Oilfield Services, Central U.S. Land
Schlumberger Drilling and Measurements
Drilling Group
Geo Market Area: South West Texas Basin
7220 W I-II 20
Midland, Texas 79706
Phone : (432) 742-5400 (Main)
Fax : (432) 742-5606 (Shared)

Schlumberger

January 22, 2019

Oxy USA INC.
5 Greenway Plaza
Houston, Texas 77046

30-015-44991

Re:

17, T24S, R31E, Eddy NMP
N 32.22357 -103.80317

CLIENT: Oxy USA INC.
WELL: Patton MDP1 17 Federal 173H
FIELD: Purple Sage WolfCamp

RIG: H&P 656
COUNTY: Eddy
API NO: 30-015-44991
JOB NO: 18MLD3571

Enclosed, please find the original copy of the survey performed on the referenced well by Drilling & Measurements, a division of Schlumberger Technology Corporation (P-5 No. 754900).
Other information required by your office is as follows.

Name & Title of Surveyor	Drainhole Number	Surveyed Depths		Dates Performed		Type of Survey
Orlando Williams FE	Patton MDP1 17 Federal 173H Original Hole	812.00 Ft 16718.00 Ft	to	August 9, 2018 September 21, 2018	to	SlimPulse Third Party Corrected

If any other information is required, please contact the undersigned at the above letterhead and phone number.
Sincerely,

Jermaine Allen
Field Service Manager

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)

Schlumberger

Well Reference:
17, T24S, R31E, Eddy NMP
N 32.22357 -103.80317

I, Orlando Williams certify that; I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of August 09, 2018 through September 21, 2018, conduct or supervise the taking of the SlimPulse & Third Party Corrected surveys from a depth of 812.00 feet to a depth of 16718.00 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 17 Federal 173H Well (Original Hole) API No. 30-015-44991 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 Orlando Williams
Orlando Williams
FE

Subscribed and Sworn to before me this 22nd day of January (month) 2019 (yr)

My Commission expires:

2-16-2022

D. Adams
Notary Public

Adams County Colorado
(County State)

DONNA ADAMS
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20184007893
MY COMMISSION EXPIRES FEBRUARY 16, 2022

Schlumberger

OXY Patton MDP1 17 Federal 173H Gyro + MWD 0-16764' MD Survey
Geodetic Report
(Def Survey)

Report Date:	September 22, 2018 - 07:39 AM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	OXY	**Vertical Section Azimuth:**	172.690 ° (Grid North)
Field:	NM Eddy County (NAD 83)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	Oxy Patton MDP1 17 Federal 173H / Patton MDP1 17 Federal 173H	**TVD Reference Datum:**	RKB=28.5'
Well:	Patton MDP1 17 Federal 173H	**TVD Reference Elevation:**	3558.200 ft above MSL
Borehole:	Original Borehole	**Seabed / Ground Elevation:**	3531.700 ft above MSL
UWI / API#:	Unknown / Unknown	**Magnetic Declination:**	6.882 °
Survey Name:	OXY Patton MDP1 17 Federal 173H Gyro + MWD 0-16764' MD	**Total Gravity Field Strength:**	998.4283mgn (9.80665 Based)
Survey Date:	September 13, 2018	**Gravity Model:**	GARM
Tort / AHD / DDI / ERD Ratio:	227.237 ° / 6025.704 ft / 6.288 / 0.509	**Total Magnetic Field Strength:**	47977.689 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Magnetic Dip Angle:**	59.952 °
Location Lat / Long:	N 32° 13' 24.83423", W 103° 48' 11.40676"	**Declination Date:**	September 13, 2018
Location Grid N/E Y/X:	N 445471.260 ftUS, E 705283.250 ftUS	**Magnetic Declination Model:**	HDGM 2018
CRS Grid Convergence Angle:	0.2827 °	**North Reference:**	Grid North
Grid Scale Factor:	0.99993887	**Grid Convergence Used:**	0.2827 °
Version / Patch:	2.10.740.0	**Total Corr Mag North->Grid North:**	6.5793 °
		Local Coord Referenced To:	Well Head

