

Form 3160-3
(April 2004)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a Type of work <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5 Lease Serial No. 070341 LC 065705B
1b Type of Well <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6 If Indian, Allottee or Tribe Name
2 Name of Operator BOPCO, L. P.		7 If Unit or CA Agreement, Name and No
3a Address P. O. Box 2760 Midland, TX 79702	3b Phone No (include area code) 432-683-2277	8 Lease Name and Well No Poker Lake Unit #304H
4 Location of Well (Report location clearly and in accordance with any State requirements.)* At surface NESE, UL 1, 1900' FSL, 350' FEL, Lat N32.11334, Long W103.912733 At proposed prod zone SESW, UL N, 660' FSL, 2300' FWL, Lat N32.12452, Lon W103.92150		9 API Well No. 30-015-37594
14 Distance in miles and direction from nearest town or post office* 12 miles southeast of Malaga, NM		10 Field and Pool or Exploratory Coral Canyon (Delaware)
15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drg unit line, if any) 350'	16 No. of acres in lease 1360	11 Sec., T. R. M. or Blk and Survey or Area SL: Sec 19, T25S, R30E, Mer NMP BHL: Sec 18, T25S, R30E
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft 2737'	19 Proposed Depth 11,964' MD / 7227' TVD	12 County or Parish Eddy County
21 Elevations (Show whether DF, KDB, RT, GL, etc.) 3171' GL	22 Approximate date work will start* 04/15/2010	13 State NM
17 Spacing Unit dedicated to this well 280		
20 BLM/BIA Bond No. on file COB000050		
23 Estimated duration 24 days		

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No 1, shall be attached to this form

- | | |
|--|---|
| 1. Well plat certified by a registered surveyor | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above) |
| 2. A Drilling Plan | 5. Operator certification |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office) | 6. Such other site specific information and/or plans as may be required by the authorized officer |

25 Signature: <i>Annette Childers</i>	Name (Printed/Typed) Annette Childers	Date 12-21-09
---------------------------------------	---	-------------------------

Title
Regulatory Clerk

Approved by (Signature): <i>/s/ Don Peterson</i>	Name (Printed/Typed) Don Peterson	Date JAN 20 2010
--	---	----------------------------

Title FIELD MANAGER	Office CARLSBAD FIELD OFFICE
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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 USC Section 1001 and Title 43 USC 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

*(Instructions on page 2)

Carlsbad Controlled Water Basin

Approval Subject to General Requirements
& Special Stipulations Attached

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

DISTRICT I

1625 N. French Dr., Hobbs, NM 88240

DISTRICT II

1301 W. Grand Avenue, Artesia, NM 88210

DISTRICT III

1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV

1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102

Revised October 15, 2009

Submit one copy to appropriate
District Office

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-015-37594	Pool Code 13360	Pool Name Corral Canyon (Delaware)
Property Code 306402	Property Name POKER LAKE UNIT	
OGRID No. 260737	Operator Name BOPCO, L.P.	Well Number 304H
		Elevation 3171'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
1	19	25 S	30 E		1900	SOUTH	350	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	18	25 S	30 E		660	SOUTH	2300	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
280	N		

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

PROPOSED BOTTOM HOLE LOCATION
 Lat - N 32°07'28.28"
 Long - W 103°55'17.39"
 NMSPC- N 409267.423
 E 627494.337
 (NAD-27)

PROPOSED BRUSY CANYON E.P.
 Lat - N 32°06'49.08"
 Long - W 103°54'46.68"
 NMSPC- N 405316.21
 E 630151.03
 (NAD-27)

DELAWARE ENTRY PT.
 Lat - N 32°06'48.01"
 Long - W 103°54'45.84"
 NMSPC- N 405208.707
 E 630223.307
 (NAD-27)

SURFACE LOCATION
 Lat - N 32°06'48.01"
 Long - W 103°54'45.84"
 NMSPC- N 405208.707
 E 630223.307
 (NAD-27)

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.

Brian D. Hammit 12/14/09
 Signature Date

Brian D. Hammit
 Printed Name

SURVEYOR CERTIFICATION

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

DECEMBER 8, 2009
 Date Surveyed

[Signature]
 Signature & Seal of Professional Surveyor

7977
 Certificate No. Garry L. Jones 7977

BASIN SURVEYS

3170.3'

600'

3174.5'

150' NORTH
OFF SET
3171.4'

□

BOPCO, L.P.
POKER LAKE UNIT #304H
ELEV. - 3171'

150' WEST
OFF SET □
3170.8'

Lat - N 32°06'48.01"
Long - W 103°54'45.84"
NWSPCE - N 405208.707
E 630223.307
(NAD-27)

□

150' SOUTH
OFF SET
3171.1'

150' EAST
□ OFF SET
3171.5'

600'

3170.2'

600'

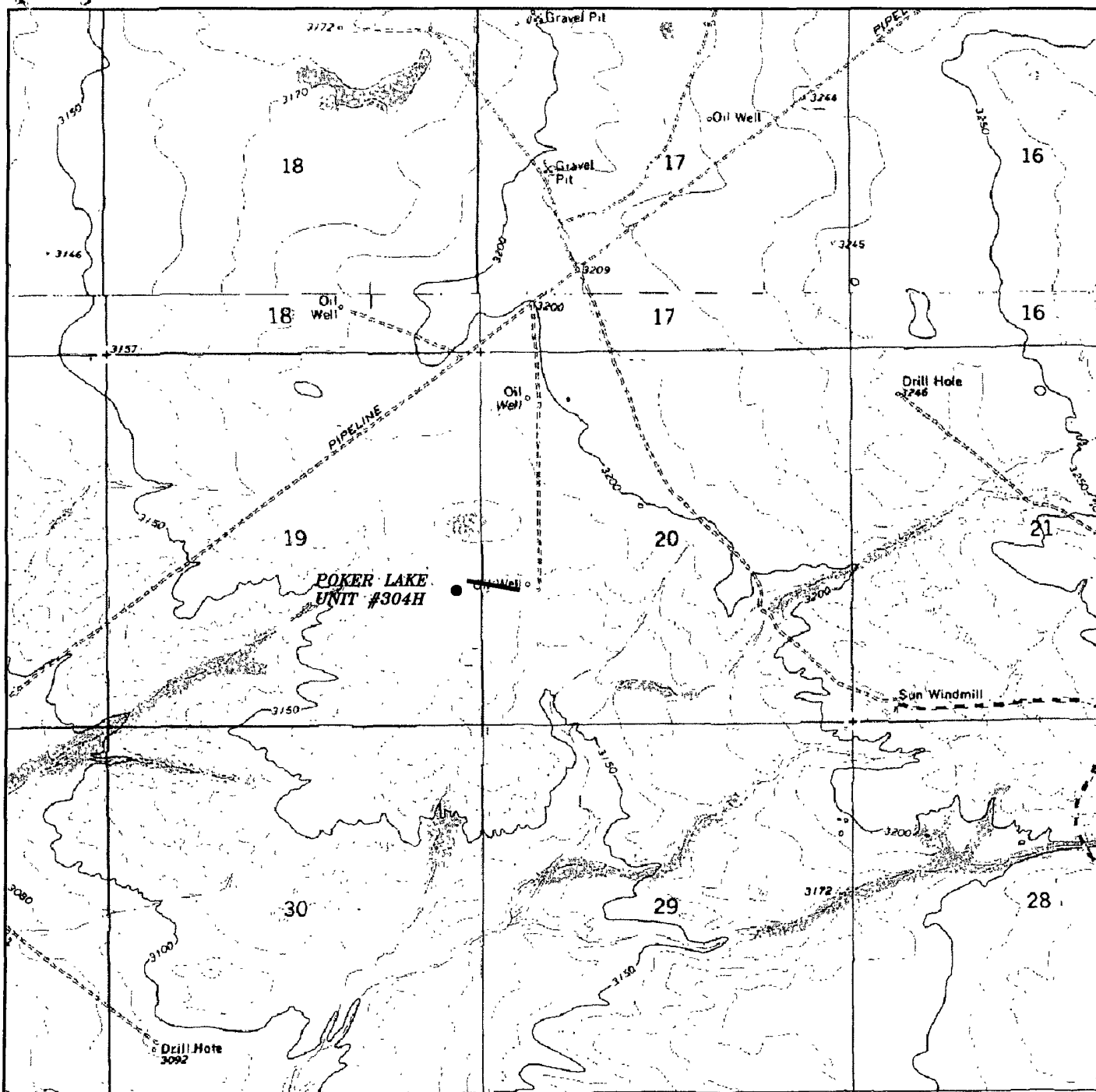
3171.2'

PROPOSED LEASE ROAD 778.4'

PROPOSED YATES BPL

N

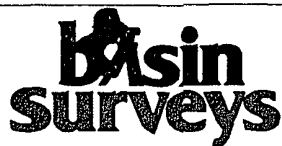
Survey Date: 12-08-2009 Sheet 1 of 1 Sheets



POKER LAKE UNIT #304H

Located 1900' FSL and 350' FEL

Section 19, Township 25 South, Range 30 East,
N.M.P.M., Eddy County, New Mexico.



