

OCD-ARTESIA

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NOV - 2 2009

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

NMOCD ARTESIA

FORM APPROVED  
OMB No. 1004-0137  
Expires March 31, 2007

## SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE- Other instructions on reverse side.

1 Type of Well  
☒ Oil Well ☐ Gas Well ☐ Other2 Name of Operator  
BOPCO, L. P.3a Address  
P. O. Box 2760 Midland, TX 797023b Phone No (include area code)  
432-683-2277

4 Location of Well (Footage, Sec, T., R., M., or Survey Description)

Surface: SENW, 2000' FNL, 1730' FWL, Sec 36, T22S, R30E, Lat N32.35034, Lon W103.83733  
BHL: SENW, 597' FNL, 350' FWL, Sec 35, T22S, R30E, Lat N32.35424, Lon W103.85919

5 Lease Serial No

NMLC 02952B

6 If Indian, Allottee or Tribe Name

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

8 Well Name and No

James Ranch Unit #104H

9 API Well No

30-015-37271

10 Field and Pool, or Exploratory Area

Nash Draw (Dela, BS, Avalon Sd)

11 County or Parish, State

Eddy County, NM

## 12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input type="checkbox"/> Other
	<input checked="" type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13 Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

BOPCO request approval of the revised horizontal drilling plan. The BHL has been moved from 660' FNL & 990' FWL, Sec 35, T22S, R30E to 597' FNL & 350' FWL, Sec 35, T22S, R30E, Eddy County, New Mexico.

The 4-1/2" casing program will also be changed from 7022' of 4-1/2", 11.6#, N-80, Ultra Flush joint to 6552' of 4-1/2", 11.6#, N-80, LTC and 1003' of 4-1/2", 11.6#, N-80, Ultra Flush joint.

The revised horizontal drilling plan along with new plats are attached.

BOPCO L.P. Bond # on file: COB000050

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

14 I hereby certify that the foregoing is true and correct  
Name (Printed/Typed)

Annette Childers

Title Regulatory Clerk

Signature

Annette Childers

Date

10-23-09

APPROVED

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Conditions of approval, if any, are attached. Approval of this notice 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.

Title

Office

Date

OCT 28 2009

WESLEY W. INGRAM  
PETROLEUM ENGINEER

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)

WR

D/B

# EIGHT POINT DRILLING PROGRAM BOPCO, L.P.

**NAME OF WELL: James Ranch Unit #104H**

LEGAL DESCRIPTION - SURFACE: 2000' FNL, 1730' FWL, Section 36, T22S, R30E, Eddy County, NM.  
BHL: 597' FNL, 350' FWL, Section 35, T22S, 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 3335' (estimated)  
GL 3316'

FORMATION	ESTIMATED TOP FROM KB		ESTIMATED SUB-SEA TOP	BEARING
	TVD	MD		
T/Rustler	279'	279'	+ 3056'	Barren
B/Rustler	580'	580'	+ 2755'	Barren
T/Salt	630'	630'	+ 2705'	Barren
B/Salt	3579'	3579'	- 244'	Barren
T/Lamar Lime	3818'	3818'	- 483'	Barren
T/Ramsey	3874'	3874'	- 539'	Oil/Gas
T/Lower Cherry Canyon	5975'	5975'	- 2640'	Oil/Gas
KOP (Kick Off Point)	6802'	6802'	- 3467'	N/A
T/Brushy Canyon "U" Sand	7248'	7354'	- 3913'	Oil/Gas
EOC Target	7280'	7553'	- 3945'	Oil/Gas
Target 2	7280'	9817'	- 3945'	Oil/Gas
TD (end of lateral)	7280'	14,155'	- 3945'	Oil/Gas

## POINT 3: CASING PROGRAM

TYPE	INTERVALS (MD)	Hole Size	PURPOSE	CONDITION
20"	0' - 40'	24"	Conductor	Contractor Discretion
13-3/8", 48#, H-40, ST&C	0' - 620'	17-1/2"	Surface	New
9-5/8", 40#, J-55, LT&C	0' - 3,838'	12-1/4"	Intermediate	New
7", 26#, N-80, LT&C	0' - 7,603'	8-3/4"	Production	New
4-1/2", 11.6#, <del>N-80</del> , Ultra Flush JT	6,600' - 7,603'	6-1/8"	Production	New
4-1/2", 11.6#, <del>N-80</del> , LTC	7,603' - 14,155'	6-1/2" 8"	Production	New

## CASING DESIGN SAFETY FACTORS:

TYPE	TENSION	COLLAPSE	BURST
13-3/8", 48#, H-40, ST&C	12.80	2.48	5.12
9-5/8", 40#, J-55, LT&C	3.95	1.23	1.82
7", 26#, N-80, LT&C	3.16	1.56	1.77
4-1/2", 11.6#, N-80, Ultra Flush Jt	3.06	1.84	1.91
4-1/2", 11.6#, N-80, LTC	3.06	1.84	1.91

*P/I/O per operator 10/26/09*

## 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 (0.48 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	<p>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 (0.52 psi/ft). The effects of axial load on collapse will be considered.</p> <p>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.</p>
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 (0.48 psi/ft). The effects of axial load on collapse will be considered.
Burst	A 1.25 design factor with anticipated maximum tubing pressure (3529 psig) on top of the maximum anticipated packer fluid gradient. Backup on production strings will be formation pore pressure. 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, & 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 & 2000 psig by independent tester. The BOPE when rigged up on the intermediate casing spool will consist of annular, pipe & 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.

