



State of Ohio Environmental Protection Agency

**RE: FINAL PERMIT TO INSTALL CERTIFIED MAIL  
LUCAS COUNTY**

Street Address:

122 S. Front Street

Lazarus Gov. Center TELE: (614) 644-3020 FAX: (614) 644-2329

Mailing Address:

Lazarus Gov. Center  
P.O. Box 1049

**Application No: 04-01258**

**DATE: 5/3/2001**

Air Liquide America Corp.  
Wayne McConnell  
PO Box 167570  
Oregon, OH 43616

Enclosed please find an Ohio EPA Permit to Install which will allow you to install the described source(s) in a manner indicated in the permit. Because this permit contains several conditions and restrictions, I urge you to read it carefully.

The Ohio EPA is urging companies to investigate pollution prevention and energy conservation. Not only will this reduce pollution and energy consumption, but it can also save you money. If you would like to learn ways you can save money while protecting the environment, please contact our Office of Pollution Prevention at (614) 644-3469.

You are hereby notified that this action by the Director is final and may be appealed to the Ohio Environmental Review Appeals Commission pursuant to Chapter 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed within thirty (30) days after the notice of the Directors action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency within three (3) days of filing with the Commission. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission  
236 East Town Street, Room 300  
Columbus, Ohio 43215

Very truly yours,

Thomas G. Rigo, Manager  
Field Operations and Permit Section  
Division of Air Pollution Control

CC: USEPA

TDES



**Permit To Install**

STATE OF OHIO ENVIRONMENTAL PROTECTION AGENCY

**FINAL PERMIT TO INSTALL 04-01258**

Application Number: 04-01258  
APS Premise Number: 0448020069  
Permit Fee: **\$600**  
Name of Facility: Air Liquide America Corp.  
Person to Contact: Wayne McConnell  
Address: PO Box 167570  
Oregon, OH 43616

Location of proposed air contaminant source(s) [emissions unit(s)]:  
**1800 Navarre Ave**  
**Oregon, Ohio**

Description of proposed emissions unit(s):  
**modification of the existing and construction of a new CO2 plant.**

The above named entity is hereby granted a Permit to Install for the above described emissions unit(s) pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the above described emissions unit(s) of environmental pollutants will operate in compliance with applicable State and Federal laws and regulations, and does not constitute expressed or implied assurance that if constructed or modified in accordance with those plans and specifications, the above described emissions unit(s) of pollutants will be granted the necessary permits to operate (air) or NPDES permits as applicable.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency



Director

## Part I - GENERAL TERMS AND CONDITIONS

### A. Permit to Install General Terms and Conditions

#### 1. Compliance Requirements

The emissions unit(s) identified in this Permit to Install shall remain in full compliance with all applicable State laws and regulations and the terms and conditions of this permit.

#### 2. Reporting Requirements Related to Monitoring and Recordkeeping Requirements

The permittee shall submit required reports in the following manner:

- a. Reports of any required monitoring and/or recordkeeping information shall be submitted to the appropriate Ohio EPA District Office or local air agency.
- b. Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from emission limitations, operational restrictions, and control device operating parameter limitations that have been detected by the testing, monitoring, and recordkeeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the appropriate Ohio EPA District Office or local air agency. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly, i.e., by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

#### 3. Records Retention Requirements

Each record of any monitoring data, testing data, and support information required pursuant to this permit shall be retained for a period of five years from the date the record was created. Support information shall include, but not be limited to, all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Such records may be maintained in computerized form.

#### 4. Inspections and Information Requests

The Director of the Ohio EPA, or an authorized representative of the Director, may, subject to the safety requirements of the permittee and without undue delay, enter upon the premises of this source at any reasonable time for purposes of making inspections, conducting tests, examining records or reports pertaining to any emission of air contaminants, and determining compliance with any applicable State air pollution laws and regulations and the terms and conditions of this permit. The permittee shall furnish to the Director of the Ohio EPA, or an authorized

**Air Liquide America Corp.**  
**PTI Application: 04-01258**  
**Issued: 5/3/2001**

**Facility ID: 0448020069**

representative of the Director, upon receipt of a written request and within a reasonable time, any information that may be requested to determine whether cause exists for modifying, reopening or revoking this permit or to determine compliance with this permit. Upon verbal or written request, the permittee shall also furnish to the Director of the Ohio EPA, or an authorized representative of the Director, copies of records required to be kept by this permit.

