

PM

JUN 10 2009

District I
1625 N French Dr, Hobbs, NM 88240
District II
1301 W Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S St Francis Dr, Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-101
May 27, 2004

Submit to appropriate District Office

☐ AMENDED REPORT

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

¹ Operator Name and Address BOPCO, L P P. O. Box 2760 Midland, Texas 79702		² OGRID Number 260737
		³ APP Number 30-015-37775
⁴ Property Code 306407	⁵ Property Name James Ranch Unit	⁶ Well No 103H
⁹ Proposed Pool 1 Quahada Ridge, SE (Delaware) ☒		¹⁰ Proposed Pool 2

⁷ Surface Location

UL or lot no	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	36	22S	30E		760	North	1500	East	Eddy

⁸ Proposed 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
D	36	22S	30E		760	North	330	West	Eddy

Additional Well Information

¹¹ Work Type Code N	¹² Well Type Code O	¹³ Cable/Rotary Rotary	¹⁴ Lease Type Code S	¹⁵ Ground Level Elevation 3320'
¹⁶ Multiple No	¹⁷ Proposed Depth 10,767'	¹⁸ Formation Delaware	¹⁹ Contractor McVay Drilling	²⁰ Spud Date 08/01/2009
Depth to Groundwater 155'		Distance from nearest fresh water well 1 25 miles		Distance from nearest surface water exceeds 2 miles
Pit Liner Synthetic ☐ _____ mils thick Clay ☐ Pit Volume _____ bbls Drilling Method _____				
Closed-Loop System ☒ Fresh Water ☒ Brine ☒ Diesel/Oil-based ☐ Gas/Air ☐				

²¹ Proposed Casing and Cement Program

Hole Size	Casing Size	Casing weight/foot	Setting Depth	Sacks of Cement	Estimated TOC
17-1/2"	13-3/8"	48#	690' MD	500 sx	surface
12-1/4"	9-5/8"	40#	3824' MD	1100 sx	surface
8-3/4"	7"	26#	7686' MD	650 sx	surface
6-1/8"	4-1/2"	11 6#	10,767' MD	NA	NA

²² Describe the proposed program If this application is to DEEPEN or PLUG BACK, give the data on the present productive zone and proposed new productive zone Describe the blowout prevention program, if any. Use additional sheets if necessary

Surface is owned by the State of New Mexico. Attached is a drilling prognosis and a BOP diagram.

This well is inside the R-111 Potash Area. Surface casing will be set +/- 10' above the salt in the Rustler formation. The 9-5/8" intermediate casing will be set in the Lamar Lime. A 2nd intermediate casing string (7") will be set through the curve and cemented to surface in two stages with DV tool at approximately 5000' Cement will be circulated to surface on 13-3/8", 9-5/8", & 7" casing strings.

Potash waiver attached.

²³ I hereby certify that the information given above is true and complete to the best of my knowledge and belief. I further certify that the drilling pit will be constructed according to NMOCD guidelines ☒ , a general permit ☐ , or an (attached) alternative OCD-approved plan ☐ .	OIL CONSERVATION DIVISION	
	Approved by <i>Reggie Braver</i>	
	Title <i>Geologist</i>	
	Approval Date <i>7/23/09</i>	Expiration Date <i>7/23/2011</i>
	Conditions of Approval Attached ☐	
Printed name <i>Annette Childers</i>		
Title <i>Regulatory Clerk</i>		
E-mail Address <i>machilders@basspet.com</i>		
Date <i>6-8-09</i> Phone <i>432-683-2277</i>		

ms

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

A 2nd intermediate casing (7") will be set through the curve and cemented to surface in two stages with DV tool at approximately 5000'.

Production casing will be 4-1/2", 11.6#/ft, N-80, Ultra FJT with external casing packers (either Halliburton or Baker) for zonal isolation.

Drilling procedure, BOP diagram, and anticipated tops attached.

This well is located within the R111 Potash area.

Potash waiver is attached.

Closed Loop Drilling System will be used.

This well is an orthodox location both surface and bottom hole.

BOPCO, L.P., at P. O. Box 2760, Midland, TX, 79702 is a subsidiary of BOPCO, L.P., 201 Mail Street, Ft. Worth, TX, 76102. Bond No. COB000050 (Nationwide).

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State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised October 12, 2005

Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

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

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-015-37175	Pool Code 50443	Pool Name Quahada Ridge, SE (Delaware)
Property Code 306407	Property Name JAMES RANCH UNIT	Well Number 103H
OGRID No. 260737	Operator Name BOPCO, L.P.	Elevation 3324'

Surface Location

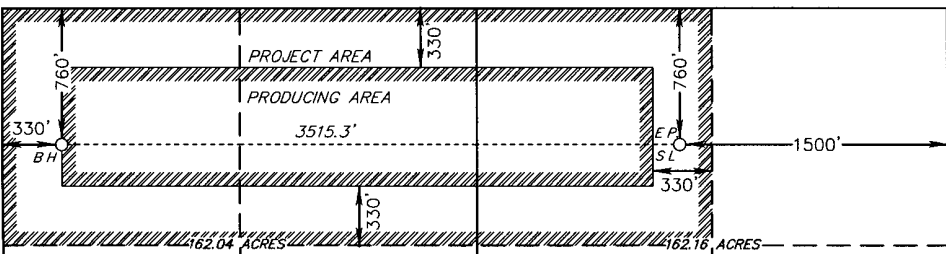
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	36	22 S	30 E		760	NORTH	1500	EAST	EDDY

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
D	36	22 S	30 E		760	NORTH	330	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
120	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

			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 pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. Signature: <i>Gary E. Gerhard</i> Date: <i>6/4/09</i> Printed Name: Gary E. Gerhard			
BOTTOM HOLE LOCATION LAT - N32°21'13.51" LONG - W103°50'30.68" SPC- N.: 492775.706 E.: 693102.882 (NAD-83)			DELAWARE ENTRY POINT LAT - N32°21'13.45" LONG - W103°49'49.70" SPC- N.: 492786.160 E.: 696618.203 (NAD-83)		SURFACE LOCATION LAT - N32°21'13.45" LONG - W103°49'49.70" SPC- N.: 492786.160 E.: 696618.203 (NAD-83)	
162.06 ACRES			162.16 ACRES			
162.06 ACRES			162.22 ACRES			

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. Date Surveyed: <i>MAY 20, 2009</i> Signature & Seal: <i>GARY L. JONES</i> Professional Surveyor Certificate No. 7977 W.C. PROFESSIONAL SURVEYORS BASIN SURVEYS	
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JUL 17 2009

New Mexico Energy, Minerals and Natural Resources Department

Bill Richardson
Governor

Joanna Prukop
Cabinet Secretary

Mark Fesmire
Division Director
Oil Conservation Division



BUREAU OF LAND MANAGEMENT
ATT: Potash
620 E. Greene St.
Carlsbad, NM 88220

STATE LAND OFFICE
ATT: Joe Mraz
P.O. Box 1148
310 Old Santa Fe Trail
Santa Fe, NM. 87504

RE: APPLICATION FOR PERMIT TO DRILL IN POTASH AREA

OPERATOR__BOPCO, L.P._____

LEASE NAME__James Ranch Unit__ #103H_____

PROPOSED LOCATION_____
Surface Location B-36-22S-30E 760 FNL & 1500 FEL
Bottom Hole Location D-36-22S-30E 760 FNL & 330 FWL

PROPOSED DEPTH__10,767'_____

2009 JUL 9 AM 9 24

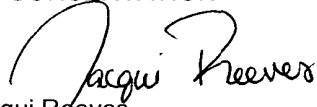
Gentlemen:

The application for permit to drill identified above has been filed with this office of the New Mexico Oil Conservation Division. Pursuant to the provisions of Oil Conservation Division Order R – 111- P, please advise this office whether the location is within an established Life-Of-Mine-Reserve are filed with and approved by your office. If not, please advise whether it is within the buffer zone established by the order.

Thanks you for your assistance. Please return as soon as possible.

Very truly yours,

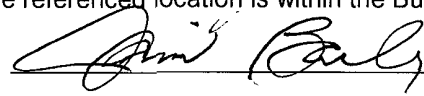
OIL CONSERVATION DIVISION


Jacquie Reeves
District II Geologist

RESPONSE:

The above referenced location is in LMR (2008 year) _____ Yes _____ No X

The above referenced location is within the Buffer Zone _____ Yes _____ No X

Signed  _____

Date 7/9/09

Printed Signature _____

Representing _____

Jim
7-9-09





Mosaic Potash Carlsbad Inc.
PO Box 71
1361 Potash Mines Road
Carlsbad, NM 88220
www.mosaicco.com

Tel 505-887-2871
Fax 505-887-0589

February 2, 2009

Mr. Monte Montgomery
Bass Enterprises Production Co.
201 Main Street
Fort Worth, TX 76102-3131
(817) 339-7185

Dear Mr. Montgomery:

Per our discussions this morning concerning James Ranch Unit wells 103H, located at 760' FNL and 1500' FEL of Section 36, T-22-S, R-30-E; Mosaic Potash Carlsbad Inc. does have a potash lease for this area and an LMR within 1 mile. The location of this well is just south of and adjacent to an existing oil well (JRU80). The drilling of this well should cause no further loss of potash reserves, there for Mosaic does not object to this location at this time.

