



# Florida Department of Environmental Protection

Bob Martinez Center  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Rick Scott  
Governor

Jennifer Carroll  
Lt. Governor

Herschel T. Vinyard Jr.  
Secretary

July 8, 2011

*Sent by Electronic mail – Received Receipt Requested*

Mr. Byron Burrows, Manager – Air Programs  
Tampa Electric Company  
702 North Franklin Street  
Tampa, Florida 33602

Re: Exemption from Requirement to Obtain an Air Construction Permit  
Tampa Electric Company, Big Bend Station  
Project No. 0570039-047-AC  
Post Carbon Capture Demonstration Project

Dear Mr. Burrows:

On June 16, 2011, Tampa Electric Company (TECO) submitted an application requesting to install and operate a post carbon capture demonstration project at the Big Bend Station located in Hillsborough County at 13031 Wyandotte Road in Apollo Beach, Florida.

The purpose of this project is to demonstrate an amine-based carbon dioxide (CO<sub>2</sub>) capture technology for both industrial and fossil fuel power plant applications. The proposed demonstration project is expected to operate less than 12 months.

**Determination:** Details of the project are provided in the application and the enclosed Technical Evaluation.

The proposed technology will consist of separating the CO<sub>2</sub> from the flue gas by absorption in an amine-based solution. The flue gas is cooled prior to entering the absorption column. The amino acid solution is fed into the absorber tower in a counter current fashion to absorb the CO<sub>2</sub> gas solution. The flue gas exiting the absorber is combined with the recovered CO<sub>2</sub> gas from the desorber and is released back into Units 1 and 2 flue gas stream. The amino salt solution, which is rich in CO<sub>2</sub>, is pumped to the desorber tower to strip the CO<sub>2</sub> from the solvent and recover the amino acid solution. The CO<sub>2</sub> that is absorbed in an amino acid salt solution is to achieve a minimum of 90% removal of CO<sub>2</sub>.

A trailer mounted boiler rated at a maximum heat input rate of 14 million British thermal units (MMBtu) per hour is being considered for this project. The temporary boiler will be utilized to supply steam to the desorber reboiler and reclaimer system to strip CO<sub>2</sub> from the amino acid solution. The Department evaluated the operation and emissions produced by the proposed boiler in relation to the demonstration project and found emissions to be minimal.

A cooling tower will be used to generate cooling water for the flue gas cooler, reclaimer system, solvent cooler and desorber condenser. The Department evaluated the emissions produced by the temporary cooling tower and found emissions to be minimal.

Pursuant to Rule 62-4.040(1)(b) of the Florida Administrative Code (F.A.C.) and for the reasons stated above, the Air Permitting and Compliance Section determines that the activity will not emit air pollutants "... in sufficient quantity, with respect to its character, quality or content, and the circumstances surrounding its location, use and operation, as to contribute significantly to the pollution problems within the State, so that the regulation thereof is not reasonably justified." Therefore, the project is exempt from the requirement to obtain an air construction permit.

In addition to the Departments review, the cooling tower met the exemption criteria in accordance with Rule 62-

## EXEMPTION FROM AIR CONSTRUCTION PERMITTING

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210.300(3)(b), F.A.C. and the boiler met the categorical exemption criteria in accordance with Rule 62-210.300(3)(a)34., F.A.C. The boiler is not subject to applicable New Source Performance Standards (NSPS) provisions in 40 Code of Federal Regulations (CFR) 60 for Subpart Dc (Standards of Performance for Small Industrial - Commercial – Institutional Steam Generating Units) during periods of combustion research.

This determination may be revoked if the proposed activity is substantially modified or the basis for the exemption is determined to be materially incorrect. A copy of this letter shall be maintained at the site of the proposed activity. This permitting decision is made pursuant to Chapter 403, Florida Statutes.

