

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

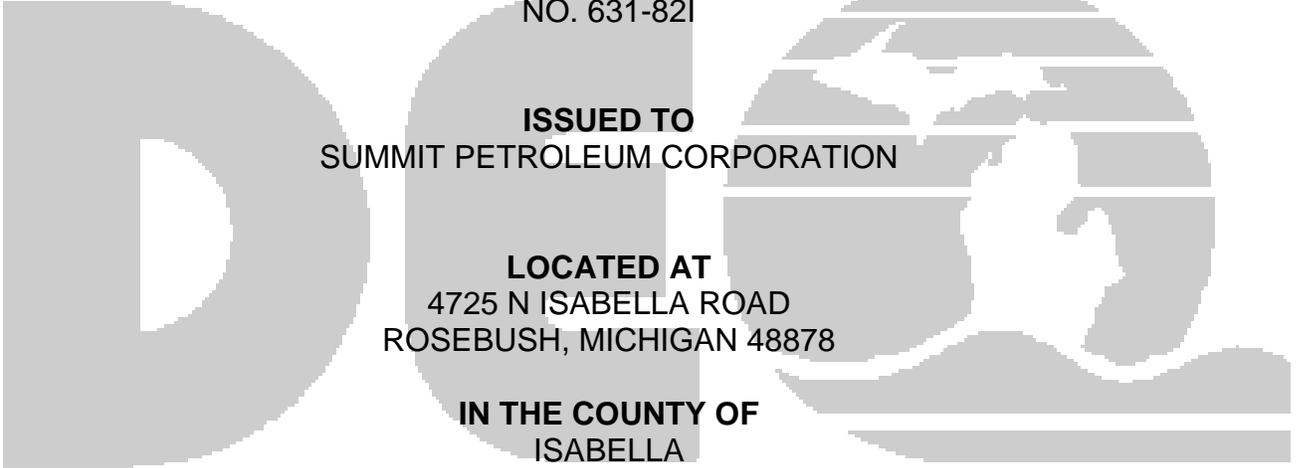
MAY 3, 2006
REVISED, JULY 31, 2006

PERMIT TO INSTALL
NO. 631-821

ISSUED TO
SUMMIT PETROLEUM CORPORATION

LOCATED AT
4725 N ISABELLA ROAD
ROSEBUSH, MICHIGAN 48878

IN THE COUNTY OF
ISABELLA



STATE REGISTRATION NUMBER
N0539

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: 11/2/2005	
DATE PERMIT TO INSTALL APPROVED: 5/3/2006	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 ₂ 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	NO _x	Oxides of Nitrogen
MAP	Malfunction Abatement Plan	PM	Particulate Matter
MDEQ	Michigan Department of Environmental Quality	PM-10	Particulate Matter less than 10 microns diameter
MIOSHA	Michigan Occupational Safety & Health Administration	pph	Pound per hour
MSDS	Material Safety Data Sheet	ppm	Parts per million
NESHAP	National Emission Standard for Hazardous Air Pollutants	ppmv	Parts per million by volume
NSPS	New Source Performance Standards	ppmw	Parts per million by weight
NSR	New Source Review	psia	Pounds per square inch absolute
PS	Performance Specification	psig	Pounds per square inch gauge
PSD	Prevention of Significant Deterioration	scf	Standard cubic feet
PTE	Permanent Total Enclosure	sec	Seconds
PTI	Permit to Install	SO ₂	Sulfur Dioxide
RACT	Reasonable Available Control Technology	THC	Total Hydrocarbons
ROP	Renewable Operating Permit	tpy	Tons per year
SC	Special Condition Number	µg	Microgram
SCR	Selective Catalytic Reduction	VOC	Volatile Organic Compounds
SRN	State Registration Number	yr	Year
TAC	Toxic Air Contaminant		
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. **[R336.1201(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. **[R336.1201(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 R336.1210, 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. **[R336.1201(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. **[R336.1201(8), Section 5510 of Act 451, PA 1994]**
5. The terms and conditions of this Permit to Install shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by this Permit to Install. If the new owner or operator submits a written request to the Department pursuant to R336.1219 and the Department approves the request, this permit will be amended to reflect the change of ownership or operational control. The request must include all of the information required by subrules (1)(a), (b), and (c) of R336.1219. The written request shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environmental Quality. **[R336.1219]**
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. **[R336.1901]**
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). **[R336.1912]**
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.
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 R336.1301, 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 R336.1303. **[R336.1301]**
 - 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 R336.1370(2). **[R336.1370]**
13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R336.2001 and R336.2003, under any of the conditions listed in R336.2001. **[R336.2001]**

