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MEMORANDUM

To: Nate Benforado, Southern Environmental Law Center
From: Anthony Brown, **aquilogic**, Inc.
Lee Paprocki, **aquilogic**, Inc.

Subject: Review of Groundwater Conditions
Ash Pond D at the Possum Point Power Station
Project No.: 019-08

Aquilogic, Inc. (**aquilogic**) has been retained by Southern Environmental Law Center (SELC) to provide expert consultation and analysis in connection with the Ash Ponds located at the Dominion Possum Point Power Station in Dumfries, Virginia (the Site) (**Figure 1**). The Possum Point Power Station is located at 19000 Possum Point Road, Dumfries, Prince William County, Virginia. The scope of this phase of work was to evaluate groundwater and contaminant conditions at the Site, and how a closure plan following a cap-in-place approach would affect those conditions. As part of the evaluation we addressed the following questions:

1. Is groundwater within the ash ponds at the Site in direct hydrologic connection with surface waters, including Quantico Creek?
2. Is groundwater at the Site in contact with coal combustion residuals (CCR) or coal ash waste placed in Ash Pond D?
3. Is the coal ash waste in the Ash Pond D contaminating groundwater?
4. Does coal ash waste pollution in groundwater discharge to surface waters, including Quantico Creek?
5. Is surface water at the Site in direct contact with coal ash waste?
6. Will capping of Ash Pond D prevent the continued contamination of groundwater at Ash Pond D?
7. Will capping of Ash Pond D prevent the discharge of contaminated groundwater to the surface water in Quantico Creek?

Our understanding, based on AECOM (2017), is that most of the CCR waste in Ash Ponds A, B, C, and E has already been removed to Ash Pond D. According to AECOM, approximately 40,000 cubic yards of coal ash remains in Ash Ponds A, B, and C, and this will be relocated to Ash Pond D (AECOM, 2017). According to AECOM, approximately 2,500 cubic yards of coal ash remains in Ash Pond E and this will be relocated to Ash Pond D.

Thus, all coal ash waste at the Site will be consolidated at Ash Pond D. Therefore, our evaluation will focus mainly on Ash Pond D. However, it should be noted that groundwater beneath Ash Ponds A, B, C, and E in the natural hydrogeologic strata (Terrace Deposits) is highly contaminated with constituents from the coal ash waste in these ponds. Even with removal of the coal ash waste from the Ash Ponds A, B, C, and E, the residual contaminated groundwater will continue to discharge from the natural hydrogeologic strata beneath the ponds into Quantico Creek. Dominion needs to perform additional analysis to evaluate the vertical and horizontal extent of contamination under these ponds, estimate the duration over which this continued discharge will occur, and consider whether additional remediation is necessary.

SUMMARY OF EVALUATION

1. Is groundwater at the Site in direct hydrologic connection with surface waters, including Quantico Creek?

Yes. Groundwater is present in Ash Pond D at higher elevations than Quantico Creek, Beaver Pond, and the Potomac River. The groundwater potentiometric surface (i.e., groundwater table for a water table aquifer) in the vicinity of the Ash Pond D is present at approximately 31.41 to 43.62 feet above mean sea level (MSL) (AECOM, 2017, Figure 30). Based upon linear interpolation of tide heights between two NOAA harmonic stations located upstream (NOAA 8594900) and downstream (NOAA 8635150) of the Site, the elevations of the river and other surface waters adjacent to the ash ponds vary from a high (mean higher high water) of approximately 1.30 feet above mean sea level (MSL) to a low (mean lower low water) of -1.26 feet below MSL. Groundwater will flow from higher total head to lower total head; thus, from the ash ponds to the adjacent surface waters.

Groundwater flows to the south, southeast, and southwest through and beneath the coal ash waste, before discharging to the Quantico Creek. Consultants to Dominion noted that groundwater flowed south toward Quantico Creek where it discharged into the creek (URS, 2004).

Therefore, given the above, groundwater beneath the Site is in direct hydrologic connection with the surrounding surface waters, notably Quantico Creek.

2. Is groundwater at the Site in contact with coal ash waste placed in Ash Pond D?

According to consultants to Dominion, the base of Ash Pond D is approximately 0 feet above MSL (**Appendix B**). The potentiometric groundwater surface in Ash Pond D is at least 31.41 feet above MSL and potentially up to 70 feet above MSL (AECOM, 2017, **Figure 2**). Thus, groundwater within Ash Pond D is in contact with the lower 31 feet and possibly 70 feet of coal ash waste.

In 1988, a slurry wall was reportedly installed around the existing coal ash waste in Ash Pond D down to an underlying clay layer. The installation of the slurry wall was only noted briefly in a contractor Quality Control Report. We have not identified any documents that detail the installation of the slurry wall, and some suggest that it was not installed.

Even if the slurry wall was installed, elevated concentrations of contaminants of concern (COC) are still being detected in groundwater down-gradient of Ash Pond D, 30 years after purported installation (**Figure 4** and AECOM, 2017, Tables TM6-21 to TM6-23). In addition, it has been reported that "*Ash Pond D construction information and historic well and pond level data indicate that the down gradient wells have historically been influenced during hydraulic dredging events (1989 and 1995)*" (Dominion, 2013, pg 1). Thus, the influence of the pond water level on the Site monitoring wells indicates that the pond is in hydraulic communication with groundwater down-gradient of Ash Pond D, past the date of slurry wall installation. In other words, even if installed, the slurry wall is not performing its primary function since the data shows a clear hydraulic communication between Ash Pond D and surrounding groundwater.

Therefore, given the above, groundwater at the Site is in contact with coal ash waste placed in Ash Pond D. Groundwater exists within the coal ash waste at Ash Pond D. Groundwater up-gradient of Ash Pond D flows into, through, and out of Ash Pond D. In addition, direct precipitation at Ash Pond D currently infiltrates, percolates, and recharge groundwater in the pond.

3. Is the coal ash waste in the Ash Pond D contaminating groundwater?

Yes. Constituents in the coal ash waste dissolve into groundwater within and flowing through Ash Pond D that thence flows out of the ash pond and discharges at adjacent surface waters. In addition, constituents in the coal ash waste above the groundwater table dissolve into percolating water that recharges and further contaminates groundwater. The constituents in coal ash waste detected in groundwater above background levels are referred to herein as COCs. The following COCs have been detected down-gradient of Ash Pond D: arsenic, boron, cadmium, calcium, chloride, cobalt, hardness, iron, lithium, manganese, nickel, phenol, sodium, sulfate, total dissolved solids (TDS), and zinc. Therefore, coal ash waste in the ash ponds is contaminating groundwater.

4. Does coal ash waste pollution in groundwater discharge to surface water in the Quantico Creek?

Yes. Groundwater contaminated with constituents from the coal ash waste in Ash Pond D (see **Question 3**) flows with groundwater (see **Question 1**) and discharges to adjacent surface water, including Quantico Creek. This discharge likely occurs via seeps in the ash pond dam, seeps on the stream banks, and as bed-seepage through stream bed sediments. Therefore, coal ash waste pollution in groundwater does discharge to surface water in the Quantico Creek.

5. Is surface water at the Site in direct contact with coal ash waste?

Yes. As shown in **Figure 2**, standing water is ponded on the southern part of Ash Pond D adjacent to the dam. This ponded water is in direct contact with coal ash waste and is in direct hydrologic connection with the underlying groundwater in the coal ash waste. Therefore, surface water in the Ash Pond D is in direct contact with coal ash waste.

6. Will the capping of Ash Pond D prevent the continued contamination of groundwater at Ash Pond D?

No. Under a "Cap-in-Place" scenario, groundwater will continue to flow through Ash Pond D from the north (up-gradient) and constituents in the coal ash waste will continue to dissolve into the flowing groundwater**.** In addition, some infiltration (albeit reduced by the capping of Ash Pond D) will continue to percolate through the coal ash waste and recharge groundwater. Constituents in the coal ash waste above groundwater will dissolve into this percolating water, as detailed in **Question 3**. The continued dissolution of coal ash waste constituents into groundwater and percolating water will result in concentrations of COCs in groundwater beneath and down-gradient of Ash Pond D above background levels. Therefore, capping in place will not prevent the continued contamination of groundwater at Ash Pond D.

As noted, groundwater is in direct contact with coal ash waste at Ash Pond D. This condition will persist even after implementation of the proposal cap-in-place closure plan. According to the Electric Power Research Institute (EPRI), a utility industry trade group, "*Caps are not effective when CCP (*coal combustion product*) is filled below the water table, because groundwater flowing through the CCP will generate leachate even in the absence of vertical infiltration through the CCP*" (EPRI, 2006, pg. 3-6).

7. Will capping Ash Pond D prevent the discharge of contaminated groundwater to Quantico Creek?

No. As mentioned in **Question 6**, groundwater will continue to flow to the southwest within and beneath the coal ash waste in Ash Pond D. In addition, as also mentioned in **Question 6**, constituents within the coal ash waste will continue to dissolve into and pollute the groundwater flowing through and below the Ash Pond D. The hydraulic head in Ash Pond D will still be significantly higher than water in the Quantico Creek. Even after capping, given the hydraulic head conditions, contaminated groundwater will flow through the coal ash waste to the southwest and discharge to Quantico Creek. Given the volume of coal ash waste in Ash Pond D, the discharge of contaminated groundwater to Quantico Creek will continue for many decades and perhaps centuries. Therefore, capping Ash Pond D will not prevent the continued discharge of contaminated groundwater to Quantico Creek and potentially the Potomac River.

