

ATS-16-920

OCD Artesia
NM OIL CONSERVATION
ARTESIA DISTRICT

Form 3160-3
(March 2012)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JUL 25 2016

RECEIVED
APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMLC-067849

6. If Indian, Allottee or Tribe Name
N/A

7. If Unit or CA Agreement, Name and No.
N/A

8. Lease Name and Well No.
EAGLE 34 K FEDERAL 86

9. API Well No.
30-015- 43863

10. Field and Pool, or Exploratory
RED LAKE: GLORIETA-YESO, NE

11. Sec., T. R. M. or Blk. and Survey or Area
NESW 34-17S-27E

12. County or Parish
EDDY

13. State
NM

1a. Type of work: DRILL REENTER

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

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

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

3b. Phone No. (include area code)
713 292-9528

4. Location of Well (Report location clearly and in accordance with any State requirements.)*
At surface 2410' FSL & 1505' FWL
At proposed prod. zone 2310' FSL & 1650' FWL

14. Distance in miles and direction from nearest town or post office*
9 AIR MILES SE OF ARTESIA, NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)
SHL: 230'
BHL: 330'

16. No. of acres in lease
800

17. Spacing Unit dedicated to this well
NESW

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.
SHL: 349' (Eagle 34L45)
BHL: 223' (Eagle 34K21)

19. Proposed Depth
TVD: 5100' & MD: 5120'

20. BLM/BIA Bond No. on file
NMB-000797 & NMB-000817

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3551' UNGRADED

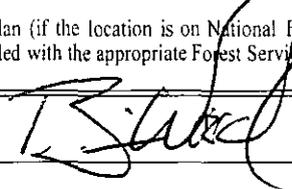
22. Approximate date work will start*
07/01/2016

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.
- 2. A Drilling Plan.
- 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
- 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- 5. Operator certification
- 6. Such other site specific information and/or plans as may be required by the BLM.

25. Signature  Name (Printed/Typed) BRIAN WOOD (PHONE: 505 466-8120) Date 03/12/2016

Title CONSULTANT (FAX: 505 466-9682)

Approved by (Signature)  Name (Printed/Typed) Cody Layton Date JUL 19 2016

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

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

**Approval Subject to General Requirements
& Special Stipulations Attached**

B7-25-16

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
311 S. First St., Artesia, NM 88210
Phone: (505) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6175 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
District Office
AMENDED REPORT

JUL 25 2016

RECEIVED

WELL LOCATION AND ACREAGE DEDICATION PLAT

30-015- 43863	² Pool Code 96836	³ Pool Name RED LAKE; GLORIETA-YESO, NORTHEAST
⁴ Property Code 308957	⁴ Property Name EAGLE 34K FEDERAL	
⁷ OGRID No. 277558	⁴ Operator Name LIME ROCK RESOURCES II-A, L.P.	
		⁶ Well Number 86
		⁸ Elevation 3551.0

" Surface Location

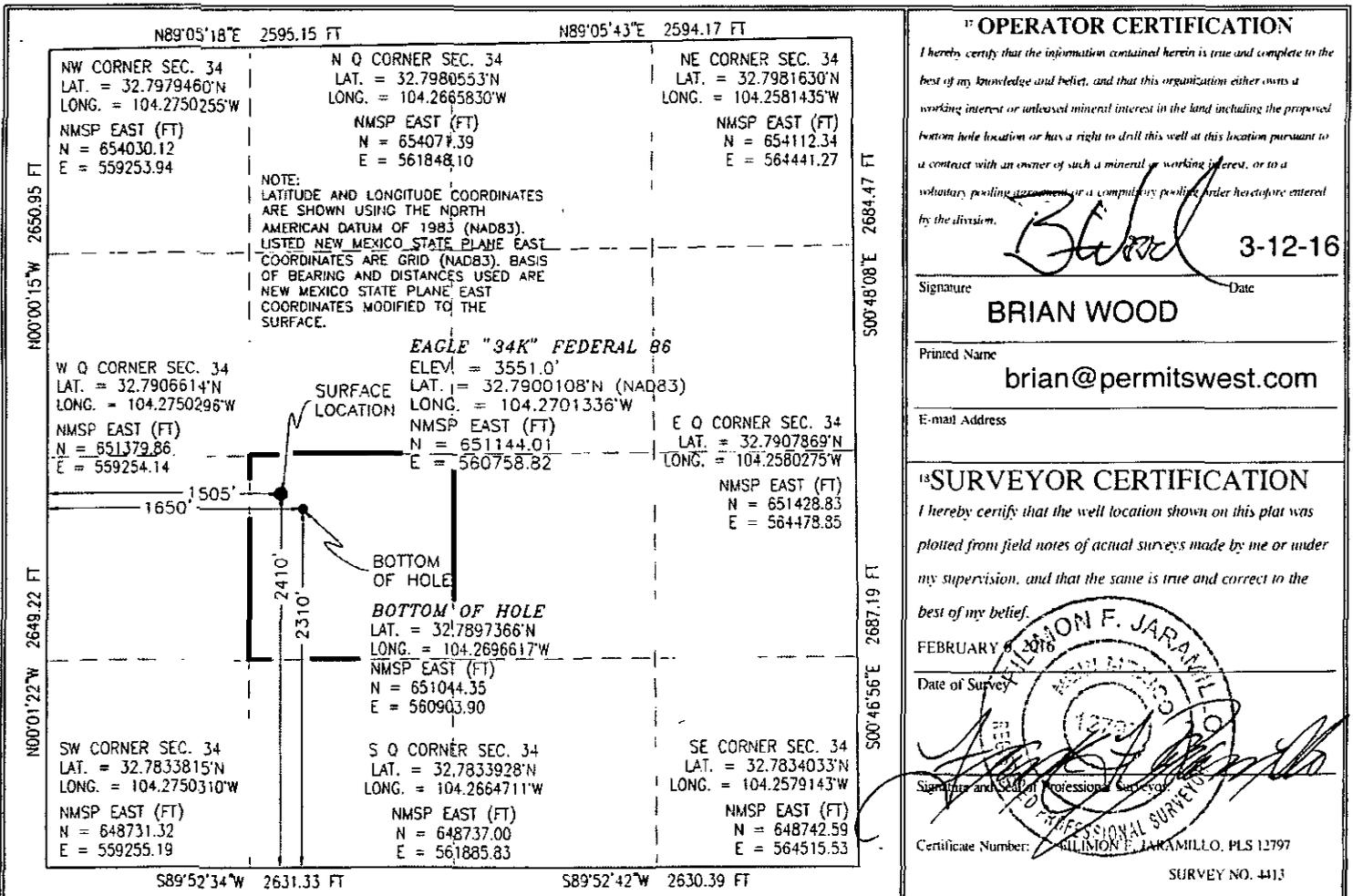
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
K	34	17 S	27 E		2410	SOUTH	1505	WEST	EDDY

" 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
K	34	17 S	27 E		2310	SOUTH	1650	WEST	EDDY

¹² Dedicated Acres 40	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ 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 2

BLM O&G lease
NMLC-067849

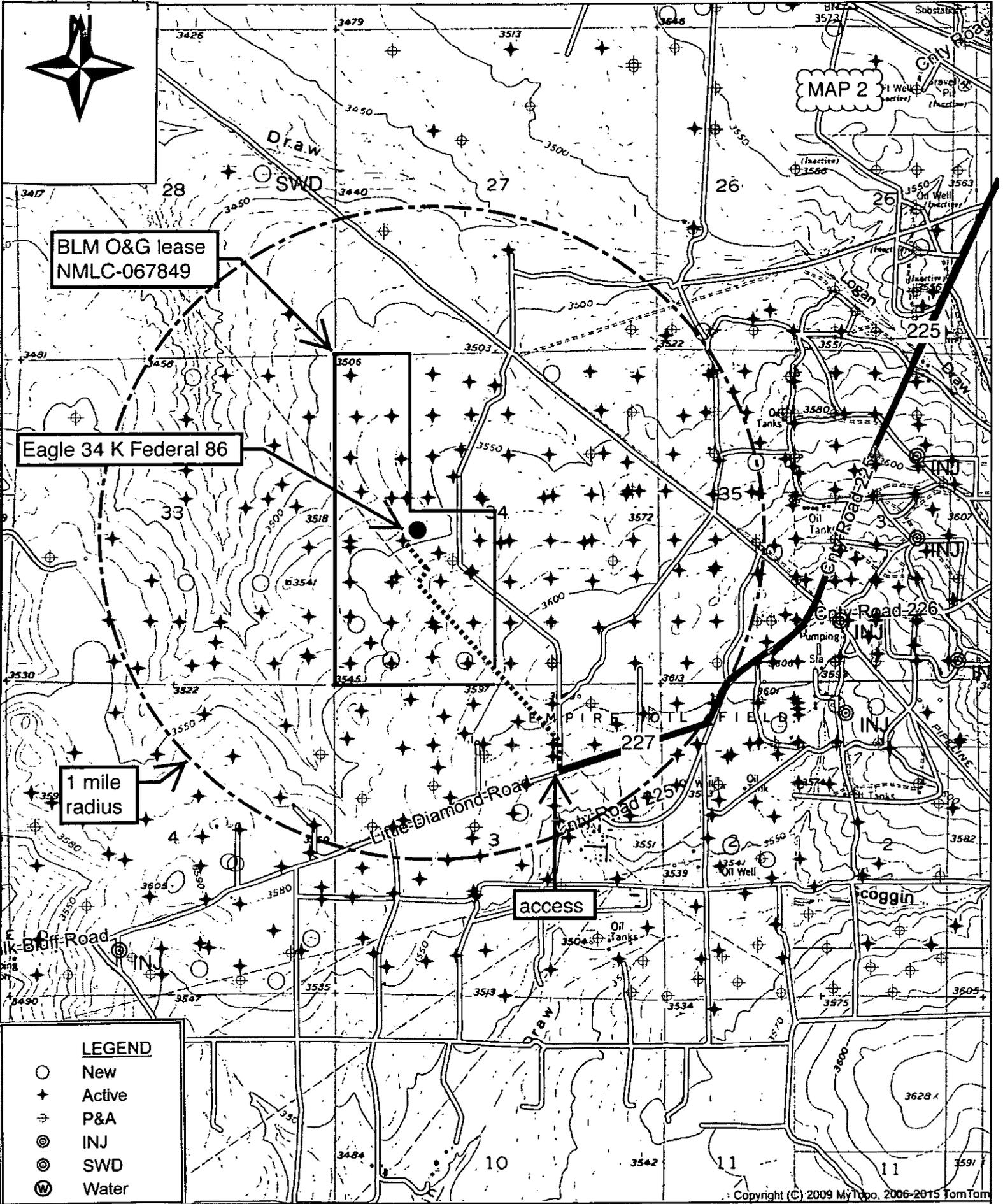
Eagle 34 K Federal 86

1 mile
radius

access

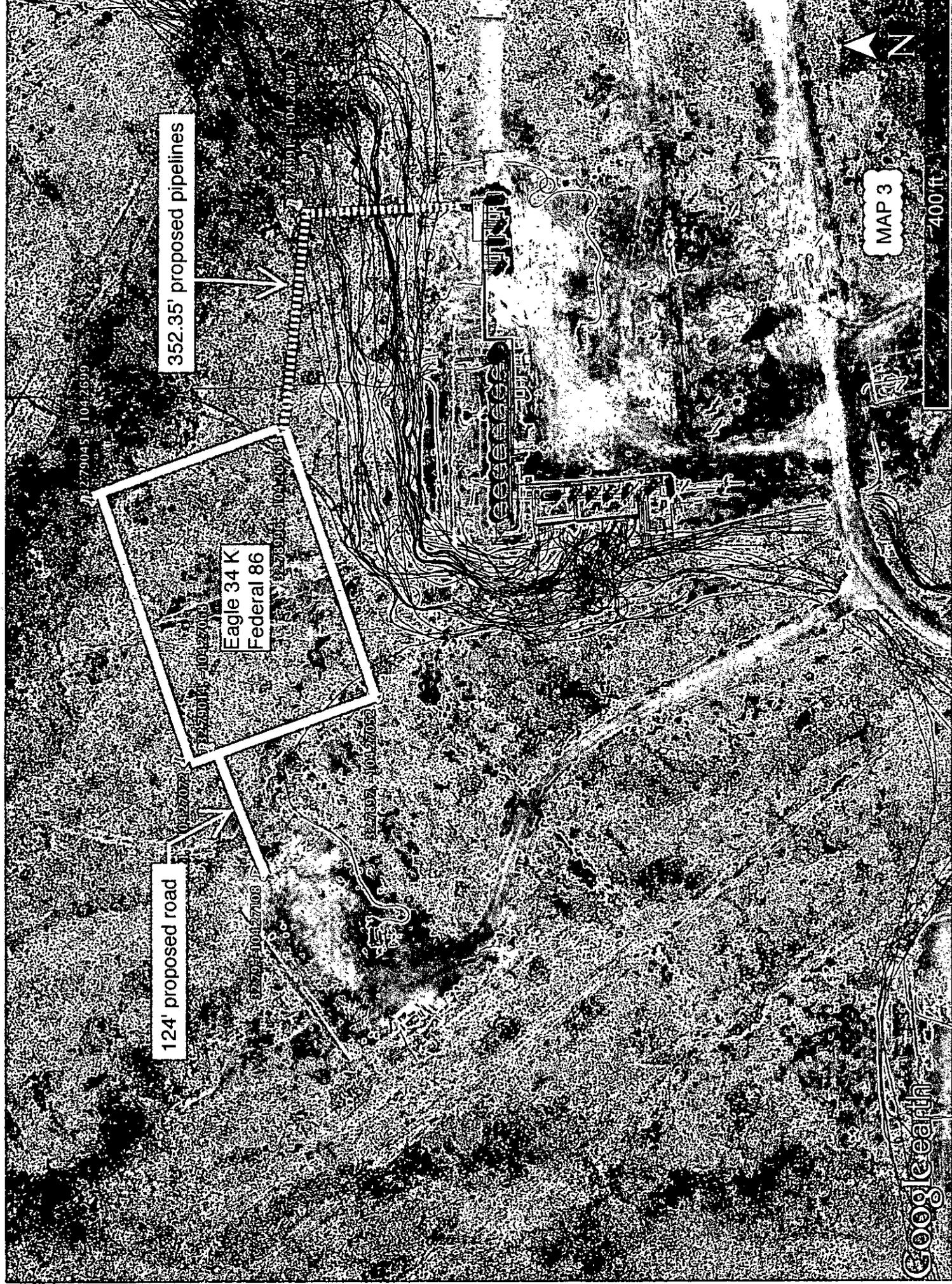
LEGEND

- New
- ★ Active
- ⊕ P&A
- ⊙ INJ
- ⊙ SWD
- ⊙ Water



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Quad: SPRING LAKE
Scale: 1 inch = 2,000 ft.



