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. - 14.)** and reporting exceedances or excursions (see **CAM Conditions 15. – 16.**).
[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. - 16.**).
[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:

(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. 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.
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)]

<u>40 CFR 64.10 Savings Provisions.</u>

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]

COMPLIANCE ASSURANCE MONITORING PLAN
(CAM PLAN)

FOR

Solutia Inc.

Pensacola Plant

April, 2005

I. EMISSION UNITS REQUIRING CAM PLANS

A. CAM Rule Applicability Definition

As part of these Title V renewal applications EPA, through regulations adopted in Title 40, Part 64 of the Code of Federal Regulations (40 CFR 64), is requiring submittal of Compliance Assurance Monitoring (CAM) Plans. This regulation has been incorporated by reference by FDEP in Rule 62-204.800 and implemented in Rule 62-213.440.

CAM plans are required for all Title V permitted emission units using control devices to meet federally enforceable emission limits or standards with uncontrolled emissions greater than "major" source thresholds. The term "major" is defined as in the Title V Regulations (40 CFR 70), but applied on a source-by-source basis. However, there are some specific exemptions to the applicability of the CAM Rule.

Specifically exempted from the CAM Rule are emissions units subject to requirements under Stratospheric Ozone Regulations (40 CFR 82), the Acid Rain Program (40 CFR 72), or that are part of an emission cap included in the Title V Permit. Also exempt are emission units subject to New Source Performance Standards (40 CFR 60) and National Emission Standards for Hazardous Air Pollutants (40 CFR 63) promulgated after 11/15/1990, as these sources have CAM equivalent monitoring requirements included as part of the standard. In addition, sources are exempt if they have limitations or standards for which a part 70 or 71 permit specifies a continuous compliance determination method, as defined in 64.1.

B. Emissions Units Requiring CAM Plans

A review of emission units at Solutia's Pensacola Plant was conducted to determine the applicability of the CAM Rule. This evaluation was conducted for each emission unit and pollutant. First, the existence of a "control device" as defined by the CAM Rule was determined on a source-by-source basis for each pollutant. Those emission units without control devices were eliminated from further consideration. The remaining emission units were then evaluated on a pollutant-by-pollutant basis to determine if a control device was used to meet a federally

enforceable emission limit or standard. Each pollutant without a federally enforceable emission limit or standard, emitted from a given emission unit, was eliminated from further consideration. Uncontrolled annual emissions were then calculated for each remaining source-pollutant combination. If uncontrolled emissions for a pollutant emitted from a given emission unit source were below major source thresholds as defined by the CAM Rule, that pollutant was not further considered. Specific exemptions to the applicability of the CAM Rule were also considered in this evaluation. A summary of the applicability analysis is provided in Table A-1.

Emission Unit 014, 015, and 016 (Boilers No. 4 through No. 6)

Boilers No. 4 through No. 6 are normally fueled by natural gas and ethane rich natural gas. No. 6 fuel oil is an alternate fuel which may contain blended on-specification used oil as supplemental fuel. The used oil must meet the requirements of 40 CFR Part 279. These Boilers may also burn as supplemental fuels AGS (a mixture of organic acids from deep well waste stream), KATT (a mixture of organic esters), DME (Dimethyl Esters), Amines and Area 480 residue. Emissions are controlled by proper combustion control and by fuel composition.

Emission Units 014, 015, and 016 have federally enforceable limits for sulfur dioxide. However, there are no control devices for any pollutants and thus no requirements for CAM.

Emission Unit 003, and 004 (Boilers No. 7 and No. 8)

Boilers No. 7 and 8 have been modified to incorporate low NO_x burners and are fueled by natural gas, ethane rich natural gas, and Maleic Anhydride Production offgas. Each of the modified burners is rated for 388 MMBtu/hour and 225,000 pounds/hour steam production. Emissions are controlled by proper combustion controls.

Emission Units 003 and 004 have federally enforceable limits for particulate matter, carbon monoxide, nitrogen oxides and volatile organic compounds. However, there are no control devices for any pollutants and thus no requirements for CAM. Low NO_x burners are not considered control equipment.

Emission Unit 076 (Maleic Anhydride (MA) Plant)

Operation of the maleic anhydride plant with a design capacity of 260 million pounds per year of maleic anhydride. The reaction is carried out in four reactors using butane as a raw material with off gases separated in two product recovery units and combusted in Boilers No. 7 and 8.

Unit 076 has no federally enforceable limits for normal operation. Emission limits exist only for startup shutdown and malfunction (SSM). During SSM no control equipment is required. Therefore for Unit 076 there are no requirements for CAM.

