Oxy USA

Lea County, NM
North Hobbs G/SA Unit
NHU 23-664

Wellbore #1
Surveys

44822

Anticollision Report

25 November, 2018

SCOUT DOWNHOLE INC ™

Microsoft
Anticollision Report

Company:	Oxy USA	**Local Co-ordinate Reference:**	Well NHU 23-664
Project:	Lea County, NM	**TVD Reference:**	GL 3683.4 + 13.5 KB @ 3696.90usft (Savanna 417)
Reference Site:	North Hobbs G/SA Unit	**MD Reference:**	GL 3683.4 + 13.5 KB @ 3696.90usft (Savanna 417)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	NHU 23-664	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.80 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 5000.14 Single User Db
Reference Design:	Surveys	**Offset TVD Reference:**	Reference Datum

Reference	Surveys		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	**Error Model:**	ISCWSA
Depth Range:	0.00 to 6,011.00usft	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 2,000.00 us	**Error Surface:**	Combined Pedal Curve
Warning Levels Evaluated at:	2.80 Sigma	**Casing Method:**	Not applied

Survey Program **Date** 11/25/18

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
13.50	1,556.00	Gyrodata Gyro (Wellbore #1)	GYD_G003_GC+DROP+(	Gyrodata Stationary Tool drop on BHA on open h
1,678.00	6,011.00	Scout MWD (Wellbore #1)	B001Mb_MWD+HRGM	OWSG MWD + HRGM

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
North Hobbs G/SA Unit						
NHSAU 311-23 (Offset) - Wellbore #1 - Surveys Blind	2,160.20	2,149.01	116.17	40.70	1.539	AC-SVY Procedures, CC
NHSAU 311-23 (Offset) - Wellbore #1 - Surveys Blind	4,824.83	4,809.50	146.44	-22.98	0.864	L4MOC-HPR / L3MOC-M
NHSAU 341-14 (Offset) - Wellbore #1 - Surveys Blind	4,397.76	4,384.62	890.73	736.34	5.769	CC
NHSAU 341-14 (Offset) - Wellbore #1 - Surveys Blind	4,783.00	4,769.70	895.82	727.83	5.332	ES, SF

Offset Design North Hobbs G/SA Unit - NHSAU 311-23 (Offset) - Wellbore #1 - Surveys Blind — **Offset Site Error:** 0.00 usft

Survey Program: 4375-OXY_IO35Ua_INC-ONLY — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	10.90	0.00	0.00	0.38	92.69	-6.66	141.95	142.11				
13.50	13.50	2.60	13.50	0.00	0.09	92.69	-6.66	141.95	142.11	142.02	0.09	1,554.095	
140.00	140.00	129.10	140.00	0.25	4.53	-50.21	-6.66	141.95	141.49	136.95	4.53	31.208	
321.00	320.97	310.07	320.97	0.62	10.87	-44.95	-6.66	141.95	139.26	128.37	10.89	12.789	
505.00	504.93	494.03	504.93	1.01	17.32	-29.69	-6.66	141.95	136.30	118.95	17.35	7.856	
690.00	689.89	678.99	689.89	1.39	23.81	-18.73	-6.66	141.95	133.02	109.17	23.85	5.578	
873.00	872.87	861.97	872.87	1.77	30.22	-0.60	-6.66	141.95	130.05	99.77	30.27	4.296	
1,067.00	1,066.84	1,055.94	1,066.84	2.17	37.02	-12.78	-6.66	141.95	126.92	89.84	37.09	3.422	
1,239.00	1,238.81	1,227.91	1,238.81	2.53	43.05	-9.96	-6.66	141.95	123.82	80.69	43.13	2.871	
1,412.00	1,411.79	1,400.89	1,411.79	2.89	49.12	-0.92	-6.66	141.95	120.98	71.77	49.20	2.459	
1,556.00	1,555.78	1,544.88	1,555.78	3.19	54.17	5.09	-6.66	141.95	119.46	65.20	54.26	2.202	
1,678.00	1,677.78	1,666.88	1,677.78	3.33	58.45	-16.04	-6.66	141.95	118.64	60.10	58.54	2.027	
1,851.00	1,850.77	1,839.87	1,850.77	3.52	64.51	4.12	-6.66	141.95	117.53	52.92	64.61	1.819	AC-SVY Procedures
2,023.00	2,022.77	2,011.87	2,022.77	3.89	70.54	-21.43	-6.66	141.95	116.57	45.92	70.65	1.650	AC-SVY Procedures
2,160.20	2,159.91	2,149.01	2,159.91	4.29	75.35	90.00	-6.66	141.95	116.17	40.70	75.47	1.539	AC-SVY Procedures, CC
2,196.00	2,195.64	2,184.74	2,195.64	4.39	76.60	92.19	-6.66	141.95	116.21	39.48	76.73	1.515	AC-SVY Procedures
2,368.00	2,367.11	2,356.21	2,367.11	4.98	82.62	118.45	-6.66	141.95	120.12	37.36	82.77	1.451	L3 MOC
2,541.00	2,539.45	2,528.55	2,539.45	5.65	88.66	117.77	-6.66	141.95	127.30	38.46	88.84	1.433	L3 MOC
2,713.00	2,710.92	2,700.02	2,710.92	6.38	94.67	118.69	-6.66	141.95	133.73	38.85	94.88	1.409	L3 MOC
2,886.00	2,883.49	2,872.59	2,883.49	7.14	100.72	124.00	-6.66	141.95	140.05	39.08	100.97	1.387	L3 MOC
3,058.00	3,055.18	3,044.28	3,055.18	7.93	106.74	124.71	-6.66	141.95	145.92	38.89	107.03	1.363	L3 MOC