**5. Scheduled Maintenance/Malfunction Reporting**

Any scheduled maintenance of air pollution control equipment shall be performed in accordance with paragraph (A) of OAC rule 3745-15-06. The malfunction of any emissions units or any associated air pollution control system(s) shall be reported to the appropriate Ohio EPA District Office or local air agency in accordance with paragraph (B) of OAC rule 3745-15-06. Except as provided in that rule, any scheduled maintenance or malfunction necessitating the shutdown or bypassing of any air pollution control system(s) shall be accompanied by the shutdown of the emissions unit(s) that is (are) served by such control system(s).

**6. Permit Transfers**

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The appropriate Ohio EPA District Office or local air agency must be notified in writing of any transfer of this permit.

**7. Air Pollution Nuisance**

The air contaminants emitted by the emissions units covered by this permit shall not cause a public nuisance, in violation of OAC rule 3745-15-07.

**8. Termination of Permit to Install**

This Permit to Install shall terminate within eighteen months of the effective date of the Permit to Install if the owner or operator has not undertaken a continuing program of installation or modification or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation or modification. This deadline may be extended by up to 12 months if application is made to the Director within a reasonable time before the termination date and the party shows good cause for any such extension.

**9. Construction of New Sources(s)**

The proposed emissions unit(s) shall be constructed in strict accordance with the plans and application submitted for this permit to the Director of the Ohio Environmental Protection Agency. There may be no deviation from the approved plans without the express, written approval of the Agency. Any deviations from the approved plans or the above conditions may lead to such sanctions and penalties as provided under Ohio law. Approval of these plans does not constitute an assurance that the proposed facilities will operate in compliance with all Ohio laws and regulations. Additional facilities shall be installed upon orders of the Ohio

**Air Liquide America Corp.**  
**PTI Application: 04-01258**  
**Issued: 5/3/2001**

**Facility ID: 0448020069**

Environmental Protection Agency if the proposed sources cannot meet the requirements of this permit or cannot meet applicable standards.

If the construction of the proposed emissions unit(s) has already begun or has been completed prior to the date the Director of the Environmental Protection Agency approves the permit application and plans, the approval does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the approved plans. The action of beginning and/or completing construction prior to obtaining the Director's approval constitutes a violation of OAC rule 3745-31-02. Furthermore, issuance of the Permit to Install does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Approval of the plans in any case is not to be construed as an approval of the facility as constructed and/or completed. Moreover, issuance of the Permit to Install is not to be construed as a waiver of any rights that the Ohio Environmental Protection Agency (or other persons) may have against the applicant for starting construction prior to the effective date of the permit. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed facilities cannot meet the requirements of this permit or cannot meet applicable standards.

**10. Public Disclosure**

The facility is hereby notified that this permit, and all agency records concerning the operation of this permitted source, are subject to public disclosure in accordance with OAC rule 3745-49-03.

**11. Applicability**

This Permit to Install is applicable only to the emissions unit(s) identified in the Permit to Install. Separate application must be made to the Director for the installation or modification of any other emissions unit(s).

**12. Best Available Technology**

As specified in OAC Rule 3745-31-05, all new sources must employ Best Available Technology (BAT). Compliance with the terms and conditions of this permit will fulfill this requirement.

**13. Source Operation and Operating Permit Requirements After Completion of Construction**

This facility is permitted to operate each source described by this Permit to Install for a period of up to one year from the date the source commenced operation. This permission to operate is granted only if the facility complies with all requirements contained in this permit and all applicable air pollution laws, regulations, and policies. Pursuant to OAC Chapter 3745-35, the permittee shall submit a complete operating permit application within thirty (30) days after commencing operation of the emissions unit(s) covered by this permit.

6

**Air Liquide America Corp.**  
**PTI Application: 04-01258**  
**Issued: 5/3/2001**

**Facility ID: 0448020069**

#### 14. Construction Compliance Certification

The applicant shall provide Ohio EPA with a written certification (see enclosed form) that the facility has been constructed in accordance with the Permit to Install application and the terms and conditions of the Permit to Install. The certification shall be provided to Ohio EPA upon completion of construction but prior to startup of the source.

#### 15. Fees

The permittee shall pay fees to the Director of the Ohio EPA in accordance with ORC section 3745.11 and OAC Chapter 3745-78. The permittee shall pay all applicable Permit to Install fees within 30 days after the issuance of this Permit to Install.

### B. Permit to Install Summary of Allowable Emissions

The following information summarizes the total allowable emissions, by pollutant, based on the individual allowable emissions of each air contaminant source identified in this permit.

