

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

## APPLICATION FOR PERMIT TO DRILL OR REENTER

No Nos

1a. Type of work: ☒ DRILL ☐ REENTER1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone

2. Name of Operator LIME ROCK RESOURCES II-A, L.P.

3a. Address 1111 BAGBY ST., STE. 4600  
HOUSTON, TX 770023b. Phone No. (include area code)  
713-292-9526

4. Location of Well (Report location clearly and in accordance with any State requirements.)\*

At surface 10' FNL &amp; 2050' FWL

At proposed prod. zone 360' FNL &amp; 2280' FWL

14. Distance in miles and direction from nearest town or post office\*  
10 MILES SOUTHEAST OF ARTESIA, NM12. County or Parish  
EDDY13. State  
NM15. Distance from proposed\*  
location to nearest  
property or lease line, ft  
(Also to nearest drig. unit line, if any) 360'16. No. of acres in lease  
24017. Spacing Unit dedicated to this well  
4018. Distance from proposed location\*  
to nearest well, drilling, completed,  
applied for, on this lease, ft. 611'19. Proposed Depth  
~~5625'~~ TVD 5225' Rsa 7/5/12  
5277' MD20. BLM/BIA Bond No. on file  
NMB-00071621. Elevations (Show whether DF, KDB, RT, GL, etc.)  
3422.1' GL22. Approximate date work will start\*  
07/01/201223. Estimated duration  
2-3 WEEKS

## 24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, must be attached to this form.

- Well plat certified by a registered surveyor
- A Drilling Plan.
- A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office)
- Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- Operator certification
- Such other site specific information and/or plans as may be required by the BLM.

25. Signature

Name (Printed/Typed)

LISA BARFIELD dba PETRO ENERGY GROUP

Date

7/5/2012

Title

POA AGENT FOR LIME ROCK RESOURCES II-A, L.P.

Approved by (Signature)

/s/ James A. Amos

Name (Printed/Typed)

/s/ James A. Amos

Date

OCT 16 2012

Title

FIELD MANAGER

Office

CARLSBAD FIELD OFFICE

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon

Conditions of approval, if any, are attached.

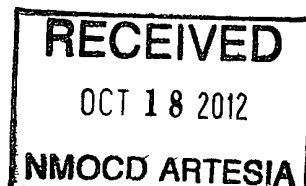
APPROVAL FOR TWO YEARS

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2)

\*(Instructions on page 2)

Roswell Controlled Water Basin

Approval Subject to General Requirements  
& Special Stipulations AttachedSEE ATTACHED FOR  
CONDITIONS OF APPROVAL

**District I**

1625 N. French Dr., Hobbs, NM 88240

**District II**

1301 W. Grand Avenue, Artesia, NM 88210

**District III**

1000 Rio Brazos Rd., Aztec, NM 87410

**District IV**

1220 S. St. Francis Dr., Santa Fe, NM 87505

## State of New Mexico

Energy, Minerals &amp; Natural Resources Department

## OIL CONSERVATION DIVISION

1220 South St. Francis Dr.

Santa Fe, NM 87505

Form C-102

Revised October 15, 2009

Submit one copy to appropriate

District Office

☐ AMENDED REPORT

## WELL LOCATION AND ACREAGE DEDICATION PLAT

<sup>1</sup> API Number <b>30-015-40803</b>	<sup>2</sup> Pool Code <b>51120</b>	<sup>3</sup> Pool Name <b>RED LAKE; GLORIETA-YESO</b>
<sup>4</sup> Property Code <b>309018</b>	<sup>5</sup> Property Name <b>HAWK "17" C FEDERAL</b>	
<sup>6</sup> Well Number <b>8</b>	<sup>7</sup> Elevation <b>3422.1</b>	
<sup>8</sup> OGRID No. <b>277 255333 558</b>	<sup>9</sup> Operator Name <b>11- LIME ROCK RESOURCES A, L.P.</b>	

<sup>10</sup> Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
<b>C</b>	<b>17</b>	<b>18 S</b>	<b>27 E</b>		<b>10</b>	<b>NORTH</b>	<b>2050</b>	<b>WEST</b>	<b>EDDY</b>

<sup>11</sup> Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
<b>C</b>	<b>17</b>	<b>18 S</b>	<b>27 E</b>		<b>360</b>	<b>NORTH</b>	<b>2280</b>	<b>WEST</b>	<b>EDDY</b>

<sup>12</sup> Dedicated Acres	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No.
<b>40</b>			

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

		<sup>17</sup> <b>OPERATOR CERTIFICATION</b> I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.	
NW CORNER SEC. 17 LAT. = 32.7549446°N LONG. = 104.3085334°W	SE CORNER SEC. 17 LAT. = 32.7549724°N LONG. = 104.299864°W	NE CORNER SEC. 17 LAT. = 32.7694296°N LONG. = 104.2913487°W	Signature <i>RLH</i> Date <b>7/5/2012</b> Printed Name <b>RICHARD LOGAN BOUGHAL</b>
SW CORNER SEC. 17 LAT. = 32.7476885°N LONG. = 104.3086906°W	<b>HAWK "17" C FEDERAL #8</b> ELEV. = 3422.1' LAT. = 32.7549389°N (NAD27) LONG. = 104.3018657°W		<sup>18</sup> <b>SURVEYOR CERTIFICATION</b> I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.
BOTTOM OF HOLE LAT. = 32.7539791°N LONG. = 104.3011369°W		OCTOBER 13, 2011 Date of Survey 	
NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1927 (NAD27), AND ARE IN DECIMAL DEGREE FORMAT.			

**CERTIFICATION:**

I hereby certify that I have inspected the proposed drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have knowledge of state and Federal laws applicable to this operation; that the statements made in the APD package are, to the best of my knowledge true and correct; and that the work associated with the operation proposed herein will be performed in the conformity with this APD package and the terms and conditions which it is approved. I also certify that I, or the company I represent, am/is responsible for the operations conducted under this application. These statements are subject to the provisions of 18U.S.C. 1001 for the filing of a false statement.

Executed this April 25, 2012

Lisa Barfield

POA Agent for Lime Rock Resources II-A, L.P.

12777 Jones Rd., Ste 385

Houston, TX 77070

281-890-1818 (office)

## **POWER OF ATTORNEY**

### **DESIGNATION OF AGENT**

Lime Rock Resources II-A, L.P. hereby names the following person as its agent:

Name of Agent: Lisa Barfield dba Petro Energy Group

Agent's Address: 12777 Jones Road Suite 385 Houston, Texas 77070

Agent's Telephone Number: 281-890-1818

### **GRANT OF SPECIAL AUTHORITY**

Lime Rock Resources II-A, L.P. grants its agent the authority to act for it with the respect to the following only:

1. Executing forms required to be filed with the Oil Conservation Division of the New Mexico Energy, Minerals, and Natural Resources Department.
2. Executing forms required to be filed with the Bureau of Land Management of the Department of Interior of the United States of America.

### **EFFECTIVE DATE**

This power of attorney is effective immediately.

### **RELIANCE ON THIS POWER OF ATTORNEY**

Any person, including the agent, may rely upon the validity of this power of attorney or a copy of it unless that person knows it has terminated or is invalid.

**SIGNATURE AND ACKNOWLEDGEMENT**

Lime Rock Resources II-A, L.P.

By: [Signature]

Name: Charles Adcock

Title: Co-Chief Executive Officer

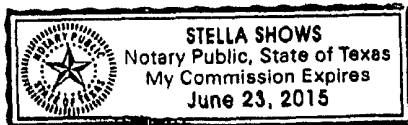
Date: 4/13/2012

Address: 1111 Bagby Street, Suite 4600, Houston, TX 77002

State of TEXAS  
County of HARRIS

This instrument was acknowledged before me on April 13, 2012 by Stella Shows,  
Charles Adcock of Lime Rock Resources II-A, L.P. acting on behalf of said limited partnership.

