NM OIL CONSERVATION
ARTESIA DISTRICT
APR 04 2017
RECEIVED

ATS-15-104

Form 3160-3
(August 2007)

FORM APPROVED
OMB No 1004-0137
Expires July 31, 2010

HIGH CAVEKARST

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMNM 0144698

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

7. If Unit or CA Agreement, Name and No.

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

8. Lease Name and Well No.
Sig 5/6 B2NM Federal #1H 317586

2. Name of Operator Mewbourne Oil Company 14744

9. API Well No.
30-015-44125

3a. Address PO Box 5270
Hobbs, NM 88241

3b. Phone No. *(include area code)*
575-393-5905

10. Field and Pool, or Exploratory
Winchester Bon Spring 65010

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface 500' FSL & 2490' FEL Sec. 5, T20S, R29E
At proposed prod. zone 500' FSL & 330' FWL Sec. 6, T20S, R29E

11. Sec., T. R. M. or Blk. and Survey or Area
Sec. 5, T20S, R29E

14. Distance in miles and direction from nearest town or post office*
Approx. 22 miles northeast of Carlsbad, NM

12. County or Parish
Eddy

13. State
NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 150'

16. No. of acres in lease
1743.54

17. Spacing Unit dedicated to this well
~~240~~ 229.93

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 150'- MOC Gatuna Canyon 5 Fed #4H

19. Proposed Depth
15,116.0'-MD
7,796'-TVD

20. BLM/BIA Bond No. on file
NM-1693 nationwide, NMB-000919

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3286'

22. Approximate date work will start*
11/01/2014

23. Estimated duration
60 Days

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 Bradley Bishop — Name *(Printed Typed)* BRADLEY BISHOP — Date 9-24-14

Title

Approved by *(Signature)* /s/Cody Layton — Name *(Printed Typed)* — Date MAR 24 2017

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)

Capitan Controlled Water Basin

SEE ATTACHED FOR CONDITIONS OF APPROVAL

Approval Subject to General Requirements & Special Stipulations Attached

RWP 4-6-17

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-015-44125	65010	WINCHESTER BONE SPRING

[4] Property Code	[5] Property Name	[6] Well Number
317586	SIG 5/6 B2NM FEDERAL	1H

[7] OGRID No.	[8] Operator Name	[9] Elevation
14744	MEWBOURNE OIL COMPANY	3286'

[10] Surface Location

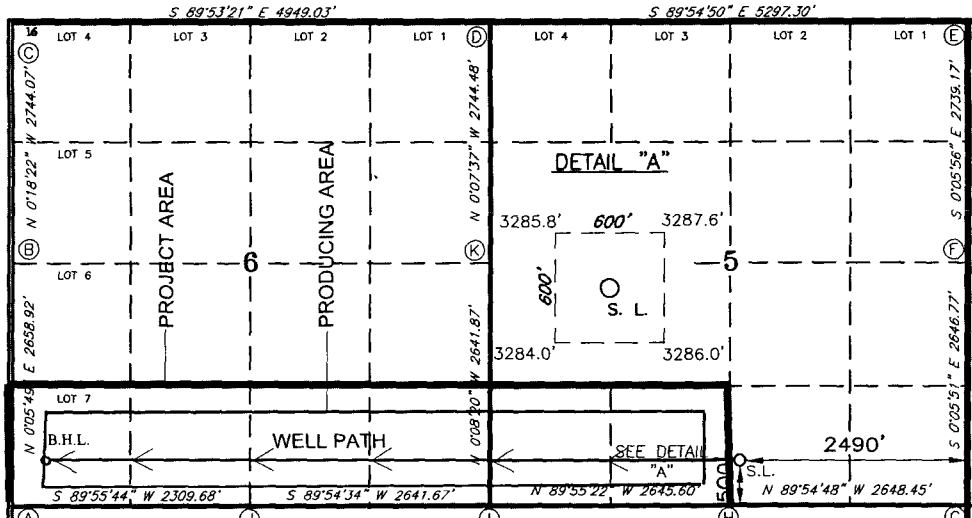
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O	5	20-S	29-E		500	SOUTH	2490	EAST	EDDY

[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	6	20-S	29-E		500	SOUTH	330	WEST	EDDY

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
240 229.93			

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.



CORNER DATA
NAD 27 GRID – NM EAST

A: FND BRASS CAP 1916
N 580303.8 – E 565282.9

B: BRASS CAP 1942
N 582962.1 – E 565287.4

C: FND BRASS CAP 1916
N 585705.4 – E 565272.7

D: FND BRASS CAP
N 585695.8 – E 570220.6

E: FND BRASS CAP 1916
N 585687.9 – E 575516.6

F: FND BRASS CAP 1916
N 582949.4 – E 575521.3

G: FND BRASS CAP 1916
N 580303.2 – E 575525.8

GEODETIC DATA
NAD 27 GRID – NM EAST

SURFACE LOCATION
N 580806.9
E 573035.5

LAT: 32.59651953° N
LONG: 104.09618294° W

BOTTOM LOCATION
N 580804.14
E 573035.50
LAT: 32.3547599° N
LONG: 104.713043° W

CORNER DATA
NAD 27 GRID – NM EAST

H: FND BRASS CAP 1916
N 580307.3 – E 572878.0

I: FND BRASS CAP 1916
N 580310.8 – E 570233.0

J: FND 1/2"" RB IN PIPE
N 580306.7 – E 567592.0

K: FND BRASS CAP 1916
N 582952.0 – E 570226.6

[17] OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature 9-24-13 Date

BRADLEY BISHOP
Printed Name

E-mail Address

[18] SURVEYOR CERTIFICATION

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

10/8/13
Date of Survey

Signature and Seal of Professional Surveyor

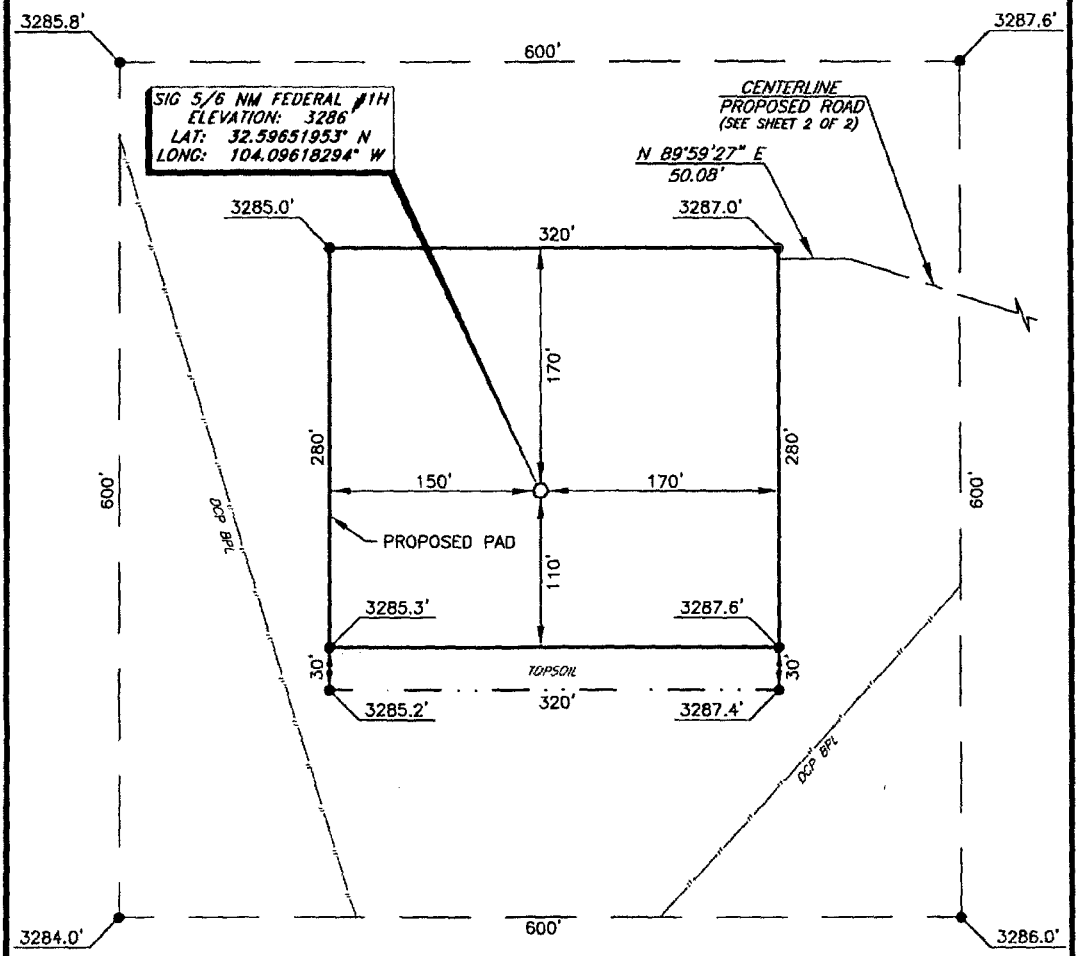
ROBERT M. HOWETT
NEW MEXICO
19680
PROFESSIONAL SURVEYOR

19680
Certificate Number

Exhibit 3

MEWBOURNE OIL COMPANY

Sig 5/6 NM Federal #1H
(500' FSL & 2490' FEL)
Section 5, T-20-S, R-29-E,
N. M. P. M., Eddy Co., New Mexico



SCALE: 1" = 100'
0 50 100

BEARINGS ARE NAD 27 GRID - NM EAST
DISTANCES ARE GROUND.

DIRECTIONS TO LOCATION

From the intersection of CR-243 (Magnum) and CR-238 (Burton Flat):

Go East on CR-238 approx. 1.9 mile to lease road.

Turn left and go North winding West approx. 1.2 mile to a "Y".

Take right fork and go Northwest turning Northeast approx. 0.8 mile to a "Y".

Stay left and go North approx. 0.2 mile to a "Y".

Take left fork and go West approx. 0.2 mile.

Turn North through cattle guard.

Go North approx. 0.1 mile to the Colt 5 Federal #3H along the south side of pad, to the road survey.

Follow road survey Northwest to this location.

NO.	REVISION	DATE

JOB NO.: LS130405
DWG. NO.: 130405PAD

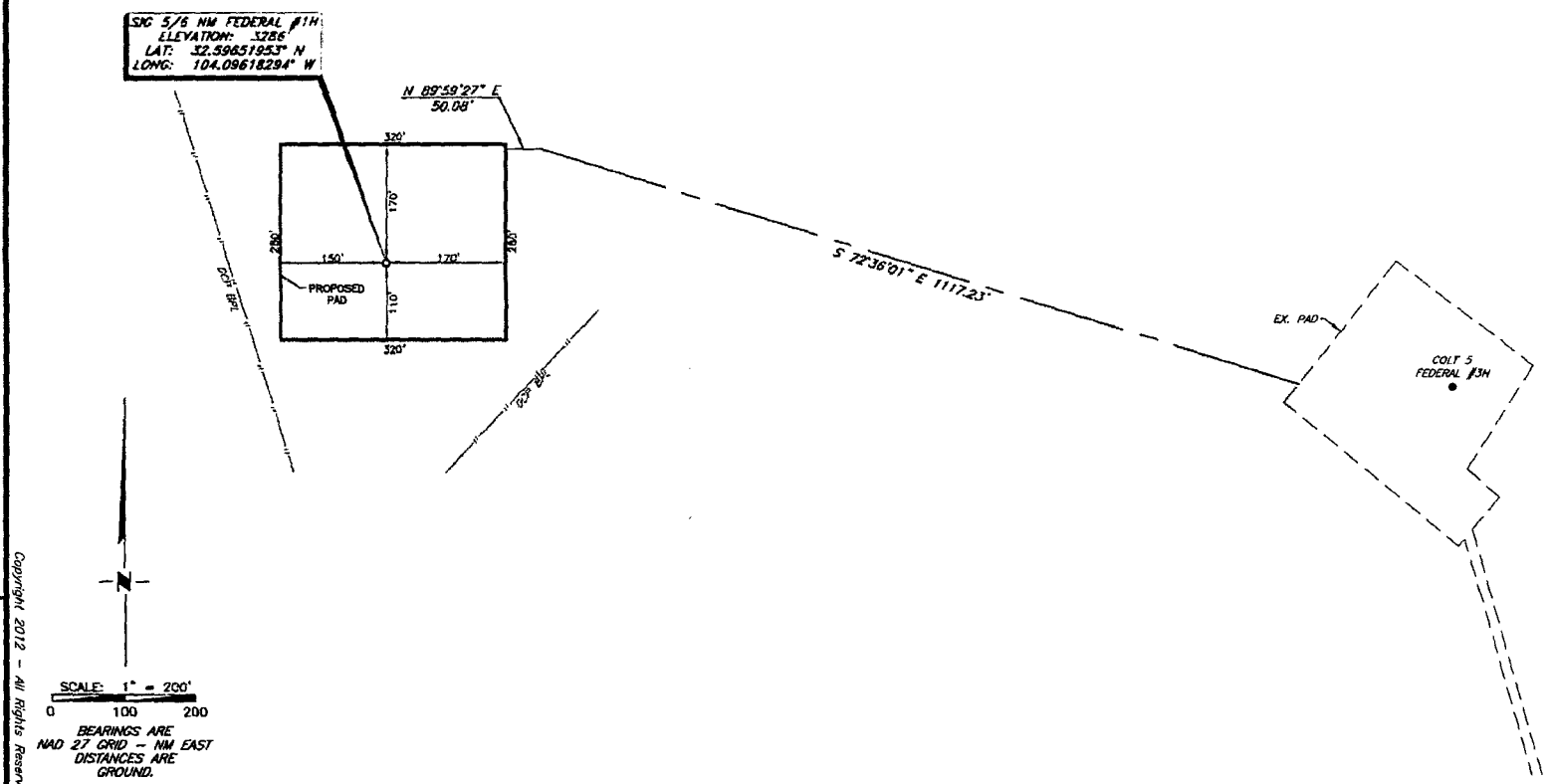
PROSPERITY CONSULTANTS, LLC

2251 Double Creek Drive, Suite 602, Round Rock, Texas 78664 o (512) 992-2087 f (512) 251-2518

SCALE: 1" = 100'
DATE: 10/8/13
SURVEYED BY: BK/IE
DRAWN BY: AF
APPROVED BY: LWB
SHEET : 1 OF 1

MEWBOURNE OIL COMPANY

Sig 5/6 NM Federal #1H
(500' FSL & 2490' FEL)
Section 5, T-20-S, R-29-E,
N. M. P. M., Eddy Co., New Mexico