SITE DESCRIPTION

The Site covers approximately 650 acres and is located in Northeastern Virginia in eastern Prince William County. The Site is situated on the west bank of the Potomac River to the west of the state boundary with Maryland (**Figure 1**). The actual power station is located on a peninsula that separates Quantico Creek from the Potomac River, as shown on **Figure 2**. The Site is bounded by the Potomac River to the east and Quantico Creek to the south and southwest. The land to the north of the Site is partly developed and is zoned "planned mixed residential" (Groundwater and Environmental Services, Inc. [GES], 2013).

The power plant began operations in 1955 by burning coal to produce electricity. Coal ash waste has been placed on the Dominion property in various coal ash settlement ponds. As a requirement of the Virginia Pollution Discharge Elimination System (VPDES) Permit VA0002071, Dominion has conducted groundwater monitoring at the Site since 1985. Dominion stopped using coal-fired power generation units at the Site in March 2003, and continues to operate using natural gas as a fuel source.

ASH POND INFORMATION

Ash Ponds A, B, and C were located at the Site on land between Possum Point and Quantico Creek (**Figure 2**). According to Dominion (2014), approximately 170,000 cubic yards of coal ash was deposited into these three unlined ponds and the ash pond complex covers approximately 12 acres. A Dominion representative stated that coal ash was deposited in all three ponds starting with "A", moving to "B", and then to "C", as the ponds filled (VDEQ, 2014).

The berm wall for Ash Ponds A, B, and C was one continuous wall and had a downward slope to Quantico Creek. During a site visit, the VDEQ noted that the toe of the berm appeared to have seepage along all three ash ponds (VDEQ, 2014). In addition, the VDEQ identified a breach of the berm associated with Ash Pond A that was approximately five feet wide by six feet deep in which water was discharging to a heavily vegetated area prior to discharge to Quantico Creek. VDEQ noted the discharge was likely a combination of surface drainage and seepage through the berm. Water from Ash Pond C discharged through Outfall #S104 to Quantico Creek. Most of the coal ash waste from Ponds A, B, and C has been removed and consolidated in Ash Pond D, as part of Dominion's overall closure plan. According to AECOM, approximately 40,000 cubic yards of coal ash remains in Ash Ponds A, B, and C, and this will be relocated to Ash Pond D (AECOM, 2017).

Ash Pond D was created by constructing a dam along the southern border of a natural watershed for a tributary to Quantico Creek. According to Dominion (2014), the "original" Ash Pond D was being used by 1966. In the late 1980s, Ash Pond D was rehabilitated and reconstructed into a long-term ash repository pond that received ash dredged from Ash Pond E, as well as other solid materials, such as dredged river materials from off-site. Ash Pond D has a surface area of 72 acres, a maximum depth of 120 feet, and a volume of over 1 billion gallons (based on a storage capacity of 3,250 acre-feet or 5 million cubic yards) (URS, 2004).

In 1988, a slurry wall was reportedly installed around the existing coal ash waste in Ash Pond D down to an underlying clay layer - Stratum E. The installation of the slurry wall was only noted briefly in a contractor Quality Control Report. We have not identified any documents that detail the installation of the slurry wall, and some suggest that it was not installed.

If installed, in theory, the slurry wall should hydraulically isolate the existing coal ash waste from groundwater in Stratum D. However, elevated concentrations of COCs are still being detected in groundwater down-gradient of Ash Pond D, 30 years after the slurry wall was purportedly installed (**Figure 4** and AECOM, 2017, Tables TM6-21 to TM6-23). In addition, it has been reported that "*Ash Pond D construction information and historic well and pond level data indicate that the down gradient wells have historically been influenced during hydraulic dredging events (1989 and 1995)*" (Dominion, 2013, pg 1). Thus, the influence of the pond water level on the Site monitoring wells indicates that the pond is in hydraulic communication with groundwater down-gradient of Ash Pond D, past the date of slurry wall installation. In other words, the slurry wall does not appear to be performing its primary function since the data shows a clear hydraulic communication between Ash Pond D and the surrounding groundwater. Therefore, the slurry wall does not hydraulically contain the CCR in Ash Pond D. Since the slurry wall is 30 years old, reports of periodic testing of the competency of the slurry wall would be expected; however, documentation of such reports have not been located.

Also in 1988, a sidewall liner composed of clay was reportedly installed along the upper sidewalls of Ash Pond D from an elevation of 80 to 140 feet above mean sea level (MSL) (GES, 2013). The effectiveness of the sidewall liner may have been compromised over the years as GAI Consultants (2016a) noted that several sloughing events have occurred at Ash Pond D due to heavy rainfall events in 1989 and 2011. The resulting investigations revealed the "*potential presence of a perched water table in the surficial clayey embankment cover soils*" and vertical sloughing to a depth of five feet below the slope face (GAI Consultants, 2016a, pg 6). The failure was "*likely a result of development of a network of fissures, often seen in embankments of plastic clays due to freeze-thaw cycles*" (GAI Consultants, 2016a, pg 6). While specific repairs were completed, the existence of the fissures raises larger concerns about the long-term effectiveness of the clay liner, including whether such fissures are likely to reoccur.

In October 2016, GAI Consultants submitted a report on behalf of Dominion entitled "Coal Combustion Residuals Liner Documentation". This report is a certified "Statement of Professional Opinion" posted on Dominion's website in order to comply with CCR Rule disclosure requirements. In this report they stated, "*Surface Impoundment D was designed and constructed with a groundwater protection system that utilizes in-situ clays, a slurry cutoff wall, and a constructed one-foot-thick clay liner. However, this groundwater protection system does not meet the minimum thickness required by the liner design criteria for existing CCR surface impoundments stated in the CCR Rule. Therefore, it is GAI's determination that Surface Impoundment D was not constructed with a liner meeting the requirements of CCR Rule § 257.71(a)(1)*" (GAI Consultants, 2016b, pg. 1). According to CCR Rule § 257.71 the liner needs to be a minimum of two feet thick.

Despite GAI Consultants' review of the 1 foot thick sidewall liner, AECOM is now incorrectly claiming that the liner consists of 2 feet of low permeability clay (AECOM, 2017). AECOM is also incorrectly claiming that the slurry wall and the sidewall liner isolate the coal ash from groundwater flow, despite evidence to the contrary, as noted above (AECOM, 2017). It should be noted that the 2016 Closure Plan, another official document posted by Dominion on its CCR Rule disclosure website, did not state that Ash Pond D contained a slurry wall (GAI Consultants, 2016d).

Ash Pond E was a 40-acre unlined settling basin which formerly functioned as the primary settling pond for fly and bottom ash (URS; 2004). Ash Pond E was created in 1967 by constructing a dike, approximately 3,000 feet long, in the area west of Ash Pond D. The L-shaped dike had a maximum height of about 30 feet and ran approximately parallel to Possum Point Road on the south and to Beaver Pond, a tributary to Quantico Creek, on the west (URS, 2004). The maximum depth of Ash Pond E was 40 feet (USEPA, 2010). Ash Pond E had a design capacity of approximately 1 million tons of fly and bottom ash, a volume of 260 million gallons, and an average discharge rate to Beaver Pond of approximately 2.58 million gallons per day (MGD) (URS, 2004). Beaver Pond is part of an unnamed tributary to Quantico Creek and is in direct hydraulic communication with Quantico Creek. The location of Ash Pond E is shown on **Figure 2**.

Ash Pond E received water discharges from the following: Outfall #501 (Metals Cleaning Pond), Outfall #502 (Oily Waste Pond), decanted water from Ash Pond D, untreated Potomac River water, and storm water runoff. Excess water from Ash Pond E directly discharged into Beaver Pond through Outfall #005. Ash Pond E was used until 2003 (AECOM, 2017). In 2015 and 2016, coal ash waste was removed from Pond E and deposited into Pond D. According to AECOM, approximately 2,500 cubic yards of coal ash remains in Ash Pond E and this will be relocated to Ash Pond D.

SITE SURFACE WATER HYDROLOGY

The Site is in the Chesapeake Bay watershed. The Chesapeake Bay watershed covers 65,000 square miles and includes more than 150 rivers and streams (USDA, 2017). Located along the southwest border of the Site, Quantico Creek flows to the southeast, and is a tributary of the Potomac River (**Figure 2**). Quantico Creek is considered tidal freshwater with a reported tidal range of approximately 1.5 feet (AECOM, 2017). Beaver Pond, which is located west of Ash Pond E is a tributary to Quantico Creek (**Figure 2**). "*Beaver Pond flows into Quantico Creek through a culvert under Possum Point Road*" (AECOM, 2017, pg. 5-2). The Potomac River forms the eastern border of the Site and is a tidal river that flows into Chesapeake Bay (AECOM, 2017). Tidal charts indicate that the Potomac River fluctuates an average of 2.6 feet between regular high and low tides adjacent to the Site (USGS, 2018). Based upon linear interpolation of tide heights between two NOAA harmonic stations located upstream (NOAA 8594900) and downstream (NOAA 8635150) of the Site, the elevations of the river and other surface waters adjacent to the ash ponds vary from a high (mean higher high water) of approximately 1.30 feet above mean sea level (MSL) to a low (mean lower low water) of -1.26 feet below MSL.

Ash Pond D was constructed within the natural watershed of another tributary of Quantico Creek. This natural watershed extends from Quantico Creek upstream through Ash Pond D, and about 1,000 feet beyond Ash Pond D to the north. Much of this natural watershed is now infilled with coal ash waste.

