

Oilfield Services Central U.S. Land
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)

NM OIL CONSERVATION
ARTESIA DISTRICT

JAN 31 2019

August 30 - Sept. 22, 2018
Original Hole
Schlumberger

RECEIVED

30-015-45079

Well Reference:

17, 24S, 31E, Eddy NM
N 32.22248 W -103.79550

I, Kristina Hansen certify that: I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of August 30, 2018 through September 22, 2018, conduct or supervise the taking of the TelePacer/SlimPulse & Third Party Corrected surveys from a depth of 861.00 feet to a depth of 11277.00 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 MDPI 17 Federal 176H Well (Original Hole) API No. 30-015-45079 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
Kristina Hansen
FE

Kristina Hansen

Subscribed and Sworn to before me this 5th day of December (month) 2018 (yr)

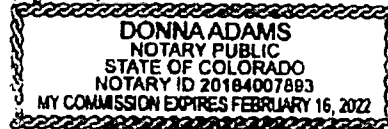
My Commission expires:

2-16-2022

Donna Adams
Notary Public

Adams County Colorado
(County State)

(signature)



Oxy Patton MDP1 17 Federal 176H Gyro + MWD 0-11405' MD (USE) Survey Geodetic Report (Def Survey)



Report Date: October 11, 2018 - 03:08 PM
Client: OXY
Field: NM Eddy County (NAD 83)
Structure / Slot: Oxy Patton MDP1 17 Federal 176H / Patton MDP1 17 Federal 176H
Well: Patton MDP1 17 Federal 176H
Borehole: Original Borehole
UW / API#: Unknown / Unknown
Survey Name: Oxy Patton MDP1 17 Federal 176H Gyro + MWD 0-11405' MD (USE)
Survey Date: October 03, 2018
Tort / AHD / DDI / ERD Ratio: 101.598 * / 1358.474 ft / 5.148 / 0.121
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 13' 20.91268", W 103° 47' 43.78828"
Location Grid N/E Y/X: N 445086.770 NUS, E 707657.830 NUS
CRS Grid Convergence Angle: 0.2658 *
Grid Scale Factor: 0.9994077
Version / Patch: 2.10.740.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 168.130 * (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3572.800 ft above MSL
Seabed / Ground Elevation: 3546.300 ft above MSL
Magnetic Declination: 6.850 *
Total Gravity Field Strength: 998.4271 mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 47970.368 nT
Magnetic Dip Angle: 59.946 *
Declination Date: October 03, 2018
Magnetic Declination Model: HDGM 2018
North Reference: Grid North
Grid Convergence Used: 0.2658 *
Total Corr Mag North -> Grid North: 6.5634 *
Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azimuth (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
RKB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	445086.77	707657.83	N 32 13 20.91	W 103 47 43.79