Signature of notarial officer: [Signature]  
My commission expires: June 23, 2015





**LIME ROCK RESOURCES II-A,L.P**  
**Drilling Plan**

**HAWK "17" C FEDERAL #8**  
**10' FNL & 2050' FWL Surface Location**  
**360' FNL & 2050' FWL Bottom-hole Location**  
**Unit C - Sec. 17 - T18S - R27E**  
**Eddy County, NM**  
**Lease Number: NMLC-060888**

In conjunction with Form 3160-3, Application for Permit to Drill subject well, LIME ROCK RESOURCES II-A,L.P submits the following items of pertinent information in accordance with BLM requirements:

1. The geologic name of the surface formation is recent Permian with Quaternary alluvium and other surficial deposits.

**Estimated tops of geologic markers:**

	MD	TVD
Quaternary – Alluvium	Surface	Surface
7 Rivers	129'	129'
Queen	604'	604'
Grayburg	980'	975'
Premier	1205'	1190'
San Andres	1272'	1254'
Middle San Andres	1738.24'	1700'
Glorieta	2742'	2690'
Yeso	2857'	2805'
Tubb	4652'	4600'
TD	5277'	5225'

2. The estimated depth at which water, oil or gas formations are anticipated to be encountered:  
Water: Surface water possible in the Triassic between 200'.  
The distance to the nearest fresh water well is 4,700 ft.  
Oil: Possible in the San Andres, Glorieta below 1205' MD and 1172' TVD.  
Gas: Possible in the San Andres, Glorieta below 1205' MD and 1172' TVD.
3. The elevation of the unprepared ground is 3422.1' feet above sea level.
4. A rotary rig will be utilized to directionally drill the well to 5225' and run casing. This equipment will be rigged down and the well will be completed with a workover rig.
5. Directional drilling will kick off at 425' in the 144.42° azimuth direction with a build rate of 2.5°/100', then will end the build section at a depth of 1154.2' MD (1141.9' TVD) to a tangent section at 18.23° until a depth of 1640.5' MD (1603.9' TVD) at which the angle will be dropped at 2°/100' until the well is back to vertical at 2551.9' MD (2500' TVD)). The 144.42° azimuth direction will be maintained to hit the target square, then the well will be maintained as a straight hole to a proposed total depth of 5277' MD and 5225' TVD.
6. Proposed total depth is 5277'
7. The well will be drilled as a shallow "S" directional well to hit a square target bounded by regulatory setbacks on the west and south, and 30' north and 30' east of those setbacks. Once the well is drilled into the target, aiming at the center of the target, the well path will never cross the regulatory "hard line" boundaries. The location listed on the application for a permit to drill is the absolute furthest southwest that the well's vertical well path will penetrate within the square 30' x 30' target. (Please see directional plan attached.)

8. Proposed Casing and Cement program is as follows: *See COA*

Type	Hole Size	Casing Size	Wt	Grade	Thread	Excess Cement %	Depth	Sx	Density	Yield	Components	Casing Condition	Collapse Design Factor	Burst Design Factor	Tension Design Factor	TOC
Conductor	26"	20"	91.5	B	Weld		80'				Ready mix	New				
Surface	17.5"	8.675"	<del>24</del> 48	J-55	ST&C	200%	<del>450'</del> 350'	425	14.8	1.35	Cl C Cmt +0.25 lbs/sk Cello Flake +2% CaCl <sub>2</sub>	New	1.2	1.18	2.0	Surface
Production	7.875"	5.5"	17	J-55	LT&C	80%	5225'	325	12.8	1.903	(35:65)Poz/Cl C Cmt + 5% NaCl +.0125lb/sk Cello Flake+ 5lbs/sk LCM-1+ 0.2% R-3 +6% Gel	New	1.2	1.18	2.0	Surface
						50%		675	14.8	1.33	Class C w/ 0.6% R-3 and 1/4 pps cello flake	New				

9. Proposed Mud Program is as follows

Depth	0-450-350	350-450-5000	5000-5300
Mud Type	Fresh Water	Brine	Brine w/ Gel & Starch
Properties			
MW	8.5-9.2	9.9-10.2	9.9-10.2
pH	10	10-11.5	10-11.5
WL	NC	NC	15-20
Vis	28-34	30-32	32-35
MC	NC	NC	1
Solids	NC	<1%	<1%
Pump Rate	300-350gpm	350-400gpm	400-450gpm
Special	LCM as Req	Salt Gell & MF as Req'd pmp Hi Vis sweeps to control solids	Salt gel, Acid & MF as req. Pmp Hi Vis sweeps to control Solids



**10. Pressure Control Equipment:** See Attached Description and diagram of Pressure Control Equipment.

**11. Testing, Logging and Coring Program** *See COA*

Testing Program: None

Electric Logging Program: Gamma Ray – Dual Laterlog – Compensated Neutron/Density Log from total depth to surface casing

surface casing to surface: Gamma Ray – Neutron log

Coring Program: None

**12. Potential Hazards:**

No abnormal temperatures or pressures are expected. There is no expected H<sub>2</sub>S from this well.

An H<sub>2</sub>S drilling plan is included and will be followed according to the provisions of Onshore Oil and Gas Order No. 6. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Estimated BHP 2299 psi based on 0.44 psi/ft. The estimated BHT is 135°F.

**13. Duration of Operations:**

Anticipated spud date will be soon after approval and as soon as a rig will be available. Move in operations and drilling is expected to take 10 days. An additional 14 days will be needed to complete the well and to construct surface facilities.

