APPENDIX CAM

Compliance Assurance Monitoring Requirements

Pursuant to Rule 62-213.440(1)(b)1.a., F.A.C., the CAM plan included in this appendix to the Title V Permit Application contains the monitoring requirements necessary to satisfy 40 CFR 64. Conditions 1. – 17. are generic conditions; specific requirements related to this emissions unit are contained in the attached tables, as submitted by Tropicana Manufacturing Company, Inc., and approved by the Department.

40 CFR 64.6 Approval of Monitoring:

1. The attached CAM plan, as submitted by Tropicana Manufacturing Company, Inc., is approved for the purposes of satisfying the requirements of 40 CFR 64.3.
[40 CFR 64.6(a)]

2. The attached CAM plan includes the following information:
(a) The indicator(s) to be monitored (such as temperature, pressure drop, emissions, or similar parameter);
(b) The means or device to be used to measure the indicator(s) (such as temperature measurement device, visual observation, or CEMS); and
(c) The performance requirements established to satisfy 40 CFR 64.3(b) or (d), as applicable.
[40 CFR 64.6(c)(1)]

3. The attached CAM plan describes the means by which the owner or operator will define an exceedance of the permitted limits or an excursion from the stated indicator ranges and averaging periods for purposes of responding to (see CAM Conditions 5. - 9.) and reporting exceedances or excursions (see CAM Conditions 10. – 14.).
[40 CFR 64.6(c)(2)]

4. The permittee is required to conduct the monitoring specified in the attached CAM plan(s) and shall fulfill the obligations specified in the conditions below (see CAM Conditions 5. - 17.).
[40 CFR 64.6(c)(3)]

40 CFR 64.7 Operation of Approved Monitoring:

5. Commencement of Operation - The owner or operator shall conduct the monitoring required under this appendix upon the effective date of this Title V permit.
[40 CFR 64.7(a)]

6. Proper Maintenance - At all times, the owner or operator shall maintain the monitoring, including but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment.
[40 CFR 64.7(b)]

7. Continued Operation - Except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), the owner or operator shall conduct all monitoring in continuous operation (or shall collect data at all required intervals) at all times that the pollutant-specific emissions unit is operating. Data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities shall not be used for purposes of this part, including data averages and calculations, or fulfilling a minimum data availability requirement, if applicable. The owner or operator shall use all the data collected during all other

periods in assessing the operation of the control device and associated control system. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

[40 CFR 64.7(c)]

8. Response to Excursions or Exceedances:

(a) Upon detecting an excursion or exceedance, the owner or operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions, if allowed by this permit). Such actions may include initial inspection and evaluation, recording that operations returned to normal without operator action (such as through response by a computerized distribution control system), or any necessary follow-up actions to return operation to within the indicator range, designated condition, or below the applicable emission limitation or standard, as applicable.

(b) Determination of whether the owner or operator has used acceptable procedures in response to an excursion or exceedance will be based on information available, which may include but is not limited to, monitoring results, review of operation and maintenance procedures and records, and inspection of the control device, associated capture system, and the process.

[40 CFR 64.7(d)(1) & (2)]

9. Documentation of need for improved monitoring - If the owner or operator identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the owner or operator shall promptly notify the permitting authority and, if necessary, submit a proposed modification to the Title V permit to address the necessary monitoring changes. Such a modification may include, but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters.

[40 CFR 64.7(e)]

40 CFR 64.8 Quality Improvement Plan (QIP) Requirements.

10. Based on the results of a determination made under CAM Condition 8.b., above, the permitting authority may require the owner or operator to develop and implement a QIP. Consistent with CAM Condition 4., an accumulation of exceedances or excursions exceeding 5 percent duration of a pollutant-specific emissions unit's operating time for a reporting period, may require the implementation of a QIP. The threshold may be set at a higher or lower percent or may rely on other criteria for purposes of indicating whether a pollutant-specific emissions unit is being maintained and operated in a manner consistent with good air pollution control practices.

[40 CFR 64.8(a)]

11. Elements of a QIP:

(a) The owner or operator shall maintain a written QIP, if required, and have it available for inspection.

(b) The plan initially shall include procedures for evaluating the control performance problems and, based on the results of the evaluation procedures, the owner or operator shall modify the plan to include procedures for conducting one or more of the following actions, as appropriate:

(1) Improved preventive maintenance practices.
(2) Process operation changes.
(3) Appropriate improvements to control methods.
(4) Other steps appropriate to correct control performance.
(5) More frequent or improved monitoring (only in conjunction with one or more steps under CAM Condition 11.b(1) through (4), above).