Marker MudLine	26.50	0.00	0.00	26.50	0.00	0.00	0.00	0.00	445086.77	707657.83	N 32 13 20.91	W 103 47 43.79
End of Gyro	98.50	0.51	145.48	98.50	0.30	-0.25	0.18	0.71	445086.51	707658.01	N 32 13 20.91	W 103 47 43.78
	185.50	0.59	114.73	185.50	0.92	-0.77	0.81	0.35	445086.00	707658.64	N 32 13 20.91	W 103 47 43.78
	273.50	0.42	158.27	273.49	1.51	-1.28	1.34	0.46	445085.51	707659.17	N 32 13 20.90	W 103 47 43.77
	368.50	0.34	191.21	368.49	2.11	-1.88	1.41	0.24	445084.81	707659.24	N 32 13 20.89	W 103 47 43.77
	462.50	0.60	205.31	462.49	2.70	-2.58	1.15	0.30	445084.19	707659.88	N 32 13 20.88	W 103 47 43.77
	557.50	0.71	195.03	557.48	3.68	-3.60	0.78	0.17	445083.17	707659.61	N 32 13 20.88	W 103 47 43.78
	651.50	0.88	205.43	651.47	4.77	-4.81	0.32	0.24	445081.98	707659.15	N 32 13 20.87	W 103 47 43.78
	745.50	0.93	203.16	745.46	5.97	-6.16	-0.20	0.07	445080.61	707657.54	N 32 13 20.85	W 103 47 43.79
	861.00	0.06	207.51	860.95	6.73	-7.03	-0.72	0.78	445079.74	707657.11	N 32 13 20.84	W 103 47 43.80
	978.00	0.03	338.88	977.95	6.69	-7.00	-0.79	0.05	445079.77	707657.04	N 32 13 20.84	W 103 47 43.80
	1071.00	0.03	321.50	1070.95	6.64	-6.96	-0.81	0.01	445079.81	707657.02	N 32 13 20.84	W 103 47 43.80
	1254.00	0.08	194.50	1253.95	6.72	-7.05	-0.88	0.06	445079.72	707656.95	N 32 13 20.84	W 103 47 43.80
	1439.00	0.03	308.24	1438.95	6.78	-7.14	-0.95	0.05	445079.63	707656.88	N 32 13 20.84	W 103 47 43.80
	1533.00	0.03	28.43	1532.95	6.78	-7.10	-0.95	0.04	445079.67	707656.88	N 32 13 20.84	W 103 47 43.80
	1628.00	0.04	283.89	1627.95	6.72	-7.08	-0.97	0.08	445079.70	707656.86	N 32 13 20.84	W 103 47 43.80
	1722.00	0.03	82.93	1721.95	6.71	-7.08	-0.98	0.07	445079.71	707656.85	N 32 13 20.84	W 103 47 43.80
	1817.00	0.03	279.37	1816.95	6.70	-7.08	-0.98	0.08	445079.71	707656.85	N 32 13 20.84	W 103 47 43.80
	1911.00	0.03	140.50	1910.95	6.72	-7.07	-0.99	0.08	445079.70	707656.84	N 32 13 20.84	W 103 47 43.80
	2100.00	0.03	59.08	2099.95	6.75	-7.08	-0.92	0.02	445079.69	707656.81	N 32 13 20.84	W 103 47 43.80
	2194.00	0.03	120.74	2193.95	6.75	-7.08	-0.87	0.03	445079.69	707656.81	N 32 13 20.84	W 103 47 43.80
	2288.00	0.03	133.89	2287.95	6.78	-7.11	-0.83	0.02	445079.69	707656.98	N 32 13 20.84	W 103 47 43.80
	2383.00	0.04	219.28	2382.95	6.83	-7.16	-0.84	0.03	445079.61	707657.00	N 32 13 20.84	W 103 47 43.80
	2477.00	0.03	329.38	2476.95	6.83	-7.16	-0.87	0.08	445079.61	707656.99	N 32 13 20.84	W 103 47 43.80
	2571.00	0.04	218.78	2570.95	6.83	-7.17	-0.90	0.08	445079.60	707656.83	N 32 13 20.84	W 103 47 43.80