HYDRO-STRATIGRAPHY

The movement of groundwater depends in part on the hydro-stratigraphy beneath the Site. The Site geology consists of one small remnant of Miocene Upland Deposits overlying the Paleocene Aquia Formation. The Aquia Formation is underlain by the very light gray to pinkish-gray feldspathic quartz sands and interbedded green sand clays/silts of the Cretaceous Potomac Formation (Mixon, 1972). Younger, Quaternary Terrace deposits (Terrace deposits) line both the Quantico Creek and the Potomac River. The Site geology and cross-section line locations are depicted on **Figure 3**. Cross-sections by GAI (February 1987), GAI (April 1987), and GES (2013) are presented in **Appendices A, B,** and **C**, respectively.

Aquifers beneath the Site are generally limited to the Lower, Middle, and Upper Potomac Aquifers based on the Hydrologic Framework of the Virginia Coastal Plain (Meng, 1988). The confining unit for the Middle Potomac Aquifer is reported as +0 to 20 feet thick in the vicinity of the Site (Meng, 1988) and may be present from 70 to 80 feet above MSL. The Middle Potomac Aquifer is reportedly present from approximately 70 feet above MSL to 210 feet below MSL. At the base of the Middle Potomac Aquifer is an approximate 40 foot-thick confining unit. The confined Lower Potomac Aquifer is reportedly present from approximately 250 feet below MSL to the basement complex at 400 feet below MSL (Meng, 1988). Beneath the Ash Ponds A, B, C and E, the upper aquifer is composed of Quaternary Terrace deposits, which are encountered between approximately 0 and 25 feet MSL (**Appendix A**).

Previous consultants to Dominion designated the following six Site strata (A through F):

- The Upland Deposits, Aquia Formation, and part of the Upper Potomac Formation correlates to Stratum A, which is unsaturated.
- Stratum B correlates to the lower part of the Upper Potomac Aquifer in the Coastal Plain of Virginia. However, at the Site, groundwater occurring in Stratum B is localized, discontinuous, and appears to be "perched" above the Middle Potomac confining unit (Stratum C).
- The confining layer of the Middle Potomac Aquifer appears to correlate to Stratum C based on relative occurrence and elevation.
- The upper coarse-grained unit of the Middle Potomac Formation and the upper extent of the Middle Potomac Aquifer appear to be designated as Stratum D and represent first contiguous, site-wide groundwater. In the vicinity of Ash Ponds A, B, C, and E, the Terrace Deposits, while differing in age and slightly in lithologic character from the Middle Potomac Aquifer, are in hydraulic communication with, and coincident in elevation with Stratum D. Therefore, the Terrace Deposits are also referred to as Stratum D.
- Stratum E is designated as an aquitard and is composed of silty clay with fine sand layers. Stratum E is generally 20 to 30 feet in thickness and is encountered at a depth between approximately -10 to -20 feet MSL. The occurrence of an aquitard will limit, but not prohibit, the communication of water between overlying Stratum D and the underlying coarser-grained sediments of Stratum F.
- Stratum F is composed of coarse-grained sediments and is part of the Middle Potomac Formation.

At Ash Ponds A, B, C, and E, coal ash waste has been placed within the Terrace Deposits in Stratum D (**Figure 3** and **Appendix A**). At Ash Pond D, coal ash waste has been placed within Strata C and D and directly above Strata E of the Potomac Formation (**Appendices B** and **C).** With ongoing recharge, groundwater elevations have risen, and groundwater is present within the coal ash waste. At Ash Ponds A, B, C, and E, coal ash waste was present between approximately 0 and 25 feet above MSL (**Appendix A**), and groundwater is present at approximately 3 to 25 feet above MSL (AECOM, 2017, **Figure 2**). There are currently no monitoring wells installed within the ash ponds, therefore the groundwater levels are based on both wells in close proximity to the ponds and the potentiometric surface created by AECOM (**Figure 2**). At Ash Pond D, coal ash waste prior to initiating closure activities was present between 0 and 60 feet above MSL (Appendix C). With additional coal ash being added to Ash Pond D, coal ash is likely present at elevations above 60 feet MSL, potentially as high as 100 feet

MSL based on AECOM's Site Topography Figure TM6-10 (2017). Groundwater in close proximity to Ash Pond D is present at 31.41 to 43.62 feet above MSL (**Figure 2**). However, groundwater in Ash Pond D may be as high as 70 feet MSL, as indicated in AECOM's potentiometric figure (**Figure 2**).

GROUNDWATER FLOW AND DISCHARGE TO SURFACE WATER

Groundwater at the Site flows from areas of higher elevation in the north to Quantico Creek within the coarser-grained stratum of the Middle Potomac Aquifer (Stratum D and F). Groundwater elevation data collected at monitoring wells installed at the Site confirm this pattern and URS stated in the 2004 Site Characterization Report, "*The primary environmental receptor for groundwater associated with Ash Pond D and Ash Pond E is Quantico Creek located approximately 400 to 1,400 feet south of the Site. Groundwater flows south from the site toward Quantico Creek where it discharges into the creek.*"

The following summarizes the analysis and interpretation of groundwater flow in Site Strata B, D, and F, based on 2004 Site data:

Stratum B: Groundwater flow within Stratum B is likely to the south. Historically, groundwater in Stratum B to the north of Ash Ponds D and E would discharge to these unlined ponds. Subsequently, a sidewall clay liner was placed around Ash Pond D where the pond contacts Stratum B between 80 to 140 feet above MSL. This sidewall liner would reduce, but not totally eliminate, the discharge of groundwater to the pond or seepage of pond water into Stratum B. Groundwater in Stratum B to the north of Ash Pond D would also be diverted around the pond. To the south of Ash Pond D, groundwater in Stratum B would likely discharge as seeps along slopes where the contact between Stratum B and Stratum C daylights. Given the limited groundwater in Stratum B, these seeps would only appear as areas of damp ground rather than springs.

Stratum D: Groundwater flow in Stratum D is toward the south and southwest and discharges to Quantico Creek. The base of Ash Ponds D and E are located within this Stratum, and localized flow conditions are likely influenced by seepage from these ponds. As noted, groundwater in Stratum D associated with Ash Pond D discharges to Quantico Creek. Groundwater in Stratum D associated with Ash Pond E will discharge to Beaver Pond and Quantico Creek and/or may be drawn into private water supply wells located west of Beaver Pond (**Figure 4**). Of note, groundwater in Stratum D may discharge to the shallow private well PW-15 which is installed to 30 feet bgs. The ground surface elevation in the vicinity of PW-15 is about 20 feet above MSL indicating that PW-15 is installed to 10 feet below MSL; that is, in Stratum D. Based upon the observed groundwater elevation differences at monitoring wells screened discretely in Stratum D and Stratum F, a downward vertical hydraulic gradient exists; however, leakage through Stratum E to Stratum F is likely minimal. To the west of Ash Pond E, leakage likely increases as a result of pumping at deeper private water supply wells further to the west.

Stratum F: Groundwater flow within Stratum F is likely to the south and possibly southeast. Given the elevation of Stratum F, groundwater in this unit likely flows at depth beneath the bottom of Quantico Creek, and there is limited discharge to (or recharge from) Quantico Creek to this unit. However, there may be discharge of groundwater from Stratum F to the Potomac River, where river depths exceed 30 feet. To the west of the Site, additional private water supply wells are likely screened within Stratum F. Therefore, groundwater flow within Stratum F on the western part of the Site (i.e. west of Ash Pond D) may be influenced by pumping at private water wells.

In 2017, AECOM noted that groundwater flow tends to mimic the topography "*of the pre-construction ground surface, flowing in a downhill direction because of the dynamic of flow from upland recharge areas to lowland discharge. In Ash Pond D area, this direction is generally to the southwest*" (AECOM, 2017, pg 5-3). In the vicinity of Ash Ponds A, B, C, and E, AECOM noted that the groundwater flow in the Terrace Deposits was to the southwest from the upland area to the lowland area (AECOM, 2017).

GROUNDWATER AND SURFACE WATER CONTAMINATION

Groundwater Contamination

Precipitation falling on the ash ponds percolates through the coal ash waste and recharges groundwater. Constituents in the coal ash waste dissolve into the percolating water and further contaminate groundwater. Groundwater in Stratum D up-gradient of Ash Pond D flows into and through Ash Pond D. Thus, groundwater at the Site is in contact with coal ash waste in the Ash Ponds. As this contact occurs, constituents of coal ash waste, such as arsenic, dissolve into the flowing groundwater. Given the difference in hydraulic head between groundwater in Ash Pond D (up to 70 feet above MSL) and elevation of the water in Quantico Creek (at MSL, with tidal fluctuations), groundwater in Ash Pond D will flow to the south and southwest and discharge to Quantico Creek.

AECOM noted that "*several dissolved metals and anions were historically (2001 through 2010) greater than background levels established under the VPDES program to the south and east of Pond D, and to the south and southwest of Pond E*" (AECOM, 2017, pg. 5-4).

In 2013, groundwater sampling results from monitoring wells down-gradient of the Ash Ponds exceeded either the maximum contaminant level (MCL) or the Virginia Groundwater Quality Standard (VGQS) for the following constituents: cadmium, chloride, hardness, iron, manganese, phenol, sulfate, and zinc (**Figure 4**). Well ED-24R, which monitors Stratum D up-gradient of the

Ash Ponds, is considered to represent background groundwater conditions at the Site. No dissolved metals were detected in the 2013 groundwater sample collected from this well. Therefore, any concentration of a dissolved metal detected above these background concentrations in a groundwater sample collected from other monitoring wells at the Site would be indicative of contamination. It should be noted that some common constituents in CCRs, such as, beryllium, boron, cobalt, total chromium, hexavalent chromium, molybdenum, strontium, thallium, vanadium, and PAHs, were not included in the laboratory analysis.