As more information becomes available, our estimates of the extent of potash resources in any given area may change. Therefore, please consider a "no objection" or "objection" to these locations to be valid for one year only. Do not consider a "no objection offered" or an "objection offered" decision to be permanent.

Mosaic Potash submits this letter in lieu of the forms requested.

Sincerely,

Dan Morehouse
Mine Engineering Superintendent

EIGHT POINT DRILLING PROGRAM BOPCO, L.P.

NAME OF WELL: James Ranch Unit #103H

LEGAL DESCRIPTION - SURFACE: 760' FNL, 1500' FEL, Section 36, T22S, R30E, Eddy County, NM.

BHL: 760' FNL, 330' FWL, Section 36, 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 3343' (estimated)

GL 3324'

<u>FORMATION</u>	<u>ESTIMATED TOP FROM KB</u>		<u>ESTIMATED SUB-SEA TOP</u>	<u>BEARING</u>
	<u>TVD</u>	<u>MD</u>		
T/Rustler	235'	235'	+ 3108'	Barren
B/Rustler	588'	588'	+ 2755'	Barren
T/Salt	700'	700'	+ 2643'	Barren
B/Salt	3560'	3560'	- 217'	Barren
T/Delaware Mountain Group	3804'	3804'	- 467'	Barren
T/Ramsey	3865'	3865'	- 522'	Oil/Gas
T/Lower Cherry Canyon	5954'	5954'	- 2611'	Oil/Gas
KOP (Kick Off Point)	6879'	6879'	- 3511'	N/A
T/Brushy Canyon "U" Sand	7147'	7167'	- 3831'	Oil/Gas
LBC "Marker Sand	7336'	7490'	- 3993'	Barren
EOC Target	7356'	7636'	- 4013'	Oil/Gas
TD (end of lateral)	7311'	10767'	- 3968'	Oil/Gas

POINT 3: CASING PROGRAM

<u>TYPE</u>	<u>INTERVALS (MD)</u>	<u>Hole Size</u>	<u>PURPOSE</u>	<u>CONDITION</u>
20"	0' - 40'	24"	Conductor	Contractor Discretion
13-3/8", 48#, H-40, ST&C	0' - 690'	17-1/2"	Surface	New
9-5/8", 40#, J-55, LT&C	0' - 3824'	12-1/4"	Intermediate	New
7", 26#, N-80, LT&C	0' - 7686'	8-3/4"	Production	New
4-1/2", 11.6#, N-80, Ultra Flush JT	6650' - 10767'	6-1/8"	Production	New

CASING DESIGN SAFETY FACTORS:

<u>TYPE</u>	<u>TENSION</u>	<u>COLLAPSE</u>	<u>BURST</u>
13-3/8", 48#, H-40, ST&C	16.10	2.85	3.49
9-5/8", 40#, J-55, LT&C	4.03	1.30	1.13
7", 26#, N-80, LT&C	3.04	1.51	2.99
4-1/2", 11.6#, N-80, Ultra Flush JT	6.10	2.11	1.90

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 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 (0.52 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 (9.2 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 1.25 design factor with anticipated maximum tubing pressure (3000 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 12-1/4" intermediate hole will consist of Annular with mud cross, and choke manifold & chokes as per Diagram 1 (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 psig & 2000 psig by independent tester. The BOPE when rigged up on the intermediate casing spool will consist of double ram and annular BOP stack as shown in Diagram 2 (5000 psi) and will be tested to 3000 psig by independent tester. In addition to the high pressure test, a low pressure (250 psig) test will be required.

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' - 690'	FW Spud Mud	8.5 – 9.2	38-70	NC	NC	NC	10.0
690' - 3824'	Brine Water	9.8 – 10.2	28-30	NC	NC	NC	9.5 – 10.5
3824' - 7686'	FW/Gel	8.7 – 9.0	28-36	NC	NC	NC	9.5 – 10.0
7686' - 10767'	FW/Gel	8.7 – 9.0	28-36	NC	NC	NC	9.5 – 10.0

NOTE: May increase vis for logging purposes only.

POINT 6: TECHNICAL STAGES OF OPERATION

A) TESTING

None anticipated.

B) LOGGING

Run #1: GR with MWD during drilling of build and horizontal portions of 8-3/4" hole and 6-1/8" openhole.

Run #2: Drill pipe conveyed GR-NL-Density-Caliper TD thru curve.

C) CONVENTIONAL CORING

None anticipated.

D) CEMENT

<u>INTERVAL</u>	<u>AMOUNT SXS</u>	<u>FT OF FILL</u>	<u>TYPE</u>	<u>GALS/SX</u>	<u>PPG</u>	<u>FT³/SX</u>
SURFACE:						
Lead: 0 – 390' (100% excess Circ to surface)	300	390	EconoCem-HLC + 2.7 #/sk Salt	10.25	12.8	1.88
Tail: 390' – 690' (100% excess)	310	300	HalCem-C + 2% CaCl ₂	6.39	14.8	1.35
INTERMEDIATE:						
Lead: 0' – 3324' (100% excess Circ to surface)	1100	3324	EconoCem-HLC + 2.7 #/sk Salt	10.27	12.8	1.89
Tail: 3324' – 3824' (100% excess)	250	500	HalCem-C	6.34	14.8	1.33
2nd INTERMEDIATE:						
Stage 1:						
Lead: 5000' – 6650' (50% excess)	225	1879	EconoCem-HLH	11.06	12.5	1.97
Tail: 6879' – 7686' (50% excess)	175	807	HalcoCem-H + 0.5% Halad-9	4.89	16	1.13
DV Tool @ 5,000'						
Stage 2:						
Lead: 0' – 4900' (50% excess)	400	4900	EconoCem-HLC	11.6	12.5	1.97
Tail: 4900' – 5000' (50% excess)	50	100	Class "C" Neat	6.34	14.8	1.34

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 6879' at which point a directional hole will be kicked off and drilled at an azimuth of 269.84°, building angle at 12.00°/100' to a max angle of 90.85° at a TVD of 7356' (MD 7636'). This 90.85° angle will be maintained to a MD of 10,767' or TVD of 7311'. At 7686'; 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 10,767'. 4-1/2", 11.6#, N-80, LTC casing will be installed with Halliburton or Baker "Swell" packers installed for zone isolation.

POINT 7: ANTICIPATED RESERVOIR CONDITIONS

Normal pressures are anticipated throughout Delaware section. A BHP of 3190 psi (max) or MWE of 8.4 ppg is expected. Lost circulation may exist in the Delaware Section from 3864'-7356' TVD. No H₂S is anticipated.

POINT 8: OTHER PERTINENT INFORMATION**A) Auxiliary Equipment**

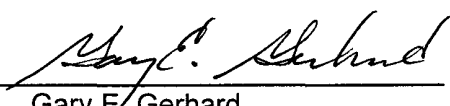
Upper and lower kelly cocks. Full opening stab in valve on the rig floor.

