

Results of Directional Survey

API number:	30-025-41462		
OGRID:		Operator:	OXY USA INC
		Property:	COPPERHEAD 18 STATE # 4H

surface	ULSTR:	B	18	T	24S	R	33E
				340	FNL	1980	FEL

BH Loc	ULSTR:	O	18	T	24S	R	33E
15441	MD	10979.5	TVD	194	FSL	1955	FEL
				5086	FNL		

Top Perf/OH	ULSTR:	B	18	T	24S	R	33E
10925	MD	10849.8	TVD	604	FNL	1994	FEL

Bot Perf/OH	ULSTR:	O	18	T	24S	R	33E
15087	MD	10975.7	TVD	548	FSL	1960	FEL
				4732	FNL		

	MD	N/S	E/W	VD
	10923	-262.40	-13.80	10848.6
TOP PERFS/OH	10925	-263.99	-13.58	10849.79
	10954	-287.10	-10.40	10867.10
	15084	-4389.40	19.50	10975.70
BOT PERFS/OH	15087	-4392.40	19.52	10975.70
	15178	-4483.40	20.20	10975.70

NEXT TO LAST	15389	-4694.40	23.30	10978.60
LAST READING	15441	-4746.30	24.60	10979.50
TD	15441	-4746.30	24.60	10979.50

Surface Location	340	FN	1980	FE
Projected BHL	5086	FN	1955	FE
Location of				
Top Perfs/OH	604	FN	1994	FE
Bottom Perfs/OH	4732	FN	1960	FE

SUMMARY of Subsurface Locations

Surface Location	B-18-24S-33E	340	FN	1980	FE	Vert. Depth
Top Perfs/OH	B-18-24S-33E	604	FN	1994	FE	10849.79
Bottom Perfs/OH	O-18-24S-33E	4732	FN	1960	FE	10975.70
Projected TD	O-18-24S-33E	5086	FN	1955	FE	10979.50

JAN 30 2015

HOBBS OCD

NATIONAL OILWELL VARCO

FloSurvey - Real Time Survey Tool
1200 Cypress Creek Road
Cedar Park, TX 78613
Phone: (512)340-5000
Fax: (512)340-5441

JAN 29 2015

RECEIVED

April 19, 2014

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

CLIENT: OXY USA
WELL: Copperhead 18 ST 4H
FIELD: N/A
RIG: H&P 474
COUNTY: Lea
API NO: 30-025-41462

We hereby certify that the enclosed field survey data performed on the referenced well by National Oilwell Varco, contained in this report represents to the best of our knowledge, a true and accurate survey of the surveyed section of the well at the time the survey was run.

Other information required by your office is as follows.

<u>Name & Title of Surveyor</u>	<u>Drainhole Number</u>	<u>Surveyed Depths</u>	<u>Dates Performed</u>	<u>Type of Survey</u>
Mickey Henderson Field Service Technician	Copperhead 18 ST 4H Original Hole	253.00 Ft to 1212.00 Ft	April 15, 2014 to April 17, 2014	FloSurvey

If any other information is required, please contact the undersigned at the above letterhead and phone number.
Sincerely,

Tyler Andreason
Field Service Manager

CC: OXY USA
Enclosures: [2]
County of Lea
State of New Mexico

Attn: Marinos Baghdadi
5 Greenway Plaza, Suite 110
Houston, Texas 77046

Attn: 0
0
0

FloSurvey - Real Time Survey Tool

1200 Cypress Creek Road

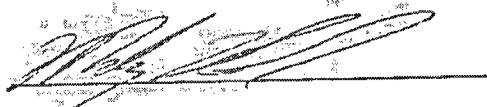
Cedar Park, TX 78613

Phone: (512) 340-5000

Fax: (512) 340-5441

I, Mickey Henderson certify that; I am employed by National Oilwell Varco, L.P.; that the surveys taken on the day(s) of April 15, 2014 through April 17, 2014, from a depth of 253.00 Ft feet to a depth of 1212 feet; are to the best of my knowledge, the data is true, correct, complete and within the limitations of the tool as set forth by National Oilwell Varco, L.P.; that I am authorized and qualified to make this report; that this survey was conducted at the request of OXY USA for the Copperhead 18 ST 4H Well (Original Hole) API No. 30-025-41462 in Lea County, New Mexico; and that I have reviewed this report and find that it conforms to the principals and procedures as set forth by National Oilwell Varco, L.P.

