

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Artesia

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other		5. Lease Serial No. NMNM02952B
2. Name of Operator BOPCO LP		6. If Indian, Allottee or Tribe Name
3a. Address MIDLAND, TX 79702		7. If Unit or CA/Agreement, Name and/or No. 891000558X
3b. Phone No. (include area code) Ph: 432.683.2277		8. Well Name and No. JAMES RANCH UNIT 190H
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 36 T22S R30E NENE 630FNL 370FEL 32.211428 N Lat, 103.493476 W Lon		9. API Well No. 30-015-42145-00-X1
		10. Field and Pool, or Exploratory LOS MEDANOS
		11. County or Parish, and State EDDY COUNTY, NM

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

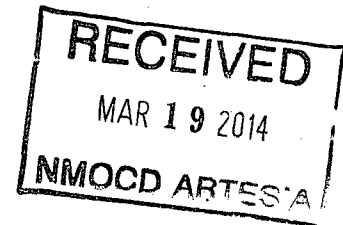
TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Change to Original A
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	PD

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

BOPCO, L.P. respectfully requests to change the BHL of James Ranch Unit 190H from 660' FNL & 330' FWL to 660' FNL & 2,630' FEL to optimize unit development. The remaining two proration units will be developed from an additional well drilled from a different pad. Attached is the revised plat and directional plan.

Accepted for record
NMOCD

104
3-19-2014



14. I hereby certify that the foregoing is true and correct. Electronic Submission #238618 verified by the BLM Well Information System For BOPCO LP, sent to the Carlsbad Committed to AFMSS for processing by CHRISTOPHER WALLS on 03/12/2014 (14CRW0183SE)	
Name (Printed/Typed) CHRISTOPHER VOLEK	Title DRILLING ENGINEER
Signature (Electronic Submission)	Date 03/12/2014

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By CHRISTOPHER WALLS	Title PETROLEUM ENGINEER	Date 03/17/2014
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.		Office Carlsbad

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.

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone (575) 393-8161 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) 478-3460 Fax: (505) 478-3462

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

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-015-42145	Pool Code 40295	Pool Name LOS MEDANOS; BONE SPRING
Property Code 306407	Property Name JAMES RANCH UNIT	Well Number 190H
OGRID No. 260737	Operator Name BOPCO, LP	Elevation 3325'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	36	22 S	30 E		630	NORTH	370	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
B	35	22 S	30 E		660	NORTH	2630	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
240			

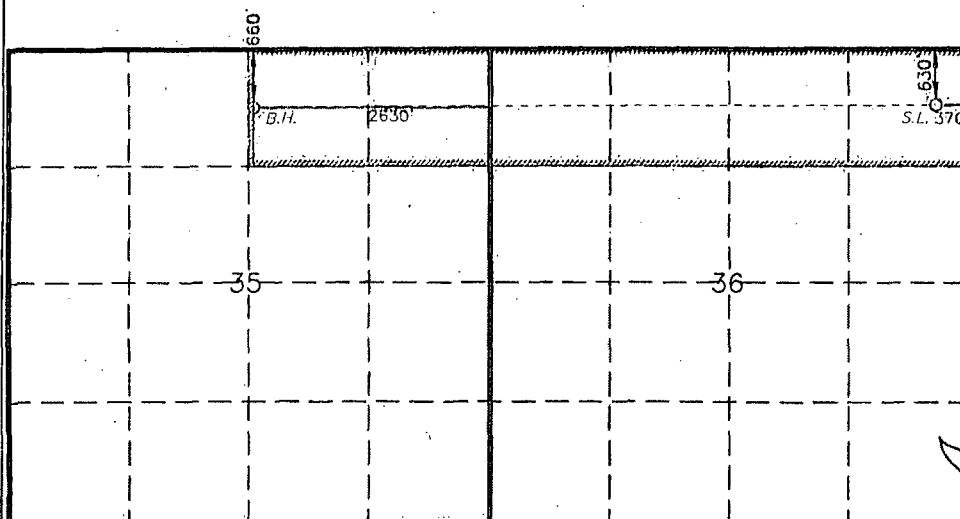
NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

**PROPOSED BOTTOM
HOLE LOCATION**

Lat - N 32°21'15.21"
Long - W 103°59'03.52"
NMSPC- N 492758.7
E 607777.1
(NAD-27)

SURFACE LOCATION

Lat - N 32°21'14.28"
Long - W 103°49'34.76"
NMSPC- N 492869.0
E 656564.9
(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 unEDDysed 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.

