Mayo Steam Electric Plant Ash Basin

Topographic Map and Discharge Assessment Plan

NPDES Permit NC0038377

December 30, 2014

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List of Figures and Tables

Section 1 - Introduction

The purpose of this document is to address the requirements of North Carolina General Statute (GS)130A-309.210(a) *topographic map* and (b) *Assessment of Discharges from Coal Combustion Residuals Surface Impoundments to the Surface Waters of the State*, as modified by North Carolina Senate Bill 729, for the Mayo Steam Electric Plant (Mayo Plant) ash basin operated under National Pollutant Discharge Elimination System (NPDES) Permit NC0038377.

The following requirements are contained in General Statute (GS) 130A-309.210(a):

(1) The owner of a coal combustion residuals surface impoundment shall identify all discharges from the impoundment as provided in this subsection. The requirements for identifying all discharges from an impoundment set out in this subsection are in addition to any other requirements for identifying discharges applicable to the owners of coal combustion residuals surface impoundments.

(2) No later than December 31, 2014, the owner of a coal combustion residuals surface impoundment shall submit a topographic map that identifies the location of all (i) outfalls from engineered channels designed or improved for the purpose of collecting water from the toe of the impoundment and (ii) seeps and weeps discharging from the impoundment that are not captured by engineered channels designed or improved for the purpose of collecting water from the toe of the impoundment to the Department. The topographic map shall comply with all of the following:

a. Be at a scale as required by the Department.

b. Specify the latitude and longitude of each toe drain outfall, seep, and weep.

c. Specify whether the discharge from each toe drain outfall, seep, and weep is continuous or intermittent.

d. Provide an average flow measurement of the discharge from each toe drain outfall, seep, and weep including a description of the method used to measure average flow.

e. Specify whether the discharge from each toe drain outfall, seep, and weep identified reaches the surface waters of the State. If the discharge from a toe drain outfall, seep, or weep reaches the surface waters of the State, the map shall specify the latitude and longitude of where the discharge reaches the surface waters of the State.

f. Include any other information related to the topographic map required by the Department.

The following requirements are contained in General Statute (GS) 130A-309.210(b):

b) Assessment of Discharges from Coal Combustion Residuals Surface Impoundments to the Surface Waters of the State. The owner of a coal combustion residuals surface impoundment shall conduct an assessment of discharges from the coal combustion *residuals surface impoundment to the surface waters of the State as provided in this subsection. The requirements for assessment of discharges from the coal combustion residuals surface impoundment to the surface waters of the State set out in this subsection are in addition to any other requirements for the assessment of discharges from coal combustion residuals surface impoundments to surface waters of the State applicable to the owners of coal combustion residuals surface impoundments.*

(1) No later than December 31, 2014, the owner of a coal combustion residuals surface impoundment shall submit a proposed Discharge Assessment Plan to the Department. The Discharge Assessment Plan shall include information sufficient to allow the Department to determine whether any discharge, including a discharge from a toe drain outfall, seep, or weep, has reached the surface waters of the State and has caused a violation of surface water quality standards. The Discharge Assessment Plan shall include, at a minimum, all of the following:

a. Upstream and downstream sampling locations within all channels that could potentially carry a discharge.

b. A description of the surface water quality analyses that will be performed.

c. A sampling schedule, including frequency and duration of sampling activities.

d. Reporting requirements.

e. Any other information related to the identification of new discharges required by the Department.

(2) The Department shall approve the Discharge Assessment Plan if it determines that the Plan complies with the requirements of this subsection and will be sufficient to protect public health, safety, and welfare; the environment; and natural resources.

(3) No later than 30 days from the approval of the Discharge Assessment Plan, the owner shall begin implementation of the Plan in accordance with the Plan's schedule.

The North Carolina Senate Bill 729 establishes the submittal date of this topographic map and Discharge Assessment Plan no later than December 31, 2014.

The topographic map, developed to satisfy the requirements of GS130A-309.210(a), was utilized as the basis for developing the assessment procedures presented in this plan, required by GS130A-309.210(b).

Section 2 - Site Background

2.1 Plant Description

The Mayo Plant is a single-unit, coal-fired electricity-generating facility located in Person County, North Carolina, near the city of Roxboro. The location of the Mayo Plant is shown on Figure 1. The Mayo Plant became fully operational in June 1983.