P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com

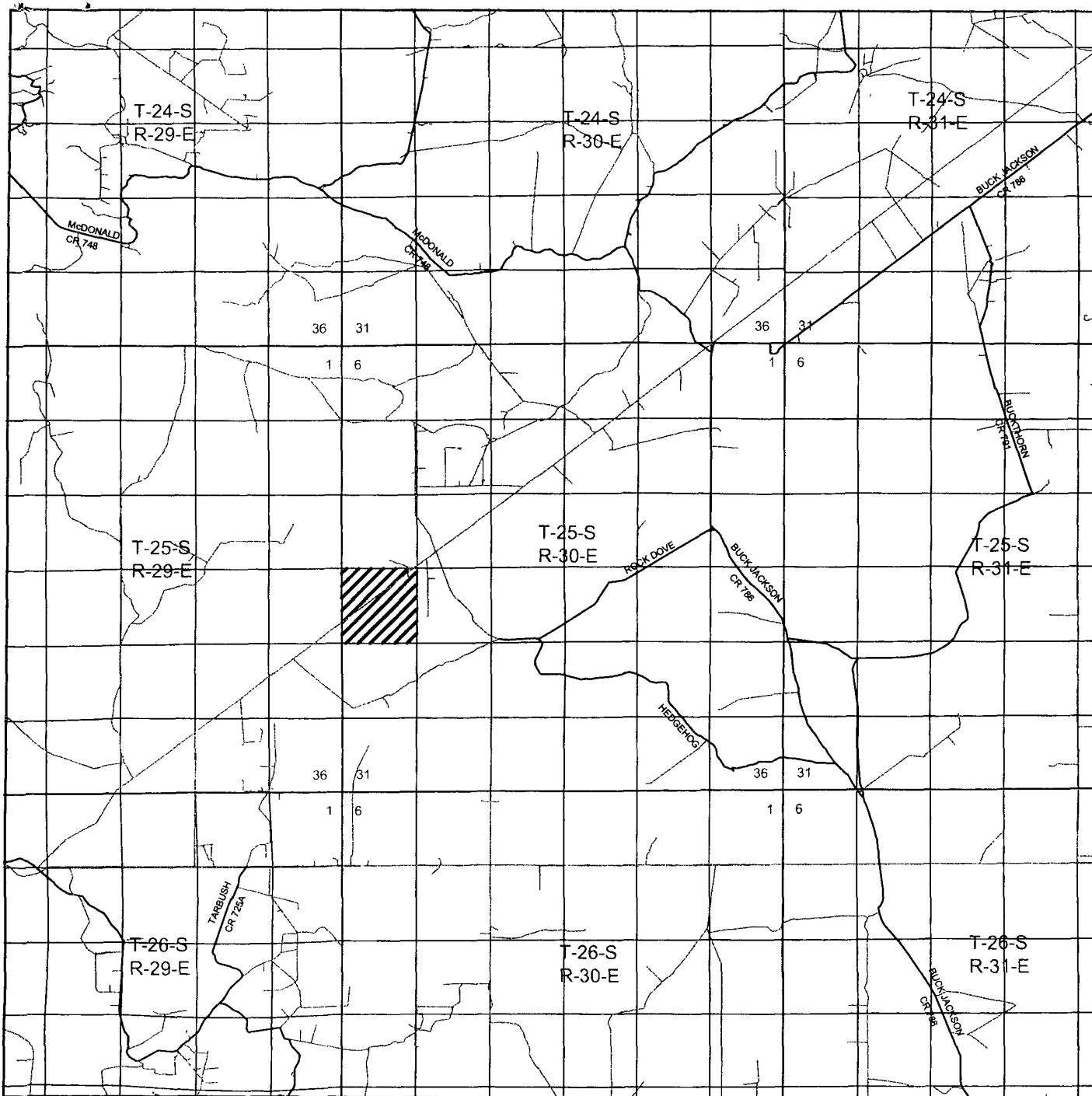
W.O. Number: JMS 22016

Survey Date: 12-08-2009

Scale: 1" = 2000'

Date: 12-09-2008

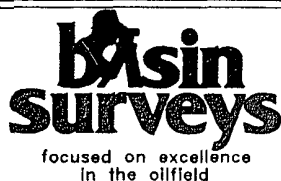
BOPCO, L.P.



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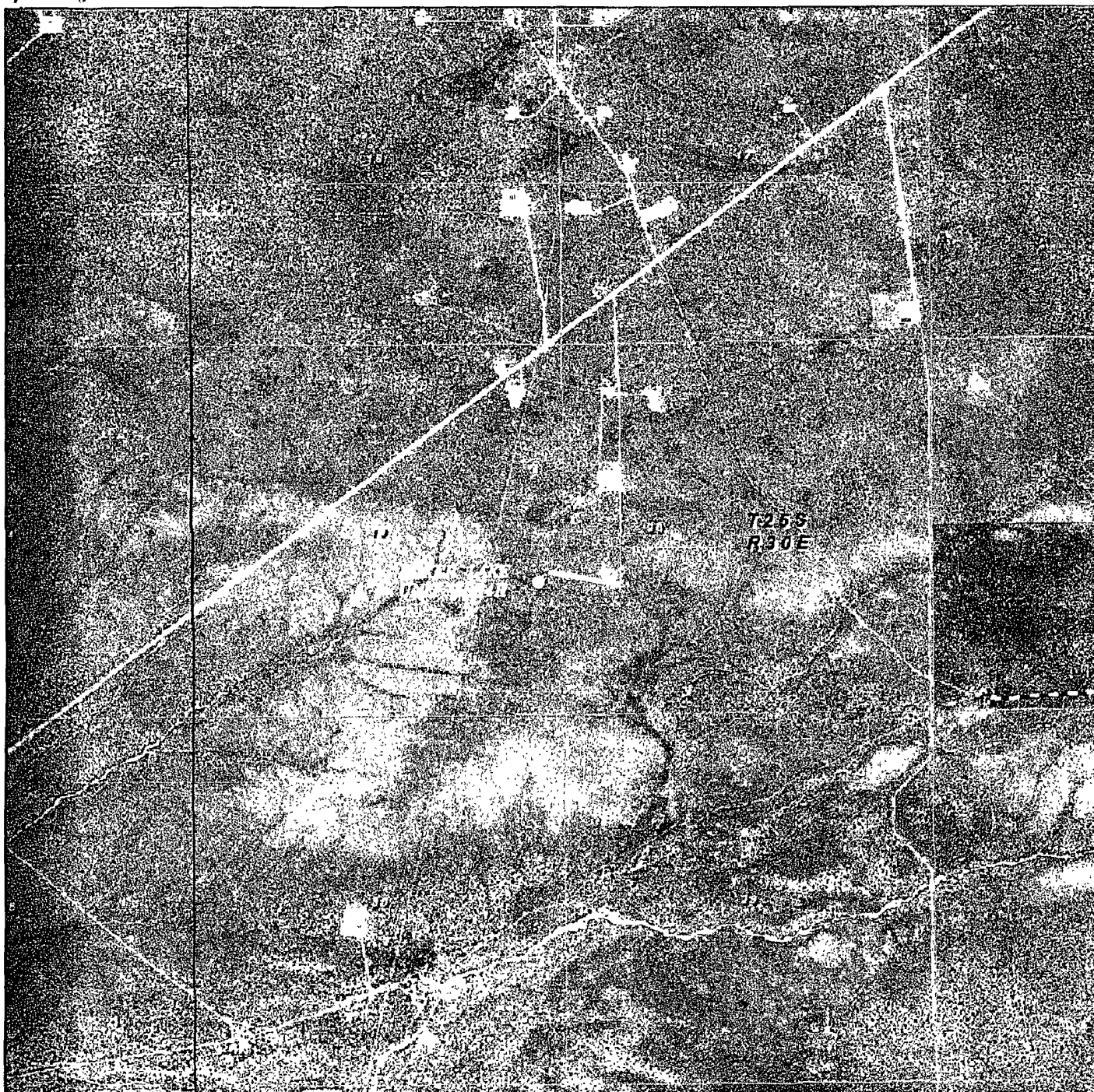
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Survey Date: 12-08-2009

Scale: 1" = 2 Miles

Date: 12-09-2008

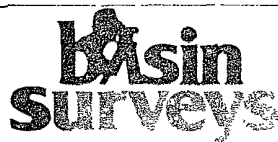
BOPCO, L.P.



POKER LAKE UNIT #304H

Located 1900' FSL and 350' FEL

Section 19, Township 25 South, Range 30 East,
N.M.P.M., Eddy County, New Mexico.



focused on excellence
in the oilfield

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W.O. Number JMS 22016

Scale 1" = 2000'

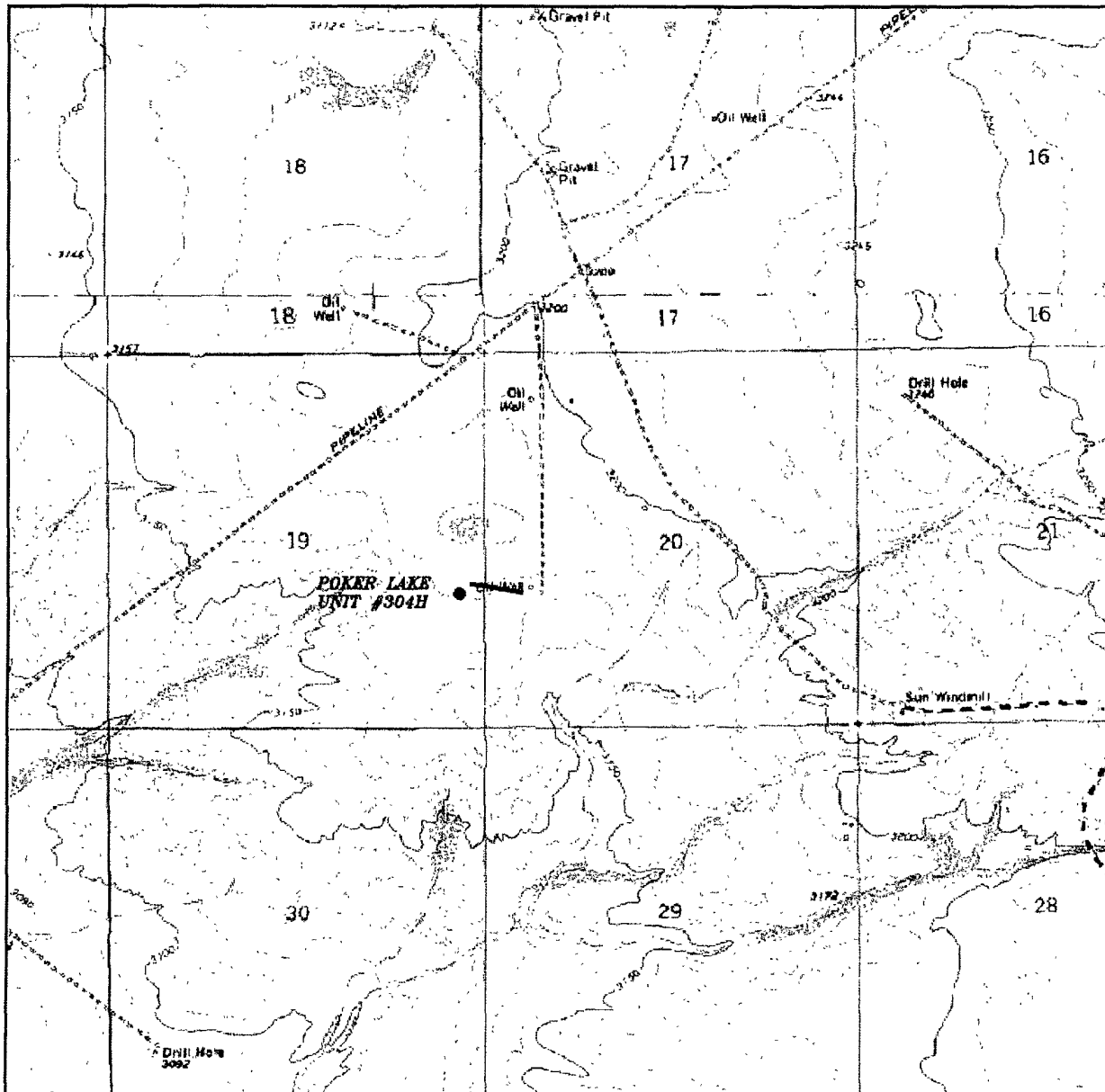
YELLOW TINT -- USA LAND
BLUE TINT -- STATE LAND
NATURAL COLOR -- FEE LAND



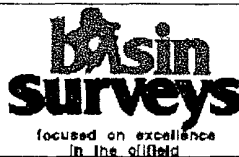
BOPCO, L.P.