	2668.00	0.03	253.01	2667.95	6.85	-7.20	-0.95	0.02	445079.57	707656.88	N 32 13 20.84	W 103 47 43.80
	2760.00	0.04	122.56	2759.95	6.88	-7.22	-0.94	0.07	445079.58	707656.49	N 32 13 20.84	W 103 47 43.80
	2854.00	0.03	228.09	2853.95	6.91	-7.26	-0.93	0.06	445079.51	707656.90	N 32 13 20.84	W 103 47 43.80
	2949.00	0.03	282.26	2948.95	6.91	-7.27	-0.98	0.03	445079.50	707656.85	N 32 13 20.84	W 103 47 43.80
	3137.00	0.03	224.78	3136.95	6.92	-7.29	-1.06	0.02	445079.48	707656.77	N 32 13 20.84	W 103 47 43.80
	3325.00	0.08	271.68	3324.95	6.92	-7.32	-1.23	0.03	445079.45	707656.60	N 32 13 20.84	W 103 47 43.80
	3477.00	0.08	261.07	3476.95	6.85	-7.30	-1.44	0.01	445079.47	707656.39	N 32 13 20.84	W 103 47 43.80
	3609.00	0.08	239.41	3608.95	6.84	-7.33	-1.61	0.04	445079.44	707656.22	N 32 13 20.84	W 103 47 43.81
	3770.00	0.03	224.37	3769.95	6.90	-7.42	-1.73	0.03	445079.35	707656.10	N 32 13 20.84	W 103 47 43.81
	3892.00	0.03	149.41	3891.95	6.95	-7.47	-1.74	0.03	445079.30	707656.09	N 32 13 20.84	W 103 47 43.81
	3987.00	0.09	290.31	3986.95	6.93	-7.46	-1.79	0.12	445079.31	707656.04	N 32 13 20.84	W 103 47 43.81
	4081.00	0.13	244.75	4080.95	6.91	-7.47	-1.90	0.11	445079.30	707655.87	N 32 13 20.84	W 103 47 43.81
	4175.00	0.04	260.46	4174.95	6.93	-7.52	-2.08	0.10	445079.25	707655.75	N 32 13 20.84	W 103 47 43.81
	4269.00	0.08	294.56	4268.95	6.79	-7.50	-2.18	0.08	445079.27	707655.65	N 32 13 20.84	W 103 47 43.81
	4364.00	0.08	341.68	4363.95	6.89	-7.41	-2.26	0.07	445079.36	707655.57	N 32 13 20.84	W 103 47 43.81
	4452.00	0.03	295.08	4451.95	6.82	-7.28	-2.34	0.03	445079.51	707655.49	N 32 13 20.84	W 103 47 43.81
	4647.00	0.03	67.01	4646.95	6.80	-7.24	-2.34	0.08	445079.53	707655.49	N 32 13 20.84	W 103 47 43.81
	4741.00	0.03	0.90	4740.95	6.58	-7.21	-2.32	0.03	445079.58	707655.51	N 32 13 20.84	W 103 47 43.81
	4835.00	0.03	164.86	4834.95	6.58	-7.21	-2.32	0.06	445079.58	707655.51	N 32 13 20.84	W 103 47 43.81
	4930.00	0.03	282.59	4929.95	6.59	-7.23	-2.35	0.05	445079.54	707655.48	N 32 13 20.84	W 103 47 43.81
	5118.00	0.14	21.63	5117.95	6.38	-7.00	-2.31	0.08	445079.77	707655.52	N 32 13 20.84	W 103 47 43.80
	5307.00	0.08	119.78	5306.95	6.93	-7.34	-1.25	0.38	445079.43	707656.56	N 32 13 20.84	W 103 47 43.80
	5402.00	1.91	70.76	5401.92	7.10	-7.10	0.73	1.63	445079.67	707656.56	N 32 13 20.84	W 103 47 43.78
	5498.00	3.43	56.51	5495.82	5.68	-5.03	4.56	1.75	445081.74	707660.39	N 32 13 20.86	W 103 47 43.73
	5590.00	8.57	45.59	5589.45	1.93	0.28	10.75	3.48	445087.05	707668.57	N 32 13 20.91	W 103 47 43.66
