ATTACHMENT F

GROUNDWATER MONITORING, OPERATION AND MAINTENANCE REQUIREMENTS

Tampa Electric Company - Big Bend Station
13031 Wyandotte Road
Apollo Beach, FL 33572
Hillsborough County
Latitude: 27°47' 41.3827" N Longitude: 82°24' 3.5451" W

These Groundwater Monitoring, Operation and Maintenance Requirements (GWMOMR) were developed by the Licensee, Tampa Electric Company, in conjunction with the Florida Department of Environmental Protection Southwest District's Industrial Wastewater (IWW) program to incorporate the groundwater (GW) monitoring requirements into the Licensee's Conditions of Certification (COC or License). The GWMOMR incorporates Units 1, 2, 3 and 4 as well as 7 active IWW lined ponds, the concrete settling basins and a stormwater pond at the coal field . The GWMOMR will also continue to include 3 out of service CCR Impoundments, which will be monitored until completion of the closure project for these ponds under the provisions of 40 CFR Part 257 (the "CCR Rule"). The Department's Southwest District IWW program is responsible for reviewing and approving all revisions to this document in accordance with Section A, Condition XXI. Procedures for Post-Certification Submittals and Section B.I.A Industrial Wastewater Ground Water Monitoring.

New major sources or deletion of existing major sources of wastewater; improvements made to existing or new wastewater treatment facilities including those which provide for a new or expanded land with increase in the permitted capacity; pollutants not addressed in this Attachment or the Conditions of Certification; and, other projects that cause or may cause changes to the quantity and/or quality of discharges to groundwater as a result of industrial wastewater treatment or solid waste disposal are considered modifications to the existing license. The licensee shall submit a petition for modification to the Conditions of Certification to the Department for review and approval in accordance with Section 403.516, F.S. and 62-17.211, F.A.C., as outlined in Section A. XXIV. Modification of Certification, of the Conditions of Certification.

WASTEWATER TREATMENT:

Industrial wastewater (IWW) generated at the facility is composed of contact storm water including coal pile runoff, plant floor drain water, reverse osmosis reject water, demineralizer wastes, boiler blowdown and chemical cleaning wastewater, coal unloading hopper wash water, turbine compressor wash water, equipment wash water, ash and slag sluice water and cooling tower blowdown. The industrial wastewater is routed to the lined wastewater settling and recycle pond system. Recycled wastewater is then utilized throughout the plant for equipment wash down, in the FGD system, slag and ash sluicing, and to prewash gypsum. The FGD process wastewater is treated separately and discharged either with the once-though cooling water (NPDES discharge) or to the IWW pond system. Reclaimed water provided by Hillsborough County is treated by reverse osmosis and/or demineralizer systems prior to use in critical plant processes. Wastes from these treatment systems are sent the recycle pond system. Treatment of the recycled water includes settling, pH adjustment and disinfection. Storm water or wastewater that has the potential to come into contact with oil, grease, or similar materials is sent to an oil/water separator before being sent to the recycle water system.

The IWW pond system includes the following ponds and basins:

1. Long Term Fly Ash/Reclaimed Water Pond (lined)
2. South Bottom Ash Pond (lined)
3. North Bottom Ash Pond (lined)
4. Bottom Ash Suction Pond (lined)

5. Settling Basins (concrete)
6. Settling Pond (lined)
7. South Recycle Pond (lined)
8. North Recycle Pond (lined)
9. Storm Water Pond (to be lined - at the coal field)

Out of Service (Under Closure per 40 CFR Part 257)

10. South Economizer Ash Pond (lined, solids storage area for combustion residuals)
11. North Economizer Ash Pond (lined)
12. Economizer Suction Pond (lined)

Wastewater from the Culbreath Bayside Station, permit FLA184713 may be discharged to the recycle pond system, provided all conditions and requirements of this license are satisfied.