NO.	REVISION	DATE

JOB NO.: LS130405
DWG. NO.: 130405RD

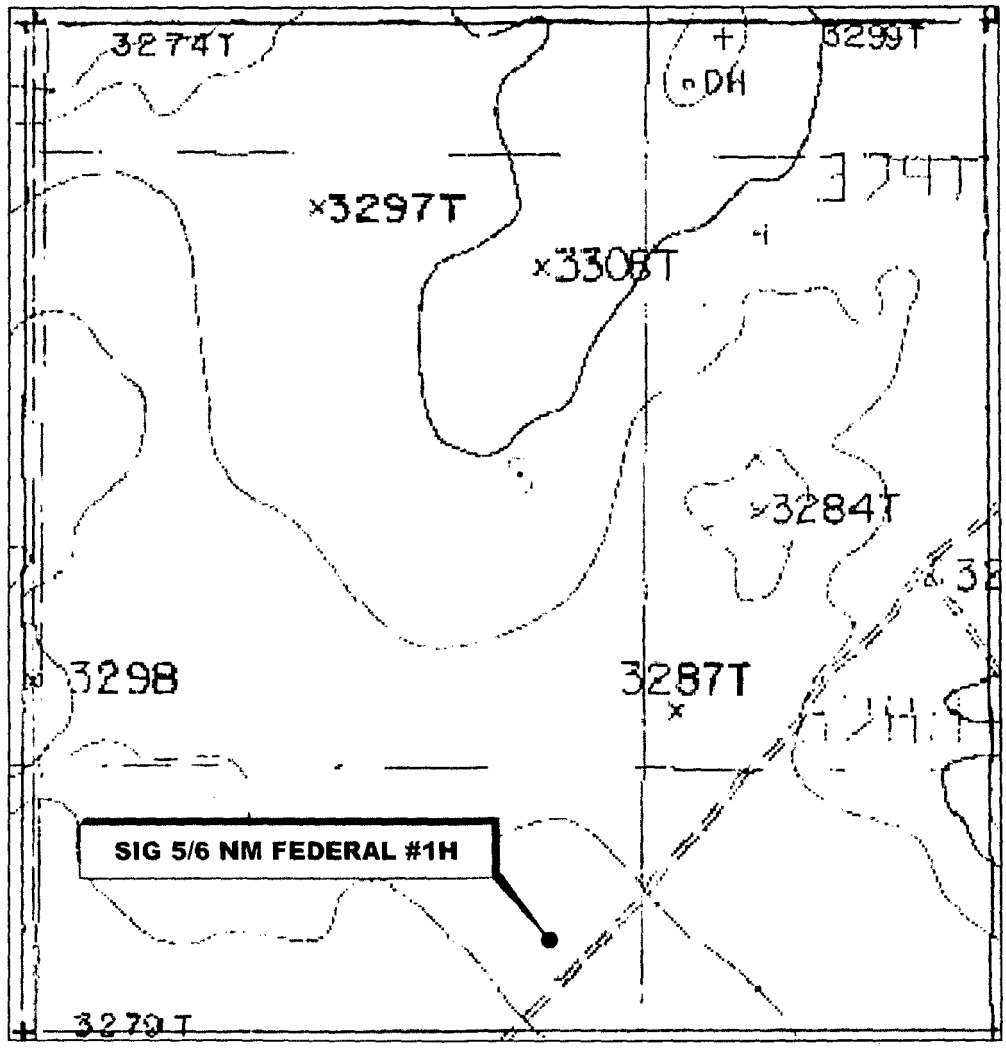
PROSPERITY CONSULTANTS, LLC

2251 Double Creek Drive, Suite 602, Round Rock, Texas 78664 o (512) 992-2087 f (512) 251-2518

SCALE: 1" = 200'
DATE: 10/8/13
SURVEYED BY: BK/IE
DRAWN BY: AF
APPROVED BY: LWB
SHEET : 1 OF 1

Exhibit "3C"

LOCATION VERIFICATION MAP



SECTION 5, TWP. 20 SOUTH, RGE. 29 EAST,
N. M. P. M., EDDY COUNTY, NEW MEXICO

OPERATOR: Mewbourne Oil Company
LEASE: Sig 5/6 NM Federal
WELL NO.: 1H
ELEVATION: 3286'

LOCATION: 500' FSL & 2490' FEL
CONTOUR INTERVAL: 10'
USGS TOPO. SOURCE MAP:
Illinois Camp SE, NM (Prov. Ed. 1985)

NO.	REVISION	DATE

JOB NO.: LS130405
DWG. NO.: 130405LVM

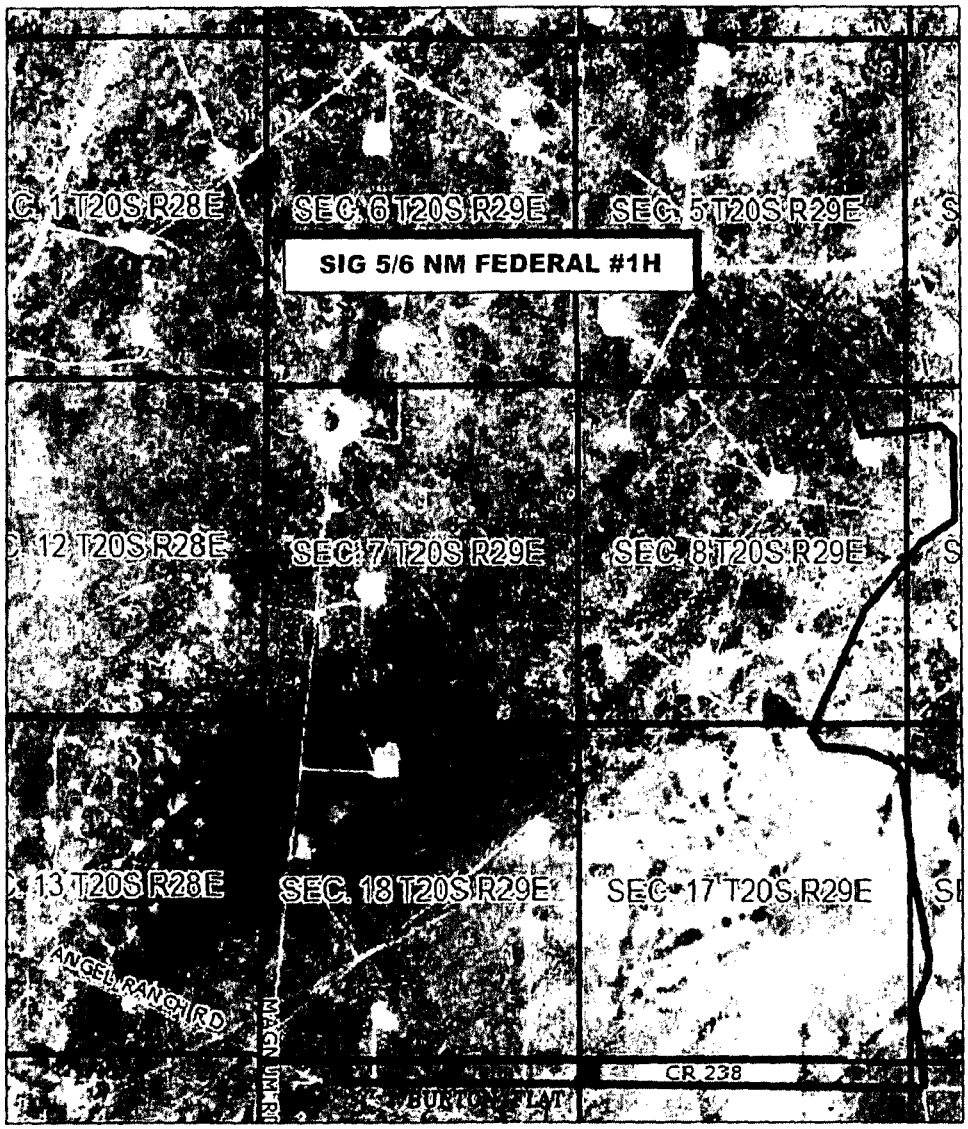
PROSPERITY CONSULTANTS, LLC
2251 Double Creek Drive, Suite 602, Round Rock, Texas 78664
o (512) 992-2087 f (512) 251-2518

SCALE: 1" = 1000'
DATE: 10/8/13
SURVEYED BY: BK/IE
DRAWN BY: AF
APPROVED BY: LWB
SHEET : 1 OF 1

Exhibit "3E"

VICINITY MAP

NOT TO SCALE



SECTION 5, TWP. 20 SOUTH, RGE. 29 EAST, N. M. P. M., EDDY COUNTY, NEW MEXICO

OPERATOR: Mewbourne Oil Company
LEASE: Sig 5/6 NM Federal
WELL NO.: 1H

LOCATION: 500' FSL & 2490' FEL
ELEVATION: 3286'

NO.	REVISION	DATE

JOB NO.: LS130405
DWG. NO.: 130405VM

PROSPERITY CONSULTANTS, LLC

2251 Double Creek Drive, Suite 602, Round Rock, Texas 78664 o (512) 992-2087 f (512) 251-2518

SCALE: N.T.S.
DATE: 10/8/13
SURVEYED BY: BK/IE
DRAWN BY: AF
APPROVED BY: LWB
SHEET : 1 OF 1

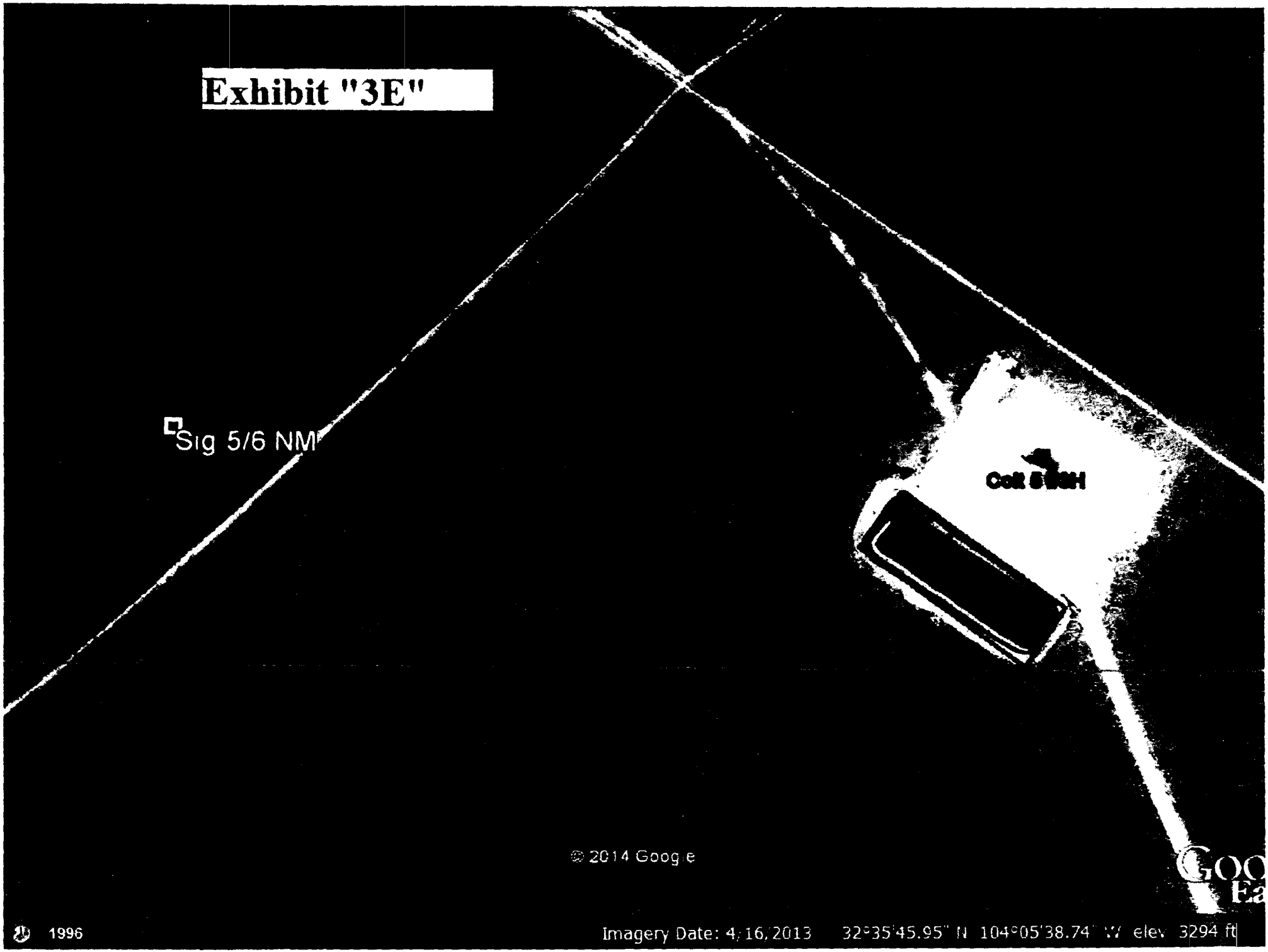
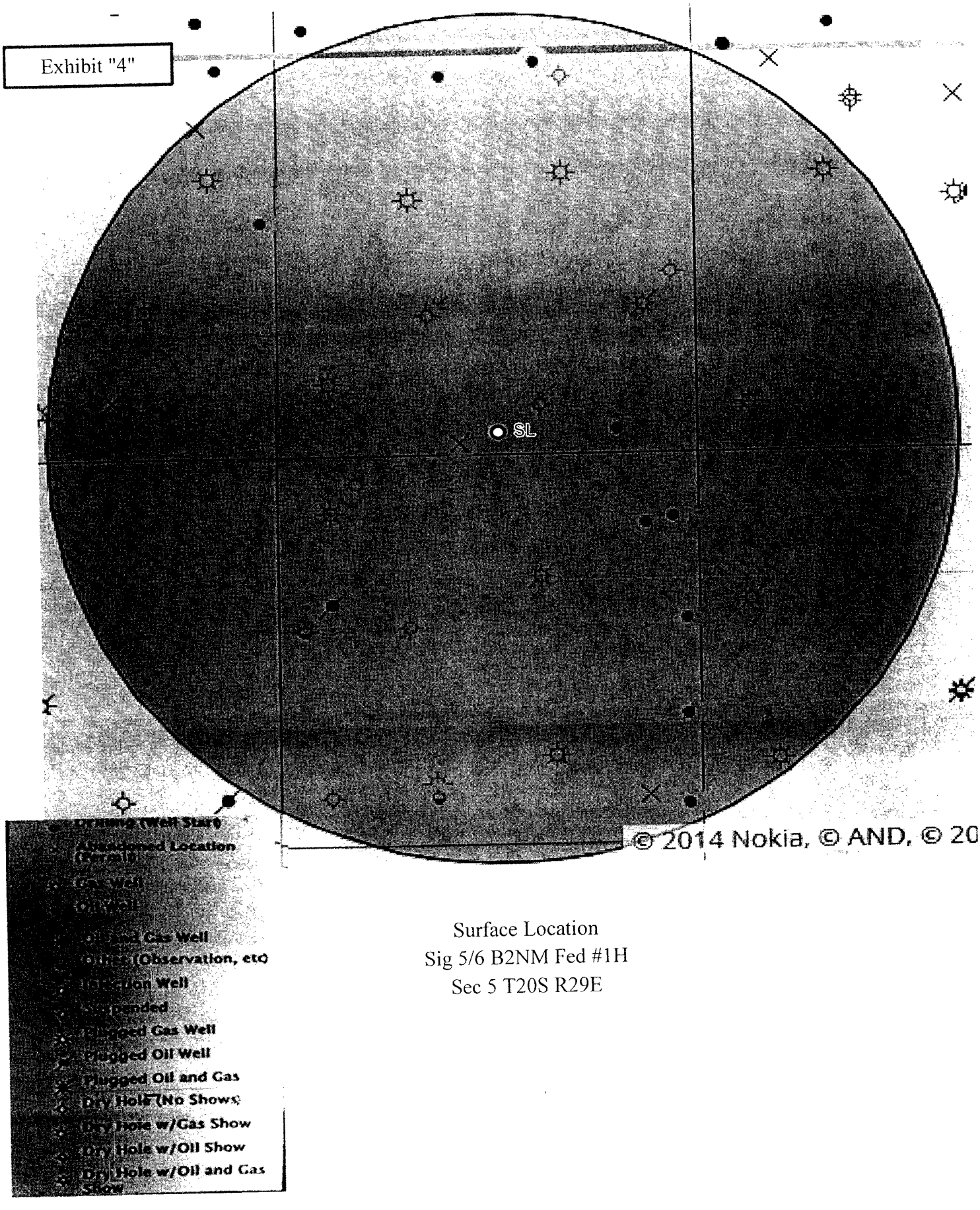


