



Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
(800) 451-6027
www.IN.gov/idem

TO: Interested Parties / Applicant
DATE: September 19, 2005
RE: Quicksilver Resources, Inc. / 061-21580-00032
FROM: Paul Dubenetzky
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 1/10/05



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We make Indiana a cleaner, healthier place to live.

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Judy Raab
Environmental Coordinator
Quicksilver Resources, Inc.
777 West Rosedale St., Suite 300
Ft. Worth, Texas 76104

September 19, 2005

Re: Registered Construction and Operation Status,
061-21580-00032

Dear Mrs. Raab:

The application from Quicksilver Resources, Inc. – Sherman Booster Station, received on August 10, 2005, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-5.1, it has been determined that the following stationary natural gas booster station, to be located at 598 Hwy 11 S.W., Laconia, Indiana, is classified as registered:

- (a) One (1) 145 horsepower natural gas-fired compressor engine with a maximum fuel capacity of 9.73 MMscf/yr, to be constructed in 2005. This compressor engine is a Caterpillar 3306NA model.

The following conditions shall be applicable:

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 15 minutes (sixty (60) readings in a 6-hour period 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.

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 2-5.1-2(f)(3). The annual notice shall be submitted to:

**Compliance Data Section
Office of Air Quality
100 North Senate Avenue
Indianapolis, IN 46204**

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.

Sincerely,

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

JLA

cc: File – Harrison County
Harrison County Health Department
Air Compliance – Ray Schick
Permit Tracking
Compliance Data Section

Registration Annual Notification

This form should be used to comply with the notification requirements under 326 IAC 2-5.1-2(f)(3)

Company Name:
Address:
City:
Authorized individual:
Phone #:
Registration #:

I hereby certify that Quicksilver Resources, Inc – Sherman Booster Station is still in operation and is in compliance with the requirements of Registration 061-21580-00032.

Name (typed):
Title:
Signature:
Date:

**Indiana Department of Environmental Management
Office of Air Quality**

**Technical Support Document (TSD) for a New Source Construction and
Registration**

Source Background and Description

Source Name:	Quicksilver Resources, Inc. – Sherman Booster Station
Source Location:	598 Hwy 11 S.W., Laconia, IN 47135
County:	Harrison
SIC Code:	1311
Operation Permit No.:	061-21580-00032
Permit Reviewer:	Jenny Acker

The Office of Air Quality (OAQ) has reviewed an application from Quicksilver Resources, Inc. relating to the construction and operation of a stationary natural gas booster station.

Based on provisions in 326 IAC 2-1.1-3 and 326 IAC 2-5.1, the construction of this stationary natural gas booster station is subject to New Source Review. The source will be issued a Registration.

New Emission Units and Pollution Control Equipment

The source consists of the following emission unit:

- (a) One (1) 145 horsepower natural gas-fired compressor engine with a maximum fuel capacity of 9.73 MMscf/yr, to be constructed in 2005. This compressor engine is a Caterpillar 3306NA model.

Unpermitted Emission Units and Pollution Control Equipment

There are no unpermitted emission units operating at this source during this review process.

Existing Approvals

This registration is the first air approval issued to this source.

Enforcement Issue

There are no enforcement actions pending.

Recommendation

The staff recommends to the Commissioner that the construction and operation 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.

A complete application for the purposes of this review was received on August 10, 2005.

Emission Calculations

See Appendix A, pages 1 and 2, of this document for detailed emission calculations.

Potential to Emit (of the Source or Revision) 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/yr)
PM	0.10
PM-10	0.14
SO ₂	<0.00
VOC	1.79
CO	18.46
NO _x	10.97

HAPs	Potential to Emit (tons/yr)
Total	0.36

- (a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of each pollutant is less than twenty-five (25) tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-5.5. A registration will be issued.
- (b) Fugitive Emissions
 Since this type of operation is not 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 and Emission Offset applicability.

County Attainment Status

The source is located in Harrison County.

Pollutant	Status
PM-2.5	Attainment
PM-10	Attainment
SO ₂	Attainment
NO ₂	Attainment
1-hr Ozone	Attainment
8-hr 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 are considered when evaluating the rule applicability relating to ozone. Harrison County has been designated as attainment or unclassifiable for ozone. Therefore, VOC emissions and NOx were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.
- (b) Harrison County has been classified as attainment or unclassified 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) Harrison County has been classified as attainment or unclassifiable in Indiana for NO₂, PM-10, SO₂, CO, and Lead. 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/yr)
PM	0.10
PM-10	0.14
SO ₂	0.04
VOC	<0.00
CO	18.46
NO _x	10.97
Single HAP	0.26
Combination HAPs	0.36

This new source is not a major stationary source because no attainment 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, pursuant to 326 IAC 2-2, the PSD requirements do not apply.

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

NSPS

- (a) There are no New Source Performance Standards (NSPS) (326 IAC 12 and 40 CFR Part 60) applicable to this source.

NESHAPs

- (a) There are no National Emission Standards for Hazardous Air Pollutants (NESHAP)(326 IAC 14, 20 and 40 CFR Part 61, 63) applicable to this source.
- (b) The compressor engine is not subject to the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR 63.6590 for Stationary Reciprocating Combustion Engines, Subpart ZZZZ, because the potential to emit of the source is less than ten (10) tons per year for any single HAP and less than twenty-five (25) tons per year total HAPs.