I. SITE GROUNDWATER MONITORING

A. Construction Requirements

1. New monitoring well. If a new monitoring well approved by the Department is constructed, a revision of this attachment will then be prepared to incorporate the well with proper well designation. *[62-4.070]*

2. The licensee shall give at least 72-hour notice to the Department's Southwest District Office, prior to the installation of any monitoring wells detailed in this license including the GWMOMR. *[62-520.600(6)(h)]*

3. All field work done in connection with this GWMOMR regarding the collection of ground water samples shall be conducted in accordance with the Standard Operating Procedures (SOPs) (http://www.dep.state.fl.us/water/sas/sop/sops.htm). All laboratory analyses done in connection with this GWMOMR shall be conducted by firms that hold certification from the Department of Health, Environmental Laboratory Certification Program under Chapter 64E-1, F.A.C. *[Rule 62-160.300(1), F.A.C.]*.

4. Before construction of new groundwater monitoring wells, a soil boring shall be made at each new monitoring well location to properly determine monitoring well specifications such as well depth, screen interval, screen slot, and filter pack. *[62-520.600(6)(g)]*

5. Location Requirements. Within 60 days after completion of construction of new IWW ground water monitoring wells, the following information shall be submitted.

a. A properly scaled figure depicting monitor well locations (active and abandoned) with identification numbers shall be submitted to the Southwest District IWW Section. The figure shall also include (or attach) the monitoring well, top of casing, and ground surface elevations referenced to National Geodetic Vertical Datum (NGVD) of 1929 to the nearest 0.01 foot, along with monitor well location latitude and longitude to the nearest 0.1 second. *[62-520.600(6) (i)]*

6. Well Construction Detail Requirements. Within 30 days after completion of construction or abandonment of ground water monitoring wells, the following information shall be submitted.

a. For both IWW and SW wells, a copy of the Southwest Florida Water Management District (SWFWMD) State of Florida Permit Application to Construct, Repair, Modify, or Abandon a Well (LEGR.040.01 (June 2010) 40D-3.101(1), F.A.C.) and

b. IWW Wells, the Department's Southwest District Office well completion reports and soil boring/lithologic log on DEP Form 62-520.900(3), Monitor Well Completion Report, for each well. The DEP form can be accessed at 62-532.410 and 62-520.900(2)

7. Initial Sampling Requirements. Within 30 days of installation of a new IWW well (other than a replacement for the wells listed in Table B.2. below), the licensee shall conduct initial ground water sampling events as follows:

Sample the new well for the Primary and Secondary Drinking Water parameters included in Rule 62-550, Florida Administrative Code, Public Drinking Water Systems (excluding asbestos, acrylamide, Dioxin, butachlor, epichlorohydrin, pesticides, and PCBs, unless reasonably expected to be a constituent of the discharge or an artifact of the site). In addition, volatile organics and extractable semivolatile organics shall be analyzed. Results of this initial

sampling shall be submitted to the Southwest District IWW Section and the SCO within 60 days after sampling. *[62-520.600(5)(a)2]*

B. Operational Requirements

1. During the period of operation authorized by this Certification the licensee shall continue to sample ground water at the existing monitoring wells identified in item.I.B.2 below, in accordance with the COC and GWMOMR prepared in accordance with Rule 62-520.600, F.A.C. *[62-520.600]*

2. The following monitoring wells shall be sampled for Groundwater Monitoring requirements for the lined settling and recycle pond system:

Monitoring Well ID	Alternate Well Name and/or Description of Monitoring Location	Latitude			Longitude			Aquifer Monitored	New or Existing
		o	'	"	o	'	"		
MWB-4R	Background	27	47	2	82	23	7	Surficial	Existing
MWB-56UF	Background	27	48	22	82	23	1	Floridian	Existing
MWC-16R**	Coal Stockpile Compliance Well	27	47	51	82	24	31	Surficial	Existing
MWC-31UF	Recycle Pond Compliance well	27	47	40	82	23	38	Floridian	Existing
MWC-45***	Recycle Pond Compliance well	27	47	34	82	23	40	Surficial	Existing
MWC-46***	Recycle Pond Compliance well	27	47	37	82	23	47	Surficial	Existing
MWC-47***	Recycle Pond Compliance well	27	47	38	82	23	33	Surficial	Existing
MWC-55**	Coal Stockpile Compliance Well	27	47	40	82	24	43	Surficial	Existing
MWC-9***	Recycle Pond Compliance well	27	47	34	82	23	33	Surficial	Existing

