Department of Environmental Quality

To protect, conserve and enhance the quality of Wyoming's environment for the benefit of current and future generations.

Dave Freudenthal, Governor

John Corra, Director

November 30, 2009

Mr. Jim Sewell
Senior Staff Environmental Engineer
SWEPI, LP
4582 South Ulster Street, Suite 1400
Denver, CO 80237-2642

Permit No. **CT-9080**

Dear Mr. Sewell:

The Division of Air Quality of the Wyoming Department of Environmental Quality has completed final review of SWEPI, LP's application to establish federally enforceable conditions for the drill rig fleet located in the Jonah and Pinedale Anticline Development Area (JPDA) in Sublette County, Wyoming. All diesel fired drill rig engines will be equipped with selective catalytic reduction (SCR) to reduce NO_x emissions by ninety (90) percent.

Following this agency's proposed approval of the request as published September 18, 2009 and in accordance with Chapter 6, Section 2(m) of the Wyoming Air Quality Standards and Regulations, the public was afforded a 30-day period in which to submit comments concerning the proposed new source, and an opportunity for a public hearing. Public comments were received and have been considered in the final permit. Therefore, on the basis of the information provided to us, approval to construct the Drill Rig Fleet as described in the application is hereby granted pursuant to Chapter 6, Section 2 of the regulations with the following conditions:

1. That authorized representatives of the Division of Air Quality be given permission to enter and inspect any property, premise or place on or at which an air pollution source is located or is being constructed or installed for the purpose of investigating actual or potential sources of air pollution and for determining compliance or non-compliance with any rules, standards, permits or orders.

2. That all substantive commitments and descriptions set forth in the application for this permit, unless superseded by a specific condition of this permit, are incorporated herein by this reference and are enforceable as conditions of this permit.

3. That all notifications, reports and correspondences associated with this permit shall be submitted to the Stationary Source Compliance Program Manager, Air Quality Division, 122 West 25th Street, Cheyenne, WY 82002 and a copy shall be submitted to the District Engineer, Air Quality Division, 510 Meadowview Drive, Lander, WY 82520.

4. This permit only applies to the SWEPI, LP Drill Rig Fleet while operating in the Jonah and Pinedale Anticline Development Area (JPDA). The permit conditions contained herein are only enforceable while operating drill rigs in the JPDA.
   i. The JPDA area consists of 109W & R110W in T34N, R109W & R110W in T33N, R108W, R109W & R110W in T32N, R108W, R109W & R110W in T31N, R107W, R108W & R109W in T30N, R107W, R108W & R109W in T29N, R108W & R109W in T28N, and R107W, R108W & R109W in T27N.

5. That written notification of the actual date of initial start-up for each drill rig/engine/boiler is required fifteen (15) days after start-up as defined in Condition 10. Such notification shall be submitted on a complete AQD-RIG Installation/Removal form. The form can be downloaded from the Air Quality Division website http://deq.state.wy.us/aqd or obtained from the Air Quality Division.

6. That upon removal of a drill rig/engine/boiler from the JPDA, written notification is required within fifteen (15) days of removal. Such notification shall be submitted on a complete AQD-RIG Installation/Removal form.

7. That all drill rig engines shall be equipped with selective catalytic reduction (SCR).

8. Total actual annual NO_x emissions from all drill rig engines and boilers associated with the SWEPI, LP Drill Rig Fleet shall not exceed 140 tons per year (tpy) NO_x.

    i. Total actual annual NO_x emissions from engines on any given drill rig in the SWEPI, LP Drill Rig Fleet shall not exceed 10 tpy per drill rig. This requirement shall become effective January 1, 2010.

    ii. Drill rig engines shall be equipped with SCR with a minimum NO_x control efficiency of ninety (90) percent.

9. Ammonia slip from each SCR air pollution control system shall not exceed 10 ppm_v at 15% O_2 as measured by initial and periodic testing.

10. SWEPI, LP shall conduct an initial performance test for each drill rig engine no later than ninety (90) days after start-up. Startup shall be defined as follows:

    i. For drill rig engines in service at the time of permit issuance, the start-up date shall be the permit issuance date.

    ii. For all other drill rig engines, the start-up date shall be the date the drill rig commences drilling at the first well.