**Permitting Authority:** Applications for air construction permits are subject to review in accordance with the provisions of Chapter 403, Florida Statutes (F.S.) and Chapters 62-4, 62-210 and 62-212, F.A.C. The Permitting Authority responsible for making a permit determination for this project is the Air Permitting and Compliance Section in the Department of Environmental Protection's Division of Air Resource Management. The Permitting Authority's physical address is: 111 South Magnolia Drive, Suite #4, Tallahassee, Florida 32301. The Permitting Authority's mailing address is: 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400. The Permitting Authority's telephone number is 850/717-9000.

**Petitions:** A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed with (received by) the agency clerk in the Office of General Counsel of the Department of Environmental Protection, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. Petitions must be filed within 21 days of receipt of this exemption from air permitting requirements. A petitioner shall mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention (in a proceeding initiated by another party) will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the Permitting Authority's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner; the name, address and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of when and how each petitioner received notice of the agency action or proposed decision; (d) A statement of all disputed issues of material fact. If there are none, the petition must so state; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action including an explanation of how the alleged facts relate to the specific rules or statutes; and, (g) A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the agency to take with respect to the agency's proposed action. A petition that does not dispute the material facts upon which the Permitting Authority's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Permitting Authority's final action may be different from the position taken by it in this action. Persons whose substantial interests will be affected by any such final decision of the Permitting Authority on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

**Mediation:** Mediation is not available in this proceeding.

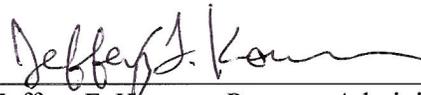
**EXEMPTION FROM AIR CONSTRUCTION PERMITTING**

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**Effective date:** This permitting decision is final and effective on the date filed with the clerk of the Permitting Authority unless a petition is filed in accordance with the above paragraphs or unless a request for extension of time in which to file a petition is filed with in the time specified for filing a petition pursuant to Rule 62-110.106, F.A.C., and the petition conforms to the content requirements of Rules 28-106.201 and 28-106.301, F.A.C. Upon timely filing of a petition of a request for extension of time, this action will not be effective until further order of the Permitting Authority.

**Judicial review:** Any party to this permitting decision (order) has the right to seek judicial review of it under Section 120.68, F.S., by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel, Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within 30 days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida



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Jeffery F. Koerner, Program Administrator  
Permitting and Compliance Section  
Division of Air Resource Management

7-8-11

(Date)

**EXEMPTION FROM AIR CONSTRUCTION PERMITTING**

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**CERTIFICATE OF SERVICE**

The undersigned duly designated deputy agency clerk hereby certifies that this Letter of Exemption and the Technical Evaluation was sent by electronic mail, or a link to these documents made available electronically on a publicly accessible server, with received receipt requested before the close of business on 7/8/11 to the persons listed below.

Mr. Byron Burrows, P.E., TECO (btburrows@tecoenergy.com)  
Mr. Robert Velasco, P.E., TECO (ravelasco@tecoenergy.com)  
Ms. Cindy Zhang-Torres, P.E., DEP Southwest District Office (cindy.zhang-torres@dep.state.fl.us)  
Mr. Jason Waters, P.E., Hillsborough County EPC (watersj@epchc.org)  
Ms. Cindy Mulkey, DEP Siting Office (cindy.mulkey@dep.state.fl.us)  
Ms. Lynn Scarce, DEP PC Reading File ([lynn.scarce@dep.state.fl.us](mailto:lynn.scarce@dep.state.fl.us))

Clerk Stamp

**FILING AND ACKNOWLEDGMENT FILED**, on this date, pursuant to Section 120.52(7), Florida Statutes, with the designated agency clerk, receipt of which is hereby acknowledged.

