SEP 1 0 2009

OCD Artesta R-111-POTASH

(April 2004)			OMB No	o 1004-0137 March 31, 200	17
UNITED STATES DEPARTMENT OF THE I BUREAU OF LAND MAN		5 Lease Serial No. 4942, 9305, 41	46 NN	02884A	
APPLICATION FOR PERMIT TO			6. If Indian, Allotee		
la Type of work DRILL REENTE	ER		7 If Unit or CA Agre	eement, Nan	ne and No
lb Type of Well	Single Zone Multip	ole Zone	8 Lease Name and V James Ranch		A
2 Name of Operator BOPCO, L. P.	-		9 API Well No.	. 37	373
3a Address P. O. Box 2760 Midland, TX 79702	3b Phone No. (include area code) 432-683-2277	,	10 Field and Pool, or l Quahada Ridg		aware)
At surface NENW, UL D, 940' FNL, 2080' FW At proposed prod. zone 660' FNL, 990 FWL, Sec 2-T23S-R3	L, Lat N32.33873, Lon W103.83		11 Sec , T R M or B Sec 1, T23S, R		
Distance in miles and direction from nearest town or post office* 20 miles Northeast of Malaga, NM		,	12 County or Parish Eddy County	1	3 State NM
Distance from proposed* 560' location to nearest property or lease line, ft (Also to nearest drig unit line, if any)	16 No of acres in lease 5826.34'	17 Spacii 240	ng Unit dedicated to this v	well .	2
8 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 75'	19 Proposed Depth 13,661' MD, 7267' (TVD)				
Elevations (Show whether DF, KDB, RT, GL, etc) 3289' GL	22 Approximate date work will sta 07/01/2009	rt*	23 Estimated duration 32 days	n	
	24. Attachments				
The following, completed in accordance with the requirements of Onshor Well plat certified by a registered surveyor A Drilling Plan A Surface Use Plan (if the location is on National Forest System SUPO shall be filed with the appropriate Forest Service Office)	4 Bond to cover to ltem 20 above). Lands, the 5 Operator certific	he operation specific inf	us form ormation and/or plans as	J	·
25 Signature Connelle Clibber	Name (Printed Typed) Annette Childers			Date 5 - 1	1-09
itle Administrative Assistant					
Approved by (Significal Linda S.C. Rundell	Name (Printed Typid)	s.C. R	undell	Da A SUG	3 1 2009
fille STATE DIRECTOR	Office . NM	STAT	E OFFICE		
Application approval does not warrant or certify that the applicant hold onduct operations thereon Conditions of approval, if any, are attached		ts in the sub		ntitle the app	YEARS
Fille 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a creates any false, fictitious or fraudulent statements or representations as t	nme for any person knowingly and vio any matter within its jurisdiction	villfully to n	nake to any department o	r agency of	the United

*(Instructions on page 2)

Carlsbad Controlled Water Basin

SEE ATTACHED FOR CONDITIONS OF APPROVAL

Approval Subject to General Requirements & Special Stipulations Attached

OCD-ARTESIA

Form 3160-5 (April 2004)		UNITED STATE DEPARTMENT OF THE BUREAU OF LAND MAN			FORM APPROVED OM B No 1004-0137 Expires March 31, 2007	
		NOTICES AND REI		4 W/EI	1.0	5 Lease Senal No NM02884A
	Do not use th	is form for proposals to ell. Use Form 3160-3 (o drill or i	o re-ei	nter an	6 If Indian, Allottee or Tribe Name
S	UBMIT IN TR	IPLICATE- Other inst	ructions on	revers	se side.	7 If Unit or CA/Agreement, Name and/or No
I Type of ₩	Zell Oil Well 🛭 🔻	Gas Well 🗆 Other				8 Well Name and No.
2 Name of Op	erator BOPCO, L. I	.				James Ranch Unit #108H 9. API Well No
3a Address P. O. Box 2	760 Midland, TX	79702	3b Phone No 432-683-2		area code)	10 Field and Pool, or Exploratory Area
4 Location of	Well (Footage, Sec,	T, R, M., or Survey Description)				Quahada Ridge SE (Delaware)
)' FWL, Lat N32.33873, Lon V	W103.83622			11 County or Parish, State
Sec 1, T238	s, R30E, Mer NMP					Eddy Co., NM
	12. CHECK A	PPROPRIATE BOX(ES) TO	INDICATE	NATURI	E OF NOTICE, F	REPORT, OR OTHER DATA
TYPE OF	SUBMISSION			TYP	E OF ACTION	
Notice o		Acidize Alter Casing Casing Repair	Deepen Fracture Tr	ruction	Production (St Reclamation Recomplete	Well Integrity Other powerline
Final Ab	andonment Notice	Change Plans Convert to Injection	Plug and Al Plug Back	bandon	Temporarily A Water Disposal	
If the pro Attach th following testing ha determin	posal is to deepen dire e Bond under which the g completion of the inv is been completed. Fin ed that the site is ready urther review with	netionally or recomplete horizontal ne work will be performed or proviolved operations. If the operation nal Abandonment Notices shall be for final inspection.)	ly, give subsurfar ide the Bond No results in a multi filed only after a it was determi	on file w on file w ple compli il requiren	s and measured and tr th BLM/BIA Requi- etion or recompletion nents, including reclar a new powerline to	any proposed work and approximate duration thereof ue vertical depths of all pertinent markers and zones red subsequent reports shall be filed within 30 days in a new interval, a Form 3160-4 shall be filed once mation, have been completed, and the operator has serve the James Ranch Unit #108H is not hed plats.
	Printéd/Typed)	going is true and correct		Title D.	gulatory Clerk	
	Annette Childer	•		THE RE	gurator y Cierk	

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

/s/ Linda S.C. Rundell

mette Children

STATE DIRECTOR

6-2-09

AUG 3 1 2009

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

Office

NM STATE OFFICE

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction

(Instructions on page 2)

Signature

 $t_{i}(x) = \{x_{k,i}(x_{i+1}^{n}, x_{i+1}), \dots \}$

DISTRICT I
1825 N. French Dr., Hobbs, NM 88240
DISTRICT II
1301 W. Grand Avenue, Artesia, NM 88210

DISTRICT III

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

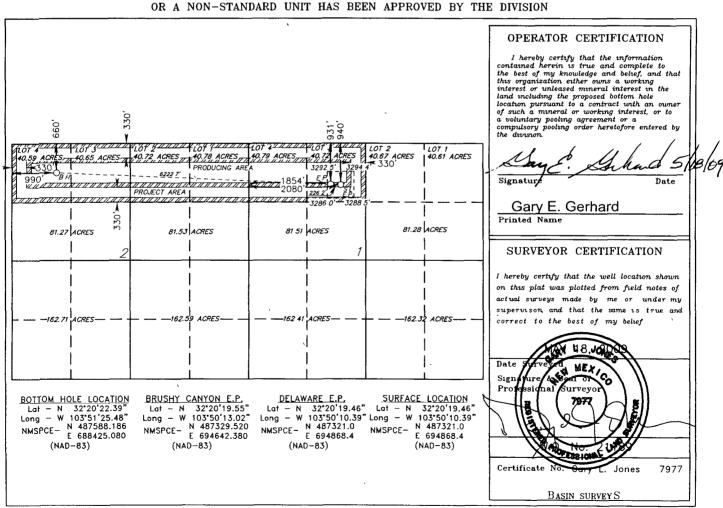
1000 Rto Brazos Rd., Aztec, NM 87410 DISTRICT IV 1220 S. St. Francis Dr., Santa Fe. NM 87505

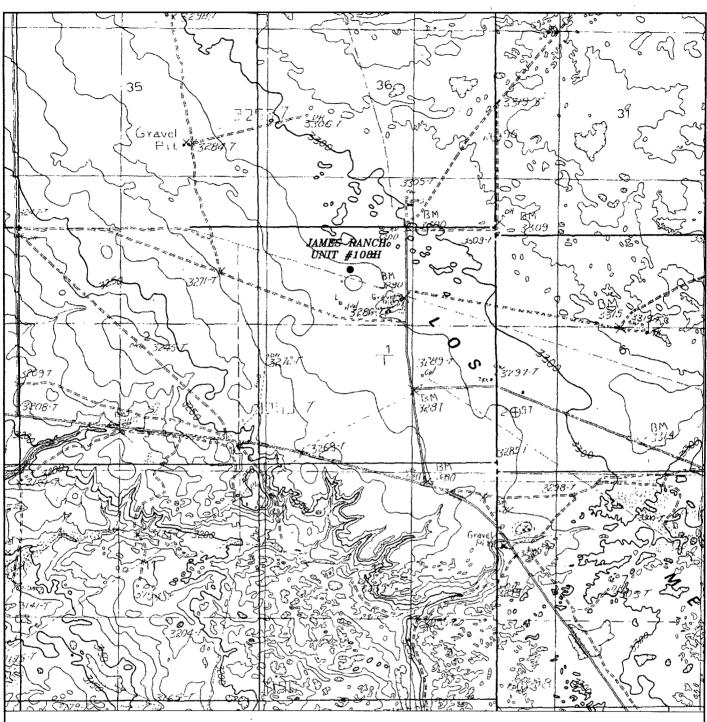
WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API	_		Pool Code Pool Name								
300	15.3	いろてら	5	0470	Q	ıre)	e)				
Property (Property Nam	ıe		Well Number			
306407	7			JA	MES RANCH	UNIT		10	8H		
OGRID No					Operator Nam	e		Eleva			
260737	·				BOPCO, L.	P		328	9'		
	Surface Location										
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County		
С	1	23 S	30 E		940	NORTH	2080	WEST	EDDY		
			Bottom	Hole Lo	cation If Diffe	rent From Sur	face	٩	·····		
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County		
D	2	23 S	30 E		660	NORTH	990	WEST	EDDY		
Dedicated Acres	Joint of	r Infill (Consolidation	Code Order No.							
240	N					<u></u>		***			

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



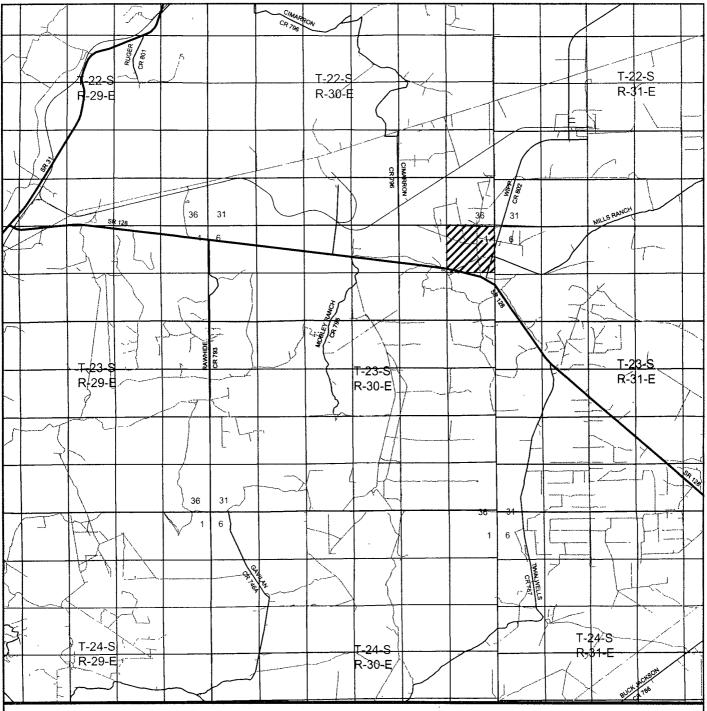


JAMES RANCH UNIT #108H Located 940' FNL and 2080' FWL Section 1, Township 23 South, Range 30 East, N.M.P.M., Eddy County, New Mexico.