Poker Lake Unit #304H

Exhibit "A"



POKER LAKE UNIT #304H
 Located 1900' FSL and 350' FEL
 Section 19, Township 25 South, Range 30 East,
 N.M.P.M., Eddy County, New Mexico.



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 1120 N. West County Rd.
 Hobbs, New Mexico 88241
 (575) 393-7316 - Office
 (575) 392-2206 - Fax
 basin-surveys.com

W.O. Number: JMS 22016

Survey Date: 12-08-2009

Scale: 1" = 2000'

Date: 12-09-2008

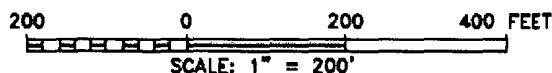
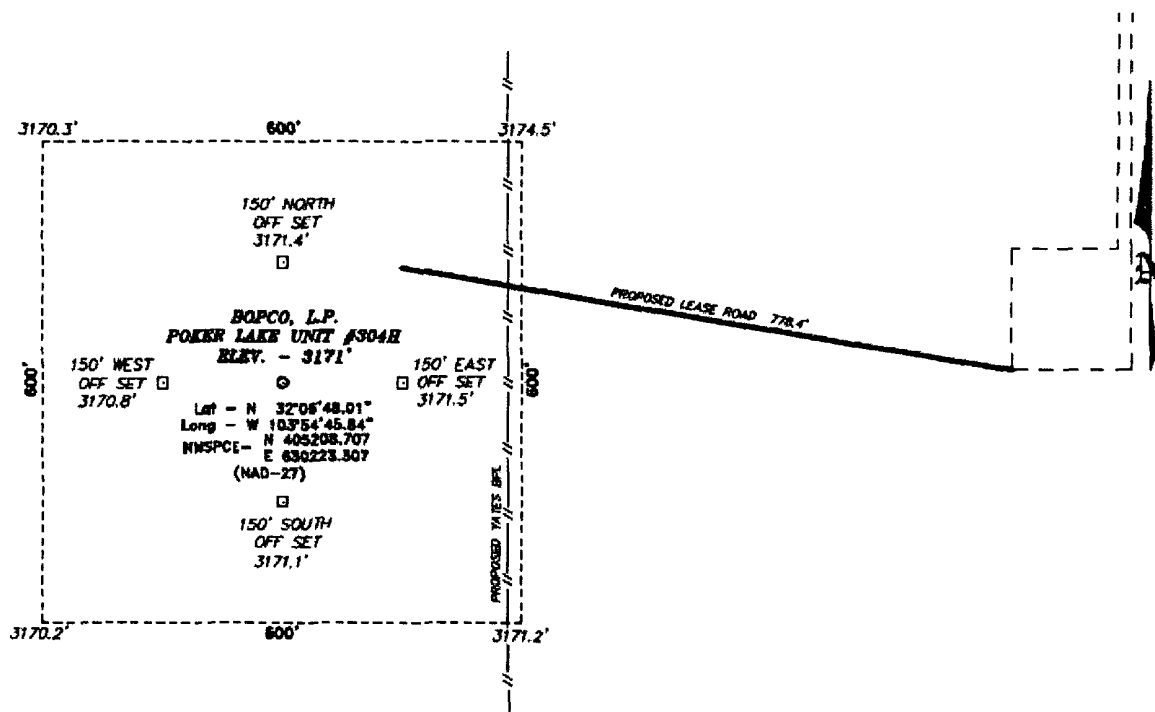
BOPCO, L.P.

Poker Lake Unit #304H

Exhibit "B"



**SECTION 19, TOWNSHIP 25 SOUTH, RANGE 30 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.**



Directions to Location:

FROM THE JUNCTION OF TWIN WELLS AND McDONALD,
GO SOUTHEAST 2.0 MILES TO LEASE ROAD, ON
LEASE ROAD GO 4.8 MILES SOUTHWEST TO LEASE
ROAD, ON LEASE ROAD GO SOUTH 0.7 MILES TO
OLD PAD AND PROPOSED LEASE ROAD.

BASIN SURVEYS P.O. BOX 1786 - HOBBS, NEW MEXICO

W.O. Number: 22016

Drawn By: J. SMALL

Date: 12-09-2009

Disk: JMS 22016

BOPCO, L.P.

REF: POKER LAKE UNIT #304H / WELL PAD TOPO

THE POKER LAKE UNIT #304H LOCATED 1900'

FROM THE SOUTH LINE AND 350' FROM THE EAST LINE OF

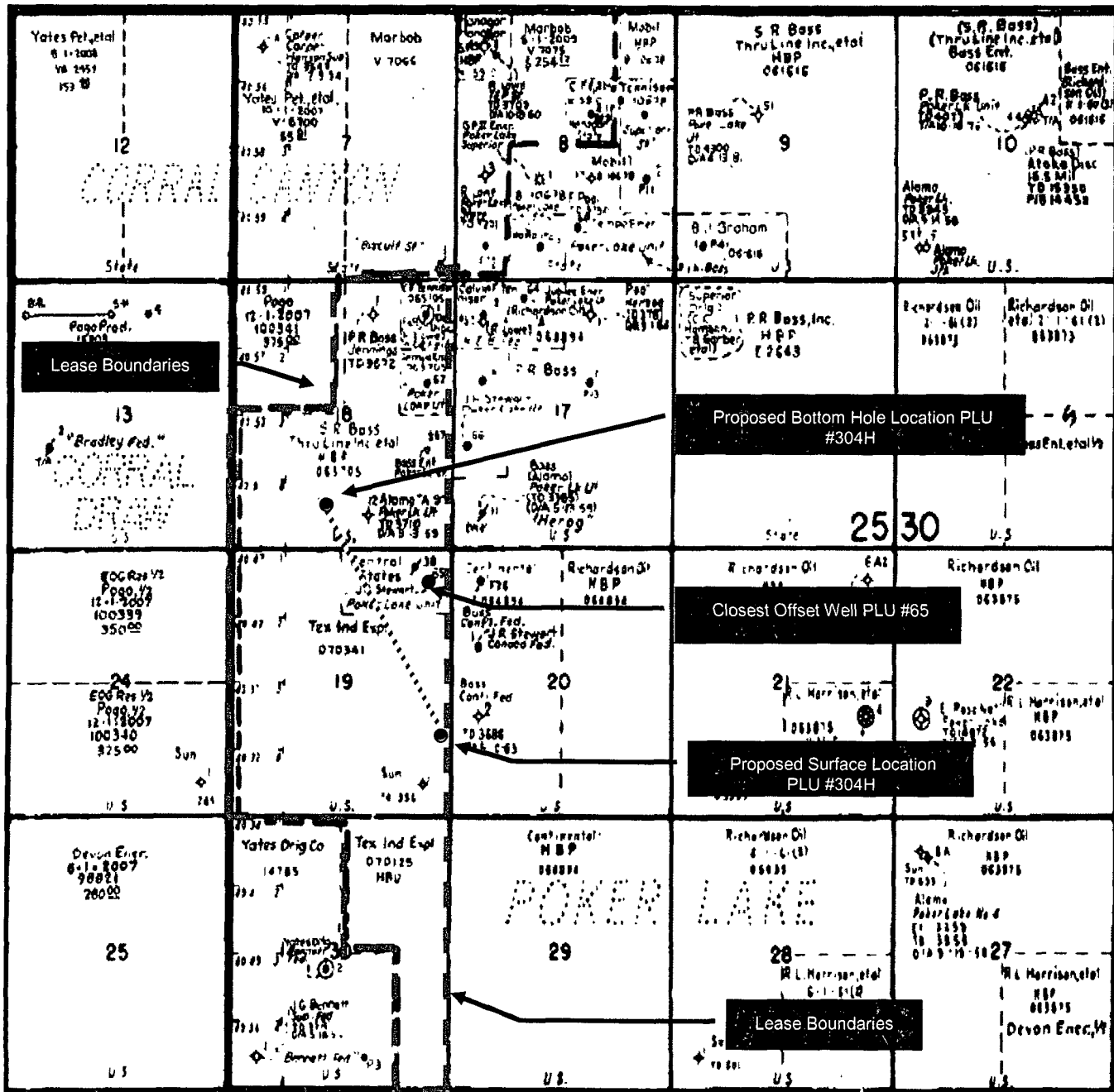
SECTION 19, TOWNSHIP 25 SOUTH, RANGE 30 EAST,

N.M.P.M., EDDY COUNTY, NEW MEXICO.

Survey Date: 12-08-2009

Sheet 1 of 1 Sheets

Poker Lake Unit #304H Exhibit "C"



Surface casing to be set into the Rustler below all fresh water sands.

7" casing will be set at approximately 7,555' (thru curve) and cemented with the TOC at approximately 3,111' (approximately 500' into the 1st intermediate).

Production casing will be 4-1/2" run with Baker or Halliburton (either hydraulic set or diesel reactive) packers. Top of 4-1/2" liner will be approximately 200' above KOP (+/- 6,600')

Drilling procedure, BOP diagram, and anticipated tops attached.

This well is located outside the Secretary's Potash area and outside the R-111 Potash area. There are no potash leases within 1 mile of the location.

Surface hole location is orthodox and bottom hole location is unorthodox.

BOPCO, L.P., at P. O. Box 2760, Midland, TX, 79702 is a division office of BOPCO, L.P., 201 Main Street, Ft. Worth, TX 76102, Bond No. COB 000050 (Nationwide).