**SUMMARY (for informational purposes only)  
TOTAL PERMIT TO INSTALL ALLOWABLE EMISSIONS**

<u>Pollutant</u>	<u>Tons Per Year</u>
CO	2.4
NOx	1.2
PE	0.02
SO2	0.17
VOC	0.78

**PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**

**A. Applicable Emissions Limitations and/or Control Requirements**

- 1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>
P001 - 27,000 pounds of CO <sub>2</sub> per hour purification and liquification train with carbon and desiccant bed, ammonia refrigeration system, 2.2 mmBtu natural gas thermal controlled by a thermal incinerator, incinerator combustion products Train #1.	
CO <sub>2</sub> purification train	OAC rule 3745-31-05(A)(3)
	OAC 3745-21-08(B)
carbon and desiccant bed regeneration	OAC 3745-31-05(A)(3)
	OAC 3745-18-06(E)

	<u>Applicable Emissions Limitations/Control Measures</u>	
OAC 3745-21-07(B)		average,
OAC 3745-23-06(B)		0.79 ton of CO per year, 0.96 ton of NOx per year, 0.01 pound per hour of particulate emissions (PE), 0.02 ton of PE per year,
OAC 3745-31-05(A)(3)		0.01 pound of SO2 per hour, 0.01 ton of SO2 per year, 0.04 ton of VOC per year, and see 2.f.
	20 % opacity as a six-minute average,	See 2.g.
	0.93 ton of carbon monoxide (CO) per year, and see 2.a and 2.b.	0.01 pound of VOC per hour.  0.18 pound of CO per hour.
OAC 3745-18-06(C)	0.22 pound of CO per hour.	0.22 pound of NOx per hour.
OAC 3745-21-07(B)	20 % opacity as a six-minute average,	
OAC 3745-21-08(B)	0.14 ton of nitrogen oxides (NOx) per year,	
OAC 3745-23-06(B)	0.02 pound of sulfur dioxide (SO2) per hour, 0.08 ton of SO2 per year, 0.41 ton of volatile organic compounds (VOC) per year, and see 2.c and 2.d.	
	Exempt, see 2.e.	
	2.58 pounds of VOC per hour,	
	0.04 pound of NOx per hour	
	20 % opacity as a six-minute	

**2. Additional Terms and Conditions**

- 2.a** The permittee shall operate and maintain a thermal incinerator with a minimum destruction efficiency of 98% by weight for CO.
- 2.b** The requirements of this rule also include compliance with the requirements of OAC 3745-21-08(B).
- 2.c** The permittee shall operate and maintain a thermal incinerator with a minimum destruction efficiency of 98% by weight for VOC.
- 2.d** The requirements of this rule also include compliance with the requirements of OAC 3745-21-07(B) and OAC 3745-23-06(B).
- 2.e** The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
- 2.f** The requirements of this rule also include compliance with the requirements of OAC 3745-21-07(B), OAC 3745-21-08(B) and OAC 3745-23-06(B).
- 2.g** Fuel burning equipment with a rated heat input capacity equal to, or less than, 10 mmBtu per hour rated capacity is exempt from OAC rule 3745-18-06 requirements.

**B. Operational Restrictions**

1. The average combustion temperature within the thermal incinerator, for any 3-hour block of time when the emissions unit is in operation, shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance.
2. The permittee shall burn only natural gas in the thermal incinerator which is supplemented by the combustion of the carbon and desiccant bed regeneration emissions.

**C. Monitoring and/or Recordkeeping Requirements**

1. The permittee shall operate and maintain a continuous temperature monitor and recorder which measures and records the combustion temperature within the thermal incinerator when the emissions unit is in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitor and recorder shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.
2. The permittee shall collect and record the following information each day:
  - a. All 3-hour blocks of time during which the average combustion temperature within the thermal incinerator, when the emissions unit was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance.
  - b. A log of the downtime for the capture (collection) system, control device, and monitoring equipment, when the associated emissions unit was in operation.
3. For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in the thermal incinerator.

**D. Reporting Requirements**

1. The permittee shall submit deviation (excursion) reports which identify all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer does not comply with the temperature limitation specified above. Each report shall be submitted within 30 days after the deviation occurs.

Emissions Unit ID: **P001**

2. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in the thermal incinerator. Each report shall be submitted within 30 days after the deviation occurs.
3. The permittee shall submit annual reports that summarize the results of the monitoring and record keeping performed during the previous calendar year. Each report shall be submitted to the Toledo Division of Environmental Services by January 31 of each year.

