



Mitchell E. Daniels, Jr.  
Governor

Thomas W. Easterly  
Commissioner

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TO: Interested Parties / Applicant  
DATE: August 8, 2007  
RE: Noble Energy Production / 153-24948-00037  
FROM: Nisha Sizemore  
Chief, Permits Branch  
Office of Air Quality

### Notice of Decision: Approval - Registration

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to IC 4-21.5-3-4(d) this order is effective when it is served. When served by U.S. mail, the order is effective three (3) calendar days from the mailing of this notice pursuant to IC 4-21.5-3-2(e).

If you wish to challenge this decision, IC 4-21.5-3-7 requires that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, 100 North Senate Avenue, Government Center North, Room 1049, Indianapolis, IN 46204, **within eighteen (18) calendar days of the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

- (1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
- (2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
- (3) The date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

- (1) the name and address of the person making the request;
- (2) the interest of the person making the request;
- (3) identification of any persons represented by the person making the request;
- (4) the reasons, with particularity, for the request;
- (5) the issues, with particularity, proposed for considerations at any hearing; and
- (6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

Enclosures  
FN-REGIS.dot 03/23/06



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

*We make Indiana a cleaner, healthier place to live.*

Mitchell E. Daniels, Jr.  
Governor

Thomas W. Easterly  
Commissioner

100 North Senate Avenue  
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www.IN.gov/idem

Mr. Mike Putney  
Noble Energy, Inc.  
1625 Broadway, Suite 2000  
Denver, Colorado 80202

August 7, 2007

Re: Registered Construction and Operation Status,  
153-24948-00037

Dear Mr. Putney:

The application from Noble Energy, Inc., received on June 19, 2007 has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-5.5, IDEM has determined that the following emission units at the natural gas conditioning and compression station, located at SE SW Sec 34, T7N R9W, Sullivan County, Indiana is classified as registered:

- (a) One (1) natural gas-fired compressor engine, identified as ENG1, approved for construction in 2007, with a maximum power output of 1,340 hp and a maximum heat input capacity of 10.11 million British thermal units (MMBtu) per hour, and exhausting to stack ENG1.
- (b) One (1) natural gas-fired amine unit reboiler, identified as AMREB, approved for construction in 2007, with a maximum heat input capacity of 9 MMBtu/hr, and exhausting to stack AMREB.
- (c) One (1) natural gas-fired dehydration unit reboiler, identified as DHREB, approved for construction in 2007, with a maximum heat input capacity of 0.6 MMBtu/hr, and exhausting to stack DHREB.
- (d) One (1) amine process, identified as AMINE, approved for construction in 2007, with a maximum capacity of 16 million standard cubic feet per day (MMscfd), and exhausting to vent AMINE.
- (e) One (1) triethylene glycol (TEG) dehydration process, identified as DEHY, approved for construction in 2007, with a maximum capacity of 16 million standard cubic feet per day (MMscfd), and exhausting to vent DEHY.
- (f) One (1) condensate/oil storage tank, identified as TK1, approved for construction in 2007, with a maximum capacity of 8,400 gallons.
- (g) One (1) truck loading operation for condensate/oil, identified as TL1, approved for construction in 2007, with a maximum throughput rate of 436,800 gallons per year.

The following conditions shall be applicable:

1. Pursuant to 326 IAC 5-1-2 (Opacity Limitations) except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following:

- (a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
  - (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.
2. Pursuant to 326 IAC 6-2-4(a)(PM Emissions for Sources of Indirect Heating), PM emissions from each of the boilers AMREB and DHREB shall not exceed 0.6 lbs/MMBtu.
3. Pursuant to 326 IAC 2-1.1-11 (General Provisions; Compliance Requirements):
  - (a) Within 60 days after achieving maximum rate, but no more than 180 days after startup, the Permittee shall perform NO<sub>x</sub> testing for natural gas fired compressor engine ENG1 to verify the NO<sub>x</sub> emission factor of 1.5 g/hp-hr, utilizing methods as approved by the Commissioner.
  - (b) All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures) utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.

A test protocol shall be submitted to:

Indiana Department of Environmental Management  
Compliance Data Section, Office of Air Quality  
100 North Senate Avenue  
MC 61-53 IGCN 1003  
Indianapolis, Indiana 46204-2251

no later than thirty-five (35) days prior to the intended test date. The protocol does not require certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
  - (c) Noble Energy, Inc. shall notify IDEM, OAQ of the actual test date at least fourteen (14) days prior to the actual test date. This notification submitted does not require certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
  - (d) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ not later than forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ if Noble Energy, Inc. submits to IDEM, OAQ, a reasonable written explanation not later than five (5) days prior to the end of the initial forty-five (45) day period.
4. Pursuant to 40 CFR 60, Subpart LLL, Noble Energy, Inc. shall comply with the provisions of 40 CFR 60 Subpart A - General Provisions, which are incorporated by reference as 326 IAC 12, for the amine process operation in accordance with the schedule in 40 CFR 60, Subpart A.
5. Pursuant to CFR Part 60, Subpart LLL, the Permittee shall comply with the provisions of 40 CFR Part 60, Subpart LLL for the amine process (AMINE), which are incorporated by reference as 326 IAC 12 and specified below:

**Subpart LLL—Standards of Performance for Onshore Natural Gas Processing: SO<sub>2</sub>Emissions**

**Source:** 50 FR 40160, Oct. 1, 1985, unless otherwise noted.

**§ 60.640 Applicability and designation of affected facilities.**

- (a) The provisions of this subpart are applicable to the following affected facilities that process natural gas: each sweetening unit, and each sweetening unit followed by a sulfur recovery unit.
- (b) Facilities that have a design capacity less than 2 long tons per day (LT/D) of hydrogen sulfide (H<sub>2</sub>S) in the acid gas (expressed as sulfur) are required to comply with §60.647(c) but are not required to comply with §§60.642 through 60.646.
- (c) The provisions of this subpart are applicable to facilities located on land and include facilities located onshore which process natural gas produced from either onshore or offshore wells.
- (d) The provisions of this subpart apply to each affected facility identified in paragraph (a) of this section which commences construction or modification after January 20, 1984.

### § 60.641 Definitions.

All terms used in this subpart not defined below are given the meaning in the Act and in subpart A of this part.

*Acid gas* means a gas stream of hydrogen sulfide (H<sub>2</sub>S) and carbon dioxide (CO<sub>2</sub>) that has been separated from sour natural gas by a sweetening unit.

*Natural gas* means a naturally occurring mixture of hydrocarbon and nonhydrocarbon gases found in geologic formations beneath the earth's surface. The principal hydrocarbon constituent is methane.

*Onshore* means all facilities except those that are located in the territorial seas or on the outercontinental shelf.

*Reduced sulfur compounds* means H<sub>2</sub>S, carbonyl sulfide (COS), and carbon disulfide (CS<sub>2</sub>).

*Sulfur production rate* means the rate of liquid sulfur accumulation from the sulfur recovery unit.

*Sulfur recovery unit* means a process device that recovers element sulfur from acid gas.

*Sweetening unit* means a process device that separates the H<sub>2</sub>S and CO<sub>2</sub> contents from the sour natural gas stream.

*Total SO<sub>2</sub> equivalents* means the sum of volumetric or mass concentrations of the sulfur compounds obtained by adding the quantity existing as SO<sub>2</sub> to the quantity of SO<sub>2</sub> that would be obtained if all reduced sulfur compounds were converted to SO<sub>2</sub> (ppmv or kg/dscm (lb/dscf)).

E The sulfur emission rate expressed as elemental sulfur, kilograms per hour (kg/hr) [pounds per hour (lb/hr)], rounded to one decimal place.

R The sulfur emission reduction efficiency achieved in percent, carried to one decimal place.

S The sulfur production rate, kilograms per hour (kg/hr) [pounds per hour (lb/hr)], rounded to one decimal place.

X The sulfur feed rate from the sweetening unit (i.e., the H<sub>2</sub>S in the acid gas), expressed as sulfur, Mg/D(LT/D), rounded to one decimal place.

Y The sulfur content of the acid gas from the sweetening unit, expressed as mole percent H<sub>2</sub>S (dry basis) rounded to one decimal place.

Z The minimum required sulfur dioxide (SO<sub>2</sub>) emission reduction efficiency, expressed as percent carried to one decimal place. Z<sub>i</sub> refers to the reduction efficiency required at the initial performance test. Z<sub>c</sub> refers to the reduction efficiency required on a continuous basis after compliance with Z<sub>i</sub> has been demonstrated.

[50 FR 40160, Oct. 1, 1985, as amended at 65 FR 61773, Oct. 17, 2000]

### § 60.647 Recordkeeping and reporting requirements.

- (c) To certify that a facility is exempt from the control requirements of these standards, each owner or operator of a facility with a design capacity less than 2 LT/D of H<sub>2</sub>S in the acid gas (expressed as sulfur) shall keep, for the life of the facility, an analysis demonstrating that the facility's design capacity is less than 2 LT/D of H<sub>2</sub>S expressed as sulfur.

