Dominion Resources Services, Inc.
5000 Dominion Boulevard, Glen Allen, VA 23060
Web Address: www.dom.com

July 22, 2011

Ms. Susan Hobbs, Library Manager
Major Hillard Library
824 Old George Washington Highway North
Chesapeake, VA 23323

RE: Data Repository
Chesapeake Energy Center
2701 Vepco Street
Chesapeake, Virginia 23323

Dear Ms. Hobbs:

Please find attached, three documents related to Dominion's Chesapeake Energy Center (CEC) industrial landfill. The Major Hillard Library is the public data repository for information submitted by Dominion to the Virginia Department of Environmental Quality relating to the CEC landfill Corrective Action Monitoring Program. Throughout the life of the program, Dominion will place on file with the Library copies of associated materials, which should be made available for public viewing until Dominion provides notice. Please include the following documents with related CEC materials currently being held for public viewing at the library:

Corrective Action Monitoring Plan – Revision 2
Chesapeake Energy Center Ash Landfill
Chesapeake, Virginia
May 2011

Corrective Action Plan – Revision 1
Chesapeake Energy Center Ash Landfill
Chesapeake, Virginia
June 2011

Chesapeake Energy Center Ash Landfill
Chesapeake, Virginia
Amendment of Permit #440
March 10, 2011

Thank you for your assistance and please do not hesitate to call Mr. Donald Hintz of Dominion's Electric Environmental Services Department at (804) 273-3552 should there be any questions and/or comments.

Sincerely

Cathy C. Taylor
Director, Environmental Services

Attachments

Corrective Action Monitoring Plan – Revision 2
Chesapeake Energy Center Ash Landfill
Chesapeake, Virginia

Submitted to:

Dominion Generation
Innsbrook Technical Center
5000 Dominion Way
Glen Allen, VA 23060

Submitted by:

AMEC Environment & Infrastructure, Inc.
Socorro, NM 87801

May 2011

Project Number: 1051700002

Corrective Action Monitoring Plan – Revision 2
Dominion Generation
Chesapeake Energy Center Ash Landfill
Chesapeake, VA,
Solid Waste Permit No. 440

June 26, 2011

Prepared for:	Dominion Generation Innsbrook Technical Center 500 Dominion Boulevard Glen Allen VA 23060
Contact:	Mr. Don Hintz (804) 273-3552

AMEC Environment & Infrastructure certifies that this *Corrective Action Monitoring Plan – Revision 2*, has been prepared in general accordance with and designed to meet the requirements of 9 VAC 20-80-300.A.2 and 310.C.1.a. To the best of our knowledge, all information contained within this document is accurate and meets the requirements of the project Scope of Work.

AMEC Environment & Infrastructure, Inc.

Gregory P. Miller, PhD, PG
Senior Geochemist

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

ACRONYMS

AWBU	Anthropogenic Water Bearing Unit
CAMP	Corrective Action Monitoring Plan
CASE	Corrective Action Site Evaluation
CEC	Chesapeake Energy Center
COC	Constituent of Concern
EPA	U.S. Environmental Protection Agency
GMP	Groundwater Monitoring Plan
GPS	Global Positioning System
LOD	Limit of Detection
LOQ	Limit of Qualification
mg/L	milligrams per liter
SBER	Southern Branch of the Elizabeth River
MNA	Monitoring Natural Attenuation
VAC	*Virginia Administrative Code*
VDEQ	Virginia Department of Environmental Quality
VSWMR	Virginia Solid Waste Management Regulations

1.0 INTRODUCTION

This Corrective Action Monitoring Plan (CAMP) - Revision 2 has been prepared in general accordance with and designed to meet the requirements of 9 VAC 20-80-300.A.2 and 310.C.1.a. This monitored natural attenuation (MNA)-based Groundwater Monitoring Plan (GMP) is being submitted for inclusion with the facility's Permit as a CAMP. The CAMP was developed based on the guidance provided in the Virginia Department of Environmental Quality's (VDEQ) Submission Instructions No. 21 (v.04/14/04). Where appropriate, this CAMP report format follows the outlined provided in Table C of the Submission Instructions. Sampling of the compliance wells shall continue under the respective monitoring program during the Corrective Action process.

Revision 1 of this CAMP was prepared by Groundwater and Environmental Services, Inc. of Richmond, Virginia. Much of the Revision 1 information has been incorporated or used directly in this version.

2.0 MONITORING PLAN

2.1 Site Location Description

The Chesapeake Energy Center (CEC) occupies approximately 145 acres of property, approximately 8 miles west of Virginia Beach and 7 miles south of the city of Norfolk. A site location map is included as **Figure 2-1**. The existing coal ash landfill is located on a peninsula in the southern portion of the CEC property (**Figure 2-2**). The landfill is bordered by the Southern Branch of the Elizabeth River (SBER) to the East, Deep Creek to the South, and a non-contact cooling water channel to the West.

2.2 Description of Aquifer

The hydrologic framework of the shallow aquifer system is composed of the Colombia Aquifer which resided mostly in the Norfolk Formation and is semi-contained from below by the Yorktown Confining Unit. The Norfolk Formation is composed of sands and silts with an average hydrologic conductivity of 287 to 323 feet/ year with velocities decreasing with depth (MACTEC, 2003).

Above the Norfolk Formation resides various fill materials, which may contain ash from the ash sluicing activities that predate the current landfill. Average hydraulic conductivity in the fill material is 1.5 to 5 feet/year (URS, 2003). Due to the mounding in this area, it is believed that there is an Anthropogenic Water Bearing Unit (AWBU) within this fill material (URS, 2003). The mounding in the area may also be responsible for the downward gradient observed between the shallow and deep wells across the site. Impacted groundwater is thought to flow radially outward and downward from the landfill area into the AWBU, then locally to the shallow Colombia Aquifer, draining into the cooling water channel, Deep Creek and the SBER. Potentiometric maps (November 2005) for both the deep wells and the shallow wells are included as **Figures 2-3 and 2-4**. **Figure 2-5** depicts the groundwater contours for shallow wells in February 2010.

2.3 Monitoring System (well type definitions)

The existing monitoring well locations are depicted on **Figure 2-2**. As shown on **Figure 2-2**, significant geographic constraints exist with respect to siting compliance, performance and sentinel wells that are typically associated with MNA-based CAPs. The proposed MNA-based GMP incorporates both groundwater monitoring wells and surface water samples. The existing well network includes a background well and a series of wells that are situated as close to the edge of the peninsula as possible. The wells around the landfill are considered to be "performance wells" as they will be used to track trends in metals of interest in groundwater emanating from the landfill. Each proposed well location consists of a shallow and deep well couplet designed to provide data on both the horizontal and vertical groundwater impacts.

Given the geographic constraints at the Dominion site, surface water samples will also be collected at various points around the peninsula. The surface water points will serve as "sentinel" points to confirm the reliability of the remedy at the receptor. Section 3.0 details the

proposed groundwater and surface water sampling procedures. Sampling of near bottom surface water will provide a direct measure of metals or inorganic constituent (arsenic cobalt, beryllium, and sulfide) flux from the landfill, thus a direct measurement of the MNA processes taking place. Based upon the site conceptual model, samples of surface water are well suited to monitoring the natural attenuation of metals of interest at the CEC Landfill. A total of four (4) surface water sampling locations (SW-1, SW-2, SW-3 and SW-4) are proposed (see **Figure 2-2**), and were previously sampled at the locations depicted in **Figure 2-6**.