352.35' proposed pipelines

Eagle 34 K
Federal 86

124' proposed road

MAP 3

400 ft

Google Earth

70045 104 2690

0127073 70

73259017 = 104 2708

3270 = 101 2708

15 22789306 = 104 26936

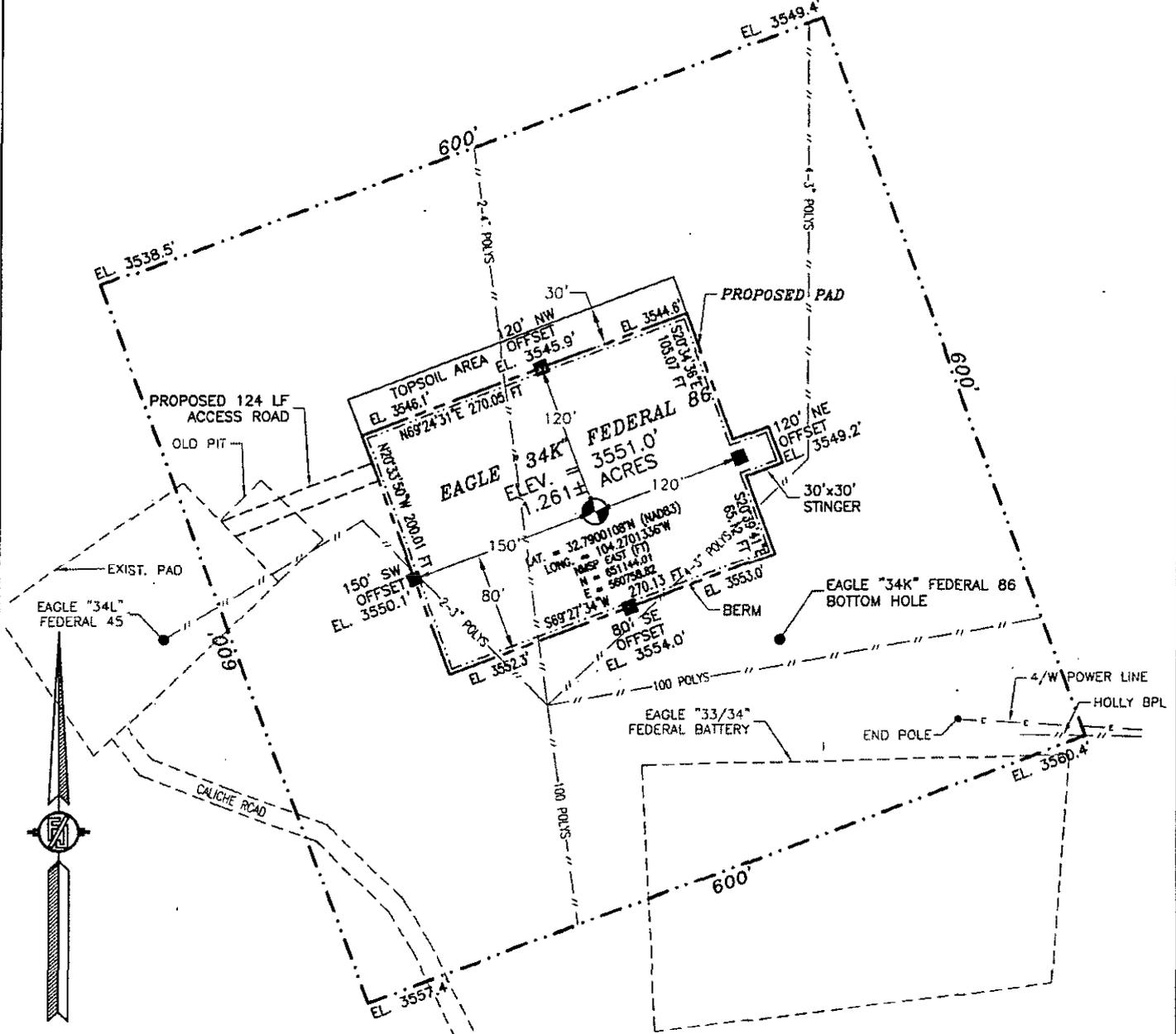
327697 104 27052

733911 = 104 26897

SECTION 34, TOWNSHIP 17 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 1983 (NAD83). LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD83). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES MODIFIED TO THE SURFACE



0 12 60 120 240

SCALE 1" = 120'

DIRECTIONS TO LOCATION

FROM CR 225 (EMPIRE) AND CR 227 (LITTLE DIAMOND) GO
 SOUTHWEST ON CR 227 0.5 OF A MILE, TURN RIGHT ON CALICHE
 ROAD AND GO NORTH 0.1 OF A MILE, BEND LEFT AND GO
 NORTHWEST 0.7 OF A MILE, BEND RIGHT AND GO 180', TURN LEFT
 AND GO NORTHWEST 0.1 OF A MILE TO EXISTING PAD FOR EAGLE
 "34L" FEDERAL 45 WELL AND ON EAST EDGE OF PAD FOLLOW ROAD
 SURVEY FLAGS NORTHEAST 124' TO PROPOSED NORTHWEST PAD
 CORNER FOR THIS LOCATION.

LIME ROCK RESOURCES II-A, L.P.
EAGLE "34K" FEDERAL 86
 LOCATED 2410 FT. FROM THE SOUTH LINE
 AND 1505 FT. FROM THE WEST LINE OF
 SECTION 34, TOWNSHIP 17 SOUTH,
 RANGE 27 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO

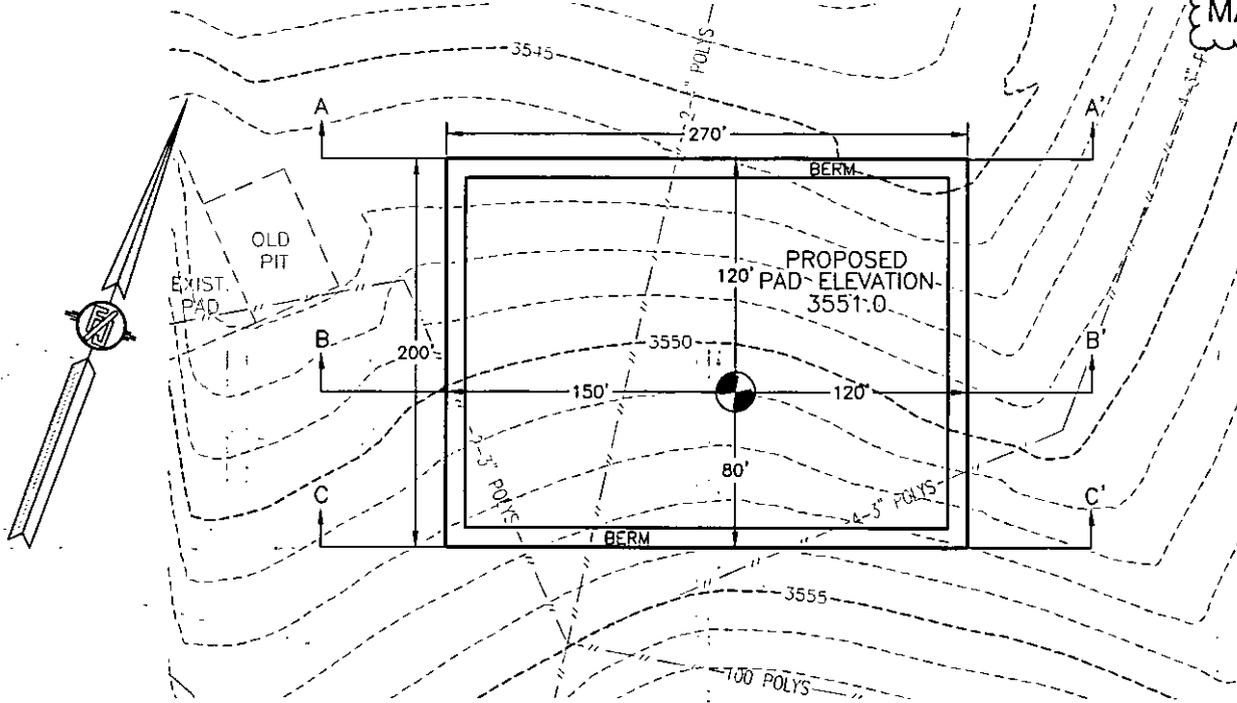
FEBRUARY 6, 2016

SURVEY NO. 4413

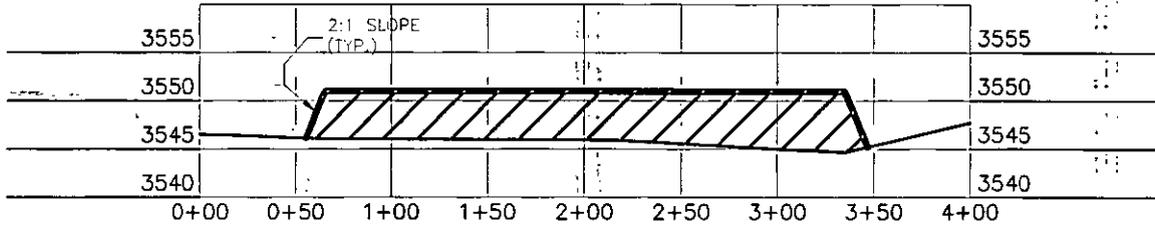
MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO
 (575) 234-3341

EAGLE "34K" FEDERAL 86 CROSS SECTIONS

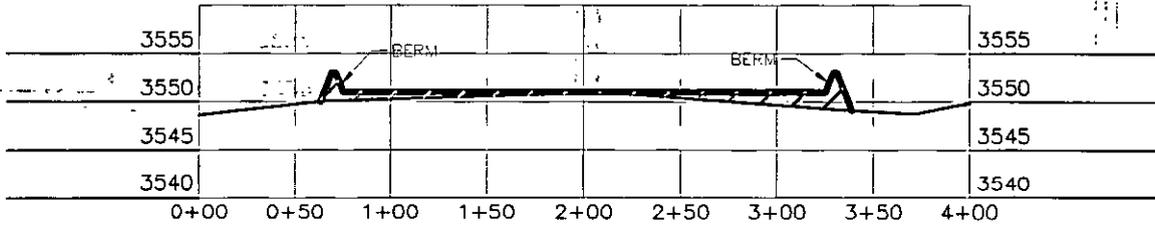
MAP 4.1



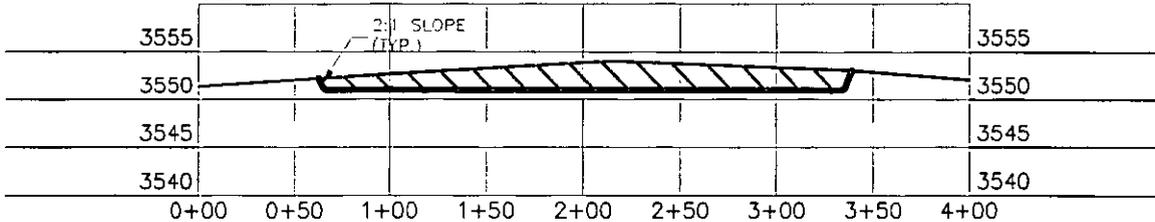
SECTION A-A'



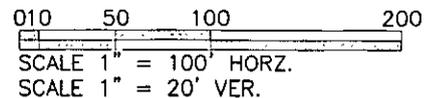
SECTION B-B'



SECTION C-C'



LIME ROCK RESOURCES II-A, L.P.
EAGLE "34K" FEDERAL 86
 LOCATED 2410 FT. FROM THE SOUTH LINE
 AND 1505 FT. FROM THE WEST LINE OF
 SECTION 34, TOWNSHIP 17 SOUTH,
 RANGE 27 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO



CUT	FILL	NET
616 CU. YD	4375 CU. YD	3759 CU. YD (FILL)