MWC = Compliance; MWB = Background; MWI = Intermediate; MWP =Piezometer

[62-520.600]

3. The monitor wells specified in I.B.2 above, shall be sampled for the parameters listed below except for wells MWB-56UF and MWC-31UF:

Parameter	Compliance Well Limit	Units	Sample Type	Monitoring Frequency
Chloride (as Cl)	Report	mg/L	Grab	Semi-Annually; twice per year
pH*	Report	s.u.	In Situ	Semi-Annually; twice per year
Radium 226 + Radium 228, Total**	5	pCi/L	Grab	Semi-Annually; twice per year
Specific Conductance*	Report	umhos/cm	In Situ	Semi-Annually; twice per year
Turbidity*	Report	NTU	In Situ	Semi-Annually; twice per year
Water Level Relative to NGVD	Report	ft	In Situ	Semi-Annually; twice per year
Arsenic, Total Recoverable	0.010	mg/L	Grab	Semi-Annually; twice per year

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Parameter	Compliance Well Limit	Units	Sample Type	Monitoring Frequency
Alpha, Gross Particle Activity	15	pCi/L	Grab	Semi-Annually; twice per year
Fluoride, Total (as F)	4.0	mg/L	Grab	Semi-Annually; twice per year
Iron, Total Recoverable	Report	mg/L	Grab	Semi-Annually; twice per year
Temperature (C), Water*	Report	Deg C	In Situ	Semi-Annually; twice per year
Boron, Total Recoverable	Report	mg/L	Grab	Semi-Annually; twice per year
Oxygen, Dissolved (DO) *	Report	mg/L	In Situ	Semi-Annually; twice per year
Sulfate, Total	Report	mg/L	Grab	Semi-Annually; twice per year

*The field parameters shall be sampled per DEP–SOP-001/01, FS 2200 Ground Water Sampling, Figure FS 2200-2 Ground Water Purging Procedure (http://www.dep.state.fl.us/water/sas/sop/sops.htm) and recorded on Form FD 9000-24, Ground Water Sampling Log (http://www.dep.state.fl.us/water/sas/qa/forms.htm). The sampling logs shall be submitted with each ground water Part D DMR. The field parameters to be reported on Part D of GW DMR shall be the last sample recorded on FD 9000-24. *[62-520.600(11)(b)]*

** MWC-16R and MWC-55 at the coal stockpile area have a limit of Report Only for Radium 226 + Radium 228, Total and Gross Alpha.

***Wells MWC-9, MWC-45, MWC-46 and MWC-47 have been incorporated into the Consent Order Remedial Action Plan (RAP) and have a limit of Report Only for all parameters.

4. The following parameters shall be analyzed for wells MWB-56UF and MWC-31UF identified in I. B.2 above.

Parameter	Compliance Well Limit	Units	Sample Type	Monitoring Frequency
pH*	Report	s.u.	In Situ	Semi-Annually; twice per year
Radium 226 + Radium 228, Total	5	pCi/L	Grab	Semi-Annually; twice per year
Specific Conductance*	Report	umhos/cm	In Situ	Semi-Annually; twice per year
Turbidity*	Report	NTU	In Situ	Semi-Annually; twice per year
Water Level Relative to NGVD	Report	ft	In Situ	Semi-Annually; twice per year
Alpha, Gross Particle Activity	15	pCi/L	Grab	Semi-Annually; twice per year
Temperature (C), Water*	Report	Deg C	In Situ	Semi-Annually; twice per year
Oxygen, Dissolved (DO) *	Report	mg/L	In Situ	Semi-Annually; twice per year