Emission Unit 032 (Cogeneration Plant)

The cogeneration plant consists of one combustion turbine that exhausts through a heat recovery steam generator (HRSG). The HRSG supplies steam to the manufacturing operations and replaces steam generated by the existing boilers. The turbine, fueled by natural gas, turns a generator capable of producing a nominal 86 megawatts of electricity. Supplemental firing of natural gas in the HRSG will supply additional steam, if needed. The combustion turbine employs steam injection to control NO_x emissions. Low NO_x burner design is incorporated into the duct burner in conformance with 40 CFR Subpart 60. Operation of the combustion turbine using evaporative direct water spray fogging inlet air cooling is also authorized.

Emission Units 032 has federally enforceable limits for carbon monoxide, nitrogen oxides, and volatile organic compounds. In addition, steam injection to control NO_x emissions. Therefore CAM is required for NO_x.

Emission Unit 060, 061, 062, 063, 064, 079 (Adipic Acid Dryers)

Emission Unit 060, 061, 062, 063, 064, 079 have no emission limits for particulate emissions. Therefore no requirements for CAM apply.

Emission Unit 002 (Area II Adipic /TRU/SCR I and SCR II)

In this process a ketone and alcohol mixture (KA, cyclohexanone/cyclohexanol) is oxidized with nitric acid to produce an Adipic Acid solution. The solution is refined by chilling due to vacuum

evaporation, forming Adipic Acid crystals at the bottom of the process vessel. The resulting slurry is centrifuged to remove water and form a wet cake. The wet cake is re-dissolved in pure water and the purified Adipic Acid solution is sent to the Nylon Salt Strike or Drying and Product Loading operations. Emissions of NOx are controlled by sending them to the TRU or SCR II. CO and VOCs are controlled when vented to the TRU.

Emission Unit 002 has an emission limit for NOx only. NOx emissions are controlled by the TRU or SCR II and the uncontrolled emissions are greater than 100 TPY. However, NOx emissions are exempt from CAM per 64.2(b)(vi) states that sources are exempt if they have limitations or standards for which a part 70 or 71 permit specifies a continuous compliance determination method, as defined in 64.1.

Emission Unit 005, 007, 008, 009, 010, 011, 013, 075 (Vaporizers No. 1 – No. 8)

Emission Units 007, 008, 009, 010, 011, 013, 075 have no emission limits or control equipment. Therefore no requirements for CAM apply.

Emission Unit 081 and 082 (Continuous Nylon Polymerization Lines and Batch Nylon Polymerization)

Nylon salts are mixed, concentrated and polymerized to form a molten polymer by both continuous and batch processes. The molten polymer is solidified to nylon fiber from the continuous lines and flake products from the batch lines. Unconfined emissions of organic compounds occur during this solidification and are vented away from the working areas and discharged without controls.

Twelve continuous polymerization lines normally operate using an Evaporator/Reactor/Finisher process design or an alternative polymerization method, involving an Evaporator/Pre-reactor/Reactor/Finisher process design. Each continuous line has a separate evaporator. A portion of evaporator emissions is used to preheat the nylon salts, and the remaining emissions are normally fed to a distillation column shared by other yarn plant equipment. Pre-reactor steam and emissions are also fed to the distillation column control devise. Reactor steam is

condensed to produce process steam and the condensate is handled as wastewater. The emissions from the finishing step are controlled by monomer scrubbers.

Emission Units 081 and 082 have an emission limit for VOCs. VOC emission control is inherent in process equipment. There is no additional VOC control equipment. Therefore, VOC emissions are not subject to CAM.

Emission Unit 020 (Cyclohexane Oxidation Process)

Cyclohexane is oxidized with air in two high-pressure reactor trains. Two high-pressure scrubbers reduce the loss of volatile organic compounds (VOC). Emissions are primarily VOC and carbon monoxide (CO). Further VOC and CO emissions reductions occur as the gases from the high-pressure scrubbers are sent to the NO_x Thermal Reduction Unit (TRU).

- Starting in 2006, Cyclohexane emissions normally vented during periods when the TRU is down will be controlled with a new thermal oxidizer (OBUD).

Per Construction Permit No. 0330040-017-AV, Emission Unit 020 only has emission limits for CO and VOC when controlled by the new Thermal Oxidizer (OBUD). In addition, the potential uncontrolled emissions are greater than 100 TPY. Therefore, CAM is applicable for CO and VOC emissions when the OBUD is in service.

The reactors are discharged to cyclohexane recovery, product refining, and distillation operations. Emissions from these operations are controlled by two low-pressure scrubbers which vent to atmosphere. The emissions from low-pressure scrubbers are of similar composition but lesser quantity than those from the high-pressure scrubbers. Emissions from the low-pressure scrubbers are not limited and as such no requirements for CAM apply.

Emission Unit 049 (Hydrogen Generating Plant #1)

Emission Unit 049 has no emission limits or control equipment. Therefore no requirements for CAM apply.