EARTHWORK QUANTITIES ARE ESTIMATED

MARCH 31, 2016

SURVEY NO. 4413

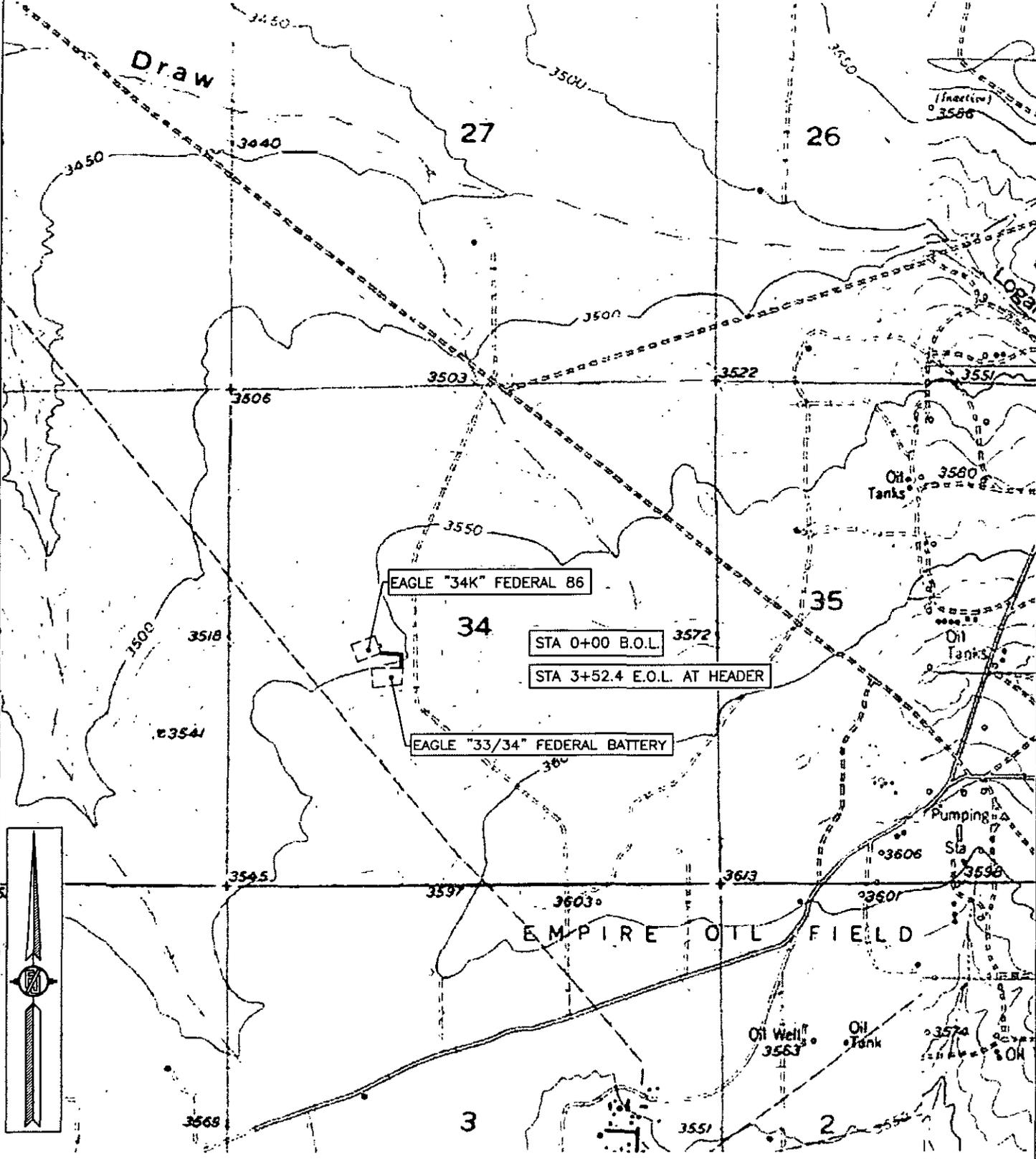
MADRON SURVEYING, INC. 301 SOUTH CAJAL (575) 234-3341 CARLSBAD, NEW MEXICO

FLOWLINE PLAT

TWO 3" SDR 7 SURFACE POLYS (1-GAS & 1-PRODUCTION) FROM THE EAGLE "34K" FEDERAL 86 TO THE EAGLE "33/34" FEDERAL BATTERY

MAP 5

LIME ROCK RESOURCES II-A, L.P.
CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 34, TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
FEBRUARY 6, 2016



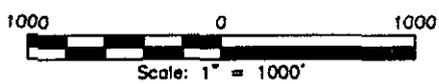
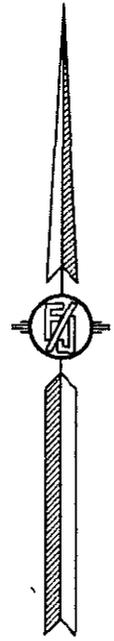
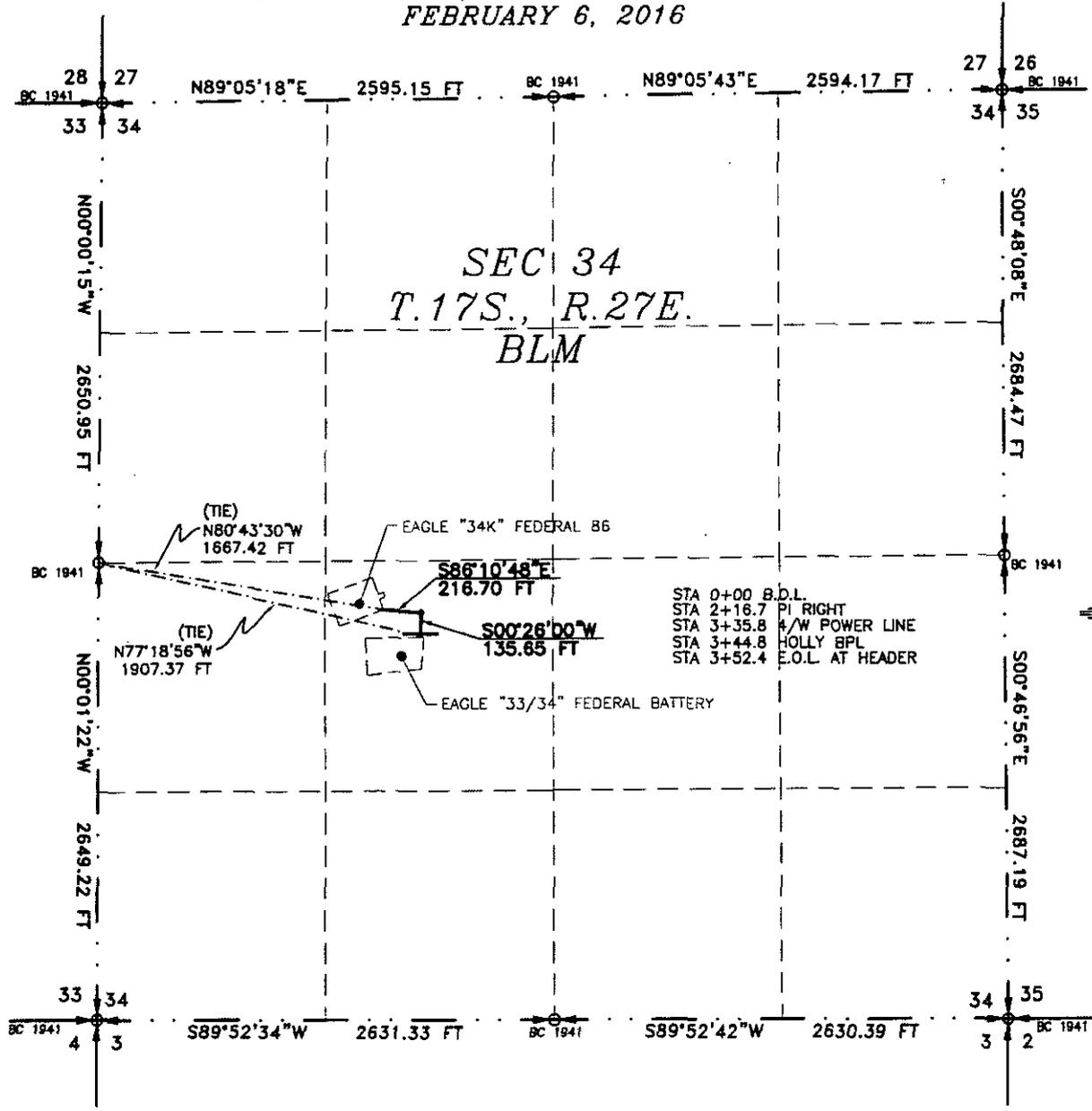
SURVEY NO. 4413

FLOWLINE PLAT

TWO 3" SDR 7 SURFACE POLYS (1-GAS & 1-PRODUCTION) FROM THE EAGLE "34K" FEDERAL 86 TO THE EAGLE "33/34" FEDERAL BATTERY

MAP 6

LIME ROCK RESOURCES II-A, L.P.
 CENTERLINE SURVEY OF A PIPELINE CROSSING
 SECTION 34, TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO
 FEBRUARY 6, 2016



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 6 DAY OF FEBRUARY 2016

Filimon F. Jaramillo
 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 SURVEY NO. 4413
 (575) 234-3341

FLOWLINE PLAT

TWO 3" SDR 7 SURFACE POLYS (1-GAS & 1-PRODUCTION) FROM THE EAGLE "34K" FEDERAL 86 TO THE EAGLE "33/34" FEDERAL BATTERY

MAP 7

**LIME ROCK RESOURCES II-A, L.P.
CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 34, TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
FEBRUARY 6, 2016**

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 34, TOWNSHIP 17 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 THE NE/4 SW/4 OF SAID SECTION 34, TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M., WHENCE THE WEST QUARTER CORNER OF SAID SECTION 34, TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M. BEARS N80°43'30"W, A DISTANCE OF 1667.42 FEET;
THENCE S86°10'48"E A DISTANCE OF 216.70 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S00°26'00"W A DISTANCE OF 135.65 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE WEST QUARTER CORNER OF SAID SECTION 34, TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M. BEARS N77°18'56"W, A DISTANCE OF 1907.37 FEET;

SAID STRIP OF LAND BEING 352.35 FEET OR 21.35 RODS IN LENGTH, CONTAINING 0.243 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NE/4 SW/4 352.35 L.F. 21.35 RODS 0.243 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 6th DAY OF FEBRUARY 2016

Filimon F. Jaramillo
FILIMON F. JARAMILLO, PLS. 12797

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

SURVEY NO. 4413

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

Lime Rock Resources II-A, L.P.
 Eagle 34 K Federal 86
 SHL: 2410' FSL & 1505' FWL
 BHL: 2310' FSL & 1650' FWL
 Sec. 34, T. 17 S., R. 27 E., Eddy County, NM

Drilling Program

1. ESTIMATED TOPS

<u>Name</u>	<u>TVD</u>	<u>MD</u>	<u>Content</u>
Tansill	0'	0'	---
Yates	100'	100'	fresh water
Seven Rivers*	337'	337'	oil, gas, saltwater
Queen	868'	872'	oil, gas, saltwater
Grayburg	1207'	1224'	oil, gas, saltwater
San Andres	1514'	1534'	oil, gas
Glorieta	2852'	2872'	oil, gas
Yeso	2986'	3006'	oil, gas
Tubb	4336'	4356'	---
Abo**	5006'	5026'	---
Total Depth	5100'	5120'	---

*in which surface casing will be set at 350' & 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 565' in the Malco 2 (30-015-01208). That well is 3585' southwest. Closest (6245' southeast) water well (RA 02996) found water at 151'. It was a P & A oil well (30-015-00739) that was converted to a water well.

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.
Eagle 34 K Federal 86
SHL: 2410' FSL & 1505' FWL
BHL: 2310' FSL & 1650' FWL
Sec. 34, T. 17 S., R. 27 E., Eddy County, NM

DRILLING PLAN PAGE 2

Sundry Notice will be filed. System will meet Onshore Orders 2 (BOP) and 6 (H₂S) 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),
- 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, which will be capable of remote operation,
- Pressure gauge on choke manifold,
- Upper Kelly cock valve with handle available,
- Safety valve and subs to fit all drill string connections in use,
- All BOPE connections subjected to well pressure will be flanged, welded, or clamped,
- A fill-up line above the uppermost preventer.

Eagle 34 K Federal 86

SHL: 2410' FSL & 1505' FWL

BHL: 2310' FSL & 1650' FWL

Sec. 34, T. 17 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	5120'	7.875"	5.5"	17	J-55	L T & C	Yes	New

All casing designed with a minimum of:

Burst Safety Factor
1.18

Collapse Safety Factor
1.20

Tension Safety Factor
2.00

casing	depth set	sacks cement	top	gallons per sack	density (ppg)	yield (cu ft per sack)	total cubic feet	% excess	blend
conductor	80'	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	5120'	290	GL	9.8	12.8	1.903	551	80	2
production tail	5120'	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% CaCl₂. 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.

Lime Rock Resources II-A, L.P.
Eagle 34 K Federal 86
SHL: 2410' FSL & 1505' FWL
BHL: 2310' FSL & 1650' FWL
Sec. 34, T. 17 S., R. 27 E., Eddy County, NM

DRILLING 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% CaCl₂ 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' (≥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% CaCl₂ 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.

Eagle 34 K Federal 86

SHL: 2410' FSL & 1505' FWL

BHL: 2310' FSL & 1650' FWL

Sec. 34, T. 17 S., R. 27 E., Eddy County, NM

Interval	0' - 375' (if contingency string run)	0' - 350'	350' - 4970'	4970' - 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

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

No abnormal pressure or temperature is expected. Maximum expected bottom hole pressure is \approx 2208 psi. ~~No H₂S is expected during the drilling phase.~~ *H₂S might be present. See COA* Nevertheless, H₂S 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 H₂S. If any H₂S is detected, then the mud

Lime Rock Resources II-A, L.P.