# **LIME ROCK RESOURCES**

**EDDY COUNTY, NM (NAD 27)**

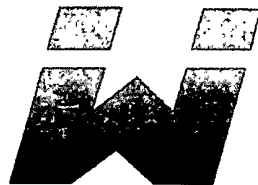
**SEC. 17 T18S RGE. 29E**

**HAWK "17" C FEDERAL #8**

**ORIGINAL WELLBORE**

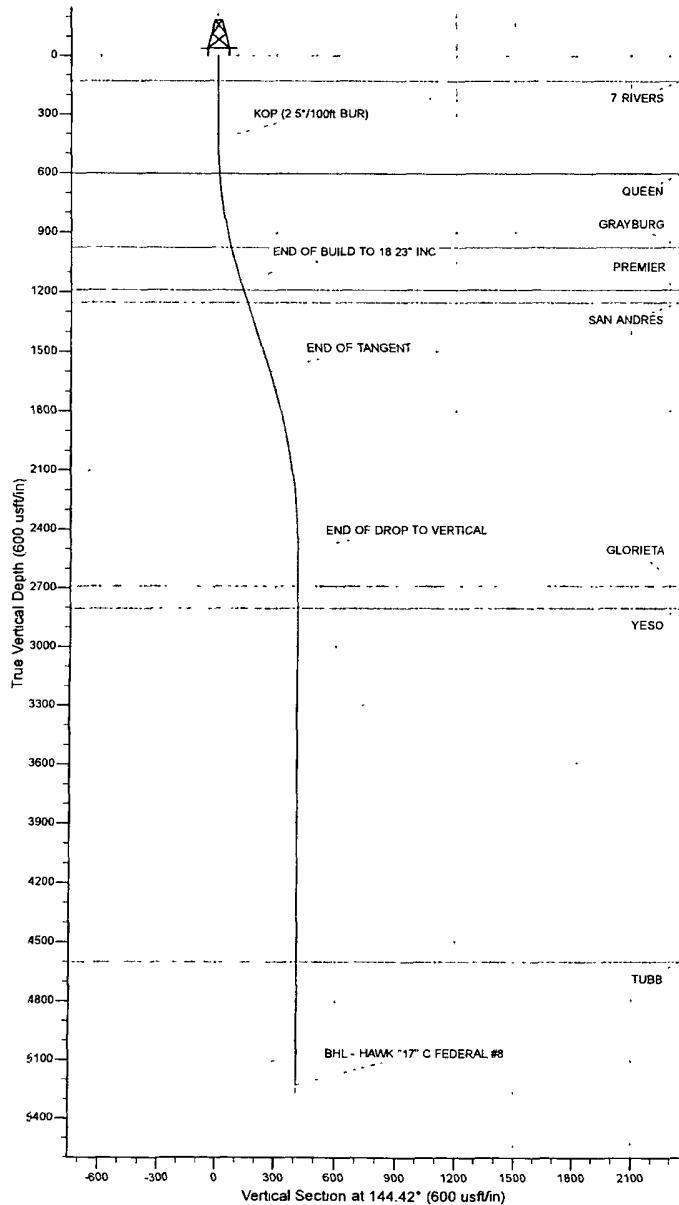
**22 March, 2012**

**Plan: PROPOSAL #1**

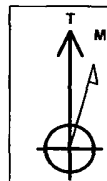
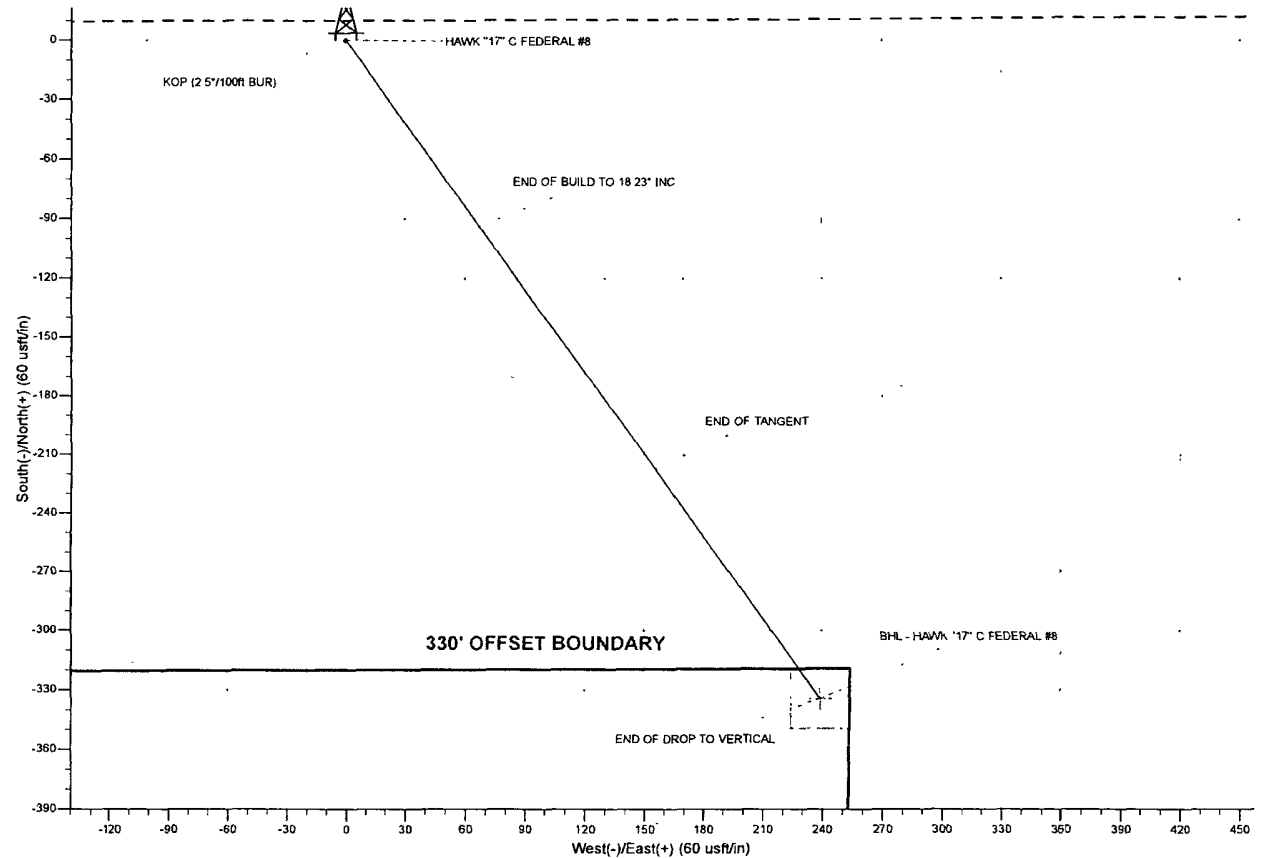


**Wellpath**  
**ENERGY SERVICES**





Project: EDDY COUNTY, NM (NAD 27)  
 Site: SEC. 17 T18S RGE. 29E  
 Well: HAWK "17" C FEDERAL #8  
 Wellbore: ORIGINAL WELLBORE  
 Design: PROPOSAL #1



Azimuths to True North  
 Magnetic North 7.87°  
 Magnetic Field  
 Strength 48777 4snT  
 Dip Angle 60.53°  
 Date 22/03/2012  
 Model IGRF2010

#### ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Annotation
425.0	425.0	0.00	0.00	0.0	0.0	0.0	KOP (2 5"/100ft BUR)
1141.9	1154.2	18.23	144.42	-93.5	66.9	115.0	END OF BUILD TO 18.23° INC
1603.9	1640.5	18.23	144.42	-217.3	155.4	267.2	END OF TANGENT
2500.0	2551.9	0.00	0.00	-334.2	239.1	410.9	END OF DROP TO VERTICAL
5225.0	5276.9	0.00	0.00	-334.2	239.1	410.9	BHL - HAWK "17" C FEDERAL #8

# Planning Report



**Database:** EDM\_5000\_1\_7  
**Company:** LIME ROCK RESOURCES  
**Project:** EDDY COUNTY, NM (NAD 27)  
**Site:** SEC 17 T18S RGE. 29E  
**Well:** HAWK "17" C FEDERAL #8  
**Wellbore:** ORIGINAL WELLBORE  
**Design:** PROPOSAL #1

**Local Co-ordinate Reference:** Well HAWK "17" C FEDERAL #8  
**TVD Reference:** KB-EST @ 3413.4usft (Original Well Elev)  
**MD Reference:** KB-EST @ 3413.4usft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature

<b>Project</b>	EDDY COUNTY, NM (NAD 27)		
<b>Map System:</b>	US State Plane 1927 (Exact solution)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	New Mexico East 3001		Using geodetic scale factor

**Site** SEC. 17 T18S RGE. 29E

**Site Position:** Northing: 638,359.15 usft Latitude: 32° 45' 17.780 N  
**From:** Lat/Long Easting: 509,674.03 usft Longitude: 104° 18' 6.717 W  
**Position Uncertainty:** 0 0 usft Slot Radius: 13-3/16" Grid Convergence: 0.02 °

**Well** HAWK "17" C FEDERAL #8

**Well Position** +N/-S 0.0 usft Northing: 638,359.15 usft Latitude: 32° 45' 17.780 N  
 +E/-W 0.0 usft Easting: 509,674.03 usft Longitude: 104° 18' 6.717 W  
**Position Uncertainty** 0.0 usft Wellhead Elevation: usft Ground Level: 3,400.0 usft

**Wellbore** ORIGINAL WELLBORE

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	22/03/2012	7.87	60.53	48,777

**Design** PROPOSAL #1

**Audit Notes:**

**Version:** Phase: PROTOTYPE Tie On Depth: 0.0  
**Vertical Section:** Depth From (TVD) (usft) +N/-S (usft) +E/-W (usft) Direction (°)  
 5,225.0 0 0 0 144.42