State Rule Applicability – Entire Source

326 IAC 5-1 (Visible Emissions Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), 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.

Conclusion

The construction and operation of this stationary natural gas booster station shall be subject to the conditions of the New Source Construction and Registration Operating Permit 061-21580-00032.

**Appendix A: Emission Calculations
Internal Repicocating Engines - Natural Gas Fired**

Company Name: Quicksilver Resources, Inc.
Address City IN Zip: 598 HWY 11 S.W., Laconia, IN 47135
Permit Number: 061-21580
Pit ID: 061-00032
Reviewer: Jenny Acker
Date: 30-Aug-05

Fuel Usage
MM scf/yr

Heat Input Capacity
MM Btu/hr

9.7

1.13

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	1.94E-02	2.89E-02	0.00	2.21	0.4	3.72
Potential Emission in tons/yr	0.10	0.14	0.00	10.97	1.79	18.46

Methodology

Potential Throughput (hp-hr/yr) = hp * 8760 hr/yr

Use a conversion factor of 7,000 Btu per hp-hr to convert from horsepower to Btu/hr, unless the source gives you a source-specific brake-specific fuel consumption. (AP-42, Footnote a, Table 3.3-1)

Emission Factors are from AP42 (Supplement B 10/96), Table 3.3-2

Heat input rate (MMBtu/hr) = Fuel Usage (MMscf/yr) * 1020 Btu/scf * yr/8760 hrs

Emission (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 8760 hr/yr / (2,000 lb/ton)

Emission (tons/yr) = [Potential Throughput (hp-hr/yr) x Emission Factor (lb/hp-hr)] / (2,000 lb/ton)

*PM emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condensable.

Appendix A: Emission Calculations
Internal Repicocating Engines - Natural Gas Fired

Company Name: Quicksilver Resources, Inc.
Address City IN Zip: 598 HWY 11 S.W., Laconia, IN 47135
Permit Number: 061-21580
Pit ID: 061-00032
Reviewer: Jenny Acker
Date: 30-Aug-05

Fuel Usage	Heat Input Capacity
MM scf/yr	MM Btu/hr
9.7	1.13

Pollutant	Emission Factor (lbs/MMBtu)	Emissions (lbs/hr)	Emissions (tpy)
1,1,2,2-Tetrachlorethane	4.00E-05	4.53E-05	1.98E-04
1,1,2-Trichloroethane	3.18E-05	3.60E-05	1.58E-04
1,1-Dichloroethane	2.36E-05	2.67E-05	1.17E-04
1,2,4-Trimethylbenzene	1.43E-05	1.62E-05	7.10E-05
1,2-Dichlorethane	2.36E-05	2.67E-05	1.17E-04
1,2-Dichloropropane	2.69E-05	3.05E-05	1.33E-04
1,3-Butadiene	2.67E-04	3.02E-04	1.32E-03
1,3-Dichloropropene	2.64E-05	2.99E-05	1.31E-04
2,2,4-Trimethylpentane	2.50E-04	2.83E-04	1.24E-03
Acetaldehyde	8.36E-03	9.47E-03	4.15E-02
Acrolein	5.14E-03	5.82E-03	2.55E-02
Benzene	4.40E-04	4.98E-04	2.18E-03
Biphenyl	2.12E-04	2.40E-04	1.05E-03
Carbon Tetrachloride	3.97E-05	4.50E-05	1.97E-04
Chlorobenzene	3.04E-05	3.44E-05	1.51E-04
Chloroethane	1.87E-06	2.12E-06	9.28E-06
Chloroform	2.85E-05	3.23E-05	1.41E-04
Ethylbenzene	3.97E-05	4.50E-05	1.97E-04
Ethylene Dibromide	4.43E-05	5.02E-05	2.20E-04
Formaldehyde	5.28E-02	5.98E-02	2.62E-01
Methanol	2.50E-03	2.83E-03	1.24E-02
Methylene Chloride	2.00E-05	2.27E-05	9.92E-05
n-Hexane	1.11E-03	1.26E-03	5.51E-03
Naphthalene	7.44E-05	8.43E-05	3.69E-04
Phenol	2.40E-05	2.72E-05	1.19E-04
Styrene	2.36E-05	2.67E-05	1.17E-04
Toluene	4.08E-04	4.62E-04	2.02E-03
Vinyl Chloride	1.49E-05	1.69E-05	7.39E-05
Xylene	1.84E-04	2.08E-04	9.13E-04
Total HAP Emissions		0.08 (lbs/hr)	0.36 (tpy)

Methodology

Emission Factors are from AP-42, Chapter 3.2, Table 3.2-2, SCC #2-02-0002-54

Potential Emissions (lbs/hr) = Emission Factor(lbs/MMbtu) * Specific Heat Capacity(Btu/hp-hr) * (1MMBtu/1,000,000 Btu) * Rating(hp)

Potential Emissions (tpy) = Potential Emissions(lbs/hr) * 8760(hr/yr) / 2000(lbs/ton)