

District I  
1625 N. French Dr., Hobbs, NM 88240  
Phone: (575) 393-6161 Fax: (575) 393-0720

District II  
811 S. First St., Artesia, NM 88210  
Phone: (575) 748-1283 Fax: (575) 748-9720

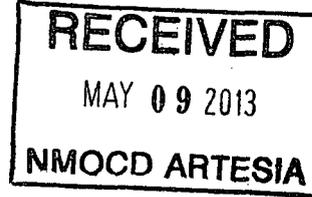
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
Phone: (505) 334-6178 Fax: (505) 334-6170

District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505  
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico  
Energy Minerals and Natural Resources

Form C-101  
Revised December 16, 2011

Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505



Permit

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

<sup>1</sup> Operator Name and Address Lime Rock Resources II-A, L.P. 1111 Bagby Street, Suite 4600 Houston, Texas 77002		<sup>2</sup> OGRID Number 277558
<sup>4</sup> Property Code 309033		<sup>3</sup> API Number 30-015-41376
<sup>5</sup> Property Name Kaiser B 18B		<sup>6</sup> Well No. #16

<sup>7</sup> Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County
B	18	18S	27E		380	N	2210	E	Eddy

<sup>8</sup> Pool Information

Red Lake; Glorieta-Yeso NE	96836
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Additional Well Information

<sup>9</sup> Work Type N	<sup>10</sup> Well Type O	<sup>11</sup> Cable/Rotary R	<sup>12</sup> Lease Type P	<sup>13</sup> Ground Level Elevation 3290.6
<sup>14</sup> Multiple N	<sup>15</sup> Proposed Depth 4454' MD / 4450' TVD	<sup>16</sup> Formation Yeso	<sup>17</sup> Contractor United Drilling, Inc.	<sup>18</sup> Soud Date After 5/8/2013
Depth to Ground Water: 92 Ft.		Distance from nearest fresh water well: 0.32 Miles		Distance from nearest surface water: 0.14 Miles

<sup>19</sup> Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Conductor	20"	14"	68.7	80	80	Surface
Surface	12-1/4"	8-5/8"	24	450	335	Surface
Production	7-7/8"	5-1/2"	17	4454	850	Surface

Casing/Cement Program: Additional Comments

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Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
XLT 11"	5000	2000	National Varco

I hereby certify that the information given above is true and complete to the best of my knowledge and belief.

I further certify that the drilling pit will be constructed according to NMOCD guidelines , a general permit , or an (attached) alternative OCD-approved plan .

Signature: *Spencer Cox*

Printed Name: Spencer Cox

Title: Production Engineer

E-mail Address: scox@limerockresources.com

Date: 5/8/2013

Phone: 713-292-9528

OIL CONSERVATION DIVISION

Approved By:

*[Signature]*

Title:

*DIST II Supervisor*

Approved Date:

*5/16/13*

Expiration Date:

*5/16/15*

Conditions of Approval Attached

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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 August 1, 2011  
Submit one copy to appropriate  
District Office

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

<sup>1</sup> API Number 30-015-41376	<sup>2</sup> Pool Code 96836	<sup>3</sup> Pool Name Red Lake; Glonete-Yeso NE
<sup>4</sup> Property Code 309033	<sup>5</sup> Property Name KAISER B 18B	
<sup>7</sup> OGRID No. 277558	<sup>8</sup> Operator Name LIME ROCK RESOURCES II-A, L.P.	<sup>6</sup> Well Number 16
		<sup>9</sup> Elevation 3290.6

<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	18	18 S	27 E		380	NORTH	2210	EAST	EDDY

<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	18	18 S	27 E		335	NORTH	2320	EAST	EDDY

<sup>12</sup> Dedicated Acres HO	<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.

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

**<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: Spencer Cox Date: 5-8-13

Printed Name: Spencer Cox

E-mail Address: SCox@limerockresources.com

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**<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 25, 2013