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 ° ' ")
RKB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	445471.26	705283.25	N 32 13 24.83	W 103 48 11.41
SHL	26.50	0.00	0.00	26.50	0.00	0.00	0.00	0.00	445471.26	705283.25	N 32 13 24.83	W 103 48 11.41
	93.98	0.33	242.88	93.98	0.07	-0.09	-0.17	0.49	445471.17	705283.08	N 32 13 24.83	W 103 48 11.41
	152.69	0.43	261.86	152.69	0.13	-0.20	-0.54	0.27	445471.06	705282.71	N 32 13 24.83	W 103 48 11.41
	240.71	0.64	271.10	240.71	0.08	-0.24	-1.21	0.08	445471.02	705282.04	N 32 13 24.83	W 103 48 11.42
	331.91	0.20	9.18	331.90	-0.12	-0.07	-1.53	0.56	445471.19	705281.72	N 32 13 24.83	W 103 48 11.42
	426.46	0.24	351.72	426.45	-0.48	0.29	-1.53	0.08	445471.55	705281.72	N 32 13 24.84	W 103 48 11.42
	521.03	0.27	346.69	521.02	-0.90	0.70	-1.61	0.03	445471.96	705281.64	N 32 13 24.84	W 103 48 11.43
	615.62	0.36	334.33	615.61	-1.40	1.19	-1.78	0.13	445472.45	705281.47	N 32 13 24.85	W 103 48 11.43
Final Gyro	713.13	0.33	289.84	713.12	-1.82	1.56	-2.17	0.27	445472.82	705281.08	N 32 13 24.85	W 103 48 11.43
	812.00	0.03	159.84	811.99	-1.93	1.63	-2.43	0.35	445472.89	705280.82	N 32 13 24.85	W 103 48 11.43
	906.00	0.08	74.47	905.99	-1.91	1.62	-2.36	0.09	445472.88	705280.89	N 32 13 24.85	W 103 48 11.43
	1001.00	0.08	91.36	1000.99	-1.91	1.64	-2.23	0.02	445472.90	705281.02	N 32 13 24.85	W 103 48 11.43
	1095.00	0.08	269.62	1094.99	-1.91	1.64	-2.23	0.17	445472.90	705281.02	N 32 13 24.85	W 103 48 11.43
	1189.00	0.08	193.37	1188.99	-1.86	1.58	-2.31	0.11	445472.83	705280.94	N 32 13 24.85	W 103 48 11.43
	1283.00	0.08	1.08	1282.99	-1.86	1.58	-2.33	0.17	445472.84	705280.92	N 32 13 24.85	W 103 48 11.43
	1377.00	0.08	20.91	1376.99	-1.98	1.70	-2.30	0.03	445472.96	705280.95	N 32 13 24.85	W 103 48 11.43
	1473.00	0.08	14.49	1472.99	-2.10	1.83	-2.28	0.01	445473.09	705280.99	N 32 13 24.85	W 103 48 11.43
	1567.00	0.08	234.35	1566.99	-2.13	1.86	-2.30	0.18	445473.12	705280.95	N 32 13 24.85	W 103 48 11.43
	1662.00	0.08	26.58	1661.99	-2.15	1.88	-2.32	0.16	445473.14	705280.93	N 32 13 24.85	W 103 48 11.43
	1851.00	0.08	11.94	1850.99	-2.39	2.12	-2.24	0.01	445473.38	705281.01	N 32 13 24.86	W 103 48 11.43
	1945.00	0.08	58.78	1944.99	-2.48	2.22	-2.17	0.07	445473.48	705281.08	N 32 13 24.86	W 103 48 11.43
	2040.00	0.08	108.45	2039.99	-2.48	2.24	-2.05	0.07	445473.50	705281.20	N 32 13 24.86	W 103 48 11.43
	2229.00	0.08	129.18	2228.99	-2.33	2.12	-1.82	0.02	445473.38	705281.43	N 32 13 24.86	W 103 48 11.43
	2329.00	0.08	329.41	2328.99	-2.34	2.13	-1.80	0.16	445473.39	705281.45	N 32 13 24.86	W 103 48 11.43
	2423.00	0.09	197.96	2422.99	-2.34	2.12	-1.85	0.18	445473.38	705281.40	N 32 13 24.86	W 103 48 11.43