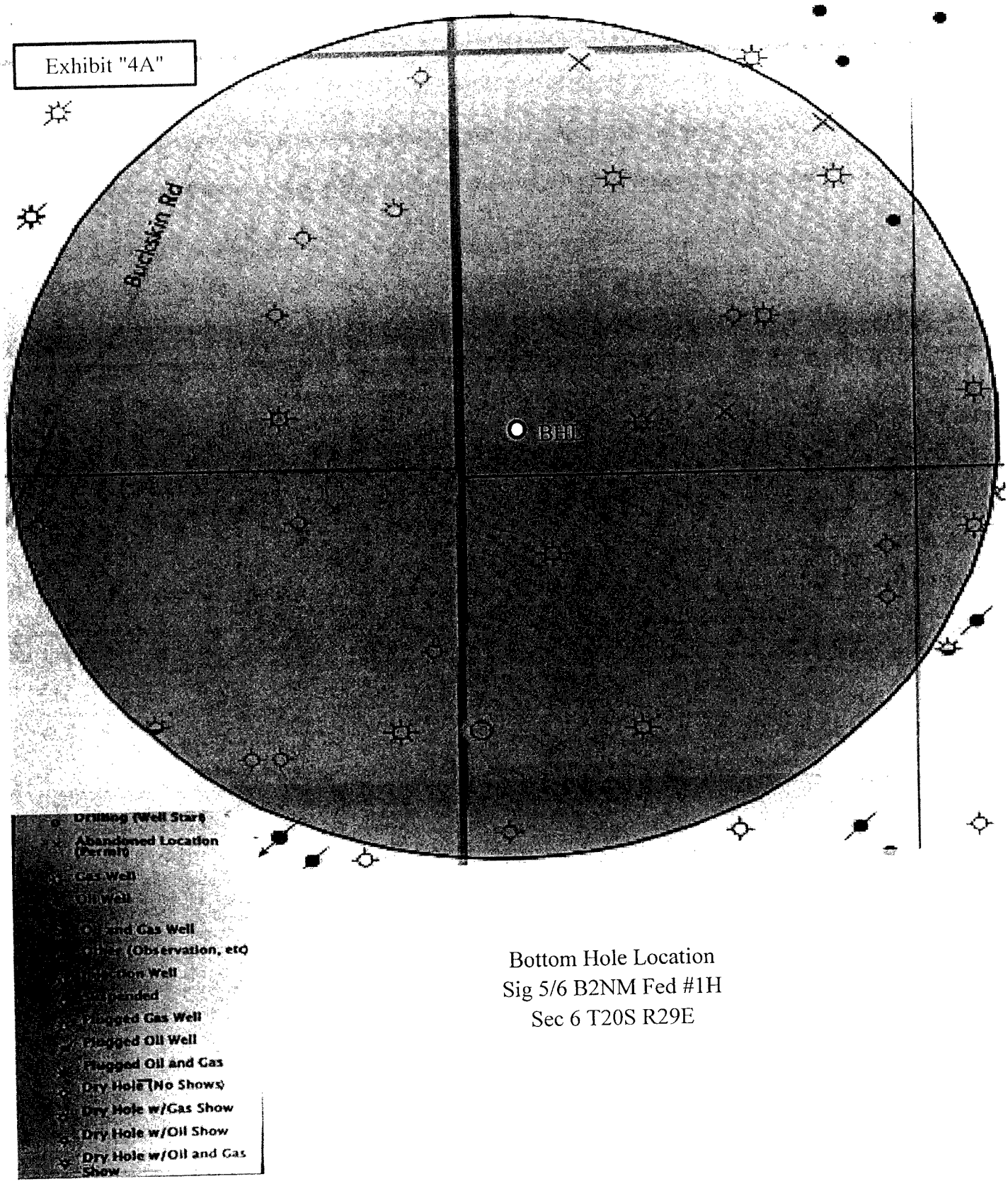
Exhibit "3E"
Sig 5/6 NM
© 2014 Google
1996
Imagery Date: 4/16/2013 32°35'45.95" N 104°05'38.74" W elev 3294 ft

Exhibit "4"



Surface Location
Sig 5/6 B2NM Fed #1H
Sec 5 T20S R29E

Exhibit "4A"



Bottom Hole Location
Sig 5/6 B2NM Fed #1H
Sec 6 T20S R29E

Mewbourne Oil Company, Sig 5/6 B2NM Fed 1H
Sec 5, T20S, R29E
SL: 500' FSL & 2490' FEL, Sec 5
BHL: 500' FSL & 330' FWL, Sec 6

1. Geologic Formations

TVD of target	7896	Pilot hole depth	NA
MD at TD:	15116	Deepest expected fresh water:	60

Reef

Formation	Depth (TVD) from KB)	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Alluvium	Surface	Water	
Rustler	300	Water	
Top of Salt	400	Salt	
Base of Salt/Tansill	950		
Yates	1175	Oil	
Seven Rivers	NP		
Capitan Reef	1340	Water	
Delaware Group	3250	Oil/Gas	
Bone Spring	5470	Oil/Gas	
2nd Bone Spring	7490	Target Zone	
Wolfcamp		Will Not Penetrate	
Cisco			
Canyon			
Strawn			
Atoka			
Morrow			
Barnett Shale			
Woodford Shale			
Devonian			
Fusselman			
Ellenburger			
Granite Wash			

*H2S, water flows, loss of circulation, abnormal pressures, etc.

Mewbourne Oil Company, Sig 5/6 B2NM Fed 1H
Sec 5, T20S, R29E
SL: 500' FSL & 2490' FEL, Sec 5
BHL: 500' FSL & 330' FWL, Sec 6

2. Casing Program

See COA

Hole Size	Casing Interval From	To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
26"	0	~~325~~ 365'	20"	94	J55	BTC	3.08	12.5	25.6
17.5"	0	~~1225~~ 1325'	13.375"	48	H40	STC	1.16	2.72	5.48
12.25"	0	3150	9.625"	36	J55	LTC	1.23	2.15	3.99
8.75"	0	7419	7"	26	HCP110	LTC	2.02	2.58	3.59
8.75"	7419	8176	7"	26	HCP110	BUTT	1.90	2.43	3.90
6.125"	7976	15116	4.5"	13.5	P110	LTC	2.60	3.02	3.50
			BLM Minimum Safety Factor				1.125	1	1.6 Dry 1.8 Wet

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Must have table for contingency casing

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	Y
If yes, does production casing cement tie back a minimum of 50' above the Reef?	Y
Is well within the designated 4 string boundary.	Y
Is well located in SOPA but not in R-111-P?	
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	
If yes, are the first three strings cemented to surface?	
Is 2nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	Y
If yes, are there two strings cemented to surface?	Y
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	
If yes, are there three strings cemented to surface?	

Mewbourne Oil Company, Sig 5/6 B2NM Fed 1H
Sec 5, T20S, R29E
SL: 500' FSL & 2490' FEL, Sec 5
BHL: 500' FSL & 330' FWL, Sec 6

3. Cementing Program

Casing	# Sks	Wt. lb/ gal	Yld ft3/ sack	H_20 gal/ sk	500# Comp. Strength (hours)	Slurry Description
Surf.	335	12.5	2.12	11	10	Lead: Class C + 4.0% Bentonite + 0.6% CD-32 + 5% Sodium Chloride +0.25lb/sk Cello-Flake
	200	14.8	1.34	6.3	5	Tail: Class C + 0.005pps Static Free + 1% CaCl2 + 0.25 pps CelloFlake + 0.005 gps FP-6L
Inter.	375	12.5	2.12	11	10	Lead: Class C + 4.0% Bentonite + 0.6% CD-32 + 5% Sodium Chloride +0.25lb/sk Cello-Flake
See COA	200	14.8	1.34	6.3	5	Tail: Class C + 0.005pps Static Free + 1% CaCl2 + 0.25 pps CelloFlake + 0.005 gps FP-6L
2nd Inter.	220	12.5	2.12	11	10	1st Lead: Class C + 4.0% Bentonite + 0.6% CD-32 + 5% Sodium Chloride +0.25lb/sk Cello-Flake
	200	14.8	1.34	6.3	5	1st Tail: Class C + 0.005pps Static Free + 1% CaCl2 + 0.25 pps CelloFlake + 0.005 gps FP-6L
	DV/ECP Tool ~~1290'~~ 1375' (50' below previous shoe)					
See COA	150	12.5	2.12	11	10	2nd Lead: Class C + 4.0% Bentonite + 0.6% CD-32 + 5% Sodium Chloride +0.25lb/sk Cello-Flake
	200	14.8	1.32	8	6	2nd stage: Class C + 0.25 lb/sk Cello Flake + 0.005 lb/sk Static Free
Prod.	390	12.5	2.12	11	9	Lead: 60:40:0 Class C + 15.00 lb/sk BA-90 + 4.00% MPS-5 + 3.00% SMS + 5.00% A-10 + 1.00% BA-10A + 0.80% ASA-301 + 2.90% R-21 + 8.00 lb/sk LCM-1 + 0.005 lb/sk Static Free
See COA	400	15.6	1.18	5.2	10	Tail: Class H + 0.65% FL-52 + 0.10% R-3 + 0.005 lb/sk Static Free
Liner	None					Packer/Port completion system will be used

DV tool depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Casing String	TOC	% Excess
Surface	0'	100%
Intermediate	0'	25%
2nd Intermediate	0'	25%
Production	1290'	25%
Liner	7975'	Tie back 200' inside 7" csg

Mewbourne Oil Company, Sig 5/6 B2NM Fed 1H
Sec 5, T20S, R29E
SL: 500' FSL & 2490' FEL, Sec 5
BHL: 500' FSL & 330' FWL, Sec 6

4. Pressure Control Equipment

Y	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
12-1/4"	13-5/8"	2M	Annular	X	1250#
			Blind Ram		
			Pipe Ram		
			Double Ram		
			Other*		
8-3/4"	11"	3M	Annular	X	1500#
			Blind Ram	X	3000#
			Pipe Ram	X	
			Double Ram		
			Other *		
6.125"	11"	3M	Annular	X	1500#
			Blind Ram	X	3000#
			Pipe Ram	X	
			Double Ram		
			Other *		

*Specify if additional ram is utilized.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

X	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
N	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
	Y /N | Are anchors required by manufacturer?
N	A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. • Provide description here See attached schematic.

See COA

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	~~325~~ 365'	FW Gel	8.6-8.8	28-34	N/C
~~325~~	~~1225~~ 1325'	Saturated Brine	10.0-10.2	29-34	N/C
~~1225~~	3150	FW*	8.5-9.3	28-34	N/C
3150	11901	FW w/polymer	8.5-9.3	28-34	N/C

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.
*Aerated fluid w/fresh water will be used to drill 12 ¼" hole if circulation is lost. Water samples will be taken every 100' through the Capitan Reef formation.

What will be used to monitor the loss or gain of fluid?	Visual Monitoring

6. Logging and Testing Procedures

Logging, Coring and Testing.	
X	Will run GR/CNL from KOP to surface. Stated logs run will be in the Completion Report and submitted to the BLM.
	No Logs are planned based on well control or offset log information.
	Drill stem test? If yes, explain
	Coring? If yes, explain

Additional logs planned		Interval
X	GR	KOP(7419) to TD
	Density	Int. shoe to KOP
	CBL	Production casing
	Mud log	Intermediate shoe to TD
	PEX	

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	3395 psi
Abnormal Temperature	No

Mitigation measure for abnormal conditions. Describe. Lost circulation material/sweeps/mud scavengers.

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
✓	H2S is present
	H2S Plan attached

See COA

8. Other facets of operation

Is this a walking operation? If yes, describe. No
Will be pre-setting casing? If yes, describe. No

Attachments
✓ Directional Plan
___ Other, describe

Mewbourne Oil Company

Eddy County, New Mexico
Sig 5/6 B2NM Fed 1H
Sec 5, T20S, R29E
SL: 500 FSL & 2490 FEL, Sec 5
BHL: 500 FSL & 330 FWL, Sec 6

Plan: Design #1

Standard Planning Report

15 September, 2014

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Sig 5/6 B2NM Fed 1H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3306.0usft (Original Well Elev)
Project:	Eddy County, New Mexico	**MD Reference:**	WELL @ 3306.0usft (Original Well Elev)
Site:	Sig 5/6 B2NM Fed 1H	**North Reference:**	Grid
Well:	Sec 5, T20S, R29E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 500 FSL & 330 FWL, Sec 6		
Design:	Design #1		

Project	Eddy County, New Mexico		
Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Sig 5/6 B2NM Fed 1H				
Site Position:		**Northing:**	580,806.90 usft	**Latitude:**	32° 35' 47.471 N
From:	Map	**Easting:**	573,035.50 usft	**Longitude:**	104° 5' 46.259 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.13 °

Well	Sec 5, T20S, R29E					
Well Position	**+N/-S**	0.0 usft	**Northing:**	580,806.90 usft	**Latitude:**	32° 35' 47.471 N
	+E/-W	0.0 usft	**Easting:**	573,035.50 usft	**Longitude:**	104° 5' 46.259 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	3,306.0 usft	**Ground Level:**	3,286.0 usft

Wellbore	BHL: 500 FSL & 330 FWL, Sec 6				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF200510	9/15/2014	7.45	60.39	48,509

Design	Design #1				
Audit Notes:					
Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.0
Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**	
	0.0	0.0	0.0	269.98	

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	
7,418.5	0.00	0.00	7,418.5	0.0	0.0	0.00	0.00	0.00	0.00	
8,175.5	90.83	269.98	7,896.0	-0.2	-484.4	12.00	12.00	0.00	-90.02	
15,116.0	90.83	269.98	7,796.0	-2.8	-7,424.2	0.00	0.00	0.00	0.00	BHL: 500 FSL & 330 I

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Sig 5/6 B2NM Fed 1H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3306 0usft (Original Well Elev)
Project:	Eddy County, New Mexico	**MD Reference:**	WELL @ 3306.0usft (Original Well Elev)
Site:	Sig 5/6 B2NM Fed 1H	**North Reference:**	Grid
Well:	Sec 5, T20S, R29E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 500 FSL & 330 FWL, Sec 6		
Design:	Design #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
SL: 500 FSL & 2490 FEL, Sec 5									
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
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
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Sig 5/6 B2NM Fed 1H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3306.0usft (Original Well Elev)
Project:	Eddy County, New Mexico	**MD Reference:**	WELL @ 3306.0usft (Original Well Elev)
Site:	Sig 5/6 B2NM Fed 1H	**North Reference:**	Grid
Well:	Sec 5, T20S, R29E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 500 FSL & 330 FWL, Sec 6		
Design:	Design #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)
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00
6,500.0	0.00	0.00	6,500.0	0.0	0.0	0.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,600.0	0.0	0.0	0.0	0.00	0.00	0.00
6,700.0	0.00	0.00	6,700.0	0.0	0.0	0.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,800.0	0.0	0.0	0.0	0.00	0.00	0.00
6,900.0	0.00	0.00	6,900.0	0.0	0.0	0.0	0.00	0.00	0.00
7,000.0	0.00	0.00	7,000.0	0.0	0.0	0.0	0.00	0.00	0.00
7,100.0	0.00	0.00	7,100.0	0.0	0.0	0.0	0.00	0.00	0.00
7,200.0	0.00	0.00	7,200.0	0.0	0.0	0.0	0.00	0.00	0.00
7,300.0	0.00	0.00	7,300.0	0.0	0.0	0.0	0.00	0.00	0.00
7,400.0	0.00	0.00	7,400.0	0.0	0.0	0.0	0.00	0.00	0.00
7,418.5	0.00	0.00	7,418.5	0.0	0.0	0.0	0.00	0.00	0.00
KOP @ 7419									
7,500.0	9.78	269.98	7,499.6	0.0	-6.9	6.9	12.00	12.00	0.00
7,600.0	21.78	269.98	7,595.7	0.0	-34.1	34.1	12.00	12.00	0.00
7,700.0	33.77	269.98	7,684.0	0.0	-80.6	80.6	12.00	12.00	0.00
7,800.0	45.77	269.98	7,760.7	-0.1	-144.5	144.5	12.00	12.00	0.00
7,900.0	57.77	269.98	7,822.5	-0.1	-222.9	222.9	12.00	12.00	0.00
8,000.0	69.77	269.98	7,866.6	-0.1	-312.4	312.4	12.00	12.00	0.00
8,100.0	81.77	269.98	7,891.1	-0.2	-409.2	409.2	12.00	12.00	0.00
8,175.5	90.83	269.98	7,896.0	-0.2	-484.4	484.4	12.00	12.00	0.00
8,186.0	90.83	269.98	7,895.8	-0.2	-495.0	495.0	0.00	0.00	0.00
First Take Point: 500 FSL & 2310 FWL, Sec 6									
8,200.0	90.83	269.98	7,895.6	-0.2	-508.9	508.9	0.00	0.00	0.00
8,300.0	90.83	269.98	7,894.2	-0.2	-608.9	608.9	0.00	0.00	0.00
8,400.0	90.83	269.98	7,892.8	-0.3	-708.9	708.9	0.00	0.00	0.00
8,500.0	90.83	269.98	7,891.3	-0.3	-808.9	808.9	0.00	0.00	0.00
8,600.0	90.83	269.98	7,889.9	-0.3	-908.9	908.9	0.00	0.00	0.00
8,700.0	90.83	269.98	7,888.4	-0.4	-1,008.9	1,008.9	0.00	0.00	0.00
8,800.0	90.83	269.98	7,887.0	-0.4	-1,108.9	1,108.9	0.00	0.00	0.00
8,900.0	90.83	269.98	7,885.6	-0.4	-1,208.8	1,208.8	0.00	0.00	0.00
9,000.0	90.83	269.98	7,884.1	-0.5	-1,308.8	1,308.8	0.00	0.00	0.00
9,100.0	90.83	269.98	7,882.7	-0.5	-1,408.8	1,408.8	0.00	0.00	0.00
9,200.0	90.83	269.98	7,881.2	-0.6	-1,508.8	1,508.8	0.00	0.00	0.00
9,300.0	90.83	269.98	7,879.8	-0.6	-1,608.8	1,608.8	0.00	0.00	0.00
9,400.0	90.83	269.98	7,878.4	-0.6	-1,708.8	1,708.8	0.00	0.00	0.00
9,500.0	90.83	269.98	7,876.9	-0.7	-1,808.8	1,808.8	0.00	0.00	0.00
9,600.0	90.83	269.98	7,875.5	-0.7	-1,908.8	1,908.8	0.00	0.00	0.00
9,700.0	90.83	269.98	7,874.0	-0.7	-2,008.8	2,008.8	0.00	0.00	0.00
9,800.0	90.83	269.98	7,872.6	-0.8	-2,108.7	2,108.7	0.00	0.00	0.00
9,900.0	90.83	269.98	7,871.2	-0.8	-2,208.7	2,208.7	0.00	0.00	0.00
10,000.0	90.83	269.98	7,869.7	-0.9	-2,308.7	2,308.7	0.00	0.00	0.00
10,100.0	90.83	269.98	7,868.3	-0.9	-2,408.7	2,408.7	0.00	0.00	0.00