11. Initial performance testing as required by Condition 10 of this permit shall be conducted on the drill rig engines as follows:

    NO_x Emissions: Compliance testing for NO_x shall be conducted in accordance with EPA approved reference methods or the State of Wyoming's Portable Analyzer Protocol. Testing shall consist of three (3) runs conducted at the inlet and outlet of the SCR system to determine the NO_x control efficiency. Results shall be reported in terms of percent control efficiency and g/hp-hr. Emissions shall be calculated using the following equation:

$$g/hp\text{-}hr\ NO_X = (ppm\ NO_{X_{corrected}})(1.19x10^{-7})(F_factor)\left(\frac{20.9}{20.9 - O_2\%_{corrected}}\right)$$
$$(Brake\ Specific\ Fuel\ Consumption(Btu/hp-hr))(10^{-6})(454)$$

    VOC Emissions: Compliance testing for VOCs shall be conducted in accordance with a Division approved test method for one (1) engine of each engine type in the fleet.

    Formaldehye Emissions: Testing for formaldehyde shall be conducted in accordance with a Division approved test method for one (1) engine of each engine type in the fleet.

    Ammonia Slip: Compliance testing for ammonia slip shall be conducted in accordance with a Division approved test method.

    Urea flow (gph), engine load (%), and catalyst inlet temperature shall be recorded during each run and submitted with the test report. The report shall also include the commissioning report by Johnson Matthey. Brake specific fuel consumption (BSFC) shall be reported with the results for both the initial performance test and the commissioning report.

A test protocol shall be submitted for review and approval prior to testing. Notification of the test date shall be provided to the Division fifteen (15) days prior to testing. Results shall be submitted to the Division within forty-five (45) days of completion.

12. That each drill rig engine shall be tested quarterly. The first quarterly test is required the following calendar quarter after completion of the initial performance tests required under Condition 11.

    i. Testing for NO_x shall be conducted in accordance with EPA approved reference methods or the State of Wyoming's Portable Analyzer protocol. Testing shall consist of one (1) ten (10) minute run conducted at the inlet and outlet of the SCR system to determine the NO_x control efficiency. Results shall be submitted in terms of percent control efficiency and g/hp-hr. Brake Specific Fuel Consumption (BSFC) shall be provided in the report.

$$g/hp\text{-}hr\ NO_X = (ppm\ NO_{X_{corrected}})(1.19x10^{-7})(F_factor)\left(\frac{20.9}{20.9 - O_2\%_{corrected}}\right)$$
$$(Brake\ Specific\ Fuel\ Consumption(Btu/hp-hr))(10^{-6})(454)$$

ii. Testing for ammonia slip shall be conducted using Draeger-Tube detectors or other methods as approved by the Administrator.

iii. Urea flow (gph), engine load (%), and catalyst inlet temperature shall be recorded during each run and submitted with the test report.

iv. A test protocol shall be submitted for review and approval prior to testing. Notification of the test date shall be provided to the Division fifteen (15) days prior to the testing. Results shall be submitted to the Division with the annual emissions inventory required by Condition 14 of this permit.

v. The Air Quality Division shall be notified within twenty-four (24) hours of the testing/monitoring required by this condition that shows operation outside the permitted emission limits. By no later than seven (7) calendar days of such testing/monitoring event, the owner or operator shall repair and retest/monitor the affected engine to demonstrate that the engine has been returned to operation within the permitted emission limits. Compliance with this permit condition regarding repair and retesting/monitoring shall not be deemed to limit the authority of the Air Quality Division to cite the owner or operator for an exceedance of the permitted emission limits for any testing/monitoring required by this condition which shows noncompliance.

vi. In lieu of quarterly testing, SWEPI, LP may submit for approval an alternative monitoring plan. A minimum of one (1) year of quarterly testing is required before an alternative plan will be considered. If approved, the Division will administratively amend this permit to incorporate the alterative monitoring plan.