The Mayo Plant is located on Boston Road (US Highway 501) north of Roxboro. The northern plant property line extends to the North Carolina/Virginia state line. The overall topography of the Mayo Plant generally slopes toward the east (Mayo Reservoir) and northeast (Crutchfield Branch).

2.2 Ash Basin Description

The Mayo Plant ash basin is approximately 153 acres in size with an earthen dike. Ash generated from the Mayo Plant's coal combustion is contained in the ash basin. The ash basin was constructed and began receiving ash in 1983. The ash basin is located north of the Mayo Plant operational area and west of Mayo Lake. A former permitted landfill is located on the east side of the ash basin.

The Mayo Plant NPDES permit (NC0038377) authorizes two discharges to Mayo Lake. Outfall 001 discharges cooling tower water and circulating water system discharge water. Outfall 002 is comprised of a number of streams including internal Outfall 008 (cooling tower blowdown), internal Outfall 009 (FGD blowdown), ash transport water, coal pile runoff, and other sources including water from wastewater treatment processes. Stormwater outfalls are also authorized for the Mayo Plant.

2.3 Site Geologic/Soil Framework

The Mayo Plant is situated in the eastern Piedmont Region of north-central North Carolina. The Piedmont is characterized by well-rounded hills and rolling ridges cut by small streams and drainages. Elevations in the area of the Mayo Plant range between 570 feet above mean sea level (msl) near the Mayo Plant entrance along Boston Road to 360 feet msl in the Crutchfield Branch stream area on the north side of the Mayo Plant.

Geologically, the Mayo Plant is located at the contact between two regional zones of metamorphosed intrusive rocks: the Carolina Slate Belt (now referred to as Carolina Terrane) on the east and the Charlotte Belt (or Charlotte Terrane) to the west. The majority of the Mayo Plant, including the largest portion of the ash basin and Mayo Lake are situated in the Carolina Terrane. The characteristics and genesis of the rocks within these regional metamorphic belts have been the subject of intense study to describe the geology in tectonic, structural, and/or litho-stratigraphic terms (Hibbard, et. al., 2002).

Rocks of Charlotte Terrane are characterized by strongly foliated felsic mica gneiss and schist and metamorphosed intrusive rocks. Carolina Terrane rocks in the vicinity of the Mayo Plant are typically felsic meta-volcanics and meta-argillites. This is consistent with the description of the geologic nature of the area according to the Geologic Map of North Carolina (1985). The

Geologic Map of North Carolina describes the felsic meta-volcanic rock as metamorphosed dacitic to rhyolitic flows and tuffs, light gray to greenish gray; interbedded with mafic and intermediate volcanic rock, meta-argillite and metamudstone. The felsic mica gneiss of the Charlotte Terrane is described as being interlayered with biotite and hornblende schist. These general observations are consistent with site-specific observations from well logs for the Mayo Plant, which document the bedrock of the northwestern portion of the compliance boundary as intermediate meta-volcanic rock and the bedrock of the remainder of the site as felsic meta-volcanics or meta-argillites.

Rocks of the region, except where exposed in road cuts, stream channels, and steep hillsides, are covered with unconsolidated material formed from the in-situ chemical and physical breakdown of the bedrock. This unconsolidated material is referred to as saprolite or residuum. Direct observations at the Mayo Plant confirm the presence of residuum, developed above the bedrock, which is generally 10 feet to 30 feet thick. The residuum extends from the ground surface (soil zones) downward, transitioning through a zone comprised of unconsolidated silt and sand, downward through a transition zone of partially weathered rock in a silt/sand matrix, down to the contact with competent bedrock.

Based on previous activities at the site, subsurface lithology beneath the Mayo Plant area is comprised of tan, brown to orange sandy silt and fine to coarse sands grading into partially weathered rock and then competent bedrock. The first occurrence of groundwater tends to be within the partially weathered rock or competent bedrock at depths ranging from nine to 20 feet below land surface (bls) along the downgradient compliance boundary and greater than 30 feet bls upgradient of the ash basin.

2.4 Topographic Map and Identification of Discharges

A topographic map is presented in Figure 2 to meet the requirements of GS 130A-309.210(a) in the identification of outfalls from engineered channels, as well as seeps and weeps.

Seepage is the movement of wastewater from the ash basin through the ash basin embankment, the embankment foundation, the embankment abutments, basin rim, through residual material in areas adjacent to the ash basin. A seep is defined in this document as an expression of seepage at the ground surface. A weep is understood to have the same meaning as a seep.

