



Oxy USA

**Lea County, NM
South Hobbs G/SA Unit
SHU 275**

Wellbore #1

Survey: Scout MWD

HOBBS OCD

DEC 12 2018

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Standard Survey Report

22 October, 2018





Project: Lea County, NM
Site: South Hobbs G/SA Unit
Well: SHU 275
Depth Reference: GL 3605.1' + 13.5' KB @ 3618.60usft (Savanna 417)
SHL Northing: 612088.42
SHL Easting: 866910.96
Rig: Savanna 417
Plan: plan1



SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dlog	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	Start Build 2.00
2152.96	31.06	75.27	2078.01	104.42	397.21	2.00	75.27	410.71	Start 1197.12 hold at 2152.96 MD
3350.08	31.06	75.27	3103.51	261.46	994.54	0.00	0.00	1028.34	Start Drop -2.00
4403.04	10.00	75.27	4084.06	354.82	1349.66	2.00	180.00	1395.52	Start 425.00 hold at 4403.04 MD
4828.04	10.00	75.27	4502.60	373.58	1421.04	0.00	0.00	1469.33	TD @ 4828.04' MD

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1605.39	1627.26	Rustler
1700.82	1729.89	Salt
2728.44	2912.24	Yates
2935.64	3154.12	Seven Rivers
3485.33	3778.17	Queen
3786.18	4097.11	Grayburg
4081.49	4400.44	San Andres 1
4124.48	4444.09	Sa2 C Upper
4428.35	4752.65	Sa3 K

