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

Form C-101
Revised December 16, 2011

RECEIVED
MAR 15 2012
NMOCD ARTESIA

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

[1] Operator Name and Address	[2] OGRID Number
LRE Operating, LLC, 1111 Bagby Street, Suite 4600, Houston, Texas 77002	281994
	[3] API Number 30-015-40086

[4] Property Code	[5] Property Name	[6] Well No.
309872	Tigner State	#4

[7] Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
L	28	17S	28E		1650	S	990	W	EDDY

[8] Pool Information

Artesia; Glorieta-Yeso	96830

Additional Well Information

[9] Work Type	[10] Well Type	[11] Cable/Rotary	[12] Lease Type	[13] Ground Level Elevation
N	Oil	Rotary	State	3671 0
[14] Multiple	**[15] Proposed Depth**	**[16] Formation**	**[17] Contractor**	**[18] Spud Date**
No	3,650'	Yeso	United Drilling Inc	7/1/2013

Depth to Ground water. 40'	Distance from nearest fresh water well . 3 3 Miles	Distance to nearest surface water 8 5 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 ¼"	8 5/8"	24	425	300 sx	Surface
Production	7 7/8"	5 ½"	17	3650	675 sx	Surface

Casing/Cement Program: Additional Comments

See Attached Well Plan Documentation

Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
XLT 11"	5000 PSI	2000 PSI	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: Sid Ashworth

Printed name: Robert S (Sid) Ashworth

Title: Production Engineer

E-mail Address: sashworth@limerockresources com

Date: 3/12/12 Phone 713-292-9526

OIL CONSERVATION DIVISION

Approved By: T. C. Shepard

Title: Geologist

Approved Date: 3/23/2012 Expiration Date: 3/23/2014

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

[1] API Number	[2] Pool Code	[3] Pool Name
30-015-40086	96830	Artesia; Glorieta-Yeso

[4] Property Code	[5] Property Name	Well Number
309872	TIGNER	4

[7] OGRID No.	[8] Operator Name	[9] Elevation
281994	LRE OPERATING, LLC	3671.0

[10] Surface Location

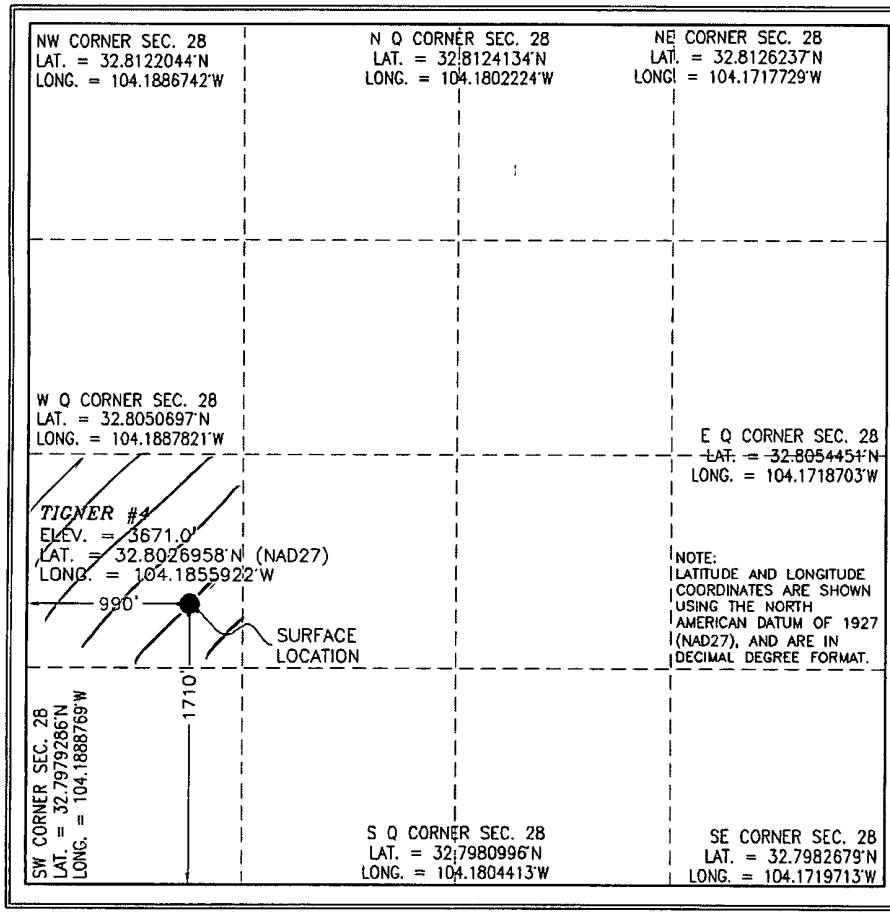
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	28	17 S	28 E		1710	SOUTH	990	WEST	EDDY