Indicators of seepage include areas where water is observed on the ground surface and/or where vegetation suggests the presence of seepage. Seepage can emerge anywhere on the downstream face, beyond the toe, or on the downstream abutments at elevations below normal pool. Seepage may vary in appearance from a "soft," wet area to a flowing "spring." Seepage may show up first as only an area where the vegetation is lusher and darker green than surrounding vegetation. Cattails, reeds, mosses, and other marsh vegetation often become established in a seepage area. However, in many instances, indicators of seeps do not necessarily indicate the presence of seeps. Areas of apparent iron staining and/or excess iron bacteria may also indicate the presence of a seep.

Locations of seepage at the ground surface adjacent to the ash basin have been identified and are shown in Figure 2. These areas include the earthen embankment which impound the ash basin as well as adjacent areas where water from the ash basin may have infiltrated into the underlying residual materials and expressed as seepage.

2.4.1 Engineered Drainage System for Earthen Dam

Earth dams are subject to seepage through the embankment, foundation, and abutments. Seepage control is necessary to prevent excessive uplift pressures, instability of the downstream slope, piping through the embankment and/or foundation, and erosion of material by migration into open joints in the foundation and abutments. The control of seepage is performed by the use of engineered drains such as blanket drains, trench drains, and/or toe drains. In certain cases horizontal pipes may be installed into the embankment to collect and control seepage. It is standard engineering practice to collect the seepage and convey seepage away from the dam.

The Mayo Plant ash basin dam is shown on Figure 2.

2.4.2 Non-Engineered Seep Identification

Topographic maps of the site were reviewed to identify regions of the site where there was a potential for ash basin related seepage to be present. These regions were determined by comparing ash basin full pond elevations to adjacent topography with ground surface elevations lower than the ash basin full pond elevation. Synterra staff performed site observations within these identified areas as part of NPDES inspections during the reapplication process during August and November 2014 and documented locations where seepage was apparent at the time of the site visit. These seeps are identified as required by GS 130A-309.210(a)(2)(ii) on Figure 2.

Section 3 - Discharge Assessment Plan

3.1 Purpose of Assessment

The purpose of the assessment is to determine whether existing, known discharges from toe drain outfalls, seeps, and weeps associated with the coal combustion residuals surface impoundment (ash basin) have reached the surface waters of the State and have caused a violation of surface water quality standards as required by North Carolina General Statute 130A-309.210(b).

Figure 2 and Table 1 present the background and downstream sampling locations to be considered as part of this Discharge Assessment Plan (DAP). These locations may be assessed by comparing surface water sampling analytical results of the associated background location with the corresponding downstream location. For discharges located at the toe of a dam, an upstream location within the channel may not have been possible to isolate for comparison given the proximity to the ash basin, which would have the same chemical composition as the discharge itself. As such, the upstream location was established upstream of the ash basin and is considered “background.” For discharges located a distance from the ash basin, an identified upstream, or “background” location for sampling may be compared to the downstream portion of the discharge channel. The background and downstream sampling locations are shown on Figure 2 with “B” and “D” identifiers, respectively, and the corresponding seep locations associated with the sampling locations are indicated on Table 1.

3.2 Assessment Procedure

The assessment procedure associated with the Mayo Plant ash basin is provided within this section. In addition to the specific requirements for the assessment, Section 3.2 also provides the general requirements, the frequency of assessment, documentation requirements, and a description of the surface water quality analyses that will be performed.

3.2.1 General Assessment Requirements

Assessments are to be performed in three phases as follows:

- Observation and sampling (assessment site visit),
- Evaluation, and
- Assessment reporting.

The assessment site visit shall be performed when the background and downstream locations are accessible and not influenced by weather events. Locations on or adjacent to the ash basin embankments should be performed within two months after mowing, if possible. In addition, the assessment site visit should not be performed if the following precipitation amounts have occurred in the respective time period preceding the planned assessment site visit:

- Precipitation of 0.1 inches or greater within 72 hours or
- Precipitation of 0.5 inches or greater within 96 hours.

The assessments shall be performed under the direction of a qualified Professional Engineer or Professional Geologist on a semi-annual basis within two nonadjacent quarters. The date of the initial assessment site visit shall be selected no later than 30 days from the approval of the Discharge Assessment Plan and should fall within one of the semi-annual timeframes. Additional seep locations that may have been identified and documented in an Identification of New Discharge report(s) shall be reviewed prior to performing an assessment site visit, if available.

