



**TECHNICAL EVALUATION  
&  
FINAL DETERMINATION**

**APPLICANT**

United States Sugar Corporation  
111 Ponce De Leon Avenue  
Clewiston, Florida 33440

U.S. Sugar Clewiston Facility  
Facility ID No. 0510003

**PROJECT**

Project No. 0510003-058-AC  
Application for Modification to a Major Facility Air Construction Permit  
Upgrade OFA Systems for Boiler Nos. 1 and 2  
To Meet Boiler MACT CO Limits

**COUNTY**

Hendry, Florida

**PERMITTING AUTHORITY**

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

Updated July 4, 2014

## **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**

United States Sugar Corporation is an existing sugar mill and refinery, which is categorized under Standard Industrial Classification Code Nos. 2061 and 2062. The facility is located in Hendry County at W.C. Owens Avenue and S.R. 832 in Clewiston, Florida. The UTM coordinates are Zone 17, 506.1 km East, and 2956.9 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**

The project is to make upgrades to the OFA systems installed in Boiler Nos. 1 and 2 to meet Boiler MACT CO limits in emissions. (NESHAPS Subpart DDDDD). The upgraded OFA (Overfire Air System) modifications will provide more uniform mixing of the fuel and air. The upgrades to the OFA systems are not projected to result in a significant increase in any PSD pollutant. The maximum steam rate of Boiler Nos. 1 and 2 will NOT change as a result of this project, nor will the fuel feed rates or maximum heat input rates change.

NOTE: The Boiler MACT compliance date is January 31, 2016.

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### Boiler 1

Is a vibrating grate boiler with a maximum steam production rate of 185,000 lb/hour (24-hour average) at 750° F and 600 psig. Bagasse is the primary fuel and distillate oil is a startup and supplemental fuel. Particulate matter emissions are controlled by a Type D, Size 125, Joy Turbulaire wet impingement scrubber. Exhaust gases exit at 150° F with an approximate flow rate of 250,000 acfm from a stack that is 8 feet in diameter and 213 feet tall.

### Boiler 2

Is a vibrating grate boiler with a maximum steam production rate of 185,000 lb/hour (24-hour average) at 750° F and 600 psig. Bagasse is the primary fuel and distillate oil is a startup and supplemental fuel. Particulate matter emissions are controlled by a Type D, Size 125, Joy Turbulaire wet impingement scrubber. Exhaust gases exit at 150° F with an approximate flow rate of 250,000 acfm from a stack that is 8 feet in diameter and 213 feet tall.

### **Processing Schedule**

April 9, 2014 Received the application for a modification to a major facility air pollution construction permit.

## **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<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 (Fl); 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

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modification which would construct within 10 kilometers of a Class I area and have an impact on such area equal to or greater than  $1 \mu\text{g}/\text{m}^3$ , 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 table summarizes 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)	Net Increase/Decrease (TPY)	Significant Emissions Rate (TPY)	Subject To PSD?
CO	4,676 *(865.53)	17,506	-13,695	100	No
NO <sub>x</sub>	230.25 *(10.47)	219.78	0.00	40	No
PM/PM <sub>10</sub>	280.35/280.34 *(13.63/13.64)	266.71/266.70	0.00	25/15	No
SO <sub>2</sub>	8.78 *(2.10)	6.68	0.00	40	No
VOC	2,082 *(98.09)	1,984	0.00	40	No
SAM	0.51 *(0.16)	0.35	0.00	40	No
Lead	0.042 *(0.0020)	0.040	0.00	0.6	No
Mercury	0.0063 *(2.89E-04)	0.0061	0.00	0.1	No
GHG	323,195 *(14,686)	308,509	0.00	0	No
CO <sub>2</sub> e	329,306 *(14,972)	314,334	0.00	75000	No

\*= DEMAND GROWTH EXCLUDED Emissions

As shown in the above table, total project emissions are not projected to exceed the PSD significant emissions rates; therefore, the project is not subject to PSD preconstruction review.

### 3. APPLICATION REVIEW

#### Discussion of Emissions

The more complete mixing of combustion air and fuel with increased residence time of combustion gases in the furnace, will provide greater carbon burnout, thereby lowering CO emissions.

(It is stated that recent emissions studies at other sugar mills have shown that NO<sub>x</sub> emissions are not expected to increase as a result of more complete combustion of the bagasse. However, CO and NO<sub>x</sub> emissions generally have an inverse relationship. Testing to verify projected NO<sub>x</sub> emissions will be necessary).

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The more complete mixing of combustion air and fuel with residence time of combustion gases in the furnace, will provide greater carbon burnout, thereby lowering CO emissions. The upgrades to the OFA systems are not projected to result in a significant increase in any PSD pollutant. The maximum steam rate of Boiler Nos. 1 and 2 will NOT change as a result of this project, nor will the fuel feed rates or maximum heat input rates change.

### APPLICABLE STATE REGULATIONS

Emissions units at this facility are subject to the applicable portions of the regulations specified in the following Chapters of the Florida Administrative Code: 62-4 (Permitting Requirements); 62-204 (Ambient Air Quality Requirements, PSD Increments, and Federal Regulations Adopted by Reference); 62-210 (Permits Required, Public Notice, Reports, Stack Height Policy, Circumvention, Excess Emissions, and Forms); 62-212 (Preconstruction Review, PSD Review and Best Available Control Technology, (Title V Air Operation Permits for Major Sources of Air Pollution); 62-296 (Emission Limiting Standards); and 62-297 (Test Methods and Procedures, Continuous Monitoring Specifications, and Alternate Sampling Procedures). In particular, emissions units are subject to applicable portions of the following source-specific rules.

- Boilers 1 and 2 (EU-001 & 002) are subject to Rule 62-296.410, F.A.C. for carbonaceous fuel burning equipment.
- For all emissions units requiring tests, Rule 62-297.310, F.A.C. establishes the general requirements.
- Boilers 1 and 2 (EU-001 & 002) are subject to the applicable provisions in Rule 62-213.440, F.A.C. for Compliance Assurance Monitoring:

### APPLICABLE FEDERAL REGULATIONS

Federal environmental requirements are established in Title 40 of the Code of Federal Regulations (CFR). Emissions units are subject to the following source-specific regulations.

- Boilers 1 and 2, (EU-001& 002) are subject to the applicable provisions in 40 CFR 64 for Compliance Assurance Monitoring:
- NESHAP Provisions: Boilers 1 and 2 are subject to the National Emission Standards for HAPs, Subparts A and DDDDD in 40 CFR 63 for “Industrial-Commercial-Institutional Steam Generating Units) and Subpart Dc (Small Industrial-Commercial-Institutional Steam Generating Units”. Appendix O of this permit summarizes these provisions. [Rule 62-204.800, F.A.C.]

**4. FINAL DETERMINATION**

The Department makes a final determination that the proposed project will comply with all applicable state and federal air pollution regulations as conditioned by the 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 permit. Carter B. Endsley, P.E. 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 33901.