B) Anticipated Starting Date

Upon approval

24 days drilling operations

20 days completion operations



Gary E. Gerhard

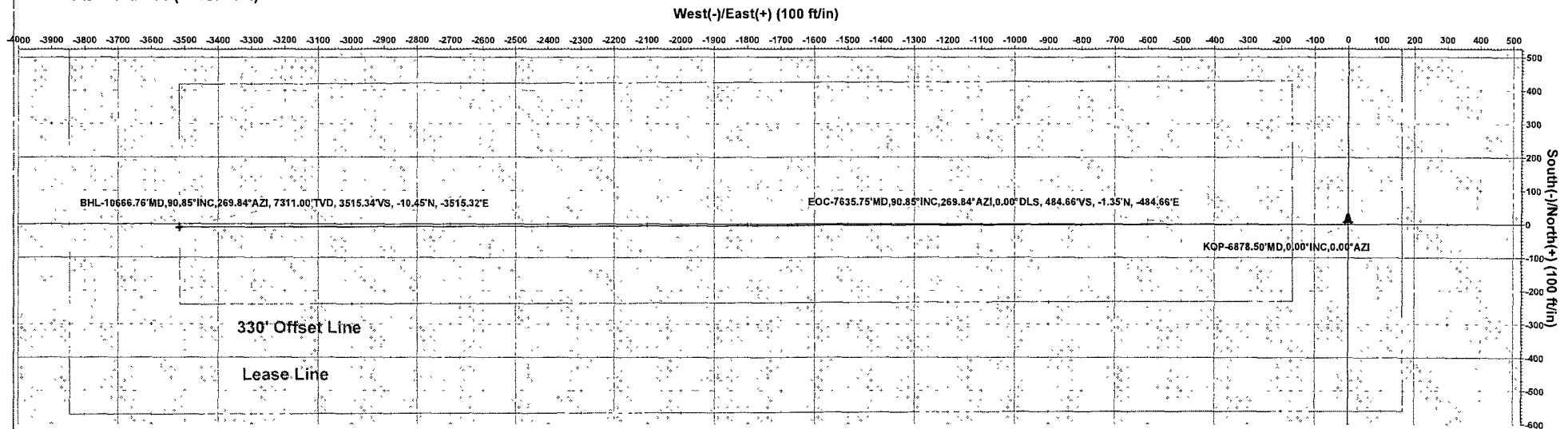
GEG/mac
June 5, 2009

BOPCO, L.P.

Project: Eddy County
Site: James Ranch Unit
Well: #103H
Wellbore: OH
Plan: Plan #1 (#103H/OH)

WELL DETAILS #103H						
Ground Elevation	3324.00					
RKB Elevation	WELL @ 3343.00ft (McVay #5 19" Kb Correction)					
Rig Name	McVay #5 19" Kb Correction					
+N/-S	+E/-W	Nothing	Easting	Latitude	Longitude	Slot
0.00	0.00	492786.160	696618.203	32° 21' 13.455 N	103° 49' 49.696 W	

PATHFINDER

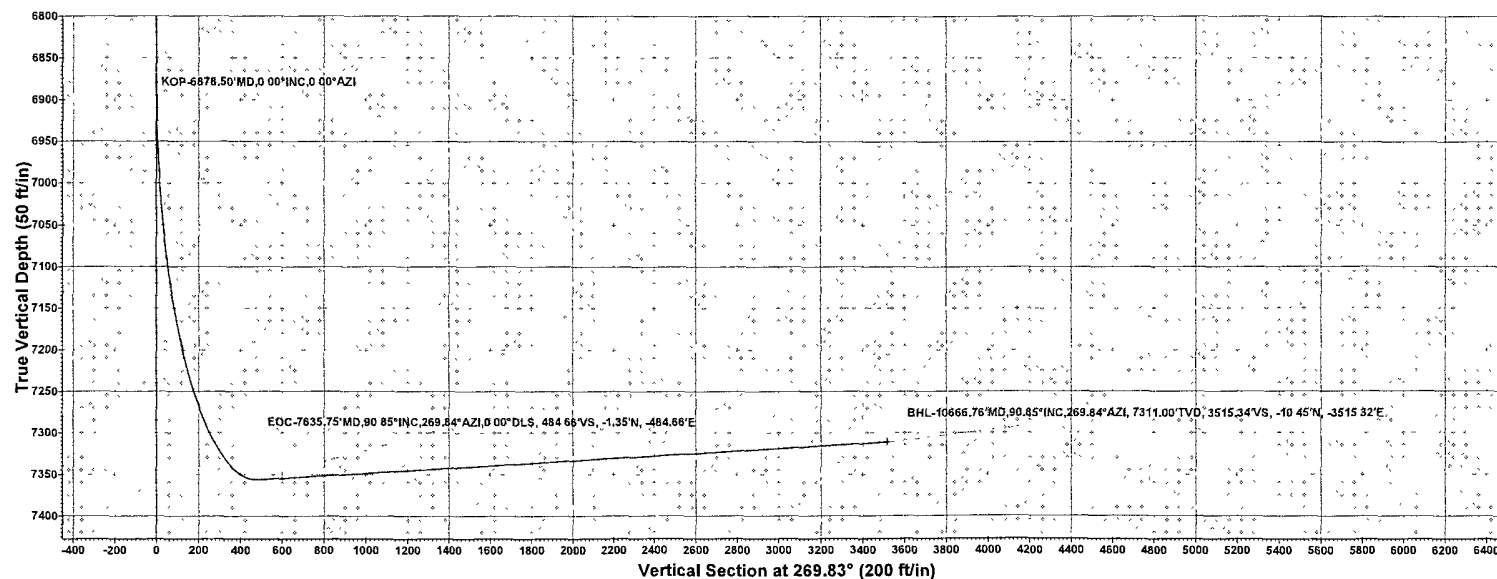


WELLBORE TARGET DETAILS (MAP CO-ORDINATES)						
Name	TVD	+N/-S	+E/-W	Nothing	Easting	Shape
PBHL(#103H)	7311.00	-10.45	-3515.32	492775.706	693102.882	Point

SECTION DETAILS									
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	6878.50	0.00	0.00	6878.50	0.00	0.00	0.00	0.00	0.00
3	7635.72	90.85	269.84	7356.00	-1.35	-484.64	12.00	269.84	484.64
4	7635.96	90.85	269.84	7356.00	-1.35	-484.88	0.00	0.00	484.88
5	10666.76	90.85	269.84	7311.00	-10.45	-3515.32	0.00	0.00	3515.34

PBHL(#103H)

Lease Line Provided by Basin Surveys



LEGEND

• Plan #1



Azimuths to Grid North
True North: -0.27°
Magnetic North: 7.68°

Magnetic Field
Strength: 48902.0 nT
Dip Angle: 60.33°
Date: 05/21/2009
Model: IGRF200510

PROJECT DETAILS: Eddy County
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level
Local North: Grd

Plan Plan #1 (#103H/OH)

Created By: Nate Bingham Date: 8/03, May 26 2009

BOPCO, L.P.

Eddy County
James Ranch Unit
#103H
OH

Plan: Plan #1

Pathfinder X & Y Survey Report

26 May, 2009

PATHFINDER

Pathfinder Energy Services
Pathfinder X & Y Survey Report



Company: BOPCO, L.P.
Project: Eddy County
Site: James Ranch Unit
Well: #103H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #103H
TVD Reference: WELL @ 3343.00ft (McVay #5 19' Kb Correction)
MD Reference: WELL @ 3343.00ft (McVay #5 19' Kb Correction)
North Reference: Grd
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Project: Eddy County

Map System: US State Plane 1983
Geo Datum: North American Datum 1983
Map Zone: New Mexico Eastern Zone

System Datum: Mean Sea Level

Site: James Ranch Unit

Site Position:	Northing:	491,539.800 ft	Latitude:	32° 21' 1.219 N
From: Map	Easting:	694,505.400 ft	Longitude:	103° 50' 14.394 W
Position Uncertainty: 0.00 ft	Slot Radius:	"	Grid Convergence:	0.27 °

Well: #103H

Well Position	+N/-S	0.00 ft	Northing:	492,786.160 ft	Latitude:	32° 21' 13.455 N
	+E/-W	0.00 ft	Easting:	696,618.203 ft	Longitude:	103° 49' 49.696 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	3,324.00 ft

Wellbore: OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	05/21/2009	7.95	60.33	48,902

Design: Plan #1

Audit Notes:

Version: **Phase:** PLAN **Tie On Depth:** 0.00

Vertical Section:	Depth From (TVD)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	269.83

Survey Tool Program **Date** 05/26/2009

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	10,666.71	Plan #1 (OH)	MWD	MWD - Standard

Pathfinder Energy Services
Pathfinder X & Y Survey Report



Company: BOPCO, L.P.
Project: Eddy County
Site: James Ranch Unit
Well: #103H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #103H
TVD Reference: WELL @ 3343.00ft (McVay #5 19' Kb Correction)
MD Reference: WELL @ 3343.00ft (McVay #5 19' Kb Correction)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
0.00	0.00	0.00	0.00	-3,343.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
100.00	0.00	0.00	100.00	-3,243.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
200.00	0.00	0.00	200.00	-3,143.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
235.00	0.00	0.00	235.00	-3,108.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
Rustler										
300.00	0.00	0.00	300.00	-3,043.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
400.00	0.00	0.00	400.00	-2,943.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
500.00	0.00	0.00	500.00	-2,843.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
588.00	0.00	0.00	588.00	-2,755.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
base/Rustler										
600.00	0.00	0.00	600.00	-2,743.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
700.00	0.00	0.00	700.00	-2,643.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
Salt										
800.00	0.00	0.00	800.00	-2,543.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
900.00	0.00	0.00	900.00	-2,443.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
1,000.00	0.00	0.00	1,000.00	-2,343.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
1,100.00	0.00	0.00	1,100.00	-2,243.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
1,200.00	0.00	0.00	1,200.00	-2,143.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
1,300.00	0.00	0.00	1,300.00	-2,043.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
1,400.00	0.00	0.00	1,400.00	-1,943.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
1,500.00	0.00	0.00	1,500.00	-1,843.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
1,600.00	0.00	0.00	1,600.00	-1,743.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
1,700.00	0.00	0.00	1,700.00	-1,643.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
1,800.00	0.00	0.00	1,800.00	-1,543.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
1,900.00	0.00	0.00	1,900.00	-1,443.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
2,000.00	0.00	0.00	2,000.00	-1,343.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
2,100.00	0.00	0.00	2,100.00	-1,243.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
2,200.00	0.00	0.00	2,200.00	-1,143.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20

