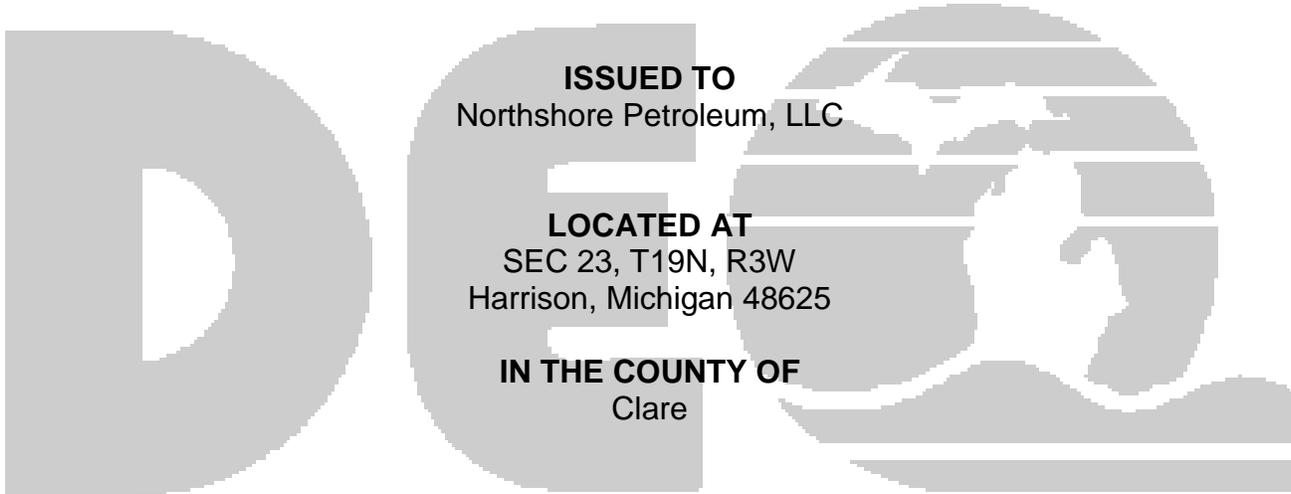


**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION**

May 2, 2008

**PERMIT TO INSTALL  
No. 26-08**



**ISSUED TO**  
Northshore Petroleum, LLC

**LOCATED AT**  
SEC 23, T19N, R3W  
Harrison, Michigan 48625

**IN THE COUNTY OF**  
Clare

**STATE REGISTRATION NUMBER**  
N7973

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environmental Quality. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203: <b>4/17/2008</b>	
DATE PERMIT TO INSTALL APPROVED: <b>5/2/2008</b>	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

**PERMIT TO INSTALL**

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**Common Abbreviations / Acronyms**

Common Acronyms		Pollutant/Measurement Abbreviations	
AQD	Air Quality Division	Btu	British Thermal Unit
ANSI	American National Standards Institute	°C	Degrees Celsius
BACT	Best Available Control Technology	CO	Carbon Monoxide
CAA	Clean Air Act	dscf	Dry standard cubic foot
CEM	Continuous Emission Monitoring	dscm	Dry standard cubic meter
CFR	Code of Federal Regulations	°F	Degrees Fahrenheit
COM	Continuous Opacity Monitoring	gr	Grains
EPA	Environmental Protection Agency	Hg	Mercury
EU	Emission Unit	hr	Hour
FG	Flexible Group	H <sub>2</sub> S	Hydrogen Sulfide
GACS	Gallon of Applied Coating Solids	hp	Horsepower
GC	General Condition	lb	Pound
HAP	Hazardous Air Pollutant	m	Meter
HVLP	High Volume Low Pressure*	mg	Milligram
ID	Identification	mm	Millimeter
LAER	Lowest Achievable Emission Rate	MM	Million
MACT	Maximum Achievable Control Technology	MW	Megawatts
MAERS	Michigan Air Emissions Reporting System	ng	Nanogram
MAP	Malfunction Abatement Plan	NO <sub>x</sub>	Oxides of Nitrogen
MDEQ	Michigan Department of Environmental Quality	PM	Particulate Matter
MIOSHA	Michigan Occupational Safety & Health Administration	PM-10	Particulate Matter less than 10 microns diameter
MSDS	Material Safety Data Sheet	pph	Pound per hour
NESHAP	National Emission Standard for Hazardous Air Pollutants	ppm	Parts per million
NSPS	New Source Performance Standards	ppmv	Parts per million by volume
NSR	New Source Review	ppmw	Parts per million by weight
PS	Performance Specification	psia	Pounds per square inch absolute
PSD	Prevention of Significant Deterioration	psig	Pounds per square inch gauge
PTE	Permanent Total Enclosure	scf	Standard cubic feet
PTI	Permit to Install	sec	Seconds
RACT	Reasonably Available Control Technology	SO <sub>2</sub>	Sulfur Dioxide
ROP	Renewable Operating Permit	THC	Total Hydrocarbons
SC	Special Condition	tpy	Tons per year
SCR	Selective Catalytic Reduction	µg	Microgram
SRN	State Registration Number	VOC	Volatile Organic Compounds
TAC	Toxic Air Contaminant	yr	Year
TEQ	Toxicity Equivalence Quotient		
VE	Visible Emissions		