13. SWEPI, LP shall follow the monitoring and maintenance requirements for each of the permitted engines equipped with a SCR system.

i. Operate and maintain the engine, SCR system, and monitoring equipment according to good air pollution control practices. The SCR system shall be operated at all times the drill rig is operating in the JPDA, except when the engine catalyst inlet temperature is less than 500°F. Records shall be kept to document periods when the SCR system is not operating and the engine is operating. The records shall include date, duration and cause.

ii. Operate the SCR Emission Control System in accordance with the Johnson Matthey Preventative Maintenance and Service Contract which includes visually inspecting the catalysts and cleaning as necessary. Records shall be maintained of catalyst maintenance and replacement. Upon replacement of the catalyst, performance tests as required by Condition 11 shall be conducted.

iii. Records of urea flow (gph), engine load (%), and catalyst inlet temperature shall be recorded, at minimum, daily when the engine is operating. Records of interim spot checks conducted to verify catalyst condition and any maintenance or corrective actions shall be kept for a period of at least five (5) years and shall be made available to the Division upon request.

iv. On or before January 1, 2010, all drill rigs shall be equipped with a datalogger to record urea flow (gph), engine load (%), and catalyst inlet temperature. Data shall be recorded on an interval of fifteen (15) minutes or less. Records shall be kept for a period of at least five (5) years and shall be made available to the Division upon request.

14. SWEPI, LP shall report the following for each well drilled.

    i. Drill Rig ID
    ii. Well API number
    iii. Well name
    iv. Well location (longitude, latitude, elevation)
    v. Drilling start and end dates
    vi. Field name
    vii. Equipment description, controls, and site rating
    viii. Brake specific fuel consumption (BSFC)
    ix. Total fuel usage for drill rig engines and boilers recorded on a daily basis
    x. Heat content and sulfur content of fuel burned recorded from supplier certification
    xi. Actual emissions for NO_x, CO, VOC, SO_2, PM_{10}, ammonia, and formaldehyde
        1. For engines, emissions shall be based on fuel consumption, g/hp-hr emission rates, and BSFC. Information recorded in Condition 13 regarding catalyst operation shall be utilized to calculate emissions from the engines.
        2. For boilers, emissions shall be based on fuel consumption, lb/MMBtu emission rates or AP-42 factors converted to lb/MMBtu, and BSFC.

    The format presented in Appendix A shall be utilized to satisfy reporting requirements for the Division's annual emission inventory, which shall be submitted by March 31 of the following calendar year.

15. That drill rigs, boilers or engines that are subject to the conditions of this permit may be replaced without modifying this permit. SWEPI, LP shall provide notifications as required by Conditions 5 and 6 of this permit. The replacement drill rig(s)/engine(s)/boiler(s) shall comply with the conditions of this permit.

16. All records required under this permit shall be kept for a period of at least five (5) years and shall be made available to the Division upon request.

17. That should drill rig engine(s) meet the definition of a stationary source, SWEPI, LP shall comply with all state and federal regulations applicable for stationary sources.

18. SWEPI, LP shall comply with all local, state, and federal rules and regulations applicable to the drill rig fleet.

It must be noted that this approval does not relieve you of your obligation to comply with all applicable county, state, and federal standards, regulations or ordinances. Special attention must be given to Chapter 6, Section 2 of the Wyoming Air Quality Standards and Regulations, which details the requirements for compliance. Any appeal of this permit as a final action of the Department must be made to the Environmental Quality Council within sixty (60) days of permit issuance per Section 16, Chapter I, General Rules of Practice and Procedure, Department of Environmental Quality.

If we may be of further assistance to you, please feel free to contact this office.

Sincerely,

David A. Finley
Administrator
Air Quality Division

John V. Corra
Director
Dept. of Environmental Quality

cc: Tony Hoyt

Appendix A

Drill Rig Emission Reporting Form

Drill Rig Emissions - 2009

Diesel Fuel Consumption

(Sample data entries provided below for January through December 2009)