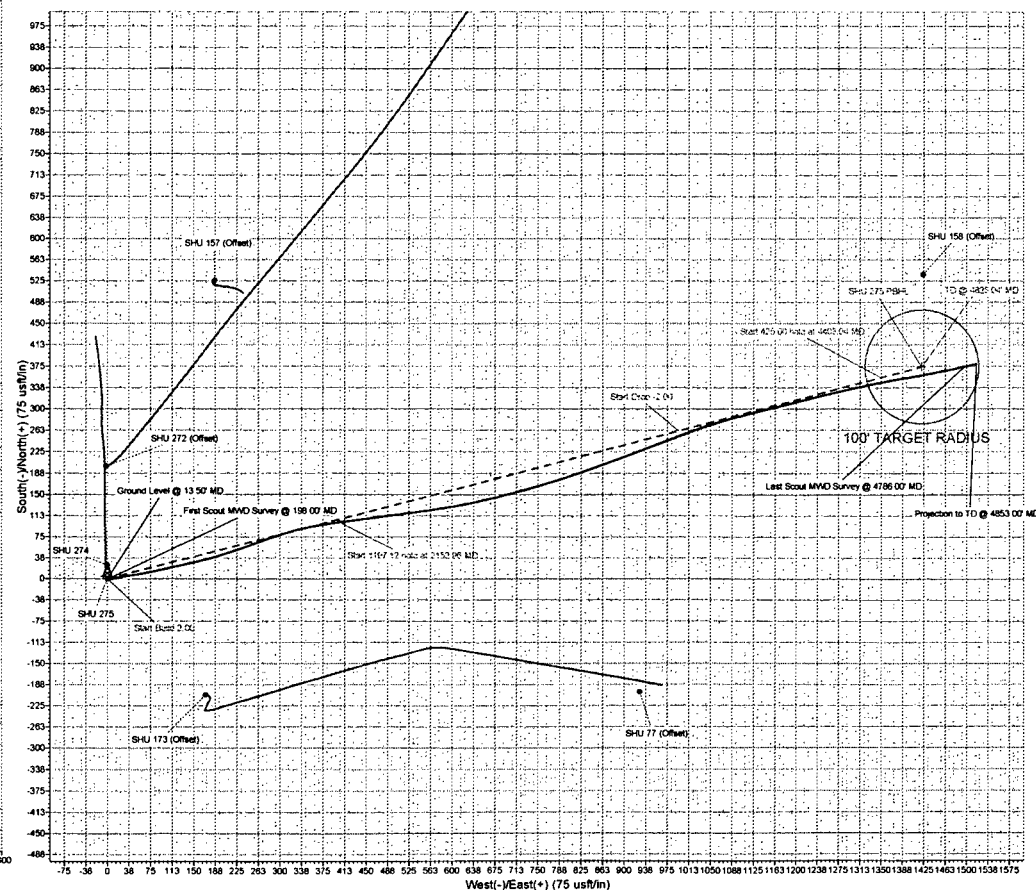
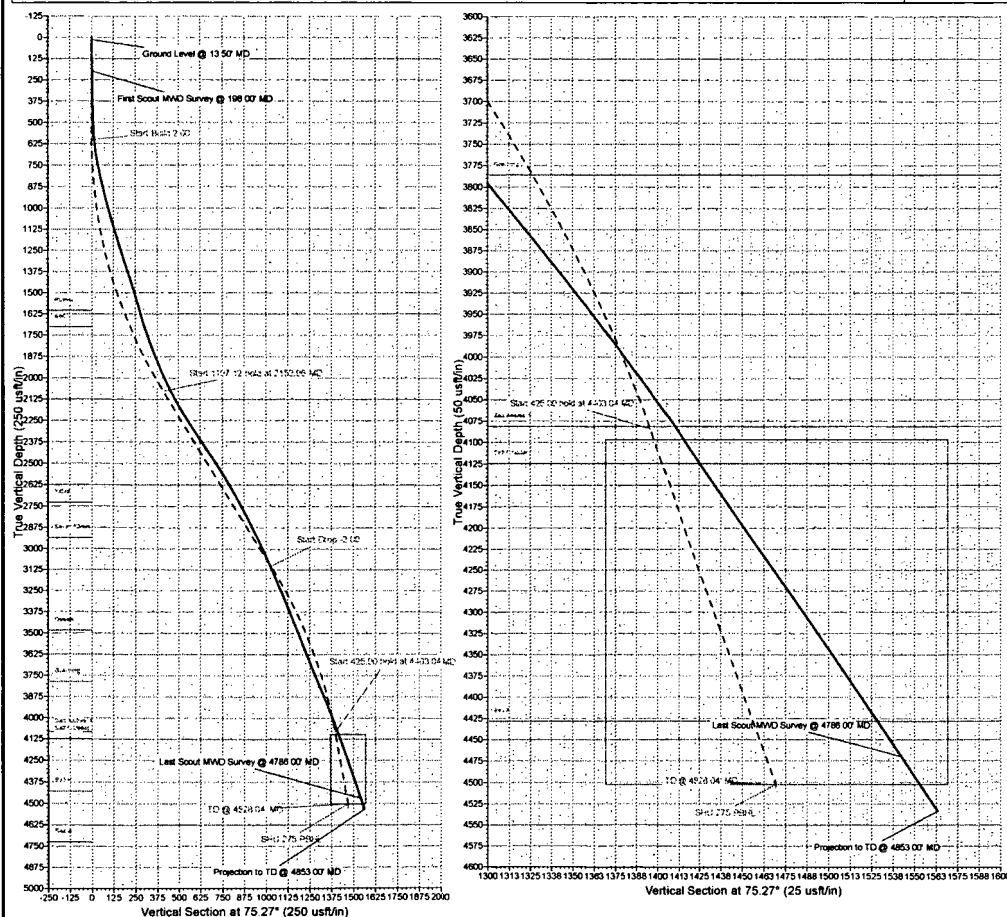
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
SHU 275 PBHL	4502.60	373.58	1421.04	612462.00	868332.00	Circle (Radius: 100.00)



Azimuths to Grid North
True North: -0.64°
Magnetic North: 6.12°

Magnetic Field
Strength: 48142.7nT
Dip Angle: 60.73°
Date: 10/14/2018
Model: HDGM





Survey Report



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Well:	SHU 275	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.14 Single User Db

Project	Lea County, NM		
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	South Hobbs G/SA Unit		
Site Position:		Northing:	616,257.52 usft
From:	Map	Easting:	857,718.46 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 41' 19.686 N
		Longitude:	103° 10' 14.307 W
		Grid Convergence:	0.63 °

Well	SHU 275		
Well Position	+N/-S	0.00 usft	Northing: 612,088.42 usft
	+E/-W	0.00 usft	Easting: 866,910.96 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 40' 37.430 N
		Longitude:	103° 8' 27.312 W
		Ground Level:	3,605.10 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
	HDGM	10/14/18	(°)
			6.77
			Dip Angle
			(°)
			60.73
			Field Strength
			(nT)
			48,142.70000000