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Pathfinder X & Y Survey Report



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Project: Eddy County
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Wellbore: OH
Design: Plan #1

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2,300.00	0.00	0.00	2,300.00	-1,043.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20	
2,400.00	0.00	0.00	2,400.00	-943.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20	
2,500.00	0.00	0.00	2,500.00	-843.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20	
2,600.00	0.00	0.00	2,600.00	-743.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20	
2,700.00	0.00	0.00	2,700.00	-643.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20	
2,800.00	0.00	0.00	2,800.00	-543.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20	
2,900.00	0.00	0.00	2,900.00	-443.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20	
3,000.00	0.00	0.00	3,000.00	-343.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20	
3,100.00	0.00	0.00	3,100.00	-243.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20	
3,200.00	0.00	0.00	3,200.00	-143.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20	
3,300.00	0.00	0.00	3,300.00	-43.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20	
3,400.00	0.00	0.00	3,400.00	57.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20	
3,500.00	0.00	0.00	3,500.00	157.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20	
3,560.00	0.00	0.00	3,560.00	217.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20	
base/Salt											
3,600.00	0.00	0.00	3,600.00	257.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20	
3,700.00	0.00	0.00	3,700.00	357.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20	
3,800.00	0.00	0.00	3,800.00	457.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20	
3,804.00	0.00	0.00	3,804.00	461.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20	
Delaware Mtn Group/Lamar Lime											
3,865.00	0.00	0.00	3,865.00	522.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20	
Ramsey											
3,900.00	0.00	0.00	3,900.00	557.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20	
4,000.00	0.00	0.00	4,000.00	657.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20	
4,100.00	0.00	0.00	4,100.00	757.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20	
4,200.00	0.00	0.00	4,200.00	857.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20	
4,300.00	0.00	0.00	4,300.00	957.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20	
4,400.00	0.00	0.00	4,400.00	1,057.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20	

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Well #103H
WELL @ 3343.00ft (McVay #5 19' Kb Correction)
WELL @ 3343.00ft (McVay #5 19' Kb Correction)
Grid
Minimum Curvature
Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
4,500.00	0.00	0.00	4,500.00	1,157.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
4,600.00	0.00	0.00	4,600.00	1,257.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
4,700.00	0.00	0.00	4,700.00	1,357.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
4,800.00	0.00	0.00	4,800.00	1,457.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
4,900.00	0.00	0.00	4,900.00	1,557.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
5,000.00	0.00	0.00	5,000.00	1,657.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
5,100.00	0.00	0.00	5,100.00	1,757.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
5,200.00	0.00	0.00	5,200.00	1,857.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
5,300.00	0.00	0.00	5,300.00	1,957.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
5,400.00	0.00	0.00	5,400.00	2,057.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
5,500.00	0.00	0.00	5,500.00	2,157.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
5,600.00	0.00	0.00	5,600.00	2,257.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
5,700.00	0.00	0.00	5,700.00	2,357.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
5,800.00	0.00	0.00	5,800.00	2,457.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
5,900.00	0.00	0.00	5,900.00	2,557.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
5,954.00	0.00	0.00	5,954.00	2,611.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
Lower Cherry Canyon										
6,000.00	0.00	0.00	6,000.00	2,657.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
6,100.00	0.00	0.00	6,100.00	2,757.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
6,200.00	0.00	0.00	6,200.00	2,857.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
6,300.00	0.00	0.00	6,300.00	2,957.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
6,400.00	0.00	0.00	6,400.00	3,057.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
6,500.00	0.00	0.00	6,500.00	3,157.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
6,600.00	0.00	0.00	6,600.00	3,257.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
6,700.00	0.00	0.00	6,700.00	3,357.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20
6,800.00	0.00	0.00	6,800.00	3,457.00	0.00	0.00	0.00	0.00	492,786.16	696,618.20

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MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
6,878.50	0.00	0.00	6,878.50	3,535.50	0.00	0.00	0.00	0.00	492,786.16	696,618.20
KOP-6878.50'MD,0.00°INC,0.00°AZI										
6,900.00	2.58	269.84	6,899.99	3,556.99	0.00	-0.48	0.48	12.00	492,786.16	696,617.72
6,925.00	5.58	269.84	6,924.93	3,581.93	-0.01	-2.26	2.26	12.00	492,786.15	696,615.94
6,950.00	8.58	269.84	6,949.73	3,606.73	-0.01	-5.34	5.34	12.00	492,786.15	696,612.86
6,975.00	11.58	269.84	6,974.34	3,631.34	-0.03	-9.72	9.72	12.00	492,786.13	696,608.49
7,000.00	14.58	269.84	6,998.69	3,655.69	-0.04	-15.37	15.37	12.00	492,786.12	696,602.83
7,025.00	17.58	269.84	7,022.71	3,679.71	-0.06	-22.30	22.30	12.00	492,786.10	696,595.91
7,050.00	20.58	269.84	7,046.34	3,703.34	-0.09	-30.47	30.47	12.00	492,786.07	696,587.74
7,075.00	23.58	269.84	7,069.50	3,726.50	-0.11	-39.86	39.86	12.00	492,786.05	696,578.34
7,100.00	26.58	269.84	7,092.14	3,749.14	-0.14	-50.45	50.45	12.00	492,786.02	696,567.75
7,125.00	29.57	269.84	7,114.20	3,771.20	-0.17	-62.22	62.22	12.00	492,785.99	696,555.98
7,150.00	32.57	269.84	7,135.61	3,792.61	-0.21	-75.12	75.12	12.00	492,785.95	696,543.08
7,175.00	35.57	269.84	7,156.31	3,813.31	-0.25	-89.13	89.13	12.00	492,785.91	696,529.08
7,197.12	38.23	269.84	7,174.00	3,831.00	-0.29	-102.40	102.40	12.00	492,785.87	696,515.80
Brushy Canyon "U" Sand										
7,200.00	38.57	269.84	7,176.26	3,833.26	-0.29	-104.19	104.19	12.00	492,785.87	696,514.01
7,225.00	41.57	269.84	7,195.39	3,852.39	-0.34	-120.29	120.29	12.00	492,785.82	696,497.92
7,250.00	44.57	269.84	7,213.65	3,870.65	-0.38	-137.36	137.36	12.00	492,785.78	696,480.85
7,275.00	47.57	269.84	7,230.99	3,887.99	-0.43	-155.36	155.36	12.00	492,785.73	696,462.84
7,300.00	50.57	269.84	7,247.37	3,904.37	-0.49	-174.25	174.25	12.00	492,785.67	696,443.96
7,325.00	53.57	269.84	7,262.73	3,919.73	-0.54	-193.96	193.96	12.00	492,785.62	696,424.24
7,350.00	56.57	269.84	7,277.04	3,934.04	-0.60	-214.46	214.46	12.00	492,785.56	696,403.75
7,375.00	59.57	269.84	7,290.27	3,947.27	-0.66	-235.67	235.67	12.00	492,785.50	696,382.53
7,400.00	62.57	269.84	7,302.36	3,959.36	-0.72	-257.55	257.55	12.00	492,785.44	696,360.65
7,425.00	65.57	269.84	7,313.29	3,970.29	-0.78	-280.03	280.03	12.00	492,785.38	696,338.17
7,450.00	68.57	269.84	7,323.03	3,980.03	-0.85	-303.05	303.05	12.00	492,785.31	696,315.15