Signature



Mickey Henderson
Field Service Technician

OXY USA

Lea County

Copperhead 18 State 4H, C18S 4H

Surveys: 253 MD - 1212 MD

UWI No. 30-025-41462

National Oilwell Varco

Survey Report

19 April 2014

UWI No. 30-025-41462

Surface Coordinates: 445923.30 N, 724053.60 E (32° 13' 25.9811" N, 103° 36' 31.7153" W)
Grid Coordinate System: NAD27 New Mexico State Planes, Eastern Zone, US Foot

Surface Coordinates relative to Map Coordinates: 445923.30 N, 724053.60 E (Grid)
Surface Coordinates relative to Map Coordinates: 445923.30 N, 724053.60 E (Grid)

Kelly Bushing Elevation: 3594.00ft above Mean Sea Level
Kelly Bushing Elevation: 3594.00ft above Mean Sea Level

Kelly Bushing Elevation: 24.00ft above Ground Level
Ground Level: 3570.00ft

Survey Ref: svy49

Survey Depth (ft)	Incl. (°)	(Grid) Azim. (°)	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
0.00	0.000	0.000	0.00	0.00 N	0.00 E	0.00	
253.00	0.880	4.480	252.99	1.94 N	0.15 E	1.92	0.348
316.00	0.780	348.750	315.98	2.84 N	0.11 E	2.82	0.393
442.00	1.450	355.660	441.96	5.27 N	0.18 W	5.27	0.541
532.00	1.660	355.780	531.93	7.71 N	0.34 W	7.71	0.236
807.00	1.740	0.150	806.80	15.86 N	0.55 W	15.85	0.047
898.00	1.990	355.670	897.76	18.82 N	0.67 W	18.80	0.318
1212.00	1.600	341.840	1211.60	28.42 N	2.45 W	28.52	0.185

All data is in Feet (US Survey) unless otherwise stated. Directions and coordinates are relative to Grid North. Vertical depths are relative to C18S 4H. Northings and Eastings are relative to C18S 4H.

The dogleg severity is in Degrees per 100 feet (US Survey).
Vertical Section is from C18S 4H calculated along an azimuth of 355.077° (Grid).

Based upon minimum curvature calculations, at a measured depth of 1212.00ft, the bottom hole displacement is 28.52ft, in the direction of 355.077° (Grid).

The along-hole displacement is 28.64ft. The total accumulated dogleg is 2.658°. The measured tortuosity is 0.233°/100ft. The directional difficulty index is 1.4.

Survey Tool Program for Copperhead 18 State 4H, Surveys: 253 MD - 1212 MC

From		To		Survey Tool Description
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	
0.00	0.00	1212.00	1211.60	Fl0Survey TiltOnlyMEM

REFERENCE DATA			
Ellipsoid	Clarke - 1866	Unit System	Feet (Us Survey)
Coord. System	NAD27, New Mexico State Planes, Eastern Zone, US Foot	North Ref.	Grid North
Mag. Model	igrf2010.dat	Vertical Ref.	Mean Sea Level
Calc. Date	15 Apr, 2014		

LOCATION DATA			
RKB Elevation	3594.00ft above MSL	Total Field	48327.3 nT
Map North	445923.30 N	Magnetic Dip	60.111°
Map East	724053.60 E	Declination	7.256°
Latitude	32° 13' 25.9811" N	Convergence	0.386°
Longitude	103° 36' 31.7153" W		

NORTH REFERENCE DATA		
Magnetic Model	igrf2010.dat	
Calculation Date	Tuesday, April 15, 2014	
Declination	7.256°	
Inclination/Dip	60.111°	
Horizontal Component	24083.0 nT	
Northerly Component	23890.9 nT	
Easterly Component	3041.1 nT	
Vertical Component	41899.1 nT	
Total Field Strength	48327.3 nT	
Grid North is 0.386 degrees East of True North (Grid Convergence)		
Magnetic North is 7.256 degrees East of True North (Magnetic Declination)		
Magnetic North is 6.870 degrees East of Grid North (Magnetic Convergence)		
To convert a True Direction to a Grid Direction, Subtract 0.386 degrees.		
To convert a Magnetic Direction to a True Direction, Add 7.256 degrees.		
To convert a Magnetic Direction to a Grid Direction, Add 6.870 degrees.		

Disclaimer Notice
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OCCIDENTAL PERMIAN LTD.

Triple X Bone Spring

Lea County, NM

Copperhead "18" State #4H

DH - Job #320314-MPH-485

Survey: MWD - Tie-In @ 1212' by NOV

SDI Survey Report

This survey is correct to the best of my knowledge and is supported by actual field data.

