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Surface Water Monitoring Plan
Dominion Energy
Possum Point Power Station
Dumfries, Virginia

Virginia Department of Environmental Quality
Solid Waste Permit No. 617

Prepared for

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August 2019
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LIST OF ACRONYMS AND ABBREVIATIONS

CCR	Coal combustion residual
EPA	U.S. Environmental Protection Agency
GPS	Global Positioning System
Q	Quarter
VDEQ	Virginia Department of Environmental Quality
VELAP	Virginia Environmental Laboratory Accreditation Program

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1. FACILITY DESCRIPTION

The Possum Point Power Station is located near the town of Dumfries in Prince William County, Virginia. The station is accessed by Possum Point Road (Route 633) and is adjacent to the Potomac River and Quantico Creek (Figure 1). The facility consists of five privately owned/operated surface impoundments that managed sluiced (or wet) coal combustion residuals (CCRs) from the Possum Point Power Station as part of the facility's wastewater treatment system and in accordance with Virginia Pollutant Discharge Elimination System Permit Number VA0002071.

The facility ceased burning coal in 2003. The power station continues to produce electricity from two generating units: one is oil fired and the other is a dual-fired combined-cycle unit. The five CCR surface impoundments consist of Ponds A, B, and C; Pond D; and Pond E. Surface impoundment Ponds A, B, and C cover a total area of approximately 18 acres and were constructed in 1955. Surface impoundment Pond D covers an area of approximately 64 acres and was constructed in 1988, with a liner system using *in situ* clay, a slurry cutoff wall, and a constructed 1-foot thick clay liner. Pond D does not have a liner meeting the requirements of the U.S. Environmental Protection Agency (EPA) CCR Rule. Surface Impoundment Pond E covers an area of approximately 38 acres and was constructed in 1967.

All five surface impoundments are subject to EPA's final rule Standards for the Disposal of CCR from Electric Utilities (80 Federal Register 21302 [17 April 2015] [as amended]) (EPA CCR Rule). Surface Impoundments Ponds A, B, C, and E are inactive CCR surface impoundments under the EPA CCR Rule as they did not receive CCRs after 19 October 2015. They are being closed by removal in accordance with 40 Code of Federal Regulations 257. 102(c). Surface impoundment Pond D, which began receiving CCRs from surface impoundments Ponds A, B, C, and E again at the end of June 2016, is considered an existing surface impoundment under the EPA CCR Rule because it received CCRs after 19 October 2015.

2. PURPOSE AND SCOPE

Solid Waste Facility Permit documents for the Possum Point Power Station (Permit Number 617) include surface water monitoring requirements in Permit Module XVIII (Appendix A). As stated in Permit Module XVIII, the objective of the surface water monitoring program is to adequately characterize any effects on surface water that may be occurring as a result of potential groundwater to surface water exchange downgradient of the surface impoundments. This Surface Water Monitoring Plan describes the quarterly monitoring that will be performed to meet the requirements of Permit Module XVIII.

Revisions to this Surface Water Monitoring Plan may be required in the future due to changes in the required sampling constituents, frequency, location of sampling stations, or at the request of the Virginia Department of Environmental Quality (VDEQ) or the owner. Any technical revisions made to the plan should be provided to VDEQ for review and concurrence prior to implementation.

3. SURFACE WATER SAMPLING

The permit requires surface water sampling near-shore of the Possum Point Power Station property where groundwater could potentially intersect with surface water. Based on the groundwater contour maps (Appendix B), groundwater flows to the east in the direction of the Potomac River and southwest in the direction of Quantico Creek (Golder Associates, Inc. 2019). Surface water samples will be collected from the Potomac River and Quantico Creek. Surface water sampling activities will be conducted in accordance with the requirements specified in Permit Module XVIII.

3.1 ACCESS AND LOGISTICS

Due to the steep vegetated banks of the shoreline, it is recommended that surface water sampling locations at the Possum Point Power Station be accessed via boat. On-water activities require a crew with a minimum of two people, in compliance with applicable Virginia Department of Game and Inland Fisheries boating regulations; the use of U.S. Coast Guard-approved Type 1 personal flotation devices is also required. Surface water sampling activities will comply with safety procedures as detailed in a project-specific health and safety plan to be completed by the sampling contractor. Sampling personnel will also be required to complete a site-specific safety orientation annually.

Two boat ramps are available to launch boats for sampling. The boat ramp on facility property may be used to access the Potomac River (Figure 2). However, the gravel road to the boat ramp is steep and requires a four-wheel drive vehicle. Sampling personnel will need an escort and to check in and check out with Possum Point site security to access the boat ramp as it is located within the facility gated area. A public boat launch, the Hospital Point Boat Ramp, located on the opposite side of Quantico Creek on the Quantico Marine Base (Figure 2) is a more accessible alternative.

Surface water sampling will be coordinated with the Possum Point Power Station CCR project manager. Sampling personnel will check in and check out each day with the appointed site contact. If possible, sampling personnel should refrain from sampling prior to 6 a.m. and after 6 p.m. However, sampling outside of those times may be accommodated if required to sample during low tide.

3.2 STUDY DESIGN

Surface water collection will be conducted quarterly during the closure and post-closure care periods and will include twelve sample locations downgradient of the Possum Point Power Station and four reference samples upstream of the influence of the Possum Point Power Station (two in Quantico Creek and two in the Potomac River). See Figure 2.

The length of the quarterly sampling period will be an interval of 90 days; however, in order to allow for schedule, weather, and staff flexibility, the permit allows monitoring within 15 days (prior to and following) of each 90-day interval. Sampling may be delayed or cancelled if unsafe conditions such as high water, high winds, winter conditions, or thunderstorms are present.

Per the Permit Module XVIII, surface water sampling will be performed during low tide. Dahlgren, VA (8635027) is the closest NOAA station and sampling will be conducted within two hours before and two hours after the predicted low tide at the station.