**EIGHT POINT DRILLING PROGRAM
BOPCO, L.P.**

NAME OF WELL: POKER LAKE UNIT #304H

LEGAL DESCRIPTION - SURFACE: 1,900' FSL & 350' FEL, Section 19, T25S, R30E, Eddy County, New Mexico.

BHL: 660' FSL & 2,300' FWL, Section 18, T25S, R30E, Eddy County, New Mexico.

POINT 1: ESTIMATED FORMATION TOPS

(See No. 2 Below)

POINT 2: WATER, OIL, GAS AND/OR MINERAL BEARING FORMATIONS

Anticipated Formation Tops: KB 3,190'
GL 3,171'

Formation	Estimated TVD	Estimated MD	Estimated Subsea Top	BEARING
T/Rustler	614'	614'	2,576'	Barren
T/Salt	860'	860'	2,330'	Barren
B/Salt	3,395'	3,395'	-205'	Barren
Lamar Lime	3,584'	3,584'	-394'	Barren
Bell Canyon	3,610'	3,610'	-420'	Oil/Gas
Lower Cherry Canyon	5,670'	5,670'	-2,480'	Oil/Gas
Lower Brushy Canyon	7,120'	7,120'	-3,930'	Oil/Gas
LBC "Y" Sand	7,245'	7,245'	-4,055'	Oil/Gas
Bone Spring Lime	7,370'	7,370'	-4,180'	Oil/Gas
TD (Pilot Hole)	7,593'	7,593'	-4,403'	Oil/Gas
KOP	6,800'	6,800'	-3,610'	N/A
EOC Target	7,277'	7,555'	-4,087'	Oil/Gas
TD (Horizontal Hole)	7,227'	11,964'	-4,037'	Oil/Gas

POINT 3: CASING PROGRAM

TYPE	HOLE SIZE	INTERVALS	PURPOSE	CONDITION
20"	24"	0' - 60'	Conductor	Contractor Discretion
13-3/8", 48#, H-40, STC	17-1/2"	0' - 850'	Surface	New
9-5/8", 40#, HCP-110, LTC	12-1/4"	0' - 3,604'	Intermediate	New
7", 26#, N-80, LTC	8-3/4"	0' - 7,555'	2 nd Intermediate	New
4-1/2", 11 6#, P-110, Ultra Flush	6-1/8"	6,600' - 7,555'	Production Casing	New
4-1/2", 11.6#, P-110, LTC	6-1/8"	7,555' - 11,964'	Production Casing	New

CASING DESIGN SAFETY FACTORS:

TYPE	TENSION	COLLAPSE	BURST
13-3/8", 48#, H-40, STC	9.02	1.72	3.61
9-5/8", 40#, HCP-110, LTC	10.35	2.18	3.93
7", 26#, N-80, LTC	3.06	1.27	1.72
4-1/2", 11.6#, P-110, Ultra Flush	3.86	1.97	2.64
4-1/2", 11 6#, P-110, LTC	3.86	1.97	2.64

DESIGN CRITERIA AND CASING LOADING ASSUMPTIONS:

SURFACE CASING

- Tension A 1.6 design factor utilizing the effects of buoyancy (9.2 ppg).
- Collapse A 1.0 design factor with full internal evacuation and a collapse force equal to the mud gradient in which the casing will be run (0.478 psi/ft). The effects of axial load on collapse will be considered.
- Burst A 1.3 design factor with a surface pressure equal to the fracture gradient at setting depth less a gas gradient to the surface. Internal burst force at the shoe will be fracture pressure at that depth. Backup pressure will be formation pore pressure. In all cases a conservative fracture pressure will be used such that it represents the upper limit of potential fracture resistance up to a 1.0 psi/ft gradient. The effects of tension on burst will not be utilized.

PROTECTIVE CASING

- Tension A 1.6 design factor utilizing the effects of buoyancy (10.2 ppg).
- Collapse A 1.0 design factor with full internal evacuation and a collapse force equal to the mud gradient in which the casing will be run (0.530 psi/ft). The effects of axial load on collapse will be considered.
- In the case of development drilling, collapse design should be analyzed using internal evacuation equal to 1/3 the proposed total depth of the well. This criterion will be used when there is absolutely no potential of the protective string being used as a production casing string.
- Burst A 1.0 surface design factor and a 1.3 downhole design factor with a surface pressure equivalent to the fracture gradient at setting depth less a gas gradient to the surface. Internal burst force at the shoe will be fracture pressure at that depth. Backup pressure will be formation pore pressure. In all cases a conservative fracture pressure will be used such that it represents the upper limit of potential fracture resistance up to a 1.0 psi/ft gradient.

PRODUCTION CASING

- Tension A 1.6 design factor utilizing the effects of buoyancy (9.0 ppg).
- Collapse A 1.0 design factor with full internal evacuation and a collapse force equal to the mud gradient in which the casing will be run (0.598 psi/ft). The effects of axial load on collapse will be considered.
- Burst A 1.25 design factor with anticipated maximum tubing pressure (5,211 psig) on top of the maximum anticipated packer fluid gradient. Backup on production strings will be formation pore pressure (0.598 psi/ft). The effects of tension on burst will not be utilized.

POINT 4: PRESSURE CONTROL EQUIPMENT (SEE ATTACHED DIAGRAM)

The blowout preventer for the 12-1/4" intermediate hole will consist of 13-5/8" X 5000 psi dual ram BOPs with mud cross, and choke manifold, chokes, and hydril as per Diagram 2 (3000 psi WP). The BOP stack, choke, kill lines, Kelly cocks, inside BOP, etc. when installed on the surface casinghead will be hydro-tested to 250-300 psig and 2000 psig by independent tester. The BOPE when rigged up on the intermediate casing spool will consist of annular, pipe and blind rams with choke manifold and chokes as in Diagram 2 and will be tested to 3000 psig by independent tester. In addition to the high pressure test, a low pressure (250-300 psig) test will be required. Hydril will be tested to 1500 psig.

These tests will be performed:

- a) Upon installation
- b) After any component changes
- c) Fifteen days after a previous test
- d) As required by well conditions

A function test to insure that the preventers are operating correctly will be performed on each trip.

POINT 5: MUD PROGRAM

DEPTH	MUD TYPE	WEIGHT	FV	PV	YP	FL	Ph
0' - 850'	FW Spud Mud	8.5 - 9.2	38-70	NC	NC	NC	10.0
850' - 3,604'	Brine Water	9.8 - 10.2	28-30	NC	NC	NC	9.5 - 10.5
3,604' - 7,555'	FW/Gel	8.7 - 9.0	28-36	NC	NC	NC	9.5 - 10.0
7,555' - 11,964'	FW/Gel/Starch	8.7 - 9.0	28-36	NC	NC	<20	9.5 - 10.0

Note: May increase vis for logging purposes only.

POINT 6: TECHNICAL STAGES OF OPERATION *See COA*

A) TESTING

None anticipated.

B) LOGGING

Run #1: PEX (GR-CNL/LDT-AIT) from TD of pilot hole 7949' to base of intermediate casing at 3922'.

Run #2: GR with MWD during drilling of build and horizontal portions of 8-3/4" hole.

C) CORING

None anticipated.

D) CEMENT

INTERVAL	AMOUNT SX	FT OF FILL	TYPE	GALS/SX	PPG	FT ³ /SX
SURFACE						
Lead 0 - 550' (100% excess)	420	550'	EconoCem HLC + 2 7 #/sk Salt	10.14	12.8	1.87
Tail 550' - 850' (100% excess)	340	300'	HalCem-C + 2% CaCl ₂	6.37	14.8	1.35
INTERMEDIATE						
Lead 0 - 3,104' (100% excess)	930	3104'	EconoCem HLC + 2 87 #/sk Salt	10.29	12.8	1.89
Tail 3,104' - 3,604' (100% excess)	260	500'	HalCem-C + 1% CaCl ₂	6.29	14.8	1.35
2 nd INTERMEDIATE						
Lead 3,104' - 6,800' (50% excess circ to surface)	267	3,696'	Halco Tuned Lite	14.4	9.7	3.13
Tail 6,800' - 7,555' (50% excess)	160	755'	HalCem H + 0.6% Halad 9	5.20	15.6	1.18

E) DIRECTIONAL DRILLING

BOPCO, L.P. plans to drill a pilot hole out of the 9-5/8" intermediate casing with an 8-3/4" bit to a MD of 7,593'. After logging (see Point 6-B), the pilot hole will be plugged back with a 500' cement plug consisting of 250 sx of Class H cement (17.0 ppg, 1.0 cu.ft/sx yield) from 6,600 - 7,100' MD. The well will then be directionally drilled from a kickoff point of 6,800' TVD at an azimuth of 326.04°, building angle at 12.00°/100' to a max angle of 90.66° tot a TVD of 7,277' (MD 7,555'). This 90.66° angle will be maintained to a MD of 11,964' or TVD of 7,227'. At 7,555'; 7", 26#, N-80, LTC casing will be installed and cemented to 3,104' (500' above the intermediate string). A 6-1/8" openhole lateral will be drilled out from under the 7" casing to a measured depth of 11,964'. 4-1/2", 11.6#, P-110, Ultra Flush from 6,660' to 7,555' and 4-1/2", 11.6#, P-110, LTC from 7,555' to 11,964' casing will be installed with Halliburton or Baker (either hydraulic or diesel reactive) packers installed for zone isolation.

POINT 7: ANTICIPATED RESERVOIR CONDITIONS

Normal pressures are anticipated throughout Delaware section. A BHP of 3,384 psi (max) or MWE of 8.4 ppg is expected. Lost circulation may exist in the Delaware Section from 3,617'-7,377' TVD. No H₂S is anticipated.

POINT 8: OTHER PERTINENT INFORMATION

A) Auxiliary Equipment

Upper and lower kelly cocks. Full opening stab in valve on the rig floor.

B) Anticipated Starting Date

Upon approval.