\* For High Volume Low Pressure (HVLP) applicators, the pressure measured at the HVLP gun air cap shall not exceed ten (10) pounds per square inch gauge (psig).

## GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**
2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environmental Quality, P.O. Box 30260, Lansing, Michigan 48909, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**
3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to R 336.1210, operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**
4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**
5. The AQD District Supervisor shall be notified, in writing, of a change in ownership or operational control of the stationary source or emission unit(s) authorized by this Permit to Install pursuant to R 336.1219. The notification shall include all of the information required by R 336.1219(1)(a) and (b). In addition, a new owner or operator must submit a written statement pursuant to R 336.1219(1)(c), agreeing to and accepting the terms and conditions of this Permit to Install, and shall notify the AQD District Supervisor of any change in the contact person for this Permit to Install. **(R 336.1219)**
6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**
7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**

8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.
9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law nor does it affect any liability for past violations under the Natural Resources and Environmental Protection Act, 1994 PA 451.
10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.
11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of R 336.1301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with R 336.1303. **(R 336.1301)**
  - a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
  - b) A visible emission limit specified by an applicable federal new source performance standard.
  - c) A visible emission limit specified as a condition of this Permit to Install.
12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in R 336.1370(2). **(R 336.1370)**
13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R 336.2001 and R 336.2003, under any of the conditions listed in R 336.2001. **(R 336.2001)**

**SPECIAL CONDITIONS**

**Emission Unit Identification**

<b>Emission Unit ID</b>	<b>Emission Unit Description</b>	<b>Stack Identification</b>
EUHEATERTREATER	Heater treater for separating oil and water from gas.	SVFLARE
EUOILTANK	Storage tank for oil	SVFLARE
EUWATERTANK	Storage tank for water	SVFLARE
EUFLARESYSTEM	Flare system designed to burn the sour gas from the storage tanks and heater treater.	SVFLARE
Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1290.		

**Flexible Group Identification**

<b>Flexible Group ID</b>	<b>Emission Units Included in Flexible Group</b>	<b>Stack Identification</b>
FGTANKS	EUOILTANK and EUWATERTANK	SVFLARE
FGFACILITY	All process equipment at the facility including equipment covered by other permits, grand-fathered equipment and exempt equipment.	

**The following conditions apply to: EUFLARESYSTEM**

**Material Usage Limits**

1.1 The amount of hydrogen sulfide burned in EUFLARESYSTEM shall not exceed 285.3 pounds per calendar day. **(R 336.2803, R 336.2804, 40 CFR 52.21 (c) and (d))**

**Equipment**

1.2 The permittee shall not operate EUFLARESYSTEM unless the flare is installed, maintained, and operated in a satisfactory manner. **(R 336.1224, R 336.1225, R 336.1403, R 336.1901, R 336.1910)**

**Monitoring**

1.3 The permittee shall monitor and/or calculate, in a satisfactory manner, the following parameters at the frequency indicated:

- gas-to-oil ratio (GOR) – quarterly
- amount of oil produced - daily
- volumetric flow rate of gas going to the flare – monthly (calculate using the GOR and monthly amount of oil produced)
- hydrogen sulfide concentration of gas going to the flare using colorimetric detector tubes or their equivalent – quarterly

The permittee may submit a request for an alternate monitoring schedule to the AQD District Supervisor for review and approval.

**(R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

**Recordkeeping/Reporting/Notification**

1.4 The permittee shall keep, in a satisfactory manner, records of the following:

- gas-to-oil ratio
  - volume of oil produced each calendar day
  - volumetric flow rate of gas going to the flare
  - hydrogen sulfide concentration of gas going to the flare
  - calculations of hydrogen sulfide mass flow rate going to the flare for each calendar day
  - days in each calendar month that the well is operated
- Calculations for each calendar month shall be completed by the 15th day of the next month.

