

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

FORM APPROVED  
OMB No. 1004-0137  
Expires July 31, 2010

5. Lease Serial No.  
NMLC-058798

6. If Indian, Allottee or Tribe Name

TES  
10/22/2012

7. If Unit or CA Agreement, Name and No.

8. Lease Name and Well No.

LOGAN "35" M FEDERAL #16 <39574>

9. API Well No.

30-015-40806

10. Field and Pool, or Exploratory

RED LAKE; GLORIETA-YESO NE <96836>

11. Sec., T. R. M. or Blk. and Survey or Area  
UNIT M - SEC. 35 - T17S - R27E

1a. Type of work: ☒ DRILL ☐ REENTER

1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone

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

<277558>

3a. Address 1111 BAGBY ST., STE 4600  
HOUSTON, TX 77002

3b. Phone No. (include area code)  
713-292-9526

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

At surface 990' FNL & 370' FWL

At proposed prod. zone SAME

14. Distance in miles and direction from nearest town or post office\*  
8 MILES SOUTHEAST OF ARTESIA, NM

12. County or Parish  
EDDY

13. State  
NM

15. Distance from proposed\* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 370'

16. No. of acres in lease  
200 40

17. Spacing Unit dedicated to this well  
40

18. Distance from proposed location\* to nearest well, drilling, completed, applied for, on this lease, ft 620'

19. Proposed Depth  
5200'

20. BLM/BIA Bond No. on file  
NMB-000716

21. Elevations (Show whether DF, KDB, RT, GL, etc.)  
3612.2' GL

22. Approximate date work will start\*  
07/01/2012

23. 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:

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).

4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification
6. Such other site specific information and/or plans as may be required by the BLM

25. Signature: *Lisa Barfield*

Name (Printed/Typed)  
LISA BARFIELD dba PETRO ENERGY GROUP

Date  
7/5/12

Title  
POA AGENT FOR LIMEROCK 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)

ROSWELL CONTROLLED WATER BASIN (Instructions on page 2)

RECEIVED

OCT 18 2012

NMOCD ARTESIA

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

APPROVAL SUBJECT TO  
GENERAL REQUIREMENTS  
SPECIAL STIPULATIONS  
ATTACHED

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 & 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>30-015-40806</b>	<sup>2</sup> Pool Code <b>96836</b>	<sup>3</sup> Pool Name <b>RED LAKE; GLORIETA-YESO NE</b>
<sup>4</sup> Property Code <b>39514</b>	<sup>5</sup> Property Name <b>LOGAN "35" M FEDERAL</b>	<sup>6</sup> Well Number <b>16</b>
<sup>7</sup> OGRID No. <b>277558</b>	<sup>8</sup> Operator Name <b>LIME ROCK RESOURCES II A, L.P.</b>	<sup>9</sup> Elevation <b>3621.2</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>M</b>	<b>35</b>	<b>17 S</b>	<b>27 E</b>		<b>990</b>	<b>SOUTH</b>	<b>370</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

<sup>12</sup> Dedicated Acres <b>4.10</b>	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No.
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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.

N89°00'58"W 2662.25 FT		N89°02'08"W 2661.90 FT	
NW CORNER SEC 35 LAT = 32 7980625 N LONG = 104 2575237 W	N/4 CORNER SEC 35 LAT = 32 7979313 N LONG = 104 2488634 W	NE CORNER SEC 35 LAT = 32 7978019 N LONG = 104 2402042 W	
W/4 CORNER SEC 35 LAT = 32 7906862 N LONG = 104 2574077 W		E/4 CORNER SEC 35 LAT = 32 7905650 N LONG = 104 2401940 W	
<b>LOGAN "35" M FEDERAL #16</b> ELEV = 3621.2' LAT = 32 7860246 N (NAD27) LONG = 104 2561325 W			
NOTE LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1927 (NAD27), AND ARE IN DECIMAL DEGREE FORMAT			
SW CORNER SEC 35 LAT = 32 7833025 N LONG = 104 2573947 W		SE CORNER SEC 35 LAT = 32 7833252 N LONG = 104 2401842 W	
N89 52'25"E 2630.21 FT		N89 51'15"E 2629.71 FT	

<sup>17</sup> **OPERATOR CERTIFICATION**  
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

*[Signature]* 7/5/2012  
Signature Date  
Printed Name

<sup>18</sup> **SURVEYOR CERTIFICATION**  
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.

