
2012
Depth to Water
Depth to LPH
LPH Thickness
Linear (LPH Thickness)

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Appendix F

LPH Recovery Data

ARCADIS

Appendix F-1

Tables

Appendix F-1
Monthly LPH Recovery Tables Since CAP Implementation
C and O Canal/Brunswick Rail Yard
Brunswick, Maryland

July 2009 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered July 2009 (gallons)**	**Cumulative LPH Recovered Since July 2009 (gallons)**
Skimmer pumps	16.000	16.000
Passive skimmers	0.000	0.000
Peristaltic pump	10.526	10.526
Totals:	**26.526**	**26.526**

* July 2009 data collected during O&M site visits before

August 2009 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered August 2009 (gallons)**	**Cumulative LPH Recovered Since July 2009 (gallons)**
Skimmer pumps	19.301	35.301
Passive skimmers	3.356	3.356
Peristaltic pump	7.979	18.505
Totals:	**30.636**	**57.162**

* August 2009 data collected during O&M site visits on

September 2009 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered September 2009* (gallons)**	**Cumulative LPH Recovered Since July 2009 (gallons)**
Skimmer pumps	43.688	78.989
Passive skimmers	2.220	5.576
Peristaltic pump	8.143	26.648
Absorbant Sock	0.003	0.003
Totals:	**54.054**	**111.216**

* September 2009 data collected during O&M site visits on

October 2009 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered October 2009* (gallons)**	**Cumulative LPH Recovered Since July 2009 (gallons)**
Skimmer pumps	13.010	91.999
Passive skimmers	1.692	7.268
Peristaltic pump	4.209	30.857
Absorbent Sock	0.668	0.671
Totals:	**19.579**	**130.795**

* October 2009 data collected during O&M site visits on

November 2009 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered November 2009* (gallons)**	**Cumulative LPH Recovered Since July 2009 (gallons)**
Skimmer pumps	24.320	116.319
Passive skimmers	0.885	8.153
Peristaltic pump	6.553	37.410
Absorbent Sock	0.806	1.477
Totals:	**32.564**	**163.359**

* November 2009 data collected during O&M site visits on

December 2009 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered December 2009* (gallons)**	**Cumulative LPH Recovered Since July 2009 (gallons)**
Skimmer pumps	4.260	120.579
Passive skimmers	2.242	10.395
Peristaltic pump	4.306	41.716
Absorbent Sock	0.066	1.543
Totals:	**10.874**	**174.233**

* December 2009 data collected during O&M site visits on December 11 through December 29, 2009

Appendix F-1
Monthly LPH Recovery Tables Since CAP Implementation
C and O Canal/Brunswick Rail Yard
Brunswick, Maryland

January 2010 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered January 2010* (gallons)**	**Cumulative LPH Recovered Since July 2009 (gallons)**
Skimmer pumps	10.990	131.569
Passive skimmers	0.452	10.847
Peristaltic pump	0.845	42.561
Absorbent Sock	0.000	1.543
Totals:	**12.287**	**186.520**

* January 2010 data collected during O&M site visits on January 14 through January 20, 2010

February 2010 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered February 2010* (gallons)**	**Cumulative LPH Recovered Since July 2009 (gallons)**
Skimmer pumps	32.030	163.599
Passive skimmers	1.298	12.145
Peristaltic pump	1.004	43.565
Absorbent Sock	0.000	1.543
Totals:	**34.332**	**220.852**

* February 2010 data collected during O&M site visit on February 16, 2010

March 2010 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered March 2010* (gallons)**	**Cumulative LPH Recovered Since July 2009 (gallons)**
Skimmer pumps	8.290	171.889
Passive skimmers	3.433	15.578
Peristaltic pump	1.810	45.375
Absorbent Sock	0.026	1.569
Totals:	**13.559**	**234.411**

* March 2010 data collected during O&M site visit on March 1 and 8, and April 5, 2010