Courtney Lockhart
Signature Date

Courtney Lockhart

Printed Name

cjlockhart@basspet.com

Email Address

SURVEYOR CERTIFICATION

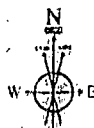
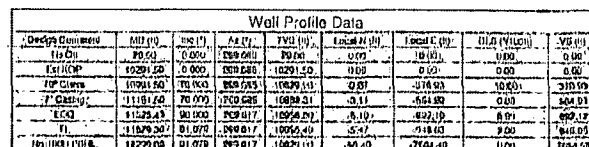
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

DATE SUBMITTED
AUGUST 18, 2013
Signature
Professional Surveyor
7977
Certificate No. 26162
L. Jones 7977

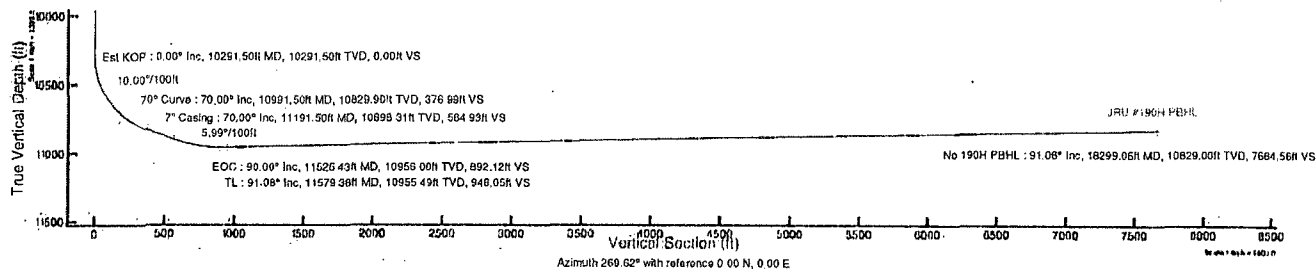
BASIN SURVEYS 29192



Slot: No.190H SHL
Well: No.190H
Wellbore: No.190H PWB



11/10/1949 to 10/16/1950 On 10/17/50 field station set.
 Magnetometer 7.51 degrees East of True North (10/18/1950)
 Grid North is 0.22 degrees East of True North.
 To correct magnetic lines true to Grid North 0.27 degrees
 to correct magnetic lines to true to Grid North 0.27 degrees

[illegible]

Rev-B.0



Planned Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION			
Operator	BOPCO, L.P.	Slot	No.190H SHL
Area	Eddy County, NM	Well	No.190H
Field	JRU NAD27	Wellbore	No.190H PWB
Facility	JRU No.190H		

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	0.999937	Report Generated	2/5/2014 at 3:36:18 PM
Convergence at slot	0.27° East	Database/Source file	MidlandDB/No.190H_PWB.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W
Facility Reference Pt			656564.90	492869.00	32°21'14.376"N	103°49'34.759"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.190H SHL (KB) to Facility Vertical Datum	22.00ft
Horizontal Reference Pt	Slot	Rig on No.190H SHL (KB) to Mean Sea Level	3347.00ft
Vertical Reference Pt	Rig on No.190H SHL (KB)	Rig on No.190H SHL (KB) to Mud Line at Slot (No.190H SHL)	22.00ft
MD Reference Pt	Rig on No.190H SHL (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	269.62°



Planned Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	No.190H SHL
Area	Eddy County, NM	Well	No.190H
Field	JRU NAD27	Wellbore	No.190H PWB
Facility	JRU No.190H		

WELLPATH DATA (201 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	269.685	0.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
22.00	0.000	269.685	22.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	Tie On
122.00†	0.000	269.685	122.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
222.00†	0.000	269.685	222.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
318.00†	0.000	269.685	318.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	Rustler
322.00†	0.000	269.685	322.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
422.00†	0.000	269.685	422.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
522.00†	0.000	269.685	522.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
619.00†	0.000	269.685	619.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	Salado
622.00†	0.000	269.685	622.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
722.00†	0.000	269.685	722.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
822.00†	0.000	269.685	822.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
922.00†	0.000	269.685	922.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
1022.00†	0.000	269.685	1022.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
1122.00†	0.000	269.685	1122.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
1222.00†	0.000	269.685	1222.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
1322.00†	0.000	269.685	1322.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
1422.00†	0.000	269.685	1422.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
1522.00†	0.000	269.685	1522.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
1622.00†	0.000	269.685	1622.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
1722.00†	0.000	269.685	1722.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
1822.00†	0.000	269.685	1822.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
1922.00†	0.000	269.685	1922.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
2022.00†	0.000	269.685	2022.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
2122.00†	0.000	269.685	2122.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
2222.00†	0.000	269.685	2222.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
2322.00†	0.000	269.685	2322.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
2422.00†	0.000	269.685	2422.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
2522.00†	0.000	269.685	2522.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
2622.00†	0.000	269.685	2622.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
2722.00†	0.000	269.685	2722.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
2822.00†	0.000	269.685	2822.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
2922.00†	0.000	269.685	2922.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
3022.00†	0.000	269.685	3022.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
3122.00†	0.000	269.685	3122.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
3222.00†	0.000	269.685	3222.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
3322.00†	0.000	269.685	3322.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
3422.00†	0.000	269.685	3422.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
3522.00†	0.000	269.685	3522.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
3618.00†	0.000	269.685	3618.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	Base Salt
3622.00†	0.000	269.685	3622.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
3722.00†	0.000	269.685	3722.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
3822.00†	0.000	269.685	3822.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
3866.00†	0.000	269.685	3866.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	Lamar
3908.00†	0.000	269.685	3908.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	Ramsay



