



Florida Department of Environmental Protection

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January 18, 2011

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Michael Shrader
Lead Environmental Specialist
Progress Energy Florida, Inc.
299 1st. Ave. North, PEF 903
St. Petersburg, FL 33701

Re: Petition to Modify Site Certification PA 77-09
Ash Storage Vertical Expansion and Other Misc. Projects (Mod P)
Second Request for Additional Information

Dear Mr. Shrader:

On September 10, 2010 the Department of Environmental Protection's (DEP) Siting Coordination Office (Department) received a petition, and an associated fee of \$10,000, from Progress Energy Florida, Inc. (PEF) for a modification to the Crystal River Energy Complex (CREC) Site Certification. The petition is for the vertical expansion of the ash storage area, an increase in permitted flow to the south percolation pond system, reallocation of per well water use, incorporation of the CREC Industrial Wastewater (IWW) Permit (FLA016960) and IW Operations & Maintenance Plan, incorporation of the CREC North Domestic Wastewater Permit (FLA011862), and a CREC Stormwater Determination. On October 11, 2010 the Department issued a Request for Additional Information and on December 17, 2010 PEF submitted its response to that request.

Additional information is needed in order to make an adequate review of the submitted petition. The DEP Southwest District Office (SWD) Solid Waste and Industrial Wastewater Programs have the following questions and comments:

A. DEP SWD SOLID WASTE PROGRAM

Rule 62-701.320(5), F.A.C. Permit applications for a solid waste management facility shall include the application, engineering plans and reports, and all supporting information for the proposed construction, operation or closure of the facility. Information in every application shall be of sufficient detail to show how the facility will be constructed, operated, and closed, and how it will be monitored and maintained after closure, in order to comply with the requirements of Chapter 62-701, F.A.C. The information provided in the above-referenced submittal does not meet the requirements of Chapter 62-701, F.A.C. as described below.

Progress Energy Response letter:

1. **Rule 62-701.430(1)(a), F.A.C. Landfill Vertical Expansion.** Please provide documentation that demonstrates that the proposed vertical expansion will not cause or contribute to any leachate leakage from the existing landfill. As discussed below, the information provided does not appear to adequately address this requirement.

a. Response #A.1(1) indicates that the results of the CCP ash leaching tests and historical groundwater monitoring data indicate that the material will not adversely impact groundwater quality. However, the CCP leaching tests (see CCP Manual, Table 3) for all materials tested exceed the Department's water quality standards or criteria for at least one parameter, and in most cases for several parameters. The "historic" groundwater data is not specifically identified. However, review of water quality monitoring data provided to the Department's Industrial Wastewater Section for monitoring MW-2R and MW-2R2 indicate that these wells have exceeded Department water quality standards or criteria for the following parameters: chloride, iron, TDS, gross alpha, and arsenic. Please note also that although there is some variability in the data, arsenic concentrations have increased an order of magnitude in the period from 2003 to 2010. While these exceedances may not be considered to be violations of Department standards, the data suggest that the materials stored or disposed in the landfill may be impacting groundwater quality.

b. Response #A.1(2) indicates that the CCPs are "non-degradable" and behave as compacted earthen fill with minimal potential for "squeezing" of fluid from pore spaces. The Department does not disagree that the CCPs have minimal potential for "squeezing" fluid. However, the Department is unconvinced that the CCPs are "non-degradable" as no information that demonstrates the "degradability" of the materials has been provided. Further, the results of leaching tests and groundwater monitoring appear to indicate that some parameters may leach from the CCPs or other wastes that have been placed in the landfill.

c. Response #A.1. indicates that PEF is committed to beginning the phased closure of the ash storage area starting with the north slope by end of 2011. However, design details or other information for this closure were not provided. Please provide a schedule for the submittal of the proposed closure design. It does not appear that sequence of filling drawings or details have been provided to the Department. Consequently, it is unclear if the landfill will have reached the final design grades proposed in this vertical expansion application by end of 2011, or if it will be closed regardless of its topography at that point. Please clarify the proposed filling & closure sequence.