The CEC landfill is ringed by a series of shallow and deep nested wells which provide data on both horizontal and vertical extent of plume migration. MW-4R, MW-5, and MW-5D are located far enough away from the landfill to function as background wells. To measure the effectiveness of monitored natural attenuation, the following well network will be monitored on a quarterly basis for the first two years:

- MW-5, MW-5D, PO-8, PO-8D, CECW-6I, CECW-6D, CECW-10R, CECW-15, CECW-8, CECW-8D, PO-10, PO-10D, CECW-3, CECW-3D, CECW-2, CECW-2D, CECW-1, and CECW-1D

Note - Sampling of the compliance wells (MW-4R, MW-5, CECW-1, CECW-2, CECW-3, CECW-4, CECW-5, CECW-6, CECW-6I, PO8, PO9, PO10, and PO11) shall continue under the respective monitoring program during the Corrective Action process.

Monitoring Well Summary

Upgradient Well(s)	GPS Exceeding Compliance Wells	Associated Performance Well(s)	Associated Sentinel Well	Surface Water Sampling Point
MW-4R	CECW-1	MW-5	CECW-10R	SW-1
MW-5	CECW-2	MW-5D	CECW-15	SW-2
	CECW-3	CECW-1	CECW-6D	SW-3
	CECW-4	CECW-1D	CECW-8 D	SW-4
	CECW-5	CECW-2	CECW-8	
	CECW-6I	CECW-2D		
	PO-8	CECW-3		
	PO-9	CECW-3D		
	PO-10	CECW-6I		
	PO-11	PO-8		
		PO-8D		
		PO-10		
		PO-10D		

Notes: 1) MW-4 was replaced by MW-4R, 2) CECW-10 was replaced by CECW-10R, and 3) CECW-15 was repaired.

As shown on **Figure 2-2**, these wells are intended to serve as “points of compliance” with regard to the uppermost aquifer underlying the facility. Based on accepted metals transportation theory, the facility wells will be able to measure the performance of the natural attenuation remedy both directly and indirectly. They will directly measure the metal concentrations to ensure that arsenic levels are not increasing, implying that no more contaminants are being added to the aquifer system. By measuring iron levels as well as groundwater chemistry, these

performance wells will be integral in creating inorganic transport models, if needed, as an indirect measurement of the success of monitored natural attenuation.

2.4 Well Installation Procedures

No new well installations are planned. Boring Logs/as-built diagrams for the wells to be sampled as part of the MNA-based GMP are included as **Appendix A**.

3.0 SAMPLING PROGRAM

3.1 Constituent(s) Listing (well specific)

3.1.1 Groundwater

All groundwater monitoring wells listed in Section 2.3 will be monitored for the constituents listed in Section 3.2. The MNA performance list included in Submission Instructions No. 21 are not all applicable to document the viability of the metals adsorption process. The following constituents (LOD is Limit of Detection, LOQ is Limit of Quantification) will be monitored in order to monitor site geochemical conditions and concentrations over time:

- Total and dissolved arsenic by U.S. Environmental Protection Agency (EPA) method 200.8 modified (ICP-DRC-MS), or equivalent. LOD – 0.004 milligrams per liter (mg/L), LOQ – 0.010 mg/L.
- Arsenic Speciation (As+3 and As+5) samples using anion resin column followed by analysis by EPA method 200.8 modified (ICP-DRC-MS), or equivalent. LOD – 0.004 mg/L, LOQ – 0.010 mg/L.
- Total and dissolved iron by EPA method 200.8 modified (ICP-DRC-MS), or equivalent. LOD - 0.007 mg/L; LOQ – 0.010 mg/L.
- Total dissolved sulfide by EPA method 200.8 modified Method 9034, or equivalent. LOD – 0.48 mg/L, LOQ – 2.4 mg/L.
- Total and dissolved cobalt by EPA method 200.8 modified (ICP-DRC-MS), or equivalent. LOD – 0.0006 mg/L, LOQ - 0.003 mg/L.
- Total and dissolved beryllium by EPA method 200.8 modified (ICP-DRC-MS), or equivalent. LOD – 0.0002 mg/L, LOQ - 0.002 mg/L
- Total iron (II and III) by EPA method 200.8 modified (ICP-DRC-MS), or equivalent. LOD – 0.003 mg/L, LOQ - 0.030 mg/L
- General water quality parameters (dissolved oxygen, oxidation-reduction potential, pH, temperature, turbidity and specific conductance)

The analytical methods will meet or exceed the LOD and LOQ listed in SW-846 as updated.

3.1.2 Surface Water

The surface water samples (4 total) will be analyzed for following constituents:

- Total arsenic by EPA method 200.8 modified (ICP-DRC-MS), or equivalent;
- Arsenic Speciation (As+3 and As+5) or filtered samples using anion resin column followed by analysis by EPA method 200.8 modified (ICP-DRC-MS), or equivalent;
- Total iron by EPA method 200.8 modified (ICP-DRC-MS), or equivalent;
- Total (unfiltered) suspended solids by EPA Method 160.2; or equivalent; and
- Total sulfide by EPA method 200.8 modified Method 9034, or equivalent;
- Total cobalt by EPA method 200.8 modified (ICP-DRC-MS), or equivalent
- Total beryllium by EPA method 200.8 modified (ICP-DRC-MS), or equivalent.

- Total iron (II and III) by EPA method 200.8 modified (ICP-DRC-MS), or equivalent.
- General water quality parameters (dissolved oxygen, oxidation-reduction potential, pH, temperature, turbidity, and specific conductance) will be measured in a flow cell using a YSI Sonde 6820, or equivalent.

The analytical methods will meet or exceed the LOD and LOQ listed in SW-846 as updated.

3.2 Sample Collection Frequency

Samples (groundwater and surface water) will be collected on a quarterly basis for the first two years. The first two years of monitoring data will be evaluated and compared to the latest statistical evaluation of the monitoring data collected under the requirements of the Virginia Solid Waste Management Regulations (VSWMR). Given the magnitude of the historical data collected under the VSWMR monitoring program, it is anticipated that the sampling frequency can be reduced to semi-annual following two years of quarterly sampling. Recommendations for future monitoring will be presented in the initial Corrective Action Site Evaluation (CASE) report, which will be prepared within 60 days following the conduct of the 4th quarterly sampling event.

In order to gather analytical data which can be used to judge long-term remedy performance and ability to achieve site-specific global positioning system (GPS), Dominion will monitor applicable wells utilized during the Corrective Action Program for the groundwater constituents and frequencies as defined below:

MONITOR WELL TYPE	MONITORING FREQUENCY	CONSTITUENT LIST	RESULTS COMPARED TO
Compliance & Background Wells	As required under Permit Module XI	As required under Permit Module XI	Background & GPS
Performance Wells	Quarterly for the 1st two years, then same as Compliance MWs thereafter.	GPS COCs and Performance Parameters	Background & GPS
Sentinel Wells	Quarterly for the 1st two years, then same as compliance MWs thereafter.	GPS COCs and Performance Parameters	Background & GPS

GPS Constituents of Concern (COC) are defined as any constituent on the Table 5.1 sampling list which has been identified at concentrations which exceed its respective GPS.

Performance Parameters for this facility are listed below:

- Dissolved Arsenic
- Arsenic (III) and (V) speciation
- Total Iron (II and III)
- Dissolved Iron
- Dissolved Sulfide
- Dissolved Cobalt
- Dissolved Beryllium

Other geochemical parameters listed below may be added to the groundwater sampling plan voluntarily, as needed to provide site specific aquifer geochemistry information which may be used to substantiate the rate of success of the adsorption process:

- Specific Conductance
- Oxidation-Reduction Potential (ORP)
- Dissolved Oxygen
- pH
- Temperature
- Manganese
- Sulfate
- Turbidity (NTUs)

3.3 Sample Preservation / Handling

3.3.1 Groundwater

Sampling at each well begins by gauging and recording the water level and total depth of each well. Prior to gauging, the interface probe will be decontaminated with an Alconox solution and rinsing using distilled water. A Grundfos pump (or equivalent) with dedicated tubing will then be used to purge the well. Prior to placing the pump into the well, the pump will be decontaminated by pumping an Alconox solution followed by a distilled water rinse through the pump.