3.2.2 Observation and Sampling

The initial assessment site visit should be performed to document baseline conditions of the discharge channel, including location, extent (i.e., dimensions of affected area), and flow of each discharge. Discharge channel background and downstream locations should be verified using a Global Positioning System (GPS) device. Photographs should be taken from vantage points that can be replicated during subsequent semi-annual assessments.

Initial and subsequent assessment site visits shall document a minimum of the following to respond to the requirements in 130A-309.210.1(b):

- Record the most recent ash basin water surface elevation and compare to the seep and outfall and associated discharge location surface water elevations.
- For each discharge channel, the observer shall note the following as applicable on the day of the assessment site visit:
  - Is the discharge channel flowing at the time of the assessment site visit?
  - Does the discharge channel visibly flow into a Water of the U.S. at the time of the assessment site visit?
  - How far away is the nearest Water of the U.S.?
  - Document evidence that flow has or could reach a Water of the U.S. (e.g., description of flow, including extent and/or direction) and describe the observed condition. Evidence that flow could or has reached a Water of the U.S. may be indicated by an inspection of the adjacent and downstream topographic drainage features.
  - Observe and document the condition of the discharge channel and outfall of the engineered channel or seep location with photographs. Photographs are to be taken from similar direction and scale as photographs taken during the initial assessment site visit.
- Record flow rate within the discharge channel, if measureable, using the following methods:
  - Timed-volumetric method: Collect a volume of water from the discharge of the PVC pipe directly into an appropriately sized container. Measure volumes (in mL) in the field utilizing a graduated container. Record the amount of time (in seconds) needed to collect the volume of water and calculate the flows (in MGD) for the timed-volume.

- A V-notch weir apparatus will be installed, if necessary, during the initial assessment site visit to impound seepage at locations with a defined channel. Once the impounded seep reaches equilibrium discharge, flows will be measured using the timed-volumetric method described above.

- Area-velocity method: Measure point velocities and water depth at a minimum of 20 stations along a transect setup perpendicular to the direction of flow using a Swoffer® 3000 flow meter mounted to a standard United States Geologic Survey (USGS) top-set wading rod. Utilize the average velocity and cross-sectional area of the wetted channel to calculate flows in MGD.

- Collect water quality samples using the following methods:

  - Collect background and downstream samples during a period with minimal preceding rainfall to minimize potential effects of stormwater runoff. Collect samples from the discharge channel at the flow measurement devices or directly from the discharge into sample bottles while minimizing disturbance and entrainment of soil/sediment. After collection, samples will be preserved and stored according to parameter-specific methods and delivered to the laboratory under proper Chain-of-Custody (COC) procedures.

  - Analytical parameters for analysis include: Fluoride, Arsenic, Cadmium, Copper, Chromium, Nickel, Lead, Selenium, and Mercury. This list includes all parameters previously identified for seep sampling at Duke Energy power plants for which relevant stream water quality standards are in place. (This list is responsive to the statutory requirement for the discharge assessment to allow determination whether discharges from toe drain outfalls, seeps, or weeps have reached surface waters and caused a violation of surface water quality standards.) Analyses shall be conducted by Duke Energy's Huntersville Analytical Laboratory (NC Wastewater Certification #248) and Pace Analytical Laboratories (NC Wastewater Certification # 12). Laboratory analytical methods used for each constituent are provided in Table 2.

  - Seep in-situ measurements: In-situ field parameters (temperature and pH) shall be measured utilizing calibrated field meters either at the discharge of the seep directly, at the discharge of the flow measurement devices, or in the water pool created behind the device, if sufficient water depth did not exist at the device discharge.

3.2.3 Evaluation

Evaluation of the data from the initial assessment site visit will establish baseline conditions and will serve as the basis for comparison for subsequent assessment site visit results. Evaluation of observations and sampling results shall include location, extent (i.e., dimensions of affected area), and flow of each discharge. The analytical results of the upstream and downstream locations shall be compared to the 15A NCAC 2B standards for surface water quality upon receipt to identify potential exceedances.

3.2.4 Assessment Reporting

Each assessment site visit shall be documented by the individual performing the assessment, as described in Section 3.2.2 to meet the requirements in 130A-309.210.1(b). The report should contain site background, observation and sampling methodology, and a summary of the observations and descriptions of the discharge channels observed, changes in observations compared to previous assessment events, estimates of flows quantities, and photographs of discharges and outfalls of engineered channels designed or improved for collecting water from the impoundment. Photographs are to be numbered and captioned. The flow and analytical results shall be recorded and presented in tables similar to the examples provided as Tables 1 and 3. The analytical results shall be compared to the 15A NCAC 2B standards for surface water quality and exceedances highlighted. This information shall be compiled, reviewed, and submitted to NCDENR within 90 days from the Observation and Sampling event.