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

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Reference Well:	NHU 23-664	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.80 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 5000.14 Single User Db
Reference Design:	Surveys	**Offset TVD Reference:**	Reference Datum

Offset Design North Hobbs G/SA Unit - NHSAU 311-23 (Offset) - Wellbore #1 - Surveys Blind — **Offset Site Error:** 0.00 usft

Survey Program: 4375-OXY_IO35Ua_INC-ONLY — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
3,231.00	3,227.94	3,217.04	3,227.94	8.73	112.80	121.02	-6.66	141.95	150.80	37.67	113.13	1.333	L3 MOC
3,403.00	3,399.74	3,388.84	3,399.74	9.54	118.82	116.22	-6.66	141.95	154.83	35.63	119.20	1.299	L3 MOC
3,575.00	3,571.56	3,560.66	3,571.56	10.36	124.85	108.82	-6.66	141.95	157.89	32.62	125.27	1.260	L3 MOC
3,748.00	3,744.37	3,733.47	3,744.37	11.19	130.91	103.66	-6.66	141.95	160.10	28.73	131.38	1.219	L3 MOC
3,921.00	3,917.19	3,906.29	3,917.19	12.02	136.97	99.02	-6.66	141.95	161.67	24.18	137.49	1.176	L3 MOC
4,093.00	4,089.03	4,078.13	4,089.03	12.85	142.99	88.14	-6.66	141.95	162.15	18.59	143.56	1.129	L3 MOC
4,266.00	4,261.85	4,250.95	4,261.85	13.68	149.05	72.44	-6.66	141.95	160.74	11.07	149.67	1.074	L3 MOC
4,438.00	4,433.75	4,422.85	4,433.75	14.49	155.08	21.74	-6.66	141.95	157.74	2.00	155.75	1.013	L3 MOC
4,611.00	4,606.69	4,595.79	4,606.69	15.29	161.14	14.69	-6.66	141.95	153.39	-8.46	161.86	0.948	L4MOC-HPR / L3MOC-MCR
4,783.00	4,778.60	4,767.70	4,778.60	16.08	167.17	8.79	-6.66	141.95	147.90	-20.03	167.93	0.881	L4MOC-HPR / L3MOC-MCR
4,824.83	4,820.40	4,809.50	4,820.40	16.28	168.63	10.04	-6.66	141.95	146.44	-22.98	169.41	0.864	L4MOC-HPR / L3MOC-MCR, ES, S
4,955.00	4,950.47	4,375.00	4,385.90	16.88	153.40	11.41	-6.66	141.95	582.00	534.26	47.74	12.191	
5,128.00	5,123.42	4,375.00	4,385.90	17.69	153.40	-170.81	-6.66	141.95	750.36	708.95	41.41	18.119	
5,300.00	5,295.42	4,375.00	4,385.90	18.50	153.40	-46.72	-6.66	141.95	919.98	881.70	38.28	24.031	
5,473.00	5,468.42	4,375.00	4,385.90	19.30	153.40	-51.46	-6.66	141.95	1,091.24	1,054.88	36.36	30.013	
5,645.00	5,640.41	4,375.00	4,385.90	20.10	153.40	-64.30	-6.66	141.95	1,261.99	1,226.80	35.19	35.866	
5,818.00	5,813.41	4,375.00	4,385.90	20.91	153.40	-79.24	-6.66	141.95	1,434.06	1,399.60	34.45	41.622	
5,944.00	5,939.41	4,375.00	4,385.90	21.50	153.40	-100.78	-6.66	141.95	1,559.53	1,525.42	34.11	45.724	
6,011.00	6,006.40	4,375.00	4,385.90	21.81	153.40	-100.78	-6.66	141.95	1,626.29	1,592.32	33.97	47.874	

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Survey Program: 4375-OXY_IO35Ua_INC-ONLY — **Offset Well Error:** 0.00 usft