**(R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

**Stack/Vent Restrictions**

	<b>Stack &amp; Vent ID</b>	<b>Maximum Diameter (inches)</b>	<b>Minimum Height Above Ground Level (feet)</b>	<b>Applicable Requirement</b>
1.5	SVFLARE	4	40	<b>R 336.2803, R 336.2804, 40 CFR 52.21 (c) and (d)</b>
The exhaust gases shall be discharged unobstructed vertically upwards to the ambient air.				

**The following conditions apply to: FGTANKS**

**Equipment**

- 2.1 The permittee shall not operate FGTANKS unless the tanks are vented to a flare that is installed, maintained, and operated in a satisfactory manner. **(R 336.1225, R 336.1702(a), R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**
- 2.2 The permittee shall not load out any storage tank unless a vapor return system is installed, maintained and operated in a satisfactory manner. **(R 336.1224, R 336.1225, R 336.1901)**

**The following conditions apply to: FGFACILITY**

**Emission Limits**

	<b>Pollutant</b>	<b>Limit</b>	<b>Time Period</b>	<b>Equipment</b>	<b>Testing/ Monitoring Method</b>	<b>Applicable Requirement</b>
3.1	SO <sub>2</sub>	98 tpy	12-month rolling time period as determined at the end of each calendar month	FGFACILITY	SC 3.9	<b>40 CFR 52.21 (c) and (d)</b>

**Process/Operational Limits**

- 3.2 The permittee shall not use FGFACILITY to process wells other than the Kelly 1-23 without prior notification and approval by the AQD District Supervisor. **(R 336.1403, R 336.1901)**

### **Equipment**

- 3.3 The permittee shall not process oil in FGFACILITY unless the flare is installed, maintained, and operated in a satisfactory manner. **(R 336.1224, R 336.1225, R 336.1403, R 336.1901, R 336.1910)**
- 3.4 The permittee shall not operate FGFACILITY unless all emergency relief valves (not including safety burst plates), all storage tanks, and all dehydrators are vented to a flare, an incinerator or a vapor recovery system. **(R 336.1224, R 336.1225, R 336.1403, R 336.1901, R 336.1910)**
- 3.5 The permittee shall operate a continuously burning pilot flame at the flare. In the event that the pilot flame is extinguished, fluid flow from the well head shall automatically and immediately stop. The permittee shall not resume fluid flow from the well head unless the pilot flame is re-ignited and maintained. **(R 336.1224, R 336.1225, R 336.1403, R 336.1901, R 336.1910)**
- 3.6 The permittee shall install and maintain fencing, warning signs, and/or other measures as necessary to prevent access to the flare by unauthorized individuals. **(R 336.1201(3), R 336.1901, R 336.2802, 40 CFR 52.21)**

### **Monitoring**

- 3.7 The permittee shall perform visible emission observations of the flare at least once each calendar day that FGFACILITY is operating. If excessive visible emissions are observed, the permittee shall implement the following procedures:
- a) Determine the cause of the excessive visible emissions within 1 hour of discovery; and,
  - b) Identify, implement, and record the corrective measures to reduce/eliminate the excessive visible emissions within five hours.
  - c) If the excessive visible emissions cannot be reduced/eliminated within five hours, the permittee shall immediately cease fluid flow to FGFACILITY and not resume fluid flow to FGFACILITY until the excessive visible emissions have been reduced/eliminated. **(R 336.1225, R 336.1403, R 336.1901, R 336.1910)**

### **Recordkeeping / Reporting / Notification**

- 3.8 The permittee shall keep, in a satisfactory manner, records of each occurrence of implementing corrective measures taken to reduce/eliminate excessive visible emissions for the flare, as required by SC 3.7b as well as per calendar day records of each visible emission observation. The record for each occurrence and observation shall include the date, time, and duration of the occurrence and observation. The permittee shall keep all records on file for a period of at least five years and make them available to the Department upon request. **(R 336.1225, R 336.1403, R 336.1901, R 336.1910)**
- 3.9 The permittee shall calculate the SO<sub>2</sub> emission rates from EUFLARESYSTEM for each calendar month and 12-month rolling time period, using the following equations. Calculations for each calendar month shall be completed by the 15th day of the next month. The permittee shall keep SO<sub>2</sub> emission rate records on file for a period of at least five years and make them available to the Department upon request. **(R 336.1205, R 336.1224, R 336.1225, R 336.1702, R 336.1901)**

ft3 gas	ft3 H2S	#mol H2S	#mol SO2	64#SO2	= #/month SO2
month	100ft3 gas	357ft3 H2S	#mol H2S	#mol SO2	

ft3 gas	ft3 H2S	#mol H2S	#mol SO2	64#SO2	12months	Ton	= TPY SO2
month	100ft3 gas	357ft3 H2S	#mol H2S	#mol SO2	yr	2K#	

Within 15 days after the end of the month.