

TENNESSEE AIR POLLUTION CONTROL BOARD
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
NASHVILLE, TENNESSEE 37243-1531



Permit to Construct or Modify an Air Contaminant Source Issued Pursuant to Tennessee Air Quality Act

Date Issued: May 31, 2012

Permit Number:

965288P

Date Expires: November 1, 2013

Issued To:

Linde Gas North America, LLC

Installation Address:

553 McBryant Road N.W.
Charleston

Installation Description:

Hydrogen Production Facility

01: Reformer No. 1 (111101)

02: Reformer No. 2 (121101)

Emission Source Reference No.

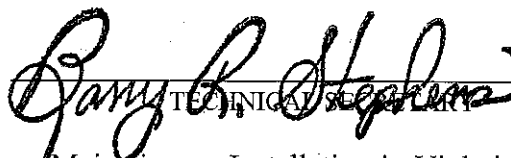
06-0284

The holder of this permit shall comply with the conditions contained in this permit as well as all applicable provisions of the Tennessee Air Pollution Control Regulations.

CONDITIONS:

- G1. The application that was utilized in the preparation of this permit are dated January 16, 2012, and signed by Brian J. Thiese, Head of SHEQ Operations, for the permitted facility. If this person terminates his/her employment or is assigned different duties such that he/she is no longer the responsible person to represent and bind the facility in environmental permitting affairs, the owner or operator of this air contaminant source shall notify the Technical Secretary of the change. Said notification shall be in writing and submitted within thirty (30) days of the change. The notification shall include the name and title of the new person assigned by the source owner or operator to represent and bind the facility in environmental permitting affairs. All representations, agreement to terms and conditions and covenants made by the former responsible person that were used in the establishment of limiting permit conditions on this permit will continue to be binding on the facility until such time that a revision to this permit is obtained that would change said representations, agreements and covenants.

(Conditions continued on next page)


TECHNICAL SECRETARY

No Authority is Granted by this Permit to Operate, Construct, or Maintain any Installation in Violation of any Law, Statute, Code, Ordinance, Rule, or Regulation of the State of Tennessee or any of its Political Subdivisions.

NON-TRANSFERABLE

POST AT INSTALLATION ADDRESS

SECTION I: GENERAL CONDITIONS. The following conditions shall apply to all sections of this permit unless otherwise noted.

- G2. The following table is a summary of allowable emissions at this facility.

TABLE 1: FACILITY-WIDE ALLOWABLE EMISSIONS PER CONSECUTIVE 12- MONTH PERIOD

Pollutant	Summary of Allowable Tons per Consecutive 12-month Period
Particulate matter (PM)	2.62
Carbon Monoxide (CO)	8.8
Nitrogen Oxide (NO _x)	9.9
Volatile Organic Compounds (VOC)	4.0

- G3. This permit includes all of the following sources at this facility, listed in Table 2. These two units are separate point emission sources as defined at TAPCR 1200-03-02-.01(22).

TABLE 2: PERMITTED SOURCES AT FACILITY 06-0284

Source	Description	Control(s)
01	First Reformer, 111101	Uncontrolled
02	Second Reformer, 121101	Uncontrolled

- G4. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for one (1) six-minute period in any one (1) hour period, and for no more than four (4) six-minute periods in any twenty-four (24) hour period. Visible emissions from this source shall be determined by EPA Method 9, as published in the current 40 CFR 60, Appendix A (six-minute average) pursuant to TAPCR 1200-03-05-.01(1) and 1200-03-05-.03(6).
- G5. The permittee shall certify the start-up date of each of these new air contaminant sources regulated by this permit by submitting **A COPY OF ALL PAGES OF THIS PERMIT** and the following information for each source to the Technical Secretary's representatives listed below:

DATE OF START-UP: ____/____/____
month day year

For the purpose of complying with this condition, "start-up" of this new air contaminant source shall be the date of the setting in operation of the source for the production of product for sale or use as raw materials or steam or heat production.