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 N	umber:	JMS	21189
Survey	Date:	05-1	8-2009
Scale:			
Date	05-18-	2009	,

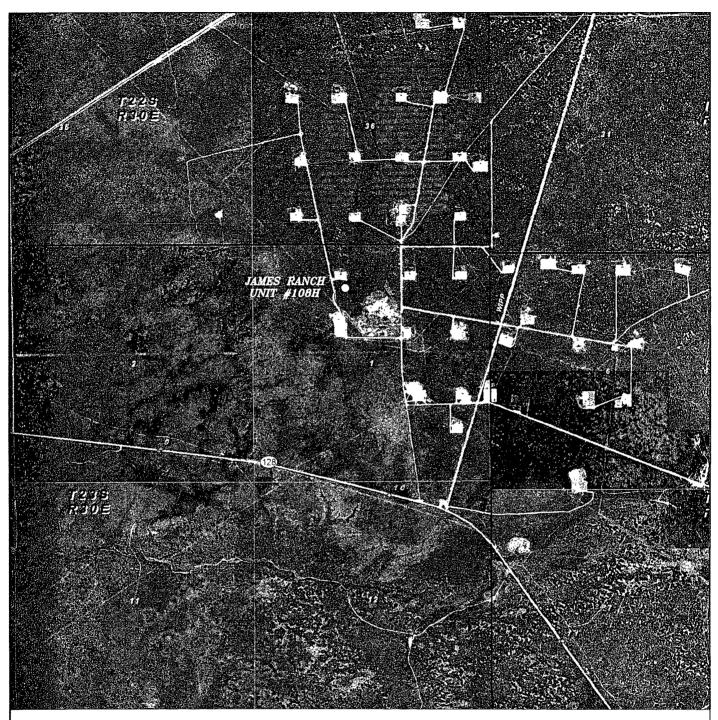


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P.O. Box 1786 1120 N. West County Rd. Hobbs, New Mexico 88241 (575) 393-7316 - Office (575) 392-2206 - Fax basinsurveys.com

W.O. Number:	JMS 21189
Survey Date.	05-18-2009
Scale. 1" = 2	Miles
Date. 05-18-	-2009



JAMES RANCH UNIT #108H Located 940' FNL and 2080' FWL Section 1, Township 23 South, Range 30 East, N.M.P.M., Eddy County, New Mexico.

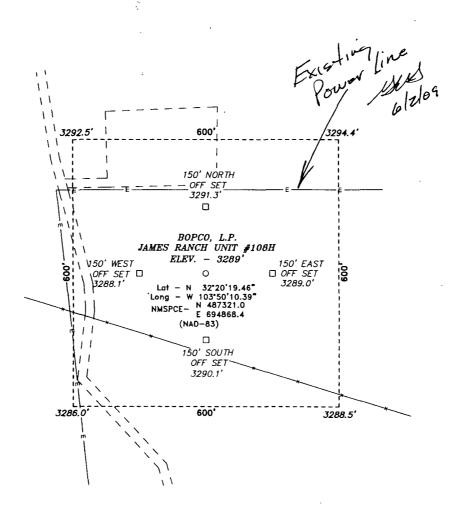


P O Box 1786 1120 N. West County Rd. Hobbs, New Mexico 88241 (575) 393—7316 — Office (575) 392—2206 — Fax basinsurveys com W O Number JMS 21189

Scale i" = 2000'

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

SECTION 1, TOWNSHIP 23 SOUTH, RANGE 30 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.



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 SOUTH 700' THENCE WEST 0.2 MILES WINDING NORTH 0.25 MILES TO PROPOSED LOCATION.

BASIN SURVEYS PO. BOX 1786-HOBBS, NEW MEXICO

W.O. Number: 21189 Drawn By: J. SMALL

Date: 03-03-2009 Disk: JMS 21189

200 0 200 400 FEET

SCALE: 1" = 200'

BOPCO, L.P.

REF. JAMES RANCH UNIT #108H / WELL PAD TOPO

THE JAMES RANCH UNIT #108H LOCATED 940'

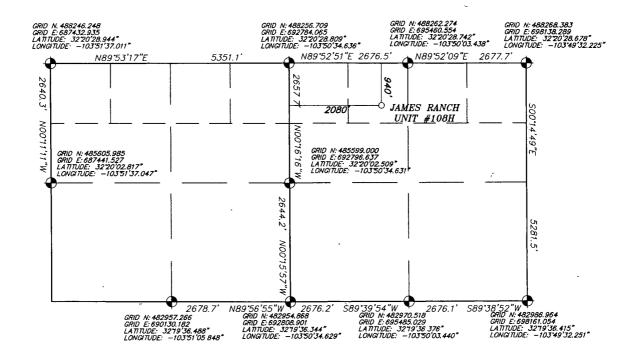
THE SAMES RANGH BRIT # TOOK LOCATED 340

FROM THE NORTH LINE AND 2080' FROM THE WEST LINE OF SECTION 1, TOWNSHIP 23 SOUTH, RANGE 30 EAST,

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

Survey Date: 03-02-2009 Sheet 1 of 1 Sheets

SECTION 1, TOWNSHIP 23 SOUTH, RANGE 30 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.



JAMES RANCH UNIT #108H Located 940' FNL and 2080' FWL Section 1, Township 23 South, Range 30 East, N.M.P.M., Eddy County, New Mexico.



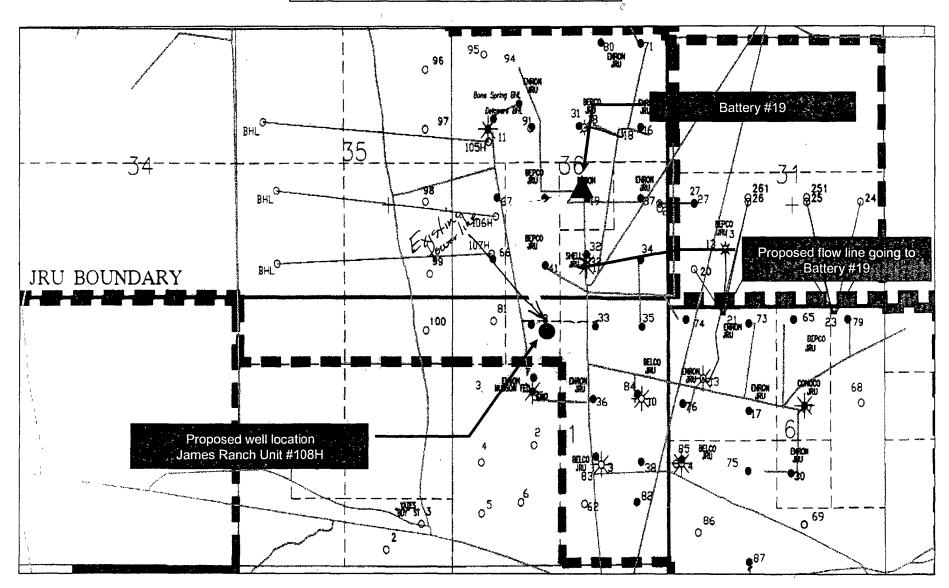
P.O. Box 1786 1120 N. West County Rd. Hobbs, New Mexico 88241 (575) 393-7316 - Office

(575) 392-2206 - Fax basinsurveys.com

W.O. Number. JMS 21189	1
Survey Date: 05—18—2009	3
Scale: 1" = 1000'	Ŋ
Date: 05-18-2009	4

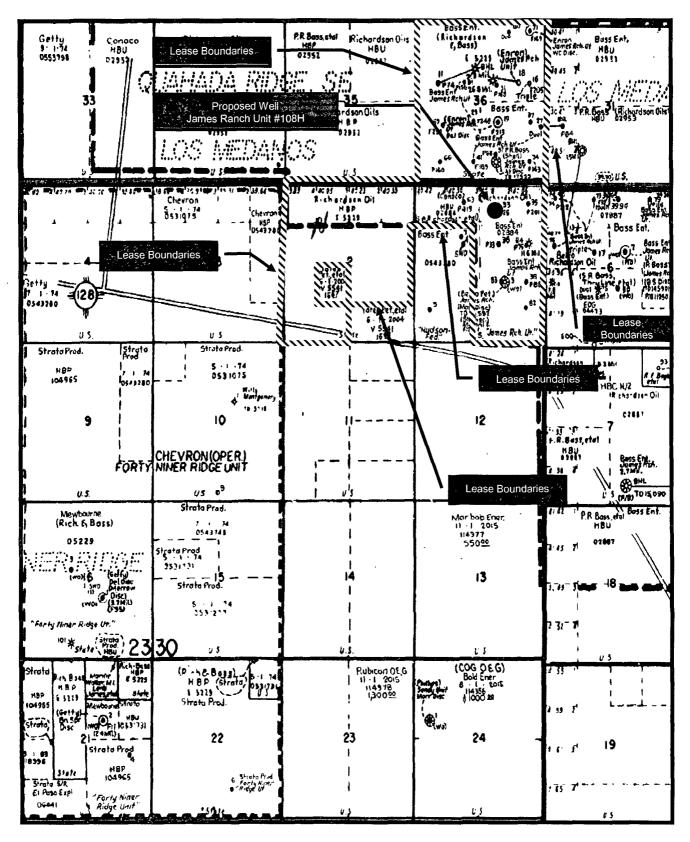






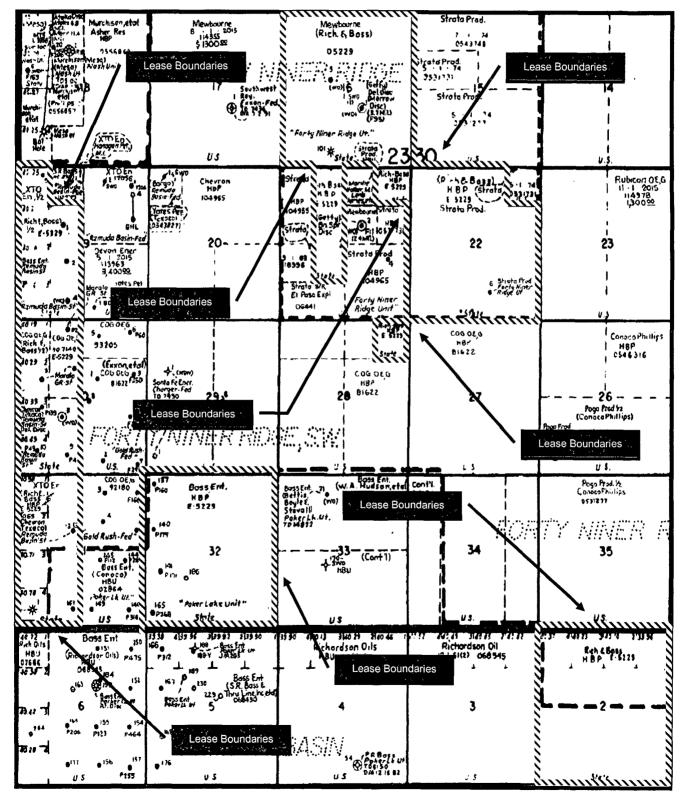
James Ranch Unit #108H Exhibit "C"





James Ranch Unit #108H Exhibit "C"





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

7" casing will be set at approximately 7644' (thru curve) and cemented in two stages with DV Tool set at approximately 5000'. Cement will be circulated to surface.