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Sig 5/6 B2NM Fed 1H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3306.0usft (Original Well Elev)
Project:	Eddy County, New Mexico	**MD Reference:**	WELL @ 3306.0usft (Original Well Elev)
Site:	Sig 5/6 B2NM Fed 1H	**North Reference:**	Grid
Well:	Sec 5, T20S, R29E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 500 FSL & 330 FWL, Sec 6		
Design:	Design #1		

Planned Survey

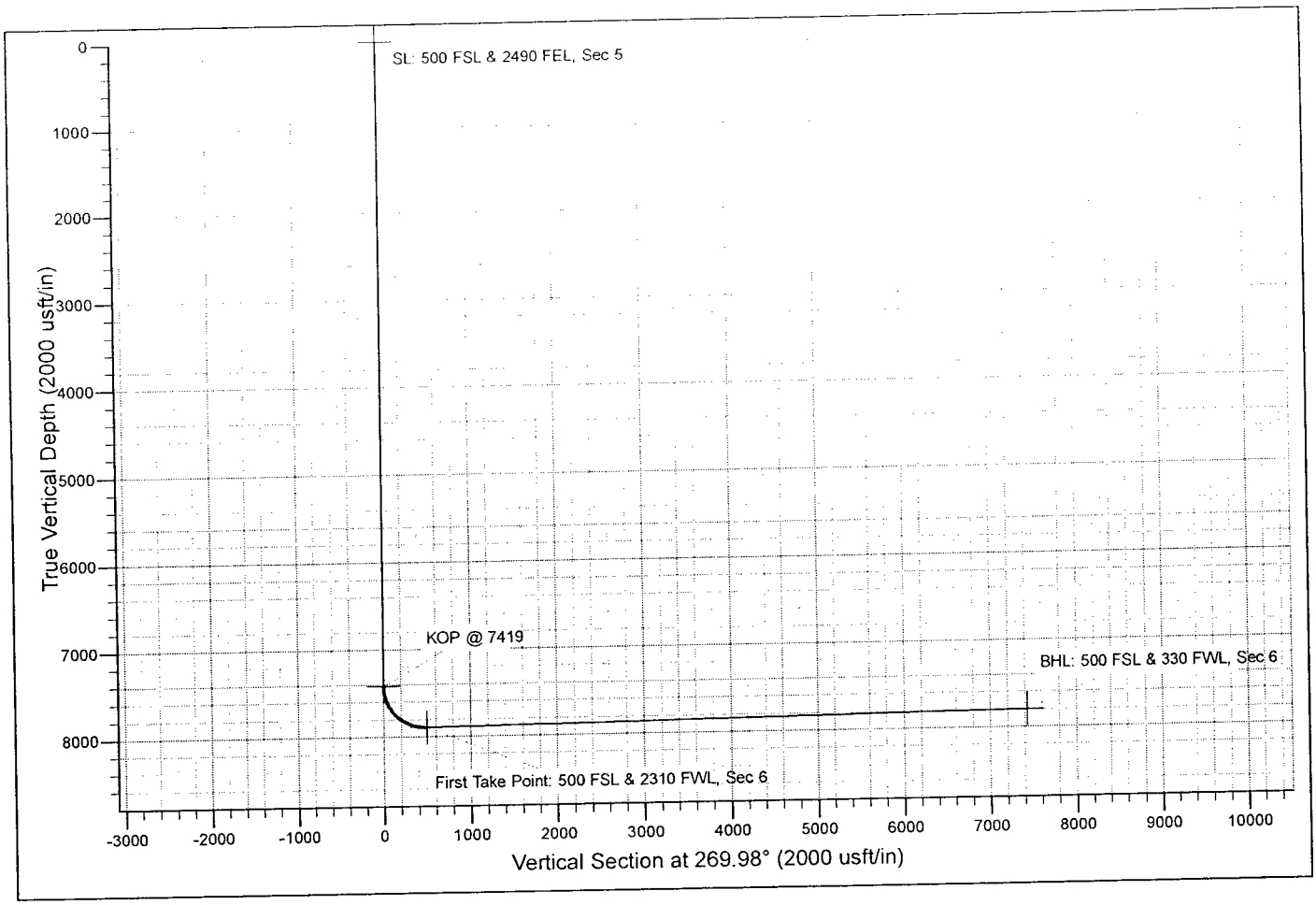
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,200.0	90.83	269.98	7,866.8	-0.9	-2,508.7	2,508.7	0.00	0.00	0.00
10,300.0	90.83	269.98	7,865.4	-1.0	-2,608.7	2,608.7	0.00	0.00	0.00
10,400.0	90.83	269.98	7,863.9	-1.0	-2,708.7	2,708.7	0.00	0.00	0.00
10,500.0	90.83	269.98	7,862.5	-1.0	-2,808.7	2,808.7	0.00	0.00	0.00
10,600.0	90.83	269.98	7,861.1	-1.1	-2,908.7	2,908.7	0.00	0.00	0.00
10,700.0	90.83	269.98	7,859.6	-1.1	-3,008.7	3,008.7	0.00	0.00	0.00
10,800.0	90.83	269.98	7,858.2	-1.2	-3,108.6	3,108.6	0.00	0.00	0.00
10,900.0	90.83	269.98	7,856.7	-1.2	-3,208.6	3,208.6	0.00	0.00	0.00
11,000.0	90.83	269.98	7,855.3	-1.2	-3,308.6	3,308.6	0.00	0.00	0.00
11,100.0	90.83	269.98	7,853.9	-1.3	-3,408.6	3,408.6	0.00	0.00	0.00
11,200.0	90.83	269.98	7,852.4	-1.3	-3,508.6	3,508.6	0.00	0.00	0.00
11,300.0	90.83	269.98	7,851.0	-1.3	-3,608.6	3,608.6	0.00	0.00	0.00
11,400.0	90.83	269.98	7,849.5	-1.4	-3,708.6	3,708.6	0.00	0.00	0.00
11,500.0	90.83	269.98	7,848.1	-1.4	-3,808.6	3,808.6	0.00	0.00	0.00
11,600.0	90.83	269.98	7,846.7	-1.5	-3,908.6	3,908.6	0.00	0.00	0.00
11,700.0	90.83	269.98	7,845.2	-1.5	-4,008.6	4,008.6	0.00	0.00	0.00
11,800.0	90.83	269.98	7,843.8	-1.5	-4,108.5	4,108.5	0.00	0.00	0.00
11,900.0	90.83	269.98	7,842.3	-1.6	-4,208.5	4,208.5	0.00	0.00	0.00
12,000.0	90.83	269.98	7,840.9	-1.6	-4,308.5	4,308.5	0.00	0.00	0.00
12,100.0	90.83	269.98	7,839.5	-1.6	-4,408.5	4,408.5	0.00	0.00	0.00
12,200.0	90.83	269.98	7,838.0	-1.7	-4,508.5	4,508.5	0.00	0.00	0.00
12,300.0	90.83	269.98	7,836.6	-1.7	-4,608.5	4,608.5	0.00	0.00	0.00
12,400.0	90.83	269.98	7,835.1	-1.8	-4,708.5	4,708.5	0.00	0.00	0.00
12,500.0	90.83	269.98	7,833.7	-1.8	-4,808.5	4,808.5	0.00	0.00	0.00
12,600.0	90.83	269.98	7,832.3	-1.8	-4,908.5	4,908.5	0.00	0.00	0.00
12,700.0	90.83	269.98	7,830.8	-1.9	-5,008.4	5,008.4	0.00	0.00	0.00
12,800.0	90.83	269.98	7,829.4	-1.9	-5,108.4	5,108.4	0.00	0.00	0.00
12,900.0	90.83	269.98	7,827.9	-1.9	-5,208.4	5,208.4	0.00	0.00	0.00
13,000.0	90.83	269.98	7,826.5	-2.0	-5,308.4	5,308.4	0.00	0.00	0.00
13,100.0	90.83	269.98	7,825.0	-2.0	-5,408.4	5,408.4	0.00	0.00	0.00
13,200.0	90.83	269.98	7,823.6	-2.0	-5,508.4	5,508.4	0.00	0.00	0.00
13,300.0	90.83	269.98	7,822.2	-2.1	-5,608.4	5,608.4	0.00	0.00	0.00
13,400.0	90.83	269.98	7,820.7	-2.1	-5,708.4	5,708.4	0.00	0.00	0.00
13,500.0	90.83	269.98	7,819.3	-2.2	-5,808.4	5,808.4	0.00	0.00	0.00
13,600.0	90.83	269.98	7,817.8	-2.2	-5,908.4	5,908.4	0.00	0.00	0.00
13,700.0	90.83	269.98	7,816.4	-2.2	-6,008.3	6,008.3	0.00	0.00	0.00
13,800.0	90.83	269.98	7,815.0	-2.3	-6,108.3	6,108.3	0.00	0.00	0.00
13,900.0	90.83	269.98	7,813.5	-2.3	-6,208.3	6,208.3	0.00	0.00	0.00
14,000.0	90.83	269.98	7,812.1	-2.3	-6,308.3	6,308.3	0.00	0.00	0.00
14,100.0	90.83	269.98	7,810.6	-2.4	-6,408.3	6,408.3	0.00	0.00	0.00
14,200.0	90.83	269.98	7,809.2	-2.4	-6,508.3	6,508.3	0.00	0.00	0.00
14,300.0	90.83	269.98	7,807.8	-2.5	-6,608.3	6,608.3	0.00	0.00	0.00
14,400.0	90.83	269.98	7,806.3	-2.5	-6,708.3	6,708.3	0.00	0.00	0.00
14,500.0	90.83	269.98	7,804.9	-2.5	-6,808.3	6,808.3	0.00	0.00	0.00
14,600.0	90.83	269.98	7,803.4	-2.6	-6,908.2	6,908.2	0.00	0.00	0.00
14,700.0	90.83	269.98	7,802.0	-2.6	-7,008.2	7,008.2	0.00	0.00	0.00
14,800.0	90.83	269.98	7,800.6	-2.6	-7,108.2	7,108.2	0.00	0.00	0.00
14,900.0	90.83	269.98	7,799.1	-2.7	-7,208.2	7,208.2	0.00	0.00	0.00
15,000.0	90.83	269.98	7,797.7	-2.7	-7,308.2	7,308.2	0.00	0.00	0.00
15,100.0	90.83	269.98	7,796.2	-2.8	-7,408.2	7,408.2	0.00	0.00	0.00
15,116.0	90.83	269.98	7,796.0	-2.8	-7,424.2	7,424.2	0.00	0.00	0.00