APRIL 4, 2012  
Date of Survey

*[Signature]*  
Signature and Seal of Professional Surveyor  
Certificate Number **FILIMON F JARAMILLO PLS 12797**  
SURVEY NO 828

## **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

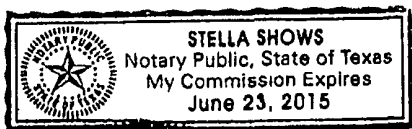
State of TEXAS

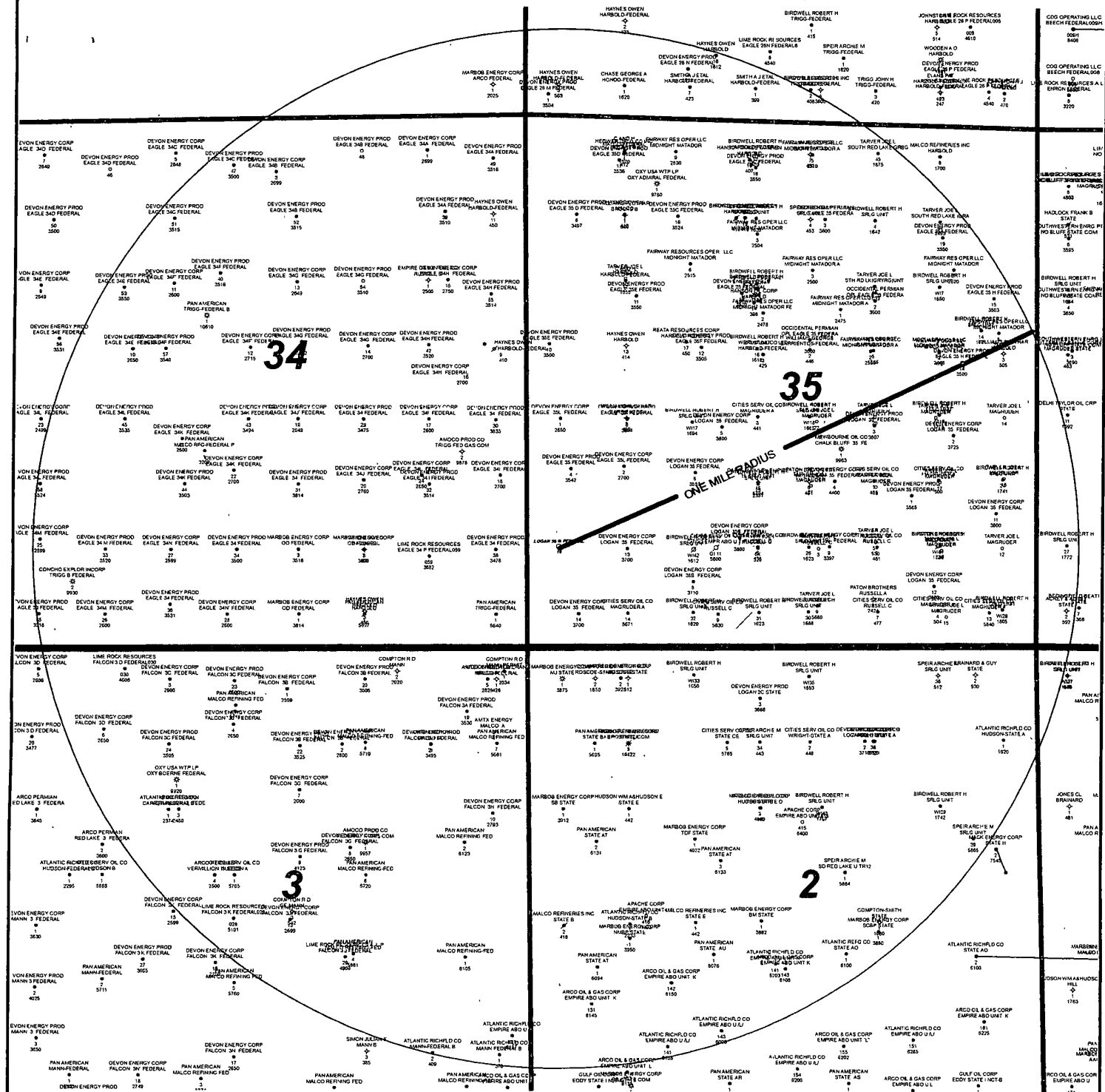
County of HARRIS

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.

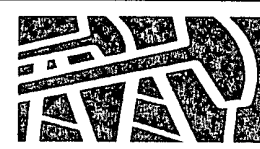
Signature of notarial officer: [Signature]

My commission expires: June 23, 2015





THIS IS A COPY OF THE ORIGINAL  
 (M) S35-T17S-R27E  
 1 inch = 1400 feet  
 1000 1000 ft  
 1000 ft



# **LIME ROCK RESOURCES**

**LIME ROCK RESOURCES II-A, L.P.**  
**ONE MILE RADIUS AROUND**  
**LOGAN 35M FEDERAL #16**

Date: 4 June, 2012

**APPLICATION FOR DRILLING  
LIME ROCK RESOURCES II-A, L.P**

**Drilling Plan**

**LOGAN "35" M FEDERAL #16**

**990' FSL & 370' FWL, Unit M-Sec. 35-T17S-R27E**

**Eddy County, NM**

**Lease Number: NMLC-057798**

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:**

Quaternary – Alluvium	Surface	Glorieta	2952'
7 Rivers	348'	Yeso	3060'
Queen	863'	Tubb	4700'
Grayburg	1364'	TD	5200'
San Andres	1597'		

- 2. The estimated depth at which water, oil or gas formations are anticipated to be encountered:**

Water: Surface water possible in the Triassic between 130' - 330'.

Nearest water well is 7,099 feet away.

Oil: Possible in the San Andres, Glorieta below 1597'.