Date of Survey: APRIL 25, 2013

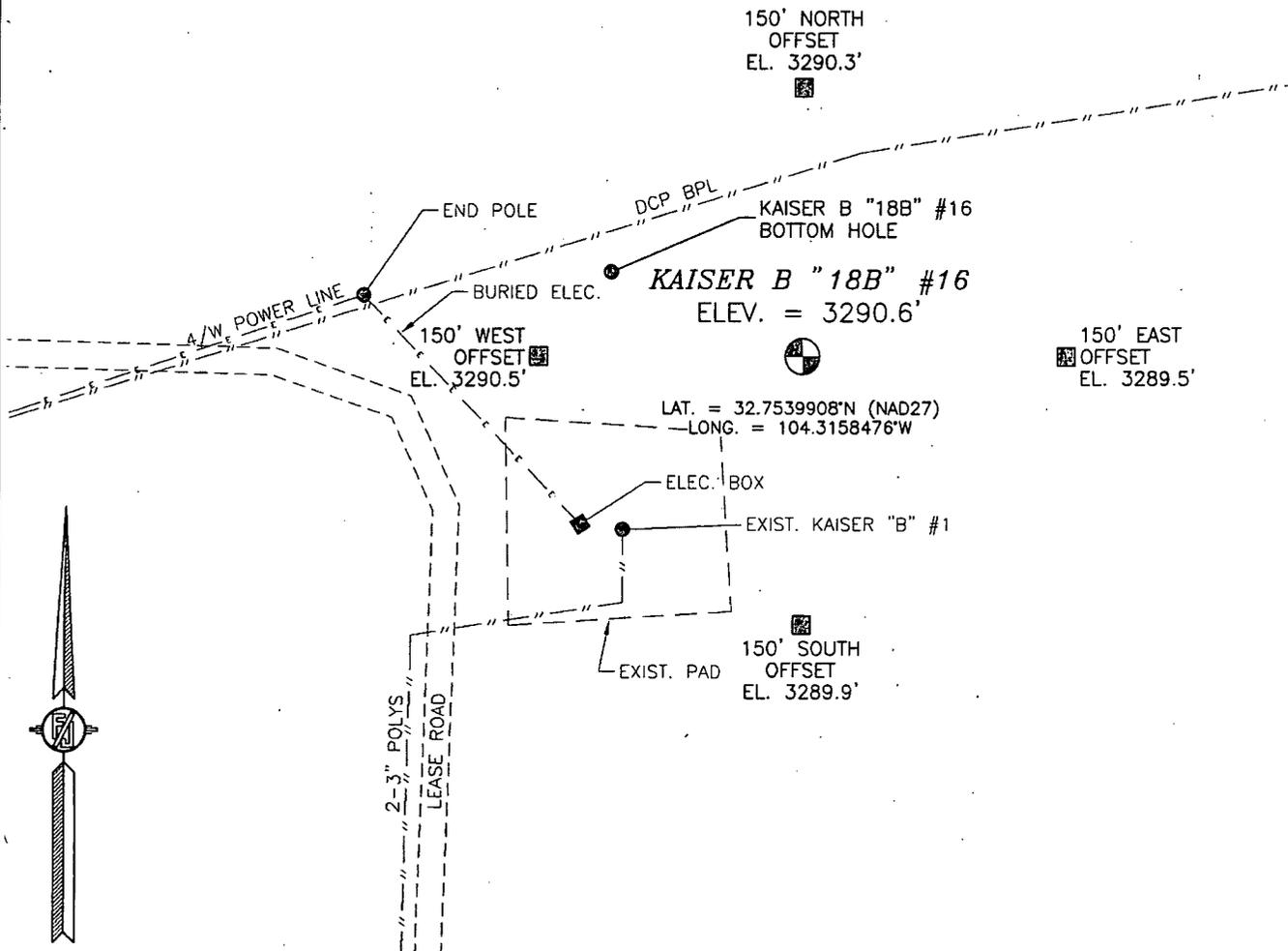
Signature and Seal of Professional Surveyor: [Signature]

Certificate Number: 12797

SURVEY NO. 1772A

SECTION 18, TOWNSHIP 18 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'