April 2010 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered April 2010* (gallons)**	**Cumulative LPH Recovered Since July 2009 (gallons)**
Skimmer pumps	9.840	181.729
Passive skimmers	1.413	16.991
Peristaltic pump	1.137	46.512
Absorbent Sock	0.000	1.569
Totals:	**12.390**	**246.801**

* April 2010 data collected during O&M site visit on May 3, 2010

May 2010 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered May 2010* (gallons)**	**Cumulative LPH Recovered Since July 2009 (gallons)**
Skimmer pumps	16.020	197.749
Passive skimmers	2.870	19.861
Peristaltic pump	0.925	47.437
Absorbent Sock	0.238	1.807
Totals:	**20.053**	**266.854**

* May 2010 data collected during O&M site visit on May 11 and May 26, 2010

June 2010 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered June 2010* (gallons)**	**Cumulative LPH Recovered Since July 2009 (gallons)**
Skimmer pumps	12.160	209.909
Passive skimmers	1.047	20.908
Peristaltic pump	1.123	48.560
Absorbent Sock	0.006	1.813
Totals:	**14.336**	**281.190**

* June 2010 data collected during O&M site visit on June 18, 2010

Appendix F-1
Monthly LPH Recovery Tables Since CAP Implementation
C and O Canal/Brunswick Rail Yard
Brunswick, Maryland

July 2010 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered July 2010* (gallons)**	**Cumulative LPH Recovered Since July 2009* (gallons)**
Skimmer pumps	11.190	221.099
Passive skimmers	0.584	21.492
Peristaltic pump	1.136	49.696
Absorbent Sock	0.201	2.014
Totals:	**13.111**	**294.301**

* July 2010 data collected during O&M site visit on July 30, 2010

August 2010 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered Aug 2010* (gallons)**	**Cumulative LPH Recovered Since July 2009* (gallons)**
Skimmer pumps	5.220	226.319
Passive skimmers	0.079	21.571
Peristaltic pump	0.409	50.105
Absorbent Sock	0.033	2.047
Totals:	**5.741**	**300.042**

* August 2010 data collected during O&M site visit on Sept 2, 2010 on September 2, 2010

September 2010 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered Sept 2010* (gallons)**	**Cumulative LPH Recovered Since July 2009* (gallons)**
Skimmer pumps	5.017	231.336
Passive skimmers	0.132	21.703
Peristaltic pump	1.280	51.385
Absorbent Sock	0.006	2.053
Totals:	**6.435**	**306.477**

* September 2010 data collected during O&M site visit on September 9 and September 21, 2010

October 2010 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered Oct 2010* (gallons)**	**Cumulative LPH Recovered Since July 2009* (gallons)**
Skimmer pumps	11.581	242.917
Passive skimmers	0.000	21.703
Peristaltic pump	1.532	52.917
Absorbent Sock	0.333	2.386
Totals:	**13.446**	**319.923**

* October 2010 data collected during O&M site visit on October 13, 2010

November 2010 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered Nov 2010* (gallons)**	**Cumulative LPH Recovered Since July 2009* (gallons)**
Skimmer pumps	21.809	264.726
Passive skimmers	2.365	24.068
Peristaltic pump	4.624	57.541
Absorbent Sock	0.208	2.594
Totals:	**29.006**	**348.929**

* November 2010 data collected during O&M site visit on November 4, 12, 19, 24 and December 3, 2010

December 2010 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered Dec 2010* (gallons)**	**Cumulative LPH Recovered Since July 2009* (gallons)**
Skimmer pumps	4.246	268.972
Passive skimmers	0.957	25.025
Peristaltic pump	1.612	59.153
Absorbent Sock	0.000	2.594
Totals:	**6.815**	**355.744**

* December 2010 data collected during O&M site visit on December 21, 2010

Appendix F-1
Monthly LPH Recovery Tables Since CAP Implementation
C and O Canal/Brunswick Rail Yard
Brunswick, Maryland

January 2011 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered Jan 2011* (gallons)**	**Cumulative LPH Recovered Since July 2009* (gallons)**
Skimmer pumps	9.843	278.815
Passive skimmers	0.546	25.571
Peristaltic pump	1.070	60.223
Absorbent Sock	0.056	2.650
Totals:	**11.515**	**367.259**