Gas: Possible in the San Andres, Glorieta below 1597'.

- 3. The elevation of the unprepared ground is 3621.2' feet above sea level.**
- 4. A rotary rig will be utilized to drill the well to 5200' and run casing. This equipment will be rigged down and the well will be completed with a workover rig.**
- 5. Proposed total depth is 5200'.**

6. Proposed Casing and Cement program is as follows:

Type	Hole Size	Casing Size	Wt	Grade	Thread	Casing Condition	Depth	Sx	Density	Yield	Components	Excess Cement %	Collapse Design Factor	Burst Design Factor	Tension Design Factor	TOC
Conductor	26"	20"	91.5	B	Weld	New	80'				Ready mix					
Surface	12.25"	8.675"	24	J-55	ST&C	New	480'	335	14.8	1.34	Cl C Cmt +0.25 lbs/sk Cello Flake +2% CaCl <sub>2</sub>	200%	1.2	1.18	2.0	Surface
Production	7-875"	5.5"	17	J-55	LT&C	New	5200'	450	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	80%	1.2	1.18	2.0	Surface
						New		650	14.8	1.33	Class C w/ 0.6% R-3 and 1/4 pps cello flake	50%				

7. Proposed Mud Program is as follows

Depth	0-460	450-4900	4900-5200
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

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

9. **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

10. **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 2260 psi based on 0.44 x TD. The estimated BHT is 135°F.

11. **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.