#### **E. Testing Requirements**

1. Compliance with the emission limitation(s) of these terms and conditions shall be determined in accordance with the following method(s):
  - a. Emission Limitation:  
20% opacity as a six-minute average.  
  
Applicable Compliance Method:  
If requested by the director, the permittee shall demonstrate compliance with this emission limitation in accordance with the methods and procedures specified in OAC 3745-17-03(B)(1).
  - b. Emission Limitation Generated from the CO<sub>2</sub> Purification Train:  
0.22 pound of CO per hour.  
  
Applicable Compliance Method:  
If requested by the director, the permittee shall demonstrate compliance with this emission limitation in accordance with the methods and procedures specified in Method 10 of 40 CFR Part 60, Appendix A.
  - c. Emission Limitation Generated from the Carbon and Desiccant Bed Regeneration:  
0.04 pound of NO<sub>x</sub> per hour.  
  
Applicable Compliance Method:  
If requested by the director, the permittee shall demonstrate compliance with this emission limitation in accordance with the methods and procedures specified in Method 7 of 40 CFR Part 60, Appendix A.
  - d. Emission Limitation Generated from the Carbon and Desiccant Bed Regeneration:  
0.02 pound of SO<sub>2</sub> per hour.  
  
Applicable Compliance Method:

Compliance shall be demonstrated by the recordkeeping requirements in section C. If requested by the director, the permittee shall demonstrate compliance with this emission limitation in accordance with OAC rule 3745-18-04(E) and the methods and procedures specified in Method 6 of 40 CFR Part 60, Appendix A.

- e. Emission Limitation Generated from the Carbon and Desiccant Bed Regeneration:  
2.58 pounds per hour of VOC.

Applicable Compliance Method:

Compliance shall be demonstrated by the recordkeeping requirements in section C. If requested by the director, the permittee shall demonstrate compliance with this emission limitation in accordance with the methods and procedures specified in Method 18 or 25 of 40 CFR Part 60, Appendix A.

- f. Emission Limitation Generated from the Carbon and Desiccant Bed Regeneration:  
0.41 ton VOC per year.

Applicable Compliance Method:

Compliance shall be demonstrated by the recordkeeping requirements of section C. This emission limitation was developed by multiplying the uncontrolled potential to emit of 20 tons VOC per year by 0.02 (98% control efficiency). Therefore, provided compliance is shown with the 98% control efficiency, compliance is shown with the annual emission limitation.

- g. Emission Limitations Generated from the CO<sub>2</sub> Purification Train and the Carbon and Desiccant Bed Regeneration:  
0.93 ton CO per year, 0.14 ton NO<sub>x</sub> per year and 0.08 ton SO<sub>2</sub> per year.

Applicable Compliance Method:

These ton per year emission limitations were developed by multiplying the respective hourly emission rate(s) by 8760 hours/year to reflect the potential to emit for this emissions unit. Therefore, provided compliance is shown with the hourly limitation(s), compliance is also shown with the annual emission limitation(s) and it will not be necessary to develop separate record keeping and/or reporting requirements to ensure compliance with these ton per year limits.

- h. Emission Limitations Generated from the Burner of the Thermal Incinerator:  
0.18 pound CO per hour, 0.22 pound NO<sub>x</sub> per hour, 0.01 pound PE per hour, 0.01 pound SO<sub>2</sub> per hour, and 0.01 pound of VOC per hour.

Emissions Unit ID: **P001****Applicable Compliance Method:**

Compliance shall be based upon the maximum burner capacity of 2.2 mmBtu per hour and emission factors for natural gas combustion specified in USEPA reference document AP-42, Fifth Edition, Compilation of Air Pollution Emission Factors, dated 7/98 Section 1.4, Tables 1.4-1 and 1.4-2, as follows: 84 pounds of CO per mmscft, 100 pounds of NOx per mmscft, 1.9 pounds of PE per mmscft, 0.6 pound of SO2 per mmscft, 5.5 pounds VOC per mmscft and 1,020 Btu per scft of gas. If requested by the director, the permittee shall also demonstrate compliance with these emission limitation(s) in accordance with the methods and procedures specified in appropriate test method(s) of 40 CFR Part 60, Appendix A.

- i. **Emission Limitations Generated from the Burner of the Thermal Incinerator:**  
0.79 ton CO per year, 0.96 ton NOx per year, 0.02 ton PE per year, 0.01 pound SO2 per year, and 0.04 ton of VOC per year.