6. Pursuant to CFR Part 63, Subpart HH, the Permittee shall comply with the provisions of 40 CFR Part 63, Subpart HH for the TEG dehydration process (DEHY), which are incorporated by reference as 326 IAC 20-30 and specified below:

### **Subpart HH—National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities**

**Source:** 64 FR 32628, June 17, 1999, unless otherwise noted.

#### **§ 63.760 Applicability and designation of affected source.**

(a) This subpart applies to the owners and operators of the emission points, specified in paragraph (b) of this section that are located at oil and natural gas production facilities that meet the specified criteria in paragraphs (a)(1) and either (a)(2) or (a)(3) of this section.

(1) Facilities that are major or area sources of hazardous air pollutants (HAP) as defined in §63.761. Emissions for major source determination purposes can be estimated using the maximum natural gas or hydrocarbon liquid throughput, as appropriate, calculated in paragraphs (a)(1)(i) through (iii) of this section. As an alternative to calculating the maximum natural gas or hydrocarbon liquid throughput, the owner or operator of a new or existing source may use the facility's design maximum natural gas or hydrocarbon liquid throughput to estimate the maximum potential emissions. Other means to determine the facility's major source status are allowed, provided the information is documented and recorded to the Administrator's satisfaction. A facility that is determined to be an area source, but subsequently increases its emissions or its potential to emit above the major source levels (without first obtaining and complying with other limitations that keep its potential to emit HAP below major source levels), and becomes a major source, must comply thereafter with all provisions of this subpart applicable to a major source starting on the applicable compliance date specified in paragraph (f) of this section. Nothing in this paragraph is intended to preclude a source from limiting its potential to emit through other appropriate mechanisms that may be available through the permitting authority.

(3) Facilities that process, upgrade, or store natural gas prior to the point at which natural gas enters the natural gas transmission and storage source category or is delivered to a final end user. For the purposes of this subpart, natural gas enters the natural gas transmission and storage source category after the natural gas processing plant, when present. If no natural gas processing plant is present, natural gas enters the natural gas transmission and storage source category after the point of custody transfer.

(b) The affected sources for major sources are listed in paragraph (b)(1) of this section and for area sources in paragraph (b)(2) of this section.

(2) For area sources, the affected source includes each triethylene glycol (TEG) dehydration unit located at a facility that meets the criteria specified in paragraph (a) of this section.

(f) The owner or operator of an affected major source shall achieve compliance with the provisions of this subpart by the dates specified in paragraphs (f)(1) and (f)(2) of this section. The owner or operator of an affected area source shall achieve compliance with the provisions of this subpart by the dates specified in paragraphs (f)(3) through (f)(6) of this section.

(6) The owner or operator of an affected area source that is not located in an Urban-1 county, as defined in §63.761, the construction or reconstruction of which commences on or after July 8, 2005, shall achieve compliance with the provisions of this subpart immediately upon initial startup or January 3, 2007, whichever date is later.

(h) An owner or operator of an affected source that is a major source or is located at a major source and is subject to the provisions of this subpart is also subject to 40 CFR part 70 or part 71 operating permit requirements. Unless otherwise required by law, the owner or operator of an area source subject to the provisions of this subpart is exempt from the permitting requirements established by 40 CFR part 70 or 40 CFR part 71.

[64 FR 32628, June 17, 1999, as amended at 66 FR 34550, June 29, 2001; 72 FR 36, Jan. 3, 2007]

#### **§ 63.761 Definitions.**

All terms used in this subpart shall have the meaning given them in the Clean Air Act (Act), subpart A of this part (General Provisions), and in this section. If the same term is defined in subpart A and in this section, it shall have the meaning given in this section for purposes of this subpart.

*Alaskan North Slope* means the approximately 180,000 square kilometer area (69,000 square mile area) extending

from the Brooks Range to the Arctic Ocean.

*Ancillary equipment* means any of the following pieces of equipment: pumps, pressure relief devices, sampling connection systems, open-ended valves, or lines, valves, flanges, or other connectors.

*API gravity* means the weight per unit volume of hydrocarbon liquids as measured by a system recommended by the American Petroleum Institute (API) and is expressed in degrees.

*Associated equipment*, as used in this subpart and as referred to in section 112(n)(4) of the Act, means equipment associated with an oil or natural gas exploration or production well, and includes all equipment from the wellbore to the point of custody transfer, except glycol dehydration units and storage vessels with the potential for flash emissions.

*Black oil* means hydrocarbon (petroleum) liquid with an initial producing gas-to-oil ratio (GOR) less than 0.31 cubic meters per liter and an API gravity less than 40 degrees.

*Boiler* means an enclosed device using controlled flame combustion and having the primary purpose of recovering and exporting thermal energy in the form of steam or hot water. Boiler also means any industrial furnace as defined in 40 CFR 260.10.

*Closed-vent system* means a system that is not open to the atmosphere and is composed of piping, ductwork, connections, and if necessary, flow inducing devices that transport gas or vapor from an emission point to one or more control devices. If gas or vapor from regulated equipment is routed to a process (e.g., to a fuel gas system), the conveyance system shall not be considered a closed-vent system and is not subject to closed-vent system standards.

*Combustion device* means an individual unit of equipment, such as a flare, incinerator, process heater, or boiler, used for the combustion of organic HAP emissions.

*Condensate* means hydrocarbon liquid separated from natural gas that condenses due to changes in the temperature, pressure, or both, and remains liquid at standard conditions, as specified in §63.2.

*Continuous recorder* means a data recording device that either records an instantaneous data value at least once every hour or records hourly or more frequent block average values.

*Control device* means any equipment used for recovering or oxidizing HAP or volatile organic compound (VOC) vapors. Such equipment includes, but is not limited to, absorbers, carbon adsorbers, condensers, incinerators, flares, boilers, and process heaters. For the purposes of this subpart, if gas or vapor from regulated equipment is used, reused (i.e., injected into the flame zone of an enclosed combustion device), returned back to the process, or sold, then the recovery system used, including piping, connections, and flow inducing devices, is not considered to be a control device or closed-vent system.

*Cover* means a device which is placed on top of or over a material such that the entire surface area of the material is enclosed and sealed. A cover may have openings (such as access hatches, sampling ports, and gauge wells) if those openings are necessary for operation, inspection, maintenance, or repair of the unit on which the cover is installed, provided that each opening is closed and sealed when the opening is not in use. In addition, a cover may have one or more safety devices. Examples of a cover include, but are not limited to, a fixed-roof installed on a tank, an external floating roof installed on a tank, and a lid installed on a drum or other container.

*Custody transfer* means the transfer of hydrocarbon liquids or natural gas: after processing and/or treatment in the producing operations, or from storage vessels or automatic transfer facilities or other such equipment, including product loading racks, to pipelines or any other forms of transportation. For the purposes of this subpart, the point at which such liquids or natural gas enters a natural gas processing plant is a point of custody transfer.

*Equipment leaks* means emissions of HAP from ancillary equipment (as defined in this section) and compressors.

*Facility* means any grouping of equipment where hydrocarbon liquids are processed, upgraded (i.e., remove impurities or other constituents to meet contract specifications), or stored prior to the point of custody transfer; or where natural gas is processed, upgraded, or stored prior to entering the natural gas transmission and storage source category. For the purpose of a major source determination, facility (including a building, structure, or installation) means oil and natural gas production and processing equipment that is located within the boundaries of an individual surface site as defined in this section. Equipment that is part of a facility will typically be located within close proximity to other equipment located at the same facility. Pieces of production equipment or groupings of equipment located on different oil and gas leases, mineral fee tracts, lease tracts, subsurface or surface unit areas, surface fee tracts, surface lease tracts, or separate surface sites, whether or not connected by a road, waterway, power line or pipeline, shall not be considered part of the same facility. Examples of facilities in the oil and natural gas production source

category include, but are not limited to, well sites, satellite tank batteries, central tank batteries, a compressor station that transports natural gas to a natural gas processing plant, and natural gas processing plants.

*Field natural gas* means natural gas extracted from a production well prior to entering the first stage of processing, such as dehydration.

*Fixed-roof* means a cover that is mounted on a storage vessel in a stationary manner and that does not move with fluctuations in liquid level.

*Flame zone* means the portion of the combustion chamber in a combustion device occupied by the flame envelope.

*Flash tank*. See the definition for gas-condensate-glycol (GCG) separator.

*Flow indicator* means a device which indicates whether gas flow is present in a line or whether the valve position would allow gas flow to be present in a line.

*Gas-condensate-glycol (GCG) separator* means a two- or three-phase separator through which the "rich" glycol stream of a glycol dehydration unit is passed to remove entrained gas and hydrocarbon liquid. The GCG separator is commonly referred to as a flash separator or flash tank.

*Gas-to-oil ratio (GOR)* means the number of standard cubic meters of gas produced per liter of crude oil or other hydrocarbon liquid.

*Glycol dehydration unit* means a device in which a liquid glycol (including, but not limited to, ethylene glycol, diethylene glycol, or triethylene glycol) absorbent directly contacts a natural gas stream and absorbs water in a contact tower or absorption column (absorber). The glycol contacts and absorbs water vapor and other gas stream constituents from the natural gas and becomes "rich" glycol. This glycol is then regenerated in the glycol dehydration unit reboiler. The "lean" glycol is then recycled.