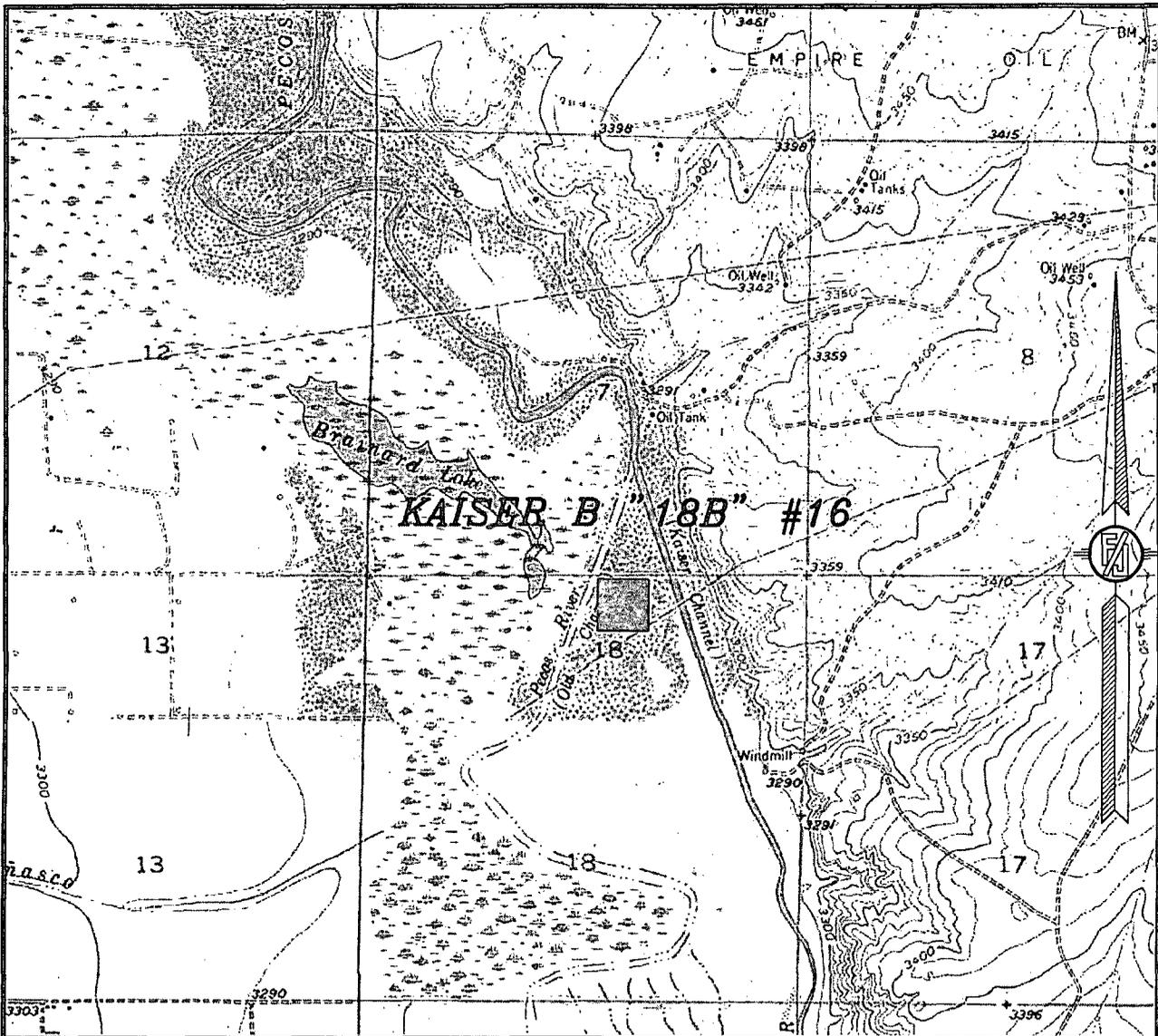
**DIRECTIONS TO LOCATION**  
 FROM PAVED CR 44 (FANNING) AND PAVED CR 39 (FOUR DINKUS)  
 AND RIVER ROCK LEASE ROAD GO EAST ON RIVER ROCK LEASE ROAD  
 1.1 MILES, BEND LEFT AND GO NORTHEAST 0.45 MILES, TURN RIGHT  
 AND GO EAST 0.4 MILES, TURN RIGHT AND GO SOUTH 0.25 MILES,  
 TURN LEFT AND GO EAST 0.1 MILES AND LOCATION IS 240 FT. EAST.

LIME ROCK RESOURCES II-A, L.P.  
**KAISER B "18B" #16**  
 LOCATED 380 FT. FROM THE NORTH LINE  
 AND 2210 FT. FROM THE EAST LINE OF  
 SECTION 18, TOWNSHIP 18 SOUTH,  
 RANGE 27 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO

APRIL 25, 2013

SURVEY NO. 1772A

SECTION 18, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO  
 LOCATION VERIFICATION MAP



