

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

Form C-101
Revised December 16, 2011

Energy Minerals and Natural Resources

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

Operator Name and Address Lime Rock Resources II-A, L.P. 1111 Bagby Street, Suite 4600 Houston, Texas 77042		OGRID Number 277558
Property Code 3969A		API Number 30-015-41090
Property Name Kaiser B 18 H		Well No. #14

7 Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
H	18	18S	27E		1740	N	990	E	Eddy

8 Pool Information

Redlake; Glorieta-Yeso	51120
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Additional Well Information

9 Work Type N	10 Well Type O	11 Cable/Rotary R	12 Lease Type P	13 Ground Level Elevation 3288.9
14 Multiple N	15 Proposed Depth 4400' TVD / 4418' MD	16 Formation Yeso	17 Contractor United Drilling, Inc.	18 Spud Date After 3/31/2013
Depth to Ground water: 18 Feet		Distance from nearest fresh water well: 0.41 Miles		Distance to nearest surface water: 0.05 Miles

19 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	40	Ready Mix	Surface
Surface	12-1/4"	8-5/8"	24	450	335	Surface
Production	7-7/8"	5-1/2"	17	4418	830	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: 2-5-13

Phone: 713-292-9528

OIL CONSERVATION DIVISION

Approved By:

T. C. Shepard
Geologist

Title:

Approved Date:

2/6/2013

Expiration Date:

2/6/2015

Conditions of Approval 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

API Number 30-015-41070		Pool Code 51120	Pool Name ROCK LAKE; GL-YESO
Property Code 39699	Property Name KAISER B "18" H		Well Number 14
OCRID No. 277558	Operator Name LIME ROCK RESOURCES II-A, L.P.		Elevation 3288.9

¹⁰ Surface Location

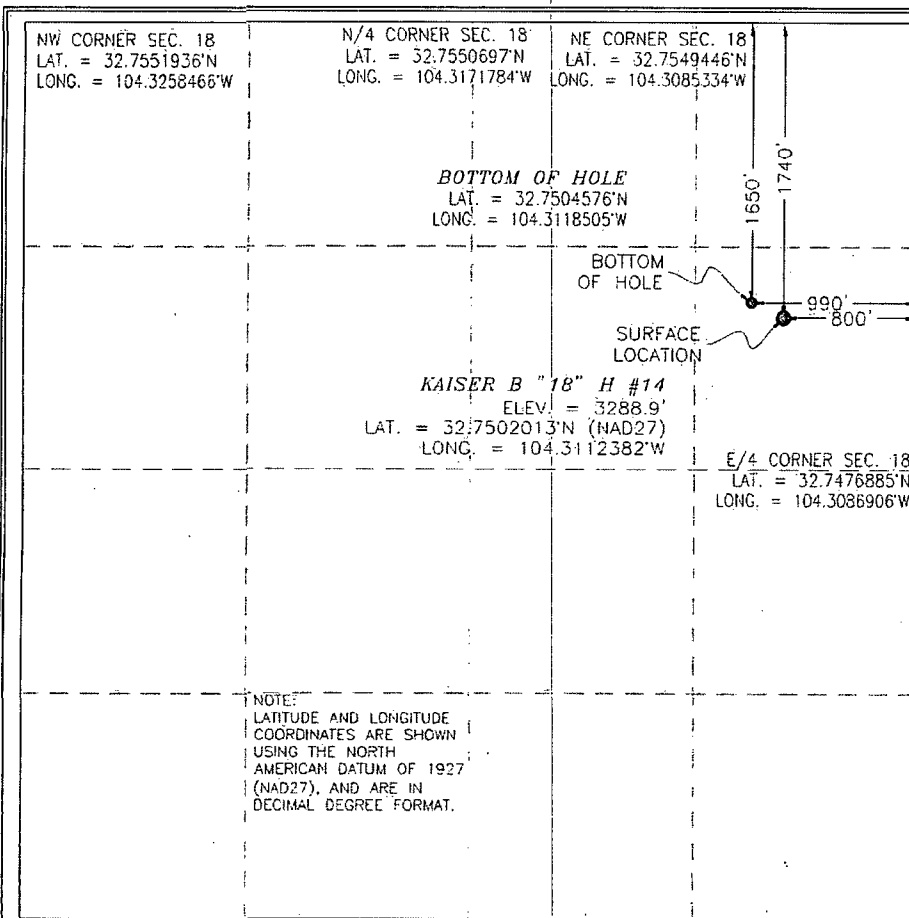
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	18	18 S	27 E		1740	NORTH	800	EAST	EDDY

¹¹ 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
H	18	18 S	27 E		1650	NORTH	990	EAST	EDDY

¹² Dedicated Acres	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.