## **Pressure Control Equipment**

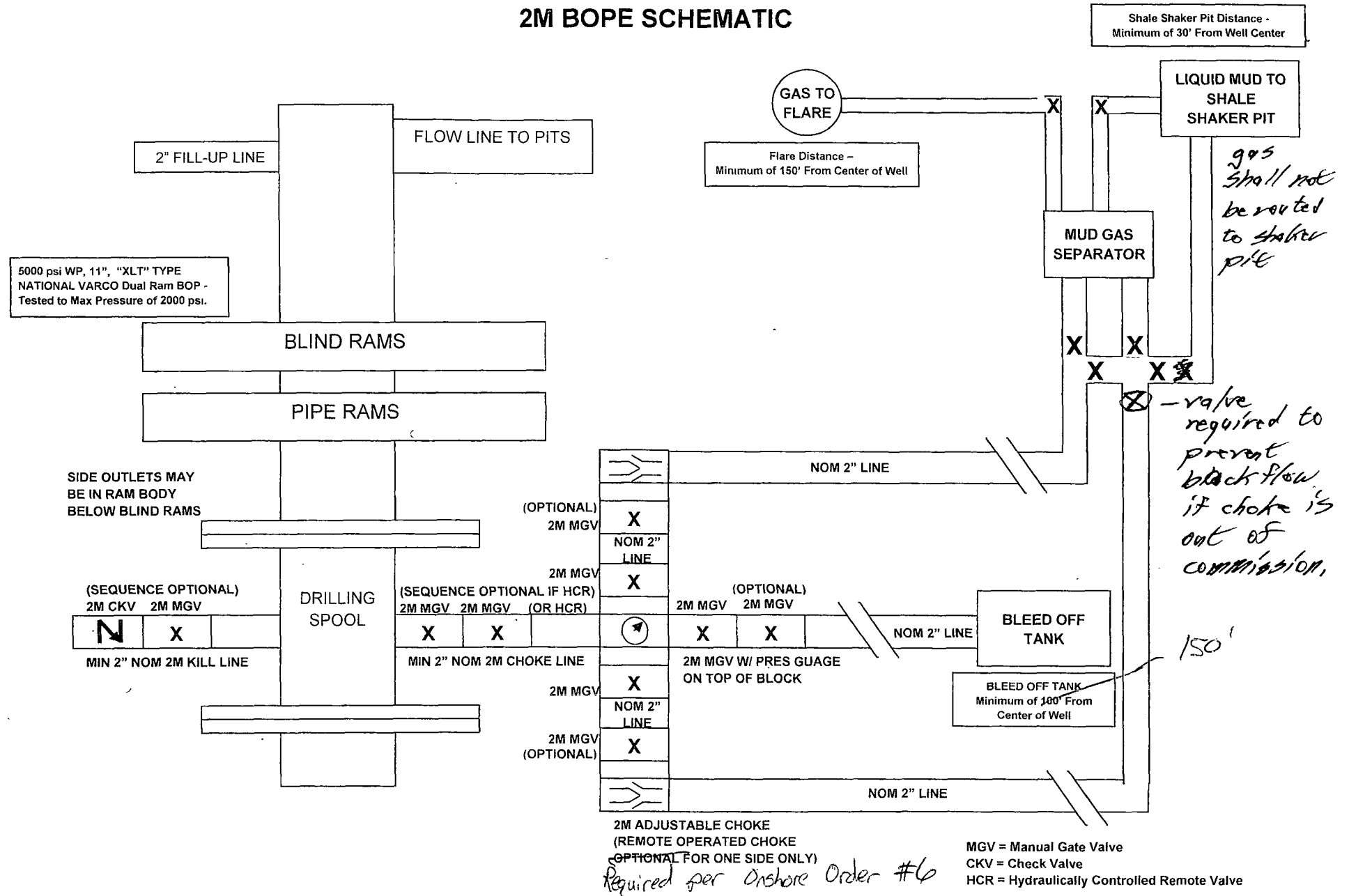
The blowout preventer equipment (BOP) will consist of a 5000 psi rated, 11", "XLT" type, National VARCO double ram preventer that will be tested to a maximum pressure of 2000 psi. The unit will be hydraulically operated and the ram type preventer will be equipped with blind rams on top and drill pipe 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.

