PRELIMINARY ANALYSIS LETTER ITEM #6:
Fire Pump Engine APEN

Copyright 2009 Kleinfelder

This page intentionally left blank

AIR POLLUTANT EMISSION NOTICE (APEN) & Application for Construction Permit – Reciprocating Internal Combustion Engine

Permit Number: _____ [Leave blank unless APCD has already assigned a permit # & AIRS ID] **Emission Source AIRS ID:** ____ / ____ / ____

Facility Equipment ID: **910-PPL-01** [Provide Facility Equipment ID to identify how this equipment is referenced within your organization.]

Section 01 – Administrative Information

Company Name: **Energy Fuels Resources Corporation**
NAICS, or SIC Code: **1094**
Source Name: **Fire Water Diesel Pump**
Source Location: **16910 Highway 90**
County: **Montrose**
Bedrock, Colorado 81411
Elevation: **5,480** Feet
Portable Source Home Base:
Mailing Address: **44 Union Boulevard, Suite 600**
ZIP Code: **80228**
Lakewood, Colorado
Person To Contact: **Radiation Safety Officer, TBD**
Phone Number: **TBD**
E-mail Address: **TBD**
Fax Number: **TBD**

Section 02 – Requested Action (check applicable request boxes)

- ☒ **Request for NEW permit or newly reported emission source**
- ☐ **Request PORTABLE source permit**
- ☐ **Request MODIFICATION to existing permit (check each box below that applies)**
  - ☐ Change fuel or equipment ☐ Change company name
  - ☐ Change permit limit ☐ Transfer of ownership ☐ Other
- ☐ **Request to limit HAPs with a Federally enforceable limit on PTE**
- ☐ **Request APEN update only (check the box below that applies)**
  - ☐ Revision to actual calendar year emissions for emission inventory
  - ☐ Update 5-Year APEN term without change to permit limits or previously reported emissions
- ☐ **Notification of AOS permanent replacement**

Addl. Info. & Notes:

Section 03 – General Information

For existing sources, operation began on: ____ / ____ / ____

For new or reconstructed sources, the projected startup date is: **01** / **31** / **2011**

Normal hours of source operation: ____ hours/day ____ days/week ____ weeks/year

General description of equipment purpose: **Diesel fired engine for the emergency fire water pump.**

Date the engine was ordered: _____ Date engine construction commenced: _____

Date the engine was relocated into Colorado: _____ Date of any reconstruction/modification: _____

Will this equipment be operated in any NAAQS nonattainment area? (http://www.cdphe.state.co.us/ap/attainmaintain.html) ☐ Yes ☒ No ☐ Don't know

Section 04 – Engine Information

Engine date of manufacture: _____ Engine displacement: **1.1** L/cyl

Manufacturer: **Clarke** Model: **JU6H-UFM0** Serial No.: _____

Engine function: ☐ Primary and/or peaking power ☐ Emergency back-up power
☐ Compression ☐ Pump jack ☒ Water pump ☐ Other: _____

Manufacturer's maximum rated horsepower @ sea level: **207** BHP @ **2100** RPM

Manufacturer's maximum site rating: _____ BHP @ _____ RPM _____ kW

Engine Brake Specific Fuel Consumption @ 100% Load: _____ Btu/HP-hr

Cycle Type: ☐ 2-Stroke ☒ 4-Stroke Combustion: ☒ Lean Burn ☐ Rich Burn

Ignition Source: ☐ Spark ☒ Compression Aspiration: ☐ Natural ☒ Turbocharged

What is the maximum number of hours this engine is used for emergency back–up power? _____ Hours/year

Colorado Department of Public Health and Environment
Air Pollution Control Division (APCD)

This notice is valid for five (5) years. Submit a revised APEN prior to expiration of five-year term, or when a significant change is made (increase production, new equipment, change in fuel type, etc).

Mail this form along with a check for $152.90 to:
Colorado Department of Public Health & Environment
APCD-SS-B1
4300 Cherry Creek Drive South
Denver, CO 80246-1530

For guidance on how to complete this APEN form:

Air Pollution Control Division: (303) 692-3150
Small Business Assistance Program (SBAP): (303) 692-3148 or (303) 692-3175

APEN forms: http://www.cdphe.state.co.us/ap/downloadforms.html

Application status: http://www.cdphe.state.co.us/ap/ss/sspcpt.html

☒ Check box to request copy of draft permit prior to issuance.
☒ Check box to request copy of draft permit prior to public notice.