USGS QUAD MAP:  
 SPRING LAKE, LAKE Mc  
 MILLAN NORTH

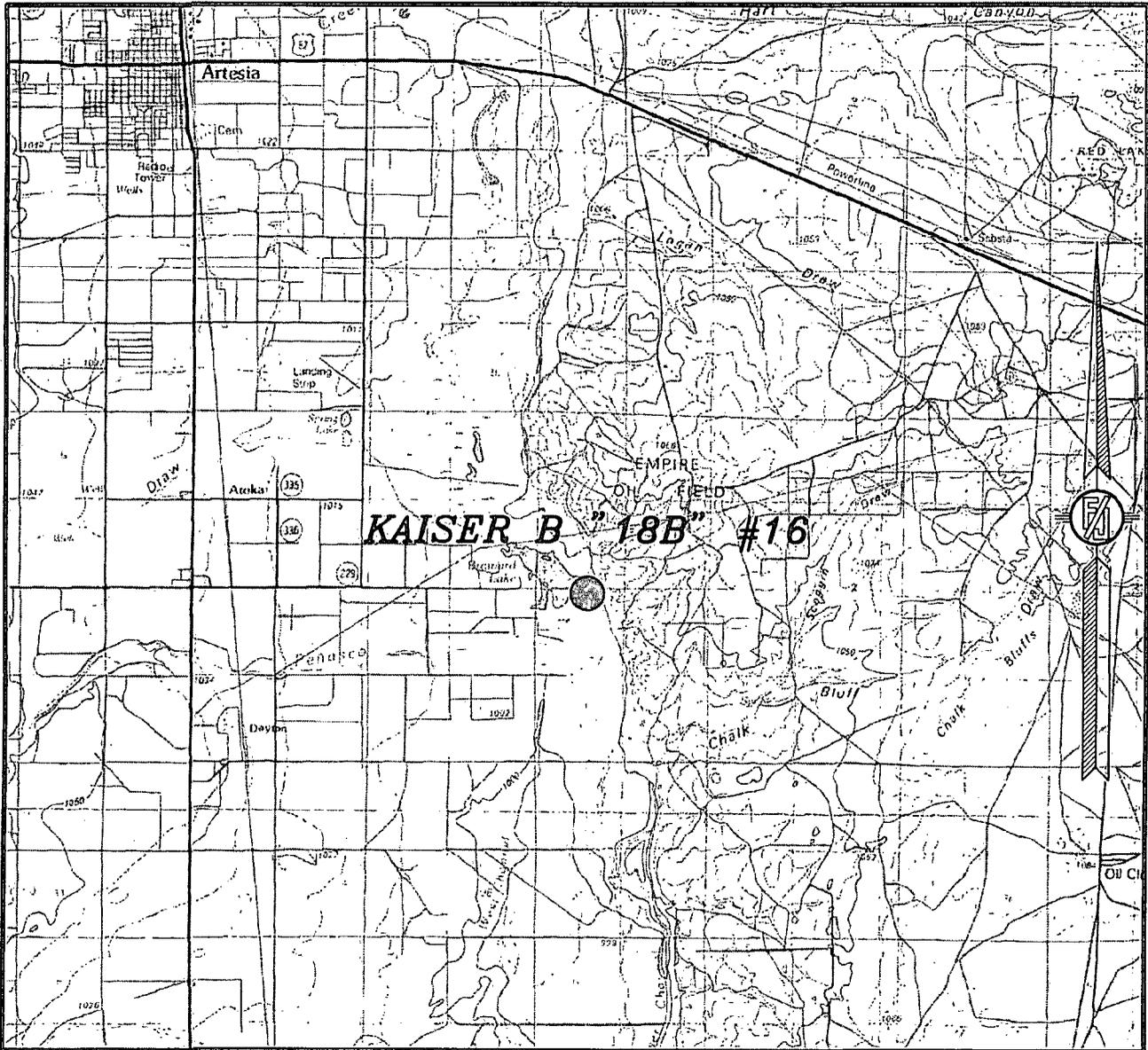
NOT TO SCALE

LIME ROCK RESOURCES II-A, L.P.  
**KAISER B "18B" #16**  
 LOCATED 380 FT. FROM THE NORTH LINE  
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 SECTION 18, TOWNSHIP 18 SOUTH,  
 RANGE 27 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO

APRIL 25, 2013

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO SURVEY NO. 1772A

SECTION 18, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
VICINITY MAP



NOT TO SCALE

LIME ROCK RESOURCES II-A, L.P.  
**KAISER B "18B" #16**  
LOCATED 380 FT. FROM THE NORTH LINE  
AND 2210 FT. FROM THE EAST LINE OF  
SECTION 18, TOWNSHIP 18 SOUTH,  
RANGE 27 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO

APRIL 25, 2013

MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO  
(575) 234-3341 SURVEY NO. 1772A

SECTION 18, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
AERIAL PHOTO



NOT TO SCALE  
AERIAL PHOTO:  
GOOGLE EARTH  
JUNE 2011

LIME ROCK RESOURCES II-A, L.P.  
KAISER B "18B" #16  
LOCATED 380 FT. FROM THE NORTH LINE  
AND 2210 FT. FROM THE EAST LINE OF  
SECTION 18, TOWNSHIP 18 SOUTH,  
RANGE 27 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO

APRIL 25, 2013

SURVEY NO. 1772A

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

**Lime Rock Resources II-A, L.P.**  
**Drilling Plan**

**Kaiser B 18B #16**  
**380' FNL 2210' FEL**  
**(B) 18-18S-27E**  
**Eddy County, NM**

1. The elevation of the unprepared ground is 3290.6 feet above sea level.
2. The geologic name of the surface formation is Quaternary – Alluvium.
3. A rotary rig will be utilized to drill the well to 4450' and run casing. This equipment will be rigged down and the well will be completed with a workover rig.
4. Well will be drilled to a total proposed depth of 4454' MD./ 4450' TVD. inside a 30' X 30' square target inside of 40 acre spacing regulatory quarter-quarter setback distances. The KOP for directional drilling will be at 500'. See directional plan for detail.
5. Estimated tops of geologic markers:

	MD	TVD
Quaternary – Alluvium	Surface	Surface
Yates	N/A	NA
7 Rivers	N/A	NA
Queen	465	465
Grayburg	874	875
Premier	1090	1093
San Andres	1105	1108
Glorieta	2547	2552
Yeso	2640	2645
Tubb	4047	4051
TD	4454	4450

6. Estimated depths at which anticipated oil, gas, or other mineral bearing formations are expected to be encountered:

	MD	TVD
Yates	N/A	NA
7 Rivers	N/A	NA
Queen	465	465
Grayburg	874	875
Premier	1090	1093
San Andres	1105	1108
Glorieta	2547	2552
Yeso	2640	2645
Tubb	4047	4051
TD	4454	4450

7. Proposed Casing and Cement program is as follows:

Type	Hole	Casing	Wt	Grade	Thread	Depth	Sx	Density	Yield	Components
Conductor	20"	14"	68.7	B	Welded	80	80			Ready Mix
Surface	12-1/4"	8-5/8"	24	J-55	ST&C	450	335	14.8	1.35	Cl C Cmt + 0.25 lbs/sk Cello Flake + 2% CaCl2
Intermediate										
Production	7-7/8"	5-1/2"	17	J-55	LT&C	4454	200	12.8	1.903	(35:65) Poz/Cl C Cmt + 5% NaCl + 0.25 lbs/sk Cello Flake + 5 lbs/sk LCM-1 + 0.2% R-3 + 6% Gel
							650	14.8	1.33	Class C w/ 0.6% R-3 and 1/4 pps cello flake

8. Proposed Mud Program is as follows

Depth	0-450	450-4304	4304-4454
Mud Type	Fresh Water Mud	Brine	Brine, Salt Gel, & Starch
Properties			
MW	8.4-9.2	9.8-10.1	9.9-10.1
pH	9.0-10.5	10.0-12.0	10.0-12.0
WL	NC	NC	20-30
Vis	28-34	28-29	32-34
MC	NC	NC	<2
Solids	NC	<2%	<3%
Pump Rate	300-350	375-425	400-425
Special		Use Poymers sticks and MF-55 Hi-Vis Sweeps as necessary	Hi Vis Sweeps, add acid and starch as req. Raise Vis to 35 for log.

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

10. **Testing, Logging and Coring Program**

**Testing Program:** No drill stem tests are anticipated

**Electric Logging Program:** SGR-DLL-CDL-CNL Quad Combo from 4454 to surf. Csg. SGR-CNL to Surf.

**Coring Program:** No full or sidewall cores are anticipated.

11. **Potential Hazards:**

No abnormal temperatures or pressures are expected. There is no known presence of H<sub>2</sub>S in this area. If H<sub>2</sub>S is encountered the operator will comply with 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 1959.76 psi based on 0.44 x TD. The estimated BHT is 125 degrees F.

