

OC D Artesia

NM OIL CONSERVATION  
ARTESIA DISTRICT

ATS-14-558

Form 3160-3  
(March 2012)

JAN 11 2017

APL  
Assigned  
OCT  
RAB

FORM APPROVED  
OMB No. 1004-0137  
Expires October 31, 2014

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMLC-065478B	
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name N/A	
2. Name of Operator LIME ROCK RESOURCES II-A, L. P. (277558)		7. If Unit or CA Agreement, Name and No. N/A	
3a. Address 1111 BAGBY ST., SUITE 4600 HOUSTON, TX 77002		8. Lease Name and Well No. FALCON 3 D FEDERAL 38 308974	
3b. Phone No. (include area code) 713 292-9528		9. API Well No. 30-015- 43918 OCT API?	
4. Location of Well (Report location clearly and in accordance with any State requirements.)* At surface 930' FNL & 570' FWL At proposed prod. zone 930' FNL & 330' FWL		10. Field and Pool, or Exploratory RED LAKE; GLORIETA-YESO, NE 96836	
14. Distance in miles and direction from nearest town or post office* 9 AIR MILES SE OF ARTESIA, NM		11. Sec., T. R. M. or Blk. and Survey or Area LOT 4 3-18S-27E	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) SHL: 342' BHL: 330'		12. County or Parish EDDY	
16. No. of acres in lease 642.88		13. State NM	
17. Spacing Unit dedicated to this well LOT 4		18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. SHL: 294' (Falc. 3 D 26) BHL: 70' (ditto)	
19. Proposed Depth TVD = 5050' & MD = 5063'		20. BLM/BIA Bond No. on file NMB-000797 & NMB-000817	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3,569.4' UNGRADED		22. Approximate date work will start* 04/01/2016	
		23. Estimated duration 1 MONTH	

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.   | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan.  | 5. Operator certification   |
| 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). | 6. Such other site specific information and/or plans as may be required by the BLM.             |

25. Signature	Name (Printed/Typed) BRIAN WOOD (PHONE: 505 466-8120)	Date 01/16/2016
---------------	--	--------------------

Title CONSULTANT (FAX: 505 466-9682)

Approved by (Signature)	Name (Printed/Typed) /s/George MacDonell	Date 9/27/16
-------------------------	---	-----------------

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

Witness Surface & Intermediate Casing

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

District I  
1625 N. French Dr., Hobbs, NM 88240  
Phone: (575) 393-6161 Fax: (575) 393-0720  
District II  
511 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 & 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-		<sup>2</sup> Pool Code 96836		<sup>3</sup> Pool Name Red Lake, Glorieta-Yeso Northeast	
<sup>4</sup> Property Code <del>308971</del> 308974		<sup>5</sup> Property Name FALCON 3D FEDERAL			<sup>6</sup> Well Number 38
<sup>7</sup> OGRID No. 277558		<sup>8</sup> Operator Name LIME ROCK RESOURCES II-A, L.P.			<sup>9</sup> Elevation 3569.4

<sup>10</sup> Surface Location

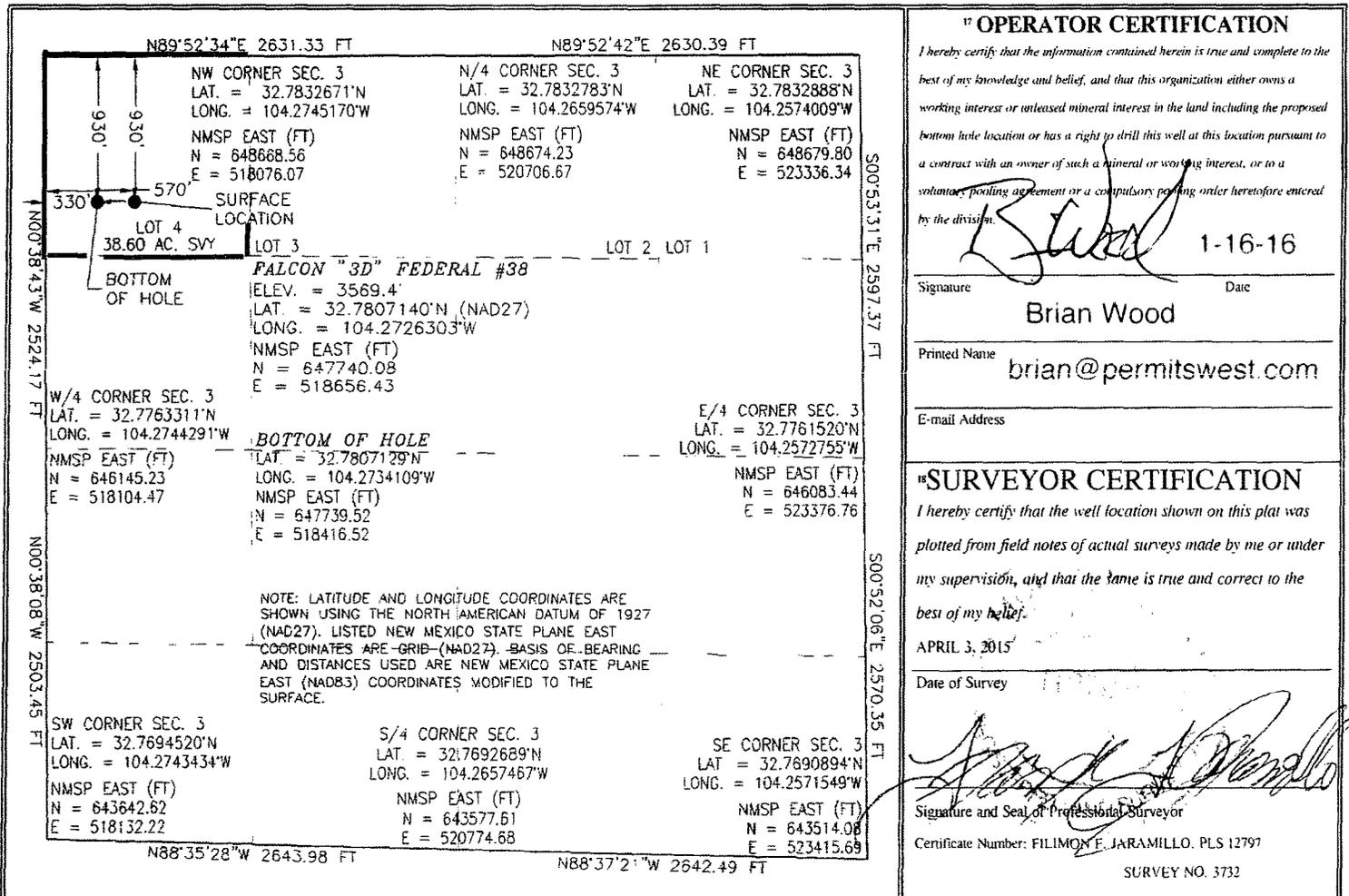
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
4	3	18 S	27 E		930	NORTH	570	WEST	EDDY

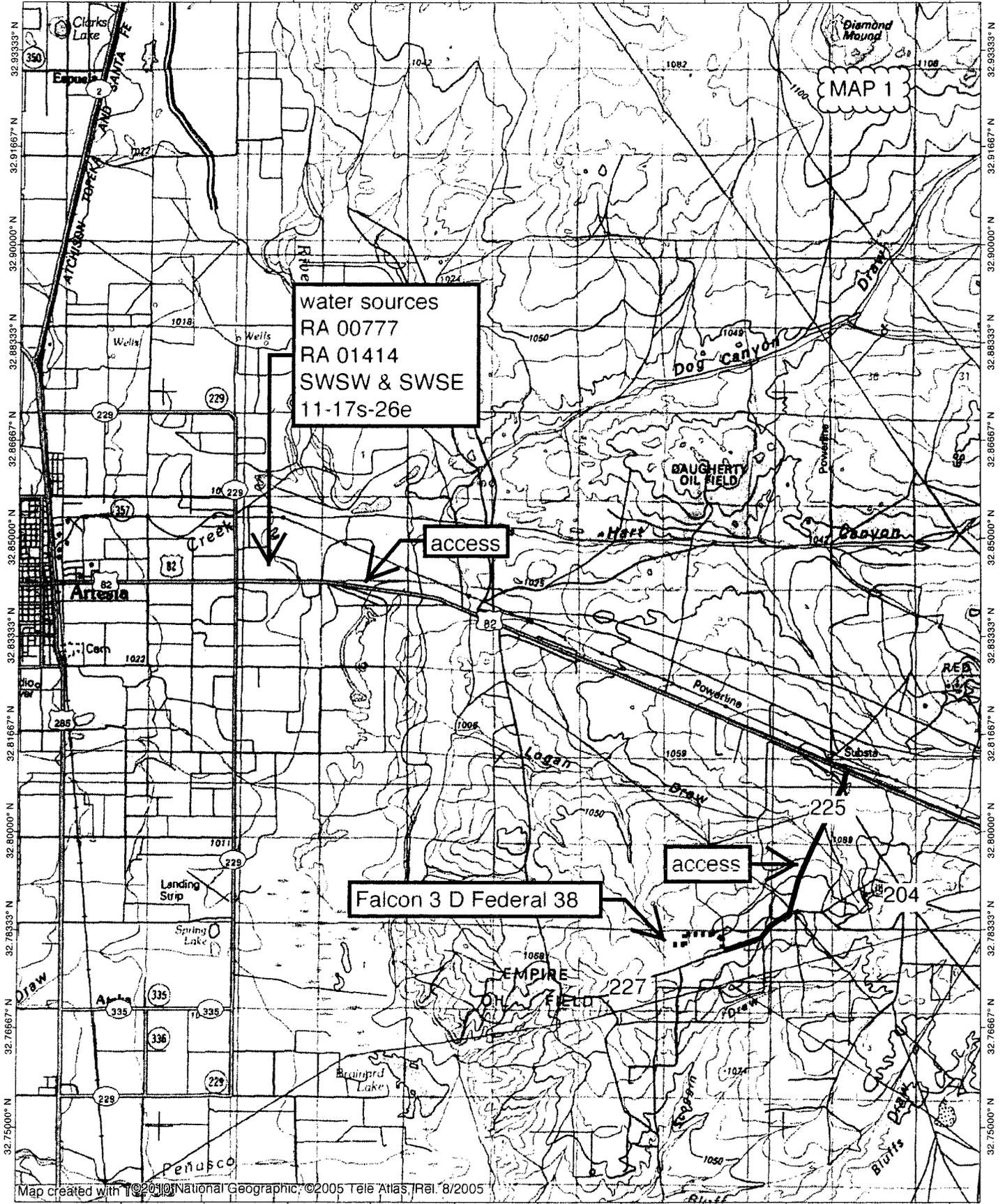
<sup>11</sup> Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
4	3	18 S	27 E		930	NORTH	330	WEST	EDDY

<sup>12</sup> Dedicated Acres 38.60	<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.





Map created with 11/20/09 National Geographic, ©2005 Tele Atlas, Rel. 8/2005



4,932.66' proposed pipelines

172.81' proposed power line

199' proposed road

Falcon 3 D Federal 38



MAP 3

1000 ft

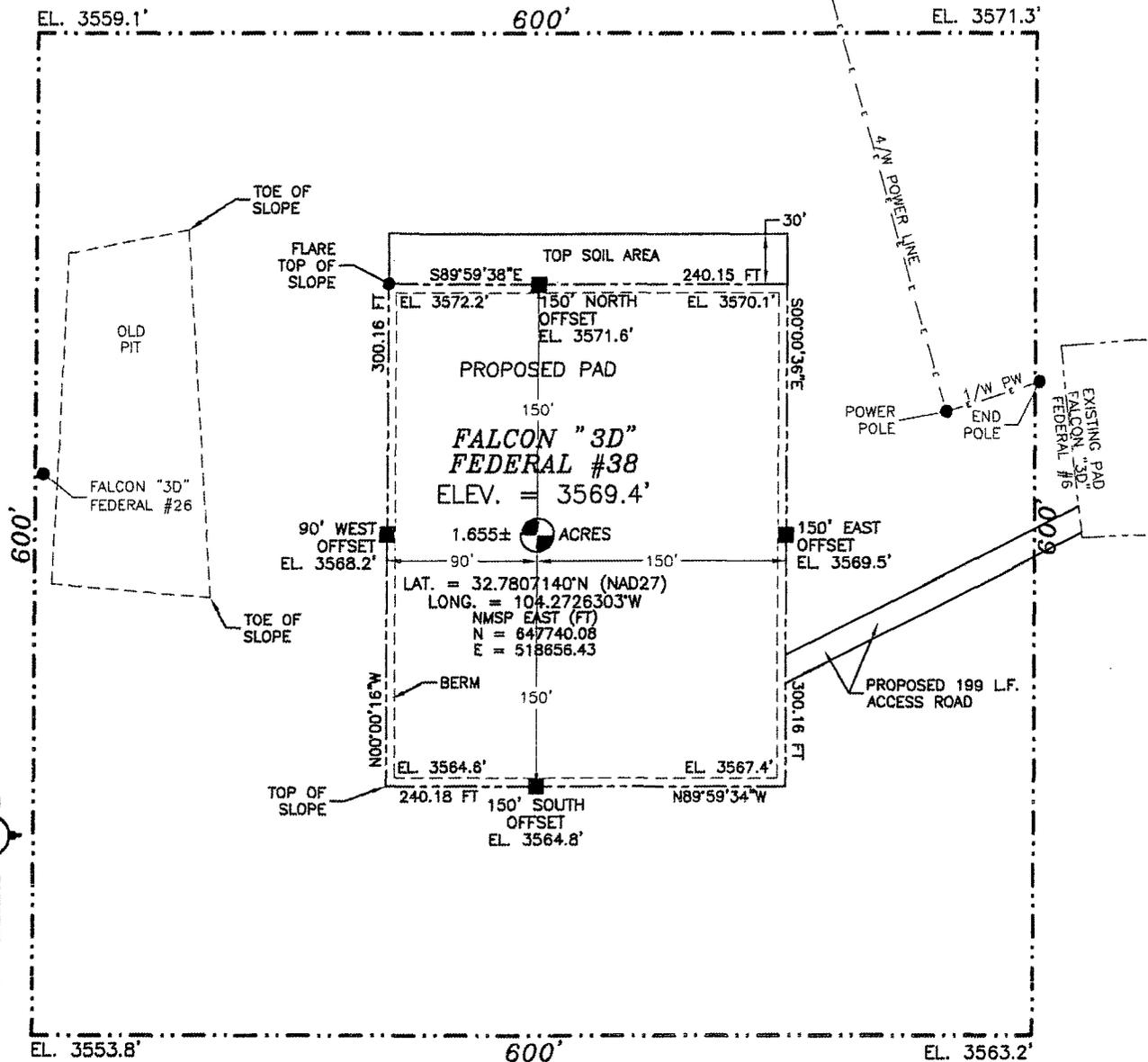
Google earth

© 2015 Google

SECTION 3, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO  
 SITE MAP

MAP 4

NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1927 (NAD27). LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD27). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES (NAD 83) MODIFIED TO THE SURFACE.



010 50 100 200  
 SCALE 1" = 100'

**DIRECTIONS TO LOCATION**  
 FROM CR. #225 AND CR. #227, GO SOUTHWEST ON CR. #227 0.5 MILES, TURN RIGHT AND GO NORTH 0.1 MILE, BEND LEFT AND GO NORTHWEST 0.19 MILES, TURN LEFT AND GO WEST 0.36 MILES, TURN LEFT AND GO SOUTH 655' TO EXISTING PAD FOR FALCON "3D" FEDERAL #6 WELL AND FROM SOUTHWEST CORNER OF PAD FOLLOW PROPOSED ROAD SURVEY FLAGS SOUTHWEST 199' TO THE PROPOSED SOUTHEAST CORNER OF PAD FOR THIS LOCATION.

