OCD Artesia

14-620

R-111-POTASH

Form 3160-3
(March 2012)

HIGH CAVEKARST

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

JES 8-8-14

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☑ DRILL ☐ REENTER	5. Lease Serial No. SL: NMNM 06808; BHL: LC 06806
1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other ☑ Single Zone ☐ Multiple Zone	6. If Indian, Allotee or Tribe Name
2. Name of Operator BOPCO, L.P. <260737>	7. If Unit or CA Agreement, Name and No. James Ranch Unit 70965X
3a. Address P.O. Box 2760 Midland, TX 79702	3b. Phone No. (include area code) 432-683-2277
4. Location of Well (Report location clearly and in accordance with any State requirements.*) At surface SWNE, ULG, 1451' FNL & 1881' FEL, Lat:N32.380831,Long:W103.883197 At proposed prod. zone 1980' FNL,330'FWL,Sec19,T22S-R30E,Lat:N32.3794,Long:W103.9281	8. Lease Name and Well No. James Ranch Unit DI1 #169H <40211>
	9. API Well No. 30-015-42628
	10. Field and Pool, or Exploratory Quahada Ridge; Delaware; Southeast
	11. Sec., T. R. M. or Blk. and Survey or Area Sec 21, T22S-R30E
14. Distance in miles and direction from nearest town or post office* 12 miles northeast of Loving, NM	12. County or Parish Eddy County / 13. State NM
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 330'	16. No. of acres in lease 1,760 / 17. Spacing Unit dedicated to this well 400.08
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 240'	19. Proposed Depth 20,121 MD / 6,866 TVD Max TVD 7031' / 20. BLM/BIA Bond No. on file COB 000050
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3165' GL	22. Approximate date work will start* 09/22/2014 / 23. Estimated duration 45 days

24. Attachments

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

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

25. Signature Whitney B McKee	Name (Printed/Typed) Whitney McKee	Date 6/9/14
Title Engineering Assistant		
Approved by (Signature) /s/George MacDonell	Name (Printed/Typed)	Date AUG 28 2014
Title FIELD MANAGER	Office CARLSBAD FIELD OFFICE	

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

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

(Continued on page 2)

NM OIL CONSERVATION
ARTESIA DISTRICT
SEP 08 2014

*(Instructions on page 2)

Carlsbad Controlled Water Basin

RECEIVED

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR CONDITIONS OF APPROVAL

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

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

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

Form C-102
Revised August 1, 2011

Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-015-42628	50443	QUAHADA RIDGE; DELAWARE; SOUTHEAST

Property Code	Property Name	Well Number
~~306407~~ 40211	JAMES RANCH UNIT DI1	169H

OGRID No.	Operator Name	Elevation
260737	BOPCO, L.P.	3165'

Surface Location

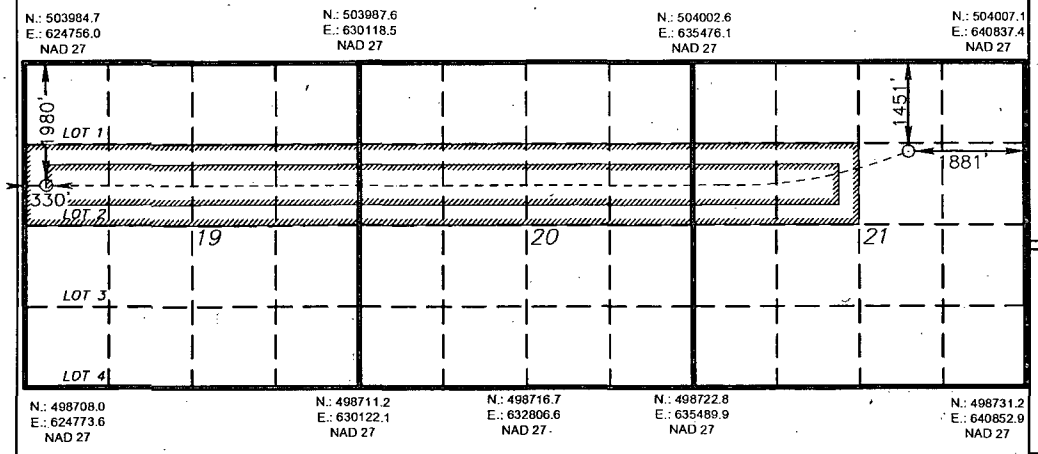
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
G	21	22 S	30 E		1451	NORTH	1881	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
LOT 2	19	22 S	30 E		1980	NORTH	330	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
400.08			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



PROPOSED BOTTOM HOLE LOCATION
Lat – N 32°22'46.11"
Long – W 103°55'41.25"
NMSPCE– N 502004.8
E 625092.5
(NAD-27)

SURFACE LOCATION
Lat – N 32°22'50.99"
Long – W 103°52'59.51"
NMSPCE– N 502554.2
E 638960.2
(NAD-27)

OPERATOR CERTIFICATION

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

Whitney McKee 6/9/14
Signature Date

Whitney McKee
Printed Name

wbmckee@basspet.com
Email Address

SURVEYOR CERTIFICATION

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

OCTOBER 17, 2013
Date Surveyed

Signature & Seal of Professional Surveyor

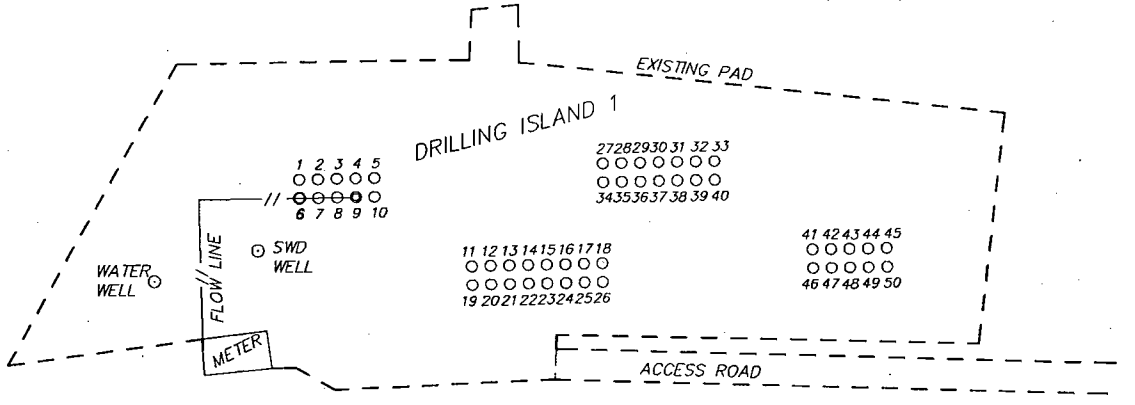
NEW MEXICO 7977 REGISTERED PROFESSIONAL LAND SURVEYOR

Certificate No. Gary L. Jones 7977
BASIN SURVEYS

0' 1500' 3000' 4500' 6000'
SCALE: 1" = 3000'
WO Num.:DI1 WELL PLATS

SECTION 21, TOWNSHIP 22 SOUTH, RANGE 30 EAST, N.M.P.M.,
EDDY COUNTY, **NEW MEXICO.**

BOPCO, L.P.
JAMES RANCH UNIT DI1 169H
ELEV. – 3165'
Lat – N 32°22'50.99"
Long – W 103°52'59.51"
NMSPCE– N 502554.2
E 638960.2
(NAD–27)



SLOT 6 = JAMES RANCH UNIT DI1 169H

LOVING, NM IS ±14 MILES TO THE SOUTHWEST OF LOCATION.

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

Directions to Location:

FROM THE JUNCTION OF HWY 128 AND CIMARRON, GO NORTH ON CIMARRON FOR APPROX. 6.2 MILES TO LEASE ROAD, ON LEASE ROAD GO SOUTHWESTERLY 0.2 MILES TURNING NORTHWESTERLY 1.3 MILES TO PROPOSED WELL LOCATION.

BOPCO, L.P.

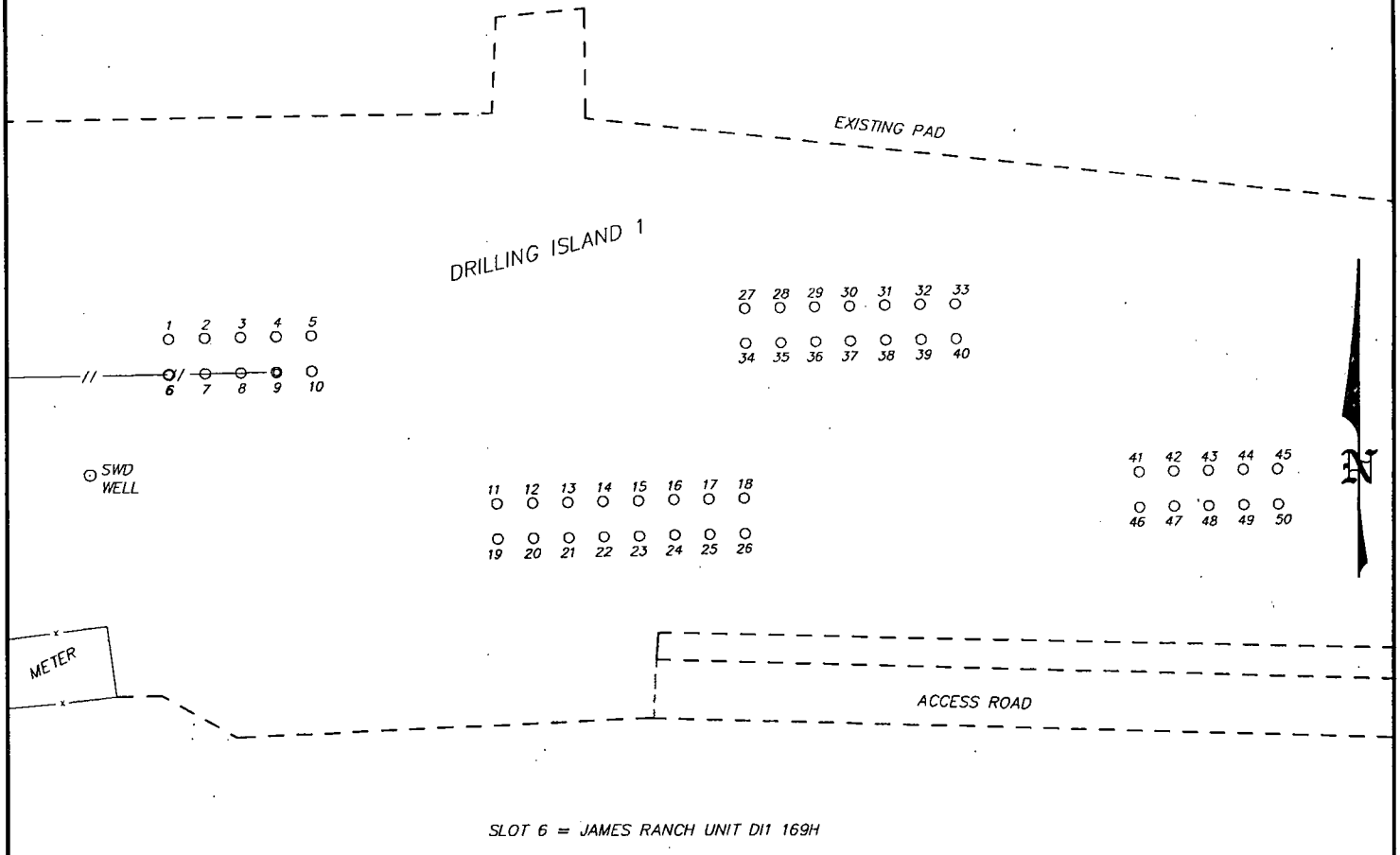
REF: JAMES RANCH UNIT DI1 169H / WELL PAD TOPO

THE JAMES RANCH UNIT DI1 169H LOCATED 1451' FROM THE NORTH LINE AND 1881' FROM THE EAST LINE OF SECTION 21, TOWNSHIP 22 SOUTH, RANGE 30 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

basin surveys
focused on excellence in the oilfield
P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 – Office
(575) 392-2206 – Fax
basinsurveys.com

W.O. Number: DI1 WELL	Drawn By: J. SMALL	Date: 10-16-2013	Survey Date: 10-17-2013	Sheet 1 of 1 Sheets

SECTION 21, TOWNSHIP 22 SOUTH, RANGE 30 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



SLOT 6 = JAMES RANCH UNIT DI1 169H

100 0 100 200 FEET

SCALE: 1" = 100'

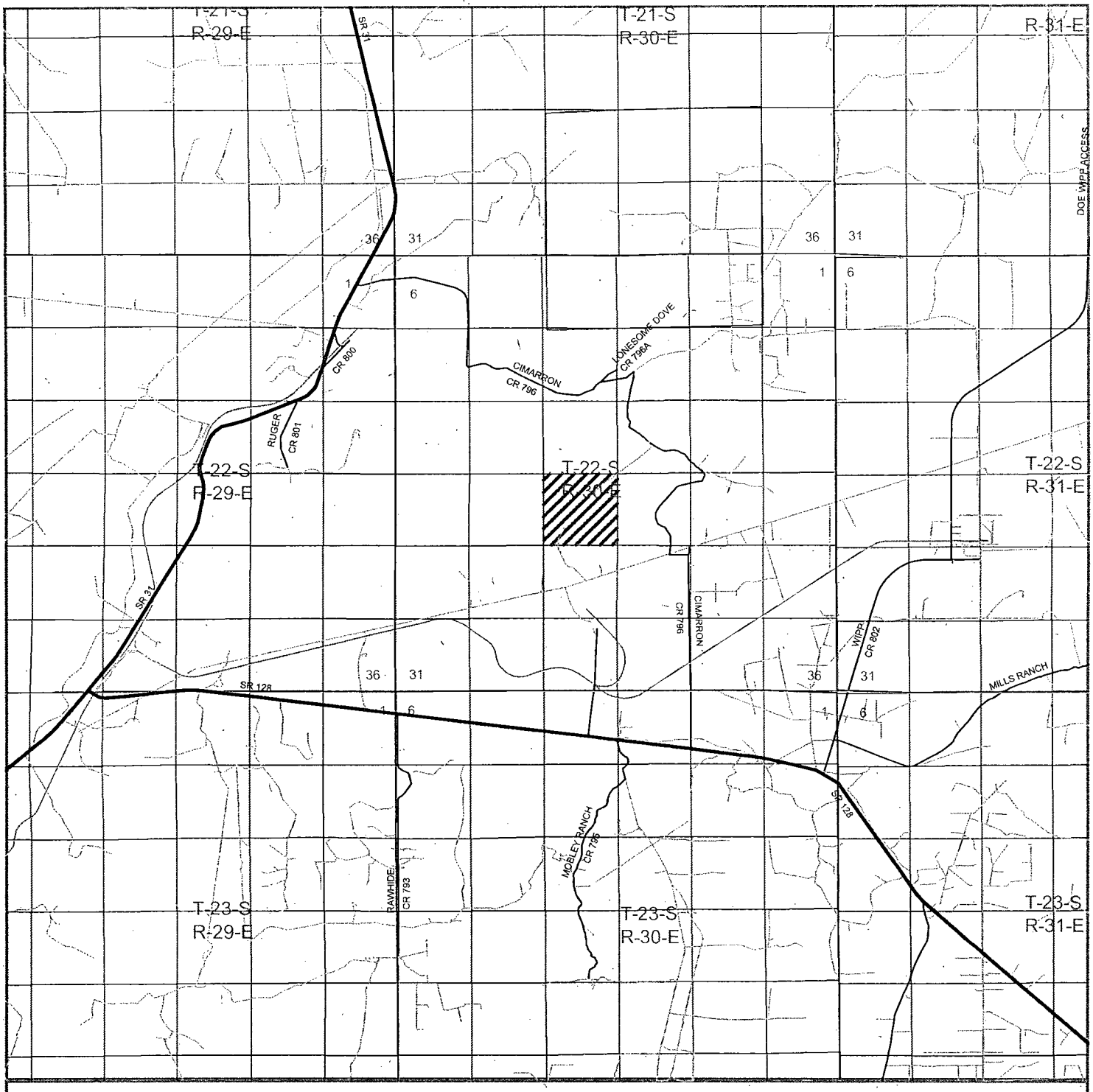
BOPCO, L.P.

REF: JAMES RANCH UNIT DI1 169H / WELL PAD TOPO

THE JAMES RANCH UNIT DI1 169H LOCATED 1451' FROM THE NORTH LINE AND 1881' FROM THE EAST LINE OF SECTION 21, TOWNSHIP 22 SOUTH, RANGE 30 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

basin surveys
focused on excellence in the oilfield
P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com

W.O. Number: DI1 WELL PLATS	Drawn By: J. SMALL	Date: 08-09-2013	Survey Date: 10-17-2013	Sheet 1 of 1 Sheets



JAMES RANCH UNIT DI1 169H

Located 1451' FNL and 1881 FEL
Section 21, Township 22 South, Range 30 East,
N.M.P.M., Eddy County, New Mexico.

basin surveys
focused on excellence in the oilfield

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

0 1 MI 2 MI 3 MI 4 MI
SCALE: 1" = 2 MILES

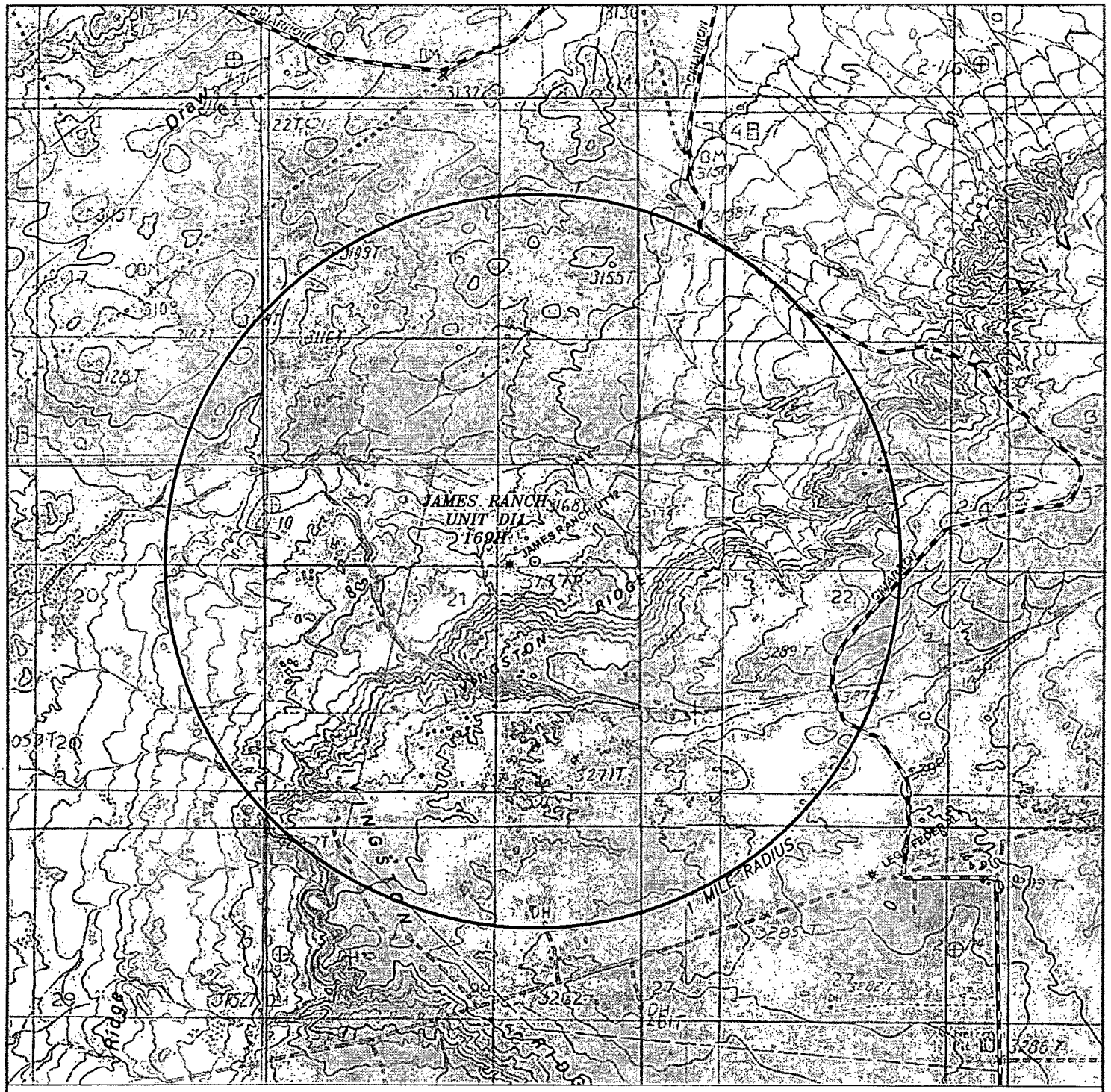
W.O. Number: JMS DI1 WELL PLATS

Survey Date: 10-17-2013

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

N

BOPCO, L.P.



