## Coal-Fired Power Plants With Landfills Onsite (See Figure 2):

- Catawba County (Duke Marshall)
  - 1804-INDUS-1983 (closed)
  - 1809-INDUS-
  - 1812-INDUS-2008 * #
- Gaston County (Duke Allen)
  - 3612-INDUS-2008 * #
- New Hanover County (Duke Sutton)**
  - 6512-INDUS-2016
- Rockingham County (Duke Dan River)**
  - 7906-INDUS-2016
- Rutherford County (Duke Energy Rogers)
  - 8106-INDUS-2009
- Person County (Duke Roxboro)
  - 7302-INDUS-1988 *
  - Person County (Duke Mayo)
  - 7305-INDUS-2012
- Stokes County (Duke Belews Creek)
  - 8503-INDUS-1984 (closed)
  - 8504-INDUS-
  - 8505-INDUS-
- Halifax County (Westmoreland Partners Roanoke Valley Energy Plant )
  - 4204-INDUS-1994

Notes:
* Constructed on top of retired ash basin
** Converted to combined cycle turbine
# No groundwater monitoring (double lined)

## Coal-Fired Power Plants Without Landfills On Site:

- Buncombe County (Asheville)
- Robeson County (Weatherspoon)**
- Chatham County (Cape Fear)**
- Gaston County (Riverbend)**
- Rowan County (Buck Steam)*
- Wayne County (HF Lee)*

Notes:
* Converted to combined cycle turbine
** Retired Power Plants (no electricity production)

## Quick Facts about the 13 coal CCR landfills:

- Eleven (11) open lined landfills (2 inactive)
- Two closed unlined landfills
- All landfills are located at power plants except for Halifax County 4204-INDUS-1994
- The program has regulated CCR landfills since 1983 and the beneficial use of CCP since 1994.
- The program has required lined landfills for CCR since 1994 with the Halifax Co Ash LF Permit 4204-INDUS-1994 being the first.
- Required buffers from edge of waste:
  - 50-ft between property lines and streams/riders;
  - 500-ft between private dwellings and potable wells; and
  - 4-ft between bottom of waste and groundwater.

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### POWER PLANT COAL COMBUSTION RESIDUALS

The Division of Waste Management’s Solid Waste Section regulates the management of coal combustion residuals (CCR) from coal-fired electric power plants that are disposed of in CCR landfills or beneficially reused in structural fills. Coal combustion residuals primarily consist of coal ash (bottom and fly ash) and flue gas desulfurization residuals. The program regulates CCR industrial landfills in accordance with the North Carolina Administrative Code 15A NCAC 13B .0503 — .0505 and the beneficial use of coal combustion products (CCP) in accordance with 15A NCAC 13B .1700. On Aug. 20, 2014, the N.C. General Assembly passed the Coal Ash Management Act (Session Law 2014-122), which was subsequently amended on July 14, 2016 by Session Law 2016-95.

Industrial landfill regulations require a natural and synthetic bottom liner, a leachate collection system, a natural and synthetic closure cap, slope stability analysis and a water quality monitoring plan. Industrial landfills may have a single liner or a double liner design as allowable under NCGS 130A-295.4. A double-lined landfill has a leachate collection system and a leachate detection system between the two liners, where both systems are continuously monitored. A double-lined landfill system may be required for landfills constructed on existing CCR disposal areas such as old dry ash impoundments, closed unlined landfills or structural fills. Leachate at lined facilities is routed via gravity-fed piping to an active coal ash pond on-site, which then flows to a permitted National Pollutant Discharge Elimination System (NPDES) outfall. DEQ’s Division of Water Resources issues the NPDES permits.

### Beneficial Reuse of Coal Combustion Products (CCPs)

Synthetic gypsum is a byproduct of the flue gas desulfurization (FGD) process and can be used in the production of wallboard. Fly ash can be used in the production of cement. Roxboro and Belews Creek sell their FGD product to nearby wallboard manufacturers. In accordance with NCGS 130A-309.216, Duke identified three sites (Buck, HF Lee and Cape Fear) for ash beneficiation projects for the production of cement products. In addition, the Weatherspoon plant is excavating ash from the impoundments and shipping to Lafarge-Holcim Cement Plant in Holly Hill, SC and Argos Cement Plant in Harleyville, South Carolina.

### Structural Fills

The Solid Waste Section regulates the beneficial reuse of CCP as structural fill under 15A NCAC 13B .1700 and CAMA. Approximately 80 pre-CAMA structural fills are regulated under the .1700 rules. Those rules do not require a liner, groundwater monitoring or impervious cap. The Brickhaven No. 2 Mine Track “A” structural fill in Chatham County was permitted under CAMA, which includes requirements for synthetic liners and groundwater monitoring.
Environmental Monitoring  All industrial landfills, both active and closed, are required to conduct semi-annual water quality monitoring to ensure groundwater quality standards prescribed by 15A NCAC 2L.0202 (2L Standards) are met. Single-lined and unlined landfills require groundwater and surface water monitoring, while double-lined landfills require leachate monitoring. The contaminants of concern for CCR landfills are heavy metals, specifically boron, chromium, iron, manganese and selenium.

Environmental Assessment  Coal combustion residuals landfills are required to conduct semi-annual water quality monitoring to ensure groundwater quality standards do not exceed the 2L Standards at the compliance boundary. If groundwater quality is found to exceed the 2L Standards at or beyond the compliance boundary, the facility must undergo an environmental assessment. Seven CCR landfills (Permit 1804, 1809, 7302, 7305, 8503, 8504 and 8505) have performed environmental assessments and submitted assessment reports. Five of the assessments (Permit 1804, 1809, 7302, 8503 and 8504) showed that the CCR landfill was not the cause of contamination exceeding the 2L Standards. Assessments for Permits 7302 and 8505 are ongoing, and new groundwater monitoring wells have been installed to further assess the groundwater contamination. No CCR landfills are undergoing corrective action. Four structural fills are undergoing assessment (CCB0003, CCB0070, CCB0057 and CCB0064). Structural fill CCB0057 located in Nash County completed their environmental assessment and corrective action in January 2018.

News  The EPA published the CCR Rule *Disposal of Coal Combustion Residuals from Electric Utilities Rule* in the Federal Register April 2015. On Dec. 18, 2016, Congress passed the Water Infrastructure Improvements for the Nation (WIIN) Act, which authorizes EPA to approve state permitting programs for coal ash. On March 1, 2018, EPA Administrator signed the Phase 1 of two phases of final rule changes. The EPA is proposing provisions that would allow states or EPA the ability to incorporate flexibilities into their coal ash permit programs. On July 30, 2018, the CCR rule Phase 1, part1 was published in the federal register. The EPA is scheduled to release Phase 2 proposed changes in September 2018 with final action no later than December 2019.