## D) CEMENT - con't...

<u>INTERVAL</u>	<u>AMOUNT SXS</u>	<u>FT OF FILL</u>	<u>TYPE</u>	<u>GALS/SX</u>	<u>PPG</u>	<u>FT<sup>3</sup>/SX</u>
2 <sup>nd</sup> INTERMEDIATE TWO STAGE WITH DV TOOL @ 5000' :						
Stage 1:						
Lead: 5000' - 6802' (50% excess)	150	1802	Halco Tuned Lite	14.4	9.7	3.13
Tail: 6802' - 7603' (50% excess)	150	801	HalCem H + 0.6% Halad 9	5.20	15.6	1.18
DV Tool @ 5,000'						
Stage 2:						
Lead: 0' - 4900' (50% excess)	450	4900	EconoCem-C	14.3	11.9	2.47
Tail: 4900' - 5000' (50% excess)	100	100	Hal-Cem C	6.34	14.8	1.33

## E) DIRECTIONAL DRILLING

BOPCO, L.P. plans to drill out the 9-5/8" intermediate casing with an 8-3/4" bit to a TVD of approximately 6802' at which point a directional hole will be kicked off and drilled at an azimuth of 302°, building angle at 12.00°/100' to a max angle of 90° at a TVD of 7280' (MD 7553'). This 90° angle will be maintained to a MD of 14,155' or TVD of 7280'. At 7603'; 7", 26#, N-80, LTC casing will be installed and cemented in two stages (DV Tool @ 5000') with cement being circulated to the surface. A 6-1/8" openhole lateral will be drilled out from under the 7" casing to a measured depth of 14,155'. 4-1/2", 11.6#, N-80, LTC casing will be installed with Halliburton or Baker (either hydraulic or diesel reactive) packers installed for zone isolation in the lateral and 4-1/2", 11.6#, N-80, Ultra FJT thru the curve.

*P-110 per operator 10/26/09*

**POINT 7: ANTICIPATED RESERVOIR CONDITIONS**

Normal pressures are anticipated throughout Delaware section. A BHP of 3165 psi (max) or MWE of 8.4 ppg is expected. Lost circulation may exist in the Delaware Section from 3818'-5800' TVD. No H<sub>2</sub>S is anticipated.

**POINT 8: OTHER PERTINENT INFORMATION**

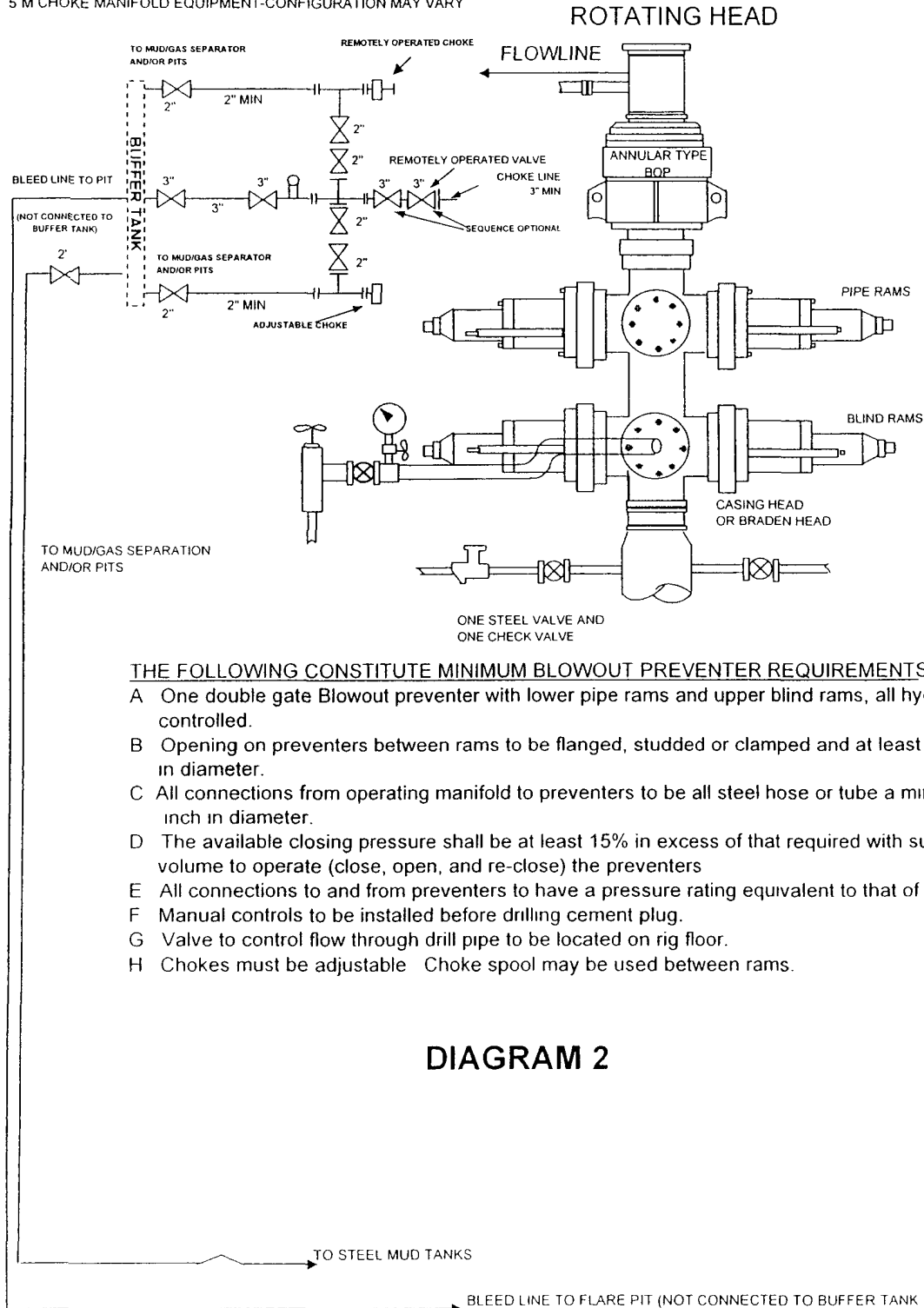
- A) Auxiliary Equipment  
Upper and lower kelly cocks. Full opening stab in valve on the rig floor.
- B) Anticipated Starting Date  
Upon approval  
24 days drilling operations  
20 days completion operations