Emission Unit 040 and 041 (Hexamethylene Diamine Synthesis and Refining)

Emission Unit 040 and 041 have no emission limits or control equipment. Therefore no requirements for CAM apply

Emission Unit 042 (Nitric Acid Plant)

Operation of the nitric acid plant with a maximum capacity of 1,500 tons per day. NO_x emissions are controlled by process operating conditions and/or use of a Selective Catalytic Reduction (SCR) NO_x abatement device.

In the synthesis process, ammonia is oxidized in the presence of a catalyst to form NO_x, which is then converted to HNO_3 by a reaction with water.

Emission Unit 042 has an emission limit for NO_x. NO_x emissions are controlled by the SCR and the uncontrolled emissions are greater than 100 TPY. However, NO_x emissions are exempt from CAM per 64.2(b)(vi), which states that sources are exempt if they have limitations or standards for which a part 70 or 71 permit specifies a continuous compliance determination method, as defined in 64.1.

Emission Unit 088 (Area 480 KA Expansion)

Emission Unit 088 has no emission limits. Therefore no requirements for CAM apply

Emission Unit 089 (Area 480 KA Expansion – Fugitive Emissions)

Emission Unit 089 has no emission limits or control equipment. Therefore no requirements for CAM apply

Emission Unit 097 (Volatile Organic Liquid Tanks)

Emission Unit 097 has no emission limits or control equipment. Therefore no requirements for CAM apply

II. NOx EMISSIONS FROM EMISSION UNIT 032

A. Emissions Unit Identification

The cogeneration plant consists of one combustion turbine that exhausts through a heat recovery steam generator (HRSG). The HRSG supplies steam to the manufacturing operations and replaces steam generated by the existing boilers. The turbine, fueled by natural gas, turns a generator capable of producing a nominal 86 megawatts of electricity. Supplemental firing of natural gas in the HRSG will supply additional steam, if needed. The combustion turbine employs steam injection to control NO_x emissions. Low NO_x burner design is incorporated into the duct burner in conformance with 40 CFR Subpart 60. Operation of the combustion turbine using evaporative direct water spray fogging inlet air cooling is also authorized.

C. Control Technology Description

NO_x emissions from Unit 032 are controlled steam injection. Injection of steam into the combustor of the CT lowers the peak temperature and NO_x formation. A detailed description of the control equipment is included in the Title V renewal application.

D. Monitoring Approach

The monitoring approach for NO_x emissions to meet the CAM requirements is summarized in the table below. In general, steam injection rate will be used as the basis for CAM.

	Indicator No. 1
Indicator	Required Steam Flow
Measurement Approach	Steam Flow Meter
Indicator Range	An excursion is defined as steam flow rate inconsistent with the following equations (based on a 3-hour average). For fuel flows below 3.82 lb/s – no steam flow is required For fuel flows from 3.82 – 5.89 lb/s, the required steam is as follows:

	Steam Flow = (fuel flow – 5.0) x 1.567 + (fuel flow) x [0.0028 x (inlet temp – 68) – 17.95 x (relative humidity – 0.0063)] + 2 For fuel flows above 5.89 lb/s, the required steam is as follows: Steam Flow = (fuel flow – 5.75) x 3.0 + (fuel flow) x [0.0028 x (inlet temp – 68) – 17.95 x (relative humidity – 0.0063)] + 3 An excursion will trigger an evaluation combustion turbine and or steam injection system. Corrective action will be taken as necessary. Any excursion will trigger recordkeeping and reporting requirements.
Data Representativeness	Steam flow rate is adjusted depending on the load of the CT. The steam flow reading will be recorded at least 4 times per each hour manually or continuously via computer data logging system.
Verification of Operational Status	NA
QA/QC Practices and Criteria	The steam flow meter and ancillary equipment will be tested and calibrated as prescribed by the manufacture.
Monitoring Frequency	The steam flow rate will be recorded at least four or more data values spaced equally over each hour and hourly averages will be calculated and stored.
Data Collection Procedures	The steam flow rate will be recorded least four or more data values spaced equally over each hour manually or continuously via computer data logging system.
Averaging Period	1-hour.

E. Justification

1. Background

The pollutant specific emission unit is Unit 032. It is controlled by a steam injection system. The source is limited by Title V permit 0330040-002-AV Condition D.5 as follows:

> "Total combined NO_x emissions from the cogeneration plant turbine and duct burner shall not exceed 106.6 pounds per hour at the maximum allowable heat input rate for the

combustion turbine (as specified in Table A-1) and maximum allowable operating rate of 184 MMBtu/hr heat input for the duct burner."

