Title V Air Operation Permit Renewal
Permit No. 0810007-021-AV

APPLICANT

The applicant for this project is Tropicana Manufacturing Company, Inc. The applicant's responsible official and mailing address are: Mr. Paul Carr, Plant Manager, Tropicana Manufacturing Company, Inc., Bradenton Citrus Processing Facility, 1001 13th Avenue East, Bradenton, FL 34208.

FACILITY DESCRIPTION

The applicant operates the Bradenton Citrus Processing Facility, which is located at 1001 13th Avenue East, Bradenton, FL.

This existing facility consists of three citrus peel dryers, two citrus pellet coolers, a cogeneration facility, four boilers, a wastewater treatment system that includes an anaerobic reactor with biogas flare and multiple stationary engines. The facility can process 70.0 million boxes of citrus fruit in any consecutive 12 month period.

Each of the citrus peel dryers has a citrus pulp dehydrator designed to evaporate 60,000 pounds per hour of water from a maximum throughput of 50 tons per hour of pressed peel, producing 40,000 pounds per hour of dried peel. The dryer is fired with natural gas or No. 2 fuel oil with a maximum sulfur content of 0.10% by weight. The maximum heat input for each dryer is 84 MMBtu/ hour. The associated waste heat evaporators for peel dryer Nos. 1 and 2 are designed to evaporate 100,000 pounds per hour of water from pressed liquor, producing citrus molasses. The waste heat evaporator for peel dryer No. 3 is designed to evaporate 120,000 pounds per hour of water. Exhaust gases can be routed through a voluntary add-on wet electrostatic precipitator and thermal oxidizer. The peel dryers were installed prior to 1975.

The facility includes two pellet coolers and associated equipment. The pellet coolers are capable of processing 60.0 tons per hour of dried peel. This throughput is matched with the production rates of the three driers. The exhaust from the two pellet coolers is combined before entering two cyclones operating in parallel. The cyclones are considered inherent process equipment. Exhaust from the cyclones is routed through a single spray chamber to wash any remaining particulates. The spray chamber was installed after the cyclones but is not considered a primary control device. The pellet coolers were installed in 1975.

The Auxiliary Boiler is a Babcock and Wilcox unit and is used as an auxiliary supply of process steam. The boiler has a maximum design heat input capacity of 157.4 MMBtu/hour and is fired on natural gas or No. 2 fuel oil with a maximum sulfur content of 0.10 % by weight. It is used as a supplementary supply of process steam to the gas turbine/heat recovery steam generator. This emissions unit is regulated under Rule 62-296.406, F.A.C., Fossil Fuel Steam Generators with less than 250 MMBtu/hour Heat Input, New and Existing Units and NSPS - 40 CFR 60 Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units, adopted and incorporated by reference in Rule 62-204.800(7)(b)3, F.A.C. The boiler was placed into service in 1989.

The Steam Boiler is a Cleaver Brooks Model No. NCB700-250 package steam boiler used at the wastewater treatment plant. The maximum design heat input rate is 9.96 MMBtu/hour and fires natural gas or biogas from the anaerobic reactor. This emissions unit is regulated under Rule 62-296.406, F.A.C., Fossil Fuel Steam Generators with less than 250 MMBtu/hour Heat Input, New and Existing Units. The boiler was placed into service in 1993.

The 400 HP Kewanee Boiler, Model H3S-400-G, is used for steam production for research and development activities at the Research and Technical Service Facility. The boiler is only fired with natural gas at a maximum heat input rate of 17.0 MMBtu/hour. This emissions unit is regulated under Rule 62-296.406, F.A.C., Fossil Fuel Steam Generators with less than 250 MMBtu/hour Heat Input, New and Existing Units and NSPS - 40 CFR 60,

Subpart Dc, Small Industrial-Commercial-Institutional Steam Generating Units, adopted and incorporated by reference in Rule 62-204.800(7)(b)4, F.A.C. The boiler was placed into service in 2001.

The Standby Process Steam Boiler is a trailer mounted unit that is capable of relocation where it may be needed at the site. The boiler has a maximum heat input of 99.0 MMBtu/hour and fires natural gas or No. 2 fuel oil with a maximum sulfur content of 0.10% by weight. This emissions unit is regulated under Rule 62-296.406, F.A.C., Fossil Fuel Steam Generators with less than 250 MMBtu/hour Heat Input, New and Existing Units and NSPS - 40 CFR 60, Subpart Dc, Small Industrial-Commercial-Institutional Steam Generating Units, adopted and incorporated by reference in Rule 62-204.800(7)(b)4, F.A.C. The boiler was placed into service in 2001.

The natural gas fired General Electric (GE) LM 6000 gas turbine (GT) has a maximum design heat input capacity of 456 MMBtu/hour (HHV) at 49.9 megawatts (MW). The cogeneration project, the turbine and associated Heat Recovery Steam Generator, has an electric generation capacity of 49.9 MW. This emissions unit is regulated under NSPS - 40 CFR 60 Subpart GG - Standards of Performance for Stationary Gas Turbines, adopted and incorporated by reference in Rule 62-204.800(7)(b), F.A.C. Based on the heat input capacity of the turbine and the fact that it is not an electric utility stationary gas turbine, the nitrogen oxides standards of 40 CFR 60 Subpart GG do not apply to this source. The turbine began operation in 2001.