2. **Rules 62-701.430(1)(c), 62-701.400, and 62-701.320(7)(e), F.A.C. Landfill design.** As discussed below, absent an adequate basis for not requiring an interface liner, and since the existing ash landfill does not include a bottom liner, the design for the vertical expansion should be required to include a liner between the existing waste and proposed vertical expansion.

a. Response #A.2. indicates that liner requirements are not "automatically applicable to facilities like the CREC ash storage area." The Department does not disagree that some requirements in Chapter 62-701, F.A.C., may not be applicable to the CREC facility. The response indicates that because the Department allowed a vertical expansion of the landfill in 1988 without an interface liner, that an interface liner should not be required in the current application. However, please note that the 1988 solid waste management Rule 17-

701, F.A.C., does not appear to include specific requirements for vertical expansions of landfills, whereas current Rule, 62-701.430, F.A.C., effective 1/6/10, includes specific requirements for vertical expansions of landfills. Please note also that Condition III.A. of PA77-090 states,

The Licensee shall comply with rules adopted by the Department subsequent to the issuance of the certification under the PPSA which prescribe new or stricter criteria, to the extent that the rules are applicable to electrical power plants. Except when express variances, exceptions, exemptions, or other relief have been granted, subsequently adopted Department rules which prescribe new or stricter criteria shall operate as automatic modifications to certifications.

- b. Response #A.2. also proposes that a liner is not required because of PEF's belief that there are no environmental impacts based on the leaching and groundwater monitoring data discussed in Response #A.1. See those comments above.
- c. As previously requested, please provide an adequate basis for not requiring an interface liner, or a revised design that includes a liner and appropriate leachate collection system. Please provide construction-level design drawings, calculations, etc., as appropriate. Please provide full-sized construction drawings.
- d. The information submitted does not comply with the requirements of Rules 62-701.400(3), (7) and (8), F.A.C. Neither Technical Specifications nor CQA Plan were provided. Please provide Technical Specifications and CQA Plan which complies with Rule 62-701.400(7) and (8), F.A.C.

3. Rules 62-701.430(2) and 62-701.410(2), F.A.C. Geotechnical Investigation.

- a. Response #A.3.a. indicates that the August 25, 2010 submittal (received September 10, 2010) included block and circular failure modes. However, the information presented does not clearly identify which Figures represent which failure conditions. The analyses do not appear to include equipment loading. Although Attachment 2 of the current submittal includes "references" for the slope stability models, the "references" do not include the author of the text or publication date and it is not clear how the formulas or other information is incorporated or supports the analyses.

As previously requested, absent an adequate basis for not requiring an interface liner, please provide revised stability analyses that include an interface liner, equipment loading, and block and circular failures. Please include copies of the relevant portions of all references, assumptions, figures, etc., supporting the analyses.

- b. Engineering Report §5.4.2.

1) *Attachment 4, Compaction Grouting Program.*

- a) This attachment appears to provide information related to compaction grouting in the "sliver". Please provide the basis for stopping grout injection after a grout take of 50 c.y. In other words, if a particular injection point was still capable of receiving additional grout (possibly indicating a more substantial void/cavity), why was the grouting stopped at 50 c.y.?