*Glycol dehydration unit baseline operations* means operations representative of the glycol dehydration unit operations as of June 17, 1999. For the purposes of this subpart, for determining the percentage of overall HAP emission reduction attributable to process modifications, baseline operations shall be parameter values (including, but not limited to, glycol circulation rate or glycol-HAP absorbency) that represent actual long-term conditions (i.e., at least 1 year). Glycol dehydration units in operation for less than 1 year shall document that the parameter values represent expected long-term operating conditions had process modifications not been made.

*Glycol dehydration unit process vent* means the glycol dehydration unit reboiler vent and the vent from the GCG separator (flash tank), if present.

*Glycol dehydration unit reboiler vent* means the vent through which exhaust from the reboiler of a glycol dehydration unit passes from the reboiler to the atmosphere or to a control device.

*Hazardous air pollutants* or *HAP* means the chemical compounds listed in section 112(b) of the Clean Air Act. All chemical compounds listed in section 112(b) of the Act need to be considered when making a major source determination. Only the HAP compounds listed in Table 1 of this subpart need to be considered when determining compliance.

*Hydrocarbon liquid* means any naturally occurring, unrefined petroleum liquid.

*In VHAP service* means that a piece of ancillary equipment or compressor either contains or contacts a fluid (liquid or gas) which has a total volatile HAP (VHAP) concentration equal to or greater than 10 percent by weight as determined according to the provisions of §63.772(a).

*In wet gas service* means that a piece of equipment contains or contacts the field gas before the extraction of natural gas liquids.

*Incinerator* means an enclosed combustion device that is used for destroying organic compounds. Auxiliary fuel may be used to heat waste gas to combustion temperatures. Any energy recovery section is not physically formed into one manufactured or assembled unit with the combustion section; rather, the energy recovery section is a separate section following the combustion section and the two are joined by ducts or connections carrying flue gas. The above energy recovery section limitation does not apply to an energy recovery section used solely to preheat the incoming vent stream or combustion air.

*Initial producing GOR* means the producing standard cubic meters of gas per liter at the time that the reservoir pressure is above the bubble point pressure (or dewpoint pressure for a gas).

*Initial startup* means the first time a new or reconstructed source begins production. For the purposes of this subpart, initial startup does not include subsequent startups (as defined in this section) of equipment, for example, following malfunctions or shutdowns.

*Major source*, as used in this subpart, shall have the same meaning as in §63.2, except that:

- (1) Emissions from any oil or gas exploration or production well (with its associated equipment, as defined in this section), and emissions from any pipeline compressor station or pump station shall not be aggregated with emissions from other similar units to determine whether such emission points or stations are major sources, even when emission points are in a contiguous area or under common control;
- (2) Emissions from processes, operations, or equipment that are not part of the same facility, as defined in this section, shall not be aggregated; and
- (3) For facilities that are production field facilities, only HAP emissions from glycol dehydration units and storage vessels with the potential for flash emissions shall be aggregated for a major source determination. For facilities that are not production field facilities, HAP emissions from all HAP emission units shall be aggregated for a major source determination.

*Natural gas* means a naturally occurring mixture of hydrocarbon and nonhydrocarbon gases found in geologic formations beneath the earth's surface. The principal hydrocarbon constituent is methane.

*Natural gas liquids* (NGL) means the liquid hydrocarbons, such as ethane, propane, butane, pentane, natural gasoline, and condensate that are extracted from field natural gas.

*Natural gas processing plant* (gas plant) means any processing site engaged in the extraction of natural gas liquids from field gas, or the fractionation of mixed NGL to natural gas products, or a combination of both.

*No detectable emissions* means no escape of HAP from a device or system to the atmosphere as determined by:

- (1) Instrument monitoring results in accordance with the requirements of §63.772(c); and
- (2) The absence of visible openings or defects in the device or system, such as rips, tears, or gaps.

*Operating parameter value* means a minimum or maximum value established for a control device or process parameter which, if achieved by itself or in combination with one or more other operating parameter values, indicates that an owner or operator has complied with an applicable operating parameter limitation, over the appropriate averaging period as specified in §63.772(f) or (g).

*Operating permit* means a permit required by 40 CFR part 70 or part 71.

*Organic monitoring device* means an instrument used to indicate the concentration level of organic compounds exiting a control device based on a detection principle such as infra-red, photoionization, or thermal conductivity.

*Primary fuel* means the fuel that provides the principal heat input (i.e., more than 50 percent) to the device. To be considered primary, the fuel must be able to sustain operation without the addition of other fuels.

*Process heater* means an enclosed device using a controlled flame, the primary purpose of which is to transfer heat to a process fluid or process material that is not a fluid, or to a heat transfer material for use in a process (rather than for steam generation).

*Produced water* means water that is extracted from the earth from an oil or natural gas production well, or that is separated from crude oil, condensate, or natural gas after extraction.

*Production field facilities* means those facilities located prior to the point of custody transfer.

*Production well* means any hole drilled in the earth from which crude oil, condensate, or field natural gas is extracted.

*Reciprocating compressor* means a piece of equipment that increases the pressure of a process gas by positive displacement, employing linear movement of the drive shaft.

*Safety device* means a device that meets both of the following conditions: it is not used for planned or routine venting of liquids, gases, or fumes from the unit or equipment on which the device is installed; and it remains in a closed, sealed position at all times except when an unplanned event requires that the device open for the purpose of preventing physical damage or permanent deformation of the unit or equipment on which the device is installed in accordance with good engineering and safety practices for handling flammable, combustible, explosive, or other

hazardous materials. Examples of unplanned events which may require a safety device to open include failure of an essential equipment component or a sudden power outage.

*Shutdown* means for purposes including, but not limited to, periodic maintenance, replacement of equipment, or repair, the cessation of operation of a glycol dehydration unit, or other affected source under this subpart, or equipment required or used solely to comply with this subpart.

*Startup* means the setting into operation of a glycol dehydration unit, or other affected equipment under this subpart, or equipment required or used to comply with this subpart. Startup includes initial startup and operation solely for the purpose of testing equipment.

*Storage vessel* means a tank or other vessel that is designed to contain an accumulation of crude oil, condensate, intermediate hydrocarbon liquids, or produced water and that is constructed primarily of non-earthen materials (e.g., wood, concrete, steel, plastic) that provide structural support.

*Storage vessel with the potential for flash emissions* means any storage vessel that contains a hydrocarbon liquid with a stock tank GOR equal to or greater than 0.31 cubic meters per liter and an API gravity equal to or greater than 40 degrees and an actual annual average hydrocarbon liquid throughput equal to or greater than 79,500 liters per day. Flash emissions occur when dissolved hydrocarbons in the fluid evolve from solution when the fluid pressure is reduced.

*Surface site* means any combination of one or more graded pad sites, gravel pad sites, foundations, platforms, or the immediate physical location upon which equipment is physically affixed.

*Tank battery* means a collection of equipment used to separate, treat, store, and transfer crude oil, condensate, natural gas, and produced water. A tank battery typically receives crude oil, condensate, natural gas, or some combination of these extracted products from several production wells for accumulation and separation prior to transmission to a natural gas plant or petroleum refinery. A tank battery may or may not include a glycol dehydration unit.

*Temperature monitoring device* means an instrument used to monitor temperature and having a minimum accuracy of  $\pm 2$  percent of the temperature being monitored expressed in  $^{\circ}\text{C}$ , or  $\pm 2.5$   $^{\circ}\text{C}$ , whichever is greater. The temperature monitoring device may measure temperature in degrees Fahrenheit or degrees Celsius, or both.

*Total organic compounds* or *TOC*, as used in this subpart, means those compounds which can be measured according to the procedures of Method 18, 40 CFR part 60, appendix A.

*UA plus offset and UC* is defined as the area occupied by each urbanized area, each urban cluster that contains at least 10,000 people, and the area located two miles or less from each urbanized area boundary.

*Urban-1 County* is defined as a county that contains a part of a Metropolitan Statistical Area with a population greater than 250,000, based on the Office of Management and Budget's *Standards for defining Metropolitan and Micropolitan Statistical Areas* (December 27, 2000), and Census 2000 Data released by the U.S. Census Bureau.

*Urbanized area* refers to Census 2000 Urbanized Area, which is defined in the *Urban Area Criteria for Census 2000* (March 15, 2002). Essentially, an urbanized area consists of densely settled territory with a population of at least 50,000 people.

*Urban cluster* refers to a Census 2000 Urban Cluster, which is defined in the *Urban Area Criteria for Census 2000* (March 15, 2002). Essentially, an urban cluster consists of densely settled territory with at least 2,500 people but fewer than 50,000 people.

*Volatile hazardous air pollutant concentration* or *VHAP concentration* means the fraction by weight of all HAP contained in a material as determined in accordance with procedures specified in §63.772(a).

[64 FR 32628, June 17, 1999, as amended at 66 FR 34551, June 29, 2001; 72 FR 37, Jan. 3, 2007]

### **§ 63.762 Startups, shutdowns, and malfunctions.**

(a) The provisions set forth in this subpart shall apply at all times except during startups or shutdowns, during malfunctions, and during periods of non-operation of the affected sources (or specific portion thereof) resulting in cessation of the emissions to which this subpart applies. However, during the startup, shutdown, malfunction, or period of non-operation of one portion of an affected source, all emission points which can comply with the specific provisions to which they are subject must do so during the startup, shutdown, malfunction, or period of non-operation.