2009 Drill Rig Diesel Fuel Consumption

January	Rig #1 (gallons)	Rig #2 (gallons)	Rig #3 (gallons)	Rig #4 (gallons)	Rig #5 (gallons)	Rig #6 (gallons)
1	1,600	1,850	1,572	1,800	2,070	1,755
2	1,700	2,054	2,390	1,800	1,380	1,990
3	1,500	1,848	1,572	1,800	2,070	1,726
4	1,500	1,221	1,889	1,440	1,380	1,274
5	1,600	1,848	1,753	1,800	2,300	1,345
6	1,000	2,054	1,591	1,620	1,840	978
7	600	1,848	1,591	1,620	1,870	745
8	1,000	2,054	1,462	1,400	1,840	1,794
9	1,200	811	1,809	1,620	1,610	1,453
10	1,200	1,848	1,572	1,620	1,840	2,387
11	1,500	1,233	1,594	1,440	1,610	1,761
12	1,200	1,027	1,978	1,440	1,840	1,991
13	1,300	1,027	1,897	1,800	1,840	1,866
14	1,300	1,307	2,341	1,700	1,610	1,945
15	1,122	2,054	1,992	1,440	1,610	1,990
16	1,496	1,849	1,580	1,800	1,840	1,876
17	1,122	1,849	1,343	1,620	1,840	1,623
18	1,122	2,054	1,134	1,080	1,840	1,724
19	855	1,950	1,776	2,340	1,610	1,920
20	1,496	2,259	1,787	1,860	2,070	1,395
21	1,870	1,644	1,591	2,180	1,840	1,785
22	1,663	2,054	1,608	1,980	1,840	1,484
23	1,496	2,865	2,112	1,580	1,820	1,747
24	2,203	2,259	1,521	1,620	1,840	1,789
25	1,309	1,643	1,572	1,280	2,300	1,985
26	1,496	2,157	1,594	900	1,820	824
27	1,309	1,951	1,586	1,700	2,070	950
28	1,309	2,054	1,608	1,980	1,840	769
29	1,309	2,054	1,608	1,980	1,840	769
30	1,309	2,054	1,608	1,980	1,840	769
31	1,309	2,054	1,608	1,980	1,840	769
	(gallons)	(gallons)	(gallons)	(gallons)	(gallons)	(gallons)
Subtotal	41,995	56,834	50,639	51,200	57,000	47,178

Rig	Wells	Jan (gallons)	Totals (gallons)
Rig #1	Well #1	41,995	41,995
	Well #2	-	-
			41,995
Rig #2	Well #3	19,696	19,696
	Well #4	37,138	37,138
	Well #5	-	-
			56,834
Rig #3	Well #6	31,060	31,060
	Well #7	19,579	19,579
	Well #8	-	-
			50,639
Rig #4	Well #9	42,580	42,580
	Well #10	8,620	8,620
	Well #11	-	-
			51,200
Rig #5	Well #12	23,490	23,490
	Well #13	33,510	33,510
	Well #14		-
			57,000
Rig #6	Well #15	9,068	9,068
	Well #16	38,110	38,110
	Well #17	-	-
	Well #18	-	-
			47,178

February	Rig #1 (gallons)	Rig #2 (gallons)	Rig #3 (gallons)	Rig #4 (gallons)	Rig #5 (gallons)	Rig #6 (gallons)
1	1,600	1,850	1,572	1,800	2,070	1,755
2	1,700	2,054	2,390	1,800	1,380	1,990
3	1,500	1,848	1,572	1,800	2,070	1,726
4	1,500	1,221	1,889	1,440	1,380	1,274
5	1,600	1,848	1,753	1,800	2,300	1,345
6	1,000	2,054	1,591	1,620	1,840	978
7	600	1,848	1,591	1,620	1,870	745
8	1,000	2,054	1,462	1,400	1,840	1,794
9	1,200	811	1,809	1,620	1,610	1,453
10	1,200	1,848	1,572	1,620	1,840	2,387
11	1,500	1,233	1,594	1,440	1,610	1,761
12	1,200	1,027	1,978	1,440	1,840	1,991
13	1,300	1,027	1,897	1,800	1,840	1,866
14	1,300	1,307	2,341	1,700	1,610	1,945
15	1,122	2,054	1,992	1,440	1,610	1,990
16	1,496	1,849	1,580	1,800	1,840	1,876
17	1,122	1,849	1,343	1,620	1,840	1,623
18	1,122	2,054	1,134	1,080	1,840	1,724
19	855	1,950	1,776	2,340	1,610	1,920
20	1,496	2,259	1,787	1,860	2,070	1,395
21	1,870	1,644	1,591	2,180	1,840	1,785
22	1,663	2,054	1,608	1,980	1,840	1,484
23	1,496	2,865	2,112	1,580	1,820	1,747
24	2,203	2,259	1,521	1,620	1,840	1,789
25	1,309	1,643	1,572	1,280	2,300	1,985
26	1,496	2,157	1,594	900	1,820	824
27	1,309	1,951	1,586	1,700	2,070	950
28	1,309	2,054	1,608	1,980	1,840	769
	(gallons)	(gallons)	(gallons)	(gallons)	(gallons)	(gallons)
Subtotal	38,068	50,672	45,815	45,260	51,480	44,871