The permit requires a minimum of twelve sample locations: four sample locations downgradient of surface impoundment Pond E, four sample locations downgradient of surface impoundment Pond D, and four sample locations downgradient of surface impoundment Ponds A, B, and C. As shown on the groundwater contour maps in Appendix B, groundwater flows east in the direction of the Potomac River and southwest in the direction of Quantico Creek. Sample locations PP-01 through PP-04 are located in Quantico Creek downgradient of Pond E. Sample locations PP-05 and PP-06 in Quantico Creek and PP-11 and PP-12 in the Potomac River are downgradient of Pond D. Sample locations PP-07 through PP-10 are located in Quantico Creek downgradient of Ponds A, B, and C.

Reference sampling can be used as a line of evidence to demonstrate natural or regional conditions. Storm events, common background sources, and seasonal variability are possible sources of elevated metal concentrations in surface water. Therefore, in addition to the twelve sample locations required by the permit, two reference samples in Quantico Creek (QC-01 and QC-02) and two reference samples in the Potomac River (PR-01 and PR-02) will be collected upstream of the influence of the Possum Point Power Station. Additional reference samples may be collected as determined in the field. Preliminary sample coordinates for each sample location are presented on Table 1; sample locations are depicted in Figure 2. Exact coordinates will be recorded during the first field sampling event as discussed in Section 3.3

Table 1 Possum Point Power Station Sample Locations

Sample Location	Sample Coordinates North American Datum 1983 Virginia State Plane North	
	Easting	Northing
PP-01	11827682.127217	6885134.628505
PP-02	11827905.322309	6884698.594928
PP-03	11828351.544514	6884343.880415
PP-04	11828931.731017	6884354.317074
PP-05	11829620.451753	6884253.899296
PP-06	11829946.978331	6883956.325416
PP-07	11830053.731070	6883294.524246
PP-08	11830161.803688	6882566.677276
PP-09	11830521.178954	6882309.429103
PP-10	11830797.382798	6881983.762104
PP-11	11832823.045085	6884630.667243
PP-12	11833394.388759	6885660.614986
PR-01	11836256.367615	6887656.275037
PR-02	11836948.642149	6888255.233484
QC-01	11824747.672456	6888786.117921
QC-02	11824907.611769	6888419.527447

3.3 SAMPLING METHODOLOGY

Surface water sample collection will be completed within two hours of low tide. Sampling will be conducted from downstream to upstream to prevent surface water sample cross-contamination from disturbed sediment. Sampling personnel will mobilize to each proposed sampling location using a Global Positioning System (GPS).

The boat will be maneuvered to within 10 feet of the proposed sample location along the shoreline, and the water will be sampled as close to the shoreline as permitted by water depth. The proposed sample locations were selected based on aerial imagery, and vegetation may have obstructed the view of the shoreline. Therefore, the proposed sample locations may need to be adjusted during the first sampling event to avoid debris and to capture the groundwater-surface water interface. The GPS coordinates of the actual sample location will be recorded, and the sample locations will be permanently marked or flagged during the first sampling event (after the sample is collected to prevent water sample contamination) at the nearest on-shore location for future identification. It is anticipated that sampling personnel can access the shoreline via boat to install the permanent marker or flag. The GPS coordinates of the sampled location will be noted for each surface water sample location during each monitoring event.

If the established sample locations are obstructed by debris during sampling events, sampling personnel will attempt to clear debris before sampling and if unsuccessful, will establish a new sample location as close as possible to the original location. A new permanent marker or flag at the new sample location will be required and the sample location naming will be revised to notate the new sample location. For instance, if it is not possible to sample PP-05, PP-05a may be established for continued monitoring.

At each location, the following information will be recorded on datasheets, in a field logbook, or using electronic data forms:

- Weather (including recent storm events) and local conditions
- Sample Location
- Location coordinates and description
- Water depth
- Sample date and time
- Water quality (pH and temperature)
- Sample identification
- Sample collection details and description.

Surface water collection will begin with a depth sounding and the measurement of water quality parameters (pH and temperature) at mid-depth using an electronic water quality meter. The water quality meter will be calibrated daily prior to sampling, and the calibration will be documented in the field logbook.

Sampling methods will be conducted in a manner equivalent to the quality assurance/quality control procedures specified in the most current version of the VDEQ Standard Operating Procedures Manual for Water Quality Monitoring, section 4.8 (Appendix C). Per the permit requirements, dissolved metals results will be reported, and the samples will be filtered in the field during collection.

A peristaltic pump connected to Teflon tubing will be used for surface water collection. New (dedicated) tubing will be used for each new field sample. Tubing used for the collection of an equipment blank prior to collecting a field sample may also be used for the field sample after adequate flushing of the tubing before collecting the sample. However, tubing will not be reused for additional field samples. Tubing will be lowered to mid-depth of the water column and a filtered water sample will be collected using an in-line 0.45-micron filter. Each filter will be used for only 1 sample. Sample collection will follow the Collection of Trace Element Samples (Clean Metals) protocol provided in Appendix C including the "clean hands/dirty hands" sampling approach for sample collection. Certified clean sample containers will be used for water sample collection.

Sample locations are named with two-letter site identifiers ("PP" for Possum Point Power Station, "QC" for reference samples in Quantico Creek, and "PR" for reference samples in the Potomac River) and two-digit number location identifiers (01 through 12). Surface water samples will be named with the sample location, quarter, and year. For instance, the sample from PP-05 collected in the fourth quarter of 2019 will be named "PP-05-19-Q4". It is recommended that waterproof labels printed on a laser printer be used to avoid smudging. Labels will include the project name, sample ID, date, time, analyses, method, container, and sampler.

Quality assurance samples will be collected at a rate of 5 percent for matrix spike/matrix spike duplicates and equipment blanks and at a rate of 10 percent or greater for field duplicates. The first equipment blank will be collected prior to the first surface water sample. To denote field duplicates, matrix spikes, and matrix spike duplicates, "FD", "MS", and "MSD" will be added to the end of the sample name. Equipment blanks will be named "EB" and two-digit number identifiers with the quarter and year of sampling, such as "EB-01-19-Q4". Sufficient volume will be collected for field duplicates and matrix spike/matrix spike duplicates. Equipment blanks will be collected from deionized water. The rate of collection of quality assurance samples is included on Table 2. Samples will be kept on ice (<4°C) following sample collection. Chain-of-custody documentation will be completed, and the samples will be shipped to the laboratory for next day delivery. Shipping and packaging procedures outlined in Appendix C will be followed.

