



Gyrodata Incorporated
10504 WCR 72
Midland, TX 79707

Main: 432-561-8458
Fax: 432-563-7982

I, Kevin Willard, certify that; I am employed by Gyrodata Inc.; that I am authorized and qualified to review the Gyroscopic Multishot survey from a depth of 0 feet to a depth of 606 feet conducted on the day(s) of 08/06/2017; that this survey was conducted at the request OXY USA for the PATTON MDP1 18 FEDERAL Well 2H API No. 30-015-44337 in EDDY COUNTY,NM; that the data is true, correct, complete, and within the limitations of the tool as set forth by Gyrodata Inc.; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by Gyrodata Inc.

A handwritten signature in black ink, appearing to read "Kevin Willard", is written over a horizontal line.

Kevin Willard
Operations Coordinator

NM OIL CONSERVATION
ARTESIA DISTRICT

FEB 12 2018

RECEIVED

A Gyrodata Directional Survey

FINAL DEFINITIVE COPY

for

OXY USA

Lease: Patton MDP 18 Well: Federal 2H,
Location: Transcend Drilling Rig #1, Eddy County, NM

Job Number: MD0917GDM660

Run Date: 06 Sep 2017

Report Generated: 07 Nov 2017 12:09

Surveyor: David Ellis

Calculation Method: MINIMUM CURVATURE

Survey surface coordinates obtained from: Well Plan/Plot

Survey Latitude: 32.224001 deg. N

Longitude: 103.819045 deg. W

Azimuth Correction:

Gyro: -0.27000 deg to Grid North

Depth Reference: Rotary Table

Air Gap (RKB to Ground / RKB to MSL): 6.00

Ground Elevation (Ground to MSL / MSL to Mudline): 3533.70

Vertical Section Calculated from Well Head Location

Closure Calculated from Well Head Location

Horizontal Coordinates Calculated from Well Head Location

A Gyrodata Directional Survey

Oxy USA

Lease: Patton MDP 1 18 Well: Federal 2H

Location: Transcend Drilling Rig #1, Eddy County, NM

Job Number: MDP0917GDM660

MEASURED DEPTH	INCL deg.	AZIMUTH deg.	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. AZIMUTH feet deg.	HORIZONTAL COORDINATES feet
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0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.00 N	0.00 E
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0 TO 606 FT. RATE GYROSCOPIC MULTISHOT SURVEY RUN INSIDE 4 1/2 INCH DRILLPIPE

ALL MEASURED DEPTHS AND COORDINATES REFERENCED TO TRANSCEND DRILLING RIG #1 WITH R.K.B. HEIGHT OF 6 FT.

51.62	0.65	357.72	1.26	51.62	0.3	357.7	0.29 N	0.01 W
143.42	0.91	4.77	0.30	143.41	1.5	1.1	1.54 N	0.03 E
234.82	0.61	31.37	0.50	234.80	2.7	7.3	2.68 N	0.34 E
329.57	0.35	76.53	0.46	329.55	3.3	15.6	3.18 N	0.89 E
424.40	0.48	119.79	0.35	424.38	3.4	26.4	3.05 N	1.51 E
518.08	0.68	127.01	0.23	518.05	3.4	42.4	2.52 N	2.30 E
606.00	0.80	129.20	0.14	605.96	3.7	60.4	1.81 N	3.19 E

Final Station Closure: Distance: 3.67 ft Az: 60.36 deg.

Schlumberger Drilling and Measurements

Drilling Group

Geo Market Area: South West Texas Basin

7220 W I-H 20

Midland, Texas 79706

Phone : (432) 742-5400 (Main)

Fax : (432) 742-5606 (Shared)

Well Reference:

32.22367 -103.81525

I, Rasheed Atanda certify that; I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of November 02, 2017 through November 14, 2017, conduct or supervise the taking of the TelePacer & SlimPulse surveys from a depth of 724.00 feet to a depth of 14780.00 feet referenced to driller's depth; that the data is true, correct, complete and within the limitations of the tool as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I am authorized and qualified to make this report; that this survey was conducted at the request of OXY USA INC. for the Patton MDP1 18 Federal 2H Well (Original Hole) API No. 30-015-44337 in New Mexico; and that I have reviewed this report and find that it conforms to the principals and procedures as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation.

By
Rasheed Atanda
FE

R. Atanda

Subscribed and Sworn to before me this 20th day of November (month) 2017 (yr)

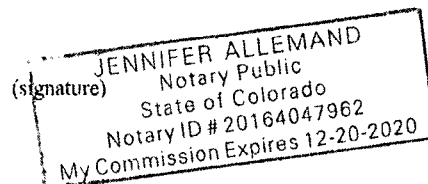
My Commission expires:

12-20-2020

J. Allemand

Notary Public

Adams County Colorado
(County State)



Oxy Patton MDP1 18 Federal 2H Gyro+MWD 0-14817 ftMD Survey Geodetic Report

(Def Survey)