*The field parameters shall be sampled per DEP–SOP-001/01, FS 2200 Ground Water Sampling, Figure FS 2200-2 Ground Water Purging Procedure (http://www.dep.state.fl.us/water/sas/sop/sops.htm) and recorded on Form FD 9000-24, Ground Water Sampling Log (http://www.dep.state.fl.us/water/sas/qa/forms.htm). The sampling logs shall be submitted with each ground water Part D DMR. The field parameters to be reported on Part D of GW DMR shall be the last sample recorded on FD 9000-24. *[62-520.600(11)(b)]*

5. Water levels shall be recorded prior to evacuating the well for sample collection. Elevation references shall include the top of the well casing and land surface at each well site (NGVD allowable) at a precision of plus or minus 0.01 feet. *[62-520.600(11)(c)]*

6. Ground water monitoring wells shall be purged prior to sampling to obtain a representative sample. *[62-160.210]*

7. Analyses shall be conducted on un-filtered samples, unless filtered samples have been approved by the Department as being more representative of ground water conditions. *[62-520.310(5)]*

8. If any monitoring well becomes inoperable or damaged to the extent that sampling or well integrity may be affected, the licensee shall notify the Department's SWD office within two business days from discovery, and a detailed written report shall follow within ten days after notification to the Department. The written report shall detail what problem has occurred and remedial measures that have been taken to prevent recurrence or request approval for replacement of the monitoring well. All monitoring well design and replacement shall be approved by the Department before installation. *[62-520.600 and 62-620.320(6)]*

9. Ground water monitoring test results for the IWW wells shall be submitted on Part D of DEP Form 62-620.910(10) (attached) and shall be submitted as required under Section II C below.

10. All piezometers and monitoring wells not part of the approved ground water monitoring plan is to be plugged and abandoned in accordance with Rule 62-532.500(4), F.A.C., unless future use is intended. *[62-532.500(4)]*

II. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS:

A. REUSE OR DISPOSAL:

Lined Settling and Recycle Pond System: An existing lined recycle pond system is located approximately at latitude 27°47' 43" N, longitude 82°24' 17" W.

1. During the period beginning on the issuance date and lasting through the expiration date of this license, the licensee is authorized to discharge industrial wastewater, such as contact storm water including coal pile runoff, plant floor drain water, reverse osmosis reject water, demineralizer wastes, boiler blowdown and chemical cleaning, coal unloading hopper wash water, turbine compressor wash water, equipment wash water, ash and slag sluice water, and cooling tower blowdown to a lined storage and recycle pond system. Recycled wastewater shall be limited and monitored by the licensee as specified below and reported in accordance with II.C.1 below:

			Effluent Limitations		Monitoring Requirements			
Parameter	Units	Max/Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number	Notes
pH	s.u.	Max Min	Report Report	Daily Maximum Daily Minimum	Quarterly	In-situ	EFF-1	
Specific Conductance	umhos/cm	Max	Report	Daily Maximum	Quarterly	Grab	EFF-1	
Fluoride, Total (as F)	mg/L	Max	Report	Daily Maximum	Quarterly	Grab	EFF-1	
Boron, Total Recoverable	mg/L	Max	Report	Daily Maximum	Quarterly	Grab	EFF-1	
Arsenic, Total Recoverable	ug/L	Max	Report	Daily Maximum	Quarterly	Grab	EFF-1	
Solids, Total Suspended	mg/L	Max	Report	Daily Maximum	Quarterly	Grab	EFF-1	
Iron, Total Recoverable	mg/L	Max	Report	Daily Maximum	Quarterly	Grab	EFF-1	
Chloride (as Cl)	mg/L	Max	Report	Daily Maximum	Quarterly	Grab	EFF-1	
Radium 226 + Radium 228, Total	pCi/L	Max	Report	Daily Maximum	Quarterly	Grab	EFF-1	
Alpha, Gross Particle Activity	pCi/L	Max	Report	Daily Maximum	Quarterly	Grab	EFF-1	
Sulfate, Total	mg/L	Max	Report	Daily Maximum	Quarterly	Grab	EFF-1	

2. Effluent samples shall be taken at the monitoring site locations listed in II.A.1. above and as described below:

Monitoring Site Number	Description of Monitoring Site
EFF-1	Effluent from the recycle pond return line

3. The following setback distances shall be maintained between the outside toe of the ponds: Potable Water Supply Wells- 500 feet; Property Line 100 feet; Swales, Ditches, Wetlands and other bodies of surface water connected to State waters- 50 feet.