[40 CFR 64.8(b)]

12. If a QIP is required, the owner or operator shall develop and implement a QIP as expeditiously as practicable and shall notify the permitting authority if the period for completing the improvements contained in the QIP exceeds 180 days from the date on which the need to implement the QIP was determined.

[40 CFR 64.8(c)]

13. Following implementation of a QIP, upon any subsequent determination pursuant to CAM Condition 8.b., the permitting authority may require that an owner or operator make reasonable changes to the QIP if the QIP is found to have:

(a) Failed to address the cause of the control device performance problems; or
(b) Failed to provide adequate procedures for correcting control device performance problems as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions.

[40 CFR 64.8(d)]

14. Implementation of a QIP shall not excuse the owner or operator of a source from compliance with any existing emission limitation or standard, or any existing monitoring, testing, reporting or recordkeeping requirement that may apply under federal, state, or local law, or any other applicable requirements under the Act.

[40 CFR 64.8(e)]

40 CFR 64.9 Reporting And Recordkeeping Requirements.

15. General reporting requirements.

(a) Commencing from the effective date of this permit, the owner or operator shall submit monitoring reports semi-annually to the permitting authority in accordance with Rule 62-213.440(1)(b)3.a., F.A.C. **In addition to deviations from any other permit requirement, the semi-annual reports shall also include all instances of deviations from the CAM requirements.**

(b) A report for monitoring under this part shall include, at a minimum, the information required under Rule 62-213.440(1)(b)3.a., F.A.C., and the following information, as applicable:

(1) Summary information on the number, duration and cause (including unknown cause, if applicable) of excursions or exceedances, as applicable, and the corrective actions taken;
(2) Summary information on the number, duration and cause (including unknown cause, if applicable) for monitor downtime incidents (other than downtime associated with zero and span or other daily calibration checks, if applicable); and

(3) A description of the actions taken to implement a QIP during the reporting period as specified in CAM Conditions 10. through 14. Upon completion of a QIP, the owner or operator shall include in the next summary report documentation that the implementation of the plan has been completed and reduced the likelihood of similar levels of excursions or exceedances occurring.

[40 CFR 64.9(a)]

16. General recordkeeping requirements:

(a) The owner or operator shall comply with the recordkeeping requirements specified in Rule 62-213.440(1)(b)2., F.A.C. The owner or operator shall maintain records of monitoring data, monitor performance data, corrective actions taken, any written quality improvement plan required pursuant to CAM Conditions 10. through 14. and any activities undertaken to implement a quality improvement plan, and other supporting information required to be maintained under this part (such as data used to document the adequacy of monitoring, or records of monitoring maintenance or corrective actions).

(b) Instead of paper records, the owner or operator may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements.

[40 CFR 64.9(b)]

40 CFR 64.10 Savings Provisions.

17. It should be noted that nothing in this appendix shall:

(a) Excuse the owner or operator of a source from compliance with any existing emission limitation or standard, or any existing monitoring, testing, reporting or recordkeeping requirement that may apply under federal, state, or local law, or any other applicable requirements under the Act. The requirements of this appendix shall not be used to justify the approval of monitoring less stringent than the monitoring which is required under separate legal authority and are not intended to establish minimum requirements for the purpose of determining the monitoring to be imposed under separate authority under the Act, including monitoring in permits issued pursuant to Title I of the Act. The purpose of this part is to require, as part of the issuance of a permit under Title V of the Act, improved or new monitoring at those emissions units where monitoring requirements do not exist or are inadequate to meet the requirements of this part.

(b) Restrict or abrogate the authority of the Administrator or the permitting authority to impose additional or more stringent monitoring, recordkeeping, testing, or reporting requirements on any owner or operator of a source under any provision of the Act, including but not limited to sections 114(a)(1) and 504(b), or state law, as applicable.

(c) Restrict or abrogate the authority of the Administrator or permitting authority to take any enforcement action under the Act for any violation of an applicable requirement or of any person to take action under section 304 of the Act.

[40 CFR 64.10]

TROPICANA MANUFACTURING COMPANY, INC.

BRADENTON CITRUS PROCESSING FACILITY

EMISSION UNIT 026 – GAS TURBINE

I. Background

A. Emission Unit

Description:	General Electric (GE), LM 6000 Stationary Gas Turbine
Identification:	Emission Unit 026
Stack designation:	Title V Renewal Application, Attachment TMC-FI-C1, EU9

B. Applicable Regulation, Emission Limit, and Monitoring Requirement

Regulation/Permit No.:	FDEP Permit No. 0810007-015-AC
Regulated pollutant:	Nitrogen oxides (NO_x)
Emission limit:	25 ppmvd, corrected to 15% oxygen (O_2)

C. Control Technology

The facility utilizes steam injection for NO_x emissions control at the gas turbine.