DRILLING PLAN PAGE 6

Eagle 34 K Federal 86

SHL: 2410' FSL & 1505' FWL

BHL: 2310' FSL & 1650' FWL

Sec. 34, T. 17 S., R. 27 E., Eddy County, NM

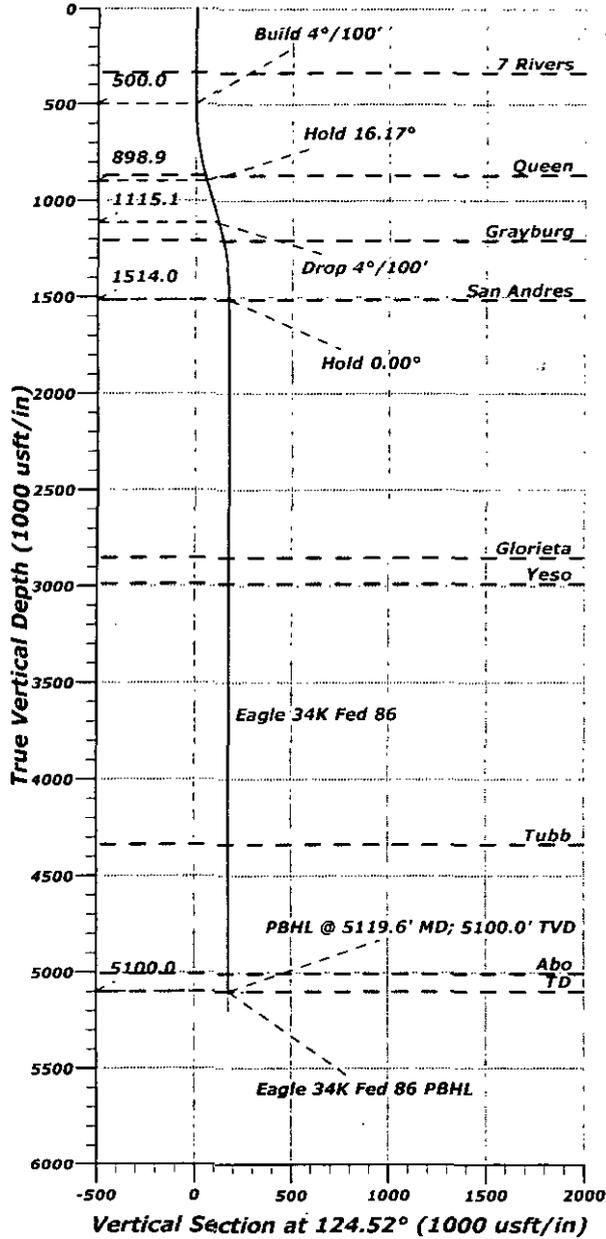
weight will be increased and H₂S inhibitors will be added to control the gas. An H₂S drilling operations contingency plan is attached.

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.

→ See COA

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: Fed 86

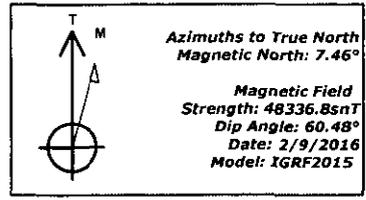
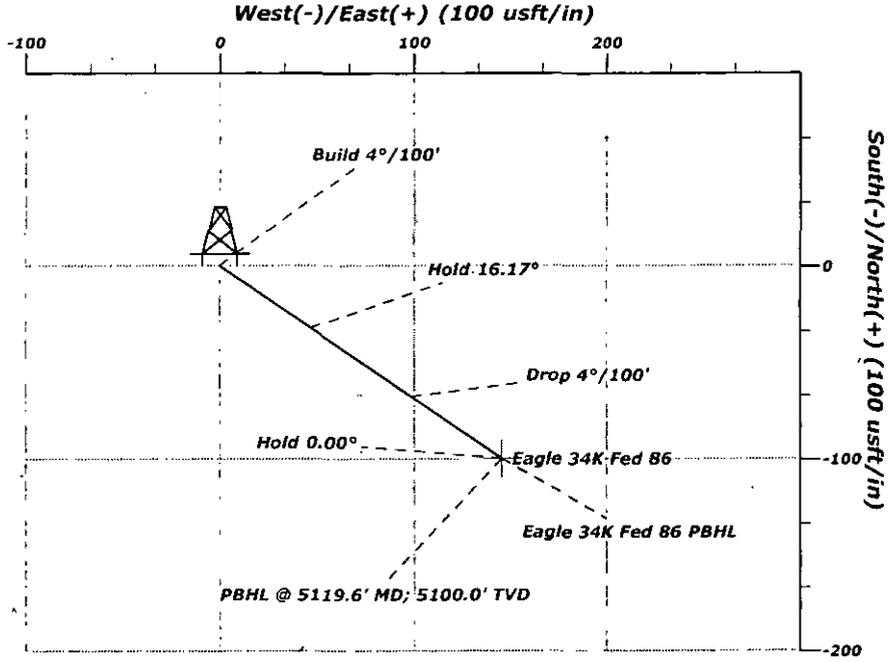
Ground Level:	3551.0	RKB @	3563.8usft
$\pm N/-S$	0.0	$\pm E/-W$	0.0
Northing	651144.01	Easting	560758.82
Latitude	32° 47' 24.039 N	Longitude	104° 16' 12.481 W

DESIGN TARGET DETAILS

Name	TVD $\pm N/-S$	$\pm E/-W$	Northing	Easting
Eagle 34K Fed 86 PBHL	5100.0	-99.7	145.0	651044.35
			560903.90	

PROJECT DETAILS: Eddy, NM (Nad 83)

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level



To convert a Magnetic Direction to a True Direction, Add 7.46° East
Magnetic North is 7.46° East of True North (Magnetic Declination)

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
337.0	337.0	7 Rivers
868.0	872.2	Queen
1207.0	1224.2	Grayburg
1514.0	1533.6	San Andres
2852.0	2871.6	Glorieta
2986.0	3005.6	Yeso
4336.0	4355.6	Tubb
5006.0	5025.6	Abo
5100.0	5119.6	TD

Section Plans

MD	Inc	Azi	TVD	$\pm N/-S$	$\pm E/-W$	Dleg	IFace	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 4°/100'
904.2	16.17	124.52	898.9	-32.1	46.7	4.00	124.52	56.7	Hold 16.17°
1129.4	16.17	124.52	1115.1	-67.6	98.3	0.00	0.00	119.4	Drop 4°/100'
1533.6	0.00	0.00	1514.0	-99.7	145.0	4.00	180.00	176.0	Hold 0.00°
5119.6	0.00	0.00	5100.0	-99.7	145.0	0.00	0.00	176.0	PBHL @ 5119.6' MD; 5100.0' TVD

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Fed 86
Company:	Lime Rock Resources	TVD Reference:	RKB @ 3563.8usft
Project:	Eddy, NM (Nad 83)	MD Reference:	RKB @ 3563.8usft
Site:	Eagle 34K	North Reference:	True
Well:	Fed 86	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	Plan 1		

Project	Eddy, NM (Nad 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Eagle 34K				
Site Position:	Northing:	651,144.01 usft	Latitude:	32° 47' 24.039 N	
From: Map	Easting:	560,758.82 usft	Longitude:	104° 16' 12.481 W	
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.03 °

Well	Fed 86					
Well Position	+N/-S	0.0 usft	Northing:	651,144.01 usft	Latitude:	32° 47' 24.039 N
	+E/-W	0.0 usft	Easting:	560,758.82 usft	Longitude:	104° 16' 12.481 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	3,551.0 usft	

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
	IGRF2015	2/9/2016	(°)	(°)	(nT)
			7.46	60.48	48,337

Design	Plan 1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.0	0.0	0.0	124.52

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	
904.2	16.17	124.52	898.9	-32.1	46.7	4.00	4.00	0.00	124.52	
1,129.4	16.17	124.52	1,115.1	-67.6	98.3	0.00	0.00	0.00	0.00	
1,533.6	0.00	0.00	1,514.0	-99.7	145.0	4.00	-4.00	0.00	180.00	
5,119.6	0.00	0.00	5,100.0	-99.7	145.0	0.00	0.00	0.00	0.00	Eagle 34K Fed 86 PB



Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Fed 86
Company:	Lime Rock Resources	TVD Reference:	RKB @ 3563.8usft
Project:	Eddy, NM (Nad 83)	MD Reference:	RKB @ 3563.8usft
Site:	Eagle 34K	North Reference:	True
Well:	Fed 86	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	Plan 1		

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
337.0	0.00	0.00	337.0	0.0	0.0	0.0	0.00	0.00	0.00
7 Rivers									
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
Build 4°/100'									
600.0	4.00	124.52	599.9	-2.0	2.9	3.5	4.00	4.00	0.00
700.0	8.00	124.52	699.4	-7.9	11.5	13.9	4.00	4.00	0.00
800.0	12.00	124.52	797.8	-17.7	25.8	31.3	4.00	4.00	0.00
872.2	14.89	124.52	868.0	-27.2	39.6	48.1	4.00	4.00	0.00
Queen									
900.0	16.00	124.52	894.8	-31.4	45.7	55.5	4.00	4.00	0.00
904.2	16.17	124.52	898.9	-32.1	46.7	56.7	4.00	4.00	0.00
Hold 16.17°									
1,000.0	16.17	124.52	990.9	-47.2	68.7	83.3	0.00	0.00	0.00
1,100.0	16.17	124.52	1,086.9	-63.0	91.6	111.2	0.00	0.00	0.00
1,129.4	16.17	124.52	1,115.1	-67.6	98.3	119.4	0.00	0.00	0.00
Drop 4°/100'									
1,200.0	13.34	124.52	1,183.4	-77.8	113.2	137.3	4.00	-4.00	0.00
1,224.2	12.38	124.52	1,207.0	-80.9	117.6	142.7	4.00	-4.00	0.00
Grayburg									
1,300.0	9.34	124.52	1,281.4	-89.0	129.4	157.0	4.00	-4.00	0.00
1,400.0	5.34	124.52	1,380.6	-96.2	139.9	169.8	4.00	-4.00	0.00
1,500.0	1.34	124.52	1,480.4	-99.5	144.7	175.6	4.00	-4.00	0.00
1,533.6	0.00	0.00	1,514.0	-99.7	145.0	176.0	4.00	-4.00	0.00
Hold 0.00° - San Andres									
1,600.0	0.00	0.00	1,580.4	-99.7	145.0	176.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,680.4	-99.7	145.0	176.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,780.4	-99.7	145.0	176.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,880.4	-99.7	145.0	176.0	0.00	0.00	0.00
2,000.0	0.00	0.00	1,980.4	-99.7	145.0	176.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,080.4	-99.7	145.0	176.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,180.4	-99.7	145.0	176.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,280.4	-99.7	145.0	176.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,380.4	-99.7	145.0	176.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,480.4	-99.7	145.0	176.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,580.4	-99.7	145.0	176.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,680.4	-99.7	145.0	176.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,780.4	-99.7	145.0	176.0	0.00	0.00	0.00
2,871.6	0.00	0.00	2,852.0	-99.7	145.0	176.0	0.00	0.00	0.00
Glorieta									
2,900.0	0.00	0.00	2,880.4	-99.7	145.0	176.0	0.00	0.00	0.00
3,000.0	0.00	0.00	2,980.4	-99.7	145.0	176.0	0.00	0.00	0.00
3,005.6	0.00	0.00	2,986.0	-99.7	145.0	176.0	0.00	0.00	0.00
Yeso									
3,100.0	0.00	0.00	3,080.4	-99.7	145.0	176.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,180.4	-99.7	145.0	176.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,280.4	-99.7	145.0	176.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,380.4	-99.7	145.0	176.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,480.4	-99.7	145.0	176.0	0.00	0.00	0.00



Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Fed 86
Company:	Lime Rock Resources	TVD Reference:	RKB @ 3563.8usft
Project:	Eddy, NM (Nad 83)	MD Reference:	RKB @ 3563.8usft
Site:	Eagle 34K	North Reference:	True
Well:	Fed 86	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	Plan 1		