The pump will be placed at the midpoint of the screened interval. Grundfos pump flow will be adjusted to minimize drawdown (0.2 ft or less) and adjusted to a rate appropriate for low-flow sampling (100 to 200 ml/min). All purge water will be directed to ground adjacent to each well. Using a YSI Sonde 6820 (or equivalent) and flow cell, field parameters (dissolved oxygen, turbidity, oxidation-reduction potential, pH, specific conductance, and temperature) will be logged every three minutes until all parameters stabilize. Stabilization is achieved when all parameters have met the following criteria for three successive readings:

- pH agreement within 0.1+/- S.U.s:
- conductivity agreement within 3%+/-; and
- oxidation-reduction potential and dissolved oxygen within 10%+/-

Using a Lamotte turbidity meter (or equivalent), turbidity will be measured periodically during the purging process. Turbidity is considered to be the primary bias factor regarding metals analyses, so wells were purged until the turbidity is under ten (10) NTUs.

Upon parameter stabilization, the flow-through cell will be removed and ground water samples will be directed into laboratory supplied containers under proper chain of custody and placed into a cooler containing ice. Samples will be shipped to the appropriate laboratory at a temperature between two and negative two degrees Celsius.

3.3.2 Surface Water

Sampling will be accomplished using weighted tubing and a peristaltic pump. Tubing will be of a type approved for the analytical parameter list. New tubing will be used for each sampling event at each sampling site. Tubing weights will be non-reactive and decontaminated between uses. At each sampling site a sampling elevation in the water column (measured from the sediment-water interface) will have been predetermined using the rational previously described. The sample will be representative of a larger area of groundwater outflow if a relatively large sample aliquot (4 L) is collected. This large sample is then agitated and subsampled for unfiltered (total) water quality, followed by subsampling and filtering (0.45 micron) for dissolved water quality parameters.

3.4 Chain of Custody Procedure

A chain of custody form will be completed by sampling personal and placed in each cooler to be shipped. A copy will be kept by field personnel. After receiving the shipment, the laboratory project manager signs the Chain of Custody that arrived in the coolers, and returns the copy to personnel along with the sampling results. An example Chain of Custody is included as **Appendix B**.

3.5 Field Book Records

Detailed field notes of the sampling efforts will be kept during sampling events. Following the sampling event, field notes will be copied and filed with the laboratory analytical results.

3.6 Laboratory Procedures

The laboratory will ensure that the samples were received at the appropriate temperature and under a signed chain of custody form. All groundwater and surface water samples will be analyzed for total/dissolved metals by EPA method 200.8 modified (ICP-DRC-MS). Surface water will also be analyzed for total (unfiltered) suspended solids by EPA Method 160.2.

3.7 QA/QC Program

To ensure the integrity of the data, the following quality control samples will be collected during each sampling event:

- an equipment blank will be taken by sampling de-ionized water that has been poured over sampling equipment; and
- one field duplicate for groundwater and surface water

Equipment used shall be calibrated routinely as recommended by the manufacturer.

3.8 Statistical Trend Evaluations

Using data from the pre-corrective action sampling performed under the facility's compliance monitoring program and the data obtained as part of the corrective action program, the Permittee will perform a statistical evaluation to document the overall reduction of the mass flux from the source material to groundwater around the landfill. The proposed groundwater and surface water constituents are designed to demonstrate the viability and long-term reliability of the adsorption process.

3.9 Interpretation of GW Elevation Data

Dominion will determine the elevation of the groundwater surface for both the shallow and deeper potions of the upper aquifer each time the groundwater is sampled to the nearest 0.01 foot. Potentiometric surface maps will be prepared for the shallow and deeper portion of the aquifer for each sampling event. The rate and direction of groundwater flow will also be determined. The groundwater flow maps will be submitted as part of the Corrective Action Site Evaluation reports submitted periodically.

3.10 Record Keeping

The Permittee shall retain all field sampling, monitoring, testing, and analytical data obtained throughout the corrective action monitoring period.

4.0 REPORTING SCHEDULE

4.1 GPS Exceedance Notifications

GPS exceedances have been documented for several metals at various locations at the site. However, a recent statistical evaluation (Gibbons, 2001) indicates that the arsenic concentrations appear to be decreasing with time. The proposed corrective action (MNA) will use surface water samples in the adjacent estuaries to document the long term effectiveness of the adsorption process. In the event that any of the downgradient surface water samples exceed the GPS for arsenic or other metals of interest, the Permittee will notify the VDEQ of this finding within 14 days.

Within 90 days, the Permittee will submit the following:

- an evaluation of the concentrations measured in the groundwater and surface water at each monitoring point;
- any proposed changes to the monitoring program necessary to meet the requirements of the corrective action program; and
- any proposed changes to the monitoring frequency or sampling procedures

Should the need arise for implementation of a replacement remedy, the Permittee will submit a report to the Director justifying the plan at least 14 days prior to implementation.

4.2 CASE Reports

Dominion will prepare and submit Corrective Action Site Evaluation (CASE) reports on a periodic basis to address the evaluation and criteria topics outlined in 9 VAC 20-80-310.B. The CASE reports shall be signed by a qualified groundwater professional. As currently envisioned, the initial CASE report will be submitted within 60 days following the 4th quarterly sampling event of the first year of monitoring. Given the volume of historical groundwater data for the CEC landfill, there are enough data to perform a CASE study after the first year of corrective action monitoring. However, the CASE report submission timeframe will be set in the Permit (typically on a 3-year timeframe).

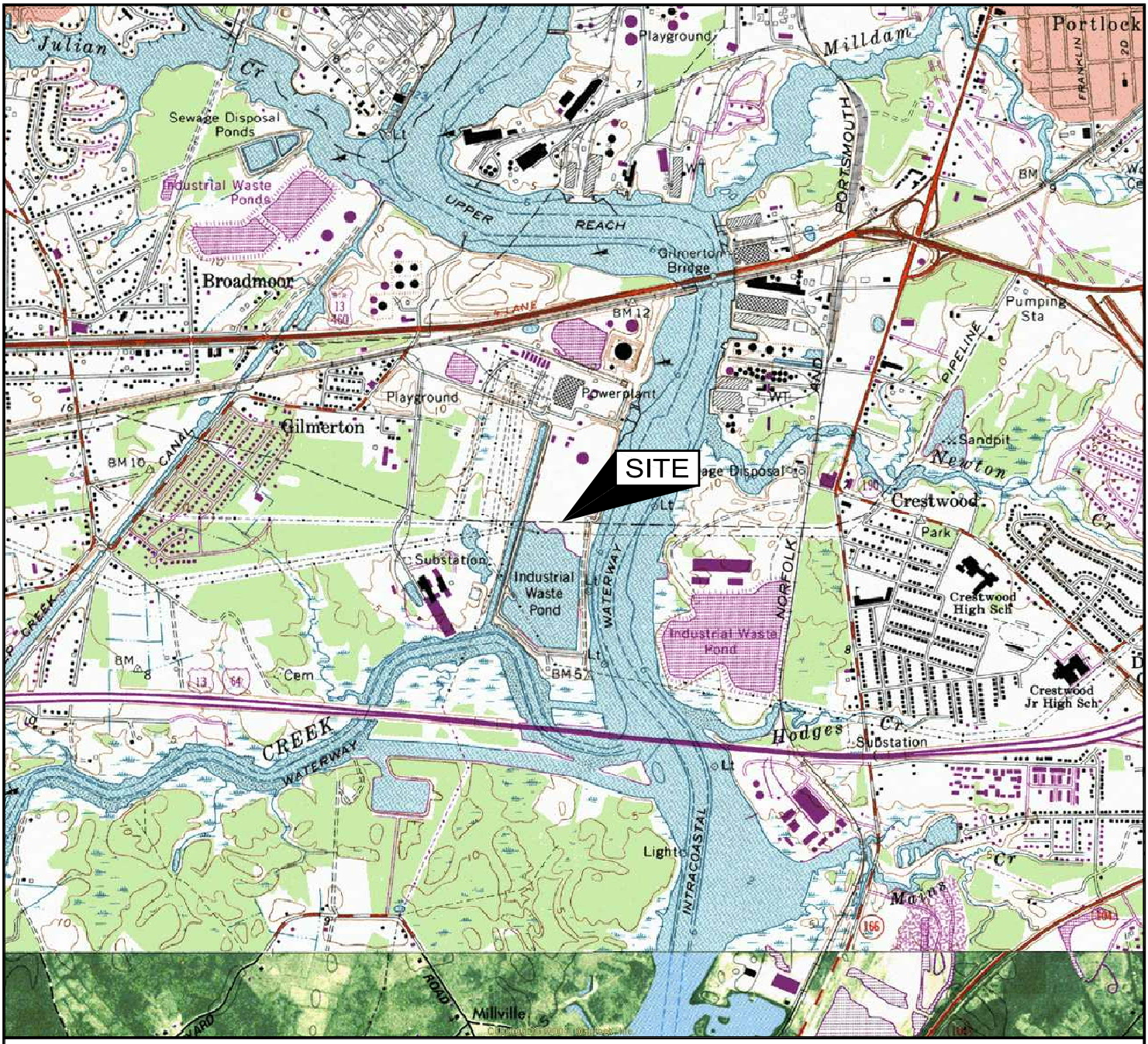
As currently envisioned, each CASE report shall include the following information, at a minimum:

- Summary of most recent groundwater and surface water quality data, including a discussion of concentrations of metals of interest along flow paths and a demonstration that the adsorption process is capable of reducing the arsenic concentrations to below the GPS before discharging to the adjacent estuary;
- Summary of most recent groundwater elevation data;
- Plume maps and potentiometric surface maps; and
- Summary of investigation-derived waste and disposition of those residuals.

5.0 WELL O&M PROGRAM

Monitoring wells will be inspected during each sampling event. If it is found that a well is no longer capable of providing representative samples, it will be redeveloped or abandoned and replaced before the next sampling event.

FIGURES



SOURCE: USGS 7.5 MINUTE SERIES
TOPOGRAPHIC QUADRANGLE 1986
NORFOLK SOUTH, VIRGINIA
CONTOUR INTERVAL = 5'

QUADRANGLE LOCATION

LAT. 036 ° 45 ' 58.96 " N
LONG. 076 ° 18 ' 7.84 " W

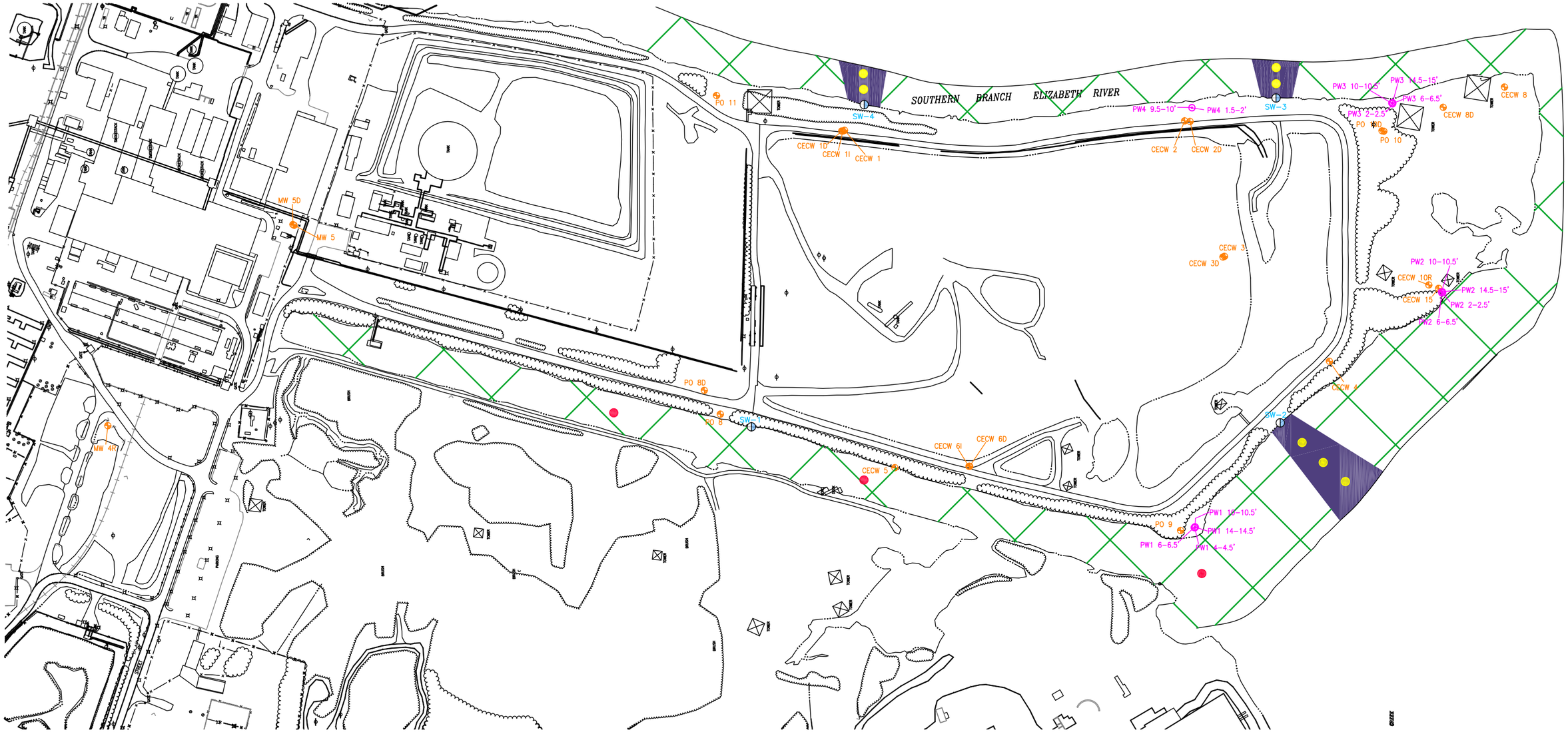
(APPROXIMATE SITE COORDINATES)

AMEC Earth & Environmental
3519 Jefferson Rd NE
Albuquerque, New Mexico 87113

CLIENT
DOMINION VIRGINIA POWER

PROJECT: **DOMINION CAMP**	DWN BY: RLRJR	DATUM: --	DATE: 22 MAY 2001
TITLE: **SITE LOCATION MAP**	CHK'D BY: GPM	REV. NO.: --	CONTRACT NO: 10-517-00002
	PROJECTION: --	SCALE: AS SHOWN	FIGURE No. **2-1**

G:\CAD\SOCORRO\DOMINION CEC CAP\CAD\CAMP SLM (Fig 1).dwg



LEGEND

- MONITORING WELL
- PIEZOMETER LOCATION (feet)
- SURFACE WATER STATION (4)
- CORING "POINT" (3)
- POTENTIAL CORING "POINT"
- CORING "TRANSECT" AREA (3)
- BATHYMETRY AREA (1)

0' 150' 300'
SCALE: 1"=300'

NOTE:

THIS MAP BASED ON THE SURVEY PREPARED BY PRECISION MEASUREMENTS, INC., DATED 9 JANUARY 2006.