(c) During startups, shutdowns, and malfunctions when the requirements of this subpart do not apply pursuant to

paragraphs (a) and (b) of this section, the owner or operator shall implement, to the extent reasonably available, measures to prevent or minimize excess emissions to the maximum extent practical. For purposes of this paragraph, the term "excess emissions" means emissions in excess of those that would have occurred if there were no startup, shutdown, or malfunction, and the owner or operator complied with the relevant provisions of this subpart. The measures to be taken shall be identified in the applicable startup, shutdown, and malfunction plan, and may include, but are not limited to, air pollution control technologies, recovery technologies, work practices, pollution prevention, monitoring, and/or changes in the manner of operation of the source. Back-up control devices are not required, but may be used if available.

(e) Owners or operators are not required to prepare a startup, shutdown, and malfunction plan for any facility where all of the affected sources meet the exemption criteria specified in §63.764(e), or for any facility that is not located within a UA plus offset and UC boundary.

[64 FR 32628, June 17, 1999, as amended at 66 FR 34551, June 29, 2001; 72 FR 38, Jan. 3, 2007]

### **§ 63.764 General standards.**

(e) *Exemptions.* (1) The owner or operator is exempt from the requirements of paragraph (c)(1) and (d) of this section if the criteria listed in paragraph (e)(1)(i) or (ii) of this section are met, except that the records of the determination of these criteria must be maintained as required in §63.774(d)(1).

(ii) The actual average emissions of benzene from the glycol dehydration unit process vent to the atmosphere are less than 0.90 megagram per year, as determined by the procedures specified in §63.772(b)(2) of this subpart.

[64 FR 32628, June 17, 1999, as amended at 66 FR 34551, June 29, 2001; 72 FR 38, Jan. 3, 2007]

### **§ 63.772 Test methods, compliance procedures, and compliance demonstrations.**

(b) *Determination of glycol dehydration unit flowrate or benzene emissions.* The procedures of this paragraph shall be used by an owner or operator to determine glycol dehydration unit natural gas flowrate or benzene emissions to meet the criteria for an exemption from control requirements under §63.764(e)(1).

(2) The determination of actual average benzene emissions from a glycol dehydration unit shall be made using the procedures of either paragraph (b)(2)(i) or (b)(2)(ii) of this section. Emissions shall be determined either uncontrolled, or with federally enforceable controls in place.

(i) The owner or operator shall determine actual average benzene emissions using the model GRI-GLYCalc™, Version 3.0 or higher, and the procedures presented in the associated GRI-GLYCalc™ Technical Reference Manual. Inputs to the model shall be representative of actual operating conditions of the glycol dehydration unit and may be determined using the procedures documented in the Gas Research Institute (GRI) report entitled "Atmospheric Rich/Lean Method for Determining Glycol Dehydrator Emissions" (GRI-95/0368.1); or

(ii) The owner or operator shall determine an average mass rate of benzene emissions in kilograms per hour through direct measurement using the methods in §63.772(a)(1)(i) or (ii), or an alternative method according to §63.7(f). Annual emissions in kilograms per year shall be determined by multiplying the mass rate by the number of hours the unit is operated per year. This result shall be converted to megagrams per year.

### **§ 63.774 Recordkeeping requirements.**

(a) The recordkeeping provisions of 40 CFR part 63, subpart A, that apply and those that do not apply to owners and operators of sources subject to this subpart are listed in Table 2 of this subpart.

(d)(1) An owner or operator of a glycol dehydration unit that meets the exemption criteria in §63.764(e)(1)(i) or §63.764(e)(1)(ii) shall maintain the records specified in paragraph (d)(1)(i) or paragraph (d)(1)(ii) of this section, as appropriate, for that glycol dehydration unit.

(ii) The actual average benzene emissions (in terms of benzene emissions per year) as determined in accordance with §63.772(b)(2).

[64 FR 32628, June 17, 1999, as amended at 66 FR 34554, June 29, 2001; 72 FR 39, Jan. 3, 2007]

### **§ 63.775 Reporting requirements.**

(a) The reporting provisions of subpart A of this part, that apply and those that do not apply to owners and operators of sources subject to this subpart are listed in Table 2 of this subpart.

(c) Except as provided in paragraph (c)(8), each owner or operator of an area source subject to this subpart shall submit the information listed in paragraph (c)(1) of this section. If the source is located within a UA plus offset and UC boundary, the owner or operator shall also submit the information listed in paragraphs (c)(2) through (6) of this section. If the source is not located within any UA plus offset and UC boundaries, the owner or operator shall also submit the information listed within paragraph (c)(7).

(8) An owner or operator of a TEG dehydration unit located at an area source that meets the criteria in §63.764(e)(1)(i) or §63.764(e)(1)(ii) is exempt from the reporting requirements for area sources in paragraphs (c)(1) through (7) of this section, for that unit.

**§ 63.776 Implementation and enforcement.**

(a) This subpart can be implemented and enforced by the U.S. EPA, or a delegated authority such as the applicable State, local, or Tribal agency. If the U.S. EPA Administrator has delegated authority to a State, local, or Tribal agency, then that agency, in addition to the U.S. EPA, has the authority to implement and enforce this subpart. Contact the applicable U.S. EPA Regional Office to find out if this subpart is delegated to a State, local, or Tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or Tribal agency under subpart E of this part, the authorities contained in paragraph (c) of this section are retained by the Administrator of U.S. EPA and cannot be transferred to the State, local, or Tribal agency.

(c) The authorities that cannot be delegated to State, local, or Tribal agencies are as specified in paragraphs (c)(1) through (4) of this section.

(1) Approval of alternatives to the requirements in §§63.760, 63.764 through 63.766, 63.769, 63.771, and 63.777.

(2) Approval of major alternatives to test methods under §63.7(e)(2)(ii) and (f), as defined in §63.90, and as required in this subpart.

(3) Approval of major alternatives to monitoring under §63.8(f), as defined in §63.90, and as required in this subpart.

(4) Approval of major alternatives to recordkeeping and reporting under §63.10(f), as defined in §63.90, and as required in this subpart.

**Table 2 to Subpart HH of Part 63.—Applicability of 40 CFR Part 63 General Provisions to Subpart HH**

General provisions reference	Applicable to subpart HH	Explanation
§63.1(a)(1)	Yes.	
§63.1(a)(2)	Yes.	
§63.1(a)(3)	Yes.	
§63.1(a)(4)	Yes.	
§63.1(a)(5)	No	Section reserved.
§63.1(a)(6)	Yes.	
§63.1(a)(7) through (a)(9)	No	Section reserved.
§63.1(a)(10)	Yes.	
§63.1(a)(11)	Yes.	
§63.1(a)(12)	Yes.	
§63.1(b)(1)	No	Subpart HH specifies applicability.

§63.1(b)(2)	No	Section reserved.
§63.1(b)(3)	Yes.	
§63.1(c)(1)	No	Subpart HH specifies applicability.
§63.1(c)(2)	Yes.	Subpart HH exempts area sources from the requirement to obtain a title V permit unless otherwise required by law as specified in §63.760(h).
§63.1(c)(3) and (c)(4)	No	Section reserved.
§63.1(c)(5)	Yes.	
§63.1(d)	No	Section reserved.
§63.1(e)	Yes.	
§63.2	Yes.	Except definition of major source is unique for this source category and there are additional definitions in subpart HH.
§63.3(a) through (c)	Yes.	
§63.4(a)(1) through (a)(2)	Yes.	
§63.4(a)(3) through (a)(5)	No	Section reserved.
§63.4(b)	Yes.	
§63.4(c)	Yes.	
§63.5(a)(1)	Yes.	
§63.5(a)(2)	Yes.	
§63.5(b)(1)	Yes.	
§63.5(b)(2)	No	Section reserved.
§63.5(b)(3)	Yes.	
§63.5(b)(4)	Yes.	
§63.5(b)(5)	No	Section Reserved.
§63.5(b)(6)	Yes.	
§63.5(c)	No	Section reserved.
§63.5(d)(1)	Yes.	
§63.5(d)(2)	Yes.	
§63.5(d)(3)	Yes.	
§63.5(d)(4)	Yes.	

§63.5(e)	Yes.	
§63.5(f)(1)	Yes.	
§63.5(f)(2)	Yes.	
§63.6(a)	Yes.	
§63.6(b)(1)	Yes.	
§63.6(b)(2)	Yes.	
§63.6(b)(3)	Yes.	
§63.6(b)(4)	Yes.	
§63.6(b)(5)	Yes.	
§63.6(b)(6)	No	Section reserved.
§63.6(b)(7)	Yes.	
§63.6(c)(1)	Yes.	
§63.6(c)(2)	Yes.	
§63.6(c)(3) through (c)(4)	No	Section reserved.
§63.6(c)(5)	Yes.	
§63.6(d)	No	Section reserved.
§63.6(e)	Yes.	
§63.6(e)(1)(i)	No	Except as otherwise specified. Addressed in §63.762.
§63.6(e)(1)(ii)	Yes.	
§63.6(e)(1)(iii)	Yes.	
§63.6(e)(2)	No	Section reserved.
§63.6(e)(3)(i)	Yes.	Sources exempt under §63.764(e) and sources located outside UA plus offset and UC boundaries are not required to develop startup, shutdown, and malfunction plans as stated in §63.762(e).
§63.6(e)(3)(i)(A)	No	Except as otherwise specified. Addressed in §63.762(c).
§63.6(e)(3)(i)(B)	Yes.	
§63.6(e)(3)(i)(C)	Yes.	
§63.6(e)(3)(ii)	No	Section reserved.
§63.6(e)(3)(iii) through (3)(vi)	Yes.	
§63.6(e)(3)(vii)	Yes.	
§63.6(e)(3)(vii) (A)	Yes.	