Report Date: November 15, 2017 - 10:48 AM Client: OXY Field: NM Eddy County (NAD 83) Structure / Slot: Oxy Patton MDP1 18 Federal 2H / Oxy Patton MDP1 18 Federal 2H Well: Oxy Patton MDP1 18 Federal 2H Borehole: Original Borehole UWM / API#: Unknown / Unknown Survey Name: Oxy Patton MDP1 18 Federal 2H Gyro+MWD 0-14817 ftMD Survey Date: November 09, 2017 Tort / AHD / DDI / ERD Ratio: 182.935' / 5472.808 ft / 6.168 / 0.543 Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet Location Lat / Long: N 32° 13' 26.84843", W 103° 49' 10.30642" Location Grid N/E Y/X: N 445650.220 ftUS, E 700222.810 ftUS CRS Grid Convergence Angle: 0.2740 ° Grid Scale Factor: 0.999938 Version / Patch: 2.10.565.0	Survey / DLS Computation: Minimum Curvature / Lubinski Vertical Section Azimuth: 185.065 ° (Grid North) Vertical Section Origin: 0.000 ft, 0.000 ft TVD Reference Datum: RKB=26.5' TVD Reference Elevation: 3560.200 ft above MSL Seabed / Ground Elevation: 3533.700 ft above MSL Magnetic Declination: 6.958 ° Total Gravity Field Strength: 998.4276mgn (9.80665 Based) Gravity Model: GARM Total Magnetic Field Strength: 48075.732 nT Magnetic Dip Angle: 59.990 ° Declination Date: November 08, 2017 Magnetic Declination Model: HDGM 2017 North Reference: Grid North Grid Convergence Used: 0.2740 ° Total Corr Mag North->Grid North: 6.6844 ° Local Coord Referenced To: Well Head	Minimum Curvature / Lubinski 185.065 ° (Grid North) 0.000 ft, 0.000 ft RKB=26.5' 3560.200 ft above MSL 3533.700 ft above MSL 6.958 ° 998.4276mgn (9.80665 Based) GARM 48075.732 nT 59.990 ° November 08, 2017 HDGM 2017 Grid North 0.2740 ° 6.6844 ° Well Head
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Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")	
Last Gyro	SHL	0.00	0.00	0.00	0.00	0.00	0.00	N/A	445650.22	700222.81	N 32 13 26.85 W 103 49 10.31		
		26.50	0.00	0.00	26.50	0.00	0.00	0.00	445650.22	700222.81	N 32 13 26.85 W 103 49 10.31		
		72.12	0.65	357.72	72.12	-0.26	0.26	-0.01	1.42	445650.48	700222.80	N 32 13 26.85 W 103 49 10.31	
		163.92	0.91	4.77	163.91	-1.50	1.51	0.03	0.30	445651.73	700222.84	N 32 13 26.86 W 103 49 10.31	
		255.32	0.61	31.37	255.30	-2.66	2.64	0.34	0.50	445652.86	700223.15	N 32 13 26.87 W 103 49 10.30	
		350.07	0.35	76.53	350.05	-3.21	3.14	0.89	0.46	445653.36	700223.70	N 32 13 26.88 W 103 49 10.30	
		444.90	0.48	119.79	444.88	-3.13	3.01	1.51	0.35	445653.23	700224.32	N 32 13 26.88 W 103 49 10.29	
		538.58	0.68	127.01	538.55	-2.68	2.48	2.30	0.23	445652.70	700225.11	N 32 13 26.87 W 103 49 10.28	
		626.50	0.80	129.20	626.47	-2.06	1.78	3.19	0.14	445652.00	700226.00	N 32 13 26.87 W 103 49 10.27	
		724.00	0.79	126.51	723.96	-1.32	0.95	4.26	0.04	445651.17	700227.07	N 32 13 26.86 W 103 49 10.26	
		784.00	0.64	126.93	783.95	-0.93	0.50	4.86	0.25	445650.72	700227.67	N 32 13 26.85 W 103 49 10.25	
		965.00	0.17	118.65	964.95	-0.29	-0.23	5.90	0.26	445649.99	700228.71	N 32 13 26.85 W 103 49 10.24	
		1143.00	0.17	79.66	1142.95	-0.25	-0.31	6.39	0.06	445649.91	700229.20	N 32 13 26.85 W 103 49 10.23	
		1234.00	0.17	334.39	1233.94	-0.41	-0.17	6.47	0.30	445650.05	700229.28	N 32 13 26.85 W 103 49 10.23	
		1414.00	0.17	294.53	1413.94	-0.72	0.19	6.11	0.06	445650.41	700228.92	N 32 13 26.85 W 103 49 10.24	
		1504.00	0.11	82.69	1503.94	-0.79	0.25	6.07	0.30	445650.47	700228.88	N 32 13 26.85 W 103 49 10.24	
		1690.00	0.17	298.90	1689.94	-0.94	0.41	6.01	0.14	445650.63	700228.82	N 32 13 26.85 W 103 49 10.24	
		1879.00	0.17	99.67	1878.94	-1.03	0.50	6.04	0.18	445650.72	700228.85	N 32 13 26.85 W 103 49 10.24	
		1974.00	0.29	125.81	1973.94	-0.89	0.33	6.37	0.16	445650.55	700229.18	N 32 13 26.85 W 103 49 10.23	
		2163.00	0.17	121.26	2162.94	-0.53	-0.09	7.00	0.06	445650.13	700229.81	N 32 13 26.85 W 103 49 10.22	
		2352.00	0.11	128.98	2351.94	-0.30	-0.35	7.38	0.03	445649.87	700230.19	N 32 13 26.84 W 103 49 10.22	
		2446.00	0.17	140.73	2445.94	-0.15	-0.52	7.54	0.07	445649.70	700230.35	N 32 13 26.84 W 103 49 10.22	
		2540.00	0.11	27.86	2539.94	-0.13	-0.55	7.67	0.25	445649.67	700230.48	N 32 13 26.84 W 103 49 10.22	
		2635.00	0.13	337.43	2634.94	-0.31	-0.37	7.67	0.11	445649.85	700230.48	N 32 13 26.84 W 103 49 10.22	
		2729.00	0.17	218.47	2728.94	-0.29	-0.38	7.54	0.28	445649.84	700230.35	N 32 13 26.84 W 103 49 10.22	
		2824.00	0.17	212.55	2823.94	-0.05	-0.61	7.38	0.02	445649.61	700230.19	N 32 13 26.84 W 103 49 10.22	
		2918.00	0.17	27.30	2917.94	-0.05	-0.60	7.37	0.36	445649.62	700230.18	N 32 13 26.84 W 103 49 10.22	
		3013.00	0.17	226.27	3012.94	-0.08	-0.57	7.33	0.35	445649.65	700230.14	N 32 13 26.84 W 103 49 10.22	
		3108.00	0.17	155.49	3107.94	0.15	-0.80	7.29	0.21	445649.42	700230.10	N 32 13 26.84 W 103 49 10.22	
		3202.00	0.17	276.18	3201.94	0.27	-0.91	7.21	0.31	445649.31	700230.02	N 32 13 26.84 W 103 49 10.22	
		3297.00	0.11	162.44	3296.94	0.35	-0.98	7.10	0.25	445649.24	700229.91	N 32 13 26.84 W 103 49 10.22	