	2518.00	0.08	290.04	2517.99	-2.30	2.07	-1.94	0.13	445473.33	705281.31	N 32 13 24.85	W 103 48 11.43
	2612.00	0.08	81.57	2611.99	-2.33	2.10	-1.94	0.18	445473.36	705281.31	N 32 13 24.86	W 103 48 11.43
	2707.00	0.08	130.33	2706.99	-2.29	2.07	-1.82	0.07	445473.33	705281.43	N 32 13 24.85	W 103 48 11.43
	2801.00	0.14	177.05	2800.99	-2.12	1.91	-1.78	0.11	445473.17	705281.49	N 32 13 24.85	W 103 48 11.43
	2896.00	0.03	285.90	2895.99	-2.02	1.80	-1.78	0.16	445473.06	705281.47	N 32 13 24.85	W 103 48 11.43
	2990.00	0.07	160.63	2989.99	-1.97	1.76	-1.79	0.10	445473.02	705281.46	N 32 13 24.85	W 103 48 11.43
	3085.00	0.03	252.92	3084.99	-1.91	1.69	-1.79	0.08	445472.95	705281.46	N 32 13 24.85	W 103 48 11.43
	3179.00	0.08	353.14	3178.99	-1.97	1.75	-1.82	0.10	445473.01	705281.43	N 32 13 24.85	W 103 48 11.43
	3274.00	0.03	39.60	3273.99	-2.05	1.84	-1.82	0.07	445473.10	705281.43	N 32 13 24.85	W 103 48 11.43
	3369.00	0.05	163.61	3368.99	-2.03	1.82	-1.79	0.08	445473.08	705281.46	N 32 13 24.85	W 103 48 11.43
	3558.00	0.14	270.93	3557.99	-1.98	1.74	-2.00	0.09	445473.00	705281.25	N 32 13 24.85	W 103 48 11.43
	3652.00	0.09	132.79	3651.99	-1.94	1.69	-2.06	0.23	445472.95	705281.19	N 32 13 24.85	W 103 48 11.43
	3747.00	0.11	287.93	3746.99	-1.92	1.67	-2.09	0.21	445472.93	705281.16	N 32 13 24.85	W 103 48 11.43
	3841.00	0.08	219.60	3840.99	-1.92	1.65	-2.22	0.12	445472.91	705281.03	N 32 13 24.85	W 103 48 11.43
	4036.00	0.08	148.05	4035.99	-1.70	1.43	-2.23	0.05	445472.69	705281.02	N 32 13 24.85	W 103 48 11.43
	4130.00	0.14	95.18	4129.99	-1.62	1.36	-2.08	0.12	445472.62	705281.17	N 32 13 24.85	W 103 48 11.43
	4224.00	0.03	250.93	4223.99	-1.59	1.34	-1.99	0.18	445472.60	705281.26	N 32 13 24.85	W 103 48 11.43
	4319.00	0.08	5.29	4318.99	-1.64	1.40	-2.01	0.10	445472.66	705281.24	N 32 13 24.85	W 103 48 11.43
	4414.00	0.03	196.84	4413.99	-1.69	1.44	-2.01	0.12	445472.70	705281.24	N 32 13 24.85	W 103 48 11.43
	4508.00	0.08	148.99	4507.99	-1.60	1.36	-1.98	0.07	445472.62	705281.27	N 32 13 24.85	W 103 48 11.43
	4603.00	0.08	30.39	4602.99	-1.60	1.36	-1.91	0.14	445472.62	705281.34	N 32 13 24.85	W 103 48 11.43
	4697.00	0.08	198.75	4696.99	-1.59	1.36	-1.90	0.17	445472.62	705281.35	N 32 13 24.85	W 103 48 11.43
	4792.00	0.08	60.41	4791.99	-1.53	1.31	-1.86	0.14	445472.57	705281.39	N 32 13 24.85	W 103 48 11.43
	4981.00	0.09	241.80	4980.99	-1.48	1.26	-1.86	0.09	445472.52	705281.39	N 32 13 24.85	W 103 48 11.43
	5076.00	0.03	65.28	5075.99	-1.47	1.23	-1.90	0.13	445472.49	705281.35	N 32 13 24.85	W 103 48 11.43
	5170.00	0.95	42.41	5169.98	-1.98	1.82	-1.35	0.98	445473.08	705281.90	N 32 13 24.85	W 103 48 11.42