  
\_\_\_\_\_  
Gary Gerhard

# BOPCO, L. P.

## 5-M WP BOPE WITH 5-M WP ANNULAR

5 M CHOKE MANIFOLD EQUIPMENT-CONFIGURATION MAY VARY

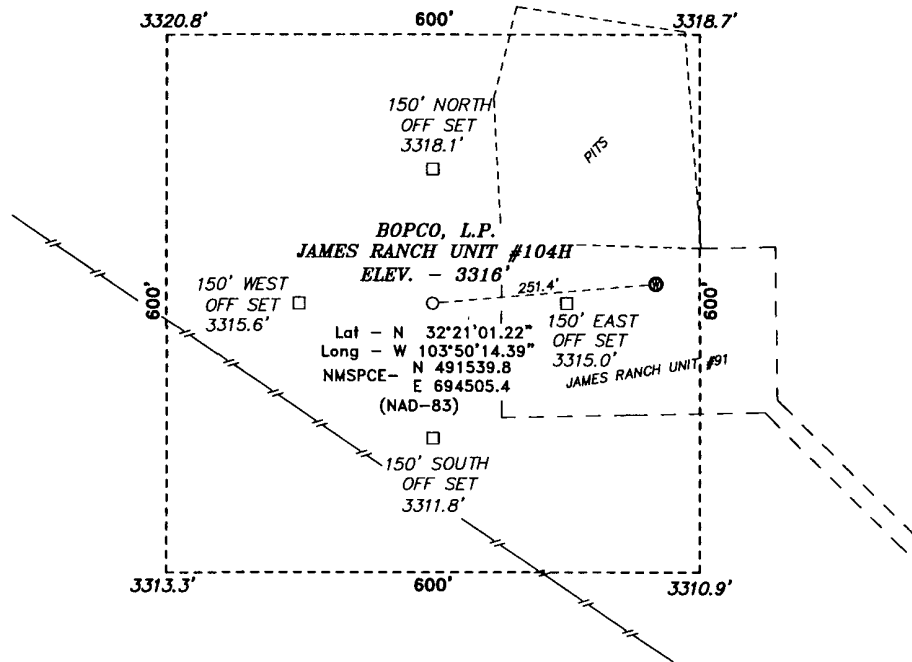


### THE FOLLOWING CONSTITUTE MINIMUM BLOWOUT PREVENTER REQUIREMENTS

- 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, studded 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**

SECTION 36, TOWNSHIP 22 SOUTH, RANGE 30 EAST, N.M.P.M.,  
EDDY COUNTY, NEW MEXICO.



200 0 200 400 FEET  
SCALE: 1" = 200'

Directions to Location:

FROM THE JUNCTION OF HWY 128 AND WIPP ROAD,  
GO NORTH 0.8 MILES TO LEASE ROAD, ON LEASE  
ROAD GO WEST 0.4 MILES TO LEASE ROAD, ON  
LEASE ROAD GO WEST WINDING NORTHERLY 0.4  
MILES TO PROPOSED LOCATION.

**BOPCO, L.P.**

REF: JAMES RANCH UNIT #104H / WELL PAD TOPO

THE JAMES RANCH UNIT #104H LOCATED 2000'  
FROM THE NORTH LINE AND 1730' FROM THE WEST LINE OF  
SECTION 30, TOWNSHIP 22 SOUTH, RANGE 30 EAST,  
N.M.P.M., EDDY COUNTY, NEW MEXICO.