Production casing will be 4-1/2" run with Halliburton "Swell" packers. Top of 4-1/2" liner will be approximately 200' above KOP (±6650').

Drilling procedure, BOP diagram, and anticipated tops attached.

This well is located within the R111 Potash area.

The surface location and bottom hole location are both orthodox.

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).

EIGHT POINT DRILLING PROGRAM BOPCO, L.P.

NAME OF WELL: James Ranch Unit #108H

LEGAL DESCRIPTION - SURFACE: 940' FNL, 2080' FWL, Section 1, T23S, R30E, Eddy County, NM.

BHL: 660' FNL, 990' FWL, Section 2, T23S, 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 3308' (estimated)

GL 3289'

	ESTIM	ATED	•	
	TOP FR	OM KB	ESTIMATED.	
FORMATION	TVD	MD	SUB-SEA TOP	BEARING
T/Rustler	191'	191'	+ 3117'	Barren
B/Rustler	495'	495'	+ 2813'	Barren
T/Salt	501'	501'	+ 2807'	Barren
B/Salt	3566'	3566'	- 258'	Barren
T/Delaware Mountain Group	3795'	3795'	- 487'	Barren
T/Lamar Lime	3795'	3795'	- 487'	Barren
T/Ramsey	3833'	3833'	- 525'	Oil/Gas
T/Lower Cherry Canyon	5969'	5969'	- 2661'	Oil/Gas
KOP (Kick Off Point)	6840'	6840'	- 3511'	N/A
T/Brushy Canyon "U" Sand	7247',	7325'	- 3939'	Oil/Gas
EOC Target	7317'	7594'	- 4009'	Oil/Gas
TD (end of lateral)	7267'	13661'	- 3959'	Oil/Gas

POINT 3: CASING PROGRAM

TYPE	INTERVALS (MD)	Hole Size	<u>PURPOSE</u>	CONDITION
20"	0' - 60'	24"	Conductor	Contractor Discretion
13-3/8", 48#, H-40, ST&C	0' - 491'	17-1/2"	Surface	New
9-5/8", 40#, J-55, LT&C	0' - 3815'	12-1/4"	Intermediate	New
7", 26#, N-80, LT&C	0' - 7644'	8-3/4"	Production	New
4-1/2", 11.6#, N-80, Ultra Flush JT	6640' - 13661'	6-1/8"	Production	New

CASING DESIGN SAFETY FACTORS:

TYPE	TENSION	<u>COLLAPSE</u>	BURST	•
13-3/8", 48#, H-40, ST&C	16.10	2.85	3.49	<i>5</i>
9-5/8", 40#, J-55, LT&C	4.03	1.30	1.13	
7", 23#, N-80, LT&C	3.04	<u>.</u> 1.51	2.99	
4-1/2", 11.6#, N₂80, Ultra Flush JT	6.10	2.11	1.90	
1		having the	Ultra Flus	AT connection
B	To San Mark	1 6 1 01 - 0	n size T	he published
m.	chined 27 8	tem and the	W hove the	sine strongthed
S_{ln}	1 1:c+5 1-8	a the attack	Mark Control of the C	

JRU 108H 8-PT doc

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 a 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. Back 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 (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 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 250-300 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.

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

<u>DEPTH</u>	MUD TYPE	WEIGHT	_FV_	PV	YP_	FL	Ph
0' - 491'	FW Spud Mud	8.5 – 9.2	38-70	NC	NC	NC	10.0
491' - 3815'	Brine Water	9.8 - 10.2	28-30	NC	NC	NC	9.5 - 10.5
3815' - 7644'	FW/Gel	8.7 - 9.0	28-36	NC	NC	NC	9.5 - 10.0
7644' - 13661'	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: PEX (GR-CNL/LDT-AIT) from as deep as possible in deviated hole (+7075') to 3815' with GR-CNL to surface.

Run #2: GR with MWD during drilling of build and horizontal portions of 8-3/4" hole and 6-1/8"

Run #3: Drill pipe conveyed GR-NL-Density-Caliper TD thru curve.

C) CONVENTIONAL CORING

None anticipated.

D) CEMENT

INTERVAL SURFACE:	AMOUNT SXS	FT OF FILL	TYPE	GALS/SX	PPG	FT³/SX
Lead: 0 – 291' (100% excess Circ to surface)	250	291	EconoCem-HLC + 2.7 #/sk Salt	10.25	12.8	1.88
Tail: 291' – 491' (100% excess)	210	200	HalCem-C + 2% CaCl₂	6.39	14.8	1.35
INTERMEDIATE: Lead: 0' ~ 3315' (100% excess Circ to surface)	1100	3315	EconoCem-C + 2.87 #/sk Salt	10.27	12.8	1.89
Tail: 3315' – 3815' (100% excess)	250	500	HalCem-C	6.34	14.8	1.33
2 ND INTERMEDIAT	E:					
Stage 1: Lead: 5000' – 6840 (50% excess)	' 220	1840	EconoCem-HLC	11.06	12.5	1.97
Tail: 6840' – 7644' (50% excess)	160	804	HalCem-H	4.89	16	1.13
DV Tool @ 5,000'						
Stage 2: Lead: 0' 4900' (50% excess)	600	4900	EconoCem-C	10.27	12.8	1.89
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 a 8-3/4" bit to a TVD of approximately 6840' at which point a directional hole will be kicked off and drilled at an azimuth of 272.37°, building angle at 12.00°/100' to a max angle of 90.48° at a TVD of 7317' (MD 7594'). At 7594' a 2nd intermediate casing string of 7", 26#, N-80, LTC casing will be installed and cemented in two stages (DV Tool at approx 5,000') with cement circulated to the surface. A 6-1/8" openhole lateral will be drilled out from under the 7" casing to a measured depth of 13,561' (7267' TVD). This 90.48° angle will be maintained to a MD of 13,661' or TVD of 7267'.

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 3833'-7317' TVD. No H_2S 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

32 days drilling operations

20 days completion operations

Gary É. Gerhard

GEG/mac May 7, 2009

BOPCO, L.P.

Eddy County James Ranch Unit #108H OH

Plan: Plan #1

Pathfinder X & Y Survey Report

29 April, 2009



Pathfinder X & Y Survey Report



Company:

BOPCO, L.P.

Project:

Eddy County

Site:

James Ranch Unit

#108H

Wellbore:

OH Design:

Local Co-ordinate Reference: Well #108H

TVD Reference:

MD Reference: North Reference:

Survey Calculation Method:

Database:

Well #1 @ 3308.00ft (19' KB Correction) Well #1 @ 3308.00ft (19' KB Correction)

Grid

Minimum Curvature

Midland Database

Project 300

Eddy County

Map System:

US State Plane 1927 (Exact solution)

Geo Datum:

NAD 1927 (NADCON CONUS)

Map Zone:

New Mexico East 3001

System Datum:

Mean Sea Level

From:

James Ranch Unit

0.00 ft

Site Position:

+N/-S

+E/-W

Northing: Easting: Slot Radius:

491,539.800 ft 694,505.400 ft

Latitude: Longitude:

32° 20' 59.229 N 103° 42' 12.559 W

Grid Convergence:

0.34°

Well

Well Position

0.00 ft 0.00 ft Northing:

487.321.000 ft

Latitude: Longitude: Ground Level:

32° 20' 17.461 N 103° 42' 8.617 W

Position Uncertainty

Position Uncertainty:

0.00 ft

Easting: Wellhead Elevation:

7.90

694,868.400 ft

60.34

3,289.00 ft

Wellbore

Magnetics Model Name

Declination

Dip Angle

Field Strength

0.00

48,915

Design

Plan #1

IGRF200510

Audit Notes:

Vertical Section:

Version:

Phase: Depth From (TVD)

04/16/2009

PLAN

Tie On Depth:

0.00

Direction

272.37

Survey Tool Program Date 04/29/2009

To From

Survey (Wellbore)

(ft)

0.00

13,561,13 Plan #1 (OH)

MWD - Standard

Pathfinder X & Y Survey Report



Company: Project: BOPCO, L.P.

Eddy County

James Ranch Unit

Site: Well:

¹#108H

ОН Wellbore: Design: Plan #1 Local Co-ordinate Reference: Well #108H

TVD Reference:

MD Reference:

North Reference:

Survey Calculation Method:

Database:

Well #1 @ 3308.00ft (19' KB Correction)
Well #1 @ 3308.00ft (19' KB Correction)

Minimum Curvature

Midland Database

	7				300, (,000,000, (, , , , , , , , , , ,	,	2211 1 1 1 2 2 2 2 2 2 3 7 7 7 7 7		- 4-628 (C) - 624 (C)		47 0 8000 12
	Planned Survey	4 1, 1	,	2 10 10 10 10 10 10 10 10 10 10 10 10 10	2 30 1 4 20 400 E 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		en energia			· / · · · · · · · · · · · · · · · · · ·	
-) 1				TVDSS					in the second	
1	MD 6	Inc ' (°)	Azi (°)	TVD (ft)	TVDSS (ff)	1,000 1	/W \\ ft)	/. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
1	0.00	0.00	0.00	0.00	-3,308.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
	100.00	0.00	0.00	100.00	-3,208.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
-	200.00	0.00	0.00	200.00	-3,108.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
	300.00	0.00	0.00	300.00	-3,008.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
	400.00	0.00	0.00	400.00	-2,908.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
-	500.00	0.00	0.00	500.00	-2,808.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
	600.00	0.00	0.00	600.00	-2,708.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
i	700.00	0.00	0.00	700 00	-2,608.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
İ	800 00	0 00	0.00	800.00	-2,508.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
-	900.00	0.00	0.00	900.00	-2,408.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
	1,000 00	0.00	0 00	1,000.00	-2,308.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
ļ	1,100 00	0.00	0.00	1,100.00	-2,208.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
	1,200.00	0.00	0.00	1,200.00	-2,108.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
İ	1,300.00	0.00	0.00	1,300.00	-2,008.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
-	1,400.00	0.00	0.00	1,400.00	-1,908.00	0.00	0.00	0.00	0 00	487,321.00	694,868.40
	1,500.00	0.00	0.00	1,500.00	-1,808.00	0.00	0.00	0 00	0.00	487,321.00	694,868.40
;	1,600.00	0.00	0.00	1,600.00	-1,708.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
	1,700.00	0.00	0.00	1,700.00	-1,608.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
	1,800.00	0.00	0.00	1,800.00	-1,508.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
	1,900.00	0.00	0.00	1,900.00	-1,408.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
	2,000.00	0.00	0.00	2,000.00	-1,308.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
	2,100.00	0 00	0.00	2,100.00	-1,208.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
	2,200.00	0.00	0.00	2,200 00	-1,108.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
	2,300.00	0.00	0.00	2,300.00	-1,008.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
	2,400.00	0.00	0.00	2,400.00	-908.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
İ	2,500 00	0.00	0.00	2,500 00	-808.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
ļ	2,600.00	0.00	0.00	2,600.00	-708.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40

Pathfinder X & Y Survey Report



Company:

BOPCO, L.P.