[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

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
40			

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 3/12/12 Date

Printed Name SID ASHWORTH

[18] SURVEYOR CERTIFICATION

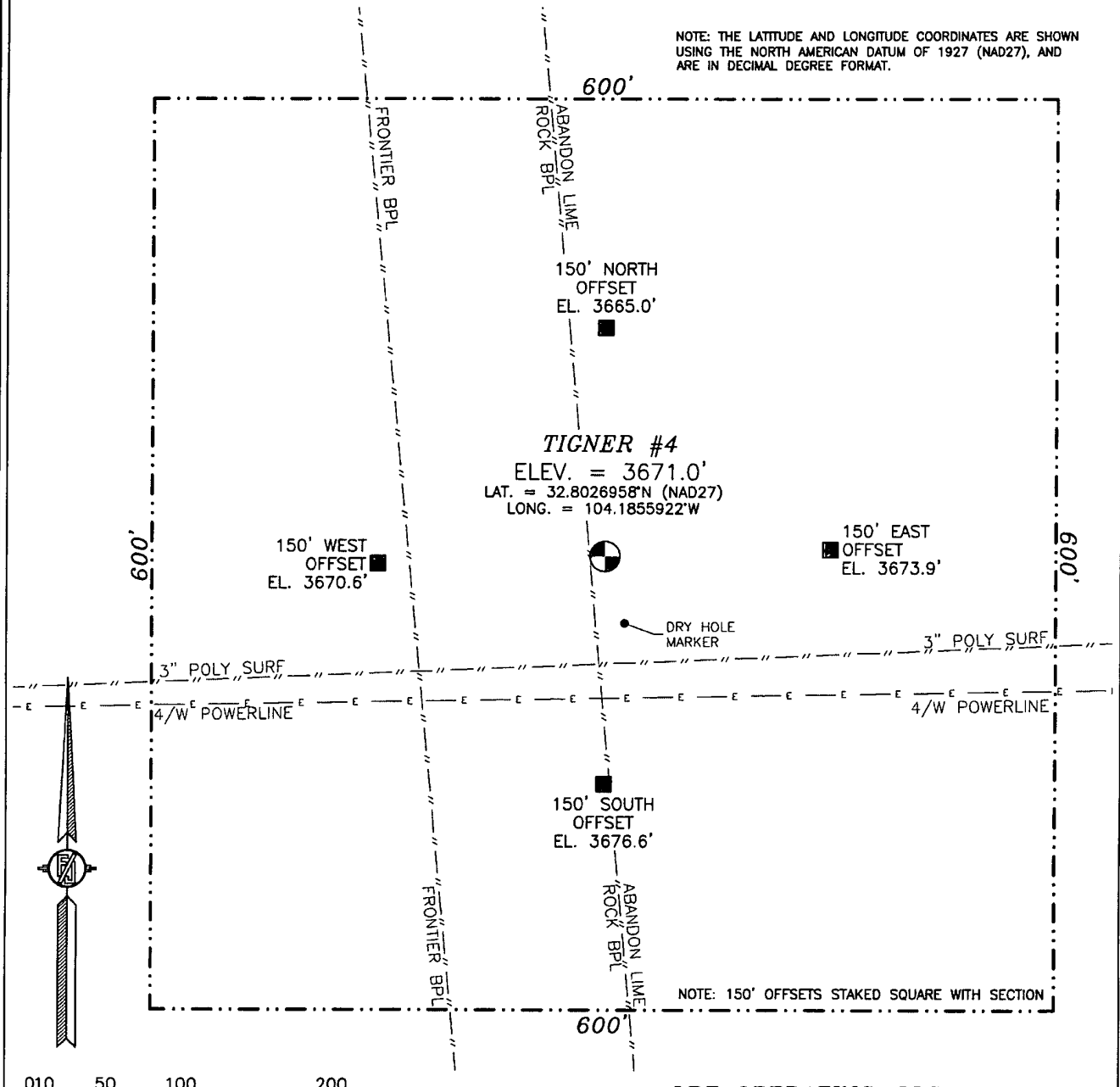
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