LIME ROCK RESOURCES II-A, L.P.  
**FALCON "3D" FEDERAL #38**  
 LOCATED 930 FT. FROM THE NORTH LINE  
 AND 570 FT. FROM THE WEST LINE OF  
 SECTION 3, TOWNSHIP 18 SOUTH,  
 RANGE 27 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO

APRIL 3, 2015

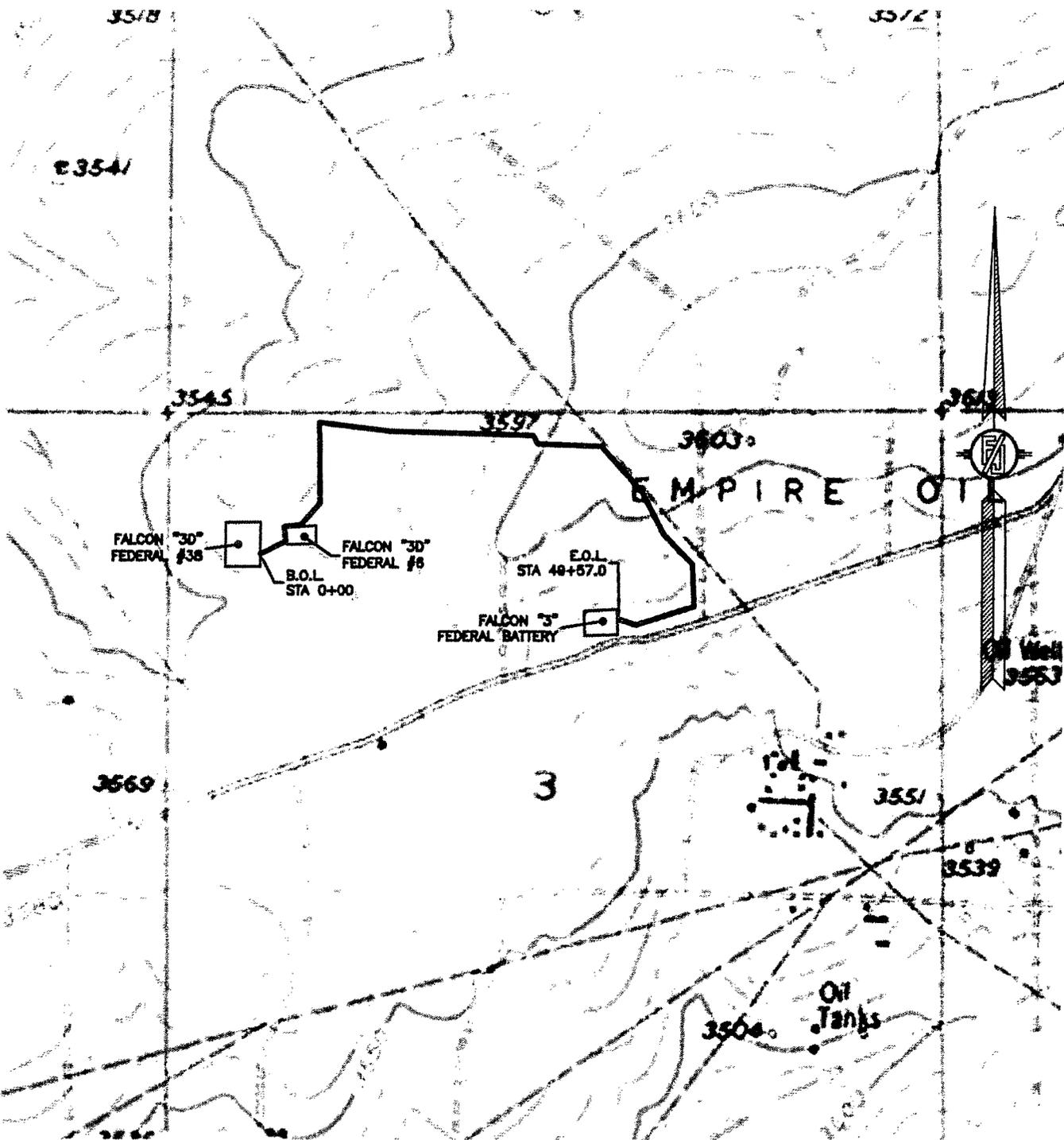
SURVEY NO. 3732

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

**FLOWLINE PLAT**  
R-O-W FOR TWO 3" SDR 7 POLY SURFACE FLOWLINES (ONE GAS AND ONE PRODUCTION)  
FROM FALCON "3D" FEDERAL #38 TO FALCON "3" FEDERAL BATTERY

LIME ROCK RESOURCES II-A, L.P.  
CENTERLINE SURVEY OF A PIPELINE CROSSING  
SECTION 3, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
APRIL 3, 2015

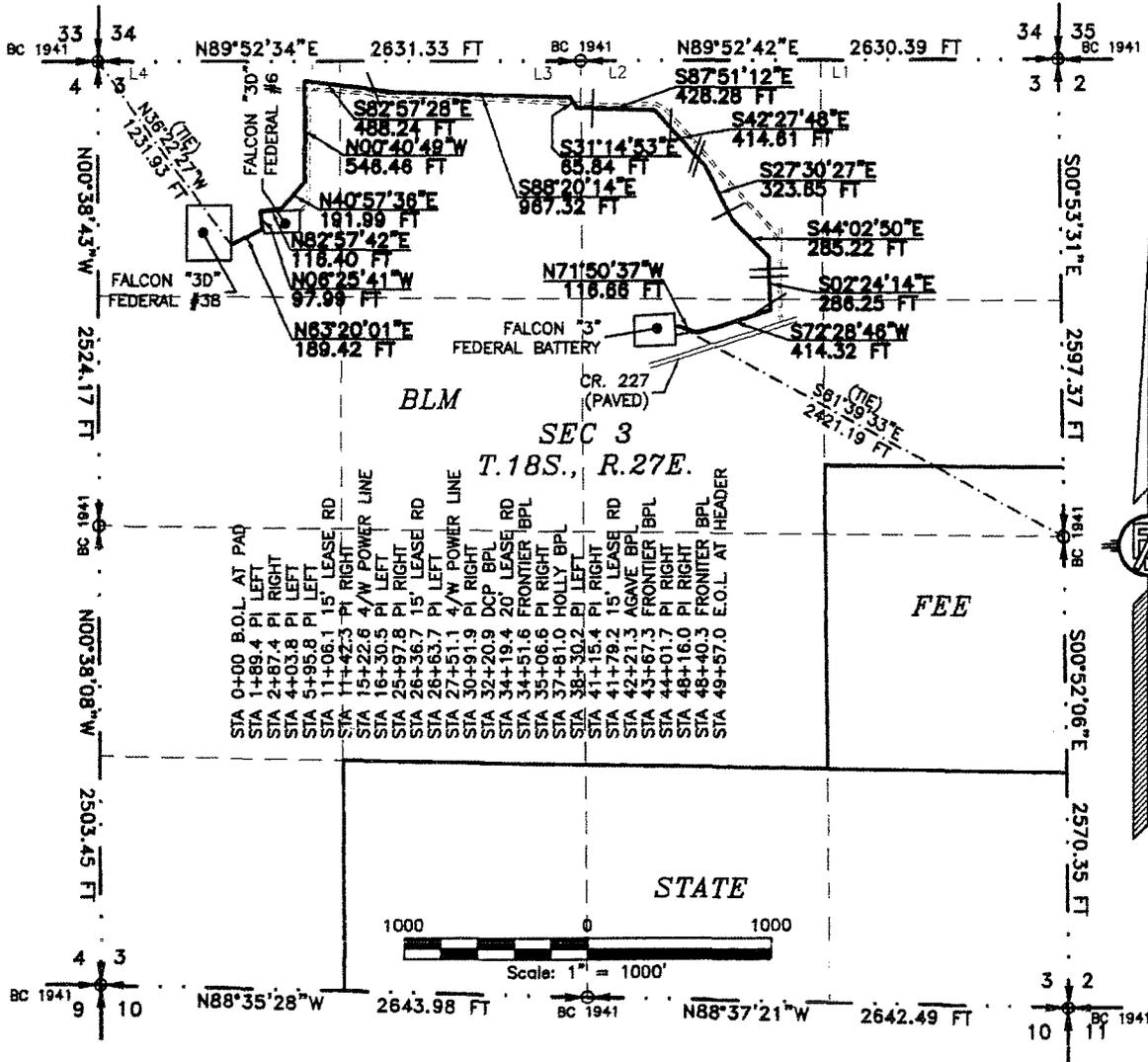
MAP 5



**FLOWLINE PLAT**  
 R-0-W FOR TWO 3" SDR 7 POLY SURFACE FLOWLINES (ONE GAS AND ONE PRODUCTION)  
 FROM FALCON "3D" FEDERAL #38 TO FALCON "3" FEDERAL BATTERY

MAP 6

**LIME ROCK RESOURCES II-A, L.P.**  
 CENTERLINE SURVEY OF A PIPELINE CROSSING  
 SECTION 3, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO  
 APRIL 3, 2015



**SURVEYOR CERTIFICATE**

I, FILMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 9 DAY OF APRIL 2015

*Filmon F. Jaramillo*  
 FILMON F. JARAMILLO PLS. 12797

MADRON SURVEYING, INC.  
 301 SOUTH CANAL  
 CARLSBAD, NEW MEXICO 88220  
 Phone (575) 234-3341

**SURVEY NO. 3732**

**GENERAL NOTES**

- 1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.
- 2.) BASIS OF BEARING IS NMSP EAST MODIFIED TO SURFACE COORDINATES.

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

**FLOWLINE PLAT**  
R-0-W FOR TWO 3" SDR 7 POLY SURFACE FLOWLINES (ONE GAS AND ONE PRODUCTION)  
FROM FALCON "3D" FEDERAL #38 TO FALCON "3" FEDERAL BATTERY

**LIME ROCK RESOURCES II-A, L.P.**  
**CENTERLINE SURVEY OF A PIPELINE CROSSING**  
**SECTION 3, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.**  
**EDDY COUNTY, STATE OF NEW MEXICO**  
**APRIL 3, 2015**

MAP 7

**DESCRIPTION**

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 3, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN LOT 4 OF SAID SECTION 3, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M., WHENCE THE NORTHWEST CORNER OF SAID SECTION 3, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M. BEARS N36°22'27"W, A DISTANCE OF 1231.93 FEET;  
THENCE N63°20'01"E A DISTANCE OF 189.42 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;  
THENCE N06°25'41"W A DISTANCE OF 97.99 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;  
THENCE N82°57'42"E A DISTANCE OF 116.40 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;  
THENCE N40°57'36"E A DISTANCE OF 191.99 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;  
THENCE N00°40'49"W A DISTANCE OF 546.46 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;  
THENCE S82°57'28"E A DISTANCE OF 488.24 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;  
THENCE S88°20'14"E A DISTANCE OF 967.32 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;  
THENCE S31°14'53"E A DISTANCE OF 65.84 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;  
THENCE S87°51'12"E A DISTANCE OF 428.28 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;  
THENCE S42°27'48"E A DISTANCE OF 414.61 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;  
THENCE S27°30'27"E A DISTANCE OF 323.65 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;  
THENCE S44°02'50"E A DISTANCE OF 285.22 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;  
THENCE S02°24'14"E A DISTANCE OF 286.25 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;  
THENCE S72°28'46"W A DISTANCE OF 414.32 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;  
THENCE N71°50'37"W A DISTANCE OF 116.66 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE EAST QUARTER CORNER OF SAID SECTION 3, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M. BEARS S61°39'33"E, A DISTANCE OF 2421.19 FEET;

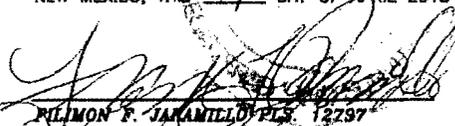
SAID STRIP OF LAND BEING 4932.66 FEET OR 298.95 RODS IN LENGTH, CONTAINING 3.397 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

LOT 4	1337.20 L.F.	81.04 RODS	0.921 ACRES
LOT 3	1351.78 L.F.	81.93 RODS	0.931 ACRES
LOT 2	1656.33 L.F.	100.38 RODS	1.141 ACRES
SW/4 NE/4	587.35 L.F.	35.60 RODS	0.405 ACRES

**SURVEYOR CERTIFICATE**

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD,  
NEW MEXICO, THIS 9 DAY OF APRIL 2015

  
FILIMON F. JARAMILLO, PLS. 12797  
MADRON SURVEYING, INC.  
301 SOUTH CANAL  
CARLSBAD, NEW MEXICO 88220  
Phone (575) 234-3341

**GENERAL NOTES**

- 1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.
- 2.) BASIS OF BEARING IS NMSP EAST MODIFIED TO SURFACE COORDINATES.

**MADRON SURVEYING, INC.** 301 SOUTH CANAL CARLSBAD, NEW MEXICO (575) 234-3341  
**SURVEY NO. 3732**

**ELECTRIC LINE PLAT**

ELECTRIC LINE TO CONNECT THE FALCON "3D" FEDERAL 38

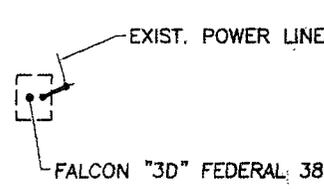
MAP 8

LIME ROCK RESOURCES II-A, L.P.  
CENTERLINE SURVEY OF AN ELECTRIC LINE CROSSING  
SECTION 3, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
APRIL 17, 2015

33 3518 34 3572

3541

3522 3545 3597 3603 36



EMPIRE OT

4 3569 3551 35

3605

STA 1+72.8 E.O.L. POLE #1 METER POLE  
STA 0+00 B.O.L. AT EXIST. POLE TO BE TRANSFORMER POLE

3504 Oil Tanks

3547 3535 3513 35



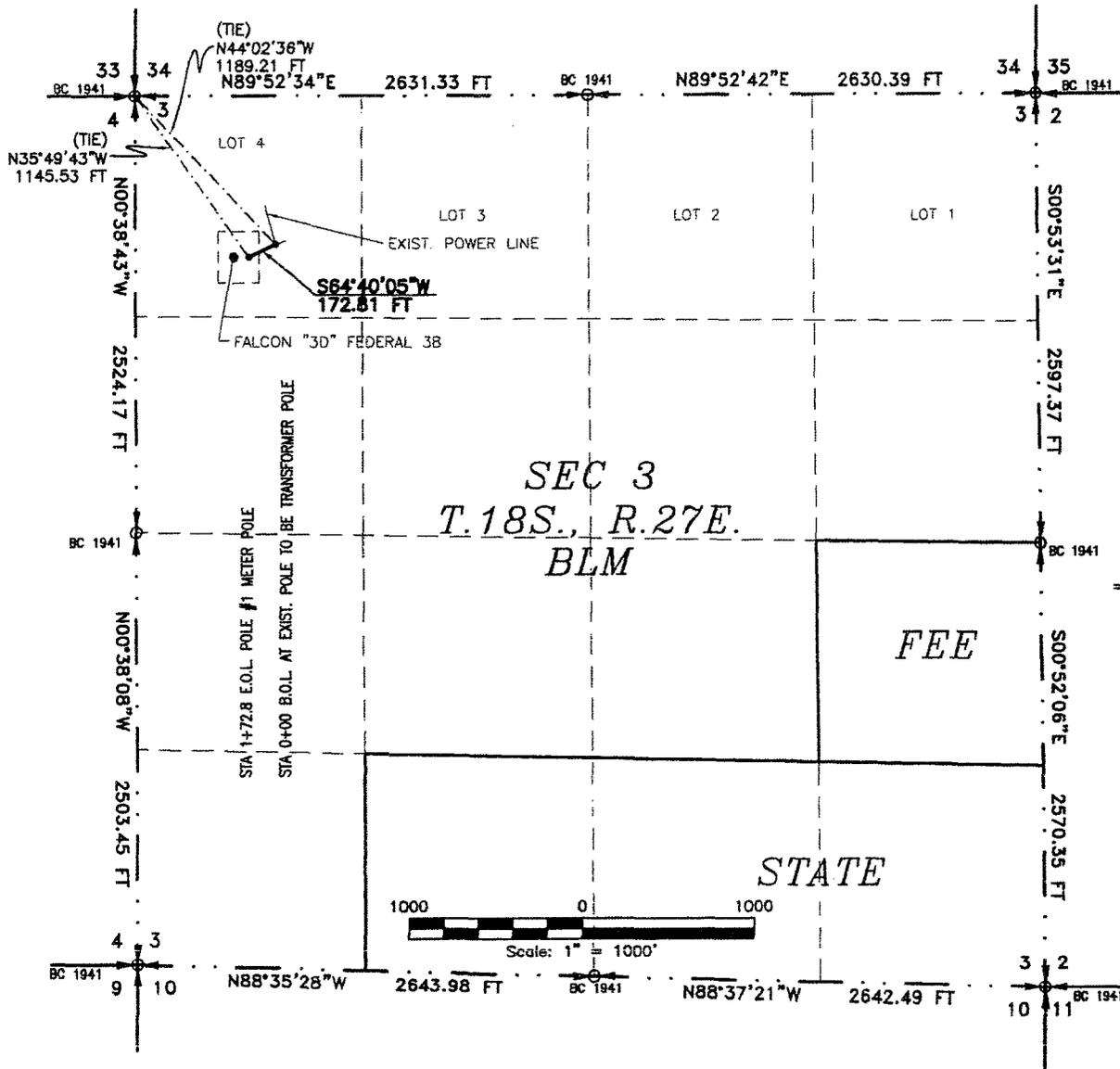
Draw

**ELECTRIC LINE PLAT**

ELECTRIC LINE TO CONNECT THE FALCON "3D" FEDERAL 38

MAP 9

LIME ROCK RESOURCES II-A, L.P.  
 CENTERLINE SURVEY OF AN ELECTRIC LINE CROSSING  
 SECTION 3, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO  
 APRIL 17, 2015



**SURVEYOR CERTIFICATE**

I, FILMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD,

NEW MEXICO, THIS 21 DAY OF MAY 2015

**GENERAL NOTES**

- 1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.
- 2.) BASIS OF BEARING IS NMSP EAST MODIFIED TO SURFACE COORDINATES.