**Applicable Compliance Method:**

These ton per year emission limitations were developed by multiplying the respective hourly emission rate(s) by 8760 hours/year to reflect the potential to emit for this emissions unit. Therefore, provided compliance is shown with the hourly limitation(s), compliance is also shown with the annual emission limitation(s) and it will not be necessary to develop separate record keeping and/or reporting requirements to ensure compliance with these ton per year limits.

2. The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:
  - a. The emission testing shall be conducted within 90 days of achieving maximum production, but no later than 180 days after equipment startup.
  - b. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rates and the control efficiency limitations for CO and VOC.
  - c. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s): Methods 10 and 18 or 25 of 40 CFR Part 60, Appendix A. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.
  - d. The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) shall be determined in accordance with the test methods and procedures specified above. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration,

and on a consideration of the potential presence of interfering gases.

- e. The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the Toledo Division of Environmental Services.
- f. The tests shall be conducted while the control device is operating at its predicted maximum VOC loading and volumetric flow rates. This will require the simultaneous testing of both P001 and P002, with one carbon bed from each process undergoing regeneration during the period of the test. P001 and P002 will be considered to be in compliance with the CO and VOC emission limitations if the combined emissions from both units is equal to, or less than the summation of emission limitations for both units, e.g., the permittee shall demonstrate compliance with a combined emission limitation of 0.57 pound per hour CO, 4.6 pounds per hour VOC. These limitations include products of combustion and require a 98 % by weight control efficiency for both CO and VOC.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Toledo Division of Environmental Services. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA District Office's or local air agency's refusal to accept the results of the emission test(s).

Personnel from the Toledo Division of Environmental Services shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Toledo Division of Environmental Services within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Toledo Division of Environmental Services.

## **F. Miscellaneous Requirements**

1. The permit to install for this emissions unit P001 was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions"

Emissions Unit ID: **P001**

policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following summarizes the results of the modeling for the "worst case" pollutant(s):

Pollutant: ammonia

TLV (mg/m<sup>3</sup>): 17.7

Maximum Hourly Emission Rate (lbs/hr): 1.72

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 390MAGLC (ug/m<sup>3</sup>): 421

Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be still satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

- a. changes in the composition of the materials used (typically for coatings or cleanup materials), or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value previously modeled;
- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and
- c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/ decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required.

If the change(s) is (are) defined as a modification under other provisions of the modification definition (other than (VV)(1)(a)(ii)), then the permittee shall obtain a final permit to install prior to the change.

The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

**PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**

**A. Applicable Emissions Limitations and/or Control Requirements**

- 1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>		<u>Applicable Rules/Requirements</u>
P002 - 21,000 pounds of CO <sub>2</sub> per hour purification and liquification train with carbon and desiccant bed, ammonia refrigeration system, controlled by a thermal incinerator, Train #2.	2.2 mmBtu natural gas thermal incinerator combustion products	OAC rule 3745-31-05(A)(3)
CO <sub>2</sub> purification train		OAC 3745-21-08(B)
carbon and desiccant bed regeneration		OAC 3745-31-05(A)(3)
		OAC 3745-18-06(E)

	<u>Applicable Emissions Limitations/Control Measures</u>	
OAC 3745-21-07(B)		average,
OAC 3745-23-06(B)		0.79 ton of CO per year, 0.96 ton of NOx per year, 0.01 pound per hour of particulate emissions (PE), 0.02 ton of PE per year,
OAC 3745-31-05(A)(3)		0.01 pound of SO2 per hour, 0.01 ton of SO2 per year, 0.04 ton of VOC per year, and see 2.f.
	20 % opacity as a six-minute average, 0.71 ton of carbon monoxide (CO) per year, and see 2.a and 2.b.	See 2.g.  0.01 pound of VOC per hour.
OAC 3745-18-06(C)	0.17 pound of CO per hour.	0.18 pound of CO per hour.  0.22 pound of NOx per hour.
OAC 3745-21-07(B)		
OAC 3745-21-08(B)	20 % opacity as a six-minute average,	
OAC 3745-23-06(B)	0.11 ton of nitrogen oxides (NOx) per year, 0.02 pound of sulfur dioxide (SO2) per hour, 0.08 ton of SO2 per year, 0.32 ton of volatile organic compounds (VOC) per year, and see 2.c and 2.d.	
	Exempt, see 2.e.	
	1.98 pounds of VOC per hour,	
	0.03 pound of NOx per hour	
	20 % opacity as a six-minute	