	5264.00	2.26	32.47	5263.94	-3.90	3.96	0.17	1.42	445478.22	705283.42	N 32 13 24.87	W 103 48 11.40
	5359.00	3.42	35.19	5358.85	-6.69	7.03	2.25	1.56	445478.29	705285.50	N 32 13 24.90	W 103 48 11.38
	5548.00	5.77	34.48	5547.18	-19.12	20.79	11.79	1.12	445492.05	705295.04	N 32 13 25.04	W 103 48 11.27
	5642.00	7.33	34.59	5640.55	-27.11	29.63	17.87	1.66	445500.88	705301.12	N 32 13 25.13	W 103 48 11.20
	5736.00	8.33	33.18	5733.87	-36.75	40.26	25.00	1.08	445511.52	705308.25	N 32 13 25.23	W 103 48 11.11
	5831.00	8.79	33.27	5827.81	-47.50	52.09	32.75	0.48	445523.35	705315.99	N 32 13 25.35	W 103 48 11.02
	5925.00	8.80	33.56	5920.49	-58.45	64.15	40.71	0.13	445535.41	705323.95	N 32 13 25.47	W 103 48 10.93
	6020.00	8.60	31.21	6014.39	-69.57	76.35	48.45	0.49	445547.61	705331.70	N 32 13 25.59	W 103 48 10.84
	6209.00	8.88	32.10	6201.17	-92.02	100.93	63.81	0.21	445572.19	705346.86	N 32 13 25.83	W 103 48 10.66
	6303.00	9.01	32.10	6294.01	-103.38	113.38	71.42	0.03	445584.64	705354.66	N 32 13 25.95	W 103 48 10.57
	6398.00	9.48	32.12	6387.78	-115.17	126.31	79.53	0.49	445597.56	705362.78	N 32 13 26.08	W 103 48 10.47
	6492.00	9.41	31.76	6480.50	-127.11	139.40	87.69	0.10	445610.65	705370.94	N 32 13 26.21	W 103 48 10.38
	6586.00	9.05	30.76	6573.29	-138.90	152.29	95.52	0.42	445623.54	705378.76	N 32 13 26.34	W 103 48 10.29
	6681.00	9.06	29.27	6667.10	-150.78	165.23	103.00	0.25	445636.48	705386.24	N 32 13 26.46	W 103 48 10.20
	6775.00	9.15	28.29	6759.92	-162.95	178.39	109.83	0.51	445649.64	705393.17	N 32 13 26.59	W 103 48 10.12
	6870.00	9.01	25.15	6853.73	-175.52	191.90	116.43	0.24	445663.15	705399.67	N 32 13 26.73	W 103 48 10.04
	6964.00	8.94	23.39	6946.58	-188.01	205.26	122.46	0.30	445676.51	705405.70	N 32 13 26.86	W 103 48 9.97
	7059.00	9.19	19.94	7040.39	-201.10	219.17	127.98	0.83	445690.42	705411.22	N 32 13 27.00	W 103 48 9.90
	7153.00	8.99	18.73	7133.21	-214.38	233.18	132.90	0.29	445704.43	705416.14	N 32 13 27.14	W 103 48 9.85
	7342.00	9.39	17.31	7319.79	-241.66	261.89	142.23	0.24	445733.13	705425.47	N 32 13 27.42	W 103 48 9.74
	7436.00	9.25	16.87	7412.54	-255.52	276.44	146.70	0.17	445747.68	705429.94	N 32 13 27.56	W 103 48 9.68
	7531.00	9.11	15.41	7506.33	-269.43	290.99	150.91	0.29	445762.24	705434.15	N 32 13 27.71	W 103 48 9.63
	7625.00	9.37	14.81	7599.11	-283.38	305.57	154.85	0.29	445776.81	705438.09	N 32 13 27.85	W 103 48 9.59
	7814.00	9.39	16.34	7785.58	-311.78	335.24	163.12	0.13	445806.47	705446.36	N 32 13 28.14	W 103 48 9.49
	7909.00	9.30	18.20	7879.32	-325.78	349.98	167.69	0.33	445821.20	705450.93	N 32 13 28.29	W 103 48 9.43
	8003.00	8.87	15.70	7972.14	-339.31	364.16	172.03	0.62	445835.39	705455.27	N 32 13 28.43	W 103 48 9.38