DECEMBER 7, 2011 Date of Survey

Signature and Seal of Professional Surveyor

Certificate Number: FILIMON F. JARAMILLO, PLS 12797 SURVEY NO. 737

SECTION 28, TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO



DIRECTIONS TO LOCATION

FROM STATE HWY. 82 AND CR #206 GO EAST ON HWY. 82 0.45 MILES, TURN LEFT ON CALICHE ROAD AND GO NORTH 0.4 MILES AND LOCATION IS ON THE RIGHT (EAST) 737'.

LRE OPERATING, LLC

TIGNER #4

LOCATED 1710 FT. FROM THE SOUTH LINE AND 990 FT. FROM THE WEST LINE OF SECTION 28, TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M. EDDY COUNTY, STATE OF NEW MEXICO

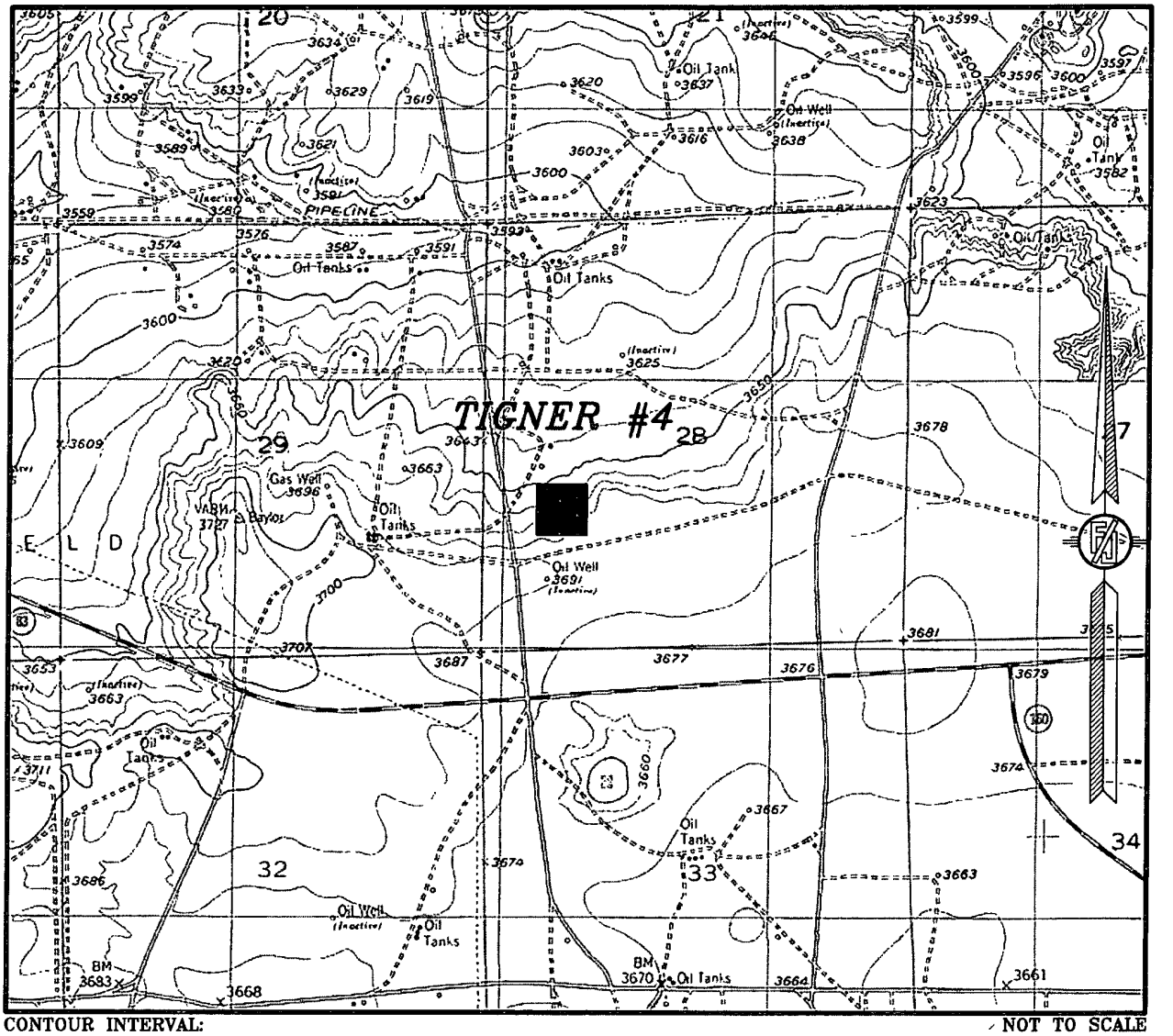
DECEMBER 7, 2011

SURVEY NO. 737

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

SECTION 28, TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

LOCATION VERIFICATION MAP



CONTOUR INTERVAL:
RED LAKE

NOT TO SCALE

LRE OPERATING, LLC
TIGNER #4
LOCATED 1710 FT. FROM THE SOUTH LINE
AND 990 FT. FROM THE WEST LINE OF
SECTION 28, TOWNSHIP 17 SOUTH,
RANGE 28 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