		3391.00	0.18	314.81	3390.94	0.34	-0.96	7.02	0.30	445649.26	700229.83	N 32 13 26.84 W 103 49 10.22	
		3486.00	0.17	203.67	3485.94	0.38	-0.99	6.86	0.30	445649.23	700229.67	N 32 13 26.84 W 103 49 10.23	
		3675.00	0.17	330.84	3674.94	0.41	-1.00	6.61	0.16	445649.22	700229.42	N 32 13 26.84 W 103 49 10.23	
		3770.00	0.17	102.82	3769.94	0.31	-0.91	6.68	0.33	445649.31	700229.49	N 32 13 26.84 W 103 49 10.23	
		3864.00	0.17	359.00	3863.94	0.19	-0.80	6.81	0.28	445649.42	700229.62	N 32 13 26.84 W 103 49 10.23	
		3959.00	0.17	260.20	3958.94	0.09	-0.68	6.67	0.27	445649.54	700229.48	N 32 13 26.84 W 103 49 10.23	
		4053.00	0.17	285.30	4052.94	0.10	-0.67	6.40	0.08	445649.55	700229.21	N 32 13 26.84 W 103 49 10.23	
		4148.00	0.17	71.63	4147.94	0.02	-0.59	6.39	0.34	445649.63	700229.20	N 32 13 26.84 W 103 49 10.23	
		4241.00	0.18	321.13	4240.94	-0.14	-0.43	6.43	0.31	445649.79	700229.24	N 32 13 26.84 W 103 49 10.23	
	4348.00	0.13	316.09	4347.94	-0.34	-0.21	6.24	0.05	445650.01	700229.05	N 32 13 26.85 W 103 49 10.23		
	4443.00	0.29	273.28	4442.94	-0.40	-0.12	5.93	0.22	445650.10	700228.74	N 32 13 26.85 W 103 49 10.24		
	4537.00	0.16	274.15	4536.93	-0.39	-0.10	5.56	0.14	445650.12	700228.37	N 32 13 26.85 W 103 49 10.24		
	4727.00	0.18	35.69	4726.93	-0.65	0.16	5.47	0.16	445650.38	700228.28	N 32 13 26.85 W 103 49 10.24		
	4821.00	0.13	163.21	4820.93	-0.68	0.18	5.59	0.30	445650.40	700228.40	N 32 13 26.85 W 103 49 10.24		
	4915.00	0.18	276.60	4914.93	-0.58	0.10	5.47	0.28	445650.32	700228.28	N 32 13 26.85 W 103 49 10.24		
	5010.00	0.13	175.64	5009.93	-0.48	0.01	5.33	0.25	445650.23	700228.14	N 32 13 26.85 W 103 49 10.24		
	5104.00	0.13	48.55	5103.93	-0.45	-0.03	5.42	0.25	445650.19	700228.23	N 32 13 26.85 W 103 49 10.24		
	5199.00	0.17	164.34	5198.93	-0.40	-0.09	5.54	0.27	445650.13	700228.35	N 32 13 26.85 W 103 49 10.24		
	5293.00	0.18	245.61	5292.93	-0.19	-0.29	5.44	0.24	445649.93	700228.25	N 32 13 26.85 W 103 49 10.24		
	5388.00	0.11	267.54	5387.93	-0.11	-0.35	5.21	0.09	445649.87	700228.02	N 32 13 26.84 W 103 49 10.25		
	5483.00	0.13	233.70	5482.93	-0.02	-0.42	5.04	0.08	445649.80	700227.85	N 32 13 26.84 W 103 49 10.25		
	5577.00	0.20	23.00	5576.93	-0.11	-0.33	5.01	0.34	445649.89	700227.82	N 32 13 26.84 W 103 49 10.25		
	5672.00	0.29	108.79	5671.93	-0.21	-0.26	5.31	0.36	445649.96	700228.12	N 32 13 26.85 W 103 49 10.24		
	5767.00	0.06	265.18	5766.93	-0.15	-0.34	5.48	0.36	445649.88	700228.29	N 32 13 26.84 W 103 49 10.24		
	5861.00	0.24	276.04	5860.93	-0.14	-0.32	5.24	0.19	445649.90	700228.05	N 32 13 26.84 W 103 49 10.25		
	5956.00	0.61	301.10	5955.93	-0.37	-0.04	4.61	0.43	445650.18	700227.42	N 32 13 26.85 W 103 49 10.25		
	6051.00	2.78	307.73	6050.88	-1.83	1.63	2.35	2.29	445651.85	700225.16	N 32 13 26.86 W 103 49 10.28		
	6145.00	5.09	310.09	6144.65	-5.46	5.71	-2.64	2.46	445655.93	700220.17	N 32 13 26.91 W 103 49 10.34		
	6240.00	6.79	307.18	6239.14	-10.86	11.82	-10.34	1.82	445662.04	700212.47	N 32 13 26.97 W 103 49 10.43		
	6334.00	7.53	304.16	6332.41	-16.81	18.64	-19.86	0.88	445668.85	700202.95	N 32 13 27.03 W 103 49 10.54		
	6429.00	9.25	297.82	6426.39	-22.79	25.70	-31.77	2.05	445675.91	700191.04	N 32 13 27.10 W 103 49 10.67		
	6524.00	8.78	290.34	6520.22	-27.65	31.78	-45.32	1.33	445682.00	700177.49	N 32 13 27.17 W 103 49 10.83		
	6619.00	8.78	282.73	6614.11	-30.53	35.90	-59.19	1.22	445686.11	700163.62	N 32 13 27.21 W 103 49 10.99		
	6713.00	9.12	276.42	6706.97	-31.66	38.31	-73.59	1.10	445688.53	700149.22	N 32 13 27.23 W 103 49 11.16		
	6808.00	9.43	269.71	6800.73	-31.12	39.11	-88.86	1.18	445689.33	700133.96	N 32 13 27.24 W 103 49 11.34		
	6903.00	9.24	261.00	6894.47	-28.54	37.88	-104.17	1.50	445688.10	700118.64	N 32 13 27.23 W 103 49 11.52		
	6998.00	9.49	261.62	6988.21	-24.86	35.55	-119.45	0.28	445685.76	700103.36	N 32 13 27.21 W 103 49 11.69		
	7092.00	9.43	265.42	7080.93	-21.77	33.80	-134.80	0.67	445684.02	700088.02	N 32 13 27.19 W 103 49 11.87		
	7187.00	8.12	287.08	7174.84	-21.86	35.15	-148.97	3.71	445685.37	700073.85	N 32 13 27.20 W 103 49 12.04		
	7282.00	7.29	311.57	7269.01	-26.85	41.12	-159.90	3.54	445691.34	700062.92	N 32 13 27.26 W 103 49 12.17		
	7376.00	8.12	309.01	7362.16	-34.10	49.26	-169.52	0.96	445699.48	700053.30	N 32 13 27.34 W 103 49 12.28		
	7471.00	8.64	304.24	7456.14	-41.33	57.50	-180.63	0.91	445707.71	700042.19	N 32 13 27.43 W 103 49 12.41		
	7566.00	9.45	298.91	7549.96	-47.96	65.28	-193.36	1.23	445715.50	700029.47	N 32 13 27.50 W 103 49 12.55		
	7661.00	9.39	292.90	7643.69	-53.49	72.07	-207.32	1.04	445722.28	700015.50	N 32 13 27.57 W 103 49 12.72		
	7756.00	9.94	288.28	7737.34	-57.73	77.66	-222.25	1.00	445727.87	700000.58	N 32 13 27.63 W 103 49 12.89		
	7850.00	10.27	282.72	7829.88	-60.70	82.05	-238.13	1.10	445732.26	699984.70	N 32 13 27.67 W 103 49 13.07		
	7945.00	10.23	278.61	7923.37	-62.								