CLIENT
DOMINION VIRGINIA POWER

AMEC Earth & Environmental
8519 Jefferson, NE
Albuquerque, NM 87113

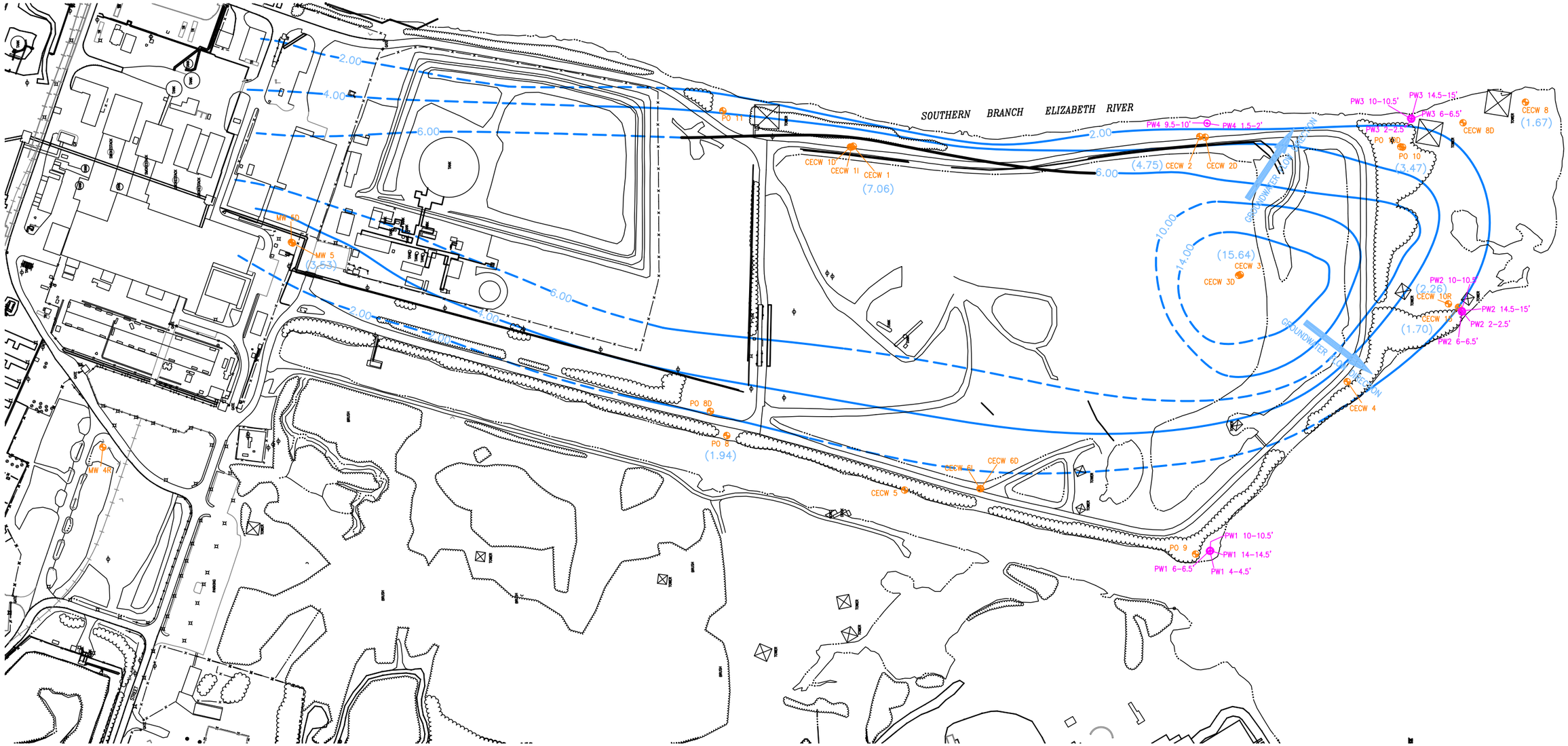
DWN BY:	RLRJR
CHK'D BY:	GPM
DATUM:	N/A
PROJECTION:	N/A
SCALE:	AS SHOWN

PROJECT
DOMINION CAMP

TITLE
SITE MAP WITH PROPOSED SUPPLEMENTAL ASSESSMENT PLAN MONITORING POINTS

DATE:	26 MAY 2011
CONTRACT NO:	10-517-00002
REV. NO.:	-
FIGURE NO.	**2-2**

G:\CAD\SOCORRO\DOMINION CEC CAP\CAD\CAMP SM+GW (2-2, 2-3, 2-4).dwg



LEGEND

- MONITORING WELL
- PIEZOMETER LOCATION (feet)
- (5.88) GROUNDWATER ELEVATION (feet)
- 2.00 GROUNDWATER CONTOUR (feet) DASHED WHERE INFERRED

0' 150' 300'
SCALE: 1"=300'

NOTE:

THIS MAP BASED ON THE SURVEY PREPARED BY PRECISION MEASUREMENTS, INC., DATED 9 JANUARY 2006.

DERIVED FROM DWG FILES FROM 2008 CAP & CAMP.