Planned Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION			
Operator	BOPCO, L.P.	Slot	No.190H SHL
Area	Eddy County, NM	Well	No.190H
Field	JRU NAD27	Wellbore	No.190H PWB
Facility	JRU No.190H		

WELLPATH DATA (201 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
3922.00†	0.000	269.685	3922.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
4022.00†	0.000	269.685	4022.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
4122.00†	0.000	269.685	4122.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
4222.00†	0.000	269.685	4222.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
4322.00†	0.000	269.685	4322.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
4422.00†	0.000	269.685	4422.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
4522.00†	0.000	269.685	4522.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
4622.00†	0.000	269.685	4622.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
4722.00†	0.000	269.685	4722.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
4801.00†	0.000	269.685	4801.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	Cherry Canyon
4822.00†	0.000	269.685	4822.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
4922.00†	0.000	269.685	4922.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
5022.00†	0.000	269.685	5022.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
5122.00†	0.000	269.685	5122.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
5222.00†	0.000	269.685	5222.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
5322.00†	0.000	269.685	5322.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
5422.00†	0.000	269.685	5422.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
5522.00†	0.000	269.685	5522.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
5622.00†	0.000	269.685	5622.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
5722.00†	0.000	269.685	5722.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
5822.00†	0.000	269.685	5822.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
5922.00†	0.000	269.685	5922.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
6022.00†	0.000	269.685	6022.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
6107.00†	0.000	269.685	6107.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	Brushy Canyon
6122.00†	0.000	269.685	6122.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
6222.00†	0.000	269.685	6222.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
6322.00†	0.000	269.685	6322.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
6422.00†	0.000	269.685	6422.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
6522.00†	0.000	269.685	6522.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
6622.00†	0.000	269.685	6622.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
6722.00†	0.000	269.685	6722.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
6822.00†	0.000	269.685	6822.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
6922.00†	0.000	269.685	6922.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
7022.00†	0.000	269.685	7022.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
7122.00†	0.000	269.685	7122.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
7222.00†	0.000	269.685	7222.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
7322.00†	0.000	269.685	7322.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
7422.00†	0.000	269.685	7422.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
7522.00†	0.000	269.685	7522.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
7622.00†	0.000	269.685	7622.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
7710.00†	0.000	269.685	7710.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	IBC '8A'
7722.00†	0.000	269.685	7722.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
7822.00†	0.000	269.685	7822.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
7922.00†	0.000	269.685	7922.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
8022.00†	0.000	269.685	8022.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	



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REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	No.190H SHL
Area	Eddy County, NM	Well	No.190H
Field	JRU NAD27	Wellbore	No.190H PWB
Facility	JRU No.190H		