24 days drilling operations

14 days completion operations

BDH



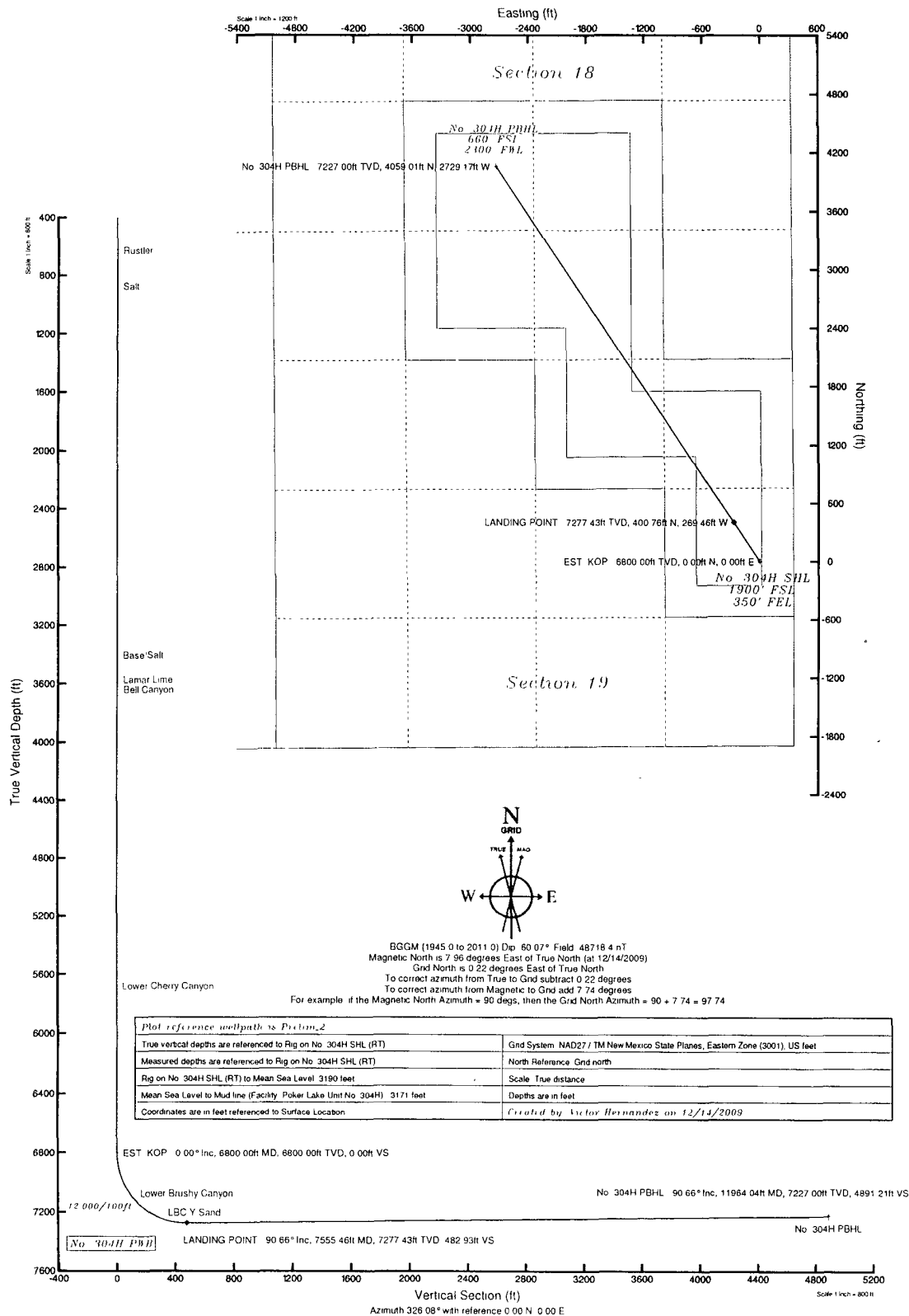
BOPCO, L.P.

Location Eddy County, NM Slot No 304H SHL
Field (PLU) Sec 19, T25S, R30E Well No 304H
Facility Poker Lake Unit No. 304H Wellbore No 304H PWB

**BAKER
HUGHES**
INTEQ

Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	0 00	0 000	326 084	0 00	0 00	0 00	0 00	0 00
EST KOP	6800.00	0 000	326 084	6800 00	0 00	0 00	0 00	0 00
LANDING POINT	7555.46	90 655	326 084	7277.43	400.76	-269.46	12 00	482.93
No 304H PBLH	11964.04	90.655	326.084	7227.00	4059.01	-2729.17	0 00	4891.21





Planned Wellpath Report

Prelim_2

Page 1 of 4



INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	No. 304H SHL
Area	Eddy County, NM	Well	No. 304H
Field	(PLU) Sec 19, T25S, R30E	Wellbore	No. 304H PWB
Facility	Poker Lake Unit No. 304H		

REPORT SETUP INFORMATION

Projection System	NAD27 / TM New Mexico State Planes, Eastern Zone (3001), US feet	Software System	WellArchitect® 2.0
North Reference	Grid	User	Victor Hernandez
Scale	0.999929	Report Generated	12/14/2009 at 10:18:57 AM
Convergence at slot	0.22° East	Database/Source file	WA_Midland/No._304H_PWB.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[USft]	Northing[USft]	Latitude	Longitude
Slot Location	0.00	0.00	630223.31	405208.71	32°06'48.012"N	103°54'45.844"W
Facility Reference Pt			630223.31	405208.71	32°06'48.012"N	103°54'45.844"W
Field Reference Pt			630272.49	405347.86	32°06'49.387"N	103°54'45.266"W

WELLPATH DATUM

Calculation method	Minimum curvature	Rig on No. 304H SHL (RT) to GL	19.00ft
Horizontal Reference Pt	Surface Location	Rig on No. 304H SHL (RT) to Mean Sea Level	3190.00ft
Vertical Reference Pt	Rig on No. 304H SHL (RT)	GL to Mud Line (Facility)	0.00ft
MD Reference Pt	Rig on No. 304H SHL (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	326.08°



Planned Wellpath Report

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	No. 304H SHL
Area	Eddy County, NM	Well	No. 304H
Field	(PLU) Sec 19, T25S, R30E	Wellbore	No. 304H PWB
Facility	Poker Lake Unit No. 304H		

WELLPATH DATA (64 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	DLS [°/100ft]	Comments
0.00	0.000	326.084	0.00	0.00	0.00	0.00	630223.31	405208.71	0.00	Tie On
621.00†	0.000	326.084	621.00	0.00	0.00	0.00	630223.31	405208.71	0.00	Rustler
867.00†	0.000	326.084	867.00	0.00	0.00	0.00	630223.31	405208.71	0.00	Salt
3402.00†	0.000	326.084	3402.00	0.00	0.00	0.00	630223.31	405208.71	0.00	Base/Salt
3591.00†	0.000	326.084	3591.00	0.00	0.00	0.00	630223.31	405208.71	0.00	Lamar Lane
3617.00†	0.000	326.084	3617.00	0.00	0.00	0.00	630223.31	405208.71	0.00	Bell Canyon
5677.00†	0.000	326.084	5677.00	0.00	0.00	0.00	630223.31	405208.71	0.00	Lower Cherry Canyon
6800.00	0.000	326.084	6800.00	0.00	0.00	0.00	630223.31	405208.71	0.00	EST. KOP
6900.00†	12.000	326.084	6899.27	10.43	8.66	-5.82	630217.49	405217.36	12.00	
7000.00†	24.000	326.084	6994.20	41.28	34.26	-23.03	630200.23	405242.96	12.00	
7100.00†	36.000	326.084	7080.65	91.19	75.67	-50.88	630172.43	405284.37	12.00	
7160.21†	43.225	326.084	7127.00	129.55	107.51	-72.29	630151.03	405316.21	12.00	Lower Brushy Canyon
7200.00†	48.000	326.084	7154.83	157.98	131.10	-88.15	630135.17	405339.80	12.00	
7300.00†	60.000	326.084	7213.50	238.73	198.11	-133.21	630090.11	405406.81	12.00	
7393.36†	71.203	326.084	7252.00	323.62	265.56	-180.57	630042.75	405477.24	12.00	ABC Y Sand
7400.00†	72.000	326.084	7254.10	329.92	273.79	-184.09	630039.23	405482.47	12.00	
7500.00†	84.000	326.084	7274.85	427.56	354.81	-238.57	629984.76	405563.49	12.00	
7555.46	90.655	326.084	7277.43	482.93	400.76	-269.46	629953.87	405609.44	12.00	LANDING POINT
7600.00†	90.655	326.084	7276.92	527.46	437.72	-294.31	629929.02	405646.39	0.00	
7700.00†	90.655	326.084	7275.78	627.46	520.70	-350.10	629873.23	405729.37	0.00	
7800.00†	90.655	326.084	7274.64	727.45	603.68	-405.90	629817.44	405812.34	0.00	
7900.00†	90.655	326.084	7273.49	827.44	686.66	-461.69	629761.65	405895.32	0.00	
8000.00†	90.655	326.084	7272.35	927.44	769.64	-517.49	629705.86	405978.29	0.00	
8100.00†	90.655	326.084	7271.20	1027.43	852.62	-573.28	629650.07	406061.26	0.00	
8200.00†	90.655	326.084	7270.06	1127.42	935.60	-629.07	629594.28	406144.24	0.00	
8300.00†	90.655	326.084	7268.92	1227.42	1018.58	-684.87	629538.49	406227.21	0.00	
8400.00†	90.655	326.084	7267.77	1327.41	1101.56	-740.66	629482.70	406310.19	0.00	
8500.00†	90.655	326.084	7266.63	1427.40	1184.54	-796.45	629426.91	406393.16	0.00	
8600.00†	90.655	326.084	7265.48	1527.40	1267.52	-852.25	629371.12	406476.14	0.00	
8700.00†	90.655	326.084	7264.34	1627.39	1350.50	-908.04	629315.33	406559.11	0.00	



Planned Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	No. 304H SHL
Area	Eddy County, NM	Well	No. 304H
Field	(PLU) Sec 19, T25S, R30E	Wellbore	No. 304H PWB
Facility	Poker Lake Unit No. 304H		

