STATE OF NORTH CAROLINA
DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF WATER RESOURCES

PERMIT

TO DISCHARGE WASTEWATER UNDER THE

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of North Carolina General Statute 143-215.1, other lawful standards and regulations promulgated and adopted by the North Carolina Environmental Management Commission, and the Federal Water Pollution Control Act, as amended,

Duke Energy Carolinas, LLC

is hereby authorized to discharge wastewater from a facility located at

Marshall Steam Station
At the intersection of NC Highway 150 and NCSR 1841
Terrell
Catawba County

to receiving waters designated as the Catawba River (Lake Norman) in the Catawba River Basin in accordance with effluent limitations, monitoring requirements, and other applicable conditions set forth in Parts I, II, and III hereof.

This modification shall become effective June 1, 2021.

This permit modification and authorization to discharge shall expire at midnight on September 30, 2021.

Signed this day May 18, 2021.

_____
D. Daniel Smith, Director
Division of Water Resources
By Authority of the Environmental Management Commission

SUPPLEMENT TO PERMIT COVER SHEET

All previous NPDES Permits issued to this facility, whether for operation or discharge are hereby revoked, and as of this issuance, any previously issued permit bearing this number is no longer effective. Therefore, the exclusive authority to operate and discharge from this facility arises under the permit conditions, requirements, terms, and provisions included herein.

Duke Energy Carolinas, LLC is hereby authorized to:

1. Continue to discharge:
   - Outfall 001: once-through cooling water and intake screen backwash
   - Outfall 002: treated wastewater (consisting of metal cleaning wastes, coal pile runoff, ash transport water, storm water, low volume wastes, landfill leachate, extracted groundwater from remediation activities, and FGD wet scrubber wastewater) from the ash settling basin.
   - Outfall 005. Upon completion of construction, discharge from the new lined retention basin. Basin will accept wastes from holding basin (coal pile runoff), ash transport water, various sumps, stormwater runoff, FGD wastewater, bottom ash purge from the submerged flight conveyers (purge volume not to exceed 10% of the water systems volume), and various low volume wastes such as boiler blowdown, oily waste treatment, wastes/backwash from the water treatment processes, plant area wash down water, equipment heat exchanger water, landfill leachate, and ash transport water. Upon completion of construction all waste streams previously discharged to the ash basin, will be re-routed to the new retention basin. During the transition period, wastewater from the ash pond can also be discharged (Outfall 002).
   - Outfalls 002A and 002B: yard sump overflows.
   - Outfall 007: the emergency spillway of the Ash Pond. The spillway is designed for a flood greater than 100-year event. Sampling of this spillway is waived due to unsafe conditions associated with sampling during an overflow event.
   - Internal outfall 001/001A. Yard sump (wastewater from the yard sump 2, the yard sump 3, the fly ash silo yard sump, and stormwater) discharging to the retention basin.
   - Internal Outfall 003: non-contact cooling water from the induced draft fan control house to the intake for cooling water pumps.
   - Internal Outfall 006: treated FGD wet scrubber wastewater to the new lined retention basin.
   - Internal Outfall 010 from Holding Basin: coal pile runoff, and stormwater to the retention basin.

   From a facility located at Duke Energy's Marshall Steam Station at the intersection of NC Highway 150 and NCSR 1841 in Terrell, Catawba County;

2. Discharge from said treatment works at the locations specified on the attached map into the Catawba River (Lake Norman) which is classified WS-IV and B CA waters in the Catawba River Basin.

PART I

A. (1.) Effluent Limitations and Monitoring Requirements (Outfall 001)
[15A NCAC 02B .0400 et seq., 02B .0500 et seq.]

During the period beginning on the effective date of this permit and lasting until expiration, the Permittee is authorized to discharge from **Outfall 001 (once-through cooling water).** Such discharges shall be limited and monitored[2] by the Permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS		
	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type	Sample Location
Flow, MGD	Monitor & Report		Daily	Pump logs or similar readings	Effluent
Temperature (November 1 - June 30)	33.3 °C		Daily	Grab	Effluent
Temperature (July 1 - October 31)	34.4 °C		Daily	Grab	Effluent
Free Available Chlorine[1]	0.2 mg/L	0.5 mg/L	Daily	Grab	Effluent

NOTES:

1 Once-through cooling water shall not be chlorinated. Should the facility wish to chlorinate once-through cooling water, Division permission shall be obtained prior to commencement of chlorination. The monitoring requirement and effluent limitations only apply if chlorination is commenced.

2 The permittee shall submit Discharge Monitoring Reports electronically using NC DWR's eDMR application system. Please See Special Condition A. (30.).

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Based upon studies conducted by the permittee and submitted to the Division, it has been determined pursuant to Section 316(a) of the Clean Water Act that the thermal component of the discharge assures the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife in the receiving water.

A. (2.) Effluent Limitations and Monitoring Requirements (Outfall 002 – normal operation/decanting)
[15A NCAC 02B .0400 et seq., 02B .0500 et seq.]

During the period beginning on the effective date of this permit and lasting until expiration, the Permittee is authorized to discharge from **Outfall 002 (ash settling basin discharge - decanting the free water above the settled ash layer that does not involve mechanical disturbance of the ash**). Such discharges shall be limited and monitored[4] by the Permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS		
	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type	Sample Location[1]
Flow, MGD	Monitor & Report		Weekly	Pump logs or similar readings	Effluent
Oil and Grease	9.0 mg/L	12.0 mg/L	Monthly	Grab	Effluent
Total Suspended Solids[2]	20.0 mg/L	50.0 mg/L	Monthly	Grab	Effluent
Total Arsenic			Weekly	Grab	Effluent
Total Copper	1.0 mg/L[3]	1.0 mg/L[3]	Weekly	Grab	Effluent
Total Iron	1.0 mg/L[3]	1.0 mg/L[3]	Weekly	Grab	Effluent
Total Mercury[6]			Weekly	Grab	Effluent
Total Selenium			Weekly	Grab	Effluent
Turbidity[5], NTU			Monthly	Grab	Effluent
Nitrate/nitrite as N, mg/L			Quarterly	Grab	Effluent
Bromide, mg/L			Monthly	Grab	Effluent
Total Hardness, mg/L			Monthly	Grab	Effluent
Total Nitrogen (NO_2+NO_3+TKN), mg/L	Monitor & Report		Quarterly	Grab	Effluent
Total Phosphorus, mg/L	Monitor & Report		Quarterly	Grab	Effluent
Chronic Toxicity	See Part I, Section A. (18.)		Monthly	Grab	Effluent
pH[7]	Between 6.0 and 9.0 Standard Units		Monthly	Grab	Effluent