The existing Heat Recovery Steam Generator (HRSG) is part of a cogeneration project which has electric generation capacity of 49.9 MW. The emissions unit consists of a heat recovery steam generator (HRSG) having a total heat input rate of approximately 470 MMBtu/hour. Approximately 366 MMBtu/hour is supplied by the combustion turbine. Natural gas fired duct burners with a maximum heat input rate of 104 MMBtu/hour provides supplemental heat, as required. This emissions unit is regulated under Rule 62-296.406, F.A.C., Fossil Fuel Steam Generators with less than 250 MMBtu/hour Heat Input and 40 CFR 60, Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units, adopted and incorporated by reference in Rule 62-204.800(7)(b)3, F.A.C. The HRSG was placed into service March 1, 2001.

The Upflow Anaerobic Sludge Blanket (UASB) anaerobic reactor is part of the wastewater treatment system. As wastewater is treated in the reactor, methane rich biogas is generated. The biogas is compressed and a portion is used to fuel the steam boiler at the WWTP. Air pollutants contained in the biogas, methane (VOC) and H_2S, are controlled by a John Zink Biogas Flare system. This flare is also used to burn biogas in the event of a system upset (malfunction) and during periods of excess biogas production. The flare system is equipped with a pilot burner for system startup and flame stabilization. This pilot burner is fired with natural gas or propane. The flare was installed in 1992.

Also included in this permit are miscellaneous insignificant emissions units and/or activities.

PROJECT DESCRIPTION

The purpose of this permitting project is to renew the existing Title V permit for the above referenced facility.

PROCESSING SCHEDULE AND RELATED DOCUMENTS

Repermitting Title V Air Operation Permit issued December 12, 2006
Title V Air Operation Permit Revision issued December 15, 2009
Application for a Title V Air Operation Permit Renewal received May 2, 2011
Additional Information Request dated May 27, 2011
Additional Information Response received July 18, 2011
Second Additional Information Request dated August 8, 2011
Second Additional Information Response received October 12, 2011
Notice of Intent to Issue Air Permit issued December 7, 2011
Public Notice Published February 3, 2012

PRIMARY REGULATORY REQUIREMENTS

Title III: The facility is identified as a major source of hazardous air pollutants (HAP).

Title V: The facility is a Title V major source of air pollution in accordance with Chapter 62-213, Florida Administrative Code (F.A.C.).

PSD: The facility is a Prevention of Significant Deterioration (PSD)-major source of air pollution in accordance with Rule 62-212.400, F.A.C.

NSPS: The facility does operate emissions units subject to the New Source Performance Standards (NSPS) of 40 Code of Federal Regulations (CFR) 60.

NESHAP: The facility does operate emissions units subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) of 40 CFR 63.

CAIR: The facility is not subject to the Clean Air Interstate Rule (CAIR) set forth in Rule 62-296.470, F.A.C.

CAM: Compliance Assurance Monitoring (CAM) applies to Emissions Unit No. 026, Gas Turbine for the regulated emissions of NOx which are controlled by the steam-to-fuel ratio.

PROJECT REVIEW

Following are changes made as a part of this renewal:

Removed the word “new” in EU 026 – Gas Turbine

Removed the work “existing” in EU 026 – HRSG

Changed heat recovery steam (HRS) boiler to heat recovery steam generator (HRSG) for EU 026

Corrected the NOx equivalent emissions in Table 1 for the HRSG (from 46.6 to 45.6)

Removed the equivalent emissions for NOx in Table 1 for the gas Turbine since there is a TPY limit in the permit

Removed the “emergency diesel engines” from the list of insignificant activities because they are now regulated because they are subject to the requirements of 40 CFR 63, Subpart ZZZZ

Added three new emission units to address the engines regulated by 40 CFR 63, Subpart ZZZZ

Added the unregulated emission units to the list of insignificant activities (as they are all insignificant)

Removed magnesium hydroxide, potassium hydroxide, nitric acid, Divosan Active (cleaner), oil (new and used) from the list of Tanks in the list of insignificant activities

Clarified compliance testing frequency for all EUs

Removed biogas from the list of authorized fuel for EU Nos. 001-003 because the peel dryers do not burn biogas

Removed Specific Conditions that are already in the NESHAP and NSPS appendices or the General Provisions

Updated rule references

Removed NSPS applicability 60.49b(c), 60.49b(g), 60.40b(h), 60.49b(w) for EU 026 – HRSG because they are not applicable

Removed the specific condition for quarterly excess emission reports for opacity and NOx for EU 026 – HRSG because they are not required

Added a specific condition for steam to fuel ratio and sulfur excess emission reporting to EU 026, Gas Turbine in accordance with 40 CFR Subpart GG

Removed NSPS applicability 60.42c(j), 60.44c(a), (d), (i) and (j) and 60.48c(h) for EUs 023 and 025, Kewanee Boiler and Standby Process Steam Boiler because they are not applicable

Removed NSPS applicability 60.48b(j) for EU 015 – Steam Boiler because it is not applicable

Added NSPS applicability 60.43c(c) and (d), 60.45c(a), and 60.48c(c) for EU 025 – Process Steam Boiler

Added NSPS applicability 60.44b(h) and 60.46b(a) for EU 026 - HRSG

CONCLUSION

This project renews Title V air operation permit No. 0810007-019-AV, which was issued on December 15, 2009. This Title V air operation permit renewal is issued under the provisions of Chapter 403, Florida Statues (F.S.), and Chapters 62-4, 62-210 and 62-213, F.A.C.