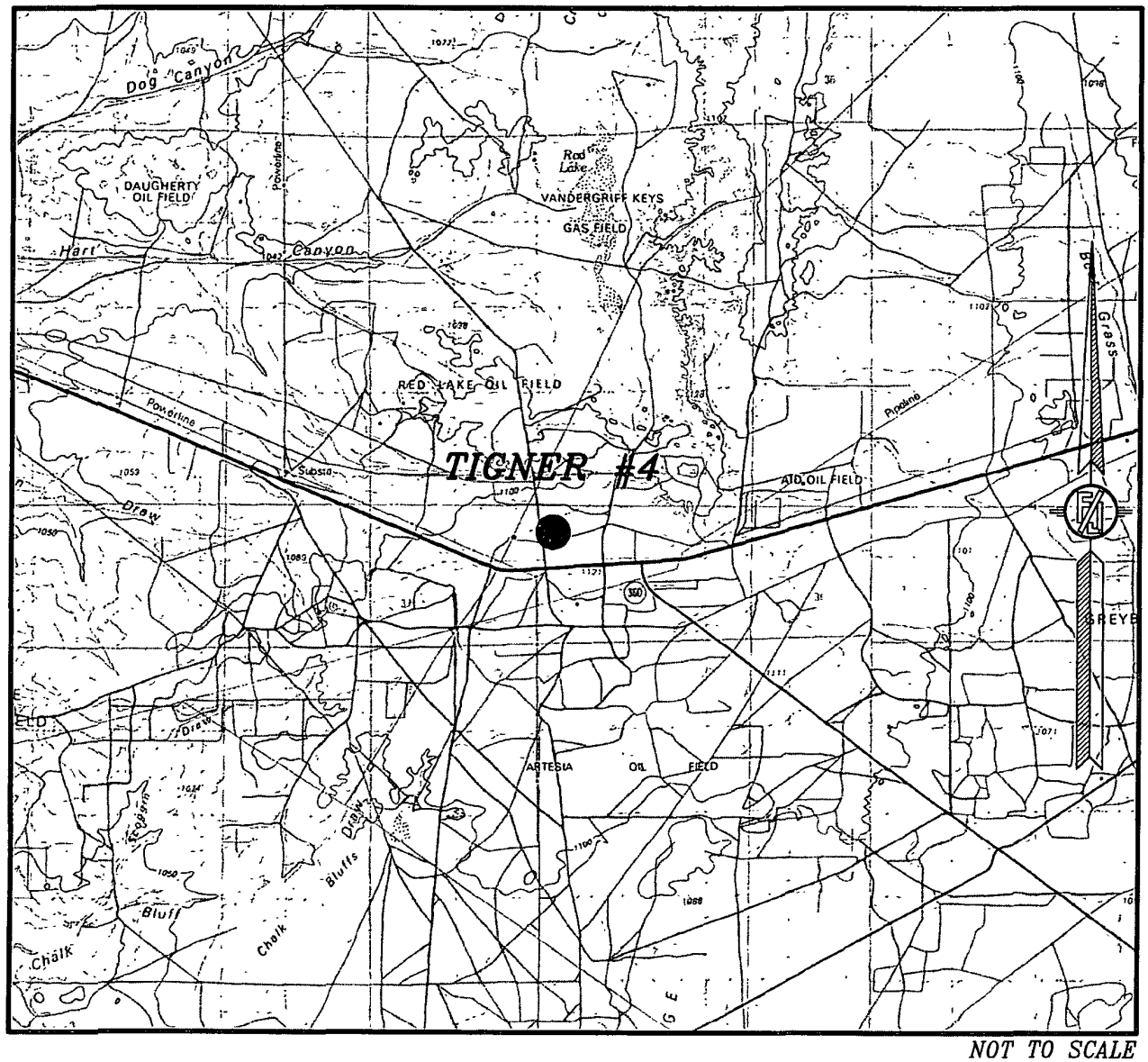
DECEMBER 7, 2011

SURVEY NO. 737

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

SECTION 28, TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

VICINITY MAP



NOT TO SCALE

LRE OPERATING, LLC
TIGNER #4
LOCATED 1710 FT. FROM THE SOUTH LINE
AND 990 FT. FROM THE WEST LINE OF
SECTION 28, TOWNSHIP 17 SOUTH,
RANGE 28 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

DECEMBER 7, 2011

SURVEY NO. 737

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

LRE Operating, LLC
Drilling Plan

Tigner State #4
1650' FSL 990' FWL
L-S28-T17S-R28E
Eddy County, NM

1. The elevation of the unprepared ground is 3671.0' 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 3650' and run casing. This equipment will be rigged down and the well will be completed with a workover rig.
4. Proposed total depth is 3650'.
5. Estimated tops of geologic markers:

Quaternary – Alluvium	Surface
Seven Rivers	653'
Queen	1223'
Grayburg	1606'
San Andres	1966'
Glorieta	3323'
Yeso	3424'
TD	3650'

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

Seven Rivers	653'
Queen	1223'
Grayburg	1606'
San Andres	1966'
Glorieta	3323'
Yeso	3424'
TD	3650'

7. Proposed Casing and Cement program is as follows:

Type	Hole Size	Casing Size	Weight	Grade	Thread	Depth	Sacks	Density	Yield	Components