NOTES:
1 Effluent sampling shall be conducted at the discharge from the ash settling basin prior to mixing with any other waste stream(s).
2 The facility shall continuously monitor TSS concentration when the decanting process commences and the decanting pump shall be shut off automatically when one half of the Daily Maximum limit (15 minutes average) is exceeded. Pumping will be allowed to continue if interruption might result in a dam failure or damage. The continuous TSS monitoring only required when the pumps are employed for decanting.
3 The limits for total copper and total iron only apply when chemical metal cleaning wastewaters are being discharged.
4 The permittee shall submit Discharge Monitoring Reports electronically using NC DWR's eDMR application system. Please See Special Condition A. (30.).
5 The discharge from this facility shall not cause turbidity in the receiving stream to exceed 50 NTU. If the instream turbidity exceeds 50 NTU due to natural background conditions, the discharge cannot cause turbidity to increase in the receiving stream. Therefore, if the effluent measurement exceeds 50 NTU, the Permittee shall sample upstream and downstream turbidity in the receiving waterbody, within 24 hours, to demonstrate the

existing turbidity level in the receiving waterbody was not increased. All data shall be reported on the DMRs. (See 15A NCAC 2B .0211 (21)).
NTU - Nephelometric Turbidity Unit.

6 The facility shall use EPA method 1631E.

7 The facility shall continuously monitor pH when the decanting process commences and the decanting pump shall be shut off automatically when 15 minutes running average pH falls below 6.1 standard units or rises above 8.9 standard units. Pumping will be allowed to continue if interruption might result in a dam failure or damage. The continuous pH monitoring only required when the pumps are employed for decanting.

When the facility commences the ash pond/ponds decanting, the facility shall treat the wastewater discharged from the ash pond/ponds using physical-chemical treatment, if necessary, to assure state Water Quality Standards are not contravened in the receiving stream. Duke Energy shall notify DWR NPDES Permitting and DWR Mooresville Regional Office, in writing, within seven calendar days of installing additional physical-chemical treatment at this Outfall.

There shall be no discharge of floating solids or visible foam in other than trace amounts. The facility is allowed to drawdown the wastewater in the ash pond to no less than three feet above the ash.

The rate for lowering the liquid level in a coal ash pond shall not exceed one (1) foot per day unless a higher rate is supported to the satisfaction of DEMLR and in accordance with NCAC, Title 15A, Subchapter 2K.

The facility shall use a floating pump station with free water skimmed from the basin surface using an adjustable weir.

By November 1, 2018 there shall be no discharge of pollutants in fly ash transport water. This requirement only applies to fly ash transport water generated after November 1, 2018.

In accordance with the N.C.G.S. § 130A-309.210, by December 31, 2019, the facility shall convert to the disposal of dry bottom ash, as defined in the Coal Ash Management Act ("CAMA"). This requirement only applies to bottom ash transport water generated after 12/31/2019 or a new date as HB630 may be amended.

By November 1, 2021 there shall be no discharge of pollutants in bottom ash transport water. This requirement only applies to bottom ash transport water generated after November 1, 2021. Beginning on November 1, 2021, the permittee will comply with the Steam Electric Effluent Limitations Guidelines for bottom ash wastewater (40 C.F.R. 423) in effect on December 1, 2020.

The limits and conditions in Section A. (3.) of the permit apply when water in the ash settling basin is lowered below the three feet trigger mark. The facility shall notify DWR Complex NPDES Permitting Unit and DWR Mooresville Regional Office, in writing, seven calendar days prior to the commencement of the decanting.

A. (3.) Effluent Limitations and Monitoring Requirements (Outfall 002 – dewatering phase)
[15A NCAC 02B .0400 et seq., 02B .0500 et seq.]

During the period beginning on the commencement date of the dewatering operation and lasting until expiration, the Permittee is authorized to discharge from **Outfall 002 Ash Settling Basin Discharge (Dewatering – removing the interstitial water, and groundwater**). Such discharges shall be limited and monitored[4] by the Permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS		
	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type	Sample Location[1]
Flow		3.0 MGD	Weekly	Pump logs or similar readings	Effluent
Oil and Grease	9.0 mg/L	12.0 mg/L	Monthly	Grab	Effluent
Total Suspended Solids[2]	20.0 mg/L	50.0 mg/L	Monthly	Grab	Effluent
Total Arsenic	139.1 µg/L	695.4 µg/L	Weekly	Grab	Effluent
Total Copper	1.0 mg/L[3]	1.0 mg/L[3]	Weekly	Grab	Effluent
Total Iron	1.0 mg/L[3]	1.0 mg/L[3]	Weekly	Grab	Effluent
Total Mercury[6]			Weekly	Grab	Effluent
Total Selenium			Weekly	Grab	Effluent
Turbidity[5], NTU			Monthly	Grab	Effluent
Nitrate/nitrite as N, mg/L			Quarterly	Grab	Effluent
Bromide, mg/L			Monthly	Grab	Effluent
Total Hardness, mg/L			Monthly	Grab	Effluent
Total Nitrogen (NO_2+NO_3+TKN), mg/L	Monitor & Report		Quarterly	Grab	Effluent
Total Phosphorus, mg/L	Monitor & Report		Quarterly	Grab	Effluent
Chronic Toxicity	See Part I, Section A. (18.)		Monthly	Grab	Effluent
pH[7]	Between 6.0 and 9.0 Standard Units		Monthly	Grab	Effluent

NOTES:

1 Effluent sampling shall be conducted at the discharge from the ash settling basin prior to mixing with any other waste stream(s).