Richard

Notarized this date 11th of September 2014

Carrie Reed

Notary Signature
County of Midland
State of Texas



SDI
SDI Survey Report

Company: OCCIDENTAL PERMIAN LTD.
Project: Triple X Bone Spring
Site: Lea County, NM
Well: Copperhead "18" State #4H
Wellbore: DH - Job #320314-MPH-485
Design: DH - Job #320314-MPH-485

Local Co-ordinate Reference: Well Copperhead "18" State #4H
TVD Reference: Mean Sea Level (System)
MD Reference: Mean Sea Level (System)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM-Regulatory

Project: Triple X Bone Spring
Map System: US State Plane 1927 (Exact solution)
Geo Datum: NAD 1927 (NADCON CONUS)
Map Zone: New Mexico East 3001
System Datum: Mean Sea Level

Site: Lea County, NM
Site Position: Northing: 445,907.52 usft Latitude: 32° 13' 25.997 N
From: Lat/Long Easting: 721,463.19 usft Longitude: 103° 37' 1.870 W
Position Uncertainty: 0.0 usft Slot Radius: 13-3/16" Grid Convergence: 0.38"

Well: Copperhead "18" State #4H, Horizontal
Well Position: +N/-S: 0.0 usft Northing: 445,923.29 usft Latitude: 32° 13' 25.981 N
+E/-W: 0.0 usft Easting: 724,053.60 usft Longitude: 103° 36' 31.715 W
Position Uncertainty: 0.0 usft Wellhead Elevation: 0.0 usft Ground Level: 0.0 usft

Wellbore: DH - Job #320314-MPH-485

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/17/2014	7.26	60.11	48,354

Design: DH - Job #320314-MPH-485

Audit Notes:

Version: 1.0 **Phase:** ACTUAL **Tie On Depth:** 0.0
Vertical Section: Depth From (TVD) +N/-S +E/-W Direction
(usft) (usft) (usft) (°)
0.0 0.0 0.0 179.50

Survey Program Date: 9/10/2014

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
1,336.0	15,441.0	MWD - Tie-In @ 1212' by NOV (DH - Job	MWD	MWD

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)
1,212.0	0.60	341.84	1,211.6	28.4	-2.5	355.07	28.5
1,336.0	1.58	330.10	1,335.6	30.5	-3.5	353.45	30.7
1,431.0	1.67	346.89	1,430.5	33.0	-4.5	352.28	33.3
1,525.0	1.58	326.68	1,524.5	35.4	-5.5	351.18	35.8
1,620.0	1.14	352.89	1,619.5	37.5	-6.3	350.40	38.0
1,714.0	0.18	321.47	1,713.5	38.5	-6.5	350.35	39.0
1,808.0	0.09	294.07	1,807.5	38.6	-6.7	350.16	39.2
1,902.0	0.51	303.41	1,901.5	38.9	-7.1	349.63	39.5
1,997.0	0.79	190.80	1,996.5	38.5	-7.6	348.84	39.2
2,091.0	1.23	177.81	2,090.4	36.8	-7.7	348.23	37.6
2,186.0	0.70	158.63	2,185.4	35.3	-7.4	348.12	36.1
2,280.0	1.23	157.66	2,279.4	33.8	-6.8	348.58	34.5

SDI
SDI Survey Report

Company: OCCIDENTAL PERMIAN LTD.
Project: Triple X Bone Spring
Site: Lea County, NM
Well: Copperhead "18" State #4H
Wellbore: DH - Job #320314-MPH-485
Design: DH - Job #320314-MPH-485

Local Co-ordinate Reference: Well Copperhead "18" State #4H
TVD Reference: Mean Sea Level (System)
MD Reference: Mean Sea Level (System)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM-Regulatory