* January 2011 data collected during O&M site visit on January 6 and 28, 2011

February 2011 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered Feb 2011* (gallons)**	**Cumulative LPH Recovered Since July 2009* (gallons)**
Skimmer pumps	8.106	286.921
Passive skimmers	0.634	26.205
Peristaltic pump	0.000	60.223
Absorbent Sock	0.000	2.650
Totals:	**8.740**	**375.999**

* February 2011 data collected during O&M site visit on February 18, 2011

March 2011 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered Mar 2011* (gallons)**	**Cumulative LPH Recovered Since July 2009* (gallons)**
Skimmer pumps	16.212	303.133
Passive skimmers	1.649	27.854
Peristaltic pump	1.215	61.438
Absorbent Sock	0.026	2.676
Totals:	**19.102**	**395.101**

* March 2011 data collected during O&M site visit on March 4 and March 22, 2011

April 2011 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered Apr 2011* (gallons)**	**Cumulative LPH Recovered Since July 2009* (gallons)**
Skimmer pumps	15.633	318.766
Passive skimmers	0.394	28.248
Peristaltic pump	0.344	61.782
Absorbent Sock	0.248	2.924
Totals:	**16.619**	**411.720**

* April 2011 data collected during O&M site visit on April 13, April 20 and April 29, 2011

May 2011 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered May 2011* (gallons)**	**Cumulative LPH Recovered Since July 2009* (gallons)**
Skimmer pumps	19.300	338.066
Passive skimmers	0.034	28.282
Peristaltic pump	0.000	61.782
Absorbent Sock	0.450	3.374
Totals:	**19.784**	**431.504**

* May 2011 data collected during O&M site visit on May 13 and May 20, 2011

June 2011 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered June 2011* (gallons)**	**Cumulative LPH Recovered Since July 2009* (gallons)**
Skimmer pumps	10.615	348.681
Passive skimmers	0.657	28.939
Peristaltic pump	0.000	61.782
Absorbent Sock	0.188	3.562
Totals:	**11.460**	**442.964**

* June 2011 data collected during O&M site visit on June 9 and June 15, 2011

Appendix F-1
Monthly LPH Recovery Tables Since CAP Implementation
C and O Canal/Brunswick Rail Yard
Brunswick, Maryland

July 2011 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered Jul 2011* (gallons)**	**Cumulative LPH Recovered Since July 2009* (gallons)**
Skimmer pumps	25.862	374.543
Passive skimmers	0.898	29.837
Peristaltic pump	0.476	62.258
Absorbent Sock	0.475	4.037
Totals:	**27.711**	**470.675**

* July 2011 data collected during O&M site visit on July 14 July 21 and July 29, 2011

August 2011 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered Aug 2011* (gallons)**	**Cumulative LPH Recovered Since July 2009* (gallons)**
Skimmer pumps	16.405	390.948
Passive skimmers	1.876	31.713
Peristaltic pump	0.898	63.156
Absorbent Sock	0.185	4.222
Totals:	**19.364**	**490.039**

* August 2011 data collected during O&M site visit on August 17 and August 24, 2011

September 2011 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered Sept 2011* (gallons)**	**Cumulative LPH Recovered Since July 2009* (gallons)**
Skimmer pumps	2.509	393.457
Passive skimmers	3.445	35.158
Peristaltic pump	0.845	64.001
Absorbent Sock	0.573	4.795
Totals:	**7.372**	**497.411**

* September 2011 data collected during O&M site visit on Sept 1 and Sept 22, 2011

October 2011 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered Oct 2011* (gallons)**	**Cumulative LPH Recovered Since July 2009* (gallons)**
Skimmer pumps	4.632	398.089
Passive skimmers	0.080	35.238
Peristaltic pump	1.274	65.275
Absorbent Sock	0.173	4.968
Totals:	**6.159**	**503.570**