**Plan Sections**

MD (usft)	Inc (°)	Azi (°)	Vertical Depth	SS (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	-3,413.4	0.0	0.0	0.00	0.00	0.00	0.00	
425.0	0.00	0.00	425.0	-2,988.4	0.0	0.0	0.00	0.00	0.00	0.00	
1,154.2	18.23	144.42	1,141.9	-2,271.5	-93.5	66.9	2.50	2.50	0.00	144.42	
1,640.5	18.23	144.42	1,603.9	-1,809.5	-217.3	155.4	0.00	0.00	0.00	0.00	
2,551.9	0.00	0.00	2,500.0	-913.4	-334.2	239.1	2.00	-2.00	0.00	180.00	
5,276.9	0.00	0.00	5,225.0	1,811.6	-334.2	239.1	0.00	0.00	0.00	0.00	BHL - HAWK "17" C

**Database:** EDM\_5000\_1\_7  
**Company:** LIME ROCK RESOURCES  
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**MD Reference:** KB-EST @ 3413.4usft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature

## Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	3,413.40	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	3,313.40	0.0	0.0	0.0	0.00	0.00	0.00
<b>7 RIVERS</b>										
129.0	0.00	0.00	129.0	3,284.40	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	3,213.40	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	3,113.40	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	3,013.40	0.0	0.0	0.0	0.00	0.00	0.00
<b>KOP (2.5°/100ft BUR)</b>										
425.0	0.00	0.00	425.0	2,988.40	0.0	0.0	0.0	0.00	0.00	0.00
500.0	1.88	144.42	500.0	2,913.41	-1.0	0.7	1.2	2.50	2.50	0.00
600.0	4.38	144.42	599.8	2,813.57	-5.4	3.9	6.7	2.50	2.50	0.00
<b>QUEEN</b>										
604.2	4.48	144.42	604.0	2,809.40	-5.7	4.1	7.0	2.50	2.50	0.00
700.0	6.88	144.42	699.3	2,714.06	-13.4	9.6	16.5	2.50	2.50	0.00
800.0	9.38	144.42	798.3	2,615.07	-24.9	17.8	30.6	2.50	2.50	0.00
900.0	11.88	144.42	896.6	2,516.79	-39.9	28.5	49.0	2.50	2.50	0.00
<b>GRAYBURG</b>										
980.4	13.89	144.42	975.0	2,438.40	-54.5	39.0	67.0	2.50	2.50	0.00
1,000.0	14.38	144.42	994.0	2,419.41	-58.4	41.8	71.8	2.50	2.50	0.00
1,100.0	16.88	144.42	1,090.3	2,323.12	-80.3	57.4	98.7	2.50	2.50	0.00
<b>END OF BUILD TO 18.23° INC</b>										
1,154.2	18.23	144.42	1,141.9	2,271.48	-93.5	66.9	115.0	2.50	2.50	0.00
1,200.0	18.23	144.42	1,185.5	2,227.94	-105.2	75.3	129.4	0.00	0.00	0.00
<b>PREMIER</b>										
1,204.8	18.23	144.42	1,190.0	2,223.40	-106.4	76.1	130.9	0.00	0.00	0.00
<b>SAN ANDRES</b>										
1,272.2	18.23	144.42	1,254.0	2,159.40	-123.6	88.4	151.9	0.00	0.00	0.00
1,300.0	18.23	144.42	1,280.4	2,132.96	-130.6	93.5	160.6	0.00	0.00	0.00
1,400.0	18.23	144.42	1,375.4	2,037.98	-156.1	111.7	191.9	0.00	0.00	0.00
1,500.0	18.23	144.42	1,470.4	1,943.00	-181.5	129.9	223.2	0.00	0.00	0.00
1,600.0	18.23	144.42	1,565.4	1,848.01	-207.0	148.1	254.5	0.00	0.00	0.00
<b>END OF TANGENT</b>										
1,640.5	18.23	144.42	1,603.9	1,809.55	-217.3	155.4	267.2	0.00	0.00	0.00
1,700.0	17.04	144.42	1,660.6	1,752.84	-231.9	165.9	285.2	2.00	-2.00	0.00
1,800.0	15.04	144.42	1,756.7	1,656.74	-254.4	182.0	312.8	2.00	-2.00	0.00
1,900.0	13.04	144.42	1,853.7	1,559.73	-274.1	196.1	337.1	2.00	-2.00	0.00
2,000.0	11.04	144.42	1,951.5	1,461.94	-291.1	208.3	357.9	2.00	-2.00	0.00
2,100.0	9.04	144.42	2,049.9	1,363.47	-305.3	218.4	375.3	2.00	-2.00	0.00
2,200.0	7.04	144.42	2,148.9	1,264.46	-316.6	226.5	389.3	2.00	-2.00	0.00
2,300.0	5.04	144.42	2,248.4	1,165.02	-325.2	232.7	399.9	2.00	-2.00	0.00
2,400.0	3.04	144.42	2,348.1	1,065.27	-330.9	236.8	406.9	2.00	-2.00	0.00
2,500.0	1.04	144.42	2,448.1	965.34	-333.8	238.8	410.5	2.00	-2.00	0.00
<b>END OF DROP TO VERTICAL</b>										
2,551.9	0.00	0.00	2,500.0	913.40	-334.2	239.1	410.9	2.00	-2.00	0.00
2,600.0	0.00	0.00	2,548.1	865.35	-334.2	239.1	410.9	0.00	0.00	0.00
2,700.0	0.00	0.00	2,648.1	765.35	-334.2	239.1	410.9	0.00	0.00	0.00
<b>GLORIETA</b>										
2,741.9	0.00	0.00	2,690.0	723.40	-334.2	239.1	410.9	0.00	0.00	0.00
2,800.0	0.00	0.00	2,748.1	665.35	-334.2	239.1	410.9	0.00	0.00	0.00
<b>YESO</b>										
2,856.9	0.00	0.00	2,805.0	608.40	-334.2	239.1	410.9	0.00	0.00	0.00
2,900.0	0.00	0.00	2,848.1	565.35	-334.2	239.1	410.9	0.00	0.00	0.00
3,000.0	0.00	0.00	2,948.1	465.35	-334.2	239.1	410.9	0.00	0.00	0.00

**Database:** EDM\_5000\_1\_7  
**Company:** LIME ROCK RESOURCES  
**Project:** EDDY COUNTY, NM (NAD 27)  
**Site:** SEC. 17 T18S RGE. 29E  
**Well:** HAWK "17" C FEDERAL #8  
**Wellbore:** ORIGINAL WELLBORE  
**Design:** PROPOSAL #1

**Local Co-ordinate Reference:** Well HAWK "17" C FEDERAL #8  
**TVD Reference:** KB-EST @ 3413.4usft (Original Well Elev)  
**MD Reference:** KB-EST @ 3413.4usft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature

## Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
3,100.0	0.00	0.00	3,048.1	365.35	-334.2	239.1	410.9	0.00	0.00	0.00
3,200.0	0.00	0.00	3,148.1	265.35	-334.2	239.1	410.9	0.00	0.00	0.00
3,300.0	0.00	0.00	3,248.1	165.35	-334.2	239.1	410.9	0.00	0.00	0.00
3,400.0	0.00	0.00	3,348.1	65.35	-334.2	239.1	410.9	0.00	0.00	0.00
3,500.0	0.00	0.00	3,448.1	-34.65	-334.2	239.1	410.9	0.00	0.00	0.00
3,600.0	0.00	0.00	3,548.1	-134.65	-334.2	239.1	410.9	0.00	0.00	0.00
3,700.0	0.00	0.00	3,648.1	-234.65	-334.2	239.1	410.9	0.00	0.00	0.00
3,800.0	0.00	0.00	3,748.1	-334.65	-334.2	239.1	410.9	0.00	0.00	0.00
3,900.0	0.00	0.00	3,848.1	-434.65	-334.2	239.1	410.9	0.00	0.00	0.00
4,000.0	0.00	0.00	3,948.1	-534.65	-334.2	239.1	410.9	0.00	0.00	0.00
4,100.0	0.00	0.00	4,048.1	-634.65	-334.2	239.1	410.9	0.00	0.00	0.00
4,200.0	0.00	0.00	4,148.1	-734.65	-334.2	239.1	410.9	0.00	0.00	0.00
4,300.0	0.00	0.00	4,248.1	-834.65	-334.2	239.1	410.9	0.00	0.00	0.00
4,400.0	0.00	0.00	4,348.1	-934.65	-334.2	239.1	410.9	0.00	0.00	0.00
4,500.0	0.00	0.00	4,448.1	-1,034.65	-334.2	239.1	410.9	0.00	0.00	0.00
4,600.0	0.00	0.00	4,548.1	-1,134.65	-334.2	239.1	410.9	0.00	0.00	0.00
<b>TUBB</b>										
4,651.9	0.00	0.00	4,600.0	-1,186.60	-334.2	239.1	410.9	0.00	0.00	0.00
4,700.0	0.00	0.00	4,648.1	-1,234.65	-334.2	239.1	410.9	0.00	0.00	0.00
4,800.0	0.00	0.00	4,748.1	-1,334.65	-334.2	239.1	410.9	0.00	0.00	0.00
4,900.0	0.00	0.00	4,848.1	-1,434.65	-334.2	239.1	410.9	0.00	0.00	0.00
5,000.0	0.00	0.00	4,948.1	-1,534.65	-334.2	239.1	410.9	0.00	0.00	0.00
5,100.0	0.00	0.00	5,048.1	-1,634.65	-334.2	239.1	410.9	0.00	0.00	0.00
5,200.0	0.00	0.00	5,148.1	-1,734.65	-334.2	239.1	410.9	0.00	0.00	0.00
<b>BHL - HAWK "17" C FEDERAL #8</b>										
5,276.9	0.00	0.00	5,225.0	-1,811.60	-334.2	239.1	410.9	0.00	0.00	0.00

## Formations

MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
129.0	129.0	7 RIVERS		0.00	
604.2	604.0	QUEEN		0.00	
980.4	975.0	GRAYBURG		0.00	
1,204.8	1,190.0	PREMIER		0.00	
1,272.2	1,254.0	SAN ANDRES		0.00	
2,741.9	2,690.0	GLORIETA		0.00	
2,856.9	2,805.0	YESO		0.00	
4,651.9	4,600.0	TUBB		0.00	

## Plan Annotations

Local Coordinates				Comment
MD (usft)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	
425.0	425.0	0.0	0.0	KOP (2.5°/100ft BUR)
1,154.2	1,141.9	-93.5	66.9	END OF BUILD TO 18.23° INC
1,640.5	1,603.9	-217.3	155.4	END OF TANGENT
2,551.9	2,500.0	-334.2	239.1	END OF DROP TO VERTICAL
5,276.9	5,225.0	-334.2	239.1	BHL - HAWK "17" C FEDERAL #8

## **Pressure Control Equipment**

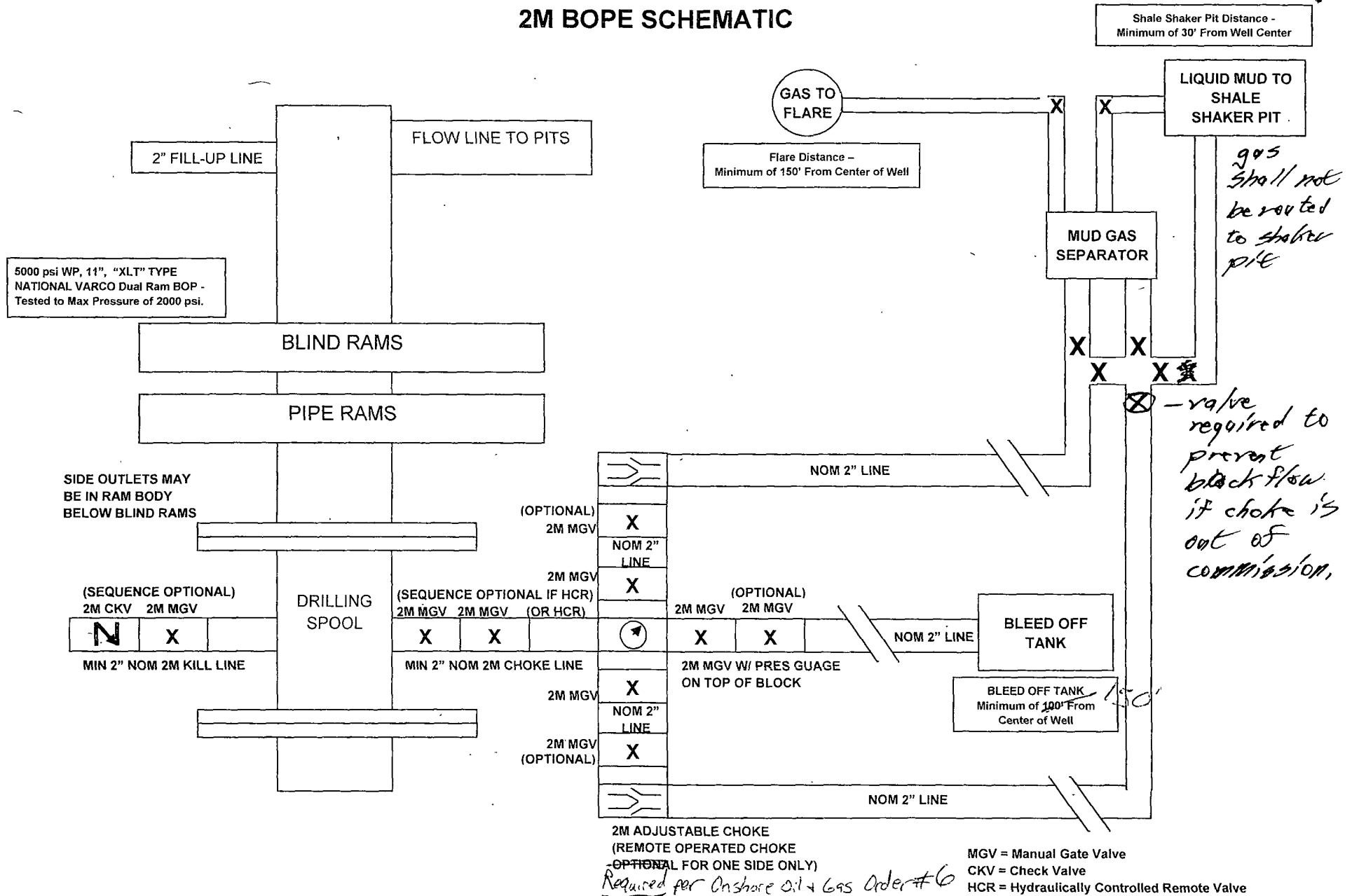
The blowout preventer equipment (BOP) will consist of a 5000 psi rated, 11", "XLT" type, National VARCO double ram preventer that will be tested to a maximum pressure of 2000 psi. The unit will be hydraulically operated and the ram type preventer will be equipped with blind rams on top and drill pipe rams on bottom. The 2M BOP will be installed on the 8 5/8" surface casing and utilized continuously until total depth is reached. All casing strings will be tested as per Onshore Order #2. This also includes a thirty day (30) test, should the rig still be operating on the same well in thirty days.

Pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These functional tests will be documented on the daily drilling logs.