WELLPATH DATA (201 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
8122.00†	0.000	269.685	8122.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
8222.00†	0.000	269.685	8222.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
8322.00†	0.000	269.685	8322.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
8422.00†	0.000	269.685	8422.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
8522.00†	0.000	269.685	8522.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
8622.00†	0.000	269.685	8622.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
8722.00†	0.000	269.685	8722.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
8822.00†	0.000	269.685	8822.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
8922.00†	0.000	269.685	8922.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
9022.00†	0.000	269.685	9022.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
9122.00†	0.000	269.685	9122.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
9222.00†	0.000	269.685	9222.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
9322.00†	0.000	269.685	9322.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
9422.00†	0.000	269.685	9422.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
9522.00†	0.000	269.685	9522.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
9622.00†	0.000	269.685	9622.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
9722.00†	0.000	269.685	9722.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
9822.00†	0.000	269.685	9822.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
9922.00†	0.000	269.685	9922.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
10022.00†	0.000	269.685	10022.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
10122.00†	0.000	269.685	10122.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
10222.00†	0.000	269.685	10222.00	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	
10291.50	0.000	269.685	10291.50	0.00	0.00	0.00	656564.90	492869.00	32°21'14.376"N	103°49'34.759"W	0.00	Est KOP
10322.00†	3.050	269.685	10321.99	0.81	0.00	-0.81	656564.09	492869.00	32°21'14.376"N	103°49'34.768"W	10.00	
10422.00†	13.050	269.685	10420.87	14.80	0.08	-14.80	656550.10	492868.92	32°21'14.376"N	103°49'34.931"W	10.00	
10522.00†	23.050	269.685	10515.83	45.74	-0.25	-45.74	656519.16	492868.75	32°21'14.376"N	103°49'35.292"W	10.00	
10573.21†	28.171	269.685	10562.00	67.87	-0.37	-67.87	656497.03	492868.63	32°21'14.375"N	103°49'35.550"W	10.00	Bone Spring 3 Sand
10622.00†	33.050	269.685	10603.97	92.71	-0.51	-92.71	656472.20	492868.49	32°21'14.375"N	103°49'35.840"W	10.00	
10722.00†	43.050	269.685	10682.62	154.26	-0.85	-154.26	656410.65	492868.15	32°21'14.375"N	103°49'36.557"W	10.00	
10822.00†	53.050	269.685	10749.39	228.54	-1.26	-228.54	656336.38	492867.74	32°21'14.374"N	103°49'37.423"W	10.00	
10922.00†	63.050	269.685	10802.24	313.29	-1.72	-313.28	656251.64	492867.28	32°21'14.374"N	103°49'38.411"W	10.00	
10991.50	70.000	269.685	10829.90	376.99	-2.07	-376.99	656187.94	492866.93	32°21'14.373"N	103°49'39.154"W	10.00	70° Curve
11022.00†	70.000	269.685	10840.34	405.66	-2.23	-405.65	656159.28	492866.77	32°21'14.373"N	103°49'39.488"W	0.00	
11073.65†	70.000	269.685	10858.00	454.19	-2.50	-454.18	656110.75	492866.50	32°21'14.372"N	103°49'40.053"W	0.00	Bone Spring 3 Pay Sand
11122.00†	70.000	269.685	10874.54	499.62	-2.75	-499.62	656065.32	492866.25	32°21'14.372"N	103°49'40.583"W	0.00	
11191.50	70.000	269.685	10898.31	564.93	-3.11	-564.92	656000.01	492865.89	32°21'14.372"N	103°49'41.344"W	0.00	7" Casing
11222.00†	71.827	269.678	10908.28	593.75	-3.27	-593.75	655971.19	492865.73	32°21'14.371"N	103°49'41.680"W	5.99	
11322.00†	77.816	269.657	10934.45	690.22	-3.83	-690.21	655874.73	492865.17	32°21'14.370"N	103°49'42.805"W	5.99	
11422.00†	83.805	269.637	10950.41	788.89	-4.43	-788.88	655776.07	492864.57	32°21'14.369"N	103°49'43.955"W	5.99	
11522.00†	89.795	269.618	10955.99	888.69	-5.08	-888.68	655676.28	492863.92	32°21'14.367"N	103°49'45.118"W	5.99	
11525.43	90.000	269.617	10956.00	892.12	-5.10	-892.10	655672.85	492863.90	32°21'14.367"N	103°49'45.158"W	5.99	EOC
11579.96	91.079	269.617	10955.49	946.05	-5.47	-946.03	655618.93	492863.53	32°21'14.366"N	103°49'45.787"W	2.00	TL
11622.00†	91.079	269.617	10954.69	988.68	-5.75	-988.67	655576.30	492863.25	32°21'14.365"N	103°49'46.284"W	0.00	
11722.00†	91.079	269.617	10952.81	1088.66	-6.42	-1088.65	655476.33	492862.58	32°21'14.363"N	103°49'47.449"W	0.00	
11822.00†	91.079	269.617	10950.92	1188.65	-7.09	-1188.63	655376.35	492861.91	32°21'14.361"N	103°49'48.615"W	0.00	



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REFERENCE WELLPATH IDENTIFICATION			
Operator	BOPCO, L.P.	Slot	No.190H SHL
Area	Eddy County, NM	Well	No.190H
Field	JRU NAD27	Wellbore	No.190H PWB
Facility	JRU No.190H		

