



Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
MC 61-53 IGCN 1003
(317) 232-8603
(800) 451-6027
www.IN.gov/idem

TO: Interested Parties / Applicant

DATE: July 18, 2007

RE: Quicksilver Resources, Inc. - Wimp Central Processing Facility / 061-24475-00028

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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Indianapolis, Indiana 46204-2251
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July 18, 2007

Ms. Judy Raab
Quicksilver Resources, Inc. - Wimp Central Processing Facility
777 West Rosedale Street, Suite 300
Fort Worth, TX 76104

Re: Registration and Operation Status R061-24475-00028

Dear Ms. Raab:

The application from Quicksilver Resources, Inc. - Wimp Central Processing Facility, received on March 19, 2007 has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-5.1, IDEM has determined that the following natural gas compression and dehydration station, located at SE4 NE4, Section 31, T4S R4E, Corydon, Indiana 47112, is classified as registered:

- (a) One (1) 1,265 horsepower lean burn natural gas fired compressor engine, identified as C-3, with a maximum heat input capacity of 9.55 MMBtu/hr, constructed in 2004, and exhausting to stack S-5. This compressor engine is a Caterpillar G3516.
- (b) One (1) natural gas fired glycol dehydrator, identified as D-1, constructed in September, 2003, consisting of one (1) reboiler rated at 0.125 MMBtu/hr, exhausting to Stack S-3, and one (1) dehydrator with a capacity of 40 gallons of glycol per hour, exhausting to Stack S-4.
- (c) One (1) natural gas fired glycol dehydrator, identified as D-2, constructed in September, 2003, consisting of one (1) reboiler rated at 0.125 MMBtu/hr, exhausting to Stack S-7, and one (1) dehydrator with a capacity of 40 gallons of glycol per hour, exhausting to Stack S-8.

The following conditions shall be applicable:

- (a) 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:
 - (1) 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.
 - (2) 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.
- (b) Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions), the Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions).

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
MC 61-53 IGCN 1003
Indianapolis, IN 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.

Questions may be directed to Brandon S. Snoddy at IDEM, OAQ, 100 North Senate Avenue, MC 61-53 IGCN 1003 Indianapolis, Indiana, 46204-2251 or call (800) 451-6027, ask for Brandon Snoddy, or extension 2-8217, or dial (317) 232-8217.

Sincerely:

Original document signed by

Nisha Sizemore, Chief
Permits Branch
Office of Air Quality

BS

cc: File - Harrison County
Harrison County Health Department
Air Compliance Inspector
Permit Tracking
Compliance Data Section
Billing, Licensing, and Training

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:	Quicksilver Resources, Inc. - Wimp Central Production Facility
Address:	SE4 NE4, Section 31, T4S R4E, Corydon, Indiana 47112
City:	Corydon, Indiana 47112
Phone #:	(812) 738-3338
Registration #:	R061-24475-00028

I hereby certify that Quicksilver Resources, Inc. - Wimp Central Processing Facility is still in operation and is in compliance with the requirements of Registration R061-24475-00028.

Name (typed):
Title:
Signature:
Date:

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for a Registration

Source Background and Description

Source Name:	Quicksilver Resources, Inc.
Source Location:	Wimp Central Processing Facility
County:	SE4 NE4, Section 31, T4S R4E, Corydon, IN 47112
SIC Code:	Harrison
Registration No.:	1311
Permit Reviewer:	R061-24475-00028
	Brandon Snoddy

The Office of Air Quality (OAQ) has reviewed the operating permit renewal application from Quicksilver Resources, Inc. relating to the operation of a natural gas compression and dehydration source.

History

On March 19, 2007, Quicksilver Resources, Inc. submitted applications to the OAQ requesting to renew its operating permit. Quicksilver Resources, Inc. was issued a FESOP on December 18, 2002. The source is transitioning from a FESOP to a registration.