The undersigned represents that he/she has the full authority to represent and bind the permittee in environmental permitting affairs. The undersigned further represents that the above provided information is true to the best of his/her knowledge and belief.

Signature		Date
Signer's name (type or print)	Title	Phone (with area code)

Note: This certification is not an application for an operating permit. At a minimum, the appropriate application form(s) must be submitted requesting an operating permit. The application must be submitted in accordance with the requirements of this permit. The completed certification shall be delivered to the Middle TN Permit Program at the address listed below, no later than thirty (30) days after start-up of the new air contaminant source.

Department of Environment and Conservation
Division of Air Pollution Control
Middle Tennessee Permit Program
9th Floor, L & C Annex
401 Church Street
Nashville, TN 37243-1531

Chattanooga Environmental Field Office
Division of Air Pollution Control
Suite 550 – State Office Building
540 McCallie Avenue
Chattanooga, TN 37402

- G8.** The permittee shall comply with the requirements of 40 CFR Part 98, Mandatory Greenhouse Gas Reporting, including Subpart A—General Provisions and Subpart P—Hydrogen Production.
- G9.** Emissions from this entire facility are combined with emissions from Wacker Polysilicon North America, LLC (Ref. No. 06-0282-00), for purposes of determining applicability of major source status regarding PSD and Title V permitting.
- G10.** This permit shall serve as a temporary operating permit for the entire facility from the issued date to the receipt of a standard operating permit, regardless of the expiration date, provided that the operating permit is applied for within 30 days from the start up of this source, and the conditions of this permit and any applicable emission standards are met.
- G11.** The issuance of this construction permit does not exempt the permittee from any requirements of the Environmental Protection Agency and/or other federal or state agencies pertaining to the emissions from the operation of this source.

SECTION II: SOURCE-SPECIFIC CONDITIONS

06-0284-01: One (1) Natural Gas-fired Hydrogen Reformer No. 1 (111101)

Conditions S1-1 through S1-6 apply to this source and are located in Table 3.

06-0284-02: One (1) Natural Gas-fired Hydrogen Reformer No. 2 (121101)

Conditions S2-1 through S2-6 apply to this source and are located in Table 4.

Table 3: Hydrogen Plant Reformer No. 1 (06-0284-01)
Emission Source Specific Operating Permit Conditions
Conditions S1-1 through S1-7 Apply to Source 06-0284-01

1. LINDE SOURCE NUMBER	2. EMISSION SOURCE DESCRIPTION	3. EMISSION SOURCE REFERENCE NUMBER	4. PERMIT NUMBER	5. ID	6. PORTION OF SOURCE SUBJECT TO REQUIREMENT	7. POLLUTANT	8. UNDERLYING APPLICABLE REQUIREMENT(S)	9. LIMITATION OR STANDARD	10. REFERENCE TEST METHOD (if testing required)	11. PERIODIC MONITORING METHOD(S)
111101	Hydrogen Plant Reformer No. 1	06-0284-01	965288P							
FEDERALLY AND STATE ENFORCEABLE CONDITIONS										
S1-1	Entire Source	N/A	1200-03-09:					For this reformer, the Natural Gas input as Feed shall not exceed 34,274 dry standard cubic feet per hour. The maximum combustion heat input for this source shall not exceed 25.09 MMBtu/hr (LHV). The combustion gas may consist of natural gas and vent gas.	Engineering Assessment	Parametric Monitoring: Calculate 24-hour block average based on the total Natural Gas Feed Rate and the Natural Gas as fuel.
S1-2	Entire Source	Particulates	1200-03-07-.01(5)					Particulate emissions from this source shall not exceed 0.3 pounds per hour and 1.31 tons per year. This limit is established based upon information contained in the agreement letter dated May 17, 2012, from the permittee.	EPA Method 5	Monitoring required by ID Limitation S1-1 will assure compliance with this Limit.
S1-3	Entire Source	CO	1200-03-07-.07(2)					4.29 tons per each consecutive 12-month period	Lb/hr - EPA Method 10 Tons/year - Engineering Assessment	Monitoring required by ID Limitation S1-1 will assure compliance with this Limit.
S1-4	Entire Source	VOC	1200-03-07-.07(2)					1.97 tons per each consecutive 12-month period	Lb/hr - EPA Method 18 Tons/year - Engineering Assessment	Monitoring required by ID Limitation S1-1 will assure compliance with this limit.
S1-5	Entire Source	NO _x	1200-03-07-.07(2)					1.13 lb/hr and 4.95 tons per each consecutive 12-month period	Lb/hr - EPA Method 7, 7A, 7B, 7C, 7D, or 7E Tons/year - Engineering Assessment	Monitoring required by ID Limitation S1-1 will assure compliance with this limit.
S1-6	Entire Source	N/A	1200-03-07-.07(2)					Only natural gas, hydrogen, carbon monoxide, and volatile organic compounds shall be used as fuels for this source.	Engineering Assessment	Monitoring required by ID Limitation No. S1-1 will assure compliance with this limit.