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7,475.00	71.57	269.84	7,331.55	3,988.55	-0.91	-326.55	326.55	12.00	492,785.25	696,291.65
7,489.76	73.34	269.84	7,336.00	3,993.00	-0.95	-340.62	340.62	12.00	492,785.21	696,277.58
LBC "Marker" Sand										
7,500.00	74.57	269.84	7,338.83	3,995.83	-0.98	-350.46	350.46	12.00	492,785.18	696,267.74
7,525.00	77.57	269.84	7,344.85	4,001.85	-1.05	-374.72	374.73	12.00	492,785.11	696,243.48
7,550.00	80.57	269.84	7,349.59	4,006.59	-1.11	-399.27	399.27	12.00	492,785.05	696,218.93
7,575.00	83.56	269.84	7,353.04	4,010.04	-1.18	-424.03	424.03	12.00	492,784.98	696,194.18
7,600.00	86.56	269.84	7,355.19	4,012.19	-1.25	-448.93	448.93	12.00	492,784.91	696,169.27
7,625.00	89.56	269.84	7,356.04	4,013.04	-1.32	-473.91	473.91	12.00	492,784.84	696,144.29
7,635.72	90.85	269.84	7,356.00	4,013.00	-1.35	-484.64	484.64	12.00	492,784.81	696,133.57
7,635.75	90.85	269.84	7,356.00	4,013.00	-1.35	-484.66	484.66	0.00	492,784.81	696,133.54
EOC-7635.75'MD,90.85°INC,269.84°AZI,0.00°DLS, 484.66°VS, -1.35°N, -484.66°E										
7,635.96	90.85	269.84	7,356.00	4,013.00	-1.35	-484.88	484.88	0.00	492,784.81	696,133.33
7,700.00	90.85	269.84	7,355.05	4,012.05	-1.53	-548.91	548.91	0.00	492,784.63	696,069.30
7,800.00	90.85	269.84	7,353.56	4,010.56	-1.81	-648.89	648.90	0.00	492,784.35	695,969.31
7,900.00	90.85	269.84	7,352.08	4,009.08	-2.09	-748.88	748.89	0.00	492,784.07	695,869.32
8,000.00	90.85	269.84	7,350.60	4,007.60	-2.37	-848.87	848.87	0.00	492,783.79	695,769.33
8,100.00	90.85	269.84	7,349.11	4,006.11	-2.65	-948.86	948.86	0.00	492,783.51	695,669.34
8,200.00	90.85	269.84	7,347.63	4,004.63	-2.93	-1,048.85	1,048.85	0.00	492,783.23	695,569.35
8,300.00	90.85	269.84	7,346.15	4,003.15	-3.21	-1,148.84	1,148.84	0.00	492,782.95	695,469.37
8,400.00	90.85	269.84	7,344.66	4,001.66	-3.49	-1,248.83	1,248.83	0.00	492,782.67	695,369.38
8,500.00	90.85	269.84	7,343.18	4,000.18	-3.77	-1,348.81	1,348.82	0.00	492,782.39	695,269.39
8,600.00	90.85	269.84	7,341.70	3,998.70	-4.05	-1,448.80	1,448.81	0.00	492,782.11	695,169.40
8,700.00	90.85	269.84	7,340.21	3,997.21	-4.33	-1,548.79	1,548.80	0.00	492,781.83	695,069.41
8,800.00	90.85	269.84	7,338.73	3,995.73	-4.60	-1,648.78	1,648.79	0.00	492,781.56	694,969.42
8,900.00	90.85	269.84	7,337.24	3,994.24	-4.88	-1,748.77	1,748.78	0.00	492,781.28	694,869.43
9,000.00	90.85	269.84	7,335.76	3,992.76	-5.16	-1,848.76	1,848.76	0.00	492,781.00	694,769.45

Pathfinder Energy Services
Pathfinder X & Y Survey Report



Company: BOPCO, L.P.
Project: Eddy County
Site: James Ranch Unit
Well: #103H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #103H
TVD Reference: WELL @ 3343.00ft (McVay #5 19' Kb Correction)
MD Reference: WELL @ 3343.00ft (McVay #5 19' Kb Correction)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
9,100.00	90.85	269.84	7,334.28	3,991.28	-5.44	-1,948.75	1,948.75	0.00	492,780.72	694,669.46
9,200.00	90.85	269.84	7,332.79	3,989.79	-5.72	-2,048.73	2,048.74	0.00	492,780.44	694,569.47
9,300.00	90.85	269.84	7,331.31	3,988.31	-6.00	-2,148.72	2,148.73	0.00	492,780.16	694,469.48
9,400.00	90.85	269.84	7,329.83	3,986.83	-6.28	-2,248.71	2,248.72	0.00	492,779.88	694,369.49
9,500.00	90.85	269.84	7,328.34	3,985.34	-6.56	-2,348.70	2,348.71	0.00	492,779.60	694,269.50
9,600.00	90.85	269.84	7,326.86	3,983.86	-6.84	-2,448.69	2,448.70	0.00	492,779.32	694,169.51
9,700.00	90.85	269.84	7,325.38	3,982.38	-7.12	-2,548.68	2,548.69	0.00	492,779.04	694,069.53
9,800.00	90.85	269.84	7,323.89	3,980.89	-7.40	-2,648.67	2,648.68	0.00	492,778.76	693,969.54
9,900.00	90.85	269.84	7,322.41	3,979.41	-7.68	-2,748.65	2,748.67	0.00	492,778.48	693,869.55
10,000.00	90.85	269.84	7,320.93	3,977.93	-7.95	-2,848.64	2,848.65	0.00	492,778.21	693,769.56
10,100.00	90.85	269.84	7,319.44	3,976.44	-8.23	-2,948.63	2,948.64	0.00	492,777.93	693,669.57
10,200.00	90.85	269.84	7,317.96	3,974.96	-8.51	-3,048.62	3,048.63	0.00	492,777.65	693,569.58
10,300.00	90.85	269.84	7,316.48	3,973.48	-8.79	-3,148.61	3,148.62	0.00	492,777.37	693,469.59
10,400.00	90.85	269.84	7,314.99	3,971.99	-9.07	-3,248.60	3,248.61	0.00	492,777.09	693,369.61
10,500.00	90.85	269.84	7,313.51	3,970.51	-9.35	-3,348.59	3,348.60	0.00	492,776.81	693,269.62
10,600.00	90.85	269.84	7,312.03	3,969.03	-9.63	-3,448.57	3,448.59	0.00	492,776.53	693,169.63
10,666.76	90.85	269.84	7,311.04	3,968.04	-9.82	-3,515.32	3,515.34	0.00	492,776.34	693,102.88

BHL-10666.76°MD,90.85°INC,269.84°AZI, 7311.00°TVD, 3515.34°VS, -10.45°N, -3515.32°E - PBHL(#103H)

Pathfinder Energy Services
Pathfinder X & Y Survey Report



Company: BOPCO, L.P.
Project: Eddy County
Site: James Ranch Unit
Well: #103H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #103H
TVD Reference: WELL @ 3343.00ft (McVay #5 19' Kb Correction)
MD Reference: WELL @ 3343.00ft (McVay #5 19' Kb Correction)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
PBHL(#103H) - plan hits target - Point	0.00	0.00	7,311.00	-10.45	-3,515.32	492,775.706	693,102.882	32° 21' 13.513 N	103° 50' 30.678 W

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,865.00	3,865.00	Ramsey		0.00	
7,197.12	7,174.00	Brushy Canyon "U" Sand		0.00	
3,560.00	3,560.00	base/Salt		0.00	
700.00	700.00	Salt		0.00	
3,804.00	3,804.00	Delaware Mtn Group/Lamar Lime		0.00	
235.00	235.00	Rustler		0.00	
5,954.00	5,954.00	Lower Cherry Canyon		0.00	
7,489.76	7,336.00	LBC "Marker" Sand		0.00	
588.00	588.00	base/Rustler		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
6,878.50	6,878.50	0.00	0.00	KOP-6878.50'MD,0.00°INC,0.00°AZI
7,635.75	7,356.00	-1.35	-484.66	EOC-7635.75'MD,90.85°INC,269.84°AZI,0.00°DLS, 484.66'VS, -1.35'N
10,666.76	7,311.00	-10.45	-3,515.32	BHL-10666.76'MD,90.85°INC,269.84°AZI, 7311.00'TVD, 3515.34'VS, -