Permitted Emission Units and Pollution Control Equipment

- (a) One (1) 1,265 horsepower lean burn natural gas-fired compressor engine, identified as C-3, with a maximum heat input capacity of 9.55 MMBtu/hr, constructed in 2004, and exhausting to stack S-5. This compressor engine is a Caterpillar G3516.
- (b) One (1) natural gas fired glycol dehydrator, identified as D-1, constructed in September, 2003, consisting of one (1) reboiler rated at 0.125 MMBtu/hr, exhausting to Stack S-3, and one (1) dehydrator with a capacity of 40 gallons of glycol per hour, exhausting to Stack S-4.
- (c) One (1) natural gas fired glycol dehydrator, identified as D-2, constructed in September, 2003, consisting of one (1) reboiler rated at 0.125 MMBtu/hr, exhausting to Stack S-7, and one (1) dehydrator with a capacity of 40 gallons of glycol per hour, exhausting to Stack S-8.

Emission Units and Pollution Control Equipment Constructed and/or Operated without a Permit

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

Emission Units and Pollution Control Equipment Removed From the Source

- (a) One (1) 840 horsepower natural gas-fired compressor engine, identified as C-1, with a maximum heat input capacity of 6.44 MMBtu/hr, using a non-selective catalytic reduction (NSCR) unit as control (identified as NSCR-1), and exhausting through stack S-1. This compressor engine is a Waukesha 3524GSI model.
- (b) One (1) 810 horsepower natural gas fired-compressor engine, identified as C-2, with a maximum heat input capacity of 6.0 MMBtu/hr, and exhausting through stack S-2. This compressor engine is a Caterpillar G3512 model.

- (c) One (1) 412 horsepower natural gas fired-generator, identified as G-1, with a maximum heat input capacity of 3.306 MMBtu/hr, using non-selective catalytic reduction (NSCR) unit as control (identified as NSCR-2), and exhausting to stack S-9.
- (d) One (1) 412 horsepower natural gas fired-generator, identified as G-2, with a maximum heat input capacity of 3.306 MMBtu/hr, using non-selective catalytic reduction (NSCR) unit as control (identified as NSCR-3), and exhausting to stack S-10.

Existing Approvals

Since the issuance of the FESOP 061-15934-00028 on December 18, 2002, the source has constructed or has been operating under the following approvals as well:

- (a) Administrative Amendment No. 061-18191-00028 issued on December 29, 2003;
- (b) Significant Permit Modification No. 061-18441-00028 issued on July 7, 2004; and
- (c) Administrative Amendment No. 061-21376-00028 July 27, 2005.

The following terms and conditions from previous approvals have been determined no longer applicable; therefore, were not incorporated into this registration:

- (a) All FESOP conditions.

Reason not incorporated: The source has removed several emission units. The source now qualifies for a registration; therefore, the FESOP limits are no longer applicable.

Enforcement Issue

There are no enforcement actions pending.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
S-3	Dehydrator Reboiler (D-1)	20	0.5	40	350
S-4	Dehydrator Vent (D-1)	20	0.167	10	100
S-5	Compressor (C-3)	26	1.0	5,950	800
S-7	Dehydrator Reboiler (D-2)	20	0.5	40	350
S-8	Dehydrator Vent (D-2)	20	0.167	10	100

Emission Calculations

See Appendix A of this document for detailed emission calculations, (1 through 5).

County Attainment Status

The source is located in Harrison County

Pollutant	Status
PM ₁₀	Attainment
PM _{2.5}	Attainment
SO ₂	Attainment
NOx	Attainment
8-hour Ozone	Attainment
CO	Attainment
Lead	Attainment

- (a) Harrison County has been classified as unclassifiable or attainment for PM_{2.5}. U.S. EPA has not yet established the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 for PM_{2.5} emissions. Therefore, until the U.S. EPA adopts specific provisions for PSD review for PM_{2.5} emissions, it has directed states to regulate PM₁₀ emissions as a surrogate for PM_{2.5} emissions. See the State Rule Applicability – Entire Source section.
- (b) 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. Harrison 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. See the State Rule Applicability – Entire Source section.
- (c) Harrison County has been classified as attainment or unclassifiable in Indiana for all other pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability – Entire Source section.
- (d) On October 25, 2006, the Indiana Air Pollution Control Board finalized a rule revision to 326 IAC 1-4-1 revoking the one-hour ozone standard in Indiana.

