



HOBBS OCD

OCT 13 2016

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OCCIDENTAL PERMIAN LTD

SOUTH HOBBS UNIT

SEC. 10, T19S, R38E

SHU 272

SHU 272

Survey: SHU 272 MWD SURVEYS

Standard Survey Report

17 June, 2016



GEOGUIDANCE
DRILLING SERVICES, INC.



GEOGUIDANCE DRILLING

Survey Report



Company:	OCCIDENTAL PERMIAN LTD	Local Co-ordinate Reference:	Well SHU 272
Project:	SOUTH HOBBS UNIT	TVD Reference:	SHU 272 @ 3621.4usft (H&P 340)
Site:	SEC. 10, T19S, R38E	MD Reference:	SHU 272 @ 3621.4usft (H&P 340)
Well:	SHU 272	North Reference:	Grid
Wellbore:	SHU 272	Survey Calculation Method:	Minimum Curvature
Design:	SHU 272	Database:	EDM 5000.1 Single User Db

Project	SOUTH 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. 10, T19S, R38E		
Site Position:		Northing:	613,000.00 usft
From:	Map	Easting:	867,000.00 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 40' 46.438 N
		Longitude:	103° 8' 26.151 W
		Grid Convergence:	0.64 °

Well	SHU 272, SUR. N 612288.41 E 866909.01		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	3,621.4 usft
		Latitude:	32° 40' 39.408 N
		Longitude:	103° 8' 27.309 W
		Ground Level:	3,604.9 usft

Wellbore	SHU 272		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2015	3/21/2016	6.92
			Dip Angle (°)
			60.56
			Field Strength (nT)
			48,380

Design	SHU 272		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.0	0.0	0.0
			Direction (°)
			38.07

Survey Program	Date 6/17/2016		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
191.0	5,122.0	SHU 272 MWD SURVEYS (SHU 272)	MWD+IGRF
			Description
			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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
191.0	0.79	239.40	191.0	-0.7	-1.1	-1.2	0.41	0.41	0.00
372.0	0.92	213.47	372.0	-2.5	-3.0	-3.8	0.22	0.07	-14.33
552.0	3.80	63.70	551.9	-1.1	1.5	0.1	2.57	1.60	-83.21
734.0	8.20	47.80	732.8	10.3	16.6	18.3	2.56	2.42	-8.74
899.0	12.10	39.40	895.2	31.6	36.3	47.2	2.52	2.36	-5.09
1,079.0	18.20	38.90	1,068.9	68.1	65.9	94.3	3.39	3.39	-0.28
1,259.0	22.90	38.60	1,237.4	117.4	105.5	157.4	2.61	2.61	-0.17
1,439.0	27.00	36.90	1,400.6	177.4	151.9	233.3	2.31	2.28	-0.94
1,529.0	28.08	36.99	1,480.4	210.7	176.9	274.9	1.20	1.20	0.10



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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)
1,705.0	27.90	39.00	1,635.8	275.8	227.7	357.5	0.55	-0.10	1.14
1,884.0	33.31	39.76	1,789.8	346.2	285.5	448.6	3.03	3.02	0.42
2,064.0	38.10	38.40	1,935.9	427.7	351.7	553.6	2.70	2.66	-0.76
2,244.0	38.70	39.50	2,077.0	514.7	422.0	665.4	0.51	0.33	0.61
2,424.0	38.40	36.40	2,217.8	603.1	490.9	777.5	1.09	-0.17	-1.72
2,604.0	36.39	34.26	2,360.8	692.2	554.2	886.7	1.33	-1.12	-1.19
2,784.0	35.11	34.39	2,506.8	779.1	613.5	991.6	0.71	-0.71	0.07
2,964.0	35.55	36.06	2,653.7	864.1	673.5	1,095.6	0.59	0.24	0.93
3,143.0	35.11	36.99	2,799.7	947.3	735.1	1,199.1	0.39	-0.25	0.52
3,324.0	33.60	36.80	2,949.2	1,029.0	796.5	1,301.2	0.84	-0.83	-0.10
3,503.0	31.51	38.09	3,100.0	1,105.4	855.0	1,397.5	1.23	-1.17	0.72
3,683.0	29.31	38.60	3,255.2	1,176.9	911.5	1,488.6	1.23	-1.22	0.28
3,863.0	27.25	37.73	3,413.8	1,243.9	964.2	1,573.9	1.17	-1.14	-0.48
4,043.0	24.60	39.27	3,575.6	1,305.5	1,013.1	1,652.5	1.52	-1.47	0.86
4,223.0	22.21	39.76	3,740.8	1,360.7	1,058.6	1,724.0	1.33	-1.33	0.27
4,403.0	20.30	40.55	3,908.6	1,410.6	1,100.7	1,789.2	1.07	-1.06	0.44
4,583.0	18.20	39.55	4,078.5	1,456.0	1,138.9	1,848.5	1.18	-1.17	-0.56
4,763.0	14.40	37.90	4,251.2	1,495.4	1,170.6	1,899.0	2.13	-2.11	-0.92
4,942.0	13.31	36.94	4,425.0	1,529.4	1,196.6	1,941.9	0.62	-0.61	-0.54
5,077.0	13.59	37.21	4,556.3	1,554.4	1,215.5	1,973.3	0.21	0.21	0.20
Last Official MWD Survey									
5,122.0	13.59	37.21	4,600.0	1,562.9	1,221.9	1,983.8	0.00	0.00	0.00
Projected Target TD									
5,150.0	13.59	37.21	4,627.3	1,568.1	1,225.9	1,990.4	0.00	0.00	0.00
Official Well TD									