§63.6(e)(3)(vii) (B)	Yes	Except that the plan must provide for operation in compliance with §63.762(c).
§63.6(e)(3)(viii) through (ix)	Yes.	
§63.6(f)(1)	Yes.	
§63.6(f)(2)	Yes.	
§63.6(f)(3)	Yes.	
§63.6(g)	Yes.	
§63.6(h)	No	Subpart HH does not contain opacity or visible emission standards.
§63.6(i)(1) through (i)(14)	Yes.	
§63.6(i)(15)	No	Section reserved.
§63.6(i)(16)	Yes.	
§63.6(j)	Yes.	
§63.7(a)(1)	Yes.	
§63.7(a)(2)	Yes	But the performance test results must be submitted within 180 days after the compliance date.
§63.7(a)(3)	Yes.	
§63.7(b)	Yes.	
§63.7(c)	Yes.	
§63.7(d)	Yes.	
§63.7(e)(1)	Yes.	
§63.7(e)(2)	Yes.	
§63.7(e)(3)	Yes.	
§63.7(e)(4)	Yes.	
§63.7(f)	Yes.	
§63.7(g)	Yes.	
§63.7(h)	Yes.	
§63.8(a)(1)	Yes.	
§63.8(a)(2)	Yes.	
§63.8(a)(3)	No	Section reserved.
§63.8(a)(4)	Yes.	
§63.8(b)(1)	Yes.	

§63.8(b)(2)	Yes.	
§63.8(b)(3)	Yes.	
§63.8(c)(1)	Yes.	
§63.8(c)(2)	Yes.	
§63.8(c)(3)	Yes.	
§63.8(c)(4)	Yes.	
§63.8(c)(4)(i)	No	Subpart HH does not require continuous opacity monitors.
§63.8(c)(4)(ii)	Yes.	
§63.8(c)(5) through (c)(8)	Yes.	
§63.8(d)	Yes.	
§63.8(e)	Yes	Subpart HH does not specifically require continuous emissions monitor performance evaluation, however, the Administrator can request that one be conducted.
§63.8(f)(1) through (f)(5)	Yes.	
§63.8(f)(6)	Yes.	
§63.8(g)	No	Subpart HH specifies continuous monitoring system data reduction requirements.
§63.9(a)	Yes.	
§63.9(b)(1)	Yes.	
§63.9(b)(2)	Yes	Existing sources are given 1 year (rather than 120 days) to submit this notification. Major and area sources that meet §63.764(e) do not have to submit initial notifications.
§63.9(b)(3)	No	Section reserved.
§63.9(b)(4)	Yes.	
§63.9(b)(5)	Yes.	
§63.9(c)	Yes.	
§63.9(d)	Yes.	
§63.9(e)	Yes.	
§63.9(f)	No	Subpart HH does not have opacity or visible emission standards.
§63.9(g)(1)	Yes.	
§63.9(g)(2)	No	Subpart HH does not have opacity or visible emission standards.
§63.9(g)(3)	Yes.	

§63.9(h)(1) through (h)(3)	Yes	Area sources located outside UA plus offset and UC boundaries are not required to submit notifications of compliance status.
§63.9(h)(4)	No	Section reserved.
§63.9(h)(5) through (h)(6)	Yes.	
§63.9(i)	Yes.	
§63.9(j)	Yes.	
§63.10(a)	Yes.	
§63.10(b)(1)	Yes.	§63.774(b)(1) requires sources to maintain the most recent 12 months of data on site and allows offsite storage for the remaining 4 years of data.
§63.10(b)(2)	Yes.	
§63.10(b)(3)	Yes	§63.774(b)(1) requires sources to maintain the most recent 12 months of data on site and allows offsite storage for the remaining 4 years of data.
§63.10(c)(1)	Yes.	
§63.10(c)(2) through (c)(4)	No	Sections reserved.
§63.10(c)(5) through (c)(8)	Yes.	
§63.10(c)(9)	No	Section reserved.
§63.10(c)(10) through(c)(15)	Yes.	
§63.10(d)(1)	Yes.	
§63.10(d)(2)	Yes	Area sources located outside UA plus offset and UC boundaries do not have to submit performance test reports.
§63.10(d)(3)	Yes.	
§63.10(d)(4)	Yes.	
§63.10(d)(5)(i)	Yes	Subpart HH requires major sources to submit a startup, shutdown, and malfunction report semi-annually. Area sources located within UA plus offset and UC boundaries are required to submit startup, shutdown, and malfunction reports annually. Area sources located outside UA plus offset and UC boundaries are not required to submit startup, shutdown, and malfunction reports.
§63.10(e)(1)	Yes	Area sources located outside UA plus offset and UC boundaries are not required to submit reports.
§63.10(e)(2)	Yes	Area sources located outside UA plus offset and UC boundaries are not required to submit reports.
§63.10(e)(3)(i)	Yes	Subpart HH requires major sources to submit Periodic Reports

		semi-annually. Area sources are required to submit Periodic Reports annually. Area sources located outside UA plus offset and UC boundaries are not required to submit reports.
§63.10(e)(3)(i)(A)	Yes.	
§63.10(e)(3)(i)(B)	Yes.	
§63.10(e)(3)(i)(C)	No	Section reserved.
§63.10(e)(3)(ii) through (viii)	Yes.	
§63.10(f)	Yes.	
§63.11(a) and (b)	Yes.	
§63.12(a) through (c)	Yes.	
§63.13(a) through (c)	Yes.	
§63.14(a) and (b)	Yes.	
§63.15(a) and (b)	Yes	
§63.16	Yes.	

[64 FR 32628, June 17, 1999, as amended at 66 FR 34554, June 29, 2001; 71 FR 20457, Apr. 20, 2006; 72 FR 40, Jan. 3, 2007]

This registration is the first air approval issued to this source. The source may operate according to 326 IAC 2-5.5.

An authorized individual shall provide an annual notice to the Office of Air Quality that the source is in operation and in compliance with this registration pursuant to 326 IAC 2-5.5-4(a)(3). The annual notice shall be submitted to:

**Compliance Data Section  
 Office of Air Quality  
 100 North Senate Avenue  
 MC 61-53 IGCN 1003  
 Indianapolis, Indiana 46204-2251**

no later than March 1 of each year, with the annual notice being submitted in the format attached.

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Quality (OAQ) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

Pursuant to Contract No. A305-5-65, IDEM, OAQ has assigned the processing of this application to Eastern Research Group, Inc., (ERG). Therefore, questions should be directed to Yu-Lien Chu, ERG, 1600 Perimeter Park Drive, Morrisville, North Carolina 27560, or call (919) 386-1024 to speak directly to Ms. Chu. Questions may also be directed to Duane Van Laningham at IDEM, OAQ, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana, 46204-2251, or call (800) 451-6027, and ask for Duane Van Laningham or extension 3-6878, or dial (317) 233-6878.

Sincerely,

Original Signed By:  
Nisha Sizemore, Chief  
Permits Branch  
Office of Air Quality

ERG/YC

cc: File - Sullivan County  
Sullivan County Health Department  
Air Compliance Section Inspector - Dave Rice  
Compliance Data Section  
Administrative and Development  
Technical Support and Modeling - Michele Boner  
Billing, Licensing, and Training Section - Dan Stamatkin

<b>Registration Annual Notification</b>
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This form should be used to comply with the notification requirements under 326 IAC 2-5.5-4(a)(3).

<b>Company Name:</b>	Noble Energy, Inc.
<b>Source Address:</b>	SE SW Sec 34, T7N R9W, Sullivan County, Indiana
<b>General Source Phone Number:</b>	(303) 228-4385
<b>Registration Number:</b>	R153-24948-00037

<b>Certification by the Authorized Individual</b>
I hereby certify that Noble Energy, Inc. is still in operation and is in compliance with the requirements of Registration No. 153-24948-00037.
<b>Name (typed):</b>
<b>Title:</b>
<b>Signature:</b>
<b>Date:</b>
<b>Phone Number:</b>

Indiana Department of Environmental Management  
Office of Air Quality

Technical Support Document (TSD) for a Registration

**Source Background and Description**

Source Name:	Noble Energy, Inc.
Location:	SE SW Sec 34, T7N R9W, Sullivan County, Indiana
County:	Sullivan
SIC Code:	1311
Registration No.:	153-24948-00037
Permit Reviewer:	ERG/YC

The Office of Air Quality (OAQ) has reviewed an application from Noble Energy, Inc. relating to the construction and operation of a natural gas conditioning and compression station.

**Permitted Emission Units and Pollution Control Equipment**

There are no permitted emission units operating at this time.