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.

¹⁷ 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: *2-5-13*

Printed Name

*Spencer Cox*¹⁸ 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 7, 2012

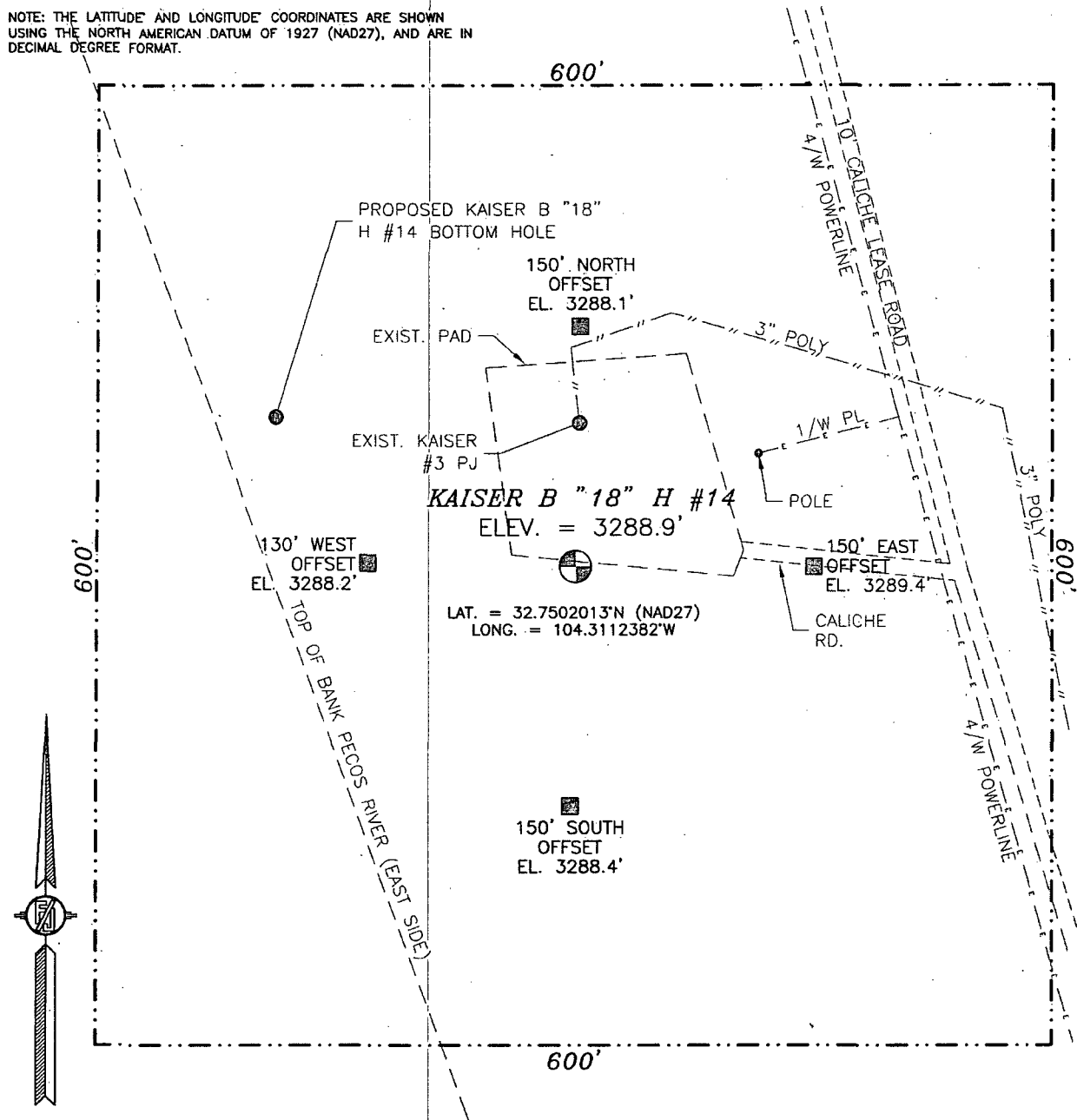
Date of Survey

Signature and Seal of Professional Surveyor

Certificate Number: *FILIMON F. JARVIS, PLS 12797*
SURVEY NO. 938

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 Cr 201 AND Cr 227 GO NORTH ON Cr 201 0.4 MILES, TURN