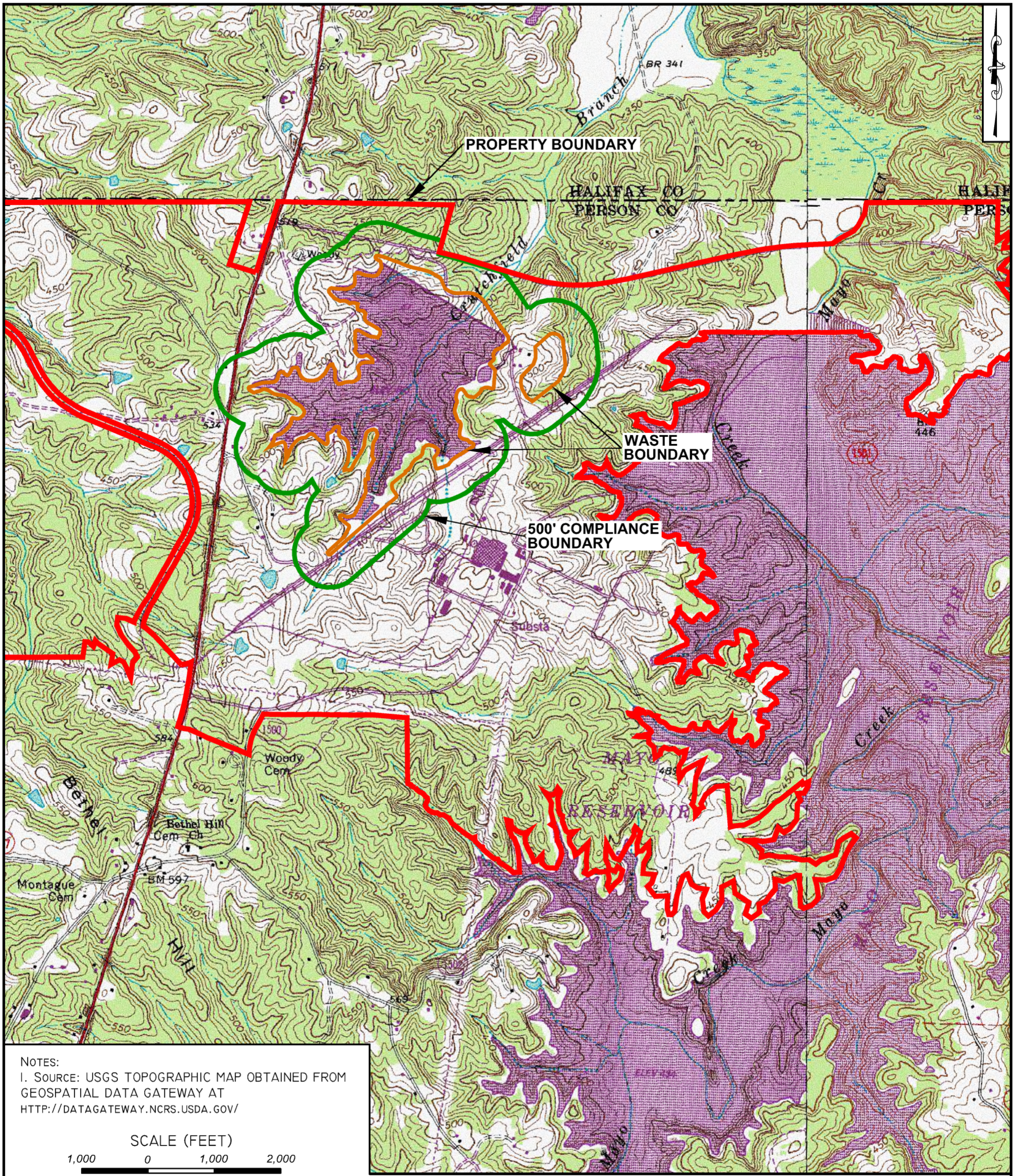
Section 4 - References

Hibbard, James P., Edward F. Stoddard, Donald T. Secor, and Allen J. Dennis. 2002. The Carolina Zone: overview of Neoproterozoic to Early Paleozoic peri-Gondwanan terranes along the eastern Flank of the southern Appalachians: Earth Science Reviews, v. 57.

