City of Tampa – Howard F. Curren AWT Plant

Facility ID #: 0570373

APPENDIX CAM

Compliance Assurance Monitoring Requirements

Compliance Assurance Monitoring Requirements

Pursuant to Rule 62-213.440(1)(b)1.a., F.A.C., the CAM plans that are included in this appendix contain the monitoring requirements necessary to satisfy 40 CFR 64. Conditions 1. – 17. are generic conditions applicable to all emissions units that are subject to the CAM requirements. Specific requirements related to each emissions unit are contained in the attached tables, as submitted by the applicant and approved by the Department.

40 CFR 64.6 Approval of Monitoring.

1. The attached CAM plan(s), as submitted by the applicant, is/are approved for the purposes of satisfying the requirements of 40 CFR 64.3.
[40 CFR 64.6(a)]

2. The attached CAM plan(s) include the following information:
(i) The indicator(s) to be monitored (such as temperature, pressure drop, emissions, or similar parameter);
(ii) The means or device to be used to measure the indicator(s) (such as temperature measurement device, visual observation, or CEMS); and
(iii) 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(s) describe 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.**a.**,** 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:

(i) Improved preventive maintenance practices.

(ii) Process operation changes.

(iii) Appropriate improvements to control methods.

(iv) Other steps appropriate to correct control performance.

(v) More frequent or improved monitoring (only in conjunction with one or more steps under **CAM Condition 11.b(i)** through **(iv)**, 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)]

<u>40 CFR 64.9 Reporting And Recordkeeping Requirements.</u>

15. <u>General reporting requirements.</u>
a. On and after the date specified in **CAM Condition 5.** by which the owner or operator must use monitoring that meets the requirements of this appendix, 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.
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:
(i) Summary information on the number, duration and cause (including unknown cause, if applicable) of excursions or exceedances, as applicable, and the corrective actions taken;
(ii) 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
(iii) 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. <u>General recordkeeping requirements.</u>
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]

City of Tampa – Howard F. Curren AWT Plant

<u>Emission Units – 001 & 002</u>

Two Sewage Sludge Drying Trains

Particulate matter emissions controlled by Emtrol Corp. Dual Cyclone Separators, Emtrol Corp. Venturi Scrubber/Cyclonic Separators

Monitoring Approach for Particulate Control

Cyclone Separators and Venturi Scrubber for Particulate Control

I. Background

A. Emissions Units

Description:	Sludge Heat Drying Trains 2 and 3
Identification:	E.U. 001 & 002
Stack designation:	Afterburner Exhaust Stack
Facility:	City of Tampa Howard F. Curren AWT Plant Tampa, FL 33605-6744

B. Applicable Regulation, Emission Limit, and Monitoring Requirements

Regulation No.:	Permit No. 0570373-018-AV
Regulated pollutant:	Particulate Matter
Emission limit:	5.15 lbs/hr, 22.6 tons/12 mos. based on 0.03 grains/dscf
Monitoring requirements in permit:	Check cyclone drop-out for plugging. Record Venturi Scrubber pressure drop and water flow rate.