Rig	Wells	Feb (gallons)	Totals (gallons)
Rig #1	Well #1	38,068	38,068
	Well #2	-	-
			38,068
Rig #2	Well #3	19,696	19,696
	Well #4	30,976	30,976
	Well #5	-	-
			50,672
Rig #3	Well #6	31,060	31,060
	Well #7	14,755	14,755
	Well #8	-	-
			45,815
Rig #4	Well #9	42,580	42,580
	Well #10	2,680	2,680
	Well #11	-	-
			45,260
Rig #5	Well #12	23,490	23,490
	Well #13	27,990	27,990
	Well #14		-
			51,480
Rig #6	Well #15	9,068	9,068
	Well #16	35,803	35,803
	Well #17	-	-
	Well #18	-	-
			44,871

March	Rig #1 (gallons)	Rig #2 (gallons)	Rig #3 (gallons)	Rig #4 (gallons)	Rig #5 (gallons)	Rig #6 (gallons)
1	1,500	1,427	1,389	2,180	1,840	784
2	800	1,848	1,560	1,800	1,850	1,587
3	900	2,259	1,398	1,600	1,840	2,498
4	1,200	1,848	1,903	1,980	1,840	686
5	800	1,848	1,294	1,260	1,850	1,303
6	800	1,605	1,739	1,800	1,510	1,845
7	800	821	1,886	1,620	1,080	1,591
8	950	821	1,870	1,440	460	1,577
9	1,500	1,233	1,870	1,440	830	2,152
10	900	1,232	1,910	1,440	1,610	1,783
11	1,300	1,849	1,970	1,440	2,070	1,783
12	1,150	1,849	1,594	1,440	1,840	1,924
13	1,150	1,849	935	1,440	1,840	1,866
14	1,500	1,232	1,000	1,620	1,780	1,685
15	1,122	1,849	1,250	1,520	1,610	1,952
16	1,455	2,054	1,880	1,620	1,610	1,880
17	935	1,849	1,178	1,480	1,840	2,354
18	1,309	1,849	1,501	1,800	1,560	1,978
19	1,122	2,054	1,691	1,800	2,070	1,172
20	1,122	811	1,582	1,800	1,670	900
21	1,496	1,849	1,701	1,800	2,070	900
22	1,122	1,849	1,168	1,260	1,870	750
23	1,455	2,054	1,587	1,080	1,560	950
24	1,122	2,054	1,694	1,540	2,070	1,012
25	1,309	1,232	1,672	750	2,070	720
26	1,122	800	1,705	1,260	1,970	650
27	1,309	1,438	1,139	1,980	1,560	920
28	1,122	1,849	1,580	1,720	1,610	950
29	1,650	2,054	1,398	1,620	1,840	983
30	1,500	2,540	1,974	1,620	1,610	983
31	1,500	1,428	1,121	1,620	1,380	1,183
Subtotal	37,022	49,512	48,035	47,670	51,890	42,855

Rig	Wells	Mar (gallons)	Totals (gallons)
Rig #1	Well #1	5,200	5,200
	Well #2	31,822	31,822
			37,022
Rig #2	Well #3	-	-
	Well #4	10,656	10,656
	Well #5	38,856	38,856
			49,512
Rig #3	Well #6	-	-
	Well #7	22,447	22,447
	Well #8	25,588	25,588
			48,035
Rig #4	Well #9	-	-
	Well #10	37,400	37,400
	Well #11	10,270	10,270
			47,670
Rig #5	Well #12	-	-
	Well #13	10,730	10,730
	Well #14	41,160	41,160
			51,890
Rig #6	Well #15	-	-
	Well #16	-	-
	Well #17	38,736	38,736
	Well #18	4,119	4,119
			42,855

Drill Rig Emissions - 2009

Natural Gas Consumption

(Sample data entries provided below for January through December 2009)