D. Other Indicators

Increases in the N_2 content of the fuel or an increase in the amount of fuel burned at the gas turbine will increase NO_x emissions.

II. Monitoring Approach

The key elements of the monitoring approach, including the indicators to be monitored, ranges, and performance criteria, are presented in Table 1.

Indicators Monitored:	Steam-to-fuel ratio
Monitoring Location:	Cogeneration facility operator control panel
Analytical Devices Required:	Steam injection: Steam flow meter Fuel use: Natural gas flow meter

Frequency of Measurement:	The control system will record 1-hour averages based on measurements taken at 1-minute intervals.
Reporting Units:	Pounds (lb) of steam injected per lb of fuel combusted
Recording Process:	Measurements are recorded to the cogeneration control system SQL server

The steam-to-fuel ratio is relayed to the cogeneration control system based on measurements taken at 1-minute intervals. The cogeneration operator makes adjustments to the steam injection rate based on control curves developed by GE. These control curves were developed specifically for the turbines in order to meet the 25 parts per million by volume dry (ppmvd) (@ 15% O_2) NO_X emission limit. Tropicana has programmed an alarm setting into the control system to alert the operator when the steam-to-fuel ratio drops below the thresholds indicated in Table 2.

From the 1-minute steam-to-fuel data collected by the system, a 1-hour average is calculated and recorded to the system's SQL server. The facility will report any exceedance of the NO_x emission limit to FDEP as required and corrective actions will be taken immediately. An excursion is defined as a steam-to-fuel ratio 1-hour average that drops below the thresholds indicated in Table 2.

III. Monitoring Approach Justification

A. Background

The GE LM 6000 gas turbine is utilized by the facility as part of cogeneration operations. The turbine and associated Heat Recovery Steam Generator (HRSG) is capable of generating 49.9 megawatts (MW) of power. The gas turbine has a maximum design heat capacity of 456 million British thermal units per hour (MMBtu/hr). Steam injection is used by the facility to control NO_x emissions during combustion.

NO_x emissions from the gas turbine are tested annually, following the methodology of U.S. Environmental Protection Agency's (EPA's) Method 20 or 7E.

B. Rationale for Selection of Performance Indicators

The performance indicators of Table 1 were selected based on the capabilities of the gas turbine control equipment, and EPA's compliance assurance monitoring guidance for gas turbines. The steam-to-fuel ratio provides an indicator of compliance with requirements to maintain NO_x emissions at or below 25 ppmvd @ 15% O_2, and annual compliance testing for NO_X emission confirms the effectiveness of the control curves.

The loads shown in Table 2 and Figure 1 represent the operating range of the cogeneration unit exclusive of start-up and shutdown.

IV. QA/QC Procedures

The facility will calibrate, maintain, and operate the unit's data acquisition system instrumentation using procedures based on the manufacturer's recommendations.

TABLE 1

CAM Parameter	Comments
I. Indicator	Steam-to-fuel Ratio
A. Measurement Approach	The steam-to-fuel ratio is monitored on a 1-minute interval, and the 1-hour average is calculated and recorded to the system SQL server. Daily averages are printed in a report generated every 24-hour period
II Indicator Range	Refer to Table 2 and Figure 1 for the steam-to-fuel ratio at specific load conditions. An excursion is defined as any steam-to-fuel ratio 1-hour average that drops below the thresholds indicated in Table 2. An alarm in the control system will alert the operator when the excursion occurs.
III. Performance Criteria	
A. Data Representativeness	Steam injection rate and fuel consumption monitoring system shall be accurate to within ± 5.0 percent.
B. Verification of Operational Status	The monitoring systems shall be operated according to manufacturer specifications. Annual compliance stack testing is performed to demonstrate compliance.
C. QA/QC Practices and Criteria	The monitoring systems shall be calibrated in accordance with manufacturer specifications.
D. Monitoring Frequency	1-minute intervals
E. Data Collection Procedures	A 1-hour average is calculated and recorded to the system's SQL server.

TABLE 2

Steam-to-Fuel Ratio, Various Load Conditions

Load (MW)	Load (percent)	Steam-to-Fuel Ratio
20	40.1	1.14
30	60.1	1.37
35	70.1	1.45
49.9	100.0	1.47

Reference:
"Estimated Fuel/NOx Injection Flow Ratio Curves for LM6000 PC Engine", September 9, 2011, GE Energy.

Note: For the purposes of this plan, the steam-to-fuel ratio is assumed to be linear for load conditions not provided in the GE data.