Table 2 Possum Point Power Station Quarterly Monitoring Program Sample Numbers

Type of Sample	Q1	Q2	Q3	Q4	Totals
Possum Point and Reference Samples	16	16	16	16	**64**
Field Duplicates	2	2	2	2	**8**
Matrix Spike/Matrix Spike Duplicates	2	2	2	2	**8**
Equipment Blanks	1	1	1	1	**4**
Total	**21**	**21**	**21**	**21**	**84**

4. SAMPLE ANALYSIS AND VALIDATION

Samples will be submitted to a Virginia Environmental Laboratory Accreditation Program (VELAP) certified laboratory, for the following analyses:

- Dissolved antimony, arsenic, boron, cadmium, calcium, total chromium, cobalt, copper, lead, lithium, magnesium, nickel, selenium, silver, thallium, and zinc by SW-846 Method 6010 or 6020
- Dissolved chromium VI by SW-846 Method 7199 or 7196A
- Dissolved mercury by SW-846 Method 7470 or EPA 245.7
- Dissolved chromium III calculated by subtracting chromium VI from total chromium concentrations
- Hardness calculated using calcium and magnesium concentrations.

Per the permit requirements, analyses will meet method detection limits for inductively coupled plasma mass spectrometry from the 2017 Standard Operating Procedures Manual for the Department of Environmental Quality Water Quality Monitoring (Table 3), as available. The laboratory will produce Level 3data packages that include analytical results, data qualifiers, case narrative, preparation logs, run logs, and batch quality control (method blanks, laboratory control spikes, and matrix spike/matrix spike duplicate) results. Data packages will be submitted to the data validator for 90 percent Tier 1 and 10 percent Tier 2 validation on a Level 3 data package. Data validation will include completeness and compliance checks, data assessment, and validation following *National Functional Guidelines for Inorganics Method Data Review* (U.S. Environmental Protection Agency 2017) to assess compliance.

The goal of the Tier 1 review is to quickly provide a brief summary of key analytical issues/deficiencies and indicate whether data quality is consistent with the intended use. A Tier 1 review may include, but is not limited to: review of the data package for completeness; review of chain of custody forms (against laboratory reported information), for signatures, sample condition upon receipt by the laboratory, and sample preservation; review of holding times; review of quality control summaries; review of blank results for possible field or laboratory contamination; random checks of reported results against raw data, and random checks of raw data for interference problems or system control problems (e.g., baseline anomalies, baseline drifts, etc.).

A Tier 2 review may include, but is not limited to, the components of a Tier 1 review plus a random check (percentage determined by the professional judgement of the data evaluator on a project specific basis) of all the various calculations in the data set (e.g., verifying and recalculating concentrations of standards including checking of expiration dates of standards from standard preparation logs, confirming calibration criteria were met, verifying quality control sample results were as stated, etc.), checking raw data for correct integration, confirming

mass ion spectra matches (if applicable), and assessing interference problems or system control problems (e.g., baseline anomalies, baseline drifts, etc.). These checks would be conducted in the context of project data quality objectives. An evaluation of potential high/low bias or false positive/false negative results around project thresholds of concern will be the primary focus.

Table 3 Method Detection Limits

Analytes	Method Detection Limits from Water Quality Monitoring Standard Operating Procedure (micrograms per liter) Inductively Coupled Plasma Mass Spectrometry (µg/L)
Antimony	0.33
Arsenic	0.24
Boron	--
Cadmium	1.72
Chromium (total)	--
Chromium (III)	--
Chromium (VI)	--
Copper	0.87
Lead	0.28
Mercury	0.12
Nickel	0.39
Selenium	0.77
Silver	0.15
Thallium	--
Zinc	2.18
Source: Virginia Department of Environmental Quality (VDEQ) 2017.	

5. QUARTERLY REPORTING

Following receipt of validated data, the data will be reviewed for quality assurance and electronically transferred into a project-specific database. A surface water monitoring report will be submitted to VDEQ within 60 days from the completion of sampling and analysis unless as allowed under a director-approved extension. Each quarterly report will include:

- signature page certifying the results by a facility representative;
- facility name and permit number;
- statement noting whether all sampling locations were sampled and, if not, the reason a sample was not obtained or reported. If the sampling location did not contain sufficient water column for sampling, a statement noting the number of occurrences of lack of sufficient water column and based upon the number of occurrences, a new proposed sampling location;
- a copy of the full laboratory analytical report including dated signature page from laboratory manger or representative;
- a written summary of field activities;
- tabulated analytical data and field measurements;
- a site figure showing sampling locations;
- copies of field documentation;
- a data validation summary.

Per the permit requirements, final surface water results will be reported as dissolved metals. Sampling results will be compared to the lowest applicable standards established by 9 Virginia Administrative Code 25-260-140 Virginia Water Quality Standards (Appendix D). Samples will meet the qualitative water quality standards described in 9 Virginia Administrative Code 25-260. For any constituent not listed in Permit XVIII, Section D.1 that has an exceedance of a Groundwater Protection Standard under the Modified Assessment Groundwater Monitoring Program, surface water sampling results will be compared to the VDEQ-approved Groundwater Protection Standard. Surface water monitoring records will be maintained at the Possum Point Power Station and made available to VDEQ upon request.

Verified laboratory results indicating surface water column results above a water quality standard in 9VAC2-260-140 or a Groundwater Protection Standard will be reported to VDEQ within 30 days of issuance of the final laboratory results. Additional required actions for surface water quality standard exceedances are detailed in XVIII.H of the Solid Waste Permit.

6. REFERENCES

Golder Associates, Inc. 2019. *2018 CCR Annual Groundwater Monitoring and Corrective Action Report, Possum Point Power Station Ash Pond D*. Prepared for Dominion Energy Virginia Electric and Power Company. 31 January.

U.S. Environmental Protection Agency. 2017. *National Functional Guidelines for Superfund Inorganics Method Data Review*. January.

Virginia Department of Environmental Quality (VDEQ). 2017. *Standard Operating Procedures Manual for the Department of Environmental Quality Water Quality Monitoring and Assessment Program*. Revision 20. 5 June.

