

SUPPLEMENT TO PERMIT NO. 660-96

Terra Energy, Ltd.  
Bagley Township (Bagley 23), Michigan

February 26, 1997

GENERAL CONDITIONS

1. Rule 201(1) - The process or process equipment covered by this permit shall not be reconstructed, relocated, altered, 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.
2. Rule 201(4) - If the installation, reconstruction, relocation, or alteration 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 person to whom this permit was issued, 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, reconstruction, relocation, or alteration of the equipment allowed by this Permit to Install.
3. Rule 201(6)(a) - If this Permit to Install is issued for a process or process equipment located at a stationary source which is subject to a Renewable Operating Permit pursuant to Rule 210, trial operation is allowed if the equipment performs in accordance with the terms and conditions of this Permit to Install and until the appropriate terms and conditions of this Permit to Install have been incorporated into the Renewable Operating Permit as a modification pursuant to Rule 216 or upon renewal pursuant to Rule 217. Upon incorporation of the appropriate terms and conditions into the Renewable Operating Permit, this Permit to Install shall become void.
4. Rules 201(6)(b)(i) or 216(1)(a)(v)(A) - Except as provided in General Condition No. 3, operation of the process or process equipment is allowed if, not more than 30 days after completion of the installation, construction, reconstruction, relocation, alteration, or modification authorized by this Permit to Install, the person to whom this Permit to Install was issued, or the authorized agent pursuant to Rule 204, notifies the District Supervisor, Air Quality Division, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, alteration, or modification is considered to occur not later than commencement of trial operation of the process or process equipment.
5. Rule 201(6)(b)(ii) - Except as provided in General Condition No. 3, not more than 18 months after completion of the installation, construction, reconstruction, relocation, alteration, or modification authorized by this Permit to Install, the person to whom this permit was issued, or the authorized agent pursuant to Rule 204, shall notify the District Supervisor, Air Quality Division, in writing, of the status of compliance of the process or process equipment with the terms and conditions of the Permit to Install. The notification shall include all of the following:
  - A. The results of all testing, monitoring, and recordkeeping performed to determine the actual emissions from the process or process equipment and to demonstrate compliance with the terms and conditions of the Permit to Install.
  - B. A schedule of compliance for the process or process equipment as described in Rule 119(a).

- C. A statement, signed by the person owning or operating the process or process equipment, that, based on information and belief formed after reasonable inquiry, the statements and information in the notification are true, accurate, and complete.
6. Rule 201(7) and Section 5510 of Act 451, P.A. 1994 - 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 Departments' rules or the Clean Air Act.
  7. 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 Rule 219 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 in Rule 219(1)(a), (b) and (c). The written request shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environmental Quality.
  8. Rule 901 - 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.
  9. Rule 912 - The owner or operator of a source, process, or process equipment shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant in excess of standards for more than one hour, or of any air contaminant in excess of standards for more than two hours, as required in this rule, to the District Supervisor, Air Quality Division. 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 District Supervisor within 10 days, with the information required in this rule.
  10. Approval of this permit does not exempt the person to whom this permit was issued from complying with any future regulations which may be promulgated under Part 55 of Act 451, P.A. 1994.
  11. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.
  12. Operation of this equipment may be subject to other requirements of Part 55 of Act 451, P.A. 1994, and the rules promulgated thereunder.