FORM APCD-201

AIR POLLUTANT EMISSION NOTICE (APEN) & Application for Construction Permit – Reciprocating Internal Combustion Engine

Permit Number: _____ **Emission Source AIRS ID:** _____ / _____ / _____

Section 05 – Stack Information (Attach a separate sheet with relevant information in the event of multiple stacks; provide datum & **either** Lat/Long **or** UTM)

Operator Stack ID No.	Stack Base Elevation (feet)	Stack Discharge Height Above Ground Level (feet)	Temp. (°F)	Flow Rate (ACFM)	Velocity (ft/sec)	Moisture (%)	Horizontal Datum (NAD27, NAD83, WGS84)	UTM Zone (12 or 13)	UTM Easting or Longitude (meters or degrees)	UTM Northing or Latitude (meters or degrees)	Method of Collection for Location Data (e.g. map, GPS, GoogleEarth)
910-PPL-01			**1,030**					**12**			

Direction of stack outlet (**check one**): ☐ Vertical ☐ Vertical with obstructing raincap ☐ Horizontal ☐ Down ☐ Other (Describe): _____

Exhaust Opening Shape & Size (**check one**): ☐ Circular: Inner Diameter (inches) = _____ ☐ Other: Length (inches) = _____ Width (inches) = _____

Section 06 – Fuel Consumption Information

Fuel Type	Fuel Use Rate @ 100% load (SCF/hr, gal/hr)	Annual Fuel Consumption (gal/yr or MMSCF/yr)		Fuel Heating Value (Btu/lb, Btu/gal, Btu/SCF)	Sulfur Content (% wt.)	Seasonal Fuel Use (% of Annual Use)			
		Actual Reported for Calendar Year	Requested Permit Limit			Dec-Feb	Mar-May	Jun-Aug	Sep-Nov
Diesel	**12.2 gal/hr**			**19300 Btu/lb**	**0.05%**	**25**	**25**	**25**	**25**

Is this engine equipped with an Air/Fuel ratio controller? ☐ Yes ☐ No

Section 07 – Emissions Inventory Information & Emission Control Information

☒ **Emission Factor Documentation attached** **Data year for actual calendar yr. emissions below & fuel use above (e.g. 2007):** _____

Pollutant	Control Device Description		Control Efficiency (% Reduction)	Emission Factor		Actual Calendar Year Emissions[1]		Requested Permitted Emissions[2]		Estimation Method or Emission Factor Source
	Primary	Secondary		Uncontrolled Basis	Units	Uncontrolled (Tons/Year)	Controlled (Tons/Year)	Uncontrolled (Tons/Year)	Controlled (Tons/Year)	
TSP				**0.16**	**g/hp-hr**			**0.004**	**0.004**	Quadna Mnfr Data
PM_{10}				**0.16**	**g/hp-hr**			**0.004**	**0.004**	Quadna Mnfr Data
$PM_{2.5}$				**0.16**	**g/hp-hr**			**0.004**	**0.004**	Quadna Mnfr Data
SO_X				**0.002050**	**lb/hp-hr**			**0.02**	**0.02**	AP-42 Table 3.3-1
NO_X				**4.93**	**g/hp-hr**			**0.11**	**0.11**	Quadna Mnfr Data
VOC				**0.17**	**g/hp-hr**			**0.004**	**0.004**	Quadna Mnfr Data
CO				**0.41**	**g/hp-hr**			**0.01**	**0.01**	Quadna Mnfr Data
Formaldehyde				**1.13e-3**	**lbMMBtu**			**8.55e-5**	**8.55e-5**	AP-42 Table 3.3-2
Acetaldehyde				**7.67e-4**	**lbMMBtu**			**5.56e-5**	**5.56e-5**	AP-42 Table 3.3-2
Acrolein				**9.25e-5**	**lbMMBtu**			**6.70e-6**	**6.70e-6**	AP-42 Table 3.3-2
Benzene				**9.33e-4**	**lbMMBtu**			**6.76e-5**	**6.76e-5**	AP-42 Table 3.3-2
Please use the APCD Non-Criteria Reportable Air Pollutant Addendum form to report pollutants not listed above.										

[1] Annual emission fees will be based on actual emissions reported here. If left blank, annual emission fees will be based on requested emissions.
[2] If Requested Permitted Emissions is left blank, the APCD will calculate emissions based on the information supplied in sections 03 - 07.

Section 08 – Applicant Certification - I hereby certify that all information contained herein and information submitted with this application is complete, true and correct.