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
155.0	-3,466.4	Top Red Beds				
1,556.9	-2,116.4	Rustler (Base Red Beds)				
1,726.8	-1,966.4	Top Salt				
3,039.3	-906.4	Base Salt (Yates)				
3,965.0	-116.4	Queen				
4,302.9	193.6	Grayburg				
4,489.6	368.6	Basal Grayburg				
4,605.6	478.6	San Andres				



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Well:	SHU 272	North Reference:	Grid
Wellbore:	SHU 272	Survey Calculation Method:	Minimum Curvature
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Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5,077.0	4,556.3	1,554.4	1,215.5	Last Official MWD Survey
5,122.0	4,600.0	1,562.9	1,221.9	Projected Target TD
5,150.0	4,627.3	1,568.1	1,225.9	Official Well TD

Checked By: _____ Approved By: _____ Date: _____

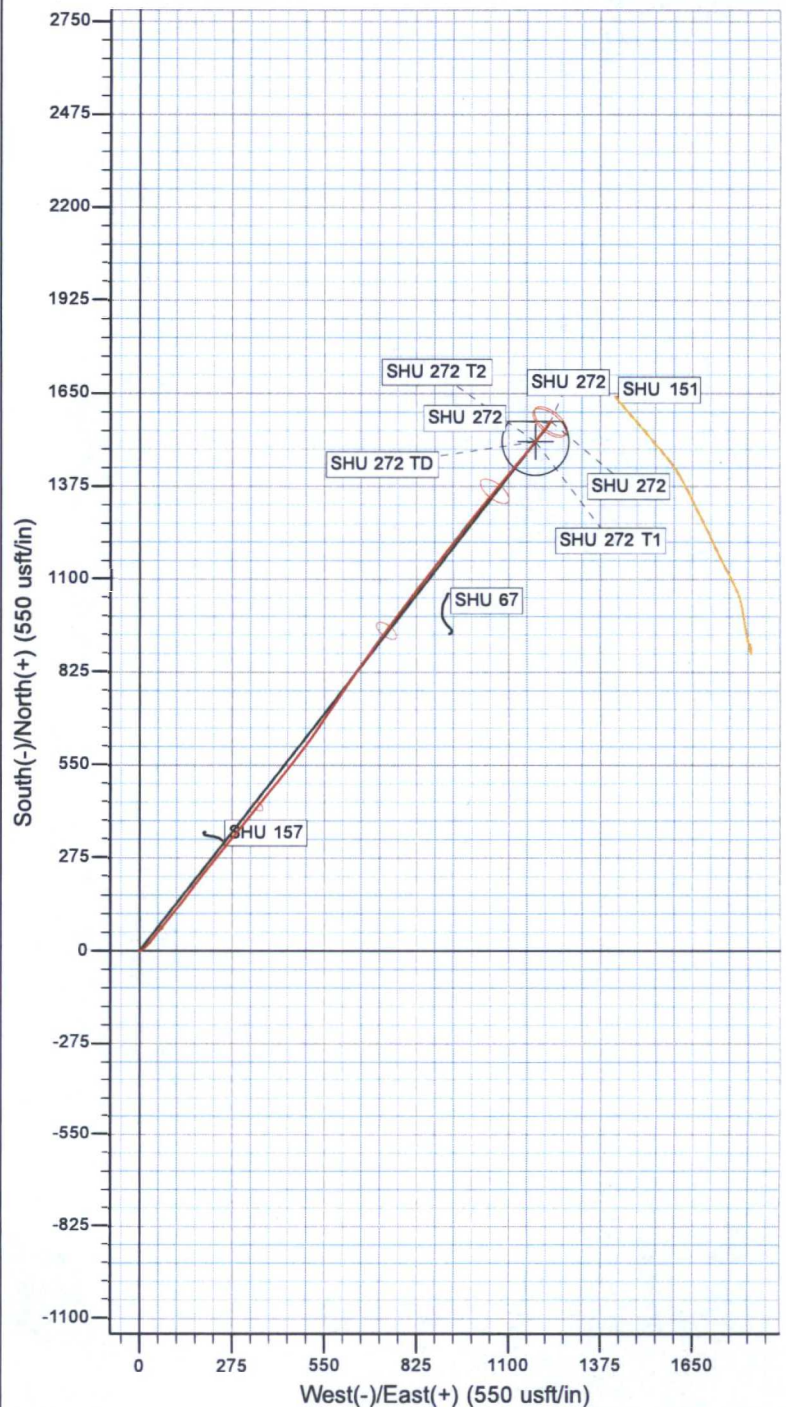
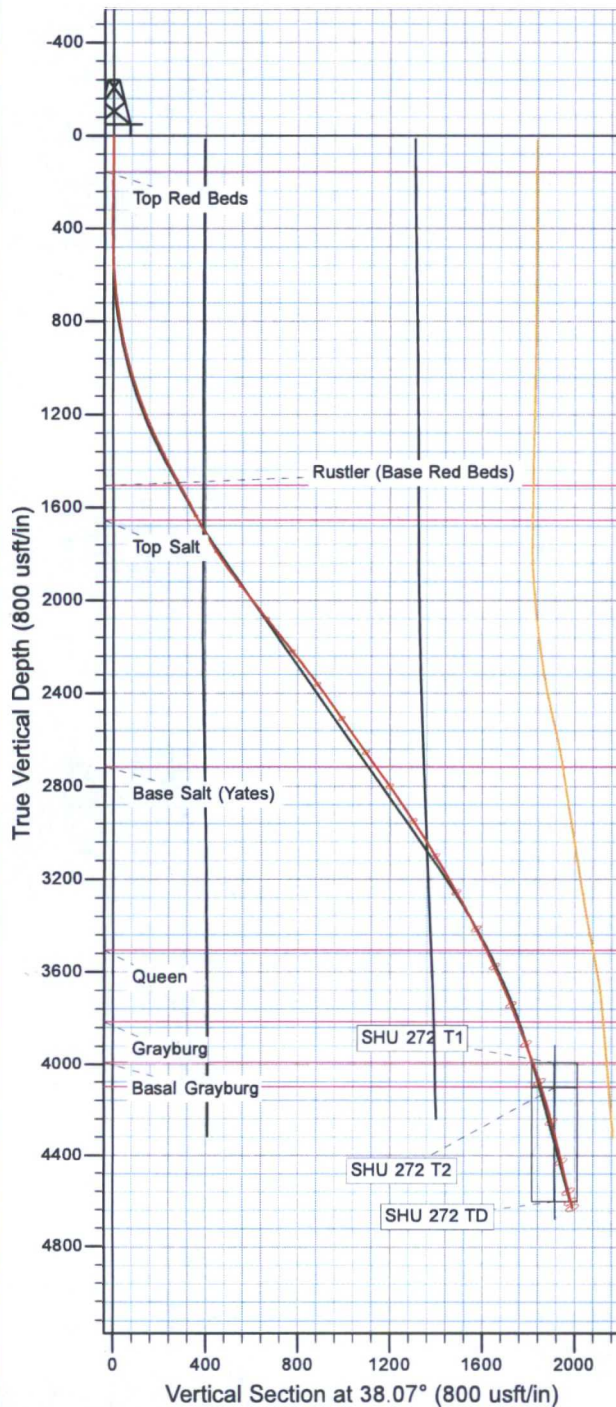


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Project: SOUTH HOBBS UNIT
 Site: SEC. 10, T19S, R38E
 Well: SHU 272
 Wellpath: SHU 272
 Design: SHU 272



Azimuths to Grid North
 True North: -0.64°
 Magnetic North: 6.27°
 Magnetic Field
 Strength: 48379.9snT
 Dip Angle: 60.56°
 Date: 3/21/2016
 Model: IGRF2015



LEGEND

- △ SHU 272, SHU 272, 032116 V1 V0
- ◇ SHU 67, SHU 67, SHU 67 V0
- SHU 157, SHU 157, SHU 157 V0
- SHU 151, SHU 151, SHU 151 V0
- SHU 272
- SHU 272 MWD SURVEYS

SECTION DETAILS

No plan data is available