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0.00	0.00	8.90	0.00	0.00	0.31	6.81	997.38	119.08	1,004.46				
13.50	13.50	4.60	13.50	0.00	0.16	6.81	997.38	119.08	1,004.46	1,004.30	0.16	6,216.972	
140.00	140.00	131.10	140.00	0.25	4.60	-135.82	997.38	119.08	1,005.16	1,000.55	4.60	218.344	
321.00	320.97	312.07	320.97	0.62	10.94	-129.71	997.38	119.08	1,007.36	996.40	10.96	91.920	
505.00	504.93	496.03	504.93	1.01	17.39	-113.69	997.38	119.08	1,009.32	991.91	17.42	57.942	
690.00	689.89	680.99	689.89	1.39	23.88	-102.30	997.38	119.08	1,010.45	986.53	23.92	42.251	
873.00	872.87	863.97	872.87	1.77	30.29	-84.09	997.38	119.08	1,010.68	980.34	30.34	33.311	
957.50	957.36	948.46	957.36	1.94	33.26	-90.00	997.38	119.08	1,010.62	977.31	33.31	30.342	
1,067.00	1,066.84	1,057.94	1,066.84	2.17	37.09	-96.27	997.38	119.08	1,010.72	973.57	37.15	27.205	
1,239.00	1,238.81	1,229.91	1,238.81	2.53	43.12	-93.35	997.38	119.08	1,010.99	967.79	43.19	23.407	
1,412.00	1,411.79	1,402.89	1,411.79	2.89	49.19	-84.33	997.38	119.08	1,010.96	961.69	49.27	20.521	
1,556.00	1,555.78	1,546.88	1,555.78	3.19	54.24	-78.42	997.38	119.08	1,010.76	956.44	54.32	18.607	
1,622.02	1,621.80	1,612.90	1,621.80	3.26	56.55	-90.00	997.38	119.08	1,010.71	954.08	56.64	17.845	
1,678.00	1,677.78	1,668.88	1,677.78	3.33	58.52	-99.55	997.38	119.08	1,010.75	952.15	58.60	17.248	
1,851.00	1,850.77	1,841.87	1,850.77	3.52	64.58	-79.40	997.38	119.08	1,010.75	946.08	64.67	15.630	
1,927.73	1,927.50	1,918.60	1,927.50	3.68	67.27	-90.00	997.38	119.08	1,010.71	943.34	67.36	15.004	
2,023.00	2,022.77	2,013.87	2,022.77	3.89	70.61	-104.94	997.38	119.08	1,010.77	940.06	70.71	14.294	
2,196.00	2,195.64	2,186.74	2,195.64	4.39	76.67	5.91	997.38	119.08	1,005.08	928.29	76.79	13.088	
2,368.00	2,367.11	2,358.21	2,367.11	4.98	82.69	26.34	997.38	119.08	992.27	909.44	82.83	11.980	
2,541.00	2,539.45	2,530.55	2,539.45	5.65	88.73	19.81	997.38	119.08	978.41	889.50	88.90	11.006	
2,713.00	2,710.92	2,702.02	2,710.92	6.38	94.74	15.72	997.38	119.08	965.55	870.61	94.95	10.169	
2,886.00	2,883.49	2,874.59	2,883.49	7.14	100.79	16.89	997.38	119.08	953.91	852.88	101.04	9.441	
3,058.00	3,055.18	3,046.28	3,055.18	7.93	106.81	14.31	997.38	119.08	943.95	836.86	107.09	8.814	
3,231.00	3,227.94	3,219.04	3,227.94	8.73	112.87	7.81	997.38	119.08	935.17	821.98	113.20	8.262	
3,403.00	3,399.74	3,390.84	3,399.74	9.54	118.89	0.28	997.38	119.08	926.82	807.56	119.26	7.771	
3,575.00	3,571.56	3,562.66	3,571.56	10.36	124.92	-9.87	997.38	119.08	918.90	793.56	125.33	7.332	
3,748.00	3,744.37	3,735.47	3,744.37	11.19	130.98	-17.91	997.38	119.08	911.20	779.76	131.44	6.932	
3,921.00	3,917.19	3,908.29	3,917.19	12.02	137.04	-25.48	997.38	119.08	903.87	766.32	137.55	6.571	
4,093.00	4,089.03	4,080.13	4,089.03	12.85	143.06	-39.27	997.38	119.08	897.56	753.93	143.62	6.249	
4,266.00	4,261.85	4,252.95	4,261.85	13.68	149.12	-58.12	997.38	119.08	892.44	742.70	149.73	5.960	
4,397.76	4,393.52	4,384.62	4,393.52	14.30	153.74	-90.00	997.38	119.08	890.73	736.34	154.39	5.769	CC
4,438.00	4,433.75	4,424.85	4,433.75	14.49	155.15	-110.81	997.38	119.08	890.89	735.08	155.81	5.718	
4,611.00	4,606.69	4,597.79	4,606.69	15.29	161.21	-118.62	997.38	119.08	892.84	730.92	161.92	5.514	
4,783.00	4,778.60	4,769.70	4,778.60	16.08	167.24	-125.25	997.38	119.08	895.82	727.83	168.00	5.332	ES, SF
4,955.00	4,950.47	4,375.00	4,383.90	16.88	153.40	-120.21	997.38	119.08	1,063.04	931.43	131.60	8.078	
5,128.00	5,123.42	4,375.00	4,383.90	17.69	153.40	53.29	997.38	119.08	1,165.74	1,044.78	120.96	9.637	
5,300.00	5,295.42	4,375.00	4,383.90	18.50	153.40	176.56	997.38	119.08	1,281.90	1,171.05	110.85	11.564	
5,473.00	5,468.42	4,375.00	4,383.90	19.30	153.40	171.14	997.38	119.08	1,410.85	1,309.10	101.74	13.867	
5,645.00	5,640.41	4,375.00	4,383.90	20.10	153.40	158.51	997.38	119.08	1,547.58	1,453.76	93.82	16.496	
5,818.00	5,813.41	4,375.00	4,383.90	20.91	153.40	141.83	997.38	119.08	1,691.57	1,604.64	86.93	19.459	
5,944.00	5,939.41	4,375.00	4,383.90	21.50	153.40	121.22	997.38	119.08	1,799.60	1,717.07	82.53	21.805	
6,011.00	6,006.40	4,375.00	4,383.90	21.81	153.40	121.22	997.38	119.08	1,857.92	1,777.54	80.38	23.114	