Figures

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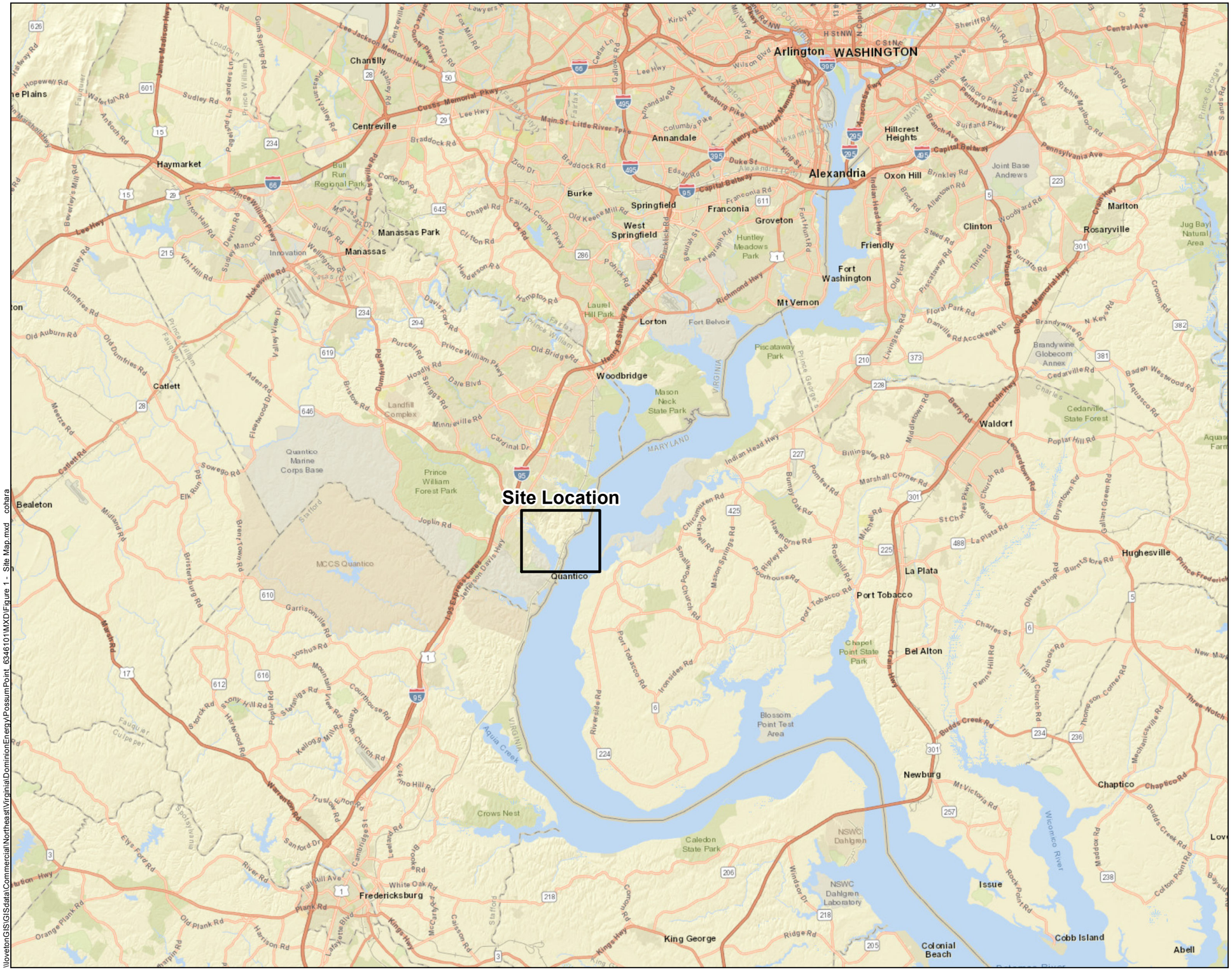
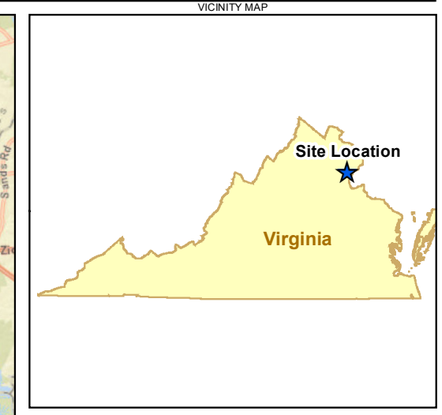