JAMES RANCH UNIT DI1 169H

Located 1451' FNL and 1881 FEL

Section 21, Township 22 South, Range 30 East, N.M.P.M., Eddy County, New Mexico.

basin surveys
focused on excellence in the oilfield

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

0' 1000' 2000' 3000' 4000'

SCALE: 1" = 2000'

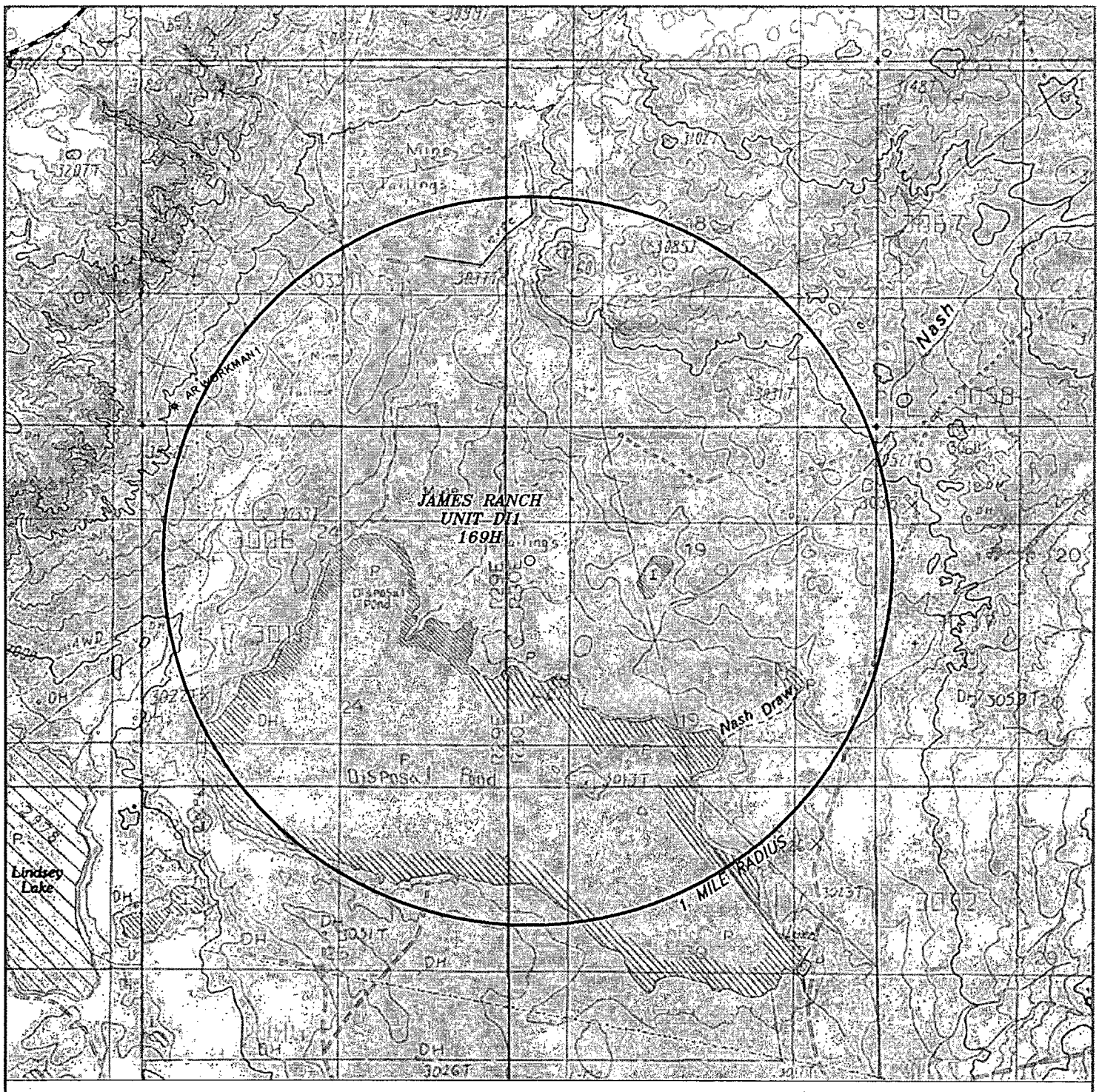
W.O. Number: JMS DI1 WELL PLATS

Survey Date: 10-17-2013

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

N

BOPCO, L.P.



JAMES RANCH UNIT DI1 169H BOTTOM

Located 1980' FNL and 330' FWL

Section 19, Township 22 South, Range 30 East, N.M.P.M., Eddy County, New Mexico.

basin surveys
focused on excellence in the oilfield

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

0' 1000' 2000' 3000' 4000'

SCALE: 1" = 2000'

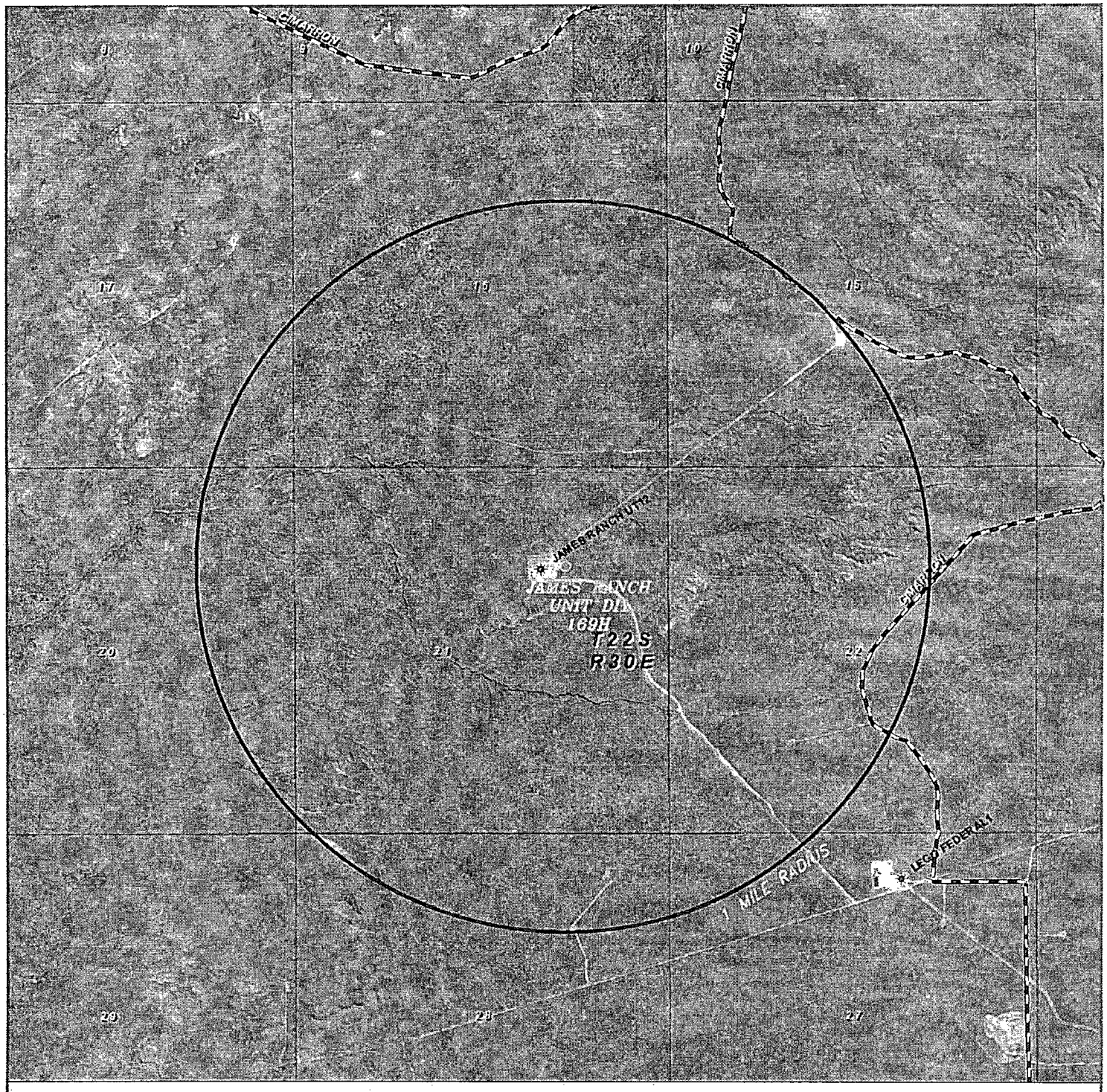
W.O. Number: JMS DI1 WELL PLATS

Survey Date: 10-17-2013

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

N

BOPCO, L.P.



JAMES RANCH UNIT DI1 169H

Located 1451' FNL and 1881 FEL
Section 21, Township 22 South, Range 30 East,
N.M.P.M., Eddy County, New Mexico.

Basin Surveys
focused on excellence in the oilfield

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

0' 1000' 2000' 3000' 4000'
SCALE: 1" = 2000'

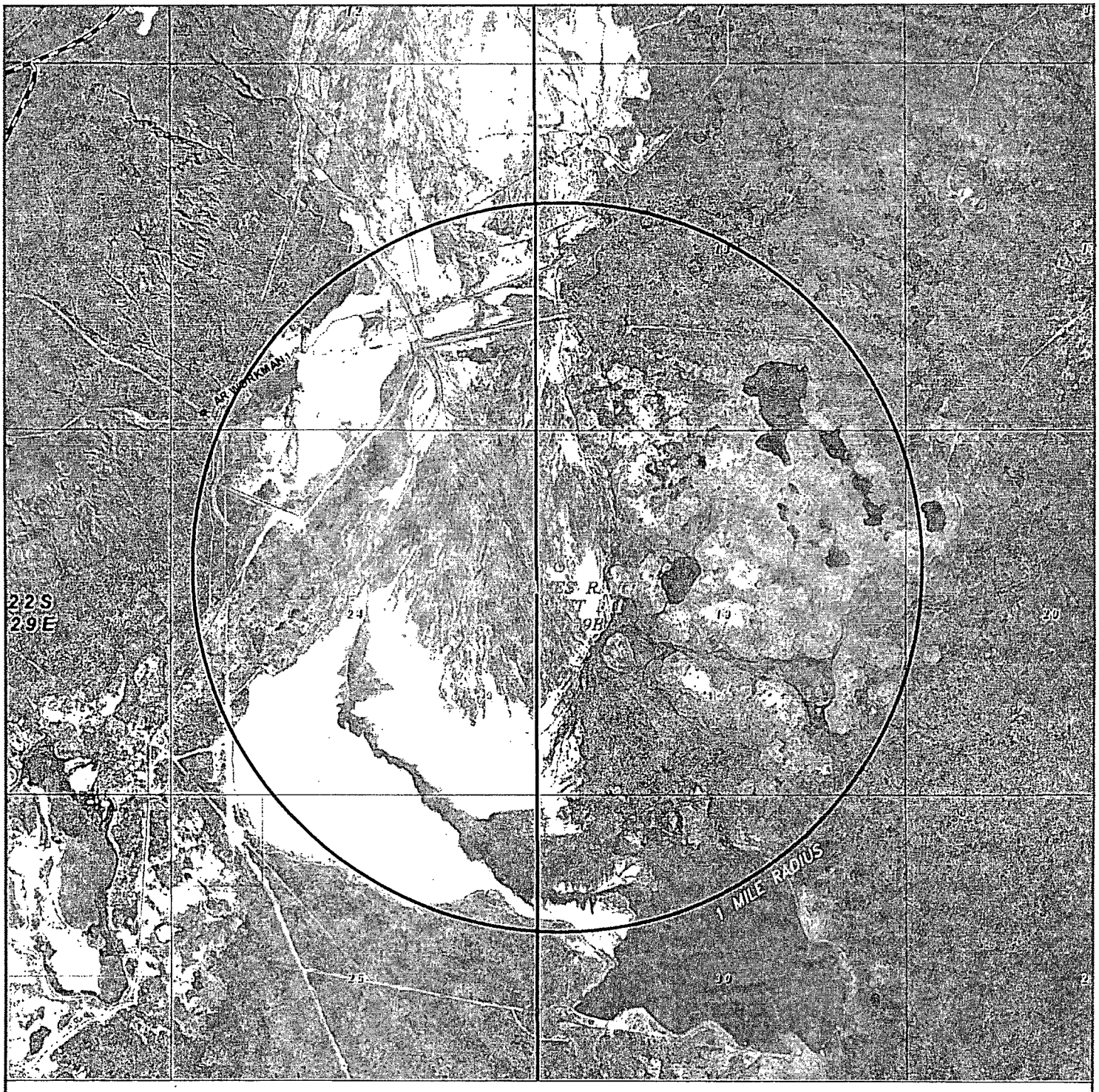
W.O. Number: JMS DI1 WELL PLATS

Survey Date: 10-17-2013

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

N

BOPCO, L.P.



JAMES RANCH UNIT DI1 169H BOTTOM
Located 1980' FNL and 330' FWL
Section 19, Township 22 South, Range 30 East, N.M.P.M., Eddy County, New Mexico.

basin surveys
focused on excellence in the oilfield

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

0' 1000' 2000' 3000' 4000'
SCALE: 1" = 2000'

W.O. Number: JMS DI1 WELL PLATS

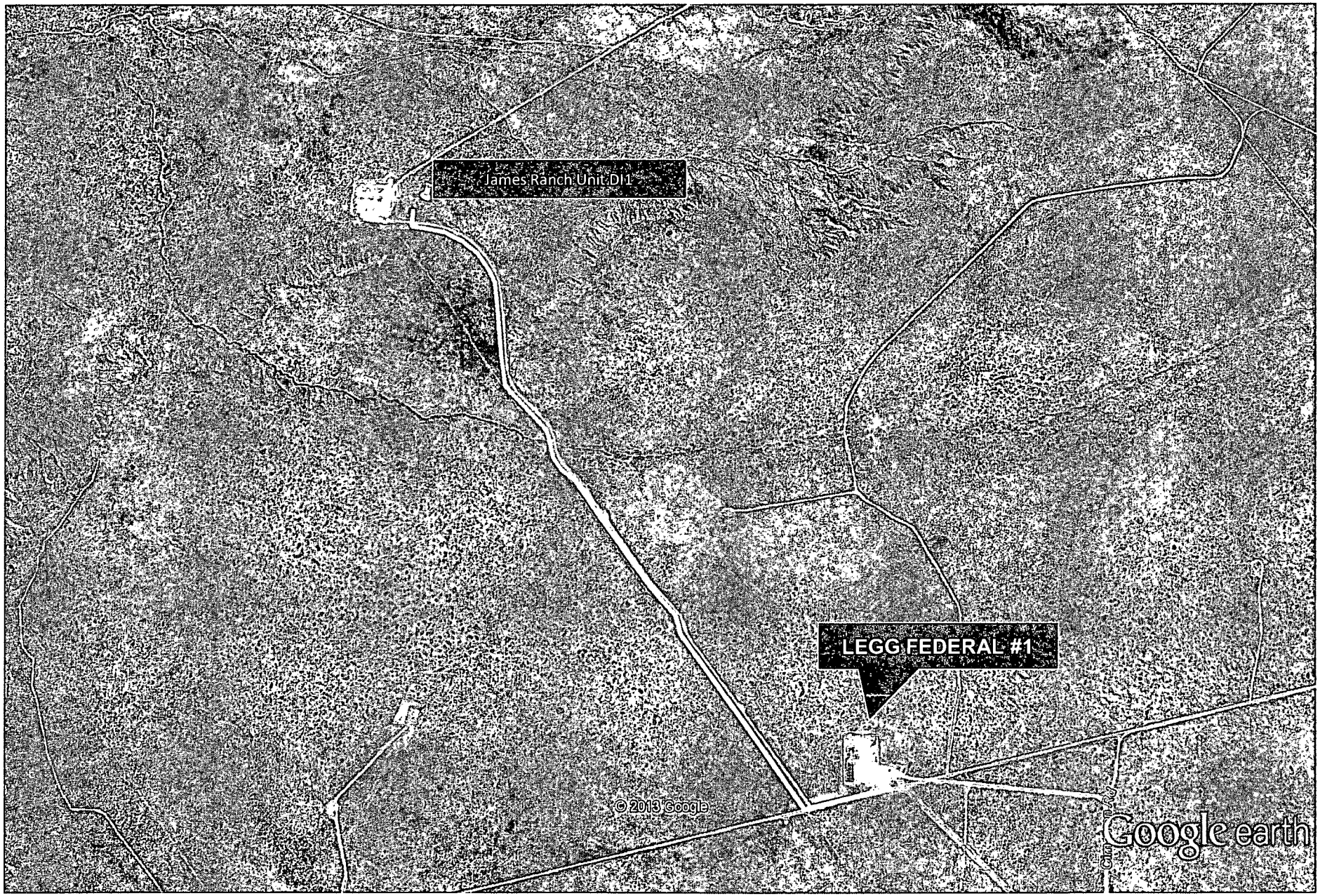
Survey Date: 10-17-2013

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

N

BOPCO, L.P.

Flowline Route Diagram 4



Access Road Diagram

EIGHT POINT DRILLING PROGRAM
BOPCO, L.P.

NAME OF WELL: James Ranch Unit DI 1 #169H
LEGAL DESCRIPTION - SURFACE: 1451' FNL, 1881' FEL, Section 21, T22S, R30E, Eddy County, NM.
BHL: 1980' FNL, 330' FWL, Section 19, T22S, R30E, Eddy County, New Mexico.
The surface location is nonstandard and located inside the James Ranch Unit.

POINT 1: ESTIMATED FORMATION TOPS (See No. 2 Below)

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

Anticipated Formation Tops: KB 3191' (estimated)
GL 3165'

Formation Description	Est from KB (TVD)	Est (MD)	SUB SEA TOP	BEARING
Fresh Water	130'	130'	+ 3,061'	Fresh water
Rustler	191'	191'	+ 3,000'	Barren
Salado	556'	556'	+ 2,635'	Barren
Lamar	3,536'	3,544'	- 345'	Barren
Ramsey	3,581'	3,581'	- 390'	Oil/Gas
Cherry Canyon	4,459'	4,470'	- 1,268'	Oil/Gas
Brushy Canyon	5,784'	5,800'	- 2,593'	Oil/Gas
Est. KOP	6,062'	6,080'	- 2,871'	Oil/Gas
T/Brushy Canyon Lower "U" Sand	6,976'	7,464'	- 3,785'	Oil/Gas
Brushy Canyon Lower "U" Sand Target	7,031'	7,857'	- 3,840'	Oil/Gas
TD Horizontal	6,866'	20,121'	- 3,675'	Oil/Gas

POINT 3: CASING PROGRAM

TYPE	INTERVAL MD	HOLE SIZE	PURPOSE	INSTALLATION TYPE
20"	0' – 120'	30"	Conductor	Contractor Discretion
13-3/8", 48 ppf, H-40 ST&C*	0' – 535'	17-1/2"	Surface	New
9-5/8", 40 ppf, N-80, 8rd, LT&C or 9-5/8" 40 ppf, J-55, 8rd, LT&C*	0' – 3,556'	12-1/4"	Intermediate	New
7", 26 ppf, N-80 LTC*	0' – 7,363'	8-3/4"	Production	New
Completion System				
4-1/2", 11.6 ppf, HCP-110 8rd LT&C, BTC	7,313' – 20,121'	6-1/8"	Completion System	New

*** Depending on availability.**

CASING DESIGN SAFETY FACTORS:

TYPE	TENSION	COLLAPSE	BURST
13-3/8", 48 ppf, H-40, 8rd, ST&C*	14.59	2.82	1.13
9-5/8", 40 ppf, N-80, 8rd, LT&C*	6.00	1.49	2.83
9-5/8", 40 ppf, J-55, 8rd, LT&C*	5.13	1.22	1.95
7", 26 ppf, N-80*	6.36	2.98	3.57

Completion System			
4-1/2", 11.6 ppf, HCP-110 8rd. LT&C	3.98	2.27	2.73
4-1/2", 11.6 ppf, HCP-110 BTC	5.24	2.36	2.73

*** Depending on availability.**

DESIGN CRITERIA AND CASING LOADING ASSUMPTIONS:

SURFACE CASING - (13-3/8")

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 - (9-5/8")

Tension — A 1.6 design factor utilizing the effects of buoyancy (10.2 ppg).