* October 2011 data collected during O&M site visit on Oct 6 and Oct 25, 2011

November 2011 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered Nov 2011* (gallons)**	**Cumulative LPH Recovered Since July 2009* (gallons)**
Skimmer pumps	12.422	410.511
Passive skimmers	0.108	35.346
Peristaltic pump	0.264	65.539
Absorbent Sock	0.000	4.968
Totals:	**12.794**	**516.364**

* November 2011 data collected during O&M site visit on Nov 15, 2011

December 2011 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered Dec 2011* (gallons)**	**Cumulative LPH Recovered Since July 2009* (gallons)**
Skimmer pumps	6.948	417.459
Passive skimmers	1.583	36.929
Peristaltic pump	1.215	66.754
Absorbent Sock	0.212	5.180
Totals:	**9.958**	**526.322**

* December 2011 data collected during O&M site visit on Dec 8 and Dec 21, 2011

Appendix F-1
Monthly LPH Recovery Tables Since CAP Implementation
C and O Canal/Brunswick Rail Yard
Brunswick, Maryland

January 2012 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered Jan 2012* (gallons)**	**Cumulative LPH Recovered Since July 2009* (gallons)**
Skimmer pumps	20.458	437.917
Passive skimmers	1.811	38.740
Peristaltic pump	0.000	66.754
Absorbent Sock	0.066	5.246
Totals:	**22.335**	**548.657**

* January 2012 data collected during O&M site visit on Jan 6 and Jan 27, 2012

February 2012 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered Feb 2012* (gallons)**	**Cumulative LPH Recovered Since July 2009* (gallons)**
Skimmer pumps	23.960	461.877
Passive skimmers	1.401	40.141
Peristaltic pump	0.000	66.754
Absorbent Sock	0.145	5.391
Totals:		**574.163**

* February 2012 data collected during O&M site visit on Feb 7 and Feb 28, 2012

March 2012 LPH Recovery by Recovery Method		
LPH Recovery Method	**LPH Recovered Mar 2012* (gallons)**	**Cumulative LPH Recovered Since July 2009* (gallons)**
Skimmer pumps	12.665	474.542
Passive skimmers	2.173	42.314
Peristaltic pump	2.404	69.158
Absorbent Sock	0.000	5.391
Totals:		**591.405**

* March 2012 data collected during O&M site visit on Mar 3, Mar 20 and 21, and Mar 27, 2012