Project:

Eddy County

Site:

James Ranch Unit

Well:

#108H

Wellbore: HO Local Co-ordinate Reference: Well#108H

TVD Reference: MD Reference: North Reference:

Survey Calculation Method:

Well #1 @ 3308.00ft (19' KB Correction) Well #1 @ 3308.00ft (19' KB Correction)

Grid

Mınimum Curvature

Midland Database Design: Plan #1 Database:

Planned Survey	÷		X 71. (2004548)		- Carrier -			TO PARK	egemy re	(##Cl)
MD	Inc	Azi	TVD	TVDSS	N/S	EW.	V. Sec	DLeg (C	Northing	Easting
1 (ft) = 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	(°)	**************************************	(ft)	Are(ff) rodini.	(ft)	(ft)	(ft)	् (°/100ft) ्र _{ेड} ्र	(tt)	(ft)
2,700 00	0.00	0.00	2,700.00	-608.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
2,800.00	0.00	0.00	2,800.00	-508.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
2,900.00	0.00	0.00	2,900.00	-408.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
3,000.00	0.00	0.00	3,000.00	-308.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
3,100.00	0.00	0.00	3,100.00	-208.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
3,200.00	0.00	0.00	3,200.00	-108.00	0.00	0.00	0.00	0 00	487,321.00	694,868.40
3,300.00	0.00	0.00	3,300.00	-8.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
3,400.00	0.00	0.00	3,400.00	92.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
3,500.00	0.00	0.00	3,500.00	192.00	0.00	0.00	0.00	0.00	487,321.00	694 _, 868.40
3,600.00	0.00	0.00	3,600.00	292.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
3,700 00	0.00	0.00	3,700.00	392.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
3,800.00	0.00	0.00	3,800.00	492.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
3,900.00	0.00	0.00	3,900.00	592.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
4,000.00	0.00	0.00	4,000.00	692.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
4,100.00	0.00	0.00	4,100.00	792.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
4,200.00	0.00	0.00	4,200 00	892.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
4,300.00	0.00	0.00	4,300.00	992.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
4,400.00	0.00	0.00	4,400.00	1,092.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
4,500.00	0.00	0.00	4,500.00	1,192.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
4,600.00	0.00	0.00	4,600.00	1,292.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
4,700.00	0.00	0.00	4,700.00	1,392.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
4,800.00	0.00	0.00	4,800.00	1,492.00	. 0.00	0.00	0.00	0.00	487,321.00	694,868.40
4,900.00	0.00	0.00	4,900.00	1,592.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
5,000.00	0.00	0.00	5,000.00	1,692.00	0.00	0.00	0.00	0 00	487,321.00	694,868 40
5,100 00	0.00	0.00	5,100.00	1,792.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
5,200.00	0.00	0.00	5,200.00	1,892.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
5,300 00	0.00	0.00	5,300.00	1,992.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40

Pathfinder X & Y Survey Report



Company: Project:

BOPCO, L.P.

Eddy County

Site: Well:

James Ranch Unit

#108H Wellbore: ОΗ Plan #1 Design:

Local Co-ordinate Reference:
TVD Reference:
MD Reference:

North Reference: Survey Calculation Method:

Database:

Well #108H

Well #1 @ 3308.00ft (19' KB Correction)
Well #1 @ 3308.00ft (19' KB Correction)

Grid

Planned Survey		· « · ·			. W. Alekson	- 2	Est v vo			
	. Înc - (°)	Azi (°)	• •	TVDSS (ft)	N/S (ft)	E/W	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
5,400 00	0.00	0.00	5,400.00	2,092.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
5,500.00	0.00	0.00	5,500.00	2,192.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
5,600.00	0.00	0.00	5,600.00	2,292.00	0.00	0.00	0.00	, 0.00	487,321.00	694,868.40
5,700.00	0.00	0.00	5,700.00	2,392.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
5,800.00	0.00	0.00	5,800.00	2,492.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
5,900.00	0.00	0.00	5,900.00	2,592.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
6,000.00	0 00	0.00	6,000.00	2,692.00	0.00	0.00	0.00	0.00	487,321.00	694,868 40
6,100.00	0.00	0.00	6,100.00	2,792.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
6,200.00	0.00	0.00	6,200.00	2,892.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
6,300.00	0.00	0.00	6,300.00	2,992.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
6,400.00	0.00	0.00	6,400.00	3,092.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
6,500.00	0.00	0.00	6,500.00	3,192.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
6,600.00	0.00	0.00	6,600.00	3,292.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
6,700 00	0.00	0.00	6,700.00	3,392.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
6,800 00	0.00	0.00	6,800.00	3,492.00	0.00	0.00	0.00	0.00	487,321.00	694,868.40
6,839.50	0 00	0.00	6,839.50	3,531.50	0.00	0.00	0.00	0.00	487,321.00	694,868.40
KOP-6839.50'MD	D,0.00°INC,0.00	°AZI		•		,	•			
6,850.00	1.26	272.37	6,850.00	3,542.00	0.00	-0.12	0.12	12.00	487,321.00	694,868.28
6,875 00	4.26	272.37	6,874.97	3,566.97	0 05	-1.32	1.32	12.00	487,321.05	694,867.08
6,900.00	7.26	272.37	6,899.84	3,591.84	0.16	-3.82	3.83	12.00	487,321.16	694,864.58
6,925 00	10.26	272.37	6,924.54	3,616.54	0.32	-7.63	7.63	12.00	487,321.32	694,860.77
6,950.00	13.26	272.37	6,949.02	3,641.02	0.53	-12.72	12.73	12.00	487,321.53	694,855.68
6,975.00	16.26	272.37	6,973.19	3,665.19	0.79	-19.08	19.10	12.00	487,321.79	694,849.32
7,000.00	19.26	272.37	6,997.00	3,689.00	1.10	-26.70	26.72	12.00	487,322.10	694,841.70
7,025.00	22.26	272.37	7,020.37	3,712.37	1.47	-35.55	35.58	12.00	487,322.47	694,832.85
7,050.00	25.26	272.37	7,043.25	3,735.25	1.89	-45.61	45.65	12.00	487,322.89	694,822:79
7,075.00	28.26	272.37	7,065.57	3,757.57	2.35	-56.86	56.90	12.00	487,323.35	694,811.54

Pathfinder X & Y Survey Report



Company: Project:

&BOPCO, L.P. **Eddy County**

Site:

James Ranch Unit

Wellbore: Signatur

Well: #108H Design: Plan #1

Local Cocordinate Reference: Well #108H TVD Reference:

MD Reference: North Reference:

Survey Calculation Method: % Database:

Well #1 @ 3308.00ft (19' KB Correction)

Well #1 @ 3308.00ft (19' KB Correction)

--- Grid

	70	· (140% %) +		2	TA TELEVISION	" a Markey Markey " "			2733 274 114	
Planned Survey	Inc	Āzi	ΤVĎ	TVDSS	N/S	EW)	·V. Sec	DL'eg	Northing	Easting
(ft) ^.	(°).	(*)	(ft)	ें (t t) 🦠 💯	(ft)		(ft)	(°/100ft)	(ft)	(ft)
7,100 00	31.26	272.37	7,087.27	3,779.27	2.87	-69.25	69.31	12.00	487,323.87	694,799.15
7,125.00	34.26	272.37	7,108.29	3,800.29	3.43	, - 82.76	82.84	12.00	487,324.43	694,785.64
7,150.00	37.26	272.37	7,128.58	3,820.58	4.03	-97.36	97.44	12.00	487,325.03	694,771.04
7,175.00	40.26	272.37	7,148.07	3,840.07	4.68	-112.99	113.09	12.00	487,325.68	694,755.41
7,200.00	43.26	272.37	7,166.72	3,858.72	5.36	-129.63	129.74	12.00	487,326.36	694,738.77
7,225.00	46.25	272.37	7,184.47	3,876.47	6.09	-147.21	147.34	12.00	487,327.09	694,721.19
7,250.00	49.25	272.37	7,201.28	3,893.28	6.86	-165.70	165.84	12.00	487,327.86	694,702.70
7,275.00	52.25	272.37	7,217.09	3,909.09	7.66	-185.04	185.20	12.00	487,328.66	694,683.36
7,300.00	55.25	272.37	7,231.87	3,923.87	8.49	-205.19	205.36	12.00	487,329.49	694,663.21
7,325.00	58.25	272.37	7,245.57	3,937.57	9.36	-226.07	226.27	12.00	487,330.36	694,642.33
7,350.00	61.25	272.37	7,258.17	3,950.17	10.25	-247.65	247.86	12.00	487,331.25	694,620.75
7,375.00	64.25	272.37	7,269.61	3,961.61	11.17	-269.85	270.08	12.00	487,332.17	694,598.55
7,400.00	67.25	272.37	7,279.88	3,971.88	12.11	-292.63	292.88	12.00	487,333.11	694,575.77
7,425.00	70.25	272.37	7,288.93	3,980.93	13.07	-315.90	316.17	12.00	487,334.07	694,552.50
7,450.00	73.25	272.37	7,296.76	3,988.76	14.06	-339.62	339.91	12.00	487,335.06	694,528.78
7,475.00	76.25	272.37	7,303.34	3,995.34	15.05	-363.72	364.03	12.00	487,336.05	694,504.68
7,500.00	79.25	272.37	7,308.64	4,000.64	16.06	-388.13	388.46	12.00	487,337.06	694,480.27
7,525.00	82.25	272.37	7,312.66	4,004.66	17.08	-412.78	413.13	12.00	487,338.08	694,455.62
7,550.00	85.25	272.37	7,315.38	4,007.38	18.11	-437.61	437.98	12.00	487,339.11	694,430.79
7,575.00	88.25	272.37	7,316.79	4,008.79	19.14	-462.54	462.94	12.00	487,340.14	694,405.86
7,593.58	90.48	272.37	7,317.00	4,009.00	19.91	-481.10	481.52	12.00	487,340.91	694,387.30
EOC-7593.58'M	D,90.48°INC,2	72.37°AZI,12.00°DL	.S, 481.52'VS, 19	9.91'N, -481.10'E					× .	
7,600.00	90.48	272.37	7,316.95	4,008.95	20.18	-487.52	487.93	0.00	487,341.18	694,380.88
7,700.00	90.48	272.37	7,316.11	4,008.11	24.31	-587.43	587.93	0.00	487,345.31	694,280.97
7,800 00	90.48	272.37	7,315.27	4,007.27	28.45	-687.34	687.93	0.00	487,349.45	694,181.06
7,900.00	90.48	272.37	7,314.43	4,006 43	32.58	-787.25	787.92	0.00	487,353.58	694,081.15
8,000 00	90.48	272 37	7,313.60	4,005.60	36.72	-887.16	887.92	0.00	487,357.72	693,981.24

Pathfinder X & Y Survey Report



Company: Project:

BOPCO, L.P.

