

30-025-44408

HOBBS OCD
JUN 28 2018
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OCCIDENTAL PERMIAN LTD

NORTH HOBBS UNIT

SEC. 23, T18S, R37E

NHU 23-665

NHU 23-665

Design: NHU 23-665

Standard Survey Report

19 April, 2018

GeoGuidance Drilling

Survey Report

Company:	OCCIDENTAL PERMIAN LTD	Local Co-ordinate Reference:	Well NHU 23-665
Project:	NORTH HOBBS UNIT	TVD Reference:	NHU 23-665 @ 3694.40usft (TRINIDAD 435)
Site:	SEC. 23, T18S, R37E	MD Reference:	NHU 23-665 @ 3694.40usft (TRINIDAD 435)
Well:	NHU 23-665	North Reference:	Grid
Wellbore:	NHU 23-665	Survey Calculation Method:	Minimum Curvature
Design:	NHU 23-665	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 23-665, SUR. N 632361.54 E 844323.25					
Well Position	+N/-S	0.00 usft	Northing:	632,361.54 usft	Latitude:	32.733456
	+E/-W	0.00 usft	Easting:	844,323.25 usft	Longitude:	-103.213619
Position Uncertainty		0.00 usft	Wellhead Elevation:	3,694.40 usft	Ground Level:	3,676.90 usft

Wellbore	NHU 23-665				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	01/31/18	6.75	60.58	48,211

Design	NHU 23-665				
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	205.56	

Survey Program	Date 04/19/18				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
156.00	1,447.00	NHU 23-665 MULTISHOT (NHU 23-665)	EMS+IGRF	OWSG EMS + IGRF or WMM	
1,448.00	5,313.00	NHU 23-665 EM (NHU 23-665)	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	
156.00	1.60	125.55	155.98	-1.27	1.77	0.38	1.03	1.03	0.00	
339.00	1.10	137.65	338.93	-4.05	5.03	1.48	0.31	-0.27	6.61	
521.00	1.60	108.25	520.88	-6.14	8.62	1.82	0.46	0.27	-16.15	
701.00	2.10	96.05	700.79	-7.27	14.29	0.40	0.35	0.28	-6.78	
881.00	1.30	85.45	880.71	-7.46	19.61	-1.73	0.48	-0.44	-5.89	
1,068.00	1.50	78.85	1,067.65	-6.82	24.12	-4.26	0.14	0.11	-3.53	
1,258.00	1.80	89.85	1,257.57	-6.33	29.55	-7.04	0.23	0.16	5.79	
1,447.00	1.10	62.25	1,446.51	-5.47	34.12	-9.78	0.51	-0.37	-14.60	
END OF MULTI SHOT SURVEYS										

GeoGuidance Drilling

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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)
1,622.00	1.19	68.73	1,621.48	-4.03	37.30	-12.45	0.09	0.05	3.70
1,810.00	1.76	264.68	1,809.45	-3.59	36.24	-12.39	1.55	0.30	-87.26
2,000.00	8.48	222.10	1,998.62	-14.27	23.93	2.55	3.83	3.54	-22.41
2,188.00	11.27	212.26	2,183.83	-40.10	4.83	34.09	1.73	1.48	-5.23
2,376.00	14.77	210.85	2,366.97	-76.22	-17.28	76.21	1.87	1.86	-0.75
2,556.00	18.84	215.92	2,539.26	-119.47	-46.11	127.67	2.40	2.26	2.82
2,745.00	20.30	211.86	2,717.34	-172.04	-81.32	190.29	1.06	0.77	-2.15
2,932.00	20.30	211.64	2,892.73	-227.21	-115.46	254.78	0.04	0.00	-0.12
3,119.00	19.60	211.11	3,068.51	-281.68	-148.68	318.26	0.39	-0.37	-0.28
3,307.00	15.20	201.88	3,247.89	-331.58	-174.17	374.28	2.76	-2.34	-4.91
3,495.00	14.37	200.78	3,429.67	-376.26	-191.63	422.12	0.47	-0.44	-0.59
3,683.00	11.73	199.73	3,612.80	-416.07	-206.37	464.39	1.41	-1.40	-0.56
3,871.00	8.79	207.11	3,797.78	-446.85	-219.37	497.77	1.71	-1.56	3.93
4,059.00	6.11	198.86	3,984.18	-469.11	-229.15	522.07	1.53	-1.43	-4.39
4,248.00	5.67	196.04	4,172.18	-487.60	-234.98	541.27	0.28	-0.23	-1.49
4,436.00	3.74	196.83	4,359.54	-502.40	-239.32	556.49	1.03	-1.03	0.42
4,624.00	3.67	197.62	4,547.15	-514.00	-242.92	568.51	0.05	-0.04	0.42
4,813.00	3.65	196.61	4,735.76	-525.53	-246.47	580.44	0.04	-0.01	-0.53
5,001.00	3.56	191.29	4,923.39	-536.99	-249.32	592.01	0.18	-0.05	-2.83
5,190.00	4.00	190.80	5,111.98	-549.22	-251.71	604.07	0.23	0.23	-0.26
5,244.00	4.00	191.20	5,165.85	-552.92	-252.42	607.72	0.05	0.00	0.74
5,313.00	4.00	191.20	5,234.68	-557.64	-253.36	612.38	0.00	0.00	0.00
Projection To TD									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,447.00	1,446.51	-5.47	34.12	END OF MULTI SHOT SURVEYS
5,313.00	5,234.68	-557.64	-253.36	Projection To TD

Checked By: _____ Approved By: _____ Date: _____