Checked By: _____ Approved By: _____ Date: _____

McVay Rig #7,5

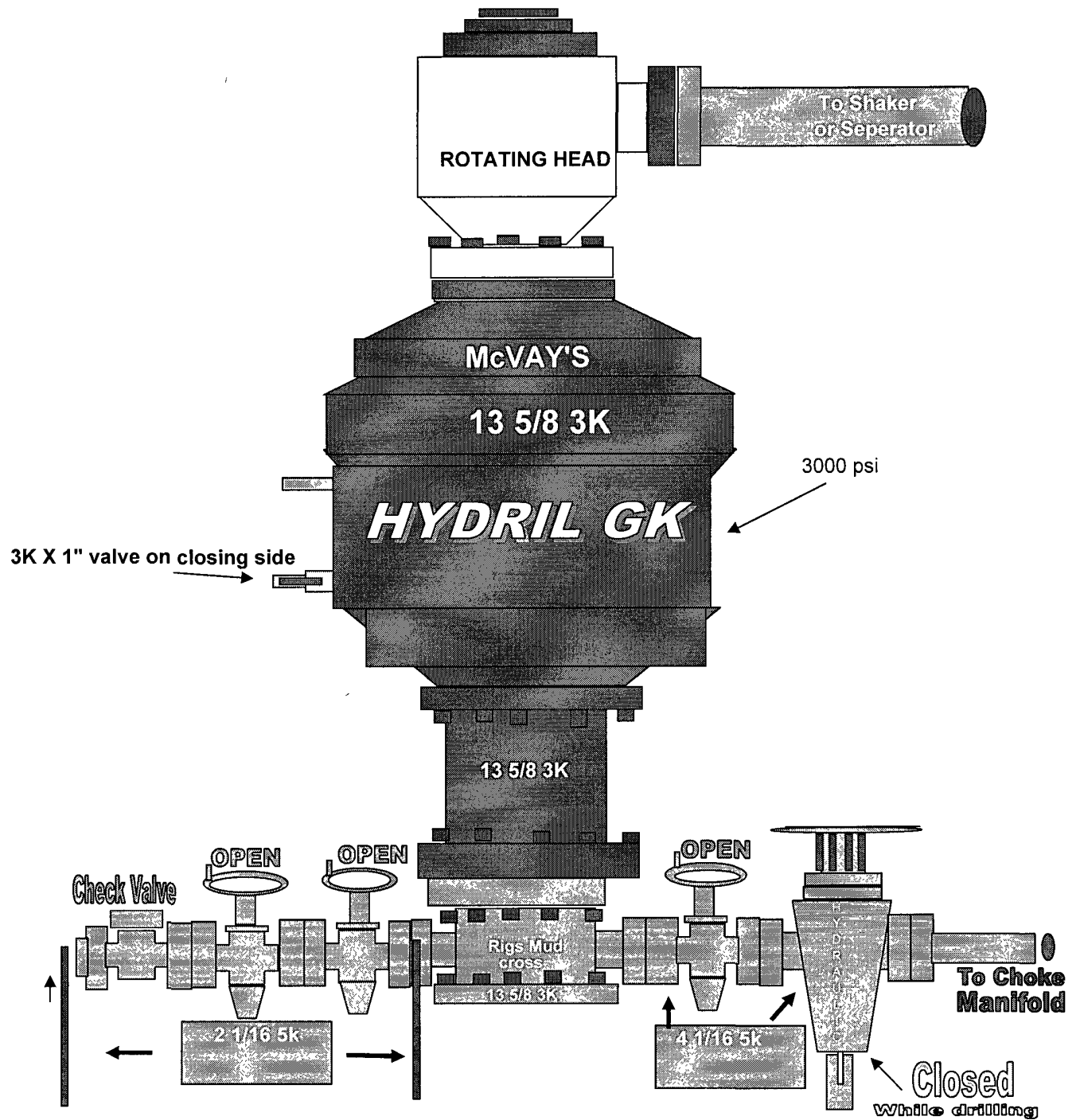


Diagram #1

McVay Rig #7,5

This Stack is for 7 7/8" or 8 3/4" hole.

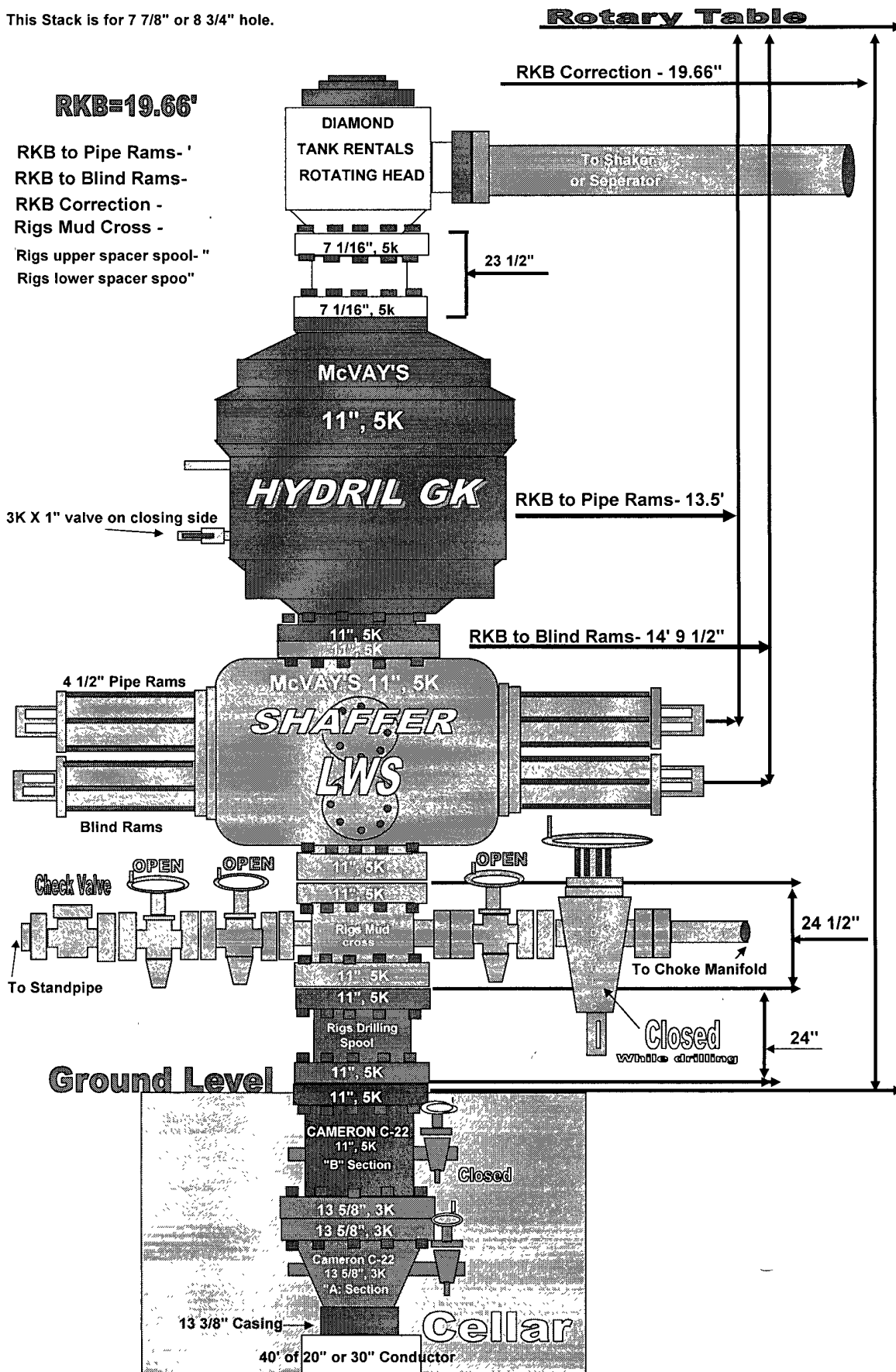


Diagram #2

BOPCO, L. P.