SPECIAL CONDITIONS

Emission Unit Identification

Emission Unit ID	Emission Unit Description	Stack Identification
EUSWEETENING	Facility designed to remove hydrogen sulfide (H2S) from natural gas using caustic contactors, an amine contactor and molecular sieves. Incinerator and flare for control of acid gases.	SVFLARE, SVINCINERATOR
Changes to the equipment described in this table are subject to the requirements of R336.1201, except as allowed by R336.1278 to R336.1290.		

The following conditions apply to EUSWEETENING

Emission Limits

	Pollutant	Equipment	Limit	Time Period	Testing/ Monitoring Method	Applicable Requirement
1.1a	SO2	EUSWEETENING	22.4pph	Hourly	SC 1.18	R336.1205
1.1b	SO2	EUSWEETENING	98tpy	12-month rolling time period as determined at the end of each calendar month.	SC 1.18	R336.1205

Process/Operational Limits

- 1.2 The permittee shall not burn sour gas in any of the process heaters, except during startup. During startup, the hydrogen sulfide content of the sour gas shall not exceed 30 grains per 100 standard cubic feet of gas. **[R336.1205, R336.1224, R336.1225, R336.1901]**
- 1.3 The permittee shall automatically begin a safe and orderly shutdown of all process inflow streams to EUSWEETENING if the H2S concentration is more than 100 ppmv, in any building enclosing any portion of EUSWEETENING. The H2S concentration shall be determined using a system that monitors H2S on a continuous basis. Full operation of EUSWEETENING may be resumed only after successful corrective measures have been applied. **[R336.1403(5)(e)]**
- 1.4 Within 45 days of permit issuance, the permittee shall submit a Malfunction Abatement Plan to the AQD District Supervisor for approval. If the Malfunction Abatement Plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the owner or operator shall revise the Malfunction Abatement Plan within 45 days after such an event occurs and submit the revised plan to the AQD District Supervisor. The plan shall include procedures for maintaining and operating in a satisfactory manner, EUSWEETENING, add-on air pollution control devices, monitoring equipment and shut-in systems, during malfunction events, and a program for corrective action for such events. **[R336.1911]**
- 1.5 The permittee shall not send the untreated sour gas from the wells to the flare except in the event of an emergency. The applicant shall not send acid gas from the amine process to the flare except as allowed by this permit. In the event of an emergency, the permittee shall shut-in EUSWEETENING. **[R336.1224, R336.1225, R336.1403, R336.1901, R336.1910]**