Collapse — A 1.125 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 - (7")

Tension — A 1.6 design factor utilizing the effects of buoyancy (9.0 ppg).

Collapse — A 1.125 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 (5000 psig) on top of the maximum anticipated packer fluid gradient. (0.433 psi/ft) Backup on production strings will be formation pore pressure. (0.433 psi/ft) The effects of tension on burst will not be utilized.

Completion System - (4-1/2")

Tension — A 1.6 design factor utilizing the effects of buoyancy (9.2 ppg).

Collapse — A 1.125 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 (5000 psig) on top of the maximum anticipated packer fluid gradient. (0.433 psi/ft) Backup on production strings will be formation pore pressure. (0.433 psi/ft) The effects of tension on burst will not be utilized.

POINT 4: PRESSURE CONTROL EQUIPMENT (SEE ATTACHED DIAGRAMS A, B, C or Z)

See COA

After running the 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 3M will be installed on the Cameron Multi-Bowl System (MBS) wellhead. The BOP/BOPE will be pressure tested to 250 psi low and 3,000 psi high after installation on the surface casing which will cover testing requirements for the duration of the well as per Onshore Order #2. The 9-5/8" intermediate casing and 7" production casing will be run with a mandrel hanger through the 13-5/8" BOP/BOPE system without breaking any connections on the BOP/BOPE system and thus not requiring a pressure test. Please find attached wellhead schematic. The field reports from the Cameron representative and the BOP test information will be provided in a subsequent report.

These tests will be performed:

a) Upon installation
b) After any component changes
c) Thirty days after a previous test
d) As required by well conditions
e) Any time a seal is broken within a system

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

See COA

BOPCO, L.P. would like to request a variance to use an armored, 3", 5000 psi WP flex hose for the choke line in the drilling of the well if the rig is equip with hose. (See specification for hose that might be used, attached with APD exhibits). This is rig equipment and will help quicken nipple up time thus saving money without a safety problem. The hose itself is rated to 5000 psi, and has 5000 psi flanges on each end. This well is to be drilled to 7,030' TVD and max surface pressure should be +/- 1817 psi as prescribed in onshore order #2 shown as max BHP minus 0.22 psi/ft. Thus, 3000 psi BOPE is all that is needed for this well. **Please refer to diagrams A, B, or C for choke manifold and closed loop system layout. If an armored flex hose is utilized, the company man will have all of the proper certified paper work for that hose available on location.**

POINT 5: MUD PROGRAM

DEPTH	MUD TYPE	WEIGHT	FV	PV	YP	FL	PH
0 -535'	FW Spud Mud	8.5 – 9.2	38-70	NC	NC	NC	10.0
535' – 3,556'	Brine Water	9.8 – 10.2	28-30	NC	NC	NC	9.5 – 10.5
3,556'–7,363'	FW/Gel	8.7 – 9.0	28-36	NC	NC	NC	9.5 – 10.0
7,363'-20,121'	Oil Based Mud	8.7 – 9.2	36-55	16-30	16-30	14-26	NA

NOTE: May increase vis for logging purposes only.

MUD MONITORING SYSTEM

1. BOPCO L.P. plans to drill the proposed well with water and does not expect to mud up. In the event of abnormal pressures that require mudding up, BOPCO L.P will record slow pump rates on the daily drilling report on a daily basis.

2. Visual mud monitoring equipment will be installed to detect volume changes.

3. Pit volume totalizers are installed on rig before spud.

4. BOPCO L.P. has the drilling mud checked every 24 hrs., and the daily mud check will be posted in the company man's trailer.

5. BOPCO L.P will be using a 3M system so trip tanks will not be required per Onshore Order #2.

6. Gas detections systems will be installed on exploratory wells per Onshore Order #2. Please refer to section G under point 6 in the 8pt drilling program for H2S safety information.

BOPCO, L.P. will have auxiliary equipment in place and a 24 hour mud engineer during the drilling in the lateral to minimize the risk of an OBM spill.

Sufficient mud materials will be kept at the well site to maintain mud properties and meet minimum lost circulation and weight increase requirements at all times (sack or bulk barite will not be on location until 500' above the top of the Wolfcamp.)

POINT 6: TECHNICAL STAGES OF OPERATION

A) TESTING
None anticipated.

B) LOGGING

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

Run #2: Shuttle log w/GR, PE, Density, Neutron, Resistivity in lateral leg open hole are possible.

Mud Logger: Rigged up at 100'

C) CONVENTIONAL CORING

None anticipated

D) CEMENT

INTERVAL	AMOUNT SXS	FT OF FILL	TYPE	GALS/SX	PPG	FT³/SX
SURFACE:						
Lead: 0' – 235'	190	235	Class C +2% CACL + 4% Bentonite + 0.25 LB/SK Cello Flake + 3 lb/sk LCM-1	8.69	13.50	1.75
Tail: 235' – 535'	340	300	Class C + 2% CACL + 0.25 LB/SK CF	6.35	14.80	1.35
			0.25LB/SK Cello Flake + 3 lb/sk LCM-1			
INTERMEDIATE:						
Lead: 0' – 3,056'	700	3136	EconoCEM HLC + 5% CaCl + 5#/sk Gilsonite	9.32	12.90	1.85
Tail: 3,056' – 3,556'	190	500	HalCem C	6.34	14.80	1.33
Production						
Stage 1:						
Lead: 5,000' – 6,080'	100	1080	Tuned Light + 0.125 pps Poly-E-Flake	14.87	11.0	2.64
Tail: 6,080' – 7,363'	160	1283	Class "H" + 0.5% Halad-344 + 0.25% CFR-3 + 0.5% Econolite	11.41	12.00	2.03
See COA						
DV Tool @ 5,000'						
Stage 2:						
Lead: 0' – 5,000'	410	5000	Tuned Light + 0.125 pps Poly-E-Flake	11.70	11.0	2.35

Cement excesses will be as follows:

Surface – 100% excess with cement circulated to surface.

1st Intermediate – 30% excess above fluid caliper with cement circulated to surface.

Production – 50% above gauge hole or 35% above electric log caliper with cement circulated 500' up into the 9-5/8" 1st intermediate casing in areas outside the SOPA. Cement will be circulated to surface on areas inside the SOPA. Cement volumes will be adjusted proportionately for depth changes of the multi stage tool.

E) COMPLETION SYSTEM

A 4-1/2" completion system with open hole packers will be run in the producing lateral to a depth of 20,121'. The top of the completion system will be set at approximately 7,313', 50' inside the 7" casing. Cement will not be required for the 4-1/2" completion system

F) 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 6,080' at which point a directional hole will be kicked off and drilled at an azimuth of 270.05 degrees, building angle at 6.00 deg/100' to 70 degrees at a TVD of approximately 6,876' (MD 7,163'). This angle will be held to a depth of approximately 7,363' MD (6,866' TVD). At this depth 7", 26#, N-80 8rd LTC casing will be installed and cemented in two stages (DV Tool @ approximately 5000') with cement circulated to surface. A 6-1/8" open hole lateral will then be drilled out from 7" casing at an azimuth of 270.05 degrees, building inclination to 90.77 degrees to a measured depth of approximately 7,895', TVD 7,030'. This angle and azimuth will be maintained to a MD of 20,121'. At this depth a 4-1/2" Completion System with packers installed for zone isolation will be run into the producing lateral.

G) H_2S SAFETY EQUIPMENT

H2S monitors shall be installed prior to drilling out the surface shoe. If H2S is encountered in quantities greater than 10 PPM, the well will be shut in and H2S equipment will be installed, including a flare line that will be extended pursuant to Onshore Oil and Gas Order #6. **(Please refer to diagram A, B, or C for choke manifold and closed loop system layout when H2S is present) Please refer to H2S location diagram for location of important H2S safety items.**

H) CLOSED LOOP AND CHOKE MANIFLOLD

Please see diagram A, B, C or Z depending on configuration.

POINT 7: ANTICIPATED RESERVOIR CONDITIONS

Normal pressures are anticipated throughout the Delaware section. A BHP of 3363 psi (max) or MWE of 9.2 ppg is expected. Lost circulation may exist in the Delaware section from 3,581'- 7,030' TVD.

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

30 days drilling operations

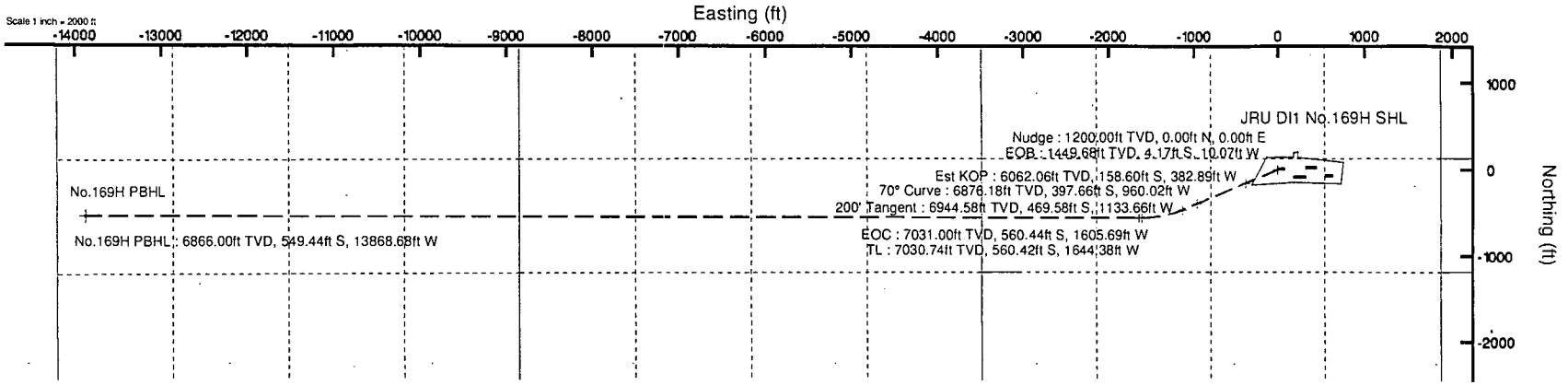
14 days completion operations

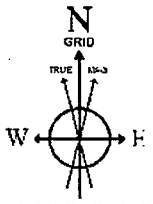
BOPCO, L.P.

Location: Eddy County, NM
Field: JRU NAD27
Facility: JRU Drilling Island 1

Slot: JRU DI1 No.169H SHL
Well: No.169H
Wellbore: No.169H PWB

BAKER HUGHES



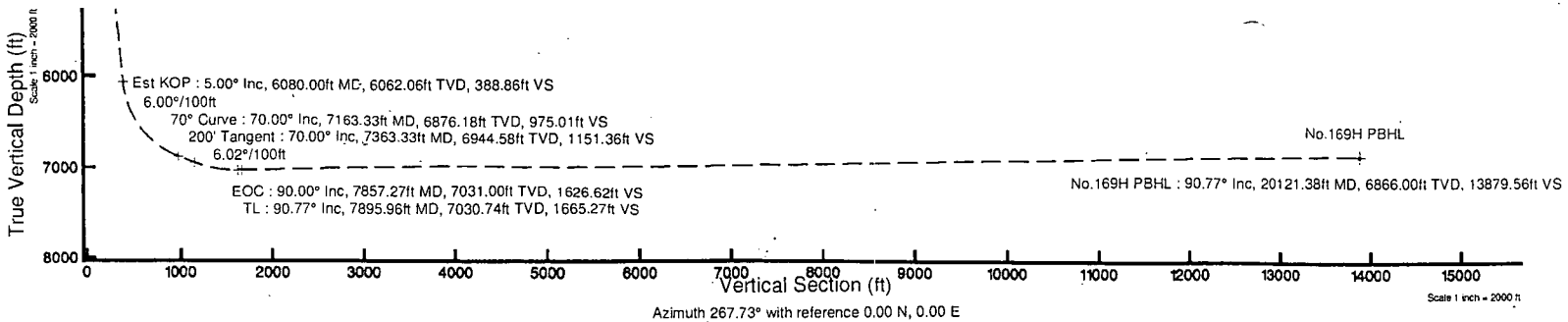


BGGM (1945.0 to 2015.0) Dip: 60.20° Field: 48384.5 nT
Magnetic North is 7.53 degrees East of True North (at 3/3/2014)
Grid North is 0.24 degrees East of True North
To correct azimuth from True to Grid subtract 0.24 degrees
To correct azimuth from Magnetic to Grid add 7.29 degrees

Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	0.00	0.000	247.500	0.00	0.00	0.00	0.00	0.00
Nudge	1200.00	0.000	247.500	1200.00	0.00	0.00	0.00	0.00
EOB	1450.00	5.000	247.500	1449.68	-4.17	-10.07	2.00	10.23
Est KOP	6080.00	5.000	247.500	6062.06	-158.60	-382.89	0.00	388.86
70° Curve	7163.33	70.000	247.500	6876.18	-397.66	-960.02	6.00	975.01
200' Tangent	7363.33	70.000	247.500	6944.58	-469.58	-1133.66	0.00	1151.36
EOC	7857.27	90.000	270.000	7031.00	-560.44	-1605.69	6.02	1626.62
TL	7895.96	90.772	270.051	7030.74	-560.42	-1644.38	2.00	1665.27
No.169H PBHL	20121.38	90.772	270.051	6866.00	-549.44	-13868.68	0.00	13879.56

Plot reference wellpath is Rev-A.0	
True vertical depths are referenced to Rig on No.6H SHL (RT)	Grid System: NAD27 / TM New Mexico SP, Eastern Zone (3001), US feet
Measured depths are referenced to Rig on No.6H SHL (RT)	North Reference: Grid north
Rig on No.6H SHL (RT) to Mean Sea Level: 3191 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: JRU DI1 No.169H SHL): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: gentbry on 3/3/2014



Azimuth 267.73° with reference 0.00 N, 0.00 E

Rev-A.0

Planned Wellpath Report

Rev-A.0

REFERENCE WELLPATH IDENTIFICATION			
Operator	**BOPCO, L.P.**	Slot	**JRU DI1 No.169H SHL**
Area	**Eddy County, NM**	Well	**No.169H**
Field	**JRU NAD27**	Wellbore	**No.169H PWB**
Facility	**JRU Drilling Island 1**		

REPORT SETUP INFORMATION			
Projection System	**NAD27 / TM New Mexico SP, Eastern Zone (3001), US feet**	Software System	**WellArchitect® 4.0.1**
North Reference	**Grid**	User	**Gentbry**
Scale	**0.999931**	Report Generated	**3/3/2014** at **3:37:32 PM**
Convergence at slot	**0.24° East**	Database/Source file	**MidlandDB/No.169H_PWB.xml**

WELLPATH LOCATION	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	**East[ft]**	**Easting[US ft]**	**Northing[US ft]**	**Latitude**	**Longitude**
Slot Location	-0.90	-59.88	**638960.20**	**502554.20**	32°22'50.998"N	103°52'59.515"W
Facility Reference Pt			**639020.08**	**502555.10**	32°22'51.004"N	103°52'58.816"W
Field Reference Pt			**652495.44**	**494904.92**	32°21'34.711"N	103°50'22.090"W

WELLPATH DATUM			
Calculation method	**Minimum curvature**	Rig on No.6H SHL (KB) to Facility Vertical Datum	**3191.00ft**
Horizontal Reference Pt	**Slot**	Rig on No.6H SHL (KB) to Mean Sea Level	**3191.00ft**
Vertical Reference Pt	**Rig on No.6H SHL (KB)**	Rig on No.6H SHL (KB) to Mud Line at Slot (JRU DI1 No.169H SHL)	**3191.00ft**
MD Reference Pt	**Rig on No.6H SHL (KB)**	Section Origin	**N 0.00, E 0.00 ft**
Field Vertical Reference	**Mean Sea Level**	Section Azimuth	**267.73°**

Planned Wellpath Report

Rev-A.0

REFERENCE WELLPATH IDENTIFICATION			
Operator	BOPCO, L.P.	Slot	JRU DI1 No.169H SHL
Area	Eddy County, NM	Well	No.169H
Field	JRU NAD27	Wellbore	No.169H PWB
Facility	JRU Drilling Island 1		

WELLPATH DATA (217 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00†	0.000	247.500	0.00	0.00	0.00	0.00	638960.20	502554.20	32°22'50.998"N	103°52'59.515"W	0.00	
26.00	0.000	247.500	26.00	0.00	0.00	0.00	638960.20	502554.20	32°22'50.998"N	103°52'59.515"W	0.00	Tie On
126.00†	0.000	247.500	126.00	0.00	0.00	0.00	638960.20	502554.20	32°22'50.998"N	103°52'59.515"W	0.00	
130.00†	0.000	247.500	130.00	0.00	0.00	0.00	638960.20	502554.20	32°22'50.998"N	103°52'59.515"W	0.00	Fresh Water
226.00†	0.000	247.500	226.00	0.00	0.00	0.00	638960.20	502554.20	32°22'50.998"N	103°52'59.515"W	0.00	
326.00†	0.000	247.500	326.00	0.00	0.00	0.00	638960.20	502554.20	32°22'50.998"N	103°52'59.515"W	0.00	
426.00†	0.000	247.500	426.00	0.00	0.00	0.00	638960.20	502554.20	32°22'50.998"N	103°52'59.515"W	0.00	
526.00†	0.000	247.500	526.00	0.00	0.00	0.00	638960.20	502554.20	32°22'50.998"N	103°52'59.515"W	0.00	
556.00†	0.000	247.500	556.00	0.00	0.00	0.00	638960.20	502554.20	32°22'50.998"N	103°52'59.515"W	0.00	Salado
626.00†	0.000	247.500	626.00	0.00	0.00	0.00	638960.20	502554.20	32°22'50.998"N	103°52'59.515"W	0.00	
726.00†	0.000	247.500	726.00	0.00	0.00	0.00	638960.20	502554.20	32°22'50.998"N	103°52'59.515"W	0.00	
826.00†	0.000	247.500	826.00	0.00	0.00	0.00	638960.20	502554.20	32°22'50.998"N	103°52'59.515"W	0.00	
926.00†	0.000	247.500	926.00	0.00	0.00	0.00	638960.20	502554.20	32°22'50.998"N	103°52'59.515"W	0.00	
1026.00†	0.000	247.500	1026.00	0.00	0.00	0.00	638960.20	502554.20	32°22'50.998"N	103°52'59.515"W	0.00	
1126.00†	0.000	247.500	1126.00	0.00	0.00	0.00	638960.20	502554.20	32°22'50.998"N	103°52'59.515"W	0.00	
1200.00	0.000	247.500	1200.00	0.00	0.00	0.00	638960.20	502554.20	32°22'50.998"N	103°52'59.515"W	0.00	Nudge
1226.00†	0.520	247.500	1226.00	0.11	-0.05	-0.11	638960.09	502554.15	32°22'50.997"N	103°52'59.516"W	2.00	
1326.00†	2.520	247.500	1325.96	2.60	-1.06	-2.56	638957.64	502553.14	32°22'50.987"N	103°52'59.545"W	2.00	
1426.00†	4.520	247.500	1425.77	8.36	-3.41	-8.23	638951.97	502550.79	32°22'50.964"N	103°52'59.611"W	2.00	
1450.00	5.000	247.500	1449.68	10.23	-4.17	-10.07	638950.13	502550.03	32°22'50.957"N	103°52'59.632"W	2.00	EOB
1526.00†	5.000	247.500	1525.39	16.44	-6.71	-16.19	638944.01	502547.49	32°22'50.932"N	103°52'59.704"W	0.00	
1626.00†	5.000	247.500	1625.01	24.62	-10.04	-24.24	638935.96	502544.16	32°22'50.899"N	103°52'59.798"W	0.00	
1726.00†	5.000	247.500	1724.63	32.80	-13.38	-32.30	638927.91	502540.82	32°22'50.867"N	103°52'59.892"W	0.00	
1826.00†	5.000	247.500	1824.25	40.98	-16.71	-40.35	638919.86	502537.49	32°22'50.834"N	103°52'59.986"W	0.00	
1926.00†	5.000	247.500	1923.87	49.16	-20.05	-48.40	638911.80	502534.15	32°22'50.801"N	103°53'00.080"W	0.00	
2026.00†	5.000	247.500	2023.49	57.33	-23.38	-56.45	638903.75	502530.82	32°22'50.769"N	103°53'00.174"W	0.00	
2126.00†	5.000	247.500	2123.11	65.51	-26.72	-64.50	638895.70	502527.48	32°22'50.736"N	103°53'00.268"W	0.00	
2226.00†	5.000	247.500	2222.73	73.69	-30.05	-72.56	638887.65	502524.15	32°22'50.703"N	103°53'00.362"W	0.00	
2326.00†	5.000	247.500	2322.35	81.87	-33.39	-80.61	638879.60	502520.81	32°22'50.671"N	103°53'00.456"W	0.00	
2426.00†	5.000	247.500	2421.97	90.04	-36.72	-88.66	638871.55	502517.48	32°22'50.638"N	103°53'00.550"W	0.00	
2526.00†	5.000	247.500	2521.59	98.22	-40.06	-96.71	638863.49	502514.14	32°22'50.605"N	103°53'00.644"W	0.00	
2626.00†	5.000	247.500	2621.21	106.40	-43.39	-104.76	638855.44	502510.81	32°22'50.573"N	103°53'00.738"W	0.00	
2726.00†	5.000	247.500	2720.83	114.58	-46.73	-112.82	638847.39	502507.47	32°22'50.540"N	103°53'00.832"W	0.00	
2826.00†	5.000	247.500	2820.45	122.76	-50.07	-120.87	638839.34	502504.14	32°22'50.507"N	103°53'00.926"W	0.00	
2926.00†	5.000	247.500	2920.07	130.93	-53.40	-128.92	638831.29	502500.80	32°22'50.475"N	103°53'01.021"W	0.00	
3026.00†	5.000	247.500	3019.69	139.11	-56.74	-136.97	638823.24	502497.47	32°22'50.442"N	103°53'01.115"W	0.00	
3126.00†	5.000	247.500	3119.31	147.29	-60.07	-145.03	638815.18	502494.13	32°22'50.409"N	103°53'01.209"W	0.00	
3226.00†	5.000	247.500	3218.92	155.47	-63.41	-153.08	638807.13	502490.80	32°22'50.377"N	103°53'01.303"W	0.00	
3326.00†	5.000	247.500	3318.54	163.65	-66.74	-161.13	638799.08	502487.46	32°22'50.344"N	103°53'01.397"W	0.00	
3426.00†	5.000	247.500	3418.16	171.82	-70.08	-169.18	638791.03	502484.13	32°22'50.311"N	103°53'01.491"W	0.00	
3526.00†	5.000	247.500	3517.78	180.00	-73.41	-177.23	638782.98	502480.79	32°22'50.279"N	103°53'01.585"W	0.00	
3544.29†	5.000	247.500	3536.00	181.50	-74.02	-178.71	638781.51	502480.18	32°22'50.273"N	103°53'01.602"W	0.00	Lamar
3626.00†	5.000	247.500	3617.40	188.18	-76.75	-185.29	638774.93	502477.46	32°22'50.246"N	103°53'01.679"W	0.00	
3726.00†	5.000	247.500	3717.02	196.36	-80.08	-193.34	638766.88	502474.12	32°22'50.213"N	103°53'01.773"W	0.00	
3826.00†	5.000	247.500	3816.64	204.53	-83.42	-201.39	638758.82	502470.79	32°22'50.181"N	103°53'01.867"W	0.00	