5 M CHOKE MANIFOLD EQUIPMENT-CONFIGURATION MAY VARY

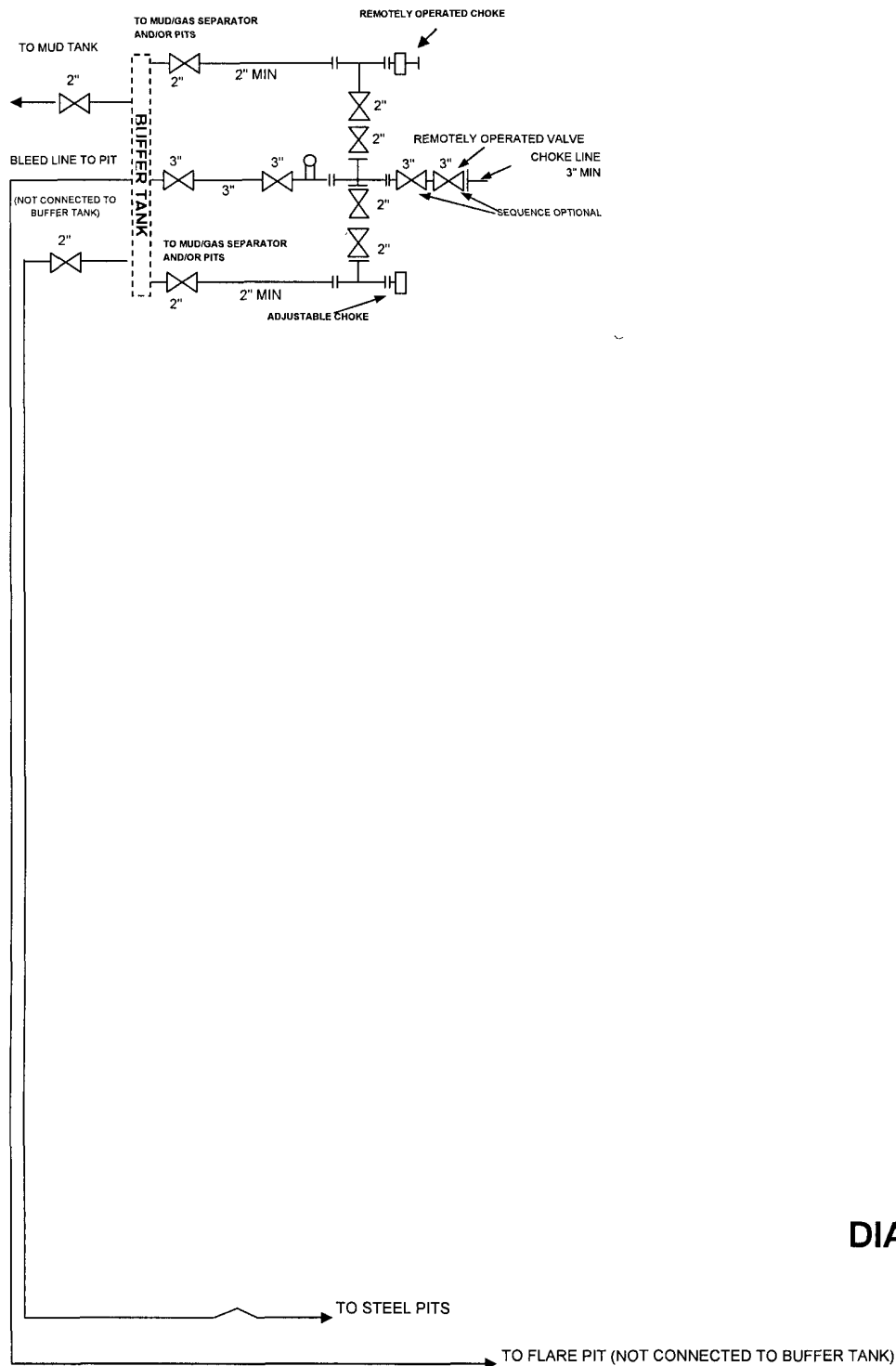
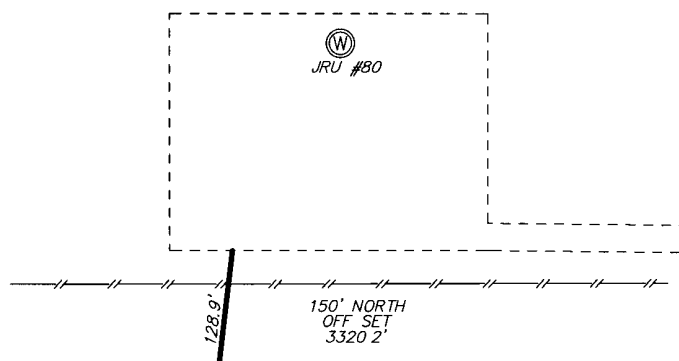
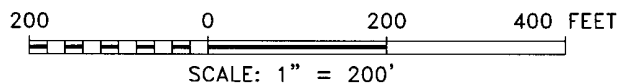
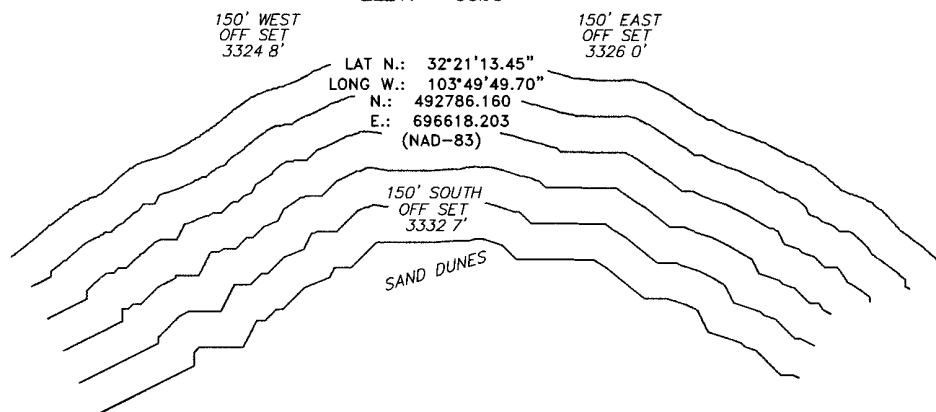


DIAGRAM 1-A

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



BOPCO, L.P.
JAMES RANCH UNIT #103H
ELEV. - 3324'



DIRECTIONS TO LOCATION:

FROM THE JUNCTION OF STATE HWY 128 AND WIPP ROAD, GO NORTH ON WIPP ROAD 0.8 MILES TO LEASE ROAD, ON LEASE ROAD GO 0.4 WEST TO LEASE ROAD, ON LEASE ROAD GO NORTH 1.0 MILES TO LEASE ROAD, ON LEASE ROAD GO WEST 0.1 MILES TO JRU #80 AND PROPOSED LOCATION.

BOPCO, L.P.

REF: JAMES RANCH UNIT #103H / WELL PAD AND TOPO

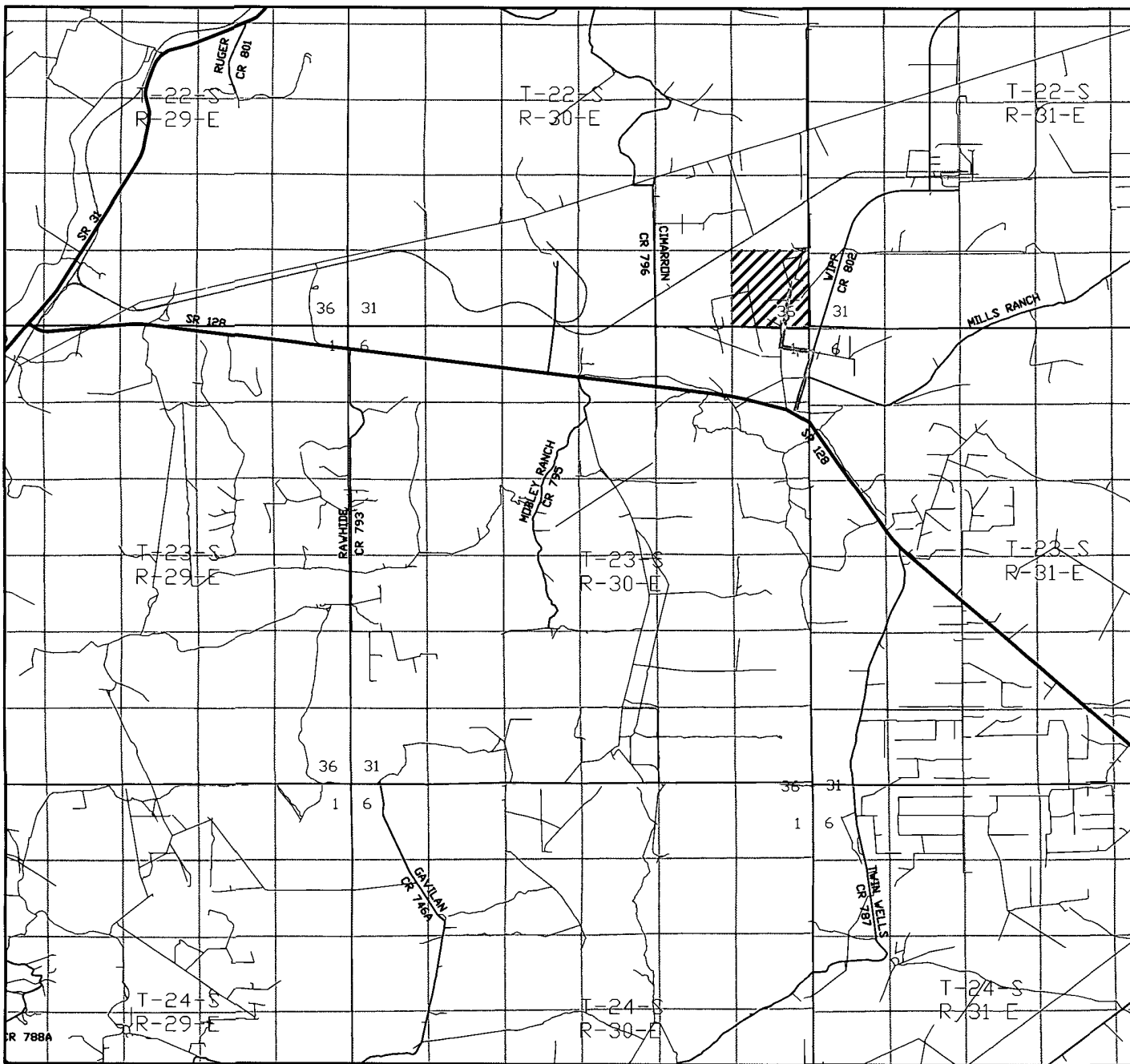
THE JAMES RANCH UNIT #103H LOCATED 760'
FROM THE NORTH LINE AND 1500' FROM THE EAST LINE OF
SECTION 36, TOWNSHIP 22 SOUTH, RANGE 30 EAST,
N.M.P.M., EDDY COUNTY, NEW MEXICO.