LEFT AND GO WEST 1.2 MILES, BEND LEFT AND GO SOUTHWEST 0.9
MILES, TURN LEFT ON 10 FT CALICHE ROAD AND GO SOUTHEAST 1.5
MILES, TURN RIGHT AND GO WEST 140 FT TO EXISTING KAISER #3
WELL AND LOCATION IS 90 FT SOUTH OF EXISTING WELL.

LIME ROCK RESOURCES II A, L.P.

KAISER B "18" H #14

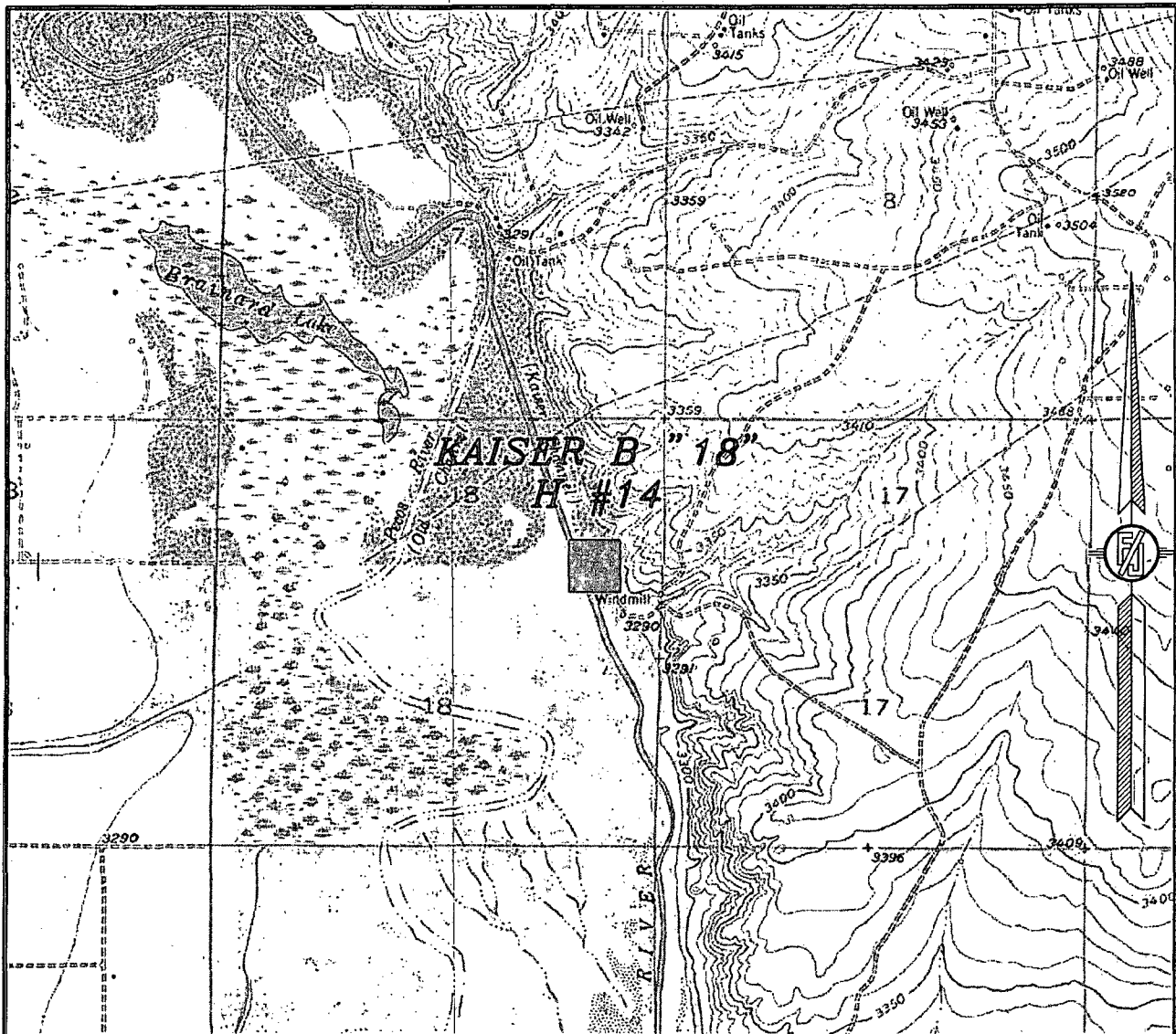
LOCATED 1740 FT. FROM THE NORTH LINE
AND 800 FT. FROM THE EAST LINE OF
SECTION 18, TOWNSHIP 18 SOUTH,
RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