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

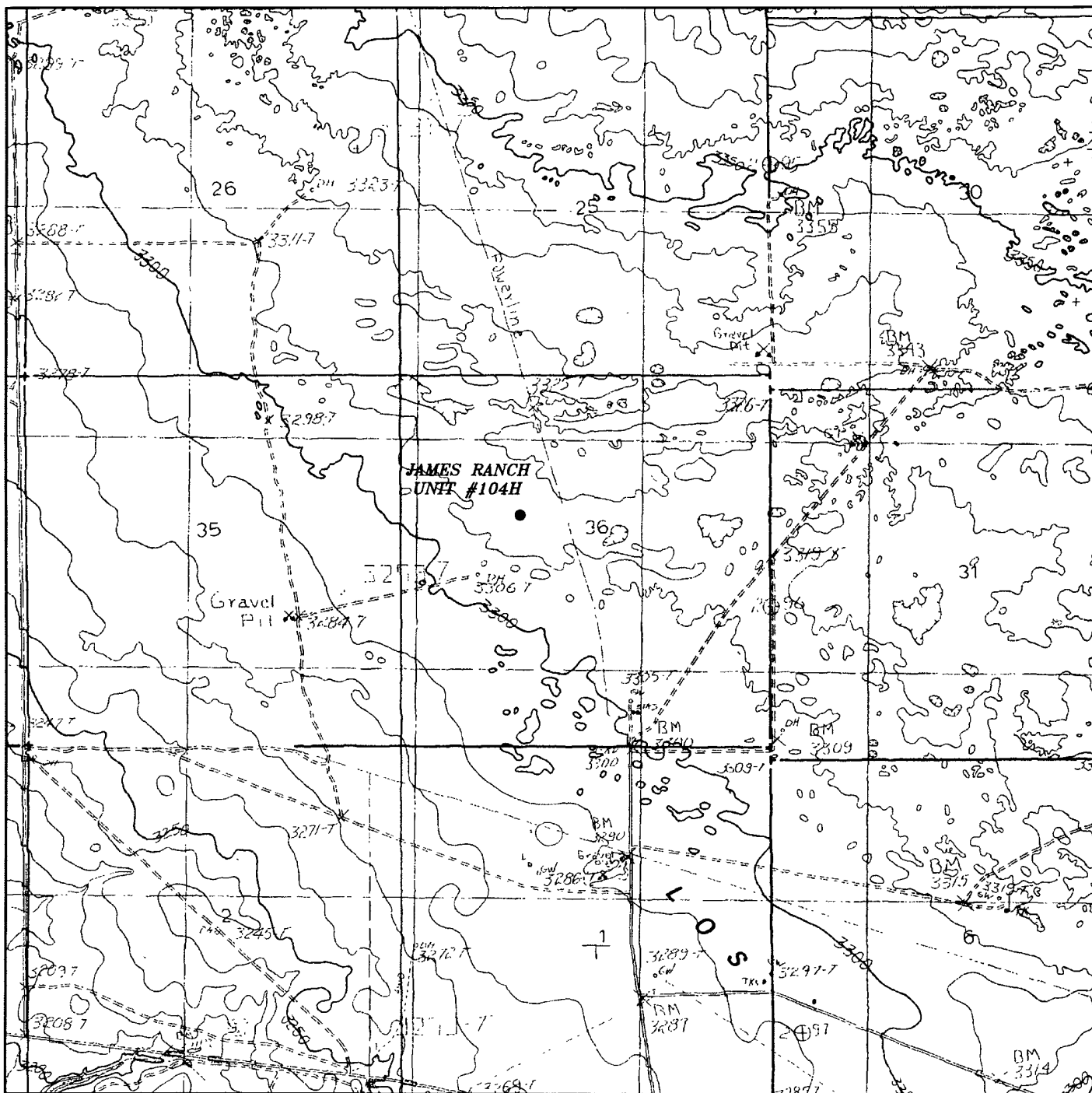
W.O. Number: 21200

Drawn By: J. SMALL

Date: 06-17-2009 Disk: JMS 21200

Survey Date: 06-17-2009

Sheet 1 of 1 Sheets



# **JAMES RANCH UNIT #104H**

Located 2000' FNL and 1730' FWL

Section 36, Township 22 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

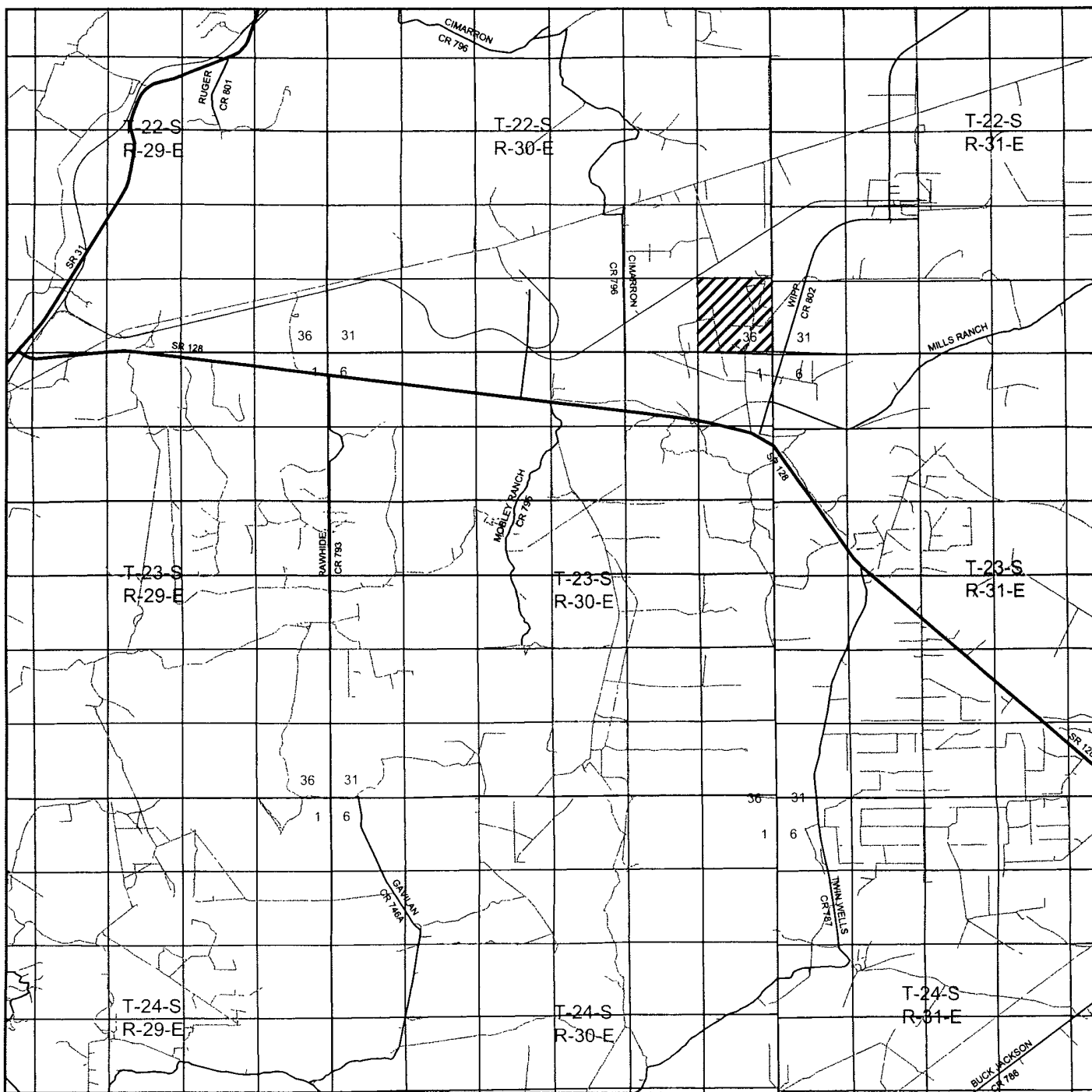
W.O. Number. JMS 21200

Survey Date. 05-21-2009

Scale: 1" = 2000'

Date: 05-21-2009

*BOPCO, L.P.*



# JAMES RANCH UNIT #104H

Located 2000' FNL and 1730' FWL

Section 36, Township 22 South, Range 30 East,  
N.M.P.M., Eddy County, New Mexico.