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Microsoft
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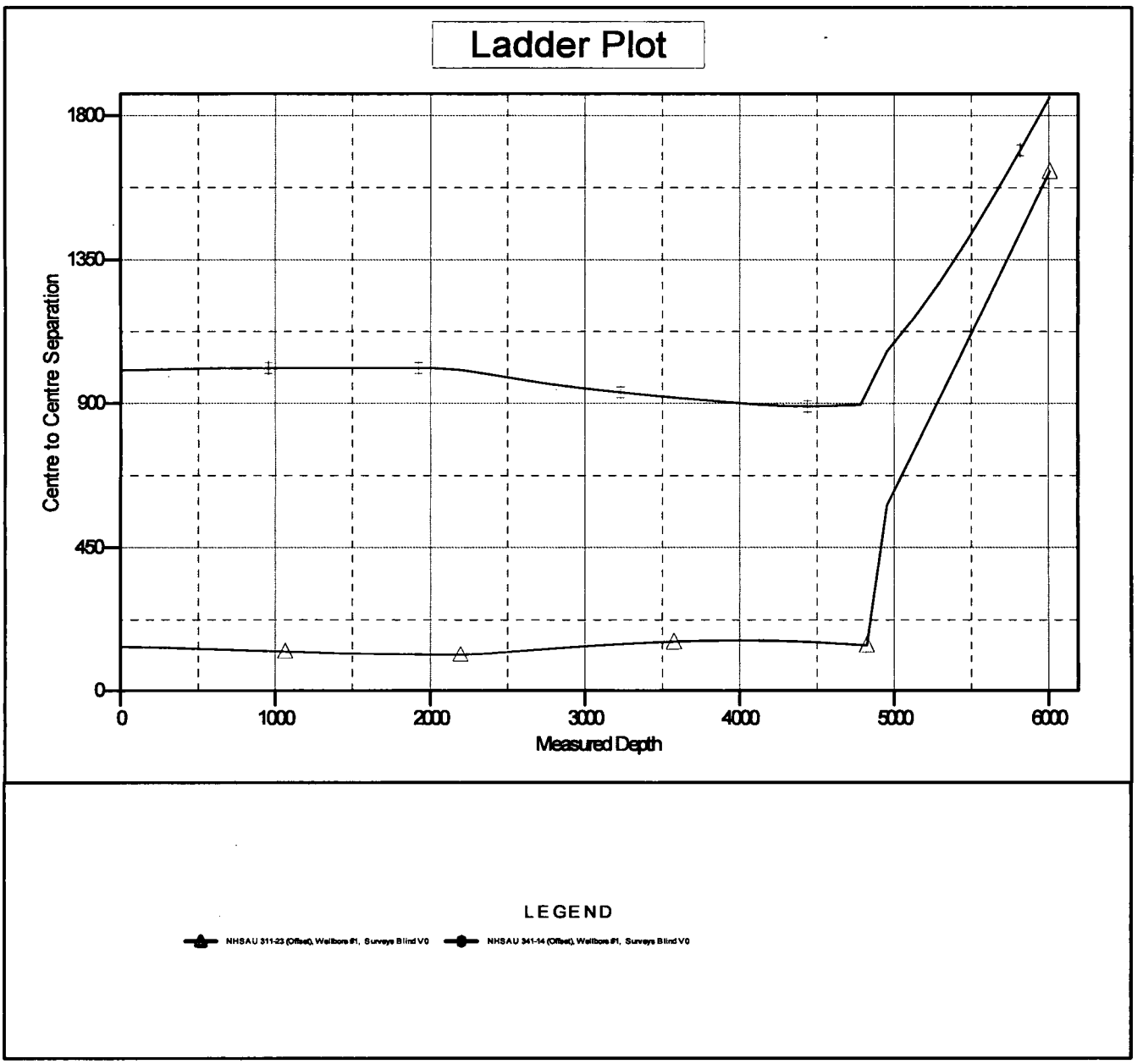
Reference Design:	Surveys	**Offset TVD Reference:**	Reference Datum