WELLPATH DATA (201 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
11922.00†	91.079	269.617	10949.04	1288.63	-7.76	-1288.61	655276.38	492861.24	32°21'14.359"N	103°49'49.780"W	0.00	
12022.00†	91.079	269.617	10947.16	1388.61	-8.43	-1388.59	655176.40	492860.57	32°21'14.357"N	103°49'50.946"W	0.00	
12122.00†	91.079	269.617	10945.28	1488.59	-9.09	-1488.57	655076.43	492859.91	32°21'14.355"N	103°49'52.111"W	0.00	
12222.00†	91.079	269.617	10943.40	1588.58	-9.76	-1588.55	654976.46	492859.24	32°21'14.353"N	103°49'53.277"W	0.00	
12322.00†	91.079	269.617	10941.51	1688.56	-10.43	-1688.53	654876.48	492858.57	32°21'14.351"N	103°49'54.442"W	0.00	
12422.00†	91.079	269.617	10939.63	1788.54	-11.10	-1788.51	654776.51	492857.90	32°21'14.349"N	103°49'55.608"W	0.00	
12522.00†	91.079	269.617	10937.75	1888.52	-11.77	-1888.49	654676.54	492857.23	32°21'14.347"N	103°49'56.773"W	0.00	
12622.00†	91.079	269.617	10935.87	1988.50	-12.44	-1988.47	654576.56	492856.56	32°21'14.345"N	103°49'57.939"W	0.00	
12722.00†	91.079	269.617	10933.98	2088.49	-13.11	-2088.45	654476.59	492855.89	32°21'14.343"N	103°49'59.104"W	0.00	
12822.00†	91.079	269.617	10932.10	2188.47	-13.78	-2188.43	654376.62	492855.23	32°21'14.341"N	103°50'00.270"W	0.00	
12922.00†	91.079	269.617	10930.22	2288.45	-14.44	-2288.41	654276.64	492854.56	32°21'14.339"N	103°50'01.435"W	0.00	
13022.00†	91.079	269.617	10928.34	2388.43	-15.11	-2388.39	654176.67	492853.89	32°21'14.337"N	103°50'02.601"W	0.00	
13122.00†	91.079	269.617	10926.45	2488.42	-15.78	-2488.37	654076.70	492853.22	32°21'14.335"N	103°50'03.766"W	0.00	
13222.00†	91.079	269.617	10924.57	2588.40	-16.45	-2588.35	653976.72	492852.55	32°21'14.333"N	103°50'04.932"W	0.00	
13322.00†	91.079	269.617	10922.69	2688.38	-17.12	-2688.33	653876.75	492851.88	32°21'14.331"N	103°50'06.097"W	0.00	
13422.00†	91.079	269.617	10920.81	2788.36	-17.79	-2788.31	653776.77	492851.21	32°21'14.329"N	103°50'07.263"W	0.00	
13522.00†	91.079	269.617	10918.92	2888.35	-18.46	-2888.29	653676.80	492850.54	32°21'14.327"N	103°50'08.428"W	0.00	
13622.00†	91.079	269.617	10917.04	2988.33	-19.13	-2988.27	653576.83	492849.88	32°21'14.325"N	103°50'09.594"W	0.00	
13722.00†	91.079	269.617	10915.16	3088.31	-19.79	-3088.25	653476.85	492849.21	32°21'14.323"N	103°50'10.759"W	0.00	
13822.00†	91.079	269.617	10913.28	3188.29	-20.46	-3188.23	653376.88	492848.54	32°21'14.321"N	103°50'11.925"W	0.00	
13922.00†	91.079	269.617	10911.39	3288.27	-21.13	-3288.21	653276.91	492847.87	32°21'14.319"N	103°50'13.090"W	0.00	
14022.00†	91.079	269.617	10909.51	3388.26	-21.80	-3388.19	653176.93	492847.20	32°21'14.317"N	103°50'14.256"W	0.00	