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in the oilfield

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W.O. Number: JMS 21200

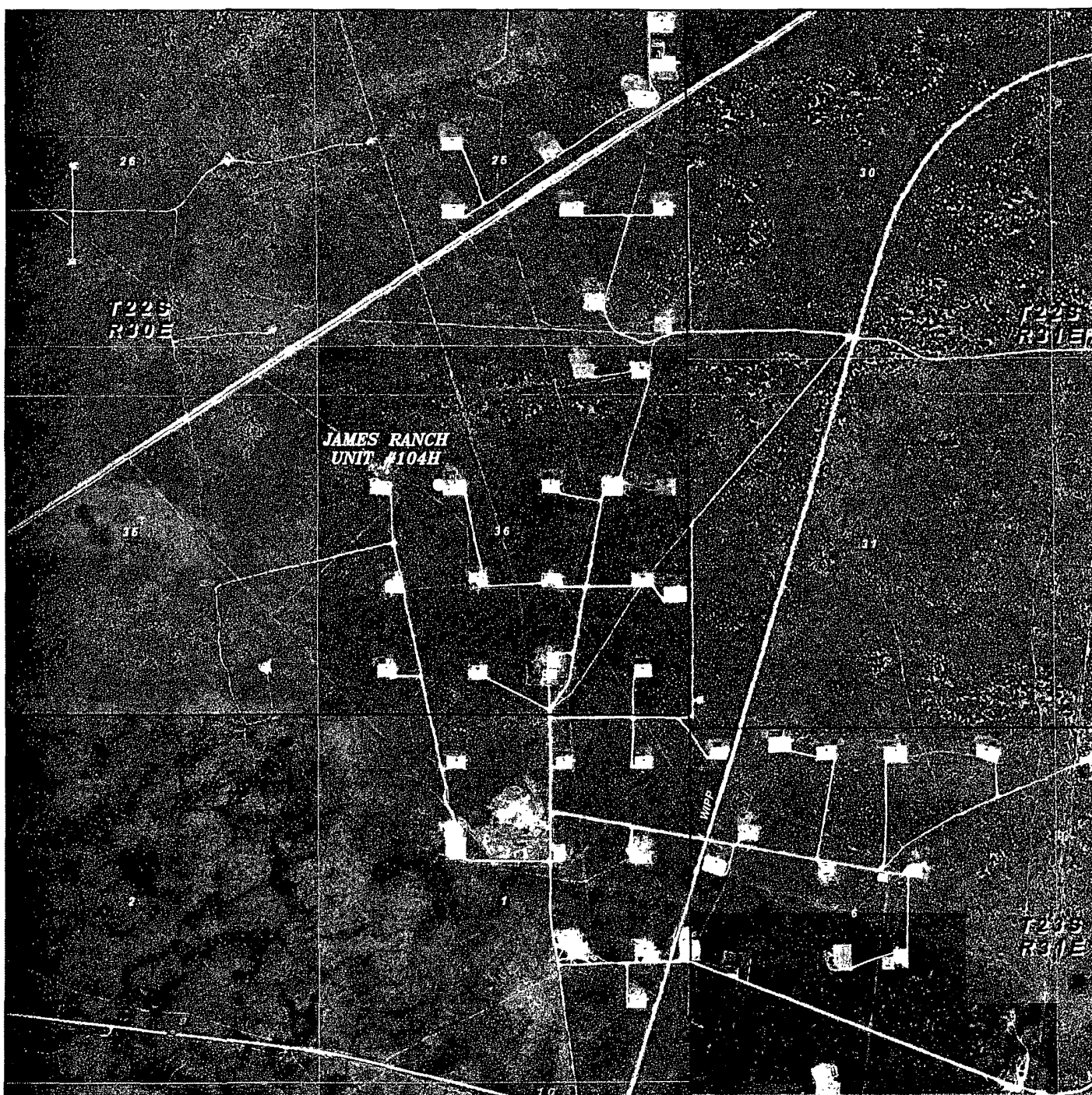
Survey Date: 05-21-2009

Scale: 1" = 2 Miles

Date: 05-21-2009

*BOPCO, L.P.*





**JAMES RANCH UNIT #104H**  
 Located 2000' FNL and 1730' FWL  
 Section 36, Township 22 South, Range 30 East,  
 N.M.P.M., Eddy County, New Mexico.

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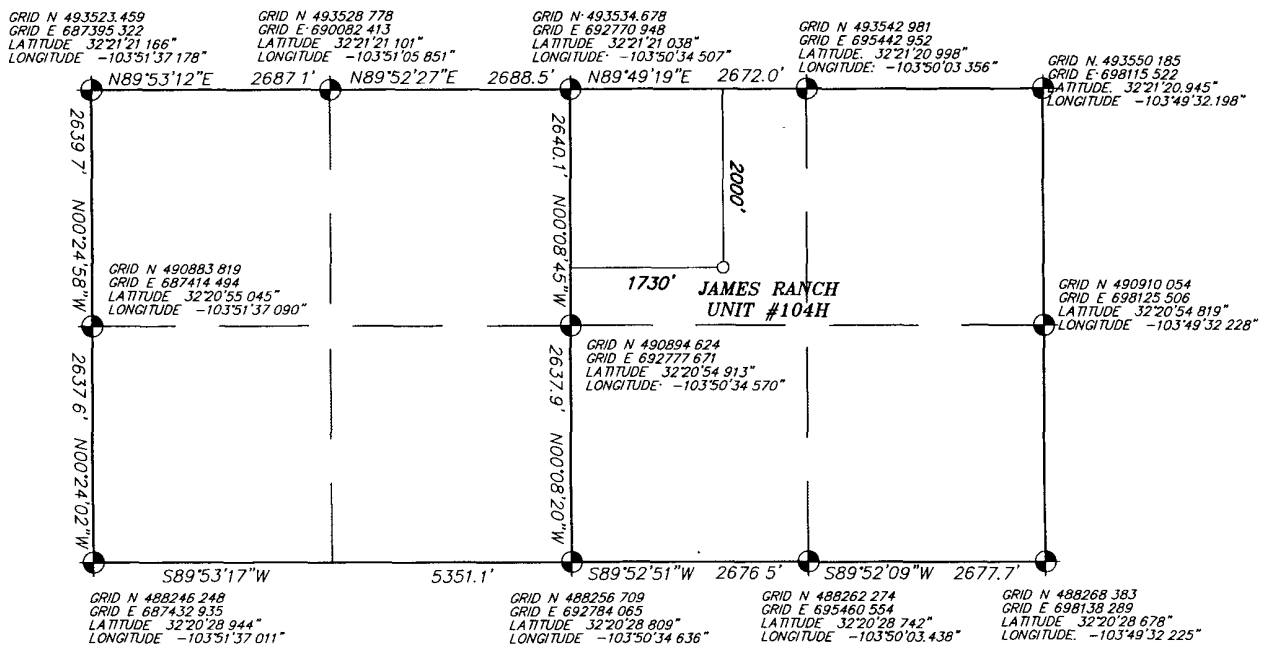
Scale 1" = 2000'

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



*BOPCO, L.P.*

SECTION 36, TOWNSHIP 22 SOUTH, RANGE 30 EAST, N.M.P.M.,  
EDDY COUNTY, NEW MEXICO.



JAMES RANCH UNIT #104H  
Located 2000' FNL and 1730' FWL  
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W.O. Number: JMS 21200

Survey Date: 05-21-2009

Scale: 1" = 2000'