	5695.00	9.77	41.13	5693.38	-0.88	11.20	20.00	3.10	445087.07	707678.73	N 32 13 21.02	W 103 47 43.54
5800.00	12.52	30.98	5796.40	-20.37	27.67	32.62	3.21	445114.44	707690.45	N 32 13 21.18	W 103 47 43.40	
5874.00	13.07	25.84	5868.58	-32.89	42.10	40.38	1.70	445128.88	707699.19	N 32 13 21.33	W 103 47 43.31	
6070.00	13.08	22.32	6059.49	-68.79	82.56	58.36	0.38	445189.33	707716.18	N 32 13 21.73	W 103 47 43.10	
6157.00	12.64	21.71	6144.31	-84.85	100.50	63.62	0.51	445187.26	707723.45	N 32 13 21.90	W 103 47 43.02	
6251.00	12.61	20.53	6236.04	-102.08	119.66	73.02	0.28	445206.43	707730.83	N 32 13 22.09	W 103 47 42.93	
6440.00	15.84	25.43	6419.22	-140.03	102.29	91.34	1.82	445249.95	707749.18	N 32 13 22.51	W 103 47 42.71	
6535.00	17.43	27.85	6510.25	-161.26	189.57	103.58	1.84	445273.33	707761.40	N 32 13 22.75	W 103 47 42.57	
6629.00	18.58	28.11	6599.04	-183.57	212.22	117.23	1.22	445298.97	707775.05	N 32 13 23.01	W 103 47 42.41	
6723.00	18.94	29.33	6688.65	-206.52	238.73	131.76	0.57	445325.48	707789.58	N 32 13 23.27	W 103 47 42.24	
6817.00	17.91	29.16	6777.83	-228.90	284.65	146.27	1.10	445351.40	707804.10	N 32 13 23.52	W 103 47 42.07	
7006.00	17.89	30.59	6957.78	-272.01	314.74	175.05	0.26	445401.50	707832.87	N 32 13 24.02	W 103 47 41.73	
7100.00	15.61	30.21	7047.84	-291.93	337.97	188.68	2.22	445424.72	707848.50	N 32 13 24.25	W 103 47 41.57	
7195.00	14.77	30.05	7139.52	-310.43	359.50	201.18	0.89	445448.25	707858.89	N 32 13 24.46	W 103 47 41.42	
7289.00	13.75	29.45	7230.62	-327.74	379.60	212.67	1.10	445468.35	707870.49	N 32 13 24.66	W 103 47 41.29	
7384.00	12.60	29.09	7323.12	-344.04	399.49	223.26	1.21	445485.23	707881.07	N 32 13 24.84	W 103 47 41.16	
7572.00	11.81	36.14	7506.88	-372.40	431.94	244.58	0.90	445518.89	707902.39	N 32 13 25.17	W 103 47 40.91	
7761.00	16.13	51.50	7690.30	-397.13	483.93	270.55	2.99	445550.87	707934.37	N 32 13 25.49	W 103 47 40.54	
7856.00	17.52	49.47	7781.24	-409.80	481.44	287.75	1.59	445568.18	707955.50	N 32 13 25.68	W 103 47 40.29	
7950.00	18.55	47.83	7870.62	-424.23	500.67	319.59	1.22	445587.41	707977.40	N 32 13 25.85	W 103 47 40.04	
8045.00	17.84	43.92	7960.92	-439.95	521.10	340.77	1.60	445607.93	707998.58	N 32 13 26.05	W 103 47 39.79	
8179.00	18.25	39.30	8089.12	-483.87	550.93	385.90	1.95	445637.66	708023.77	N 32 13 26.35	W 103 47 39.49	
8233.00	15.83	34.42	8141.04	-473.94	583.02	374.53	1.49	445649.75	708032.35	N 32 13 26.47	W 103 47 39.39	
8328.00	15.61	33.62	8232.33	-491.71	584.18	368.88	0.17	445670.83	708046.70	N 32 13 26.67	W 103 47 39.29	