Equipment

- 1.6 The permittee shall not operate EUSWEETENING unless all emergency relief valves, all storage tanks, and all dehydrators are vented to a flare, an incinerator or a vapor recovery system. **[R336.1224, R336.1225, R336.1403, R336.1901, R336.1910]**
- 1.7 The permittee shall not load out the brine and condensate storage tanks unless a vapor return system is installed, maintained and operated in a satisfactory manner. **[R336.1224, R336.1225, R336.1403(5)(c), R336.1901]**
- 1.8 The permittee shall not operate EUSWEETENING unless the two stage caustic contactor is installed, maintained, and operated in a satisfactory manner. During a malfunction of this unit, the permittee may treat the incoming sour gas with one stage of the two stage caustic contactor. However, in no event shall sulfur dioxide emissions from EUSWEETENING exceed any limit specified in this permit during a malfunction of the two stage caustic contactor. The sulfur removal efficiency of the two stage caustic contactor shall not be less than the following:
- When both stages are operating - 93.8 percent.
 - When one stage is operating – 85 percent.
- [R336.1205, R336.1224, R336.1225, R336.1403, R336.1901, R336.1910, 40 CFR 60.642]**
- 1.9 The permittee shall install and maintain fencing, warning signs, and/or other measures as necessary to prevent unauthorized individuals from entering the plant property and buildings. **[R336.1403(5)(b)]**
- 1.10 The permittee shall only burn sweet gas in the incinerator pilot (auxiliary) burner. **[R336.1224, R336.1225, R336.1403, R336.1901]**
- 1.11 The permittee shall operate a continuously burning pilot flame at the flare. Within 45 days of permit issuance the pilot flame shall be equipped with an automatic re-igniter. In the event that the pilot flame is extinguished, there-ignition system shall commence automatically within one second. If the pilot flame is not successfully re-ignited within 30 minutes, then the flow of gas into EUSWEETENING shall be immediately and automatically shut off. Operations of the equipment shall not be restarted unless the pilot flame is reignited and maintained. Pilot fuel shall be only sweet gas.
[R336.1224, R336.1225, R336.1403, R336.1901, R336.1910]

Monitoring

- 1.12 The permittee shall monitor, using a colorimetric method, and shall record, three times per day, the mass flow rate of sulfur entering the two stage caustic contactor, exiting the two stage caustic contactor, and to the incinerator. At least once per quarter, the permittee shall collect and have analyzed at a certified laboratory, samples to compare the H₂S content of samples analyzed by the permittee using the colorimetric method. If the results obtained from the certified laboratory differ by five percent or more from the colorimetric results, the mass flow rate of sulfur calculation must be adjusted in proportion to the H₂S results obtained from the laboratory and the colorimetric method. The calculation for mass flow rate of sulfur must continue to be adjusted in this manner until another laboratory comparison sample demonstrates that the laboratory H₂S results are within five percent of the colorimetric method. The monitoring data shall be submitted to the District Supervisor in an acceptable format within 30 days following the end of the month in which the data were collected. **[R336.1205, R336.1403]**
- 1.13 The permittee shall verify the presence of visible emissions during normal steady-state plant operating conditions. If any visible emissions are observed, the permittee shall immediately implement and document corrective action to minimize the visible emissions. **[R336.1910]**
- 1.14 The permittee shall monitor and record the exhaust gas temperature (°F) at the outlet of the combustion chamber of the incinerator on a continuous basis. The monitoring system shall be equipped with an audio alarm which shall be set to go off when the exhaust temperature at the outlet of the combustion chamber

falls below 1400°F. During startup, acid gas feed to the incinerator from the process shall not commence until the temperature at the outlet of the combustion chamber exceeds 1400°F. If the temperature falls below 1400°F, the permittee must try to bring the temperature back to 1400°F within 15 minutes. If the temperature falls below 1300°F, the permittee shall automatically commence shut-in of EUSWEETENING within one second. If the temperature falls below 1200°F, the permittee shall automatically commence diverting the flow of acid gas to the emergency flare. The permittee shall not operate EUSWEETENING unless the required temperature monitoring and recording devices are in proper operating condition. All temperature monitoring data shall be kept on file for a period of at least five years and made available to the Air Quality Division upon request. **[R336.1224, R336.1225, R336.1403, R336.1901]**