Conductor	20	14	68.7	B	Weld	40				Ready Mix to surface
Surface	12 1/4	8 5/8	24	J-55	ST&C	425	300	14.8	1.35	Cl C Cmt + 0.25 lbs/sk Cello Flake + 2% $CaCl_2$
Production	7 7/8	5 1/2	17	J-55	ST&C	3650	300	12.8	1.90	(35:65) Poz/Cl C Cmt + 5% NaCl + 0.125 lbs/sk Cello Flake + 5 lbs/sk LCM-1 +0.6% R-3 + 6% Gel
							375	14.8	1.33	Class C w/ 0.60% R-3 and 1/4 pps cello flake

8. Pressure Control Equipment

The blowout preventer equipment (BOP) will consist of a 2000 psi double ram type preventer, a bag-type (Hydril) preventer and rotating head. Both units will be hydraulically operated and the ram type preventer will be equipped with blind rams on top and drill pipe rams on bottom. A 2M BOP will be installed on the 8 5/8" surface casing and utilized continuously until the depth is reached. All casing strings will be tested as per Onshore Order #2.

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:
-Annular preventers
-Double ram with blind rams and pipe rams.
-Drilling spool, or blowout preventer with 2 side outlets (choke side shall be a 3 inch 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)
-3 inch diameter choke line
-2 kill valves, one of which will be a check valve (2 inch minimum)
-2 chokes
-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.
-Fill-up line above the uppermost preventer.