Lynn Scarce                      July 8, 2011  
(Clerk)    (Date)



## **TECHNICAL EVALUATION**

### **APPLICANT**

Tampa Electric Company  
702 North Franklin Street  
Tampa, Florida 33602

Big Bend Station  
Facility ID No. 0570039

### **PROJECT**

Project No. 0570039-047-AC  
Exemption from Air Construction Permitting  
Post Carbon Capture Demonstration Project

### **COUNTY**

Hillsborough County, Florida

### **PERMITTING AUTHORITY**

Florida Department of Environmental Protection  
Division of Air Resource Management  
Air Permitting and Compliance Section  
Chemicals and Combustion Key Industry Group  
2600 Blair Stone Road, MS#5505  
Tallahassee, Florida 32399-2400

July 8, 2011

## 1. GENERAL PROJECT INFORMATION

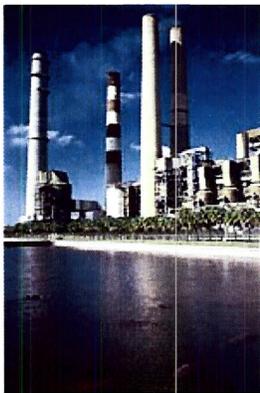
### Air Pollution Regulations

Projects at stationary sources with the potential to emit air pollution are subject to the applicable environmental laws specified in Section 403 of the Florida Statutes (F.S.). The statutes authorize the Department of Environmental Protection (Department) to establish regulations regarding air quality as part of the Florida Administrative Code (F.A.C.), which includes the following applicable chapters: 62-4 (Permits); 62-204 (Air Pollution Control – General Provisions); 62-210 (Stationary Sources – General Requirements); 62-212 (Stationary Sources – Preconstruction Review); 62-213 (Operation Permits for Major Sources of Air Pollution); 62-296 (Stationary Sources - Emission Standards); and 62-297 (Stationary Sources – Emissions Monitoring). Specifically, air construction permits are required pursuant to Rules 62-4, 62-210 and 62-212, F.A.C.

In addition, the U. S. Environmental Protection Agency (EPA) establishes air quality regulations in Title 40 of the Code of Federal Regulations (CFR). Part 60 specifies New Source Performance Standards (NSPS) for numerous industrial categories. Part 61 specifies National Emission Standards for Hazardous Air Pollutants (NESHAP) based on specific pollutants. Part 63 specifies NESHAP based on the Maximum Achievable Control Technology (MACT) for numerous industrial categories. The Department adopts these federal regulations on a quarterly basis in Rule 62-204.800, F.A.C.

### Facility Description and Location

Big Bend Station is an existing Electric, Gas and Sanitary Services, which is categorized under Standard Industrial Classification Code No. 4911. The existing Big Bend Station is located in Hillsborough County at 13031 Wyandotte Road in Apollo Beach, Florida. The UTM coordinates of the existing facility are Zone 17, 363.15 km East, and 3074.91 km North. This site is in an area that is in attainment (or designated as unclassifiable) for all air pollutants subject to state and federal Ambient Air Quality Standards (AAQS).



The Big Bend Station is a nominal 2,028 megawatt (MW) electric generation facility. This facility consists of four fossil fuel fired steam generators, Boiler Unit Nos. 1 through 4; four steam turbines; one simple-cycle combustion turbine (CT), CT No. 1; solid fuels, fly ash, limestone, gypsum, slag, and bottom ash storage and handling facilities; and, fuel oil storage tanks. Unit Nos. 1, 2, 3 and 4 have nominal maximum heat inputs of 4037, 3996, 4115 and 4330 million British thermal units (Btu) per hour, respectively. Unit Nos. 1 through 4 are fired with coal and with petcoke in a mixture with coal up to 20.0% petcoke/80.0% coal (by weight), or a coal blended with coal residual generated from the Polk Power Station, or a coal/petroleum coke blend further blended with coal residual generated from the Polk Power Station. The combustion turbine is fired with No. 2 distillate fuel oil. In addition, there is a ship surface coating operation. Also included in this permit are miscellaneous unregulated/insignificant emissions units and/or activities.