12. **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 it complete the well and to construct surface facilities.

# Hydrogen Sulfide Drilling Plan Summary

A. All personnel shall receive proper H<sub>2</sub>S training in accordance with Onshore Order 6 III.C.3.a.

B. Briefing Area: two perpendicular areas will be designated by signs and readily accessible.

C. Required Emergency Equipment:

■ Well control equipment

- a. Flare line 150' from wellhead to be ignited by flare gun.
- b. Choke manifold with a remotely operated choke.
- c. Mud/gas separator

■ Protective equipment for essential personnel.

Breathing apparatus:

- a. Rescue Packs (SCBA) — 1 unit shall be placed at each breathing area, 2 shall be stored in the safety trailer.
- b. Work/Escapes packs — 4 packs shall be stored on the rig floor and contain sufficiently long air hoses as to not to restrict work activity.
- c. Emergency Escape Packs — 4 packs shall be stored in the doghouse for emergency evacuation.

Auxiliary Rescue Equipment:

- a. Stretcher
- b. Two OSHA full body harness
- c. 100 ft 5/8 inch OSHA approved rope
- d. 1-20# class ABC fire extinguisher

■ H<sub>2</sub>S detection and monitoring equipment:

The stationary detector with three sensors will be placed in the upper dog house if equipped, set to visually alarm @ 10 ppm and audible @ 14 ppm. Calibrate a minimum of every 30 days or as needed.

The sensors will be placed in the following places: Rig floor / Bell nipple / End of flow line or where well bore fluid is being discharged.

(Gas sample tubes will be stored in the safety trailer)

■ Visual warning systems:

- a. One color code condition sign will be placed at the entrance to the site reflecting the possible conditions at the site.
- b. A colored condition flag will be on display, reflecting the current condition at the site at the time.
- c. Two wind socks will be placed in strategic locations, visible from all angles.

■ Mud program:

The mud program has been designed to minimize the volume of H<sub>2</sub>S circulated to surface. The operator will have the necessary mud products to minimize hazards while drilling in H<sub>2</sub>S bearing zones.

■ Metallurgy:

- a. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H<sub>2</sub>S service.
- b. All elastomers used for packing and seals shall be H<sub>2</sub>S trim.

■ Communication:

Communication will be via two way radio in emergency and company vehicles. Cell phones and land lines where available.

## 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 #
Mike Loudermilk	Operations Manager	Houston	713-292-9526	832-331-7367	Same as Cell
Spencer Cox	Production Engineer	Houston	713-292-9528	432-254-5140	Same as Cell
Eric McClusky	Production Engineer	Houston	713-360-5714	405-821-0534	832-491-3079
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
Dalw Kennard	Well Site Supervisor	Rotates on Site	NA	575-420-1651	NA
Gary McClland	Well Site Supervisor	Rotates on Site	NA	903-503-8997	NA
Brad Tate	Well Site Supervisor	Rotates on Site	NA	575-441-1966	NA
Dave Williamson	Well Site Supervisor	Rotates on Site	NA	575-308-9980	NA

Agency Call List		
City	Agency or Office	Telephone #
Artesia	Ambulance	911
Artesia	State Police	575-746-2703
Artesia	Sherriff'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	Sherriff'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 Commisssion ("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

**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 Services	Artesia, Hobbs & Odessa	575-746-2757	Same
Total Safety	Safety Equipment & Personnel	Artesia	575-746-2847	Same
Cutter Oilfield Services	Drilling Systems Equipment	Midland	432-488-6707	Same
Safety Dog	Safety Equipment & Personnel	Artesia	575-748-5847	575-441-1370
Fighting 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 13th Street