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)
2,374.0	1.41	171.64	2,373.4	31.7	-6.3	348.81	32.4
2,468.0	0.70	156.17	2,467.4	30.1	-5.9	348.94	30.6
2,562.0	1.06	140.96	2,561.4	28.9	-5.1	349.99	29.3
2,657.0	1.41	155.90	2,656.3	27.1	-4.1	351.47	27.4
2,751.0	0.70	170.76	2,750.3	25.5	-3.5	352.18	25.7
2,845.0	0.70	175.24	2,844.3	24.4	-3.4	352.14	24.6
2,940.0	1.14	163.50	2,939.3	22.8	-3.4	351.60	23.1
3,034.0	1.14	139.38	3,033.3	21.2	-2.8	352.42	21.4
3,128.0	0.88	152.92	3,127.3	19.8	-1.9	354.58	19.9
3,223.0	1.49	145.97	3,222.3	18.2	-0.9	357.29	18.2
3,317.0	0.97	166.36	3,316.2	16.4	0.0	0.04	16.4
3,412.0	1.06	136.92	3,411.2	15.0	0.8	3.07	15.0
3,508.0	1.14	137.80	3,505.2	13.6	2.0	8.44	13.8
3,600.0	1.23	148.43	3,599.2	12.1	3.2	14.75	12.5
3,695.0	1.14	184.64	3,694.2	10.3	3.6	19.50	10.9
3,789.0	0.79	178.49	3,788.2	8.7	3.6	22.38	9.4
3,883.0	1.14	158.28	3,882.1	7.2	3.9	28.79	8.2
3,977.0	1.41	177.35	3,976.1	5.1	4.3	40.14	6.7
4,071.0	1.14	174.10	4,070.1	3.1	4.5	55.70	5.4
4,165.0	1.23	181.22	4,164.1	1.1	4.6	76.16	4.7
4,259.0	1.06	214.35	4,258.1	-0.6	4.1	98.44	4.1
4,353.0	1.41	174.23	4,352.0	-2.5	3.7	123.88	4.4
4,448.0	1.74	161.47	4,447.0	-5.0	4.3	139.60	6.6
4,542.0	1.85	170.67	4,541.0	-7.9	5.0	147.74	9.3
4,636.0	2.46	135.24	4,634.9	-10.8	6.6	148.44	12.7
4,730.0	2.11	129.27	4,728.8	-13.3	9.4	144.82	16.3
4,825.0	2.20	145.97	4,823.7	-15.9	11.8	143.57	19.8
4,919.0	1.67	129.71	4,917.7	-18.3	13.8	142.94	22.9
4,995.0	1.67	143.78	4,993.7	-19.9	15.3	142.40	25.1
5,097.0	1.14	140.61	5,095.6	-21.9	16.8	142.41	27.6
5,191.0	0.53	9.83	5,189.6	-22.2	17.5	141.70	28.3
5,286.0	0.82	5.17	5,284.6	-21.2	17.6	140.28	27.6
5,381.0	0.62	359.11	5,379.6	-20.2	17.7	138.82	26.8
5,475.0	0.62	340.30	5,473.6	-19.2	17.5	137.69	26.0
5,569.0	0.53	343.38	5,567.6	-18.3	17.2	136.81	25.1
5,664.0	0.44	345.48	5,662.6	-17.5	17.0	135.94	24.4
5,758.0	0.62	320.61	5,756.6	-16.8	16.6	135.41	23.6
5,853.0	0.70	300.66	5,851.6	-16.1	15.7	135.66	22.5
5,947.0	0.62	291.17	5,945.6	-15.6	14.8	136.62	21.5
6,041.0	0.97	285.98	6,039.6	-15.2	13.5	138.37	20.4
6,135.0	0.88	274.91	6,133.6	-15.0	12.1	141.13	19.2
6,229.0	0.70	277.28	6,227.6	-14.8	10.8	144.01	18.3
6,323.0	0.79	281.85	6,321.5	-14.6	9.6	146.80	17.5
6,417.0	0.88	285.02	6,415.5	-14.3	8.2	150.07	16.5

SDI

SDI Survey Report

Company: OCCIDENTAL PERMIAN LTD.
Project: Triple X Bone Spring
Site: Lea County, NM
Well: Copperhead "18" State #4H
Wellbore: DH - Job #320314-MPH-485
Design: DH - Job #320314-MPH-485

Local Co-ordinate Reference: Well Copperhead "18" State #4H
TVD Reference: Mean Sea Level (System)
MD Reference: Mean Sea Level (System)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM-Regulatory