4. The licensee shall continue to monitor flows into and out of the recycle pond system using runtime meters and makes these records available during compliance inspections or upon requests by the Department.

There is no discharge from the IWW system so there are no flow measuring devices.

B. Sampling Methods

1. The sample collection, analytical test methods, and method detection limits (MDLs) applicable to this license shall be conducted using a sufficiently sensitive method to ensure compliance with applicable water quality standards and effluent limitations and shall be in accordance with Rule 62-4.246, Chapters 62-160 and 62-600, F.A.C., and 40 CFR 136, as appropriate. The list of Department established analytical methods, and corresponding MDLs and PQLs (practical quantitation limits), which is titled "FAC 62-4 MDL/PQL Table (April 26, 2006)" is available at https://floridadep.gov/dear/quality-assurance/content/quality-assurance-resources. The MDLs and PQLs as described in this list shall constitute the minimum acceptable MDL/PQL values and the Department shall not accept results for which the laboratory's MDLs or PQLs are greater than those described above unless alternate MDLs and/or PQLs have been specifically approved by the Department for this license. Any method included in the list may be used for reporting as long as it meets the following requirements:

(1) The laboratory's reported MDL and PQL values for the particular method must be equal or less than the corresponding method values specified in the Department's approved MDL and PQL list;

(2) The laboratory reported MDL for the specific parameter is less than or equal to the license limit or the applicable water quality criteria, if any, stated in Chapter 62-302, F.A.C. Parameters that are listed as "report only" in the license shall use methods that provide an MDL, which is equal to or less than the applicable water quality criteria stated in 62-302, F.A.C.; and

(3) If the MDLs for all methods available in the approved list are above the stated license limit or applicable water quality criteria for that parameter, then the method with the lowest stated MDL shall be used.

When the analytical results are below method detection or practical quantitation limits, the licensee shall report the actual laboratory MDL and/or PQL values for the analyses that were performed following the instructions on the applicable discharge monitoring report.

Where necessary, the licensee may request approval of alternate methods or for alternative MDLs or PQLs for any approved analytical method. Approval of alternate laboratory MDLs or PQLs are not necessary if the laboratory reported MDLs and PQLs are less than or equal to the license limit or the applicable water quality criteria, if any, stated in Chapter 62-302, F.A.C. Approval of an analytical method not included in the above-referenced list is not necessary if the analytical method is approved in accordance with 40 CFR 136 or deemed acceptable by the Department. *[62-4.246, 62-160]*

2. The licensee shall provide safe access points for obtaining representative influent and effluent samples which are required by this license. *[62-620.320(6)]*

C Monitoring and Reporting Requirements – Industrial Wastewater Components

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1. During the period of operation authorized by the Condition of Certification, the Licensee shall complete and submit to the Southwest District IWW program Discharge Monitoring Reports (DMRs) in accordance with the frequencies specified by the REPORT type (i.e. monthly, quarterly, semiannual, annual, etc.) indicated on the DMR forms attached to this license. Unless specified otherwise in this license, monitoring results for each monitoring period shall be submitted in accordance with the associated DMR due dates below. DMRs shall be submitted for each required monitoring period including periods of no discharge.