2 The facility shall continuously monitor TSS concentration when the dewatering process commences and the dewatering pump shall be shut off automatically when one half of the Daily Maximum limit (15 minutes average) is exceeded. Pumping will be allowed to continue if interruption might result in a dam failure or damage. The continuous TSS monitoring only required when the pumps are employed for dewatering.

3 The limits for total copper and total iron only apply when chemical metal cleaning wastewaters are being discharged.

4 The permittee shall submit Discharge Monitoring Reports electronically using NC DWR's eDMR application system. Please See Special Condition A. (30.).

5 The discharge from this facility shall not cause turbidity in the receiving stream to exceed 50 NTU. If the instream turbidity exceeds 50 NTU due to natural background conditions, the discharge cannot cause turbidity to increase in the receiving stream. Therefore, if the effluent measurement exceeds 50 NTU, the Permittee shall sample upstream and downstream turbidity in the receiving waterbody, within 24 hours, to

demonstrate the existing turbidity level in the receiving waterbody was not increased. All data shall be reported on the DMRs. (See 15A NCAC 2B .0211 (21)).
NTU - Nephelometric Turbidity Unit.

6 The facility shall use EPA method 1631E.

7 The facility shall continuously monitor pH when the dewatering process commences and the dewatering pump shall be shut off automatically when 15 minutes running average pH falls below 6.1 standard units or rises above 8.9 standard units. Pumping will be allowed to continue if interruption might result in a dam failure or damage. The continuous pH monitoring only required when the pumps are employed for dewatering.

When the facility commences the ash pond/ponds dewatering, the facility shall treat the wastewater discharged from the ash pond/ponds using physical-chemical treatment, if necessary, to assure state Water Quality Standards are not contravened in the receiving stream. Duke Energy shall notify DWR NPDES Permitting and DWR Mooresville Regional Office, in writing, within seven calendar days of installing additional physical-chemical treatment at this Outfall.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

The rate for lowering the liquid level in a coal ash pond shall not exceed one (1) foot per day unless a higher rate is supported to the satisfaction of DEMLR and in accordance with NCAC, Title 15A, Subchapter 2K.

By November 1, 2018 there shall be no discharge of pollutants in fly ash transport water. This requirement only applies to fly ash transport water generated after November 1, 2018.

In accordance with the N.C.G.S. § 130A-309.210, by December 31, 2019, the facility shall convert to the disposal of dry bottom ash, as defined in the Coal Ash Management Act ("CAMA"). This requirement only applies to bottom ash transport water generated after 12/31/2019 or a new date as HB630 may be amended.

By November 1, 2021 there shall be no discharge of pollutants in bottom ash transport water. This requirement only applies to bottom ash transport water generated after November 1, 2021. Beginning on November 1, 2021, the permittee will comply with the Steam Electric Effluent Limitations Guidelines for bottom ash wastewater (40 C.F.R. 423) in effect on December 1, 2020.

The facility shall notify DWR Complex NPDES Permitting Unit and DWR Mooresville Regional Office, in writing, seven calendar days prior to the commencement of the dewatering.

A. (4.) Effluent Limitations and Monitoring Requirements (Outfall 002A)
[15A NCAC 02B .0400 et seq., 02B .0500 et seq.]

During the period beginning on the effective date of this permit and lasting until expiration, the Permittee is authorized to discharge from **Outfall 002A (yard sump #1 overflows).** Such discharges shall be limited and monitored[2] by the Permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS		
	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type	Sample Location[1]
Flow, MGD			Per discharge event	Estimate	Effluent
pH	Between 6.0 and 9.0 Standard Units		Per discharge event	Grab	Effluent
Total Suspended Solids	30.0 mg/L	100.0 mg/L	Per discharge event	Grab	Effluent
Oil and Grease	15.0 mg/L	20.0 mg/L	Per discharge event	Grab	Effluent
Total Iron, mg/L			Per discharge event	Grab	Effluent

NOTES:
1 Effluent samples shall be collected at a point upstream of the discharge to the Catawba River.
2 The permittee shall submit Discharge Monitoring Reports electronically using NC DWR's eDMR application system. Please See Special Condition A. (30.).

There shall be no discharge of floating solids or visible foam in other than trace amounts.

All flows shall be reported on monthly DMRs. Should no flow occur during a given month, the words "No Flow" shall be clearly written on the front of the DMR. All samples shall be of a representative discharge.

A. (5.) Effluent Limitations and Monitoring Requirements (Outfall 002B)
[15A NCAC 02B .0400 et seq., 02B .0500 et seq.]

During the period beginning on the effective date of this permit and lasting until expiration, the Permittee is authorized to discharge from **Outfall 002B (yard sump #2 overflows).** Such discharges shall be limited and monitored[2] by the Permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS		
	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type	Sample Location[1]
Flow, MGD			Per discharge event	Estimate	Effluent
pH	Between 6.0 and 9.0 Standard Units		Per discharge event	Grab	Effluent
Total Suspended Solids	30.0 mg/L	100.0 mg/L	Per discharge event	Grab	Effluent
Oil and Grease	15.0 mg/L	20.0 mg/L	Per discharge event	Grab	Effluent
Total Iron, mg/L			Per discharge event	Grab	Effluent

NOTES:
1 Effluent samples shall be collected at a point upstream of the discharge to the Catawba River.
2 The permittee shall submit Discharge Monitoring Reports electronically using NC DWR's eDMR application system. Please See Special Condition A. (30.).

There shall be no discharge of floating solids or visible foam in other than trace amounts.

All flows shall be reported on monthly DMRs. Should no flow occur during a given month, the words "No Flow" shall be clearly written on the front of the DMR. All samples shall be of a representative discharge.

A. (6.) Effluent Limitations and Monitoring Requirements (Internal Outfall 003)
[15A NCAC 02B .0400 et seq., 02B .0500 et seq.]