2009 Drill Rig Natural Gas Consumption

January	Rig #1 (gallons)	Rig #2 (gallons)	Rig #3 (gallons)	Rig #4 (gallons)	Rig #5 (gallons)	Rig #6 (gallons)
1	1,600	1,850	1,572	1,800	2,070	1,755
2	1,700	2,054	2,390	1,800	1,380	1,990
3	1,500	1,848	1,572	1,800	2,070	1,726
4	1,500	1,221	1,889	1,440	1,380	1,274
5	1,600	1,848	1,753	1,800	2,300	1,345
6	1,000	2,054	1,591	1,620	1,840	978
7	600	1,848	1,591	1,620	1,870	745
8	1,000	2,054	1,462	1,400	1,840	1,794
9	1,200	811	1,809	1,620	1,610	1,453
10	1,200	1,848	1,572	1,620	1,840	2,387
11	1,500	1,233	1,594	1,440	1,610	1,761
12	1,200	1,027	1,978	1,440	1,840	1,991
13	1,300	1,027	1,897	1,800	1,840	1,866
14	1,300	1,307	2,341	1,700	1,610	1,945
15	1,122	2,054	1,992	1,440	1,610	1,990
16	1,496	1,849	1,580	1,800	1,840	1,876
17	1,122	1,849	1,343	1,620	1,840	1,623
18	1,122	2,054	1,134	1,080	1,840	1,724
19	855	1,950	776	2,340	1,810	1,920
20	1,496	2,259	787	1,860	2,070	1,395
21	1,870	1,644	1,591	2,180	1,840	1,785
22	1,663	2,054	1,608	1,980	1,840	1,484
23	1,496	2,865	2,112	1,580	1,820	1,747
24	2,203	2,259	1,521	1,620	1,840	1,789
25	1,309	1,643	1,572	1,280	2,300	1,985
26	1,496	2,157	1,594	900	1,820	824
27	1,309	1,951	1,586	1,700	2,070	950
28	1,309	2,054	1,608	1,980	1,840	769
29	1,309	2,054	1,608	1,980	1,840	769
30	1,309	2,054	1,608	1,980	1,840	769
31	1,309	2,054	1,608	1,980	1,840	769
	(gallons)	(gallons)	(gallons)	(gallons)	(gallons)	(gallons)
Subtotal	41,995	56,834	50,639	51,200	57,000	47,178

Rig	Wells	Jan (gallons)	Totals (gallons)
Rig #1	Well #1	41,995	41,995
	Well #2	-	-
			41,995
Rig #2	Well #3	19,696	19,696
	Well #4	37,138	37,138
	Well #5	-	-
			56,834
Rig #3	Well #6	31,060	31,060
	Well #7	19,579	19,579
	Well #8	-	-
			50,639
Rig #4	Well #9	42,580	42,580
	Well #10	8,620	8,620
	Well #11	-	-
			51,200
Rig #5	Well #12	23,490	23,490
	Well #13	33,510	33,510
	Well #14		-
			57,000
Rig #6	Well #15	9,068	9,068
	Well #16	38,110	38,110
	Well #17	-	-
	Well #18	-	-
			47,178

February	Rig #1 (gallons)	Rig #2 (gallons)	Rig #3 (gallons)	Rig #4 (gallons)	Rig #5 (gallons)	Rig #6 (gallons)
1	1,600	1,850	1,572	1,800	2,070	1,755
2	1,700	2,054	2,390	1,800	1,380	1,990
3	1,500	1,848	1,572	1,800	2,070	1,726
4	1,500	1,221	1,889	1,440	1,380	1,274
5	1,600	1,848	1,753	1,800	2,300	1,345
6	1,000	2,054	1,591	1,620	1,840	978
7	600	1,848	1,591	1,620	1,870	745
8	1,000	2,054	1,462	1,400	1,840	1,794
9	1,200	811	1,809	1,620	1,610	1,453
10	1,200	1,848	1,572	1,620	1,840	2,387
11	1,500	1,233	1,594	1,440	1,610	1,761
12	1,200	1,027	1,978	1,440	1,840	1,991
13	1,300	1,027	1,897	1,800	1,840	1,866
14	1,300	1,307	2,341	1,700	1,610	1,945
15	1,122	2,054	1,992	1,440	1,610	1,990
16	1,496	1,849	1,580	1,800	1,840	1,876
17	1,122	1,849	1,343	1,620	1,840	1,623
18	1,122	2,054	1,134	1,080	1,840	1,724
19	855	1,950	776	2,340	1,810	1,920
20	1,496	2,259	787	1,860	2,070	1,395
21	1,870	1,644	1,591	2,180	1,840	1,785
22	1,663	2,054	1,608	1,980	1,840	1,484
23	1,496	2,865	2,112	1,580	1,820	1,747
24	2,203	2,259	1,521	1,620	1,840	1,789
25	1,309	1,643	1,572	1,280	2,300	1,985
26	1,496	2,157	1,594	900	1,820	824
27	1,309	1,951	1,586	1,700	2,070	950
28	1,309	2,054	1,608	1,980	1,840	769
	(gallons)	(gallons)	(gallons)	(gallons)	(gallons)	(gallons)
Subtotal	38,068	50,672	45,815	45,260	51,480	44,871