C. Control Technology: Dual Cyclone Separators and Venturi Scrubber/Cyclonic Separator

II. Monitoring Approach

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

TABLE A.1: MONITORING APPROACH

EMISSION UNIT 001 & 002 – DRYERS 2 & 3			
	Indicator No. 1	**Indicator No. 2**	**Indicator No. 3**
Indicator	Cyclone Separators drop-out underflow.	Scrubber pressure differential.	Scrubber liquid feed rate.
Measurement Approach	Drop-out underflow is observed visually.	Measured separately at each of two scrubbers using magnehelic gauges.	Measured separately at each of two scrubbers using flow meters.
I. Indicator Range	While dryers are operating, an excursion is defined as the drop-out underflow being clear water. Excursions trigger an inspection and corrective action. An exceedance is defined as no underflow from the cyclone and triggers corrective action and a reporting requirement.	While Dryers are operating, an excursion is defined as a pressure differential below 6.5" [inches] of water column and an exceedance is defined as a pressure differential below 6.0" [inches] of water column. Excursions trigger an adjustment to the scrubber damper. An exceedance triggers an inspection, corrective action, and a reporting requirement.	While Dryers are operating, an excursion is defined as liquid flow below 275 gpm for each scrubber. An exceedance is defined as a liquid flow below 250 gpm a second time after an excursion adjustment. Excursions trigger an adjustment to the water flow rate. An exceedance triggers an inspection, corrective action, and a reporting requirement.
II. Performance Criteria	Drop-out underflow indicates the removal of particulate.	The magnehelics measure the pressure differential between the inlet and outlet of the scrubber.	The flow meters measure the liquid flow to the scrubber.
A. Data Representativeness	Drop-out underflow is observed at the discharge manhole.	The magnehelic gauge taps are located across the inlet and outlet of the scrubber.	The flow meters are located in the inlet water line.
B. Verification of Operational Status	Not Applicable.	Not Applicable.	Not Applicable.
C. QA/QC Practices and Criteria	These units are cleaned and rinsed whenever the drop-out underflow is clear or not dirty and during the annual maintenance period.	The units are calibrated on a yearly basis. The operational status of the units is checked if the pressure differential is outside the proposed range.	The flow meters will be checked if the flow falls out of range. Calibration is performed annually.
D. Monitoring Frequency	The drop-out underflow is observed and recorded daily for each separator when the dryers are operating.	The pressure differential is observed and recorded daily for each scrubber when the dryers are operating.	The flow rate is observed and recorded daily for each scrubber when the dryers are operating.
E. Data Collection Procedures	Observations are recorded with the time, date, and name of the observer.	Pressure differential is recorded with the time, date, and name of the observer.	Flow rate is recorded with the time, date, and name of the observer.
F. Averaging Period	Not Applicable.	Not Applicable.	Not Applicable.

III. Data Availability

The minimum data availability for each semiannual reporting period, defined as the number of days for which monitoring data are available divided by the number of days during which the process operated (times 100) will be:

Cyclone drop-out underflow, Venturi Scrubber DP and water flow: 90 percent

The data availability determination will not include periods of control device start up and shut down. For a day to be considered a valid day of monitoring data, a minimum of 8 hrs. of data must be available.

MONITORING APPROACH JUSTIFICATION

I. Background

This is a wastewater treatment facility that performs physical, chemical and biological treatment processes to produce a Class AA biosolids product that is distributed and marketed under provisions of F.A.C. 62-640 and 40 CFR 503. Two sewage sludge drying trains are operated at this facility. Emissions from the two drying trains are discharged to the dual cyclone separators and venturi scrubber/cyclonic separator provided for each dryer before going on to the RTO.

II. Rationale for Selection of Performance Indicators

The cyclone separator drop-out underflow was selected because it is indicative of the removal of particulate matter by the separator. If the drop-out underflow stops or is clear or not muddy brown, this indicates that the cyclones are plugged and not removing particulate at design efficiency.

The venturi scrubber differential pressure and water flow rate were selected because it is indicative of the removal of particulate matter by the separator. If the differential pressure drops below 6.0 inches of water column or the water flow rate drops below 250 gpm this indicates that the scrubber is not removing particulate at design efficiency.

III. Rationale for Selection of Indicator Ranges

The selected indicator for the cyclone separators was specified by the design engineers, CDM and Enviro-Gro as well as by the equipment supplier, Emtrol. The drop-out underflow for the cyclone separators is monitored daily by an operator. Corrective action will be initiated, beginning with an evaluation of the occurrence to determine the action required to correct the situation. All excursions are documented and reported on the daily operating sheet and in the operations log book.

The selected indicator for the venturi scrubber was specified by the design engineers, CDM and Enviro-Gro as well as by the equipment supplier, Emtrol. The differential pressure and water flow rate is monitored daily by an operator. Corrective action will be initiated, beginning with an evaluation of the occurrence to determine the action required to correct the situation. All excursions are documented and reported on the daily operating sheet and in the operations log book.

Previous performance tests have confirmed acceptable performance of these particulate matter controls. During performance tests, the cyclone separators were monitored for drop-out underflow and the venturi scrubber/cyclonic separator was operating with a minimum differential pressure drop above 6.0 inches of water column or the water flow rate above 250 gpm. The air pollution control permit issued by EPCHC specifies that the maximum allowable particulate matter emissions for each train shall not exceed 5.15 lb/hr up to 22.6 tons in any twelve [12] consecutive month period.