During the period beginning on the effective date of this permit and lasting until expiration, the Permittee is authorized to discharge from **Internal Outfall 003 (non-contact cooling water from the induced draft fan control house).** Such discharges shall be limited and monitored[2] by the Permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS		
	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type	Sample Location
Flow, MGD			Semi-annually	Estimate	Effluent
Temperature, ^{0}C			Semi-annually	Grab	Effluent
Total Residual Chlorine[1], µg/L			Semi-annually	Grab	Effluent
Free Available Chlorine[1]	0.2 mg/L	0.5 mg/L	Semi-annually	Grab	Effluent
pH	Between 6.0 and 9.0 Standard Units		Semi-annually	Grab	Effluent

NOTES:
1 Monitoring requirements apply only if chlorine is added to the cooling water. Neither free available chlorine nor total residual chlorine may be discharged from any unit for more than two hours in any one day and not more than one unit in any plant may discharge free available chlorine or total residual chlorine at any one time.
2 The permittee shall submit Discharge Monitoring Reports electronically using NC DWR's eDMR application system. Please See Special Condition A. (30.).

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Limitations shall be met at the discharge point.

A. (7.) Effluent Limitations and Monitoring Requirements (Internal Outfall 006)
[15A NCAC 02B .0400 et seq., 02B .0500 et seq.]

During the period beginning on the effective date of this permit and lasting until expiration, the Permittee is authorized to discharge from **Internal Outfall 006 (treated FGD wet scrubber wastewater to retention basin).** Such discharges shall be limited and monitored[2] by the Permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS		
	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type	Sample Location[1]
Flow, MGD	Monitor & Report		Monthly	Pump logs or similar readings	Effluent
Total Arsenic	8.0 µg/L[4]	18.0 µg/L[4]	Quarterly	Grab	Effluent
Total Mercury[3]	34.0 ng/L[4]	103.0 ng/L[4]	Quarterly	Grab	Effluent
Total Selenium	29.0 µg/L[4]	70.0 µg/L[4]	Quarterly	Grab	Effluent
Nitrate/nitrite as N	3.0 mg/L[4]	4.0 mg/L[4]	Quarterly	Grab	Effluent
pH			Quarterly	Grab	Effluent

NOTES:

1 Sample Location: E - Effluent samples shall be collected prior to the commingling with other waste streams.
2 The permittee shall submit Discharge Monitoring Reports electronically using NC DWR's eDMR application system. Please See Special Condition A. (30.).
3 The facility shall use EPA method 1631E.
4 Beginning on November 1, 2021, the permittee shall comply with the Steam Electric Effluent Limitations Guidelines for FGD wastewater (40 C.F.R. 423) in effect on December 1, 2020.

All flows shall be reported on monthly DMRs. Should no flow occur during a given month, the words "No Flow" shall be clearly written on the front of the DMR. All samples shall be of a representative discharge.

This permit may be reopened and modified if changes are made to 40 C.F.R. 423.

The permittee will operate the FGD wastewater system until all coal-fired generation units at the site are retired. Performance of the FGD wastewater treatment system shall be optimized to maximize pollutant reduction and minimize variability.

A. (8.) EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (Outfall 005)
[15A NCAC 02B .0400 et seq., 02B .0500 et seq.]
During the period beginning upon commencement of operations and lasting until expiration, the Permittee is authorized to discharge from **Outfall 005** – Retention Basin discharge. Such discharges shall be limited and monitored[1] by the Permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS		
	Monthly Average	Daily Maximum	Measurement Frequency[2]	Sample Type	Sample Location
Flow, MGD			Weekly	Instantaneous or Estimate	Effluent
pH	Between 6.0 and 9.0 standard units		Monthly	Grab	Effluent
TSS	30.0 mg/L	50.0 mg/L	Monthly	Grab	Effluent
Oil and Grease	15.0 mg/L	20.0 mg/L	Monthly	Grab	Effluent
Fluoride, mg/L			Monthly	Grab	Effluent
Total Mercury[2], ng/L			Monthly	Grab	Effluent
Total Silver, µg/L			Monthly	Grab	Effluent
Total Iron[3]	1.0 mg/L	1.0 mg/L	Monthly	Grab	Effluent
Total Zinc, µg/L			Monthly	Grab	Effluent
Total Arsenic, µg/L			Monthly	Grab	Effluent
Total Cadmium, µg/L			Monthly	Grab	Effluent
Total Chromium, µg/L			Monthly	Grab	Effluent
Total Copper[3]	68.8 µg/L	76.8 µg/L	Monthly	Grab	Effluent
Total Lead, µg/L			Monthly	Grab	Effluent
Total Nickel, µg/L			Monthly	Grab	Effluent
Total Selenium, µg/L			Monthly	Grab	Effluent
Total Nitrogen (NO_2 + NO_3 + TKN), mg/L			Quarterly	Grab	Effluent
Total Phosphorus, mg/L			Quarterly	Grab	Effluent
Sulfates, mg/L			Monthly	Grab	Effluent
Chlorides, mg/L			Monthly	Grab	Effluent
Bromide, mg/L			Monthly	Grab	Effluent
TDS, mg/L			Monthly	Grab	Effluent
Total Hardness, mg/L			Monthly	Grab	Effluent
Temperature, ^0C			Monthly	Grab	Effluent
Conductivity, µmho/cm			Monthly	Grab	Effluent
Chronic Toxicity[4]			Monthly	Grab	Effluent

Notes:
1. The permittee shall submit Discharge Monitoring Reports electronically using NC DWR's eDMR application system. Please See Special Condition A. (30.).
2. The facility shall use EPA method 1631E.
3. The limits for total copper and total iron only apply when chemical metal cleaning wastewaters are being discharged.
4. Whole Effluent Toxicity shall be monitored by chronic toxicity (Ceriodaphnia) P/F at 23.0%, see Special Condition A. (18.).