The BOP equipment will consist of the following:

- Double ram with blind rams (top) and pipe rams (bottom),
- Drilling spool, or blowout preventer with 2 side outlets (choke side shall be a 2" minimum diameter, kill side will be at least 2 inch diameter),
- Kill line (2 inch minimum),
- A minimum of 2 choke line valves (2 inch minimum),
- 2 inch diameter choke line,
- 2 kill valves, one of which will be a check valve (2 inch minimum),
- 2 chokes, one of which will be capable of remote operation,
- Pressure gauge on choke manifold,
- Upper Kelly cock valve with handle available,
- Safety valve and subs to fit all drill string connections in use,
- All BOPE connections subjected to well pressure will be flanged, welded, or clamped.
- A Fill-up line above the uppermost preventer.

# 2M BOPE SCHEMATIC





**LIME ROCK RESOURCES II-A,L.P**  
**HAWK "17" C FEDERAL #8**  
**UNIT C, S17-T18S-R27E, EDDY COUNTY, NM**

**Design: Closed Loop System with roll-off steel bins (pits)**

**CRI/HOBBS** will supply (2) bins (100 bbl) volume, rails and transportation relating to the Close Loop System. Specification of the Closed Loop System is attached.

Contacts: Gary Wallace (432) 638-4076 Cell (575) 393-1079 Office

**Scomi Oil Tool: Supervisor – Armando Soto (432) 553-7979 Hobbs, NM**

Monitoring 24 Hour service

Equipment: Centrifuges – Derrick Brand  
Rig Shakers – Brandt Brand  
D-watering Unit  
Air pumps on location for immediate remediation process  
Layout of Close Loop System with bins, centrifuges and shakers attached.

Cuttings and associated liquids will be hauled to a State regulated third party disposal site (CRI or Controlled Recovery, Inc.). The disposal site permit is DFP = #R9166.

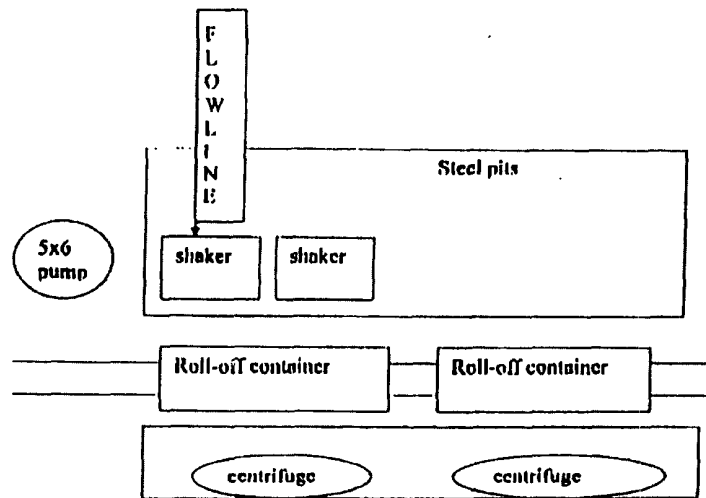
2- (250 bbl) tanks to hold fluid  
2-CRI bins with track system  
2-500 bbl frac tanks with fresh water  
2-500 bbl frac tanks for brine water

**Operations:**

Closed Loop System equipment will be inspected daily by each tour and any necessary maintenance performed. Any leak in system will be repaired and/or contained immediately. OCD will be notified within 48 hours of any spill. Remediation process will start immediately.

**Closure:**

During drilling operations all liquids, drilling fluids and cuttings will be hauled off via CRI equipment to DFP #R9166.



This will be maintained by 24 hour solids control personnel that stay on location.

*TOMMY WILSON*

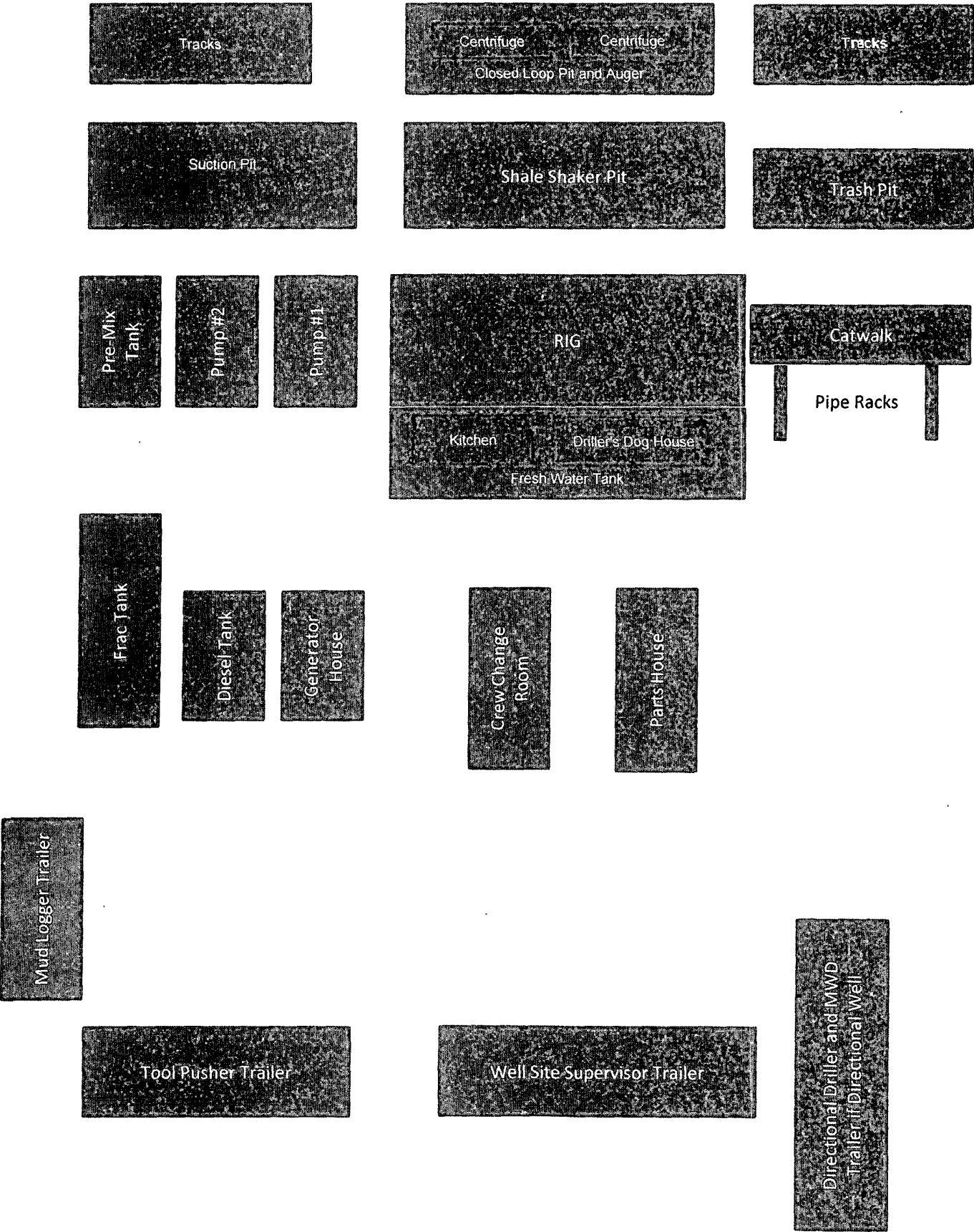


**CLOSED LOOP  
SPECIALTY**

Office: 875.746.1689

Cell: 875.748.6367

Lime Rock Resources II-A, L.P.  
UDI Rig 22 Location Layout



## **LIME ROCK RESOURCES II-A,L.P**

### **HAWK "17" C FEDERAL #8 Well HYDROGEN SULFIDE (H<sub>2</sub>S) CONTINGENCY DRILLING PLAN**

**Assumed 100 ppm ROE = 3000'**

**100 ppm H<sub>2</sub>S concentration shall trigger activation of this plan.**

**This is an open drilling site. H<sub>2</sub>S monitoring equipment, along with a choke manifold, mud/gas separator, and flare will be rigged up and in use when the company drills out from under surface casing. H<sub>2</sub>S monitors, warning signs, wind indicators and flags will be in use.**