Unrestricted Potential Emissions

This table reflects the unrestricted potential emissions of the source.

Pollutant	tons/year
PM	0
PM-10	0.42
SO ₂	0.02
VOC	4.94
CO	7.24
NO _x	24.33

HAPs	tons/year
Acetaldehyde	Less than 10
Acrolein	Less than 10
Benzene	Less than 10
Cadmium	Less than 10
Chromium	Less than 10
Dichlorobenzene	Less than 10
Formaldehyde	Less than 10
Lead	Less than 10
Manganese	Less than 10
Methane	Less than 10
Nickel	Less than 10
Propane	Less than 10
Toluene	Less than 10
Total	Less than 25

- (a) The potential to emit (as defined in 326 IAC 2-1.1-1(16)) of PM, SO₂, VOC, CO, and NO_x is less than 25 tons per year and the potential to emit of NO_x is greater than 10 tons per year. Therefore, source is subject to the provisions of 326 IAC 2-5.5. The source will be issued a registration.
- (b) The potential to emit (as defined in 326 IAC 2-7-1(29)) of any single HAP is less than ten (10) tons per year and/or the potential to emit (as defined in 326 IAC 2-7-1(29)) of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, it is an area source for HAPs.
- (c) Fugitive Emissions
Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-7, fugitive emissions are not counted toward the determination of Part 70 applicability.

Actual Emissions

No previous emission data has been received from the source.

Potential to Emit After Issuance

The table below summarizes the potential to emit, reflecting all limits of the emission units. Any control equipment is considered enforceable only after issuance of this registration and only to the extent that the effect of the control equipment is made practically enforceable in the permit.

Emission Unit	Potential To Emit (tons/year)					
	PM-10 (tons/yr)	SO ₂ (tons/yr)	VOC (tons/yr)	CO (tons/yr)	NO _x (tons/yr)	HAPs (tons/yr)
C-3	0.42	0.02	4.94	6.04	20.5	8.92
D-1 & D-2	-	-	-	0.1	0.1	Negligible
Total	0.42	0.02	4.94	6.14	20.6	8.92

- (a) This existing stationary source is not major for PSD because the emissions of each criteria pollutant are less than two hundred fifty (<250) tons per year, and it is not one of the twenty-eight (28) listed source categories.
- (b) Fugitive Emissions
 Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-2 or 326 IAC 2-3, fugitive emissions are not counted toward the determination of PSD and Emission Offset applicability.

Federal Rule Applicability

- (a) There are no New Source Performance Standards (NSPS) (326 IAC 12 and 40 CFR Part 60) included in the permit for this source.
- (b) The requirements of the New Source Performance Standard for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants (40 CFR 60, Subpart KKK) are not applicable to the source. This NSPS applies only to emission units located at "natural gas processing plants," which are defined in the rule as "any processing site engaged in the extraction of natural gas liquids from field gas, fractionation of mixed natural gas liquids to natural gas products or both." No extraction or fractionation of natural gas liquids (such as ethane, propane, or butane) will be conducted at this source.
- (c) The requirements of the New Source Performance Standards for Onshore Natural Gas Processing: SO₂ Emissions (40 CFR 60, Subpart LLL) are not applicable to this source. This NSPS applies to facilities (called sweetening units) that separate H₂S and CO₂ from sour natural gas streams. This source does not plan to operate any sweetening units at this location.
- (d) The requirements of the New Source Performance Standards for Stationary Compression Ignition Internal Combustion Engines (40 CFR 60, Subpart IIII) are not applicable to this source. This NSPS applies to compression ignition internal combustion engines. This source only operates a spark ignition combustion engine (C-3).
- (e) There are no National Emission Standards for Hazardous Air Pollutants (NESHAP) (326 IAC 14, 326 IAC 20, 40 CFR Part 61, and 40 CFR Part 63) included in this permit because it is not a major source for HAPs.