The facility shall submit EPA Form 2C for Outfall 005 no later than 180 days from the commencement of the discharge. The facility shall notify DWR/NPDES Complex Permitting, in writing, 30 days prior to the commencement of the discharge from this outfall.

Except for those discharges authorized below, or when the bottom ash transport water is used in the FGD scrubber, there shall be no discharge of

pollutants in bottom ash transport water. Bottom ash transport water shall be discharged to the FGD scrubber during normal operations.

If the FGD Scrubber is unavailable to receive bottom ash transport water, the discharge of pollutants in bottom ash transport water (bottom ash purge water) from a properly installed, operated, and maintained bottom ash system to the Lined Retention Basin is authorized under the following conditions:

A. To maintain system water balance when precipitation-related inflows are generated from a 10-year storm event of 24-hour or longer duration (e.g., 30-day storm event) and cannot be managed by installed spares, redundancies, maintenance tanks, and other secondary bottom ash system equipment; or
B. To maintain system water balance when regular inflows from waste streams other than bottom ash transport water exceed the ability of the bottom ash system to accept recycled water and segregating these other waste streams is feasible; or
C. To maintain system water chemistry where current operations at the facility are unable to currently manage pH, corrosive substances, substances or conditions causing scaling, or fine particulates to below levels which impact system operation or maintenance; or
D. To conduct maintenance not otherwise described above and not exempted from the definition of transport water in 40 C.F.R. § 423.11(p), and when water volumes cannot be managed by installed spares, redundancies, maintenance tanks, and other secondary bottom ash system equipment.

In no event shall the total volume of the discharge to the Lined Retention Basin exceed a 30-day rolling average of ten percent of the primary active wetted bottom ash system volume. The volume of daily discharges used to calculate the 30-day rolling average shall be calculated using measurements from flow monitors or pump logs. Based on a calculated bottom ash transport system volume of 0.983 million gallons, the 30 day rolling average discharge shall not exceed 0.098 MGD.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

A. (9.) EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (Outfall 007)
[15A NCAC 02B .0400 et seq., 02B .0500 et seq.]

During the period beginning on the effective date of this permit and lasting until expiration, the Permittee is authorized to discharge from **outfall 007** – Emergency spillway of the ash basin. Such discharges shall be limited and monitored[1] by the Permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS		
	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type	Sample Location
Flow, MGD			Waived	Estimate	Effluent
pH			Waived	Grab	Effluent
TSS			Waived	Grab	Effluent
Oil and Grease			Waived	Grab	Effluent

The emergency spillway is designed for a flood greater than 100-year event in Catawba County. Sampling of this spillway is waived due to unsafe conditions associated with sampling during an overflow event.

Monitoring is required for any other rain event that might trigger a discharge.

A. (10.) EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (Internal Outfall 010)
[15A NCAC 02B .0400 et seq., 02B .0500 et seq.]

During the period beginning upon commencement of operation of the yard sump and lasting until expiration, the Permittee is authorized to discharge from **Internal outfall 010** – Coal yard runoff and stormwater. Such discharges shall be limited and monitored[1] by the Permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS		
	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type	Sample Location
Flow, MGD			Quarterly	Estimate	Effluent
pH			Quarterly	Grab	Effluent
TSS			Quarterly	Grab	Effluent
Oil and Grease			Quarterly	Grab	Effluent

Notes:

1. The permittee shall submit Discharge Monitoring Reports electronically using NC DWR's eDMR application system. Please See Special Condition A. (30.).

A. (11.) ADDITIONAL CONDITIONS AND DEFINITIONS
[NCGS 143-215.3 (a) (2) and NCGS 143-215.66]

1. EPA methods 200.7 or 200.8 (or the most current versions) shall be used for analyses of all metals except for total mercury (EPA Method 1631E).
2. All effluent samples for all external outfalls shall be taken at the most accessible location after the final treatment but prior to discharge to waters of the U.S. (40 CFR 122.41(j)).
3. The term *low volume waste sources* means wastewater from all sources except those for which specific limitations are otherwise established in this part (40 CFR 423.11 (b)).
4. The term *chemical metal cleaning waste* means any wastewater resulting from cleaning any metal process equipment with chemical compounds, including, but not limited to, boiler tube cleaning (40 CFR 423.11 (c)).
5. The term *metal cleaning waste* means any wastewater resulting from cleaning [with or without chemical cleaning compounds] any metal process equipment including, but not limited to, boiler tube cleaning, boiler fireside cleaning, and air preheater cleaning (40 CFR 423.11 (d)).
6. For all outfalls where the flow measurement is to be "estimated" the estimate can be done by using calibrated V-notch weir, stop-watch and graduated cylinder, or other method approved by the Division.
7. The term "FGD wet scrubber wastewater" means wastewater resulting from the use of the flue-gas desulfurization wet scrubber.

A. (12.) TOXICITY RE-OPENER CONDITION
[NCGS 143-215.3 (a) (2) and NCGS 143-215.66]

This permit shall be modified, or revoked and reissued to incorporate toxicity limitations and monitoring requirements in the event toxicity testing or other studies conducted on the effluent or receiving stream indicate that detrimental effects may be expected in the receiving stream as a result of this discharge.

A. (13.) APPLICABLE STATE LAW (STATE ENFORCEABLE ONLY)
[NCGS 143-215.1(b)]

This facility shall meet the General Statute requirements under NCGS § 130A-309.200 *et seq*. This permit may be reopened to include new requirements imposed under these Statutes.

A. (14.) POLYCHLORINATED BIPHENYL COMPOUNDS
[40 CFR 423]

There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.

A. (15.) BIOCIDE CONDITION
[NCGS 143-215.1]

The permittee shall not use any biocides except those approved in conjunction with the permit application. The permittee shall notify the Director in writing not later than ninety (90) days prior to instituting use of any additional biocide used in cooling systems which may be toxic to aquatic life other than those previously reported to the Division of Water Resources. Such notification shall include completion of Biocide Worksheet Form 101 and a map locating the discharge point and receiving stream. Completion of Biocide Worksheet Form 101 is not

necessary for those outfalls containing toxicity testing. Division approval is not necessary for the introduction of new biocides into outfalls currently tested for whole effluent toxicity.