**Unpermitted Emission Units and Pollution Control Equipment**

There are no unpermitted emission units operating at this time.

**New Emission Units and Pollution Control Equipment**

The source will consist of the following new emission units:

- (a) One (1) natural gas-fired compressor engine, identified as ENG1, approved for construction in 2007, with a maximum power output of 1,340 hp and a maximum heat input capacity of 10.11 million British thermal units (MMBtu) per hour, and exhausting to stack ENG1.
- (b) One (1) natural gas-fired amine unit reboiler, identified as AMREB, approved for construction in 2007, with a maximum heat input capacity of 9 MMBtu/hr, and exhausting to stack AMREB.
- (c) One (1) natural gas-fired dehydration unit reboiler, identified as DHREB, approved for construction in 2007, with a maximum heat input capacity of 0.6 MMBtu/hr, and exhausting to stack DHREB.
- (d) One (1) amine process, identified as AMINE, approved for construction in 2007, with a maximum capacity of 16 million standard cubic feet per day (MMscfd), and exhausting to vent AMINE.
- (e) One (1) triethylene glycol (TEG) dehydration process, identified as DEHY, approved for construction in 2007, with a maximum capacity of 16 million standard cubic feet per day (MMscfd), and exhausting to vent DEHY.
- (f) One (1) condensate/oil storage tank, identified as TK1, approved for construction in 2007, with a maximum capacity of 8,400 gallons.

- (g) One (1) truck loading operation for condensate/oil, identified as TL1, approved for construction in 2007, with a maximum throughput rate of 436,800 gallons per year.

### Existing Approvals

There are no air approvals issued to this source.

### Enforcement Issue

There are no enforcement actions pending.

### Recommendation

The staff recommends to the Commissioner that this registration be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on June 19, 2007.

### Emission Calculations

See Appendix A of this document for detailed emissions calculations (pages 1 through 7).

### Potential to Emit of the Source Before Controls

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U.S. EPA, the department, or the appropriate local air pollution control agency.”

Pollutant	Potential to Emit (tons/year)
PM	0.08
PM10	0.76
SO <sub>2</sub>	0.05
VOC	17.4
CO	29.3
NO <sub>x</sub>	23.5

HAPs	Potential to Emit (tons/yr)
n-Hexane	0.25
Methanol	0.11
Acrolein	0.23
Acetaldehyde	0.37
Benzene	0.53
Formaldehyde	3.23
Hexane	0.07
Toluene	0.73
Ethylbenzene	1.10
Xylene	1.35
Other HAPs	0.01
Total	7.98

- (a) The potential to emit (as defined in 326 IAC 2-1.1-1(16)) of all criteria pollutants is less than 100 tons per year. Therefore, the source is not subject to the provisions of 326 IAC 2-7.
- (b) The potential to emit (as defined in 326 IAC 2-1.1-1(16)) of any single HAP is less than ten (10) tons per year and the potential to emit (as defined in 326 IAC 2-1.1-1(16)) of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, the source is not subject to the provisions of 326 IAC 2-7.
- (c) The potential to emit (as defined in 326 IAC 2-1.1-1(16)) of all criteria pollutants, except for CO, is less than 25 tons per year. Therefore, the source is not subject to the provisions of 326 IAC 2-6.1(MSOP).
- (d) The potential to emit (as defined in 326 IAC 2-1.1-1(16)) of VOC and NOx is greater than or equal to 10 tons per year and the potential to emit CO is greater than 25 tons per year and less than 100 tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-5.1-2 and 326 IAC 2-5.5, which requires the source to apply for and operate under a registration.
- (e) **Fugitive Emissions**  
 Since this type of operation is not in one of the twenty-eight (28) listed source categories under 326 IAC 2-2 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are not counted toward determination of PSD.

**County Attainment Status**

The source is located in Sullivan County.

Pollutant	Status
PM10	Attainment
PM2.5	Attainment
SO <sub>2</sub>	Attainment
NO <sub>2</sub>	Attainment
8-hour Ozone	Attainment
CO	Attainment
Lead	Attainment

- (a) Volatile organic compounds (VOC) and Nitrogen Oxides (NOx) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC emissions and NOx emissions are

considered when evaluating the rule applicability relating to ozone. Sullivan County has been designated as attainment or unclassifiable for ozone. Therefore, VOC emissions and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

- (b) Sullivan County has been classified as attainment for PM2.5. U.S. EPA has not yet established the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 for PM2.5 emissions. Therefore, until the U.S. EPA adopts specific provisions for PSD review for PM2.5 emissions, it has directed states to regulate PM10 emissions as a surrogate for PM2.5 emissions.
- (c) Sullivan County has been classified as attainment or unclassifiable for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

### Source Status

New Source PSD Definition (emissions after controls, based on 8760 hours of operation per year at rated capacity and/or as otherwise limited):

Pollutant	Emissions (tons/year)
PM	0.08
PM10	0.76
SO <sub>2</sub>	0.05
VOC	17.4
CO	29.3
NO <sub>x</sub>	23.5

- (a) This existing source is not a PSD major stationary source because no attainment regulated pollutant is emitted at a rate of 250 tons per year or greater and it is not in one of the 28 listed source categories. Therefore, the requirements of PSD do not apply.
- (b) These emissions are based on the potential to emit of this source (see Appendix A).

### Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This new source is not subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

- (a) each criteria pollutant is less than 100 tons per year,
- (b) a single hazardous air pollutant (HAP) is less than 10 tons per year, and
- (c) any combination of HAPs is less than 25 tons per year.

This is the first air approval issued to this source.

### Federal Rule Applicability

- (a) Each of the proposed boilers (AMREG and DHREB) has a maximum heat input less than 10 MMBtu/hr. Therefore, the New Source Performance Standards for Small Industrial - Commercial - Institutional Steam generating Units (40 CFR 60.40c-48c, Subpart Dc, 326

IAC 12) are not included in this registration.

- (b) The condensate/oil storage tank does not have a capacity greater than 75 cubic meters (19,813 gallons). Therefore, the New Source Performance Standards for Volatile Organic Liquid Storage Vessels for which construction, reconstruction, or modification commenced after July 23, 1984 (326 IAC 12, 40 CFR 60.110b - 117b, Subpart Kb) are not included in this registration.
- (c) This new source does not meet the definition of a natural gas processing plant as there is no extraction of natural gas liquids from field gas or fractionation of mixed natural gas liquids to natural gas products occurring on site. Therefore, the requirements of the Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants (40 CFR 60.630-636, Subpart KKK, 326 IAC 12) are not included in this registration.
- (d) This natural gas compressor station is subject to New Source Performance Standard for Onshore Natural Gas Processing: SO<sub>2</sub> Emissions, 326 IAC 12 (40 CFR 60.460-468, Subpart LLL and 326 IAC 12), because the amine process (AMINE) at this source meets the definition of a sweetening unit and is to be constructed after January 20, 1984. However, the amine process at this source has a design capacity less than 2 long tons per day (LT/D) of hydrogen sulfide (H<sub>2</sub>S) in the acid gas (expressed as sulfur). Pursuant to 40 CFR 60.640(b), the Permittee is not required to comply with provisions 40 CFR 60.642 through 60.646 of this subpart, but is required to comply with 40 CFR 60.647(c). The Permittee is required to keep, for the life of the facility, an analysis demonstrating that the facility's design capacity is less than 2 long tons per day (LT/D) of hydrogen sulfide (H<sub>2</sub>S) in the acid gas (expressed as sulfur), pursuant to 40 CFR 60.647(c).

The amine process is subject to the following portions of 40 CFR 60, Subpart LLL:

- (1) 40 CFR 60.640(a) through (d)
- (2) 40 CFR 60.641
- (3) 40 CFR 60.647(c)

The provisions of 40 CFR 60 Subpart A – General Provisions, which are incorporated as 326 IAC 12-1-1, apply to the facility described in this section except when otherwise specified in 40 CFR 60 Subpart LLL.

- (e) There are no other New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60) included in this registration.
- (f) The requirements of 40 CFR 63, Subpart HH - National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities (40 CFR 63.760-779, Subpart HH, 326 IAC 20-30) are applicable to TEG dehydration process (DEHY) at this source because the proposed TEG dehydration unit is an affected unit under this NESHAP.

The proposed TEG dehydration process (DEHY) is subject to the following portions of 40 CFR 63, Subpart HH. Non applicable portions of the NESHAP will not be included in the exemption.

- (1) 40 CFR 63.760(a)(1) and (3), (b)(2), (f)(6), (h)
- (2) 40 CFR 63.761

- (3) 40 CFR 63.762(a), (c), (e)
- (4) 40 CFR 63.764(e)(ii)
- (5) 40 CFR 63.772(b)(2)(i) and (ii)
- (6) 40 CFR 63.774(a), (d)(1)(ii)
- (7) 40 CFR 63.775(a), (c)(8)
- (8) 40 CFR 63.776

The provisions of 40 CFR 63, Subpart A – General Provisions, which are incorporated as 326 IAC 20-1-1, apply to the facility described in this section except when otherwise specified in 40 CFR 63, Subpart HH.