Signature of Person Legally Authorized to Supply Data	Date	Name of Legally Authorized Person (Please print)	Title
	10/19/09	**Stephen P. Antony**	**Executive Vice President and Chief Operating Officer**

NON-CRITERIA REPORTABLE AIR POLLUTANT EMISSION NOTICE ADDENDUM

(See reverse side for guidance on completing this form)

Permit Number: _____ **AIRS ID Number:** _____

Company Name: Energy Fuels Resources Corporation

Plant Location: 16910 Highway 90, Bedrock, Colorado County: Montrose Zip Code: 81411

Person to Contact: Radiation Safety Officer, TBD Phone Number: TBD

E-mail Address: TBD Fax Number: TBD

Chemical Abstract Service (CAS) Number	Chemical Name	Reporting BIN	Control Equipment / Reduction (%)	Emission Factor (lb/MMBtu)	Emission Factor Source	Uncontrolled Actual Emissions (lbs/year)	Controlled Actual Emissions (lbs/year)
108883	Toluene	C	0%	5.93e-4	AP-42, 3.3	5.93e-2	5.93e-2
1330207	Xylenes	C	0%	4.13e-4	AP-42, 3.3	4.13e-2	4.13e-2
91203	Naphthalene	B	0%	1.23e-4	AP-42, 3.3	1.23e-2	1.23e-2
106990	1,3-Butadiene	A	0%	5.67e-5	AP-42, 3.3	5.67e-3	5.67e-3

Reporting Scenario (1, 2 or 3): 1 Calendar Year for which Actual Data Applies: N/A

Signature of Person Legally Authorized to Supply Data — Date: 10/19/09

Stephen P. Antony — Executive Vice President and Chief Operating Officer

Name of Person Legally Authorized to Supply Data (Please print) — Title of Person Legally Authorized to Supply Data

Form Revision Date: December 4, 2006

GUIDANCE FOR NON-CRITERIA REPORTABLE AIR POLLUTANT EMISSION NOTICE ADDENDUM

Non-Criteria Reportable Air Pollutant Emission Notice Addendum: This form should be completed to report emissions of Hazardous Air Pollutants (HAP) and other non-criteria reportable pollutants listed in Regulation 3, Part A, Appendix B.

Permit Number: For New Permit Applications leave this blank. For modifications to existing permits, please list the permit number previously issued by the APCD.

AIRS ID Number: For New Permit Applications leave this blank. For modifications to existing permits, please list the emissions point AIRS ID number previously issued by the APCD.

Chemical Abstract Service (CAS) Number and Chemical Name: Please list the CAS number and common chemical name for each non-criteria reportable air pollutant that is emitted from this emission point. A list of CAS numbers and common chemical names may be found in Regulation 3, Appendix B.

Reporting BIN: Please list the reporting BIN for each non-criteria reportable pollutant reported. The reporting BIN may be determined by reviewing Regulation 3, Appendix B.

Reporting Scenario: The reporting scenario is established by evaluating the release point of the emission unit and the proximity of the property boundary closest to the release point according to the definitions and scenarios described below. Further details on how to determine the appropriate reporting scenario are contained in Regulation 3, Appendix A. The Division will assume scenario "1" if this information is left blank. Otherwise, an operator may choose scenario "1" by default **or** evaluate the reporting scenario based on the following definitions:

Release Point: the lowest height above ground level from which the pollutants are emitted to the atmosphere.

Property Boundary: the distance from the base of the release point to the nearest property boundary.

Point: an individual emission point or a group of individual emission points reported on one Air Pollutant Emission Notice as provided for in Part A, section II.B.4.

Scenario 1: Release point less than 10 meters (~ 33 feet) **or** property boundary less than 100 meters (~ 328 feet);

Scenario 2: Release point equal to or greater than 10 meters (~ 33 feet), but less than 50 meters (~ 164 feet), **or** property boundary equal to or greater than 100 meters (~ 328 feet), but less than 500 meters (~ 1,640 feet); or

Scenario 3: Release point equal to or greater than 50 meters (~ 164 feet), **or** property boundary equal to or greater than 500 meters (~ 1,640 feet).

Control Equipment / Reduction (%): Please list the type of control equipment used (i.e. SCR, NSCR, Flare, Thermal Oxidizer, etc.) and report the minimum percent reduction achieved by the control equipment.

Emission Factor: Please list the emission factor used to calculate the emission rates listed in the actual emission columns. Fill this information out if the applicant has calculated emissions in lieu of having the Air Pollution Control Division (APCD) calculate the emissions for the company.

Emission Factor Source: Example emission factor sources include: AP-42, GRI HAP Calc., EPA TANKS, GRI GLY Calc., Manufacturer's Emission Factor, and Mass Balance.

Uncontrolled Actual Emissions: Enter the actual uncontrolled data year (projected first year emissions for new sources) emissions (lbs/year) from the reported emission point excluding any emission reduction achieved by control equipment.

Controlled Actual Emissions: Enter the actual controlled data year (projected first year emissions for new sources) emissions (lbs/year) from the reported emission point including the emission reduction listed in the "Control Equipment Reduction (%)" column. Enter "N/A" if the emissions are uncontrolled.

SUBMITTAL OF THIS ADDENDUM MUST BE ACCOMPANIED BY AN AIR POLLUTANT EMISSION NOTICE (APEN)

Copies of this form may be obtained on the Internet at the following URL: **http://www.cdphe.state.co.us/ap/downloadforms.html**

Form Revision Date: December 4, 2006