# TECHNICAL EVALUATION
# &
# PRELIMINARY DETERMINATION

## APPLICANT

Sugar Cane Growers Cooperative of Florida
1500 West Sugar House Road
Belle Glade, Florida 33430

Glades Sugar House
Facility ID No. 0990026

## PROJECT

Project No. 0990026-020-AC
Application for Minor Source Air Construction Permit
Boiler Nos. 1 and 2's Waterwalls

## COUNTY

Palm Beach County, Florida

## PERMITTING AUTHORITY

Florida Department of Environmental Protection
Engineering and Permitting Section
South District Office
2295 Victoria Avenue
Fort Myers, FL 33901

May 17, 2013

## 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.

### Glossary of Common Terms

Because of the technical nature of the project, the permit contains numerous acronyms and abbreviations, which are defined in Appendix A of this permit.

### Facility Description and Location

Sugar Cane Growers Cooperative of Florida is an existing sugar mill, which is categorized under Standard Industrial Classification Code No. 2061. The facility is located in Palm Beach County at 1500 West Sugar House Road, Belle Glade, Florida. The UTM coordinates of the existing facility are Zone 17, 534.9 km East, and 2953.3 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).

### Facility Regulatory Categories

- The facility is a major source of hazardous air pollutants (HAP).
- The facility has no 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 Chapter 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.

### Project Description

This project is to replace Boiler Nos. 1 and 2's existing tube and tile design waterwalls with modern membrane style panels and to replace both these boilers' generating bank steam tubes. Boiler Nos. 1 and 2's multi-cyclone collectors will be replaced with low efficiency dust collectors consisting of a baffle. This project does not increase Boiler Nos. 1 and 2's permitted capacity.

### Processing Schedule

| | |
|---|---|
| March 15, 2013 | Received the application for a minor source air pollution construction permit. |
| April 12, 2013 | Requested additional information. |
| April 19, 2013 | Received additional information. |
| May 3, 2013 | Requested additional information |
| May 9, 2013 | Received additional information; 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:

- 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, 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 ($NO_X$); sulfur dioxide ($SO_2$); particulate matter (PM); particulate matter with a mean particle diameter of 10 microns or less ($PM_{10}$); volatile organic compounds (VOC); lead (Pb); fluorides (Fl); sulfuric acid mist (SAM); hydrogen sulfide ($H_2S$); total reduced sulfur (TRS), including $H_2S$; reduced sulfur compounds, including $H_2S$; 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 $SO_2$ 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 $\mu g/m^3$, 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

As provided in the application, the following tables summarize potential emissions and PSD applicability for the project.

Table A. Potential Emissions (Tons/Year) and PSD Applicability

| Pollutant | Projected Actual Emissions (TPY) | Baseline Actual Emissions (TPY) | Project Potential Emissions (TPY) | Significant Emissions Rate (TPY) | Subject To PSD? |
|---|---|---|---|---|---|
| **CO** | 1835 | 1739 | **96** | 100 | No |
| $NO_X$ | 99.1 | 99.7 | 1.2 | 40 | No |
| $PM/PM_{10}$ | 69.6/64.7 | 66.0/61.3 | 3.6/3.4 | 25/15 | No |
| $SO_2$ | 81.1 | 70.7 | 10.4 | 40 | No |
| VOC | 44.8 | 42.8 | 2.0 | 40 | No |
| SAM | 3.61 | 3.15 | 0.46 | 7 | No |

Table B. Boiler No. 1 Baseline and Projected Emissions (Tons/Year)

| Pollutant | Projected Actual Emissions (TPY) | Baseline Actual Emissions (TPY) |
|---|---|---|
| **CO** | 910.0 | 893 |
| **$NO_X$** | 51.5 | 52.9 |
| **$PM/PM_{10}$** | 32.9/30.6 | 32.4/30.1 |
| **$SO_2$** | 40.2 | 37.3 |
| **VOC** | 27.0 | 26.5 |
| **SAM** | 1.79 | 1.66 |