APRIL 7, 2012

SURVEY NO. 938

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

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

NOT TO SCALE

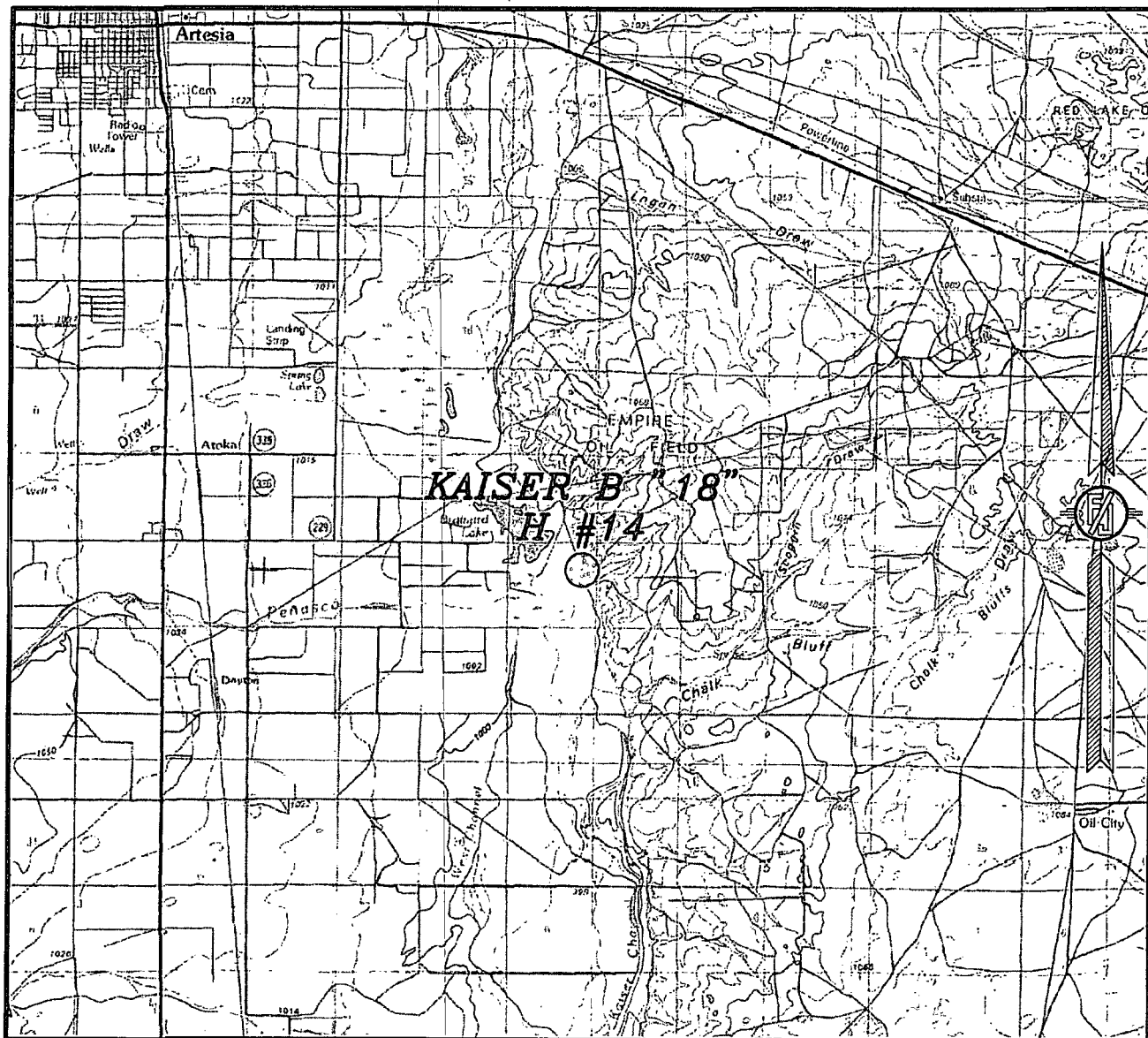
LIME ROCK RESOURCES II A, L.P.
KAISER B "18" H #14
 LOCATED 1740 FT. FROM THE NORTH LINE
 AND 800 FT. FROM THE EAST LINE OF
 SECTION 18, TOWNSHIP 18 SOUTH,
 RANGE 27 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO

APRIL 7, 2012

SURVEY NO. 938

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

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 "18" H #14
LOCATED 1740 FT. FROM THE NORTH LINE
AND 800 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 7, 2012

SURVEY NO. 938

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

Drilling Plan

**Kaiser B 18 H #14
1740' FNL 990' FEL
H-S18-T18S-R27E
Eddy County, NM**

1. The elevation of the unprepared ground is 3288.9' 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 4400' and run casing. This equipment will be rigged down and the well will be completed with a workover rig.
4. Proposed total depth is 4418' MD / 4400' TVD.
5. The KOP for directional drilling will be at 480'. See directional plan for detail. Well will be drilled to total depth of 4418' MD / 4400' TVD inside a 30' X 30' square target inside of 40 acre spacing regulatory quarter-quarter setback distances.
6. Estimated tops of geologic markers:
7. Estimated depths at which anticipated oil,

	MD	TVD
Quaternary – Alluvium	Surface	Surface
Queen	524	524
Grayburg	944	940
San Andres	1191	1182
Glorieta	2693	2675
Yeso	2794	2777
Tubb	4115	4098
TD	4418	4400

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

	MD	TVD
Queen	524	524
Grayburg	944	940
San Andres	1191	1182
Glorieta	2693	2675
Yeso	2794	2777
Tubb	4115	4098
TD	4418	4400

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

Type	Hole Size	Casing Size	Wt	Grade	Thread	Depth	Sx	Density	Yield	Components
Conductor	20"	14"	68.7	Weld ed	B	40				Ready Mix
Surface	12-1/4"	8-5/8"	24	ST&C	J-55	450	335	14.8	1.35	Cl C Cmt + 0.25 lbs/sk Cello Flake + 2% CaCl2
Production	7-7/8"	5-1/2"	17	LT&C	J-55	4418	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
							630	14.8	1.33	Class C w/ 0.6% R-3 and 1/4 pps cello flake

9. Proposed Mud Program is as follows

Depth	0-450	450-4250	4250-4400
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	10-12	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.

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

11. Testing, Logging and Coring Program

Testing Program: No drill stem tests are anticipated

Electric Logging Program: SGR-DLL-CDL-CNL Quad Combo from 4418' to surf. Csg. SGR-CNL to Surf.

Coring Program: No full or sidewall cores are anticipated.

12. Potential Hazards:

No abnormal temperatures or pressures are expected. There is no known presence of H₂S in this area. If H₂S 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 1936 psi based on 0.44 x TD. The estimated BHT is 125 degrees 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.