Reference Depths are relative to GL 3683.4 + 13.5 KB @ 3696.90usft (Coordinates are relative to: NHU 23-664
Offset Depths are relative to Offset Datum
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Central Meridian is 104° 20' 0.000 W
Grid Convergence at Surface is: 0.60°



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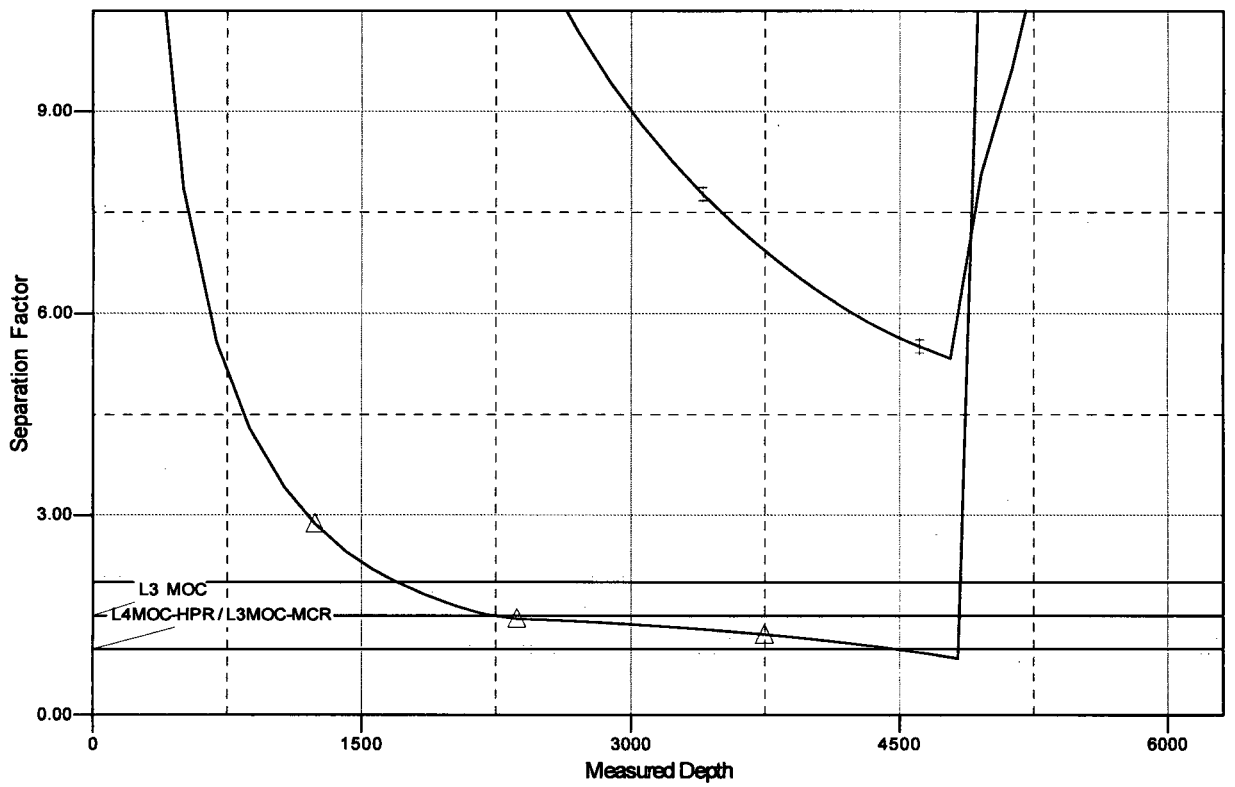
Offset Depths are relative to Offset Datum
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Central Meridian is 104° 20' 0.000 W
Grid Convergence at Surface is: 0.60°