14122.00†	91.079	269.617	10907.63	3488.24	-22.47	-3488.17	653076.96	492846.53	32°21'14.315"N	103°50'15.421"W	0.00	
14222.00†	91.079	269.617	10905.75	3588.22	-23.14	-3588.15	652976.99	492845.86	32°21'14.313"N	103°50'16.587"W	0.00	
14322.00†	91.079	269.617	10903.86	3688.20	-23.81	-3688.13	652877.01	492845.19	32°21'14.311"N	103°50'17.752"W	0.00	
14422.00†	91.079	269.617	10901.98	3788.19	-24.48	-3788.11	652777.04	492844.53	32°21'14.309"N	103°50'18.918"W	0.00	
14522.00†	91.079	269.617	10900.10	3888.17	-25.14	-3888.09	652677.07	492843.86	32°21'14.307"N	103°50'20.083"W	0.00	
14622.00†	91.079	269.617	10898.22	3988.15	-25.81	-3988.07	652577.09	492843.19	32°21'14.305"N	103°50'21.249"W	0.00	
14722.00†	91.079	269.617	10896.33	4088.13	-26.48	-4088.05	652477.12	492842.52	32°21'14.303"N	103°50'22.414"W	0.00	
14822.00†	91.079	269.617	10894.45	4188.11	-27.15	-4188.03	652377.14	492841.85	32°21'14.301"N	103°50'23.580"W	0.00	
14922.00†	91.079	269.617	10892.57	4288.10	-27.82	-4288.01	652277.17	492841.18	32°21'14.299"N	103°50'24.745"W	0.00	
15022.00†	91.079	269.617	10890.69	4388.08	-28.49	-4387.99	652177.20	492840.51	32°21'14.297"N	103°50'25.911"W	0.00	
15122.00†	91.079	269.617	10888.81	4488.06	-29.16	-4487.97	652077.22	492839.85	32°21'14.295"N	103°50'27.076"W	0.00	
15222.00†	91.079	269.617	10886.92	4588.04	-29.83	-4587.95	651977.25	492839.18	32°21'14.293"N	103°50'28.242"W	0.00	
15322.00†	91.079	269.617	10885.04	4688.03	-30.49	-4687.93	651877.28	492838.51	32°21'14.291"N	103°50'29.407"W	0.00	
15422.00†	91.079	269.617	10883.16	4788.01	-31.16	-4787.91	651777.30	492837.84	32°21'14.288"N	103°50'30.573"W	0.00	
15522.00†	91.079	269.617	10881.28	4887.99	-31.83	-4887.89	651677.33	492837.17	32°21'14.286"N	103°50'31.738"W	0.00	
15622.00†	91.079	269.617	10879.39	4987.97	-32.50	-4987.87	651577.36	492836.50	32°21'14.284"N	103°50'32.904"W	0.00	
15722.00†	91.079	269.617	10877.51	5087.96	-33.17	-5087.85	651477.38	492835.83	32°21'14.282"N	103°50'34.069"W	0.00	
15822.00†	91.079	269.617	10875.63	5187.94	-33.84	-5187.83	651377.41	492835.16	32°21'14.280"N	103°50'35.235"W	0.00	
15922.00†	91.079	269.617	10873.75	5287.92	-34.51	-5287.81	651277.44	492834.50	32°21'14.278"N	103°50'36.400"W	0.00	
16022.00†	91.079	269.617	10871.86	5387.90	-35.18	-5387.79	651177.46	492833.83	32°21'14.276"N	103°50'37.566"W	0.00	
16122.00†	91.079	269.617	10869.98	5487.88	-35.84	-5487.77	651077.49	492833.16	32°21'14.274"N	103°50'38.731"W	0.00	
16222.00†	91.079	269.617	10868.10	5587.87	-36.51	-5587.75	650977.51	492832.49	32°21'14.272"N	103°50'39.897"W	0.00	
16322.00†	91.079	269.617	10866.22	5687.85	-37.18	-5687.73	650877.54	492831.82	32°21'14.270"N	103°50'41.062"W	0.00	