A. (16.) INTAKE SCREEN BACKWASH

[NCGS 143-215.1 (b)]

Continued intake screen backwash discharge and overflow from the settling basin are permitted without limitations or monitoring requirements.

A. (17.) BEST MANAGEMENT PRACTICES

[NCGS 143-215.1 (b)]

It has been determined from information submitted that the plans and procedures in place at Marshall Steam Station are equivalent to that of a Best Management Practice (BMP).

A. (18.) CHRONIC TOXICITY PASS/FAIL PERMIT LIMIT – OUTFALL 002 AND OUTFALL 005

[15A NCAC 02B .0200 et seq.]

The effluent discharge shall at no time exhibit observable inhibition of reproduction or significant mortality to ***Ceriodaphnia dubia*** at an effluent concentration of 23.0% for decanting (Outfall 002) and Outfall 005, and 2.6% for dewatering (Outfall 002).

The permit holder shall perform at a minimum, *monthly* monitoring using test procedures outlined in the "North Carolina *Ceriodaphnia* Chronic Effluent Bioassay Procedure," Revised December 2010, or subsequent versions or "North Carolina Phase II Chronic Whole Effluent Toxicity Test Procedure" (Revised- December 2010) or subsequent versions. Effluent sampling for this testing must be obtained during representative effluent discharge and shall be performed at the NPDES permitted final effluent discharge below all treatment processes.

If the monthly test procedure results in a failure or ChV below the permit limit, then multiple-concentration testing shall be performed at a minimum, in each of the two following months as described in "North Carolina Phase II Chronic Whole Effluent Toxicity Test Procedure" (Revised-December 2010) or subsequent versions.

All toxicity testing results required as part of this permit condition will be entered on the Effluent Discharge Monitoring Form (MR-1) for the months in which tests were performed, using the parameter code **TGP3B** for the pass/fail results and **THP3B** for the Chronic Value. Additionally, DWR Form AT-3 (original) is to be sent to the following address:

Attention: North Carolina Division of Water Resources
Water Sciences Section/Aquatic Toxicology Branch
1621Mail Service Center
Raleigh, North Carolina 27699-1621

Or, results can be sent to the email, ATForms.ATB@ncdenr.gov

Completed Aquatic Toxicity Test Forms shall be filed with the Water Sciences Section no later than 30 days after the end of the reporting period for which the report is made.

Test data shall be complete, accurate, include all supporting chemical/physical measurements and all concentration/response data, and be certified by laboratory supervisor and ORC or approved designate signature. Total residual chlorine of the effluent toxicity sample must be measured and reported if chlorine is employed for disinfection of the waste stream.

Should there be no discharge of flow from the facility during a month in which toxicity monitoring is required, the permittee will complete the information located at the top of the aquatic toxicity (AT) test form indicating the facility name, permit number, pipe number, county, and the month/year of the report with the notation of "No Flow" in the comment area of the form. The report shall be submitted to the Water Sciences Section at the address cited above.

Should the permittee fail to monitor during a month in which toxicity monitoring is required, monitoring will be required during the following month. Assessment of toxicity compliance is based on the toxicity testing month.

Should any test data from this monitoring requirement or tests performed by the North Carolina Division of Water Resources indicate potential impacts to the receiving stream, this permit may be re-opened and modified to include alternate monitoring requirements or limits.

NOTE: Failure to achieve test conditions as specified in the cited document, such as minimum control organism survival, minimum control organism reproduction, and appropriate environmental controls, shall constitute an **invalid test** and will require immediate follow-up testing to be completed no later than the last day of the month following the month of the initial monitoring.

A. (19.) ASH SETTLING BASIN

[NCGS 143-215.1 (b)]

Beginning on the effective date of this permit and lasting until expiration, there shall be no discharge of plant wastes to the ash pond unless the permittee provides and maintains at all times a minimum free water volume equivalent to the sum of the maximum 24-hour plant discharges plus all direct rainfall and all runoff flows to the pond resulting from a 10-year, 24-hour rainfall event, when using a runoff coefficient of 1.0.

During the term of the permit, the permittee shall remove settled material from the ponds or otherwise enlarge the available storage capacities in order to maintain the required minimum volumes at all times. Annually the permittee shall determine and report to the permit issuing authority: (1) the actual free water volume of the ash pond, (2) physical measurements of the dimensions of the free water volume in sufficient detail to allow validation of the calculated volume, and (3) a certification that the required volume is available with adequate safety factor to include all solids expected to be deposited in the ponds for the following year. Any changes to plant operations affecting such certification shall be reported to the Director within five days of the change.

NOTE: In the event that adequate volume has been certified to exist for the term of the permit, periodic certification is not needed.

A. (20.) CHEMICAL METAL CLEANING WASTES

[40 CFR 423]

It has been demonstrated that under certain conditions it is possible to reduce the concentration of metals in boiler cleaning wastes in the range of 92 to 99+ percent by treatment in ash ponds. Because of dilution problems, and the existence of boundary interface layers at the extremities of the plume, it is difficult to prove beyond doubt that the quantity of iron and copper discharged will always be less than one milligram per liter times the flow of metal cleaning when treated in this manner.

The application of physical/chemical methods of treating wastes has also been demonstrated to be effective in the treatment of metal cleaning wastes. However, the effectiveness of ash pond treatment should be considered in relation to the small differences in effluent quality realized between the two methods.