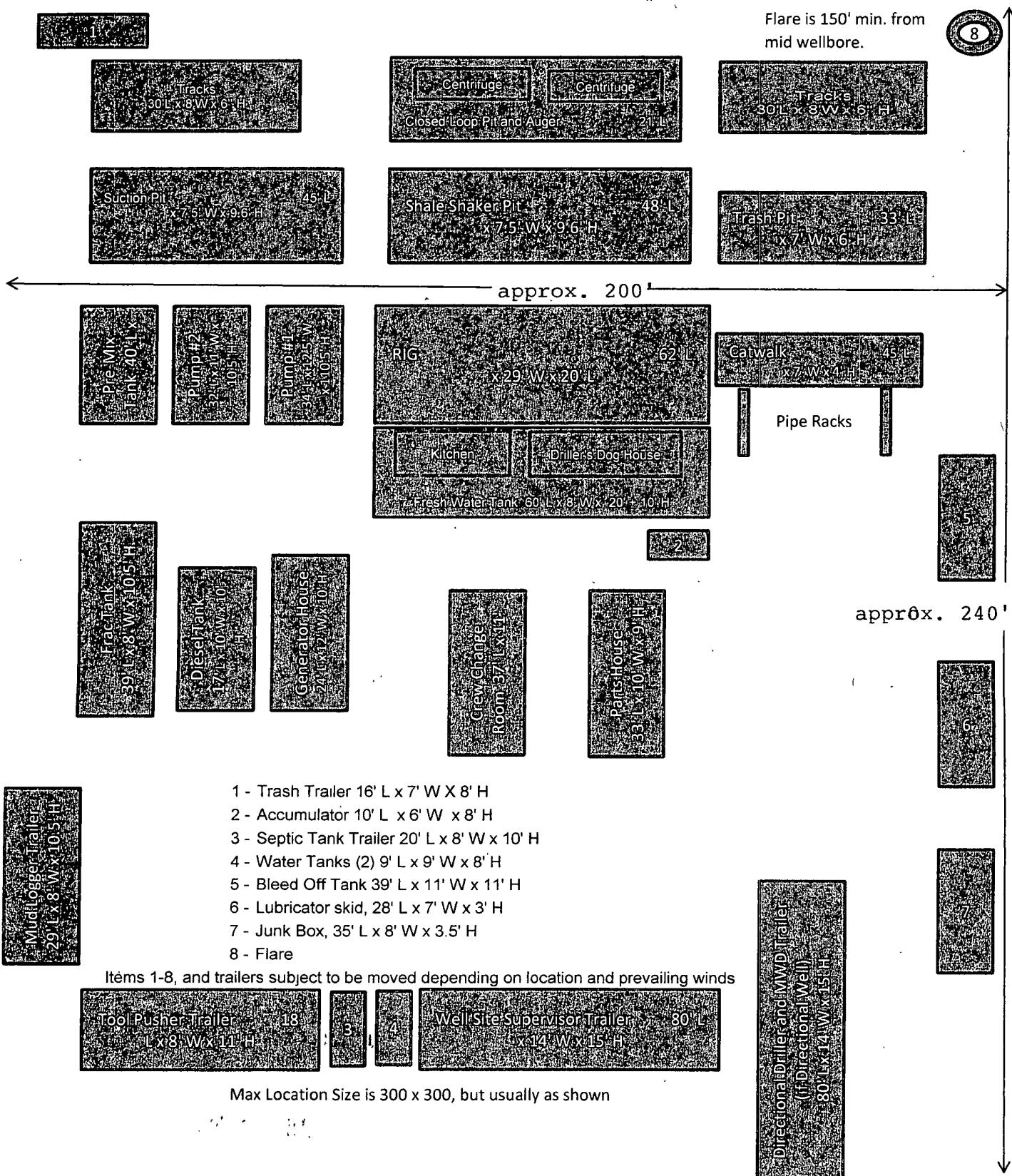
The BOP equipment will consist of the following:

- 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



LOGAN 35 M FEDERAL #16



- 1 - Trash Trailer 16' L x 7' W X 8' H
- 2 - Accumulator 10' L x 6' W x 8' H
- 3 - Septic Tank Trailer 20' L x 8' W x 10' H
- 4 - Water Tanks (2) 9' L x 9' W x 8' H
- 5 - Bleed Off Tank 39' L x 11' W x 11' H
- 6 - Lubricator skid, 28' L x 7' W x 3' H
- 7 - Junk Box, 35' L x 8' W x 3.5' H
- 8 - Flare

Items 1-8, and trailers subject to be moved depending on location and prevailing winds

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

### LEGEND FOR RIG LAYOUT PLAT

1 H<sub>2</sub>S Warning Signs

2 Briefing Area

3 Flare

4 Wind Sock- at Entrance, on Rig Floor and at Pits

5 Frac Tank from Panic Line

6 Choke Manifold

7 Mud / Gas Separator

————— Bleed Off Line

===== Flare Line

Flare is 150' from Center of Well Bore.

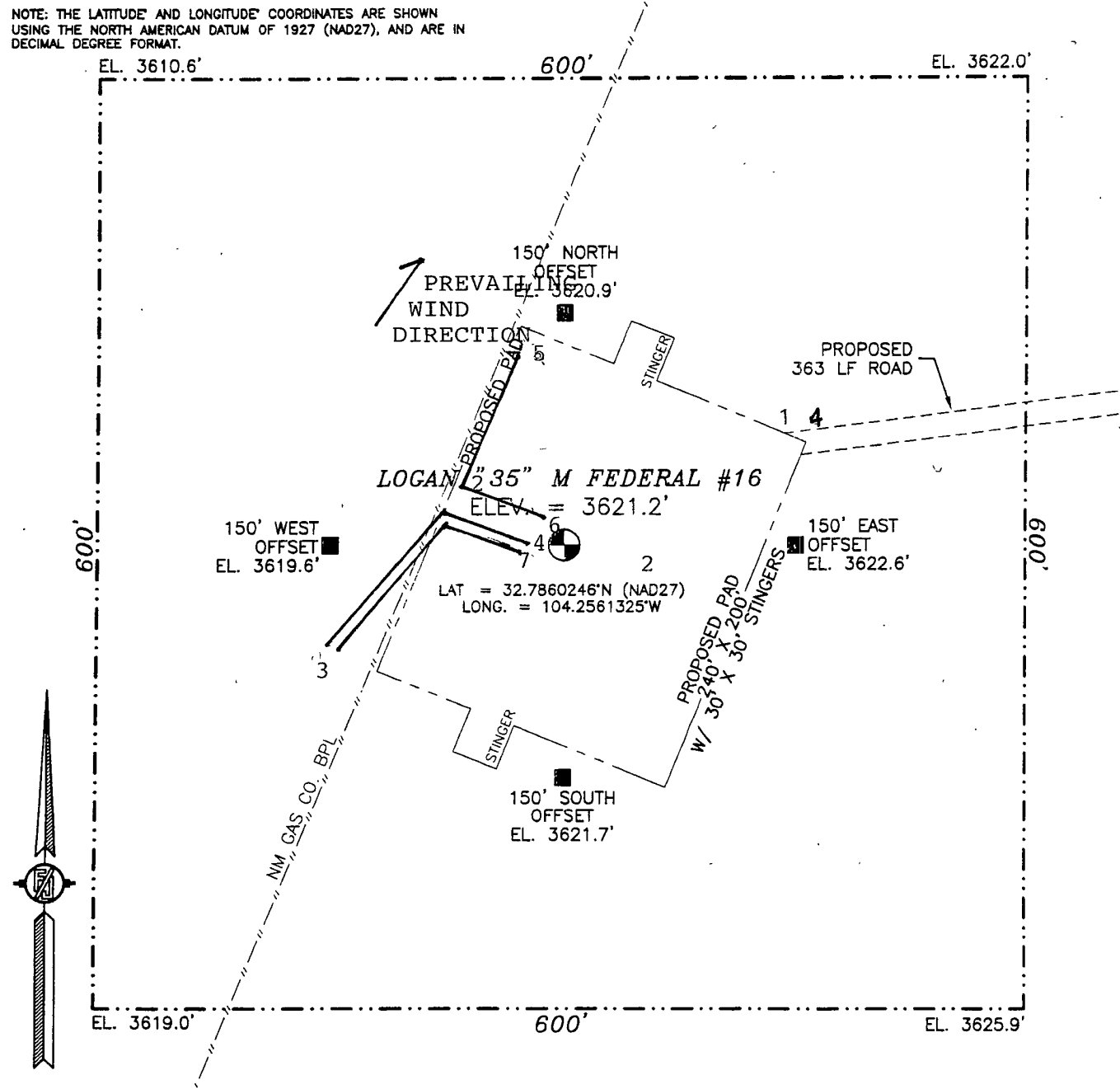
APPROVED FOR USE BY US, L.P. 05/06/00  
01/20/01

