

HOBBS OCD



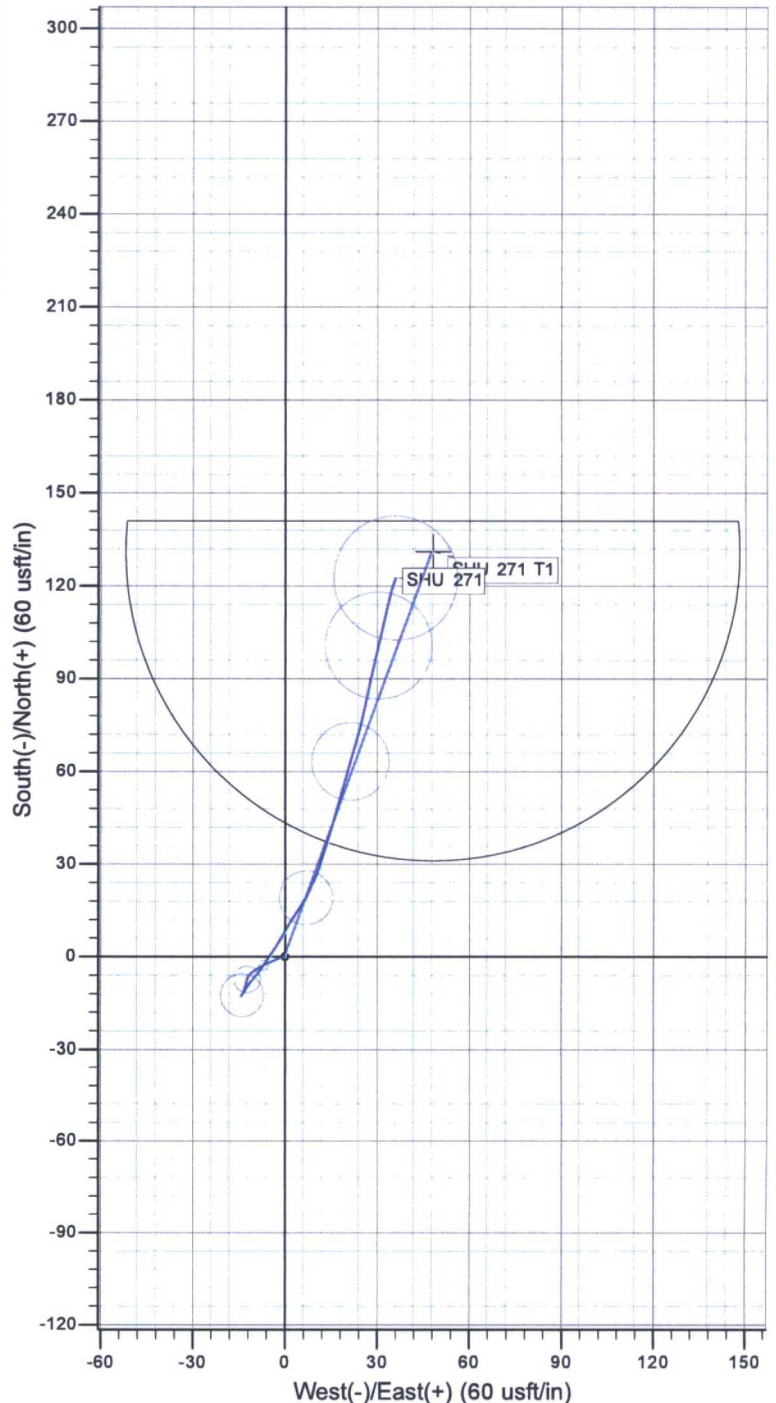
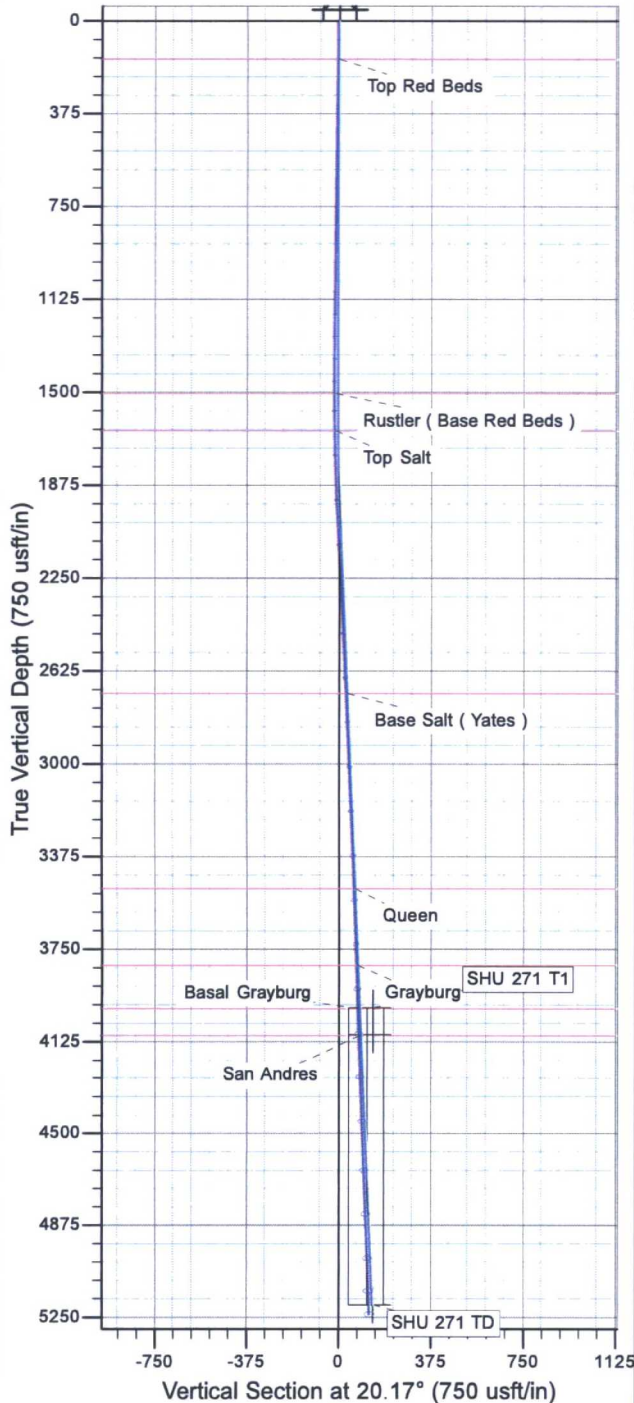
OCCIDENTAL PERMIAN LTD