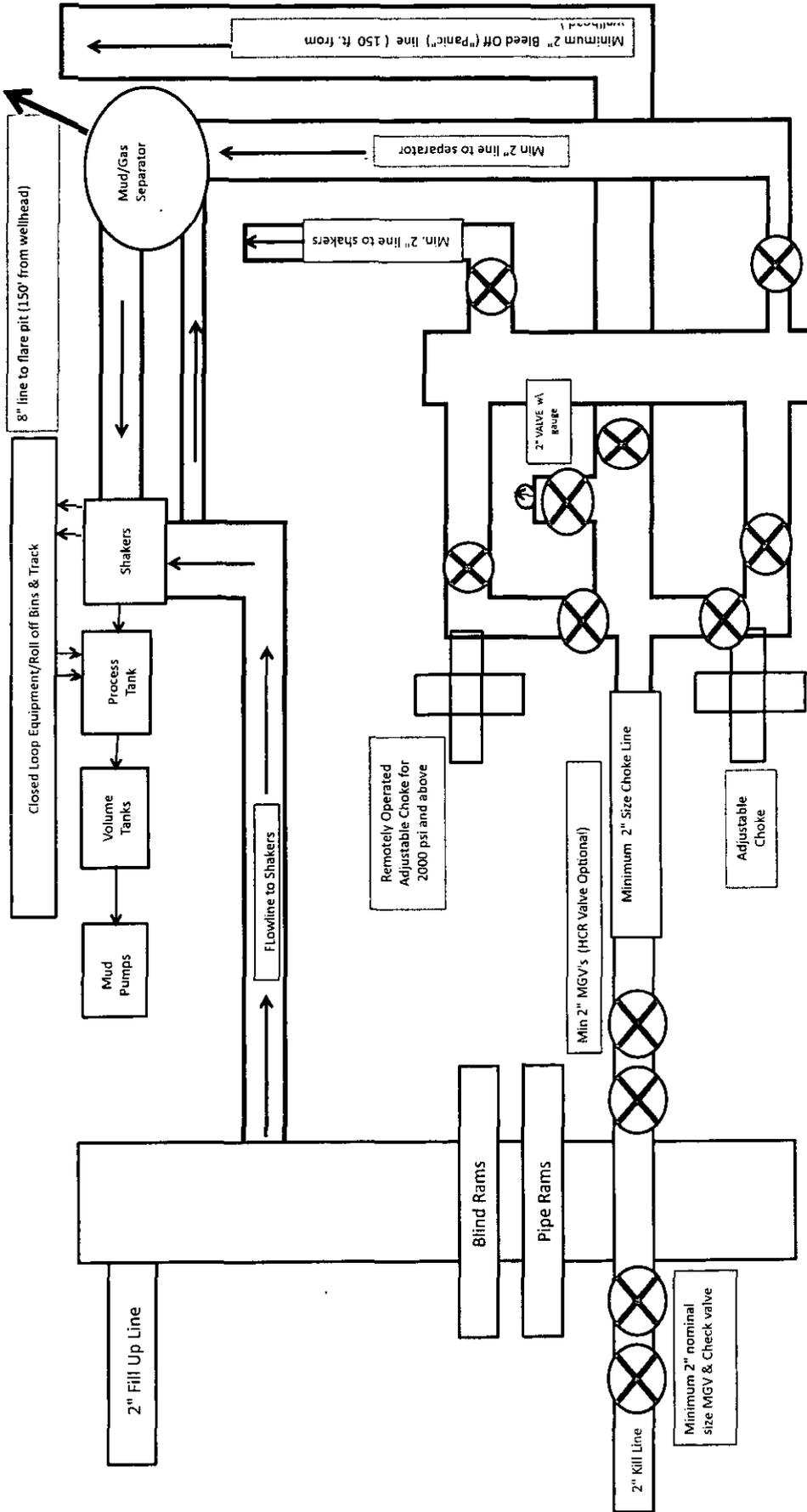
Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
3,600.0	0.00	0.00	3,580.4	-99.7	145.0	176.0	0.00	0.00	0.00	
3,700.0	0.00	0.00	3,680.4	-99.7	145.0	176.0	0.00	0.00	0.00	
3,800.0	0.00	0.00	3,780.4	-99.7	145.0	176.0	0.00	0.00	0.00	
3,900.0	0.00	0.00	3,880.4	-99.7	145.0	176.0	0.00	0.00	0.00	
4,000.0	0.00	0.00	3,980.4	-99.7	145.0	176.0	0.00	0.00	0.00	
4,100.0	0.00	0.00	4,080.4	-99.7	145.0	176.0	0.00	0.00	0.00	
4,200.0	0.00	0.00	4,180.4	-99.7	145.0	176.0	0.00	0.00	0.00	
4,300.0	0.00	0.00	4,280.4	-99.7	145.0	176.0	0.00	0.00	0.00	
4,355.6	0.00	0.00	4,336.0	-99.7	145.0	176.0	0.00	0.00	0.00	
Tubb										
4,400.0	0.00	0.00	4,380.4	-99.7	145.0	176.0	0.00	0.00	0.00	
4,500.0	0.00	0.00	4,480.4	-99.7	145.0	176.0	0.00	0.00	0.00	
4,600.0	0.00	0.00	4,580.4	-99.7	145.0	176.0	0.00	0.00	0.00	
4,700.0	0.00	0.00	4,680.4	-99.7	145.0	176.0	0.00	0.00	0.00	
4,800.0	0.00	0.00	4,780.4	-99.7	145.0	176.0	0.00	0.00	0.00	
4,900.0	0.00	0.00	4,880.4	-99.7	145.0	176.0	0.00	0.00	0.00	
5,000.0	0.00	0.00	4,980.4	-99.7	145.0	176.0	0.00	0.00	0.00	
5,025.6	0.00	0.00	5,006.0	-99.7	145.0	176.0	0.00	0.00	0.00	
Abo										
5,100.0	0.00	0.00	5,080.4	-99.7	145.0	176.0	0.00	0.00	0.00	
5,119.6	0.00	0.00	5,100.0	-99.7	145.0	176.0	0.00	0.00	0.00	
PBHL @ 5119.6' MD; 5100.0' TVD - TD										

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Eagle 34K Fed 86 PBHL	0.00	0.00	5,100.0	-99.7	145.0	651,044.35	560,903.90	32° 47' 23.052 N	104° 16' 10.782 W
- hit/miss target									
- Shape									
- plan hits target center									
- Point									

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
337.0	337.0	7 Rivers		0.00		
872.2	868.0	Queen		0.00		
1,224.2	1,207.0	Grayburg		0.00		
1,533.6	1,514.0	San Andres		0.00		
2,871.6	2,852.0	Glorieta		0.00		
3,005.6	2,986.0	Yeso		0.00		
4,355.6	4,336.0	Tubb		0.00		
5,025.6	5,006.0	Abo		0.00		
5,119.6	5,100.0	TD		0.00		

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Fed 86
Company:	Lime Rock Resources	TVD Reference:	RKB @ 3563.8usft
Project:	Eddy, NM (Nad 83)	MD Reference:	RKB @ 3563.8usft
Site:	Eagle 34K	North Reference:	True
Well:	Fed 86	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	Plan 1		

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 4°/100'	
904.2	898.9	-32.1	46.7	Hold 16.17°	
1,129.4	1,115.1	-67.6	98.3	Drop 4°/100'	
1,533.6	1,514.0	-99.7	145.0	Hold 0.00°	
5,119.6	5,100.0	-99.7	145.0	PBHL @ 5119.6' MD; 5100.0' TVD	



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

11" Minimum 2000 psi BOP and Minimum 2000 psi BOPE System Schematic w/ Closed Loop System Equipment

Lime Rock Resources II-A, L.P.

Eagle 34 K Federal 86

Section 34, T. 17 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

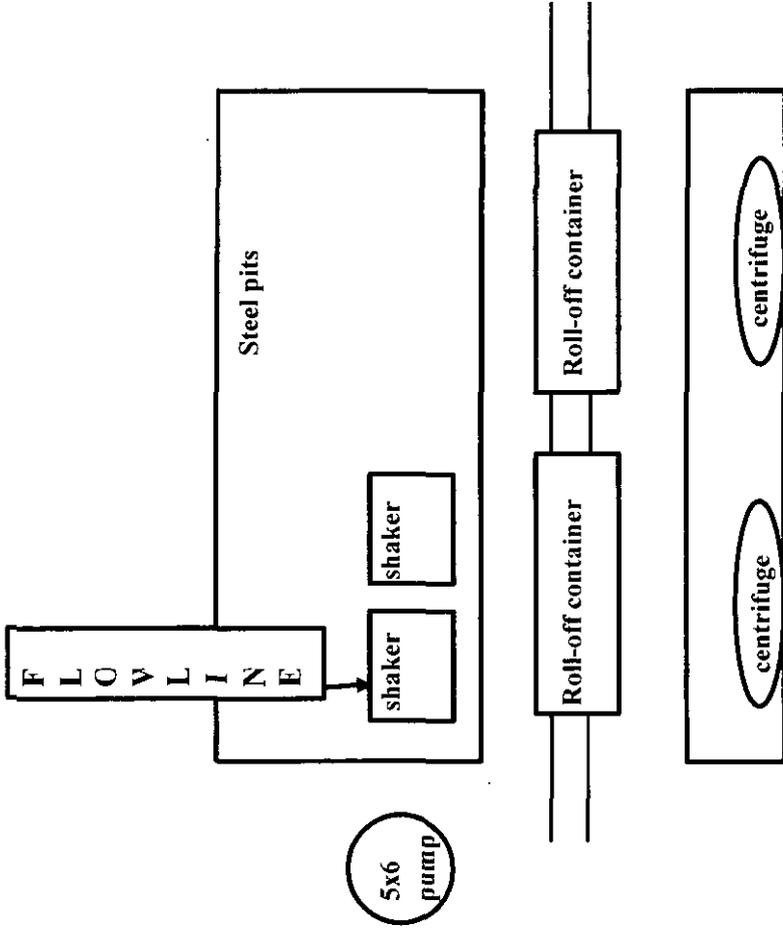
1-500 bbl frac tanks for brine water

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.

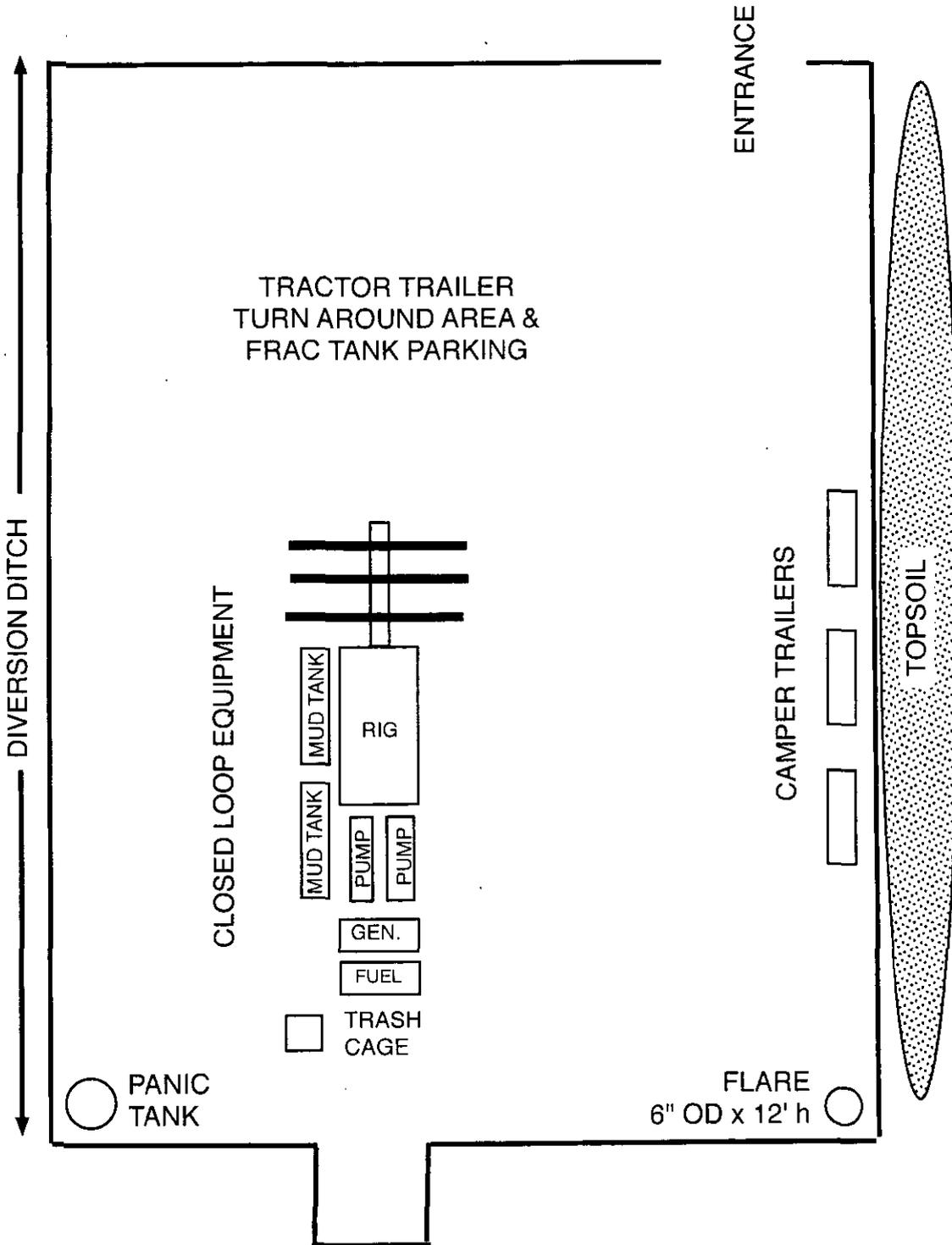
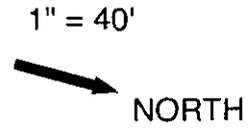
Closure:

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
Eagle 34 K Federal 86
rig diagram



Hydrogen Sulfide Drilling Plan Summary

- A. All personnel shall receive proper H2S training in accordance with Onshore Order 6 III.C.3.a.
- B. Briefing Area: two perpendicular areas will be designated by signs and readily accessible.
- C. Required Emergency Equipment:

- Well control equipment
 - a. Flare line 150' from wellhead to be ignited by flare gun.
 - b. Choke manifold with a remotely operated choke.
 - c. Mud/gas separator
- Protective equipment for essential personnel.

Breathing apparatus:

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

Auxiliary Rescue Equipment:

- a. Stretcher
 - b. Two OSHA full body harness
 - c. 100 ft 5/8 inch OSHA approved rope
 - d. 1-20# class ABC fire extinguisher
- H2S 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 H2S circulated to surface. The operator will have the necessary mud products to minimize hazards while drilling in H2S bearing zones.