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLB (°/100ft)	Northing (ft)	Easting (ft)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	8422.00	14.12	27.59	8323.38	-509.40	604.87	401.25	2.32	445691.60	708059.03	N 32 13 28.88 W 103 47 38.08	
	8611.00	9.62	15.80	8508.33	-541.19	640.51	416.28	2.69	445727.24	708074.06	N 32 13 27.23 W 103 47 38.90	
	8705.00	9.34	16.52	8601.04	-554.85	655.38	420.58	0.32	445742.11	708078.38	N 32 13 27.38 W 103 47 38.85	
	8800.00	9.63	18.52	8694.74	-568.49	670.30	425.29	0.48	445757.03	708083.10	N 32 13 27.52 W 103 47 38.80	
	8894.00	9.43	20.65	8787.45	-581.77	684.98	430.50	0.43	445771.89	708088.31	N 32 13 27.67 W 103 47 38.74	
	8989.00	8.97	21.74	8881.23	-594.50	699.13	435.99	0.52	445785.85	708093.80	N 32 13 27.81 W 103 47 38.67	
	9083.00	8.90	23.07	8974.08	-606.58	712.82	441.58	0.23	445799.35	708099.38	N 32 13 27.94 W 103 47 38.60	
	9178.00	9.26	22.42	9067.88	-618.90	726.45	447.35	0.39	445813.17	708105.15	N 32 13 28.08 W 103 47 38.54	
	9272.00	10.77	26.00	9160.48	-632.08	741.33	454.09	1.74	445828.08	708111.89	N 32 13 28.23 W 103 47 38.48	
	9367.00	11.49	30.75	9253.87	-646.05	757.44	462.81	1.23	445844.17	708120.62	N 32 13 28.38 W 103 47 38.35	
	9461.00	12.48	38.56	9345.83	-659.41	773.43	473.93	2.02	445860.16	708131.73	N 32 13 28.54 W 103 47 38.22	
	9555.00	11.96	39.01	9437.50	-672.03	788.94	488.40	0.58	445875.87	708144.20	N 32 13 28.70 W 103 47 38.09	
	9650.00	10.88	34.64	9530.60	-684.46	804.04	497.73	1.38	445890.76	708155.53	N 32 13 28.84 W 103 47 37.95	
	9744.00	9.33	20.38	9623.14	-697.07	818.55	505.48	3.19	445905.27	708163.27	N 32 13 28.99 W 103 47 37.85	
	9838.00	8.87	35.38	9716.97	-710.78	833.10	508.07	3.51	445919.82	708165.87	N 32 13 29.13 W 103 47 37.82	
	9933.00	9.52	12.48	9809.77	-724.97	847.94	509.67	2.33	445934.85	708167.47	N 32 13 29.28 W 103 47 37.80	
	10027.00	10.17	37.40	9902.43	-737.48	862.12	516.40	4.56	445948.84	708174.20	N 32 13 29.42 W 103 47 37.72	
	10122.00	11.88	51.34	9995.68	-747.38	874.94	529.21	3.38	445961.68	708187.00	N 32 13 29.54 W 103 47 37.57	
	10216.00	13.08	55.08	10087.44	-755.94	887.13	545.55	1.45	445973.94	708203.34	N 32 13 29.88 W 103 47 37.38	
	10311.00	15.17	53.01	10179.56	-765.43	900.76	564.29	2.26	445987.48	708222.08	N 32 13 29.80 W 103 47 37.17	
	10405.00	15.30	54.12	10270.28	-773.70	915.43	584.18	0.34	446002.15	708241.93	N 32 13 29.94 W 103 47 36.93	
	10499.00	14.85	54.73	10361.00	-783.56	929.70	604.11	0.41	446016.41	708261.90	N 32 13 30.08 W 103 47 36.70	
	10594.00	14.62	59.24	10452.88	-794.31	942.91	624.42	1.28	446029.82	708282.21	N 32 13 30.21 W 103 47 36.48	
	10688.00	15.94	65.93	10543.54	-800.88	954.24	646.40	2.34	446040.95	708304.19	N 32 13 30.32 W 103 47 36.21	
	10783.00	16.93	71.56	10634.66	-805.22	963.94	671.43	1.97	446050.85	708329.22	N 32 13 30.42 W 103 47 35.91	
	10877.00	14.55	77.24	10725.14	-808.97	970.88	695.94	3.01	446057.59	708353.73	N 32 13 30.46 W 103 47 35.63	
	10971.00	12.17	81.54	10816.50	-808.58	974.94	717.28	2.74	446061.65	708375.04	N 32 13 30.52 W 103 47 35.38	
	11066.00	11.38	88.48	10909.60	-804.61	977.00	730.50	1.36	446063.71	708394.28	N 32 13 30.54 W 103 47 35.10	
	11160.00	10.97	88.88	11001.82	-801.60	977.74	754.68	0.65	446064.45	708412.47	N 32 13 30.55 W 103 47 34.94	
	11254.00	11.01	97.35	11094.10	-796.95	978.74	772.53	1.78	446063.45	708430.31	N 32 13 30.54 W 103 47 34.74	
Final Survey	11277.00	11.28	101.58	11118.07	-795.32	978.00	778.91	3.59	446062.71	708434.69	N 32 13 30.53 W 103 47 34.69	
PTB	11405.00	11.28	101.58	11242.19	-785.36	970.97	801.43	0.08	446057.88	708459.21	N 32 13 30.48 W 103 47 34.40	

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)	ECU Freq (ft)	Hole Size	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.000	26.500	1/98.425	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Patton MDP1 17 Federal 176H Gyro + MWD 0-11405' MD (USE)
	1	26.500	26.500	Act Sens	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Patton MDP1 17 Federal 176H Gyro + MWD 0-11405' MD (USE)
	1	26.500	851.500	Act Sens	30.000	30.000	NAL_NSG+MSHOT	Original Borehole / Oxy Patton MDP1 17 Federal 176H Gyro +
	1	651.500	11405.000	Act Sens	30.000	30.000	NAL_MWD_IFR1+MS	Original Borehole / Oxy Patton MDP1 17 Federal 176H Gyro +

...Original Borehole/Oxy Patton MDP1 17 Federal 176H Gyro + MWD 0-11405' MD (USE)