Project: SOUTH HOBBS UNIT
Site: SEC. 9, T19S, R38E
Well: SHU 271
Wellpath: SHU 271
Design: SHU 271



Azimuths to Grid North
True North: -0.64°
Magnetic North: 6.29°

Magnetic Field
Strength: 48380.8nT
Dip Angle: 60.57°
Date: 3/21/2016
Model: IGRF2015



LEGEND

- △ SHU 271, SHU 271, 032116 V1 V0
- SHU 271

SECTION DETAILS

No plan data is available



OCCIDENTAL PERMIAN LTD

**SOUTH HOBBS UNIT
SEC. 9, T19S, R38E
SHU 271**

SHU 271

Design: SHU 271

Standard Survey Report

18 May, 2016





GEOGUIDANCE DRILLING

Survey Report



Company: OCCIDENTAL PERMIAN LTD
Project: SOUTH HOBBS UNIT
Site: SEC. 9, T19S, R38E
Well: SHU 271
Wellbore: SHU 271
Design: SHU 271

Local Co-ordinate Reference: Well SHU 271
TVD Reference: SHU 271 @ 3616.5usft (H&P 340)
MD Reference: SHU 271 @ 3616.5usft (H&P 340)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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. 9, T19S, R38E		
Site Position:		Northing:	612,000.00 usft
From:	Map	Easting:	863,000.00 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 40' 36.987 N
		Longitude:	103° 9' 13.072 W
		Grid Convergence:	0.64 °

Well	SHU 271, SUR. N 613648.71 E 862442.14		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	3,616.5 usft
		Latitude:	32° 40' 53.360 N
		Longitude:	103° 9' 19.383 W
		Ground Level:	3,600.0 usft

Wellbore	SHU 271		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2015	3/21/2016	6.92
			Dip Angle (°)
			60.57
			Field Strength (nT)
			48,381

Design	SHU 271		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.0	0.0	0.0
			Direction (°)
			20.17

Survey Program	Date 5/18/2016		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
104.0	1,455.0	SHU 271 EMS Surveys (SHU 271)	EMS+IGRF
1,574.0	5,240.0	SHU 271 MWD Surveys (SHU 271)	MWD+IGRF
			Description
			OWSG EMS + IGRF or WMM
			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
104.0	1.30	252.70	104.0	-0.4	-1.1	-0.7	1.25	1.25	0.00
Start of Multi Shot Surveys									
134.0	1.40	249.10	134.0	-0.6	-1.8	-1.2	0.44	0.33	-12.00
194.0	1.20	247.00	194.0	-1.1	-3.1	-2.1	0.34	-0.33	-3.50
255.0	1.20	245.90	255.0	-1.6	-4.2	-3.0	0.04	0.00	-1.80
315.0	1.30	241.70	314.9	-2.2	-5.4	-3.9	0.23	0.17	-7.00
376.0	1.10	247.30	375.9	-2.7	-6.6	-4.8	0.38	-0.33	9.18
466.0	1.00	240.80	465.9	-3.4	-8.0	-6.0	0.17	-0.11	-7.22
556.0	0.70	234.80	555.9	-4.1	-9.2	-7.1	0.35	-0.33	-6.67