In 2015 and 2016, many of the existing monitoring wells were destroyed as a result of excavation activities and new monitoring wells were installed. The new monitoring wells are depicted on **Figure 2.** Wells ED-1612, ED-24R, ABC-1602, and ED-26 are considered to represent background groundwater conditions at the Site. No dissolved metals were detected above background levels or MCLs in the 2016 and 2017 groundwater samples collected from these wells. Therefore, any concentration of a dissolved metal detected above these background concentrations in a groundwater sample collected from other monitoring wells at the Site would be indicative of contamination.

In 2016 and 2017, groundwater sampling results from monitoring wells down-gradient of the Ash Ponds exceeded either the MCL or background levels for the following constituents: arsenic, boron, calcium, chloride, cobalt, hardness, iron, lithium, nickel, sodium, sulfate, total dissolved solids (TDS), and zinc (AECOM, 2017, Tables TM6-21 to TM6-23). It should be noted that some common constituents in CCRs, such as hexavalent chromium, beryllium, strontium, and PAHs, were not included in the laboratory analysis.

Ash Ponds A, B, and C

In the vicinity of Ash Ponds A, B, and C, AECOM noted that "*cobalt and lithium have been detected above the preliminary background levels, and arsenic has been detected above the MCL*" (AECOM, 2017, pg 5-5). AECOM also noted that alkalinity, hardness, iron, manganese, nickel, tin, sodium, and total organic carbon (TOC) have been detected in groundwater above background levels down-gradient of Ash Ponds A, B, and C (AECOM, 2017).

Ash Pond D

In the vicinity of Ash Pond D, AECOM noted that alkalinity, boron, calcium, chloride, cobalt, hardness, iron, manganese, lithium, nickel, radium, sulfate, sulfide, sodium, tin, TDS, TOC, and zinc have all been detected in groundwater above background levels (AECOM, 2017). Radium was detected in groundwater (ED-1605) above the MCL during the first round of groundwater sampling in 2016 (AECOM, 2017).

Ash Pond E

In the vicinity of Ash Pond E, AECOM noted that alkalinity, boron, calcium, chloride, cobalt, fluoride, hardness, iron, manganese, nickel, sodium, tin, TDS, TOC, and zinc have all been detected in groundwater above background levels (AECOM, 2017).

AECOM noted that, at the request of the Virginia Department of Environmental Quality (VDEQ), biweekly samples have been collected from monitoring wells located north of Ash Ponds D and E, west of Ash Pond E, west of Beaver Pond, and in the vicinity of private residences (AECOM, 2017). The biweekly results do not appear to be included in AECOM's report. AECOM noted that beryllium and cadmium were detected in groundwater samples above the MCL in one monitoring well located north of Ash Pond E.

Extent of Contamination

Based on the 2013 groundwater sampling results, the extent of contaminated groundwater beneath the Site is not delineated laterally in Stratum D and Stratum F. In addition, the extent of contaminated groundwater beneath the Site is not delineated vertically. Based on the 2016-2017 groundwater sampling results, the extent of contaminated groundwater beneath the Site is still not delineated laterally or vertically.

Transport and Discharge

Groundwater contamination in Stratum D and Terrace Deposits associated with Ash Ponds A, B, and C discharges to Quantico Creek immediately west, southwest, and south of these ash ponds. Groundwater contamination in Stratum D associated with Ash Pond D discharges to Quantico Creek. Whereas, groundwater contamination in Stratum D associated with Ash Pond E discharges to Beaver Pond and Quantico Creek or may be drawn into private water supply wells.

Groundwater contamination in Stratum F associated with Ash Ponds A, B, C, and D flows to the southeast and east and possibly discharges to the Potomac River where its depth exceeds 30 feet. Whereas, groundwater contamination in Stratum F associated with Ash Ponds E flows to the southeast and east but may also be drawn to private water supply wells to the west of Beaver Pond.

Surface Water Contamination

Between May 2016 and March 2017, surface water samples have been collected and analyzed by Dominion (AECOM, 2017, Table TM6-24 and Figure TM6-12). The samples were analyzed for the following constituents: antimony, arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, and zinc. Boron was added to the program in March 2017. Three up-gradient and four down-gradient sample locations in Quantico Creek and Potomac

River were sampled (AECOM, 2017, Figure TM6-12). None of the down-gradient sample locations were located directly down-gradient of the Ash Ponds.

Generally, there was not an increase in concentrations in the down-gradient samples when compared with the up-gradient samples, with the exception of boron. Boron concentrations in the up-gradient samples ranged from 13.6J to 43.2J ug/L; whereas boron concentrations in the down-gradient samples ranged from 64.5J to 84.1 ug/L. The "J flag" indicates that the analyte was present, but the reported value is an estimate as it falls below the method detection limit (MDL).

The increased boron concentrations in the down-gradient surface water sample could result from the dissolution of constituents in coal ash waste present in the Ash Ponds into flowing groundwater and the discharge of contaminated groundwater to the surface water bodies.

CONTAMINATION SUMMARY

In summary, coal ash constituents from the coal ash waste in Ash Pond D above the water table are dissolving into water percolating through the coal ash waste that recharges groundwater. In addition, coal ash constituents in the coal ash waste are dissolving into groundwater flowing through the coal ash waste. Groundwater then discharges to adjacent surface water bodies, including Quantico Creek, via seeps through the ash ponds perimeter embankments, creek/pond bank seeps, and as bed-seepage. Contaminated groundwater may also be discharging to private water supply wells west of the Site.

CAP-IN-PLACE CLOSURE OPTION

Dominion's response to Senate Bill (SB) 1398 presented several closure plans for the site, including cap-in-place. This option was originally proposed for the Site in Dominion's Closure Plan created before the passage of SB 1398, which proposes that coal ash waste in Ash Ponds A, B, C, and E be removed and placed in Ash Pond D. Dredging of coal ash waste from Pond E began in June 2015 and dredging from Ash Ponds A, B, and C began in August 2015.

An additional area of CCR was noted in the Closure Plan: "*A former laydown area, with surficial asphalt, concrete, and bottom ash*", was found west of Ash Pond C (GAI Consultants, 2016c, pg 4). Our understanding is that debris and coal ash waste will be removed from this area at approximately the same time as Pond C.

As proposed by Dominion, the complete removal of all coal ash waste will only be verified by visual inspection by a professional engineer; no soil sampling and laboratory analysis to confirm that all coal ash waste has been removed is proposed by Dominion. The VDEQ will be notified upon completion of the coal ash waste removal to inspect the facility and to confirm that closure by removal is complete.

Prior to receiving coal ash waste from Ash Ponds A, B, C, and E, the upper portion of the existing coal ash waste in Pond D "*will be dewatered and graded to stabilize the CCR and create a slope for proper drainage*" (GAI Consultants, 2016d, pg 2). Once all coal ash waste from Ash Ponds A, B, C, and E has been placed in Pond D, it will be closed in place with an engineered cover. The cover will be an engineered cover system consisting of geosynthetic and soil layers over the coal ash waste surface to "*prevent infiltration of the water into the CCR*" (GAI Consultants, 2016d, pg 2). "*The closure design for Pond D also includes installation of an underdrain below the final cover system to discharge any additional liquids from the pond during final cover construction. The underdrain discharge will either be connected to the existing sanitary sewer or treated and discharged according to the station's* (Virginia Pollutant Discharge Elimination System) *VPDES permit*" (VDEQ, 2017, pg 3).

The proposed closure time frames are as follows:

- Ponds A, B, and C – August 2015 to 2018
- Pond E – June 2015 to 2016
- Pond D – February 2017 to 2018

Coal ash waste excavated from Ash Ponds A, B, C, and E will be placed directly on top of the existing coal ash waste in Ash Pond D. The evidence suggests that coal ash waste in Ash Pond D is not isolated from groundwater in Stratum D by the slurry wall. Therefore, coal ash waste from Ash Ponds A, B, C, and E placed in Ash Pond D will serve as an additional source of groundwater contamination within Ash Pond D and down-gradient in Stratum D. The placement of a cover on the top of all coal ash waste eventually placed in Ash Pond D will reduce the infiltration of direct precipitation into Ash Pond D; however, some infiltration, percolation and recharge of groundwater will likely still occur.

Caps or liners are rarely, if ever, fully effective in preventing infiltration of precipitation to groundwater. Due to geomembrane defects or installation issues (e.g. liner punctures), the cap/liner itself allows some water to leak across the geomembrane and recharge groundwater. In addition, over time, such caps are vulnerable to degradation and damage from at least the following mechanisms (Environmental Research Foundation, 2003):

- Natural weathering (rain, hail, snow, and wind).
- Sunlight (membrane degradation through the action of ultraviolet radiation resulting in cracking and flaking).
- Vegetation (sending down roots that can penetrate the cap/liner or widen cracks and holes created by other mechanisms).

- Burrowing or soil-dwelling animals (e.g., woodchucks, mice, moles, voles, snakes, insects, and worms) (penetrating a cap/liner, widening cracks and holes created by other mechanisms, and creating voids that result in differential settlement which results in subsidence).
- Subsidence (where uneven settling or cave-in beneath the cap causes a void beneath the cap/liner and can result in tears in geomembrane liners, or result in ponding of water on the surface, which can subject the cap to increased freeze-thaw pressures).
- Human activities of many kinds (most notably the driving of vehicles on the cap that tear the liner or cause other damage).

