

## Cape Fear Plant coal ash recycling

Brian Weisker | Aug. 21, 2017



# Cape Fear Plant

- Plant demolition, final grading and seeding complete
- Five ash basins at site
- ~5.7 million tons of coal ash
- Currently dewatering ash basins in preparation for excavation
- Ash to be processed on site for beneficial reuse



# Recycling ash at Cape Fear

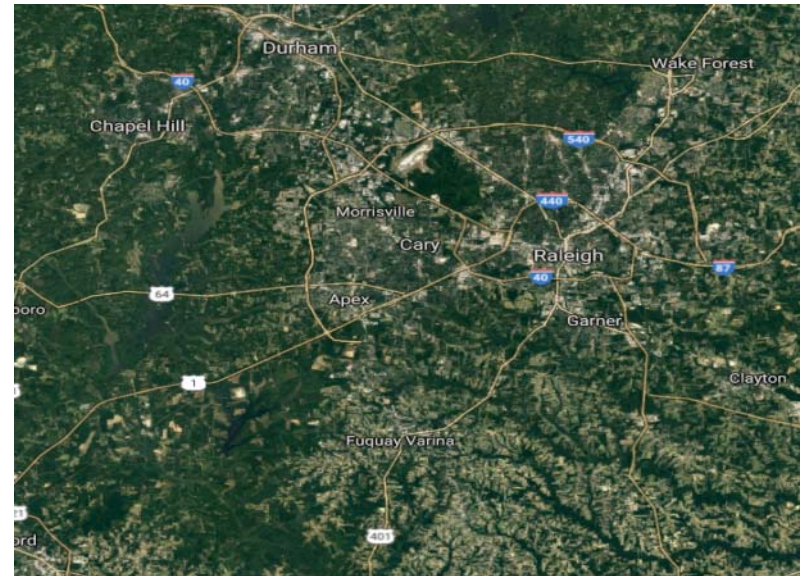
- House Bill 630 requires three ash reprocessing facilities
- Selection criteria:
  - Adequate carbon content
  - Able to recycle entire pond in required timeline established by state
  - Proximity to marketplace; expected concrete demand in region
- Identified locations:
  - Buck
  - H. F. Lee
  - Cape Fear

# What is a STAR?

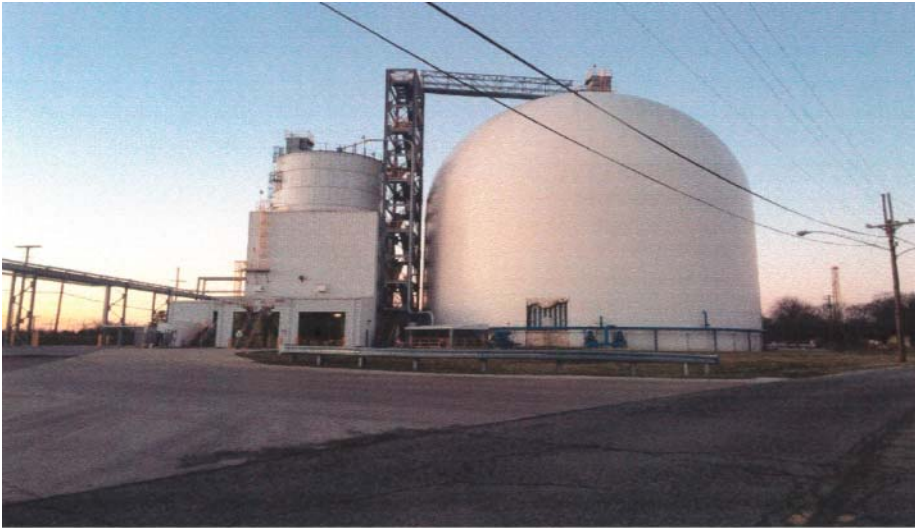
- STAR stands for Staged Turbulent Air Reactor
- Ash excavated from ponds has too much carbon to meet concrete specifications
- STAR is a self-sustaining combustor that uses the excess carbon in the ash as fuel
- STAR reprocesses ash to make it suitable for use in concrete
- Processed ash is highly valued by the concrete industry because of purity and consistency