VICINITY MAP



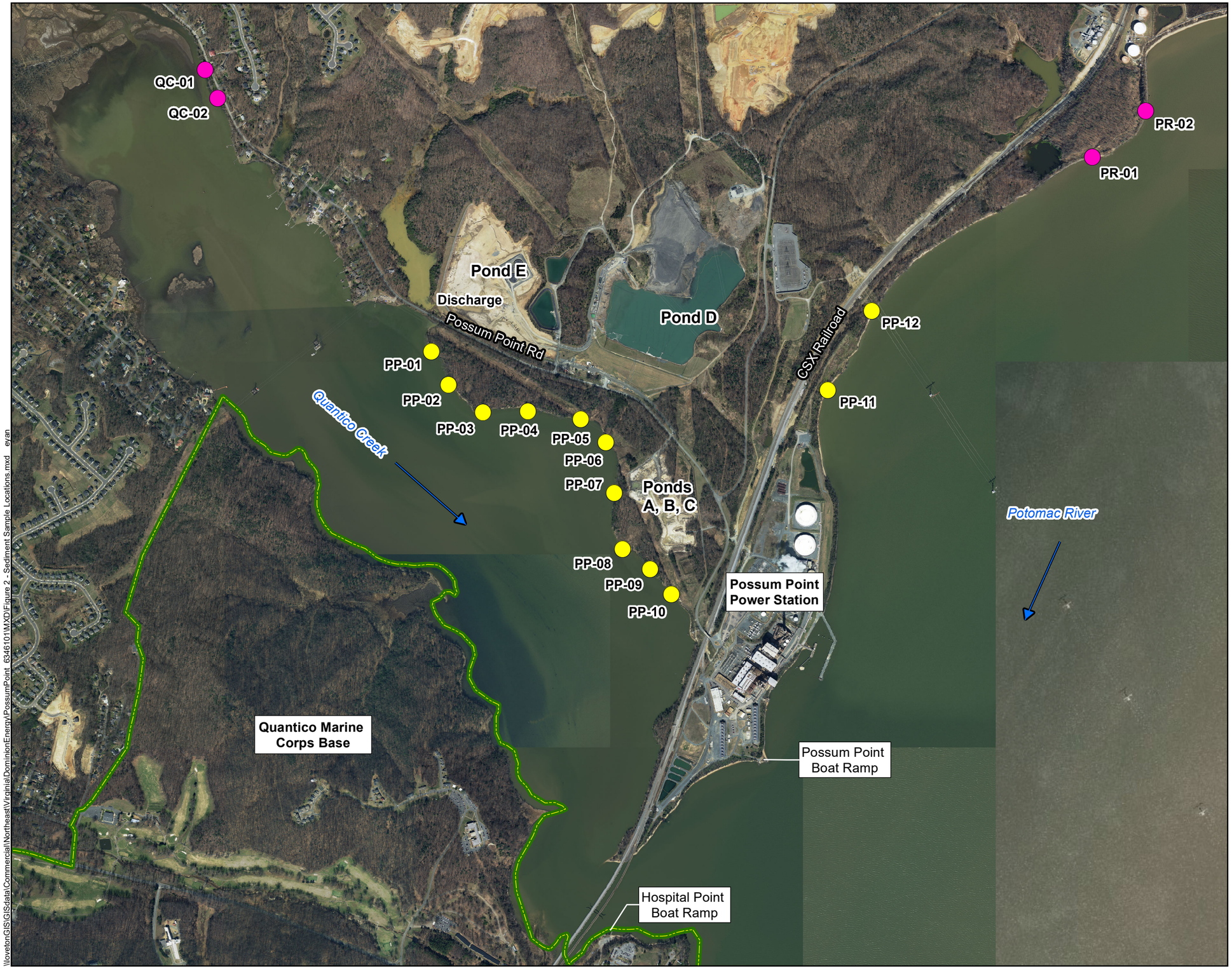
Map Date: 7/11/2019
Source: ESRI, 2015
Projection: NAD 1983 Virginia State Plane North

N

0 5 10
Miles

Figure 1
Site Map
Possum Point Power Station
Dumfries, VA

\\loveton\GIS\GISdata\Commercial\Northeast\Virginia\DominionEnergy\PossumPoint_6346101\MXD\Figure 1 - Site Map.mxd cohara



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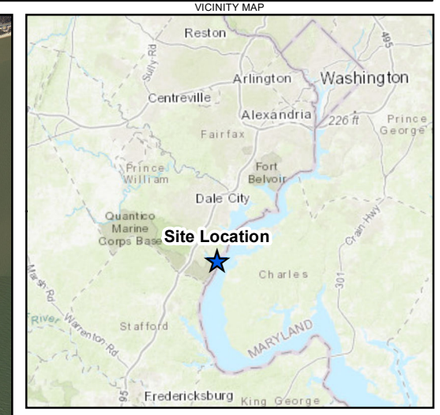

Legend

- Surface Water Sample
- Reference Sample
- Quantico Marine Corps Base

Map Date: 8/5/2019
Source: VA GIS, 2017
Projection: NAD 1983 Virginia State Plane North

N

0 1,000 2,000
Feet

Figure 2
Sample Locations
Possum Point Power Station
Dumfries, VA

\\lovetonGIS\GISdata\Commercial\Northeast\Virginia\DominionEnergy\PossumPoint_6346101\MXD\Figure 2 - Sediment Sample Locations.mxd evan

Appendix A

Permit No. 617 Module XVIII
Surface Water Monitoring Requirements

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PERMIT MODULE XVIII
SURFACE WATER MONITORING REQUIREMENTS

This monitoring program is designed to determine if there is an impact to surface water that may be occurring as a result of potential groundwater to surface water exchange.

Surface Water Monitoring at this facility will take place under the program described herein and the actions undertaken shall be consistent with VSWMR, WQS, and VPDES regulations as applicable. The Permittee must maintain a surface water monitoring program that meets the requirements of this module and outline that program in the *Surface Water Monitoring Plan*.

Nothing in this permit module authorizes the Permittee to have an unauthorized discharge in contravention of State Water Control Law or accompanying regulations.

The *Surface Water Monitoring Plan* shall be developed in accordance with these requirements and submitted to the Department for approval within 60 days of permit issuance and shall be implemented within 30 days of approval by the Department.

XVIII.A. SAMPLING LOCATIONS

XVIII.A.1. A minimum of twelve (12) sample locations shall be identified and approved by the Department. At a minimum, the locations shall be near-shore of the property where groundwater potentially could intersect with surface water and represent results from the CCR units located at the facility. These locations:

XVIII.A.1.a. shall be noted on a site facility map and identified with GPS coordinates;

XVIII.A.1.b. may be augmented by additional sampling locations as needed, based on the results of the surface water sampling program, and to ensure potential impacts from groundwater to surface water are identified;

XVIII.A.1.c. shall be permanently marked or flagged at the nearest shore to allow easy identification; and

XVIII.A.1.d. shall include at least four sampling locations down gradient of Surface Impoundment Pond D; at least four sampling locations down gradient of Surface Impoundment Pond E; and at least four sampling locations down gradient of the Surface Impoundments Ponds A, B, and C. A single location may be included for more than one CCR unit so long as at least twelve locations are identified.

XVII.A.2. Sampling locations which do not contain a sufficient surface water column within which to sample will not be required to be re-sampled during the compliance period. However, sampling locations which have insufficient yield for 2 consecutive monitoring periods shall be evaluated for relocation and a new location proposed for approval by the Department.

XVIII.B. SAMPLING ACTIONS

The Permittee shall:

XVIII.B.1. Collect samples from the surface water columns at the designated locations identified in XVIII.A. The samples shall be taken at mid-depth of the water column. Tidal samples shall be collected at low tide if feasible.

XVIII.B.2. Conduct the surface water column sampling actions in a manner equivalent to the QA/QC procedures specified in the most current version of the Department's *Standard Operating Procedures Manual, Water Monitoring and Assessment Program, Section 4.8 - Collection of Trace Elemental Samples (Clean Metals)*, and others as applicable.