Rig	Wells	Feb (gallons)	Totals (gallons)
Rig #1	Well #1	38,068	38,068
	Well #2	-	-
			38,068
Rig #2	Well #3	19,696	19,696
	Well #4	30,976	30,976
	Well #5	-	-
			50,672
Rig #3	Well #6	31,060	31,060
	Well #7	14,755	14,755
	Well #8	-	-
			45,815
Rig #4	Well #9	42,580	42,580
	Well #10	2,680	2,680
	Well #11	-	-
			45,260
Rig #5	Well #12	23,490	23,490
	Well #13	27,990	27,990
	Well #14		-
			51,480
Rig #6	Well #15	9,068	9,068
	Well #16	35,803	35,803
	Well #17	-	-
	Well #18	-	-
			44,871

March	Rig #1 (gallons)	Rig #2 (gallons)	Rig #3 (gallons)	Rig #4 (gallons)	Rig #5 (gallons)	Rig #6 (gallons)
1	1,500	1,427	1,389	2,180	1,840	781
2	800	1,848	1,580	1,800	1,850	1,587
3	900	2,259	1,398	1,800	1,840	2,498
4	1,200	1,848	1,903	1,980	1,840	885
5	800	1,648	1,294	1,260	1,850	1,803
6	800	805	1,739	1,800	1,510	1,945
7	800	821	1,966	1,620	1,080	1,591
8	950	821	1,870	1,440	460	1,977
9	1,500	1,233	1,870	1,440	690	2,152
10	1,900	1,232	1,910	1,440	1,610	1,793
11	1,300	1,849	1,970	1,440	2,070	1,763
12	1,150	1,643	1,594	1,440	1,840	1,594
13	1,150	1,849	935	1,440	1,840	1,866
14	1,500	1,232	1,000	1,620	1,780	1,685
15	1,122	1,648	1,250	1,520	1,610	1,959
16	1,455	2,054	1,860	1,620	1,610	1,980
17	935	1,649	1,175	1,480	1,840	2,364
18	1,309	1,446	1,594	1,800	1,580	1,678
19	1,122	2,054	1,591	1,800	2,070	1,672
20	1,122	811	1,662	1,800	1,670	600
21	1,496	1,848	1,701	1,800	2,070	600
22	1,122	1,648	1,168	1,260	1,870	750
23	1,455	2,054	1,597	1,080	1,660	950
24	1,122	2,053	1,594	540	2,070	1,012
25	1,309	1,232	1,572	750	2,070	720
26	1,122	800	1,705	1,280	1,970	650
27	1,309	1,439	1,168	1,980	1,380	920
28	1,122	1,848	1,590	1,720	1,610	950
29	1,850	2,054	1,398	1,620	1,840	985
30	1,500	2,640	1,974	1,620	1,610	993
31	1,500	1,428	1,122	1,620	1,380	1,193
Subtotal	37,022	49,512	48,035	47,670	51,890	42,855

Rig	Wells	Mar (gallons)	Totals (gallons)
Rig #1	Well #1	5,200	5,200
	Well #2	31,822	31,822
			37,022
Rig #2	Well #3	-	-
	Well #4	10,656	10,656
	Well #5	38,856	38,856
			49,512
Rig #3	Well #6	-	-
	Well #7	22,447	22,447
	Well #8	25,588	25,588
			48,035
Rig #4	Well #9	-	-
	Well #10	37,400	37,400
	Well #11	10,270	10,270
			47,670
Rig #5	Well #12	-	-
	Well #13	10,730	10,730
	Well #14	41,160	41,160
			51,890
Rig #6	Well #15	-	-
	Well #16	-	-
	Well #17	38,736	38,736
	Well #18	4,119	4,119
			42,855

Drill Rig Locations & Emissions

(Sample data entries provided below)
List all wells drilled by each rig, showing the order of progression of wells drilled throughout the year
(Add additional rows as needed to provide data for each well drilled)
Input negative values for Rig Boilers under column heading "Site Rating"
* Use emission factors from actual test data and attach test results inclusive of tested rate
** Emission factors from manufacturer or AP-42 may be used if test data is not available