Date: 05-21-2009



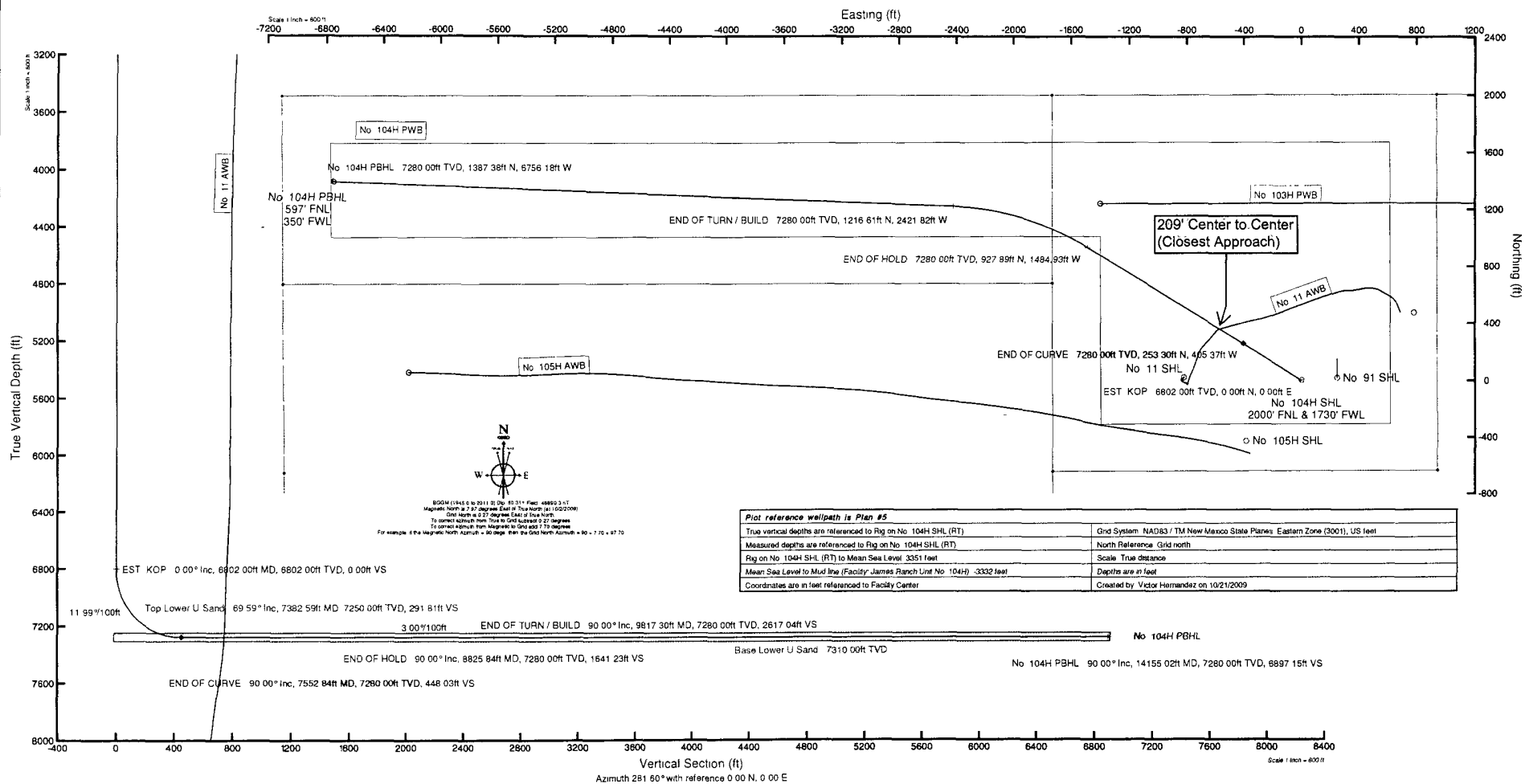
BOPCO, L.P.



Slot No 104H SHL  
Well No 104H  
Wellbore No. 104H PWB



Design Comment	MO (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (%100ft)	VS (ft)
Tie On	0 00	0 000	302 000	0 00	0 00	0 00	0 00	0 00
EST KOP	6802 00	0 000	302 000	6802 00	0 00	0 00	0 00	0 00
END OF CURVE	7552 84	90 000	302 000	7280 00	253 30	-405 37	11 99	448 03
END OF HOLD	8825 84	90 000	302 000	7280 00	927 89	-1484 93	0 00	1641 23
END OF TURN / BUILD	9817 30	90 000	272 256	7280 00	1216 61	-2421 82	3 00	2617 04
No 104H PGHL	14155 02	90 000	272 256	7280 00	1387 38	-6756 18	0 00	6897 15





# Planned Wellpath Report

Plan #5  
Page 1 of 5



INTEQ

## REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	No. 104H SHL
Area	Eddy County, NM	Well	No. 104H
Field	Quahada Ridge, S.E. (Delaware) Field	Wellbore	No. 104H PWB
Facility	James Ranch Unit No. 104H		

## REPORT SETUP INFORMATION

Projection System	NAD83 / TM New Mexico State Planes, Eastern Zone (3001), US feet	Software System	WellArchitect® 2.0
North Reference	Grid	User	Victor Hernandez
Scale	0.999936	Report Generated	10/22/2009 at 4:00:49 PM
Convergence at slot	0.27° East	Database/Source file	WA_Midland/No. 104H_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	694505.40	491539.80	32°21'01.219"N	103°50'14.394"W
Facility Reference Pt			694505.40	491539.80	32°21'01.219"N	103°50'14.394"W
Field Reference Pt			696627.35	492798.47	32°21'13.576"N	103°49'49.589"W

## WELLPATH DATUM

Calculation method	Minimum curvature	Rig on No. 104H SHL (RT) to Facility Vertical Datum	19.00ft
Horizontal Reference Pt	Facility Center	Rig on No. 104H SHL (RT) to Mean Sea Level	3335.00ft
Vertical Reference Pt	Rig on No. 104H SHL (RT)	Facility Vertical Datum to Mud Line (Facility)	0.00ft
MD Reference Pt	Rig on No. 104H SHL (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	281.60°



# Planned Wellpath Report

Plan #5

Page 2 of 5



INTEQ

## REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	No. 104H SHL
Area	Eddy County, NM	Well	No. 104H
Field	Quahada Ridge, S.E. (Delaware) Field	Wellbore	No. 104H PWB
Facility	James Ranch Unit No. 104H		