It has been demonstrated that the presence of ions of copper, iron, nickel, and zinc in the ash pond waters was not measurably increased during the ash pond equivalency demonstration at the Duke Energy's Marshall Steam Station. Therefore, when the following conditions are implemented during metal cleaning procedures, effective treatment for metals can be obtained at this facility:

(1) Large ash basin providing potential reaction volumes.
(2) Well-defined shallow ash delta near the ash basin influent.
(3) Ash pond pH of no less than 6.5 prior to metal cleaning waste addition.
(4) Four days retention time in ash pond with effluent virtually stopped.
(5) Boiler volume less than 86,000 gallons.
(6) Chemicals for cleaning to include only one or more of the following:
    (a) Copper removal step- sodium bromate, $NaBrO_3$; ammonium carbonate, $(NH_4)2CO_3$; and ammonium hydroxide, NH_4OH.
    (b) Iron removal step-hydrochloric acid, HCl; and ammonium bifluoride, $(NH_4)BF_2$ and proprietary inhibitors.
(7) Maximum dilution of wastes before entering ash pond 6 to 1.
(8) After treatment of metal cleaning wastes, if monitoring of basin effluents as required by the permit reveals discharges outside the limits of the permit, the permittee will re-close the basin discharge, conduct such in-basin sampling as necessary to determine the cause of nonconformance, will take appropriate corrective actions, and will file a report with EPA including all pertinent data.

A. (21.) FLOATING MATERIALS
[NCGS 143-215.1 (b)]

The Permittee shall report all visible discharges of floating materials, such as an oil sheen, to the Director when submitting DMRs.

A. (22.) CHEMICAL DISCHARGES
[NCGS 143-215.1 (b)]

Discharge of any product registered under the Federal Insecticide, Fungicide, and Rodenticide Act to any waste stream which may ultimately be released to lakes, rivers, streams or other waters of the United States is prohibited unless specifically authorized elsewhere in this permit. Discharge of chlorine from the use of chlorine gas, sodium hypochlorite, or other similar chlorination compounds for disinfection in plant potable and service water systems and in sewage treatment is authorized. Use of restricted use pesticides for lake management purposes by applicators licensed by the N.C. Pesticide Board is allowed.

A. (23.) PRIORITY POLLUTANT ANALYSIS – OUTFALL 002
[NCGS 143-215.1 (b)]

The Permittee shall conduct a priority pollutant analysis (in accordance with 40 CFR Part 136) once per permit cycle at outfall 002 and submit the results with the application for permit renewal.

A. (24.) WAIVERS
[NCGS 143-215.1 (b)]

Nothing contained in this permit shall be construed as a waiver by permittee or any right to a hearing it may have pursuant to State or Federal laws or regulations.

A. (25.) STRUCTURAL INTEGRITY INSPECTIONS OF ASH POND DAM
[15A NCAC 02K.0208]

The facility shall meet the dam design and dam safety requirements per 15A NCAC 2K.

A. (26.) CLEAN WATER ACT SECTION 316(a) THERMAL VARIANCE
[40 CFR 125, Subpart H]

The thermal variance granted under Section 316(a) terminates on expiration of this NPDES permit. Should the permittee wish a continuation of its 316(a) thermal variance beyond the term of this permit, reapplication for such continuation shall be submitted in accordance with 40 CFR Part 125, Subpart H and Section 122.21(m)(6) not later than 180 days prior to permit expiration. Reapplication shall include a basis for continuation such as a) plant operating conditions and load factors are unchanged and are expected to remain so for the term of the reissued permit; b) there are no changes to plant discharges or other discharges in the plant site area which could interact with the thermal discharges; and c) there are no changes to the biotic community of the receiving water body which would impact the previous variance determination.

The next 316(a) studies shall be performed in accordance with the Division of Water Resources approved plan. The temperature analysis and the balanced and indigenous study plan shall conform to the specifications outlined in 40 CFR 125 Subpart H, the EPA's Draft 316(a) Guidance Manual, dated 1977, and the Region 4 letter to NCDENR, dated June 3, 2010. EPA shall be provided an opportunity to review the plan prior to the commencement of the study.

Copies of all the study plans, study results, and any other applicable materials should be submitted to:

1) Electronic Version Only (pdf and CD)
   Division of Water Resources
   WQ Permitting Section - NPDES
   1617 Mail Service Center
   Raleigh, NC 27699-1617
2) Electronic Version (pdf and CD) and Hard Copy
   Division of Water Resources
   Water Sciences Section
   1621 Mail Service Center
   Raleigh, NC 27699-1621

A. (27.) CLEAN WATER ACT SECTION 316 (B)
[40 CFR 125.95]

The permittee shall comply with the Cooling Water Intake Structure Rule per 40 CFR 125.95. The permittee shall submit all the materials required by the Rule with the next renewal application.

A. (28.) FISH TISSUE MONITORING NEAR ASH POND DISCHARGE – OUTFALL 002
[NCGS 143-215.3 (a) (2)]

The facility shall conduct fish tissue monitoring annually and submit the results with the NPDES permit renewal application. The objective of the monitoring is to evaluate potential uptake of pollutants by fish tissue near the Ash Pond discharge. The parameters analyzed in fish tissue shall be arsenic, selenium, and mercury. The monitoring shall be conducted in accordance with the Sampling Plan approved by the Division. The plan should be submitted to the Division within 180 days from the effective date of the permit. Upon approval, the plan becomes an enforceable part of the permit.

Copies of all the study plans, study results, and any other applicable materials should be submitted to:

1) Electronic Version Only (pdf and CD)
   Division of Water Resources
   WQ Permitting Section - NPDES
   1617 Mail Service Center
   Raleigh, NC 27699-1617
2) Electronic Version (pdf and CD) and Hard Copy
   Division of Water Resources
   Water Sciences Section
   1621 Mail Service Center
   Raleigh, NC 27699-1621

A. (29.) INSTREAM MONITORING
[15A NCAC 02B.0500 ET SEQ.]

The facility shall conduct monthly instream monitoring (approximately one mile upstream and approximately one mile downstream of the ash pond discharge) for total arsenic, total selenium, total mercury, total chromium, dissolved lead, dissolved cadmium, dissolved copper, dissolved zinc, total bromide, total hardness (as $CaCO_3$), turbidity, and total dissolved solids (TDS). The monitoring results shall be reported on the facility's Discharge Monitoring Reports and included with the NPDES permit renewal application. <u>This condition becomes effective on June 1, 2018.</u>

A. (30.) ELECTRONIC REPORTING OF DISCHARGE MONITORING REPORTS
[G.S. 143-215.1(b)]

Federal regulations require electronic submittal of all discharge monitoring reports (DMRs) and program reports. The final NPDES Electronic Reporting Rule was adopted and became effective on December 21, 2015.