### Facility Regulatory Categories

- The facility is a major source of hazardous air pollutants (HAP).
- The facility operates units subject to the acid rain provisions of the Clean Air Act.
- The facility is a Title V major source of air pollution in accordance with Rule 62-213, F.A.C.
- The facility is a major stationary source in accordance with Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.
- The facility is subject to applicable New Source Performance Standards (NSPS) in Title 40, Part 60 of the Code of Federal Regulations.

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- The facility is subject to applicable National Emissions Standards for Hazardous Air Pollutants (NESHAP) in Title 40, Part 63 of the Code of Federal Regulations.

### Project Description

On June 16, 2011, the Department received an application from Tampa Electric Company (TECO) to install and operate an advanced carbon dioxide (CO<sub>2</sub>) capture, solvent based pilot plant at the Big Bend Station. TECO has partnered up with Siemens Energy, Inc. and the Department of Energy to demonstrate a clean coal technology. The carbon capture demonstration project will have the potential to provide an efficient, low-cost CO<sub>2</sub> capture solutions for both industrial and fossil fuel power plant applications. The CO<sub>2</sub> capture process utilizes a second generation amino acid salt for the solvent that has no vapor pressure and does not release solvent emissions. The proposed technology will consist of a carbon absorber/desorber towers and ancillary equipment to capture and release CO<sub>2</sub>. The process equipment includes a temporary electric or a No. 2 fuel oil boiler, solvent make up tank, reclaimers, cooling tower and a demineralized water storage tank.

The proposed technology will treat a flue gas slipstream that is approximately 2.5 megawatts of electricity (MWe). The process consists of a forced draft fan that conveys approximately 8,500 actual cubic feet per minute (acfm) of flue gas to the flue gas cooler to decrease the temperature to 113 degrees Fahrenheit (° F). The gas is conveyed to the absorber tower where the amino acid solution is fed into the absorber tower in a counter current fashion to absorb the CO<sub>2</sub> gas solution. The flue gas exiting the absorber is combined with the recovered CO<sub>2</sub> gas from the desorber and is released back into Unit 1 (EU 001) and Unit 2 (EU 002) flue gas stream. The amino salt solution, which is rich in CO<sub>2</sub>, is pumped to the desorber tower to strip the CO<sub>2</sub> from the solvent and recover the amino acid solution. A small boiler is utilized to supply steam to the desorber reboiler and reclaimers system to strip CO<sub>2</sub> from the amino acid solution. A cooling tower is used to generate cooling water for the flue gas cooler, reclaimers system, solvent cooler and desorber condenser. The CO<sub>2</sub> that is absorbed in an amino acid salt solution is to achieve a minimum of 90% removal of CO<sub>2</sub>. A mass balance summary was provided by the applicant showing an expected capture of 5,238 pounds (lb) of CO<sub>2</sub>/hour and release of approximately 4,713 lb CO<sub>2</sub>/hour, thus achieving a 90% reduction in CO<sub>2</sub>.

### Processing Schedule

06/16/2011 Received the application for a minor source air pollution construction permit; application complete.

## 2. PSD APPLICABILITY

### General PSD Applicability

For areas currently in attainment with the state and federal AAQS or areas otherwise designated as unclassifiable, the Department regulates major stationary sources of air pollution in accordance with Florida's PSD preconstruction review program as defined in Rule 62-212.400, F.A.C. Under preconstruction review, the Department first must determine if a project is subject to the PSD requirements ("PSD applicability review") and, if so, must conduct a PSD preconstruction review. A PSD applicability review is required for projects at new and existing major stationary sources. In addition, proposed projects at existing minor sources are subject to a PSD applicability review to determine whether potential emissions *from the proposed project itself* will exceed the PSD major stationary source thresholds. A facility is considered a major stationary source with respect to PSD if it emits or has the potential to emit:

- 5 tons per year or more of lead;
- 250 tons per year or more of any regulated air pollutant; or
- 100 tons per year or more of any regulated air pollutant and the facility belongs to one of the following 28 PSD-major facility categories: fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input, coal cleaning plants (with thermal dryers), Kraft pulp mills, portland cement plants,