# Why locate a STAR unit at Cape Fear Plant?

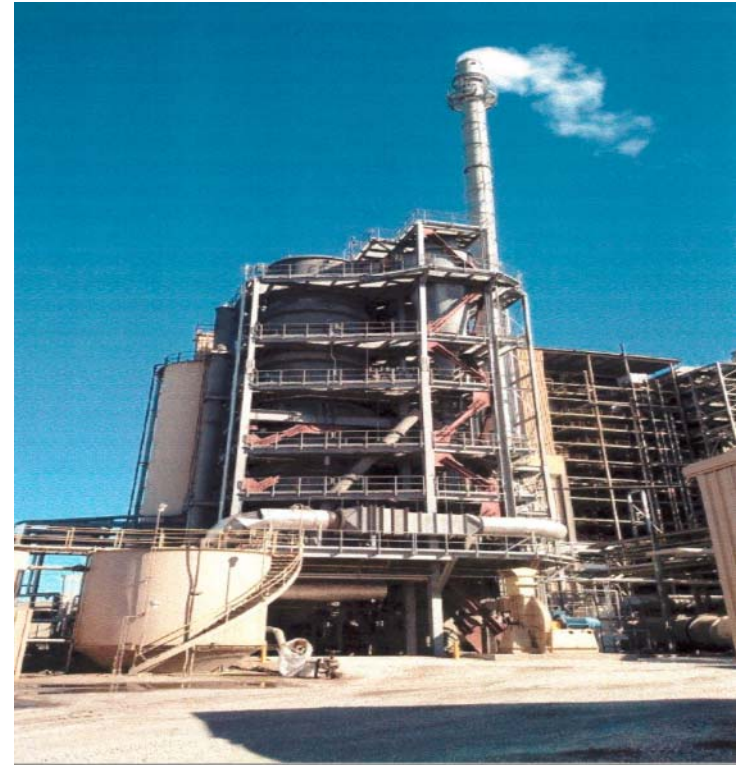
- Ash can be recycled into a valuable product vs. permanent disposal
- There is a very good marketplace in Raleigh, Durham, Chapel Hill and other cities in the region to utilize the processed ash
- Ash quality is a good fit
- Allows reuse of an existing industrial, power plant site



## Examples of other STAR units



Morgantown Dome Storage and Loadout



Winyah STAR Process Island

# How will the process work?

- 1985 basin
  - Standing water removed and treated per environmental permits
  - Ash excavated, placed in “windrows” for further drying
  - Material is transported by truck onsite to the unit, processed, then transported by truck for use in Raleigh, Durham, Chapel Hill and other cities
  - Once the ash basins are fully excavated, the site will be returned to a natural state
- Older basins
  - Basins are currently forested
  - All trees, vegetation and soil will be recycled or disposed of appropriately
    - Tree removal along dam may commence as early as this year
  - Ash will then be excavated and processed as in the 1985 ash basin



# What Happens When The Ash is Gone?

- The ash basin dike material will be used to fill the excavation site
- Area will be seeded, allowed to return to nature
- Groundwater monitoring will ensure the site remains safe and the environment protected.





## Questions and Answers

1. Is Duke planning on making cement products at the Cape Fear site?

- No. House Bill 630 requires Duke Energy to construct three facilities, each capable of producing 300,000 tons per year of concrete-specification fly ash using previously stored ash from the site.
- The STAR<sup>®</sup> facility will accomplish this, and the ash processed from the STAR will be trucked to concrete batch plants.

2. What is strategy for dewatering the coal ash prior to reuse?

- An appropriately permitted method of removing the surface water and rain runoff will be installed.
- During excavation, the ash may still be too moist to process, so the ash will be stacked in rows to evaporate the excess moisture.

## Questions and Answers

3. What happens to the trees growing in the older ash basin cells? How will trees be removed? How will roots and other organic material be cleaned of ash? What are plans for disposal of trees and coal ash debris that can't be reprocessed?

- All trees, vegetation and soil will be recycled or disposed of appropriately.
  - Tree removal along dam may commence as early as this year.

4. How will Duke ensure that ash basin berms will remain safe during this work?

- The berms are engineered to retain the water and ash in the basin.
- Removing the ash and water takes the load off of the berms.
- Ash basins are currently and will continue to be inspected regularly throughout this process to ensure stability and safety.

## Questions and Answers

### 5. How will various components be transported to/from Cape Fear Plant?

- We are currently evaluating site options on plant property for the reprocessing unit.
- Ash will be excavated from the basin and loaded into dump trucks and transported to the STAR<sup>®</sup> facility on plant property.
- After being processed, ash will be loaded into sealed pneumatic tanker trucks and shipped to concrete production plants around the region.

### 6. Will you be importing ash to the site for further processing into cement?

- No. The purpose of the facility is to recycle the stored ash at Cape Fear Plant into concrete specification material.
- The site was chosen, and the facility sized, to be able to recycle all of the on-site ash into concrete-specification ash during the timeframe allowed by state law.

## Questions and Answers

### 7. How will you monitor air quality?

- The site will comply with all applicable North Carolina air regulations and the air quality permit to be issued for the site.
- Specifically, both of these requirements restrict fugitive dust emissions and ensure that dusting is minimized and does not leave the site.
- Emissions from the processing equipment will comply with all monitoring, record-keeping and reporting requirements outlined in the air permit.
- Monitoring may include process variables, stack testing, and continuous emissions monitoring.

### 8. Will there be capping of ponds at the end of this process? If yes, what is the strategy and long-term guarantee of integrity of berms and dams?

- When work is complete at the site, the ash basin berms will be removed and the basin graded to match the surrounding geography.
- Once graded and sloped to ensure proper rainwater runoff, the area will be seeded and returned to nature.
- Synthetic caps will not be required because all the coal ash will be gone.

## Questions and Answers

9. What is role of Charah in the Cape Fear process?

- Charah has no role in the Cape Fear Plant process
- The SEFA Group (SEFA) has been selected as the operator of the technology
- SEFA has also been selected as the contractor for units at H.F Lee and Buck and has experience operating similar units across the country.

Questions???

