



WATER QUALITY AND LEACHATE MONITORING PLAN

For

INCREMENT 1 BUILDOUT AT SEMINOLE GENERATION STATION

July 16, 2010

1.0 Introduction

This Water Quality and Leachate Monitoring Plan (Plan) is for the FGD Landfill Increment 1 Buildout (Buildout) at the Seminole Generation Station (SGS) in Palatka, Florida. This Plan addresses for the Buildout the additional groundwater monitoring wells, and the location, design, sampling and testing requirements for those wells. The Plan is based on the site hydrogeological investigation, and is designed to meet the Florida Department of Environmental Protection (Department) requirements of Rule 62-701.510, F.A.C. Water Quality and Leachate Monitoring Requirements as applied to an electric utility solid waste disposal facility. The primary SGS fuel is bituminous coal and Petroleum Coke (Pet coke) when it is available. The primary waste placed in the disposal facility is fly ash.

a. Plan Certification

This Water Quality and Leachate Monitoring Plan is signed, dated and sealed by the PG or PE who prepared it as given on the final page. (Rule 62-701.510(2) (a), F.A.C.)

b. Water Quality Monitoring Quality Assurance

All fieldwork conducted in connection with the Plan shall be undertaken in accordance with the Standard Operating Procedures (SOPs) described in DEP-SOP-001-01 dated March 31, 2008 as referenced in Rule 62-160.210(1), F.A.C. All laboratory analyses undertaken in connection with the facility's Water Quality Monitoring Plan shall be conducted by firms that are certified by the Department of Health Environmental Laboratory Certification Program under Chapter 64E-1, F.A.C., where such certification is required by Rule 62-160.300(1), F.A.C., and in accordance with the schedule referenced in Rule 62-160.300(2), F.A.C. The SOPs utilized and the laboratory's list of certified test methods and analytes must specifically address the types of sampling and analytical work that are required by applicable provisions of Rule 62-701.510, F.A.C. and shall be implemented by all persons performing sample collection or analysis related to the Buildout. Alternate field procedures and laboratory methods may be used if approved according to the requirements of Rules 62-160.220 and 62-160.330, F.A.C., respectively.

Water Quality and Leachate Monitoring Requirements

c. Groundwater Monitoring Wells

The locations for the existing FGD Landfill monitoring wells and background well and the five proposed detection wells for the Buildout are shown on Sheets 1 and 2 entitled “Groundwater Monitoring Plan – Monitoring Well Locations”. Based on the location of the background well for the FGD Landfill, which is south of the Buildout and previous studies, the groundwater flows towards the north. Two additional upgradient wells are to be placed approximately 1000 feet apart on the south side of the Buildout. Three additional down gradient wells are to be spaced 500 feet apart along the east side. All wells are to be located approximately 30 feet from the edge of the waste and the top of the screen will be set approximately one foot above the seasonal high groundwater table. These wells will monitor the shallow surficial aquifer. No additional groundwater monitoring wells are proposed along the west side of the Buildout due to the influence of the adjacent Effluent Processing Facility and Treatment Ponds on the groundwater quality. No additional groundwater monitoring wells are proposed on the north side of the Buildout since the Buildout on the north side is contiguous with the existing FGD Landfill.

The installation details and well screen elevations are shown on Sheet 3. The wells will be installed per the construction notes. All wells shall be clearly labeled, easily visible at all times, and locked to prevent unauthorized access.

d. Leachate Sampling Locations

Leachate samples shall be taken from the leachate collection system where the pipe discharges into Pond 8 as shown on Sheet 2 of 3. If there is liquid in the leachate detection system, that liquid shall also be sampled and tested.

e. Initial and Routine Sampling Frequency and Requirements

1) Initial Groundwater Sampling and Analysis

Within one (1) week of well completion and development, each new well shall be sampled for the parameters listed in Tables 1 and 2 to establish initial groundwater quality for each new well.

2) Routine Leachate Sampling and Analysis

Leachate shall be sampled and tested once a year in the fourth quarter for the parameters listed in Tables 1 and 2.

Water Quality and Leachate Monitoring Requirements

3) Routine Groundwater Sampling and Analysis

All wells shall be sampled and analyzed for the groundwater monitoring parameters listed in Tables 1 and 2. Additional samples, wells, and parameters may be required based upon subsequent analysis. Method detection limits must meet, or be lower than that parameter's Maximum Contaminant Level in order to demonstrate compliance with Class G-II Ground Water Standards referenced in Chapter 62-550, F.A.C. Compliance with groundwater standards shall be based on unfiltered samples.

4) Routine Surface Water Sampling and Analysis

No new surface water sampling and analysis is proposed for the Buildout.

f. Verification/Evaluation Monitoring

If at any time monitoring parameters are detected at the boundary of the facility's zone of discharge at concentrations exceeding background water quality or the Department's water quality standards or criteria, SECI has thirty (30) days within receipt of the laboratory data to resample the monitor well(s) to verify the original analysis. Should SECI choose not to resample, the Department will consider the water quality analysis representative of current groundwater conditions at the facility, and evaluation monitoring/corrective action as described in Rule 62-701.510(7), F.A.C. may be required.

Water Quality and Leachate Monitoring Requirements

TABLE 1
SEMIANNUAL
FIELD TESTING PARAMETERS

Static water level before purging to the nearest 0.01 foot
Specific conductivity
pH
Dissolved oxygen
Turbidity
Temperature
Colors and Sheens by observation

TABLE 2
SEMIANNUAL
LABORATORY TESTING PARAMETERS

Arsenic
Barium
Beryllium
Boron
Cadmium
Chloride
Chromium
Copper
Gross Alpha
Iron
Lead
Mercury
Nickel
Selenium
Silver
Sulfate
Total Organic Carbon (TOC)
Total Organic Hydrocarbons (TOH)
Vanadium
Zinc

Water Quality and Leachate Monitoring Requirements

g. Water Quality and Leachate Reporting Requirements

1) Semi-annual Report Requirements

All ground water analyses shall be reported to the Department by July 28th and January 28th of each year for the semi-annual periods January-June and July-December, respectively. The results of the annual leachate quality analyses shall be reported by January 28th of each year. The items listed in Rule 62-701.510(9) (a), F.A.C., including, but not limited to, a ground water contour map representing conditions at the time of ground water sampling shall be submitted with each set of analytical results. All exceedances of water quality standards shall be noted. The results shall be sent to: Solid Waste Section, Florida Department of Environmental Protection, Northeast District Office, 7825 Bay Meadows Way, Ste B200, Jacksonville, Florida 32256-7590 and Saint Johns River Water Management District, P.O. Box 1429, Palatka, Florida 32178-1429.

2) Electronic Format for Data Submittal

Water quality data will be submitted to the Department in an electronic format consistent with the requirements for importing into Department databases.

3) Water Quality Monitoring Plan Evaluation

SECI shall submit an evaluation of the Water Quality and Leachate Monitoring Plan to the Department after the second year of monitoring. The evaluation shall include the applicable information as required by Rule 62-701.510 (9), F.A.C., and shall include an evaluation of the adequacy of the water quality monitoring frequency and sampling locations based upon site conditions and determine the necessity for modifying or continuing the program and recommendation for the date of the next Plan evaluation.

This Water Quality and Leachate Monitoring Plan prepared by:

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