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primary zinc smelters, iron and steel mill plants, primary aluminum ore reduction plants, primary copper smelters, municipal incinerators capable of charging more than 250 tons of refuse per day, hydrofluoric, sulfuric, and nitric acid plants, petroleum refineries, lime plants, phosphate rock processing plants, coke oven batteries, sulfur recovery plants, carbon black plants (furnace process), primary lead smelters, fuel conversion plants, sintering plants, secondary metal production plants, chemical process plants, fossil fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input, petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels, taconite ore processing plants, glass fiber processing plants and charcoal production plants.

Once it is determined that a project is subject to PSD preconstruction review, the project emissions are compared to the “significant emission rates” defined in Rule 62-210.200, F.A.C. for the following pollutants: carbon monoxide (CO); nitrogen oxides (NO<sub>x</sub>); sulfur dioxide (SO<sub>2</sub>); particulate matter (PM); particulate matter with a mean particle diameter of 10 microns or less (PM<sub>10</sub>); volatile organic compounds (VOC); lead (Pb); fluorides (F); sulfuric acid mist (SAM); hydrogen sulfide (H<sub>2</sub>S); total reduced sulfur (TRS), including H<sub>2</sub>S; reduced sulfur compounds, including H<sub>2</sub>S; municipal waste combustor organics measured as total tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans; municipal waste combustor metals measured as particulate matter; municipal waste combustor acid gases measured as SO<sub>2</sub> and hydrogen chloride (HCl); municipal solid waste landfills emissions measured as non-methane organic compounds (NMOC); and mercury (Hg). In addition, significant emissions rate also means any emissions rate or any net emissions increase associated with a major stationary source or major modification which would construct within 10 kilometers of a Class I area and have an impact on such area equal to or greater than 1 µg/m<sup>3</sup>, 24-hour average.

If the potential emission exceeds the defined significant emissions rate of a PSD pollutant, the project is considered “significant” for the pollutant and the applicant must employ the Best Available Control Technology (BACT) to minimize the emissions and evaluate the air quality impacts. Although a facility or project may be *major* with respect to PSD for only one regulated pollutant, it may be required to install BACT controls for several “significant” regulated pollutants.

### **PSD Applicability for Project**

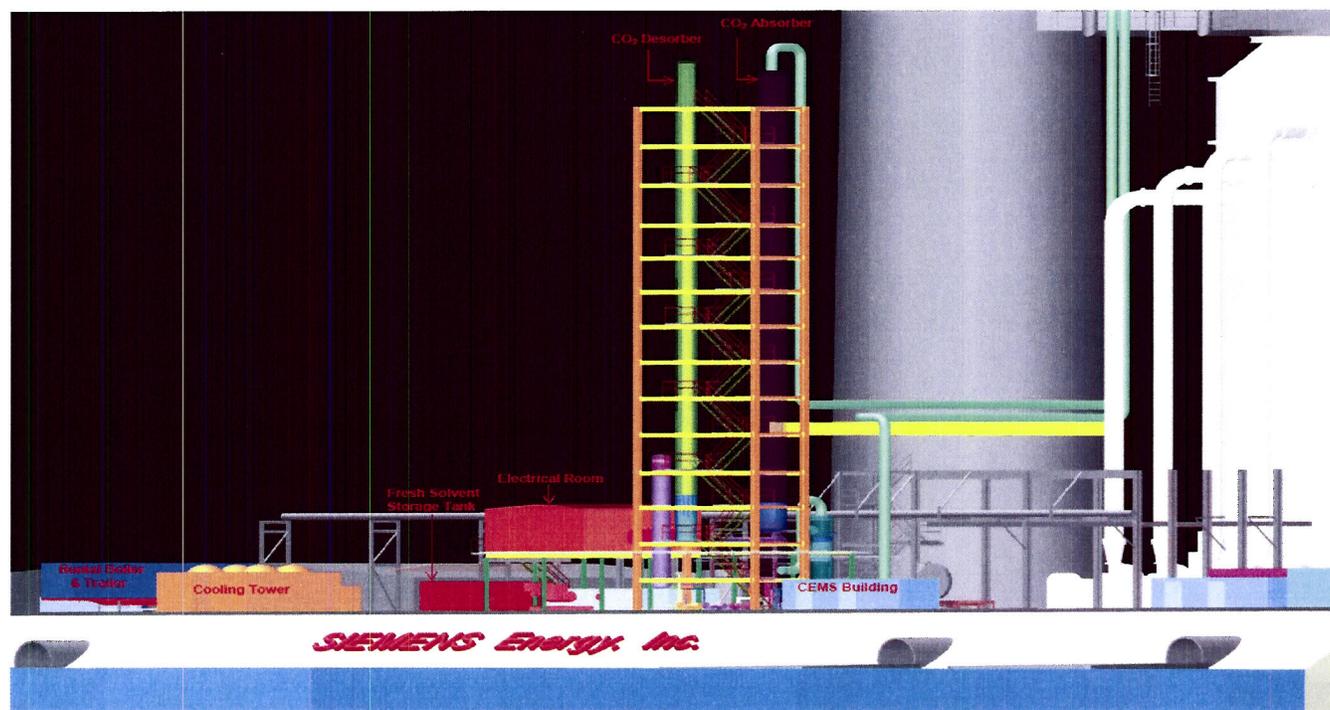
The project is a temporary clean coal technology demonstration project and is not expected to result in any actual emissions increases; therefore, the project is not subject to PSD preconstruction review.