## WELLPATH DATA (82 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	302.000	0.00	0.00	0.00	0.00	694505.40	491539.80	0.00	Tie On
6802.00	0.000	302.000	6802.00	0.00	0.00	0.00	694505.40	491539.80	0.00	EST. KOP
6902.00†	11.987	302.000	6901.27	9.77	5.52	-8.84	694496.56	491545.32	11.99	
7002.00†	23.973	302.000	6996.22	38.65	21.85	-34.97	694470.43	491561.65	11.99	
7102.00†	35.960	302.000	7082.69	85.38	48.27	-77.25	694428.15	491588.07	11.99	
7202.00†	47.946	302.000	7156.92	147.93	83.63	-133.84	694371.57	491623.43	11.99	
7302.00†	59.933	302.000	7215.68	223.56	126.39	-202.27	694303.14	491666.19	11.99	
7382.59†	69.593	302.000	7250.00	291.81	164.98	-264.02	694241.40	491704.77	11.99	Top Lower U Sand
7402.00†	71.919	302.000	7256.40	308.98	174.69	-279.56	694225.86	491714.48	11.99	
7502.00†	83.906	302.000	7277.30	400.47	226.41	-362.33	694143.09	491766.20	11.99	
7552.84	90.000	302.000	7280.00	448.03	253.30	-405.37	694100.06	491793.08	11.99	END OF CURVE
7602.00†	90.000	302.000	7280.00	494.11	279.35	-447.06	694058.37	491819.13	0.00	
7702.00†	90.000	302.000	7280.00	587.84	332.34	-531.86	693973.57	491872.12	0.00	
7781.00†	90.000	302.000	7280.00	661.89	374.21	-598.86	693906.58	491913.98	0.00	Closest Approach - 205' C-C <No. 11>
7802.00†	90.000	302.000	7280.00	681.57	385.34	-616.67	693888.77	491925.11	0.00	
7902.00†	90.000	302.000	7280.00	775.30	438.33	-701.47	693803.98	491978.10	0.00	
8002.00†	90.000	302.000	7280.00	869.03	491.32	-786.28	693719.18	492031.09	0.00	
8102.00†	90.000	302.000	7280.00	962.77	544.31	-871.08	693634.38	492084.08	0.00	
8202.00†	90.000	302.000	7280.00	1056.50	597.30	-955.89	693549.58	492137.06	0.00	
8302.00†	90.000	302.000	7280.00	1150.23	650.30	-1040.69	693464.78	492190.05	0.00	
8402.00†	90.000	302.000	7280.00	1243.96	703.29	-1125.49	693379.98	492243.04	0.00	
8502.00†	90.000	302.000	7280.00	1337.69	756.28	-1210.30	693295.18	492296.03	0.00	
8602.00†	90.000	302.000	7280.00	1431.42	809.27	-1295.10	693210.38	492349.02	0.00	
8702.00†	90.000	302.000	7280.00	1525.15	862.26	-1379.91	693125.58	492402.01	0.00	
8802.00†	90.000	302.000	7280.00	1618.88	915.26	-1464.71	693040.78	492454.99	0.00	
8825.84	90.000	302.000	7280.00	1641.23	927.89	-1484.93	693020.57	492467.63	0.00	END OF HOLD
8900.00†	90.000	299.775	7280.00	1711.22	965.96	-1548.57	692956.93	492505.69	3.00	Closest Approach - 307' C-C <No. 103>
8902.00†	90.000	299.715	7280.00	1713.12	966.95	-1550.31	692955.20	492506.68	3.00	
9002.00†	90.000	296.715	7280.00	1808.94	1014.22	-1638.41	692867.09	492553.95	3.00	
9102.00†	90.000	293.715	7280.00	1906.12	1056.82	-1728.88	692776.64	492596.55	3.00	



# Planned Wellpath Report

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## REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	No. 104H SHL
Area	Eddy County, NM	Well	No. 104H
Field	Quahada Ridge, S.E. (Delaware) Field	Wellbore	No. 104H PWB
Facility	James Ranch Unit No. 104H		

## WELLPATH DATA (82 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
9202.00†	90.000	290.715	7280.00	2004.40	1094.62	-1821.44	692684.08	492634.35	3.00	
9302.00†	90.000	287.715	7280.00	2103.50	1127.53	-1915.86	692589.67	492667.26	3.00	
9402.00†	90.000	284.715	7280.00	2203.17	1155.45	-2011.87	692493.66	492695.18	3.00	
9502.00†	90.000	281.715	7280.00	2303.12	1178.31	-2109.21	692396.33	492718.03	3.00	
9602.00†	90.000	278.715	7280.00	2403.08	1196.04	-2207.62	692297.93	492735.76	3.00	
9702.00†	90.000	275.715	7280.00	2502.77	1208.60	-2306.81	692198.74	492748.32	3.00	
9802.00†	90.000	272.715	7280.00	2601.93	1215.95	-2406.53	692099.03	492755.67	3.00	
9817.30	90.000	272.256	7280.00	2617.04	1216.61	-2421.82	692083.74	492756.33	3.00	END OF TURN / BUILD
9902.00†	90.000	272.256	7280.00	2700.61	1219.95	-2506.45	691999.12	492759.67	0.00	
10002.00†	90.000	272.256	7280.00	2799.29	1223.89	-2606.37	691899.20	492763.61	0.00	
10102.00†	90.000	272.256	7280.00	2897.96	1227.82	-2706.29	691799.28	492767.54	0.00	
10202.00†	90.000	272.256	7280.00	2996.63	1231.76	-2806.22	691699.37	492771.48	0.00	
10302.00†	90.000	272.256	7280.00	3095.30	1235.70	-2906.14	691599.45	492775.41	0.00	
10402.00†	90.000	272.256	7280.00	3193.97	1239.63	-3006.06	691499.54	492779.35	0.00	
10502.00†	90.000	272.256	7280.00	3292.65	1243.57	-3105.98	691399.62	492783.29	0.00	
10602.00†	90.000	272.256	7280.00	3391.32	1247.51	-3205.91	691299.70	492787.22	0.00	
10702.00†	90.000	272.256	7280.00	3489.99	1251.44	-3305.83	691199.79	492791.16	0.00	
10802.00†	90.000	272.256	7280.00	3588.66	1255.38	-3405.75	691099.87	492795.10	0.00	
10902.00†	90.000	272.256	7280.00	3687.33	1259.32	-3505.67	690999.96	492799.03	0.00	
11002.00†	90.000	272.256	7280.00	3786.00	1263.25	-3605.60	690900.04	492802.97	0.00	
11102.00†	90.000	272.256	7280.00	3884.68	1267.19	-3705.52	690800.12	492806.91	0.00	
11202.00†	90.000	272.256	7280.00	3983.35	1271.13	-3805.44	690700.21	492810.84	0.00	
11302.00†	90.000	272.256	7280.00	4082.02	1275.06	-3905.36	690600.29	492814.78	0.00	
11402.00†	90.000	272.256	7280.00	4180.69	1279.00	-4005.29	690500.38	492818.72	0.00	
11502.00†	90.000	272.256	7280.00	4279.36	1282.94	-4105.21	690400.46	492822.65	0.00	
11602.00†	90.000	272.256	7280.00	4378.04	1286.87	-4205.13	690300.55	492826.59	0.00	
11702.00†	90.000	272.256	7280.00	4476.71	1290.81	-4305.05	690200.63	492830.52	0.00	
11802.00†	90.000	272.256	7280.00	4575.38	1294.75	-4404.98	690100.71	492834.46	0.00	
11902.00†	90.000	272.256	7280.00	4674.05	1298.68	-4504.90	690000.80	492838.40	0.00	
12002.00†	90.000	272.256	7280.00	4772.72	1302.62	-4604.82	689900.88	492842.33	0.00	