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)
6,511.0	0.79	277.19	6,509.5	-14.0	6.9	153.84	15.6
6,606.0	0.88	279.30	6,604.5	-13.8	5.5	158.24	14.9
6,700.0	1.06	289.06	6,698.5	-13.4	4.0	163.47	14.0
6,794.0	0.97	283.26	6,792.5	-13.0	2.4	169.56	13.2
6,888.0	0.97	286.86	6,886.5	-12.5	0.9	176.11	12.6
6,982.0	0.88	281.94	6,980.5	-12.2	-0.6	182.89	12.2
7,076.0	0.88	290.29	7,074.5	-11.8	-2.0	189.64	11.9
7,171.0	1.06	290.64	7,169.4	-11.2	-3.5	197.37	11.7
7,265.0	0.97	293.19	7,263.4	-10.6	-5.0	205.51	11.7
7,359.0	0.88	287.30	7,357.4	-10.1	-6.5	212.77	12.0
7,453.0	0.70	277.98	7,451.4	-9.8	-7.7	218.38	12.4
7,547.0	0.79	270.07	7,545.4	-9.7	-8.9	222.74	13.2
7,641.0	0.88	268.32	7,639.4	-9.7	-10.3	226.76	14.2
7,736.0	0.70	263.57	7,734.4	-9.8	-11.6	229.90	15.2
7,830.0	0.53	229.64	7,828.4	-10.1	-12.5	231.03	16.1
7,924.0	0.70	227.89	7,922.4	-10.8	-13.3	230.88	17.1
8,018.0	0.79	227.18	8,016.4	-11.6	-14.2	230.66	18.3
8,112.0	1.06	226.92	8,110.3	-12.7	-15.3	230.38	19.9
8,207.0	1.23	232.63	8,205.3	-13.9	-16.7	230.35	21.7
8,301.0	1.23	229.38	8,299.3	-15.1	-18.3	230.40	23.8
8,395.0	0.97	263.92	8,393.3	-15.9	-19.9	231.35	25.4
8,489.0	1.06	262.08	8,487.3	-16.1	-21.5	233.21	26.9
8,583.0	0.97	258.82	8,581.3	-16.4	-23.2	234.76	28.4
8,677.0	0.62	32.15	8,675.3	-16.1	-23.7	235.80	28.6
8,772.0	0.79	5.79	8,770.2	-15.0	-23.3	237.26	27.7
8,866.0	0.79	333.53	8,864.2	-13.8	-23.6	239.68	27.3
8,960.0	0.62	297.32	8,958.2	-13.0	-24.3	241.92	27.5
9,054.0	0.79	274.83	9,052.2	-12.7	-25.4	243.47	28.4
9,149.0	0.79	268.67	9,147.2	-12.6	-26.7	244.68	29.5
9,243.0	0.68	18.09	9,241.2	-12.0	-27.1	246.20	29.6
9,337.0	0.26	200.73	9,335.2	-11.5	-27.0	246.95	29.3
9,431.0	0.97	131.30	9,429.2	-12.2	-26.5	245.24	29.1
9,526.0	1.23	171.64	9,524.2	-13.7	-25.7	241.87	29.1
9,620.0	1.41	245.82	9,618.2	-15.2	-26.6	240.24	30.7
9,715.0	0.53	213.91	9,713.2	-16.1	-27.9	240.10	32.2
9,809.0	0.70	140.88	9,807.2	-16.9	-27.8	238.76	32.5
9,904.0	0.62	198.53	9,902.1	-17.8	-27.6	237.18	32.8
9,998.0	1.32	225.95	9,996.1	-19.0	-28.5	236.30	34.3
10,092.0	1.85	232.37	10,090.1	-20.7	-30.5	235.83	36.9
10,186.0	1.49	227.41	10,184.1	-22.5	-32.6	235.44	39.6
10,281.0	0.97	243.36	10,279.0	-23.7	-34.2	235.36	41.6
10,312.0	0.70	245.47	10,310.0	-23.9	-34.7	235.45	42.1
10,327.0	0.88	226.50	10,325.0	-24.0	-34.8	235.45	42.3
10,359.0	0.70	165.57	10,357.0	-24.3	-35.0	235.15	42.6

SDI
SDI Survey Report

Company: OCCIDENTAL PERMIAN LTD.
Project: Triple X Bone Spring
Site: Lea County, NM
Well: Copperhead "18" State #4H
Wellbore: DH - Job #320314-MPH-485
Design: DH - Job #320314-MPH-485

Local Co-ordinate Reference: Well Copperhead "18" State #4H
TVD Reference: Mean Sea Level (System)
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Database: EDM-Regulatory