### **3. PROJECT REVIEW**

#### **Clean Coal Technology Demonstration Project**

The post carbon capture project meets the definition of “Clean Coal Technology Demonstration Project,” which uses funds appropriated under the heading “Department of Energy – Clean Coal Technology” in accordance with the provisions of Rule 62-210.200(79), F.A.C. The federal contribution for the project exceeded the 20% of the total cost requirement for the project and the demonstration project is temporary and will operate for a period of less than one year meeting the regulated limit of five years. The project will comply with the states implementation plan and all other requirements necessary to attain and maintain the national ambient air quality standards during the project and after it is terminated.

Attachment 1: Siemens Energy, Inc. Post Carbon Capture Demonstration Project.



### Solvent Technology

An amino acid salt solution is the basis of the absorber solvent. Amino acid salts have the following advantages over traditional solvents, such as ammonia and monoethanolamines (MEA):

- Amino acid salts have no vapor pressure and do not release solvent emissions.
- The acids are not flammable, not explosive and are safe to handle.
- The solvent is chemically stable and does not degrade in the presence of oxygen.
- The solvent is readily biodegradable, non-toxic and environmentally friendly.

According to the amino-acid salt solution Safety Data Sheet, the disposal of the solvent needs to be incinerated in an appropriate waste incinerator that will adhere to official disposal requirements.