Rig ID	Equipment Description	Controls	API #	Location (WGS84)			Well Name	Field Name	Well Spud Date	Formation	Drilling Start Date	Drilling End Date	Well Depth	Site Rating	Hours Operated to Drill Well	Natural Gas Use per Well	Heat Content Natural Gas	Diesel Fuel Use per Well	Heat Content Diesel Fuel	Diesel Sulfur Content	Heat Input of Fuel	BSFC	Drill Rig Emission Factors					Emissions from Drilling						Stack Parameters			
				Lat	Long	Elev																	NO_x	CO	VOC	PM_{10}	HCHO	NO_x	CO	VOC	PM_{10}	HCHO	SO_2	Height	Temp	Velocity	Diameter
						feet								hp or (MMBtu/hr)		mscf	Btu/scf	gal	Btu/gal	ppm_w	MMBtu	Btu/hp-hr	g/hp-hr* or (lb/MMBtu)**					Tons per Well						ft	° F	ft/sec	ft
Rig #1 - H&P 000	Cat 3512CDITA Diesel	Tier 2	49-035-25938	42.47183	-109.70750	7,179	Stud Horse Butte 41-22	Jonah	12/16/07	Lance	2/3/08	2/14/08	11,751	1,476	288		1,000	15,431	130,000	500	2,006	7,389	4.80	8.50	1.00	0.40	0.00	1.44	2.54	0.30	0.12	0.00	0.05	16.40	630.55	98.40	0.66
	Cat 3512CDITA Diesel	Tier 2												1,476	288		1,000	15,431	130,000	500	2,006	7,389	4.80	8.50	1.00	0.40	0.00	1.44	2.54	0.30	0.12	0.00	0.05	16.40	630.55	98.40	0.66
	Rig Boiler	None												(6.3)	144		1,000	4,209	130,000	500	547	7,000	(0.15)	(0.036)	(0.0022)	(0.015)	(0.00045)	0.04	0.01	0.00	0.00	0.00	0.01	13.00	344.00	17.50	1.29
Rig #1 - H&P 000	Cat 3512CDITA Diesel	Tier 2	49-035-25752	42.47132	-109.70708	7,187	Stud Horse Butte 41-22	Jonah	12/13/07	Lance	2/24/08	3/6/08	11,679	1,476	264		1,000	3,628	130,000	500	472	6,782	4.80	8.50	1.00	0.40	0.00	0.37	0.65	0.08	0.03	0.00	0.01	16.40	630.55	98.40	0.66
	Cat 3512CDITA Diesel	Tier 2												1,476	264		1,000	3,628	130,000	500	472	6,782	4.80	8.50	1.00	0.40	0.00	0.37	0.65	0.08	0.03	0.00	0.01	16.40	630.55	98.40	0.66
	Rig Boiler	None												(6.3)	123		1,000	1,052	130,000	500	137	6,200	(0.15)	(0.036)	(0.0022)	(0.015)	(0.00045)	0.01	0.00	0.00	0.00	0.00	0.00	13.00	344.00	17.50	1.29
			3rd well drilled using Rig #1 - H&P 000 (Continue for next well drilled using Rig #1 -- following the above format)																																		
Rig #2 - H&P 001	Cat 3512CDITA Diesel	Tier 2	49-035-25045	42.47187	-109.70761	7,179	Stud Horse Butte 21-22	Jonah	12/13/07	Lance	2/13/08	2/24/08	11,638	1,476	288		1,000	15,431	130,000	500	2,006	7,389	4.80	8.50	1.00	0.40	0.00	1.44	2.54	0.30	0.12	0.00	0.05	16.40	630.55	98.40	0.66
	Cat 3512CDITA Diesel	Tier 2												1,476	288		1,000	15,431	130,000	500	2,006	7,389	4.80	8.50	1.00	0.40	0.00	1.44	2.54	0.30	0.12	0.00	0.05	16.40	630.55	98.40	0.66
	Rig Boiler	None												(6.3)	144		1,000	4,209	130,000	500	547	7,000	(0.15)	(0.036)	(0.0022)	(0.015)	(0.00045)	0.04	0.01	0.00	0.00	0.00	0.01	13.00	344.00	17.50	1.29
			2nd well drilled using Rig #2 - H&P 001 (Continue for next well drilled using Rig #2 -- following the above format)																																		