Planned Wellpath Report

Rev-A.0

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	**BOPCO, L.P.**	Slot	**JRU DI1 No.169H SHL**
Area	**Eddy County, NM**	Well	**No.169H**
Field	**JRU NAD27**	Wellbore	**No.169H PWB**
Facility	**JRU Drilling Island 1**		

WELLPATH DATA (217 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
3926.00†	5.000	247.500	3916.26	212.71	-86.75	-209.44	638750.77	502467.45	32°22'50.148"N	103°53'01.961"W	0.00	
4026.00†	5.000	247.500	4015.88	220.89	-90.09	-217.49	638742.72	502464.12	32°22'50.115"N	103°53'02.055"W	0.00	
4126.00†	5.000	247.500	4115.50	229.07	-93.42	-225.55	638734.67	502460.78	32°22'50.083"N	103°53'02.149"W	0.00	
4226.00†	5.000	247.500	4215.12	237.25	-96.76	-233.60	638726.62	502457.45	32°22'50.050"N	103°53'02.243"W	0.00	
4326.00†	5.000	247.500	4314.74	245.42	-100.10	-241.65	638718.57	502454.11	32°22'50.017"N	103°53'02.337"W	0.00	
4426.00†	5.000	247.500	4414.36	253.60	-103.43	-249.70	638710.51	502450.78	32°22'49.985"N	103°53'02.431"W	0.00	
4470.81†	5.000	247.500	4459.00	257.27	-104.93	-253.31	638706.91	502449.28	32°22'49.970"N	103°53'02.473"W	0.00	Cherry Canyon
4526.00†	5.000	247.500	4513.98	261.78	-106.77	-257.76	638702.46	502447.44	32°22'49.952"N	103°53'02.525"W	0.00	
4626.00†	5.000	247.500	4613.60	269.96	-110.10	-265.81	638694.41	502444.11	32°22'49.919"N	103°53'02.619"W	0.00	
4726.00†	5.000	247.500	4713.22	278.14	-113.44	-273.86	638686.36	502440.77	32°22'49.887"N	103°53'02.714"W	0.00	
4826.00†	5.000	247.500	4812.84	286.31	-116.77	-281.91	638678.31	502437.44	32°22'49.854"N	103°53'02.808"W	0.00	
4926.00†	5.000	247.500	4912.46	294.49	-120.11	-289.96	638670.26	502434.10	32°22'49.821"N	103°53'02.902"W	0.00	
5026.00†	5.000	247.500	5012.08	302.67	-123.44	-298.02	638662.20	502430.77	32°22'49.789"N	103°53'02.996"W	0.00	
5126.00†	5.000	247.500	5111.69	310.85	-126.78	-306.07	638654.15	502427.43	32°22'49.756"N	103°53'03.090"W	0.00	
5226.00†	5.000	247.500	5211.31	319.02	-130.11	-314.12	638646.10	502424.10	32°22'49.723"N	103°53'03.184"W	0.00	
5326.00†	5.000	247.500	5310.93	327.20	-133.45	-322.17	638638.05	502420.76	32°22'49.691"N	103°53'03.278"W	0.00	
5426.00†	5.000	247.500	5410.55	335.38	-136.78	-330.22	638630.00	502417.43	32°22'49.658"N	103°53'03.372"W	0.00	
5526.00†	5.000	247.500	5510.17	343.56	-140.12	-338.28	638621.95	502414.09	32°22'49.625"N	103°53'03.466"W	0.00	
5626.00†	5.000	247.500	5609.79	351.74	-143.45	-346.33	638613.90	502410.76	32°22'49.593"N	103°53'03.560"W	0.00	
5726.00†	5.000	247.500	5709.41	359.91	-146.79	-354.38	638605.84	502407.42	32°22'49.560"N	103°53'03.654"W	0.00	
5800.87†	5.000	247.500	5784.00	366.04	-149.29	-360.41	638599.82	502404.92	32°22'49.536"N	103°53'03.724"W	0.00	Brushy Canyon
5826.00†	5.000	247.500	5809.03	368.09	-150.12	-362.43	638597.79	502404.09	32°22'49.527"N	103°53'03.748"W	0.00	
5926.00†	5.000	247.500	5908.65	376.27	-153.46	-370.49	638589.74	502400.75	32°22'49.495"N	103°53'03.842"W	0.00	
6026.00†	5.000	247.500	6008.27	384.45	-156.80	-378.54	638581.69	502397.42	32°22'49.462"N	103°53'03.936"W	0.00	
6080.00	5.000	247.500	6062.06	388.86	-158.60	-382.89	638577.34	502395.61	32°22'49.444"N	103°53'03.987"W	0.00	Est KOP
6126.00†	7.760	247.500	6107.77	393.66	-160.55	-387.61	638572.62	502393.66	32°22'49.425"N	103°53'04.042"W	6.00	
6226.00†	13.760	247.500	6205.97	411.17	-167.69	-404.85	638555.38	502386.52	32°22'49.355"N	103°53'04.244"W	6.00	
6326.00†	19.760	247.500	6301.68	438.21	-178.72	-431.48	638528.75	502375.49	32°22'49.247"N	103°53'04.555"W	6.00	
6426.00†	25.760	247.500	6393.85	474.50	-193.52	-467.20	638493.03	502360.69	32°22'49.102"N	103°53'04.972"W	6.00	
6526.00†	31.760	247.500	6481.48	519.62	-211.93	-511.63	638448.60	502342.29	32°22'48.922"N	103°53'05.491"W	6.00	
6626.00†	37.760	247.500	6563.59	573.10	-233.73	-564.28	638395.96	502320.48	32°22'48.708"N	103°53'06.106"W	6.00	
6726.00†	43.760	247.500	6639.30	634.33	-258.71	-624.58	638335.67	502295.51	32°22'48.464"N	103°53'06.810"W	6.00	
6826.00†	49.760	247.500	6707.78	702.65	-286.57	-691.85	638268.40	502267.65	32°22'48.191"N	103°53'07.596"W	6.00	
6926.00†	55.760	247.500	6768.27	777.32	-317.03	-765.37	638194.89	502237.20	32°22'47.893"N	103°53'08.455"W	6.00	
7026.00†	61.760	247.500	6820.10	857.51	-349.73	-844.32	638115.94	502204.49	32°22'47.572"N	103°53'09.377"W	6.00	
7126.00†	67.760	247.500	6862.73	942.34	-384.33	-927.85	638032.41	502169.90	32°22'47.233"N	103°53'10.352"W	6.00	
7163.33	70.000	247.500	6876.18	975.01	-397.66	-960.02	638000.24	502156.57	32°22'47.103"N	103°53'10.728"W	6.00	70° Curve
7226.00†	70.000	247.500	6897.61	1030.27	-420.19	-1014.43	637945.84	502134.04	32°22'46.882"N	103°53'11.364"W	0.00	
7326.00†	70.000	247.500	6931.81	1118.44	-456.15	-1101.25	637859.03	502098.08	32°22'46.530"N	103°53'12.378"W	0.00	
7363.33	70.000	247.500	6944.58	1151.36	-469.58	-1133.66	637826.62	502084.66	32°22'46.398"N	103°53'12.756"W	0.00	200' Tangent
7426.00†	72.429	250.553	6964.76	1207.54	-490.80	-1189.05	637771.24	502063.44	32°22'46.191"N	103°53'13.403"W	6.02	
7464.86†	73.959	252.404	6976.00	1243.25	-502.61	-1224.32	637735.97	502051.63	32°22'46.075"N	103°53'13.815"W	6.02	T/ Brushy Canyon Lower "U" Sand
7526.00†	76.396	255.260	6991.64	1300.62	-519.06	-1281.08	637679.21	502035.18	32°22'45.915"N	103°53'14.478"W	6.02	
7626.00†	80.449	259.810	7011.72	1397.00	-540.17	-1376.69	637583.60	502014.07	32°22'45.710"N	103°53'15.594"W	6.02	
7726.00†	84.559	264.253	7024.77	1495.61	-553.88	-1474.84	637485.47	502000.35	32°22'45.578"N	103°53'16.739"W	6.02	

Planned Wellpath Report

Rev-A.0

REFERENCE WELLPATH IDENTIFICATION			
Operator	BOPCO, L.P.	Slot	JRU DI1 No.169H SHL
Area	Eddy County, NM	Well	No.169H
Field	JRU NAD27	Wellbore	No.169H PWB
Facility	JRU Drilling Island 1		

WELLPATH DATA (217 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7826.00†	88.702	268.635	7030.65	1595.36	-560.07	-1574.43	637385.89	501994.17	32°22'45.521"N	103°53'17.900"W	6.02	
7857.27	90.000	270.000	7031.00	1626.62	-560.44	-1605.69	637354.62	501993.80	32°22'45.519"N	103°53'18.265"W	6.02	EOC
7895.96	90.772	270.051	7030.74	1665.27	-560.42	-1644.38	637315.94	501993.82	32°22'45.520"N	103°53'18.716"W	2.00	TL
7926.00†	90.772	270.051	7030.33	1695.29	-560.39	-1674.42	637285.90	501993.85	32°22'45.522"N	103°53'19.066"W	0.00	
8026.00†	90.772	270.051	7028.99	1795.20	-560.30	-1774.41	637185.92	501993.94	32°22'45.527"N	103°53'20.232"W	0.00	
8126.00†	90.772	270.051	7027.64	1895.11	-560.21	-1874.40	637085.93	501994.03	32°22'45.532"N	103°53'21.398"W	0.00	
8226.00†	90.772	270.051	7026.29	1995.01	-560.12	-1974.39	636985.95	501994.12	32°22'45.537"N	103°53'22.564"W	0.00	
8326.00†	90.772	270.051	7024.94	2094.92	-560.03	-2074.38	636885.97	501994.21	32°22'45.542"N	103°53'23.730"W	0.00	
8426.00†	90.772	270.051	7023.60	2194.83	-559.94	-2174.37	636785.98	501994.29	32°22'45.547"N	103°53'24.896"W	0.00	
8526.00†	90.772	270.051	7022.25	2294.74	-559.85	-2274.36	636686.00	501994.38	32°22'45.552"N	103°53'26.062"W	0.00	
8626.00†	90.772	270.051	7020.90	2394.65	-559.77	-2374.35	636586.02	501994.47	32°22'45.557"N	103°53'27.227"W	0.00	
8726.00†	90.772	270.051	7019.55	2494.56	-559.68	-2474.34	636486.03	501994.56	32°22'45.562"N	103°53'28.393"W	0.00	
8826.00†	90.772	270.051	7018.21	2594.47	-559.59	-2574.33	636386.05	501994.65	32°22'45.567"N	103°53'29.559"W	0.00	
8926.00†	90.772	270.051	7016.86	2694.38	-559.50	-2674.33	636286.06	501994.74	32°22'45.572"N	103°53'30.725"W	0.00	
9026.00†	90.772	270.051	7015.51	2794.29	-559.41	-2774.32	636186.08	501994.83	32°22'45.577"N	103°53'31.891"W	0.00	
9126.00†	90.772	270.051	7014.16	2894.20	-559.32	-2874.31	636086.10	501994.92	32°22'45.582"N	103°53'33.057"W	0.00	
9226.00†	90.772	270.051	7012.82	2994.10	-559.23	-2974.30	635986.11	501995.01	32°22'45.587"N	103°53'34.223"W	0.00	
9326.00†	90.772	270.051	7011.47	3094.01	-559.14	-3074.29	635886.13	501995.10	32°22'45.592"N	103°53'35.389"W	0.00	
9426.00†	90.772	270.051	7010.12	3193.92	-559.05	-3174.28	635786.14	501995.19	32°22'45.597"N	103°53'36.555"W	0.00	
9526.00†	90.772	270.051	7008.77	3293.83	-558.96	-3274.27	635686.16	501995.28	32°22'45.602"N	103°53'37.721"W	0.00	
9626.00†	90.772	270.051	7007.43	3393.74	-558.87	-3374.26	635586.18	501995.37	32°22'45.607"N	103°53'38.887"W	0.00	
9726.00†	90.772	270.051	7006.08	3493.65	-558.78	-3474.25	635486.19	501995.46	32°22'45.611"N	103°53'40.052"W	0.00	
9826.00†	90.772	270.051	7004.73	3593.56	-558.69	-3574.24	635386.21	501995.55	32°22'45.616"N	103°53'41.218"W	0.00	
9926.00†	90.772	270.051	7003.38	3693.47	-558.60	-3674.23	635286.23	501995.64	32°22'45.621"N	103°53'42.384"W	0.00	
10026.00†	90.772	270.051	7002.04	3793.38	-558.51	-3774.23	635186.24	501995.73	32°22'45.626"N	103°53'43.550"W	0.00	
10126.00†	90.772	270.051	7000.69	3893.28	-558.42	-3874.22	635086.26	501995.82	32°22'45.631"N	103°53'44.716"W	0.00	
10226.00†	90.772	270.051	6999.34	3993.19	-558.33	-3974.21	634986.27	501995.91	32°22'45.636"N	103°53'45.882"W	0.00	
10326.00†	90.772	270.051	6997.99	4093.10	-558.24	-4074.20	634886.29	501996.00	32°22'45.641"N	103°53'47.048"W	0.00	
10426.00†	90.772	270.051	6996.65	4193.01	-558.15	-4174.19	634786.31	501996.09	32°22'45.646"N	103°53'48.214"W	0.00	
10526.00†	90.772	270.051	6995.30	4292.92	-558.06	-4274.18	634686.32	501996.18	32°22'45.651"N	103°53'49.380"W	0.00	
10626.00†	90.772	270.051	6993.95	4392.83	-557.97	-4374.17	634586.34	501996.27	32°22'45.656"N	103°53'50.546"W	0.00	
10726.00†	90.772	270.051	6992.60	4492.74	-557.88	-4474.16	634486.36	501996.36	32°22'45.661"N	103°53'51.712"W	0.00	
10826.00†	90.772	270.051	6991.26	4592.65	-557.79	-4574.15	634386.37	501996.45	32°22'45.666"N	103°53'52.877"W	0.00	
10926.00†	90.772	270.051	6989.91	4692.56	-557.70	-4674.14	634286.39	501996.54	32°22'45.671"N	103°53'54.043"W	0.00	
11026.00†	90.772	270.051	6988.56	4792.47	-557.61	-4774.13	634186.40	501996.63	32°22'45.676"N	103°53'55.209"W	0.00	
11126.00†	90.772	270.051	6987.21	4892.37	-557.52	-4874.12	634086.42	501996.72	32°22'45.680"N	103°53'56.375"W	0.00	
11226.00†	90.772	270.051	6985.87	4992.28	-557.43	-4974.12	633986.44	501996.81	32°22'45.685"N	103°53'57.541"W	0.00	
11326.00†	90.772	270.051	6984.52	5092.19	-557.34	-5074.11	633886.45	501996.90	32°22'45.690"N	103°53'58.707"W	0.00	
11426.00†	90.772	270.051	6983.17	5192.10	-557.25	-5174.10	633786.47	501996.99	32°22'45.695"N	103°53'59.873"W	0.00	
11526.00†	90.772	270.051	6981.82	5292.01	-557.16	-5274.09	633686.49	501997.08	32°22'45.700"N	103°54'01.039"W	0.00	
11626.00†	90.772	270.051	6980.48	5391.92	-557.07	-5374.08	633586.50	501997.17	32°22'45.705"N	103°54'02.205"W	0.00	
11726.00†	90.772	270.051	6979.13	5491.83	-556.98	-5474.07	633486.52	501997.26	32°22'45.710"N	103°54'03.371"W	0.00	
11826.00†	90.772	270.051	6977.78	5591.74	-556.89	-5574.06	633386.53	501997.35	32°22'45.715"N	103°54'04.537"W	0.00	
11926.00†	90.772	270.051	6976.43	5691.65	-556.80	-5674.05	633286.55	501997.44	32°22'45.720"N	103°54'05.703"W	0.00	
11958.20†	90.772	270.051	6976.00	5723.82	-556.77	-5706.25	633254.35	501997.47	32°22'45.721"N	103°54'06.078"W	0.00	T/ Brushy Canyon Lower "U" Sand

Planned Wellpath Report

Rev-A.0

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	BOPCO, L.P.	Slot	JRU DI1 No.169H SHL
Area	Eddy County, NM	Well	No.169H
Field	JRU NAD27	Wellbore	No.169H PWB
Facility	JRU Drilling Island 1		