- 1.15 The permittee shall monitor and record the oxygen content of the exhaust gases at the outlet of the combustion chamber of the incinerator on a continuous basis. The monitoring system shall be equipped with an audio alarm which shall be set to go off when the oxygen content at the outlet of the combustion chamber falls below 5.0 percent, by volume. During startup, acid gas feed to the incinerator from EUSWEETENING shall not commence until the oxygen content at the outlet of the combustion chamber exceeds 5.0 percent. If the oxygen content falls below 5.0 percent, the permittee must try to bring the oxygen content back to five percent within 15 minutes. If the oxygen content is not a minimum of 5.0 percent after 15 minutes, then the permittee shall automatically commence shut-in of EUSWEETENING within one second and shall automatically commence diverting the flow of acid gas to the emergency flare. The permittee shall not operate EUSWEETENING unless the required oxygen monitoring and recording devices are in proper operating condition. All oxygen monitoring data shall be kept on file for a period of at least five years and made available to the Air Quality Division upon request. **[R336.1224, R336.1225, R336.1403, R336.1901]**

Recordkeeping/Reporting/Notification

- 1.16 The permittee shall provide notification of any abnormal conditions or malfunctions of EUSWEETENING. An abnormal condition is any condition resulting in violation of the Commission rules or of any permit condition for more than thirty minutes. Notification shall be made to the District Supervisor as soon as reasonably possible, but not later than 9:00 a.m. of the next working day. The permittee shall also, within ten days, submit to the District Supervisor, a written detailed report of the following:
- probable causes of the abnormal condition or malfunction
 - duration of the violation
 - remedial action taken
 - steps which are being undertaken to prevent a reoccurrence
- [R336.1912]**

- 1.17 On a monthly basis the permittee shall analyze the sour gas entering the amine contacting tower to determine the concentration of sulfur containing compounds other than H₂S (hereinafter referred to as mercaptans). Furthermore, the permittee shall calculate the following factor to be used in the calculation of sulfur dioxide emissions. Laboratory results and the mercaptan factor calculation shall be kept on file for a period of at least five years and made available to the Department upon request. **[R336.1205]**

$$\frac{\text{H}_2\text{S concentration} + \text{mercaptan concentration}}{\text{H}_2\text{S concentration}} = \text{mercaptan factor}$$

- 1.18 The permittee shall continuously monitor and record the volumetric flow rate and H₂S concentration of the sour gas entering the amine contacting tower. The permittee shall calculate the daily SO₂ emissions with the following equation:

$(\text{ft}^3 \text{ sour gas/day}) * (\text{ft}^3 \text{ H}_2\text{S} / \text{ft}^3 \text{ sour gas}) * (\text{mercaptan factor}) * (0.17\# \text{ SO}_2 / \text{ft}^3 \text{ H}_2\text{S}) = \#/\text{day SO}_2$
 NOTE: The SO₂ #/day calculation shall be determined on a per calendar day basis

The permittee shall calculate the hourly SO₂ emissions by dividing the daily SO₂ emissions by 24Hr/calendar day. The permittee shall calculate the monthly SO₂ emissions by totaling the daily SO₂ emissions for each day in the calendar month. The permittee shall calculate the tons per year SO₂ on a 12-month rolling time period as determined at the end of each calendar month by totaling the emissions for the current month plus the previous 11 months. Furthermore, the permittee shall adjust the sour gas flow rate to the amine contacting tower such that the SO₂ emissions from EUSWEETENING do not exceed the following:

- 22.4 pounds per hour
- 98 tons per year based on a 12-month rolling time period as determined at the end of each calendar month

The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor by the end of the calendar month, for the previous calendar month. Records of the emission calculations shall be kept on file for a period of at least five years and made available to the Department upon request. **[R336.1205]**

1.19 The permittee shall accurately calibrate all temperature, oxygen, monitoring and recording devices in accordance with manufacturing specifications. Records of the calibrations shall be kept on file for a period of at least five years and made available to the Department upon request. **[R336.1224, R336.1225, R336.1403, R336.1901]**

Stack/Vent Restrictions

	Stack & Vent ID	Maximum Diameter (inches)	Minimum Height Above Ground Level (feet)	Applicable Requirement
1.20a	SVFLARE	6	20	R336.1901, R336.1403
1.20b	SVINCINERATOR	16	60	R336.1224, R336.1225, R336.1403, R336.1901
The exhaust gases shall be discharged unobstructed vertically upwards to the ambient air.				