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	8039.00	10.00	274.49	8015.91	-62.79	87.06	-271.12	0.81	445737.28	699951.71	N 32 13 27.72	W 103 49 13.46
	8134.00	9.36	267.91	8109.56	-61.74	87.43	-287.06	1.34	445737.64	699935.77	N 32 13 27.73	W 103 49 13.64
	8323.00	7.05	271.97	8296.61	-59.20	87.26	-314.02	1.26	445737.48	699908.81	N 32 13 27.73	W 103 49 13.96
	8418.00	5.70	293.51	8391.04	-60.38	89.35	-324.17	2.87	445739.56	699898.66	N 32 13 27.75	W 103 49 14.07
	8512.00	6.08	317.48	8484.55	-65.22	94.88	-331.82	2.63	445745.09	699891.01	N 32 13 27.80	W 103 49 14.16
	8607.00	7.06	303.22	8578.93	-71.37	101.79	-340.10	2.00	445752.00	699882.73	N 32 13 27.87	W 103 49 14.26
	8701.00	7.80	280.20	8672.16	-74.66	106.08	-351.21	3.24	445756.30	699871.62	N 32 13 27.91	W 103 49 14.39
	8796.00	7.79	263.90	8766.30	-73.99	106.54	-363.96	2.32	445756.75	699858.87	N 32 13 27.92	W 103 49 14.54
	8891.00	6.08	254.76	8860.60	-71.00	104.53	-375.22	2.14	445754.75	699847.61	N 32 13 27.90	W 103 49 14.67
	8985.00	5.64	247.75	8954.11	-67.15	101.48	-384.30	0.89	445751.69	699838.54	N 32 13 27.87	W 103 49 14.77
	9080.00	4.91	253.48	9048.71	-63.52	98.55	-392.52	0.95	445748.77	699830.32	N 32 13 27.84	W 103 49 14.87
	9175.00	5.33	240.62	9143.33	-59.52	95.23	-400.26	1.28	445745.44	699822.58	N 32 13 27.81	W 103 49 14.96
	9270.00	5.79	229.91	9237.89	-53.63	89.98	-407.77	1.19	445740.19	699815.07	N 32 13 27.76	W 103 49 15.05
	9364.00	6.26	218.73	9331.37	-46.00	82.93	-414.60	1.34	445733.14	699808.23	N 32 13 27.69	W 103 49 15.13
	9459.00	6.63	210.33	9425.78	-36.73	74.15	-420.61	1.07	445724.37	699802.22	N 32 13 27.60	W 103 49 15.20
	9554.00	6.11	199.45	9520.19	-26.88	64.65	-425.07	1.38	445714.87	699797.77	N 32 13 27.51	W 103 49 15.25
	9649.00	12.26	186.75	9613.94	-11.88	49.85	-427.94	6.78	445700.07	699794.90	N 32 13 27.36	W 103 49 15.29
	9744.00	22.21	189.16	9704.56	16.18	22.04	-431.99	10.50	445672.26	699790.84	N 32 13 27.09	W 103 49 15.33
	9838.00	31.98	188.94	9788.14	58.84	-20.19	-438.71	10.39	445630.03	699784.13	N 32 13 26.67	W 103 49 15.41
	9933.00	45.25	184.90	9862.22	117.95	-78.93	-445.53	14.21	445571.30	699777.31	N 32 13 26.09	W 103 49 15.50
	10028.00	54.39	188.56	9923.46	190.40	-150.89	-454.18	10.06	445499.34	699768.66	N 32 13 25.38	W 103 49 15.60
	10123.00	60.84	187.51	9974.31	270.47	-230.29	-463.36	6.85	445419.95	699757.48	N 32 13 24.59	W 103 49 15.74
	10217.00	64.84	176.70	10017.31	353.79	-313.68	-468.28	11.08	445336.56	699754.56	N 32 13 23.77	W 103 49 15.77
	10312.00	78.02	176.58	10047.50	442.68	-403.38	-463.01	13.87	445246.87	699759.83	N 32 13 22.88	W 103 49 15.72
	10406.00	84.56	176.73	10061.73	534.55	-496.09	-457.60	6.96	445154.17	699765.24	N 32 13 21.96	W 103 49 15.66
	10498.00	84.90	177.31	10067.42	595.68	-557.74	-454.39	1.08	445092.52	699768.45	N 32 13 21.35	W 103 49 15.63
	10590.00	88.69	178.36	10072.57	686.78	-649.51	-450.92	4.27	445000.75	699771.92	N 32 13 20.44	W 103 49 15.59
	10655.00	89.97	179.75	10073.68	781.25	-744.49	-449.35	1.99	444905.78	699773.49	N 32 13 19.50	W 103 49 15.58
	10750.00	90.03	179.99	10073.68	875.86	-839.49	-449.14	0.26	444810.78	699773.70	N 32 13 18.56	W 103 49 15.58
	10844.00	90.03	179.96	10073.63	969.49	-933.49	-449.10	0.03	444716.79	699773.74	N 32 13 17.63	W 103 49 15.59
	10938.00	89.86	179.24	10073.72	1063.06	-1027.49	-448.44	0.79	444622.80	699774.40	N 32 13 16.70	W 103 49 15.58
	11033.00	90.07	179.19	10073.78	1157.57	-1122.48	-447.14	0.23	444527.81	699775.70	N 32 13 15.76	W 103 49 15.57
	11127.00	89.76	178.73	10073.92	1251.03	-1216.46	-445.43	0.59	444433.84	699777.41	N 32 13 14.83	W 103 49 15.56
	11222.00	89.93	177.88	10074.17	1345.37	-1311.42	-442.62	0.91	444338.89	699780.22	N 32 13 13.89	W 103 49 15.53
	11316.00	89.83	178.63	10074.37	1438.71	-1405.37	-439.76	0.80	444244.94	699783.08	N 32 13 12.96	W 103 49 15.50
	11411.00	89.86	178.41	10074.63	1533.09	-1500.34	-437.31	0.23	444149.97	699785.53	N 32 13 12.02	W 103 49 15.48