WELLPATH DATA (217 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
12026.00†	90.772	270.051	6975.09	5791.55	-556.71	-5774.04	633186.57	501997.53	32°22'45.724"N	103°54'06.868"W	0.00	
12126.00†	90.772	270.051	6973.74	5891.46	-556.62	-5874.03	633086.58	501997.62	32°22'45.729"N	103°54'08.034"W	0.00	
12226.00†	90.772	270.051	6972.39	5991.37	-556.53	-5974.02	632986.60	501997.71	32°22'45.734"N	103°54'09.200"W	0.00	
12326.00†	90.772	270.051	6971.04	6091.28	-556.44	-6074.02	632886.61	501997.80	32°22'45.739"N	103°54'10.366"W	0.00	
12426.00†	90.772	270.051	6969.70	6191.19	-556.35	-6174.01	632786.63	501997.89	32°22'45.744"N	103°54'11.532"W	0.00	
12526.00†	90.772	270.051	6968.35	6291.10	-556.26	-6274.00	632686.65	501997.98	32°22'45.749"N	103°54'12.698"W	0.00	
12626.00†	90.772	270.051	6967.00	6391.01	-556.17	-6373.99	632586.66	501998.07	32°22'45.754"N	103°54'13.864"W	0.00	
12726.00†	90.772	270.051	6965.65	6490.92	-556.08	-6473.98	632486.68	501998.16	32°22'45.759"N	103°54'15.030"W	0.00	
12826.00†	90.772	270.051	6964.31	6590.83	-555.99	-6573.97	632386.70	501998.25	32°22'45.763"N	103°54'16.196"W	0.00	
12926.00†	90.772	270.051	6962.96	6690.74	-555.90	-6673.96	632286.71	501998.34	32°22'45.768"N	103°54'17.362"W	0.00	
13026.00†	90.772	270.051	6961.61	6790.64	-555.81	-6773.95	632186.73	501998.43	32°22'45.773"N	103°54'18.528"W	0.00	
13126.00†	90.772	270.051	6960.26	6890.55	-555.72	-6873.94	632086.74	501998.52	32°22'45.778"N	103°54'19.693"W	0.00	
13226.00†	90.772	270.051	6958.92	6990.46	-555.63	-6973.93	631986.76	501998.61	32°22'45.783"N	103°54'20.859"W	0.00	
13326.00†	90.772	270.051	6957.57	7090.37	-555.54	-7073.92	631886.78	501998.70	32°22'45.788"N	103°54'22.025"W	0.00	
13426.00†	90.772	270.051	6956.22	7190.28	-555.45	-7173.91	631786.79	501998.79	32°22'45.792"N	103°54'23.191"W	0.00	
13526.00†	90.772	270.051	6954.87	7290.19	-555.36	-7273.91	631686.81	501998.88	32°22'45.797"N	103°54'24.357"W	0.00	
13626.00†	90.772	270.051	6953.53	7390.10	-555.27	-7373.90	631586.83	501998.97	32°22'45.802"N	103°54'25.523"W	0.00	
13726.00†	90.772	270.051	6952.18	7490.01	-555.18	-7473.89	631486.84	501999.06	32°22'45.807"N	103°54'26.689"W	0.00	
13826.00†	90.772	270.051	6950.83	7589.92	-555.09	-7573.88	631386.86	501999.15	32°22'45.812"N	103°54'27.855"W	0.00	
13926.00†	90.772	270.051	6949.48	7689.82	-555.00	-7673.87	631286.87	501999.24	32°22'45.817"N	103°54'29.021"W	0.00	
14026.00†	90.772	270.051	6948.14	7789.73	-554.91	-7773.86	631186.89	501999.32	32°22'45.821"N	103°54'30.187"W	0.00	
14126.00†	90.772	270.051	6946.79	7889.64	-554.82	-7873.85	631086.91	501999.41	32°22'45.826"N	103°54'31.353"W	0.00	
14226.00†	90.772	270.051	6945.44	7989.55	-554.73	-7973.84	630986.92	501999.50	32°22'45.831"N	103°54'32.518"W	0.00	
14326.00†	90.772	270.051	6944.09	8089.46	-554.64	-8073.83	630886.94	501999.59	32°22'45.836"N	103°54'33.684"W	0.00	
14426.00†	90.772	270.051	6942.75	8189.37	-554.56	-8173.82	630786.95	501999.68	32°22'45.841"N	103°54'34.850"W	0.00	
14526.00†	90.772	270.051	6941.40	8289.28	-554.47	-8273.81	630686.97	501999.77	32°22'45.845"N	103°54'36.016"W	0.00	
14626.00†	90.772	270.051	6940.05	8389.19	-554.38	-8373.81	630586.99	501999.86	32°22'45.850"N	103°54'37.182"W	0.00	
14726.00†	90.772	270.051	6938.70	8489.10	-554.29	-8473.80	630487.00	501999.95	32°22'45.855"N	103°54'38.348"W	0.00	
14826.00†	90.772	270.051	6937.36	8589.01	-554.20	-8573.79	630387.02	502000.04	32°22'45.860"N	103°54'39.514"W	0.00	
14926.00†	90.772	270.051	6936.01	8688.91	-554.11	-8673.78	630287.04	502000.13	32°22'45.865"N	103°54'40.680"W	0.00	
15026.00†	90.772	270.051	6934.66	8788.82	-554.02	-8773.77	630187.05	502000.22	32°22'45.869"N	103°54'41.846"W	0.00	
15126.00†	90.772	270.051	6933.31	8888.73	-553.93	-8873.76	630087.07	502000.31	32°22'45.874"N	103°54'43.012"W	0.00	
15226.00†	90.772	270.051	6931.97	8988.64	-553.84	-8973.75	629987.08	502000.40	32°22'45.879"N	103°54'44.178"W	0.00	
15326.00†	90.772	270.051	6930.62	9088.55	-553.75	-9073.74	629887.10	502000.49	32°22'45.884"N	103°54'45.344"W	0.00	
15426.00†	90.772	270.051	6929.27	9188.46	-553.66	-9173.73	629787.12	502000.58	32°22'45.889"N	103°54'46.509"W	0.00	
15526.00†	90.772	270.051	6927.92	9288.37	-553.57	-9273.72	629687.13	502000.67	32°22'45.893"N	103°54'47.675"W	0.00	
15626.00†	90.772	270.051	6926.58	9388.28	-553.48	-9373.71	629587.15	502000.76	32°22'45.898"N	103°54'48.841"W	0.00	
15726.00†	90.772	270.051	6925.23	9488.19	-553.39	-9473.71	629487.17	502000.85	32°22'45.903"N	103°54'50.007"W	0.00	
15826.00†	90.772	270.051	6923.88	9588.09	-553.30	-9573.70	629387.18	502000.94	32°22'45.908"N	103°54'51.173"W	0.00	
15926.00†	90.772	270.051	6922.53	9688.00	-553.21	-9673.69	629287.20	502001.03	32°22'45.912"N	103°54'52.339"W	0.00	
16026.00†	90.772	270.051	6921.19	9787.91	-553.12	-9773.68	629187.21	502001.12	32°22'45.917"N	103°54'53.505"W	0.00	
16126.00†	90.772	270.051	6919.84	9887.82	-553.03	-9873.67	629087.23	502001.21	32°22'45.922"N	103°54'54.671"W	0.00	
16226.00†	90.772	270.051	6918.49	9987.73	-552.94	-9973.66	628987.25	502001.30	32°22'45.927"N	103°54'55.837"W	0.00	
16326.00†	90.772	270.051	6917.14	10087.64	-552.85	-10073.65	628887.26	502001.39	32°22'45.931"N	103°54'57.003"W	0.00	
16426.00†	90.772	270.051	6915.80	10187.55	-552.76	-10173.64	628787.28	502001.48	32°22'45.936"N	103°54'58.169"W	0.00	

Planned Wellpath Report

Rev-A.0

REFERENCE WELLPATH IDENTIFICATION			
Operator	BOPCO, L.P.	Slot	JRU DI1 No.169H SHL
Area	Eddy County, NM	Well	No.169H
Field	JRU NAD27	Wellbore	No.169H PWB
Facility	JRU Drilling Island 1		

WELLPATH DATA (217 stations) †= interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
16526.00†	90.772	270.051	6914.45	10287.46	-552.67	-10273.63	628687.29	502001.57	32°22'45.941"N	103°54'59.334"W	0.00	
16626.00†	90.772	270.051	6913.10	10387.37	-552.58	-10373.62	628587.31	502001.66	32°22'45.946"N	103°55'00.500"W	0.00	
16726.00†	90.772	270.051	6911.75	10487.28	-552.49	-10473.61	628487.33	502001.75	32°22'45.950"N	103°55'01.666"W	0.00	
16826.00†	90.772	270.051	6910.41	10587.18	-552.40	-10573.60	628387.34	502001.84	32°22'45.955"N	103°55'02.832"W	0.00	
16926.00†	90.772	270.051	6909.06	10687.09	-552.31	-10673.60	628287.36	502001.93	32°22'45.960"N	103°55'03.998"W	0.00	
17026.00†	90.772	270.051	6907.71	10787.00	-552.22	-10773.59	628187.38	502002.02	32°22'45.965"N	103°55'05.164"W	0.00	
17126.00†	90.772	270.051	6906.36	10886.91	-552.13	-10873.58	628087.39	502002.11	32°22'45.969"N	103°55'06.330"W	0.00	
17226.00†	90.772	270.051	6905.02	10986.82	-552.04	-10973.57	627987.41	502002.20	32°22'45.974"N	103°55'07.496"W	0.00	
17326.00†	90.772	270.051	6903.67	11086.73	-551.95	-11073.56	627887.42	502002.29	32°22'45.979"N	103°55'08.662"W	0.00	
17426.00†	90.772	270.051	6902.32	11186.64	-551.86	-11173.55	627787.44	502002.38	32°22'45.984"N	103°55'09.828"W	0.00	
17526.00†	90.772	270.051	6900.97	11286.55	-551.77	-11273.54	627687.46	502002.47	32°22'45.988"N	103°55'10.994"W	0.00	
17626.00†	90.772	270.051	6899.63	11386.46	-551.68	-11373.53	627587.47	502002.56	32°22'45.993"N	103°55'12.160"W	0.00	
17726.00†	90.772	270.051	6898.28	11486.36	-551.59	-11473.52	627487.49	502002.65	32°22'45.998"N	103°55'13.325"W	0.00	
17826.00†	90.772	270.051	6896.93	11586.27	-551.50	-11573.51	627387.51	502002.74	32°22'46.002"N	103°55'14.491"W	0.00	
17926.00†	90.772	270.051	6895.58	11686.18	-551.41	-11673.50	627287.52	502002.83	32°22'46.007"N	103°55'15.657"W	0.00	
18026.00†	90.772	270.051	6894.24	11786.09	-551.32	-11773.50	627187.54	502002.92	32°22'46.012"N	103°55'16.823"W	0.00	
18126.00†	90.772	270.051	6892.89	11886.00	-551.23	-11873.49	627087.55	502003.01	32°22'46.016"N	103°55'17.989"W	0.00	
18226.00†	90.772	270.051	6891.54	11985.91	-551.14	-11973.48	626987.57	502003.10	32°22'46.021"N	103°55'19.155"W	0.00	
18326.00†	90.772	270.051	6890.19	12085.82	-551.05	-12073.47	626887.59	502003.19	32°22'46.026"N	103°55'20.321"W	0.00	
18426.00†	90.772	270.051	6888.85	12185.73	-550.96	-12173.46	626787.60	502003.28	32°22'46.031"N	103°55'21.487"W	0.00	
18526.00†	90.772	270.051	6887.50	12285.64	-550.87	-12273.45	626687.62	502003.37	32°22'46.035"N	103°55'22.653"W	0.00	
18626.00†	90.772	270.051	6886.15	12385.55	-550.78	-12373.44	626587.64	502003.46	32°22'46.040"N	103°55'23.819"W	0.00	
18726.00†	90.772	270.051	6884.80	12485.45	-550.69	-12473.43	626487.65	502003.55	32°22'46.045"N	103°55'24.985"W	0.00	
18826.00†	90.772	270.051	6883.46	12585.36	-550.60	-12573.42	626387.67	502003.64	32°22'46.049"N	103°55'26.151"W	0.00	
18926.00†	90.772	270.051	6882.11	12685.27	-550.51	-12673.41	626287.68	502003.73	32°22'46.054"N	103°55'27.316"W	0.00	
19026.00†	90.772	270.051	6880.76	12785.18	-550.42	-12773.40	626187.70	502003.82	32°22'46.059"N	103°55'28.482"W	0.00	
19126.00†	90.772	270.051	6879.41	12885.09	-550.33	-12873.40	626087.72	502003.91	32°22'46.063"N	103°55'29.648"W	0.00	
19226.00†	90.772	270.051	6878.07	12985.00	-550.24	-12973.39	625987.73	502004.00	32°22'46.068"N	103°55'30.814"W	0.00	
19326.00†	90.772	270.051	6876.72	13084.91	-550.15	-13073.38	625887.75	502004.09	32°22'46.073"N	103°55'31.980"W	0.00	
19426.00†	90.772	270.051	6875.37	13184.82	-550.06	-13173.37	625787.76	502004.18	32°22'46.077"N	103°55'33.146"W	0.00	
19526.00†	90.772	270.051	6874.02	13284.73	-549.97	-13273.36	625687.78	502004.27	32°22'46.082"N	103°55'34.312"W	0.00	
19626.00†	90.772	270.051	6872.68	13384.63	-549.88	-13373.35	625587.80	502004.36	32°22'46.087"N	103°55'35.478"W	0.00	
19726.00†	90.772	270.051	6871.33	13484.54	-549.79	-13473.34	625487.81	502004.44	32°22'46.091"N	103°55'36.644"W	0.00	
19826.00†	90.772	270.051	6869.98	13584.45	-549.70	-13573.33	625387.83	502004.53	32°22'46.096"N	103°55'37.810"W	0.00	
19926.00†	90.772	270.051	6868.63	13684.36	-549.61	-13673.32	625287.85	502004.62	32°22'46.101"N	103°55'38.976"W	0.00	
20026.00†	90.772	270.051	6867.29	13784.27	-549.52	-13773.31	625187.86	502004.71	32°22'46.105"N	103°55'40.142"W	0.00	
20121.38	90.772	270.051	6866.00[1]	13879.56	-549.44	-13868.68	625092.50	502004.80	32°22'46.110"N	103°55'41.254"W	0.00	No.169H PBHL

Planned Wellpath Report

Rev-A.0

REFERENCE WELLPATH IDENTIFICATION			
Operator	**BOPCO, L.P.**	Slot	**JRU DI1 No.169H SHL**
Area	**Eddy County, NM**	Well	**No.169H**
Field	**JRU NAD27**	Wellbore	**No.169H PWB**
Facility	**JRU Drilling Island 1**		

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
1) No.169H PBHL	20121.38	6866.00	-549.44	-13868.68	**625092.50**	**502004.80**	32°22'46.110"N	103°55'41.254"W	point

SURVEY PROGRAM - Ref Wellbore: No.169H PWB Ref Wellpath: Rev-A.0

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
26.00	20147.38	NaviTrak (Standard)		No.169H PWB

Note: Dimensional information reflected on this drawing are estimated measurements only

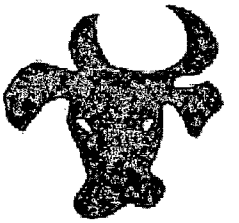
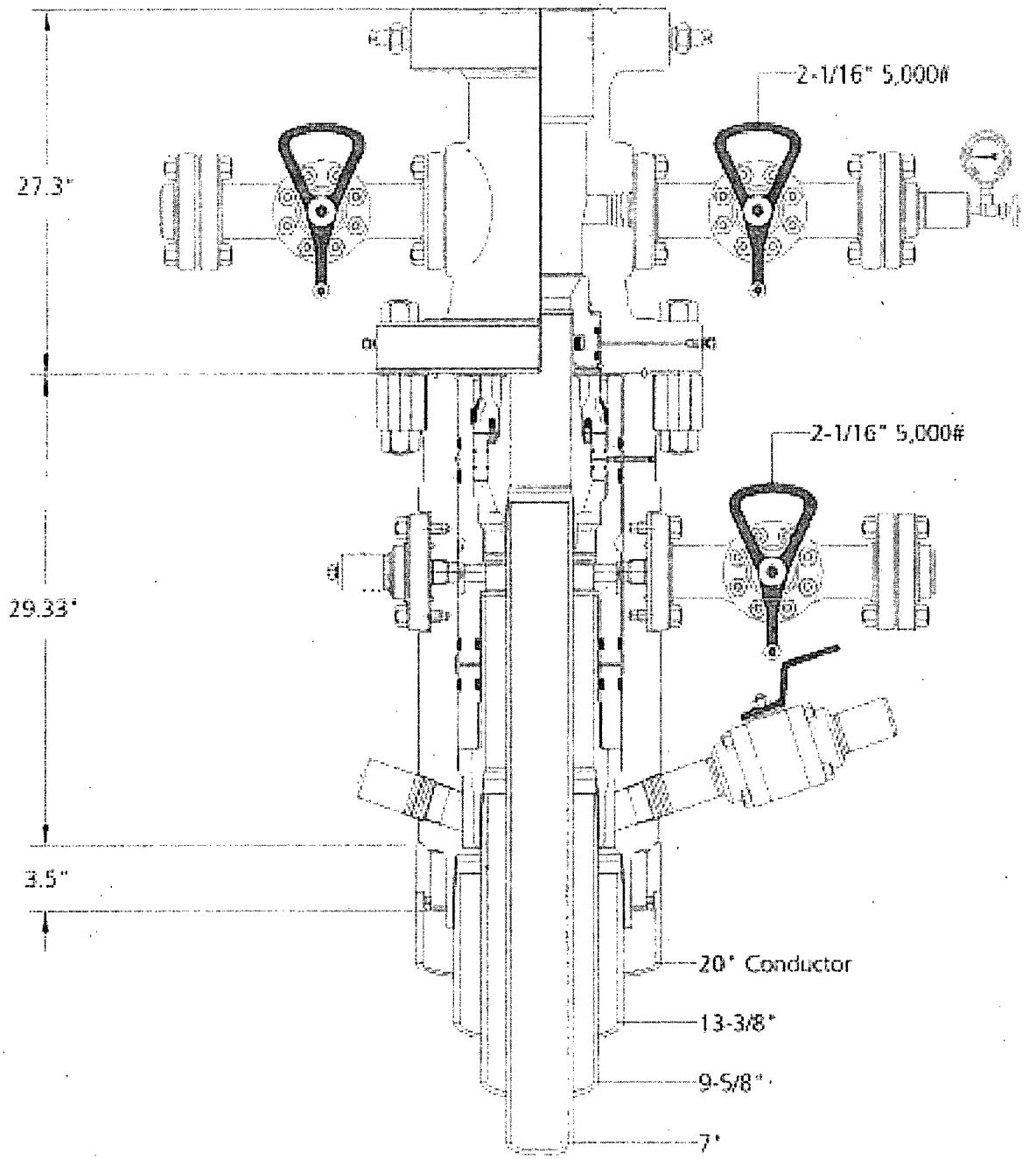