- b) Please provide the basis for selection of the initial grout inject points CP-1, CP-2, CP-3, CP-4 and CP-5. It appears that CP-6 was selected based on boring PB-4.
 - c) Please specify the lateral distance between each grout injection point in a particular cluster (e.g., CP-1 cluster etc.).
 - d) Based on the distances between the grout injection points and the quantity of grout injected, please discuss the size of the largest cavity/void that was grouted.
 - e) The information indicates that rotary wash drilling techniques were used to install the grout injection points. Please clarify if the limestone “roof” thickness was determined for each of the grout injection points.
- 2) Response #A.3.b(2) indicates that the FGS Subsidence Incident Report was reviewed and only four sinkholes were reported within T17S, R16E and 1 was reported in T18S, R16E. The response also states, “the cavities exposed during the grading work at the FGD pond... were few (only 3 across the footprint), small (ranging from about 3 or 5 feet in diameter), and depths of only 4 to 8 feet.” Please clarify if these 3 sinkholes were reported to FGS and are included in the FGS Subsidence Incident Report. Please clarify if the aerial photograph in Attachment 5 is from 1967 and clarify when the PEF plant was constructed. Please provide additional evaluation of the potential for sinkholes at the site as required by Rule 62-701.410(2)(b), F.A.C. It is the Department’s understanding that active sinkholes were observed onsite during the construction of the FGD pond system, and several of the boring logs identify soft/loose soils and/or losses of drilling circulation (e.g., PB-4, PB-4B, etc.).
- 3) Please provide the calculations supporting the “Punching Shear Failure Evaluation.” Although a figure was provided, the calculations and supporting references do not appear to have been provided.
- 4) Attachment D (September 10, 2010). Please provide a figure showing where the “intact rock cores” that were tested for compressive strength were taken on the site.
- c. Appendix I.
- 1) See Comment #3.a. above. As previously requested, please clarify if the figures provided in this appendix are for circular or block failures, and if the analyses included equipment loading. Please specify the equipment loading.
 - 2) See Comment #3.a. above. As previously requested, unless an adequate basis for not requiring an interface liner has been provided, please provide revised settlement analyses that include an interface liner and equipment loading. Please include copies of the relevant portions of all references, assumptions, figures, etc., supporting the analyses.
4. **Rules 62-701.320(7)(e) and 62-701.500, F.A.C. Landfill operation.** Response #A.4 indicates that the operations plan “will be submitted... within 120 days of the approval of this modification request.”

Rule 62-701.320(5), F.A.C. requires that permit applications for a solid waste management facility shall include the application, engineering plans and reports, and all supporting information for the proposed construction, operation or closure of the facility. Information in every application shall be of sufficient detail to show how the facility will be constructed, **operated**, and closed, and how it will be monitored and maintained after closure, in order to comply with the requirements of Chapter 62-701, F.A.C.

Condition III.A. of PA#77-09O states,

The Licensee shall comply with rules adopted by the Department subsequent to the issuance of the certification under the PPSA which prescribe new or stricter criteria, to the extent that the rules are applicable to electrical power plants. Except when express variances, exceptions, exemptions, or other relief have been granted, subsequently adopted Department rules which prescribe new or stricter criteria shall operate as automatic modifications to certifications.

As previously requested, please provide a landfill operation plan that includes the information required by this rule. An operation plan was not provided.

5. Rules 62-701.410(1) and 62-701.510, F.A.C. Hydrogeological investigation and groundwater monitoring plan.

a. The Department does not disagree that the PEF CREC may be an “existing installation” as defined in Chapter 62-520, F.A.C. However, Rules 62-701.510(3)(a) and (b), F.A.C., identify wells within the zone of discharge as “detection” wells, and wells located at or immediately adjacent to the compliance line of the zone of discharge as “compliance” wells, respectively. In order to determine the appropriate designation in accordance with Chapter 62-701, F.A.C., please provide the distances from the edge of waste for each of the downgradient monitoring wells: TW-1, TW-4, MWI-2R2, TW-5 and TW-3. If PEF’s zone of discharge is the facility property boundary, please specify which monitoring wells that are “compliance” wells (i.e. located at the property boundary) that will monitor impacts from the landfill.

b. Response #A.5.a. indicates that the ash landfill is the “subject of a comprehensive facility-wide groundwater monitoring plan that has been approved by FDEP under both the Site Certification Order... as well as the facility’s FDEP-issued industrial wastewater permit. [emphasis added]” However, after a review of the current Conditions of Certification (COC) and discussion with the Department’s Industrial Wastewater Section, it does not appear that the “facility-wide” monitoring plan has been approved in the COC or Industrial Wastewater permit or has been implemented by PEF. Response #A.5.b. states, “PEF will submit a revised groundwater monitoring plan to incorporate additional wells requested by the Department.” A timeframe for this submittal was not specified. See also Comment #5.d. below.

As previously requested, since a groundwater monitoring plan that complies with Rule 62-701.510, F.A.C., is required for the landfill, prior to approval of the vertical expansion modification, please provide the revised site-wide groundwater monitoring plan at this time.

c. Engineering Report, Table 1. No additional information is requested for this item.

d. Engineering Report, Table 3. Response #A.5.d. states, “PEF has not provided additional sampling results... because there is no requirement to sample and report data from TW-1, TW-2, TW-3, TW-4 and TW-5... Sampling of these wells is anticipated to commence with the inclusion of these wells under the industrial wastewater monitoring requirements in the modified COC.”