2. Rationale for Selection of Performance Indicator

40 CFR 64.4(b) states: To justify the appropriateness of the monitoring elements proposed, the owner or operator may rely in part on existing applicable requirements that establish the monitoring for the applicable pollutant-specific emissions unit or a similar unit. If an owner or operator relies on presumptively acceptable monitoring, no further justification for the appropriateness of that monitoring should be necessary other than an explanation of the applicability of such monitoring to the unit in question, unless data or information is brought forward to rebut the assumption.

Steam injection is the NO_x control devise for the cogeneration plant and steam injection rate is proposed as the indicator.

3. Rationale for Selection of Indicator Ranges

The selection of the indicator range is dependent on the load of the CT. The selection of this range is based on manufacturer specifications.

When an excursion occurs, corrective action will be initiated, beginning with an evaluation of the occurrence, to determine the action required (if any) to correct the situation. All excursions will be documented and reported in accordance with CAM requirements.

III. CO AND VOC EMISSIONS FROM EMISSION UNIT 020

A. Emissions Unit Identification

Cyclohexane is oxidized with air in two high-pressure reactor trains. Two high-pressure scrubbers reduce the loss of volatile organic compounds (VOC). Emissions are primarily VOC and carbon monoxide (CO). Further VOC and CO emissions reductions occur as the gases from the high-pressure scrubbers are sent to the NO_x Thermal Reduction Unit (TRU).

Starting in 2006, Cyclohexane CO and VOC emissions normally vented during periods when the TRU is down will be controlled with a new thermal oxidizer (OBUD). Air Construction Permit No. 0330040-017, Specific Conditions A.3., and A.4., permits the construction of the OBUD and limits CO and VOC emissions from the OBUD as follows:

- VOC emissions shall not exceed 10.4 pounds per hour, based on a 24-hour average, or 45.5 tons per year, based on a 12 month rolling total.
- CO emissions shall not exceed 28.1 pounds per hour, based on a 24-hour average, or 123 tons per year, based on a 12-month rolling total.

The reactors are discharged to cylclohexane recovery, product refining, and distillation operations. Emissions from these operations are controlled by two low-pressure scrubbers which vent to atmosphere. The emissions from low-pressure scrubbers are of similar composition but lesser quantity than those from the high-pressure scrubbers. The low pressure and high pressure scrubbers are process required equipment not installed for emission control. In addition, emissions from the low-pressure scrubbers are not limited and as such no requirements for CAM apply.

C. Control Technology Description

The emissions of VOC and CO are normally controlled in a thermal reduction unit (TRU) identified as part of Emission Unit 002. The OBUD will control VOC and CO emissions when the TRU is down or during other process upsets. The OBUD is designed for 99% destruction of VOC and 98% destruction of CO. The oxidizer will operate at a minimum of 1,300 deg. F

unless otherwise demonstrated according to permit condition A.9 of Permit 0330040-017-AC. There are no hourly limits of operation of the OBUD.

D. Monitoring Approach

The monitoring approach for CO and VOC emissions to meet the CAM requirements are summarized in the table below. Since both CO and VOC are controlled by the same control device, the following CAM indicators are applicable both pollutants. In general, OBUD temperature will be used as the basis for CAM.

	Indicator No. 1
Indicator	OBUD Temperature
Measurement Approach	Thermocouple
Indicator Range	An excursion is defined as temperature less than 1,300 deg F for the OBUD (based on a 24-hour average) unless otherwise demonstrated per above referenced permit condition. An excursion will trigger an evaluation OBUD. Corrective action will be taken as necessary. Any excursion will trigger recordkeeping and reporting requirements.
Data Representativeness	NA.
Verification of Operational Status	NA
QA/QC Practices and Criteria	The thermocouple and ancillary equipment will be tested and calibrated as prescribed by the manufacture.
Monitoring Frequency	The OBUD temperature will be recorded at least four or more data values spaced equally over each hour and hourly averages will be calculated and stored. Data will be recorded.
Data Collection Procedures	The OBUD temperature will be recorded at least four or more data values spaced equally over each hour manually or continuously via computer data logging system.
Averaging Period	3-hour.

E. Justification

1. Background

Upon issuance of Permit No. 0330040-017, the limits for CO and VOC emissions from the OBUD will be as follows:

- VOC emissions shall not exceed 10.4 pounds per hour, based on a 24-hour average, or 45.5 tons per year, based on a 12 month rolling total.
- CO emissions shall not exceed 28.1 pounds per hour, based on a 24-hour average, or 123 tons per year, based on a 12-month rolling total.

2. Rationale for Selection of Performance Indicator

An OBUD temperature less than 1,300 deg. F for a sustained period could indicate impaired performance to control VOC and CO emissions.

3. Rationale for Selection of Indicator Ranges

The manufacture specified operating range of the OBUD is greater than 1,300 deg. F. When an excursion occurs, corrective action will be initiated, beginning with an evaluation of the occurrence, to determine the action required (if any) to correct the situation. All excursions will be documented and reported in accordance with CAM requirements.