- (g) This source does not meet the definition of a Natural Gas Transmission Facility. Therefore, the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Natural Gas Transmission and Storage (40 CFR 63.1270-1287, Subpart HHH, 326 IAC 20-31) are not included in this registration.
- (h) This new source is not a major source for HAP. Therefore, the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Reciprocating Internal Combustion Engines (40 CFR 63.6580 -63.6675, Subpart ZZZZ, 326 IAC 20-82) are not included in this registration.
- (i) This source is a HAP minor source. Therefore, the requirements of the National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters (40 CFR 63.7480-7575, Subpart DDDDD, 326 IAC 20-95) are not included in this registration.
- (j) There are no other National Emission Standards for Hazardous Air Pollutants (NESHAP)(326 IAC 14, 20 and 40 CFR 61, 63) included in this registration.

#### **State Rule Applicability – Entire Source**

##### **326 IAC 2-2 (Prevention of Significant Deterioration (PSD))**

The source will be constructed in 2007 and is not in 1 of 28 source categories. The potential to emit of PM and all criteria pollutants is less than 250 tons per year before control. Therefore, 326 IAC 2-2 (PSD) does not apply.

##### **326 IAC 2-4.1 (New Sources of Hazardous Air Pollutants)**

The potential to emit HAP from the entire source is less than 10 tons per year for a single HAP and less than 25 tons per year for total HAPs. Therefore, the requirements of 326 IAC 2-4.1 (MACT) are not applicable.

##### **326 IAC 2-6 (Emission Reporting)**

This source is located in Sullivan County, is not required to operate under a Part 70 permit, and has potential lead emissions that are less than five (5) tons per year. Therefore, pursuant to 326 IAC 2-6-1(b), the source is only subject to additional information requests as provided in 326 IAC 2-6-5.

##### **326 IAC 5-1 (Opacity Limitations)**

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in the permit:

- (a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

**State Rule Applicability – Natural Gas-Fired Compressor Engine (ENG1)**

326 IAC 2-1.1-11 (General Provisions; Compliance Requirements):

Pursuant to 326 IAC 2-1.1-11 (General Provisions; Compliance Requirements), within 60 days after achieving maximum rate, but no more than 180 days after startup, the Permittee shall perform NO<sub>x</sub> testing for natural gas fired compressor engine ENG1 to verify the NO<sub>x</sub> emission factor of 1.5 g/hp-hr, utilizing methods as approved by the Commissioner.

326 IAC 8-1-6 (General Reduction Requirements for VOC Emissions)

The potential VOC emissions from engine ENG1 are less than 25 tons per year. Therefore, the requirements of 326 IAC 8-1-6 (BACT) are not applicable.

326 IAC 9-1-2 (Carbon Monoxide Emission Requirements)

This source is not among the listed source categories in 326 IAC 9-1-2. Therefore, the requirements of 326 IAC 9-1-2 are not applicable.

326 IAC 10-1 (Nitrogen Oxide Emission Requirements)

This source is not located in Clark or Floyd County. Therefore, the requirements of 326 IAC 10-1 are not applicable.

326 IAC 10-5-1 (Nitrogen Oxide Reduction Program for Internal combustion Engines (ICE))

Pursuant to 326 IAC 10-5-1, this rule applies to owners and operators of "a large NO<sub>x</sub> SIP Call engine." Large NO<sub>x</sub> SIP Call engines are stationary internal combustion engines identified and designated as large in the NO<sub>x</sub> SIP Call engine inventory as emitting more than one tone of NO<sub>x</sub> per average ozone season day in 1995. The provisions of 326 IAC 10-5 do not apply to engine ENG1 because this engine is not an affected engine identified in the NO<sub>x</sub> SIP Call inventory compiled by the U.S. EPA, including amendments under the March 2, 2000 Federal Register (65 FR 11222) and the April 21, 2004 Federal Register (69 FR 21604) for the Phase II NO<sub>x</sub> SIP Call Role.

**State Rule Applicability – Boilers (AMREB and BHREB)**

326 IAC 6-2-4 (PM Emissions for Sources of Indirect Heating)

Pursuant to 326 IAC 6-2-4(a), indirect heating facilities constructed after September 12, 1983, shall be limited by the following equation:

$$Pt = \frac{1.09}{Q^{0.26}}$$

Where Pt = emission rate limit (lbs/MMBtu)  
Q = total source heat input capacity (MMBtu/hr)

The emission rate limit calculated from the equation above equals:

$$Pt = \frac{1.09}{(9.0 + 0.6)^{0.26}} = 0.61 \text{ lbs/MMBtu}$$

However, 326 IAC 6-2-4(a) also states that if Q is less than 10 MMBtu/hr, Pt shall not exceed 0.6. The total heat input for the boilers at this source is 9 MMBtu/hr + 0.6 MMBtu/hr = 9.6 MMBtu/hr. Therefore, the PM emission limit for each of boilers AMREB and DHREB is 0.6 lbs/MMBtu.

#### **State Rule Applicability – Amine Process (AMINE) and TEG Dehydration Process (DEHY)**

326 IAC 8-1-6 (General Reduction Requirements for VOC Emissions)

The potential VOC emissions from the each of the amine process (AMINE) and the TEG dehydration process (DEHY) are less than 25 tons per year. Therefore, the requirements of 326 IAC 8-1-6 (BACT) are not applicable.

#### **State Rule Applicability – Condensate/Oil Tank (TK1)**

326 IAC 8-9 (Volatile Organic Liquid Storage Vessels)

This source is not located in Clark, Floyd, Lake, or Porter County. Therefore, the requirements of 326 IAC 8-9-1 are not applicable to the tank at this source.

#### **State Rule Applicability – Truck Loading Operation (TL1)**

326 IAC 8-1-6 (New facilities; General reduction requirements)

The potential VOC emissions from the condensate/oil truck loading operation are less than 25 tons per year. Therefore, the requirements of 326 IAC 8-1-6 (BACT) are not applicable.

#### **Testing Requirements**

The Permittee shall perform NO<sub>x</sub> testing at the exhaust outlet of compressor engine ENG1 to confirm the NO<sub>x</sub> emission factor used in the emission calculations in Appendix A to this TSD.

#### **Conclusion**

The construction and operation of this natural gas conditioning and compression station shall be subject to the conditions of Registration No. 153-24948-00037.

**Appendix A: Emission Calculations  
Criteria Pollutant Emissions  
From 1,340 HP Natural Gas-Fired Compressor Engine (ENG1)**

**Company Name: Noble Energy, Inc.  
Address: SE SW Sec 34, T7N R9W, Sullivan County, Indiana  
Registration: 153-24948-00037  
Reviewer: ERG/YC  
Date: August 1, 2007**

Heat Input Capacity  
MMBtu/hr

Max. Power Output  
hp

10.11

1,340

Emission Factor	Pollutant					
	PM*	PM10*	SO <sub>2</sub> *	NO <sub>x</sub> **	VOC*	CO**
	7.71E-05 (lbs/MMBtu)	9.99E-03 (lbs/MMBtu)	5.88E-04 (lbs/MMBtu)	1.50 (g/hp-hr)	0.118 (lbs/MMBtu)	2.00 (g/hp-hr)
<b>Potential to Emit in tons/yr</b>	<b>3.41E-03</b>	<b>0.44</b>	<b>0.03</b>	<b>19.4</b>	<b>5.23</b>	<b>25.9</b>

\*The emission factors for PM/PM10, SO<sub>2</sub>, and VOC are from AP-42, Chapter 3.2, Table 3.2-2 for 4-Stroke Lean-Burn Engines (07/00).

PM emission factor is for filterable PM. PM10 emission factor is the sum of the emission factors for filterable PM10 and condensable PM.

\*\* NO<sub>x</sub> and CO emission factors were provided by the source based on the manufacturer's information. The Permittee will perform stack testing to verify the NO<sub>x</sub> emission factor. The CO emission factor proposed is greater than the CO emission factor in AP-42.

**Methodology**

PTE of PM/PM10, SO<sub>2</sub>, and VOC (tons/yr) = Heat Input Capacity (MMBtu/hr) x Emission Factor (lbs/MMBtu) x 8760 hrs/yr x 1 ton/2000 lbs

PTE of NO<sub>x</sub> and CO (tons/yr) = Max. Power Output (hp) x Emission Factor (g/hp-hr) / (454 g/lb) x 8760 hrs/yr x 1 ton/2000 lbs

**Appendix A: Emission Calculations  
HAP Emissions  
From 1,340 HP Natural Gas-Fired Compressor Engine (ENG1)**

**Company Name: Noble Energy, Inc.  
Address: SE SW Sec 34, T7N R9W, Sullivan County, Indiana  
Registration: 153-24948-00037  
Reviewer: ERG/YC  
Date: August 1, 2007**

Heat Input Capacity  
MMBtu/hr

Max. Power Output  
hp

10.11

1,340

Emission Factor	Pollutant						Total HAPs
	n-Hexane*	Methanol*	Acrolein*	Acetaldehyde*	Benzene*	Formaldehyde**	
	1.11E-03 (lbs/MMBtu)	2.50E-03 (lbs/MMBtu)	5.14E-03 (lbs/MMBtu)	8.36E-03 (lbs/MMBtu)	4.40E-04 (lbs/MMBtu)	0.25 (g/hp-hr)	
<b>Potential to Emit in tons/yr</b>	<b>0.05</b>	<b>0.11</b>	<b>0.23</b>	<b>0.37</b>	<b>0.02</b>	<b>3.23</b>	<b>4.01</b>

\*Emission factors, except for Formaldehyde, are from AP-42, Chapter 3.2, Table 3.2-2 for 4-Stroke Lean-Burn Engines (07/00).