WELLPATH DATA (64 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	DLS [°/100ft]	Comments
8800.00†	90.655	326.084	7263.20	1727.38	1433.48	-963.84	629259.54	406642.09	0.00	
8900.00†	90.655	326.084	7262.05	1827.38	1516.46	-1019.63	629203.75	406725.06	0.00	
9000.00†	90.655	326.084	7260.91	1927.37	1599.44	-1075.42	629147.96	406808.03	0.00	
9100.00†	90.655	326.084	7259.76	2027.36	1682.42	-1131.22	629092.17	406891.01	0.00	
9200.00†	90.655	326.084	7258.62	2127.36	1765.41	-1187.01	629036.38	406973.98	0.00	
9300.00†	90.655	326.084	7257.48	2227.35	1848.39	-1242.80	628980.59	407056.96	0.00	
9400.00†	90.655	326.084	7256.33	2327.34	1931.37	-1298.60	628924.80	407139.93	0.00	
9500.00†	90.655	326.084	7255.19	2427.34	2014.35	-1354.39	628869.02	407222.91	0.00	
9600.00†	90.655	326.084	7254.04	2527.33	2097.33	-1410.19	628813.23	407305.88	0.00	
9700.00†	90.655	326.084	7252.90	2627.32	2180.31	-1465.98	628757.44	407388.85	0.00	
9740.80†	90.655	326.084	7252.43	2668.12	2214.16	-1488.74	628734.67	407422.71	0.00	LBC Y Sand
9800.00†	90.655	326.084	7251.76	2727.32	2263.29	-1521.77	628701.65	407471.83	0.00	
9900.00†	90.655	326.084	7250.61	2827.31	2346.27	-1577.57	628645.86	407554.80	0.00	
10000.00†	90.655	326.084	7249.47	2927.30	2429.25	-1633.36	628590.07	407637.78	0.00	
10100.00†	90.655	326.084	7248.32	3027.30	2512.23	-1689.15	628534.28	407720.75	0.00	
10200.00†	90.655	326.084	7247.18	3127.29	2595.21	-1744.95	628478.49	407803.73	0.00	
10300.00†	90.655	326.084	7246.04	3227.29	2678.19	-1800.74	628422.70	407886.70	0.00	
10400.00†	90.655	326.084	7244.89	3327.28	2761.17	-1856.54	628366.91	407969.67	0.00	
10500.00†	90.655	326.084	7243.75	3427.27	2844.15	-1912.33	628311.12	408052.65	0.00	
10600.00†	90.655	326.084	7242.60	3527.27	2927.13	-1968.12	628255.33	408135.62	0.00	
10700.00†	90.655	326.084	7241.46	3627.26	3010.11	-2023.92	628199.54	408218.60	0.00	
10800.00†	90.655	326.084	7240.32	3727.25	3093.09	-2079.71	628143.75	408301.57	0.00	
10900.00†	90.655	326.084	7239.17	3827.25	3176.07	-2135.50	628087.96	408384.55	0.00	
11000.00†	90.655	326.084	7238.03	3927.24	3259.05	-2191.30	628032.17	408467.52	0.00	
11100.00†	90.655	326.084	7236.88	4027.23	3342.03	-2247.09	627976.38	408550.49	0.00	
11200.00†	90.655	326.084	7235.74	4127.23	3425.01	-2302.89	627920.59	408633.47	0.00	
11300.00†	90.655	326.084	7234.60	4227.22	3507.99	-2358.68	627864.80	408716.44	0.00	
11400.00†	90.655	326.084	7233.45	4327.21	3590.97	-2414.47	627809.01	408799.42	0.00	
11500.00†	90.655	326.084	7232.31	4427.21	3673.95	-2470.27	627753.22	408882.39	0.00	
11600.00†	90.655	326.084	7231.16	4527.20	3756.93	-2526.06	627697.43	408965.37	0.00	



Planned Wellpath Report

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INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	BOPCO, L.P.	Slot	No. 304H SHL
Area	Eddy County, NM	Well	No. 304H
Field	(PLU) Sec 19, T25S, R30E	Wellbore	No. 304H PWB
Facility	Poker Lake Unit No. 304H		

WELLPATH DATA (64 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	DLS [°/100ft]	Comments
11700.00†	90.655	326.084	7230.02	4627.19	3839.92	-2581.85	627641.64	409048.34	0.00	
11800.00†	90.655	326.084	7228.88	4727.19	3922.90	-2637.65	627585.85	409131.31	0.00	
11900.00†	90.655	326.084	7227.73	4827.18	4005.88	-2693.44	627530.06	409214.29	0.00	
11964.04	90.655	326.084	7227.00	4891.21	4059.01	-2729.17	627494.34	409267.42	0.00	No 304H PBHL

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	Shape
1) No. 304H PBHL	11964.04	7227.00	4059.01	-2729.17	627494.34	409267.42	32° 07' 28.282" N	103° 55' 17.394" W	point

SURVEY PROGRAM Ref Wellbore: No. 304H PWB Ref Wellpath: Prelim_2				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
19.00	11964.04	NaviTrak (Standard)		No. 304H PWB



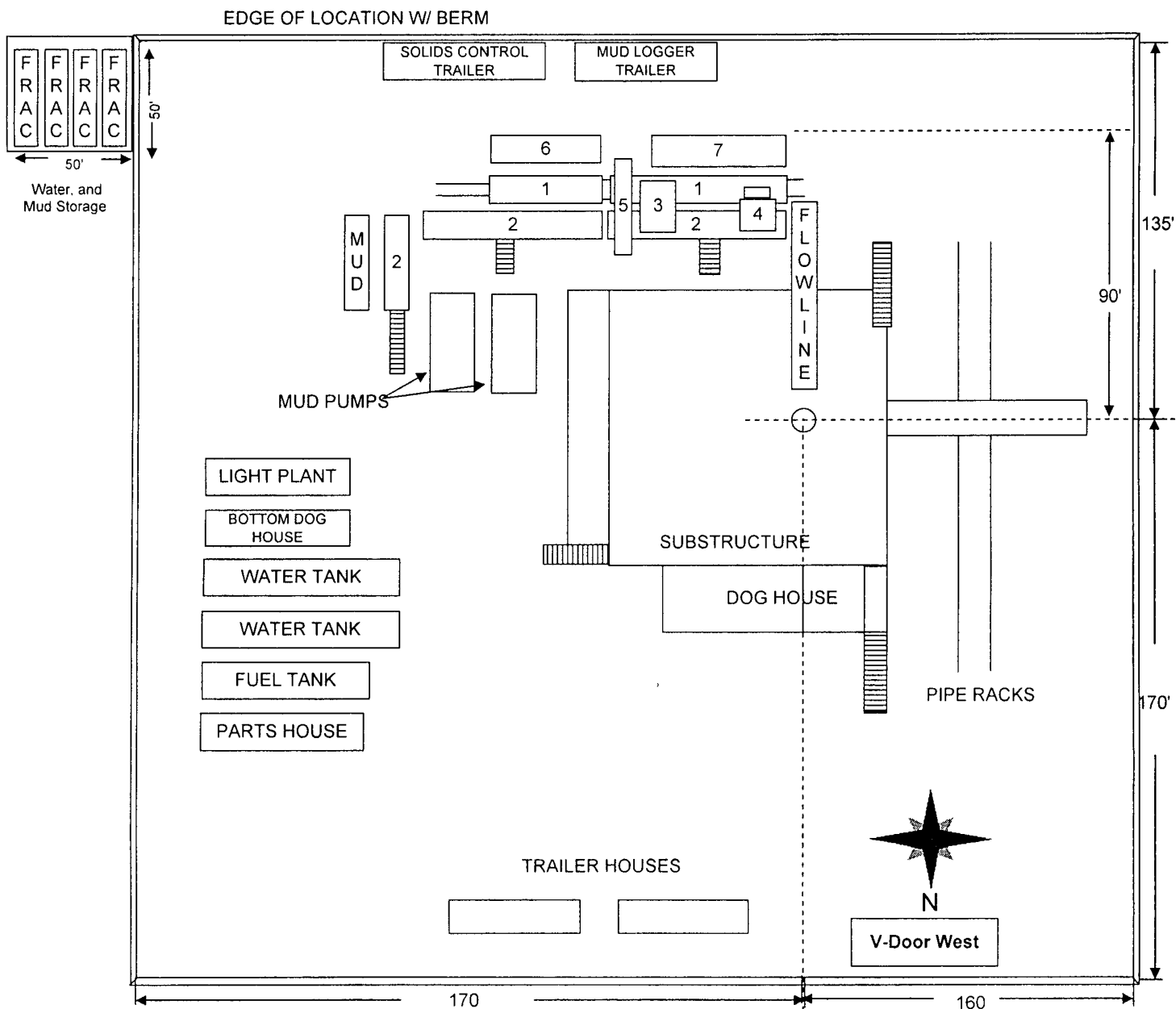
BOPCO, L.P.
Poker Lake Unit #304H
Sec 19, T25S-R30E
Eddy County, NM

Exhibit "D"