Table C. Boiler No. 2 Baseline and Projected Emissions (Tons/Year)

| Pollutant | Projected Actual Emissions (TPY) | Baseline Actual Emissions (TPY) |
|---|---|---|
| **CO** | 925 | 846 |
| **$NO_X$** | 47.5 | 45.0 |
| **$PM/PM_{10}$** | 36.7/34.1 | 33.6/31.3 |
| **$SO_2$** | 40.9 | 33.4 |
| **VOC** | 17.8 | 16.3 |
| **SAM** | 1.82 | 1.49 |

As shown in the above Table A, total project emissions will not exceed the PSD significant emissions rates; therefore, the project is not subject to PSD preconstruction review.

## 3. APPLICATION REVIEW

### Discussion of Emissions

Boiler Nos. 1 and 2 previously [in 2004 and 2005 respectively (permitted in Permit No. 0990026-020-AC)]had their grates changed, combustion air fan replaced, modification of the combustion air distribution to provide more over-fire air, and had concrete supports and refractory near the grates replaced. Due to this previous modification,

PSD applicability emission factors used in this current project (-020-AC) were stack test data from 2004 – 2012 for Boiler No. 1 and 2006 – 2012 for Boiler No. 2. The 10-year historical data used was from stack testing and operation recordkeeping data from the years 2003 – 2012. These boilers do not conduct annual CO stack tests. Therefore, the applicant was allowed to use site specific CO stack test data obtained from stack tests used for Boiler Mact studies. The CO stack test data included Boiler No. 3 which is of similar size and configuration. A large boiler, Boiler 8, does conduct annual stack test but its data was not authorized due to the physical configuration and size not being the same.

**State Requirements**

**Federal NSPS Provisions**

The application indicated that the proposed modification would not result in a NSPS modification (increase in emissions on a lbs/hr basis) and thus was not subject to 40 CFR 60 Db. However, the application determination basis for this used the same emission factors for determining emissions after the change as was used in determining emissions before the change (actual stack test data). Therefore, the permit requires that testing be done after the change in accordance with the appropriate test method and Appendix C in 40 CFR 60 to determine if there was an increase in emissions on a lb/hr basis.

**Federal NESHAP Provisions**

These boilers are subject to 40 CFR 63, Subpart DDDDD (Boiler MACT). These federal regulations will be incorporated in the the Title V air operating permit when it is next open for Title V revision.

**Other Draft Permit Requirements**

The owner or operator must submit actual emissions reports for five years following the completion of the construction for Boiler's 1 and 2. Since the two boiler's construction will take place at different times during the next two years and since the net increase for CO is 96 TPY, the facility is requested to begin submitting the actual emissions reporting after the completion of construction for the first boiler. The official five year reporting will begin after the completion of construction for both boilers. The facility is required to conduct annual CO testing annual to provide baseline and actual emission factors and to provide reasonable assurance. The annual testing is also being requested because a review of these emission units CO emissions for annual reports found increased found from approximately 80 TPY (prior to 2009) to 250 TPY (2009 and after) for Boiler No. 1 and from 70 TPY (prior to 2009) to over 400 TPY (2009 and after) for Boiler No. 2. No modifications or increase in permitted capacity have been construction or permitted for these boilers since 2008 when both these boilers were permitted for a decrease in permitted capacity (Permit No. 0990026-011-AC). Both boilers went from 175,000 lb/hr steam production to 139,700 lb/hr for Boiler No. 1 and to 138,154 lb/hr for Boiler No. 2.

## 4. PRELIMINARY DETERMINATION

The Department makes a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations as conditioned by the draft permit. This determination is based on a technical review of the complete application, reasonable assurances provided by the applicant, and the conditions specified in the draft permit. Susan Machinski is the project engineer responsible for reviewing the application and drafting the permit. Additional details of this analysis may be obtained by contacting the project engineer at the Department's South District Office at 2295 Victoria Avenue, Suite 364, Fort Myers, Florida 33902.