Agency Call List

City	Agency or Office	Phone
Artesia	Ambulance	911
Artesia	State Police	575-746-2703
Artesia	Sheriff's Office	575-746-9888
Artesia	City Police	575-746-2703
Artesia	Fire Department	575-746-2701
Artesia	Local Emergency Planning Committee	575-746-2122
Artesia	New Mexico OCD District II	575-748-1283
Carlsbad	Ambulance	911
Carlsbad	State Police	575-885-3137
Carlsbad	Sheriff's Office	575-887-7551
Carlsbad	City Police	575-885-2111
Carlsbad	Fire Department	575-885-2111
Carlsbad	Local Emergency Planning Committee	575-887-3798
Carlsbad	US DOI Bureau of Land Management	575-887-6544
State Wide	New Mexico Emergency Response Commission ("NMERC")	505-476-9600
State Wide	NMERC 24 hour Number	505-827-9126
State Wide	New Mexico State Emergency Operations Center	505-476-9635
National	National Emergency Response Center (Washington, D.C.)	800-424-8802

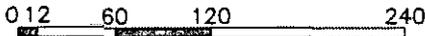
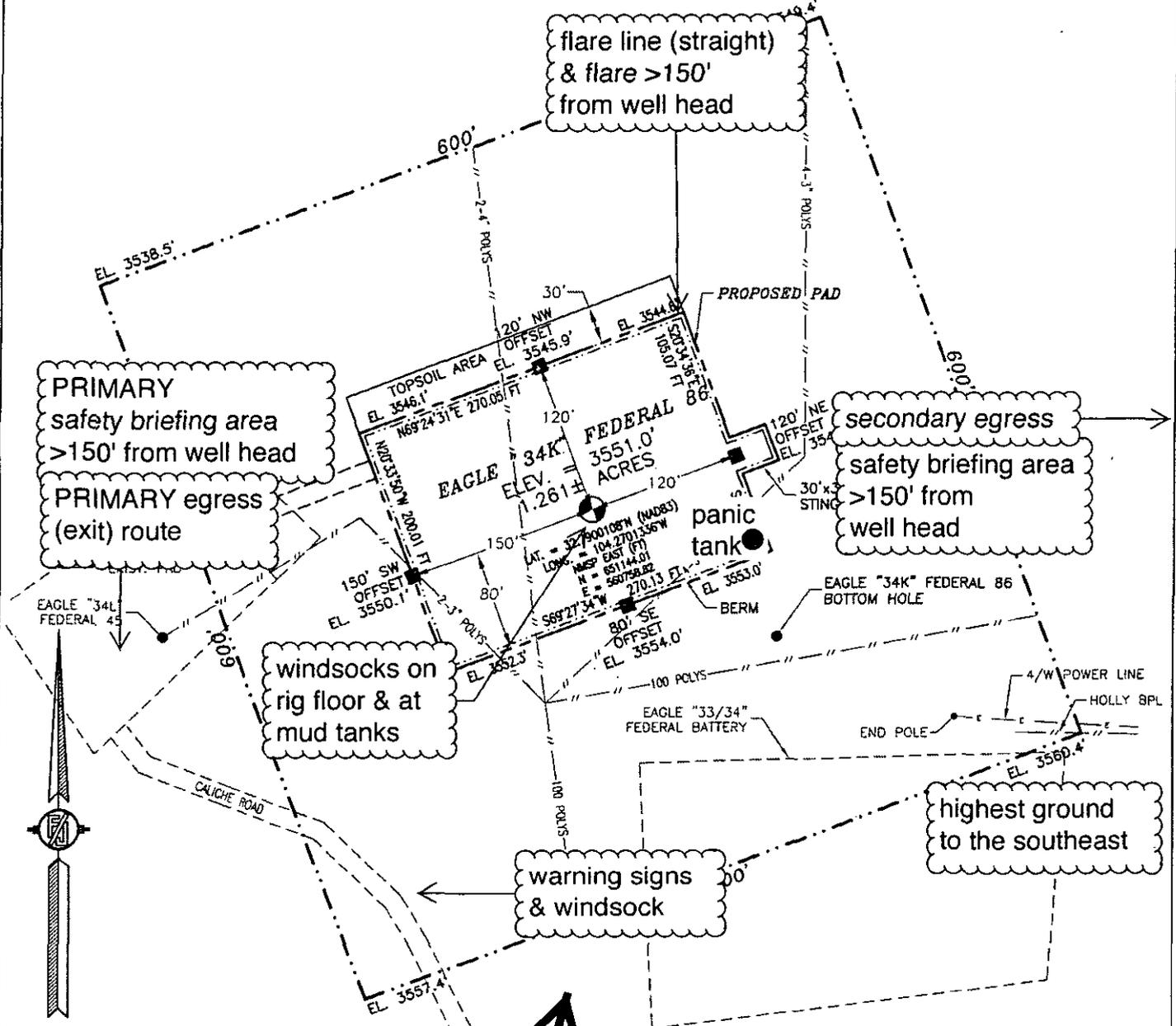
H2S CONTINGENCY DRILLING PLAN EMERGENCY CONTACTS

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

SECTION 34, TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO **H2S PAGE 5**

SITE MAP

NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1983 (NAD83). LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD83). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES MODIFIED TO THE SURFACE



SCALE 1" = 120'

DIRECTIONS TO LOCATION

FROM CR 225 (EMPIRE) AND CR 227 (LITTLE DIAMOND) GO SOUTHWEST ON CR 227 0.5 OF A MILE, TURN RIGHT ON CALICHE ROAD AND GO NORTH 0.1 OF A MILE, BEND LEFT AND GO NORTHWEST 0.7 OF A MILE, BEND RIGHT AND GO 180', TURN LEFT AND GO NORTHWEST 0.1 OF A MILE TO EXISTING PAD FOR EAGLE "34L" FEDERAL 45 WELL AND ON EAST EDGE OF PAD FOLLOW ROAD SURVEY FLAGS NORTHEAST 124' TO PROPOSED NORTHWEST PAD CORNER FOR THIS LOCATION.

prevailing wind blows from SSW

LIME ROCK RESOURCES II-A, L.P.
EAGLE "34K" FEDERAL 86
 LOCATED 2410 FT. FROM THE SOUTH LINE
 AND 1505 FT. FROM THE WEST LINE OF
 SECTION 34, TOWNSHIP 17 SOUTH,
 RANGE 27 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO

FEBRUARY 6, 2016

SURVEY NO. 4413



Eagle 34K Federal #86
H2S Contingency Plan:
1 Mile Radius Map
Section 34, Township 17S, Range 27E
Eddy County, New Mexico

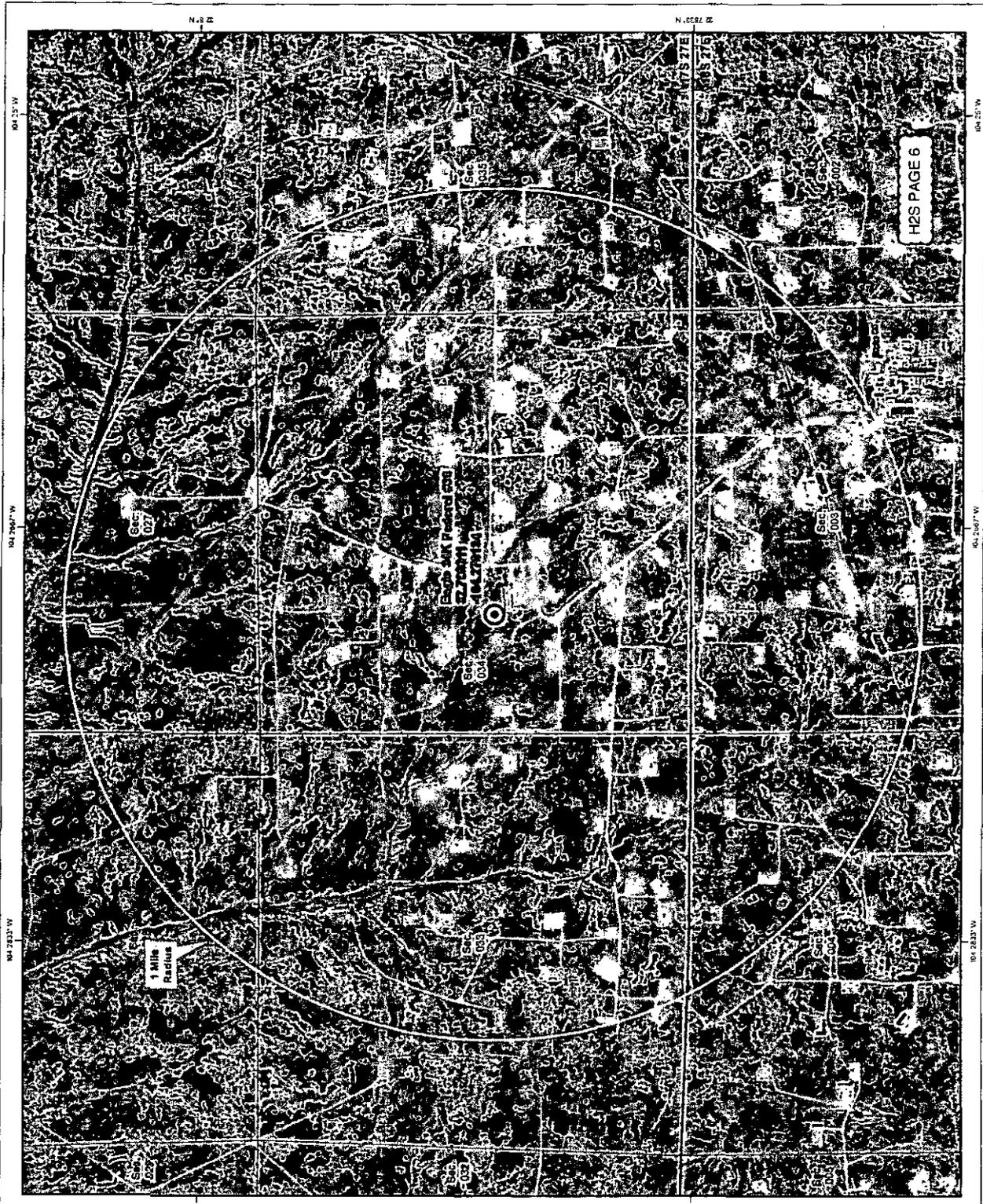
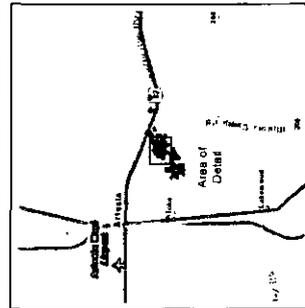
☉ Eagle 34K Federal #86

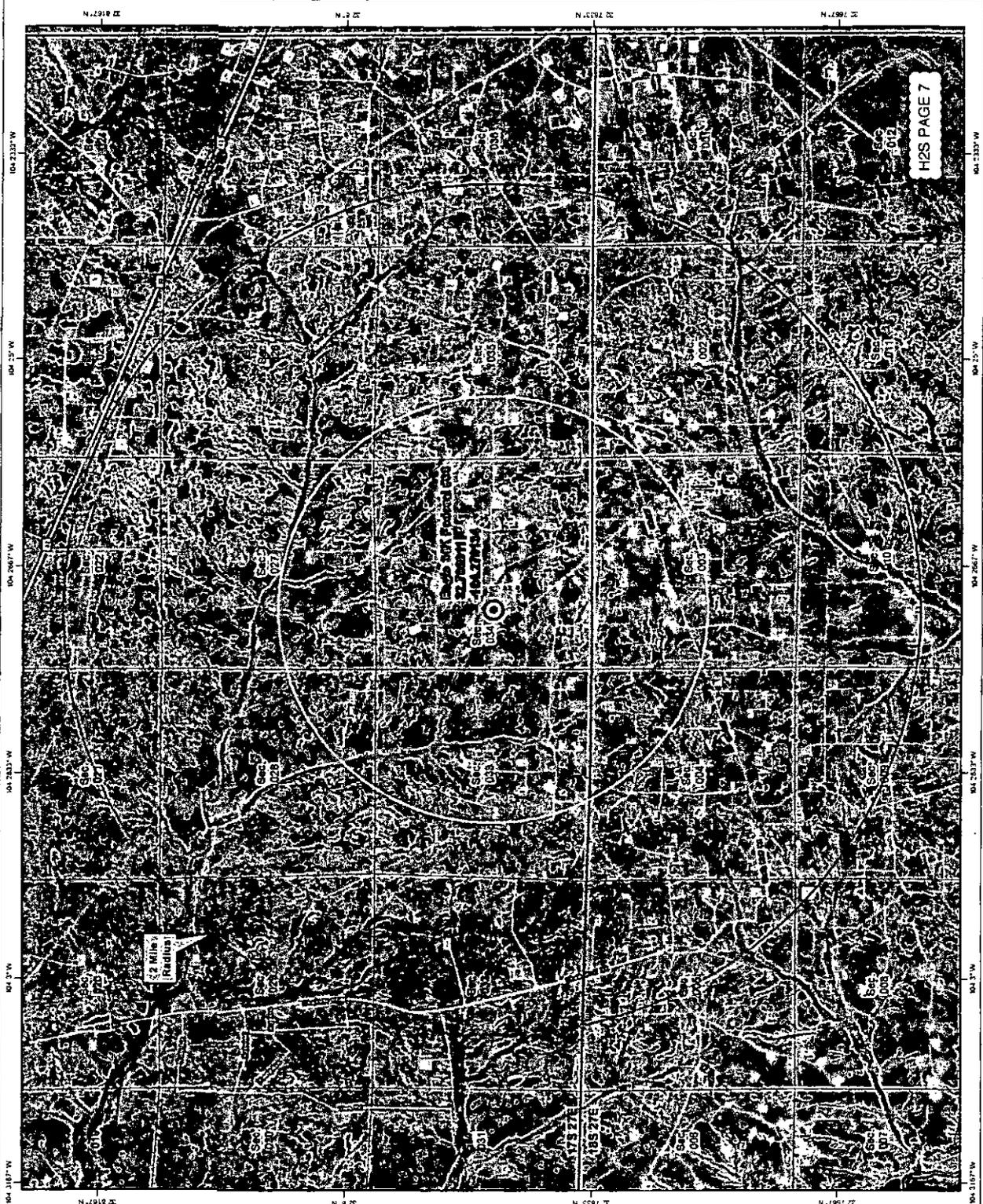


NAD 1927 New Mexico State Plane East
FIPS 3001 Feet



Prepared by Permits West, Inc., February 26, 2016
for Lime Rock Resources II-A, L.P.