**2. Additional Terms and Conditions**

- 2.a** The permittee shall operate and maintain a thermal incinerator with a minimum destruction efficiency of 98% by weight for CO.
- 2.b** The requirements of this rule also include compliance with the requirements of OAC 3745-21-08(B).
- 2.c** The permittee shall operate and maintain a thermal incinerator with a minimum destruction efficiency of 98% by weight for VOC.
- 2.d** The requirements of this rule also include compliance with the requirements of OAC 3745-21-07(B) and OAC 3745-23-06(B).
- 2.e** The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
- 2.f** The requirements of this rule also include compliance with the requirements of OAC 3745-21-07(B), OAC 3745-21-08(B) and OAC 3745-23-06(B).
- 2.g** Fuel burning equipment with a rated heat input capacity equal to, or less than, 10 mmBtu per hour rated capacity is exempt from OAC rule 3745-18-06 requirements.

**B. Operational Restrictions**

1. The average combustion temperature within the thermal incinerator, for any 3-hour block of time when the emissions unit is in operation, shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance.
2. The permittee shall burn only natural gas in the thermal incinerator which is supplemented by the combustion of the carbon and desiccant bed regeneration emissions.

**C. Monitoring and/or Recordkeeping Requirements**

3. The permittee shall operate and maintain a continuous temperature monitor and recorder which measures and records the combustion temperature within the thermal incinerator when the emissions unit is in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitor and recorder shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.
2. The permittee shall collect and record the following information each day:
  - a. All 3-hour blocks of time during which the average combustion temperature within the thermal incinerator, when the emissions unit was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance.
  - b. A log of the downtime for the capture (collection) system, control device, and monitoring equipment, when the associated emissions unit was in operation.
3. For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in the thermal incinerator.

**D. Reporting Requirements**

1. The permittee shall submit deviation (excursion) reports which identify all 3-hour blocks of time during which the average combustion temperature within the thermal oxidizer does not comply with the temperature limitation specified above. Each report shall be submitted within 30 days after the deviation occurs.

Emissions Unit ID: **P002**

2. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in the thermal incinerator. Each report shall be submitted within 30 days after the deviation occurs.
3. The permittee shall submit annual reports that summarize the results of the monitoring and record keeping performed during the previous calendar year. Each report shall be submitted to the Toledo Division of Environmental Services by January 31 of each year.

#### **E. Testing Requirements**

1. Compliance with the emission limitation(s) of these terms and conditions shall be determined in accordance with the following method(s):
  - a. Emission Limitation:  
20% opacity as a six-minute average.  
  
Applicable Compliance Method:  
If requested by the director, the permittee shall demonstrate compliance with this emission limitation in accordance with the methods and procedures specified in OAC 3745-17-03(B)(1).
  - b. Emission Limitation Generated from the CO<sub>2</sub> Purification Train:  
0.17 pound of CO per hour.  
  
Applicable Compliance Method:  
If requested by the director, the permittee shall demonstrate compliance with this emission limitation in accordance with the methods and procedures specified in Method 10 of 40 CFR Part 60, Appendix A.
  - c. Emission Limitation Generated from the CO<sub>2</sub> Purification Train and the Carbon and Desiccant Bed Regeneration:  
0.03 pound of NO<sub>x</sub> per hour.  
  
Applicable Compliance Method:  
If requested by the director, the permittee shall demonstrate compliance with this emission limitation in accordance with the methods and procedures specified in Method 7 of 40 CFR Part 60, Appendix A.
  - d. Emission Limitation Generated from the CO<sub>2</sub> Purification Train and the Carbon and Desiccant Bed Regeneration:  
0.02 pound of SO<sub>2</sub> per hour.

**Applicable Compliance Method:**

If requested by the director, the permittee shall demonstrate compliance with this emission limitation in accordance with OAC rule 3745-18-04(E) and the methods and procedures specified in Method 6 of 40 CFR Part 60, Appendix A.

- e. Emission Limitation Generated from the Carbon and Desiccant Bed Regeneration:  
1.98 pounds per hour of VOC.

**Applicable Compliance Method:**

If requested by the director, the permittee shall demonstrate compliance with this emission limitation in accordance with the methods and procedures specified in Method 25 of 40 CFR Part 60, Appendix A.

- f. Emission Limitation Generated from the Carbon and Desiccant Bed Regeneration:  
0.32 ton VOC per year.

**Applicable Compliance Method:**

Compliance shall be demonstrated by the recordkeeping requirements of section C. This emission limitation was developed by multiplying the uncontrolled potential to emit of 15 tons VOC per year by 0.02 (98% control efficiency). Therefore, provided compliance is shown with the 98% control efficiency, compliance is shown with the annual emission limitation.