North Carolina Department of Environment and Natural Resources. 2007. *Dam Operation, Maintenance, and Inspection Manual,* North Carolina Department of Environment and Natural Resources, Division of Land Resources, Land Quality Division, 1985 (Revised 2007).

North Carolina Geological Survey. 1985. Geologic map of North Carolina: North Carolina Geological Survey, General Geologic Map , scale 1:500000.

FIGURES AND TABLES



NOTES:
1. SOURCE: USGS TOPOGRAPHIC MAP OBTAINED FROM GEOSPATIAL DATA GATEWAY AT HTTP://DATAGATEWAY.NCRS.USDA.GOV/

SCALE (FEET)
1,000 0 1,000 2,000

License Number: F-0116
440 South Church Street Charlotte, NC 28202

SITE LOCATION MAP
DUKE ENERGY PROGRESS
MAYO STEAM ELECTRIC PLANT
NPDES PERMIT
ROXBORO, NORTH CAROLINA

DATE
DEC. 16, 2014

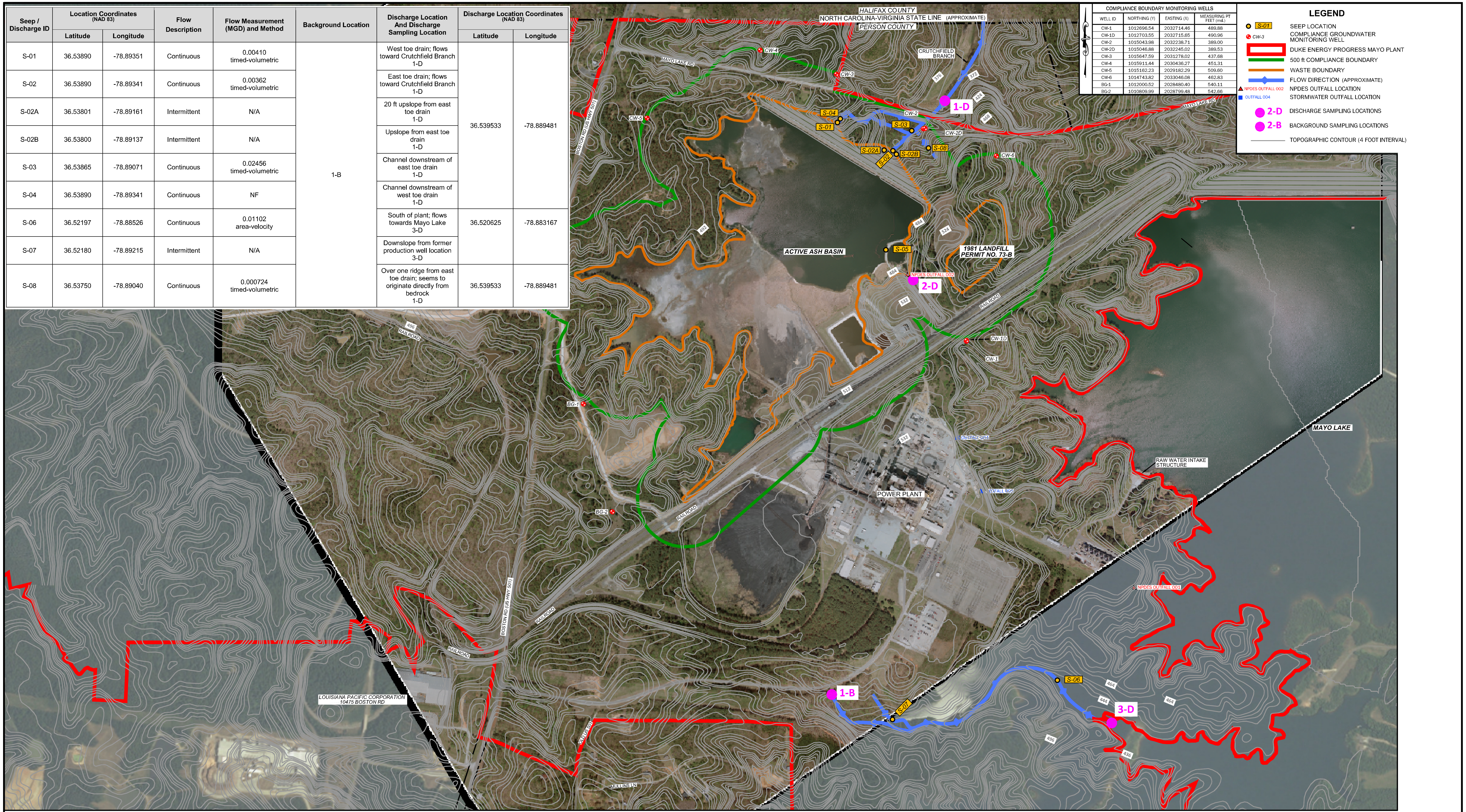
FIGURE
1

C:\pwworking\tpa\d0641019\DUKE MAYO-FIG 1 USGS.dwg, FIG 1 (SITE LOCATION), 12/16/2014 5:12:57 PM, ctynes

Seep / Discharge ID	Location Coordinates (NAD 83)		Flow Description	Flow Measurement (MGD) and Method	Background Location	Discharge Location And Discharge Sampling Location	Discharge Location Coordinates (NAD 83)	
	Latitude	Longitude					Latitude	Longitude
S-01	36.53890	-78.89351	Continuous	0.00410 timed-volumetric	1-B	West toe drain; flows toward Crutchfield Branch 1-D	36.539533	-78.889481
S-02	36.53890	-78.89341	Continuous	0.00362 timed-volumetric		East toe drain; flows toward Crutchfield Branch 1-D		
S-02A	36.53801	-78.89161	Intermittent	N/A		20 ft upslope from east toe drain 1-D		
S-02B	36.53800	-78.89137	Intermittent	N/A		Upslope from east toe drain 1-D		
S-03	36.53865	-78.89071	Continuous	0.02456 timed-volumetric		Channel downstream of east toe drain 1-D		