As a condition of the approval of the construction and operation of the lateral expansion of the landfill (i.e. the “sliver”) (see the Department’s letter dated June 3, 2010), the Department requested and PEF agreed to sampling monitoring wells TW-1 through TW-5 at the same frequency as the existing Industrial Wastewater wells (i.e., quarterly). Please provide more recent sampling results for these wells.

6. **Rule 62-701.320(7)(e), 62-701.320(7)(f) and 62-701.330(3)(c), F.A.C. Drawings.** No additional information is requested concerning this item.

Coal Combustion Product (CCP)/Solid Waste Materials Management Plan, (3-ring binder) revision 4, September 2010 (received December 20, 2010)

1. Response #A.7. indicates that a revised CCP Manual “will include the applicable updates for product management units following CREC’s recent construction and operational changes and will make reference to the site-wide groundwater monitoring plan as the appropriate regulatory vehicle for monitoring groundwater in the vicinity of applicable CCP management units.” A schedule for the submittal of this information was not provided. Please provide a revised CCP Management Manual that includes the revised groundwater monitoring plan discussed above.

2. Please provide an updated CCP manual or supplemental information that includes the quantities of each CCP and solid waste material produced, sold and stored in 2009 and 2010. The CCP Manual provided is based on 2007/2008 information.

3. §2.7. Please clarify the other “proper disposal” for the coal yard runoff pond dredge material. Please provide the characterization of the coal yard runoff pond dredge sediments. Since these ponds were recently lined, it does not appear that this information was included in the 2008 ECT report.

4. §3.7.2. Please provide the SPLP results for the FGD pond solids.

5. §3.7.4. Please clarify where the FGD pond “suction dredge” will discharge.

6. Table 1. Please specify the “beneficial use offsite” (type of use and location) for the off-spec gypsum. Please provide the analytical results that demonstrate that the truck wash solids are not contaminated and are suitable for use as landfill cover.

7. Table 2. Please update this table based on current (2009, 2010) data.

The following comment is for information only and does not require a response.

1. Please be advised that based on the descriptions and historic practices at the facility, some of the materials disposed in the landfill (e.g., non-CCPs and miscellaneous solid wastes) are not considered to be industrial by-products and may require management within lined or contained areas.

B. INDUSTRIAL WASTEWATER COMMENTS:

North Plant Area Stormwater Modeling Report

According to the information submitted on the response to FDEP's RAI dated December 17, 2010 and information submitted to the NPDES permit renewal application (FL0036366) dated June 11, 2010, PEF wants to send the treated coal pile runoff to the CR 4 & 5 IWW percolation pond on a regular basis. In addition, the facility wants the capability to have an alternative flow path to the existing coal pile runoff collection system (outfall I-CHO). Please confirm these statements.

Additional comments

- a. Base on Attachment 12, page 4 and 6 of 7, the coefficient of horizontal permeability was assumed instead of field test to run MODRET to calculate the maximum water elevation and recovery time. In addition, the vertical field permeability testing was performed in 2007 before the pond was cleaned. The facility needs to provide unsaturated vertical and saturated Horizontal hydraulic conductivity based on field test (actual) conditions. Re-calculate the maximum water elevation and recovery time based on actual conditions.
- b. Please provide the Department with the treatment volume of stormwater and freeboard that will be available at the CR 4 & 5 IWW percolation pond.

If you have any questions regarding this request, you may contact Cindy Mulkey at (850) 245-2175, Susan Pelz at (813) 632-7600 ext. 386, or Yanisa Angulo at (813) 632-7600. Danny Stubbs, Susan Pelz, and Yanisa Angulo in the SWD Office should be copied on your response.

Sincerely,



Michael P. Halpin, P.E.
Administrator,
Siting Coordination Office

CC: by email:

Susan Pelz, DEP SWD – susan.pelz@dep.state.fl.us
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