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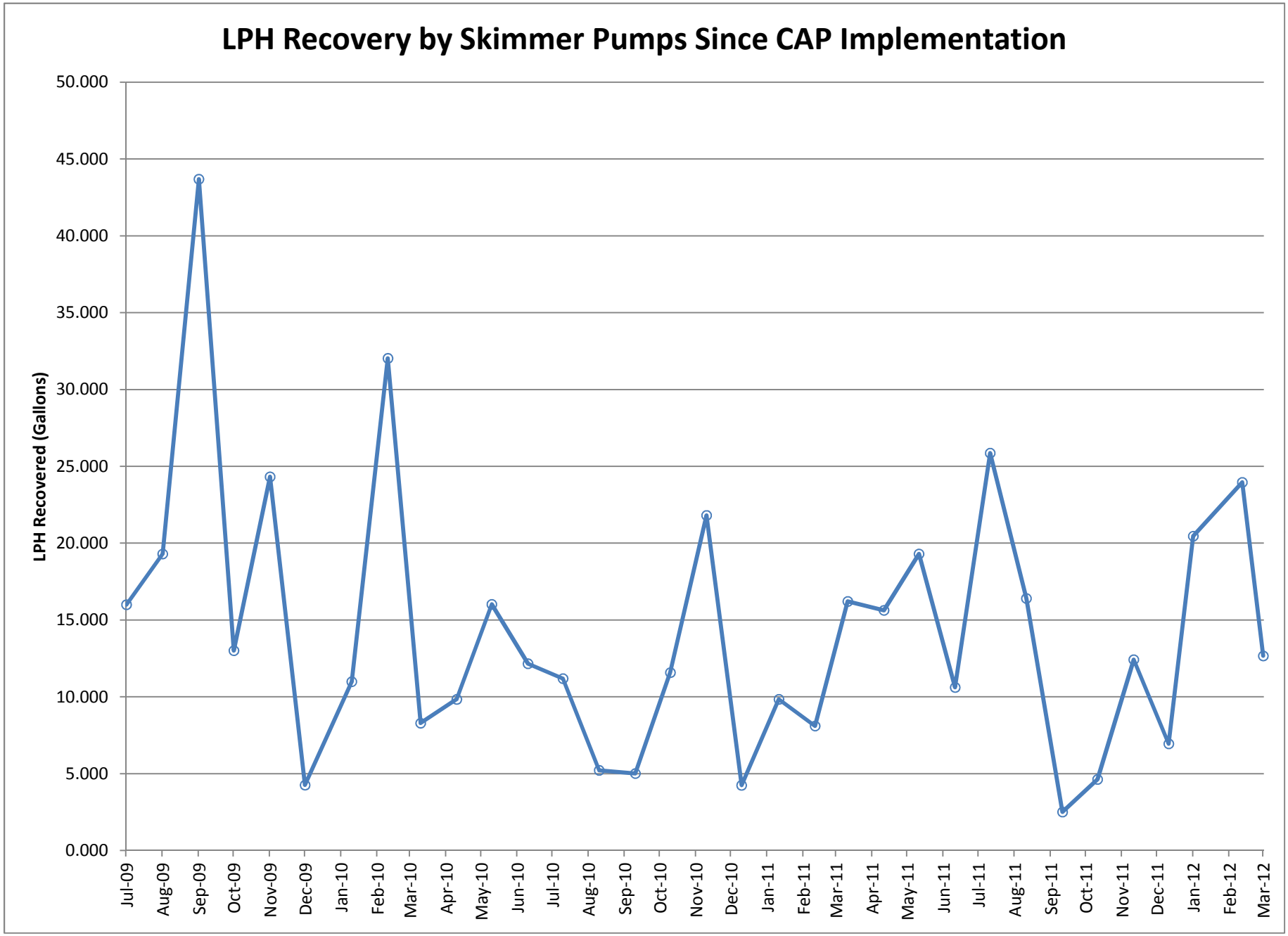