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REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	No.190H SHL
Area	Eddy County, NM	Well	No.190H
Field	JRU NAD27	Wellbore	No.190H PWB
Facility	JRU No.190H		

WELLPATH DATA (201 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
16422.00†	91.079	269.617	10864.33	5787.83	-37.85	-5787.71	650777.57	492831.15	32°21'14.268"N	103°50'42.228"W	0.00	
16522.00†	91.079	269.617	10862.45	5887.81	-38.52	-5887.69	650677.59	492830.48	32°21'14.265"N	103°50'43.393"W	0.00	
16622.00†	91.079	269.617	10860.57	5987.80	-39.19	-5987.67	650577.62	492829.81	32°21'14.263"N	103°50'44.559"W	0.00	
16722.00†	91.079	269.617	10858.69	6087.78	-39.86	-6087.65	650477.65	492829.15	32°21'14.261"N	103°50'45.724"W	0.00	
16758.48†	91.079	269.617	10858.00	6124.26	-40.10	-6124.13	650441.17	492828.90	32°21'14.260"N	103°50'46.149"W	0.00	Bone Spring 3 Pay Sand
16822.00†	91.079	269.617	10856.80	6187.76	-40.53	-6187.63	650377.67	492828.48	32°21'14.259"N	103°50'46.890"W	0.00	
16922.00†	91.079	269.617	10854.92	6287.74	-41.19	-6287.61	650277.70	492827.81	32°21'14.257"N	103°50'48.055"W	0.00	
17022.00†	91.079	269.617	10853.04	6387.73	-41.86	-6387.59	650177.73	492827.14	32°21'14.255"N	103°50'49.221"W	0.00	
17122.00†	91.079	269.617	10851.16	6487.71	-42.53	-6487.57	650077.75	492826.47	32°21'14.253"N	103°50'50.386"W	0.00	
17222.00†	91.079	269.617	10849.27	6587.69	-43.20	-6587.55	649977.78	492825.80	32°21'14.251"N	103°50'51.552"W	0.00	
17322.00†	91.079	269.617	10847.39	6687.67	-43.87	-6687.53	649877.81	492825.13	32°21'14.248"N	103°50'52.717"W	0.00	
17422.00†	91.079	269.617	10845.51	6787.65	-44.54	-6787.51	649777.83	492824.46	32°21'14.246"N	103°50'53.883"W	0.00	
17522.00†	91.079	269.617	10843.63	6887.64	-45.21	-6887.49	649677.86	492823.80	32°21'14.244"N	103°50'55.048"W	0.00	
17622.00†	91.079	269.617	10841.75	6987.62	-45.88	-6987.47	649577.88	492823.13	32°21'14.242"N	103°50'56.214"W	0.00	
17722.00†	91.079	269.617	10839.86	7087.60	-46.54	-7087.45	649477.91	492822.46	32°21'14.240"N	103°50'57.379"W	0.00	
17822.00†	91.079	269.617	10837.98	7187.58	-47.21	-7187.43	649377.94	492821.79	32°21'14.238"N	103°50'58.545"W	0.00	
17922.00†	91.079	269.617	10836.10	7287.57	-47.88	-7287.41	649277.96	492821.12	32°21'14.236"N	103°50'59.710"W	0.00	
18022.00†	91.079	269.617	10834.22	7387.55	-48.55	-7387.39	649177.99	492820.45	32°21'14.233"N	103°51'00.876"W	0.00	
18122.00†	91.079	269.617	10832.33	7487.53	-49.22	-7487.37	649078.02	492819.78	32°21'14.231"N	103°51'02.041"W	0.00	
18222.00†	91.079	269.617	10830.45	7587.51	-49.89	-7587.35	648978.04	492819.12	32°21'14.229"N	103°51'03.207"W	0.00	
18299.06	91.079	269.617	10829.00	7664.56	-50.40	-7664.40	648901.00	492818.60	32°21'14.227"N	103°51'04.105"W	0.00	No.190H PBHL

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
1) JRU #190H PBHL	18299.06	7664.56	-50.40	-7664.40	648901.00	492818.60	32°21'14.227"N	103°51'04.105"W	point

SURVEY PROGRAM - Ref Wellbore: No.190H PWB Ref Wellpath: Rev-B.0

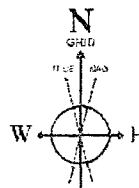
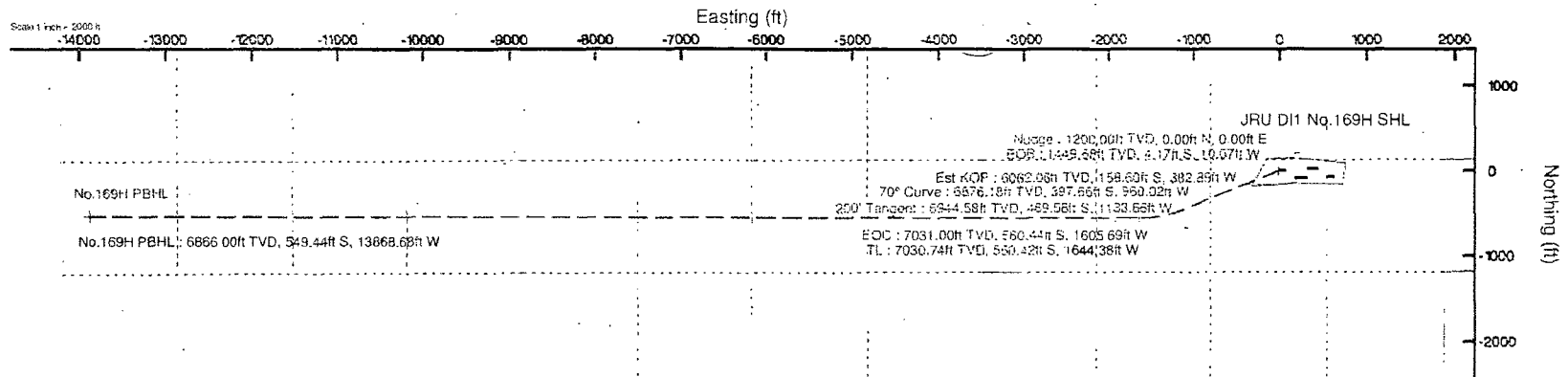
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
22.00	18299.06	NaviTrak (Standard)		No.190H PWB



BOPCO, L.P.