CLIENT
DOMINION VIRGINIA POWER

AMEC Earth & Environmental
8519 Jefferson, NE
Albuquerque, NM 87113

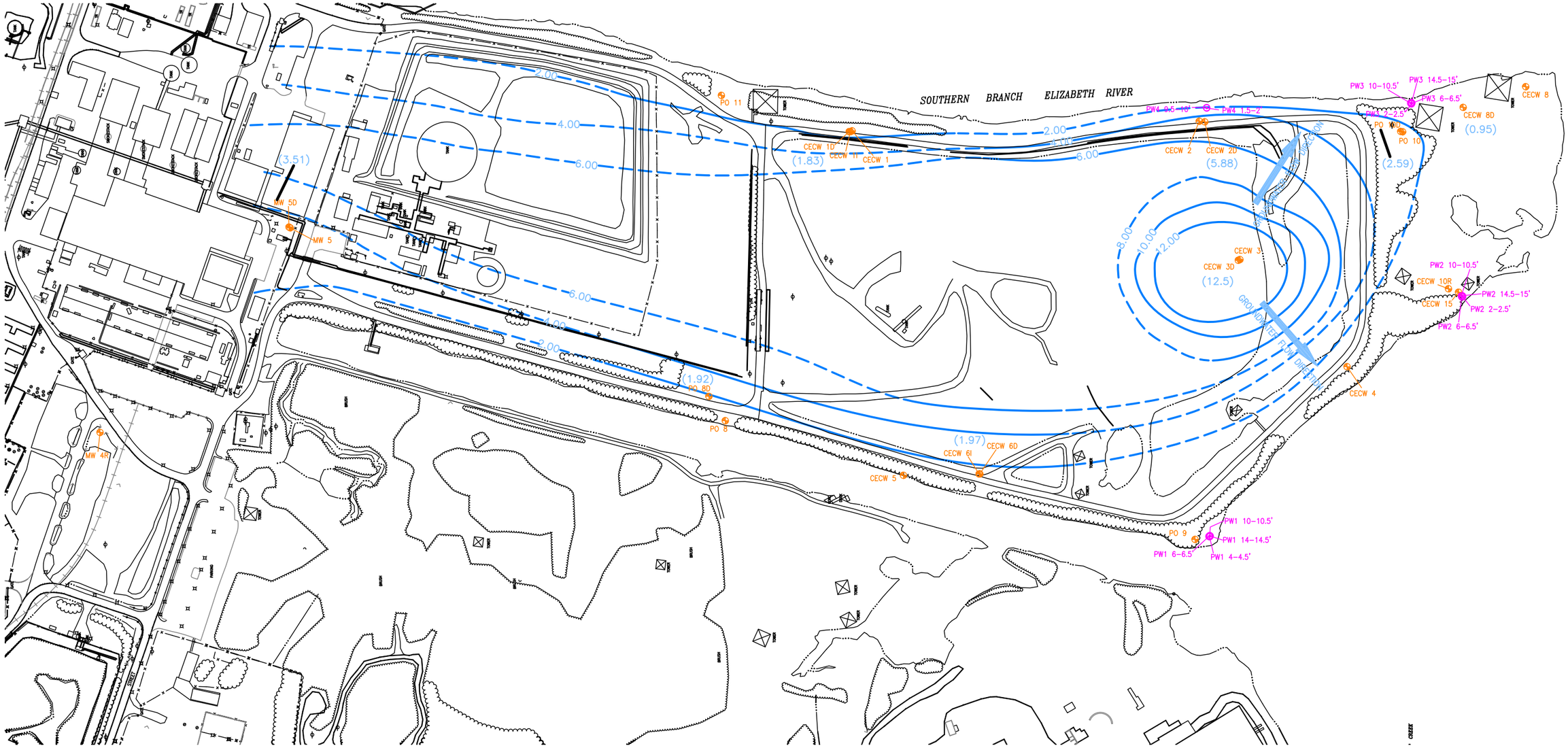
DWN BY:	RLRJR
CHK'D BY:	GPM
DATUM:	N/A
PROJECTION:	N/A
SCALE:	AS SHOWN

PROJECT
DOMINION CAMP

TITLE
GROUNDWATER ELEVATION CONTOUR MAP (SHALLOW WELLS) NOVEMBER 2005

DATE:	26 MAY 2011
CONTRACT NO:	10-517-00002
REV. NO.:	-
FIGURE NO.	**2-3**

G:\CAD\SOCORRO\DOMINION CEC CAP\CAD\CAMP SM+GW (2-2, 2-3, 2-4).dwg



LEGEND

- MONITORING WELL
- PIEZOMETER LOCATION (feet)
- (5.88) GROUNDWATER ELEVATION (feet)
- 2.00 GROUNDWATER CONTOUR (feet) DASHED WHERE INFERRED

0' 150' 300'
SCALE: 1"=300'

NOTE:

THIS MAP BASED ON THE SURVEY PREPARED BY PRECISION MEASUREMENTS, INC., DATED 9 JANUARY 2006.

DERIVED FROM DWG FILES FROM 2008 CAP & CAMP.

CLIENT: **DOMINION VIRGINIA POWER**

AMEC Earth & Environmental
8519 Jefferson, NE
Albuquerque, NM 87113

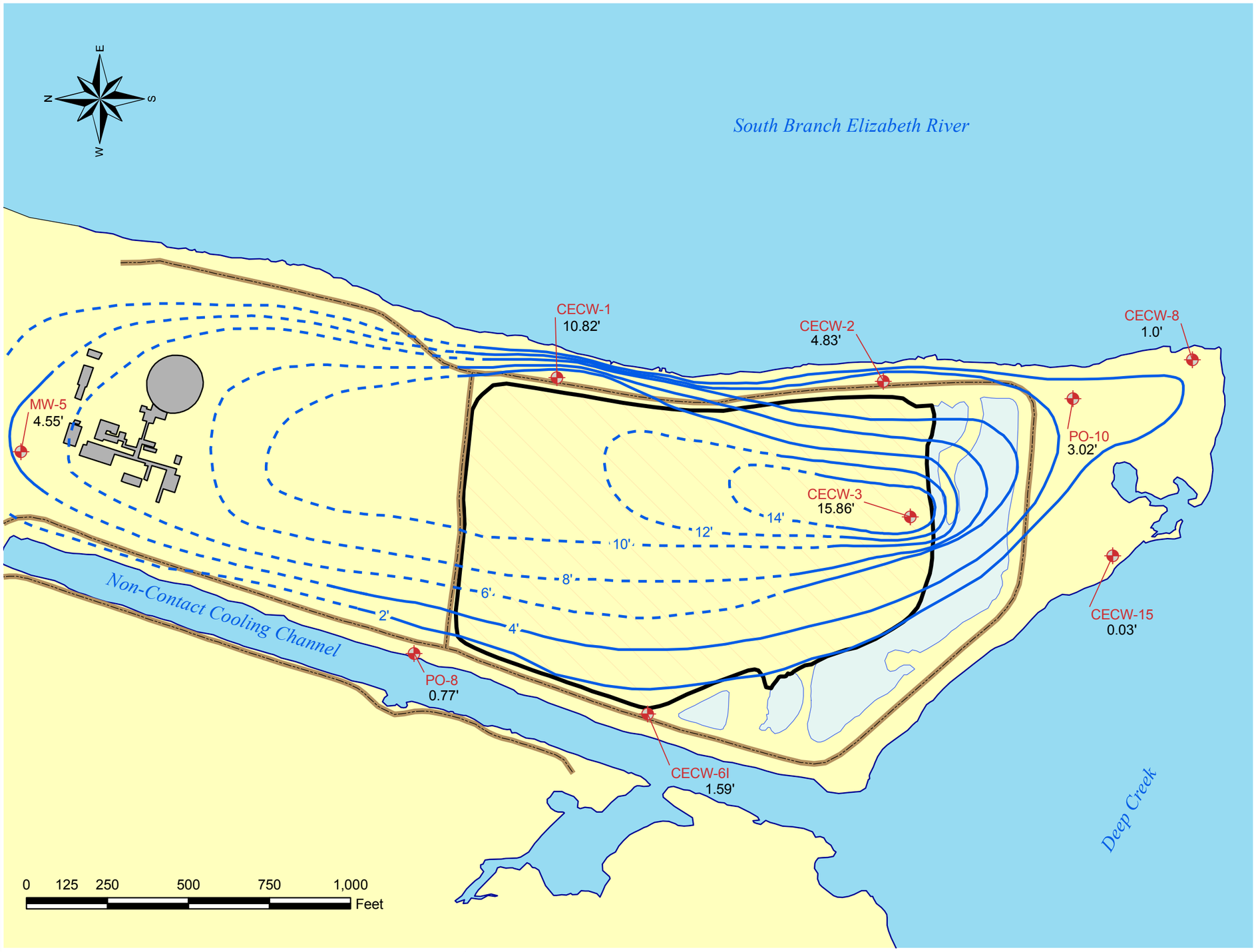
DWN BY: RLRJR
CHK'D BY: GPM
DATUM: N/A
PROJECTION: N/A
SCALE: AS SHOWN

PROJECT: **DOMINION CAMP**

TITLE: **GROUNDWATER ELEVATION CONTOUR MAP (DEEP WELLS) NOVEMBER 2005**

DATE: 26 MAY 2011
CONTRACT NO: 10-517-00002
REV. NO.: -
FIGURE NO. **2-4**

G:\CAD\SOCORRO\DOMINION CEC CAP\CAD\CAMP SM+GW (2-2, 2-3, 2-4).dwg



LEGEND

- Location of Wells Measured
- Buildings
- Access Roads
- Current Perimeter of Ash Landfill (Toe of Berm)
- Containment Ponds
- Land
- Water
- Contour (feet above MSL)
- Infered Groundwater Contour

NOTES:

1. STATIC WATER LEVELS WERE MEASURED ON FEBRUARY 9, 2010.
2. LOCATION OF ALL GROUNDWATER MONITORING WELLS ARE NOT SHOWN. ONLY THE LOCATIONS OF GROUNDWATER MONITORING WELLS GAUGED AS PART OF THE CAMP ARE SHOWN.
3. CONTOURING ASSUMED GROUNDWATER ELEVATION AT SHORELINE EQUAL TO MEAN SEA LEVEL.

LAND FEATURES TAKEN FROM AUTO CAD FILES TRANSMITTED FROM DOMINION RESOURCES INC. TO AMEC EARTH & ENVIRONMENTAL, INC.