### SPECIAL CONDITIONS

13. The Carbon Monoxide (CO), Volatile Organic Compounds (VOC), and Oxides of Nitrogen (NO<sub>x</sub>) annual emission rates from the oil and gas production facility (OGF) individually shall not exceed 89 tons per year based on a twelve-month rolling period. Compliance with this condition shall be demonstrated by monitoring the fuel consumption of on-site equipment, crude oil/ condensate throughput to the tanks, gallons per minute (gpm) of glycol circulated through gas dehydrators, and hydrocarbon material trucked from the site, and by using this data and the emission factors established in Appendix A to these conditions to calculate emissions.
14. The annual emission rate of any individual Hazardous Air Pollutant (HAP) from the OGF shall be maintained below 9 tons per year based on a twelve-month rolling period, and the annual emission rate of total HAPs from the OGF shall be maintained below 22.5 tons per year based on a twelve-month rolling period. The same data used to demonstrate compliance with Special Condition No. 13, and the emission factors established in Appendix A for HAPs shall be used to demonstrate compliance with this condition.
15. The owner or operator of the OGF shall calculate the actual emission levels for CO, NO<sub>x</sub>, VOC and HAPs from the OGF based on a 12 month period, rolled monthly using Appendix A. If stack test results exist, or a stack test is performed, for any of the above-named pollutants, then the stack test results may be used to estimate pollutant emissions, subject to the approval of the AQD, in lieu of Appendix A. A stack test shall be performed in accordance with Special Condition No. 23.
16. The owner or operator of the OGF shall monitor, record, and maintain records at a location approved by the District Supervisor for a period of at least two years, the following process data:
  - Monthly fuel consumption, in million cubic feet (MMcf).
  - Monthly crude/condensate throughput to the tanks, in barrels (bbls)
  - Monthly hydrocarbon liquid trucked (bbls)
  - Glycol circulated through the dehydrator , in gallons per minute (gpm)
17. Monthly reports of oil and gas processed at the OGF shall be kept on file at a location approved by the District Supervisor for a period of at least two years and made available to the AQD upon request.
18. Actual emission levels for the pollutants specified in Special Condition Nos. 13 and 14 shall be reported annually to the AQD through the emission inventory reporting required under section 5503(k) of the Natural Resources and Environmental Protection Act.
19. The owner or operator of the source shall conduct all necessary maintenance and make all necessary attempts to keep all components of the process equipment in proper operating condition at all times. The owner or operator of the OGF shall maintain a log of all significant maintenance activities conducted and all repairs made to the equipment. This log shall be kept on file at a location approved by the District Supervisor for a period of at least two years and made available to the AQD upon request.

20. Rules 604 and 605 - Operation of OGFs with a crude oil or condensate storage tank having a capacity equal to or greater than 952 barrels, and the crude oil or condensate having a true vapor press of greater than 1.5 psia, shall not operate the tank(s) unless the pollution control equipment is installed and operating properly.
21. In the event of a malfunction of an air pollution control device, the owner or operator of an OGF may bypass the control device for a period not to exceed 48 hours per event, nor a total of 144 hours per calendar year, provided that the owner or operator has complied with all provisions of Rule 913.
22. The owner or operator of an OGF constructed on or after January 20, 1984, shall determine if the Federal Standards of Performance for New Stationary Sources as specified in 40 CFR, Part 60, Subpart KKK, Onshore Natural Gas Processing Facilities, is applicable, and shall keep a record of this determination on file at a location approved by the District Supervisor, and make it available to the AQD upon request. If the owner or operator determines that Subpart KKK applies, the owner or operator shall monitor and record emissions and operating information, as applicable, to comply with Subparts A and KKK. All source emissions data and operating data shall be kept on file at a location approved by the District Supervisor for a period of at least two years and made available to the AQD upon request.
23. Rules 1001, 1003 and 1004 - A stack test performed to verify CO, VOC, NO<sub>x</sub> or HAP emission rates from any equipment at an OGF shall meet the requirements of these rules. Stack testing procedures and the location of stack testing ports must have prior approval by the District Supervisor, Air Quality Division. No less than 30 days prior to testing, a complete stack testing plan must be submitted to the Air Quality Division. The final plan must be approved by the Air Quality Division prior to testing. A complete report of the test results shall be submitted within 120 days of completion of the test.
24. The OGF shall process only sweet gas as defined in Rule 119.

Appendix A  
Terra Energy, Ltd.  
Permit No. 660-96

Equipment	Usage		Factor				Emissions			
	This month	12-month rolling period	CO	NOx	VOC <sup>1</sup>	HAP	CO	NOx	TOTAL VOC <sup>2</sup>	HAP
Naturally Aspirated Compressor Facility Fuel Gas MMcf			0.215	1.7	0.041	—				—
Low Emission Compressor Facility Fuel Gas MMcf			0.043	0.17	0.0205	—				—
Tank Thruput bbl			—	—	0.000052	—	—	—		—
Tank Capacity bbl	—		—	—	0.000037	—	—	—		—
Crude Oil Trucked bbl			—	—	0.0014	—	—	—		—
Niagaran Dehy <sup>3</sup> gpm	—		—	—	25.5	20.7	—	—		
Prairie Duchein Dehy <sup>3</sup> gpm	—		—	—	8.6	1.1	—	—		
Antrim Dehy <sup>3</sup> gpm	—		—	—	0.046	—	—	—		—
<b>TOTAL Tons per 12-month rolling period</b>							<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

Notes-

- 1 - VOC factors in this column are non-HAP VOCs; but all HAPs are VOCs
- 2 - This column must be the TOTAL of the non-hap VOCs column and the HAPs columns
- 3 - Only ONE of the dehydrator types will be applicable for a particular facility

Example -

Fuel Gas MMcf	<b>2.2</b>	<b>23.5</b>	0.215	1.7	0.041	—	<b>5.1</b>	<b>40.0</b>	<b>1.0</b>	—
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