Diagram Z

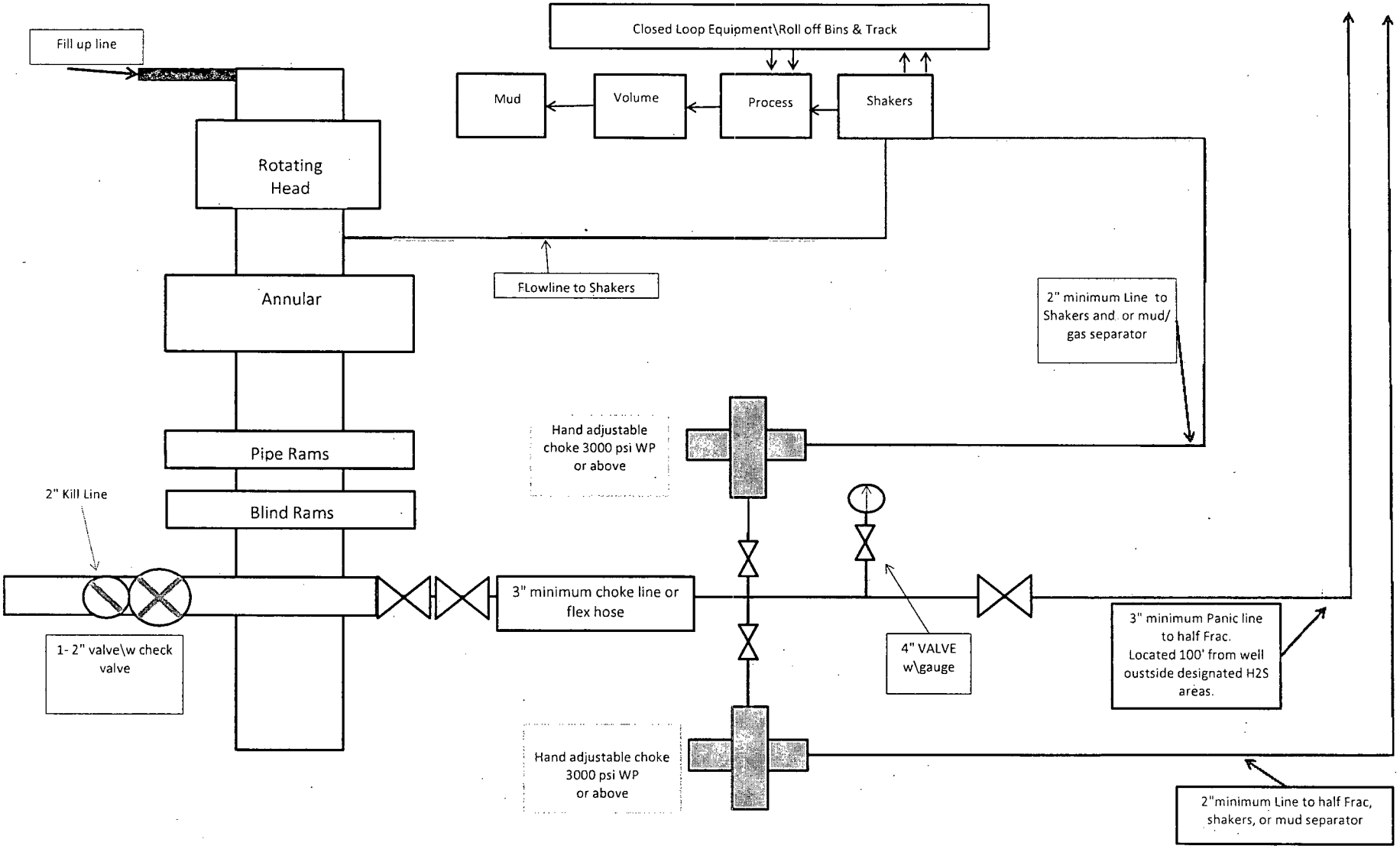


BOPCO

Project: South East New Mexico

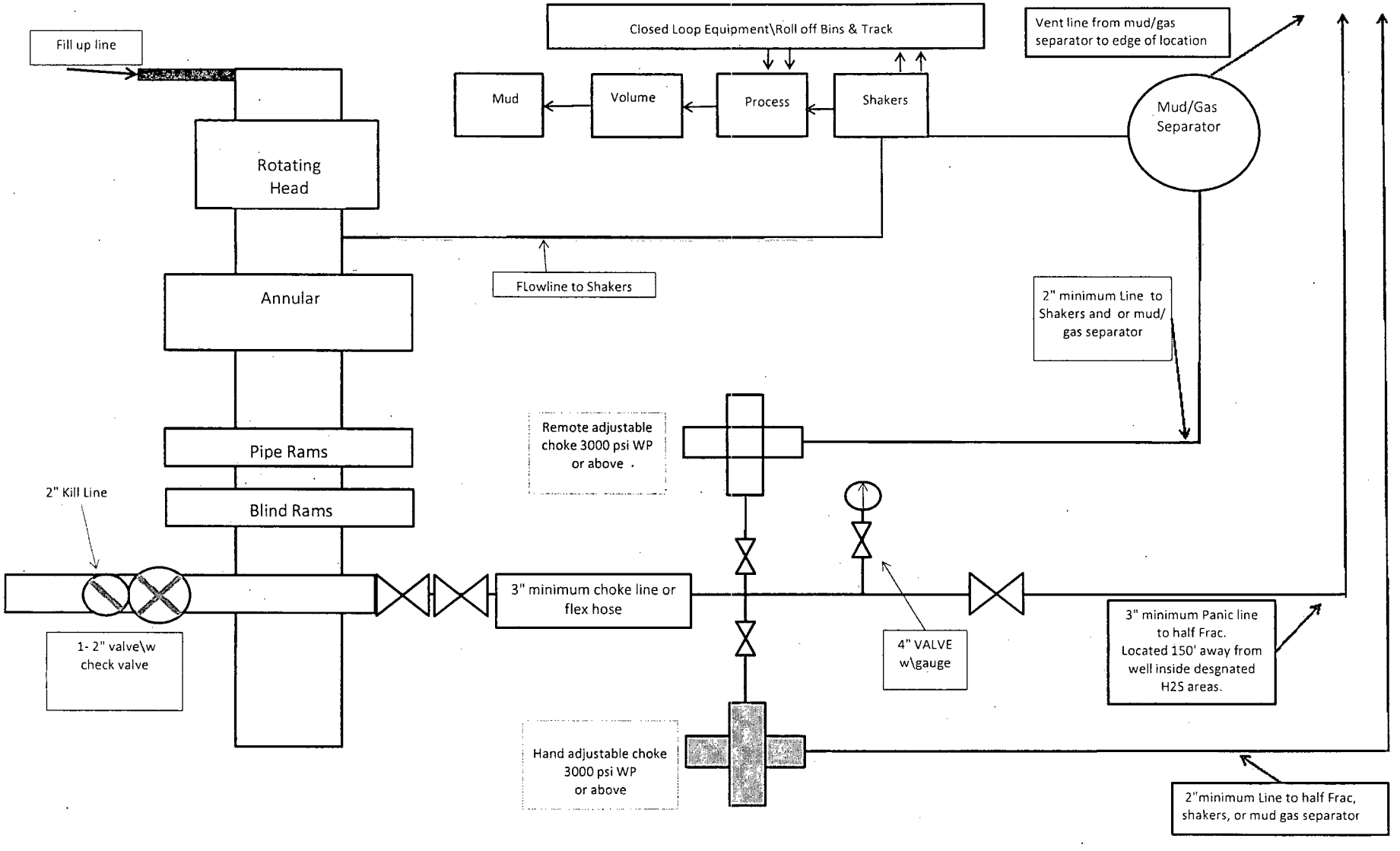
CAMERON

Jeanette	7-22-13	#	21077904-A



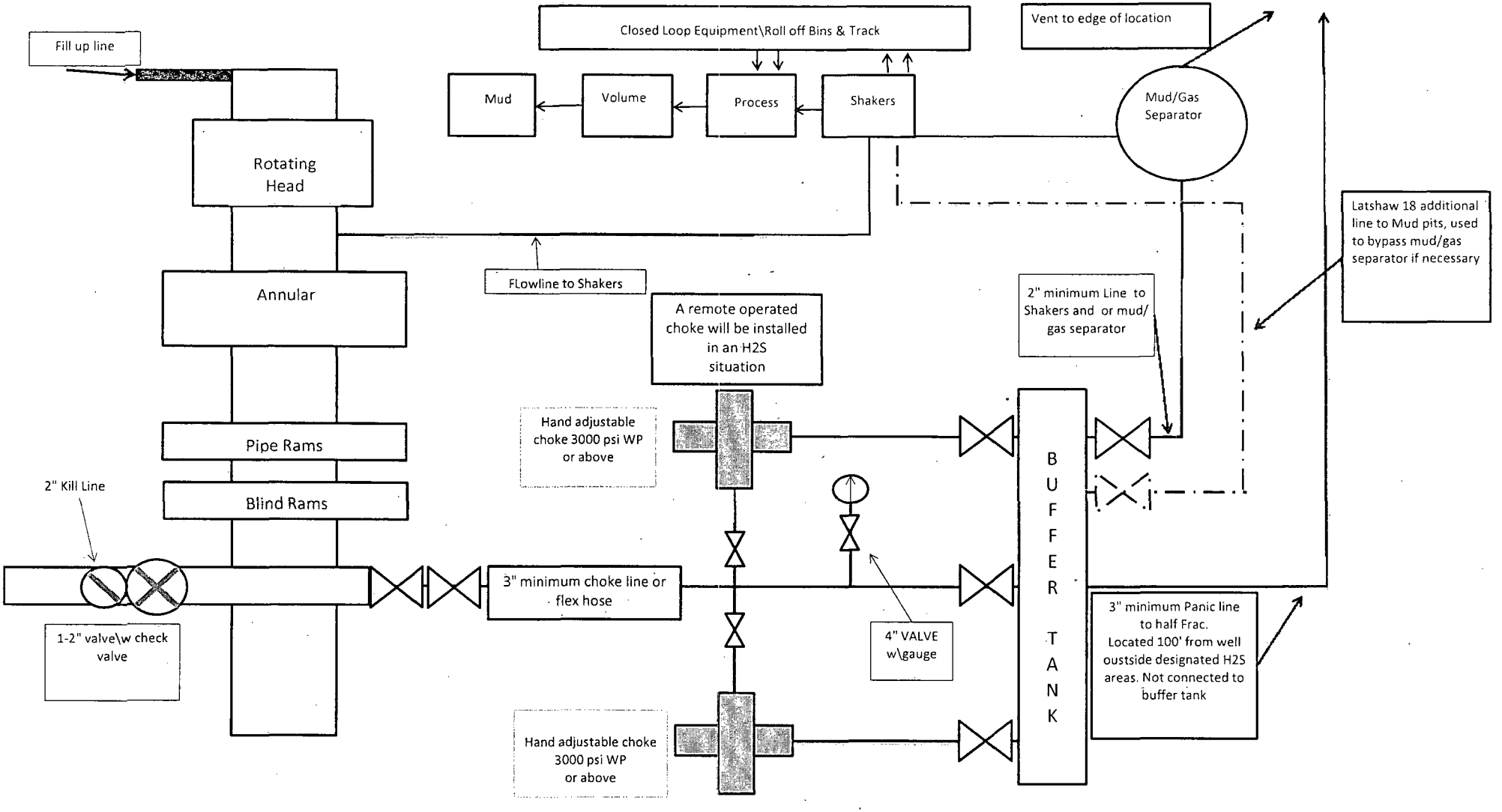
13-5/8" X 3-M BOPE (2 Rams and Rotating Head) & Closed Loop System Equipment Schematic
Diagram A

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



13-5/8" X 3-M BOPE (2 Rams and Rotating Head) & Closed Loop System Equipment Schematic
H2S contingency
Diagram B

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



Latshaw 4 closed loop system, with Latshaw 18 addition "clouded."

Latshaw 13-5/8" X 3-M BOPE (2 Rams and Rotating Head) & Closed Loop System Equipment Schematic Diagram C

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

MIDWEST

HOSE AND SPECIALTY INC.

INTERNAL HYDROSTATIC TEST REPORT

Customer:	P.O. Number:
LATSHAW DRILLING	RIG#4

HOSE SPECIFICATIONS

Type: CHOKE LINE		Length: 30'	
I.D. 3"	INCHES	O.D. 6"	INCHES

WORKING PRESSURE	TEST PRESSURE	BURST PRESSURE
5,000 PSI	10,000 PSI	PSI

COUPLINGS

Type of End Fitting	
4 1/16 5K FLANGE	
Type of Coupling: SWEDGED	**MANUFACTURED BY** MIDWEST HOSE & SPECIALTY

PROCEDURE

Hose assembly pressure tested with water at ambient temperature.

TIME HELD AT TEST PRESSURE	ACTUAL BURST PRESSURE:
1 MIN.	0 PSI

COMMENTS:

SO#81610
Hose is covered with stainless steel armour cover and wraped with fire resistant vermiculite coated fiberglass insulation rated for 1500 degrees complete with lifting eyes

Date:	Tested By:	Approved:
3/2/2011	BOBBY FINK	MENDI JACKSON

Midwest Hose & Specialty, Inc.

Internal Hydrostatic Test Graph

April 4, 2012

Customer: Latshaw

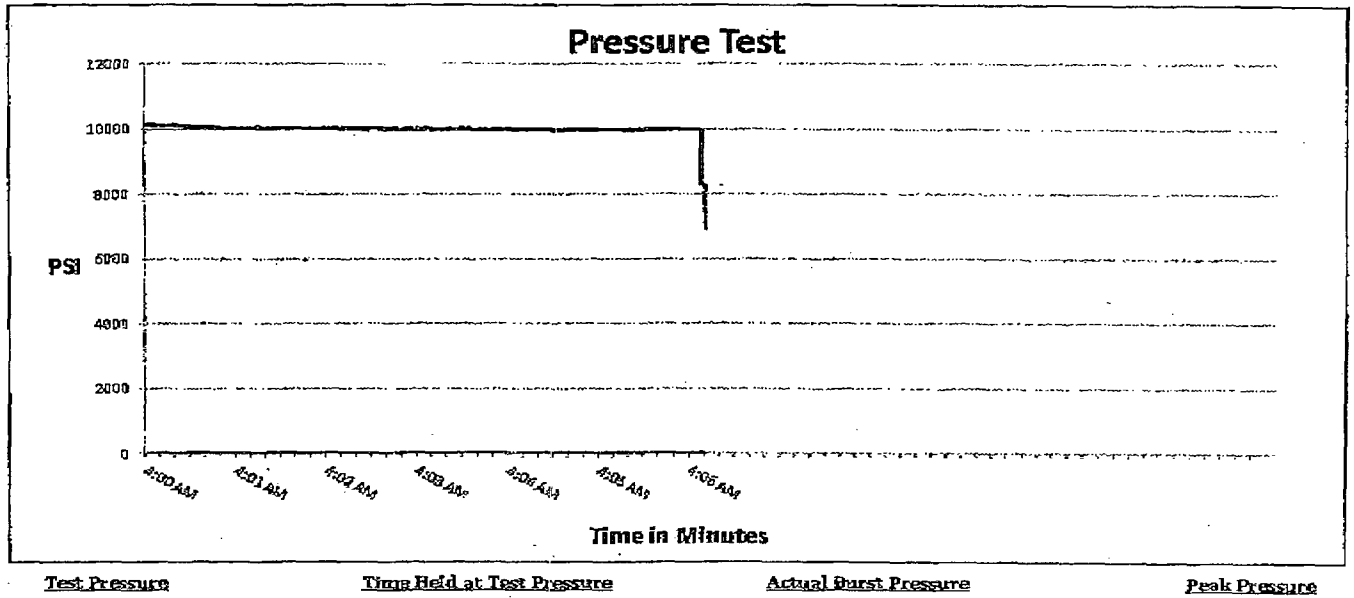
Pick Ticket #: 81610

Hose Specifications

Hose Type	Length
D	30'
I.D.	**O.D.**
3"	4 15/32
Working Pressure	**Burst Pressure**
5000 PSI	Standard Safety Multiplier Applies

Verification

Type of Fitting	Coupling Method
41/16 5K	Swage
Die Size	**Final O.D.**
5.12"	5.16"
Hose Serial #	**Hose Assembly Serial #**
6884	81610



Test Pressure	Time Held at Test Pressure	Actual Burst Pressure	Peak Pressure
10000 PSI	6 1/4 Minutes		10195 PSI

Comments: Hose assembly pressure tested with water at ambient temperature.

Tested By: *Donnie Mclemore*

Approved By: *Bobby Fink*

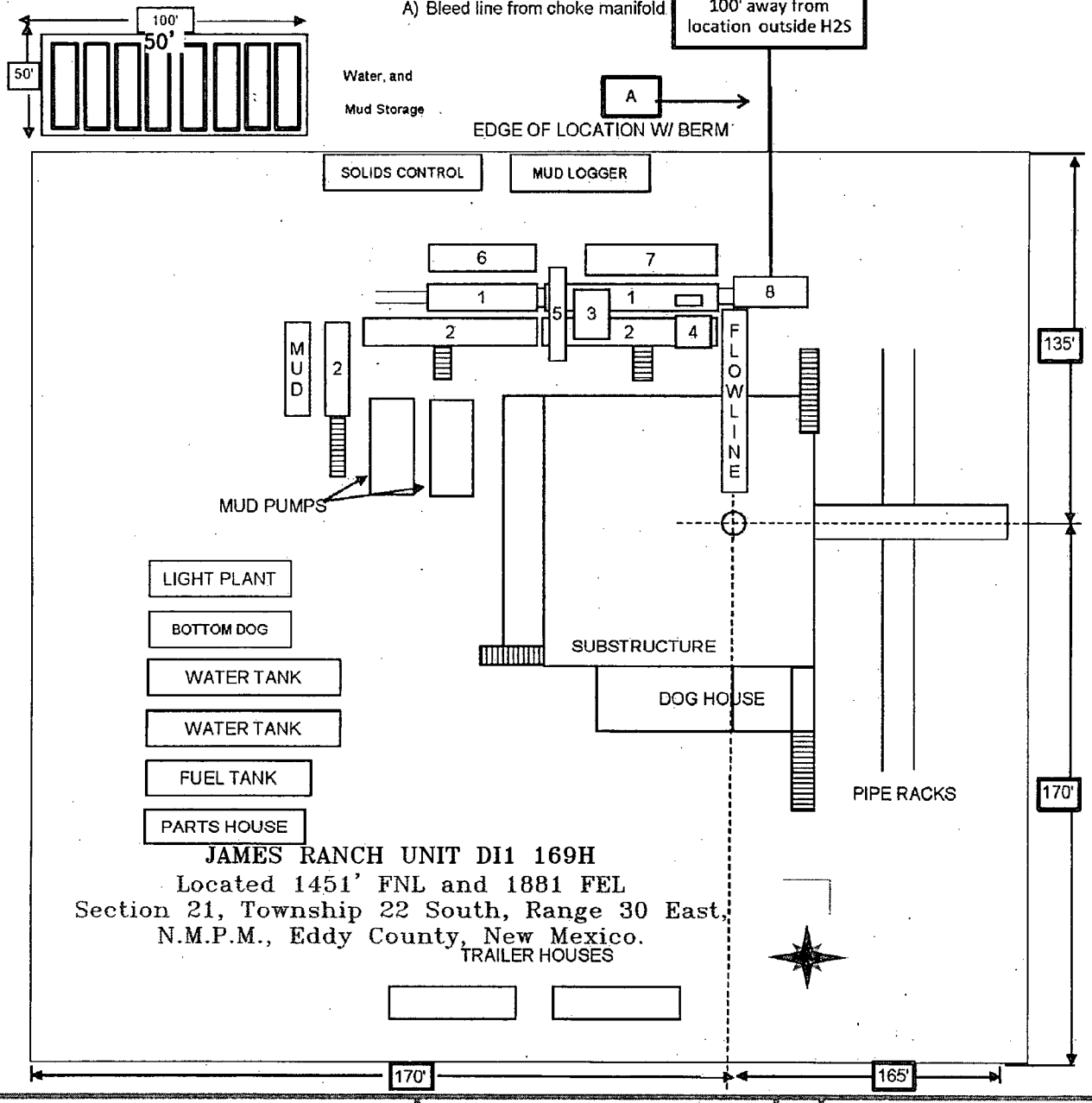
Exhibit "D"

RIG LAYOUT SCHEMATIC
INCLUSIVE OF CLOSED-LOOP DESIGN PLAN

Solids Control Equipment Legend

1) Roll Off Bin
2) Steel Tank
3) Mud Cleaner
4) Shaker
5) Centrifuge
6) Dewatering Unit
7) Catch Tank
8) Choke Manifold
A) Bleed line from choke manifold

Flare Pit 150' away from location in H2S area, 100' away from location outside H2S



JAMES RANCH UNIT DI1 169H
Located 1451' FNL and 1881 FEL
Section 21, Township 22 South, Range 30 East,
N.M.P.M., Eddy County, New Mexico.

basin surveys
focused on excellence in the oilfield
P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 – Office
(575) 392-2206 – Fax
basinsurveys.com

SCALE: NONE

W.O. Number: JMS DI1 WELL PLATS

Survey Date: 10-17-2013

N

BOPCO, L.P.

TABLE OF CONTENTS

H_2S CONTINGENCY PLAN SECTION

Scope:

This contingency plan provides an organized plan of action for alerting and protecting the public within an area of exposure prior to an intentional release, or following the accidental release of a potentially hazardous volume of hydrogen sulfide. The plan establishes guidelines for all personnel whose work activity may involve exposure to Hydrogen Sulfide Gas (H_2S).

Objective:

Prevent any and all accidents, and prevent the uncontrolled release of H_2S into the atmosphere.

Provide proper evacuation procedures to cope with emergencies.

Provide immediate and adequate medical attention should an injury occur.

Discussion of Plan:

Suspected Problem Zones:

Implementation: This plan, with all details, is to be fully implemented 500' above or three days prior to drilling into the first known sour zone

Emergency Response and Public Protection Procedure: This section outlines the conditions and denotes steps to be taken in the event of an emergency.

Emergency Equipment and Procedure: This section outlines the safety and emergency equipment that will be required for the drilling of this well.

Training Provisions: This section outlines the training provisions that must be adhered to 500 feet above or three days prior to drilling into the first known sour zone.

Emergency call lists: Included are the telephone numbers of all persons that would need to be contacted should an H_2S emergency occur.

Briefing: This section deals with the briefing of all persons involved with the drilling of this well.

Public Safety: Public Safety Personnel will be made aware of the drilling of this well.

