

HOBBS OCD
JUN 28 2018
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30-025-44396

OCCIDENTAL PERMIAN LTD

NORTH HOBBS UNIT

SEC. 23, T18S, R37E

NHU 23-654

NHU 23-654

Design: NHU 23-654

Standard Survey Report

10 April, 2018

GeoGuidance Drilling

Survey Report

Company:	OCCIDENTAL PERMIAN LTD	Local Co-ordinate Reference:	Well NHU 23-654
Project:	NORTH HOBBS UNIT	TVD Reference:	NHU 23-654 @ 3701.00usft (TRINIDAD 435)
Site:	SEC. 23, T18S, R37E	MD Reference:	NHU 23-654 @ 3701.00usft (TRINIDAD 435)
Well:	NHU 23-654	North Reference:	Grid
Wellbore:	NHU 23-654	Survey Calculation Method:	Minimum Curvature
Design:	NHU 23-654	Database:	EDM 5000.1 Single User Db

Project	NORTH HOBBS UNIT		
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		

Site	SEC. 23, T18S, R37E			
Site Position:		Northing:	632,000.00 usft	Latitude: 32.732529
From: Map		Easting:	842,000.00 usft	Longitude: -103.221186
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.60 °

Well	NHU 23-654, SUR.N 633248.93 E 843252.63			
Well Position	+N/-S	0.00 usft	Northing:	633,248.93 usft
	+E/-W	0.00 usft	Easting:	843,252.63 usft
Position Uncertainty	0.00 usft		Wellhead Elevation:	3,701.00 usft
			Ground Level:	3,683.50 usft

Wellbore	NHU 23-654				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	01/31/18	6.75	60.58	48,212

Design	NHU 23-654			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	230.76

Survey Program	Date 04/10/18			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
171.00	1,488.00	NHU 23-654 MULTISHOT (NHU 23-654)	EMS+IGRF	OWSG EMS + IGRF or WMM
1,684.00	5,338.00	NHU 23-654 EM SURVEYS (NHU 23-654)	MWD+IGRF	OWSG MWD + IGRF or WMM

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
171.00	0.40	149.58	171.00	-0.51	0.30	0.09	0.23	0.23	0.00	
201.00	0.50	21.28	201.00	-0.48	0.40	-0.01	2.70	0.33	-427.67	
382.00	0.80	275.88	381.99	0.38	-0.57	0.20	0.58	0.17	-58.23	
562.00	1.20	82.98	561.98	0.74	0.05	-0.51	1.10	0.22	92.83	
743.00	1.40	80.08	742.93	1.35	4.11	-4.04	0.12	0.11	-1.60	
924.00	1.50	58.08	923.88	2.99	8.30	-8.32	0.31	0.06	-12.15	
1,111.00	1.60	58.78	1,110.81	5.63	12.61	-13.33	0.05	0.05	0.37	
1,300.00	1.10	114.68	1,299.76	6.24	16.52	-16.74	0.71	-0.26	29.58	
1,488.00	1.60	122.78	1,487.71	4.07	20.36	-18.35	0.28	0.27	4.31	

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Wellbore:	NHU 23-654	Survey Calculation Method:	Minimum Curvature
Design:	NHU 23-654	Database:	EDM 5000.1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
END OF MULTISHOT SURVEYS.									
1,684.00	1.57	103.31	1,683.64	1.97	25.28	-20.82	0.27	-0.02	-9.93
1,872.00	0.75	161.98	1,871.60	0.21	28.16	-21.94	0.71	-0.44	31.21
2,061.00	5.89	233.57	2,060.25	-6.73	20.74	-11.80	3.01	2.72	37.88
2,249.00	5.80	238.75	2,247.27	-17.39	4.86	7.24	0.28	-0.05	2.76
2,438.00	5.98	243.41	2,435.28	-26.75	-12.11	26.30	0.27	0.10	2.47
2,627.00	5.85	248.41	2,623.27	-34.70	-29.87	45.09	0.28	-0.07	2.65
2,816.00	6.10	255.00	2,811.25	-40.84	-48.53	63.42	0.39	0.13	3.49
3,004.00	6.68	253.25	2,998.08	-46.58	-68.65	82.63	0.33	0.31	-0.93
3,193.00	7.10	240.60	3,185.73	-55.48	-89.35	104.30	0.83	0.22	-6.69
3,383.00	6.59	231.90	3,374.38	-67.98	-108.16	126.77	0.61	-0.27	-4.58
3,571.00	5.76	225.61	3,561.29	-81.23	-123.39	146.95	0.57	-0.44	-3.35
3,761.00	5.36	229.83	3,750.39	-93.63	-136.99	165.32	0.30	-0.21	2.22
3,950.00	5.20	226.80	3,938.59	-105.18	-149.98	182.69	0.17	-0.08	-1.60
4,137.00	3.56	225.35	4,125.04	-115.07	-160.29	196.93	0.88	-0.88	-0.78
4,323.00	1.98	229.61	4,310.81	-121.21	-166.84	205.89	0.86	-0.85	2.29
4,511.00	1.49	231.98	4,498.73	-124.82	-171.24	211.58	0.26	-0.26	1.26
4,701.00	1.58	234.49	4,688.66	-127.86	-175.32	216.66	0.06	0.05	1.32
4,890.00	2.02	220.03	4,877.57	-131.92	-179.58	222.54	0.33	0.23	-7.65
5,079.00	2.10	223.90	5,066.44	-136.97	-184.13	229.25	0.08	0.04	2.05
5,266.00	1.80	207.60	5,253.34	-142.04	-187.86	235.35	0.34	-0.16	-8.72
5,338.00	1.80	207.60	5,325.30	-144.04	-188.91	237.43	0.00	0.00	0.00
PROJECTION TO BIT.									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,488.00	1,487.71	4.07	20.36	END OF MULTISHOT SURVEYS.
5,338.00	5,325.30	-144.04	-188.91	PROJECTION TO BIT.

Checked By: _____ Approved By: _____ Date: _____