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)
10,390.0	3.87	163.29	10,388.0	-25.5	-34.6	233.59	43.0
10,422.0	7.39	172.50	10,419.8	-28.6	-34.0	229.95	44.4
10,453.0	10.38	180.43	10,450.5	-33.4	-33.8	225.35	47.5
10,484.0	13.45	182.80	10,480.8	-39.8	-34.0	220.52	52.3
10,516.0	17.06	180.34	10,511.7	-48.2	-34.2	215.36	59.1
10,547.0	18.73	178.32	10,541.2	-57.7	-34.1	210.56	67.0
10,578.0	20.05	175.59	10,570.4	-68.0	-33.5	206.25	75.8
10,609.0	22.60	174.63	10,599.3	-79.2	-32.6	202.34	85.6
10,641.0	25.50	174.98	10,628.5	-92.2	-31.4	198.79	97.4
10,673.0	26.73	176.03	10,657.2	-108.2	-30.3	195.91	110.5
10,704.0	28.49	175.68	10,684.7	-120.5	-29.2	193.63	124.1
10,736.0	32.01	174.40	10,712.3	-136.6	-27.8	191.51	139.4
10,767.0	35.44	174.98	10,738.1	-153.8	-26.2	189.69	156.0
10,798.0	39.66	173.70	10,762.7	-172.5	-24.4	188.04	174.3
10,829.0	43.97	173.57	10,785.8	-193.1	-22.1	186.52	194.3
10,861.0	46.43	173.04	10,808.3	-215.6	-19.4	185.15	216.5
10,892.0	49.42	173.39	10,829.1	-238.5	-18.7	184.01	239.1
10,923.0	52.58	172.78	10,848.6	-262.4	-13.8	183.01	262.8
10,954.0	54.34	171.29	10,867.1	-287.1	-10.4	182.07	287.2
10,986.0	57.07	172.52	10,885.1	-313.2	-6.6	181.21	313.3
11,017.0	60.67	174.63	10,901.1	-339.6	-3.7	180.62	339.6
11,048.0	64.10	175.68	10,915.5	-367.0	-1.4	180.21	367.0
11,080.0	67.09	176.47	10,928.7	-396.0	0.6	179.91	396.0
11,111.0	70.79	175.94	10,939.8	-424.9	2.5	179.66	424.9
11,143.0	73.60	174.45	10,949.6	-455.2	5.1	179.36	455.3
11,174.0	75.62	173.48	10,957.9	-485.0	8.2	179.03	485.0
11,205.0	79.76	173.83	10,964.5	-515.1	11.6	178.71	515.2
11,237.0	82.22	173.48	10,969.5	-546.5	15.1	178.42	546.7
11,288.0	84.68	171.81	10,975.3	-596.7	21.6	177.93	597.1
11,318.0	85.03	171.29	10,978.0	-626.3	26.0	177.63	626.8
11,412.0	88.11	174.01	10,983.6	-719.3	38.0	176.98	720.3
11,506.0	88.84	175.06	10,986.3	-812.8	46.9	176.70	814.2
11,600.0	88.29	176.73	10,988.8	-906.6	53.6	176.61	908.1
11,694.0	89.43	178.49	10,990.7	-1,000.5	57.6	176.71	1,002.1
11,788.0	91.45	180.43	10,989.9	-1,094.4	58.4	176.94	1,096.0
11,882.0	90.66	180.34	10,988.2	-1,188.4	57.8	177.22	1,189.8
11,977.0	91.89	182.18	10,988.1	-1,283.4	55.7	177.51	1,284.6
12,071.0	91.80	182.10	10,983.1	-1,377.3	52.2	177.83	1,378.2
12,165.0	92.24	181.83	10,979.8	-1,471.1	49.0	178.09	1,472.0
12,260.0	90.04	181.57	10,977.9	-1,566.1	46.2	178.31	1,566.8
12,354.0	90.57	180.48	10,977.4	-1,660.1	44.5	178.46	1,660.7
12,448.0	90.40	180.95	10,976.6	-1,754.0	43.3	178.58	1,754.6
12,542.0	89.17	179.55	10,976.9	-1,848.0	42.9	178.67	1,848.5
12,637.0	89.43	179.46	10,978.1	-1,943.0	43.7	178.71	1,943.5
12,731.0	89.87	179.72	10,978.7	-2,037.0	44.4	178.75	2,037.5

SDI

SDI Survey Report

Company: OCCIDENTAL PERMIAN LTD.
Project: Triple X Bone Spring
Site: Lea County, NM
Well: Copperhead "18" State #4H
Wellbore: DH - Job #320314-MPH-485
Design: DH - Job #320314-MPH-485

Local Co-ordinate Reference: Well Copperhead "18" State #4H
TVD Reference: Mean Sea Level (System)
MD Reference: Mean Sea Level (System)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM-Regulatory

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	Closure Azimuth (°)	Closure Distance (usft)
12,826.0	90.22	179.37	10,978.6	-2,132.0	45.2	178.79	2,132.5
12,920.0	89.08	180.87	10,979.2	-2,226.0	45.0	178.84	2,226.5
13,014.0	88.90	180.60	10,980.8	-2,320.0	43.8	178.92	2,320.4
13,108.0	89.96	180.51	10,981.8	-2,414.0	42.8	178.98	2,414.4
13,202.0	89.78	180.51	10,982.0	-2,508.0	42.0	179.04	2,508.3
13,296.0	88.46	180.34	10,983.4	-2,602.0	41.3	179.09	2,602.3
13,390.0	90.31	181.31	10,984.4	-2,695.9	40.0	179.15	2,696.2
13,484.0	91.01	181.57	10,983.3	-2,789.9	37.8	179.23	2,790.2
13,578.0	91.89	181.22	10,980.9	-2,884.8	35.3	179.30	2,885.1
13,673.0	91.71	180.43	10,978.0	-2,978.8	33.9	179.35	2,979.0
13,767.0	89.78	180.51	10,976.8	-3,072.8	33.2	179.38	3,073.0
13,861.0	89.08	179.81	10,977.7	-3,166.8	32.9	179.40	3,166.9
13,955.0	89.52	179.72	10,978.8	-3,260.8	33.3	179.42	3,260.9
14,049.0	90.04	179.99	10,979.2	-3,354.8	33.5	179.43	3,354.9
14,143.0	89.87	179.99	10,979.3	-3,448.8	33.5	179.44	3,448.9
14,237.0	89.43	179.46	10,979.8	-3,542.8	34.0	179.45	3,542.9
14,352.0	89.52	179.37	10,980.9	-3,637.7	35.2	179.45	3,637.9
14,426.0	90.13	179.90	10,981.1	-3,731.7	35.6	179.45	3,731.9
14,520.0	89.78	180.78	10,981.2	-3,825.7	35.1	179.47	3,825.9
14,614.0	90.22	180.95	10,981.2	-3,919.7	33.7	179.51	3,919.9
14,708.0	89.87	181.66	10,981.1	-4,013.7	31.5	179.55	4,013.8
14,802.0	90.04	182.27	10,981.2	-4,107.6	28.3	179.61	4,107.7
14,896.0	91.36	182.54	10,980.1	-4,201.6	24.3	179.67	4,201.6
14,991.0	91.71	181.74	10,977.5	-4,296.5	20.8	179.72	4,296.5
15,084.0	90.48	179.90	10,975.7	-4,389.4	18.5	179.75	4,389.5
15,178.0	89.60	179.20	10,975.7	-4,483.4	20.2	179.74	4,483.5
15,272.0	89.16	179.29	10,976.7	-4,577.4	21.4	179.73	4,577.5
15,296.6	89.12	179.22	10,977.1	-4,602.0	21.8	179.73	4,602.0
15,366.0	88.99	179.02	10,978.2	-4,671.4	22.8	179.72	4,671.4
15,389.0	88.90	178.58	10,978.6	-4,694.4	23.3	179.72	4,694.4
Last MWD Survey							
15,441.0	88.90	178.58	10,979.6	-4,746.3	24.6	179.70	4,746.4
Projection to Bit							