9. Proposed Mud Program is as follows

Depth	0-425	425-3350	3350-3650
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	15-10
Vis	28-34	30-32	34-36
MC	NC	NC	1
Solids	NC	<1%	<2%

10. Testing, Logging and Coring Program
Testing Program: No drill stem tests are anticipated.
Electric Logging Program: TD-Surface casing: GR-DLL, GR-CND. Surface casing set @ 425': G/R/Neutron.
Coring Program: None

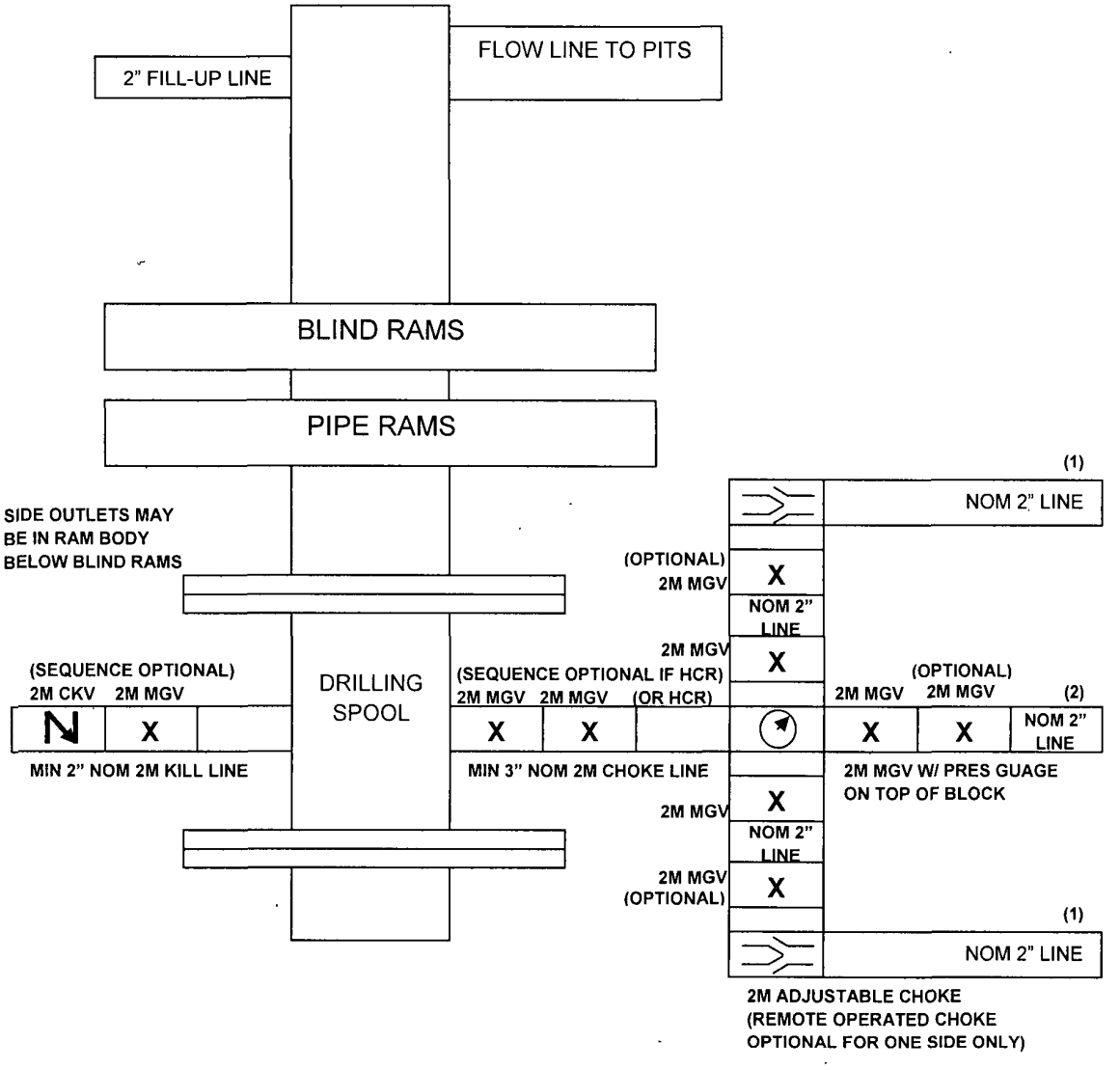
11. Potential Hazards:

No abnormal temperatures or pressures are expected. There is no known presence of H2S in this area. If H2S is encountered the operatorwill 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 1606 psi based on 0.44 x TD. The estimated BHT is 114 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 7 days. An additional 20 days will be needed it complete the well and to construct surface facilities.