01/20/01

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01/20/01

**SECTION 35, TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO**

NOTE: THE LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1927 (NAD27), AND ARE IN DECIMAL DEGREE FORMAT.



010 50 100 200  
SCALE 1" = 100'

**DIRECTIONS TO LOCATION:**

FROM PAVED Cr 225 (EMPIRE) AND PAVED Cr 226 (EVANS) GO SOUTHWEST ON Cr 225 0.15 MILES, TURN RIGHT ON CALICHE LEASE ROAD AND GO NORTHWEST 400 FT. BEND LEFT AND GO WEST 0.15 MILES TO THE EXISTING LOGAN "35" FED. #13 WELL AND FROM NORTHWEST PAD CORNER FOLLOW PROPOSED ROAD SURVEY FLAGS WEST-SOUTHWEST 363 FT TO THE NORTHEAST CORNER OF PROPOSED PAD FOR THIS LOCATION.

**LIME ROCK RESOURCES II A, L.P.  
LOGAN "35" M FEDERAL #16  
LOCATED 990 FT. FROM THE SOUTH LINE  
AND 370 FT. FROM THE WEST LINE OF  
SECTION 35, TOWNSHIP 17 SOUTH,  
RANGE 27 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO**

APRIL 4, 2012

**SURVEY NO. 828**

**MADRON SURVEYING, INC.** 301 SOUTH CANAL (575) 234-3341 **CARLSBAD, NEW MEXICO**

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

### **LOGAN "35" M FEDERAL #16 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



# H2S CONTINGENCY DRILLING PLAN

## 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

<b><u>Company Offices -</u></b>	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
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### 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 MCCCELLAND	WELL SITE SUPERVISOR	ROTATES ON SITE	NA	903-503-8997	NA