EMERGENCY PROCEDURES AND PUBLIC PROTECTION SECTION

I. In the event of any evidence of H_2S levels above 10 ppm, take the following steps immediately:

   A. Secure breathing apparatus.

   B. Order non-essential personnel out of the danger zone.

   C. Take steps to determine if the H_2S level can be corrected or suppressed, and if so, proceed with normal operations.

II. If uncontrollable conditions occur, proceed with the following:

   A. Take steps to protect and/or remove any public downwind of the rig, including partial evacuation or isolation. Notify necessary public safety personnel and the New Mexico Oil & Gas of the situation.

   B. Isolate area and prevent entry by unauthorized persons into the 100 ppm ROE.

   C. Remove all personnel to the Safe Briefing Area.

   D. Notify public safety personnel for help with maintaining roadblocks and implementing evacuation. Phone number list attached.

   E. Determine and proceed with the best possible plan to regain control of the well. Maintain tight security and safety measures.

III. Responsibility:

   A. The Company Approved Supervisor shall be responsible for the total implementation of the plan.

   B. The Company Approved Supervisor shall be in complete command during any emergency.

   C. The Company Approved Supervisor shall designate a back up Supervisor in the event that he/she is not available.

EMERGENCY PROCEDURE IMPLEMENTATION

I. Drilling or Tripping

A. All Personnel

1. When alarm sounds, don escape unit and report to upwind Safe Briefing Area.
2. Check status of other personnel (buddy system).
3. Secure breathing apparatus.
4. Wait for orders from supervisor.

B. Drilling Foreman

1. Report to the upwind Safe Briefing Area.
2. Don Breathing Apparatus and return to the point of release with the Tool Pusher or Driller (buddy system).
3. Determine the concentration of H_2S.
4. Assess the situation and take appropriate control measures.

C. Tool Pusher

1. Report to the upwind Safe Briefing Area.
2. Don breathing apparatus and return to the point of release with the Drilling Foreman or the Driller (buddy system).
3. Determine the concentration.
4. Assess the situation and take appropriate control measures.

D. Driller

1. Check the status of other personnel (in a rescue attempt, always use the buddy system).
2. Assign the least essential person to notify the Drilling Foreman and Tool Pusher, in the event of their absence.

3. Assume the responsibility of the Drilling Foreman and the Tool Pusher until they arrive, in the event of their absence.

E. Derrick Man and Floor Hands

1. Remain in the upwind Safe Briefing Area until otherwise instructed by a supervisor.

F. Mud Engineer

1. Report to the upwind Safe Briefing Area.

2. When instructed, begin check of mud for pH level and H_2S level.

G. On-site Safety Personnel

1. Don Breathing Apparatus.

2. Check status of all personnel.

3. Wait for instructions from Drilling Foreman or Tool Pusher.

II. Taking a Kick

A. All personnel report to the upwind Safe Briefing Area.

B. Follow standard BOP procedures.

III. Open Hole Logging

A. All unnecessary personnel should leave the rig floor.

B. Drilling Foreman and Safety Personnel should monitor the conditions and make necessary safety equipment recommendations.

IV. Running Casing or Plugging

A. Follow "Drilling or Tripping" procedures.

B. Assure that all personnel have access to protective equipment.

SIMULATED BLOWOUT CONTROL DRILLS

All drills will be initiated by activating alarm devices (air horn). Use one long blast on the air horn for ACTUAL and SIMULATED Blowout Control Drills. This operation will be performed by the Drilling Foreman or Tool Pusher at least one time per week for each of the following conditions, with each crew:

Drill # 1 Bottom Drilling

Drill # 2 Tripping Drill Pipe

In each of these drills, the initial reaction time to shutting in the well shall be timed as well as the total time for the crew to complete its entire pit drill assignment. The times must be recorded on the IADC Driller's Log as "Blowout Control Drill".

Drill No.:		
Reaction Time to Shut-In:	minutes,	seconds.
Total Time to Complete Assignment:	minutes,	seconds.

I. Drill Overviews

A. Drill No. 1- Bottom Drilling

1. Sound the alarm immediately.
2. Stop the rotary and hoist kelly joint above the rotary table.
3. Stop the circulatory pump.
4. Close the drill pipe rams.
5. Record casing and drill pipe shut-in pressures and pit volume increases.

B. Drill No. 2 – Tripping Drill Pipe

1. Sound the alarm immediately.
2. Position the upper tool joint just above the rotary table and set the slips.

3. Install a full opening valve or inside blowout preventor tool in order to close the drill pipe.

4. Close the drill pipe rams.

5. Record the shut-in annular pressure.

II. Crew Assignments

A. Drill No. 1 – Bottom Drilling

1. Driller

   a) Stop the rotary and hoist kelly joint above the rotary table.

   b) Stop the circulatory pump.

   c) Check flow.

   d) If flowing, sound the alarm immediately.

   e) Record the shut-in drill pipe pressure.

   f) Determine the mud weight increase needed or other courses of action.

2. Derrickman

   a) Open choke line valve at BOP.

   b) Signal Floor Man # 1 at accumulator that choke line is open.

   c) Close choke and upstream valve after pipe tams have been closed.

   d) Read the shut-in annular pressure and report readings to Driller.

3. Floor Man # 1

   a) Close the pipe rams after receiving the signal from the Derrickman.

   b) Report to Driller for further instructions.

4. Floor Man # 2

   a) Notify the Tool Pusher and Operator Representative of the H_2S alarms.

   b) Check for open fires and, if safe to do so, extinguish them.

   c) Stop all welding operations.

   d) Turn-off all non-explosion proof lights and instruments.

   e) Report to Driller for further instructions.

5. Tool Pusher

   a) Report to the rig floor.

   b) Have a meeting with all crews.

   c) Compile and summarize all information.

   d) Calculate the proper kill weight.

   e) Ensure that proper well procedures are put into action.

6. Operator Representative

   a) Notify the Drilling Superintendent.

   b) Determine if an emergency exists and if so, activate the contingency plan.

B. Drill No. 2 – Tripping Pipe

1. Driller

   a) Sound the alarm immediately when mud volume increase has been detected.

   b) Position the upper tool joint just above the rotary table and set slips.

   c) Install a full opening valve or inside blowout preventor tool to close the drill pipe.

   d) Check flow.

OPERATOR'S CERTIFICATION

APPLICATION FOR PERMIT TO DRILL
JAMES RANCH UNIT DI1 169H
1451' FNL, 1881' FEL, Section 21, T22S, R30E, Eddy County, NM.

In reference to the above captioned well, I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in the APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

Executed this 12th day of March, 2014.

If you have any questions regarding the accuracy of the plan provided herein, please do not hesitate to contact me at (432) 683-2277.

Courtney Lockhart
Regulatory Analyst

e) Record all data reported by the crew.

f) Determine the course of action.

2. Derrickman

a) Come down out of derrick.

b) Notify Tool Pusher and Operator Representative.

c) Check for open fires and, if safe to do so, extinguish them.

d) Stop all welding operations.

e) Report to Driller for further instructions.

3. Floor Man # 1

a) Pick up full opening valve or inside blowout preventor tool and stab into tool joint above rotary table (with Floor Man # 2).

b) Tighten valve with back-up tongs.

c) Close pipe rams after signal from Floor Man # 2.

d) Read accumulator pressure and check for possible high pressure fluid leaks in valves or piping.

e) Report to Driller for further instructions.

4. Floor Man # 2

a) Pick-up full opening valve or inside blowout preventor tool and stab into tool joint above rotary table (with Floor Man # 1).

b) Position back-up tongs on drill pipe.

c) Open choke line valve at BOP.

d) Signal Floor Man # 1 at accumulator that choke line is open.

e) Close choke and upstream valve after pipe rams have been closed.

f) Check for leaks on BOP stack and choke manifold.

g) Read annular pressure.

h) Report readings to the Driller.

5. Tool Pusher

a) Report to the rig floor.

b) Have a meeting with all of the crews.

c) Compile and summarize all information.

d) See that proper well kill procedures are put into action.

6. Operator Representative

a) Notify Drilling Superintendent

b) Determine if an emergency exists, and if so, activate the contingency plan.

IGNITION PROCEDURES

Responsibility:

The decision to ignite the well is the responsibility of the DRILLING FOREMAN in concurrence with the STATE POLICE. The State Police shall be the Incident Command on the scene of any major release. Intentional ignition must be coordinated with the NMOCD and local officials. In the event the Drilling Foreman is incapacitated, it becomes the responsibility of the RIG TOOL PUSHER. This decision should be made only as a last resort and in a situation where it is clear that:

1. Human life and property are endangered.

2. There is no hope of controlling the blowout under the prevailing conditions.

If time permits, notify the main office, but do not delay if human life is in danger. Initiate the first phase of the evacuation plan.

Instructions for Igniting the Well:

1. Two people are required for the actual igniting operation. Both men must wear self-contained breathing apparatus and must use a full body harness and attach a retrievable safety line to the D-Ring in the back. One man must monitor the atmosphere for explosive gases with the LEL monitor, while the Drilling Foreman is responsible for igniting the well.

2. The primary method to ignite is a 25mm flare gun with a range of approximately 500 feet.

3. Ignite from upwind and do not approach any closer than is warranted.

4. Select the ignition site best suited for protection and which offers an easy escape route.

5. Before igniting, check for the presence of combustible gases.

6. After igniting, continue emergency actions and procedures as before.

7. All unassigned personnel will limit their actions to those directed by the Drilling Foreman.

NOTE: After the well is ignited, burning Hydrogen Sulfide will convert to Sulfur Dioxide (SO_2), which is also highly toxic. Do not assume the area is safe after the well is ignited.

TRAINING REQUIREMENTS

When working in an area where Hydrogen Sulfide (H_2S) might be encountered, definite training requirements must be carried out. The Company Supervisor will ensure that all personnel at the well site, whether regularly assigned, contracted, or employed on an unscheduled basis, have had adequate training by a qualified instructor in the following:

1. Hazards and Characteristics of Hydrogen Sulfide and Sulfur Dioxide.
2. Physicals effects of Hydrogen Sulfide on the human body.
3. Toxicity of Hydrogen Sulfide and Sulfur Dioxide.
4. H_2S detection, emergency alarm and sensor location.
5. Emergency rescue.
6. First aid and artificial resuscitation.
7. The effects of Hydrogen Sulfide on metals.
8. Location safety.

In addition, Supervisory Personnel will be trained in the following areas:

1. If high tensile tubular are to be used, personnel will be trained in their special maintenance requirements.
2. Corrective action and shut-in procedures when drilling or reworking a well as well as blowout prevention and well control procedures.
3. The contents and requirements of the H_2S Drilling Operations Contingency Plan and the Public Protection Plan.

Service company personnel and visiting personnel must be notified if the zone contains H_2S, and each service company must provide adequate training and equipment for their employees before they arrive at the well site.

EMERGENCY EQUIPMENT

As stated in the BLM Onshore Order 6, for wells located in a known H_2S areas, H_2S equipment will be rigged up after setting surface casing. For wells located inside known H_2S areas, the flare pit will be located 150' from the location and for wells located outside known H_2S areas, the flare pit will be located 100' away from the location. (See page 6 of Survey plat package and diagram B or C.)

It is not anticipated that any H_2S is in the area, however in the event that H_2S is encountered, the attached H_2S Contingency Plan will be implemented. (Please refer to diagrams B or C for choke manifold and closed loop system layout.) See H_2S location layout diagram for location of all H_2S equipment on location.

All H_2S safety equipment and systems will be installed, tested and be operational when drilling reaches a depth of 500' above, or three days prior to penetrating a known formation containing H_2S.

Lease Entrance Sign:

Caution signs should be located at all roads providing direct access to the location. Signs shall have a yellow background with black lettering and contain the words "CAUTION" and "POISON GAS" that is legible from a distance of at least 50 feet.

LEASE NAME
CAUTION – POTENTIAL POISON GAS
HYDROGEN SULFIDE
NO ADMITTANCE WITHOUT AUTHORIZATION

Windsocks or Wind Streamers:

- A minimum of two 10" windsocks located at strategic locations so that they may be seen from any point on location.

- Wind streamers (if preferred) should be placed at various locations on the well site to ensure wind consciousness at all times. (Corners of location)

Hydrogen Sulfide Detector and Alarms:

- H_2S monitors with alarms will be located on the rig floor, at the cellar, and at the mud pits. These monitors will be set to alarm at 10 PPM with a red light and to alarm at 15 PPM with a red light and audible alarm.

Well Condition Flags:

The Well Condition flags should be located at all roads providing direct access to the location. It should have three (3) color coded flags (green, yellow and red) that will be used to denote the following location conditions:

GREEN – Normal Operating Conditions
YELLOW – Potential Danger
RED – Danger, H_2S Gas Present

Respiratory Equipment:

- Fresh air breathing equipment should be placed at the company supervision trailer and the safe briefing areas and should include the following:
  - A minimum of two SCBA's at each briefing area and the supervisor company supervision trailer.
  - Enough air line units to operate safely, anytime the H_2S concentration reaches the IDLH level (100 PPM).
  - Cascade system with enough breathing air hose and manifolds to reach the rig floor, the derrickman and the other operation areas.

Fire Extinguishers:

Adequate fire extinguishers shall be located at strategic locations.

Mud Program:

The mud program has been designed to minimize the volume of H_2S circulated to the surface. Proper mud weight, safe drilling practices and the use of H_2S scavengers will minimize hazards when penetrating H_2S bearing zones.

Metallurgy:

All drill strings, casing, tubing, wellhead; blowout preventer, drilling spools, kill lines, choke manifold and lines, and valves shall be suitable for H_2S service.

Well Control Equipment:

- Flare Line (See page 6 of survey plat package for flare line reference).
- Choke manifold (See diagram B or C and refer to H2S location diagram for location of important H2S safety items).
- Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing units.
- Auxiliary equipment may include, if applicable, annular preventer & rotating head.

Communication Equipment:

- Proper communication equipment such as cell phones or 2 – way radios should be available for communication between the company man's trailer, rig floor and tool pusher's trailer.

Well Testing:

- There will be no drill stem testing.

Evacuation Plan:

- Evacuation routes should be established prior to spudding the well.
- Should be discussed with all rig personnel.

Designated Areas:

Parking and Visitor area:

- All vehicles are to be parked at a pre-determined safe distance from the wellhead.
- A smoking area will be designated at a pre-determined safe distance from the wellhead and any other possible flammable areas.

Safe Briefing Areas:

- Two Safe Briefing Areas shall be designated on either side of the location at the maximum allowable distance from the well bore so they offset prevailing winds or they are at a 180 degree angle if wind directions tend to shift in the area.

- Personal protective equipment should be stored at both briefing areas or if a moveable cascade trailer is used, it should be kept upwind of existing winds. When wind is from the prevailing direction, both briefing areas should be accessible.

NOTE:

- Additional equipment will be available at Indian Fire and Safety in Hobbs, NM or at Total Safety in Hobbs, NM.

EVACUATION PLAN

General Plan

The direct lines of action to protect the public from hazardous gas situations are as follows:

1. When the company approved supervisor (Drilling Foremen, Tool Pusher or Driller) determine that Hydrogen Sulfide gas cannot be limited to the well location, and the public will be involved, he will activate the evacuation plan. Escape routes are noted on the Area Map.

2. Company safety personnel or designee will notify the appropriate local government agency that a hazardous condition exists and evacuation needs to be implemented.

3. Company approved safety personnel that have been trained in the use of the proper emergency equipment will be utilized.

4. Law enforcement personnel (State Police, Local Police Department, Fire Department, and the Sheriff's Department) will be called to aid in setting up and maintaining road blocks. Also, they will aid in evacuation of the public if necessary.

NOTE: Law enforcement personnel will not be asked to come into a contaminated area. Their assistance will be limited to uncontaminated areas. Constant radio contact will be maintained with them.

5. After the discharge of gas has been controlled, Company approved safety personnel will determine when the area is safe for re-entry.

See Emergency Action Plan

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 Mexico's "Hazardous Materials Emergency Response Plan" (HMER).

H_2S CONTINGENCY PLAN EMERGENCY CONTACTS

BOPCO L.P. Midland Office 432-683-2277

Key Personnel

Name	Title	Cell Phone Number
Stephen Martinez	Drilling & Completions Manager	432-556-0262
Charles Warne	Division Engineer	432-312-4431
Don Wood	Division Drilling Specialist	432-266-2674
Leo Bojorquez	Area Drilling Superintendent	702-280-4424
Chris Giese	Engineer	432-661-7328
Chris Volek	Engineer	785-979-2643
Brian Braun	Engineer	210-683-9849
Jeremy Braden	Engineer	432-312-1113
Kevin Burns	Engineer	432-934-5499

Artesia

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

Carlsbad

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

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

Other

Wild Well Control	432-550-6202 (Permian Basin)
Cudd PressureControl	432-580-3544 or 432-570-5300 (Permian Basin)
Flight For Life – 4000 24th St. Lubbock, Texas	806-743-9911
Aerocare – R3, Box 49F, Lubbock, Texas	806-747-8923
Med Flight Air Amb – 2301 Yale Blvd SE #D3, Albuq., NM	505-842-4433
S B Air Med Service – 2505 Clark Carr Loop SE, Albuq., NM	505-842-4949
Indian Fire and Safety – 3317 NW Cnty Rd, Hobbs, NM	575-393-3093
Total Safety – 3229 Industrial Dr., Hobbs, NM	575-392-2973

TOXIC EFFECTS OF HYDROGEN SULFIDE

Hydrogen Sulfide is extremely toxic. The acceptable ceiling concentration for eight-hour exposure is 10 PPM, which is .001% by volume. Hydrogen Sulfide is heavier than air (specific gravity = 1.192) and colorless. It forms an explosive mixture with air between 4.3 and 46.0 percent by volume. Hydrogen sulfide is almost as toxic as hydrogen cyanide and is between five and six times more toxic than carbon monoxide. Toxicity data for hydrogen sulfide and various other gases are compared in Table I. Physical effects at various Hydrogen Sulfide exposure levels are shown in Table II.

Table I - TOXICITY OF VARIOUS GASES

Common Name	Chemical Formula	Specific Gravity (SC=1)	Threshold Limit (1)	Hazardous Limit (2)	Lethal Concentration (3)
Hydrogen Cyanide	HCN	0.94	10 PPM	150 PPM/HR	300 PPM
Hydrogen Sulfide	H2S	1.18	10 PPM	250 PPM/HR	600 PPM
Sulfur Dioxide	SO2	2.21	5 PPM	--	1000 PPM
Chlorine	CL2	2.45	1 PPM	4 PPM/HR	1000 PPM
Carbon Monoxide	CO	0.97	50 PPM	400 PPM/HR	1000 PPM
Carbon Dioxide	CO2	1.52	5000 PPM	5%	10%
Methane	CH4	0.55	90,000 PPM	Combustible in air	Above 5%

1) **Threshold Limit – Concentration at which it is believed that all worker may be repeatedly exposed day after day without adverse effects.**

2) **Hazardous Limit – Concentration that will cause death with short-term exposure.**

3) **Lethal Concentration – Concentration that will cause death with short-term exposure.**

Table II – PHYSICAL EFFECTS OF HYDROGEN SULFIDE

Percent (%)	PPM	Concentration Grains 100 STD. FT3*	Physical Effects
0.001	< 10	00.65	Obvious & unpleasant odor.
0.002	10	01.30	Safe for 8 hours of exposure.
0.010	100	06.48	Kills smell in 3-15 minutes. May sting eyes & throat.
0.020	200	12.96	Kills smell shortly; stings eyes & throat.
0.050	500	32.96	Dizziness; Breathing ceases in a few minutes. Needs prompt artificial respiration.
0.070	700	45.36	Unconscious quickly; Death will result if not rescued promptly.
0.100	1000	64.30	Unconscious at once; Followed by death within minutes.

- At 15.00 PSIA and 60° F.

USE OF SELF-CONTAINED BREATHING APPARATUS

1. Anyone who uses an SCBA shall: Be approved by a physician or licensed health care practitioner; Pass a fit test; Be trained in donning and doffing, proper use, including how to ensure a proper face seal, conducting an inspection of the SCBA, and conduct proper maintenance.

2. Such items as facial hair (beard or sideburns) and eyeglasses will not allow a proper face mask seal.

3. Anyone reasonably expected to wear SCBA's shall have these items removed before entering a toxic atmosphere.

4. A special mask with a mount for prescription glasses must be obtained for anyone who must wear eyeglasses in order to see while using an SCBA.

5. SCBA's should be worn in H_2S concentrations above 10 PPM.

RESCUE & FIRST AID FOR H_2S POISONING

DO NOT PANIC – REMAIN CALM – THINK

1. Hold your breath – do not inhale first.

2. Put on SCBA.

3. Remove victim(s) to fresh air as quickly as possible. Go upwind from source or at right angle to the wind. Do not go downwind.