NOTE: This special condition supplements or supersedes the following sections within Part II of this permit (*Standard Conditions for NPDES Permits*):

- Section B. (11.) Signatory Requirements
- Section D. (2.) Reporting
- Section D. (6.) Records Retention
- Section E. (5.) Monitoring Reports

1. Reporting Requirements [Supersedes Section D. (2.) and Section E. (5.) (a)]

The permittee shall report discharge monitoring data electronically using the NC DWR's Electronic Discharge Monitoring Report (eDMR) internet application.

Monitoring results obtained during the previous month(s) shall be summarized for each month and submitted electronically using eDMR. The eDMR system allows permitted facilities to enter monitoring data and submit DMRs electronically using the internet. Until such time that the state's eDMR application is compliant with EPA's Cross-Media Electronic Reporting Regulation (CROMERR), permittees will be required to submit all discharge monitoring data to the state electronically using eDMR and will be required to complete the eDMR submission by printing, signing, and submitting one signed original and a copy of the computer printed eDMR to the following address:

NC DEQ / Division of Water Resources / Water Quality Permitting Section
ATTENTION: Central Files
1617 Mail Service Center
Raleigh, North Carolina 27699-1617

If a permittee is unable to use the eDMR system due to a demonstrated hardship or due to the facility being physically located in an area where less than 10 percent of the households have broadband access, then a temporary waiver from the NPDES electronic reporting requirements may be granted and discharge monitoring data may be submitted on paper DMR forms (MR 1, 1.1, 2, 3) or alternative forms approved by the Director. Duplicate signed copies shall be submitted to the mailing address above. See "How to Request a Waiver from Electronic Reporting" section below.

Regardless of the submission method, the first DMR is due on the last day of the month following the issuance of the permit or in the case of a new facility, on the last day of the month following the commencement of discharge.

Starting on **December 21, 2025**, the permittee must electronically report the following compliance monitoring data and reports, when applicable:

- Sewer Overflow/Bypass Event Reports;
- Pretreatment Program Annual Reports; and
- Clean Water Act (CWA) Section 316(b) Annual Reports.

The permittee may seek an electronic reporting waiver from the Division (see "How to Request a Waiver from Electronic Reporting" section below).

2. Electronic Submissions

In accordance with 40 CFR 122.41(l)(9), the permittee must identify the initial recipient at the time of each electronic submission. The permittee should use the EPA's website resources to identify the initial recipient for the electronic submission.

Initial recipient of electronic NPDES information from NPDES-regulated facilities means the entity (EPA or the state authorized by EPA to implement the NPDES program) that is the designated entity for receiving electronic NPDES data [see 40 CFR 127.2(b)].

EPA plans to establish a website that will also link to the appropriate electronic reporting tool for each type of electronic submission and for each state. Instructions on how to access and use the appropriate electronic reporting tool will be available as well. Information on EPA's NPDES Electronic Reporting Rule is found at:

https://www.federalregister.gov/documents/2015/10/22/2015-24954/national-pollutant-discharge-elimination-system-npdes-electronic-reporting-rule

Electronic submissions must start by the dates listed in the "Reporting Requirements" section above.

3. How to Request a Waiver from Electronic Reporting

The permittee may seek a temporary electronic reporting waiver from the Division. To obtain an electronic reporting waiver, a permittee must first submit an electronic reporting waiver request to the Division. Requests for temporary electronic reporting waivers must be submitted in writing to the Division for written approval at least sixty (60) days prior to the date the facility would be required under this permit to begin submitting monitoring data and reports. The duration of a temporary waiver shall not exceed 5 years and shall thereupon expire. At such time, monitoring data and reports shall be submitted electronically to the Division unless the permittee re-applies for and is granted a new temporary electronic reporting waiver by the Division. Approved electronic reporting waivers are not transferrable. Only permittees with an approved reporting waiver request may submit monitoring data and reports on paper to the Division for the period that the approved reporting waiver request is effective.

Information on eDMR and the application for a temporary electronic reporting waiver are found on the following web page:

http://deq.nc.gov/about/divisions/water-resources/edmr

4. Signatory Requirements [Supplements Section B. (11.) (b) and Supersedes Section B. (11.) (d)]

All eDMRs submitted to the permit issuing authority shall be signed by a person described in Part II, Section B. (11.)(a) or by a duly authorized representative of that person as described in Part II, Section B. (11.)(b). A person, and not a position, must be delegated signatory authority for eDMR reporting purposes.

For eDMR submissions, the person signing and submitting the DMR must obtain an eDMR user account and login credentials to access the eDMR system. For more information on North Carolina's eDMR system, registering for eDMR and obtaining an eDMR user account, please visit the following web page:

http://deq.nc.gov/about/divisions/water-resources/edmr

Certification. Any person submitting an electronic DMR using the state's eDMR system shall make the following certification [40 CFR 122.22]. NO OTHER STATEMENTS OF CERTIFICATION WILL BE ACCEPTED:

"I certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations."

5. Records Retention [Supplements Section D. (6.)]

The permittee shall retain records of all Discharge Monitoring Reports, including eDMR submissions. These records or copies shall be maintained for a period of at least 3 years from the date of the report. This period may be extended by request of the Director at any time [40 CFR 122.41].

A. (31.) COMPLIANCE BOUNDARY

[15A NCAC 02L.0107]

The compliance boundary for the disposal system shall be specified in accordance with 15A NCAC 02L .0107(a) or (b) dependent upon the date permitted. An exceedance of groundwater standards at or beyond the compliance boundary is subject to remediation action according to 15A NCAC 02L .0106(c), (d), or (e) as well as enforcement actions in accordance with North Carolina General Statute 143-215.6A through 143-215.6C.