XVIII.B.3. Analyze surface water column samples in accordance with methods approved by the Department and performed by a VELAP accredited laboratory.

XVIII.B.4. Provide final results of surface water column samples as dissolved metals.

XVIII.C. SAMPLING FREQUENCY

XVIII.C.1. The Permittee shall, during the closure period, sample surface water following a calendar quarterly schedule.

XVIII.C.2. The length of the quarterly sampling period shall be an interval corresponding to approximately 90 days. For the purposes of scheduling monitoring activities, sampling within 15 days of each 90-day interval will be considered 'quarterly'.

XVIII.C.3. The Permittee shall sample more frequently when requested by the Department.

XVIII.D. SAMPLING CONSTITUENTS

XVIII.D.1. The Permittee shall sample for the following constituents: Antimony, Arsenic, Boron, Cadmium, Chromium (total, III, and VI), Copper, Lead, Mercury, Nickel, Selenium, Silver, Thallium, and Zinc.

XVIII.D.2. Additional indicator and field collection data shall be provided including hardness, pH, and temperature.

XVIII.D.3. Any constituent not listed in XVIII.D.1. that has an exceedance of a Groundwater Protection Standard established in Permit Module XI shall be included.

XVIII.D.4. Any additional constituents or parameters when notified in writing by the Department shall be included.

XVIII.E. DETERMINATION OF APPLICABLE STANDARDS FOR COMPARISON

Sampling results from surface water column testing of the constituents identified in XVIII.D.1. shall be compared to the lowest of the applicable standards established by 9 VAC 25-260-140. For any constituent not listed in XVIII.D.1. that has an exceedance of a Groundwater Protection Standard established in Permit Module XI, the constituent shall be compared to the Groundwater Protection Standard.

XVIII.F. REPORTING REQUIREMENTS

XVIII.F.1. After each quarterly sampling event, the permittee shall submit a surface water monitoring report under separate cover to the Department no later than 60 days from the completion of sampling and analysis unless as allowed under a director-approved extension. The surface water monitoring report shall include:

XVIII.F.1.a. signature page certifying the results by a facility representative;

XVIII.F.1.b. facility name and permit number;

XVIII.F.1.c. statement noting whether or not all sampling locations were sampled and if so, the reason a sample was not obtained or reported. If the sampling location did not contain sufficient water column for sampling, a statement noting the number of occurrences of lack of sufficient water column and, based upon the number of occurrences, a new proposed sampling location; and

XVIII.F.1.d. copy of the full Laboratory Analytical Report including dated signature page from laboratory manager or representative.

XVIII.F.2. The Permittee shall retain all surface water monitoring records throughout the closure period. The records shall be retained at the facility, or alternate location approved by the Director, within the facility's operating record and made available to the Department upon request.

XVIII.G. NOTIFICATION REQUIREMENTS

Verified laboratory results indicating surface water column results above a standard identified in XVIII.E shall be submitted to the Director within 30 days of issuance of the laboratory report results.

XVIII.H. REQUIRED ACTIONS

XVIII.H.1. Within 60 days of submitting a notification in XVIII.G., the permittee shall submit a *Surface Water Investigation Report*. The following information shall be assessed in the investigation and discussed in the report:

XVIII.H.1.a. Any error in the collection of the sample that may be identified;

XVIII.H.1.b. Additional conditions and information regarding the surface water at the time of collection;

XVIII.H.1.c. Whether the constituent(s) were detected in groundwater monitoring sampling results;

XVIII.H.1.d. The identified or potential source(s) of the observed impacts, including any potential facility activities;

XVIII.H.1.e. Additional sampling, if any, undertaken by the permittee; and

XVIII.H.1.f. Mitigation action or other actions, if any, undertaken by the permittee.

XVIII.H.2. The permittee, depending on the results of this investigation and as directed by the Department, may be required to conduct additional monitoring, additional source investigation, sampling including interstitial sampling or sediment sampling as feasible, or assessment measures including fish tissue sampling.

XVIII.H.3. The permittee shall submit an action plan for Department review and approval or take other action in accordance with Permit Module XI when required by the Department in response to the *Surface Water Investigation Report*.

XVIII.I. PERMIT DOCUMENTS

The Department-approved *Surface Water Monitoring Plan* shall be placed in the facility's operating record. This *Surface Water Monitoring Plan* shall include at minimum the measures required for the facility to accomplish the monitoring required by this module.

XVIII.I.1 It shall be the responsibility of the Permittee to update this monitoring plan as needed, which may include actions otherwise defined if changes to the monitoring program have taken place since original Plan development.

XVIII.I.2. Should information contained in a Permittee authored ***Surface Water Monitoring Plan*** conflict with any requirement or condition of this Module, the Module condition shall prevail over the language in the Permittee supplied document.

XVIII.I.3 The Permittee shall review and modify the surface water monitoring plan within 30 days of notification of the agency of required/requested modifications.

XVIII.I.4. When the Permittee recognizes a failure to submit any relevant facts or has submitted incorrect information in any surface water monitoring report to the Director, he shall, within 7 days, submit such omitted facts or the correct information with a full explanation.

XVIII.J. LIMITATIONS/AUTHORITIES

The surface water monitoring and reporting requirements set forth herein are minimum requirements. The Director may require, by amending the Permit, any owner or operator to maintain a surface monitoring system and program that contains requirements more stringent than those of the Regulations and in this current permit module whenever it is determined that such requirements are necessary. Nothing in this permit module limits the Director or the Department from requiring additional actions consistent with applicable laws and regulations.