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/S (usft)	+E/W (usft)	
15,389.0	10,978.6	-4,694.4	23.3	Last MWD Survey
15,441.0	10,979.6	-4,746.3	24.6	Projection to Bit



C18S 4H
Lea County, New Mexico
Northing: 445923.30
Easting: 724053.60
Design #5



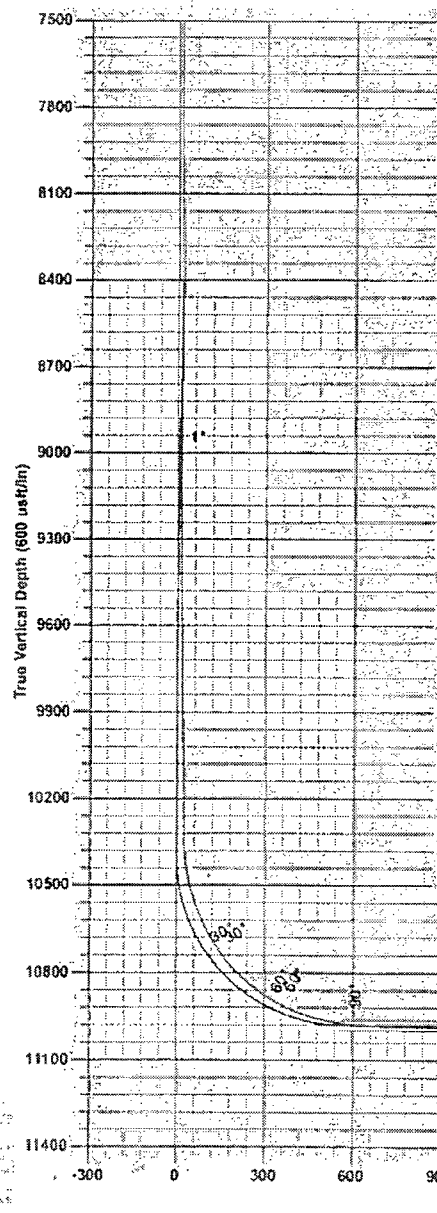
To convert a Magnetic Direction to a Grid Direction, Add 6.87°
To convert a True Direction to a Grid Direction, Subtract 6.87°

Azimuths to Grid North
True North: -0.39°
Magnetic North: 6.87°

Magnetic Field
Strength: 48330.75nT
Dip Angle: 60.11°
Date: 04/04/2014
Model: IGRF2010



KB @ 3594.00usft
Gr @ 3570.00



WELL DETAILS C18S 4H					
Ground Level: 3570.00					
+N-S	+E-W	Northing	Easting	Latitude	Longitude
0.00	0.00	445923.30	724053.60	32.223884	-103.608810