*Filmon F. Jaramillo*  
 FILMON F. JARAMILLO PLS. 12797

MADRON SURVEYING, INC.  
 301 SOUTH CANAL  
 CARLSBAD, NEW MEXICO 88220  
 Phone (575) 234-3341

SURVEY NO. 3732A

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

**ELECTRIC LINE PLAT**

ELECTRIC LINE TO CONNECT THE FALCON "3D" FEDERAL 38

MAP 10

**LIME ROCK RESOURCES II-A, L.P.  
CENTERLINE SURVEY OF AN ELECTRIC LINE CROSSING  
SECTION 3, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
APRIL 17, 2015**

**DESCRIPTION**

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 3, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN LOT 4 OF SAID SECTION 3, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M., WHENCE THE NORTHWEST CORNER OF SAID SECTION 3, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M. BEARS N44°02'36"W, A DISTANCE OF 1189.21 FEET; THENCE S64°40'05"W A DISTANCE OF 172.81 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 3, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M. BEARS N35°49'43"W, A DISTANCE OF 1145.53 FEET;

SAID STRIP OF LAND BEING 172.81 FEET OR 10.47 RODS IN LENGTH, CONTAINING 0.119 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

LOT 4 172.81 L.F. 10.47 RODS 0.119 ACRES

**GENERAL NOTES**

- 1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.
- 2.) BASIS OF BEARING IS NMSP EAST MODIFIED TO SURFACE COORDINATES.

**SURVEYOR CERTIFICATE**

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 21 DAY OF MAY 2015

FILIMON F. JARAMILLO PLS. 12797

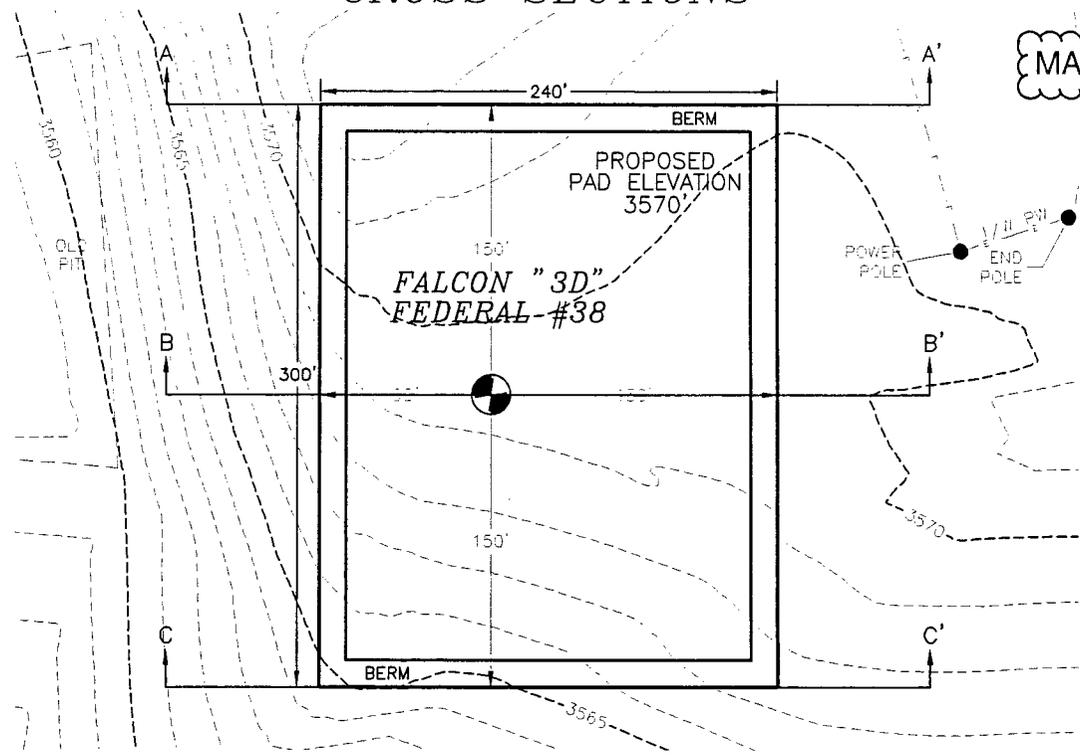
MADRON SURVEYING, INC.  
301 SOUTH CANAL  
CARLSBAD, NEW MEXICO 88220  
Phone (575) 234-3341

**SURVEY NO. 3732A**

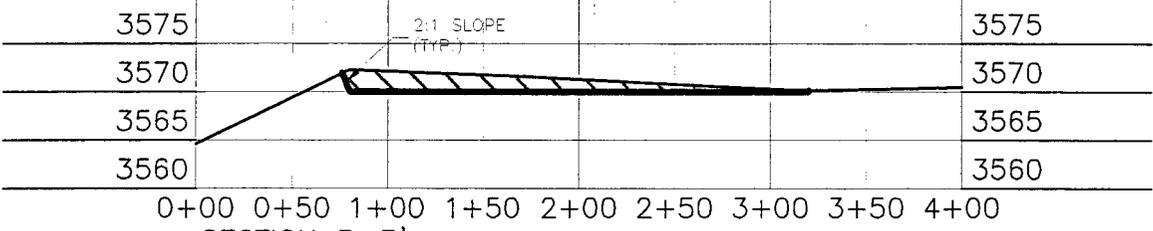
**MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO**  
(575) 234-3341

# CROSS SECTIONS

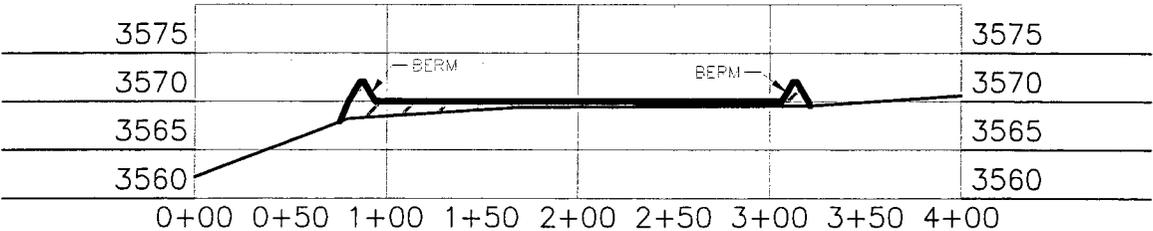
MAP 4.1



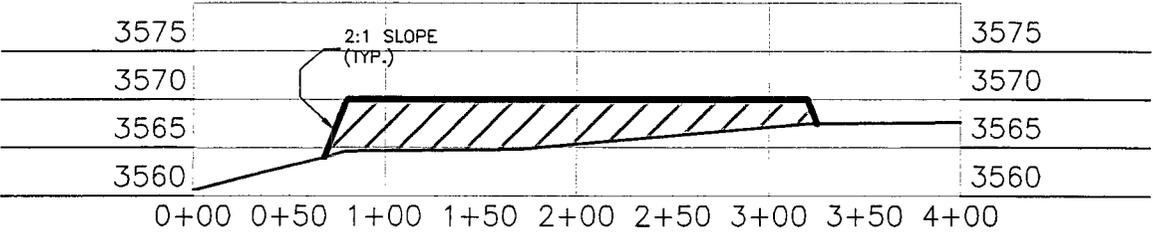
SECTION A-A'



SECTION B-B'



SECTION C-C'



LIME ROCK RESOURCES II-A, L.P.  
**FALCON "3D" FEDERAL #38**  
 LOCATED 930 FT. FROM THE NORTH LINE  
 AND 570 FT. FROM THE WEST LINE OF  
 SECTION 3, TOWNSHIP 18 SOUTH,  
 RANGE 27 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO

010 50 100 200  
 SCALE 1" = 100' HORZ.  
 SCALE 1" = 20' VER.

CUT	FILL	NET
322 CU. YD	4468 CU. YD	4146 CU. YD (FILL)

EARTHWORK QUANTITIES ARE ESTIMATED

APRIL 28, 2015

SURVEY NO. 3732

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

Lime Rock Resources II-A, L.P.  
 Falcon 3 D Federal 38  
 SHL: 930' FNL & 570' FWL  
 BHL: 930' FNL & 330' FWL  
 Sec. 3, T. 18 S., R. 27 E., Eddy County, NM

DRILL PLAN PAGE 1

Drilling Program

1. ESTIMATED TOPS

<u>Name</u>	<u>TVD</u>	<u>MD</u>	<u>Content</u>
Tansill	0'	0'	---
Yates	25'	25'	fresh water
Seven Rivers*	302'	302'	oil, gas, saltwater
Queen	819'	820'	oil, gas, saltwater
Grayburg	1,290'	1,294'	oil, gas, saltwater
San Andres	1,512'	1,517'	oil, gas
Glorieta	2,874'	2,887'	oil, gas
Yeso	2,993'	3,006'	oil, gas
Tubb	4,331'	4,349'	oil, gas
Abo**	4,950'	4,963'	oil, gas
Total Depth	5,050'	5,063'	---

\*in which contingency string, if needed, will be set at 375'

\*\* Abo will not be perforated. Extra depth needed for logs and pump.

2. NOTABLE ZONES

Water bearing strata were found at 800' in the Hondo Federal 2 (30-015-10437). That well is 900' west. Closest (5,740' southeast) water well (RA 02996) does not have a completion report, but its proposed depth was 300'. Water had been reported between 145' and 150' in this former oil well (30-015-00739).

3. PRESSURE CONTROL → See COA

A 2,000 psi BOP stack and manifold system will be used. A typical 2,000 system is attached behind the directional plan. If the equipment changes, then a

Lime Rock Resources II-A, L.P.  
Falcon 3 D Federal 38  
SHL: 930' FNL & 570' FWL  
BHL: 930' FNL & 330' FWL  
Sec. 3, T. 18 S., R. 27 E., Eddy County, NM

DRILL PLAN PAGE 2

Sundry Notice will be filed. System will meet Onshore Orders 2 (BOP) and 6 (H<sub>2</sub>S) requirements.

The blowout preventer equipment (BOP) will consist of a 2000 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 and kill side shall be at least 2" diameter),
- Kill line (2" minimum),
- At least 1 choke line valve (2" minimum),
- 2" diameter choke line,
- 2 kill valves, one of which will be a check valve (2" minimum),
- 1 choke that 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.

Lime Rock Resources II-A, L.P.  
 Falcon 3 D Federal 38  
 SHL: 930' FNL & 570' FWL  
 BHL: 930' FNL & 330' FWL  
 Sec. 3, T. 18 S., R. 27 E., Eddy County, NM

4. CASING & CEMENT

Type	Setting Depth	Hole	Casing	#/ft	Grade	Casing Thread	API	Age
Conductor	40'	26"	20"	91.5	B	Weld	No	New
Surface	350'	11"	8.625"	24	J-55	S T & C	Yes	New
Production	5063'	7.875"	5.5"	17	J-55	L T & C	Yes	New

All casing is designed with a minimum of:

Burst Safety Factor	Collapse Safety Factor	Tension Safety Factor
1.18	1.20	2.00

casing	depth set	sacks cement	top	gallons per sack	density (ppg)	yield (cu ft per sack)	total cubic feet	% excess	blend
conductor	40'	N/A	GL	ready mix	ready mix	ready mix	ready mix	ready mix	ready mix
surface	350'	300	GL	6.2	14.8	1.35	405	200	1
production lead	5063'	290	GL	9.8	12.8	1.903	551	80	2
production tail	5063'	620	GL	6.2	14.8	1.33	824	50	3

Surface casing blend (1) will be Class C + ¼ pound/sack cello flake + 2% CaCl<sub>2</sub>. Centralizers will be installed as required by Onshore Order 2.

Production casing lead blend (2) will be 35:65 poz Class C + 5% NaCl + 1/4 pound/sack cello flake + 5 pounds per sack LCM-1 + 0.2% R-3 + 6% gel.

Production casing tail blend (3) will be Class C + 0.6% R-3 + ¼ pound/sack cello flake.

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Falcon 3 D Federal 38  
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DRILL PLAN PAGE 4

Cement volumes will be adjusted based on caliper log volumes and depths of casing and adjusted proportionately for depth changes of the multi stage tool if applicable.

A 13-3/8", 48#, H-40, ST&C, New, API contingency string will be set at 375' in a reamed 17-1/2" hole if circulation is lost in cave or karst (cave & karst potential to 350') and not regained. Contingency string will be cemented to the surface with 400 sacks (536 cubic feet) Class C + 1/4 pound per sack cello flake + 2% CaCl<sub>2</sub> mixed with 6.2 gallons per sack to yield 1.34 cubic feet per sack and 14.8 pounds per gallon. Excess >100%

Upon the setting of a 13-3/8" contingency casing string, a 13-5/8" x 13-3/8" weld on wellhead will be installed. A 13-3/8" to 11" adapter flange will be installed and the 11" XLT 2000 psi NOV double ram BOP/BOPE (Schematic attached) will be installed. The BOP will be tested against the casing to 70% of the internal yield pressure of the 13-3/8", 48#, H-40, ST&C (1211 psi) casing and held for 30 minutes before drilling out the 13-3/8" casing shoe. The formation will be drilled with a 10-3/4" bit approximately 50 feet past the 13-3/8" casing shoe into a competent formation and 8-5/8" casing will be set at approximately 425' ( $\geq 50'$  beyond the previous casing shoe) in the Seven Rivers and cemented with 410 sacks (549 cubic feet) Class C + 1/4 pound per sack cello flake + 2% CaCl<sub>2</sub> mixed with 6.2 gallons per sack to yield 1.34 cubic feet per sack and 14.8 pounds per gallon. Excess >125%

## 5. MUD PROGRAM

An electronic/mechanical mud monitor will with a minimum pit volume totalizer, stroke counter, and flow sensor will be used. All necessary mud products will be on site to handle any abnormal hole condition that could possibly be encountered during the drilling of this well. Circulation could be lost in the Grayburg and San Andres.