A Quality Improvement Plan (QIP) may be required if an accumulation of excursions or exceedances exceeds 5 percent duration of the drying trains operation during the reporting period. At that time, as stated in 40 CFR 64.8(a), a QIP may be required to be developed and implemented, following approval of the QIP by EPC staff. Since monitoring reports are required semi-annually, that shall define a reporting period.

City of Tampa – Howard F. Curren AWT Plant

Emission Units – 001 & 002

Two Sewage Sludge Drying Trains

VOC emissions controlled by Huntington Energy System, Inc. Afterburners

Monitoring Approach

THERMAL INCINERATOR FOR VOC CONTROL

Thermal Incinerator for VOC Control

I. Background

A. Emissions Units

Description:	Sludge Heat Drying Trains 2 and 3
Identification:	E.U. 001 & 002
Stack designation:	Afterburner Exhaust Stack
Plant ID No.	0570373
Facility:	City of Tampa Howard F. Curren AWT Plant Tampa, FL 33605-6744

B. Applicable Regulation, Emission Limit, and Monitoring Requirements

Regulation No.:	Permit No. 0570373-018-AV
Regulated pollutant (PSEU):	VOC
Emission limit:	Minimum VOC destruction efficiency – 90%
Monitoring requirements in permit:	Monitor reaction chamber minimum temperature (established by compliance tests), daily burner status and VE

C. Control Technology: Regenerative Thermal Oxidizer [RTO]

II. Monitoring Approach

The key elements of the monitoring approach, including the indicators to be monitored, indicator ranges, and performance criteria are presented in Table A.2

TABLE A.2: MONITORING APPROACH

EMISSION UNIT 001 & 002 – DRYERS 2 & 3		
	Indicator No. 1	**Indicator No. 2**
Indicator	Afterburner temperature.	Work practice
Measurement Approach	Combustion chamber temperature measured using thermocouple.	Inspection and maintenance of the burner; observation of the burner status [igniter microamps]. Daily VE of the afterburner discharge stack.
III. Indicator Range	While the dryers are operating, an excursion is defined as a one-hour rolling average chamber temperature falling below: 1299ºF** for Train No. 2 and 1298ºF** for Train No. 3. A one-hour average temperature below this established value sends a 'RTO Not Ready' signal to the control PLC, causes the dryer feeds to be disabled and the dryer to go into a shutdown mode. After investigation and reset by the operator and the return of the 'RTO Ready' signal to the PLC, the dryer can be restarted. An exceedance is defined as a three-hour rolling average chamber temperature falling below the test-based thresholds noted previously and triggers an inspection, corrective action or calibration, and a reporting requirement.	An excursion is defined as failure to perform annual inspection, daily VE or daily burner status [microamps] observation.
IV. Performance Criteria	The thermocouple measures the afterburner combustion chamber temperature.	Not applicable
A. Data Representativeness	The thermocouple accuracy is ±1% of the temperature scale being monitored.	Not applicable
B. Verification of Operational Status	Not Applicable.	Not applicable
C. QA/QC Practices and Criteria	The thermocouple [accuracy ±1% of scale] is calibrated yearly or if readings are below the required temperature.	Not applicable
D. Monitoring Frequency	The temperature is monitored continuously by the SCADA system. Temperatures are recorded and averaged every ten minutes when the dryers are operating.	Annual inspection of the burner; daily observation of the burner microamps, daily VE.
E. Data Collection Procedures	Data is recorded in the Plant SCADA system.	Record results of annual inspections. Daily observations are recorded with the time, date, and

		name of the observer.
F. Averaging Period	Three [3] hour	Not applicable

** The temperature limits are established by the three-hour average temperature, specific to each train, from the most recent destruction efficiency compliance tests that demonstrated compliance and have been accepted by EPC. The temperature limits may change as new DE tests are performed and approved. The listed temperature limits are based off of DE tests performed on 12/15/09 for Train No.2 and on 12/16/09 for Train No.3.

