

**AIRGAS**

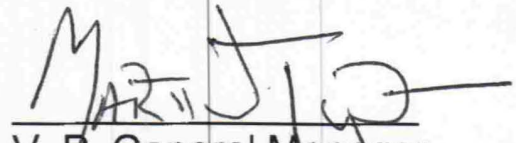
Nitrous Oxide

**PENSACOLA NITROUS OXIDE MANUFACTURING MANUAL**

<b>Section:</b>	<b>Monitoring and Leak Detection</b>	<b>Sec. No.:</b>	<b>4020</b>
<b>Chapter:</b>	<b>Quality</b>	<b>Revision:</b>	<b>3/12</b>
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All changes to this procedure will be issued by replacing the section(s) that are affected by the change. The authorization signatures apply to the entire procedure. Pages not marked with the same revision date are not covered by this authorization and must be removed.

  
Plant Manager

  
V. P. General Manager

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## 1. PURPOSE

To provide a description of the monitoring activities to be performed for the plant to be compliant with environmental regulations and maintain product quality.

## 2. SCOPE

The Nitrous Oxide Corporation production facility located at 650 Chemstrand Road, Cantonment, Florida, also herein described as the Pensacola Nitrous Oxide plant.

## 3. REFERENCES

None

## 4. DEFINITIONS

None

## 5. PROCEDURE

### A. FACILITY MONITORING

1. This plan is used to monitor facility performance with respect to the emissions from source ID numbers 0330089-001 and 002. Under normal operating conditions source 002, (Desorber 1 Vent), will be valved to return to the Stack Gas Compressor and not vented to atmosphere. Operating parameters are described below which reflect the amounts of NO<sub>x</sub> and CO being processed by the facility. Typical values are given for each parameter. These parameters are used only to indicate when further investigation is warranted. Only the "Measurement and Calculation of Air Emissions" program can determine if the facility is operating within the appropriate limitations.
2. The maximum allowable emission rates for each pollutant is as follows:

<u>Pollutant</u>	<u>Emission Rate</u>
CO	10.64 lbs/hr.
NO <sub>x</sub>	0.33 lbs/hr.

3. The plant air permit places a maximum flow rate of 14,500 lbs/hr at FI 202. The process control system will record the rate hourly and at 00:03 hrs each day will print a chronological synopsis and the average rate for the day.

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**B. NO<sub>x</sub>**

1. Virtually all of the NO<sub>x</sub> entering the facility is removed by scrubbing the process stream with water. The higher nitrogen oxides form nitric acid when coming in contact with the water. This is an exothermic process; therefore the temperature of this process is monitored. The temperature of the gas leaving the scrubbing operation is monitored using a thermocouple (TI-318). Should the facility receive an unusually high concentration of NO<sub>x</sub> in the stack gas, the exothermic scrubbing process will generate more heat and the temperature of the gas leaving the scrubbing operation will rise. Other factors affecting the gas temperature include the ambient temperature and the temperature of the scrubbing water.

Operating Parameter	TI-318
Logging	4 hours
Normal Range	85-110 F
Alarm Value	120 F (or higher)

2. Upon receiving an alarm for TI-318 or recording a reading that is at or above the alarm value of 120 F, the plant technician will immediately begin to determine the cause of the alarm. Should the cause of the high temperature not be identified and/or eliminated within one hour, the facility will stop production until the problem can be resolved.

**C. CO**

1. A catalyst is employed to oxidize CO to CO<sub>2</sub>. The CO<sub>2</sub> concentration in the process gas is measured after the catalyst. The concentration of CO<sub>2</sub> rises as the process gas passes through the catalyst because any CO present is converted to CO<sub>2</sub>. Therefore, the concentration of CO<sub>2</sub> after the catalyst is affected by the amount of CO that is being processed by the facility.

Operating Parameter	CO <sub>2</sub> concentration after the catalyst.
Logging	4 hours
Normal Range	75-125 ppm
Alarm Value	150 ppm

2. Upon recording CO<sub>2</sub> concentration after the catalyst that is 150 ppm or higher, the plant technician will immediately begin to determine the cause of the alarm. Should the cause be identified as a high level of CO in the process and the problem cannot

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be corrected within one hour, the facility will stop production until the problem can be resolved.

#### D. LEAK DETECTION

1. The plant leak detection program is part of the normal preventive maintenance program. A standing work order is established to conduct leak checks every 60 days. Leak checks are conducted using the TIF 5500 Halogen Leak Detector.
2. The plant technician performs visual and audible checks for leaks at the beginning of the shift and during the time their duties require them to be out in the plant. Leaks are either repaired immediately depending on scope of work or a work order is prepared to have the leak repaired at the next appropriate time.

#### E. GHG MONITORING AND REPORTING

1. Sample lines from source 001 and 002 are installed into the lab in the operations building. The 001 line is connected to a 400AGC Chromatograph that samples each 4 hours. In the event operational needs require that the 002 source be connected, then the sampling will be done manually until the situation returns to normal.
2. The plant technician will record the results of the Chromatograph on to FORM P500 GHG Log each 4 hours. At midnight each day the technician will complete the GHG log and forward it to the Plant Operations Manager via Email.

#### 6. ATTACHMENT

None

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