DOMINION VIRGINIA POWER

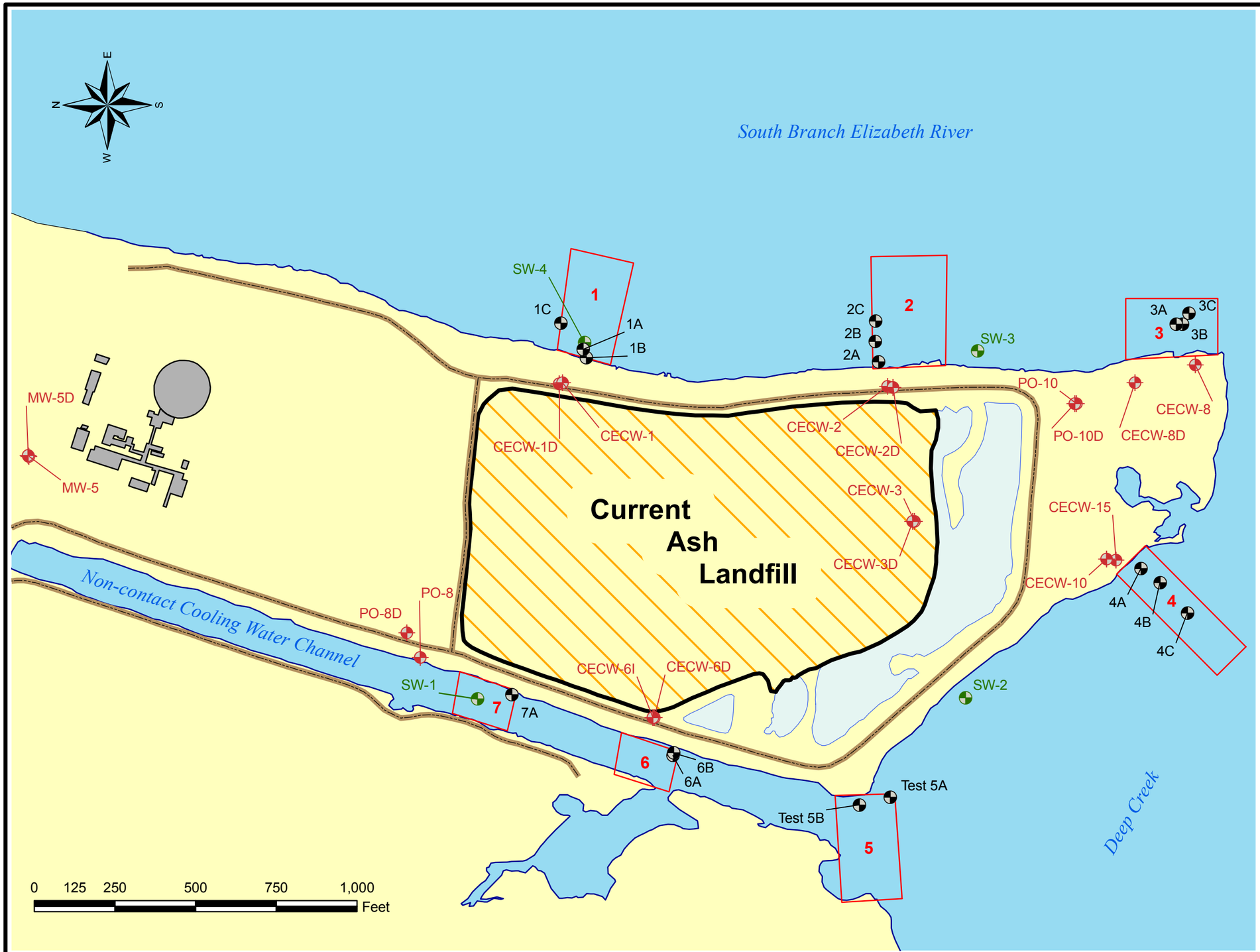
AMEC Earth & Environmental
8519 Jefferson NE
Albuquerque, NM 87113

DWN BY:	JTM
CHK'D BY:	GPM
DATUM:	WGS84
PROJECTION	UTM Zone 18S
SCALE:	AS SHOWN

DOMINION CAMP

GROUNDWATER ELEVATION CONTOUR MAP
(SHALLOW WELLS)
FEBRUARY 2010

DATE:	25 MAY 2011
CONTRACT NO:	10-517-00002
REV. NO.:	A
FIGURE NO.	**2-5**



LEGEND

- Surface Water Sampling Locations
- Core Sampling Locations
- Groundwater Monitoring Well Locations
- Buildings
- Access Roads
- Core Sample Areas
- Current Perimeter of Ash Landfill (Toe of Berm)
- Containment Ponds
- Land
- Water

NOTES:

1. SURFACE WATER, GROUNDWATER, AND SEDIMENT CORE SAMPLING EFFORTS WERE CONDUCTED FEBRUARY 8-12, 2010.
2. LOCATIONS OF ALL GROUNDWATER MONITORING WELLS ARE NOT SHOWN. ONLY THE LOCATIONS OF GROUNDWATER MONITORING WELLS SAMPLED AS PART OF THE CAMP ARE SHOWN.

LAND FEATURES TAKEN FROM AUTO CAD FILES TRANSMITTED FROM DOMINION RESOURCES INC. TO AMEC EARTH & ENVIRONMENTAL, INC.
SURFACE WATER AND CORE SAMPLE LOCATIONS WERE TAKEN WITH GSPS DURING FEBRUARY FIELDWORK.