Pressure Control Equipment

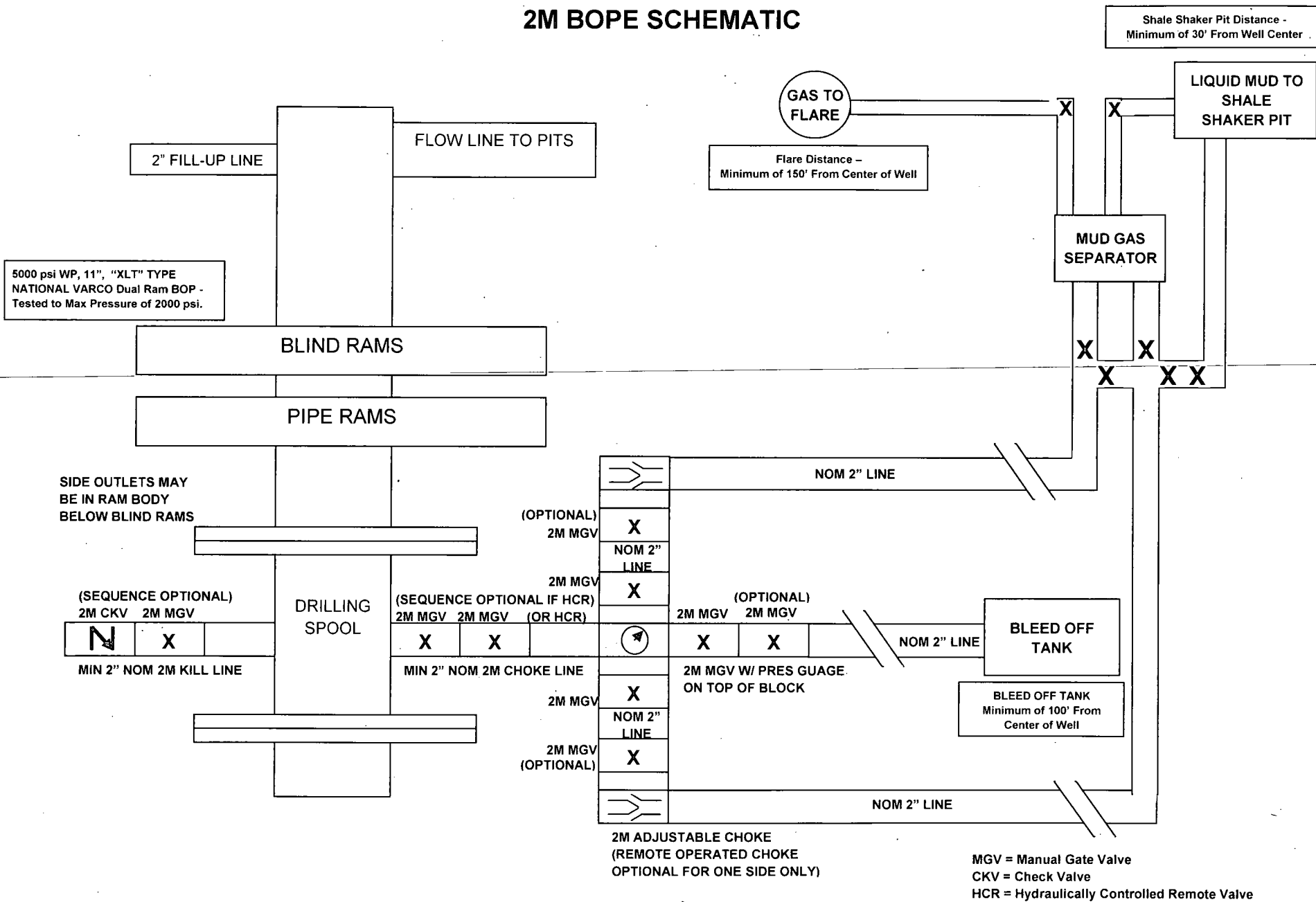
The blowout preventer equipment (BOP) will consist of a 5000 psi rated, "XLT" type, National VARCO double ram preventer that will be tested to a maximum pressure of 2000 psi. The unit will be hydraulically operated and the ram type preventer will be equipped with blind rams on top and drill pipe rams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



Lime Rock Resources II-A, L.P.

Kaiser B 18 H #14

HYDROGEN SULFIDE (H₂S) CONTINGENCY DRILLING PLAN

Assumed 100 ppm ROE = 3000'

100 ppm H₂S concentration shall trigger activation of this plan.

This is an open drilling site. H₂S monitoring equipment and emergency response equipment will be rigged up and in use when the company drills out from under surface casing. H₂S monitors, warning signs, wind indicators and flags will be in use.

EMERGENCY PROCEDURES

Escape

Crews shall escape upwind of escaping gas in the event of an emergency release of gas, or if monitors indicate H₂S 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 H₂S, 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 H₂S 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
 - o Detection of H₂S, and
 - o Measures for protection against the gas,
 - o Equipment used for protection and emergency response.

H2S CONTINGENCY DRILLING PLAN EMERGENCY CONTACTS

Ignition of Gas Source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO₂). 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 H₂S and SO₂

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H ₂ S	1.189 Air= 1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO ₂	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.

H₂S Operations

Though no H₂S 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 H₂S 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 H₂S level below 10 ppm, 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

<u>Company Offices -</u>	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	OPERATIONS MANAGER	HOUSTON	713-292-9526	713-906-7750	713-783-1959
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 MCCCELLAND	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 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