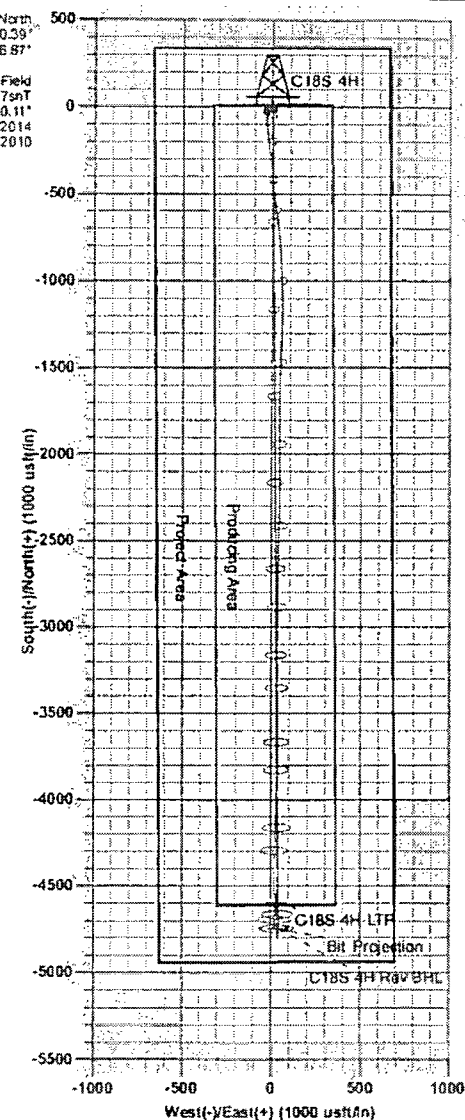
SECTION DETAILS									
MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	Vsect	Target
8301.00	1.23	229.38	8299.29	-14.12	-18.65	0.00	0.00	13.96	
8473.02	1.35	52.61	8471.29	-14.09	-18.44	1.50	-178.31	13.93	
9411.91	1.35	52.61	9409.92	-0.55	-0.84	0.00	0.00	0.64	
9502.00	0.00	0.00	9500.00	0.00	0.00	1.50	180.00	0.00	
10409.04	0.00	0.00	10407.04	0.00	0.00	0.00	0.00	0.00	
11309.04	90.00	179.50	10980.00	-572.94	4.98	10.00	179.50	572.96	
15481.60	90.00	179.50	10980.00	-4745.33	41.21	0.00	0.00	4745.51	Rev BHL

DESIGN TARGET DETAILS					
Name	TVD	+N-S	+E-W	Northing	Easting
C18S 4H LTP	10980.00	-4600.70	34.10	441322.60	724087.70
C18S 4H Rev BHL	10980.00	-4745.33	41.21	441177.97	724094.91

SITE DETAILS:	
Copperhead 18 State 4H	
Site Centre Northing: 445923.30	
Easting: 724053.60	
Positional Uncertainty: 0.00	
Convergence: 0.39	
Local North: Grid	

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

Lateral TGT
Line
20'up/20'down



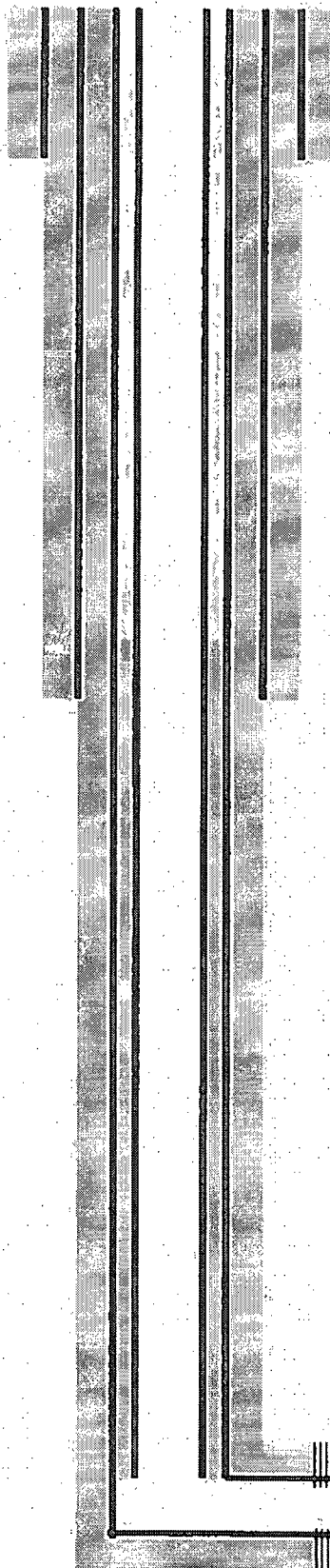
SDI MWD
Bit Projection

4693 C18S 4H Rev BHL
4745 C18S 4H LTP

Jody Barclay
16:15, May 12 2014

Scientific Drilling
2740 N. Highway 287
Decatur, TX 76234

OXY USA Inc.
Copperhead 18 State #4H
API No. 30-025-41462



14-3/4" hole @ 1226'
11-3/4" csg @ 1226'
w/ 760sx-TOC-Surf-Circ

10-5/8" hole @ 5050'
8-5/8" csg @ 5050'
w/ 2110sx-TOC-Surf-Circ

7-7/8" hole @ 15441'
5-1/2" csg @ 15332'
w/ 1790sx-TOC-Surf-Circ

4-1/2" liner @ 0-10367'
w/ 115sx-TOC-4691'-Calc

Perfs @ 10925-15087'

TD-15441'M 10979'