**Florida Department of**

# Memorandum Environmental Protection

**TO:** Charles Harp
**THROUGH:** Armando I. Sarasua, P.E.
**FROM:** Howard Ard
**DATE:** January 9, 2013
**SUBJECT:** Evaluation Summary for Nitrous Oxide Corporation, 0330089-006-AO, Escambia County

We recommend issuing a permit to Nitrous Oxide Corporation to operate their Cantonment Facility. This permit follows 0330089-005-AO, effective March 7, 2008.

Process Description. This facility consists of a gas separation plant that utilizes a waste gas stream from Ascend to produce nitrous oxide ($N_2O$). The waste gas stream from Ascend is first scrubbed to remove $NO_x$ and then the $N_2O$ is extracted. The extracted $N_2O$ then is further purified, compressed, dried and liquified for storage and distribution. The scrubber wastewater is returned to Ascend as dilute nitric acid for proper disposal. Atmospheric emissions from the gas separation plant occur from two vents (Emissions Units 001 and 002) and consist mainly of $N_2$, $CO_2$, $NO_x$ and CO.

This facility is a minor facility with no source-specific emission limitations. The facility's original construction permit AC17-52925 did not have any specific emission limitations, but did require the facility to verify the construction application's emission estimates during each permit renewal. Also, since the issuance of construction permit AC17-52925, the facility has made some equipment and operational improvements that allowed for an increase in the operational rate without an increase in the facility's original emission estimates. The facility's original operation rate of 9,000 pounds of Ascend stack gas per hour was increased to 13,500 and finally to 14,500 pounds per hour. These rate increases were changed through minor modifications to the facility's operation permits since the facility was able to demonstrate that the original emission estimates would not be exceeded.

Pollution Control Equipment. Process and operation control.

Environmental Impact.

| Pollutants | Estimated Emissions* from Process Vents, EUs 001 and 002 |
|---|---|
| NOx | 0.33 lbs/hr or 1.45 tons/year |
| CO | 10.64 lbs/hr or 46.6 tons/year |

*Note: Emissions estimates are from permit AC17-52925.

Applicable Rules & Regulations. This source is regulated in accordance with Rule 62-296.320, F.A.C. - General Pollutant Emission Limiting Standards, with no source-specific emission criteria.

Compliance Monitoring. Testing for NOx and CO is required within the 12-month period prior to permit renewal. Since testing is required only for the purpose of verifying emission estimates, the testing will be conducted with Draeger tubes instead of using the more intensive EPA stack testing procedures.

Compliance History. Inspections from 2008 through 2012 indicate facility "In-Compliance."

Fee Summary. This is an AO2B ($1,000 fee) minor source – other sample (Draeger tube testing).

HA/c