	11505.00	90.07	178.46	10074.68	1626.46	-1594.31	-434.74	0.23	444056.02	699788.10	N 32 13 11.09	W 103 49 15.46
	11600.00	89.93	178.56	10074.68	1720.84	-1689.27	-432.27	0.18	443961.05	699790.57	N 32 13 10.15	W 103 49 15.43
	11694.00	89.90	178.74	10074.82	1814.25	-1783.25	-430.05	0.19	443867.09	699792.78	N 32 13 9.22	W 103 49 15.41
	11788.00	89.90	178.62	10074.99	1907.67	-1877.22	-427.89	0.13	443773.12	699794.95	N 32 13 8.29	W 103 49 15.39
	11883.00	89.93	178.63	10075.13	2002.07	-1972.20	-425.61	0.03	443678.15	699797.23	N 32 13 7.35	W 103 49 15.37
	11977.00	89.86	178.68	10075.30	2095.48	-2066.17	-423.40	0.09	443584.18	699799.43	N 32 13 6.42	W 103 49 15.35
	12072.00	89.97	178.04	10075.44	2189.83	-2161.13	-420.68	0.68	443489.23	699802.15	N 32 13 5.48	W 103 49 15.32
	12166.00	89.59	178.44	10075.80	2283.16	-2255.08	-417.80	0.59	443395.28	699805.04	N 32 13 4.55	W 103 49 15.29
	12355.00	89.72	180.12	10076.94	2471.19	-2444.06	-415.42	0.89	443206.32	699807.41	N 32 13 2.68	W 103 49 15.28
	12450.00	89.97	181.17	10077.20	2565.91	-2539.05	-416.49	1.14	443111.33	699806.35	N 32 13 1.74	W 103 49 15.30
	12545.00	89.66	180.30	10077.50	2660.63	-2634.04	-417.71	0.97	443016.35	699805.13	N 32 13 0.80	W 103 49 15.32
	12639.00	89.83	180.93	10077.92	2754.35	-2728.04	-418.72	0.69	442922.36	699804.12	N 32 12 59.87	W 103 49 15.33
	12734.00	89.97	180.94	10078.09	2849.10	-2823.02	-420.27	0.15	442827.38	699802.57	N 32 12 58.93	W 103 49 15.36
	12829.00	89.79	181.50	10078.29	2943.89	-2918.00	-422.29	0.62	442732.41	699800.55	N 32 12 57.99	W 103 49 15.38
	12923.00	89.79	181.43	10078.63	3037.70	-3011.97	-424.70	0.07	442638.44	699798.14	N 32 12 57.06	W 103 49 15.42
	13018.00	89.86	180.89	10078.92	3132.48	-3106.95	-426.62	0.57	442543.47	699796.22	N 32 12 56.13	W 103 49 15.44
	13112.00	90.07	181.37	10078.98	3226.26	-3200.93	-428.47	0.56	442449.49	699794.37	N 32 12 55.20	W 103 49 15.47
	13207.00	89.93	181.56	10078.98	3321.07	-3295.90	-430.90	0.25	442354.53	699791.94	N 32 12 54.26	W 103 49 15.51
	13302.00	90.14	182.36	10078.92	3415.93	-3390.84	-434.15	0.87	442259.59	699788.69	N 32 12 53.32	W 103 49 15.55
	13396.00	89.83	181.76	10078.95	3509.80	-3484.78	-437.53	0.72	442165.66	699785.31	N 32 12 52.39	W 103 49 15.59
	13491.00	89.79	181.24	10079.26	3604.62	-3579.75	-440.02	0.55	442070.70	699782.82	N 32 12 51.45	W 103 49 15.63
	13586.00	89.79	180.88	10079.61	3699.38	-3674.73	-441.77	0.38	441975.72	699781.07	N 32 12 50.51	W 103 49 15.65
	13681.00	89.83	181.23	10079.92	3794.15	-3769.71	-443.52	0.37	441880.75	699779.32	N 32 12 49.57	W 103 49 15.68
	13775.00	89.69	180.94	10080.32	3887.92	-3863.70	-445.30	0.34	441786.77	699777.54	N 32 12 48.64	W 103 49 15.70
	13965.00	89.72	180.82	10081.30	4077.41	-4053.67	-448.22	0.07	441596.81	699774.62	N 32 12 46.76	W 103 49 15.75
	14059.00	89.66	178.80	10081.80	4171.01	-4147.65	-447.91	2.15	441502.82	699774.93	N 32 12 45.83	W 103 49 15.75
	14154.00	89.79	178.51	10082.26	4265.42	-4242.64	-445.68	0.33	441407.85	699777.16	N 32 12 44.89	W 103 49 15.73
	14249.00	89.97	179.28	10082.46	4359.87	-4337.62	-443.85	0.83	441312.88	699778.99	N 32 12 43.95	W 103 49 15.71
	14343.00	89.90	178.75	10082.57	4453.34	-4431.60	-442.23	0.57	441218.90	699780.61	N 32 12 43.02	W 103 49 15.70
	14437.00	89.79	178.92	10082.82	4546.79	-4525.58	-440.32	0.22	441124.92	699782.52	N 32 12 42.09	W 103 49 15.68
	14532.00	89.62	178.73	10083.31	4641.22	-4620.56	-438.37	0.27	441029.95	699784.47	N 32 12 41.15	W 103 49 15.67
	14626.00	89.86	178.54	10083.74	4734.63	-4714.54	-436.13	0.33	440935.99	699786.71	N 32 12 40.22	W 103 49 15.64
	14721.00	90.28	178.93	10083.62	4829.05	-4809.51	-434.04	0.60	440841.02	699788.80	N 32 12 39.28	W 103 49 15.63
Final MWD survey	14780.00	89.24	178.49	10083.87	4887.69	-4868.50	-432.71	1.91	440782.04	699790.13	N 32 12 38.69	W 103 49 15.61
Proj. to bit	14817.00	89.24	178.49	10084.36	4924.44	-4905.48	-431.73	0.00	440745.05	699791.11	N 32 12 38.33	W 103 49 15.60