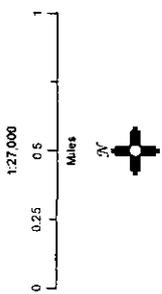
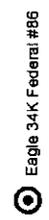


H2S PAGE 7



Eagle 34K Federal #86
 H2S Contingency Plan:
 2 Mile Radius Map

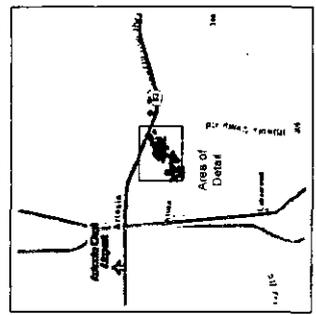
Section 34, Township 17S, Range 27E
 Eddy County, New Mexico



NAD 1927 New Mexico State Plane East
 FIPS 3001 Feet



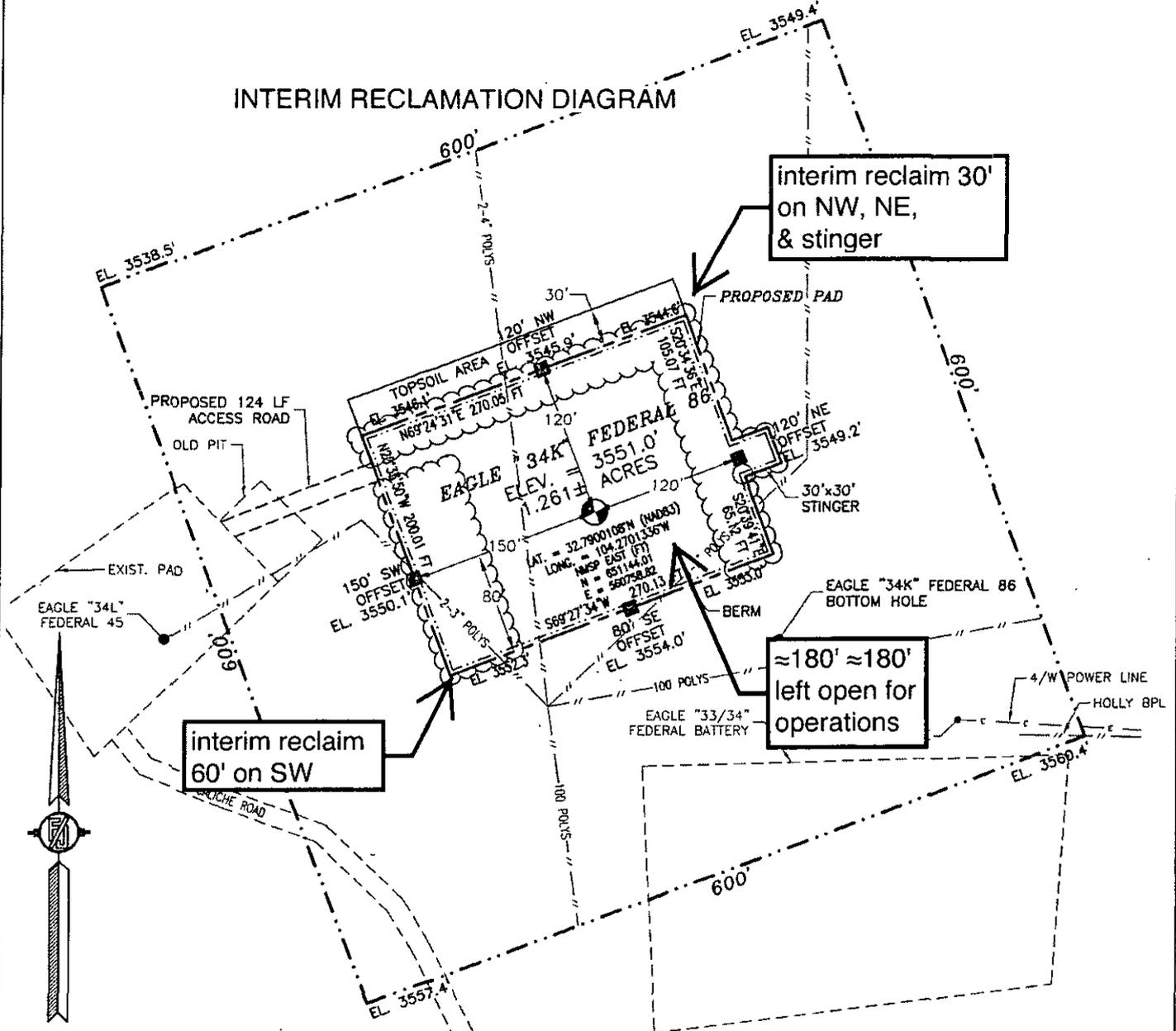
Prepared by Peoples West, Inc., February 26, 2016
 for Lime Rock Resources, L.P.



SECTION 34, TOWNSHIP 17 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 1983 (NAD83). LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD83). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES MODIFIED TO THE SURFACE

INTERIM RECLAMATION DIAGRAM



interim reclaim 30'
 on NW, NE,
 & stinger

interim reclaim
 60' on SW

≈180' ≈180'
 left open for
 operations

0 12 60 120 240

SCALE 1" = 120'
 DIRECTIONS TO LOCATION

FROM CR 225 (EMPIRE) AND CR 227 (LITTLE DIAMOND) GO
 SOUTHWEST ON CR 227 0.5 OF A MILE, TURN RIGHT ON CALICHE
 ROAD AND GO NORTH 0.1 OF A MILE, BEND LEFT AND GO
 NORTHWEST 0.7 OF A MILE, BEND RIGHT AND GO 180°, TURN LEFT
 AND GO NORTHWEST 0.1 OF A MILE TO EXISTING PAD FOR EAGLE
 "34L" FEDERAL 45 WELL AND ON EAST EDGE OF PAD FOLLOW ROAD
 SURVEY FLAGS NORTHEAST 124' TO PROPOSED NORTHWEST PAD
 CORNER FOR THIS LOCATION.

LIME ROCK RESOURCES II-A, L.P.
EAGLE "34K" FEDERAL 86
 LOCATED 2410 FT. FROM THE SOUTH LINE
 AND 1505 FT. FROM THE WEST LINE OF
 SECTION 34, TOWNSHIP 17 SOUTH,
 RANGE 27 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO

FEBRUARY 6, 2016

SURVEY NO. 4413

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

Lime Rock Resources II-A, L.P.

SURFACE PLAN PAGE 1

Eagle 34 K Federal 86

SHL: 2410' FSL & 1505' FWL

BHL: 2310' FSL & 1650' FWL

Sec. 34, T. 17 S., R. 27 E., Eddy County, NM

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 1/2 mile on County Road 227

Then turn right and go North 0.1 mile on a caliche road

Then bear left and go Northwest 2/3 mile on a caliche road

Then bear right and go Northeast 160' on a caliche road

Then turn left and go NW 0.1 mile on a caliche road to the Eagle 34 L 45 pad

Then turn right and go East 124' 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 to the lease will be via existing NMNM-096616.

2. ROAD TO BE BUILT OR UPGRADED

The 124' 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 of fill = 1'. No upgrade, culvert, cattle guard, or vehicle turn out is needed.

Lime Rock Resources II-A, L.P.
Eagle 34 K Federal 86
SHL: 2410' FSL & 1505' FWL
BHL: 2310' FSL & 1650' FWL
Sec. 34, T. 17 S., R. 27 E., Eddy County, NM

SURFACE PLAN PAGE 2

3. EXISTING WELLS (See MAP 2)

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

4. PROPOSED PRODUCTION FACILITIES (See MAPS 3 - 7)

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 1,429' east and south to Lime Rock's existing Eagle 33/34 Federal battery in NESW Section 34. Route is all on lease. Pipes will operate at \approx 50 psi.

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. A diversion ditch will be cut south of the pad. V door will be to the west. A closed loop drilling system will be used.

An on pad berm will surround the pad to prevent off site migration of soil or runoff onto the pad. A geotextile fabric fence will be at the toe of the fill to prevent further migration. Fence bottom will be buried to prevent gaps.

Caliche will be hauled from Lime Rock's existing approved (HA-0258-0000) caliche pit on State land in NESE 36-17s-27e.

Lime Rock Resources II-A, L.P.

SURFACE PLAN PAGE 3

Eagle 34 K Federal 86

SHL: 2410' FSL & 1505' FWL

BHL: 2310' FSL & 1650' FWL

Sec. 34, T. 17 S., R. 27 E., Eddy County, NM

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

10. RECLAMATION

Interim reclamation will consist of removing caliche and shrinking the pad $\approx 41\%$ to a $\approx 180'$ x $\approx 180'$ area centered on 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 and new road will be similarly reclaimed. Noxious weeds will be controlled.

Lime Rock Resources II-A, L.P.
Eagle 34 K Federal 86

SURFACE PLAN PAGE 4

SHL: 2410' FSL & 1505' FWL

BHL: 2310' FSL & 1650' FWL

Sec. 34, T. 17 S., R. 27 E., Eddy County, NM

11. SURFACE OWNER

All construction will be on BLM.

12. OTHER INFORMATION

On site inspection was held with Paul Murphy and Nicholas Franke (BLM) on January 30, 2016.

Boone conducted a records search with Stacy Galassini February 16, 2016. Due to multiple previous archaeology surveys, it was determined that no further survey was needed.

Lime Rock Resources II-A, L.P.
Eagle 34 K Federal 86
SHL: 2410' FSL & 1505' FWL
BHL: 2310' FSL & 1650' FWL
Sec. 34, T. 17 S., R. 27 E., Eddy County, NM

SURFACE PLAN PAGE 5

REPRESENTATION

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 12th day of March, 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

JUL 25 2016

PECOS DISTRICT CONDITIONS OF APPROVAL

RECEIVED

OPERATOR'S NAME:	Lime Rock Resources II A LP
LEASE NO.:	NMB000797
WELL NAME & NO.:	86-Eagle 34 K Federal
SURFACE HOLE FOOTAGE:	2410'S & 1505'W
BOTTOM HOLE FOOTAGE:	2310'S & 1650'W
LOCATION:	Section 34, T. 17 S., R. 27 E., NMPM
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

- General Provisions**
- Permit Expiration**
- Archaeology, Paleontology, and Historical Sites**
- Noxious Weeds**
- Special Requirements**
 - Cave/Karst
 - Range
 - Soils
 - Watershed
 - Vegetation
- Construction**
 - Notification
 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- Road Section Diagram**
- Drilling**
 - H2S Requirements
 - High Cave/Karst
 - Logging Requirements
 - Waste Material and Fluids
- Production (Post Drilling)**
 - Well Structures & Facilities
 - Pipelines
- 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)

Cave and Karst

AFFECTED ENVIRONMENT:

The project is located in gypsum karst terrain, a landform that is characterized by underground drainage through solutionally enlarged conduits. Gypsum karst terrain may contain sinkholes, sinking streams, caves, and springs. Sinkholes leading to underground drainages and voids are common. These karst features, as well as occasional fissures and discontinuities in the bedrock, provide the primary sources for rapid recharge of the groundwater aquifers of the region.

The BLM categorizes all areas within the Carlsbad Field Office as having either low, medium, high or critical cave potential based on geology, occurrence of known caves, density of karst features, and potential impacts to fresh water aquifers. This project occurs within a high karst zone. A high karst zone is defined as an area in known soluble rock types that contain a high frequency of significant caves and karst features such as sinkholes, bedrock fractures that provide rapid recharge of karst aquifers.

Sinkholes and cave entrances collect water and can accumulate rich organic materials and soils. This, in conjunction with the stable microclimate near cave entrances, support a greater diversity and density of plant life which provides habitat for a greater diversity and density of wildlife such as raptors, rodents, mammals, and reptiles.

The interior of the caves support a large variety of troglobitic, or cave environment-dependent species. The troglobitic species have adapted specifically to the cave environment due to constant temperatures, constant high humidity, and total darkness. Many of the caves in this area contain fragile cave formations known as speleothems.

GENERAL IMPACT ANALYSIS

Cave and karst features provide direct conduits leading to groundwater. These conduits can quickly transport surface and subsurface contaminants directly into underground water systems and freshwater aquifers without filtration or biodegradation. In addition, contaminants spilled or leaked into or onto cave/karst zone surfaces and subsurfaces may lead directly to the disruption, displacement, or extermination of cave species and critical biological processes. In extreme or rare cases, a buildup of hydrocarbons in cave systems due to surface leaks or spills could potentially cause underground ignitions or asphyxiation of wildlife or humans within the cave.

In cave and karst terrains, rainfall and surface runoff is directly channeled into natural underground water systems and aquifers. Changes in geologic formation integrity, runoff quantity/quality, drainage course, rainfall percolation factors, vegetation, surface contour, and other surface factors can negatively impact cave ecosystems and aquifer recharge processes. Blasting, heavy vibrations, and focusing of surface drainages can lead to slow subsidence, sudden collapse of subsurface voids, and/or cave ecosystem damage.

A more complete discussion of the impacts of oil and gas drilling can be found in the *Dark Canyon Environmental Impact Statement of 1993*, published by the U.S. Department of the Interior, Bureau of Land Management.

GENERAL MITIGATION

To mitigate or lessen the probability of impacts associated with the drilling and production of oil and gas wells in karst areas, the guidelines listed in Appendix 3, Practices for Oil and Gas Drilling and Production in Cave and Karst Areas, as approved in the Carlsbad Resource Management Plan Amendment of 1997, page AP3-4 through AP 3-7 will be followed.

BLM maintains up to date locations and surveys of known cave and karst features. Projects will be located away from these features whenever possible. Drilling pads, roads, utilities, pipelines and flowlines will be routed around cave and karst features at an adequate distance to mitigate adverse impacts. Wellbore engineering plans will incorporate required cave and aquifer protection protocols.

Highly sensitive cave and karst areas with critical freshwater aquifer recharge concerns may have a number of special surface and subsurface planning and construction requirements based upon the risk of adverse impacts created by a specific location or process.