Eddy County James Ranch Unit

Site: Well: #108H Wellbore: ОН Design: Plan #1 Local Co-ordinate Reference: Well #108H

TVD Reference: MD Reference:

North Reference:

Survey Calculation Method:

Well #1 @ 3308.00ft (19' KB Correction)
Well #1 @ 3308.00ft (19' KB Correction)
Grid

- Minimum Curvature

Database: 📇 😤 Midland Database

Desigi		13 2765	1 17			225.			A Sharing the state of the stat	>	· · · · · · · · · · · · · · · · · · ·	· acu · · · · · · · · · · · · · · · · · · ·
Planne	ed Survey	3	· · · · · · · · · · · · · · · · · · ·	The state of the s			` .				11 (1) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4	
	MD ** **	lnc ** ` `	Azi.	TVD	TVDSS	N/S	, , etb ₄ 4	E/W	V. Sec	DLeg	Northing	Easting
1.85	(ft) (2.1 4.2)	(°)	**************************************	(ft) 🖟 🚞	(ft)	(ft) `		(ft)	(ft)	(°/100ft)	(#1)	(ft)
1	8,100.00	90.48	272.37	7,312.76	4,004.76		40.85	-987.07	987.92	0.00	487,361.85	693,881.33
İ	8,200.00	90.48	272.37	7,311.92	4,003.92		44.99	-1,086.98	1,087.91	0.00	487,365.99	693,781.42
	8,300.00	90.48	272.37	7,311.08	4,003.08		49.12	-1,186.89	1,187.91	0 00	487,370.12	693,681.51
ĺ	8,400.00	90.48	272.37	7,310.24	4,002.24		53.26	-1,286.81	1,287.91	0.00	487,374.26	693,581.59
	8,500.00	90.48	272.37	7,309.41	4,001.41		57.39	-1,386.72	1,387.90	0.00	487,378.39	693,481.68
	8,600 00	90.48	272.37	7,308.57	4,000.57		61.53	-1,486.63	1,487.90	0.00	487,382.53	693,381.77
	8,700.00	90.48	272.37	7,307.73	3,999.73		65.66	-1,586.54	1,587.90	0.00	487,386.66	693,281.86
	8,800.00	90.48	272.37	7,306.89	3,998.89		69.80	-1,686.45	1,687.89	0.00	487,390.80	693,181.95
	8,900.00	90.48	272.37	7,306.06	3,998.06		73.93	-1,786.36	1,787.89	0.00	487,394.93	693,082.04
	9,000.00	90.48	272.37	7,305.22	3,997.22		78.07	-1,886.27	1,887.89	0.00	487,399.07	692,982.13
	9,100.00	90.48	272.37	7,304.38	3,996.38		82.20	-1,986.18	1,987.88	0.00	487,403.20	692,882.22
	9,200.00	90.48	272.37	7,303.54	3,995.54		86.34	-2,086.09	2,087.88	0.00	487,407.34	692,782.31
į	9,300.00	90.48	272.37	7,302.70	3,994.70		90.47	-2,186.00	2,187.88	0.00	487,411.47	692,682.40
	9,400.00	90.48	272.37	7,301.87	3,993.87		94.61	-2,285.91	2,287.87	0.00	487,415.61	692,582.49
l	9,500.00	90.48	272.37	7,301.03	3,993 03		98.74	-2,385.83	2,387.87	0.00	487,419.74	692,482.57
	9,600.00	90.48	272 37	7,300.19	3,992.19	1	02.88	-2,485.74	2,487.86	0.00	487,423.88	692,382.66
	9,700.00	90.48	272.37	7,299.35	3,991.35	1	07.01	-2,585.65	2,587.86	0.00	487,428.01	692,282.75,
	9,800.00	90.48	272.37	7,298.52	3,990.52	1	11.15	-2,685.56	2,687.86	0.00	487,432.15	692,182.84
	9,900.00	90.48	272.37	7,297.68	3,989.68	1	15.28	-2,785.47	2,787.85	0.00	487,436.28	692,082.93
	10,000.00	90.48	272.37	7,296.84	3,988.84	1	19.42	-2,885.38	2,887.85	0.00	487,440.42	691,983.02
	10,100.00	90.48	272.37	7,296.00	3,988.00	1	23.55	-2,985.29	2,987.85	0.00	487,444.55	691,883.11
	10,200.00	90.48	272.37	7,295.16	3,987.16	1	27.69	-3,085.20	3,087.84	0.00	487,448.69	691,783.20
	10,300.00	90.48	272.37	7,294.33	3,986.33	1	31.83	-3,185.11	3,187.84	0.00	487,452.83	691,683.29
	10,400.00	90.48	272.37	7,293.49	3,985.49	· 1	35.96	-3,285.02	3,287.84	0.00	487,456.96	691,583.38
	10,500.00	90.48	272.37	7,292.65	3,984.65	1	40.10	-3,384.94	3,387.83	0.00	487,461.10	691,483.46
i	10,600.00	90.48	272.37	7,291.81	3,983.81	1	44.23	-3,484.85	3,487.83	0.00	487,465.23	691,383.55
.	10,700.00	90.48	272.37	7,290.98	3,982.98	1	48.37	-3,584.76	3,587.83	0.00	487,469.37	691,283.64

Pathfinder X & Y Survey Report



Company: BOPCO, L.P. Project: Eddy County James Ranch Unit Site:

Well: ∌≎ #108H Wellbore: OН Design: Plan #1 Local Co-ordinate Reference: Well #108H

TVD Reference: MD Reference:

North Reference: Survey Calculation Method:

Database:

Well #1 @ 3308.00ft (19' KB Correction)
Well #1 @ 3308.00ft (19' KB Correction)

Grid

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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)
10,800.00	90.48	272.37	7,290.14	3,982.14	152.50	-3,684.67	3,687.82	0.00	487,473.50	691,183.73
10,900.00	90.48	272.37	7,289.30	3,981.30	156.64	-3,784.58	3,787.82	0.00	487,477.64	691,083.82
11,000.00	90.48	272.37	7,288.46	3,980.46	160.77	-3,884.49	3,887.82	0.00	487,481.77	690,983.91
11,100.00	90.48	272.37	7,287.63	3,979.63	164.91	-3,984.40	3,987.81	0.00	487,485.91	690,884.00
11,200.00	90.48	272.37	7,286.79	3,978.79	169.04	-4,084.31	4,087.81	0.00	487,490.04	690,784.09
11,300.00	90.48	272.37	7,285.95	3,977.95	173.18	-4,184.22	4,187.81	0.00	487,494.18	690,684.18
11,400.00	90.48	272.37	7,285.11	3,977.11	177.31	-4,284.13	4,287.80	0.00	487,498.31	690,584.27
11,500.00	90.48	272.37	7,284.27	3,976.27	181.45	-4,384.04	4,387.80	0.00	487,502.45	690,484.36
11,600.00	90.48	272.37	7,283.44	3,975.44	185.58	-4,483.96	4,487.79	0.00	487,506.58	690,384.44
11,700.00	90.48	272.37	7,282.60	3,974.60	189.72	-4,583.87	4,587.79	0.00	487,510.72	690,284.53
11,800.00	90.48	272.37	7,281.76	3,973.76	193.85	-4,683.78	4,687.79	0.00	487,514.85	690,184.62
11,900.00	90.48	272.37	7,280.92	. 3,972.92	197.99	-4,783.69	4,787.78	0.00	487,518.99	690,084.71
12,000.00	90.48	272.37	7,280.09	3,972.09	202.12	-4,883.60	4,887.78	0.00	487,523.12	689,984.80
12,100.00	90.48	272.37	7,279.25	3,971.25	206.26	-4,983.51	4,987.78	0.00	487,527.26	689,884.89
12,200.00	90.48	272.37	7,278.41	3,970.41	210.39	-5,083.42	5,087.77	0.00	487,531.39	689,784.98
12,300.00	90.48	272.37	7,277.57	3,969.57	214.53	-5,183.33	5,187.77	0.00	487,535.53	689,685.07
12,400.00	90.48	272.37	7,276.73	3,968.73	218.66	-5,283.24	5,287.77	0.00	487,539.66	689,585.16
12,500.00	90.48	272.37	7,275.90	3,967.90	222.80	-5,383.15	5,387.76	0.00	487,543.80	689,485.25
12,600.00	90.48	272.37	7,275.06	3,967.06	226.93	-5,483.07	5,487.76	0.00	487,547.93	689,385.33
12,700.00	90.48	272.37	7,274.22	3,966.22	231.07	-5,582.98	5,587.76	0.00	487,552.07	689,285.42
12,800.00	90.48	272.37	7,273.38	3,965.38	235.20	-5,682.89	5,687.75	0.00	487,556.20	689,185.51
12,900.00	90.48	272.37	7,272.55	3,964.55	239.34	-5,782.80	5,787.75	0.00	487,560.34	689,085.60
13,000.00	90.48	272.37	7,271.71	3,963.71	243.47	-5,882.71	5,887.75	0.00	487,564.47	688,985.69
13,100.00	90.48	272.37	7,270.87	3,962.87	247.61	-5,982.62	5,987.74	0.00	487,568.61	688,885.78
13,200.00	90.48	272.37	7,270.03	3,962.03	251.74	-6,082.53	6,087.74	0.00	487,572.74	688,785.87
13,300.00	90.48	272.37	7,269.19	3,961.19	255.88	-6,182.44	6,187.73	0.00	487,576.88	688,685.96
13,400.00	90.48	272.37	7,268.36	3,960.36	260.01	-6,282.35	6,287.73	0.00	487,581.01	688,586.05

Pathfinder X & Y Survey Report



Company: Project:

BOPCO, L.P.