Separation Factor Plot



LEGEND

NHSAU 311-23 (Offset), Wellbore #1, Surveys Blind V0
NHSAU 341-14 (Offset), Wellbore #1, Surveys Blind V0

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Oxy USA

Lea County, NM
North Hobbs G/SA Unit
NHU 23-664

Wellbore #1

Design: Surveys

Standard Survey Report

25 November, 2018

SCOUT DOWNHOLE INC ™

Project:	Lea County, NM
Site:	North Hobbs G/SA Unit
Well:	NHU 23-664
Depth Reference:	GL 3683.4 + 13.5 KB @ 3696.90usft (Savanna 417)
SHL Northing:	634451.46
SHL Easting:	842715.26
Rig:	Savanna 417
Plan:	plan2

SCOUT DOWNHOLE INC ™

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2592.56	0.00	0.00	2592.56	0.00	0.00	0.00	0.00	0.00	Start Build 2.00
2842.56	5.00	359.31	2842.24	10.90	-0.13	2.00	359.31	10.90	Start 1011.93 hold at 2842.56 MD
3854.49	5.00	359.31	3850.32	99.09	-1.20	0.00	0.00	99.10	Start Drop -2.00
4104.49	0.00	0.00	4100.00	109.99	-1.33	2.00	180.00	110.00	Start 1900.00 hold at 4104.49 MD
6004.49	0.00	0.00	6000.00	109.99	-1.33	0.00	0.00	110.00	TD @ 6004.49' MD

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
NHU 23-664 p2 PBHL	6000.00	109.99	-1.33	634561.45	842713.93	Circle (Radius: 100.00)

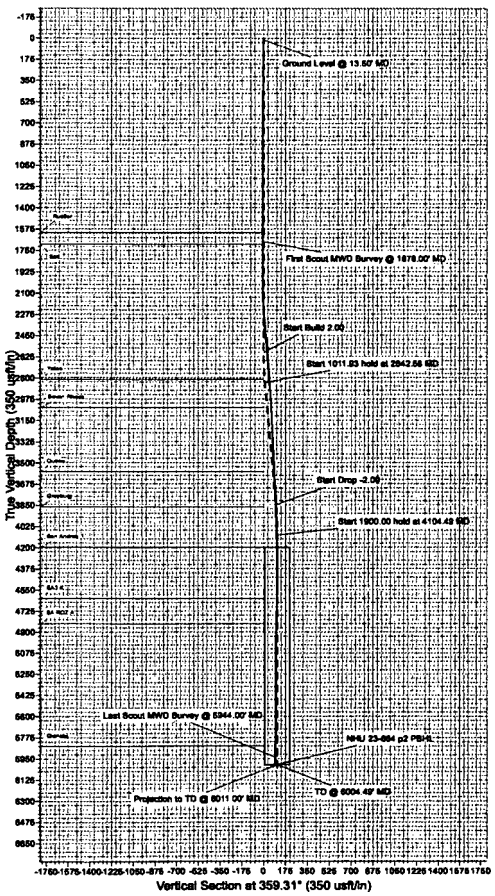
T G M

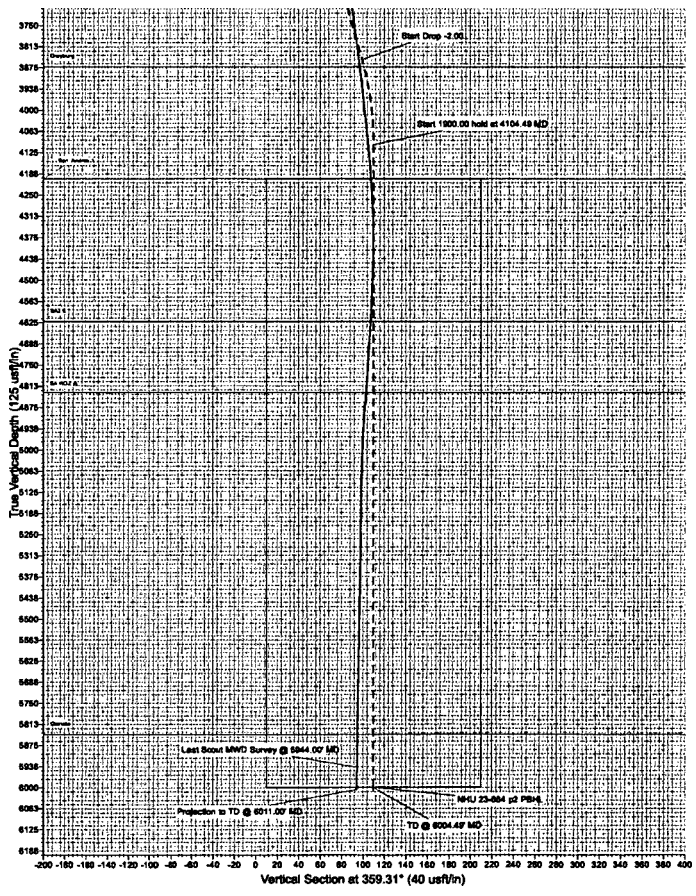
Azimuths to Grid North
True North: -0.60°
Magnetic North: 6.20°