Appendix B

Groundwater Surface Contour Maps
(Golder Associates, Inc. 2019)

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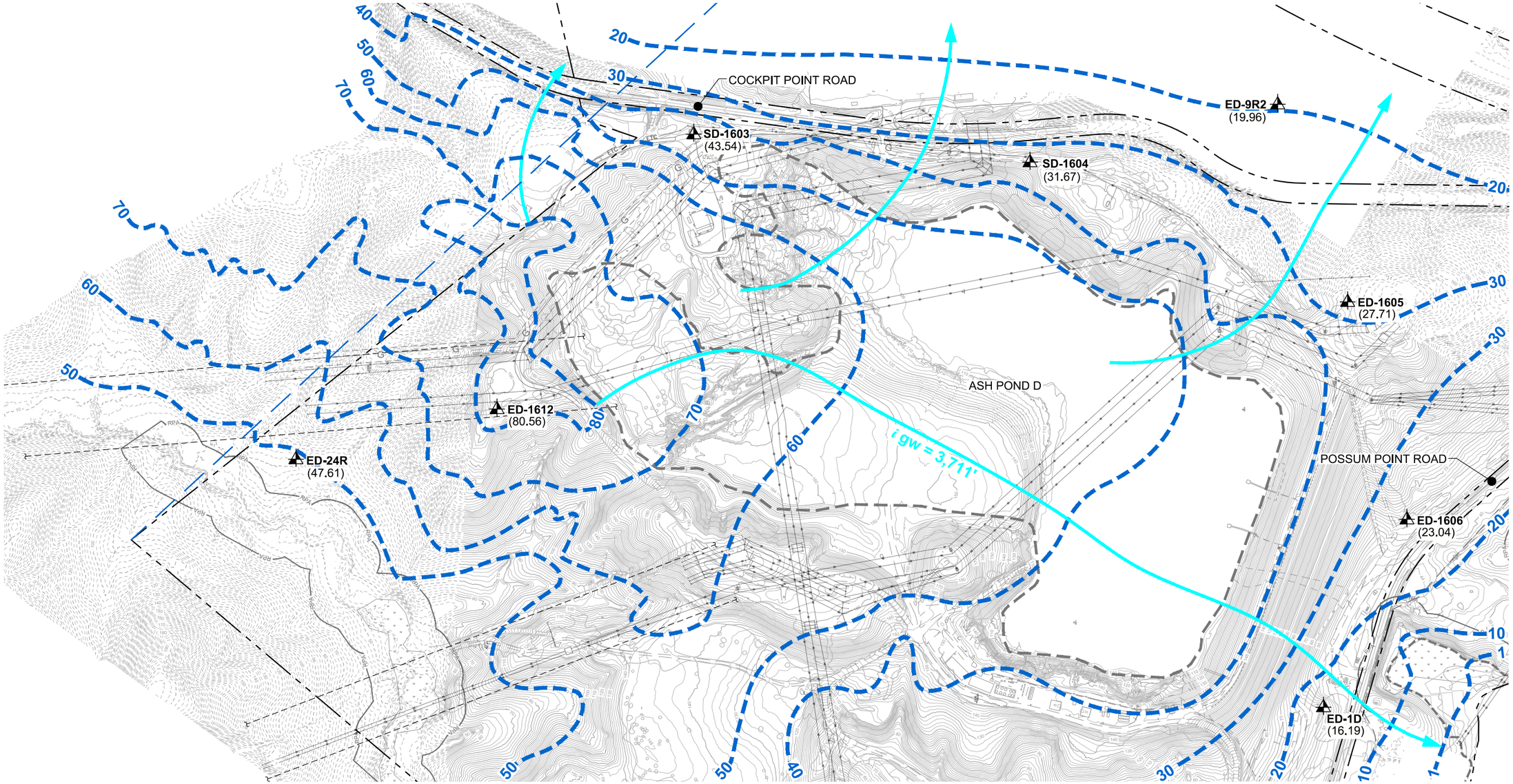

LEGEND

	PROPERTY BOUNDARY
100	EX. TOPOGRAPHIC CONTOURS (2' INTERVALS)
	WETLAND
RPA	RESOURCE PROTECTION AREA BOUNDARY
	100-YEAR FLOOD PLAIN
	ASH POND LIMITS
ED-1606 (23.04)	EX. GROUNDWATER MONITORING WELL (POND D CCR)
	STATIC GROUNDWATER LEVEL ELEVATION [FEET ABOVE MEAN SEA LEVEL (AMSL)]
50	GROUNDWATER SURFACE CONTOUR (FEET AMSL)
	APPROXIMATE GROUNDWATER FLOW PATHWAY USED TO CALCULATE HYDRAULIC GRADIENT
i gw = 3,711'	GROUNDWATER PATH LENGTH (FEET)

NOTES

1. EXISTING CONDITIONS COMPILED BY MCKENZIE SNYDER, INC., USING PHOTOGRAMMETRIC METHODS, FROM AERIAL PHOTOGRAPHY DATED APRIL 28, 2017.
2. STATIC WATER LEVELS MEASURED ON MARCH 19, 2018.
3. GROUNDWATER CONTOURS BASED ON LINEAR INTERPOLATION BETWEEN AND EXTRAPOLATION FROM KNOWN DATA, TOPOGRAPHIC CONTOURS, AND KNOWN FIELD CONDITIONS. THEREFORE, GROUNDWATER CONTOURS MAY NOT REFLECT ACTUAL GROUNDWATER CONDITIONS.
4. GROUNDWATER CONTOUR LINES SHOW THE WATER TABLE SHAPE AND ELEVATION. THESE CONTOURS ARE INFERRED LINES FOLLOWING THE GROUNDWATER SURFACE AT A CONSTANT ELEVATION ABOVE SEA LEVEL. THE GROUNDWATER FLOW DIRECTION IS GENERALLY PERPENDICULAR TO THE GROUNDWATER SURFACE CONTOURS, SIMILAR TO THE RELATIONSHIP BETWEEN SURFACE WATER FLOW AND TOPOGRAPHIC CONTOURS.