- g. Emission Limitation Generated from the CO<sub>2</sub> Purification Train and the Carbon and Desiccant Bed Regeneration:  
0.71 ton CO per year, 0.11 ton NO<sub>x</sub> per year and 0.08 ton SO<sub>2</sub> per year

**Applicable Compliance Method:**

These ton per year emission limitations were developed by multiplying the respective hourly emission rate(s) by 8760 hours/year to reflect the potential to emit for this emissions unit. Therefore, provided compliance is shown with the hourly limitation(s), compliance is also shown with the annual emission limitation(s) and it will not be necessary to develop separate record keeping and/or reporting requirements to ensure compliance with these ton per year limits.

- h. Emission Limitations Generated from the Thermal Incinerator:  
0.18 pound CO per hour, 0.22 pound NO<sub>x</sub> per hour, 0.01 pound PE per hour, 0.01 pound SO<sub>2</sub> per hour, and 0.01 pound of VOC per hour.

Emissions Unit ID: **P002****Applicable Compliance Method:**

Compliance shall be based upon the maximum burner capacity of 2.2 mmBtu per hour and emission factors for natural gas combustion specified in USEPA reference document AP-42, Fifth Edition, Compilation of Air Pollution Emission Factors, dated 7/98 Section 1.4, Tables 1.4-1 and 1.4-2, as follows: 84 pounds of CO per mmscft, 100 pounds of NOx per mmscft, 1.9 pounds of PE per mmscft, 0.6 pound of SO2 per mmscft, 5.5 pounds VOC per mmscft and 1,020 Btu per scft of gas. If requested by the director, the permittee shall also demonstrate compliance with these emission limitation(s) in accordance with the methods and procedures specified in appropriate test method(s) of 40 CFR Part 60, Appendix A.

- i. **Emission Limitations Generated from the Thermal Incinerator:**  
0.79 ton CO per year, 0.96 ton NOx per year, 0.02 ton PE per year, 0.01 pound SO2 per year, and 0.04 ton of VOC per year.

**Applicable Compliance Method:**

These ton per year emission limitations were developed by multiplying the respective hourly emission rate(s) by 8760 hours/year to reflect the potential to emit for this emissions unit. Therefore, provided compliance is shown with the hourly limitation(s), compliance is also shown with the annual emission limitation(s) and it will not be necessary to develop separate record keeping and/or reporting requirements to ensure compliance with these ton per year limits.

2. The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:
  - a. The emission testing shall be conducted within 90 days of achieving maximum production, but no later than 180 days after equipment startup.
  - b. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rates and the control efficiency limitations for CO and VOC.
  - c. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s): Methods 10 and 18 or 25 of 40 CFR Part 60, Appendix A. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.
  - d. The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) shall be determined in accordance with the test methods and procedures specified above. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration,

and on a consideration of the potential presence of interfering gases.

- e. The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the Toledo Division of Environmental Services.
- f. The tests shall be conducted while the control device is operating at its predicted maximum VOC loading and volumetric flow rates. This will require the simultaneous testing of both P001 and P002, with one carbon bed from each process undergoing regeneration during the period of the test. P001 and P002 will be considered to be in compliance with the CO and VOC emission limitations if the combined emissions from both units is equal to, or less than the summation of emission limitations for both units, e.g., the permittee shall demonstrate compliance with a combined emission limitation of 0.57 pound per hour CO, 4.6 pounds per hour VOC. These limitations include products of combustion and require a 98 % by weight control efficiency for both CO and VOC.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Toledo Division of Environmental Services. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA District Office's or local air agency's refusal to accept the results of the emission test(s).

Personnel from the Toledo Division of Environmental Services shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Toledo Division of Environmental Services within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Toledo Division of Environmental Services.

## **F. Miscellaneous Requirements**

1. The permit to install for this emissions unit P001 was evaluated based on the actual materials and the design parameters of the emissions unit's exhaust system, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions"

Emissions Unit ID: **P002**

policy ("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following summarizes the results of the modeling for the "worst case" pollutant(s):

Pollutant: ammonia

TLV (mg/m<sup>3</sup>): 17.7

Maximum Hourly Emission Rate (lbs/hr): 0.04

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 17MAGLC (ug/m<sup>3</sup>): 421

Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

- a. changes in the composition of the materials used (typically for coatings or cleanup materials), or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value previously modeled;
- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and
- c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/ decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required.

If the change(s) is (are) defined as a modification under other provisions of the modification definition (other than (VV)(1)(a)(ii)), then the permittee shall obtain a final permit to install prior to the change.