State Rule Applicability - Entire Source

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

This source was constructed in 2002 and is not one of the twenty-eight (28) source categories defined in 326 IAC 2-2-1(p)(1). The potential to emit of criteria pollutants and PM from the entire source is less than two-hundred fifty (250) tons per year. Therefore, the requirements of 326 IAC 2-2 are not applicable.

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

The potential HAP emissions from the entire source are less than ten (10) tons per year for a single HAP and less than 25 tons per year for any combination of HAPs. Therefore, the requirements of 326 IAC 2-4.1 are not applicable.

326 IAC 2-6 (Emission Reporting)

Revisions to 326 IAC 2-6 (Emission Reporting) became effective March 27, 20004. The Permittee is no longer required to submit an emission statement; therefore, the emission statement is removed from the permit.

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 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.

State Rule Applicability – Compressor Engine C-3

326 IAC 7-1.1-1 (Sulfur Dioxide Emission Limitations)

The provisions of 326 IAC 7-1.1-1 do not apply to compressor C-3 because the emission unit does not have potential sulfur dioxide emissions greater than 25 tons per year or 10 pounds per hour.

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

The compressor C-3 is not subject to 326 IAC 8-1-6 (General VOC Reduction Requirements) because the potential to emit volatile organic compounds is less than twenty-five (25) tons per year.

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 10-1-3 (Nitrogen Oxide Emission Requirements)

This source is not located in Clark or Floyd County. Therefore, the requirements of 326 IAC 10-1-3 are not applicable.

326 IAC 10-4 (Nitrogen Oxides Budget Trading Program)

The provisions of 326 IAC 10-4 do not apply to compressor C-3 because the emission unit does not meet the definition of an electricity generating unit as defined in 326 IAC 10-4-2(16) or a large affected unit as defined in 326 IAC 10-4-2(27).

Recommendation

The staff recommends to the Commissioner that the 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.

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

Conclusion

The operation of this natural gas compression and dehydration source shall be subject to the conditions of the attached Registration No. R061-24475-00028.

**Appendix A: Emissions Calculations
Emission Summary**

Source Name: Quicksilver Resources, Inc.
Wimp Central Processing Facility
Source Location: SE4 NE4, Section 31 T4S R4E; Corydon, IN 47112
Permit Number: R061-24475-00028
Permit Reviewer: Brandon Snoddy

Uncontrolled Potential Emissions							
Emission Unit	PM (tons/year)	PM 10 (tons/year)	SO2 (tons/year)	VOC (tons/year)	CO ^A (tons/year)	NOx ^A (tons/year)	HAPs (tons/year)
C-3	0	0.42	0.02	4.94	7.14	24.23	8.92
D-1 & D-2	0	0	0	0	0.1	0.1	0.002
Total	0	0.42	0.02	4.94	7.24	24.33	Single HAP <10 tpy, Total HAPs < 25 tpy

Limited Potential Emissions							
Emission Unit	PM (tons/year)	PM 10 (tons/year)	SO2 (tons/year)	VOC (tons/year)	CO ^A (tons/year)	NOx ^A (tons/year)	HAPs (tons/year)
C-3	0	0.42	0.02	4.94	7.14	24.23	8.92
D-1 & D-2	0	0	0	0	0.1	0.1	0.002
Total	0	0.42	0.02	4.94	7.24	24.33	Single HAP <10 tpy, Total HAPs < 25 tpy

**Appendix A: Emissions Calculations
Natural Gas Fired Reciprocating Engine
50 bhp - 11,000 bhp (Lean Burn)**

**Source Name: Quicksilver Resources
Wimp Central Processing Facility
Source Address: SE4 NE4, Section 31 T4S R4E; Corydon, IN 47112
Permit Number: R061-24475-00028
Reviewer: Brandon Snoddy
Date: 6/26/2007**