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North Reference: Grid
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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)
646.0	0.70	228.60	645.9	-4.8	-10.0	-8.0	0.08	0.00	-6.89
735.0	0.70	233.60	734.9	-5.5	-10.9	-8.9	0.07	0.00	5.62
825.0	0.70	211.90	824.9	-6.3	-11.6	-9.9	0.29	0.00	-24.11
915.0	0.70	192.20	914.9	-7.3	-12.0	-11.0	0.27	0.00	-21.89
1,005.0	0.80	195.50	1,004.9	-8.5	-12.3	-12.2	0.12	0.11	3.67
1,095.0	0.70	195.80	1,094.9	-9.6	-12.6	-13.3	0.11	-0.11	0.33
1,185.0	0.60	196.10	1,184.9	-10.6	-12.9	-14.4	0.11	-0.11	0.33
1,275.0	0.40	197.30	1,274.8	-11.3	-13.1	-15.2	0.22	-0.22	1.33
1,365.0	0.40	204.30	1,364.8	-11.9	-13.3	-15.8	0.05	0.00	7.78
1,455.0	0.40	216.20	1,454.8	-12.4	-13.7	-16.4	0.09	0.00	13.22
End of Multi Shot Surveys									
1,574.0	0.00	0.00	1,573.8	-12.8	-13.9	-16.8	0.34	-0.34	0.00
1,754.0	2.15	30.90	1,753.8	-9.9	-12.2	-13.5	1.19	1.19	0.00
1,934.0	2.59	44.43	1,933.6	-4.1	-7.6	-6.4	0.39	0.24	7.52
2,114.0	3.12	26.20	2,113.4	3.2	-2.6	2.1	0.58	0.29	-10.13
2,293.0	3.12	34.28	2,292.2	11.6	2.3	11.7	0.25	0.00	4.51
2,473.0	2.55	31.38	2,471.9	19.1	7.2	20.4	0.33	-0.32	-1.61
2,653.0	2.94	18.81	2,651.7	26.9	10.7	28.9	0.40	0.22	-6.98
2,833.0	2.64	17.67	2,831.5	35.2	13.5	37.7	0.17	-0.17	-0.63
3,013.0	2.48	16.23	3,011.3	42.9	15.8	45.7	0.10	-0.09	-0.80
3,193.0	2.35	15.89	3,191.2	50.2	17.9	53.3	0.07	-0.07	-0.19
3,373.0	2.28	15.97	3,371.0	57.2	19.9	60.5	0.04	-0.04	0.04
3,553.0	1.76	14.60	3,550.9	63.3	21.6	66.8	0.29	-0.29	-0.76
3,733.0	1.85	18.59	3,730.8	68.7	23.2	72.5	0.09	0.05	2.22
3,913.0	1.93	13.94	3,910.7	74.4	24.9	78.4	0.10	0.04	-2.58
4,093.0	1.98	13.32	4,090.6	80.4	26.3	84.5	0.03	0.03	-0.34
4,273.0	1.98	10.11	4,270.5	86.5	27.6	90.7	0.06	0.00	-1.78
4,452.0	2.33	13.41	4,449.4	93.0	29.0	97.3	0.21	0.20	1.84
4,652.0	2.20	12.71	4,649.2	100.7	30.8	105.2	0.07	-0.07	-0.35
4,832.0	2.24	15.25	4,829.1	107.5	32.5	112.1	0.06	0.02	1.41
5,012.0	2.11	9.81	5,009.0	114.2	33.9	118.9	0.14	-0.07	-3.02
5,146.0	2.24	18.59	5,142.9	119.1	35.2	123.9	0.27	0.10	6.55
5,240.0	2.24	18.59	5,236.8	122.6	36.4	127.6	0.00	0.00	0.00
Projected to TD									



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Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
155.0	155.0	Top Red Beds		0.00	
1,505.2	1,505.0	Rustler (Base Red Beds)		0.00	
1,655.2	1,655.0	Top Salt		0.00	
2,716.3	2,715.0	Base Salt (Yates)		0.00	
3,507.1	3,505.0	Queen		0.00	
3,817.2	3,815.0	Grayburg		0.00	
3,992.3	3,990.0	Basal Grayburg		0.00	
4,102.4	4,100.0	San Andres		0.00	

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
104.0	104.0	-0.4	-1.1	Start of Multi Shot Surveys
1,455.0	1,454.8	-12.4	-13.7	End of Multi Shot Surveys
5,240.0	5,236.8	122.6	36.4	Projected to TD

Checked By: _____ Approved By: _____ Date: _____