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 Falcon 3 D Federal 38  
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 Sec. 3, T. 18 S., R. 27 E., Eddy County, NM

Interval	0' - 375' (if contingency string run)	0' - 350'	350' - 4913'	4913' - TD
Type	fresh water	fresh water	brine	brine w/ gel & starch
weight	8.5 - 9.2	8.5 - 9.2	9.9 - 10.2	9.9 - 10.2
pH	10	10	10 - 11.5	10 - 11.5
WL	NC	NC	NC	15 - 20
viscosity	28 - 34	28 - 34	30 - 32	32 - 35
MC	NC	NC	NC	1
solids	NC	NC	<2%	<3%
pump rate	300 - 350 gpm	300 - 350 gpm	350 - 400 gpm	400 - 450 gpm
other	LCM as needed	LCM as needed	salt gel & MF as needed, pump high viscosity sweeps to control solids	salt gel, acid, & MF as needed; pump high viscosity sweeps to control solids

6. CORES, TESTS, & LOGS → See COA

No core or drill stem test is planned. A triple combo with spectral GR - dual lateral log, micro spherical focused log, & spectral density log will be run after tagging total depth. Will log from total depth to surface. A dual spaced neutron log and compensated spectral natural GR log will be run from total depth to surface.

7. DOWN HOLE CONDITIONS → See COA

No abnormal pressure or temperature is expected. Maximum expected bottom hole pressure is ≈2,186 psi. <sup>H<sub>2</sub>S might be present</sup> ~~No H<sub>2</sub>S is expected~~ during the drilling phase. Nevertheless, H<sub>2</sub>S monitoring equipment will be on the rig floor and air packs will be available before drilling out of the surface casing. The mud logger will be warned to use a gas trap to detect H<sub>2</sub>S. If any H<sub>2</sub>S is detected, then the mud

Lime Rock Resources II-A, L.P.  
Falcon 3 D Federal 38  
SHL: 930' FNL & 570' FWL  
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Sec. 3, T. 18 S., R. 27 E., Eddy County, NM

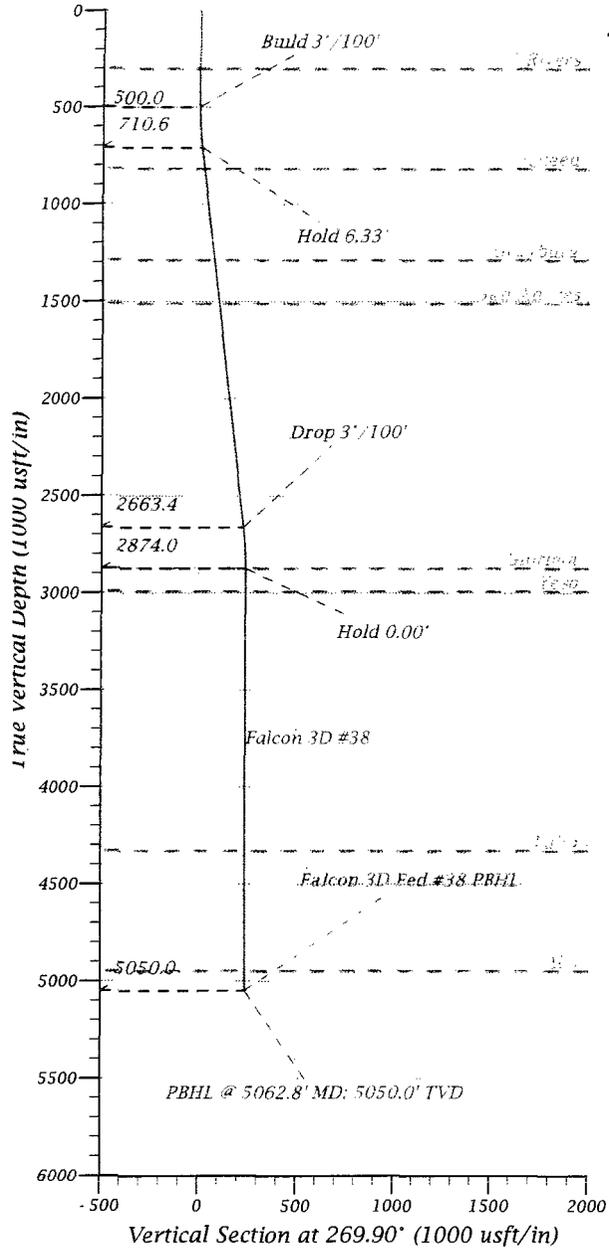
DRILL PLAN PAGE 6

weight will be increased and H<sub>2</sub>S inhibitors will be added to control the gas. An H<sub>2</sub>S drilling operations contingency plan is attached.

The well is located in a potential cave or karst area. Thus, lost circulation is possible down to 350'. See the contingency casing string and cement plan on Page 4.

#### 8. OTHER INFORMATION

The anticipated spud date is upon approval. It is expected it will take ≈1 month to drill and complete the well.



WELL DETAILS: #38

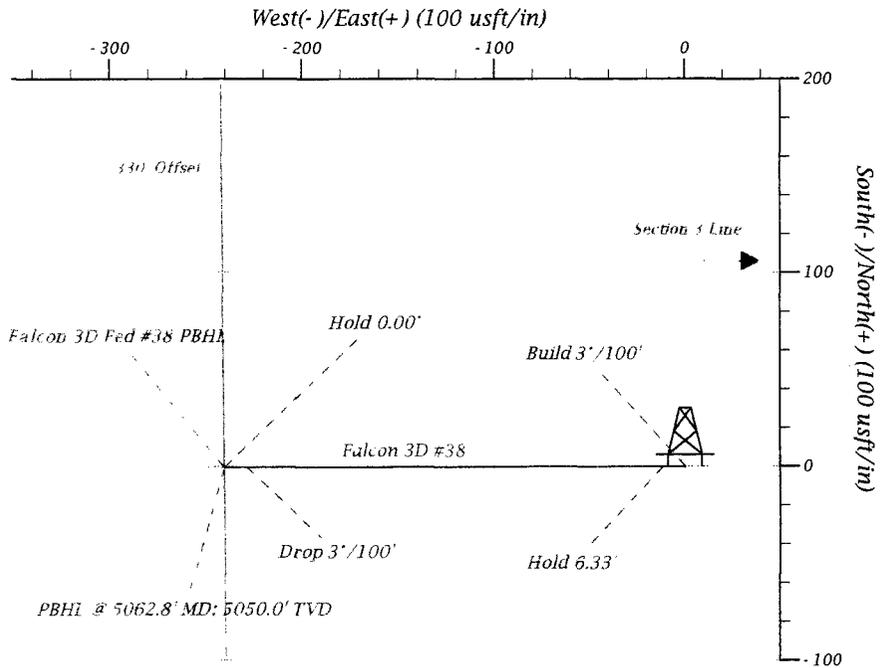
+N/- S	+E/- W	Ground Level: 3569.4	RKB @ 3582.2usft	Longitude
		Northing 647740.08	Easting 518656.43	

DESIGN TARGET DETAILS

Name	TVD	+N/- S	+E/- W	Northing	Easting
Falcon 3D Fed #38 PBHL	5050.0	- 0.4	- 239.9	647739.52	518416.52

PROJECT DETAILS: Eddy County NM (NAD 27)

Geodetic System: US State Plane 1927 (Exact solution)  
 Datum: NAD 1927 (NADCON CONUS)  
 Ellipsoid: Clarke 1866  
 Zone: New Mexico East 3001  
 System Datum: Mean Sea Level



FORMATION TOP DETAILS

TVDPATH	MDPATH	FORMATION
302.0	302.0	7 Rivers
819.0	820.1	Queen
1290.0	1294.0	Grayburg
1512.0	1517.3	San Andres
2874.0	2886.8	Glorieta
2993.0	3005.8	Yeso
4331.0	4343.8	Tubb
4950.0	4962.8	Abo

Azimuths to True North  
 Magnetic North: 7.48°

Magnetic Field  
 Strength: 48342.2snT  
 Dip Angle: 60.48°  
 Date: 12/31/2015  
 Model: IGRF2015

To convert a Magnetic Direction to a True Direction, Add 7.48 East  
 Magnetic North is 7.48 East of True North (Magnetic Declination)

Section Plans

MD	Inc	Azi	TVD	+N/- S	+E/- W	Dleg	TFace	Vsect	Annotation
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.0	Build 3'/100'
711.0	6.33	269.90	710.6	0.0	- 11.6	3.00	269.90	11.6	Hold 6.33'
2675.8	6.33	269.90	2663.4	- 0.4	- 228.3	0.00	0.00	228.3	Drop 3'/100'
2886.8	0.00	0.00	2874.0	- 0.4	- 239.9	3.00	180.00	239.9	Hold 0.00'
5062.8	0.00	0.00	5050.0	- 0.4	- 239.9	0.00	0.00	239.9	PBHL @ 5062.8' MD; 5050.0' TVD



Planning Report



**Database:** EDM 5000.1 Single User Db  
**Company:** Lime Rock Resources  
**Project:** Eddy County NM (NAD 27)  
**Site:** Falcon 3D  
**Well:** #38  
**Wellbore:** Original Hole  
**Design:** Plan 1

**Local Co-ordinate Reference:** Well #38  
**TVD Reference:** RKB @ 3582.2usft  
**MD Reference:** RKB @ 3582.2usft  
**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		

<b>Site</b>	Falcon 3D				
<b>Site Position:</b>		<b>Northing:</b>	647,740.08 usft	<b>Latitude:</b>	32° 46' 50.570 N
<b>From:</b>	Map	<b>Easting:</b>	518,656.43 usft	<b>Longitude:</b>	104° 16' 21.469 W
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	0.03 °

<b>Well</b>	#38					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	647,740.08 usft	<b>Latitude:</b>	32° 46' 50.570 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	518,656.43 usft	<b>Longitude:</b>	104° 16' 21.469 W
<b>Position Uncertainty</b>	0.0 usft		<b>Wellhead Elevation:</b>	0.0 usft	<b>Ground Level:</b>	3,569.4 usft

<b>Wellbore</b>	Original Hole				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	12/31/2015	7.48	60.48	48,342

<b>Design</b>	Plan 1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	269.90

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (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	0.0	0.0	0.00	0.00	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.00	0.00	
711.0	6.33	269.90	710.6	0.0	-11.6	3.00	3.00	0.00	269.90	
2,675.8	6.33	269.90	2,663.4	-0.4	-228.3	0.00	0.00	0.00	0.00	
2,886.8	0.00	0.00	2,874.0	-0.4	-239.9	3.00	-3.00	0.00	180.00	
5,062.8	0.00	0.00	5,050.0	-0.4	-239.9	0.00	0.00	0.00	0.00	Falcon 3D Fed #38 PI



Planning Report



**Database:** EDM 5000.1 Single User Db  
**Company:** Lime Rock Resources  
**Project:** Eddy County NM (NAD 27)  
**Site:** Falcon 3D  
**Well:** #38  
**Wellbore:** Original Hole  
**Design:** Plan 1

**Local Co-ordinate Reference:** Well #38  
**TVD Reference:** RKB @ 3582.2usft  
**MD Reference:** RKB @ 3582.2usft  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (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	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
302.0	0.00	0.00	302.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>7 Rivers</b>									
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>Build 3°/100'</b>									
600.0	3.00	269.90	600.0	0.0	-2.6	2.6	3.00	3.00	0.00
700.0	6.00	269.90	699.6	0.0	-10.5	10.5	3.00	3.00	0.00
711.0	6.33	269.90	710.6	0.0	-11.6	11.6	3.00	3.00	0.00
<b>Hold 6.33°</b>									
800.0	6.33	269.90	799.0	0.0	-21.5	21.5	0.00	0.00	0.00
820.1	6.33	269.90	819.0	0.0	-23.7	23.7	0.00	0.00	0.00
<b>Queen</b>									
900.0	6.33	269.90	898.4	-0.1	-32.5	32.5	0.00	0.00	0.00
1,000.0	6.33	269.90	997.8	-0.1	-43.5	43.5	0.00	0.00	0.00
1,100.0	6.33	269.90	1,097.2	-0.1	-54.5	54.5	0.00	0.00	0.00
1,200.0	6.33	269.90	1,196.6	-0.1	-65.6	65.6	0.00	0.00	0.00
1,294.0	6.33	269.90	1,290.0	-0.1	-75.9	75.9	0.00	0.00	0.00
<b>Grayburg</b>									
1,300.0	6.33	269.90	1,296.0	-0.1	-76.6	76.6	0.00	0.00	0.00
1,400.0	6.33	269.90	1,395.4	-0.2	-87.6	87.6	0.00	0.00	0.00
1,500.0	6.33	269.90	1,494.8	-0.2	-98.6	98.6	0.00	0.00	0.00
1,517.3	6.33	269.90	1,512.0	-0.2	-100.5	100.5	0.00	0.00	0.00
<b>San Andres</b>									
1,600.0	6.33	269.90	1,594.2	-0.2	-109.7	109.7	0.00	0.00	0.00
1,700.0	6.33	269.90	1,693.5	-0.2	-120.7	120.7	0.00	0.00	0.00
1,800.0	6.33	269.90	1,792.9	-0.2	-131.7	131.7	0.00	0.00	0.00
1,900.0	6.33	269.90	1,892.3	-0.3	-142.7	142.7	0.00	0.00	0.00
2,000.0	6.33	269.90	1,991.7	-0.3	-153.8	153.8	0.00	0.00	0.00
2,100.0	6.33	269.90	2,091.1	-0.3	-164.8	164.8	0.00	0.00	0.00
2,200.0	6.33	269.90	2,190.5	-0.3	-175.8	175.8	0.00	0.00	0.00
2,300.0	6.33	269.90	2,289.9	-0.3	-186.8	186.8	0.00	0.00	0.00
2,400.0	6.33	269.90	2,389.3	-0.3	-197.9	197.9	0.00	0.00	0.00
2,500.0	6.33	269.90	2,488.7	-0.4	-208.9	208.9	0.00	0.00	0.00
2,600.0	6.33	269.90	2,588.1	-0.4	-219.9	219.9	0.00	0.00	0.00
2,675.8	6.33	269.90	2,663.4	-0.4	-228.3	228.3	0.00	0.00	0.00
<b>Drop 3°/100'</b>									
2,700.0	5.61	269.90	2,687.5	-0.4	-230.8	230.8	3.00	-3.00	0.00
2,800.0	2.61	269.90	2,787.2	-0.4	-237.9	237.9	3.00	-3.00	0.00
2,886.8	0.00	269.90	2,874.0	-0.4	-239.9	239.9	3.00	-3.00	0.00
<b>Hold 0.00° - Glorieta</b>									
2,900.0	0.00	0.00	2,887.2	-0.4	-239.9	239.9	0.00	0.00	0.00
3,000.0	0.00	0.00	2,987.2	-0.4	-239.9	239.9	0.00	0.00	0.00
3,005.8	0.00	0.00	2,993.0	-0.4	-239.9	239.9	0.00	0.00	0.00
<b>Yeso</b>									
3,100.0	0.00	0.00	3,087.2	-0.4	-239.9	239.9	0.00	0.00	0.00
3,200.0	0.00	0.00	3,187.2	-0.4	-239.9	239.9	0.00	0.00	0.00
3,300.0	0.00	0.00	3,287.2	-0.4	-239.9	239.9	0.00	0.00	0.00
3,400.0	0.00	0.00	3,387.2	-0.4	-239.9	239.9	0.00	0.00	0.00
3,500.0	0.00	0.00	3,487.2	-0.4	-239.9	239.9	0.00	0.00	0.00



Planning Report



Database: EDM 5000.1 Single User Db  
 Company: Lime Rock Resources  
 Project: Eddy County NM (NAD 27)  
 Site: Falcon 3D  
 Well: #38  
 Wellbore: Original Hole  
 Design: Plan 1