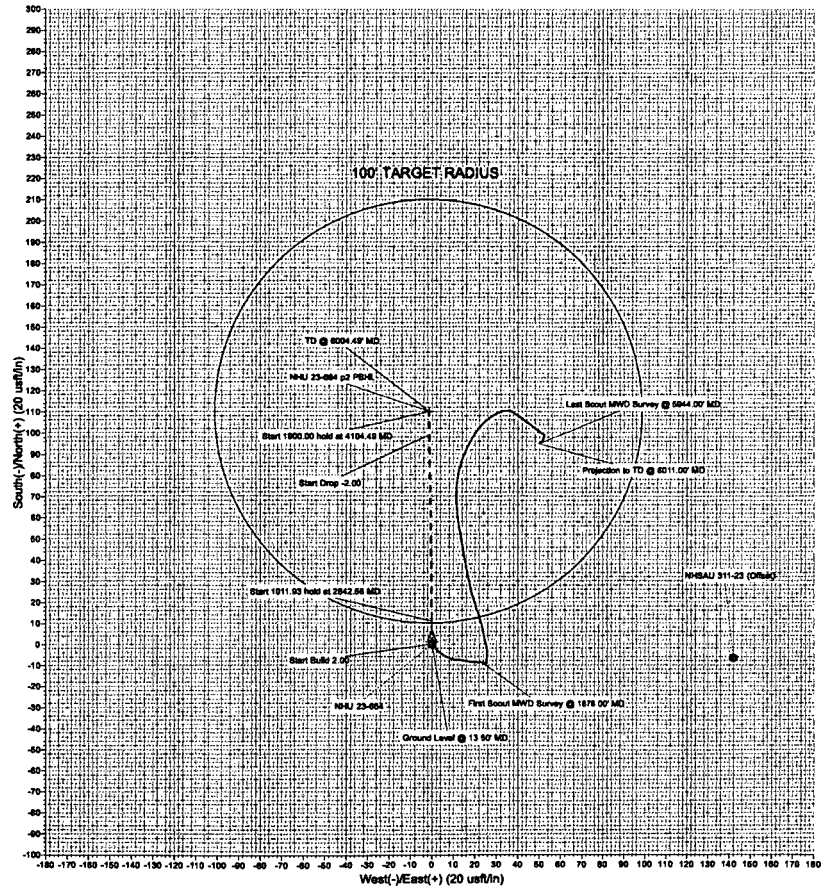
Magnetic Field
Strength: 48069.0snT
Dip Angle: 60.72°
Date: 11/13/2018
Model: HDGM

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1603.34	1603.34	Rustler
1701.96	1701.96	Salt
2815.02	2815.24	Yates
3046.13	3047.23	Seven Rivers
3576.14	3579.26	Queen
3870.77	3875.01	Grayburg
4201.95	4206.44	San Andres 1
4622.67	4627.18	SA3 K
4832.26	4836.75	SA ROZ A
5842.90	5847.39	Glorieta







Company:	Oxy USA	**Local Co-ordinate Reference:**	Well NHU 23-664
Project:	Lea County, NM	**TVD Reference:**	GL 3683.4 + 13.5 KB @ 3696.90usft (Savanna 417)
Site:	North Hobbs G/SA Unit	**MD Reference:**	GL 3683.4 + 13.5 KB @ 3696.90usft (Savanna 417)
Well:	NHU 23-664	**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	North Hobbs G/SA Unit				
Site Position:		**Northing:**	634,663.65 usft	**Latitude:**	32° 44' 22.880 N
From:	Map	**Easting:**	847,524.56 usft	**Longitude:**	103° 12' 11.270 W
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.61 °

Well	NHU 23-664					
Well Position	**+N/-S**	0.00 usft	**Northing:**	634,451.46 usft	**Latitude:**	32° 44' 21.285 N
	+E/-W	0.00 usft	**Easting:**	842,715.26 usft	**Longitude:**	103° 13' 7.593 W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,683.40 usft

Wellbore	Wellbore #1				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	HDGM	11/13/18	6.80	60.72	48,069.00000000