Thus, over time, these mechanisms can result in higher rates of leakage across the cap, increased percolating water, increased groundwater recharge, and continued groundwater flow toward, and discharge to, the surrounding surface waters.

As noted above, the proposed geomembrane cap should reduce, but not eliminate, the percolation of infiltrating precipitation. As a result of continued percolation of water, the contaminants in the coal ash waste above the groundwater surface (in the vadose zone) will continue to dissolve into the percolating water and continue to add contaminant mass to the groundwater.

More importantly, the cap will not affect infiltration and percolation of precipitation in the upstream areas of the watershed above Ash Pond D. It will also not affect the lateral flow of up-gradient groundwater from these upstream areas through Ash Pond D. This groundwater will flow from Ash Pond D in Stratum D to the south and southwest and discharge to Quantico Creek. Thus, contaminated groundwater will continue to flow toward, and discharge to, the surrounding surface waters even after cap installation. Under this closure plan, the coal ash waste will be present as a long-term source of contamination (i.e., in perpetuity), and the discharge of contaminated groundwater to Quantico Creek will continue for many centuries.

As noted, even after the proposed cap is installed, a significant portion of coal ash in Ash Pond D will remain below the groundwater table under the proposed closure plan. According to the EPRI, a power industry trade and research group, "*Caps are not effective when CCP is filled below the water table, because groundwater flowing through the CCP will generate leachate even in the absence of vertical infiltration through the CCP*" (EPRI, 2006, pg. 3-6).

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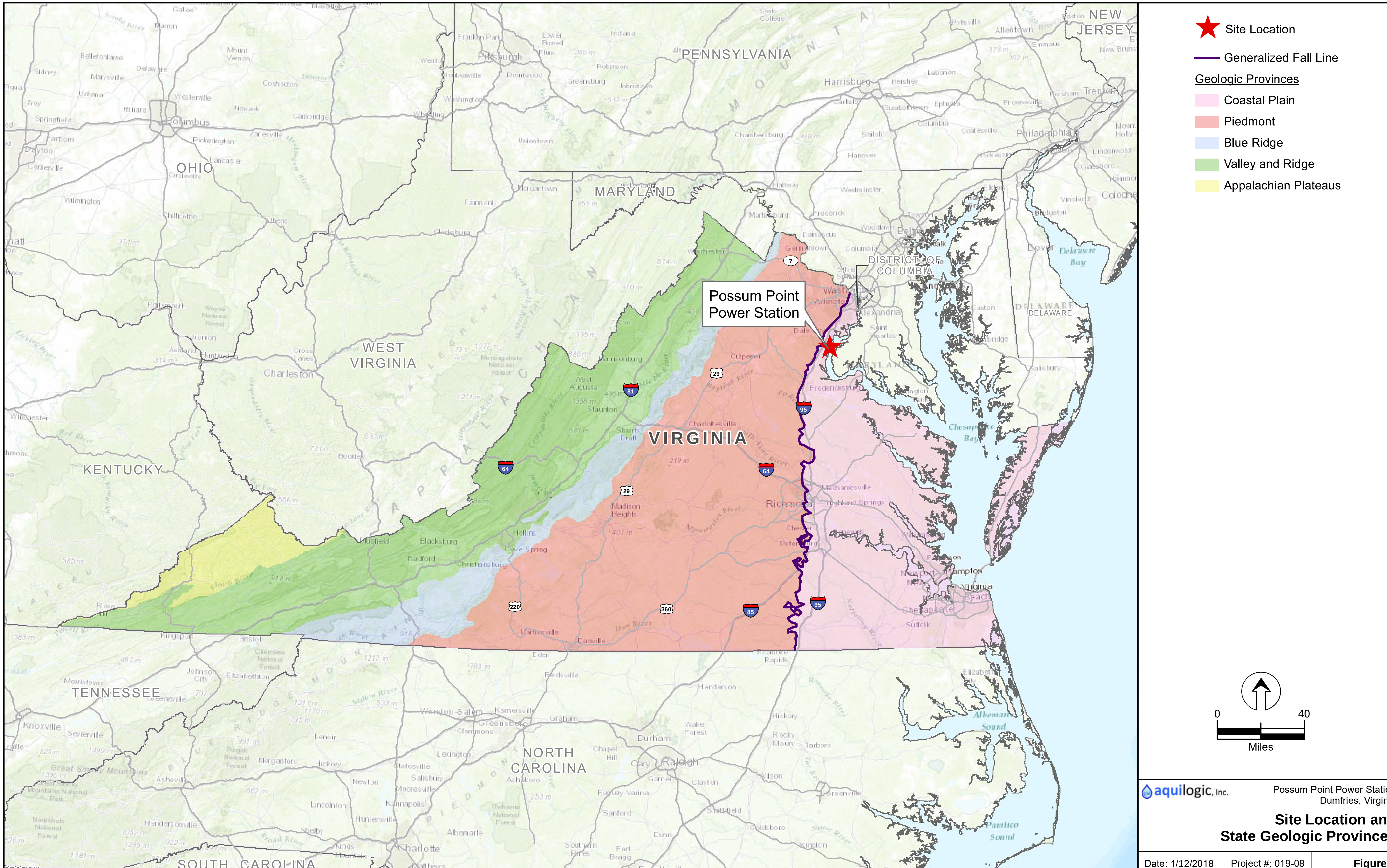

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Possum Point Power Station
Dumfries, Virginia

Site Location and State Geologic Provinces

Date: 1/12/2018 | Project #: 019-08 | **Figure 1**

LEGEND

Approximate Property Boundary

Approximate Pond Boundary

Potentiometric Contours

Compliance Program

CCR Network Well

CCR Network Background Well

Source: AECOM. (2017). Senate Bill 1398 Response: Coal Combustion Residuals Ash Pond Closure Assessment,Prepared for Dominion Energy by AECOM (Fig. 30). November 2017

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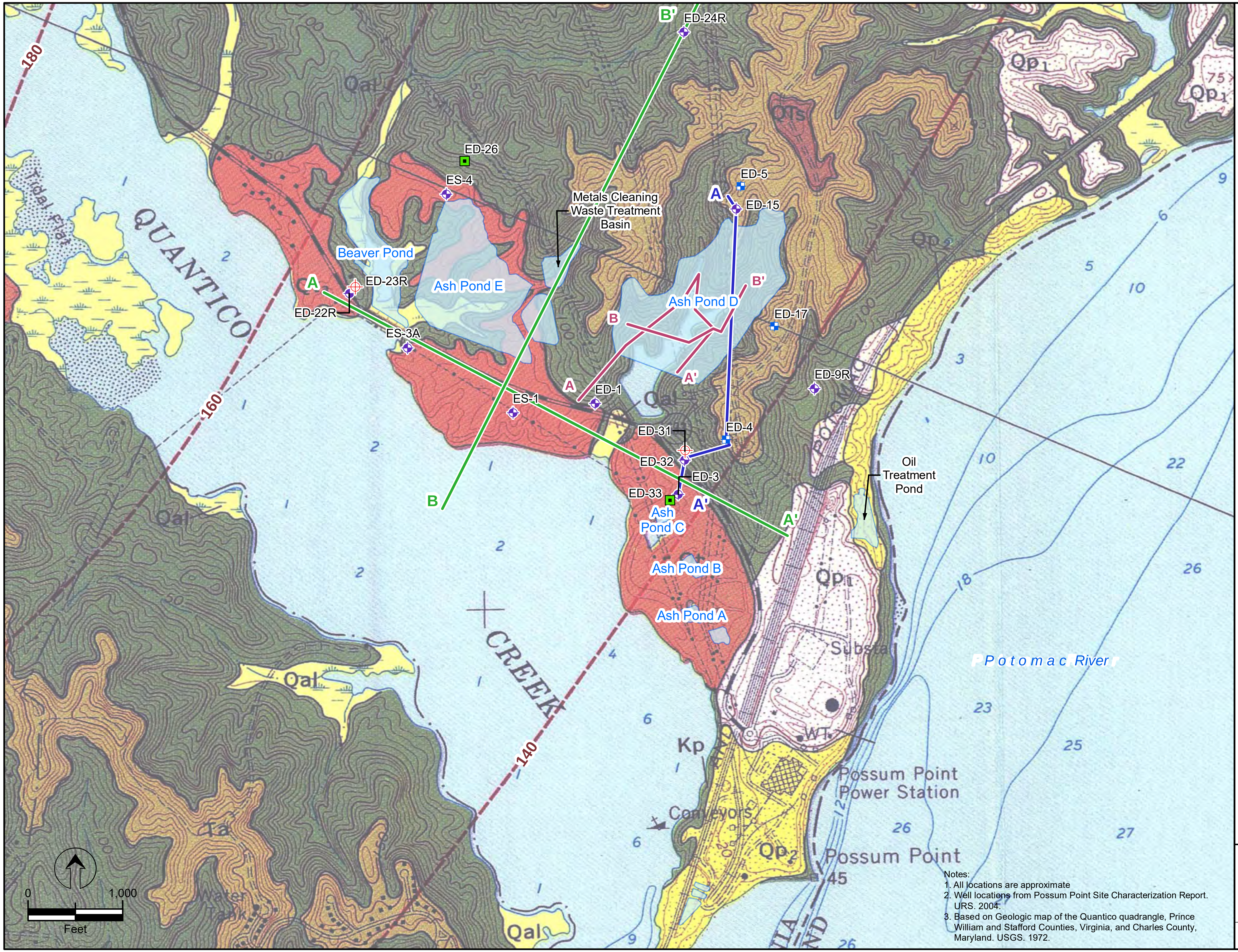
Dumfries, Virginia

Possom Point Power Station Site Plan

Date: 1/11/2018	Project #: 019-08	**Figure 2**



Notes:
1. All locations are approximate
2. Well locations from Possum Point Site Characterization Report. URS. 2004.
3. Based on Geologic map of the Quantico quadrangle, Prince William and Stafford Counties, Virginia, and Charles County, Maryland. USGS. 1972.