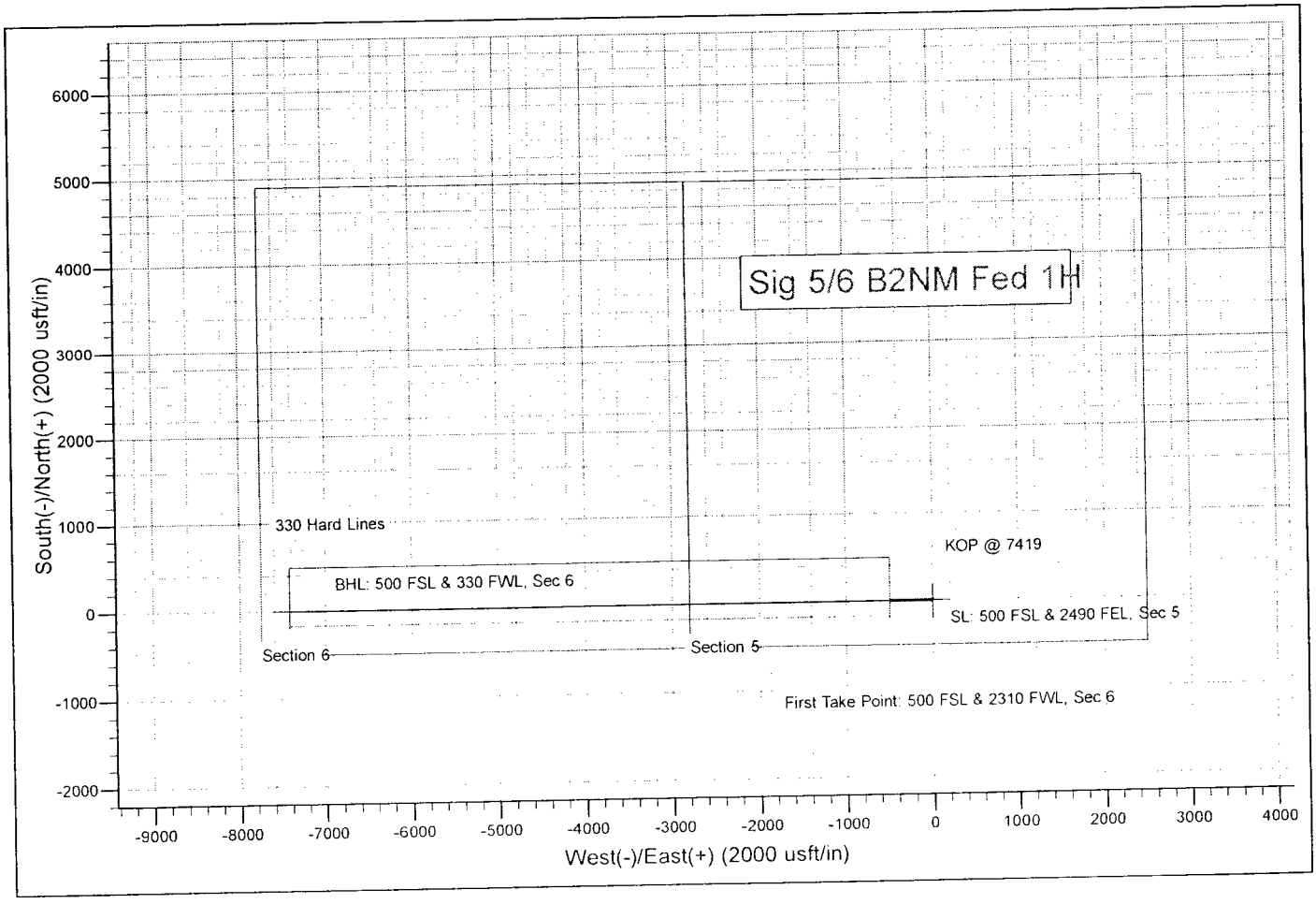
BHL: 500 FSL & 330 FWL, Sec 6

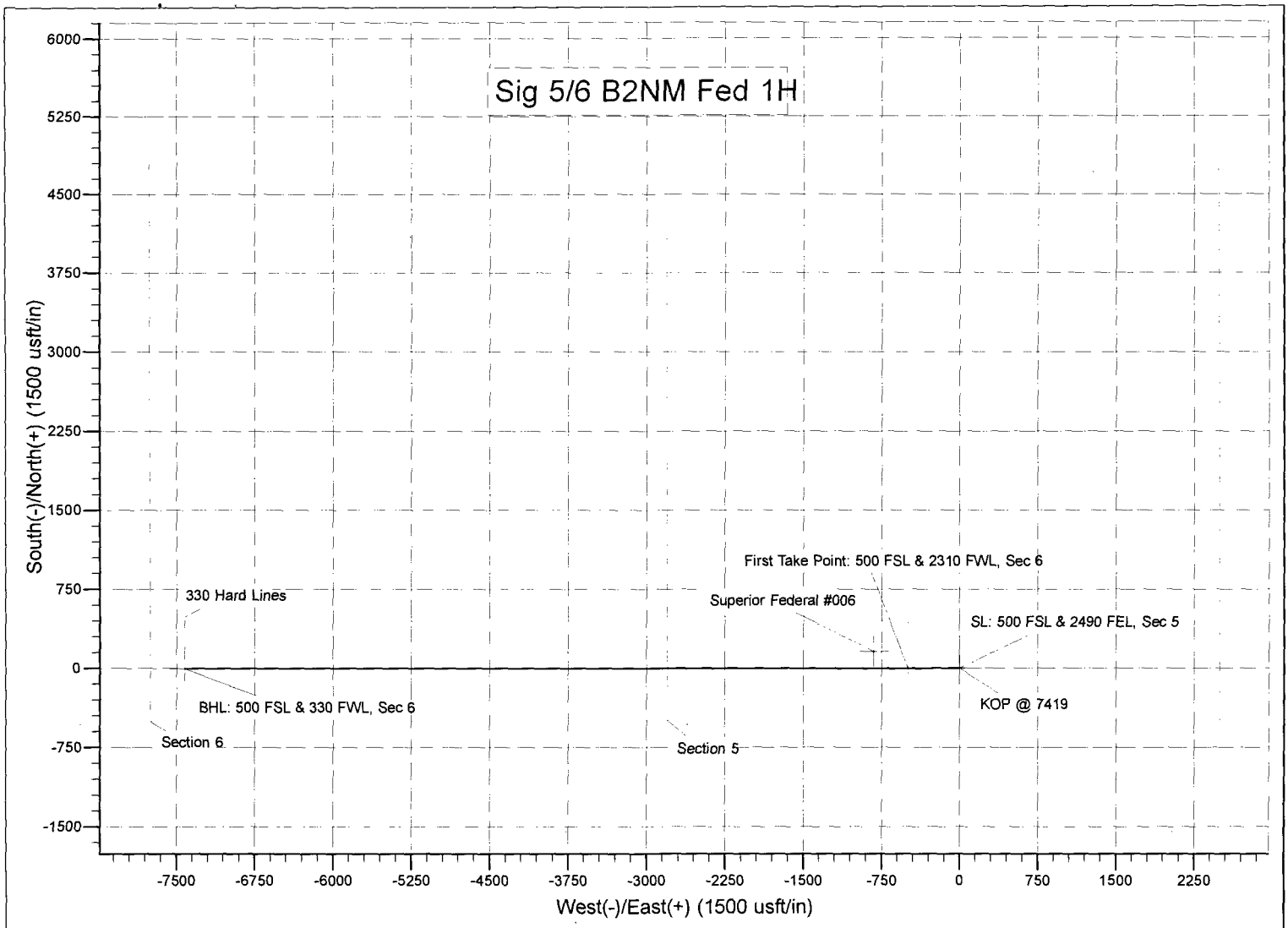
Database:	Hobbs	**Local Co-ordinate Reference:**	Site Sig 5/6 B2NM Fed 1H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3306.0usft (Original Well Elev)
Project:	Eddy County, New Mexico	**MD Reference:**	WELL @ 3306.0usft (Original Well Elev)
Site:	Sig 5/6 B2NM Fed 1H	**North Reference:**	Grid
Well:	Sec 5, T20S, R29E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 500 FSL & 330 FWL, Sec 6		
Design:	Design #1		

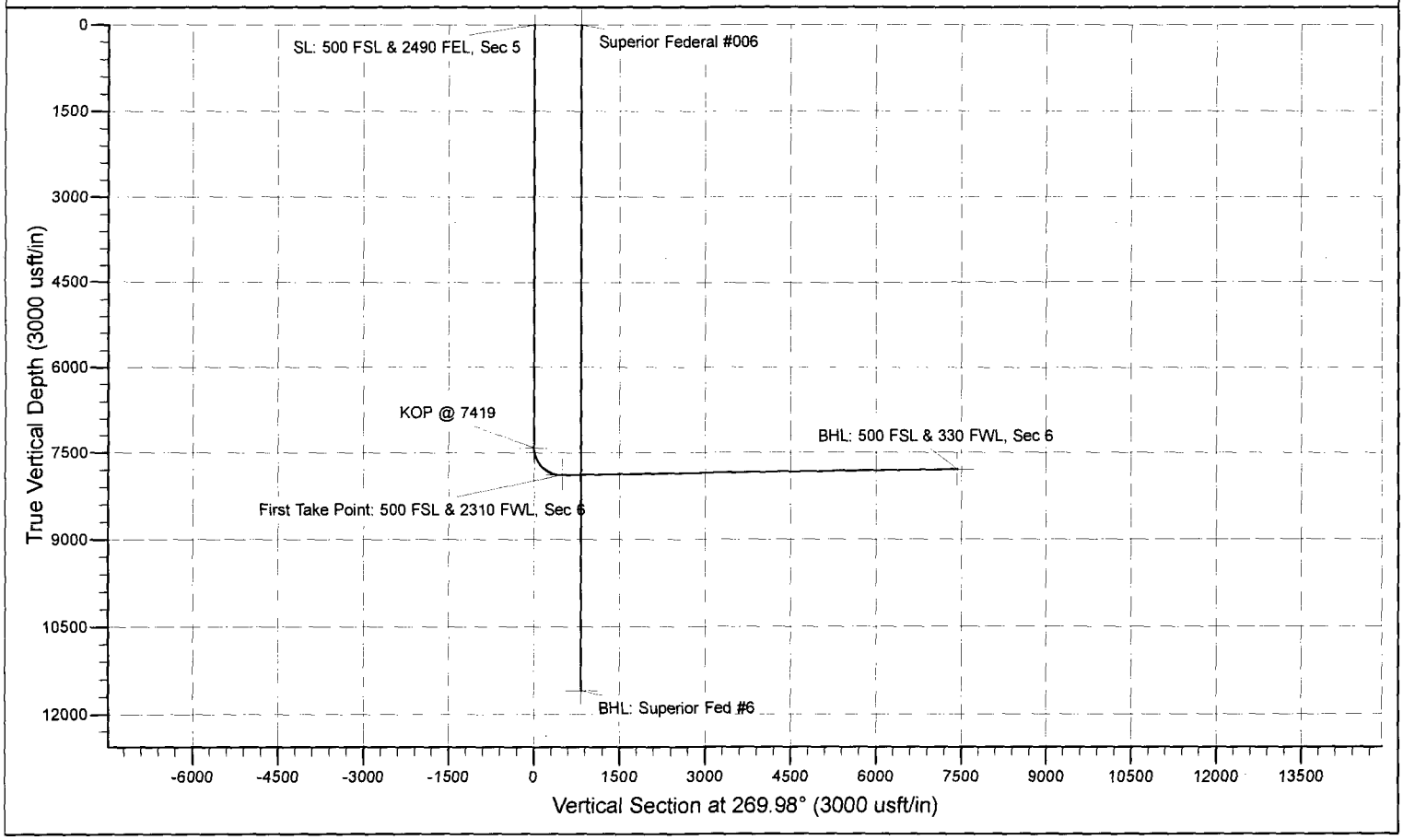
Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SL: 500 FSL & 2490 FEI - plan hits target center - Point	0.00	0.00	0.0	0.0	0.0	580,806.90	573,035.50	32° 35' 47.471 N	104° 5' 46.259 W
KOP @ 7419 - plan hits target center - Point	0.00	0.00	7,418.5	0.0	0.0	580,806.90	573,035.50	32° 35' 47.471 N	104° 5' 46.259 W
BHL: 500 FSL & 330 FW - plan hits target center - Point	0.00	0.00	7,796.0	-2.8	-7,424.2	580,804.14	565,611.26	32° 35' 47.599 N	104° 7' 13.043 W
First Take Point: 500 FSI - plan misses target center by 0.9usft at 8186.0usft MD (7895.8 TVD, -0.2 N, -495.0 E) - Point	0.00	0.00	7,895.0	-0.1	-494.9	580,806.78	572,540.56	32° 35' 47.480 N	104° 5' 52.045 W


SL: 500 FSL & 2490 FEL, Sec 5
KOP @ 7419
BHL: 500 FSL & 330 FWL, Sec 6
First Take Point: 500 FSL & 2310 FWL, Sec 6
True Vertical Depth (2000 usft/in)
Vertical Section at 269.98° (2000 usft/in)
0
1000
2000
3000
4000
5000
6000
7000
8000
-3000
-2000
-1000
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000


Sig 5/6 B2NM Fed 1H
330 Hard Lines
KOP @ 7419
BHL: 500 FSL & 330 FWL, Sec 6
SL: 500 FSL & 2490 FEL, Sec 5
Section 6
Section 5
First Take Point: 500 FSL & 2310 FWL, Sec 6
South(-)/North(+) (2000 usft/in)
West(-)/East(+) (2000 usft/in)
6000
5000
4000
3000
2000
1000
0
-1000
-2000
-9000
-8000
-7000
-6000
-5000
-4000
-3000
-2000
-1000
0
1000
2000
3000
4000


Sig 5/6 B2NM Fed 1H
South(-)/North(+) (1500 usft/in)
West(-)/East(+) (1500 usft/in)
330 Hard Lines
First Take Point: 500 FSL & 2310 FWL, Sec 6
Superior Federal #006
SL: 500 FSL & 2490 FEL, Sec 5
BHL: 500 FSL & 330 FWL, Sec 6
KOP @ 7419
Section 6
Section 5


True Vertical Depth (3000 usft/in)
Vertical Section at 269.98° (3000 usft/in)
SL: 500 FSL & 2490 FEL, Sec 5
Superior Federal #006
KOP @ 7419
BHL: 500 FSL & 330 FWL, Sec 6
First Take Point: 500 FSL & 2310 FWL, Sec 6
BHL: Superior Fed #6

Mewbourne Oil Company

Eddy County, New Mexico
Sig 5/6 B2NM Fed 1H
Sec 5, T20S, R29E
SL: 500 FSL & 2490 FEL, Sec 5
BHL: 500 FSL & 330 FWL, Sec 6
Design #1

Anticollision Summary Report

20 March, 2017

Anticollision Summary Report

Company:	Mewbourne Oil Company	**Local Co-ordinate Reference:**	Site Sig 5/6 B2NM Fed 1H
Project:	Eddy County, New Mexico	**TVD Reference:**	WELL @ 3306.0usft (Original Well Elev)
Reference Site:	Sig 5/6 B2NM Fed 1H	**MD Reference:**	WELL @ 3306.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Sec 5, T20S, R29E	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	BHL: 500 FSL & 330 FWL, Sec 6	**Database:**	Hobbs
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Reference	Design #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		WARNING: There is hidden tight data in this project
Interpolation Method:	Stations	**Error Model:**	ISCWSA
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.0 usft	**Error Surface:**	Elliptical Conic
Warning Levels Evaluated at:	2.00 **Sigma**	**Casing Method:**	Not applied

Survey Tool Program **Date** 9/15/2014

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	15,116.0	Design #1 (BHL: 500 FSL & 330 FWL, Sec		

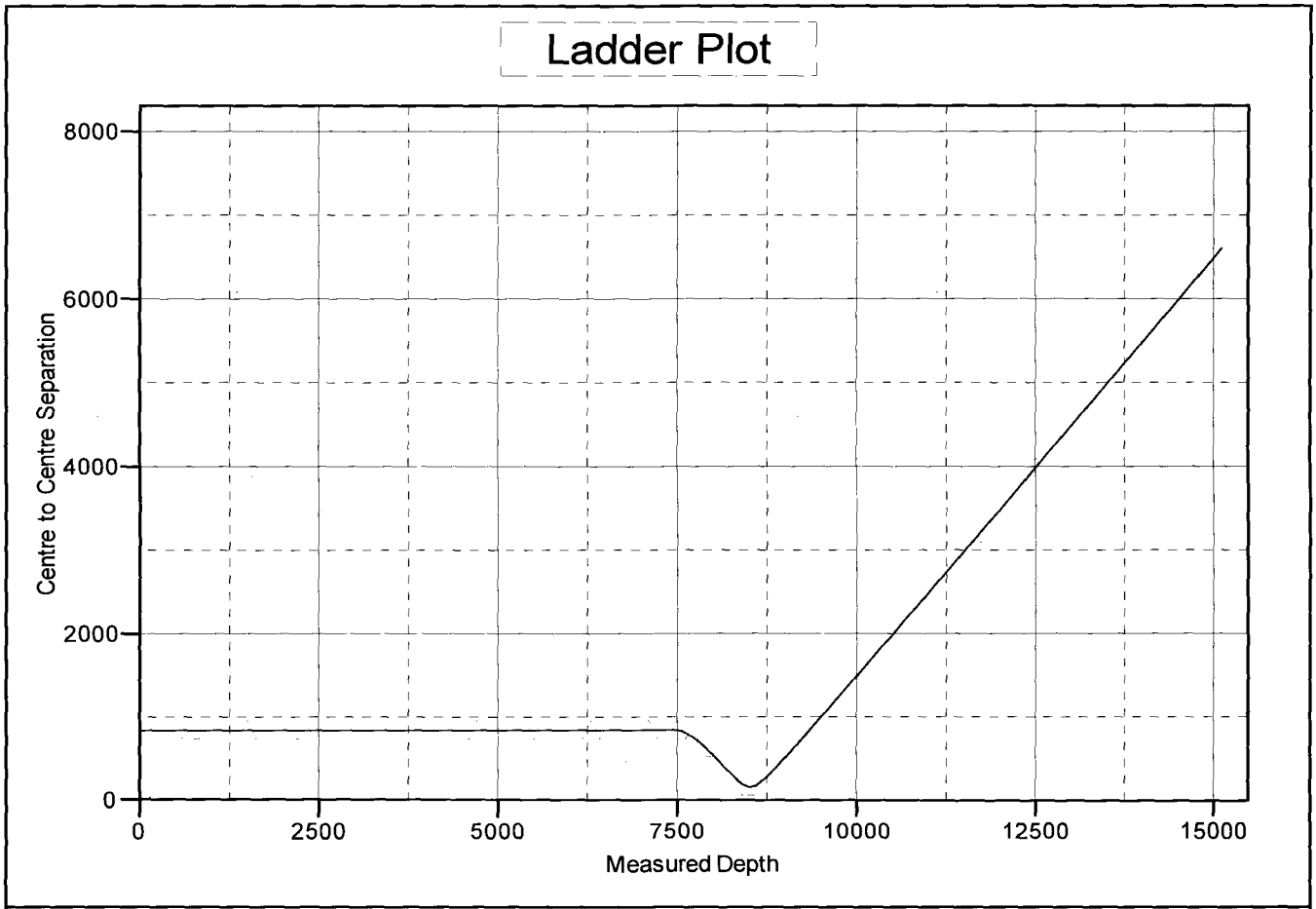
Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Sig 5/6 B2NM Fed 1H						
Superior Federal #006 - Superior Federal #006 - Design	0.0	0.0	841.1			
Superior Federal #006 - Superior Federal #006 - Design	8,516.6	7,891.1	161.4			

Anticollision Summary Report

Company:	Mewbourne Oil Company	**Local Co-ordinate Reference:**	Site Sig 5/6 B2NM Fed 1H
Project:	Eddy County, New Mexico	**TVD Reference:**	WELL @ 3306.0usft (Original Well Elev)
Reference Site:	Sig 5/6 B2NM Fed 1H	**MD Reference:**	WELL @ 3306.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Sec 5, T20S, R29E	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	BHL: 500 FSL & 330 FWL, Sec 6	**Database:**	Hobbs
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 3306.0usft (Original Well Ele	Coordinates are relative to: Sig 5/6 B2NM Fed 1H
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Central Meridian is 104° 20' 0.000 W	Grid Convergence at Surface is: 0.13°