CONSTRUCTION IMPACT ANALYSIS

The construction of roads, pipelines, well pads and utilities can impact bedrock integrity and reroute, impede, focus, or erode natural surface drainage systems. Increased silting and sedimentation from construction can plug downstream sinkholes, caves, springs, and other components of aquifer recharge systems and result in adverse impacts to aquifer quality and cave environments. Any contaminants released into the environment during or after construction can impact aquifers and cave systems. A possibility exists for slow subsidence or sudden surface collapse during construction operations due to collapse of underlying cave passages and voids. This would cause associated safety hazards to the operator and the potential for increased environmental impact. Subsidence processes can be triggered by blasting, intense vibrations, rerouting of surface drainages, focusing of surface drainage, and general surface disturbance.

Blasting fractures in bedrock can serve as direct conduits for transfer of contaminants into cave and groundwater systems. Blasting also creates an expanded volume of rock rubble that cannot be reclaimed to natural contours, soil condition, or native vegetative condition. As such, surface and subsurface disruptions from blasting procedures can lead to permanent changes in vegetation, rainfall percolation, silting/erosion factors, aquifer recharge, and freshwater quality and can increase the risk of contaminant migration from drilling/production facilities built atop the blast area.

CONSTRUCTION MITIGATION

In order to mitigate the impacts from construction activities on cave and karst resources, the following Conditions of Approval will apply to this APD:

- In the event that any underground voids are encountered during construction activities, construction activities will be halted and the BLM will be notified immediately.
- No Blasting to prevent geologic structure instabilities.
- Pad Berming to minimize effects of any spilled contaminants.

DRILLING IMPACT ANALYSIS

During drilling, previously unknown cave and karst features could be encountered. If a void is encountered while drilling and a loss of circulation occurs, lost drilling fluids can directly contaminate groundwater recharge areas, aquifers, and groundwater quality. Drilling operations can also lead to sudden collapse of underground voids. Cementing operations may plug or alter groundwater flow, potentially reducing the water quantity at springs and water wells. Inadequate subsurface cementing, casing, and cave/aquifer protection measures can lead to the migration of oil, gas, drilling fluids, and produced saltwater into cave systems and freshwater aquifers.

DRILLING MITIGATION

Federal regulations and standard Conditions of Approval applied to all APDs require that adequate measures are taken to prevent contamination to the environment. Due to the extreme sensitivity of the cave and karst resources in this project area, the following additional Conditions of Approval will be added to this APD.

To prevent cave and karst resource contamination the following will be required.

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

- Rotary drilling with fresh water where cave or karst features are expected to prevent contamination of freshwater aquifers.
- Directional Drilling allowed after at least 100 feet below the cave occurrence zone to prevent additional impacts resulting from directional drilling.
- Lost Circulation zones logged and reported in the drilling report so BLM can assess the situation and work with the operator on corrective actions.
- Additional drilling, casing, and cementing procedures to protect cave zones and fresh water aquifers. See Drilling COAs.

PRODUCTION IMPACT ANALYSIS

Production facilities such as tank batteries, pump-jacks, compressors, transfer stations, and pipage may fail and allow contaminants to enter caves and freshwater systems. Downhole casing and cementing failures can allow migration of fluids and/or gas between formations and aquifers. Facilities may also be subject to slow subsidence or sudden collapse of the underlying bedrock.

PRODUCTION MITIGATION

In order to mitigate the impacts from production activities and due to the nature of karst terrain, the following Conditions of Approval will apply to this APD:

- Tank battery liners and berms to minimize the impact resulting from leaks.
- Leak detection system to provide an early alert to operators when a leak has occurred.
- Automatic shut off, check valves, or similar systems will be installed for pipelines and tanks to minimize the effects of line failures used in production or drilling.

RESIDUAL AND CUMULATIVE IMPACT ANALYSIS

Any industrial activities that take place upon or within karst terrains or freshwater aquifer zones have the potential to create both short-term and long-term negative impacts to freshwater aquifers and cave systems. While a number of mitigation measures can be implemented to mitigate many impacts, it is still possible for impacts to occur from containment failures, well blowouts, accidents, spills, and structural collapses. It is therefore necessary to implement long-term monitoring studies to determine if current mitigations measures are sufficient enough to prevent long-term or cumulative impacts.

PLUGGING AND ABANDONMENT IMPACT ANALYSIS

Failure of a plugged and abandoned well can lead to migration of contaminants to karst resources and fresh water aquifers. While this action does not specifically approve plugging and abandonment procedures, the operator should be made aware that additional or special Conditions of Approval may apply at that time.

PLUGGING AND ABANDONMENT MITIGATION

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.

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 contaminated from "salt water spill" will be segregated and prevented from being stockpiled with more viable soil in the reclamation process. Contaminated soil will be hauled to an approved disposal site.

Watershed

- 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.

Vegetation

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 enhance re-establishment of vegetation.

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

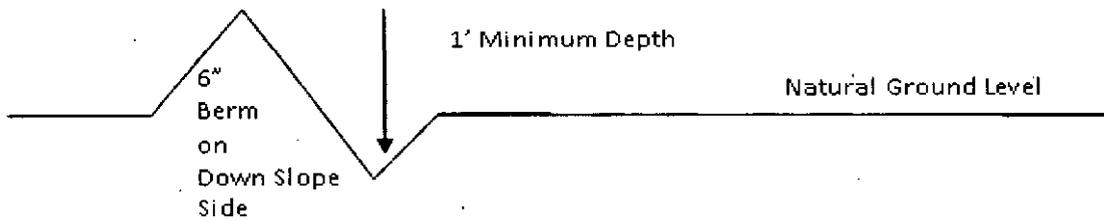
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outloping 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

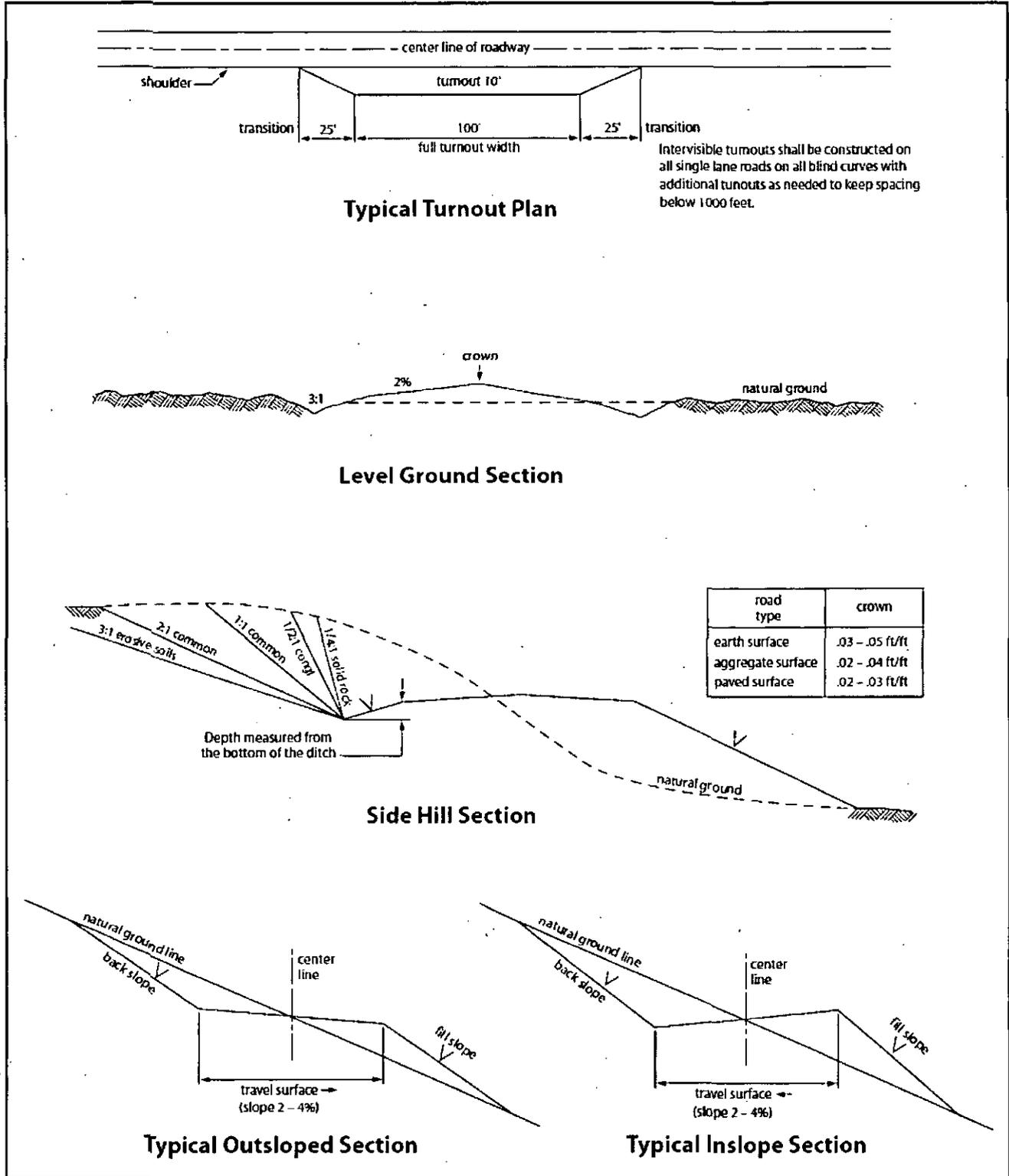


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

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 (H₂S) Drilling Plan shall be activated 500 feet prior to drilling into the Yates 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. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE.

Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

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

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 ARE NOT SUFFICIENT TO PROTECT CAVE KARST RESOURCES. A CASING DESIGN THAT HAS A ONE INCH JOB PERFORMED DOES NOT COUNT AS A SOLID SHEATH.

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 DV TOOL WILL BE REQUIRED.

Possible water flows in the Artesia Group and San Andres.

Possible lost circulation in the Artesia Group, Grayburg, 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 inch casing 50 feet below 13-3/8 inch 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.

MHH 07182016

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).

B. PIPELINES

STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

A copy of the Grant and attachments, including stipulations, survey plat(s) and/or map(s), shall be on location during construction. BLM personnel may request to review a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, Holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC § 2601 *et seq.* (1982) with regard to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant (*see* 40 CFR, Part 702-799 and in particular, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193). Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the Authorized Officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. Holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. § 9601, *et seq.* or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, *et seq.*) on the Right-of-Way (unless the release or threatened release is wholly unrelated to activity of the Right-of-Way Holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way Holder on the Right-of-Way. This provision applies without regard to whether a release is caused by Holder, its agent, or unrelated third parties.

4. Holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR Sec. 2883.1-4. Holder shall be held to a standard of strict liability for damage or injury to the United States resulting from pipe rupture, fire, or spills caused or substantially aggravated by any of the following within the right-of-way or permit area:

- a. Activities of Holder including, but not limited to: construction, operation, maintenance, and termination of the facility;
- b. Activities of other parties including, but not limited to:
 - (1) Land clearing
 - (2) Earth-disturbing and earth-moving work
 - (3) Blasting
 - (4) Vandalism and sabotage;
- c. Acts of God.

The maximum limitation for such strict liability damages shall not exceed one million dollars (\$1,000,000) for any one event, and any liability in excess of such amount shall be determined by the ordinary rules of negligence of the jurisdiction in which the damage or injury occurred.

This section shall not impose strict liability for damage or injury resulting primarily from an act of war or from the negligent acts or omissions of the United States.

5. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil, salt water, or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil, salt water, or other pollutant, wherever found, shall be the responsibility of Holder, regardless of fault. Upon failure of Holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he/she deems necessary to control and clean up the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of Holder. Such action by the Authorized Officer shall not relieve Holder of any responsibility as provided herein.

6. All construction and maintenance activity shall be confined to the authorized right-of-way width of 20 feet. If the pipeline route follows an existing road or buried pipeline right-of-way, the surface pipeline shall be installed no farther than 10 feet from the edge of the road or buried pipeline right-of-way. If existing surface pipelines prevent this distance, the proposed surface pipeline shall be installed immediately adjacent to the outer surface pipeline. All construction and maintenance activity shall be confined to existing roads or right-of-ways.

7. No blading or clearing of any vegetation shall be allowed unless approved in writing by the Authorized Officer.

8. Holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky of

duney areas, the pipeline shall be "snaked" around hummocks and dunes rather than suspended across these features.

9. The pipeline shall be buried with a minimum of 24 inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.

10. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.

13. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. Signs will be maintained in a legible condition for the life of the pipeline.

14. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

15. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the authorized officer. Holder 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 will be made by the authorized officer to determine appropriate cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the authorized officer after consulting with the holder.

16. 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, powerline 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.

17. Surface pipelines shall be less than or equal to 4 inches and a working pressure below 125 psi.

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).

Seed Mixture 1 for Loamy Sites

Holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed shall be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed shall be either certified or registered seed. The seed container shall be tagged in accordance with State law(s) and available for inspection by the Authorized Officer.

Seed shall be planted using a drill equipped with a depth regulator to ensure proper depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture shall be evenly and uniformly planted over the disturbed area (small/heavier seeds have a tendency to drop the bottom of the drill and are planted first). Holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed shall be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre shall be doubled. The seeding shall be repeated until a satisfactory stand is established as determined by the Authorized Officer. Evaluation of growth may not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

<u>Species</u>	<u>lb/acre</u>
Plains lovegrass (Eragrostis intermedia)	0.5
Sand dropseed (Sporobolus cryptandrus)	1.0
Sideoats grama (Bouteloua curtipendula)	5.0
Plains bristlegrass (Setaria macrostachya)	2.0

*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed

NMOCD CONDITION OF APPROVAL

The *New!* Gas Capture Plan (GCP) notice is posted on the NMOCD website under Announcements. The Plan became effective May 1, 2016. A copy of the GCP form is included with the NOTICE and is also in our FORMS section under Unnumbered Forms. Please review filing dates for all applicable activities currently approved or pending and submit accordingly. Failure to file a GCP may jeopardize the operator's ability to obtain C-129 approval to flare gas after the initial 60-day completion period.