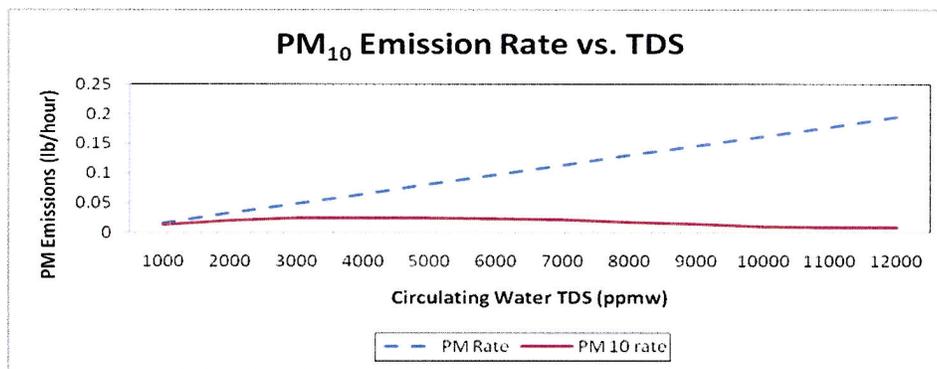
### Temporary Cooling Tower

The proposed temporary cooling tower is a counter flow forced draft mechanical cooling tower (Aggreko Model AG-6 or equivalent) and is specified to cool the 2.5 MWe down to approximately 113° F. The cooling tower is rated for a maximum of 2,160 gallons per minute (gpm) with a total dissolved solid (TDS) concentration of 11,000 parts per million (ppm). The cooling tower will emit particulate matter (PM) resulting from solids in the carryover of the water droplet drift. Total PM emissions include fine particulate (PM<sub>10</sub>) as well. The cooling tower is designed to have a droplet drift rate of 0.0015% of the circulating water flow rate. The applicant estimated PM emissions of 0.18 lb/hour and 0.78 tons per year (TPY) based on the TDS concentration, drift rate and the water circulation rate. The PM<sub>10</sub> emissions of 0.0091 lb/hour and 0.04 TPY were estimated based on the PM emissions rate and the study, “Calculating Realistic PM<sub>10</sub> Emissions from Cooling Towers” by Joel Reisman and Gordon Frisbie<sup>1</sup>. A correction factor by Reisman and Frisbie was used in calculating the PM<sub>10</sub> emissions. The correction factor included the TDS concentration accounted for a more realistic drift particle size distribution

<sup>1</sup> Reisman, Joel and Frisbie, Gordon; Calculating Realistic PM<sub>10</sub> Emissions from Cooling Towers; Technical Proceedings, Air Waste Management Association, June 2001.

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than the conservative drift rate of 0.0006% used in the study.



According to the study, PM<sub>10</sub> emissions increase with an increase in the concentration of TDS to about 4000 ppm. However, at TDS levels greater than 4000 ppm, the PM<sub>10</sub> emission rate will decrease while the PM emission rate will continue to increase. For the circulating water cooling tower, the following graph shows the correlation of PM and PM<sub>10</sub> emissions rates as a function of: the TDS concentration of the circulating water, the proposed drift rate (0.0015%) from the cooling towers and the maximum circulating water flow rate.

### State Requirements

The temporary cooling tower meets the exemption criteria in accordance with Rule 62-210.300(3)(b), F.A.C. (Generic Emissions Unit or Activity Exemption) from obtaining an air construction permit. The cooling tower is not subject to any unit-specific limitation or requirement. The applicant estimated the potential PM emissions to be 0.78 tons per year (TPY) and PM<sub>10</sub> emissions of 0.04 TPY, which are less than the 5 TPY limitations. The project will not consist of any new emission units.

### New Source Performance Standards (NSPS) Provisions

There are no NSPS provisions applicable for the cooling tower.

### National Emission Standards for Hazardous Air Pollutants (NESHAP) Provisions

There are no NESHAP provisions applicable for the cooling tower.

### **Temporary Boiler**

The facility plans to install and operate a temporary trailer mounted boiler to supply steam to the desorber reboiler and reclaimer system. An economic analysis is being conducted to determine the type of boiler to rent for this project. The applicant is considering either a No. 2 fuel fired boiler or an electric boiler. For the purpose of this application, both boilers are considered a viable option to generate steam continuously for 8,760 hours/year for approximately 12 months or less. The total electrical demand of the carbon capture system is estimated at 1.5 MW using the electric boiler and 3.5 MW using the No. 2 fuel fired boiler.

*Electric Boiler:* One of the boilers being considered for this project is a skid mounted, Cleaver Brooks Model No. HSB 424 (or equivalent) 2,200 kilowatt (kW) electric steam generating boiler. The electric boiler eliminates the need for a stack and emission control.