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

Slot: JRJ D11 No.169H SHL
Well: No.169H
Wellbore: No.169H PWB

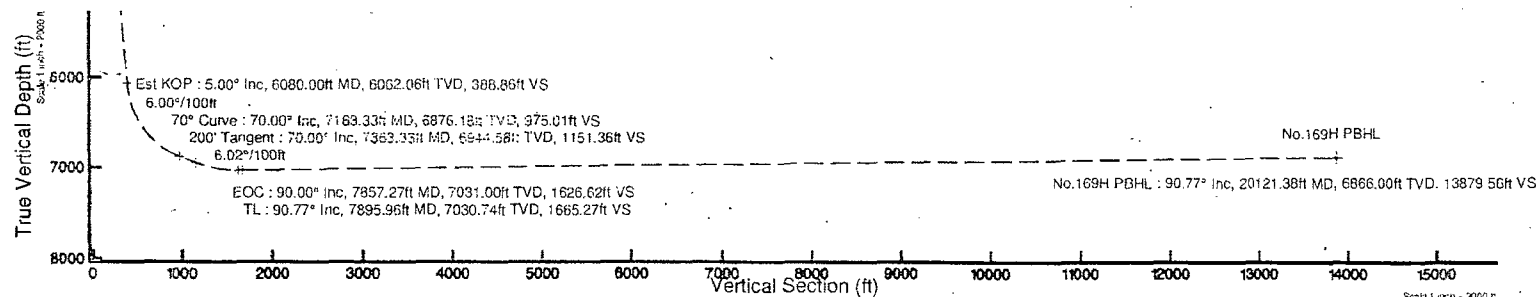


DGGM (1945.0 to 2015.0) Dip: 60.20° Field: 48384.5 nT
Magnetic North is 7.53 degrees East of True North (at 3/3/2014)
Grid North is 0.24 degrees East of True North
To correct azimuth from True to Grid subtract 0.24 degrees
To correct azimuth from Magnetic to Grid add 7.29 degrees

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	0.00	247.500	0.00	0.00	0.00	0.00	0.00
Nudge	1200.00	0.00	247.500	1200.00	0.00	0.00	0.00	0.00
EOB	1450.00	5.00	247.500	1449.68	-4.17	-10.07	2.00	10.23
Est KOP	6080.00	5.00	247.500	6062.06	-158.60	-382.89	0.00	388.86
70° Curve	7163.33	70.00	247.500	6876.18	-397.66	-960.02	6.00	975.01
200' Tangent	7363.33	70.00	247.500	6944.58	-469.56	-1133.66	0.00	1151.36
EOC	7857.27	90.00	270.000	7031.00	-560.44	-1605.69	6.02	1626.62
TL	7895.96	90.77	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

Profile for well No. 169H	Grid System: NAD27 / TM New Mexico SP, Eastern Zone (3001), US feet
True vertical depth is referenced to the Mean Sea Level (MSL)	Depth Reference: MSL (3.0m)
Measurements are referenced to the Mean Sea Level (MSL)	Scale: True distance
Profile is in the GCS (UTM) with Mean Sea Level (MSL) 3101 feet	Depth are in feet
Mean Sea Level is Mean Sea Level (MSL) 3101 feet	Created by software on 3/3/2014
Coordinates are in feet referenced to MSL	



Azimuth 267.73° with reference 0.00 N, 0.00 E

Scale 1 inch = 2000 ft

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REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	JRU DII 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	Gentry
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 DII 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°



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REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	JRU D11 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	3.36	-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	-4.97	-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°53'01.020"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

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REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	JRU DII 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)

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	-130.10	-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	638577.51	502395.61	32°22'49.444"N	103°53'03.987"W	0.00	Cherry Canyon
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	502349.29	32°22'48.932"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	-349.78	-834.32	638115.94	502201.49	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	-559.88	-1474.80	637485.47	502000.35	32°22'45.578"N	103°53'16.739"W	6.02	



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REFERENCE WELLPATH IDENTIFICATION

Operator	BOPCO, L.P.	Slot	JRU D11 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	BOC
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	1795.90	-560.50	-1774.44	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	1/ Brushy Canyon Lower "U" Sand



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REFERENCE WELLPATH IDENTIFICATION			
Operator	BOPCO, L.P.	Slot	JRU D11 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	



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REFERENCE WELLPATH IDENTIFICATION				
Operator	BOPCO, L.P.		Slot	JRU D11 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	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



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REFERENCE WELLPATH IDENTIFICATION			
Operator	BOPCO, L.P.	Slot	JRU DII 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	349.44	3868.68	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