MCVAY #5 RIG LAYOUT SCHEMATIC
INCLUSIVE OF CLOSED-LOOP DESIGN PLAN

Solids Control Equipment Legend

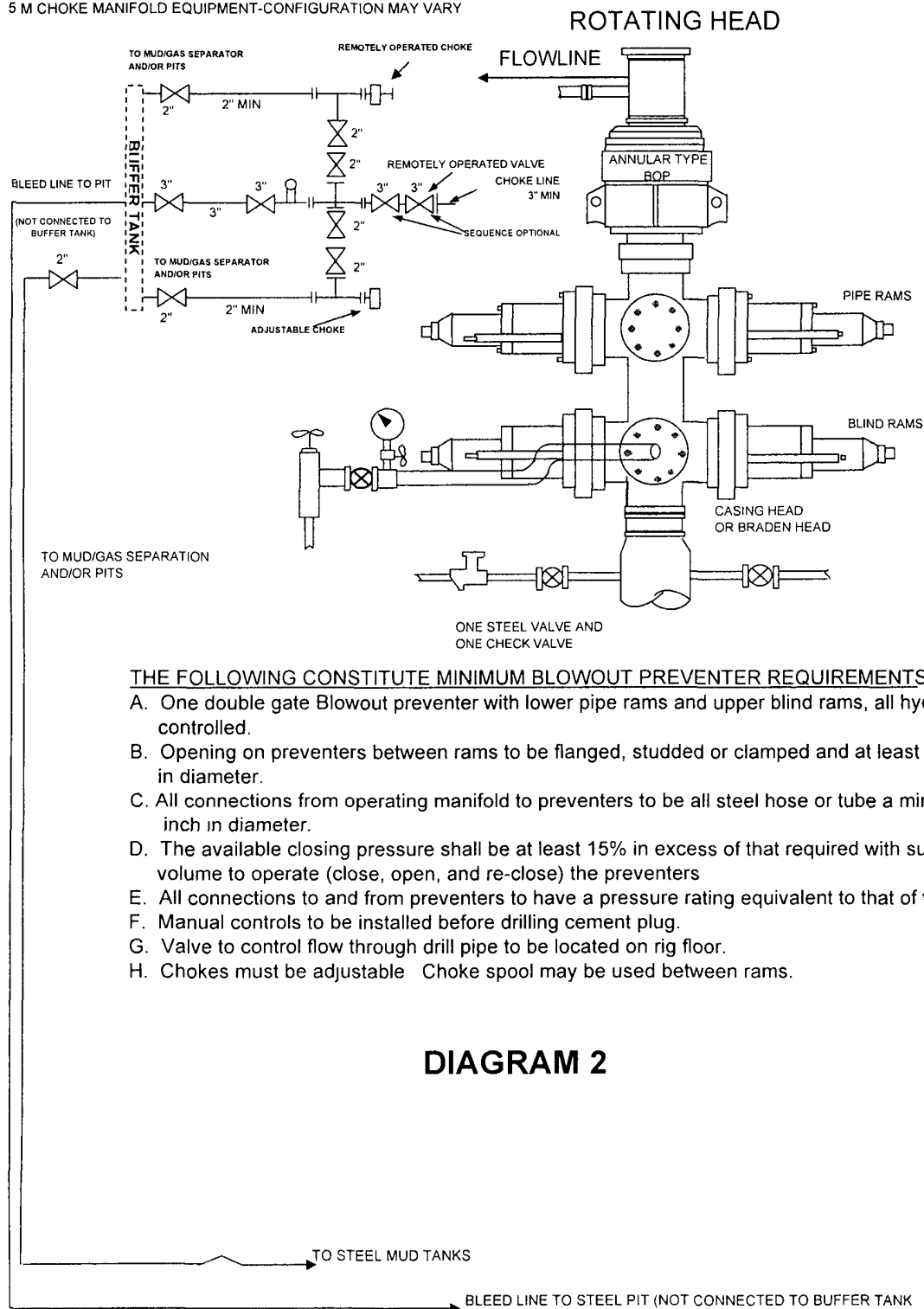
- | | |
|-----------------|--------------------|
| 1) Roll Off Bin | 5) Centrifuge |
| 2) Steel Tank | 6) Dewatering Unit |
| 3) Mud Cleaner | 7) Catch Tank |
| 4) Shaker | |



BOPCO, L. P.

5-M WP BOPE WITH 5-M WP ANNULAR

5 M CHOKE MANIFOLD EQUIPMENT-CONFIGURATION MAY VARY



THE FOLLOWING CONSTITUTE MINIMUM BLOWOUT PREVENTER REQUIREMENTS

- A. One double gate Blowout preventer with lower pipe rams and upper blind rams, all hydraulically controlled.
- B. Opening on preventers between rams to be flanged, studed or clamped and at least two inches in diameter.
- C. All connections from operating manifold to preventers to be all steel hose or tube a minimum of one inch in diameter.
- D. The available closing pressure shall be at least 15% in excess of that required with sufficient volume to operate (close, open, and re-close) the preventers
- E. All connections to and from preventers to have a pressure rating equivalent to that of the BOPs.
- F. Manual controls to be installed before drilling cement plug.
- G. Valve to control flow through drill pipe to be located on rig floor.
- H. Chokes must be adjustable Choke spool may be used between rams.

DIAGRAM 2

MULTI-POINT SURFACE USE PLAN

NAME OF WELL: POKER LAKE UNIT #304H

LEGAL DESCRIPTION - SURFACE: 1,900' FSL & 350' FEL, Section 19, T25S, R30E, Eddy County, New Mexico.

BHL: 660' FSL & 2,300' FWL, Section 18, T25S, R30E, Eddy County, New Mexico.

POINT 1: EXISTING ROADS

A) Proposed Well Site Location

See Exhibit "A" & "C".

B) Existing Roads

From the junction on Twin Wells and McDonald, go southeast 2 miles to lease road, on lease road go 4.8 miles southwest to lease road, on lease road go south 0.7 miles to old pad and proposed lease road.

C) Existing Road Maintenance or Improvement Plan

See Exhibit "B".

POINT 2: NEW PLANNED ACCESS ROUTE

A) Route Location

See Exhibit "B". The new road will be 12' wide and approximately 778.4" long from existing lease road. The road will be constructed of 6" of watered and compacted caliche.

B) Width

12' Wide.

C) Maximum Grade

Grade to match existing topography or as per BLM requirements

D) Turnouts

As required by BLM stipulations.

E) Culverts, Cattle Guards, and Surfacing Equipment

If required, culverts and cattle guards will be set per BLM Specs.

POINT 3: LOCATION OF EXISTING WELLS

Exhibit "C" indicates existing wells within the surrounding area.

POINT 4: LOCATION OF EXSITING OR PROPOSED FACILITIES

A) No existing facilities within one mile owned or controlled by leasee/operator.

B) New Facilities in the Event of Production:

New facilities will be built on location.

C) Rehabilitation of Disturbed Areas Unnecessary for Production:

Following the construction, those access areas required for continued production will be graded to provide drainage and minimize erosion. The areas unnecessary for use will be graded to blend in with the surrounding topography (see Point 10)

POINT 5: LOCATION AND TYPE OF WATER SUPPLY

A) Location and Type of Water Supply

Fresh water will be hauled from Johnson Station 50 miles east of Carlsbad, New Mexico or other commercial facilities. Brine water will be hauled from commercial facilities.

B) Water Transportation System

Water hauled to the location will be over the existing and proposed roads.

POINT 6: SOURCE OF CONSTRUCTION MATERIALS

A) Materials

On-site caliche will be used. If this is not sufficient, caliche will be hauled from a BLM approved pit.

B) Land Ownership

Federally Owned.

C) Materials Foreign to the Site

No construction materials foreign to this area are anticipated for this drill site.

D) Access Roads

See Exhibit "A".

POINT 7: METHODS FOR HANDLING WASTE MATERIAL

A) Cuttings

Cuttings will be contained in the roll off bins and hauled to CRI for disposal.

B) Drilling Fluids

Drilling fluids will be contained in the steel pits, frac tanks and hauled to licensed disposal facilities.

C) Produced Fluids

Water production will be contained in the steel pits.

Hydrocarbon fluid or other fluids that may be produced during testing will be retained in test tanks. Prior to cleanup operations, any hydrocarbon material in the reserve pit will be removed by skimming or burning as the situation would dictate.

D) Sewage

Current laws and regulations pertaining to the disposal of human waste will be complied with.

E) Garbage

Portable containers will be utilized for garbage disposal during the drilling of this well.

F) Cleanup of Well Site

Upon release of the drilling rig, the surface of the drilling pad will be graded to accommodate a completion rig if electric log analysis indicate potential productive zones. Reasonable cleanup will be performed prior to the final restoration of the site.

POINT 8: ANCILLARY FACILITIES

None Required.

POINT 9: WELL SITE LAYOUT

A) Rig Orientation and Layout

Exhibit "D" shows the dimensions of the well pad and the location of major rig components. Only minor leveling of the well site will be required. No significant cuts or fills will be necessary.

B) Locations of Access Road

See Exhibits "A" & "B"

C) Lining of the Pits

No reserve pits - closed loop system

POINT 10: PLANS FOR RESTORATION OF THE SERVICE

A) Closed loop system.

The closed loop system will be utilized to drill the subject well. No earthen pits will be used that require remediation. All solids and drill fluids will be hauled off location to Controlled Recovery Inc. located approximately 25 miles Northeast of Carlsbad, N.M.

B) Restoration Plans – Production Developed

Those areas not required for production will be graded to blend with the surrounding topography. Topsoil, as available, will be placed upon those areas and seeded. The portion of the site required for production will be graded to minimize erosion and provide access during inclement conditions. Following depletion and abandonment of the site, restoration procedures will be those that follow under Item C.

C) Restoration Plans – No Production Developed

With no production developed, the entire surface disturbed by construction of the well site will be restored. The site will be contoured to blend with the surrounding topography and provide drainage of surface water. The topsoil, as available, shall be replaced in a uniform layer and seeded according to the BLM stipulations.

D) Rehabilitation Timetable

Upon completion of drilling operations, the initial cleanup of the site will be performed as soon as weather and site conditions allow economic execution of the work.

POINT 11: OTHER INFORMATION

A) Terrain

Relatively flat.

B) Soil

Caliche and sand.

C) Vegetation

Sparse, primarily grasses and mesquite with very little grass.

D) Surface Use

Primarily grazing.

E) Surface Water

There are no ponds, lakes, streams, or rivers within several miles of the wellsite.

F) Water Wells

There are five existing water wells approximately 1-1/2 miles away from the proposed well. There is one existing water well in the SW quarter of section 21, T24S, R30E, and four water wells in section 23, T24S, R30E. (See Exhibit "A")

G) Residences and Buildings

None in the immediate vicinity.

H) Historical Sites

None observed.

I) Archeological Resources

A archeological survey done by Boone Archeological indicated no known archeological sites will be impacted by these drilling operations. Any location or construction conflicts will be resolved before construction begins.

J) Surface Ownership

The well site and access road are both on federally owned land.

K) Well signs will be posted at the drilling site.

L) Open Pits

No earthen pits will be used. A closed loop system will be used and employ steel pits only.

POINT 12: OPERATOR'S FIELD REPRESENTATIVE

(Field personnel responsible for compliance with development plan for surface use).

DRILLING

William R. Dannels
Box 2760
Midland, Texas 79702
(432) 683-2277

PRODUCTION

Dean Clemmer
3104 East Green Street
Carlsbad, New Mexico 88220
(505) 887-7329

Carlos Cruz
Box 2760
Midland, Texas 79702
(432) 683-2277

12/21/09
Date

Brian D. Hammit
Brian D. Hammit

OPERATOR CERTIFICATION

I hereby certify that I, or persons under my direct supervision have inspected the proposed drill site and access route; that I am familiar with the conditions which currently exist; that the statements made in the plan are, to the best of my knowledge, true and correct; and that the work associated with operations proposed herein will be performed by BOPCO, L.P. and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved. This statement is subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

12/21/09
Date

Brian D. Hammit
Brian D. Hammit

PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	BOPCO, L.P.
LEASE NO.:	LC065705B
WELL NAME & NO.:	POKER LAKE UNIT #304H
SURFACE HOLE FOOTAGE:	1900' FSL & 350' FEL
BOTTOM HOLE FOOTAGE:	660' FSL & 2300' FWL
LOCATION:	Section 19, T. 25 S., R. 30 E., NMPM SHL Section 18, T. 25 S., R. 30 E., NMPM BHL
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

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

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☐ **Special Requirements**
 - Commercial Well Determination
 - Unit Plan of Development
- ☒ **Construction**
 - Notification
 - V-Door Direction
 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- ☐ **Road Section Diagram**
- ☒ **Drilling**
 - H2S Requirements-Onshore Order #6
 - Logging Requirements
 - Medium Cave/Karst
- ☐ **Production (Post Drilling)**
 - Well Structures & Facilities
 - Pipelines
 - Electric Lines
- ☒ **Interim Reclamation**
- ☒ **Final Abandonment & Reclamation**

I. GENERAL PROVISIONS

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

II. PERMIT EXPIRATION

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

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

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

IV. NOXIOUS WEEDS

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

V. SPECIAL REQUIREMENT(S)

Plan of Development

Operator is to submit a Unit Plan of Development (UPOD) annually to the BLM. Guidelines for UPOD are available upon request at the BLM Carlsbad Field Office.