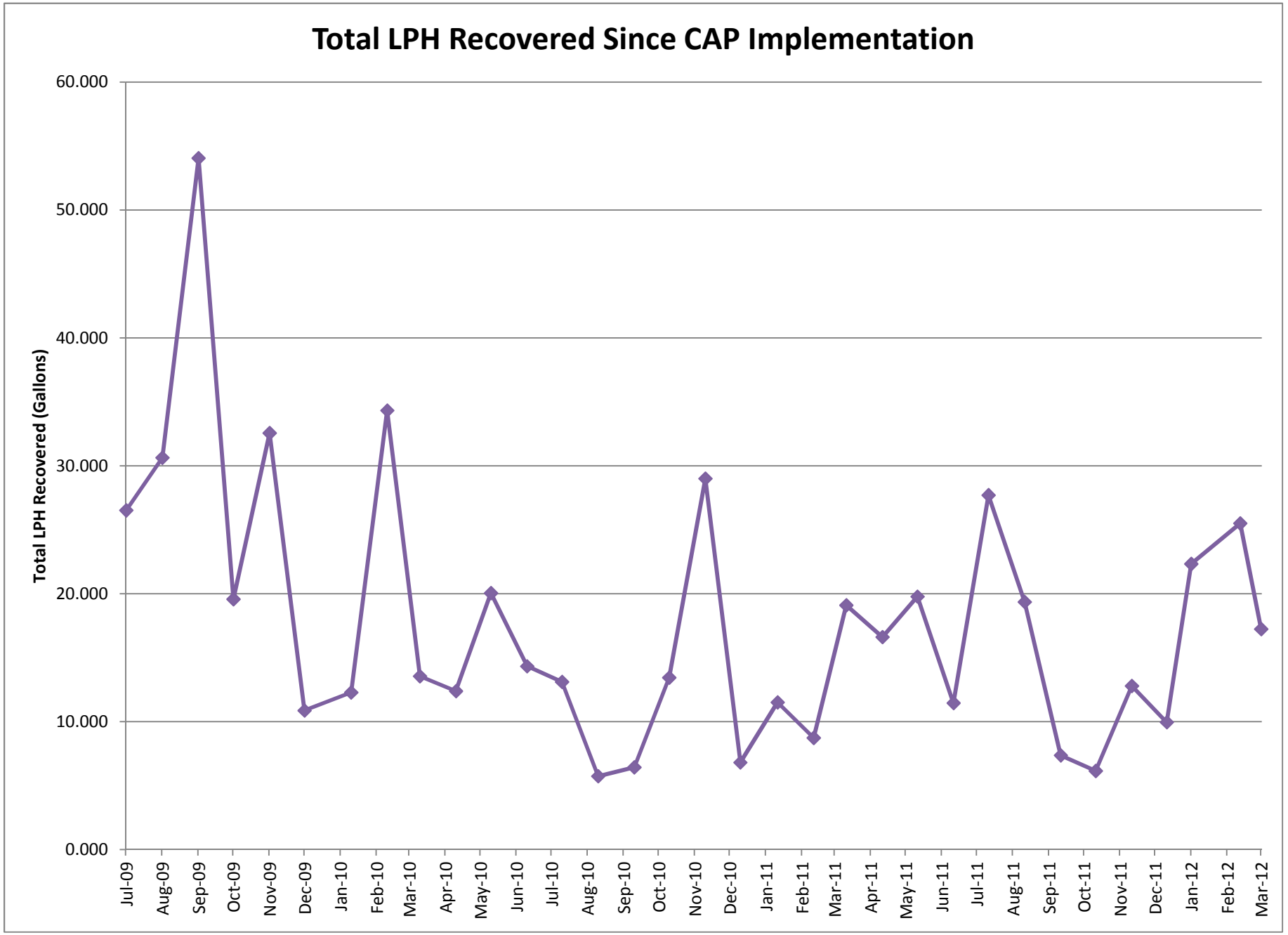
Appendix F-2