Survey Type: Def Survey

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma

Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.000	26.500	1/98.425	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Patton MDP1 18 Federal 2H Gyro+MWD 0-14817 ftMD
	1	26.500	26.500	Act Stns	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Patton MDP1 18 Federal 2H Gyro+MWD 0-14817 ftMD
	1	26.500	626.500	Act Stns	30.000	NAL_NSG+MSHOT	Original Borehole / Oxy Patton MDP1 18 Federal 2H Gyro+MWD
	1	626.500	14817.000	Act Stns	30.000	NAL_MWD_PLUS_0.5_DEG	Original Borehole / Oxy Patton MDP1 18 Federal 2H Gyro+MWD

Schlumberger

Final PvA Rev7

OXY

Borehole:

Original Borehole

Well:

Oxy Patton MDP1 18 Federal 2H

Field:

NM Eddy County (NAD 83)

Structure:

Oxy Patton MDP1 18 Federal 2H

Gravity & Magnetic Parameters

 Model: HDOM 2017 Dip: 59.99° Date: 08-Nov-2017
 MagDec: 6.958° FS: 48975.732nT Gravity FS: 986.428mgal (9.80665 Based)

Surface Location

 NAD83 New Mexico State Plane, Eastern Zone, US Feet
 Lat: N 32 13 26.85 Northing: 445650.22NUS
 Lon: W 103 45 18.31 Easting: 700222.81EUS

Grid Conv:

 0.274°
 Scale Fact: 0.999938

Miscellaneous

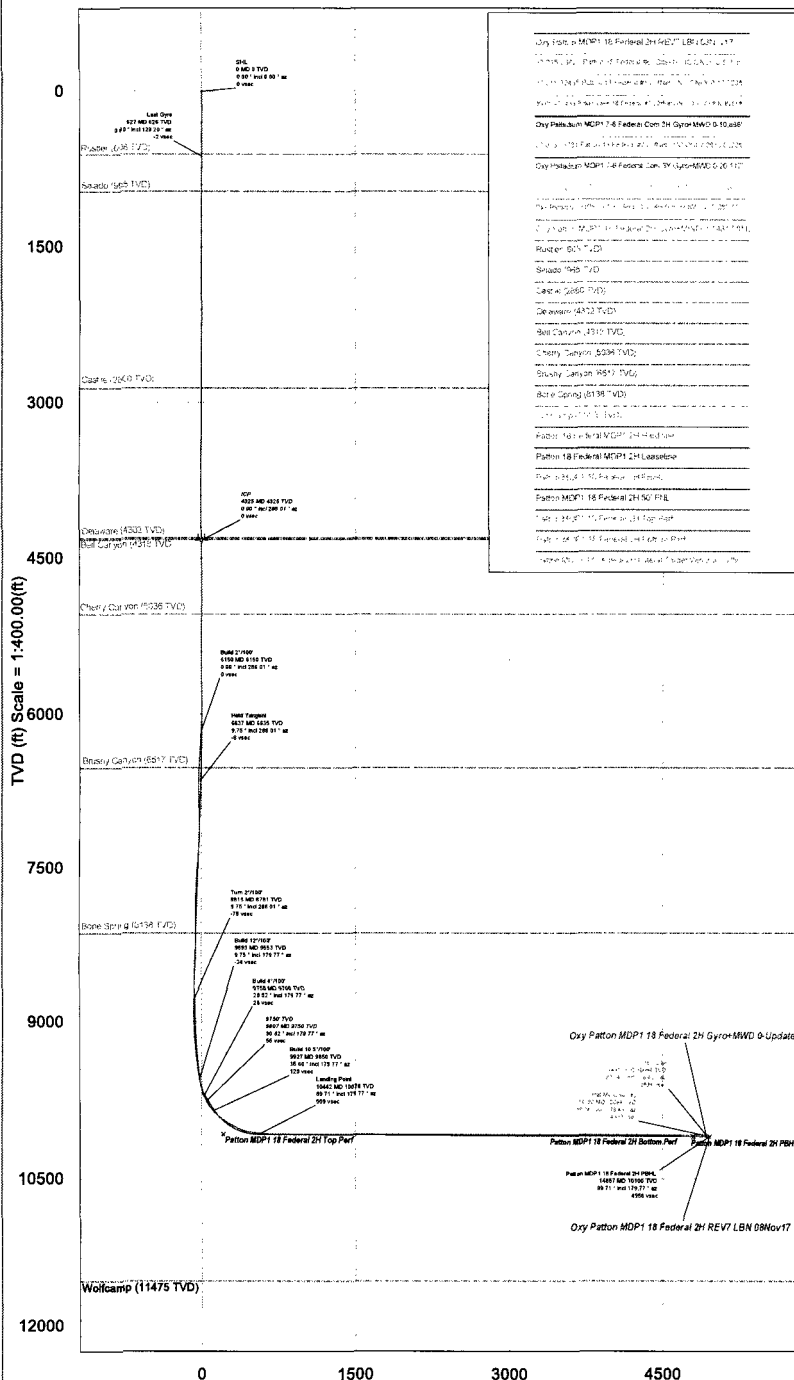
 Oxy Patton MDP1 18 Federal 2H
 Plan: Oxy Patton MDP1 18 Federal 2H REV7 LBN 08Nov17
 TVD Ref: RKB=26.5'(3546.2' above MSL)