## **Pressure Control Equipment**

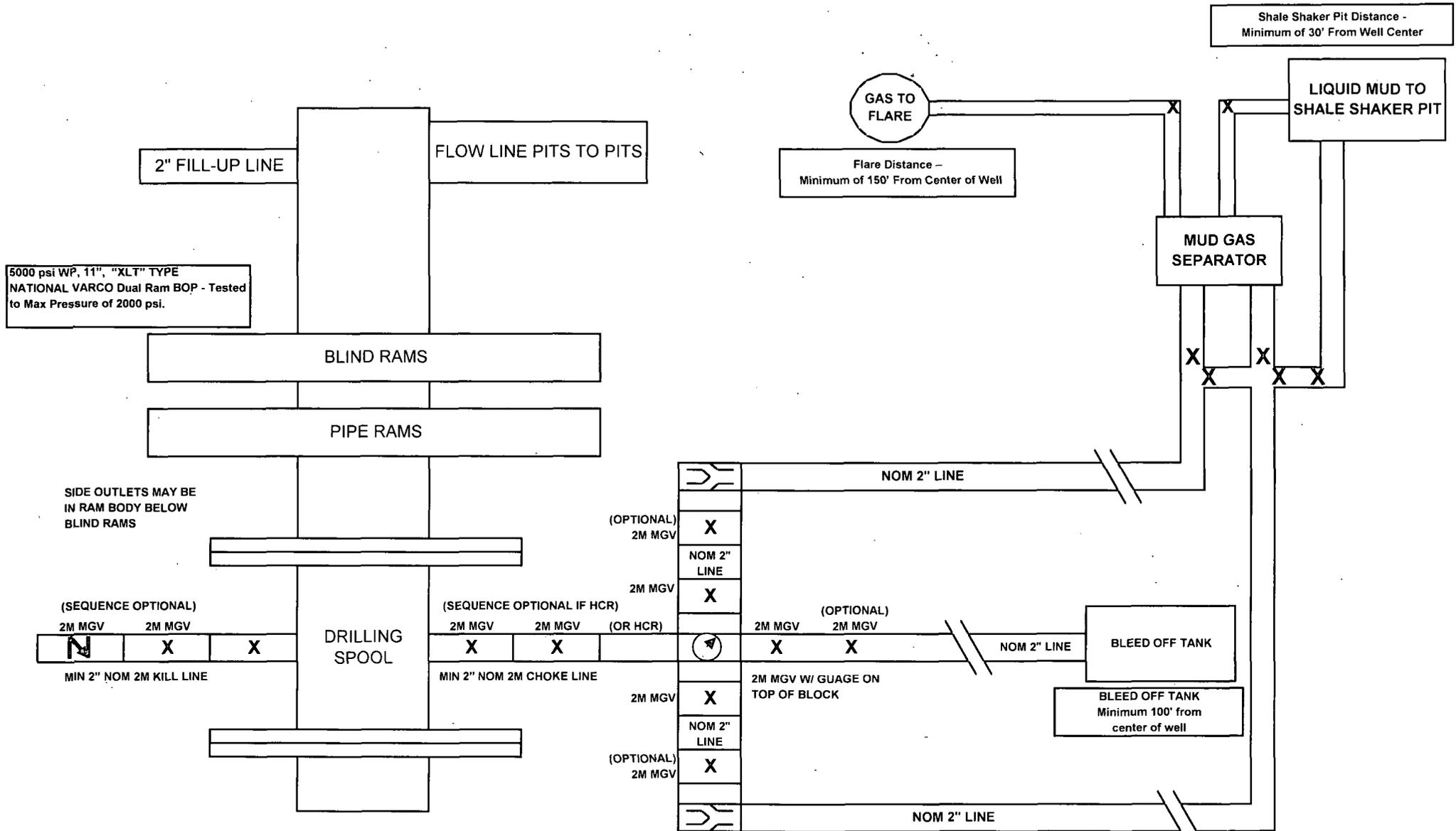
The blowout preventer equipment (BOP) will consist of a 5000 psi rated, "XLT" type, National VARCO double ram preventer that will be tested to a maximum pressure of 2000 psi. The unit will be hydraulically operated and the ram type preventer will be equipped with blind rams on top and drill pipe rams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



5000 psi WP, 11", "XLT" TYPE  
NATIONAL VARCO Dual Ram BOP - Tested  
to Max Pressure of 2000 psi.

Shale Shaker Pit Distance -  
Minimum of 30' From Well Center

Flare Distance -  
Minimum of 150' From Center of Well

SIDE OUTLETS MAY BE  
IN RAM BODY BELOW  
BLIND RAMS

(SEQUENCE OPTIONAL)

(SEQUENCE OPTIONAL IF HCR)

MIN 2" NOM 2M KILL LINE

MIN 2" NOM 2M CHOKE LINE

2M ADJUSTABLE CHOKE (REMOTE  
OPERATED CHOKE OPTIONAL FOR  
ONE SIDE ONLY)

MGV = Manual Gate Valve  
CKV = Check Valve  
HCR = Hydraulically Controlled Remote Valve

NOTE: All lines, valves and chokes are shown at the  
minimum size allowed, but may be larger