Graphs


LPH Recovery by Skimmer Pumps Since CAP Implementation
LPH Recovered (Gallons)
50.000
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
Jul-09
Aug-09
Sep-09
Oct-09
Nov-09
Dec-09
Jan-10
Feb-10
Mar-10
Apr-10
May-10
Jun-10
Jul-10
Aug-10
Sep-10
Oct-10
Nov-10
Dec-10
Jan-11
Feb-11
Mar-11
Apr-11
May-11
Jun-11
Jul-11
Aug-11
Sep-11
Oct-11
Nov-11
Dec-11
Jan-12
Feb-12
Mar-12


Total LPH Recovered Since CAP Implementation
Total LPH Recovered (Gallons)
60.000
50.000
40.000
30.000
20.000
10.000
0.000
Jul-09
Aug-09
Sep-09
Oct-09
Nov-09
Dec-09
Jan-10
Feb-10
Mar-10
Apr-10
May-10
Jun-10
Jul-10
Aug-10
Sep-10
Oct-10
Nov-10
Dec-10
Jan-11
Feb-11
Mar-11
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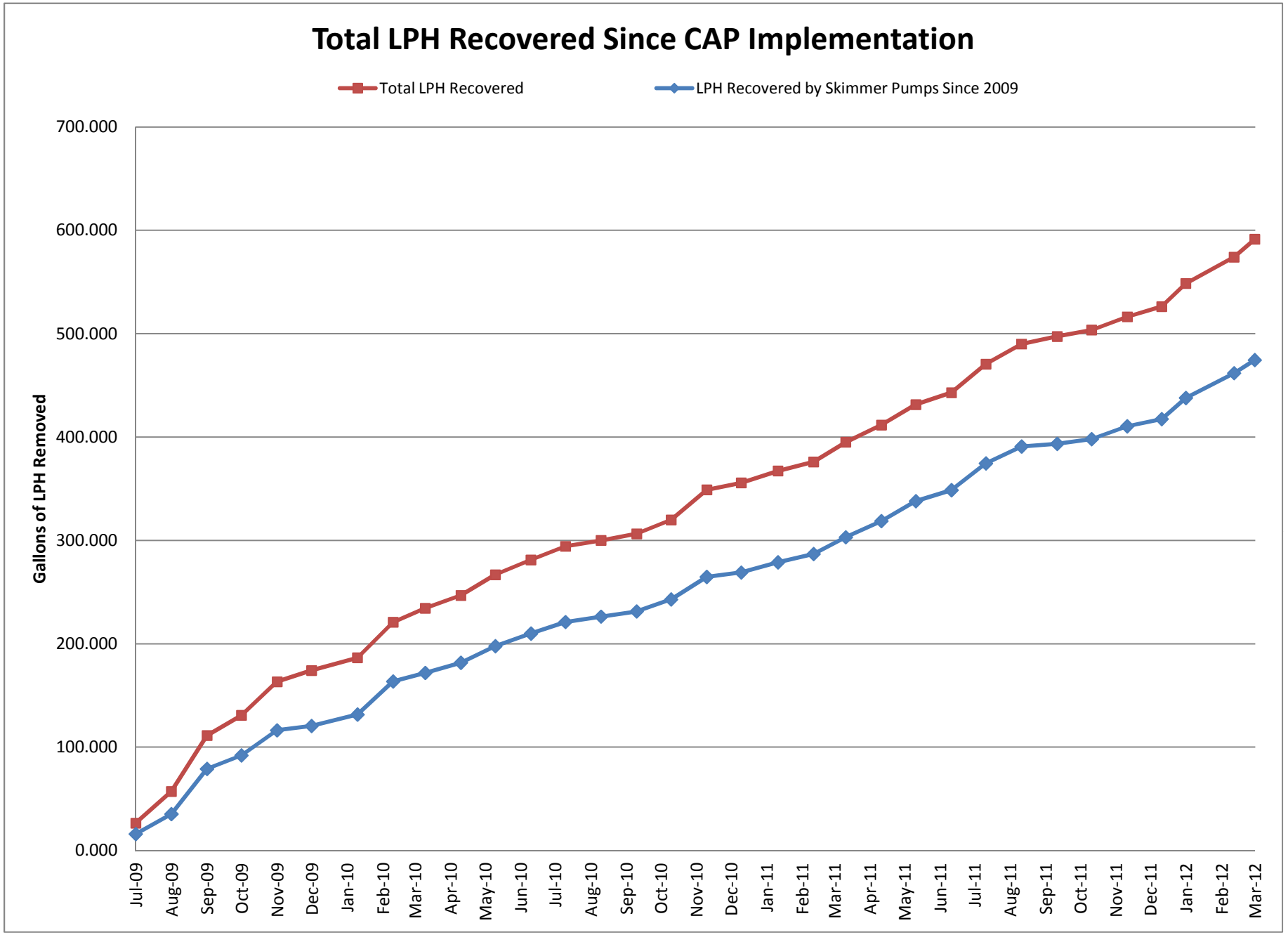
Mar-12


Total LPH Recovered Since CAP Implementation
Total LPH Recovered
LPH Recovered by Skimmer Pumps Since 2009
Gallons of LPH Removed
700.000
600.000
500.000
400.000
300.000
200.000
100.000
0.000
Jul-09
Aug-09
Sep-09
Oct-09
Nov-09
Dec-09
Jan-10
Feb-10
Mar-10
Apr-10
May-10
Jun-10
Jul-10
Aug-10
Sep-10
Oct-10
Nov-10
Dec-10
Jan-11
Feb-11
Mar-11
Apr-11
May-11
Jun-11
Jul-11
Aug-11
Sep-11
Oct-11
Nov-11
Dec-11
Jan-12
Feb-12
Mar-12