#### **SUMMARY PLAN**

1. All personnel shall receive proper H<sub>2</sub>S training in accordance with Onshore Oil and Gas Order No. 6.III.C.3.a. A minimum of an initial training session and weekly H<sub>2</sub>S and well control drills for all personnel in each working crew shall be conducted. The initial training session for each well shall include a review of the this Drilling Operations Plan and site specific measures and areas set up when the rig is moved onto location.
2. The company has caused the drilling contractor and other vendors to install 2000 psi well control systems including:
  - A. A choke manifold with:
    - i. One remotely operated choke;
    - ii. A flare line and flare that is 150' from the wellhead to be ignited, in the event the plan is put into effect, with an electronic ignition system or a back up flare gun;
    - iii. A mud/gas separator downstream of the of the choke and upstream of the flare;
    - iv. All BOP equipment required for a 2000 psi well control system will be in place and tested by a third party to 250 psi low pressure and 2000 psi high pressure. This test will include testing all lines and equipment associated with the choke manifold and kill line. Weekly BOP function and control drills will be performed with all applicable crews and personnel on location.
3. At rig move in, two perpendicular briefing areas readily accessible will be designated and marked with signage. A clear foot path for escape will be designated and marked.
4. The following protective equipment for essential personnel will be located on location at rig move in:
  - A. Breathing apparatus:
    - i. Rescue Packs (1 at each briefing area and 2 stored in the designated safety equipment storage area), shall be on location,
    - ii. 4 work/escape packs shall be stored on the rig floor with sufficient hose to allow work activity,
    - iii. 4 Emergency escape packs shall be stored in the rig doghouse for emergency evacuation,

## H2S CONTINGENCY DRILLING PLAN

B. Auxiliary Rescue Equipment will be available in the designated safety equipment storage area and will include:

- i. Stretcher,
- ii. Two OSHA approved full body harnesses,
- iii. 100 feet of 5/8 inch OSHA approved rope,
- iv. 2-20# Class ABC fire extinguishers.

5. H<sub>2</sub>S detection and monitoring equipment shall be in place before drilling out surface casing. There will be a stationary detector in the rig dog house and another with the mud log equipment on the end of the flow line. Three sensors will be placed on the rig floor, the wellhead/cellar, and on the closed loop equipment. The detection level for H<sub>2</sub>S will be set at 10 ppm and the alarm will sound if any level of the gas is detected over 10 ppm.
6. Visual warning systems will be in place at rig move in and before the surface casing is drilled out. Color coded signage will be placed at the entrance to location indicating H<sub>2</sub>S is possible, and furthermore, the color will be changed should the site condition dictate. If H<sub>2</sub>S is detected, then a color coded condition flag will be displayed to indicate levels of detection. Wind socks will be placed at the location entrance and one other fully visible site to allow personnel to determine wind direction and safe escape/briefing routes.
7. The mud program utilized on this well is intended to provide sufficient density to exclude H<sub>2</sub>S from the wellbore. Furthermore, Loss Circulation Material will be added before any known loss circulation (low pressure) zones are encountered. Corrosion inhibitors are included in the mud system to prevent failures in the event H<sub>2</sub>S does enter the wellbore, and seal rings are used to prevent the use of elastomers on the wellhead equipment. In the event a rotating head is necessary, elastomers will be designed to operate in H<sub>2</sub>S conditions. Drill collars and other bottom hole assembly components are to be inspected after each well, and in the event H<sub>2</sub>S is encountered in the wellbore, drill pipe shall be inspected as well.
8. The location shall be equipped with one cell telephone in the rig doghouse, one cell telephone with the well site supervisor, two way communication devices to communicate between mud system personnel, rig floor personnel, mud log personnel, and safety personnel on location. In the event H<sub>2</sub>S is detected, a company vehicle with two way radios shall be moved into a safe briefing area and manned for communication with all vendors, company personnel or agency personnel as required.

# H2S CONTINGENCY DRILLING PLAN

## EMERGENCY PROCEDURES

### Escape

Crews shall escape upwind of escaping gas in the event of an emergency release of gas, or if monitors indicate H<sub>2</sub>S is present. Escape will take place via the entry road away from the flare stack, or a foot path marked and designated before the well is spud by on site personnel. Once crews and other personnel are a safe distance, the crews will move to evacuate any persons in the Radius of Exposure, followed by blocking access to the Radius of Exposure.

There are no homes or buildings within the Radius of Exposure ("ROE"), so efforts will be concentrated on evacuating any third parties within the ROE. Immediate response will include evacuation of any persons potentially affected by toxic or flammable gasses. Once evacuation is under way, perimeter monitoring and control of access will be executed to ensure safe areas and stage areas.

In the event of a release of gas containing H<sub>2</sub>S, the first responder(s) must

- Isolate the area and prevent entry by other persons into the 100 ppm ROE.
- Evacuate any public places encompassed by the 100 ppm ROE.
- Be equipped with H<sub>2</sub>S monitors and air packs in order to control the release.
- Use the "buddy system" to ensure no injuries occur during the response
- Take precautions to avoid personal injury during this operation.
- Contact operator and/or local officials to aid in operation. See list of phone numbers attached.
- Have received training in the
  - Detection of H<sub>2</sub>S, and
  - Measures for protection against the gas,
  - Equipment used for protection and emergency response.

### Ignition of Gas Source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO<sub>2</sub>). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever this is an ignition of the gas.

Characteristics of H<sub>2</sub>S and SO<sub>2</sub>

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H <sub>2</sub> S	1.189 Air= 1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO <sub>2</sub>	2.21 Air= 1	2ppm	N/A	1000 ppm

## **Contacting Authorities**

Lime Rock Resources personnel must liaison with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available including directions to site. The following call list of essential and potential responders has been prepared for use during a release. Lime Rock Resources response must be in coordination with the State of New Mexico's "Hazardous Materials Emergency Response Plan" (HMER) and BLM Onshore Order #6.

## **H<sub>2</sub>S OPERATIONS**

Though no H<sub>2</sub>S is anticipated during the drilling operation, this contingency plan will provide for methods to ensure the well is kept under control in the event an H<sub>2</sub>S reading of 100 ppm or more are encountered.

Once personnel are safe and the proper protective gear is in place and on personnel, the operator and rig crew essential personnel will ensure the well is under control, suspend drilling operations and shut-in the well (unless pressure build up or other operational situations dictate suspending operations will prevent well control), increase the mud weight and circulate all gas from the hole utilizing the mud/gas separator downstream of the choke, the choke manifold and the emergency flare system located 150' from the well. Bring the mud system into compliance and the H<sub>2</sub>S level below 10 ppm, and then notify all emergency officers that drilling ahead is practical and safe.

Proceed with drilling ahead only after all provisions of Onshore Order 6, Section III.C. have been satisfied.

