

OXY USA PERMIAN EOR

HOBBS NORTH (LEA)

NORTH HOBBS GRAYBURG-SA UNIT

NHU (G/SA) 666-24

3002543605

ORIG HOLE

HOBBS OCD

JUL 17 2017

RECEIVED

Design: NHU (G/SA) 666-24

Standard Survey Report

05 May, 2017

Oxy Survey Report

Company:	OXY USA PERMIAN EOR	Local Co-ordinate Reference:	Well NHU (G/SA) 666-24
Project:	HOBBS NORTH (LEA)	TVD Reference:	TR435 17.5'KB @ 3692.90ft (TRINIDAD 435)
Site:	NORTH HOBBS GRAYBURG-SA UNIT	MD Reference:	TR435 17.5'KB @ 3692.90ft (TRINIDAD 435)
Well:	NHU (G/SA) 666-24	North Reference:	Grid
Wellbore:	ORIG HOLE	Survey Calculation Method:	Minimum Curvature
Design:	NHU (G/SA) 666-24	Database:	HOPSPP

Project	HOBBS NORTH (LEA), North America, North West Hobbs, NM		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		Using geodetic scale factor

Site	NORTH HOBBS GRAYBURG-SA UNIT, NORTH HOBBS G/SA UNIT		
Site Position:		Northing:	635,270.89 usft
From:	Map	Easting:	853,897.68 usft
Position Uncertainty:	1.00 ft	Slot Radius:	13.200 in
		Latitude:	32° 44' 28.209035 N
		Longitude:	103° 10' 56.590797 W
		Grid Convergence:	0.62 °

Well	NHU (G/SA) 666-24, 1402020100		
Well Position	+N/-S	0.00 ft	Northing: 633,997.67 usft
	+E/-W	0.00 ft	Easting: 846,368.97 usft
Position Uncertainty		5.59 ft	Wellhead Elevation: ft
			Latitude: 32° 44' 16.413000 N
			Longitude: 103° 12' 24.880000 W
			Ground Level: 3,675.40 ft

Wellbore	ORIG HOLE		
Magnetics	Model Name	Sample Date	Declination (°)
	HDGM	5/5/2017	6.95
			Dip Angle (°) 60.78
			Field Strength (nT) 48,254

Design	NHU (G/SA) 666-24		
Audit Notes:			
Version:	Phase:	ACTUAL	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)
	0.00	0.00	0.00
			Direction (°) 218.46

Survey Program	Date	5/5/2017		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
116.00	1,446.00	Surface Drop EMS Survey (ORIG HOLE)	B017Mb_EMS+IGRF	OWSG EMS + IGRF or WMM
1,630.00	4,749.00	Production MWD Survey (ORIG HOLE)	B001Mb_MWD+HRGM	OWSG MWD + HRGM

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
116.00	0.20	61.80	116.00	0.10	0.18	-0.19	0.17	0.17	0.00	
207.00	0.30	115.70	207.00	0.07	0.53	-0.38	0.27	0.11	59.23	
330.00	0.80	159.20	329.99	-0.87	1.13	-0.02	0.50	0.41	35.37	
451.00	0.60	119.10	450.98	-1.97	1.98	0.31	0.43	-0.17	-33.14	
575.00	1.10	112.30	574.97	-2.74	3.65	-0.12	0.41	0.40	-5.48	
697.00	0.50	114.50	696.96	-3.41	5.22	-0.58	0.49	-0.49	1.80	
819.00	0.80	92.40	818.95	-3.66	6.55	-1.21	0.32	0.25	-18.11	
942.00	0.40	115.40	941.94	-3.88	7.80	-1.81	0.37	-0.33	18.70	
1,068.00	0.70	110.90	1,067.94	-4.35	8.92	-2.14	0.24	0.24	-3.57	

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Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
1,194.00	0.10	119.40	1,193.93	-4.67	9.73	-2.39	0.48	-0.48	6.75
1,320.00	0.20	117.10	1,319.93	-4.83	10.02	-2.45	0.08	0.08	-1.83
1,446.00	0.30	122.00	1,445.93	-5.10	10.50	-2.53	0.08	0.08	3.89
1,630.00	0.70	78.95	1,629.93	-5.14	12.01	-3.44	0.28	0.22	-23.40
1,816.00	0.66	283.64	1,815.92	-4.67	12.08	-3.86	0.71	-0.02	-83.50
2,005.00	8.22	248.40	2,004.23	-9.40	-1.56	8.33	4.07	4.00	-18.65
2,194.00	14.15	240.23	2,189.57	-25.86	-34.20	41.52	3.24	3.14	-4.32
2,383.00	18.42	227.22	2,371.00	-57.63	-76.21	92.53	2.96	2.26	-6.88
2,572.00	18.99	223.18	2,550.02	-100.34	-119.17	152.69	0.75	0.30	-2.14
2,760.00	21.85	215.71	2,726.22	-151.07	-160.53	218.14	2.06	1.52	-3.97
2,948.00	22.37	217.81	2,900.40	-207.74	-202.89	288.86	0.50	0.28	1.12
3,135.00	23.16	212.81	3,072.85	-266.77	-244.63	361.05	1.12	0.42	-2.67
3,324.00	24.92	213.42	3,245.45	-331.25	-286.71	437.70	0.94	0.93	0.32
3,514.00	22.37	213.86	3,419.48	-394.69	-328.90	513.63	1.35	-1.34	0.23
3,702.00	22.20	214.12	3,593.44	-453.80	-368.76	584.70	0.10	-0.09	0.14
3,890.00	21.89	216.06	3,767.70	-511.54	-409.31	655.13	0.42	-0.16	1.03
4,079.00	21.54	216.41	3,943.29	-567.94	-450.64	725.01	0.20	-0.19	0.19
4,268.00	19.96	218.25	4,120.02	-621.20	-491.21	791.95	0.90	-0.84	0.97
4,456.00	19.25	218.78	4,297.12	-670.56	-530.49	855.02	0.39	-0.38	0.28
4,644.00	19.03	219.75	4,474.73	-718.29	-569.50	916.66	0.21	-0.12	0.52
4,749.00	19.08	219.13	4,573.98	-744.76	-591.27	950.93	0.20	0.05	-0.59
4,811.00	19.08	219.13	4,632.57	-760.48	-604.06	971.20	0.00	0.00	0.00

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,564.00	1,563.93	SURFACE CASING	9.625	12.250

Checked By: _____ Approved By: _____ Date: _____