- Stratum B Well
- Stratum D Well
- Stratum E Well
- Stratum F Well

Cross Section Locations
- GAI February 1987 (Appendix A)
- GAI April 1987 (Appendix B)
- GES 2013 (Appendix C)
- Ponds

Explanation

Sedimentary Rocks

Qal	Holocene Alluvium
Qt4, Qt3, Qt2, Qt1	Pleistocene and Holocene (?) Terrace deposits bordering tidal creeks and minor streams
Qp2, Qp1	Pleistocene and Holocene (?) Terrace deposits of Potomac River
QTs	Miocene to Pleistocene (?) Upland deposits
Ta	Paleocene Aquia Formation
Kp	Lower Cretaceous Potomac Group

Metamorphosed Sedimentary and Volcanic Rocks

Oqm, Oq, Oqf	Ordovician (?) Quantico Slate
O_c, O_cg, O_cf	Lower Cambrian to Ordovician (?) Chopawamsic Formation
_c_w	Precambrian and (or) Lower Cambrian Wissahickon Formation

Metamorphosed Intrusive Rocks

O_i	Cambrian (?) and Ordovician (?) Felsic intrusive (?) rocks

Structure contours on base of Aquia Formation (Contour interval 20 feet)

Topographic contour interval is 10 feet.

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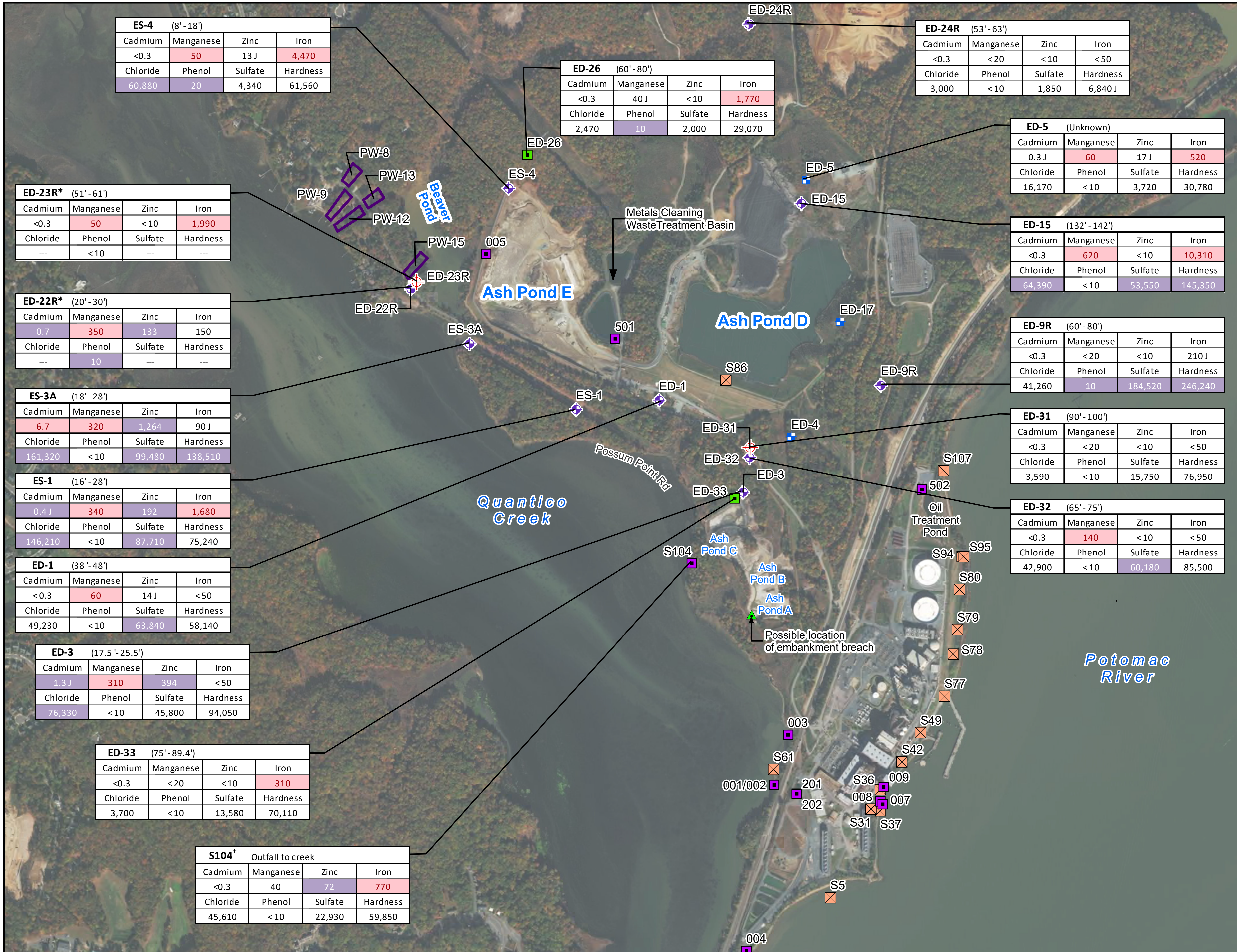
Possum Point Power Station
Dumfries, Virginia

Possum Point Site Geology

Date: 1/11/2018 | Project #: 019-08 | **Figure 3**



ES-4 (8'-18')			
Cadmium	Manganese	Zinc	Iron
<0.3	50	13 J	4,470
Chloride	Phenol	Sulfate	Hardness
60,880	20	4,340	61,560

ED-26 (60'-80')			
Cadmium	Manganese	Zinc	Iron
<0.3	40 J	<10	1,770
Chloride	Phenol	Sulfate	Hardness
2,470	10	2,000	29,070

ED-24R (53'-63')			
Cadmium	Manganese	Zinc	Iron
<0.3	<20	<10	<50
Chloride	Phenol	Sulfate	Hardness
3,000	<10	1,850	6,840 J

ED-5 (Unknown)			
Cadmium	Manganese	Zinc	Iron
0.3 J	60	17 J	520
Chloride	Phenol	Sulfate	Hardness
16,170	<10	3,720	30,780

ED-23R* (51'-61')			
Cadmium	Manganese	Zinc	Iron
<0.3	50	<10	1,990
Chloride	Phenol	Sulfate	Hardness
---	<10	---	---

ED-15 (132'-142')			
Cadmium	Manganese	Zinc	Iron
<0.3	620	<10	10,310
Chloride	Phenol	Sulfate	Hardness
64,390	<10	53,550	145,350

ED-22R* (20'-30')			
Cadmium	Manganese	Zinc	Iron
0.7	350	133	150
Chloride	Phenol	Sulfate	Hardness
---	10	---	---

ED-9R (60'-80')			
Cadmium	Manganese	Zinc	Iron
<0.3	<20	<10	210 J
Chloride	Phenol	Sulfate	Hardness
41,260	10	184,520	246,240

ES-3A (18'-28')			
Cadmium	Manganese	Zinc	Iron
6.7	320	1,264	90 J
Chloride	Phenol	Sulfate	Hardness
161,320	<10	99,480	138,510

ED-31 (90'-100')			
Cadmium	Manganese	Zinc	Iron
<0.3	<20	<10	<50
Chloride	Phenol	Sulfate	Hardness
3,590	<10	15,750	76,950

ES-1 (16'-28')			
Cadmium	Manganese	Zinc	Iron
0.4 J	340	192	1,680
Chloride	Phenol	Sulfate	Hardness
146,210	<10	87,710	75,240

ED-32 (65'-75')			
Cadmium	Manganese	Zinc	Iron
<0.3	140	<10	<50
Chloride	Phenol	Sulfate	Hardness
42,900	<10	60,180	85,500

ED-1 (38'-48')			
Cadmium	Manganese	Zinc	Iron
<0.3	60	14 J	<50
Chloride	Phenol	Sulfate	Hardness
49,230	<10	63,840	58,140

ED-3 (17.5'-25.5')			
Cadmium	Manganese	Zinc	Iron
1.3 J	310	394	<50
Chloride	Phenol	Sulfate	Hardness
76,330	<10	45,800	94,050

ED-33 (75'-89.4')			
Cadmium	Manganese	Zinc	Iron
<0.3	<20	<10	310
Chloride	Phenol	Sulfate	Hardness
3,700	<10	13,580	70,110

S104+ Outfall to creek			
Cadmium	Manganese	Zinc	Iron
<0.3	40	72	770
Chloride	Phenol	Sulfate	Hardness
45,610	<10	22,930	59,850

Legend

- Stratum B Well
- Stratum D Well
- Stratum E Well
- Stratum F Well
- Parcel with Domestic Well
- Possible Breach Location

Outfall

- Stormwater
- Wastewater

Notes:
1. All locations are approximate.
2. Concentrations reported in micrograms per liter (ug/L).
3. *ES-22R AND ES-23R sampled April 15, 2004.
4. + S104 Outfall sample collected on April 2, 2014.
5. All other samples collected on September 4, 2013.
6. ---: Data not available.
7. MCL: Maximum Contaminant Level.
8. VGQS: Virginia Groundwater Quality Standard.
9. Highlighted cells indicate concentration exceeds MCL or VGQS as indicated in the table below.
10. <: indicates constituent was not detected at noted detection limit.
11. Numbers in parentheses indicate screen intervals in feet below ground surface.
12. Screen intervals for ES-3A, ES-1, ED-1, ED-22R, and ED-23R from boring logs. All others from GES 2013.
13. **: indicates National Secondary drinking water standards.