400 0 400
SCALE FEET

YYYY-MM-DD	2018-10-31
DESIGNED	ALR
PREPARED	ABR
REVIEWED	ALR
APPROVED	MGW

CLIENT
DOMINION ENERGY

CONSULTANT
GOLDER

PROJECT
POSSUM POINT POWER STATION
ASH POND D CCR
GROUNDWATER SAMPLING EVENT

TITLE
GROUNDWATER SURFACE CONTOUR MAP
MARCH 19, 2018

PROJECT NO.
17-8975418

REV. 0
DRAWING 2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

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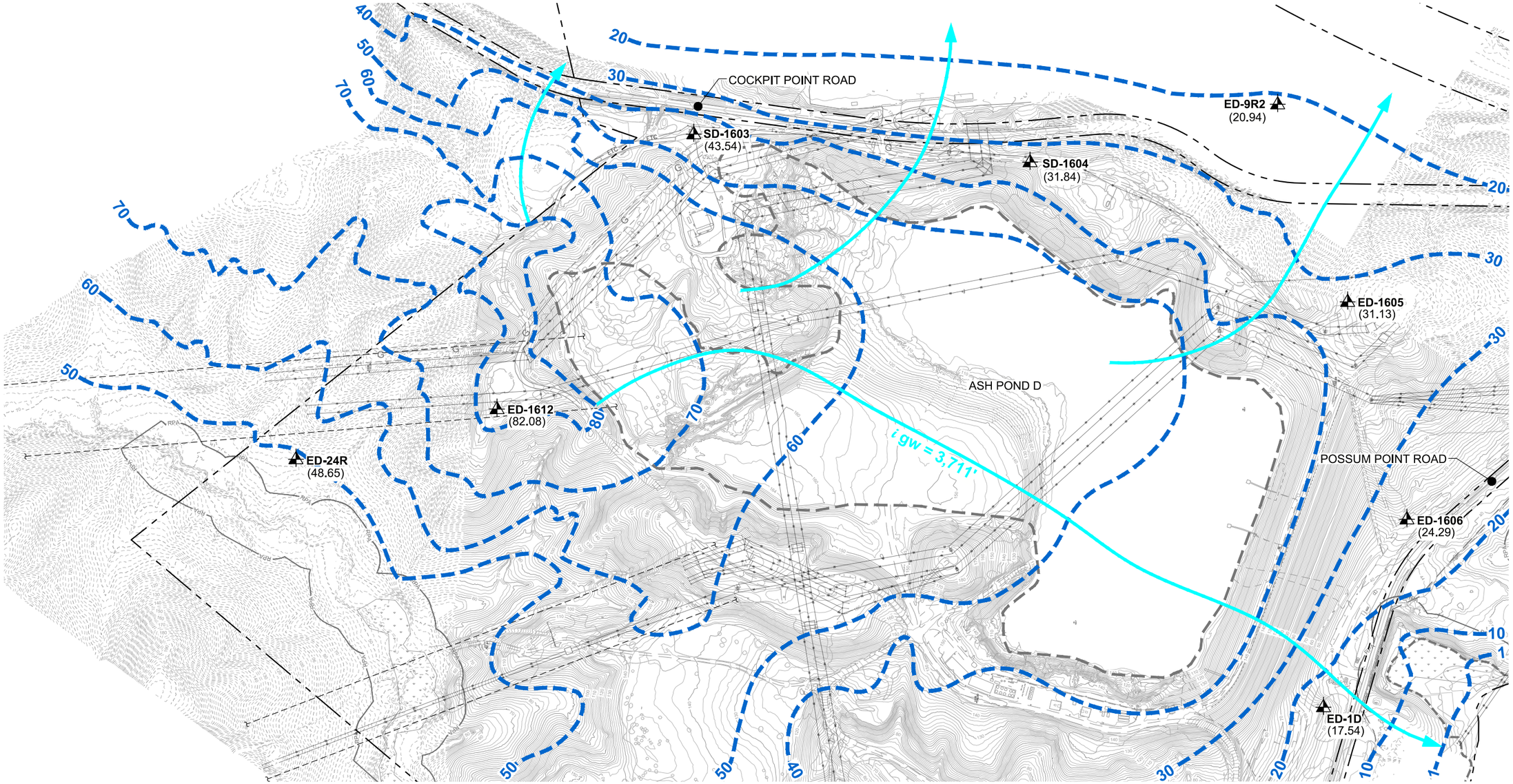

LEGEND

	PROPERTY BOUNDARY
100	EX. TOPOGRAPHIC CONTOURS (2' INTERVALS)
	WETLAND
RPA	RESOURCE PROTECTION AREA BOUNDARY
	100-YEAR FLOOD PLAIN
	ASH POND LIMITS
ED-1606 (24.29)	EX. GROUNDWATER MONITORING WELL (POND D CCR) STATIC GROUNDWATER LEVEL ELEVATION [FEET ABOVE MEAN SEA LEVEL (AMSL)]
50	GROUNDWATER SURFACE CONTOUR (FEET AMSL)
	APPROXIMATE GROUNDWATER FLOW PATHWAY USED TO CALCULATE HYDRAULIC GRADIENT
i gw = 3,711'	GROUNDWATER PATH LENGTH (FEET)

NOTES

1. EXISTING CONDITIONS COMPILED BY MCKENZIE SNYDER, INC., USING PHOTOGRAMMETRIC METHODS, FROM AERIAL PHOTOGRAPHY DATED APRIL 28, 2017.
2. STATIC WATER LEVELS MEASURED ON JUNE 18, 2018.
3. GROUNDWATER CONTOURS BASED ON LINEAR INTERPOLATION BETWEEN AND EXTRAPOLATION FROM KNOWN DATA, TOPOGRAPHIC CONTOURS, AND KNOWN FIELD CONDITIONS. THEREFORE, GROUNDWATER CONTOURS MAY NOT REFLECT ACTUAL GROUNDWATER CONDITIONS.
4. GROUNDWATER CONTOUR LINES SHOW THE WATER TABLE SHAPE AND ELEVATION. THESE CONTOURS ARE INFERRED LINES FOLLOWING THE GROUNDWATER SURFACE AT A CONSTANT ELEVATION ABOVE SEA LEVEL. THE GROUNDWATER FLOW DIRECTION IS GENERALLY PERPENDICULAR TO THE GROUNDWATER SURFACE CONTOURS, SIMILAR TO THE RELATIONSHIP BETWEEN SURFACE WATER FLOW AND TOPOGRAPHIC CONTOURS.

400 0 400
SCALE FEET

YYYY-MM-DD	2018-10-31
DESIGNED	ALR
PREPARED	SBF
REVIEWED	ALR
APPROVED	MGW

CLIENT
DOMINION ENERGY

CONSULTANT
GOLDER

PROJECT
POSSUM POINT POWER STATION
ASH POND D CCR
GROUNDWATER SAMPLING EVENT

TITLE
GROUNDWATER SURFACE CONTOUR MAP
JUNE 18, 2018

PROJECT NO.
17-8975418

REV. 0
DRAWING 3

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

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