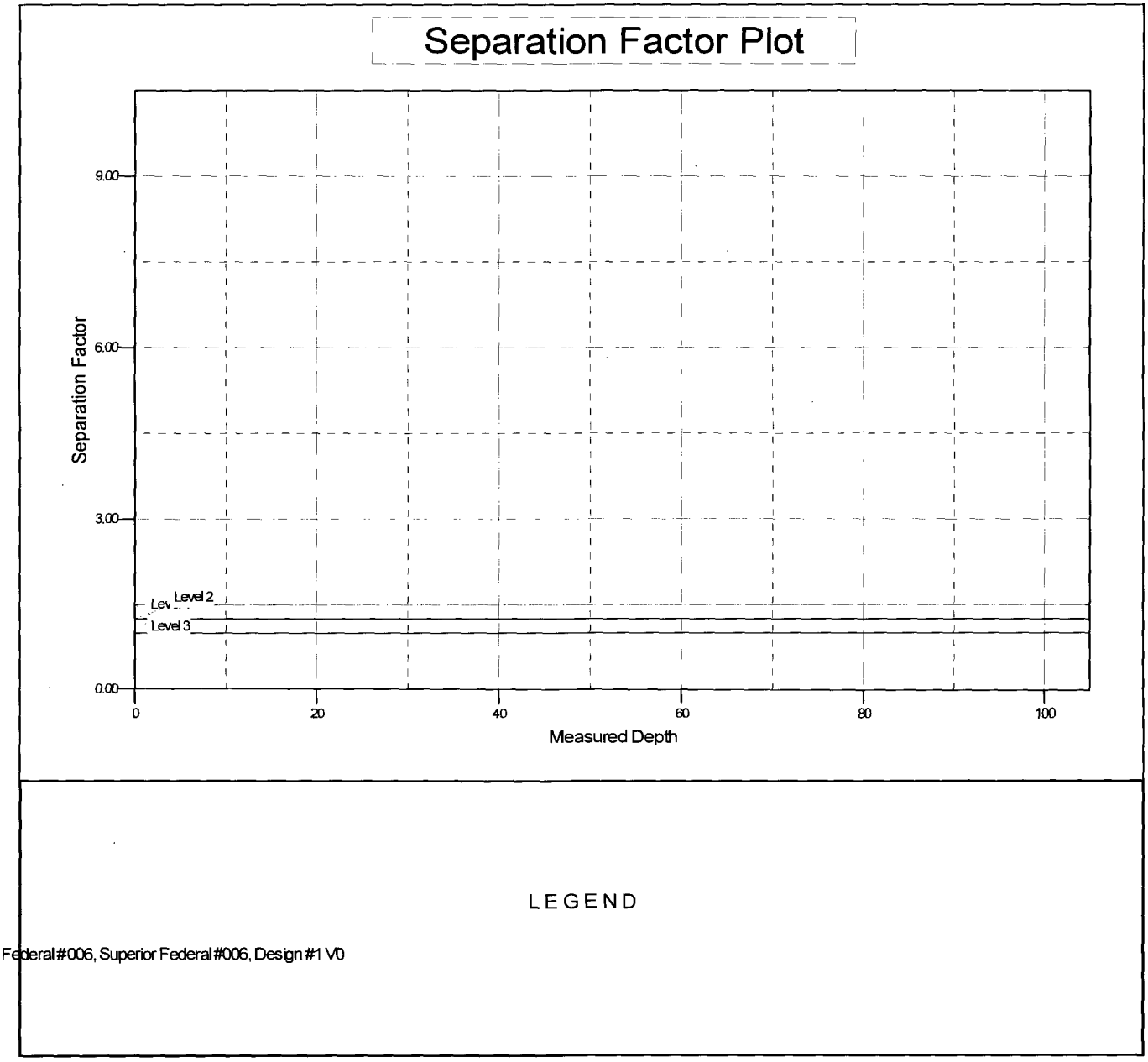
LEGEND

Federal #006, Superior Federal #006, Design #1 V0

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Mewbourne Oil Company	**Local Co-ordinate Reference:**	Site Sig 5/6 B2NM Fed 1H
Project:	Eddy County, New Mexico	**TVD Reference:**	WELL @ 3306.0usft (Original Well Elev)
Reference Site:	Sig 5/6 B2NM Fed 1H	**MD Reference:**	WELL @ 3306.0usft (Original Well Elev)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Sec 5, T20S, R29E	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	BHL: 500 FSL & 330 FWL, Sec 6	**Database:**	Hobbs
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 3306.0usft (Original Well Ele	Coordinates are relative to: Sig 5/6 B2NM Fed 1H
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Central Meridian is 104° 20' 0.000 W	Grid Convergence at Surface is: 0.13°



Notes Regarding Blowout Preventer
Mewbourne Oil Company
Sig 5/6 B2NM Federal #1H
500' FSL & 2490' FEL (SHL)
Sec 5-T20S-R29E
Eddy County, New Mexico

I. Drilling nipple (bell nipple) to be constructed so that it can be removed without the use of a welder through the opening of the rotary table, with minimum internal diameter equal to blowout preventer bore.

II. Blowout preventer and all fittings must be in good condition with a minimum 3000 psi working pressure on 9 5/8" and 7" casing.

III. Safety valve must be available on the rig floor at all times with proper connections to install in the drill string. Valve must be full bore with minimum 3000 psi working pressure.

IV. Equipment through which bit must pass shall be at least as large as internal diameter of the casing.

V. A kelly cock shall be installed on the kelly at all times.

Blowout preventer closing equipment to include and accumulator of at least 40 gallon capacity, two independent sources of pressure on closing unit, and meet all other API specifications.

20" Diverter & Closed Loop Equipment Schematic

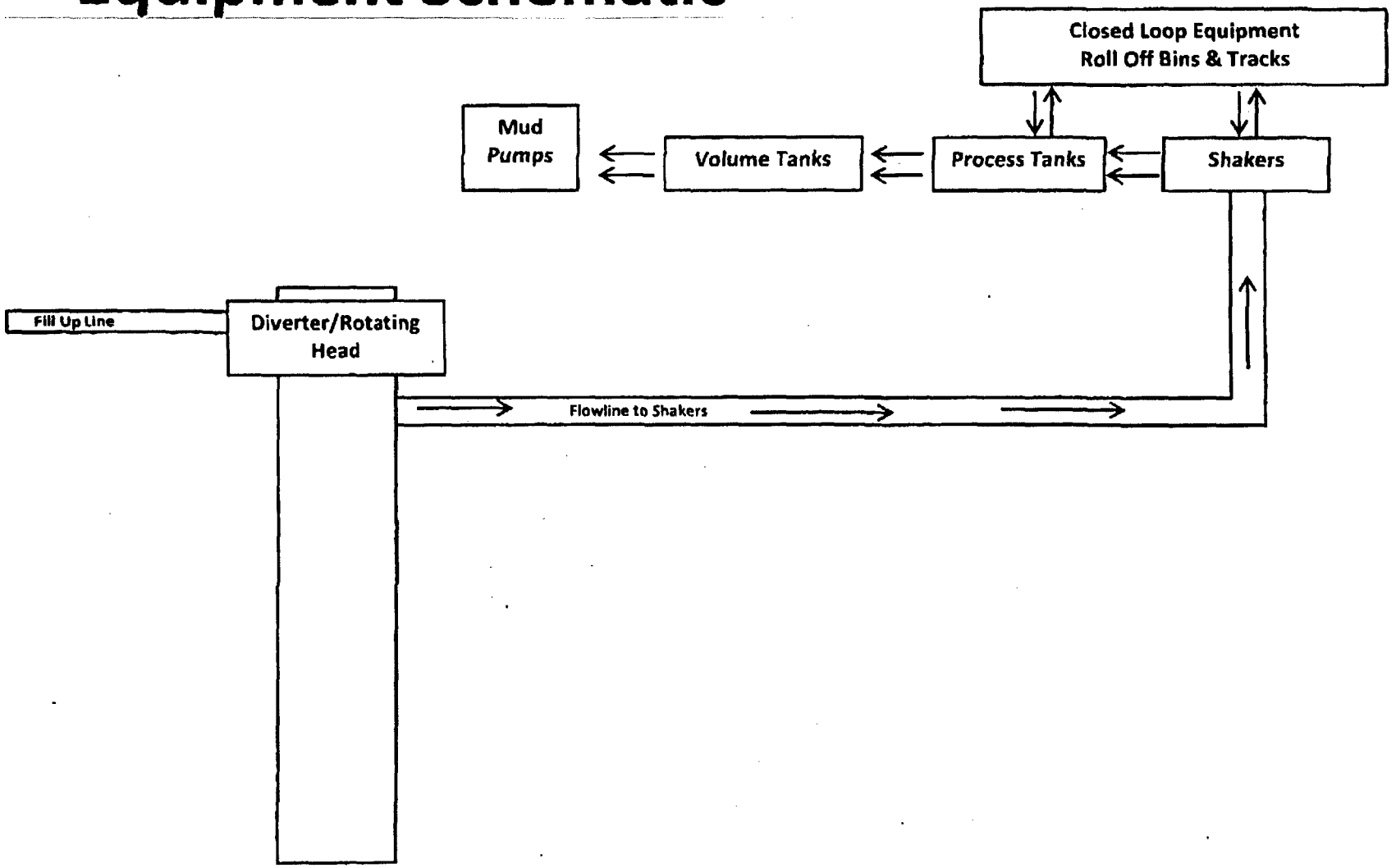


Exhibit 2B
Sig. 5-6 B2NM Federal #1H

11" 3M BOPE & Closed Loop Equipment Schematic

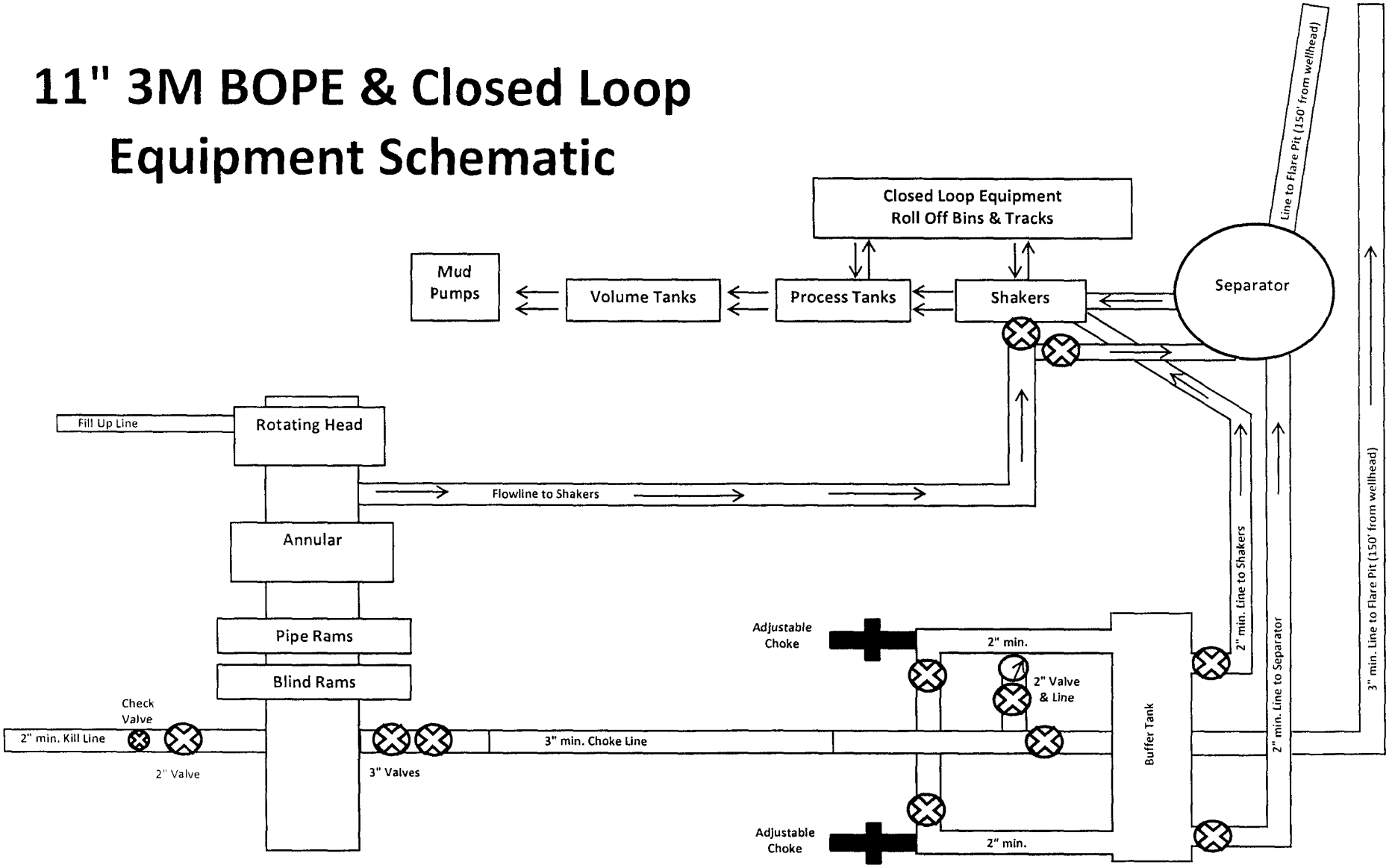


Exhibit "2"
Sig 5/6 B2NM Federal #1H

Note: All valves & lines on choke manifold are 3" unless otherwise noted. Exact manifold configuration may vary.