Parameter	MCL (ug/L)	VGQS (ug/L)
Cadmium	5.0	0.4
Manganese	50**	50
Zinc	5,000**	50
Iron	300**	300
Choride	250,000	50,000
Phenol		1.0
Sulfate	250,000	50,000
Hardness as CaCO3		120,000

0 1,000
Feet

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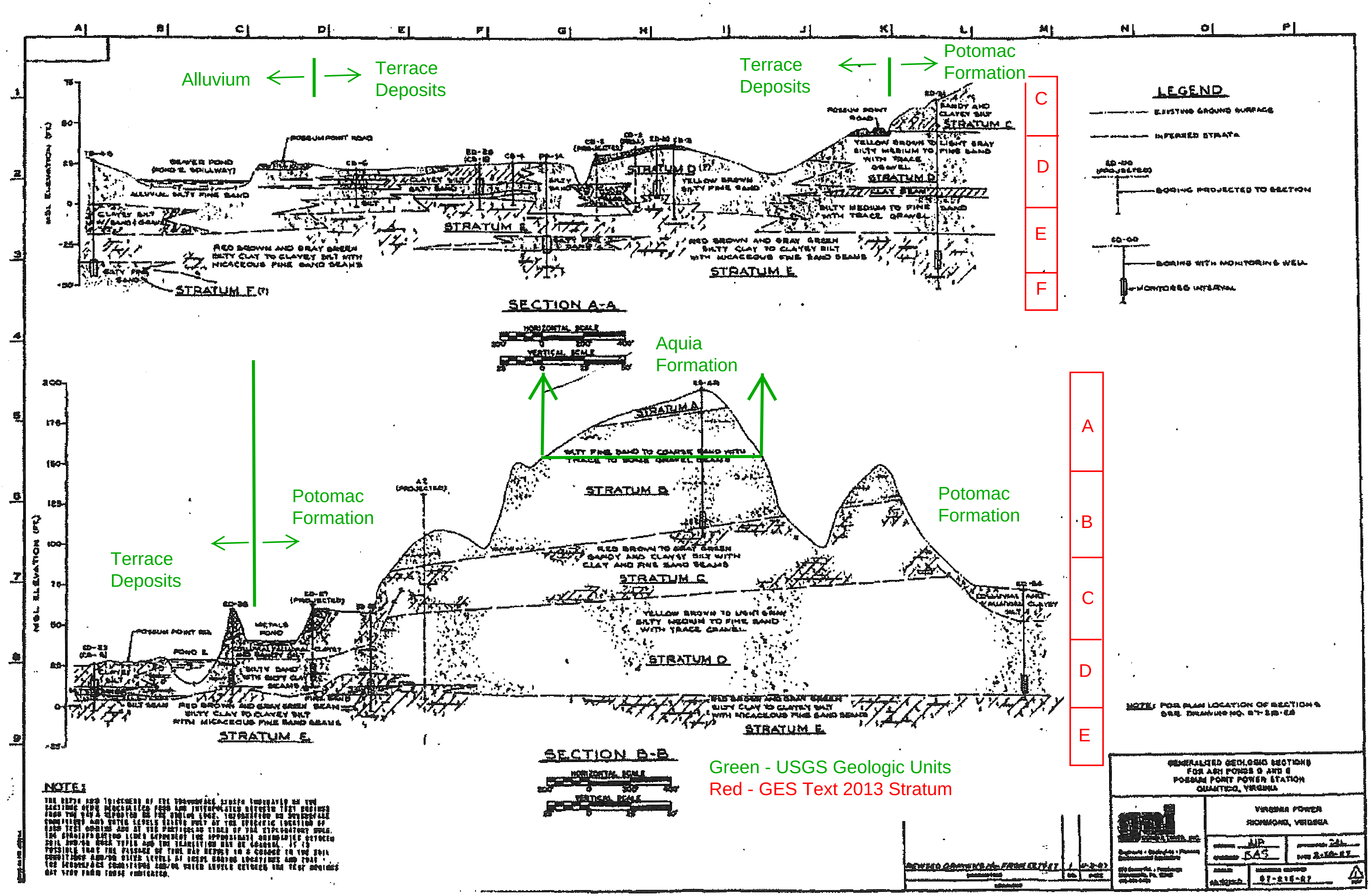
Possum Point Power Station
Dumfries, Virginia

Historical Groundwater Analytical Results

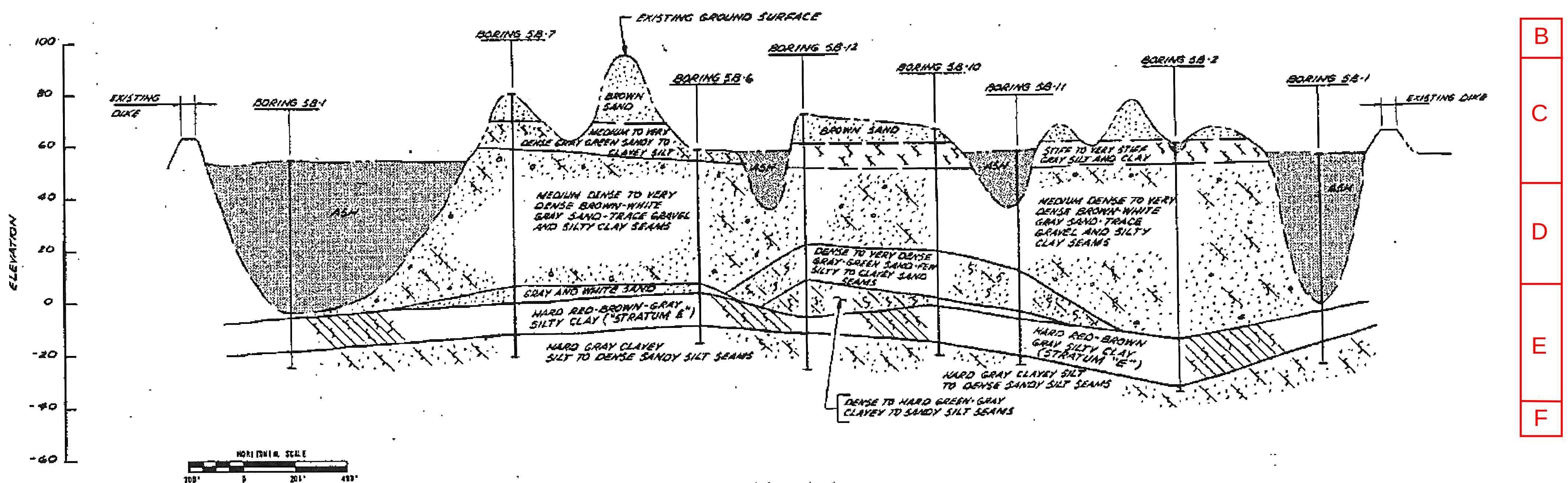
Date: 1/11/2018 | Project #: 019-08 | **Figure 4**



Alluvium
Terrace Deposits
Terrace Deposits
Potomac Formation
LEGEND
C
D
E
F
STRATUM C
STRATUM D
STRATUM E
STRATUM F (?)
SECTION A-A
Aquia Formation
STRATUM A
STRATUM B
STRATUM C
STRATUM D
STRATUM E
Potomac Formation
Terrace Deposits
Potomac Formation
A
B
C
D
E
SECTION B-B
NOTES:
Green - USGS Geologic Units
Red - GES Text 2013 Stratum

APPENDIX A

87-215-E3



PROFILE A-A

VERTICAL SCALE: 1" = 20'
HORIZONTAL SCALE: 1" = 200'

EXAGGERATION 10 X

Red - GES Text 2013 Stratum

LEGEND

- ASH
- SAND
- GRAVEL
- CLAY
- SILT
- EXISTING GROUND SURFACE
- INFERRED STRATA

GENERAL NOTES:

1. THE DEPTH AND THICKNESS OF THE SUBSURFACE STRATA INDICATED ON THE SECTIONS WERE GENERALIZED FROM AND INTERPOLATED BETWEEN TEST BORINGS FROM THE DATA REPORTED ON THE BORING LOGS. INFORMATION ON SUBSURFACE CONDITIONS AND WATER LEVELS EXISTS ONLY AT THE SPECIFIC LOCATION OF EACH TEST BORING AND AT THE PARTICULAR TIMES OF THE EXPLORATORY WORK. THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL AND/OR ROCK TYPES AND THE TRANSITION MAY BE GRADUAL. IT IS POSSIBLE THAT THE PASSAGE OF TIME MAY RESULT IN A CHANGE IN THE SOIL CONDITIONS AND/OR WATER LEVELS AT THESE BORING LOCATIONS AND THAT THE SUBSURFACE CONDITIONS AND/OR WATER LEVELS BETWEEN THE TEST BORINGS MAY VARY FROM THOSE INDICATED.

2. FOR PLAN AND LOCATION OF PROFILE SEE DRAWING 87-215-E1.

FIGURE 8

GENERALIZED GEOLOGIC PROFILE A-A
ASH POND D

GAI CONSULTANTS, INC.