Eddy County

Site:

James Ranch Unit

Well:

#108H

Wellbore: Design:

ОН Plan #1 Local Co-ordinate Reference: Well #108H

TVD Reference: MD Reference:

North Reference:

Survey Calculation Method:

Database:

Well #1 @ 3308.00ft (19' KB Correction) Well #1 @ 3308.00ft (19' KB Correction)

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	MD (ft)	Inc (°)	Azi ;	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec	DLeg (°/100ft)	Northing (ft)	Easting (ft)
	13,500.00	90.48	272.37	7,267.52	3,959.52	264.15	-6,382.26	6,387.73	0.00	487,585.15	688,486.14
	13,561.12	90.48	272.37	7,267.01	3,959.01	266.68	-6,443.33	6,448.85	0.00	487,587.68	688,425.07
	BHL-13561.12'N	/ID,90.48°INC,272.	37°AZI, 7267.01'	TVD, 6448.85"VS	, 266.68'N, -6443.33	'E			•		
İ	13,561.13	90.48	272.37	7,267.01	3,959.01	266.68	-6,443.34	6,448.86	0.00	487,587.68	688,425.06
	PBHL(#108H)										

Pathfinder X & Y Survey Report



Eddy County Project:

Site:

James Ranch Unit

Well: Wellbore: OH

#108H

Design:

⊋Plan #1

Local Co-ordinate Reference: Well #108H

TVD Reference:

MD Reference:

North Reference: Grid
Survey Calculation Method: Minin

Database:

«Well #1 @ 3308.00ft (19' KB Correction) Well #1 @ 3308.00ft (19' KB Correction)

Target Name	**************************************	Dip Dir.		+N/-S		Northing (ft)	Easting (ft)		Longitude
PBHL(#108H) - plan hits target - Point	0.00	0.00	7,267.00	267.19	-6,443.32	487,588.186	688,425.080	32° 20′ 20.474 N	103° 43' 23.699 W

	1 St. 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		* ** *********************************	and the second of the second o	of a contract of the contract	`		- " · · · · · · · · · · · · · · · · · ·
	Formations*	Vieasured	- Vertical		Dip	,		
	4.	Depth (ft)	Depth (ft)	Name Name	Dip Direction (°) (°)		at a second	***
		191.00	191.00	Rustler	0.00			
		3,833.00	. 3,833.00	Ramsey	0.00			
		3,795.00	3,795.00	Delaware MT GRP/Lamar Lime	0.00 ,			
		495.00	495.00	Base/Rustler	0.00			
		5,969.00	5,969.00	Lower Cherry Canyon	0.00			
		7,327.72	7,247.00	Brushy Canyon Lo. "U" Sand	0.00			
		3,566.00	3,566.00	Base/Salt	0.00			
į	i 	501.00	501.00	Salt	0.00			

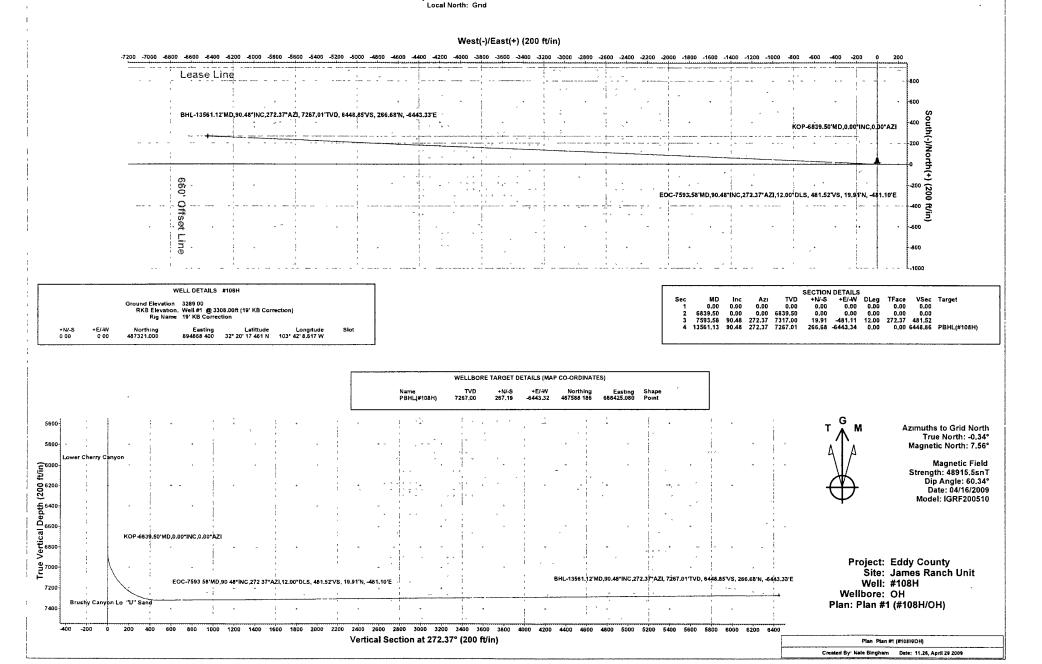
⊮Plan	Annotations			, ,	
,	Measured	Vertical	Local Cool	rdinates	
	Depth	Depth	+N/-S	+E/-W	
	(ft)	(ft)	` (ft)	(ft)	Comment Service Comment Commen
Ì	6,839.50	6,839.50	0.00	0.00	KOP-6839,50'MD,0.00°INC,0.00°AZI
	7,593.58	7,317.00	19.91	-481.10	EOC-7593.58'MD,90.48°INC,272.37°AZI,12.00°DLS, 481.52'VS, 19.91'
	13,561.12	7,267.01	266.68	-6,443.33	BHL-13561.12'MD,90.48°INC,272.37°AZI, 7267.01'TVD, 6448.85'VS, 2

Charles d Div	Annroyad D	<i>t</i> :	Data:
L Checked By:	Approved By	<i>I</i> .	Date:
UUU		/ ·	

BOPCO, L.P.

PROJECT DETAILS. Eddy County
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level





McVay Drilling Co. Closed Loop Location Platt Rig 5

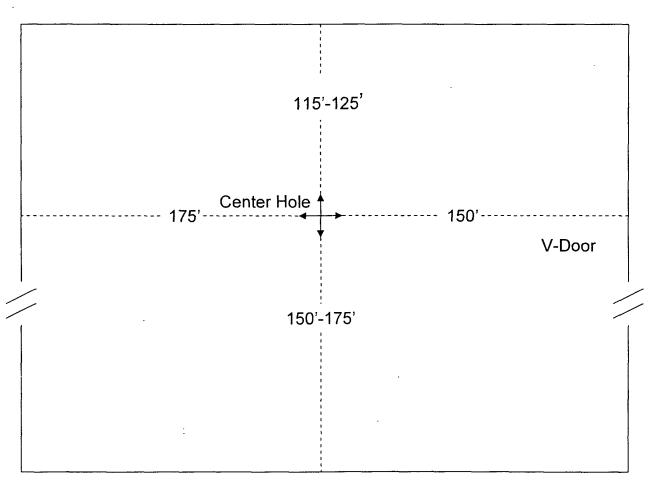


Exhibit "D"

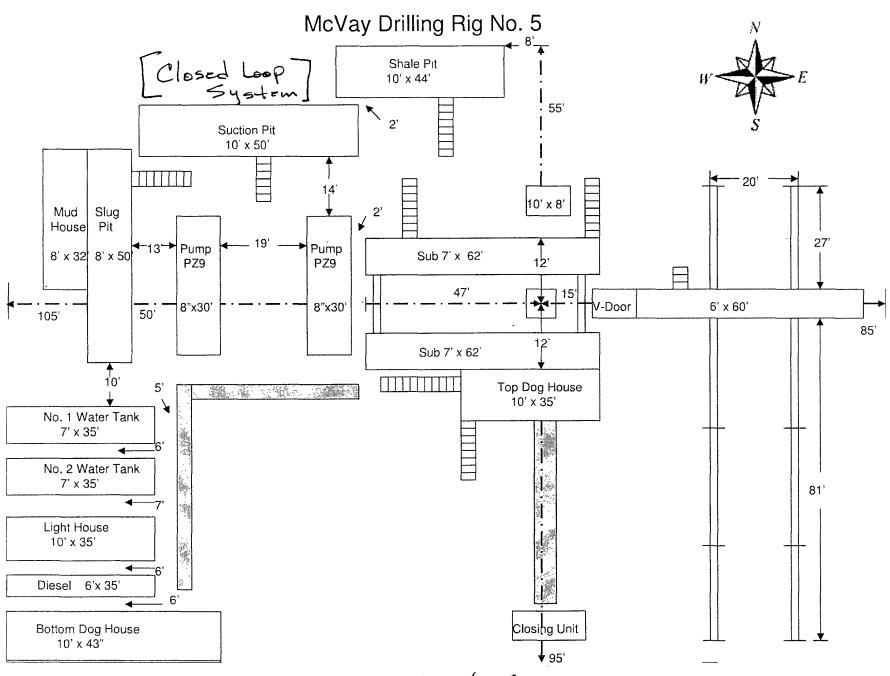
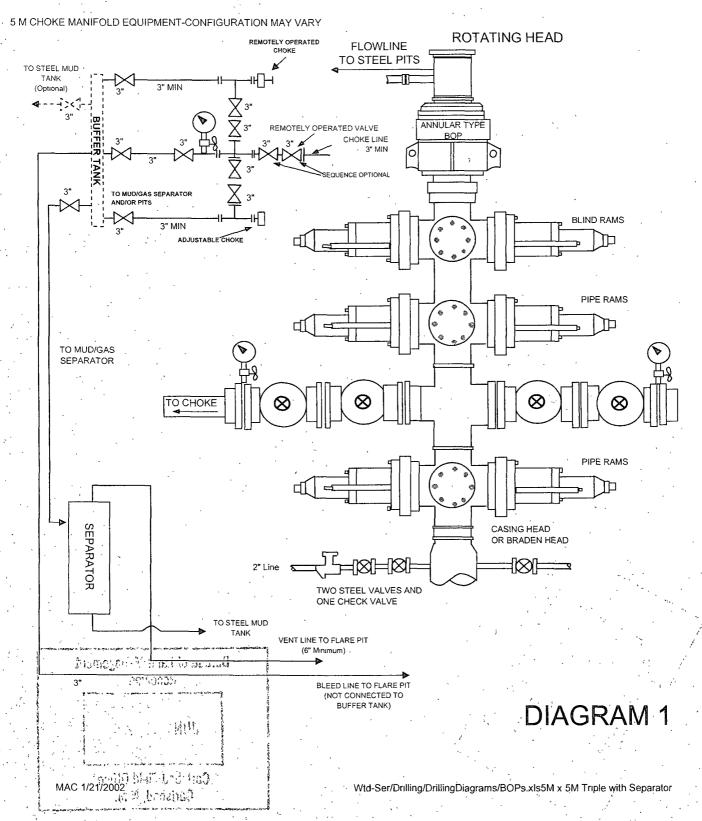


Exhibit F.