Design	Surveys		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			75.27

Survey Program	Date 10/22/18		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
13.50	4,853.00	Scout MWD (Wellbore #1)	B001Mb_MWD+HRGM
			Description
			OWSG MWD + HRGM

Survey									
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Vertical Section	Dogleg Rate	Build Rate	Turn Rate
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13.50	0.00	0.00	13.50	0.00	0.00	0.00	0.00	0.00	0.00
Ground Level @ 13.50' MD									
198.00	0.79	111.34	197.99	-0.46	1.18	1.03	0.43	0.43	0.00
First Scout MWD Survey @ 198.00' MD									
381.00	0.88	93.58	380.98	-1.01	3.76	3.38	0.15	0.05	-9.70
563.00	3.38	72.40	562.84	0.53	10.27	10.07	1.42	1.37	-11.64
743.00	11.56	81.54	741.16	4.79	33.21	33.34	4.58	4.54	5.08
924.00	14.11	78.82	917.63	11.74	72.80	73.39	1.45	1.41	-1.50



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Well:	SHU 275	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	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)
1,099.00	16.31	76.62	1,086.49	21.56	117.64	119.25	1.30	1.26	-1.26
1,272.00	15.74	76.18	1,252.76	32.79	164.06	167.00	0.34	-0.33	-0.25
1,444.00	18.68	71.08	1,417.05	47.30	212.78	217.81	1.92	1.71	-2.97
1,589.00	16.48	69.41	1,555.28	62.06	254.00	261.43	1.56	-1.52	-1.15
1,671.00	15.38	69.76	1,634.12	69.91	275.09	283.83	1.35	-1.34	0.43
1,843.00	19.25	74.25	1,798.31	85.51	323.80	334.90	2.38	2.25	2.61
2,016.00	23.87	81.89	1,959.19	98.19	385.95	398.23	3.12	2.67	4.42
2,188.00	28.44	82.16	2,113.54	108.70	461.02	473.50	2.66	2.66	0.16
2,361.00	32.53	82.59	2,262.59	120.32	547.99	560.57	2.37	2.36	0.25
2,534.00	33.63	77.67	2,407.57	136.55	640.94	654.59	1.68	0.64	-2.84
2,706.00	31.69	73.89	2,552.39	159.26	730.89	747.36	1.64	-1.13	-2.20
2,878.00	28.44	71.52	2,701.23	184.79	813.16	833.42	2.01	-1.89	-1.38
3,051.00	25.89	69.15	2,855.14	211.30	887.54	912.10	1.60	-1.47	-1.37
3,224.00	24.35	69.32	3,011.77	237.33	956.21	985.13	0.89	-0.89	0.10
3,396.00	22.51	69.32	3,169.58	261.49	1,020.19	1,053.15	1.07	-1.07	0.00
3,568.00	21.19	74.68	3,329.24	281.33	1,080.99	1,116.99	1.39	-0.77	3.12
3,741.00	21.36	76.27	3,490.45	297.07	1,141.75	1,179.76	0.35	0.10	0.92
3,914.00	21.19	75.56	3,651.66	312.34	1,202.63	1,242.53	0.18	-0.10	-0.41
4,086.00	22.37	76.97	3,811.38	327.47	1,264.63	1,306.33	0.75	0.69	0.82
4,258.00	20.88	77.59	3,971.27	341.44	1,326.45	1,369.68	0.88	-0.87	0.36
4,430.00	19.03	81.10	4,132.94	352.37	1,384.10	1,428.21	1.28	-1.08	2.04
4,603.00	18.81	79.08	4,296.60	362.02	1,439.35	1,484.09	0.40	-0.13	-1.17
4,786.00	18.33	77.06	4,470.07	374.05	1,496.36	1,542.29	0.44	-0.26	-1.10
Last Scout MWD Survey @ 4786.00' MD									
4,853.00	18.33	77.06	4,533.67	378.77	1,516.90	1,563.35	0.00	0.00	0.00
Projection to TD @ 4853.00' MD									

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
13.50	13.50	0.00	0.00	Ground Level @ 13.50' MD
198.00	197.99	-0.46	1.18	First Scout MWD Survey @ 198.00' MD
4,786.00	4,470.07	374.05	1,496.36	Last Scout MWD Survey @ 4786.00' MD
4,853.00	4,533.67	378.77	1,516.90	Projection to TD @ 4853.00' MD

Checked By: _____ Approved By: _____ Date: _____