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (mUS)	Easting (mUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")	
	8098.00	8.83	15.59	8068.01	-352.77	378.23	175.97	0.05	445849.47	705459.21	N 32 13 28.57	W 103 48	9.34
	8192.00	7.99	17.74	8159.00	-365.33	391.40	179.90	0.95	445862.64	705463.14	N 32 13 28.70	W 103 48	9.29
	8287.00	6.72	31.52	8253.22	-375.64	402.43	184.82	2.26	445873.67	705468.06	N 32 13 28.81	W 103 48	9.23
	8381.00	4.84	48.35	8346.75	-382.28	409.86	190.56	2.54	445881.09	705473.80	N 32 13 28.88	W 103 48	9.16
	8476.00	3.72	47.27	8441.48	-386.44	414.72	195.73	1.18	445885.95	705478.96	N 32 13 28.93	W 103 48	9.10
	8570.00	3.71	35.62	8535.28	-390.43	419.26	199.74	0.80	445890.49	705482.98	N 32 13 28.97	W 103 48	9.06
	8605.00	3.85	354.72	8630.09	-395.67	424.93	201.24	2.78	445896.17	705484.47	N 32 13 29.03	W 103 48	9.04
	8760.00	4.91	306.97	8724.84	-401.90	430.55	197.69	3.87	445901.79	705480.93	N 32 13 29.08	W 103 48	9.08
	8854.00	5.62	275.55	8818.47	-405.73	433.42	189.80	3.12	445904.65	705473.13	N 32 13 29.11	W 103 48	9.17
	8949.00	6.79	256.65	8912.92	-408.18	432.57	179.80	2.48	445903.81	705463.04	N 32 13 29.11	W 103 48	9.29
	9044.00	7.44	256.56	9007.19	-404.93	429.85	168.35	0.68	445901.08	705451.59	N 32 13 29.08	W 103 48	9.42
	9138.00	8.47	267.56	9100.29	-404.87	428.14	155.52	1.95	445899.37	705438.78	N 32 13 29.08	W 103 48	9.57
	9232.00	8.87	284.01	9193.23	-408.10	429.60	141.57	2.66	445900.83	705424.81	N 32 13 29.08	W 103 48	9.73
	9327.00	7.21	299.30	9287.30	-414.32	434.29	129.26	2.84	445905.53	705412.50	N 32 13 29.13	W 103 48	9.88
	9421.00	4.08	330.85	9380.85	-420.94	440.10	122.48	4.57	445911.34	705405.73	N 32 13 29.18	W 103 48	9.96
	9519.00	4.18	19.59	9478.63	-427.35	446.50	121.98	3.47	445917.73	705405.22	N 32 13 29.25	W 103 48	9.96
	9614.00	5.77	41.81	9573.28	-433.55	453.31	126.32	2.61	445924.54	705409.56	N 32 13 29.31	W 103 48	9.91
	9708.00	6.79	47.27	9666.71	-439.66	460.60	133.55	1.26	445931.83	705416.79	N 32 13 29.39	W 103 48	9.83
	9803.00	8.28	53.95	9760.89	-446.41	468.44	143.21	1.82	445939.67	705426.45	N 32 13 29.46	W 103 48	9.71
	9897.00	6.78	52.60	9854.08	-452.43	475.78	153.10	1.59	445947.01	705436.34	N 32 13 29.53	W 103 48	9.60
	9992.00	6.24	52.33	9948.46	-457.84	482.33	161.66	0.58	445953.56	705444.90	N 32 13 29.60	W 103 48	9.50
	10086.00	6.04	56.50	10041.92	-462.45	488.04	169.92	0.73	445959.27	705453.16	N 32 13 29.66	W 103 48	9.40
	10181.00	7.10	70.12	10136.30	-465.77	492.64	179.71	1.78	445963.87	705462.95	N 32 13 29.70	W 103 48	9.29
	10275.00	7.96	77.21	10229.49	-467.66	496.06	191.52	1.35	445967.29	705474.76	N 32 13 29.73	W 103 48	9.15
	10370.00	8.04	69.80	10323.58	-467.49	497.56	204.58	1.81	445968.79	705487.82	N 32 13 29.75	W 103 48	9.00
	10464.00	8.84	64.54	10416.56	-465.21	497.04	218.35	1.15	445968.27	705501.59	N 32 13 29.74	W 103 48	8.84
	10559.00	10.45	100.30	10510.22	-461.11	494.92	234.11	1.97	445966.16	705517.34	N 32 13 29.72	W 103 48	8.65
	10653.00	9.25	101.95	10602.83	-456.04	491.63	249.69	1.31	445963.00	705533.12	N 32 13 29.69	W 103 48	8.47
	10748.00	7.57	99.49	10696.80	-451.71	489.22	263.53	1.81	445960.45	705546.76	N 32 13 29.66	W 103 48	8.31