BOPCO, L. P. 5-M WP BOPE WITH 5-M WP ANNULAR



McVay Rig #7,5

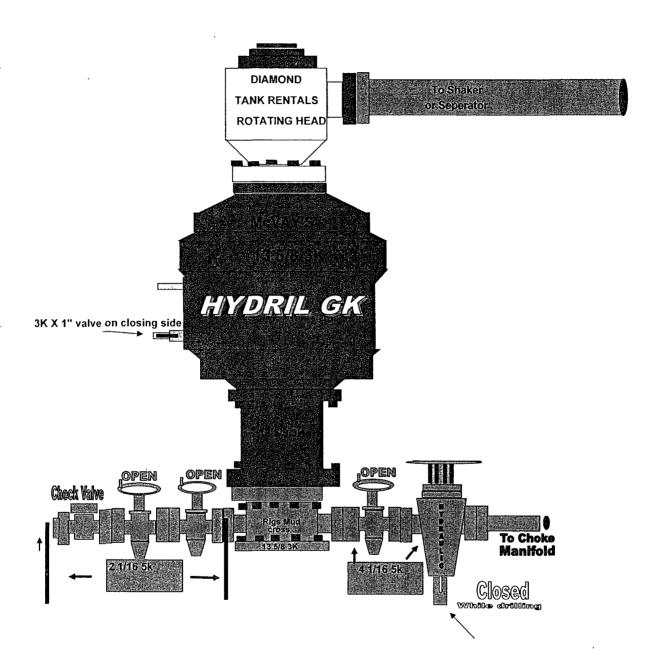
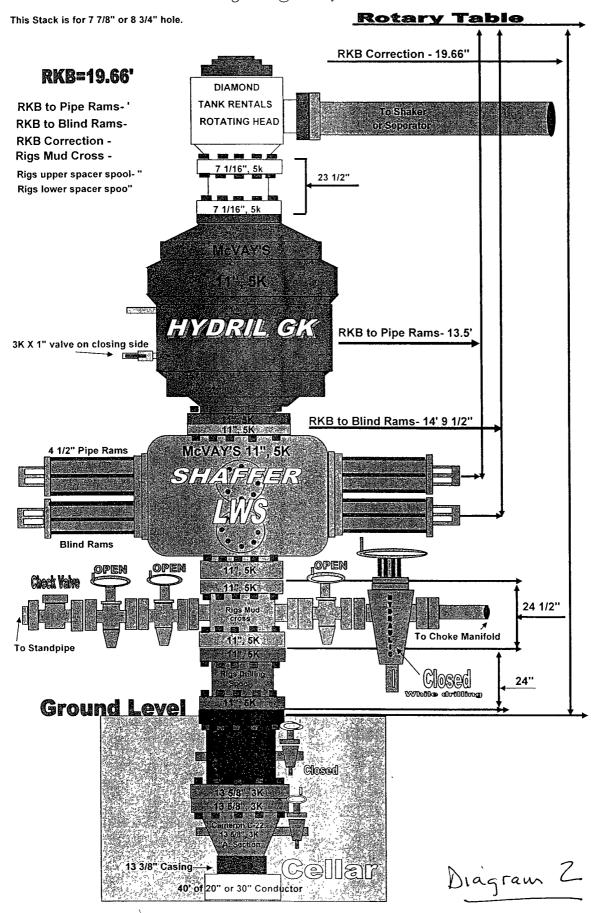
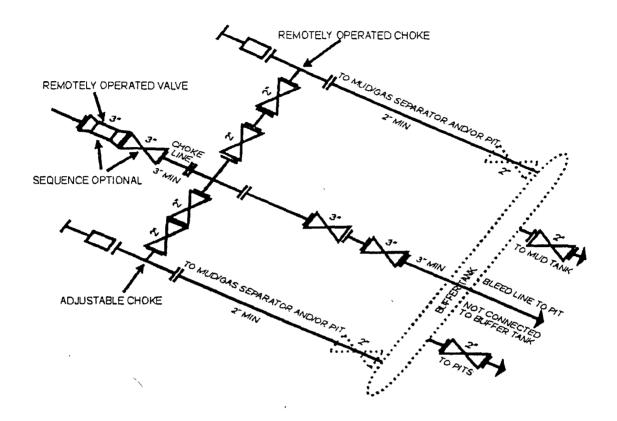


Diagram 1

McVay Rig #7,5



JRU# 108 H Choke Manifold.



5M CHOKE MANIFOLD EQUIPMENT - CONFIGURATION OF CHOKES MAY VARY

Although not required for any of the choke manifold systems, buffer tanks are sometimes installed downstream of the choke assemblies for the purpose of manifolding the bleed lines together. When buffer tanks are employed, valves shall be installed upstream to isolate a failure or malfunction without interrupting flow control. Though not shown on 2M, 3M, 10M, OR 15M drawings, it would also be applicable to those situations.

[54 FR 39528, Sept. 27, 1989]



Bureau of Land Management RECEIVED

MAY 26 2009

Carlsbad Field Office Carlsbad, Nivi

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
 - o Detection of H₂S, and
 - Measures for protection against the gas,
 - o 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	Chemical	Specific	Threshold	Hazardous	Lethal Concentration
Name	Formula	Gravity	Limit	Limit	
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		
Name	Title	Cell Phone Number
Bill Dannels	Drilling Supt.	432-638-9463
Buddy Jenkins	Assistant Supt	432-238-3295
Stephen Martinez	Engineer	
Gary Gerhard	Engineer	432-238-2197
Ambulance		911
State Police		575-746-2703
City Police		575-746-2703
Sheriff's Office		5/5-/46-9888
Fire Department		575-746-2701
Local Emergency Pla	nning Committee	575-746-2122
New Mexico Oil Cons	servation 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 Pla	nning Committee	575-887-6544
US Bureau of Land M		575-887-6544
New Mexico Emerger	ncy Response Commission (Santa Fe)	505-476-9600
24 Hour		505-827-9126
New Mexico State En	nergency Operations Center	505-476-9635
National Emergency	800-424-8802	
Other		
Boots & Coots IWC	800-256-9	9688 or 281-931-8884
	ol432-580-3	
		575-746-2757
B. J. Services		
	24th St. Lubbock, Texas	
	9F, Lubbock, Texas	806-747-8923
	2301 Yale Blvd SE #D3, Albuq., NM	505-842-4433
	505-842-4949	
O D WILLING DELAICE	- 2505 Clark Carr Loop SE, Albuq., NM	000"042"4343

POINT 11: OTHER INFORMATION

Page 5

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

The closest known fresh water wells are located in Sec 35 and Sec 24, T22S, R30E and in Sec 5, T23S, R31E. In all cases the wells are over 1 mile from proposed location.

G) Residences and Buildings

None in the immediate vicinity.

H) Historical Sites

None observed.

1) Archeological Resources

An archeological survey has been performed for this area and will be submitted to the Bureau of Land Management. Any location or construction conflicts will be resolved before construction begins.

J) Surface Ownership

The well site is on Federal owned land. There will be no new access roads required for this location.

- K) Well signs will be posted at the drilling site.
- L) Open Pits None used. Closed loop system.

BOPCO, L.P.

P. O. Box 2760 Midland, Texas 79702

432-683-2277

FAX-432-687-0329

May 7, 2009

Bureau of Land Management 620 E. Greene St. Carlsbad, NM 88220

To Whom It May Concern:

BOPCO, L.P. respectfully request exception to the Prairie Chicken timing restrictions for this location - 940' FNL, 2080' FWL, of Section 1, T23S, R30E, Eddy County, New Mexico.

Sincerely,

Gary E. Gerhard Drilling Engineer

GEG/mac

MULTI-POINT SURFACE USE PLAN

NAME OF WELL: James Ranch Unit #108H

LEGAL DESCRIPTION - SURFACE: 940' FNL, 2080' FWL, Section 1, T23S, R30E, Eddy County, NM. BHL: 660' FNL, 990' FWL, Section 2, T23S, R30E, Eddy County, New Mexico.

POINT 1: EXISTING ROADS

A) Proposed Well Site Location:

See Exhibit "A" & "C".

B) Existing Roads:

From the junction of State Hwy 128 and WIPP Road, go north on WIPP Road 0.5 miles to lease road. On lease road go 0.3 miles west to lease road, on lease road to north 0.2 miles to lease road, on lease road go west 0.2 miles to lease road, go north to proposed location.

C) Existing Road Maintenance or Improvement Plan:

See Exhibit "E"

POINT 2: NEW PLANNED ACCESS ROUTE

A) Route Location:

Existing lease roads will be used.

B) Width

12' wide

C) Maximum Grade

Grade to match existing topography or as per BLM requirements.

D) Turnout Ditches

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

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

A) Existing facilities within one mile owned or controlled by lessee/operator:

The BOPCO operated JRU #19 Battery is located in the NW quarter of SE quarter of Sec 36, T22S, R30E.

B) New Facilities in the Event of Production:

New production facilities will not be installed at the new location. Additional separators and heater/treaters will be added as needed at the James Ranch Unit #19 Battery. Proposed flow lines and power lines are displayed in Exhibit "E". Flow lines will follow existing roads to JRU #19 Battery. Power lines will be extended from existing lines and will also follow roads.

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 hauling 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 Exhibits "A" & "E".

A) Cuttings - Closed Loop System

Cuttings will be contained in the steel pits and will be hauled to an approved disposal facility.

B) Drilling Fluids - Closed Loop System

Drilling fluids will be contained in the steel pits, frac tanks, and will be disposed of at 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.

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 Exhibit "F" the closed loop system, 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 closed loop system and access road

See Exhibits "E" & "F".

C) Lining of the Pits

No reserve pit. Closed loop system.

POINT 10: PLANS FOR RESTORATION OF THE SURFACE

A) Reserve Pit Cleanup - Not applicable (see Point 9C above).

The pits will be fenced immediately after construction and shall be maintained until they are backfilled. Previous to backfill operations, any hydrocarbon material on the pits' surfaces shall be removed. The fluids and solids contained in the pits shall be backfilled with soil excavated from the site and soil adjacent to the reserve pits. The restored surface of the pits shall be contoured to prevent impoundment of surface water flow. Water-bars will be constructed as needed to prevent excessive erosion. Topsoil, as available, shall be placed over the restored surface in a uniform layer. The area will be seeded according to the Bureau of Land Management stipulations during the appropriate season following restoration.

B) Restoration Plans - Production Developed

In addition, 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 Bureau of Land Management's stipulations.

D) Rehabilitation's 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.

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

The closest known fresh water wells are located in Sec 35 and Sec 24, T22S, R30E and in Sec 5, T23S, R31E. In all cases the wells are over 1 mile from proposed location.

G) Residences and Buildings

None in the immediate vicinity.

H) Historical Sites

None observed.

I) Archeological Resources

An archeological survey has been performed for this area and will be submitted to the Bureau of Land Management. Any location or construction conflicts will be resolved before construction begins.

J) Surface Ownership

The well site is on state owned land. There will be no new access roads required for this location.

- K) Well signs will be posted at the drilling site.
- L) Open Pits None used. Closed loop system.

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

DRILLING William R. Dannels Box 2760

Midland, Texas 79702 (432) 683-2277

PRODUCTION
Carlos Cruz
Box 2760
Midland, Texas 797

Midland, Texas 79702 (432) 683-2277

PRODUCTION
Dean Clemmer
104 East Green Street

Carlsbad, New Mexico 88220

(505) 887-7329

Date

GEG/mac

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 it's 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.

Date

Gary E. Gerhard

PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Bopco, L. P.
LEASE NO.:	NM02884A
WELL NAME & NO.:	James Ranch Unit #108H
SURFACE HOLE FOOTAGE:	940' FWL & 2080' FWL
BOTTOM HOLE FOOTAGE	660' FNL & 990' FWL
LOCATION:	Section 1, T. 23 S., R 30 E., NMPM
COUNTY:	Eddy County, New Mexico
Standard Conditions of Approval (COA	BLE OF CONTENTS A) apply to this APD. If any deviations to these standards exist or tion with the deviation or requirement will be checked below.
Permit Expiration	and Historical Citor
⊠ Archaeology, Paleontology, a ☐ Noxious Weeds	and Historical Sites
Special Requirements	
Fencing	
igstyle igstyle igstyle Construction	
Notification	
Topsoil	
Closed loop systems	
Federal-Mineral-Material I	Pits
Roads	
Road Section Diagram	
⊠ Drilling	

High Cave/Karst R-111-Potash

☐ Production (Post Drilling)

Well Structures & Facilities

WIPP

Pipelines Electric Lines

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)

A. Fencing

The fence located on the south side of the proposed well pad must be rebuilt to accommodate the construction of the well pad.

B. Cultural and Archaeological Resources

Historic properties in the vicinity of this project are protected by federal law. In order to ensure that they are not damaged or destroyed by construction activities, the project proponent and construction supervisors shall ensure that the following stipulations are implemented.