Local Co-ordinate Reference: Well #38  
 TVD Reference: RKB @ 3582.2usft  
 MD Reference: RKB @ 3582.2usft  
 North Reference: True  
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
3,600.0	0.00	0.00	3,587.2	-0.4	-239.9	239.9	0.00	0.00	0.00	
3,700.0	0.00	0.00	3,687.2	-0.4	-239.9	239.9	0.00	0.00	0.00	
3,800.0	0.00	0.00	3,787.2	-0.4	-239.9	239.9	0.00	0.00	0.00	
3,900.0	0.00	0.00	3,887.2	-0.4	-239.9	239.9	0.00	0.00	0.00	
4,000.0	0.00	0.00	3,987.2	-0.4	-239.9	239.9	0.00	0.00	0.00	
4,100.0	0.00	0.00	4,087.2	-0.4	-239.9	239.9	0.00	0.00	0.00	
4,200.0	0.00	0.00	4,187.2	-0.4	-239.9	239.9	0.00	0.00	0.00	
4,300.0	0.00	0.00	4,287.2	-0.4	-239.9	239.9	0.00	0.00	0.00	
4,343.8	0.00	0.00	4,331.0	-0.4	-239.9	239.9	0.00	0.00	0.00	
<b>Tubb</b>										
4,400.0	0.00	0.00	4,387.2	-0.4	-239.9	239.9	0.00	0.00	0.00	
4,500.0	0.00	0.00	4,487.2	-0.4	-239.9	239.9	0.00	0.00	0.00	
4,600.0	0.00	0.00	4,587.2	-0.4	-239.9	239.9	0.00	0.00	0.00	
4,700.0	0.00	0.00	4,687.2	-0.4	-239.9	239.9	0.00	0.00	0.00	
4,800.0	0.00	0.00	4,787.2	-0.4	-239.9	239.9	0.00	0.00	0.00	
4,900.0	0.00	0.00	4,887.2	-0.4	-239.9	239.9	0.00	0.00	0.00	
4,962.8	0.00	0.00	4,950.0	-0.4	-239.9	239.9	0.00	0.00	0.00	
<b>Abo</b>										
5,000.0	0.00	0.00	4,987.2	-0.4	-239.9	239.9	0.00	0.00	0.00	
5,062.8	0.00	0.00	5,050.0	-0.4	-239.9	239.9	0.00	0.00	0.00	

PBHL @ 5062.8' MD; 5050.0' TVD

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Falcon 3D Fed #38 PBH - hit/miss target - Shape - Point	0.00	0.00	5,050.0	-0.4	-239.9	647,739.52	518,416.52	32° 46' 50.566 N	104° 16' 24.279 W

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
302.0	302.0	7 Rivers		0.00	
820.1	819.0	Queen		0.00	
1,294.0	1,290.0	Grayburg		0.00	
1,517.3	1,512.0	San Andres		0.00	
2,886.8	2,874.0	Glorieta		0.00	
3,005.8	2,993.0	Yeso		0.00	
4,343.8	4,331.0	Tubb		0.00	
4,962.8	4,950.0	Abo		0.00	



Planning Report

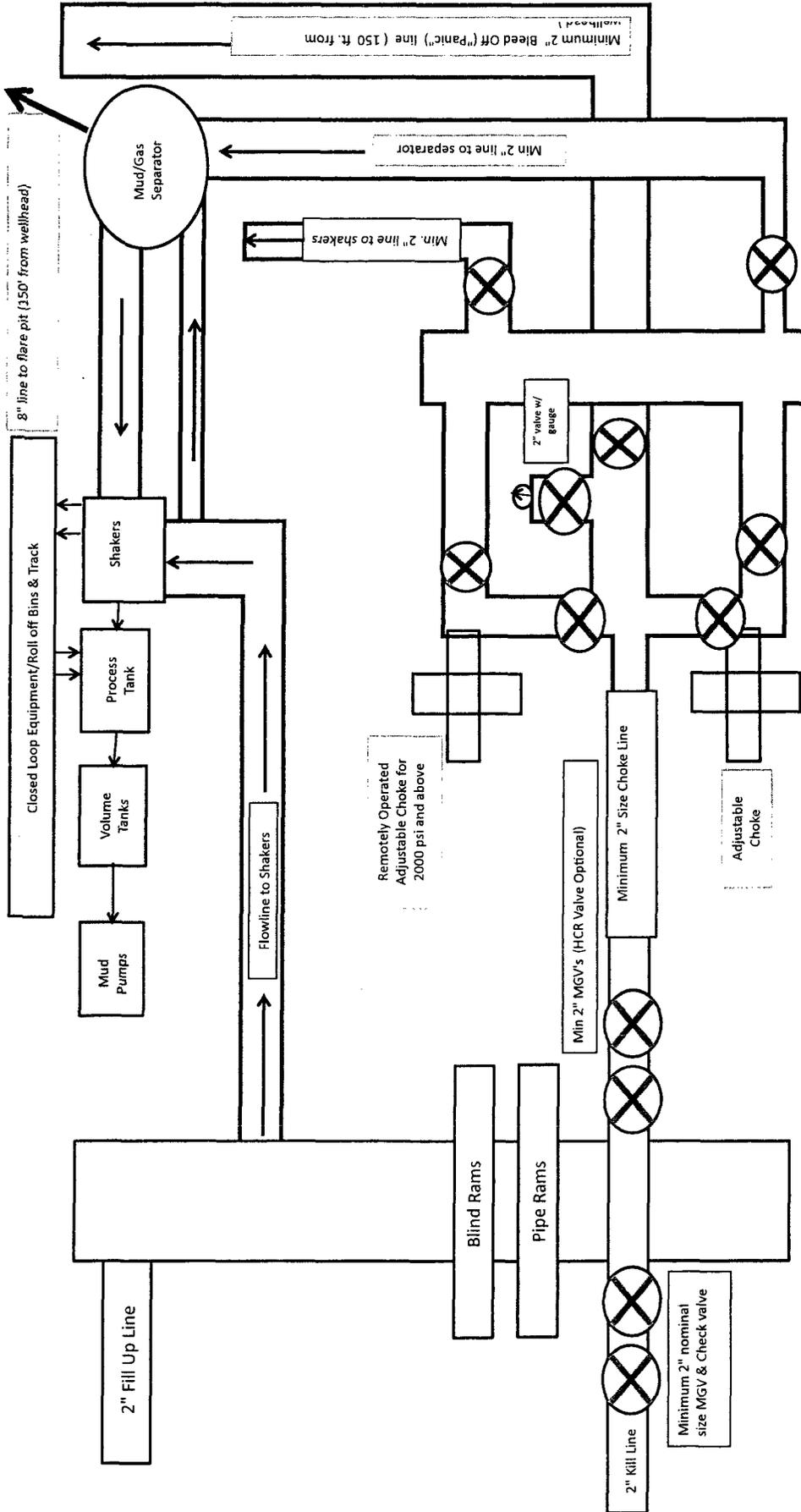


**Database:** EDM 5000.1 Single User Db  
**Company:** Lime Rock Resources  
**Project:** Eddy County NM (NAD 27)  
**Site:** Falcon 3D  
**Well:** #38  
**Wellbore:** Original Hole  
**Design:** Plan 1

**Local Co-ordinate Reference:** Well #38  
**TVD Reference:** RKB @ 3582.2usft  
**MD Reference:** RKB @ 3582.2usft  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
500.0	500.0	0.0	0.0	Build 3°/100'
711.0	710.6	0.0	-11.6	Hold 6.33°
2,675.8	2,663.4	-0.4	-228.3	Drop 3°/100'
2,886.8	2,874.0	-0.4	-239.9	Hold 0.00°
5,062.8	5,050.0	-0.4	-239.9	PBHL @ 5062.8' MD, 5050.0' TVD



Note: all valves & lines on choke manifold are minimum of 2" unless otherwise noted. Exact manifold configuration may vary.

**1.1" Minimum 2000 psi BOP and Minimum 2000 psi BOPE System Schematic W/ Closed Loop System Equipment**

# **Lime Rock Resources II-A, L.P.**

## **Falcon 3 D Federal 38**

### **Section 3, T. 18 S., R. 27 E., 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

1-500 bbl frac tanks with fresh water

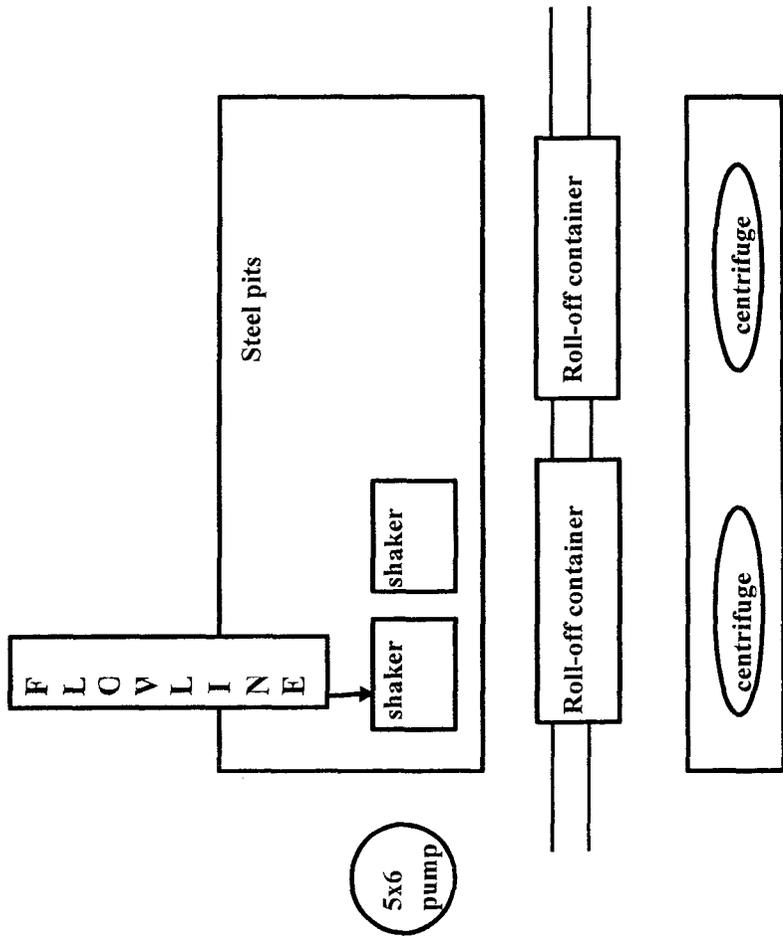
1-500 bbl frac tanks for brine water

#### **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 Disposal Facility Permit NM-01-0006.



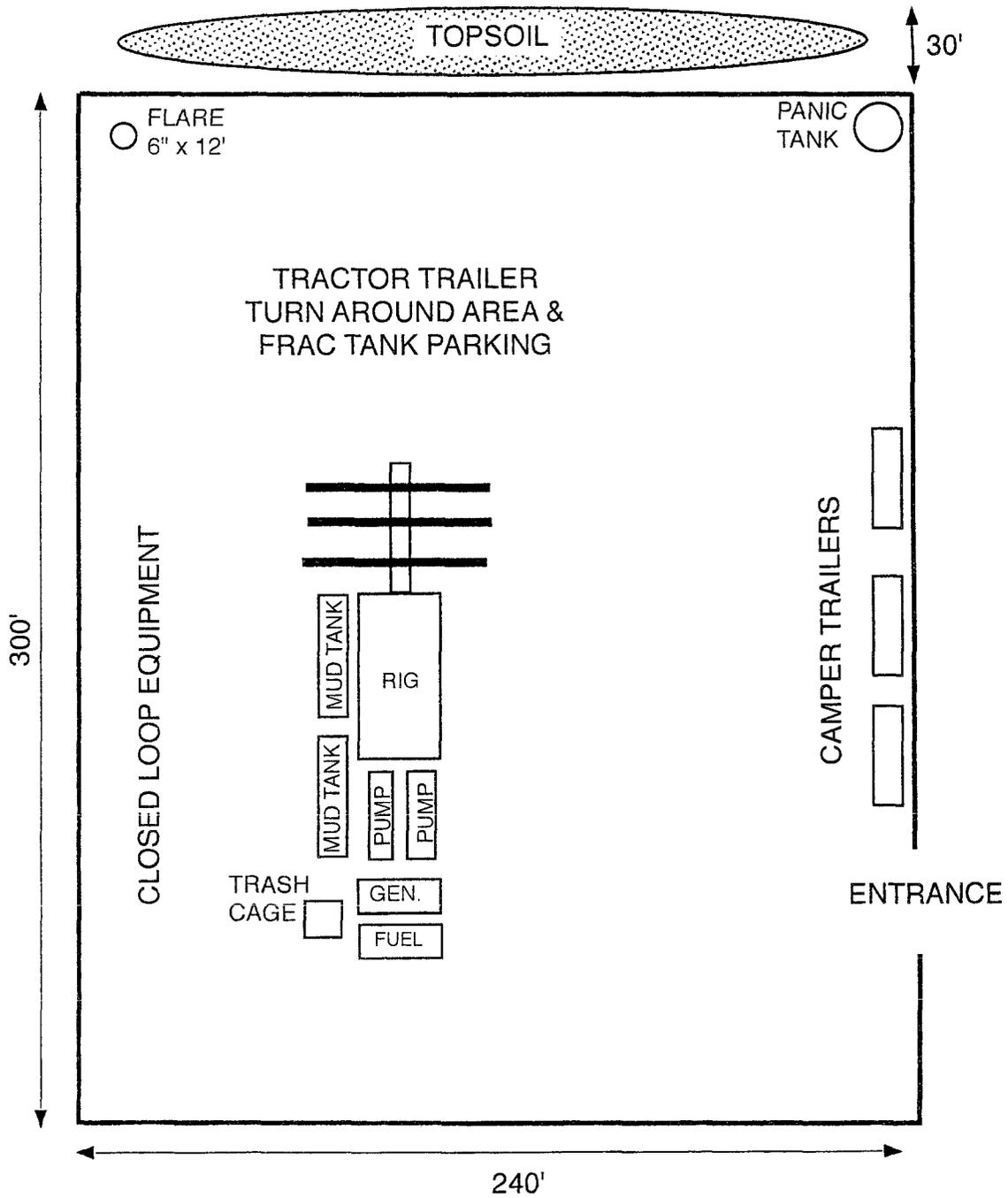
**This will be maintained by 24 hour solids control personnel that stay on location.**

Lime Rock's  
Falcon 3 D Federal 38  
rig diagram

NORTH



1" = 50'



# Hydrogen Sulfide Drilling Plan Summary

- A. All personnel will 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 will be placed at each breathing area, 2 will be stored in the safety trailer.
- b. Work/Escape packs — 4 packs will 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 will 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 H2S service.
  - b. All elastomers used for packing and seals shall be H2S 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

<u>Company Offices</u> -	Lime Rock Houston Office	713-292-9510
	Answering Service (After Hours)	713-292-9555
	Artesia, NM Office	575-748-9724
	Roswell, NM	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
GARY MCELLAND	WELL SITE SUPERVISOR	ROTATES ON SITE	NA	903-503-8997	NA
DAVE WILLIAMSON	WELL SITE SUPERVISOR	ROTATES ON SITE	NA	575-308-9980	NA

### Agency Call List

<b>City</b>	<b>Agency or Office</b>	<b>Phone</b>
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

