435 S. Tryon St., Suite 180
Charlotte, NC 28202
(704) 731-2300 office
(980) 729-7111 fax
charah.com

March 31, 2017

North Carolina Department of Environmental Quality
Division of Waste Management – Solid Waste Section
217 W. Jones Street
Raleigh, NC 27699-1646

Attn.: Ed Mussler, Permitting Branch Supervisor

RE: PCB Notification for Riverbend Steam Station CCP Basin Excavation Project

Dear Mr. Mussler,

In response to your letter dated, March 20th, 2017, we understand the determination of unrestricted use for materials including Coal Combustion Products (CCPs) where there is a polychlorinated biphenyl (PCB) content of less than 1 part per million (ppm). We have instituted this rule for all CCP materials that will be accepted for placement at the Brickhaven structural fill project as regulated under the Toxic Substance and Control Act (TSCA) as well as State standards.

Below, we offer the additional information as requested by the Division:

- Duke Energy has performed voluntary PCB analysis on samples collected as representative of ash excavated at the Riverbend Steam Station since 2015. In 2015, three (3) quarterly PCB analyses were performed while <100,000 cubic yards of ash were excavated from Riverbend and transported by truck to Waste Management's R&B Landfill in Homer, GA (May 2015 through September 2015), to Duke Energy's industrial landfills at Marshall Steam Station in Mooresville, NC (July 2015 through January 2016), and to Charah's Brickhaven Mine in Sanford, NC (October 2015 through February 2016). As excavation rates increased in late January 2016 with the onset of rail transportation to the Brickhaven Mine, Duke Energy began implementing a voluntary sampling program that recommended 1 sample/month for monthly ash transport of less than 50,000 cubic yards, 2 samples/month for monthly ash transport of between 50,000 and 100,000 cubic yards, and 3 samples/month for monthly ash transport in excess of 100,000 cubic yards. Representative sampling was conducted as described from samples taken from the Riverbend stockpile prior to placement in trucks/rail cars for off-site transport.

  The PCB laboratory analyses of ash samples described above have been performed utilizing EPA Method 3546 for extraction/preparation and EPA Method 8082 for analysis. Compared to other EPA extraction methodologies for PCB testing, EPA Method 3546 is the newer technology that uses a microwave to heat and pressurize a closed vessel containing the soil sample and the solvent to extract the organics from the soil. This preparation method is widely used today in the large commercial labs Duke Energy relies on for its testing needs and is generally considered equivalent to other preparation methods. Through mid-March, PCB analyses had been performed on approximately forty (40) ash samples collected from Riverbend.

- Whereas the previous recommendation for voluntary sampling was to perform the sampling on a frequency (a certain number of samples per month dependent on volume transported), revisions to the logistics for ash sample collection in the field are planned to ensure adequate time for sample analyses to be received and reviewed by Charah prior to ash being transported from Riverbend to Brickhaven. Currently, the new approach for ash sampling for PCB analysis involves collecting ash samples on an approximate 400'x400' grid at approximately 6-foot intervals (either with each sequential excavation lift or through use of geoprobes). This revised plan for lateral and vertical separation of samples will result in a roughly equivalent number of samples as was collected as part of the original sampling frequency recommendation while maintaining a representative nature for sampling. As described below, Duke Energy is making plans to transition from EPA Method 3546 for sample extraction to EPA Method 3550 or 3540. Duke plans to continue with EPA Method 8082 for sample analysis.

  Concerning the lab preparation method for PCB analysis and as mentioned in Bullet #1, EPA Method 3546 is the newer technology that uses a microwave to heat and pressurize a closed vessel containing the soil sample and the solvent to extract the organics from the soil. Method 3540 is the original technology that uses a reflux (Soxhlet) of the organic solvent over time coming in contact with the soil to efficiently extract the organics from the soil. The other two methods that can be used are 3550 (which uses ultrasonic disruption of the soil to extract organics) and 3545 (which is similar to microwave but uses an oven block to heat the pressurized vessel for the extraction). All the extraction methods are approved and are generally considered equivalent. When the Duke Laboratory asks a vendor lab for PCB analysis by EPA Method 8082, the lab is generally free to choose which extraction method they prefer. Method 3540 is slower and uses a lot of solvent, so that has largely been retired from commercial labs. Method 3550 also uses more solvent and is labor intensive. EPA Methods 3545 and 3546 are both automated methods with sophisticated extraction equipment, and they use much less of the expensive solvent. In general, labs currently prefer the microwave method for preparation because it is inexpensive to operate even though the up-front instrument costs more. All preparation methods are roughly equivalent in extraction efficiencies, so generally the commercial lab will choose the most efficient method for their circumstances. Larger commercial labs almost exclusively use the automated methods since it takes less technicians and chemicals. The commercial labs Duke Energy relies on for its testing needs do not run EPA Method 3540, and few commercial labs across the nation still offer this testing method.

  However, Duke Energy understands that EPA Methods 3550 (ultrasonic) and 3540 (soxhlet) are the only methods identified under federal regulations for assessing TSCA applicability. While EPA Method 3546 (microwave) is an approved methodology and while all sample results to-date have been non-detect or well below 1 ppm, Duke is making plans to transition to either EPA Method 3550 or 3540. This transition in extraction methodology should help avoid any lack of clarity for determining proper steps, if necessary, in the future. Duke plans to continue with EPA Method 8082 for sample analysis.

- Through Thursday, 3/30/2017, Charah has transported and placed approximately 3,480,718 tons of CCPs in the structural fill at Brickhaven. About 1,854,235 tons that have been placed originated from the Riverbend Steam Station CCP basin and dry stack.

- The Duke contact regarding the history of PCBs at the Riverbend Steam Station has been identified to be Sean DeNeale.
  The State may reach Mr. DeNeale at the following:
  - Sean DeNeale
    Duke Energy – EHS CCP
    Engineer III - Waste & Groundwater Programs
    Office: (704) 382-4761
    Cell: (704) 617-2393
    Sean.DeNeale@duke-energy.com

As discussed and directed, Charah will not accept any CCPs for placement in the Brickhaven structural fill that have a PCB content equal to or greater than 1 ppm. Any material testing higher than 1 ppm will not be sent to or accepted for placement at the structural fill project in Brickhaven. The PCB contaminated CCPs will be segregated and held at the ash basin for final determination.

Let us know if you require any further information or have any additional questions.

Sincerely,

Norman E. Divers, III
Director – Engineering, Environmental and Quality
/nd

Cc: Rob Reynolds, Charah
Matt Kingsley, Charah
Project Files