# Planned Wellpath Report

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## REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	No. 104H SHL
Area	Eddy County, NM	Well	No. 104H
Field	Quahada Ridge, S.E. (Delaware) Field	Wellbore	No. 104H PWB
Facility	James Ranch Unit No. 104H		

## WELLPATH DATA (82 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
12102.00†	90.000	272.256	7280.00	4871.40	1306.56	-4704.74	689800.97	492846.27	0.00	
12202.00†	90.000	272.256	7280.00	4970.07	1310.49	-4804.67	689701.05	492850.21	0.00	
12302.00†	90.000	272.256	7280.00	5068.74	1314.43	-4904.59	689601.13	492854.14	0.00	
12402.00†	90.000	272.256	7280.00	5167.41	1318.37	-5004.51	689501.22	492858.08	0.00	
12502.00†	90.000	272.256	7280.00	5266.08	1322.30	-5104.43	689401.30	492862.02	0.00	
12602.00†	90.000	272.256	7280.00	5364.76	1326.24	-5204.36	689301.39	492865.95	0.00	
12702.00†	90.000	272.256	7280.00	5463.43	1330.18	-5304.28	689201.47	492869.89	0.00	
12802.00†	90.000	272.256	7280.00	5562.10	1334.11	-5404.20	689101.55	492873.83	0.00	
12902.00†	90.000	272.256	7280.00	5660.77	1338.05	-5504.12	689001.64	492877.76	0.00	
13002.00†	90.000	272.256	7280.00	5759.44	1341.99	-5604.03	688901.72	492881.70	0.00	
13102.00†	90.000	272.256	7280.00	5858.12	1345.92	-5703.97	688801.81	492885.63	0.00	
13202.00†	90.000	272.256	7280.00	5956.79	1349.86	-5803.89	688701.89	492889.57	0.00	
13302.00†	90.000	272.256	7280.00	6055.46	1353.80	-5903.81	688601.98	492893.51	0.00	
13402.00†	90.000	272.256	7280.00	6154.13	1357.73	-6003.74	688502.06	492897.44	0.00	
13502.00†	90.000	272.256	7280.00	6252.80	1361.67	-6103.66	688402.14	492901.38	0.00	
13602.00†	90.000	272.256	7280.00	6351.48	1365.61	-6203.58	688302.23	492905.32	0.00	
13702.00†	90.000	272.256	7280.00	6450.15	1369.54	-6303.50	688202.31	492909.25	0.00	
13802.00†	90.000	272.256	7280.00	6548.82	1373.48	-6403.43	688102.40	492913.19	0.00	
13902.00†	90.000	272.256	7280.00	6647.49	1377.42	-6503.35	688002.48	492917.13	0.00	
14002.00†	90.000	272.256	7280.00	6746.16	1381.35	-6603.27	687902.56	492921.06	0.00	
14102.00†	90.000	272.256	7280.00	6844.84	1385.29	-6703.19	687802.65	492925.00	0.00	
14155.02	90.000	272.256	7280.00	6897.15	1387.38	-6756.18	687749.67	492927.09	0.00	No. 104H PBHL





# Planned Wellpath Report

Plan #5  
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## REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	No. 104H SHL
Area	Eddy County, NM	Well	No. 104H
Field	Quahada Ridge, S.E. (Delaware) Field	Wellbore	No. 104H PWB
Facility	James Ranch Unit No. 104H		

## TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	Shape
1) No. 104H PBHL	14155.02	7280.00	1387.38	6756.18	687749.67	492927.09	32°21'15.250"N	103°51'33.070"W	polygon

## SURVEY PROGRAM Ref Wellbore: No. 104H PWB Ref Wellpath: Plan #5

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
19.00	14155.02	NaviTrak (Standard)		No. 104H PWB



## PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	BOPCO, L. P.
LEASE NO.:	NM02952B
WELL NAME & NO.:	James Ranch Unit # 104H
SURFACE HOLE FOOTAGE:	2000' FNL & 1730' FWL Section 36
BOTTOM HOLE FOOTAGE:	0597' FNL & 0350' FWL Section 35
LOCATION:	Section 35, T. 22 S., R 30 E., NMPM
COUNTY:	Eddy County, New Mexico

### I. 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. **Hydrogen Sulfide has been reported as a hazard, but no measurements have been recorded. It is recommended that monitoring equipment be onsite for potential Hydrogen Sulfide. If Hydrogen Sulfide is encountered, please report measurements 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. 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.**

**R-111-P Potash**

**High cave/karst.**

**Possible water flows in the Salado Group and Castile formation.**

**Possible lost circulation and water flows in the Delaware and Bone Spring formations.**

1. The 13-3/8 inch surface casing shall be set at approximately 620 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. If the salt is encountered at a shallower depth, the casing is to be set a minimum of 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 a surface log readout will be used or a cement bond log shall be run to verify the top of the cement.
  - 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 potash and cave/karst concerns.**

3. The minimum required fill of cement behind the 7 inch production casing is:
  - a. First stage to DV tool, cement shall:
    - ☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office, before proceeding with second stage cement job.
  - b. Second stage above DV tool, cement shall:
    - ☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to potash and cave/karst concerns.**
4. The minimum required fill of cement behind the 4-1/2 inch production liner is:
  - ☒ No cement required. Operator using the Halliburton or Baker packer liner system. Liner to be set at approximately 6600'.
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.
6. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

### 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.
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 9-5/8" intermediate casing shoe shall be **3000 (3M)** psi. **Operator is using a 5M system but testing as a 3M.**
4. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. The tests shall be done by an independent service company.
  - b. The results of the test shall be reported to the appropriate BLM office.

- c. 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.**
- d. 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.

**WWI 102609**