13 5/8" 2M BOPE & Closed Loop Equipment Schematic

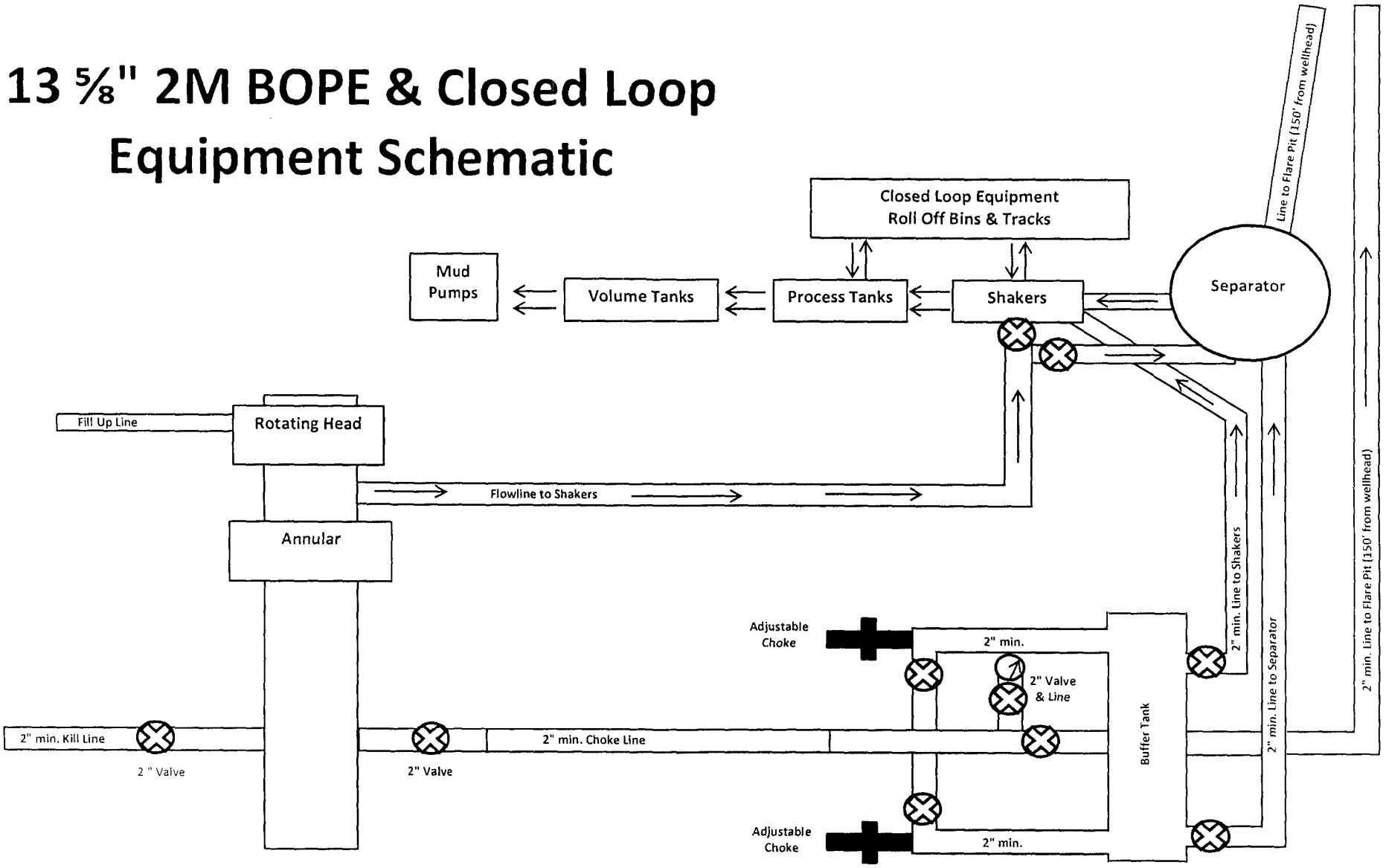
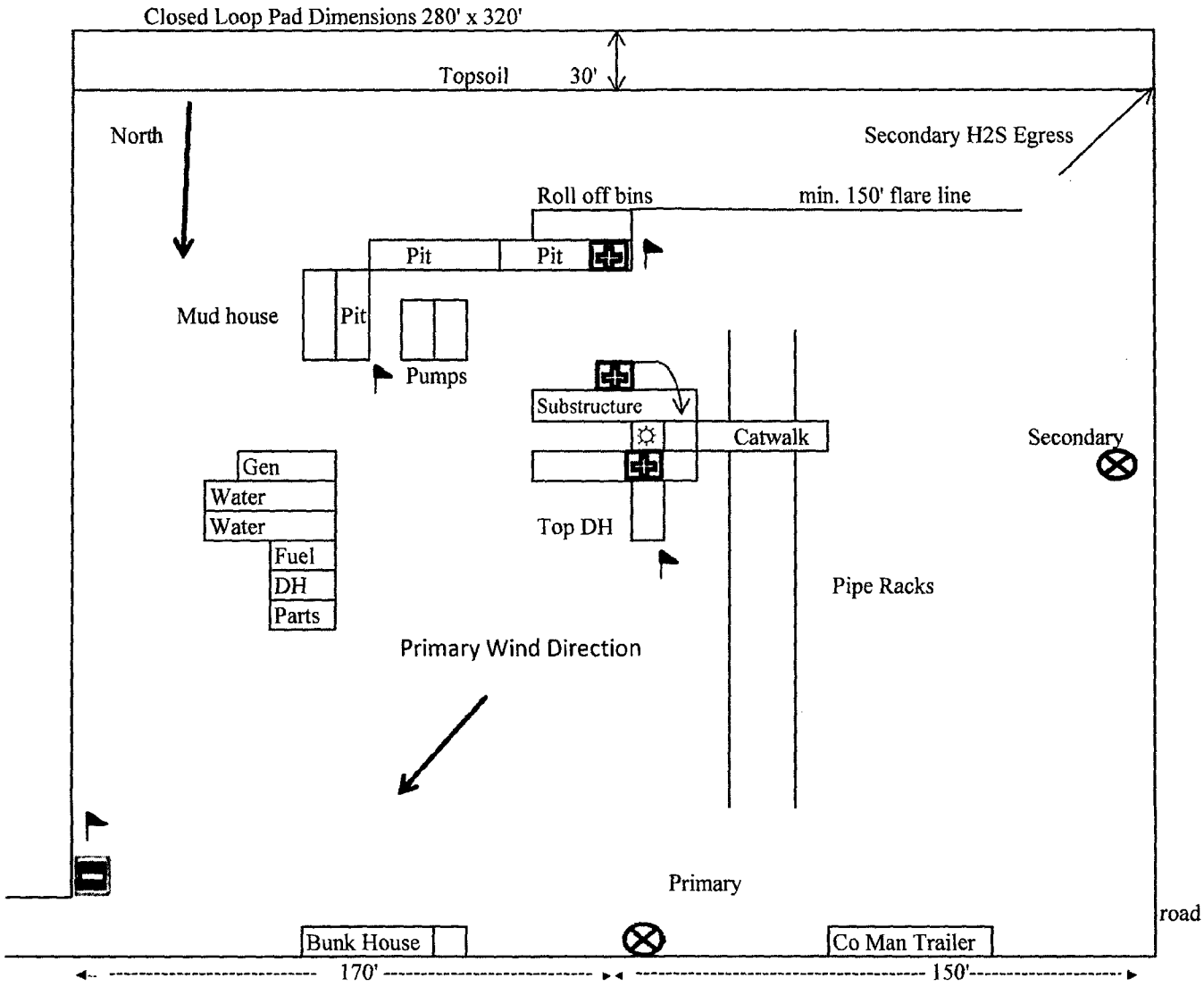


EXHIBIT "2"
Sig 5/6 B2NM Federal #1H

Exhibit 6: Production Facilities (H2S Diagram)



= Safety Stations

= Wind Markers

= H2S Monitors

= Warning Signs

Mewbourne Oil Company
Sig 5/6 B2NM Fed #1H
500' FSL & 2490' FEL
Sec. 5, T-20S, R-29E
Eddy County, NM

Hydrogen Sulfide Drilling Operations Plan

Mewbourne Oil Company

Sig 5/6 B2NM Fed #1H

500' FSL 2490' FEL (SHL)

Sec 5-T20S-R29E

Eddy County, New Mexico

1. General Requirements

Rule 118 does not apply to this well because MOC has researched this area and no high concentrations of H2S were found. MOC will have on location and working all H2S safety equipment before the Delaware formation for purposes of safety and insurance requirements.

2. Hydrogen Sulfide Training

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will have received training from a qualified instructor in the following areas prior to entering the drilling pad area of the well:

1. The hazards and characteristics of hydrogen sulfide gas.
2. The proper use of personal protective equipment and life support systems.
3. The proper use of hydrogen sulfide detectors, alarms, warning systems, briefing areas, evacuation procedures.
4. The proper techniques for first aid and rescue operations.

Additionally, supervisory personnel will be trained in the following areas:

1 The effects of hydrogen sulfide on metal components. If high tensile tubular systems are utilized, supervisory personnel will be trained in their special maintenance requirements.
2 Corrective action and shut in procedures, blowout prevention, and well control procedures while drilling a well.
3 The contents of the Hydrogen Sulfide Drilling Operations Plan.

There will be an initial training session prior to encountering a know hydrogen sulfide source. The initial training session shall include a review of the site specific Hydrogen Sulfide Drilling Operations Plan.

3. Hydrogen Sulfide Safety Equipment and Systems

All hydrogen sulfide safety equipment and systems will be installed, tested, and operational prior to drilling below the 9-5/8" intermediate casing.

1. Well Control Equipment
   - A. Choke manifold with minimum of one adjustable choke/remote choke.
   - B. Blowout preventers equipped with blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit
   - C. Auxiliary equipment including annular type blowout preventer.
2. Protective Equipment for Essential Personnel

   Thirty minute self contained work unit located in the dog house and at briefing areas.

Additionally: If H2S is encountered in concentrations less than 10 ppm, fans will be placed in work areas to prevent the accumulation of hazardous amounts of poisonous gas. If higher concentrations of H2S are detected the well will be shut in MOC will follow Onshore Order 6 and install a rotating head, mud/gas separator, remote choke and flare line with igniter will be installed.

3. Hydrogen Sulfide Protection and Monitoring Equipment
Two portable hydrogen sulfide monitors positioned on location for optimum coverage and detection. The units shall have audible sirens to notify personnel when hydrogen sulfide levels exceed 20 PPM.

4. Visual Warning Systems
A. Wind direction indicators as indicated on the well site diagram.
B. Caution signs shall be posted on roads providing access to location. Signs shall be painted a high visibility color with lettering of sufficient size to be readable at reasonable distances from potentially contaminated areas.

4. Mud Program

The mud program has been designed to minimize the amount of hydrogen sulfide entrained in the mud system. Proper mud weight, safe drilling practices, and the use of hydrogen sulfide scavengers will minimize hazards while drilling the well.

5. Metallurgy

All tubular systems, wellheads, blowout preventers, drilling spools, kill lines, choke manifolds, and valves shall be suitable for service in a hydrogen sulfide environment when chemically treated.

6. Communications

State & County officials' phone numbers are posted on rig floor and supervisors trailer. Communications in company vehicles and toolpushers are either two way radios or cellular phones.

7. Well Testing

Drill stem testing is not an anticipated requirement for evaluation of this well. A drill stem test is required and will be conducted with a minimum number of personnel in the immediate vicinity. The test will be conducted during daylight hours only.

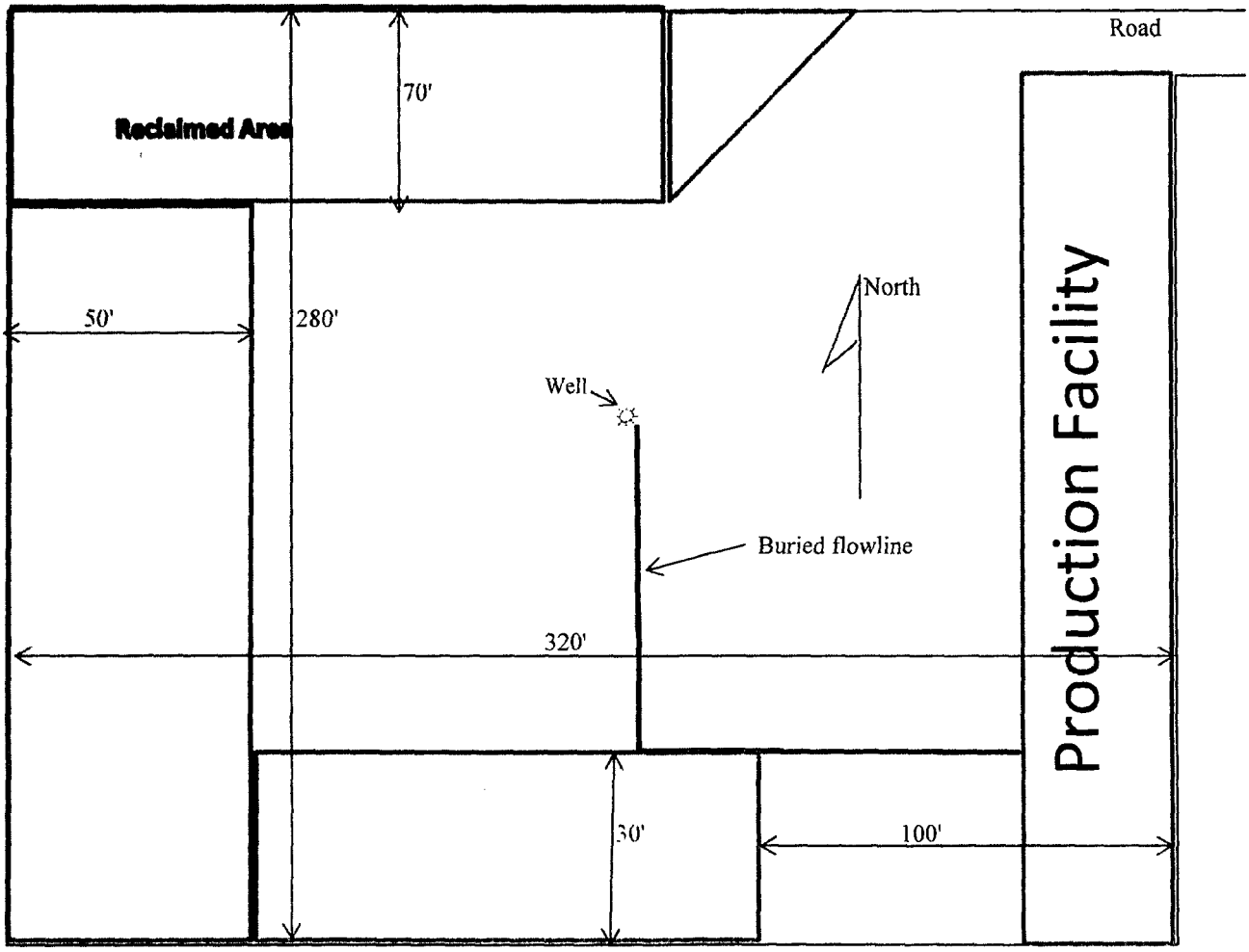
8. Emergency Phone Numbers

Lea County Sheriff's Office	**911 or 575-396-3611**
Ambulance Service	**911 or 575-885-2111**
Carlsbad Fire Dept	**911 or 575-885-2111**
Closest Medical Facility - Columbia Medical Center of Carlsbad	**575-492-5000**

Mewbourne Oil Company	**Hobbs District Office**	**575-393-5905**
	Fax	**575-397-6252**
	2nd Fax	**575-393-7259**
District Manager	**Robin Terrell**	**575-390-4816**
Drilling Superintendent	**Frosty Lathan**	**575-390-4103**
	Bradley Bishop	**575-390-6838**
Drilling Foreman	**Wesley Noseff**	**575-441-0729**

Exhibit 5: Reclaim

Closed Loop Pad Dimensions 280' x 320'



Mewbourne Oil Company
Sig 5/6 B2NM Fed #1H
500' FSL & 2490' FEL
Sec. 5 T20S R29E
Eddy County, NM

Surface Use Plan of Operations

Introduction

The following surface use plan of operations will be followed and carried out once the APD is approved. No other disturbance will be created other than what was submitted in this surface use plan. If any other surface disturbance is needed after the APD is approved, a BLM approved sundry notice or right of way application will be acquired prior to any new surface disturbance.

Before any surface disturbance is created, stakes or flagging will be installed to mark boundaries of permitted areas of disturbance, including soil storage areas. As necessary, slope, grade, and other construction control stakes will be placed to ensure construction in accordance with the surface use plan. All boundary markers will be maintained in place until final construction cleanup is completed. If disturbance boundary markers are disturbed or knocked down, they will be replaced before construction proceeds.

If terms and conditions are attached to the approved APD and amend any of the proposed actions in this surface use plan, we will adhere to the terms and conditions.

1. Existing Roads

a. The existing access road route to the proposed project is depicted on Exhibit "3D". Improvements to the driving surface will be done where necessary. No new surface disturbance will be done, unless otherwise noted in the New or Reconstructed Access Roads section of this surface use plan..

b. The existing access road route to the proposed project does not cross lease or unit boundaries, so a BLM right-of-way grant will not be acquired for this proposed road route.

c. The operator will improve or maintain existing roads in a condition the same as or better than before operations begin. The operator will repair pot holes, clear ditches, repair the crown, etc. All existing structures on the entire access route such as cattleguards, other range improvement projects, culverts, etc. will be properly repaired or replaced if they are damaged or have deteriorated beyond practical use.

d. We will prevent and abate fugitive dust as needed, whether created by vehicular traffic, equipment operations, or wind events. BLM written approval will be acquired before application of surfactants, binding agents, or other dust suppression chemicals on roadways.

2. New or Reconstructed Access Roads

a. An access road will be needed for this proposed project. See the survey plat for the location of the access road.

b. The length of access road needed to be constructed for this proposed project is about 1167 feet.

c. The maximum driving width of the access road will be 14 feet. The maximum width of surface disturbance when constructing the access road will not exceed 25 feet. All areas outside of the driving surface will be revegetated.

d. The access road will be constructed with 6 inches of compacted caliche.

e. The proposed access road will be constructed to BLM Gold Book standards and/or BLM CFO specifications.

f. The access road will be constructed with a ditch on each side of the road.

g. The maximum grade for the access road will be 8 percent.

h. No turnouts will be constructed on the proposed access road.

i. No cattleguards will be installed for this proposed access road.

j. No BLM right-of-way grant is needed for the construction of this access road.

k. No culverts will be constructed for this proposed access road.

l. No low water crossings will be constructed for the access road.

m. Since the access road is on level ground, no lead-off ditches will be constructed for the proposed access road.

n. Newly constructed or reconstructed roads, on surface under the jurisdiction of the Bureau of Land Management, will be constructed as outlined in the BLM "Gold Book" and to meet the standards of the anticipated traffic flow and all anticipated weather requirements as needed. Construction will include ditching, draining, crowning and capping or sloping and dipping the roadbed as necessary to provide a well-constructed and safe road.

3. Location of Existing Wells

a. Exhibit 4 of the APD depicts all known wells within a one mile radius of the proposed well.

b. There is no other information regarding wells within a one mile radius.