III. Data Availability

The minimum data availability for each semiannual reporting period, defined as the number of hours for which monitoring data are available divided by the number of hours during which the process operated (times 100) will be:

Chamber temperature: 90 percent

The data availability determination will not include periods of control device start up and shut down. For an hour to be considered a valid hour of monitoring data, a minimum of 45 minutes of data must be available.

MONITORING APPROACH JUSTIFICATION

I. Background

This is a wastewater treatment facility that performs physical, chemical and biological treatment processes to produce a Class AA biosolids residual that is distributed and marketed under provisions of F.A.C. 62-640 and 40 CFR 503. Two sewage sludge drying trains are operated at this facility. Emissions from the two drying trains are discharged to the thermal incinerator after the particulate matter control devices.

II. Rationale for Selection of Performance Indicators

The incinerator chamber temperature was selected because it is indicative of the thermal incinerator operation (combustion occurring within the chamber). If the chamber temperature decreases significantly, complete combustion may not occur. It has been shown that the control efficiency achieved by a thermal incinerator is a function of its operating temperature. By maintaining the operating temperature at or above a minimum, a level of control efficiency can be achieved.

The work practice comprised of an annual inspection and tuning of the incinerator burner was selected because an inspection verifies equipment integrity and periodic tuning will maintain proper burner operation and efficiency. In addition, a daily observation of the burner status microamps was selected to monitor proper operation of the burner. The daily VE, which is specified in the CAM plan, gives an indication of the control efficiency of the unit during operation.

The damper on the bypass line on each drying train must be closed during the drying operation to ensure that the vent stream is routed to the thermal incinerator. The primary purpose of this bypass damper is to allow ambient air to enter the thermal incinerator during start up or pre-heat of the thermal incinerator before the drying train is ever started up. The incinerator chamber temperature must reach the minimum compliance temperature established through the most recent compliance test (operating control set point) and a 'RTO Ready' signal to the PLC must be received before the dryer can be started. Another purpose of the bypass damper is as a safety release for the process air being discharged by the dryer to the thermal incinerator in the case of catastrophic failure of the

thermal incinerator. This is part of the ladder logic within the PLC that controls the entire sludge drying process including the air pollution control devices.

III. Rationale for Selection of Indicator Ranges

The selected indicator range for the incinerator chamber temperature is "greater than the three-hour average temperatures from the most recent compliance tests". When an excursion occurs, the control PLC [programmable logic controller] immediately disables the feed sludge conveyors and puts the entire train into a shutdown and purge mode. An alarm occurs locally that is audible and visual to alert the area operator. An alarm is also sent via the SCADA system to the Process Control center where it is continuously monitored by an operator. Corrective action will be initiated, beginning with an evaluation of the occurrence to determine the action required to correct the situation. All excursions are documented and reported within the SCADA Alarm Summary.

The air pollution control permit issued by the State agency specifies that the incinerator must be designed to operate with a minimum operating temperature established through the most recent compliance test measured at the center of the incinerator chamber. The thermal incinerator is expected to achieve 90 percent or greater destruction efficiency (DRE) at this temperature. The permit requirement is 90 percent DRE. The incinerator employs a temperature controller that maintains the desired chamber temperature by using a natural gas-fired auxiliary burner; the temperature controller is set to maintain a temperature of at least the minimum established by the most recent compliance test.

Previous performance tests have confirmed acceptable performance of these incinerators; the incinerators achieved the required DRE of 90 percent. During the most recent performance tests, the incinerators were operating with a three-hour average temperature of 1299°F for Train No. 2 tested on 12/15/2009, and 1298°F for Train No. 3 tested on 12/16/2009. This temperature threshold is subject to change with each new compliance test for destruction efficiency on each unit. The air pollution control permit issued by EPCHC specifies the total maximum allowable emissions of volatile organic compounds from each train shall not exceed 3.54 lb/hr up to 15.56 tons in any twelve [12] consecutive month period.

A Quality Improvement Plan (QIP) may be required if an accumulation of excursions or exceedances exceeds 5 percent duration of the drying trains operation during the reporting period. At that time, as stated in 40 CFR 64.8(a), a QIP may be required to be developed and implemented, following approval of the QIP by EPC staff. Since monitoring reports are required semi-annually, that shall define a reporting period.