REPORT Type on DMR	Monitoring Period	Submit by
Monthly	first day of month - last day of month	28th day of following month
Quarterly	January 1 - March 31 April 1 - June 30 July 1 - September 30 October 1 - December 31	April 28 July 28 October 28 January 28
Semiannual	January 1 - June 30 July 1 - December 31	July 28 January 28
Annual	January 1 - December 31	January 28

The licensee may submit either paper or electronic DMR forms. If submitting electronic DMR forms, the licensee shall use the electronic DMR system approved by the Department (EzDMR) and shall electronically submit the completed DMR forms using the DEP Business Portal at http://www.fldepportal.com/go/. Reports shall be submitted to the Department by the twenty-eighth (28th) of the month following the month of operation. Data submitted in electronic format is equivalent to data submitted on signed and certified paper DMR forms.

If submitting paper DMR forms, the licensee shall make copies of the attached DMR forms, without altering the original format or content unless approved by the Department and shall mail the completed DMR forms to the Department's Southwest District Office at the address specified below by the twenty-eighth (28th) of the month following the month of operation.

[62-620.610(18)] [62-600.680(1)]

Unless specified otherwise in this GWMOMR, all reports and notifications required by this GWMOMR, including twenty-four-hour notifications, shall be submitted to or reported to the Southwest District Office at the address specified below:

Southwest District Office
13051 North Telecom Parkway
Temple Terrace, FL 33637-0926

Phone Number - (813) 470-5700
FAX Number - (813) 470-5995
Email – swd_iw@floridadep.gov

An Electronic copy of all submittals required by this Plan shall also be sent to the Siting Coordination Office by email to SCO@floridadep.gov . If electronic copies are not available, copies can be mailed to:

Siting Coordination Office
3900 Commonwealth Boulevard
Tallahassee, FL 32399
Phone Number- (850) 245-2002
Fax Number-(850) 245-2020

[62-620.305]

D. Other Limitations

1. All reports and other information shall be signed in accordance with requirements of Rule 62-620.305, F.A.C.

2. The Licensee shall provide safe access points for obtaining representative samples which are required by this attachment.

3. If there is no discharge from the facility on a day scheduled for sampling, the sample shall be collected on the day of the next discharge.

4. Any bypass of the treatment facility which is not included in the monitoring specified in Sections.I.B.3 and II.A. 2 above, is to be monitored for flow and all other required parameters. For parameters other than flow, at least one grab sample per day shall be monitored. Daily flow shall be monitored or estimated, as appropriate, to obtain reportable data. All monitoring results shall be reported on the appropriate DMR.

III. DESIGN, CONSTRUCTION, OPERATION AND MAINTENANCE OF WASTEWATER FACILITIES REQUIREMENTS

A. During the period of operation authorized by this license, the wastewater facilities shall be operated under the supervision of a person who is qualified by formal training and/or practical experience in the field of water pollution control. *[62-620.320(6)]*

B. The licensee is authorized to discharge a solution of ammonia into the recycle pond. The discharge quantity is not to exceed 10 gallons of ammonia during maintenance activities. This procedure is only authorized during maintenance activities or if a leak/release of anhydrous ammonia occurred during the operation of the emergency ammonia unloading station. Notification to the Department is required if the quantity exceeds 10 gallons of anhydrous ammonia. *[62-620.350]*

IV. GENERAL CONDITIONS

1. Sampling and monitoring data shall be collected and analyzed in accordance with Rule 62-4.246 and Chapters 62-160, 62-601, and 62-610, F.A.C., and 40 CFR 136, as appropriate.

a. Monitoring results shall be reported at the intervals specified elsewhere in this license and shall be reported on a Discharge Monitoring Report (DMR), DEP Form 62-620.910(10), or as specified elsewhere in the license.

b. If the licensee monitors any contaminant more frequently than required by the license, using Department approved test procedures, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Discharge Monitoring Report (DMR), DEP Form 62-620.910(10).

c. Calculations for all limitations which require averaging of measurements shall use an arithmetic mean unless otherwise specified in this license.

d. For domestic wastewater facilities, testing for parameters listed in Rule 62-160.300(4), F.A.C., shall be conducted under the direction of a certified operator.

2. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule detailed elsewhere in this license shall be submitted no later than 14 days following each schedule date. *[62-620.610(19)]*