Table 4: Hydrogen Plant Reformer No. 2 (06-0284-02)
Emission Source Specific Operating Permit Conditions*
Conditions S2-1 through S2-7 Apply to Source 06-0284-02

1. LINE SOURCE NUMBER	2. EMISSION SOURCE DESCRIPTION	3. EMISSION SOURCE REFERENCE NUMBER	4. PERMIT NUMBER	5. ID	6. PORTION OF SOURCE SUBJECT TO REQUIREMENT	7. POLLUTANT	8. UNDERLYING APPLICABLE REQUIREMENT(S)	9. LIMITATION OR STANDARD	10. REFERENCE TEST METHOD (if testing required)	11. PERIODIC MONITORING METHOD(S)
121101	Hydrogen Plant Reformer No. 2	06-0284-02	965288P							
FEDERALLY AND STATE ENFORCEABLE CONDITIONS										
S2-1	Entire Source	N/A	1200-03-09:					For this reformer, the Natural Gas input as Feed shall not exceed 34,274 dry standard cubic feet per hour. The maximum combustion heat input for this source shall not exceed 25.09 MMBtu/hr (LHV). The combustion gas may consist of natural gas and vent gas.	Engineering Assessment	Parametric Monitoring: Calculate 24-hour block average based on the total Natural Gas Feed Rate and the Natural Gas as fuel.
S2-2	Entire Source	Particulates	1200-03-07-01(5)					Particulate emissions from this source shall not exceed 0.3 pounds per hour and 1.31 tons per year. This limit is established based upon information contained in the agreement letter dated May 17, 2012, from the permittee.	EPA Method 5	Monitoring required by ID Limitation S2-1 will assure compliance with this limit.
S2-3	Entire Source	CO	1200-03-06-03(2)					4.29 tons per each consecutive 12-month period	Lb/hr - EPA Method 10 Tons/year - Engineering Assessment	Monitoring required by ID Limitation S2-1 will assure compliance with this limit.
S2-4	Entire Source	VOC	1200-03-06-03(2)					1.97 tons per each consecutive 12-month period	Lb/hr - EPA Method 18 Tons/year - Engineering Assessment	Monitoring required by ID Limitation S2-1 will assure compliance with this limit.
S2-5	Entire Source	NO _x	1200-03-06-03(2)					1.13 lb/hr and 4.95 tons per each consecutive 12-month period	Lb/hr - EPA Method 7, 7A, 7B, 7C, 7D, or 7E Tons/year - Engineering Assessment	Monitoring required by ID Limitation S2-1 will assure compliance with this limit.
S2-6	Entire Source	N/A	1200-03-06-03(2)					Only natural gas, hydrogen, carbon monoxide, and volatile organic compounds shall be used as fuels for this source.	Engineering Assessment	Monitoring required by ID Limitation No. S2-1 will assure compliance with this limit.

(End of Permit Conditions)

The permit application gives the location of this source as 700220.7 UTM Vertical, 3907683 UTM Horizontal.