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

W.O. Number: 21095 Drawn By: J. SMALL

Date: 05-20-2009 Disk: 21095 JMS

Survey Date: 05-20-2009 Sheet 1 of 1 Sheets



JAMES RANCH UNIT #103H

760' FNL and 1500' FEL

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



focused on excellence
in the oilfield

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 21095

Survey Date: 05-20-2008

Scale: 1" = 2000'

Date: 05-02-2008

BOPCO, L.P.



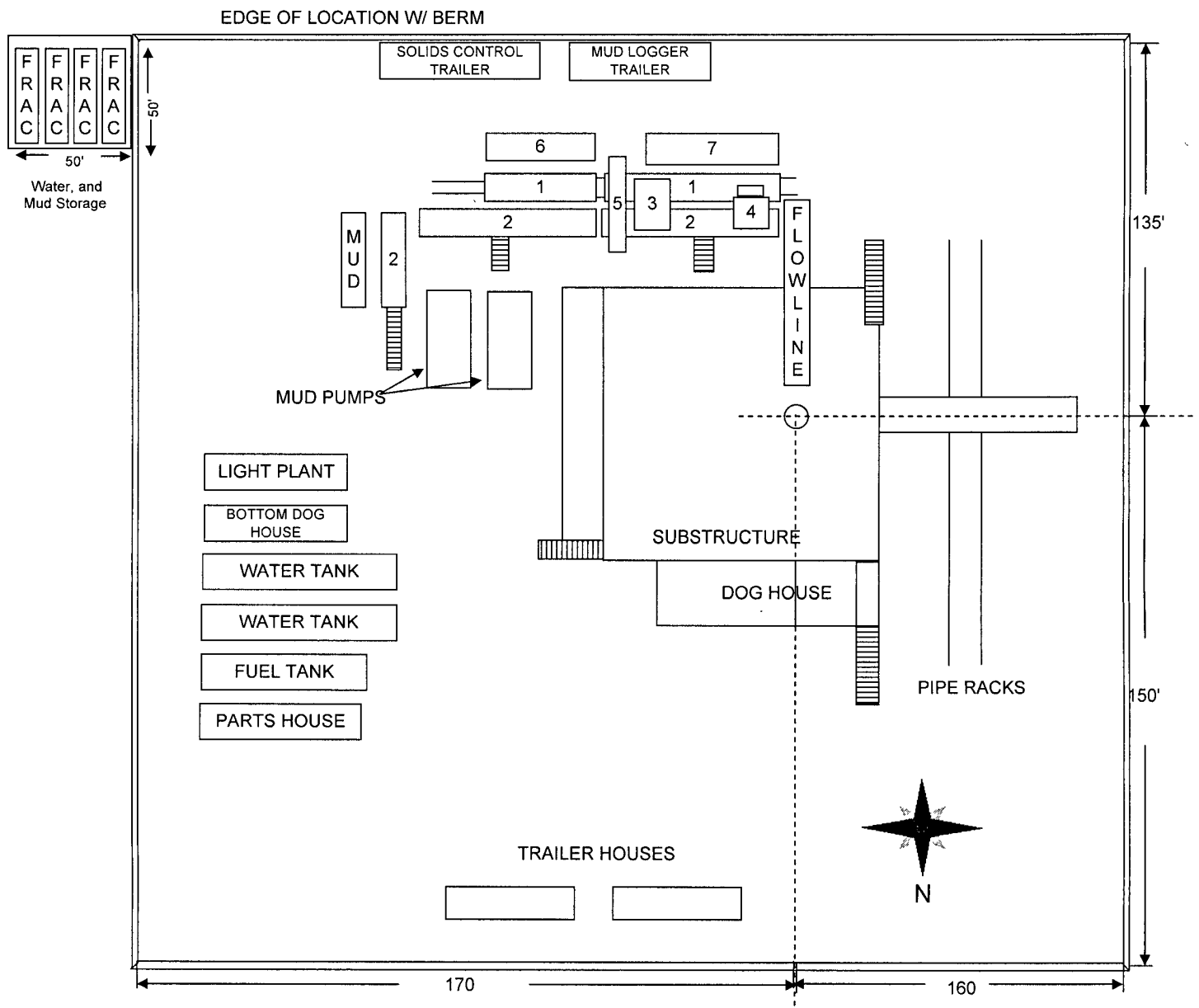
BOPCO, L.P.
James Ranch Unit #103H
Section 36, T-22-S, R-30-E
Eddy County, NM

Exhibit "D"

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 | |



James Ranch Unit #103H
Exhibit "E"



HYDROGEN SULFIDE (H₂S) CONTINGENCY PLAN

Assumed 100 ppm ROE = 3000'

100 ppm H₂S concentration shall trigger activation of this plan.

Emergency Procedures

In the event of a release of gas containing H₂S, the first responder(s) must

- Isolate the area and prevent entry by other persons into the 100 ppm ROE.
- Evacuate any public places encompassed by the 100 ppm ROE.
- Be equipped with H₂S monitors and air packs in order to control the release.
- Use the "buddy system" to ensure no injuries occur during the response
- Take precautions to avoid personal injury during this operation.
- Contact operator and/or local officials to aid in operation. See list of phone numbers attached.
- Have received training in the
 - Detection of H₂S, and
 - Measures for protection against the gas,
 - Equipment used for protection and emergency response.

Ignition of Gas source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO₂). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever this is an ignition of the gas.

Characteristics of H₂S and SO₂

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H ₂ S	1.189 Air = 1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO ₂	2.21 Air = 1	2 ppm	N/A	1000 ppm

Contacting Authorities

BOPCO L.P. personnel must liaison with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available including directions to site. The following call list of essential and potential responders has been prepared for use during a release. (Operator Name)'s response must be in coordination with the State of New México's "Hazardous Materials Emergency Response Plan" (HMER).

H₂S CONTINGENCY PLAN EMERGENCY CONTACTS

BOPCO L.P. Midland Office

432-683-2277

Key Personnel

<u>Name</u>	<u>Title</u>	<u>Cell Phone Number</u>
Bill Dannels	Drilling Supt.	432-638-9463
Buddy Jenkins	Assistant Supt.	432-238-3295
Stephen Martinez	Engineer	432-556-0262
Gary Gerhard	Engineer	432-238-2197

Ambulance	911
State Police	575-746-2703
City Police	575-746-2703
Sheriff's Office	575-746-9888
Fire Department	575-746-2701
Local Emergency Planning Committee	575-746-2122
New Mexico Oil Conservation Division	575-748-1283

Carlsbad

Ambulance	911
State Police	575-8885-3137
City Police	575-885-2111
Sheriff's Office	575-887-7551
Fire Department	575-887-3798
Local Emergency Planning Committee	575-887-6544
US Bureau of Land Management	575-887-6544

New Mexico Emergency Response Commission (Santa Fe)	505-476-9600
24 Hour	505-827-9126
New Mexico State Emergency Operations Center	505-476-9635
National Emergency Response Center (Washington, DC)	800-424-8802

Other

Boots & Coots IWC	800-256-9688 or 281-931-8884
Cudd PressureControl	432-580-3544 or 432-570-5300
Halliburton	575-746-2757
B. J. Services	575-746-3569
Flight For Life – 4000 24 th St. Lubbock, Texas	806-743-9911
Aerocare – R3, Box 49F, Lubbock, Texas	806-747-8923
Med Flight Air Amb – 2301 Yale Blvd SE #D3, Albuquerque, NM	505-842-4433
S B Air Med Service – 2505 Clark Carr Loop SE, Albuquerque, NM	505-842-4949