DOMINION VIRGINIA POWER

AMEC Earth & Environmental
8519 Jefferson NE
Albuquerque, NM 87113

DWN BY:	JTM
CHK'D BY:	GPM
DATUM:	WGS84
PROJECTION	UTM Zone 18S
SCALE:	AS SHOWN

DOMINION CAMP

SUPPLEMENTAL ASSESSMENT PLAN SAMPLING POINTS

DATE:	25 MAY 2011
CONTRACT NO:	10-517-00002
REV. NO.:	A
FIGURE NO.	**2-6**

APPENDICES

APPENDIX A
Boring Logs/As-Built Diagrams

Soil Boring Log

Borehole Number: MW-4R

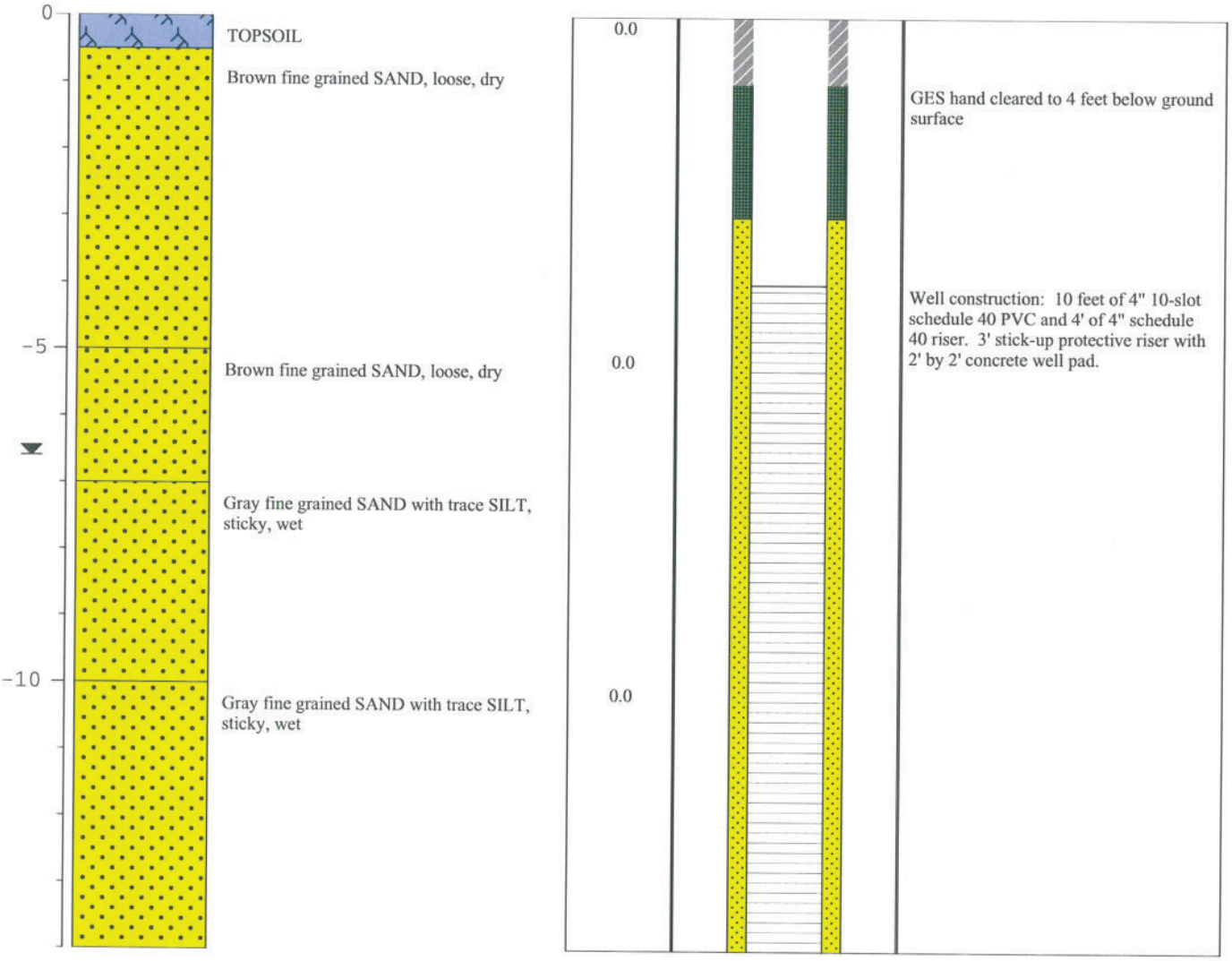
PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Dominion - Chesapeake Energy Center**	DRILLING CO.:	**Parratt Wolff, Inc.**
SITE LOCATION:	**Chesapeake, Virginia**	DRILLER:	**Kevin White, George Martincic**
JOB NAME:	**Chesapeake Energy Center Well Installation**	RIG TYPE:	**Diedrich Drill Rig**
LOGGED BY:	**Kevin Goerger**	METHOD OF DRILLING	**Hollow-stem Auger**
PROJECT MANAGER:	**Montgomery Bennett**	SAMPLING METHODS:	**Soil cuttings; 5 foot intervals**
DATES DRILLED:	**9/14/2006**	HAMMER:	**None**
BOREHOLE NO.:	**MW-4R**	TOTAL DEPTH:	**14**

NOTES: Overcast & 70 degrees F

▼ Water level in completed well

NM = Not measured

DEPTH	SOIL/ROCK SYMBOLS	SOIL DESCRIPTION	PID	WELL CONSTRUCTION	NOTES
0		TOPSOIL	0.0		GES hand cleared to 4 feet below ground surface
		Brown fine grained SAND, loose, dry			
-5		Brown fine grained SAND, loose, dry	0.0		Well construction: 10 feet of 4" 10-slot schedule 40 PVC and 4' of 4" schedule 40 riser. 3' stick-up protective riser with 2' by 2' concrete well pad.
▼					
		Gray fine grained SAND with trace SILT, sticky, wet			
-10		Gray fine grained SAND with trace SILT, sticky, wet	0.0		



Project: CEC Industrial Landfill
Project Location: Chesapeake, Virginia
Project Number: 11658012

Log of Borehole CECW-10R

Sheet 1 of 1

Date(s) Drilled and Installed	**3/23/2011**	Geologist	**Kelly Hicks**	Reviewer	**James O. Spencer**
Drilling Method	**4 1/4-inch Hollow Stem Auger**	Drilling Contractor	**Fishburne Drilling**	Total Depth of Borehole	**12.0 feet**
Sampling Method	**24-inch split spoon**	Hammer Data	**140 lbs.**	Top of Casing Elevation	**5.52 ft msl**
Size and Type of Well Casing	**2-inch I. D. Schedule 40 PVC**	Screen Perforation	**0.010-inch**	Approximate Surface Elevation	**2.61 ft msl**
Seal or Backfill	**Bentonite Pellets**	Comments	**Replacement well for destroyed well CECW-10**		

Elevation feet	Depth, feet	SAMPLES Type	SAMPLES Number	SAMPLES Blow Counts	SAMPLES Recovery (In)	SAMPLES PID (ppm)	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Det.	FIELD NOTES AND WELL DETAILS
	0								2.5YR2.5/1 reddish black silty SAND (disturbed topsoil) with organics, moist.		3/8-inch Hydrated Bentonite Pellets
	1		1	6-6-8-7	22	0			5YR3/3 dark reddish brown fine silty SAND, loose, very moist, no odor.		
	2										Gravel pack
0	3		2	7-2-5-5	18	0			Grades to 7.5YR6/2 pinkish gray silty SAND with organics, loose, wet, no odor.	▽	
	4								Sulfur-like odor at 4 ft bgs.		
	5		3	4-4-4-4	16	0					
	6							SM	Grades to 7.5YR5/1 gray medium SAND with silt, loose, wet, sulfur odor.		
	7		4	2-3-3-3	24	0					
-5	8								Grades to 10YR5/3 brown medium SAND with silt with trace organics, wet, no odor.		Screen: 0.01-inch Factory Slotted, Sch 40, 2-inch PVC
	9		5	2-2-1-3	24	0					
	10										
	11										
	12								Boring terminated at 12.0 ft bgs.		
-10	13										
	14										
	15										

Report: ENV_12W_CLEVELAND+/-USCS; File: 11658012 DOMINION CEC.GPJ; 4/19/2011 CECW-10R

URS

APPENDIX B
Sample Chain of Custody

AMEC Environment & Infrastructure
115 Abeyta, Suite A
Socorro, NM 87801
Phone Number: (575) 835-2569

CHAIN OF CUSTODY

DATE: _____

COC #: _____

PAGE: _____ **of** _____

Project Manager:	Project Contact:	Bill To:	Disposal Instructions:
Project Name:	Phone Number:		Shipment Method:
Project Number:	Purchase Order No.:		Waybill Number:

Comments: H=Hold Analysis Request X=Analyze

Preservatives and Containers

Sample Information							Methods for Analysis																								RUSH					
No.	LAB Sample ID	Collection Method[A]	SAMPLE ID	Date Sampled	Time Sampled	Matrix[B]																												QC (MS/MSD)	TOTAL BOTTLES
1																																			
2																																			
3																																			
4																																			
5																																			
6																																			
7																																			
8																																			
9																																			
10																																			
11																																			
12																																			

Sampler's Signature (Print and Sign):	**Date:**	**Time:**
Relinquished By:	**Date:**	**Time:**
Received By:	**Date:**	**Time:**
Relinquished By:	**Date:**	**Time:**
Received By (LAB):	**Date:**	**Time:**

For Lab Use		
Does COC match samples:	Y or N	
Broken Container:	Y or N	
Received within holding time:	Y or N	
COC seal intact:	Y or N	
Other problems:	Y or N	
ECC Contacted	Y or N	
Date contacted:		
Cooler Temperature at receipt:	_____ C	
Volatile Cooler Temperature:	C	

SHIP TO:

NUMBER OF COOLERS SENT:

VOLATILE COOLER ID:

[A]Collection Methods:
B = Bailer
BP= Bladder Pump
C = Composite
CP = Cone Penetrometer
G = Grab
GP = GeoProbe
HA = Hand Auger
HP = Hydropunch
PP = Peristalic Pump
SP = Submersible Pump
SS = Split Spoon
WP = Wellhead Faucet

[B]Matrix
AA = Air
EP/TCLP = Leachate
LF = Product
SE = Sediment
SO = Soil
SW = Swipe
WG = Groundwater
WQ = Water Quality (Trip Blank, Equipment Blank, Field Blank, etc.)
WS = Surface Water
WW = Waste water