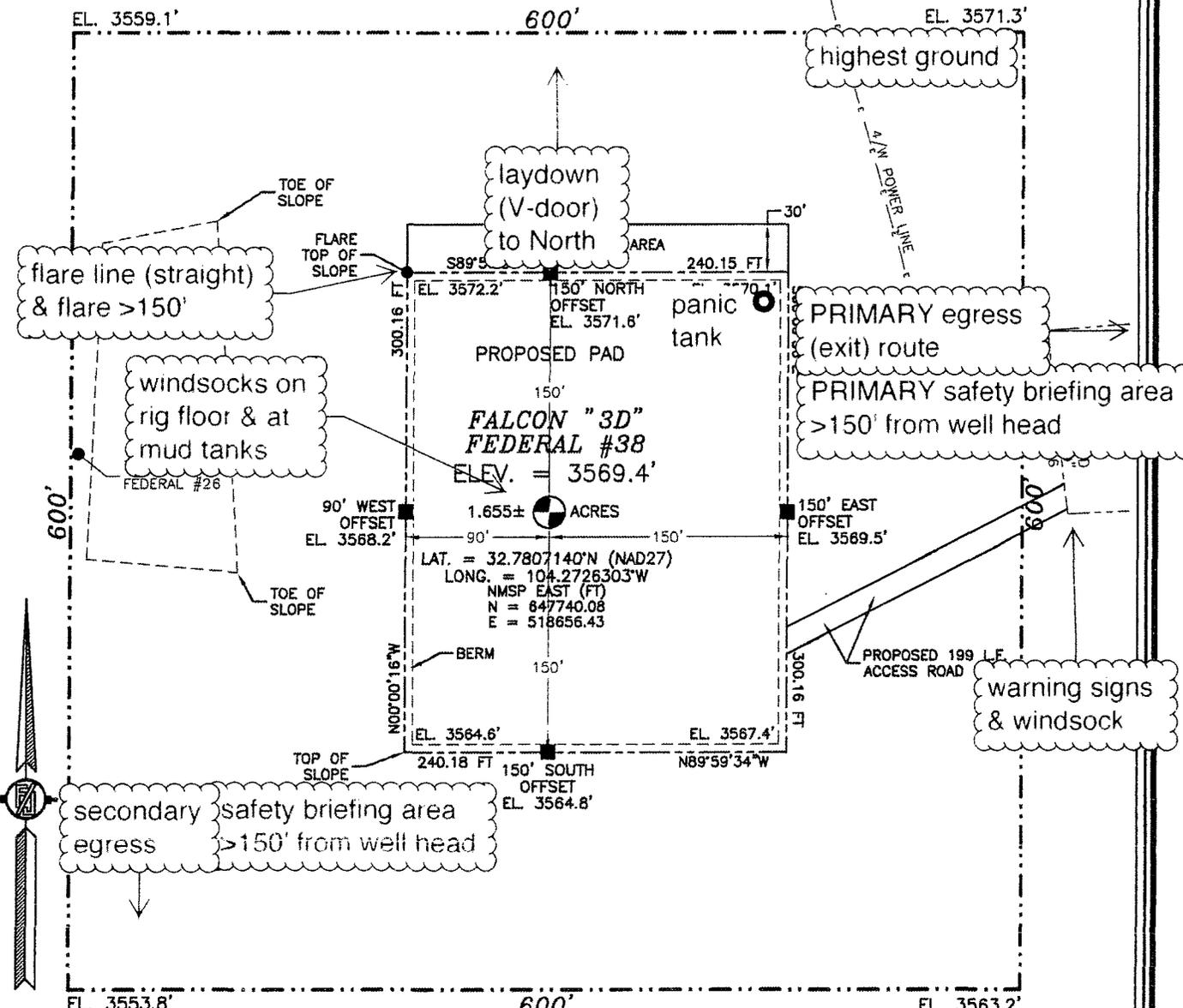
## H2S CONTINGENCY DRILLING PLAN EMERGENCY CONTACTS

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

SECTION 3, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO  
 SITE MAP

H2S PAGE 5

NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1927 (NAD27). LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD27). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES (NAD 83) MODIFIED TO THE SURFACE.



LIME ROCK RESOURCES II-A, L.P.  
**FALCON "3D" FEDERAL #38**  
 LOCATED 930 FT. FROM THE NORTH LINE  
 AND 570 FT. FROM THE WEST LINE OF  
 SECTION 3, TOWNSHIP 18 SOUTH,  
 RANGE 27 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO

APRIL 3, 2015

SURVEY NO. 3732

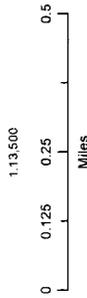
**DIRECTIONS TO LOCATION**  
 FROM CR. #225 AND CR. #227, GO SOUTHWEST ON CR. #227 0.5 MILES. TURN RIGHT AND GO NORTH 0.1 MILE, BEND LEFT AND GO NORTHWEST 0.19 MILES, TURN LEFT AND GO WEST 0.36 MILES, TURN LEFT AND GO SOUTH 855' TO EXISTING PAD FOR FALCON "3D" FEDERAL #6 WELL AND FROM SOUTHWEST CORNER OF PAD FOLLOW PROPOSED ROAD SURVEY FLAGS SOUTHWEST 199' TO THE PROPOSED SOUTHEAST CORNER OF PAD FOR THIS LOCATION.

prevailing wind blows from SSW



Falcon 3D Federal #38  
 H2S Contingency Plan:  
 1 Mile Radius Map

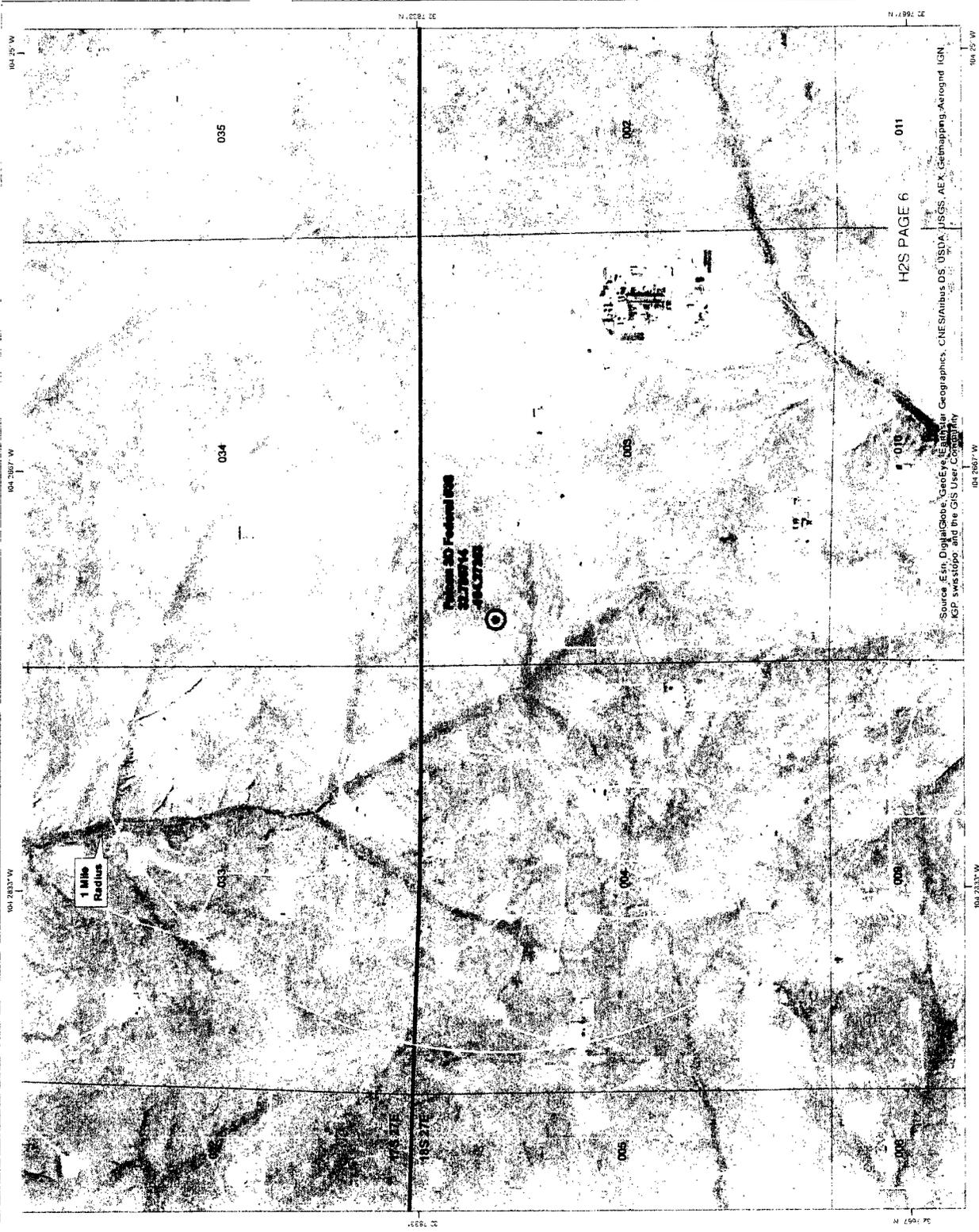
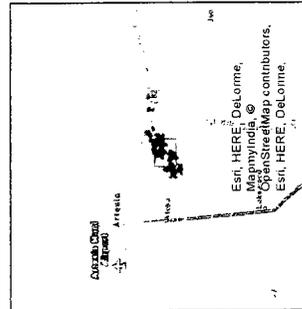
Section 3, Township 18S, Range 27E  
 Eddy County, New Mexico



NAD 1927 New Mexico State Plane East  
 FPS 3001 Feet



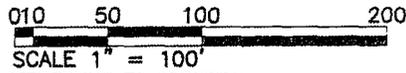
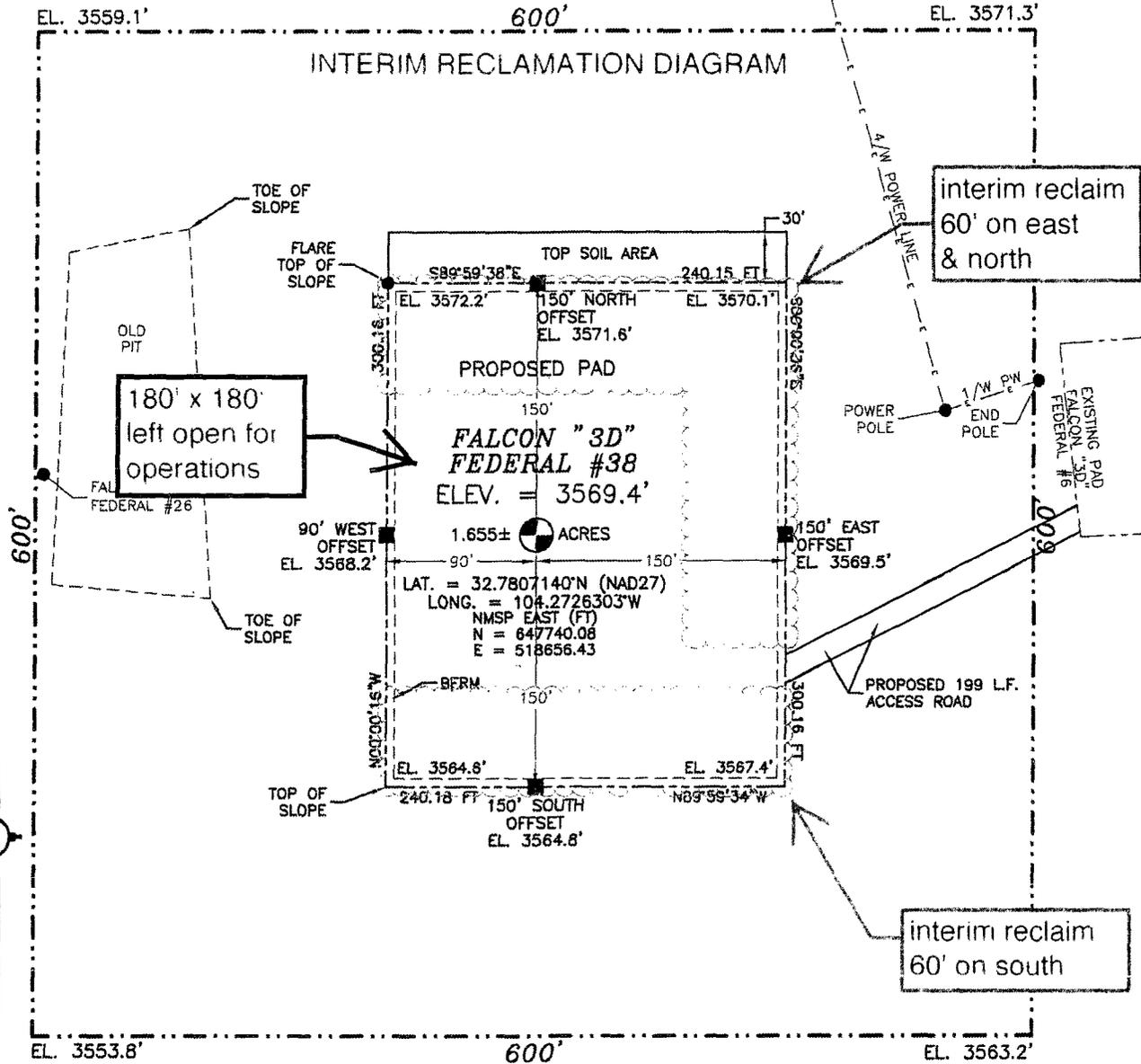
Prepared by Permits West, Inc., June 17, 2015  
 for Lime Rock Resources IIA, L.P.





SECTION 3, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO  
 SITE MAP

NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1927 (NAD27). LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD27). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES (NAD 83) MODIFIED TO THE SURFACE.



**DIRECTIONS TO LOCATION**  
 FROM CR. #225 AND CR. #227, GO SOUTHWEST ON CR. #227 0.5 MILES, TURN RIGHT AND GO NORTH 0.1 MILE, BEND LEFT AND GO NORTHWEST 0.19 MILES, TURN LEFT AND GO WEST 0.36 MILES, TURN LEFT AND GO SOUTH 65' TO EXISTING PAD FOR FALCON "3D" FEDERAL #6 WELL AND FROM SOUTHWEST CORNER OF PAD FOLLOW PROPOSED ROAD SURVEY FLAGS SOUTHWEST 199' TO THE PROPOSED SOUTHEAST CORNER OF PAD FOR THIS LOCATION.

LIME ROCK RESOURCES II-A, L.P.  
**FALCON "3D" FEDERAL #38**  
 LOCATED 930 FT. FROM THE NORTH LINE  
 AND 570 FT. FROM THE WEST LINE OF  
 SECTION 3, TOWNSHIP 18 SOUTH,  
 RANGE 27 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO

APRIL 3, 2015

SURVEY NO. 3732

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

Lime Rock Resources II-A, L.P.  
Falcon 3 D Federal 38  
SHL: 930' FNL & 570' FWL  
BHL: 930' FNL & 330' FWL  
Sec. 3, T. 18 S., R. 27 E., Eddy County, NM

SURFACE PLAN PAGE 1

Surface Use Plan

1. ROAD DIRECTIONS & DESCRIPTIONS (See MAPS 1 - 4)

From the center of Artesia...

Go East 9.3 miles on US 82 to the equivalent of Mile Post 116.8  
Then turn right and go South 1/4 mile on paved County Road 204  
Then turn right and go Southwest 2.1 miles on paved County Road 225  
Then bear right and go Southwest 0.5 mile on County Road 227  
Then turn right and go North 0.1 mile on a caliche road  
Then bear left and go Northwest 0.2 mile on a caliche road  
Then turn left and go West 0.35 mile on a caliche road  
Then turn left and go South 0.15 mile on a caliche road to Falcon 3 D 36 pad  
Then turn right and go West 200' to SW corner of 36 pad  
Then go Southwest 199' cross-country to the pad

Non-county roads will be maintained as needed to Gold Book standards. This includes pulling ditches, preserving the crown, and cleaning culverts. This will occur at least once a year, and more often as needed. Caliche will be hauled from Lime Rock's approved (HA-0258-0000) caliche pit on State land in NESE 36-17s-27e. Access after leaving county road is all on lease.

2. ROAD TO BE BUILT OR UPGRADED (See MAPS 3 & 4)

The 199' of new road will be crowned, have a 14' wide driving surface, and be surfaced with caliche. Maximum disturbed width = 20'. Maximum grade = 2%. Maximum cut or fill = 1'. No upgrade, culvert, cattle guard, or vehicle turn out is needed.

Lime Rock Resources II-A, L.P.  
Falcon 3 D Federal 38  
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Sec. 3, T. 18 S., R. 27 E., Eddy County, NM

SURFACE PLAN PAGE 2

3. EXISTING WELLS (See MAP 2)

Existing oil, gas, injection, and P & A wells are within a mile. No disposal or water wells are within a mile radius.

4. PROPOSED PRODUCTION FACILITIES (See MAPS 3 - 10)

The only production equipment on the pad will be the pump jack. Two 3" O. D. poly surface pipelines (one gas and one production) will be laid 4,932.66' southwest to Lime Rock's existing header. Pipelines will operate at  $\approx$ 50 psi.