### Agency Call List

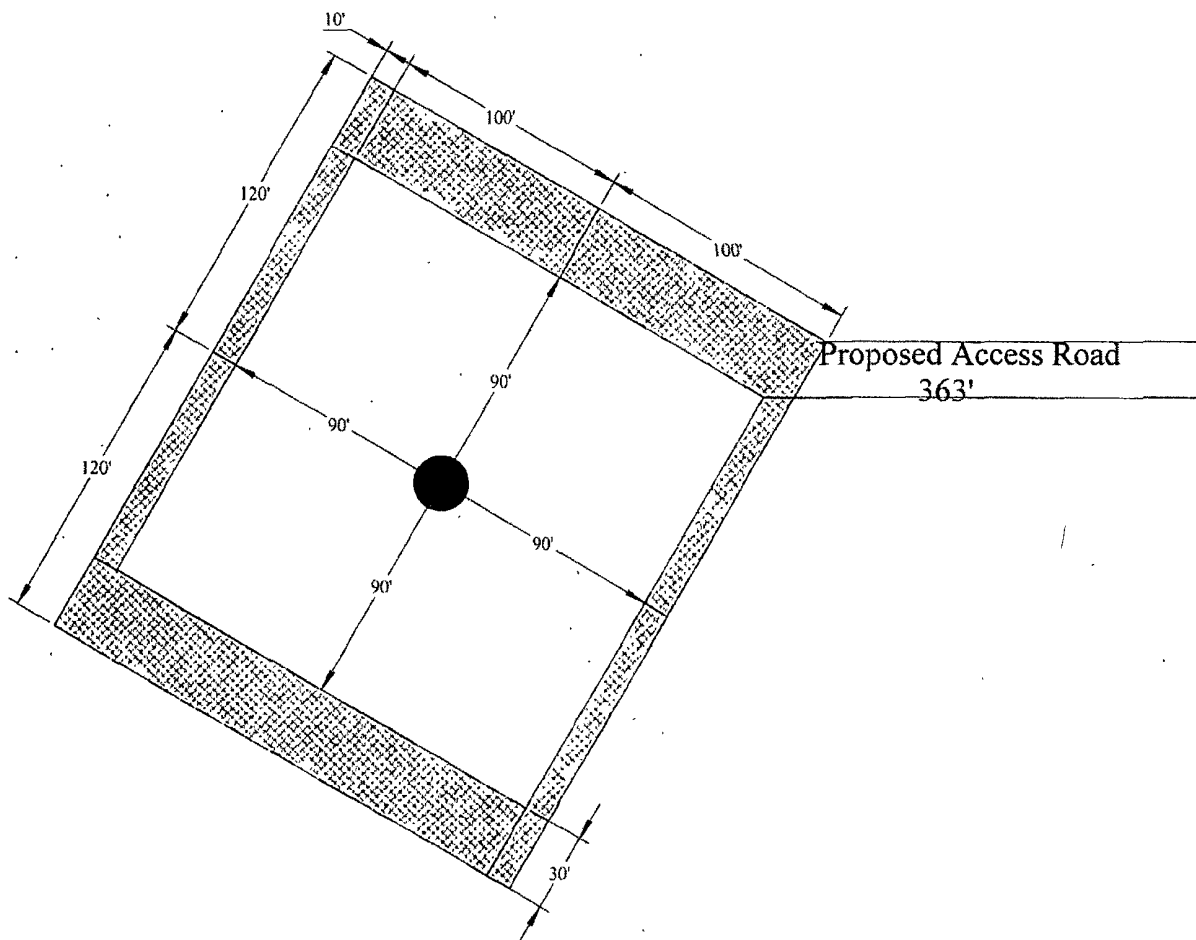
City	Agency or Office	Telephone Number
Artesia	Ambulance	911
Artesia	State Police	575-746-2703
Artesia	Sheriff's Office	575-746-9888
Artesia	City Police	575-746-2703
Artesia	Fire Department	575-746-2701
Artesia	Local Emergency Planning Committee	575-746-2122
Artesia	New Mexico OCD District II	575-748-1283
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.  
LOGAN "35" M FEDERAL #16

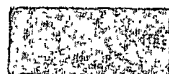
Well Bore

Production Facilities

North



Interim Reclamation



Flowline

## PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Lime Rock Resources II A LP
LEASE NO.:	LC057798
WELL NAME & NO.:	Logan 35 M Federal 16
SURFACE HOLE FOOTAGE:	990' FSL & 370' FWL
BOTTOM HOLE FOOTAGE:	' FL & ' FL
LOCATION:	Section 35, T.17 S., R.27 E., NMPM
COUNTY:	Eddy County, New Mexico

### TABLE OF CONTENTS

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**