Commercial Well Determination

Well is outside of NMNM – 71016A participating area. A commercial well determination will need to be submitted after production has been established for at least six months.

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) 234-5972 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. V-DOOR DIRECTION: West

C. TOPSOIL

The operator shall stockpile the topsoil in a low profile manner in order to prevent wind/water erosion of the topsoil. The topsoil will be used for interim and final reclamation.

D. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

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

E. 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.

F. 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.

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 thirty (30) 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

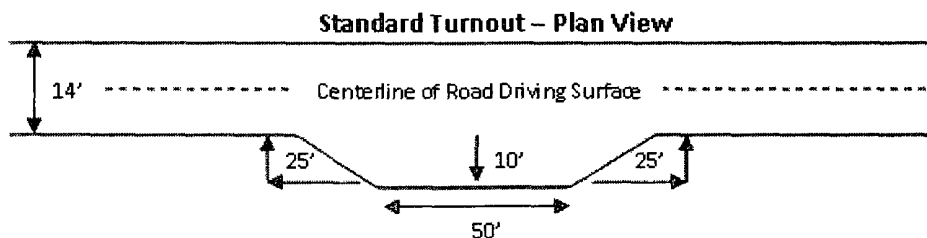
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

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 be constructed on all blind curves. Turnouts shall conform to the following diagram:

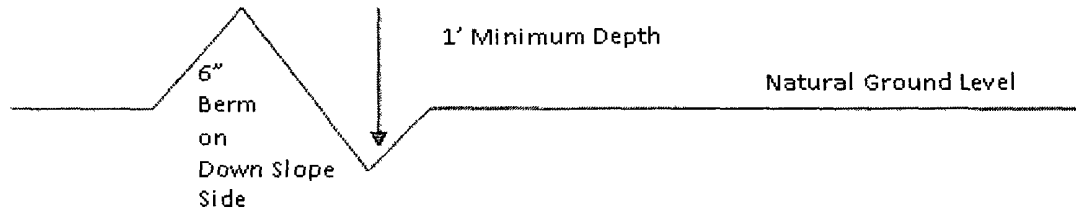


Drainage

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:

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

Culvert Installations

Appropriately sized culvert(s) shall be installed at the deep waterway channel flow crossing.

Cattleguards

An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s).

Any existing cattleguard(s) on the access road 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 cattleguard(s) that are in place and are utilized during lease operations.

A gate shall be constructed and fastened securely to H-braces.

Fence Requirement

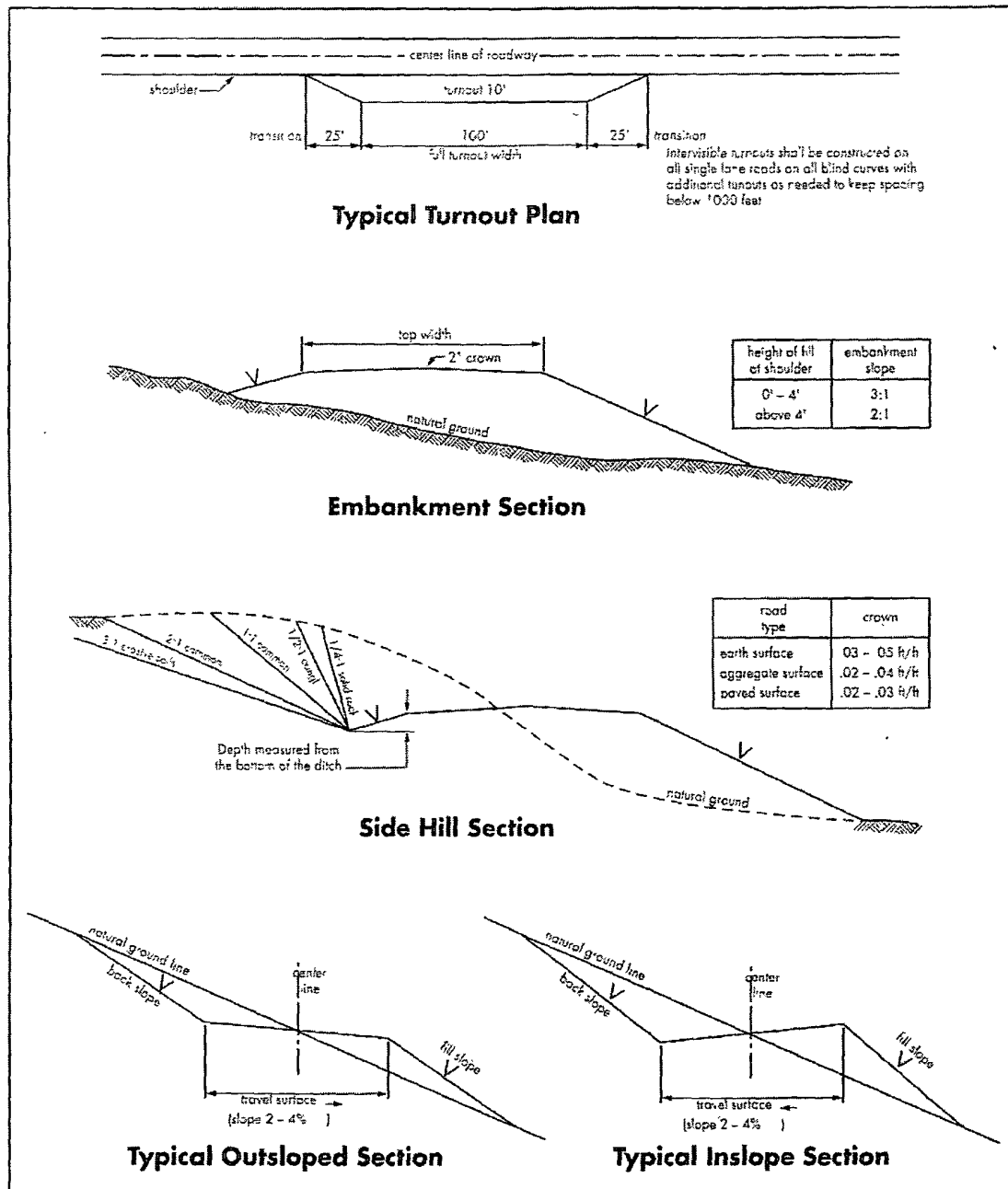
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

Public Access

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

Figure 1 – Cross Sections and Plans For Typical Road Sections



VII. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified a minimum of 4 hours in advance for a representative to witness:

- a. Spudding well
- b. Setting and/or Cementing of all casing strings
- c. BOPE tests

☒ **Eddy County**

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

1. A Hydrogen Sulfide (H₂S) Drilling Plan should 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.
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 are located, this does not include the dog house or stairway area.
4. **The record of the drilling rate along with the CAL/GR/N well log run from TD to surface will 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 and cement program require submitting a sundry and receiving approval prior to work. Failure to obtain approval prior to work will result in an Incident of Non-Compliance being issued.

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

Wait on cement (WOC) time for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. See individual casing strings for details regarding lead cement slurry requirements.

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

Medium cave/karst.

Possible lost circulation in the Delaware and Bone Spring formations.

1. The 13-3/8 inch surface casing shall be set at **approximately 850 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt)** and cemented to the surface. **The Rustler depth changes rapidly in this area so it is difficult to predict a good setting point. If the salt is encountered, set the casing 25 feet above the top of 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 a 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.
2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing 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.

If 75% or greater lost circulation occurs while drilling the intermediate casing hole, the cement on the production casing must come to surface.

Pilot hole is required to have a plug at the bottom of the hole. If two plugs are set, the BLM is to be contacted (575-361-2822) prior to tag of bottom plug, which must be a minimum of 180' in length. Operator can set one plug from bottom of pilot hole to kick-off point and save the WOC time for tagging the first plug.

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

- ☒ Cement should tie-back at least 500 feet into previous casing string. Operator shall provide method of verification. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst.**

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

5. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** psi.

- a. **For surface casing only:** If the BOP/BOPE is to be tested against casing, the wait on cement (WOC) time for that casing is to be met (see WOC statement at start of casing section). Independent service company required.

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

4. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

- a. Casing cut-off and BOP installation will not be initiated until the cement has had 4-6 hours of setup time in a water basin and 12 hours in the potash areas. This time will start after the cement plug is bumped. Testing the BOP/BOPE against a plug can commence after meeting the above conditions plus the BOP installation time.

- b. The tests shall be done by an independent service company utilizing a test plug.
- c. The results of the test shall be reported to the appropriate BLM office.
- d. 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.**
- e. 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.

D. DRILL STEM TEST

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

CRW 012810

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.

Containment Structures

The containment structure shall be constructed to hold the capacity of the entire contents of the largest tank, plus 24 hour production, unless more stringent protective requirements are deemed necessary by the Authorized Officer.

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, Munsell Soil Color Chart # 5Y 4/2

B. PIPELINES

Not applied for in APD.

C. ELECTRIC LINES

Not applied for in APD.

IX. INTERIM RECLAMATION

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

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

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

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

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

X. FINAL ABANDONMENT & RECLAMATION

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

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

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

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

Seed Mixture 2, for Sandy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed 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:

<u>Species</u>	<u>lb/acre</u>
Sand dropseed (<i>Sporobolus cryptandrus</i>)	1.0
Sand love grass (<i>Eragrostis trichodes</i>)	1.0
Plains bristlegrass (<i>Setaria macrostachya</i>)	2.0

*Pounds of pure live seed:

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