S-04	36.53890	-78.89341	Continuous	NF		Channel downstream of west toe drain 1-D		
S-06	36.52197	-78.88526	Continuous	0.01102 area-velocity		South of plant; flows towards Mayo Lake 3-D	36.520625	-78.883167
S-07	36.52180	-78.89215	Intermittent	N/A		Downslope from former production well location 3-D		
S-08	36.53750	-78.89040	Continuous	0.000724 timed-volumetric		Over one ridge from east toe drain; seems to originate directly from bedrock 1-D	36.539533	-78.889481

COMPLIANCE BOUNDARY MONITORING WELLS

WELL ID	NORTHING (Y)	EASTING (X)	MEASURING PT FEET (msl.)
CW-1	1012696.54	2032714.46	489.88
CW-1D	1012703.55	2032715.65	490.96
CW-2	1015043.98	2032238.71	389.00
CW-2D	1015046.88	2032245.02	389.53
CW-3	1015647.59	2031278.02	437.68
CW-4	1015911.44	2030436.27	451.31
CW-5	1015162.23	2029182.29	509.60
CW-6	1014743.82	2033046.08	462.83
BG-1	1012000.52	2028480.40	540.11
BG-2	1010809.99	2028799.48	542.66



GRAPHIC SCALE
500 0 250 500 1000
(IN FEET)

SOURCES:

1. 2010 AERIAL PHOTOGRAPH OF PERSON COUNTY, NORTH CAROLINA WAS OBTAINED FROM NRCS GEOSPATIAL DATA GATEWAY AT http://datagateway.nrcs.usda.gov/
2. 2012 AERIAL PHOTOGRAPH OF HALIFAX COUNTY, VIGINIA WAS OBTAINED FROM NRCS GEOSPATIAL DATA GATEWAY AT http://datagateway.nrcs.usda.gov/
3. 2014 AERIAL PHOTOGRAPH WAS OBTAINED FROM WSP FLOWN ON APRIL 17, 2014.
4. DRAWING HAS BEEN SET WITH A PROJECTION OF NORTH CAROLINA STATE PLANE COORDINATE SYSTEM FIPS 3200 (NAD 83).
5. WELL SURVEY INFORMATION, PROPERTY LINE, LANDFILL LIMITS AND BOUNDARIES ARE FROM ARCGIS FILES PROVIDED BY S&ME AND PROGRESS ENERGY.
6. PARCEL BOUNDARIES WERE OBTAINED FROM PERSON COUNTY (NC) GIS DATA AT http://gis.personcounty.net