Date of Issue: 6/22/2009 BLM Report No.: 09-0281 and 09-

291.1

Project Name: James Ranch #108H and Hudson 1 #*H flowlines

1. Professional archaeological monitoring. Contact your project archaeologist, or BLM's Cultural Resources Section at (575) 234-2228, 5917, 2236, or 5967, for assistance.

These stipulations must be given to your monitor at least 5 days prior to the start of construction.

No construction, including vegetation removal or other site prep may begin prior to the arrival of the monitor.

2. The archaeological monitor shall:

Observe all ground-disturbing activities within 100 feet of cultural site no. LA:

Ensure that all reroutes are adhered to avoid cultural site no.(s) LA LA47659 as shown on attached map.

Submit a brief monitoring report within 30 days of completion of monitoring.

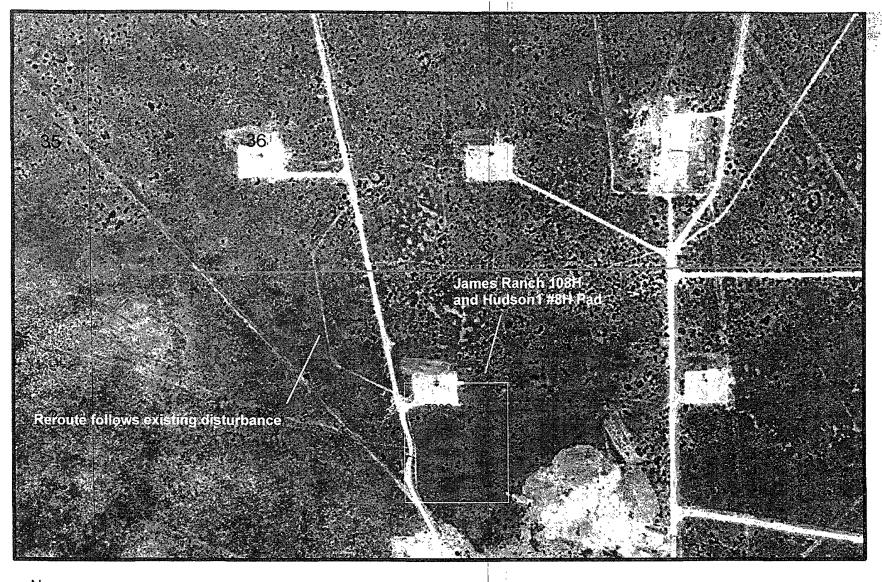
Other:

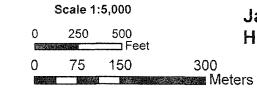
Site Protection and Employee Education: It is the responsibility of the project proponent and his construction supervisor to inform all employees and subcontractors that cultural and archaeological sites are to be avoided by all personnel, vehicles, and equipment; and that it is illegal to collect, damage, or

disturb cultural resources on Public Lands.

For assistance, contact BLM Cultural Resources:

Bruce Boeke (575) 234-5917 Martin Stein George MacDonell (575) 234-2228 Lynn Robinson (575) 234-5967 (575) 234-2236





James Ranch Unit 108H and Hudson 1 #8H Flowline Reroute

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLAL Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification, Map created 1/22/2008



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. TOPSOIL

The operator shall stockpile the topsoil of the well pad. The topsoil shall not be used to backfill the reserve pit and will be used for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Closed loop system- V door east

Tanks are required for drilling operations: No Pits.

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

D. FEDERAL MINERAL MATERIALS PIT

If the operator elects to surface the access road and/or well pad, mineral materials extracted during construction of the reserve pit may be used for surfacing the well pad and access road and other facilities on the lease.

Payment shall be made to the BLM prior to removal of any additional federal mineral materials from any site other than the reserve pit. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation.

The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. 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

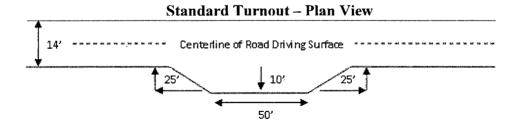
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

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:

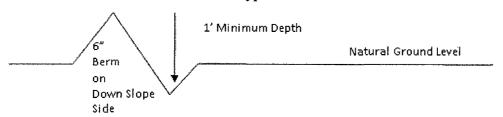


Drainage

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 Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

400 foot road with 4% road slope: 400'/4% + 100' = 200' 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

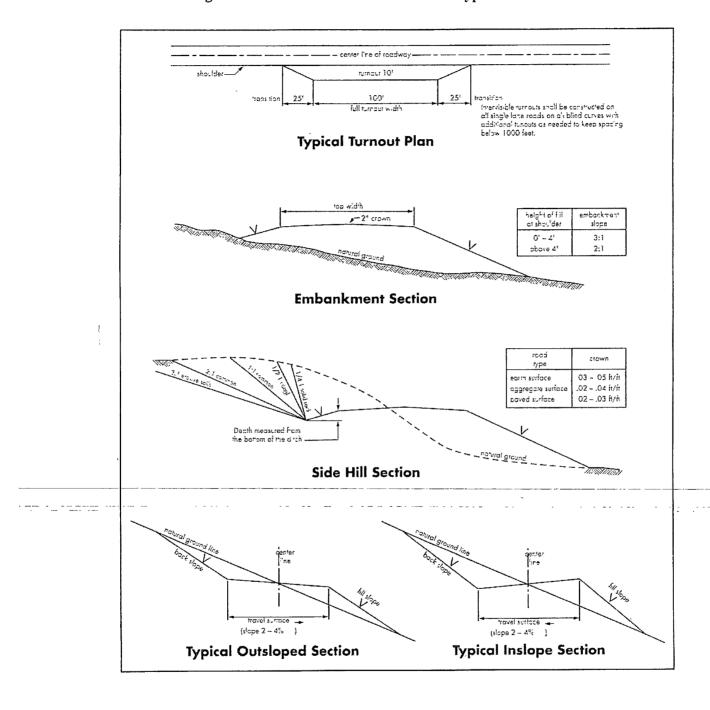
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

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. Although Hydrogen Sulfide has not been reported in this section, it is always a potential hazard. If Hydrogen Sulfide is encountered, please report measured amounts 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. Gamma-Ray/Neutron logs shall be run from the base of the Salado formation to the surface. The logs shall be run at a speed which allows the logs to be legible and no faster than manufacturer of the logging tools recommended speed. (R-111-P area only)

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/WIPP High cave/karst. 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 491 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:

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. 4. The minimum required fill of cement behind the 4-1/2 inch production liner is: No cement required. Operator using the Halliburton "Swell packer liner systerm. Liner to be set 200' above the KOP at approximately 6640'. 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. Operator is using a 3M system but testing as a 2M.

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

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

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.

a. The tests shall be done by an independent service company. Operator to submit copies of test done for each casing string with the subsequent sundry detailing the casing/cementing details.

- 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.

E. WIPP Requirements

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The proposed well is located more than 330' of the WIPP Land Withdrawal Area boundary. As a result, BOPCO, L. P. is requested, but not required to submit daily logs and deviation survey information to the Department of Energy per requirements of the Joint Powers Agreement. Any future entry into the well for purposes of completing additional drilling will require supplemental information.

BOPCO, L. P. can email the required information to Ms. Susan McCauslin at <u>susan.mccauslin@wipp.ws</u> or fax to her attention at 575-234-7061.

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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**

STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

A copy of the grant and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

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

- 1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
- 2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.
- 3. The holder agrees to indemnify the United States against any liability arising from the

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

- 4. The holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR Sec. 2883.1-4. The holder shall be held to a standard of strict liability for damage or injury to the United States resulting from pipe rupture, fire, or spills caused or substantially aggravated by any of the following within the right-of-way or permit area:
- a. Activities of the holder including, but not limited to construction, operation, maintenance, and termination of the facility.
- b. Activities of other parties including, but not limited to:
 - (1) Land clearing.
 - (2) Earth-disturbing and earth-moving work.
 - (3) Blasting.
 - (4) Vandalism and sabotage.
- c. Acts of God.

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

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

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

6. All construction and maintenance activity will be confined to the authorized right-of-way width of feet.						
7. No blading or clearing of any vegetation will be allowed unless approved in writing by the Authorized Officer.						
8. The holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky of duney areas, the pipeline will be "snaked" around hummocks and dunes rather then suspended across these features.						
9. The pipeline shall be buried with a minimum of inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.						
10. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.						
11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.						

- 12. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" **Shale Green**, Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.
- 13. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. Signs will be maintained in a legible condition for the life of the pipeline.
- 14. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

15. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the authorized officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery will be made by the authorized officer to determine appropriate cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the authorized officer after consulting with the holder.

C. ELECTRIC LINES

STANDARD STIPULATIONS FOR OVERHEAD ELECTRIC DISTRIBUTION LINES

A copy of the grant and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

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

- 1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
- 2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR-761-1-761-193.)

 Additionally, any release of toxic substances (leaks, spills, etc.)-in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.
 - 3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

- 4. There will be no clearing or blading of the right-of-way unless otherwise agreed to in writing by the Authorized Officer.
- 5. Powerlines shall be constructed in accordance to standards outlined in "Suggested Practices for Raptor Protection on Powerlines," Raptor Research Foundation, Inc., 1981. The holder shall assume the burden and expense of proving that pole designs not shown in the above publication are "raptor safe." Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all powerline structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the holder without liability or expense to the United States.
- 6. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting the fence. No permanent gates will be allowed unless approved by the Authorized Officer.
- 7. The BLM serial number assigned to this authorization shall be posted in a permanent, conspicuous manner where the power line crosses roads and at all serviced facilities. Numbers will be at least two inches high and will be affixed to the pole nearest the road crossing and at the facilities served.
- 8. Upon cancellation, relinquishment, or expiration of this grant, the holder shall comply with those abandonment procedures as prescribed by the Authorized Officer.
- 9. All surface structures (poles, lines, transformers, etc.) shall be removed within 180 days of abandonment, relinquishment, or termination of use of the serviced facility or facilities or within 180 days of abandonment, relinquishment, cancellation, or expiration of this grant, whichever comes first. This will not apply where the power line extends service to an active, adjoining facility or facilities.
- 10. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

11. Special Stipulations:

• For reclamation remove poles, lines, transformer, etc. and dispose of properly.

•	Fill in any holes from the poles removed.
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IX. INTERIM RECLAMATION & RESERVE PIT CLOSURE

A. INTERIM RECLAMATION

If the well is a producer, interim reclamation shall be conducted on the well site in accordance with the orders of the Authorized Officer. The operator shall submit a Sundry Notices and Reports on Wells (Notice of Intent), Form 3160-5, prior to conducting 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.

The operators should work with BLM surface management specialists to devise the best strategies to reduce the size of the location. Any reductions 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 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.

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BLM SERIAL #: COMPANY REFERENCE: WELL # & NAME:

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 <u>no</u> 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 see mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

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

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

^{*}Pounds of pure live seed:

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

X. FINAL ABANDONMENT & REHABILITATION REQUIREMENTS

Upon abandonment of the well and/or when the access road is no longer in service the Authorized Officer shall issue instructions and/or orders for surface reclamation and restoration of all disturbed areas.

On private surface/federal mineral estate land the reclamation procedures on the road and well pad shall be accomplished in accordance with the private surface land owner agreement.