## H2S CONTINGENCY DRILLING PLAN EMERGENCY CONTACTS

**Company Offices -**

Lime Rock Houston Office  
 Answering Service (After Hours)  
 Artesia, NM Office  
 Roswell, NM

713-292-9510  
 713-292-9555  
 575-748-9724  
 575-623-8424

KEY PERSONNEL					
Name	Title	Location	Office #	Cell #	Home #
SID ASHWORTH	PRODUCTION ENGINEER	HOUSTON	713-292-9526	713-906-7750	713-783-1959
JERRY SMITH	ASSISTANT PRODUCTION SUPERVISOR	ARTESIA	575-748-9724	505-918-0556	575-746-2478
MICHAEL BARRETT	PRODUCTION SUPERVISOR	ROSWELL	575-623-8424	505-353-2644	575-623-4707
GARY FATHEREE	WELL SITE SUPERVISOR	ROTATES ON SITE	NA	940-389-6044	NA
GARY MCCELLAND	WELL SITE SUPERVISOR	ROTATES ON SITE	NA	903-503-8997	NA

Agency Call List		
City	Agency or Office	Telephone Number
Artesia	Ambulance	911
Artesia	State Police	575-746-2703
Artesia	Sheriff's Office	575-746-9888
Artesia	City Police	575-746-2703
Artesia	Fire Department	575-746-2701
Artesia	Local Emergency Planning Committee	575-746-2122
Artesia	New Mexico OCD District II	575-748-1283
Carlsbad	Ambulance	911
Carlsbad	State Police	575-885-3137
Carlsbad	Sheriff's Office	575-887-7551
Carlsbad	City Police	575-885-2111
Carlsbad	Fire Department	575-885-2111
Carlsbad	Local Emergency Planning Committee	575-887-3798
Carlsbad	US DOI Bureau of Land Management	575-887-6544
State Wide	New Mexico Emergency Response Commission ("NMERC")	505-476-9600
State Wide	NMERC 24 hour Number	505-827-9126
State Wide	New Mexico State Emergency Operations Center	505-476-9635
National	National Emergency Response Center (Washington, D.C.)	800-424-8802

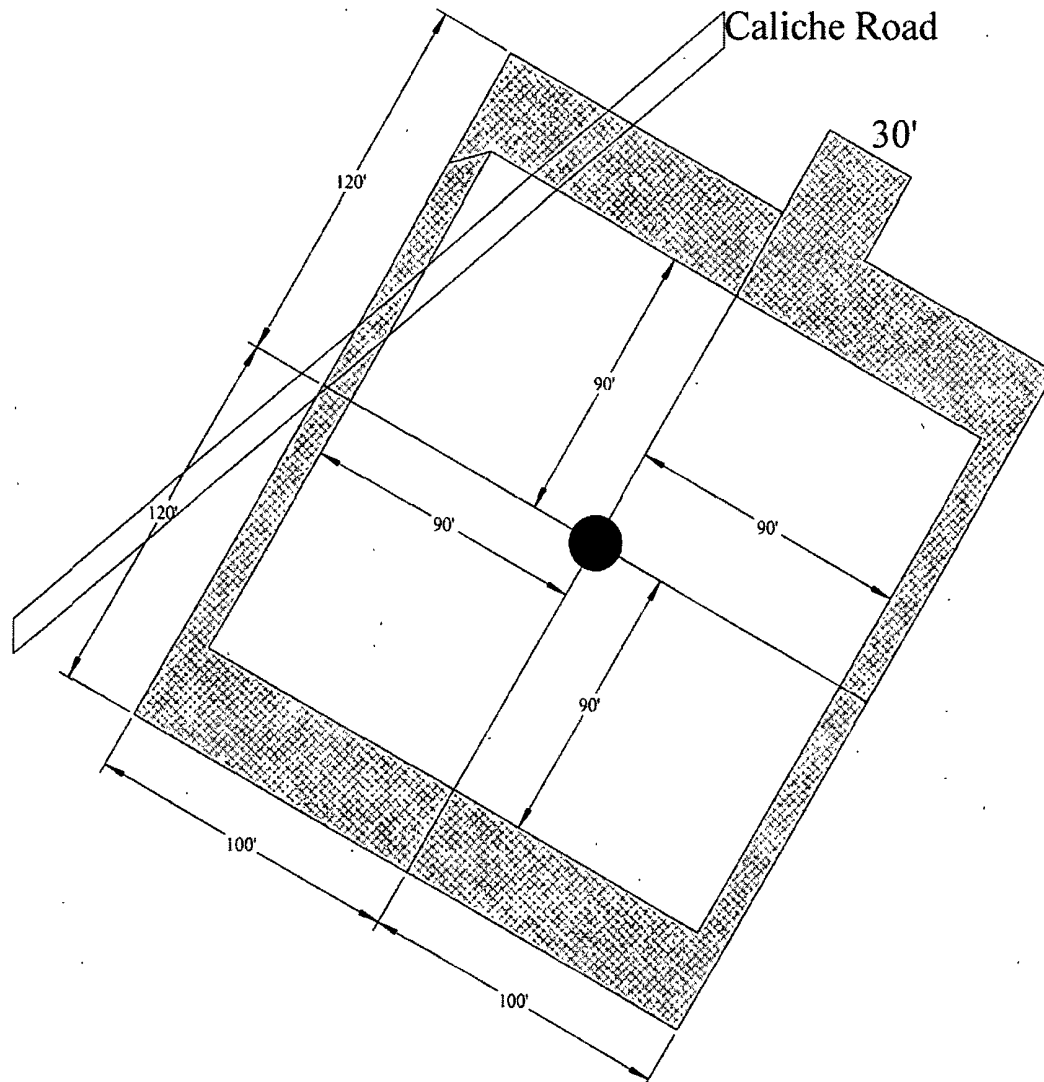


## H2S CONTINGENCY DRILLING PLAN EMERGENCY CONTACTS

Emergency Services				
Name	Service	Location	Telephone Number	Alternate Number
Boots & Coots International Well Control	Well Control	Houston / Odessa	1-800-256-9688	281-931-8884
Cudd Pressure Control	Well Control & Pumping	Odessa	915-699-0139	915-563-3356
Baker Hughes Inc.	Pumping Service	Artesia, Hobbs and Odessa	575-746-2757	SAME
Total Safety	Safety Equipment and Personnel	Artesia	575-746-2847	SAME
Cutter Oilfield Services	Drilling Systems Equipment	Midland	432-488-6707	SAME
Assurance Fire & Safety	Safety Equipment and Personnel	Artesia	575-396-9702	575-441-2224
Flight for Life	Emergency Helicopter Evacuation	Lubbock	806-743-9911	SAME
Aerocare	Emergency Helicopter Evacuation	Lubbock	806-747-8923	SAME
Med Flight Air Ambulance	Emergency Helicopter Evacuation	Albuquerque	505-842-4433	SAME
Artesia General Hospital	Emergency Medical Care	Artesia	575-748-3333	702 North 13 Street

# Rig Layout

## Interim Reclamation & Production Facilities



LIME ROCK RESOURCES II-A, L.P.  
HAWK 17 C FEDERAL # 8

Well Bore

Production Facilities

North



Interim Reclamation



Flowline

## PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	LIME ROCK RESOURCES II A, LP
LEASE NO.:	NM0758
WELL NAME & NO.:	8-HAWK 17 C FEDERAL
SURFACE HOLE FOOTAGE:	10'/N. & 2050'/W.
BOTTOM HOLE FOOTAGE:	0360'/N. & 2280'/W.
LOCATION:	Section 17, T. 18 S., R. 27 E., NMPM
COUNTY:	Eddy County, New Mexico

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Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**

- Sundry flowline application**
  - Cave/Karst

- ☐ **Construction**
  - Notification
  - Topsoil
  - Closed Loop System
  - Federal Mineral Material Pits
  - Well Pads
  - Roads

- ☐ **Road Section Diagram**

- ☒ **Drilling**
  - High Cave/Karst
  - H2S requirement
  - Logging requirement
  - Waste Material and Fluids

- ☐ **Production (Post Drilling)**
  - Well Structures & Facilities
  - Pipelines
  - Electric Lines

- ☐ **Interim Reclamation**

- ☐ **Final Abandonment & Reclamation**