*No. 2 Fuel Fired Boiler:* A trailer mounted Cleaver Brooks Model No. CBRLE200-350 (or equivalent) rated at a maximum heat input rate of 14 million British thermal units (MMBtu) per hour is also being considered for this project. The applicant proposes to fire No. 2 low sulfur fuel in the temporary boiler. The low sulfur fuel contains less than 0.05% sulfur. At a maximum firing rate of 100 gallons/hour, operating at 8,760 hours/year, the maximum annual firing rate of low sulfur No. 2 fuel would be 876,000

**Table A. No. 2 Fuel Fired Boiler**

Pollutant	Emissions Rate	
	Hourly (lb/hour)	Annual (TPY)
CO	0.5	2.19
CO <sub>2</sub>	2,230	9,767.4
NO <sub>x</sub>	2.0	8.76
PM/ PM <sub>10</sub>	0.2/0.1	0.88/0.44
SO <sub>2</sub>	0.71	3.11
VOC	0.02	0.09

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gallons/year. Based on the maximum annual fuel firing rate, the Department estimated the potential annual emissions as summarized in Table A.

### State Requirements

The temporary boiler meets the categorical exemption criteria in accordance with Rule 62-210.300(3)(a)34., F.A.C. This categorical exemption allows external combustion heating units with heat input capacity less than 100 MMBtu/hour to be exempt from an air construction permit, provided all the following conditions are met with respect to each unit. The proposed boiler will have a rated heat input capacity of 14 MMBtu/hour and will fire low sulfur No.2 fuel oil with a sulfur content not exceeding 0.05 %. The maximum amount of fuel used will be 876,000 gallons/year. The unit is not subject to any unit-specific limitations or requirements.

### NSPS Provisions

The boiler is not subject to applicable NSPS provisions in 40 Code of Federal Regulations (CFR) 60 for Subpart Dc (Standards of Performance for Small Industrial-Commercial –Institutional Steam Generating Units) during periods of combustion research, which is defined in §60.41c as, “The experimental firing of any fuel or combination of fuels in a steam generating unit for the purpose of conducting research and development of more efficient combustion or more effective prevention or control of air pollutant emissions from combustion, provided that, during these periods of research and development, the heat generated is not used for any purpose other than preheating combustion air for use by that steam generating unit ( *i.e.* , the heat generated is released to the atmosphere without being used for space heating, process heating, driving pumps, preheating combustion air for other units, generating electricity, or any other purpose).

### NESHAP Provisions

The boiler is not subject to applicable NESHAP provisions in 40 CFR 63 for Subpart DDDDD (National Emission Standards for Hazardous Air Pollutants for Industrial Commercial, and Institutional Boilers and Process Heaters) if the boiler is specifically used for research and development.

### **Construction-Related Activities Resulting in Secondary Emissions**

Emissions from temporary carbon capture system and the temporary construction-related activities are considered *secondary emissions*, which are defined in Rule 62-210.200, F.A.C. as, “The emissions which occur as a result of the construction or operation of a facility or a modification to a facility, but which are not discharged into the atmosphere from the facility itself. Secondary emissions may include but are not limited to emissions from ships or trains coming to or leaving a new or modified facility and emissions from any off-site support facility which would not otherwise be constructed or increase its emissions except as a result of the construction or operation of the new or modified facility. Secondary emissions must be specific, well-defined, quantifiable, and impact the same general area as the facility or modification which causes the secondary emissions.” As provided in the definition of *potential to emit*, “Secondary emissions are not included when determining the potential to emit of an emission unit or facility.” BACT determinations are not required for activities related to construction since emissions will be temporary and occur before the permanent emissions units are fully operational.

## **4. CONCLUSION**

The Department concludes that the proposed project is exempt from the requirement to obtain an air construction permit. This determination is based on a technical review of the complete application. No air quality modeling analysis is required because the project does not result in a significant increase in emissions. Tammy McWade is the project engineer responsible for this determination. Additional details of this analysis may be obtained by contacting the project engineer at the Department’s Air Permitting and Compliance Section at Mail Station #5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.