The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

**NEW SOURCE REVIEW FORM B**

PTI Number: 04-01258 Facility ID: 0448020069

FACILITY NAME Air Liquide America Corp.

FACILITY DESCRIPTION modification of the existing and CITY/TWP Oregon

Emissions Unit ID: P002

SIC CODE 2813 SCC CODE 30107099 EMISSIONS UNIT ID P001

EMISSIONS UNIT DESCRIPTION Carbon dioxide purification and liquification train with carbon bed, ammonia refrigeration system, and thermal oxidizer

DATE INSTALLED on issuance of PTI

EMISSIONS: (Click on bubble help for Air Quality Descriptions)

Pollutants	Air Quality Description	Actual Emissions Rate		PTI Allowable	
		Short Term Rate	Tons Per Year	Short Term Rate	Tons Per Year
Particulate Matter	unclassified	0.01	0.02	0.01	0.02
PM <sub>10</sub>					
Sulfur Dioxide	nonattainment	0.03	0.09	0.03	0.09
Organic Compounds	attainment	2.59	0.46	2.59	0.46
Nitrogen Oxides	attainment	0.26	1.1	0.26	1.1
Carbon Monoxide	attainment	0.40	1.7	0.40	1.7
Lead					
Other: Air Toxics					

APPLICABLE FEDERAL RULES:

NSPS? NESHAP? PSD? OFFSET POLICY?

**WHAT IS THE BAT DETERMINATION, AND WHAT IS THE BASIS FOR THE DETERMINATION?**

BAT will be set at 98% control by weight for the CO and VOC by thermal incineration. Natural gas combustion with AP-42 emission factors for the incinerator and a 20% opacity will also be set as BAT based on engineering judgement

IS THIS SOURCE SUBJECT TO THE AIR TOXICS POLICY? yes

OPTIONAL: WHAT IS THE CAPITAL COST OF CONTROL EQUIPMENT? \$

**TOXIC AIR CONTAMINANTS**

Ohio EPA's air toxics policy applies to containinants for which the American Conference of Governmental Industrial Hygienists (ACGIH) has a listed threshold limit value.

AIR TOXICS MODELING PERFORMED\*? X YES NO

IDENTIFY THE AIR CONTAMINANTS: ammonia

**NEW SOURCE REVIEW FORM B**

PTI Number: 04-01258 Facility ID: 0448020069

FACILITY NAME Air Liquide America Corp.

FACILITY DESCRIPTION modification of the existing and CITY/TWP Oregon

Emissions Unit ID: **P002**

SIC CODE 2813 SCC CODE 30107099 EMISSIONS UNIT ID P002

EMISSIONS UNIT DESCRIPTION Carbon dioxide purification and liquification train with carbon bed, stripper, ammonia refrigeration system, and thermal oxidizer

DATE INSTALLED on issuance of permit

EMISSIONS: (Click on bubble help for Air Quality Descriptions)

Pollutants	Air Quality Description	Actual Emissions Rate		PTI Allowable	
		Short Term Rate	Tons Per Year	Short Term Rate	Tons Per Year
Particulate Matter	unclassified	0.01	0.02	0.01	0.02
PM <sub>10</sub>					
Sulfur Dioxide	nonattainment	0.03	0.09	0.03	0.09
Organic Compounds	attainment	2.0	0.37	2.0	0.37
Nitrogen Oxides	attainment	0.25	1.1	0.25	1.1
Carbon Monoxide	attainment	0.35	1.5	0.35	1.5
Lead					
Other: Air Toxics					

APPLICABLE FEDERAL RULES:

NSPS? NESHAP? PSD? OFFSET POLICY?

**WHAT IS THE BAT DETERMINATION, AND WHAT IS THE BASIS FOR THE DETERMINATION?**

BAT will be set at 98% control by weight for the CO and VOC by thermal incineration. Natural gas combustion with AP-42 emission factors for the incinerator and a 20% opacity will also be set as BAT based on engineering judgement.

IS THIS SOURCE SUBJECT TO THE AIR TOXICS POLICY? no  
 OPTIONAL: WHAT IS THE CAPITAL COST OF CONTROL EQUIPMENT? \$ \_\_\_\_\_

**TOXIC AIR CONTAMINANTS**

Ohio EPA's air toxics policy applies to containinants for which the American Conference of Governmental Industrial Hygienists (ACGIH) has a listed threshold limit value.

AIR TOXICS MODELING PERFORMED\*? X YES        NO

IDENTIFY THE AIR CONTAMINANTS: ammonia