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	359.31	

Survey Program **Date** 11/25/18

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
13.50	1,556.00	Gyrodata Gyro (Wellbore #1)	GYD_G003_GC+DROP+(	Gyrodata Stationary Tool drop on BHA on open h
1,678.00	6,011.00	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
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									
140.00	0.88	142.59	140.00	-0.77	0.59	-0.78	0.70	0.70	0.00
321.00	1.19	136.35	320.97	-3.24	2.73	-3.27	0.18	0.17	-3.45
505.00	1.16	120.15	504.93	-5.55	5.66	-5.62	0.18	-0.02	-8.80
690.00	1.08	108.56	689.89	-7.05	8.93	-7.16	0.13	-0.04	-6.26
873.00	0.84	90.18	872.87	-7.60	11.91	-7.75	0.21	-0.13	-10.04

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Site:	North Hobbs G/SA Unit	**MD Reference:**	GL 3683.4 + 13.5 KB @ 3696.90usft (Savanna 417)
Well:	NHU 23-664	**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)
1,067.00	1.03	102.18	1,066.84	-7.97	15.04	-8.16	0.14	0.10	6.19
1,239.00	1.08	99.08	1,238.81	-8.56	18.15	-8.78	0.04	0.03	-1.80
1,412.00	0.82	89.90	1,411.79	-8.81	21.00	-9.06	0.17	-0.15	-5.31
1,556.00	0.39	83.90	1,555.78	-8.76	22.51	-9.03	0.30	-0.30	-4.17
1,678.00	0.40	104.99	1,677.78	-8.82	23.34	-9.11	0.12	0.01	17.29
First Scout MWD Survey @ 1678.00' MD									
1,851.00	0.35	84.77	1,850.77	-8.93	24.45	-9.23	0.08	-0.03	-11.69
2,023.00	0.31	110.26	2,022.77	-9.05	25.41	-9.35	0.09	-0.02	14.82
2,196.00	3.87	359.43	2,195.64	-3.37	25.79	-3.68	2.31	2.06	-64.06
2,368.00	5.23	339.31	2,367.11	9.77	22.96	9.49	1.21	0.79	-11.70
2,541.00	4.79	346.16	2,539.45	24.16	18.45	23.94	0.43	-0.25	3.96
2,713.00	4.22	350.47	2,710.92	37.38	15.68	37.18	0.39	-0.33	2.51
2,886.00	3.82	349.50	2,883.49	49.32	13.58	49.15	0.23	-0.23	-0.56
3,058.00	3.08	352.23	3,055.18	59.53	11.91	59.38	0.44	-0.43	1.59
3,231.00	2.86	358.82	3,227.94	68.45	11.19	68.31	0.23	-0.13	3.81
3,403.00	2.73	6.38	3,399.74	76.81	11.56	76.67	0.23	-0.08	4.40
3,575.00	2.59	16.48	3,571.56	84.61	13.12	84.45	0.28	-0.08	5.87
3,748.00	2.68	24.39	3,744.37	92.04	15.89	91.84	0.22	0.05	4.57
3,921.00	2.55	31.78	3,917.19	99.00	19.59	98.75	0.21	-0.08	4.27
4,093.00	2.46	45.31	4,089.03	104.85	24.23	104.55	0.35	-0.05	7.87
4,266.00	2.81	63.77	4,261.85	109.33	30.67	108.95	0.53	0.20	10.67
4,438.00	1.27	116.15	4,433.75	110.35	36.17	109.91	1.32	-0.90	30.45
4,611.00	1.76	123.71	4,606.69	108.04	40.10	107.54	0.31	0.28	4.37
4,783.00	1.98	130.04	4,778.60	104.66	44.57	104.11	0.18	0.13	3.68
4,955.00	2.46	125.99	4,950.47	100.58	49.83	99.97	0.29	0.28	-2.35
5,128.00	0.31	310.74	5,123.42	98.70	52.48	98.06	1.60	-1.24	-101.30
5,300.00	0.31	187.69	5,295.42	98.54	52.07	97.91	0.32	0.00	-71.54
5,473.00	0.40	193.06	5,468.42	97.49	51.87	96.86	0.06	0.05	3.10
5,645.00	0.31	205.62	5,640.41	96.49	51.53	95.86	0.07	-0.05	7.30
5,818.00	0.44	222.06	5,813.41	95.57	50.88	94.95	0.10	0.08	9.50
5,944.00	0.35	242.63	5,939.41	95.04	50.22	94.42	0.13	-0.07	16.33
Last Scout MWD Survey @ 5944.00' MD									
6,011.00	0.35	242.63	6,006.40	94.85	49.85	94.24	0.00	0.00	0.00
Projection to TD @ 6011.00' MD									

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Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
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Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
13.50	13.50	0.00	0.00	Ground Level @ 13.50' MD
1,678.00	1,677.78	-8.82	23.34	First Scout MWD Survey @ 1678.00' MD
5,944.00	5,939.41	95.04	50.22	Last Scout MWD Survey @ 5944.00' MD
6,011.00	6,006.40	94.85	49.85	Projection to TD @ 6011.00' MD