



Oxy USA

**Lea County, NM (NAD83)
South Hubbs G/SA Unit
SHU 274**

Wellbore #1

Design: Surveys

Standard Survey Report

22 October, 2018

HOBBS OCD

DEC 1 2 2018

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Survey Report



Company:	Oxy USA	Local Co-ordinate Reference:	Well SHU 274
Project:	Lea County, NM (NAD83)	TVD Reference:	GL 3605.1' + 13.5' KB @ 3618.60usft (Savanna 417)
Site:	South Hubbs G/SA Unit	MD Reference:	GL 3605.1' + 13.5' KB @ 3618.60usft (Savanna 417)
Well:	SHU 274	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.14 Single User Db

Project	Lea County, NM (NAD83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	South Hubbs G/SA Unit				
Site Position:		Northing:	616,049.92 usft	Latitude:	32° 41' 17.596 N
From:	Map	Easting:	897,549.08 usft	Longitude:	103° 10' 31.874 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.63 °

Well	SHU 274					
Well Position	+N-S	0.00 usft	Northing:	612,172.82 usft	Latitude:	32° 40' 38.083 N
	+E-W	0.00 usft	Easting:	908,091.17 usft	Longitude:	103° 8' 29.051 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,605.10 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	10/08/18	6.77	60.73	48,144.70000000

Design	Surveys				
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	359.43	

Survey Program		Date	10/22/18	
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
16.78	1,550.74	Gyrodata Gyro (Wellbore #1)	B001Mb_MWD+HRGM	OWSG MWD + HRGM
1,673.00	4,498.00	Scout MWD (Wellbore #1)	B001Mb_MWD+HRGM	OWSG MWD + HRGM

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
16.78	0.11	37.06	16.78	0.01	0.01	0.01	0.66	0.66	0.00
76.82	0.45	139.07	76.82	-0.12	0.20	-0.12	0.81	0.57	169.90
196.76	0.36	195.63	196.76	-0.84	0.41	-0.84	0.33	-0.08	47.16
318.64	0.46	191.44	318.63	-1.69	0.21	-1.69	0.09	0.08	-3.44
438.81	0.15	168.19	438.80	-2.31	0.14	-2.31	0.27	-0.26	-19.35
560.89	0.38	137.02	560.88	-2.77	0.45	-2.77	0.22	0.19	-25.53
681.92	0.44	111.47	681.91	-3.23	1.16	-3.24	0.16	0.05	-21.11



Survey Report



Company: Oxy USA
Project: Lea County, NM (NAD83)
Site: South Hubbs G/SA Unit
Well: SHU 274
Wellbore: Wellbore #1
Design: Surveys

Local Co-ordinate Reference: Well SHU 274
TVD Reference: GL 3605.1' + 13.5' KB @ 3618.60usft (Savanna 417)
MD Reference: GL 3605.1' + 13.5' KB @ 3618.60usft (Savanna 417)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.14 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)
804.33	0.38	102.65	804.31	-3.49	1.99	-3.51	0.07	-0.05	-7.21
923.86	0.24	179.93	923.84	-3.83	2.38	-3.85	0.34	-0.12	64.65
1,056.04	0.54	244.80	1,056.02	-4.37	1.81	-4.39	0.37	0.23	49.08
1,228.66	0.73	230.87	1,228.63	-5.41	0.23	-5.41	0.14	0.11	-8.07
1,401.44	0.72	228.09	1,401.40	-6.83	-1.44	-6.81	0.02	-0.01	-1.61
1,550.74	0.52	193.00	1,550.69	-8.12	-2.29	-8.09	0.28	-0.13	-23.50
1,673.00	0.22	160.38	1,672.95	-8.88	-2.33	-8.85	0.29	-0.25	-26.68

First Scout MWD Survey @ 1673.00' MD

1,845.00	2.51	353.65	1,844.89	-5.45	-2.64	-5.42	1.58	1.33	-96.94
2,017.00	8.92	0.68	2,015.95	11.65	-2.90	11.68	3.74	3.73	4.09
2,187.00	11.25	358.48	2,183.31	41.41	-3.18	41.44	1.39	1.37	-1.29
2,359.00	11.34	359.27	2,351.98	75.09	-3.84	75.12	0.10	0.05	0.46
2,532.00	11.30	0.59	2,521.62	109.05	-3.88	109.08	0.15	-0.02	0.76
2,705.00	10.46	359.71	2,691.51	141.70	-3.79	141.73	0.49	-0.49	-0.51
2,877.00	9.85	359.36	2,860.81	172.02	-4.03	172.05	0.36	-0.35	-0.20
3,050.00	9.89	355.23	3,031.25	201.63	-5.43	201.67	0.41	0.02	-2.39
3,222.00	8.22	352.95	3,201.10	228.55	-8.17	228.62	0.99	-0.97	-1.33
3,395.00	8.70	359.89	3,372.23	253.91	-9.71	253.99	0.65	0.28	4.01
3,568.00	8.44	2.00	3,543.29	279.68	-9.30	279.76	0.24	-0.15	1.22
3,740.00	8.35	356.02	3,713.45	304.76	-9.72	304.84	0.51	-0.05	-3.48
3,913.00	7.78	355.14	3,884.74	328.95	-11.59	329.05	0.34	-0.33	-0.51
4,085.00	7.34	354.09	4,055.25	351.48	-13.70	351.60	0.27	-0.26	-0.61
4,258.00	7.03	352.59	4,226.89	372.97	-16.21	373.12	0.21	-0.18	-0.87

Last Scout MWD Survey @ 4430.00' MD

4,430.00	6.95	351.72	4,397.61	393.71	-19.06	393.88	0.08	-0.05	-0.51
4,498.00	6.95	351.72	4,465.11	401.85	-20.25	402.03	0.00	0.00	0.00

Projection to TD @ 4498.00' MD

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		
		+N/-S (usft)	+E/-W (usft)	Comment
1,673.00	1,672.95	-8.88	-2.33	First Scout MWD Survey @ 1673.00' MD
4,430.00	4,397.61	393.71	-19.06	Last Scout MWD Survey @ 4430.00' MD
4,498.00	4,465.11	401.85	-20.25	Projection to TD @ 4498.00' MD

Checked By: _____ Approved By: _____ Date: _____