4. Location of Existing and/or Proposed Production Facilities

a. All permanent, lasting more than 6 months, above ground structures including but not limited to pumpjacks, storage tanks, barrels, pipeline risers, meter housing, etc. that are not subject to safety requirements will be painted a non-reflective paint color, Shale Green, from the BLM Standard Environmental Colors chart, unless another color is required in the APD Conditions of Approval.

b. If any type of production facilities are located on the well pad, they will be strategically placed to allow for maximum interim reclamation, recontouring, and revegetation of the well location.

c. A production facility is proposed to be installed on the proposed well location. Production from the well will be processed on site in the production facility. Exhibit 5 depicts the location of the production facilities as they relate to the well and well pad.

d. The proposed production facility will have a secondary containment structure that is constructed to hold the capacity of 1-1/2 times the largest tank, plus freeboard to account for percipitation, unless more stringent protective requirements are deemed necessary.

e. There is no other diagram that depicts production facilities.

If any plans change regarding the production facility or other infrastructure (pipeline, electric line, etc.), we will submit a sundry notice or right of way (if applicable) prior to installation or construction.

Electric Line(s)

a. An electric line will be applied for through a sundry notice or BLM right of way at a later date.

5. Location and Types of Water

a. The source and location of the water supply are as follows: transported from various sources.

b. The operator will use established or constructed oil and gas roads to transport water to the well site. The operator will try to utilize the identified access route in the surface use plan.

6. Construction Material

a. caliche

7. Methods for Handling Waste

a. Drilling fluids and produced oil and water from the well during drilling and completion operations will be stored safely and disposed of properly in an NMOCD approved disposal facility.

b. Garbage and trash produced during drilling and completion operations will be collected in a trash container and disposed of properly at a state approved disposal facility. All trash on and around the well site will be collected for disposal.

c. Human waste and grey water will be properly contained and disposed of properly at a state approved disposal facility.

d. After drilling and completion operations, trash, chemicals, salts, frac sand and other waste material will be removed and disposed of properly at a state approved disposal facility.

e. The well will be drilled utilizing a closed loop system. Drill cutting will be properly disposed of into steel tanks and taken to an NMOCD approved disposal facility.

8. Ancillary Facilities

a. No ancillary facilities will be needed for this proposed project.

9. Well Site Layout

a. The following information is presented in the well site survey plat or diagram:

i. reasonable scale (near 1":50')

ii. well pad dimensions

iii. well pad orientation

iv. drilling rig components

v. proposed access road

vi. elevations of all points

vii. topsoil stockpile

viii. reserve pit location/dimensions if applicable

ix. other disturbances needed (flare pit, stinger, frac farm pad, etc.)

x. existing structures within the 600' x 600' archaeoligical surveyed area (pipelines, electric lines, well pads, etc

b. The proposed drilling pad was staked and surveyed by a professional surveyor. The attached survey plat of the well site depicts the drilling pad layout as staked.

c. A title of a well site diagram is Exhibit 6. This diagram depicts the drilling pad layout, associated equipment, and topsoil.

d. Topsoil Salvaging

i. Grass, forbs, and small woody vegetation, such as mesquite will be excavated as the topsoil is removed. Large woody vegetation will be stripped and stored separately and respread evenly on the site following topsoil respreading. Topsoil depth is defined as the top layer of soil that contains 80% of the roots. In areas to be heavily disturbed, the top 6 inches of soil material, will be stripped and stockpiled on the perimeter of the well location and along the perimeter of the access road to control run-on and run-off, to keep topsoil

viable, and to make redistribution of topsoil more efficient during interim reclamation. Stockpiled topsoil should include vegetative material. Topsoil will be clearly segregated and stored separately from subsoils. Contaminated soil will not be stockpiled, but properly treated and handled prior to topsoil salvaging.

10. Plans for Surface Reclamation

Reclamation Objectives

i. The objective of interim reclamation is to restore vegetative cover and a portion of the landform sufficient to maintain healthy, biologically active topsoil; control erosion; and minimize habitat and forage loss, visual impact, and weed infestation, during the life of the well or facilities.

ii. The long-term objective of final reclamation is to return the land to a condition similar to what existed prior to disturbance. This includes restoration of the landform and natural vegetative community, hydrologic systems, visual resources, and wildlife habitats. To ensure that the long-term objective will be reached through human and natural processes, actions will be taken to ensure standards are met for site stability, visual quality, hydrological functioning, and vegetative productivity.

iii. The BLM will be notified at least 3 days prior to commencement of any reclamation procedures.

iv. If circumstances allow, interim reclamation and/or final reclamation actions will be completed no later than 6 months from when the final well on the location has been completed or plugged. We will gain written permission from the BLM if more time is needed.

v. Interim reclamation will be performed on the well site after the well is drilled and completed. Exhibit 5 depicts the location and dimensions of the planned interim reclamation for the well site.

Interim Reclamation Procedures (If performed) Interim Reclamation will be accomplished within 6 months of well completion.

1. Within 30 days of well completion, the well location and surrounding areas will be cleared of, and maintained free of, all materials, trash, and equipment not required for production.

2. In areas planned for interim reclamation, all the surfacing material will be removed and returned to the original mineral pit or recycled to repair or build roads and well pads.

3. The areas planned for interim reclamation will then be recontoured to the original contour if feasible, or if not feasible, to an interim contour that blends with the surrounding topography as much as possible. Where applicable, the fill material of the well pad will be backfilled into the cut to bring the area back to the original contour. The interim cut and fill slopes prior to re-seeding will not be steeper than a 3:1 ratio, unless the adjacent native topography is steeper. Note: Constructed slopes may be much steeper during drilling, but will be recontoured to the above ratios during interim reclamation.

4. Topsoil will be evenly respread and aggressively revegetated over the entire disturbed area not needed for all-weather operations including cuts & fills. To seed the area, the proper BLM seed mixture, free of noxious weeds, will be used. Final seedbed preparation will consist of contour cultivating to a depth of 4 to 6 inches within 24 hours prior to seeding, dozer tracking, or other imprinting in order to break the soil crust and create seed germination micro-sites.

5. Proper erosion control methods will be used on the area to control erosion, runoff and siltation of the surrounding area.

6. The interim reclamation will be monitored periodically to ensure that vegetation has reestablished and that erosion is controlled.

Final Reclamation (well pad, buried pipelines, etc.) Final reclamation will be accomplished within 6 months of abandonment.

1. Prior to final reclamation procedures, the well pad, road, and surrounding area will be cleared of material, trash, and equipment.

2. All surfacing material will be removed and returned to the original mineral pit or recycled to repair or build roads and well pads.

3. All disturbed areas, including roads, pipelines, pads, production facilities, and interim reclaimed areas will be recontoured to the contour existing prior to initial construction or a contour that blends indistinguishably with the surrounding landscape. Topsoil that was spread over the interim reclamation areas will be stockpiled prior to recontouring. The topsoil will be redistributed evenly over the entire disturbed site to ensure successful revegetation.

4. After all the disturbed areas have been properly prepared, the areas will be seeded with the proper BLM seed mixture, free of noxious weeds. Final seedbed preparation will consist of contour cultivating to a depth of 4 to 6 inches within 24 hours prior to seeding, dozer tracking, or other imprinting in order to break the soil crust and create seed germination micro-sites.

5. Proper erosion control methods will be used on the entire area to control erosion, runoff and siltation of the surrounding area.

6. All unused equipment and structures including pipelines, electric line poles, tanks, etc. that serviced the well will be removed.

7. All reclaimed areas will be monitored periodically to ensure that revegetation occurs, that the area is not redisturbed, and that erosion is controlled.

11. Surface Ownership

a. The surface ownership of the proposed project is Federal.

12. Other Information

a. No other information is needed at this time.

13. Maps and Diagrams

Exhibit "3D" - Existing Road
Exhibit 4 - Wells Within One Mile
Exhibit 5 - Production Facilities Diagram
Exhibit 6 - Well Site Diagram
Exhibit 5 - Interim Reclamation

Mewbourne Oil Company
PO Box 5270
Hobbs, NM 88241
(575) 393-5905

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 24 day of Sept, 2014.

Name: Robin Terrell

Signature: BBG for RT

Position Title: Hobbs District Manager

Address: PO Box 5270, Hobbs NM 88241

Telephone: 575-393-5905

E-mail: rterrell@mewbourne.com

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**Mewbourne Oil Company**
LEASE NO.:	**NMNM-0144698**
WELL NAME & NO.:	**Sig 5 6 B2NM Federal 1H**
SURFACE HOLE FOOTAGE:	**0500' FSL & 2490' FEL**
BOTTOM HOLE FOOTAGE	**0500' FSL & 0330' FWL Sec. 06, T. 20 S., R 29 E.**
LOCATION:	**Section 05, T. 20 S., R 29 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.

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/Karst Surface Mitigation

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

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

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

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

Closed Mud System Using Steel Tanks with All Fluids and Cuttings Hauled Off.
A closed mud system using steel tanks for all cuttings and fluids is required. All fluids and cuttings will be hauled off site for disposal. No pits are allowed.

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

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

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

Cave/Karst Subsurface Mitigation

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

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

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

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

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

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

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

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.

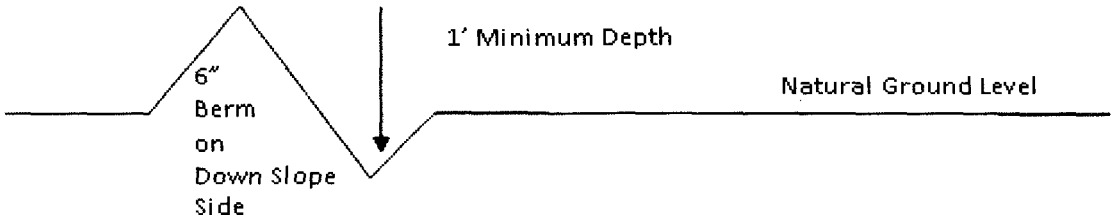
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping 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 foot road with 4% road slope: $\frac{400'}{4\%} + 100' = 200'$ 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

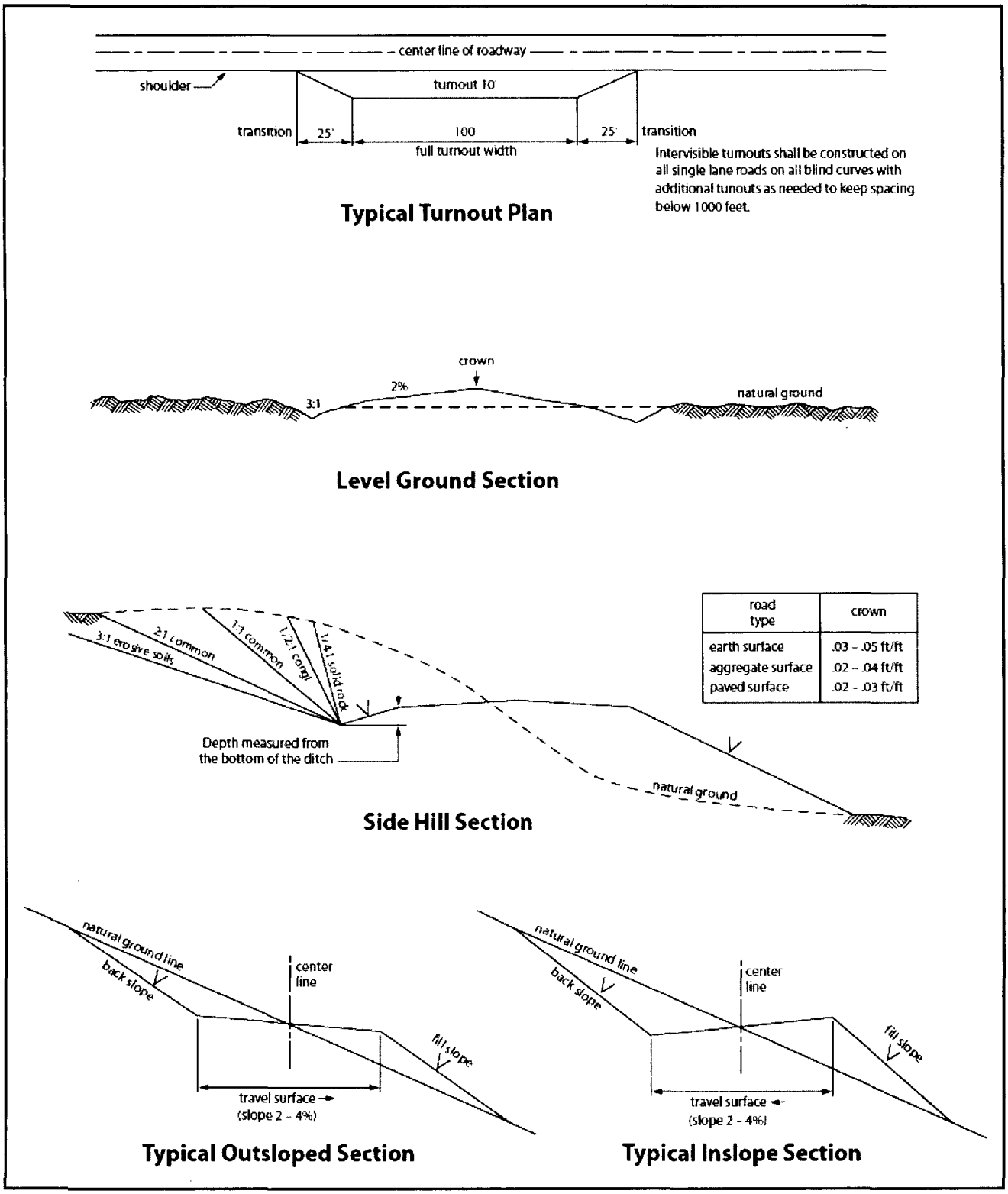


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

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 **Delaware** 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. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.

4. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) 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. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

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.

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.

High Cave/Karst
Capitan Reef
Possibility of water flows in the Artesia Group, Salado, and Captain Reef.
Possibility lost circulation in the Artesia Group, Rustler, Capitan Reef, and Delaware.

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. IF THE PRIMARY CEMENT JOB ON THE SURFACE CASING DOES NOT CIRCULATE, THEN THE NEXT TWO CASING STRINGS MUST BE CEMENTED TO SURFACE.

1. The **20** inch surface casing shall be set at approximately **365** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. **If salt is encountered, set casing at least 25 feet above the salt.**
    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.

13-3/8" Intermediate casing shall be kept fluid filled while running into hole to meet BLM minimum collapse requirements.

2. The minimum required fill of cement behind the **13-3/8** inch 1st intermediate casing, which shall be set at approximately **1325** feet (**base of the Yates formation**), is:

   ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst. Excess calculates to negative 1% - Additional cement will be required.**

3. The minimum required fill of cement behind the **9-5/8** inch 2nd intermediate casing is:

DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range. If an ECP is used, it is to be set a minimum of 50' below the shoe to provide cement across the shoe. If it cannot be set below the shoe, a CBL shall be run to verify cement coverage.

a. First stage to DV tool:

☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage.

b. Second stage above DV tool:

☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to Capitan Reef. Excess calculates to 13% - Additional cement may be required.**

Centralizers required through the curve and a minimum of one every other joint.

4. The minimum required fill of cement behind the **7** inch production casing is:

   ☒ Cement should tie-back at least **50 feet above the Capitan Reef** (Top of Capitan Reef estimated at 3216'). Operator shall provide method of verification. **Excess calculates to 21% - Additional cement may be required.**

5. Cement not required on the **4-1/2"** casing. **Packer system being used.**

6. 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 53.

2. **A variance is granted for the use of a diverter on the 20" surface casing.**

3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **13-3/8** 1st intermediate casing shoe shall be **2000 (2M)** psi **(Operator install 2M annular)**.

4. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9-5/8** 2nd intermediate casing shoe shall be **3000 (3M)** psi.

5. 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.

JAM 081816

VIII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

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

Exclosure Netting (Open-top Tanks)

Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

Chemical and Fuel Secondary Containment and Exclosure Screening

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

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

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

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

IX. INTERIM RECLAMATION

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

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

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

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

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

X. FINAL ABANDONMENT & RECLAMATION

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

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

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

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

Mixture 4, for Gypsum Sites

The holder shall seed all the 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 will 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 will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will 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:

Species	lb/acre
Alkli Sacaton (*Sporobolus airoides*)	1.5
DWS~ Four-wing saltbush (*Atriplex canescens*)	8.0

~DWS: DeWinged Seed

*Pounds of pure live seed:

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