DIVISION OF WATER RESOURCES - CIVIL PENALTY ASSESSMENT

Violator: Duke Energy Progress, Inc.
Facility Name: L.V. Sutton Electric Plant
Permit Number: NC0001422
County: New Hanover
Case Number: LV-2015-0035

ASSESSMENT FACTORS

1) The degree and extent of harm to the natural resources of the State, to the public health, or to private property resulting from the violations;

Significant

Groundwater Contamination: There is evidence of groundwater contamination for violations of the Groundwater Standards for Arsenic (MW-21C), Thallium (MW-19 and MW-24B), TDS (MW-24C), Boron (MW-12, MW-19, MW-21C, MW-22C, MW-23B, MW-23C, MW-24B, MW-24C, and MW-31C), Iron (MW-21C, MW-24C, and MW-31C), Manganese (MW-19, MW-21C, MW-22C, MW-23C, MW-24C, and MW-31C) and Selenium (MW-27B). Only concentrations above the 2L standards that have shown statistical differences with those in background wells MW-4, MW-5, and side-gradient, reference monitoring well MW-8 have been counted. Refer to the enclosures for the following information (1) Table 1: Parameter Concentration per Well; (2) Table 2: Evidence of Exceedances; (3) Statistical analysis performed over the data using Chemstat, version 6.3.0.2, distributed by Starpoint Software Inc., and (4) Map with the locations where groundwater contamination has been detected.

Boron detected Water Supply Wells (~3,000 ft) downgradient from the ash ponds: The detection limit for boron is 50 ug/l. There is evidence of Boron above detection limits in water supply wells NHC-SW#3 and NHC-SW#4 of the CFPUA System (04-65-191). Boron concentrations in water supply well SW#3 have been in the range of 56 ug/l to 81.5 ug/l) and Boron concentrations in water supply well #4 have fluctuated between below detection limits (<50 ug/l) and 77.5 ug/l. Background wells MW-4 and MW-5 have statistically exhibited boron concentration below detection limit.

The degree and extent of harm to public health and private property has not been determined. Groundwater resources impacted to a degree that they may no longer be a source of drinking water to some well owners.

2) The duration and gravity of the violation;

Significant

Duration: Violations were first detected in March 1995 (i.e. iron exceedances in monitoring wells MW-7 and MW-12) and have continued to date. However, based on the statistical analysis (e.g. concentrations that showed statistical differences when compared with those in background wells) the duration of the violation has been considered after 2009 when boron concentrations were detected in compliance well MW-19.

Gravity: Groundwater has been contaminated by priority pollutants/drinking water contaminants such as Arsenic, Selenium, and Thallium and by secondary drinking water contaminants such as Iron,

Manganese, and TDS. Concentration of priority pollutants have been measured above the 2L standards as follows. Arsenic: 4.5 times above the standard; Selenium: 3 times above the standard; Thallium: 2.3 times above the standard. The presence of Boron in a number of wells is indicative of coal ash leachate [Ref: Groundwater Remediation of Inorganic Constituents at Coal Combustion Product Management Sites. Electric Power Research Institute. Technical Report, published in October 2006 (page vi)]. Gravity of the violations includes the large extent of boron impacts as much as 3,000 feet downgradient.

3) The effect on ground or surface water quantity or quality or on air quality;

Significant

There is evidence of groundwater contamination in monitoring wells at or beyond the compliance boundary of the ash disposal basins (refer to enclosed map). The presence of boron above background concentrations in the CFPCUA wells (discussed in item 1, above) may indicate impacts from coal ash.

The effect on surface water quality as not been determined.

4) The cost of rectifying the damage;

Significant

The cost of rectifying the damage to the aquifer is unknown since a corrective action plan (i.e., groundwater remediation plan) has not been developed. An illustration of costs associated with the rectification of the damage is provided below:

a) The cost of providing an alternate water source to groundwater users due to impacts to the aquifer system is costly. As explained in item 1, the CFPUA has two wells located down gradient from the ash disposal basins. These two wells will be replaced by a water main as the drinking water source for a neighboring community. The cost of the replacement is estimated as $2.25 M.

b) There are other costs associated with the damage that have not been quantified. For example: (1) surface water and soil contamination which in turn affect the value of private properties to the east of the facility; (2) there are private water supply wells present downgradient from the ash basins.

c) For the 14 coal-ash sites in the state, the website: https://www.duke-energy.com/pdfs/CoalAshPlanWaterfall.pdf (verified 01/25/2015) indicates costs of 2.0-2.5 billion dollars (baseline assumption), 6.0 to 8.0 billion dollars (full excavation), and 7.0-10 billion dollars (all dry-systems), assuming that EPA designates the sites as non-hazardous. These costs are rough order of magnitude estimates and have not been subject to detailed engineering studies.

5) The amount of money saved by noncompliance;

Significant

The amount is unknown but savings would be potentially substantial since options for compliance such as lining and capping ash basins, distributing coal ash or implementing alternate disposal methods such as ash structural fills or ash landfills is costly.

6) Whether the violation was committed willfully or intentionally;

The violation has not been committed willfully or intentionally.

7) The prior record of the violator in complying or failing to comply with programs over which the Environmental Management Commission has regulatory authority; and

Duke has 10 previous enforcement actions at six different facilities since 1991 with penalties and enforcement costs totaling $12,980. Six of these enforcement actions were issued within the past five years with those six actions resulting in penalties and enforcement costs totaling $4,981.

8) The cost to the State of the enforcement procedures.

	Hourly Rate	# hours	
Research and preparation of enforcement documents - MSK	46.41	88	$4,084.08
Research and preparation of enforcement documents - GK	37.11	88	$3,265.68
Statistical Analysis- TC	34.18	40	$1,367.20
Review of enforcement documents - JG	55.55	3	$166.65
Total Enforcement Procedures			**$8,883.61**

3/10/2015
Date

S. Jay Zimmerman, P.G.
Director, Division of Water Resources

Enclosures:
(1) Map with monitoring well locations;
(2) Spreadsheet with the summary of concentrations per well;
(3) Summary of Statistical Analysis