HDR

TOPOGRAPHIC MAP WITH IDENTIFIED SEEPS AND OUTFALLS
DUKE ENERGY CAROLINAS, LLC
MAYO STEAM ELECTRIC PLANT
NPDES PERMIT #NC0038377
ROXBORO, NORTH CAROLINA

DATE
DECEMBER, 2014

FIGURE
2

Table 1 – Mayo Steam Electric Station Ash Basin –Seep and Associated Discharge Locations and Descriptions

Seep / Discharge ID	Location Coordinates (NAD 83)		Flow Description	Flow Measurement (MGD) and Method	Background Location	Discharge Location and Discharge Sampling Location	Discharge Location Coordinates (NAD 83)	
	Latitude	Longitude					Latitude	Longitude
S-01	36.53890	-78.89351	Continuous	0.00410 timed-volumetric	1-B	West toe drain; flows toward Crutchfield Branch 1-D	36.539533	-78.889481
S-02	36.53890	-78.89341	Continuous	0.00362 timed-volumetric		East toe drain; flows toward Crutchfield Branch 1-D		
S-02A	36.53801	-78.89161	Intermittent	N/A		20 ft upslope from east toe drain 1-D		
S-02B	36.53800	-78.89137	Intermittent	N/A		Upslope from east toe drain 1-D		
S-03	36.53865	-78.89071	Continuous	0.02456 timed-volumetric		Channel downstream of east toe drain 1-D		
S-04	36.53890	-78.89341	Continuous	NF		Channel downstream of west toe drain 1-D		
S-06	36.52197	-78.88526	Continuous	0.01102 area-velocity		South of plant; flows towards Mayo Lake 3-D	36.520625	-78.883167
S-07	36.52180	-78.89215	Intermittent	N/A		Downslope from former production well location 3-D		
S-08	36.53750	-78.89040	Continuous	0.000724 timed-volumetric		Over one ridge from east toe drain; seems to originate directly from bedrock 1-D	36.539533	-78.889481

Notes:

1. Flow description for each seep sample location is based on observation during site visits performed by Synterra June and July 2014.

Table 2 – Laboratory Analytical Methods

Parameter	Method	Reporting Limit	Units	Laboratory
Fluoride (F)	EPA 300.0	1	mg/l	Duke Energy
Mercury (Hg)	EPA 245.1	0.05	µg/l	Duke Energy
Arsenic (As)	EPA 200.8	1	µg/l	Duke Energy
Cadmium (Cd)	EPA 200.8	1	µg/l	Duke Energy
Chromium (Cr)	EPA 200.8	1	µg/l	Duke Energy
Copper (Cu)	EPA 200.8	1	µg/l	Duke Energy
Lead (Pb)	EPA 200.8	1	µg/l	Duke Energy
Nickel (Ni)	EPA 200.8	1	µg/l	Duke Energy
Selenium (Se)	EPA 200.8	1	µg/l	Duke Energy

Table 3 – Mayo Steam Electric Plant Ash Basin – Example of Surface Water/Seep Monitoring Flow and Analysis Results Table

Parameter	Units	Stormwater Outfall 004	Stormwater Outfall 005	S-01	S-02	S-02 Duplicate	S-03	S-04	S-05	S-06	S-08 (NOV 12 2014)
Fluoride	mg/l	0.51	0.22	0.15	< 0.1	< 0.1	0.14	0.16	0.30	0.18	0.11
Hg - Mercury (71900)	µg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
As - Arsenic (01002)	µg/l	< 1	< 1	2.64	< 1	< 1	< 1	1.97	3.03	< 1	< 1
Cd - Cadmium (01027)	µg/l	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Cr - Chromium (01034)	µg/l	2.05	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Cu - Copper (01042)	µg/l	1.20	1.97	< 1	< 1	< 1	< 1	< 1	1.56	< 1	< 1
Pb - Lead (01051)	µg/l	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Ni - Nickel (01067)	µg/l	< 1	< 1	1.20	2.41	2.04	< 1	1.37	< 1	< 1	1.25
Se - Selenium (01147)	µg/l	2.58	2.08	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
pH	s.u.	7.6	6.9	6.2	5.7	5.7	6.4	6.3	8.4	7.2	6.5
Temperature	℃	21	22	19	17	17	19	25	27	21	15
Flow	MGD	0.00106	0.05261	0.00410	0.00362	0.00362	0.02456	NF	NM	0.01102	0.000724

Notes:

1. Flow measurements and analytical samples were collected on August 27, 2014 and November 12, 2014 (S-08).