Heat Input Capacity
MMBtu/hr

9.55

Emission Factor in lb/MMBtu	Pollutant					
	PM*	PM10*	SO2	NOx**	VOC	CO**
	7.710E-05	9.990E-03	5.880E-04	5.792E-01	1.180E-01	1.708E-01
Potential Emission in tons/yr	0.00	0.42	0.02	24.23	4.94	7.14

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

**NOx & CO Emission factors are from stack test performed on 11/19/2004

Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

Emission Factors are from AP 42, Chapter 3.2, Table 3.2-2 SCC # 2-02-002-54, Jul, 2000

Emission (tons/yr) = Heat Input Capacity (MMBtu/hr) x 8760 (hr/year) x Emission Factor (lb/MMBtu/hr)/2,000 lb/ton

See page 2 for HAPs emissions calculations.

**Appendix A: Emissions Calculations
 Natural Gas Fired Reciprocating Engine
 50 bhp - 11,000 bhp (Lean Burn)
 HAPs Emissions**

**Source Name: Quicksilver Resources
 Wimp Central Processing Facility
 Source Address: SE4 NE4, Section 31 T4S R4E; Corydon, IN 47112
 Permit Number: R061-24475-00028
 Reviewer: Brandon Snoddy
 Date: 6/26/2007**

	HAPs - Organics				
Emission Factor in lb/MMBtu	Acetaldehyde 8.4E-03	Acrolein 5.1E-03	Benzene 4.4E-04	Formaldehyde 5.3E-02	Methanol 2.5E-03
Potential Emission in tons/yr	0.35	0.22	0.02	2.21	0.10

Methodology is the same as page 1.
 The five highest organic HAPs emission factors are provided above.
 Emission Factors are from AP 42, Chapter 3.2, Table 3.2-2 SCC # 2-02-002-54, Jul, 2000

**Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100**

Source Name: Quicksilver Resources, Inc.
Wimp Central Processing Facility
Source Address: SE4 NE4, Section 31 T4S R4E; Corydon, IN 47112
Permit Number: R061-24475-00028
Reviewer: Brandon Snoddy
Date: 6/26/2007

Emission Unit ID	BTU Rating MMbtu/hr
D-1	0.125
<u>D-2</u>	<u>0.125</u>
Total	0.25
Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
0.25	2.2

Emission Factor in lb/MMCF	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Potential Emission in tons/yr	1.9	7.6	0.6	100.0	5.5	84.0
	0.0	0.0	0.0	0.1	0.0	0.1

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

**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

See page 2 for HAPs emissions calculations.

**Appendix A: Emissions Calculations
 Natural Gas Combustion Only
 MM BTU/HR <100
 HAPs Emissions**

**Source Name: Quicksilver Resources, Inc.
 Wimp Central Processing Facility
 Source Address: SE4 NE4, Section 31 T4S R4E; Corydon, IN 47112
 Permit Number: R061-24475-00028
 Reviewer: Brandon Snoddy
 Date: 6/26/2007**

HAPs - Organics					
Emission Factor in lb/MMcf	Benzene 2.1E-03	Dichlorobenzene 1.2E-03	Formaldehyde 7.5E-02	Hexane 1.8E+00	Toluene 3.4E-03
Potential Emission in tons/yr	2.300E-06	1.314E-06	8.213E-05	1.971E-03	3.723E-06

HAPs - Metals					
Emission Factor in lb/MMcf	Lead 5.0E-04	Cadmium 1.1E-03	Chromium 1.4E-03	Manganese 3.8E-04	Nickel 2.1E-03
Potential Emission in tons/yr	5.475E-07	1.205E-06	1.533E-06	4.161E-07	2.300E-06

Methodology is the same as page 1.

The five highest organic and metal HAPs emission factors are provided above.

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)