A 172.81' long overhead raptor safe power line will be built west to the pad.

5. WATER SUPPLY (See MAPS 1 - 4)

Water will be trucked from existing wells on private land between Artesia and Riverside.

6. CONSTRUCTION MATERIALS & METHODS

NM One Call (811) will be notified before construction starts. Topsoil and brush will be stockpiled north of the pad. V door will be to the north. A closed loop drilling system will be used. Caliche will be bought and hauled from Lime Rock's approved (HA-0258-0000) caliche pit on State land in NESE 36-17s-27e.

An on pad berm (MAP 4) will surround the pad to prevent off site migration of soil. A geotextile fabric fence will be at the toe of the fill to prevent further migration. The fence bottom will be buried to prevent gaps.

Lime Rock Resources II-A, L.P.  
Falcon 3 D Federal 38  
SHL: 930' FNL & 570' FWL  
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Sec. 3, T. 18 S., R. 27 E., Eddy County, NM

SURFACE PLAN PAGE 3

## 7. WASTE DISPOSAL

All trash will be placed in a portable trash cage. It will be hauled to the Eddy County landfill. There will be no trash burning. Contents (drill cuttings, mud, salts, and other chemicals) of the mud tanks will be hauled to CRI's state approved (NM-01-0006) disposal site. Human waste will be disposed of in chemical toilets and hauled to the Artesia wastewater treatment plant.

## 8. ANCILLARY FACILITIES

There will be no airstrip or camp. Camper trailers will be on location for the company man, tool pusher, or mud logger.

## 9. WELL SITE LAYOUT

See Rig Diagram for depictions of the well pad, trash cage, access onto the location, parking, living facilities, and rig orientation.

## 10. RECLAMATION

Interim reclamation will be completed within 6 months of completing the well and will consist of shrinking the pad  $\approx 55\%$  by removing caliche and reclaiming 60' wide swaths on the north, east, and south sides of the pad, leaving a  $\approx 180'$  x  $\approx 180'$  area around the pump jack. Disturbed areas will be contoured to match pre-construction grades. Soil and brush will be evenly spread over disturbed areas. Seeded areas will be ripped or harrowed. A BLM approved seed mix will be sown in a BLM approved manner. Enough stockpiled topsoil will be retained to cover the remainder of the pad when the well is plugged. Once the well is plugged, then the remainder of the pad will be similarly reclaimed within 6 months of plugging. Noxious weeds will be controlled.

Lime Rock Resources II-A, L.P.  
Falcon 3 D Federal 38  
SHL: 930' FNL & 570' FWL  
BHL: 930' FNL & 330' FWL  
Sec. 3, T. 18 S., R. 27 E., Eddy County, NM

SURFACE PLAN PAGE 4

11. SURFACE OWNER

All construction will be on BLM and on lease.

12. OTHER INFORMATION

On site inspection was held with Paul Murphy (BLM) on March 19, 2015.

Boone conducted a records search with Hila Nelson June 18, 2015. Due to multiple previous archaeology surveys, it was determined that no further survey was needed.

Lime Rock Resources II-A, L.P.  
Falcon 3 D Federal 38  
SHL: 930' FNL & 570' FWL  
BHL: 930' FNL & 330' FWL  
Sec. 3, T. 18 S., R. 27 E., Eddy County, NM

SURFACE PLAN PAGE 5

CERTIFICATION

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U. S. C. 1001 for the filing of false statements. Executed this 16th day of January, 2016.



---

Brian Wood, Consultant  
Permits West, Inc.  
37 Verano Loop, Santa Fe, NM 87508  
(505) 466-8120      FAX: (505) 466-9682      Cellular: (505) 699-2276

Field representative will be:

Spencer Cox, Production Engineer  
Lime Rock Resources II-A, L.P.  
1111 Bagby St., Suite 4600  
Houston, TX 77002  
Office: (713) 292-9528  
Mobile: (432) 254-5140  
FAX: (713) 292-9578

**BUREAU OF LAND MANAGEMENT  
CASE RECORDATION  
(LIVE) SERIAL REGISTER PAGE**

Run Date/Time: 01/26/16 10:05 AM

Page 1 of 4

**01 02-25-1920;041STAT0437;30USC226**  
**Case Type 310771: O&G EXCHANGE LEASE - PD**  
**Commodity 459: OIL & GAS**  
**Case Disposition: AUTHORIZED Case File Juris:**

**Total Acres**  
642.880

**Serial Number**  
NMLC-- 0 065478B

**Serial Number: NMLC-- 0 065478B**

Name & Address			Int Rel	%Interest
AMTEX ENERGY	PO BOX 3418	MIDLAND TX 79702	OPERATING RIGHTS	0.000000000
COG OPERATING LLC	600 W ILLINOIS AVE	MIDLAND TX 797014882	OPERATING RIGHTS	0.000000000
DEVON ENERGY PROD CO LP	333 W SHERIDAN AVE	OKLAHOMA CITY OK 731025010	OPERATING RIGHTS	0.000000000
LIME ROCK RESOURCES A LP	1111 BAGBY ST #4600	HOUSTON TX 77002	OPERATING RIGHTS	0.000000000
LIME ROCK RESOURCES II-A LP	1111 BAGBY ST STE 4600	HOUSTON TX 770022559	OPERATING RIGHTS	0.000000000
MERIT ENE MGT PARTNERS I LP	13727 NOEL RD #500	DALLAS TX 75240	OPERATING RIGHTS	0.000000000
MERIT ENE MGT PARTNERS II LP	13727 NOEL RD #500	DALLAS TX 75240	OPERATING RIGHTS	0.000000000
MERIT ENERGY PTNRS	13727 NOEL RD #500	DALLAS TX 75240	OPERATING RIGHTS	0.000000000
MERIT ENERGY PTNRS III LP	13727 NOEL RD #500	DALLAS TX 75240	OPERATING RIGHTS	0.000000000
MERIT ENERGY PTNRS VII LP	13727 NOEL RD #500	DALLAS TX 75240	OPERATING RIGHTS	0.000000000
OCCIDENTAL PERMIAN LP	5 E GREENWAY PLAZA #110	HOUSTON TX 770460521	OPERATING RIGHTS	0.000000000
OVERTON ENE INVESTMENTS VI LLC	4265 SAN FELIPE ST STE 1040	HOUSTON TX 770272929	OPERATING RIGHTS	0.000000000
THE SALIENT ZARVONA ENE FUND	4265 SAN FELIPE ST STE 1040	HOUSTON TX 770272929	OPERATING RIGHTS	0.000000000
ZPZ DELAWARE I LLC	2000 POST OAK BLVD STE 100	HOUSTON TX 770564497	LESSEE	100.000000000

**Serial Number: NMLC-- 0 065478B**

Mer Twp	Rng	Sec	SType	Nr Suff	Subdivision	District/Resource Area	County	Mgmt Agency
23	0180S	0270E	003		S2NE,E2SW,N2SE;	CARLSBAD FIELD OFFICE	EDDY	BUREAU OF LAND MGMT
23	0180S	0270E	003		1-4;	CARLSBAD FIELD OFFICE	EDDY	BUREAU OF LAND MGMT
23	0180S	0270E	009		S2SE;	CARLSBAD FIELD OFFICE	EDDY	BUREAU OF LAND MGMT
23	0180S	0270E	010		NE;	CARLSBAD FIELD OFFICE	EDDY	BUREAU OF LAND MGMT

**Serial Number: NMLC 0065478B**

**Relinquished/Withdrawn Lands**

23	0180S	0270E	710	FF	SE SEGR;	CARLSBAD FIELD OFFICE	EDDY	BUREAU OF LAND MGMT
----	-------	-------	-----	----	----------	-----------------------	------	---------------------

**Serial Number: NMLC-- 0 065478B**

Act Date	Code	Action	Action Remarks	Pending Office
07/11/1934	387	CASE ESTABLISHED		
07/11/1934	496	FUND CODE	05;145003	
07/11/1934	868	EFFECTIVE DATE		
09/01/1946	553	CASE CREATED BY ASGN	OUT OF NMLC028805-A;	
09/01/1946	553	CASE CREATED BY ASGN	OUT OF NMLC028805-B;	
09/01/1946	553	CASE CREATED BY ASGN	OUT OF NMLC055465-B;	
02/15/1956	650	HELD BY PROD - ACTUAL	/1/	
02/15/1956	658	MEMO OF 1ST PROD-ACTUAL	/1/	
04/22/1957	102	NOTICE SENT-PROD STATUS		
09/17/1959	940	NAME CHANGE RECOGNIZED	MALCO RFG/HONDO OG	
10/01/1960	534	RLTY RATE-SLIDING-SCH D		
10/01/1960	868	EFFECTIVE DATE		
03/19/1971	940	NAME CHANGE RECOGNIZED	PAN AMER PETRO/AMOCO	
09/30/1973	700	LEASE SEGREGATED	INTO NMNM29271;	
10/01/1973	232	LEASE COMMITTED TO UNIT	NMNM70945X;EMPIRE ABO	
03/01/1980	246	LEASE COMMITTED TO CA	SRM1546;	
02/01/1981	246	LEASE COMMITTED TO CA	SCR250;	
02/28/1982	522	CA TERMINATED	SRM1546	
12/08/1982	932	TRF OPER RGTS FILED		
04/26/1983	933	TRF OPER RGTS APPROVED	EFF 11/01/82;	

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09/13/1985	817	MERGER RECOGNIZED	ATL RICHFIELD PA/DE
03/10/1987	932	TRF OPER RGTS FILED	
04/03/1987	963	CASE MICROFILMED/SCANNED	CNUM 501,420 DS
04/27/1987	932	TRF OPER RGTS FILED	
05/06/1987	933	TRF OPER RGTS APPROVED	EFF 04/01/87;
06/10/1987	817	MERGER RECOGNIZED	HONDO/ATL RICHFIELD
07/02/1987	933	TRF OPER RGTS APPROVED	EFF 05/01/87;
07/20/1987	974	AUTOMATED RECORD VERIF	ST/NAT
10/14/1987	932	TRF OPER RGTS FILED	
04/21/1988	933	TRF OPER RGTS APPROVED	EFF 11/01/87;
04/21/1988	974	AUTOMATED RECORD VERIF	BTM/JR
08/25/1989	974	AUTOMATED RECORD VERIF	GG
08/22/1990	909	BOND ACCEPTED	EFF 08/13/90;NM1793/
11/07/1990	932	TRF OPER RGTS FILED	BRIDGE/MERIT ENE ETAL
01/24/1991	933	TRF OPER RGTS APPROVED	EFF 12/01/90;
01/24/1991	974	AUTOMATED RECORD VERIF	GLC/JLV
05/01/1991	974	AUTOMATED RECORD VERIF	GLC/MT
12/16/1991	932	TRF OPER RGTS FILED	HONDO O&G/MERIT ENE
07/13/1992	974	AUTOMATED RECORD VERIF	LO/MV
08/14/1992	932	TRF OPER RGTS FILED	HONDO O&G/DEVON ENE
12/09/1992	909	BOND ACCEPTED	EFF 12/07/92;NM2111
12/23/1992	933	TRF OPER RGTS APPROVED	EFF 01/01/92;
12/23/1992	974	AUTOMATED RECORD VERIF	TF/JS
12/28/1992	933	TRF OPER RGTS APPROVED	EFF 09/01/92;
12/28/1992	974	AUTOMATED RECORD VERIF	ST/JS
06/30/1993	932	TRF OPER RGTS FILED	DEVON ENE/DEVON CORP
09/17/1993	933	TRF OPER RGTS APPROVED	EFF 07/01/93;
09/17/1993	974	AUTOMATED RECORD VERIF	BTM/KRP
02/07/1994	522	CA TERMINATED	SCR-250 MO
07/25/1994	932	TRF OPER RGTS FILED	MERIT/MERIT ENE ETAL
11/07/1994	957	TRF OPER RGTS DENIED	MERIT/MERIT ENE ET AL
11/07/1994	974	AUTOMATED RECORD VERIF	GSB
07/12/1996	575	APD FILED	
08/07/1996	575	APD FILED	
08/09/1996	575	APD FILED	
08/15/1996	575	APD FILED	
08/20/1996	576	APD APPROVED	7-FALCON '3G' FED
08/22/1996	575	APD FILED	
08/28/1996	575	APD FILED	
09/16/1996	576	APD APPROVED	5-FALCON 3D FED
09/16/1996	576	APD APPROVED	8-FALCON 3G FED
09/18/1996	576	APD APPROVED	15-FALCON 3K FED
09/24/1996	576	APD APPROVED	1-FALCON 3B FED
09/24/1996	576	APD APPROVED	3-FALCON 3C FED
09/27/1996	576	APD APPROVED	17-FALCON 3N FED
02/28/1997	575	APD FILED	
03/11/1997	575	APD FILED	
03/26/1997	575	APD FILED	
04/02/1997	576	APD APPROVED	#17 HAWK 90 FED
04/02/1997	576	APD APPROVED	#20 HAWK 9P. FED

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04/02/1997	932	TRF OPER RGTS FILED	AMOCO/ALTURA ENERGY
04/03/1997	575	APD FILED	
04/09/1997	576	APD APPROVED	#18 HAWK 9O FEDERAL
04/09/1997	576	APD APPROVED	#19 HAWK 9P FEDERAL
04/17/1997	933	TRF OPER RGTS APPROVED	EFF 05/01/97;
04/17/1997	974	AUTOMATED RECORD VERIF	JLV
04/24/1997	576	APD APPROVED	10 FALCON 3H FED
04/24/1997	576	APD APPROVED	13 FALCON 3J FED
04/24/1997	576	APD APPROVED	2 FALCON 3B FED
04/24/1997	576	APD APPROVED	4 FALCON 3C FED
04/24/1997	576	APD APPROVED	6 FALCON 3D FED
05/02/1997	576	APD APPROVED	16 FALCON "3K" FED
05/02/1997	576	APD APPROVED	18 FALCON "3N" FED
07/15/1999	932	TRF OPER RGTS FILED	ALTURA/DEVON ENE
08/20/1999	933	TRF OPER RGTS APPROVED	EFF 08/01/99;
08/20/1999	974	AUTOMATED RECORD VERIF	LR
06/12/2000	940	NAME CHANGE RECOGNIZED	ALTURA/OCCIDENTALPER
11/22/2000	817	MERGER RECOGNIZED	DEVONENE/DEVONENEPD
11/22/2000	974	AUTOMATED RECORD VERIF	AT
01/31/2001	932	TRF OPER RGTS FILED	HANSON/AMTEX
03/02/2001	933	TRF OPER RGTS APPROVED	EFF 02/01/2001
03/02/2001	974	AUTOMATED RECORD VERIF	ANN
12/11/2001	140	ASGN FILED	ATLANTIC RICHFIELD;1
12/11/2001	932	TRF OPER RGTS FILED	ATLANTIC RICHFIELD;1
04/02/2002	139	ASGN APPROVED	EFF 01/01/02;
04/02/2002	933	TRF OPER RGTS APPROVED	EFF 01/01/02;
04/02/2002	974	AUTOMATED RECORD VERIF	MV
06/21/2002	940	NAME CHANGE RECOGNIZED	AMOCO/BP AMERICA PROD
04/11/2005	246	LEASE COMMITTED TO CA	NMNM112755;
09/27/2005	940	NAME CHANGE RECOGNIZED	MERIT PTNRS/MERIT MGM
10/25/2005	246	LEASE COMMITTED TO CA	CA NM117973
05/01/2006	899	TRF OF ORR FILED	1
04/16/2007	643	PRODUCTION DETERMINATION	/2/HORSETAIL 9 FED 1;
04/16/2007	658	MEMO OF 1ST PROD-ACTUAL	/2/NMNM117973;
04/29/2010	932	TRF OPER RGTS FILED	CHESAPEAK/THREE RIV;1
05/26/2010	933	TRF OPER RGTS APPROVED	EFF 05/01/10;
05/26/2010	974	AUTOMATED RECORD VERIF	LBO
12/16/2010	899	TRF OF ORR FILED	1
12/16/2010	932	TRF OPER RGTS FILED	DEVON ENE/LIME ROCK;1
02/17/2011	933	TRF OPER RGTS APPROVED	EFF 01/01/11;
02/17/2011	974	AUTOMATED RECORD VERIF	LBO
03/24/2011	140	ASGN FILED	BP AMERIC/ZPZ DELAW;1
05/12/2011	139	ASGN APPROVED	EFF: 04/01/2011;
05/12/2011	974	AUTOMATED RECORD VERIF	MJD
09/06/2011	932	TRF OPER RGTS FILED	THREE RIV/SALIENT Z;1
09/21/2011	932	TRF OPER RGTS FILED	SALIENT Z/OVERTON E;1
12/08/2011	933	TRF OPER RGTS APPROVED	01EFF 10/01/11;
12/08/2011	933	TRF OPER RGTS APPROVED	02EFF 10/01/11;
12/08/2011	974	AUTOMATED RECORD VERIF	MV
08/14/2012	932	TRF OPER RGTS FILED	THREE RIV/COG OPERA;1