VIRGINIA POWER
POSSUM POINT POWER STATION
QUANTICO, VIRGINIA

DRAWN: G.Y.
CHECKED: TRG
APPROVED: RW
DATE: 4-16-87
SCALE: AS NOTED
DRAWING NUMBER: 87-215-E3

REVISIONS | NO. | DATE

APPENDIX B

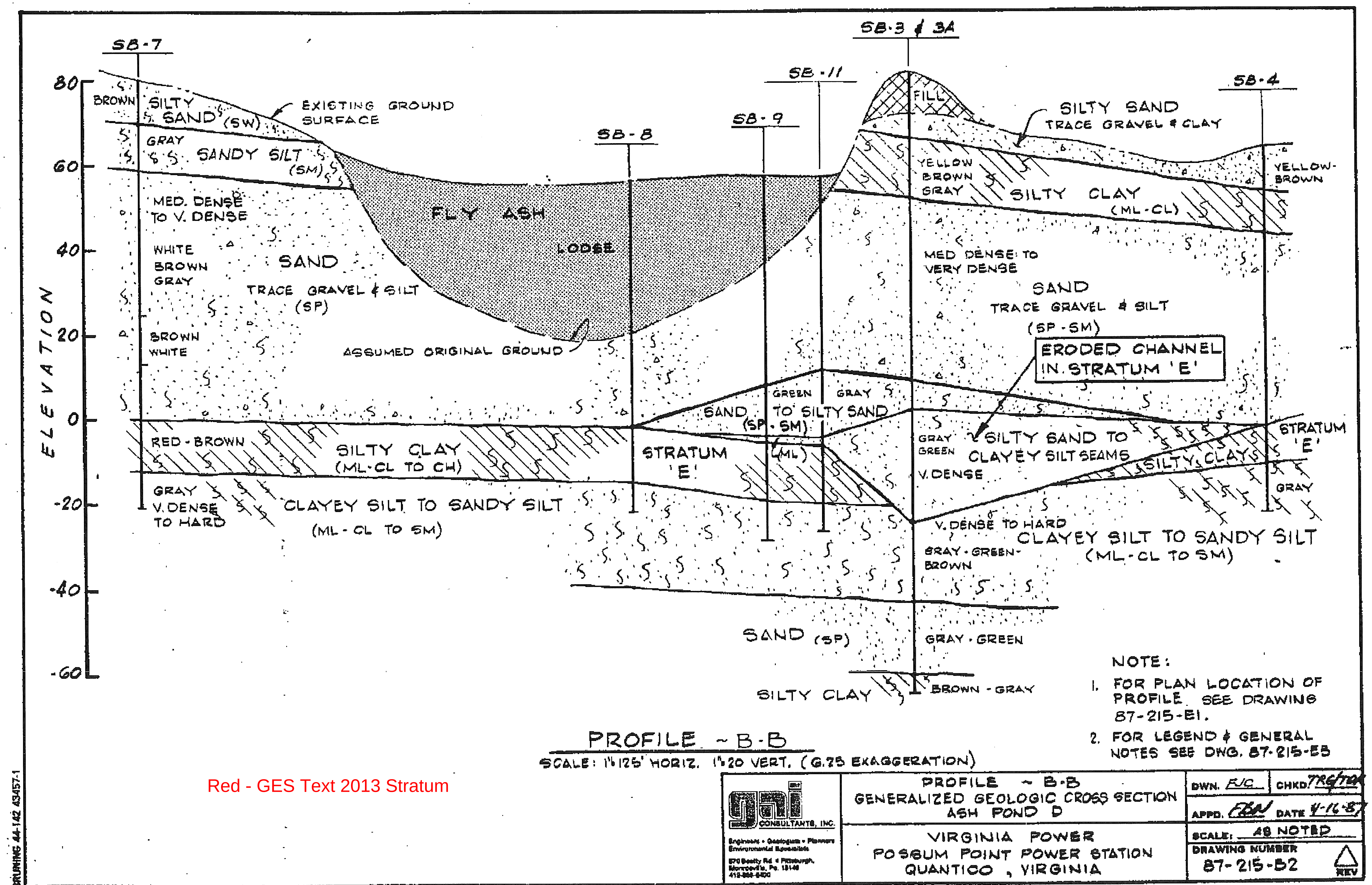
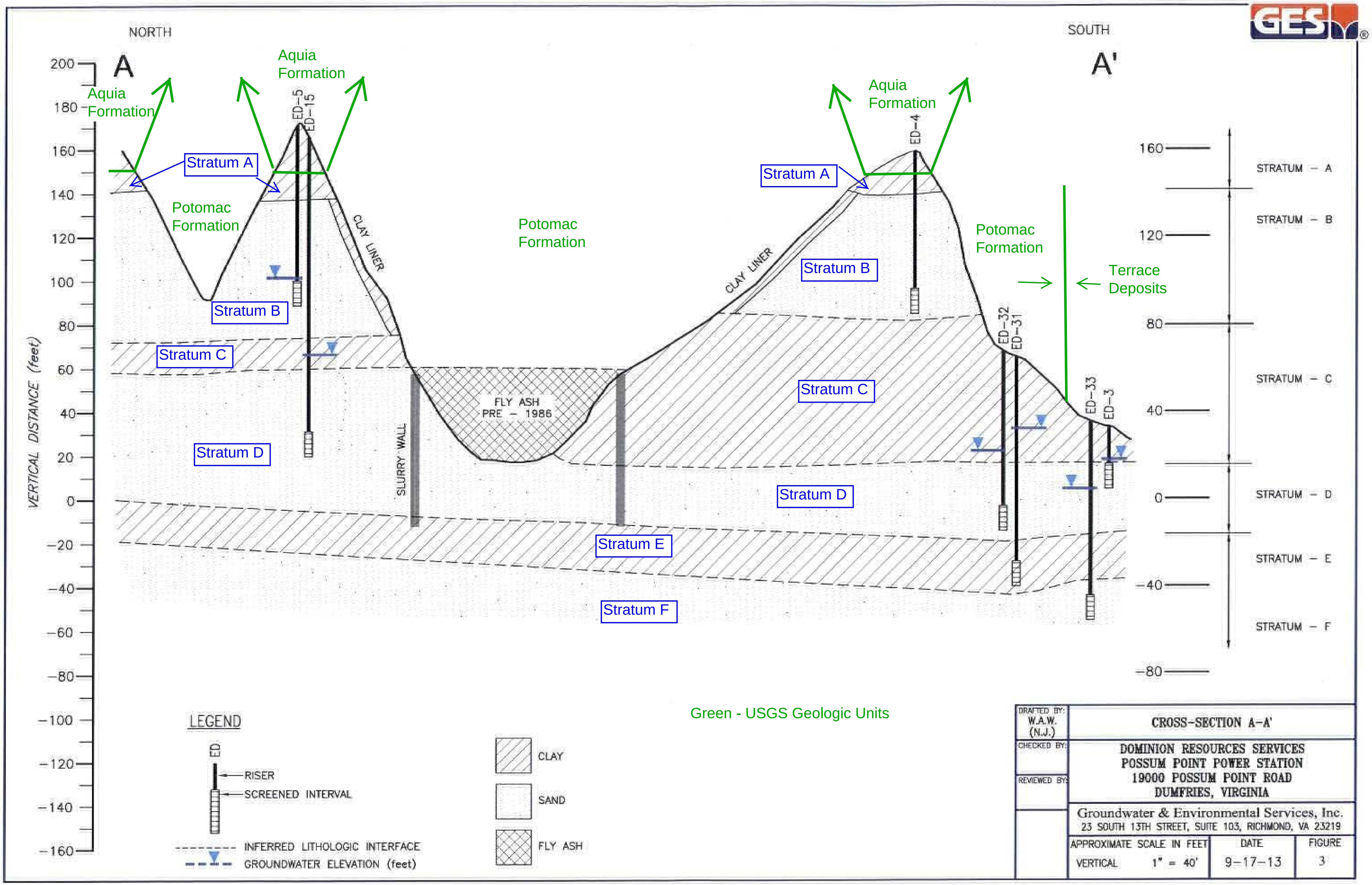


FIGURE 9

C
D
E
F



NORTH
SOUTH
A
A'
GES
Aquia Formation
Aquia Formation
Aquia Formation
Stratum A
Stratum A
Potomac Formation
Potomac Formation
Potomac Formation
Terrace Deposits
ED-5
ED-15
ED-4
ED-32
ED-31
ED-33
ED-3
CLAY LINER
CLAY LINER
SLURRY WALL
FLY ASH PRE - 1986
Stratum B
Stratum B
Stratum C
Stratum C
Stratum D
Stratum D
Stratum E
Stratum F
VERTICAL DISTANCE (feet)
STRATUM - A
STRATUM - B
STRATUM - C
STRATUM - D
STRATUM - E
STRATUM - F
Green - USGS Geologic Units
LEGEND
ED
RISER
SCREENED INTERVAL
INFERRED LITHOLOGIC INTERFACE
GROUNDWATER ELEVATION (feet)
CLAY
SAND
FLY ASH
DRAFTED BY: W.A.W. (N.J.)
CHECKED BY:
REVIEWED BY:
CROSS-SECTION A-A'
DOMINION RESOURCES SERVICES
POSSUM POINT POWER STATION
19000 POSSUM POINT ROAD
DUMFRIES, VIRGINIA
Groundwater & Environmental Services, Inc.
23 SOUTH 13TH STREET, SUITE 103, RICHMOND, VA 23219
APPROXIMATE SCALE IN FEET
VERTICAL 1" = 40'
DATE 9-17-13
FIGURE 3

APPENDIX C