4. Briefly apply chest pressure – using arm lift method of artificial respiration to clean victim's lungs and to avoid inhaling any toxic gas directly from victim's lungs.

5. Provide artificial respiration if needed.

6. Provide for prompt transportation to the hospital and continue giving artificial respiration if needed.

7. Inform hospital/medical facilities of the possibility of H2S gas poisoning before they treat.

Besides basic first aid, everyone on location should have a good working knowledge of artificial respiration and CPR, as well as first aid for eyes and skin contact with liquid H_2S.

Proposed H2S Safety Schematic

1) Location of windsocks.

2) Location of H2S alarms

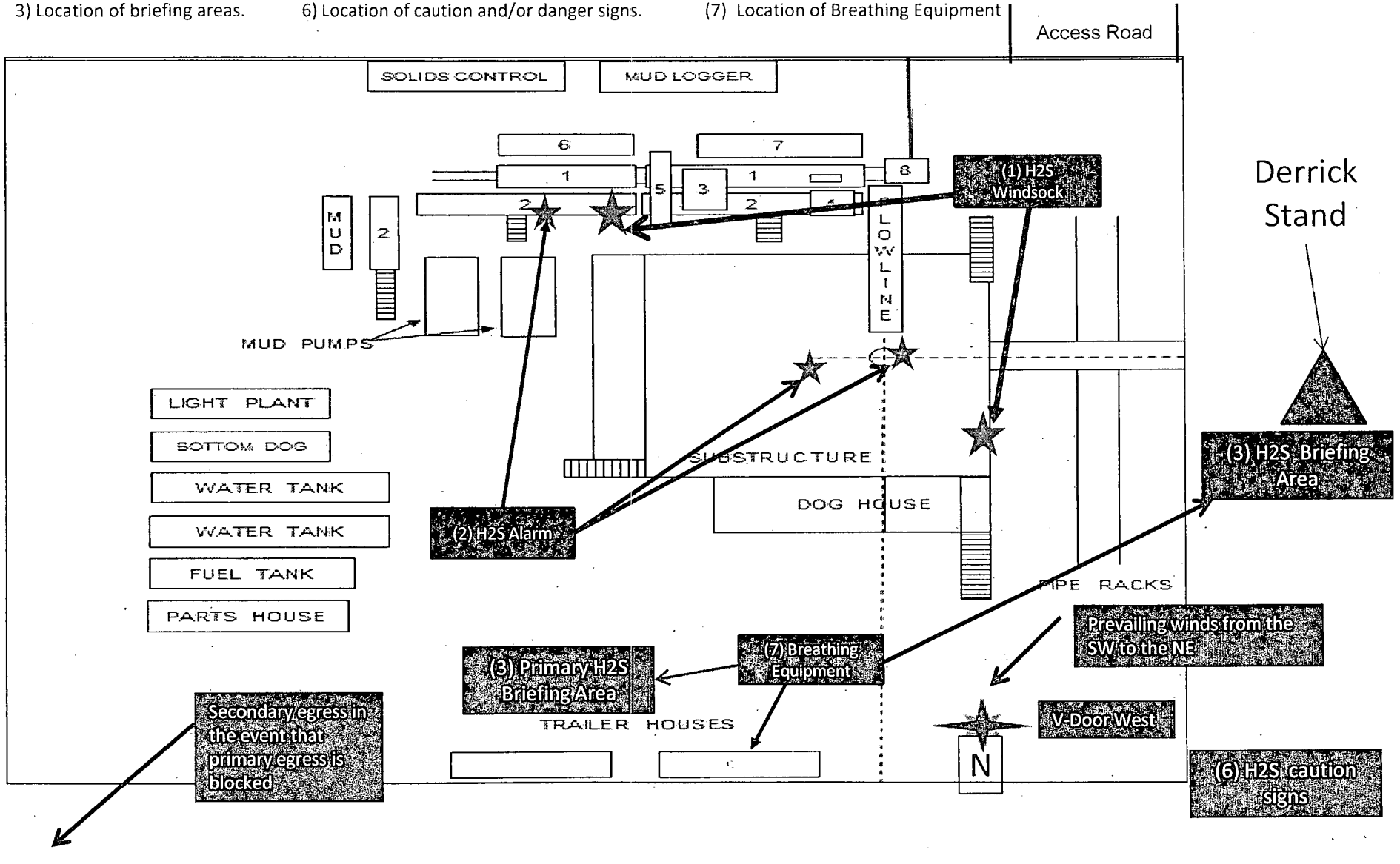
3) Location of briefing areas.

4) Terrain of surrounding area (Please refer to page 2 of survey plat package also see point 11 of multi-surface use plan)

5) Location of flare line(s) and pit(s) (Please refer to diagram 2 choke manifold diagram and or page six of survey plat packet)

6) Location of caution and/or danger signs.

(7) Location of Breathing Equipment



Location On-Site Notes

Location on-site conducted by Cecil Watkins-BOPCO L.P., Stephen Martinez-BOPCO L.P., Carlos Cruz-BOPCO, L.P., Bill Franks-BOPCO, L.P., Cody Layton-BLM, and Robert Gomez-Basin Survey on 3/20/2012. The James Ranch Unit 12 Pad added additional footage to the east and west sides of existing location. Surface footage calls are at 1451' FNL & 1881' FEL of Section 21,T22S-R30E. Location layout is as follows: v-door will face the west, frac pad will be on northeast corner, access road will enter location from the east corner and topsoil will be stockpiled to the north side of location.

MULTI-POINT SURFACE USE PLAN

NAME OF WELL: James Ranch Unit DI1 169H

LEGAL DESCRIPTION
SURFACE: 1451' FNL, 1881' FEL, Section 21, T22S, R30E, Eddy County, NM.
BHL: 1980' FNL, 330' FWL, Section 19, T22S, R30E, Eddy County, NM.

POINT 1: EXISTING ROADS

A) Proposed Well Site Location:

See Form C-102 (Survey Plat).

B) Existing Roads:

From the junction of Hwy 128 and Cimarron, go north on Cimarron for approximately 6.2 miles to lease road. On the lease road go southwesterly 0.2 miles turning northwesterly 1.3 miles to proposed well location.

C) Existing Road Maintenance or Improvement Plan:

Existing roads will be maintained and kept in the same or better condition than before operations began. See the Well Pad Layout and Topo Map of the survey plat (Sheet 1 and 2 of plat package)

POINT 2: NEW PLANNED ACCESS ROUTE

A) Route Location:

There will be no new road built. (See the Well Pad Layout of the survey plat (Sheet 1 of plat package).

B) Width

14' 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

The following wells are located within a one-mile radius of the location site. See the One-Mile Radius Map (Sheet 5 of the plat package).

Existing wells..... 2 (Two)
Water wells.....3 (Three)

POINT 4: LOCATION OF EXISTING OR PROPOSED FACILITIES

A) Existing facilities operated by BOPCO, L.P. are located within one mile of the James Ranch Unit DI1 169H.

B) New Facilities in the Event of Production:

New production facilities will be installed at the Legg Federal #1 (Sec. 27 T22S-R30E). A 2-7/8" steel flowline will be routed above ground from the Legg Federal #1, along the existing pipeline right-of-way, to the James Ranch #169H (JRU #12 drilling pad) approx. 1.3 mi. to location as required. The steel flowline will be suspended across low water crossing and/or areas of significant erosion as required by the BLM.

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 the Well Pad Layout and Aerial Map of the survey plat (Sheet 1 and 4 of plat package).

POINT 7: METHODS FOR HANDLING WASTE MATERIAL

A) Cuttings

Cuttings will be contained in the roll off bins and disposed at R360 Environmental located in Lea County, NM.

B) Drilling Fluids

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

C) Produced Fluids

Water production will be contained in the steel pits.

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

D) Sewage

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

E) Garbage

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

F) Cleanup of Well Site

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

POINT 8: ANCILLARY FACILITIES

None required.

POINT 9: WELL SITE LAYOUT

A) Rig Orientation and Layout

The "Rig Layout Schematic" (Sheet 6 of plat package) shows the dimensions of the well pad, 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. **The top soil will be stockpiled on the north side of the location.**

B) Locations of Access Road

See the Well Pad Layout, Topo Map, and Vicinity Map of the survey plat (Sheet 1, 2, and 3 of plat package).

C) Lining of the Pits

No reserve pits - closed loop system.

POINT 10: PLANS FOR RESTORATION OF THE SURFACE

A) Reserve Pit Cleanup - Not applicable. Closed loop drilling fluid system will be used

B) Restoration Plans - Production Developed

BOPCO, L.P. has no plans for interim reclamation to allow for additional wells to be drilled on this pad

C) Restoration Plans - No Production Developed

BOPCO, L.P. has no plans for interim reclamation to allow for additional wells to be drilled on this pad

POINT 11: OTHER INFORMATION

A) On-Site

Location on-site conducted by Cecil Watkins-BOPCO L.P., Stephen Martinez-BOPCO L.P., Carlos Cruz-BOPCO, L.P., Bill Franks-BOPCO, L.P., Cody Layton-BLM, and Robert Gomez-Basin Survey on 3/20/2012. The James Ranch Unit 12 Pad added additional footage to the east and west sides of existing location. Surface footage calls are at 1451' FNL & 1881' FEL of Section 21,T22S-R30E. Location layout is as follows: v-door will face the west, frac pad will be on northeast corner, access road will enter location from the east corner and topsoil will be stockpiled to the north side of location.

B) Soil

Caliche and sand.

C) Vegetation

Sparse, primarily grasses and mesquite with very little grass.

D) Surface Use

Primarily grazing.

E) Surface Water

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

F) Water Wells

There are three water wells located within a 1 mile radius of the proposed location.

G) Residences and Buildings

None in the immediate vicinity.

H) Historical Sites

None observed.

I) Archeological Resources

No independent archeological survey has been done. This pad location is located in the area covered by Memorandum of Agreement – Permian Basin. The James Ranch 12 Pad is covered by a blanketed MOA for the entire Drilling Island. Any location or construction conflicts will be resolved before construction begins. Please see diagram 4 for flowline route.

J) Surface Ownership

The well site is on federally owned land. There will be no new road required for this location.

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

L) Open Pits

No open pits will be used for drilling or production. Any open top tanks will be netted.

M) Terrain

Slightly rolling hills.

POINT 12: OPERATOR'S FIELD REPRESENTATIVE

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

DRILLING
Stephen Martinez
Box 2760
Midland, Texas 79702
(432) 683-2277

PRODUCTION
Gary Fletcher
3104 East Green Street
Carlsbad, New Mexico 88220
(575) 887-7329

Fritz Schoch
Box 2760
Midland, Texas 79702
(432) 683-2277

WBM

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**BOPCO, L.P.**
LEASE NO.:	**NMNM-06806**
WELL NAME & NO.:	**James Ranch Unit DI 1 169H**
SURFACE HOLE FOOTAGE:	**1451' FNL & 1881' FEL**
BOTTOM HOLE FOOTAGE	**1980' FNL & 0330' FWL Sec. 19, T. 22 S., R 30 E.**
LOCATION:	**Section 21, T. 22 S., R 30 E., NMPM**
COUNTY:	**Eddy County, New Mexico**

TABLE OF CONTENTS

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

I. GENERAL PROVISIONS

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

II. PERMIT EXPIRATION

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

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

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

IV. NOXIOUS WEEDS

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

V. SPECIAL REQUIREMENT(S)

Cave and Karst

** Depending on location, additional Drilling, Casing, and Cementing procedures may be required by engineering to protect critical karst groundwater recharge areas.

Cave/Karst Surface Mitigation

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

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

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

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

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

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

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

Cave/Karst Subsurface Mitigation

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

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

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

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

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

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

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

Flowline Location
Production flowline must be laid on the south/west side of the access road, as shown in "Flowline Route Diagram 4" in the approved APD.

VRM Facility Requirement
If permanent tanks are to be installed on the drill island pad, they must be low-profile tanks not greater than eight-feet-high. This requirement does not apply to tanks installed offsite at the Legg Battery.

Drilling:

Commercial Well Determination
A commercial well determination shall be submitted after production has been established for at least six months.

Unit Wells
The well sign for a unit well shall include the unit number in addition to the surface and bottom hole lease numbers. This also applies to participating area numbers. If a participating area has not been established, the operator can use the general unit designation, but will replace the unit number with the participating area number when the sign is replaced.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

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

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation.The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing
The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS

Road Width
The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

Surfacing
Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

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

Ditching
Ditching shall be required on both sides of the road.

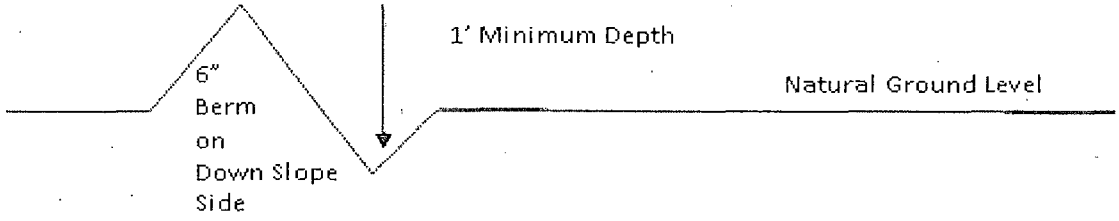
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



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

Formula for Spacing Interval of Lead-off Ditches

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

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

Cattleguards

An appropriately sized cattleguard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattleguards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguards that are in place and are utilized during lease operations.

Fence Requirement

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Public Access

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

Construction Steps

1. Salvage topsoil
2. Construct road
3. Redistribute topsoil
4. Revegetate slopes

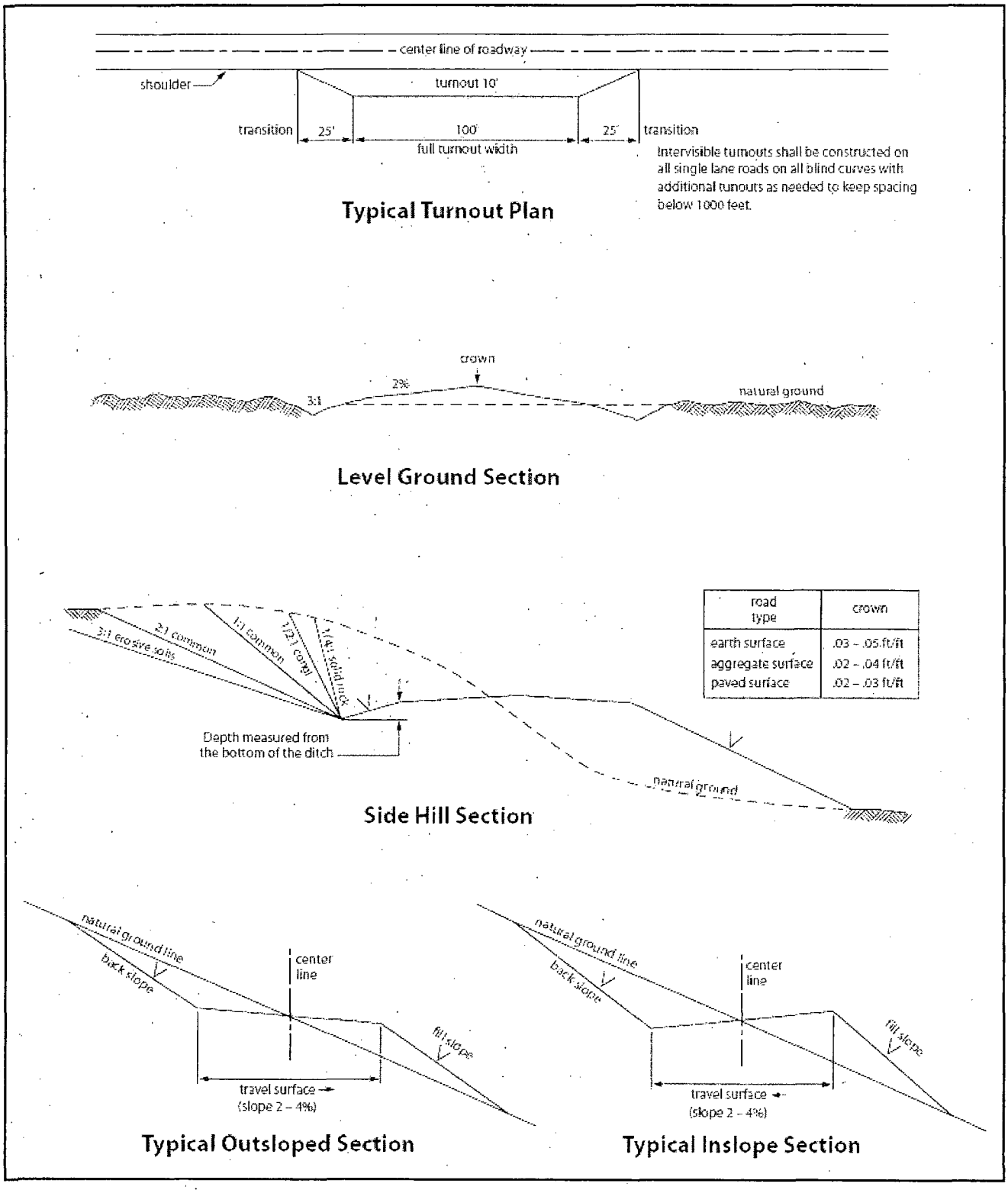


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

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

1. **Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is encountered in quantities greater than 10 PPM the well shall be shut in and H2S equipment shall be installed and flare line must be extended pursuant to Onshore Oil and Gas Order #6. Report measured values and formation to the BLM. After detection, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items.**

2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a "Major" violation.**

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

4. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

B. CASING

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.).

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

Wait on cement (WOC) time prior to drilling out 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. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. IF OPERATOR DOES NOT HAVE THE WELL SPECIFIC CEMENT DETAILS ONSITE PRIOR TO PUMPING THE CEMENT FOR EACH CASING STRING, THE WOC WILL BE 30 HOURS. See individual casing strings for details regarding lead cement slurry requirements.

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

R-111-P-Potash
High Cave/Karst
Possibility of water flows in the Salado and Castile.
Possibility of lost circulation in the Rustler and Delaware.

1. The **13-3/8** inch surface casing shall be set at approximately **535** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. **If salt is encountered, set casing at least 25 feet above the salt.**

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

    b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.

    c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

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. Variance approved to use flex line from BOP to choke manifold. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. **Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).

3. **Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 3000 (3M) psi.**

    a. **Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.**
    b. **If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.**
    c. **Manufacturer representative shall install the test plug for the initial BOP test.**
    d. **Operator shall perform the 9-5/8" and 7" casing integrity tests to 70% of the casing burst. This will test the multi-bowl seals.**
    e. **If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.**

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

    a. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time.

b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**.

c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

d. The results of the test shall be reported to the appropriate BLM office.

e. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**

f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

D. DRILL STEM TEST

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

E. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

JAM 081414

VIII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

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

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

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

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

Containment Structures
Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the

largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

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

VRM Facility Requirement
If permanent tanks are to be installed on the drill island pad, they must be low-profile tanks not greater than eight-feet-high. This requirement does not apply to tanks installed offsite at the Legg Battery.

B. PIPELINES

STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

A copy of the application (Grant, Sundry Notice, APD) 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 **20** feet. If the pipeline route follows an existing road or buried pipeline right-of-way, the surface pipeline must be installed no farther than 10 feet from the edge of the road or buried pipeline right-of-way. If existing surface pipelines prevent this distance, the proposed surface pipeline must be installed immediately adjacent to the outer surface pipeline. All construction and maintenance activity will be

confined to existing roads or right-of-ways.

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 **24** 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.

16. 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, powerline 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.

17. Surface pipelines must be less than or equal to 4 inches and a working pressure below 125 psi.

C. ELECTRIC LINES (Not applied for in APD)

IX. INTERIM RECLAMATION

Since it is expected that multiple wells will be drilled from this location in the future, no interim reclamation will be required at this time. However, during the life of the development, all disturbed areas not needed for future wells or active support of production operations should undergo reclamation in order to minimize the environmental impacts of development on other resources and uses.
Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

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

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

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

X. FINAL ABANDONMENT & RECLAMATION

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

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

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

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

Seed Mixture 1, for Loamy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

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

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

Species	lb/acre
Plains lovegrass (Eragrostis intermedia)	0.5
Sand dropseed (Sporobolus cryptandrus)	1.0
Sideoats grama (Bouteloua curtipendula)	5.0
Plains bristlegrass (Setaria macrostachya)	2.0

*Pounds of pure live seed:

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