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08/14/2012	932	TRF OPER RGTS FILED	THREE RIV/COG OPERA;2
03/01/2013	933	TRF OPER RGTS APPROVED	1 EFF 09/01/12;
03/01/2013	933	TRF OPER RGTS APPROVED	2 EFF 09/01/12;
03/01/2013	974	AUTOMATED RECORD VERIF	BTM
05/08/2013	817	MERGER RECOGNIZED	COG EXC PROP/COG OPER
10/22/2015	932	TRF OPER RGTS FILED	COG OPERA/LIME ROCK;1
12/24/2015	933	TRF OPER RGTS APPROVED	EFF 11/01/15;
12/24/2015	974	AUTOMATED RECORD VERIF	MJD

Line Nr      Remarks

Serial Number: NMLC-- 0 065478B

0002	BONDED LESSEES/OPERATORS:
0003	04/02/2002 - LESSEE BONDED - WY2924 - NW
0004	- THREE RIVERS - NMB000672 S/W;
0005	12/08/2011 - LIME ROCK RES II A LP - NMB000716 SW
0006	03/01/2013 - COG OPERATING LLC -NMB000740 -225K/CFO
0007	12/24/15 - LIME ROCK II A LP BONDED NMB000756 S/W

## PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Lime Rock Resources II-A, L.P.
LEASE NO.:	NMLC065478B
WELL NAME & NO.:	38-Falcon 3 D Federal
SURFACE HOLE FOOTAGE:	930'/N & 570W'/E
BOTTOM HOLE FOOTAGE:	930'/N & 330'/W
LOCATION:	Section 3, T.18 S., R.27 E., NMPPM
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**
  - Wildlife Powerline Stipulation**
  - Cave/Karst
  - Range
  - Soils
  - Watershed Resources
  - Wildlife
- Construction**
  - Notification
  - Topsoil
  - Closed Loop System
  - Federal Mineral Material Pits
  - Well Pads
  - Roads
- Road Section Diagram**
- Drilling**
  - H2S Requirements
  - High Cave/Karst
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  - Waste Material and Fluids
- Production (Post Drilling)**
  - Well Structures & Facilities
- Interim Reclamation**
- Final Abandonment & Reclamation**

## **I. GENERAL PROVISIONS**

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

## **II. PERMIT EXPIRATION**

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

## **III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES**

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

## **IV. NOXIOUS WEEDS**

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

## V. SPECIAL REQUIREMENT(S)

Power lines shall be constructed and designed in accordance to standards outlined in "Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006. The holder shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all power line structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. The holder without liability or expense shall make such modifications and/or additions to the United States.

### **Cave/Karst Surface Mitigation**

The following stipulations will be applied to minimize impacts during construction, drilling and production.

#### **Construction:**

In the advent that any underground voids are opened up during construction activities, construction activities will be halted and the BLM will be notified immediately.

#### **No Blasting:**

No blasting will be utilized for pad construction. The pad will be constructed and leveled by adding the necessary fill and caliche.

#### **Pad Berming:**

The pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the pad.

#### **Closed Mud System Using Steel Tanks with All Fluids and Cuttings Hauled Off.**

A closed mud system using steel tanks for all cuttings and fluids is required. All fluids and cuttings will be hauled off site for disposal. No pits are allowed.

#### **Tank Battery Liners and Berms:**

Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.

#### **Leak Detection System:**

A method of detecting leaks is required. The method could incorporate gauges to measure loss, situating valves and lines so they can be visually inspected, or installing electronic sensors to alarm when a leak is present. Leak detection plan will be submitted to BLM for approval.

**Automatic Shut-off Systems:**

Automatic shut off, check valves, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

**Cave/Karst Subsurface Mitigation**

The following stipulations will be applied to protect cave/karst and ground water concerns:

**Rotary Drilling with Fresh Water:**

Fresh water will be used as a circulating medium in zones where caves or karst features are expected. SEE ALSO: Drilling COAs for this well.

**Directional Drilling:**

Kick off for directional drilling will occur at least 100 feet below the bottom of the cave occurrence zone. SEE ALSO: Drilling COAs for this well.

**Lost Circulation:**

ALL lost circulation zones from the surface to the base of the cave occurrence zone will be logged and reported in the drilling report.

Regardless of the type of drilling machinery used, if a void of four feet or more and circulation losses greater than 70 percent occur simultaneously while drilling in any cave-bearing zone, the BLM will be notified immediately by the operator. The BLM will assess the situation and work with the operator on corrective actions to resolve the problem.

**Abandonment Cementing:**

Upon well abandonment in high cave karst areas additional plugging conditions of approval may be required. The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

**Pressure Testing:**

Annual pressure monitoring will be performed by the operator on all casing annuli and reported in a sundry notice. If the test results indicated a casing failure has occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

**Range**

The operator must contact the allotment holder prior to construction to identify the location of the pipeline. The operator must take measures to protect the pipeline from compression or other damages. If the pipeline is damaged or compromised in any way near the proposed project as a result of oil and gas activity, the operator is responsible for repairing the pipeline immediately. The operator must notify the BLM office (575-234-5972) and the private surface landowner or the grazing allotment holder if any damage occurs to structures that provide water to livestock.

## **Soils**

Interim reclamation will be conducted on all disturbed areas not needed for active support of production operations, and if caliche is used as a surfacing material it will be removed at time of reclamation to mitigate impacts to soil resources.

Topsoil will be stockpiled to enhance reclamation.

Install silt fences, diversion berms, or other soil erosion controls to slow water migration across disturbed areas during construction and reclamation.

## **Watershed Resources**

- The entire well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The berm shall be maintained through the life of the well and after interim reclamation has been completed.
- Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion.
- Stockpiling of topsoil is required. The top soil shall be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and not used for berming or erosion control.

### **Surface Pipeline COAs Only:**

- A leak detection plan will be submitted to the BLM Carlsbad Field Office for approval prior to pipeline installation. The method could incorporate gauges to detect pressure drops, siting valves and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present. The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.

## **Wildlife**

Power lines shall be constructed and designed in accordance to standards outlined in "Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006. The holder shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all power line structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. The holder without liability or expense shall make such modifications and/or additions to the United States.

## **VI. CONSTRUCTION**

### **A. NOTIFICATION**

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

### **B. TOPSOIL**

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

### **C. CLOSED LOOP SYSTEM**

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

### **D. FEDERAL MINERAL MATERIALS PIT**

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

### **E. WELL PAD SURFACING**

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

### **F. EXCLOSURE FENCING (CELLARS & PITS)**

**Exclosure Fencing**

The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

**G. ON LEASE ACCESS ROADS****Road Width**

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

**Surfacing**

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

**Crowning**

Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

**Ditching**

Ditching shall be required on both sides of the road.

**Turnouts**

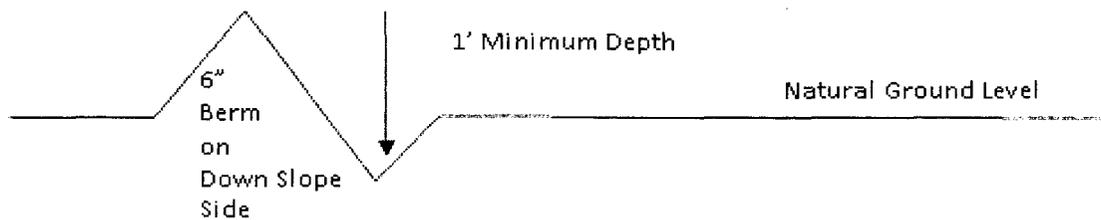
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

## Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill out sloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

### Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

### Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

## Cattleguards

An appropriately sized cattleguard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattleguards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguards that are in place and are utilized during lease operations.

## Fence Requirement

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

## Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer

**Construction Steps**

1. Salvage topsoil
2. Construct road

3. Redistribute topsoil
4. Revegetate slopes

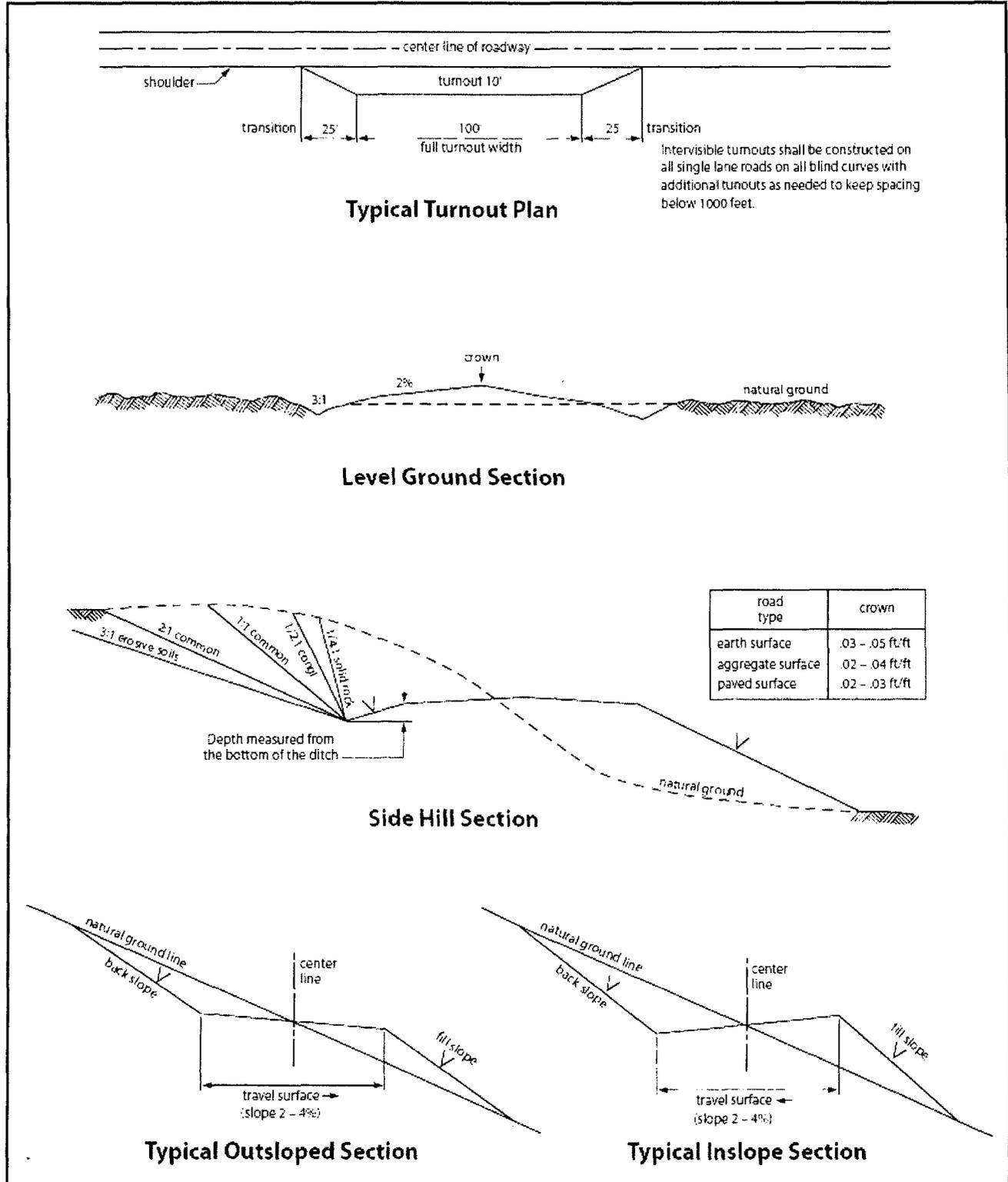


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

## VII. DRILLING

### A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)

**Eddy County**

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,  
(575) 361-2822

1. A Hydrogen Sulfide (H<sub>2</sub>S) Drilling Plan shall be activated 500 feet prior to drilling into the **Queen** formation. **As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.**
2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.**
3. **The record of the drilling rate along with the GR/N well log run from TD to surface shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies.**

### B. CASING

**Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.**

**Centralizers required on surface casing per Onshore Order 2.III.B.1.f.**

#### Wait on cement (WOC) for Water Basin:

**After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller’s log. See individual casing strings for details regarding lead cement slurry requirements.**

**No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.**

**HIGH CAVE/KARST – OPERATOR HAS PROPOSED A CONTINGENCY CASING IF LOST CIRCULATION OCCURS WHILE DRILLING THE SURFACE HOLE. IF LOST CIRCULATION OCCURS WHILE DRILLING THE 7-7/8” HOLE, THE CEMENT PROGRAM FOR THE 5-1/2” CASING WILL NEED TO BE MODIFIED AND THE BLM IS TO BE CONTACTED PRIOR TO RUNNING THE CASING. A MINIMUM OF TWO CASING STRINGS CEMENTED TO SURFACE IS REQUIRED IN HIGH CAVE/KARST AREAS. THE CEMENT MUST BE IN A SOLID SHEATH THEREFORE, ONE INCH OPERATIONS WILL NOT BE PERMITTED. A DV TOOL WILL BE REQUIRED**

**Possibility of water flows in the Artesia Group.**

**Possibility of lost circulation in the Artesia Group and San Andres.**

**Contingency Surface Casing Plan:**

1. The 13-3/8 inch **contingency surface casing** shall be set at approximately 375 feet and cemented to the surface.
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
  - b. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**
  - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
  - d. If cement falls back, remedial cementing will be done prior to drilling out that string.

**Casing Plan without Contingency:**

2. The 8-5/8 inch intermediate casing shall be set at approximately 350 feet and cemented to the surface. **(If contingency casing is used set 8-5/8” casing 50 feet below 13-3/8” shoe.)**
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

- b. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**
  - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
  - d. If cement falls back, remedial cementing will be done prior to drilling out that string.
3. The minimum required fill of cement behind the **5-1/2** inch production casing is:  
 Cement to surface. If cement does not circulate, contact the appropriate BLM office.
4. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

### **C. PRESSURE CONTROL**

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. **Contingency** - Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **13-3/8 inch** surface casing shoe shall be **2000 (2M)** psi. Operator is approved to test against the casing for the contingency plan.
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **8-5/8 inch** surface casing shoe shall be **2000 (2M)** psi.
4. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

- b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**.
- c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
- d. The results of the test shall be reported to the appropriate BLM office.
- e. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**
- f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

#### **D. DRILL STEM TEST**

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

#### **E. WASTE MATERIAL AND FLUIDS**

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

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### **VIII. PRODUCTION (POST DRILLING)**

#### **A. WELL STRUCTURES & FACILITIES**

##### **Placement of Production Facilities**

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

##### **Exclosure Netting (Open-top Tanks)**

Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could

be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

#### **Chemical and Fuel Secondary Containment and Exclosure Screening**

The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

#### **Open-Vent Exhaust Stack Exclosures**

The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

#### **Containment Structures**

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

#### **Painting Requirement**

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

### **IX. INTERIM RECLAMATION**

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

## **X. FINAL ABANDONMENT & RECLAMATION**

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

(Insert Seed Mixture Here)