\*\* Formaldehyde emission factor was provided by the source based on the manufacturer's information and is greater than the formaldehyde emission factor in AP-42.

The HAPs listed in the table above are the 5 HAPs with the highest emission factors. Additional HAPs emission factors are available in AP-42, Chapter 3.2, Table 3.2-2.

**Methodology**

PTE of HAPs, except for Formaldehyde (tons/yr) = Heat Input Capacity (MMBtu/hr) x Emission Factor (lbs/MMBtu) x 8760 hrs/yr x 1 ton/2000 lbs

PTE of Formaldehyde (tons/yr) = Max. Power Output (hp) x Emission Factor (g/hp-hr) / (454 g/lb) x 8760 hrs/yr x 1 ton/2000 lbs

**Appendix A: Emission Calculations**  
**Natural Gas Combustion**  
**(MMBtu/hr < 100)**  
**From 9 MMBtu/hr Amine Unit Reboiler and 0.6 MMBtu/hr TEG Dehydration Unit Reboiler**

**Company Name: Noble Energy, Inc.**  
**Address: SE SW Sec 34, T7N R9W, Sullivan County, Indiana**  
**Registration: 153-24948-00037**  
**Reviewer: ERG/YC**  
**Date: August 1, 2007**

Heat Input Capacity  
MMBtu/hr

9.60

(2 units total)

Potential Throughput  
MMSCF/yr

82.4

Emission Factor in lbs/MMSCF	Pollutant					
	PM	PM10*	SO <sub>2</sub>	**NO <sub>x</sub>	VOC	CO
	1.9	7.6	0.6	100	5.5	84.0
<b>Potential to Emit in tons/yr</b>	<b>0.08</b>	<b>0.31</b>	<b>2.5E-02</b>	<b>4.12</b>	<b>0.23</b>	<b>3.46</b>

\*PM10 emission factor is condensable and filterable PM combined. PM emission factor is for filterable PM only.

\*\*Emission factor for NO<sub>x</sub>: Uncontrolled = 100 lbs/MMSCF.

Emission factors are from AP-42, Chapter 1.4, Tables 1.4-1 and 1.4-2, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (AP-42 Supplement D 07/98)

All emission factors are based on normal firing.  
MMBtu = 1,000,000 Btu  
MMSCF = 1,000,000 Standard Cubic Feet of Gas

#### Methodology

Potential Throughput (MMSCF/yr) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMSCF/1,020 MMBtu  
Potential to Emit (tons/yr) = Potential Throughput (MMSCF/yr) x Emission Factor (lbs/MMSCF) x 1 ton/2000 lbs

**Appendix A: Emission Calculations  
HAP Emissions  
From 9 MMBtu/hr Amine Unit Reboiler and 0.6 MMBtu/hr TEG Dehydration Unit Reboiler**

**Company Name: Noble Energy, Inc.  
Address: SE SW Sec 34, T7N R9W, Sullivan County, Indiana  
Registration: 153-24948-00037  
Reviewer: ERG/YC  
Date: August 1, 2007**

Heat Input Capacity  
MMBtu/hr

9.60

(2 units total)

Potential Throughput  
MMSCF/yr

82

Emission Factor in lbs/MMSCF	Pollutant					<b>Total HAPs</b>
	Hexane 1.8E+00	Formaldehyde 7.5E-02	Toluene 3.4E-03	Benzene 2.1E-03	Nickel 2.1E-03	
<b>Potential to Emit in tons/yr</b>	<b>0.07</b>	<b>3.09E-03</b>	<b>1.40E-04</b>	<b>8.66E-05</b>	<b>8.66E-05</b>	<b>0.08</b>

Emission factors are from AP-42, Chapter 1.4, Tables 1.4-3 and 1.4-4 (AP-42, 07/98).

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMSCF = 1,000,000 Standard Cubic Feet of Gas

#### Methodology

Potential Throughput (MMSCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMSCF/1,020 MMBtu

PTE (tons/yr) = Potential Throughput (MMSCF/yr) x Emission Factor (lbs/MMSCF) x 1 ton/2000 lbs

**Appendix A: Emission Calculations  
From the AMINE Process (AMINE) and the TEG Dehydration Process (DEHY)**

**Company Name: Noble Energy, Inc.  
Address: SE SW Sec 34, T7N R9W, Sullivan County, Indiana  
Registration: 153-24948-00037  
Reviewer: ERG/YC  
Date: August 1, 2007**

**1. PTE of the Amine Process**

<b>Pollutants</b>	<b>PTE (tons/yr)</b>
VOC	<b>0.88</b>
<b>HAPs</b>	
Benzene	0.13
Toluene	0.09
Ethylbenzene	0.14
Xylene	0.08
n-Hexane	0.04
<b>Total HAPs</b>	<b>0.48</b>

The PTE for this unit was calculated by the source using AMINECalc gas model assuming natural gas throughput of 16 MMscfd, lean amine recirculation rate of 120 gpm, 20 trays, gas feed pressure of 850 psia and temperature of 100 F, input natural gas composition and without control.

AMINECalc is the recommended method for emission estimation as documented in the EPA's EIIP Volume II, chapter 10, Preferred and Alternate Methods for Estimating Air Emissions from Oil and Gas Field Production and Process Operations under section 4.2.4.

Emissions are based upon 8,760 hours/year of operation

**2. TEG Dehydration Process**

<b>Pollutants</b>	<b>PTE (tons/yr)</b>
VOC	<b>7.08</b>
<b>HAPs</b>	
Benzene	0.38
Toluene	0.64
Ethylbenzene	0.96
Xylene	1.27
n-Hexane	0.16
<b>Total HAPs</b>	<b>3.41</b>

The PTE of this unit was calculated by the Permittee using Gas Research Institute (GRI) model GRI\_GLYCalc model assuming natural gas throughput of 16 MMscfd, lean amine recirculation rate of 3.0 gpm, gas feed pressure of 800 psia and temperature of 100 F, input natural gas composition and without control.

(GRI-GLYCalc) is the recommended method, as noted in AP-42, Chapter 5.3 (Natural Gas Processing).

Emissions are based upon 8,760 hours/year of operation

**Appendix A: Emission Calculations  
VOC Emissions  
From Truck Loading Operation (TL1)**

**Company Name: Noble Energy, Inc.  
Address: SE SW Sec 34, T7N R9W, Sullivan County, Indiana  
Registration: 153-24948-00037  
Reviewer: ERG/YC  
Date: August 1, 2007**

**1. Emission Factors: AP-42**

According to AP-42, Chapter 5.2 - Transportation and Marketing of Petroleum Liquids (01/95), the VOC emission factor for the truck loading operation can be estimated from the following equation:

$$L = 12.46 \times (SPM)/T$$

where:

L = loading loss (lb/kgal)  
S = a saturation factor (see AP-42, Table 5.2-1)  
P = true vapor pressure of the liquid loaded (psia)  
M = molecular weight of vapors  
T = temperature of the bulk liquid loaded (°R)

Type of Liquid	S	P (psia)	M (lbs/lb-mol)	T (°R)	L (lbs/kgal)
Condensate/Oil	0.6	4.5	68	540	4.24

**2. Potential to Emit VOC:**

Max. Loading Rate: 436.8 kgal/yr (provided by the source)

$$\text{PTE of VOC (tons/yr)} = 436.8 \text{ kgal/yr} \times 4.24 \text{ lbs/kgal} \times 1 \text{ ton}/2000 \text{ lbs} =$$

**0.93 tons/yr**

**Appendix A: Emission Calculations  
Potential to Emit Summary**

**Company Name: Noble Energy, Inc.  
Address: SE SW Sec 34, T7N R9W, Sullivan County, Indiana  
Registration: 153-24948-00037  
Reviewer: ERG/YC  
Date: August 1, 2007**

Emission Units	PM (tons/yr)	PM10 (tons/yr)	SO <sub>2</sub> (tons/yr)	NOx (tons/yr)	VOC (tons/yr)	CO (tons/yr)	Total HAPs (tons/yr)
Compressor Engine	3.41E-03	0.44	0.03	19.4	5.23	25.9	4.01
Boilers	0.08	0.31	0.02	4.12	0.23	3.46	0.08
Amine Process	-	-	-	-	0.88	-	0.48
TEG Dehydration Process	-	-	-	-	7.08	-	3.41
Condensate/Oil Storage Tank*	-	-	-	-	3.10	-	Negligible
Truck Loading Operation	-	-	-	-	0.93	-	Negligible
<b>Total PTE</b>	<b>0.08</b>	<b>0.76</b>	<b>0.05</b>	<b>23.5</b>	<b>17.4</b>	<b>29.3</b>	<b>7.98</b>

\* The PTE of the storage tank was calculated by the source using EPA TANKS 4.0.9d plus gas/oil ratio correlation method.  
The calculations have been verified and found accurate.