2M BOP SCHEMATIC



(1) Line to mud gas separator and/or pit
(2) Bleed line to pit

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

HYDROGEN SULFIDE (H_2S) CONTINGENCY PLAN

Assumed 100 ppm ROE = 3000'

100 ppm H_2S concentration shall trigger activation of this plan.

Emergency Procedures

In the event of a release of gas containing H_2S, 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_2S 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_2S, 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_2). 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_2S and SO_2

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H_2S	1.189 Air = 1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO_2	2.21 Air = 1	2 ppm	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 México's "Hazardous Materials Emergency Response Plan" (HMER).

H_2S CONTINGENCY PLAN EMERGENCY CONTACTS

Company Office –Lime Rock Resources	713-292-9510
Answering Service (During Non-Office Hours)	713-292-9555

Key Personnel

Name	Title	Phone Number
Richard Ghiselin.	Production Engineer	713-345-2136 Cell: 218-507-0386
Mike Barrett	Production Supervisor	575-623-8424 Cell: 505-353-2644

Ambulance	911
State Police	575-746-2703
City Police	575-746-2703
Sheriff's Office	575-746-9888
Fire Department	575-746-2701
Local Emergency Planning Committee	575-746-2122
New Mexico Oil Conservation Division	575-748-1283

Carlsbad

Ambulance	911
State Police	575-8885-3137
City Police	575-885-2111
Sheriff's Office	575-887-7551
Fire Department	575-887-3798
Local Emergency Planning Committee	575-887-6544
US Bureau of Land Management	575-887-6544

New Mexico Emergency Response Commission (Santa Fe)	505-476-9600
24 Hour	505-827-9126
New Mexico State Emergency Operations Center	505-476-9635
National Emergency Response Center (Washington, DC)	800-424-8802

Other

Boots & Coots IWC	800-256-9688 or 281-931-8884
Cudd PressureControl	915-699-0139 or 915-563-3356
Halliburton	575-746-2757
B. J. Services	575-746-3569
Flight For Life – 4000 24th St. Lubbock, Texas	806-743-9911
Aerocare – R3, Box 49F, Lubbock, Texas	806-747-8923
Med Flight Air Amb – 2301 Yale Blvd SE #D3, Albuq., NM	505-842-4433
S B Air Med Service – 2505 Clark Carr Loop SE, Albuq., NM	505-842-4949

LRE Operating, LLC

Tigner State #4

UNIT L, S28-T17S-R28E, EDDY COUNTY, NM

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

CRI(R360) /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.

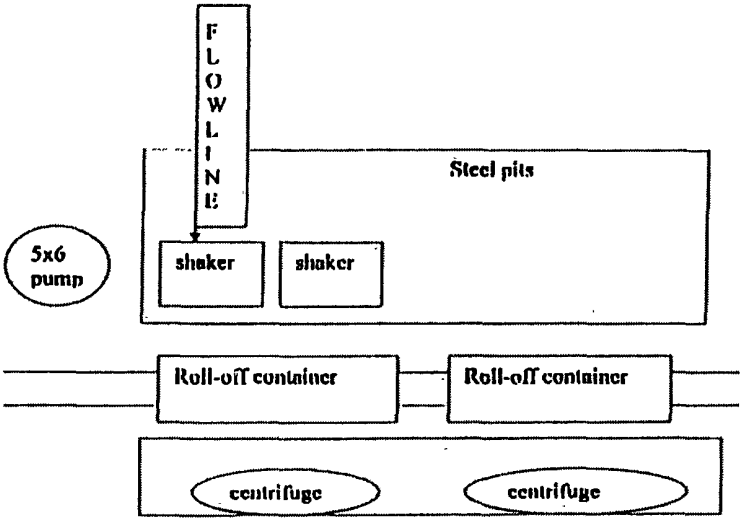
2- (250 bbl) tanks to hold fluid
2-CRI bins with track system
2-500 bbl frac tanks with fresh water
2-500 bbl frac tanks for brine water

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 (R360) equipment to DFP #R9166.



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

TOMMY WILSON

CLS

CLOSED LOOP SPECIALTY

Office: 575.746.1689 Cell: 575.748.6367