Critical Point

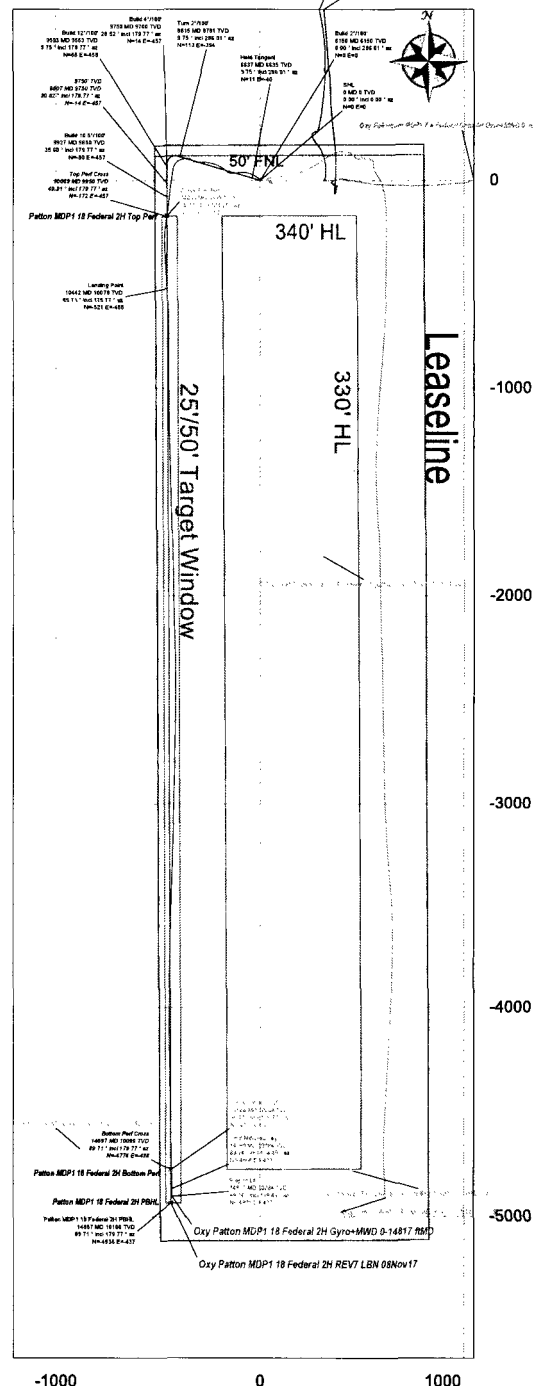
SHL	MD	INCL	AZIM	TVD	VSEC	N(H)/S(-)	E(+)/W(-)	DLS
SHL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler	608.00	0.00	286.01	608.00	0.00	0.00	0.00	0.00
Salado	965.00	0.00	286.01	965.00	0.00	0.00	0.00	0.00
Castle	2860.00	0.00	286.01	2860.00	0.00	0.00	0.00	0.00
Delaware	4302.00	0.00	286.01	4302.00	0.00	0.00	0.00	0.00
Bell Canyon	4318.00	0.00	286.01	4318.00	0.00	0.00	0.00	0.00
ICP	4325.00	0.00	286.01	4325.00	0.00	0.00	0.00	0.00
Cherry Canyon	5036.00	0.00	286.01	5036.00	0.00	0.00	0.00	0.00
Build 21/100'	6150.00	0.00	286.01	6150.00	0.00	0.00	0.00	0.00
Brushy Canyon	6518.01	7.38	286.01	6517.00	-4.48	6.51	-22.69	2.00
Hold Tangent	6637.25	9.75	286.01	6634.91	-7.85	11.40	-39.73	2.00
Bone Spring	8182.35	9.75	286.01	8138.00	-56.64	82.58	-287.87	0.00
Turn 21/100'	8814.98	9.75	286.01	8781.21	-77.81	113.04	-394.06	0.00
Build 12/100'	9593.29	9.75	179.77	9553.04	-24.36	65.00	-457.50	2.00
Build 41/100'	9749.71	28.52	179.77	9700.15	-26.47	13.96	-457.30	12.00
9750' TVD	9807.08	30.82	179.77	9750.00	54.74	-14.44	-457.18	4.00
Build 10.5/100'	9926.63	35.60	179.77	9850.00	119.92	-79.90	-456.92	4.00
Top Perf Cross	10062.93	49.91	179.77	9949.82	211.82	-172.19	-456.55	10.50
Landing Point	10441.99	88.71	179.77	10078.00	559.00	-520.85	-455.15	10.50
Bottom Perf Cross	14697.44	88.71	179.77	10069.20	4786.24	-478.22	-438.11	0.00
Patton MDP1 18 Federal 2H PBHL	14857.45	88.71	179.77	10100.00	4955.57	-493.23	-437.47	0.00
Wolfcamp	NaN			11475.00				

Critical Points

SHL	MD	INCL	AZIM	TVD	VSEC	N(H)/S(-)	E(+)/W(-)	DLS
SHL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler	608.00	0.00	286.01	608.00	0.00	0.00	0.00	0.00
Salado	965.00	0.00	286.01	965.00	0.00	0.00	0.00	0.00
Castle	2860.00	0.00	286.01	2860.00	0.00	0.00	0.00	0.00
Delaware	4302.00	0.00	286.01	4302.00	0.00	0.00	0.00	0.00
Bell Canyon	4318.00	0.00	286.01	4318.00	0.00	0.00	0.00	0.00
ICP	4325.00	0.00	286.01	4325.00	0.00	0.00	0.00	0.00
Cherry Canyon	5036.00	0.00	286.01	5036.00	0.00	0.00	0.00	0.00
Build 21/100'	6150.00	0.00	286.01	6150.00	0.00	0.00	0.00	0.00
Brushy Canyon	6518.01	7.38	286.01	6517.00	-4.48	6.51	-22.69	2.00
Hold Tangent	6637.25	9.75	286.01	6634.91	-7.85	11.40	-39.73	2.00
Bone Spring	8182.35	9.75	286.01	8138.00	-56.64	82.58	-287.87	0.00
Turn 21/100'	8814.98	9.75	286.01	8781.21	-77.81	113.04	-394.06	0.00
Build 12/100'	9593.29	9.75	179.77	9553.04	-24.36	65.00	-457.50	2.00
Build 41/100'	9749.71	28.52	179.77	9700.15	-26.47	13.96	-457.30	12.00
9750' TVD	9807.08	30.82	179.77	9750.00	54.74	-14.44	-457.18	4.00
Build 10.5/100'	9926.63	35.60	179.77	9850.00	119.92	-79.90	-456.92	4.00
Top Perf Cross	10062.93	49.91	179.77	9949.82	211.82	-172.19	-456.55	10.50
Landing Point	10441.99	88.71	179.77	10078.00	559.00	-520.85	-455.15	10.50
Bottom Perf Cross	14697.44	88.71	179.77	10069.20	4786.24	-478.22	-438.11	0.00
Patton MDP1 18 Federal 2H PBHL	14857.45	88.71	179.77	10100.00	4955.57	-493.23	-437.47	0.00
Wolfcamp	NaN			11475.00				


 Grid North
 Tot Corr (M→G 6.684°)
 Mag Dec (6.958°)
 Grid Conv (0.274°)


Vertical Section (ft) Azim = 185.07° Scale = 1:400.00(ft) Origin = 0N/-S, 0E/-W



EW (ft) Scale = 1:200.00(ft)