	10842.00	6.60	114.74	10790.09	-447.05	485.94	274.54	2.24	445957.18	705557.78	N 32 13 29.61	W 103 48	8.18
	11000.00	5.53	130.04	10947.22	-436.63	477.24	288.82	1.22	445948.47	705571.85	N 32 13 29.54	W 103 48	8.02
KOP Actual	11160.00	4.94	143.08	11126.47	-423.52	465.46	299.92	0.74	445936.69	705583.15	N 32 13 29.43	W 103 48	7.89
	11274.00	10.28	143.69	11219.81	-412.67	455.47	307.31	5.66	445926.70	705590.54	N 32 13 29.33	W 103 48	7.80
	11369.00	20.55	150.15	11311.08	-389.81	434.13	320.65	10.98	445905.37	705603.89	N 32 13 29.11	W 103 48	7.65
	11464.00	32.59	144.31	11395.91	-351.75	398.78	343.97	12.95	445869.99	705627.20	N 32 13 28.76	W 103 48	7.38
	11558.00	41.72	138.96	11470.77	-303.35	354.50	379.36	10.30	445825.74	705662.59	N 32 13 28.32	W 103 48	6.97
Wolfcamp Intersection	*11533.00*	*48.05*	*138.40*	*11523.88*	*-259.50*	*314.78*	*414.30*	*8.46*	*445786.02*	*705697.52*	*N 32 13 27.93*	*W 103 48*	*6.57*
	11652.00	49.88	138.28	11586.36	-247.69	304.09	423.81	8.46	445775.33	705707.03	N 32 13 27.82	W 103 48	6.48
	11747.00	51.40	142.87	11596.78	-185.56	247.40	470.26	4.23	445718.65	705753.50	N 32 13 27.26	W 103 48	5.92
	11841.00	52.08	152.41	11655.08	-118.79	185.14	509.82	7.91	445656.39	705792.84	N 32 13 26.64	W 103 48	5.46
	11936.00	61.24	163.10	11707.36	-42.28	111.79	539.20	13.46	445583.05	705822.42	N 32 13 25.91	W 103 48	5.12
Top Perf Cross	*12022.00*	*69.59*	*168.24*	*11743.13*	*35.25*	*38.10*	*558.41*	*11.12*	*445507.35*	*705841.63*	*N 32 13 25.16*	*W 103 48*	*4.90*
	12030.00	70.37	168.69	11745.87	42.74	28.73	559.92	11.12	445499.99	705843.13	N 32 13 25.09	W 103 48	4.89
	12125.00	81.58	171.78	11768.65	134.87	-61.95	575.46	12.21	445409.31	705858.69	N 32 13 24.19	W 103 48	4.71
	12215.00	86.53	176.64	11778.19	224.10	-150.96	584.50	7.70	445320.31	705867.71	N 32 13 23.31	W 103 48	4.61
	12272.00	86.21	178.49	11781.60	280.78	-207.79	586.92	3.29	445263.49	705870.13	N 32 13 22.75	W 103 48	4.59
	12330.00	86.86	179.74	11784.29	338.35	-265.72	587.81	5.05	445205.56	705871.03	N 32 13 22.18	W 103 48	4.58
	12462.00	90.61	179.98	11784.90	469.32	-397.71	588.16	1.34	445073.57	705871.37	N 32 13 20.87	W 103 48	4.58
	12556.00	90.78	180.73	11783.78	562.47	-491.70	587.59	0.84	444979.59	705870.81	N 32 13 19.94	W 103 48	4.60
	12651.00	90.51	180.81	11782.69	656.52	-586.69	586.32	0.30	444884.61	705869.53	N 32 13 19.00	W 103 48	4.62
	12745.00	90.58	181.23	11781.80	749.53	-680.67	584.64	0.45	444790.63	705867.86	N 32 13 18.07	W 103 48	4.64
	12840.00	89.44	180.22	11781.78	843.59	-775.68	583.44	1.60	444695.65	705866.65	N 32 13 17.13	W 103 48	4.66
	12934.00	88.27	180.88	11783.68	936.69	-869.63	582.55	1.42	444601.68	705865.77	N 32 13 16.20	W 103 48	4.68
	13029.00	87.72	181.06	11786.98	1030.64	-964.56	580.96	0.62	444506.76	705864.18	N 32 13 15.26	W 103 48	4.70
	13123.00	88.62	181.16	11789.98	1123.58	-1058.50	579.14	0.96	444412.83	705862.36	N 32 13 14.33	W 103 48	4.73
	13218.00	87.65	180.85	11793.08	1217.53	-1153.43	577.46	1.07	444317.90	705860.69	N 32 13 13.39	W 103 48	4.75
	13313.00	88.45	180.53	11796.31	1311.55	-1248.37	576.33	0.91	444222.97	705859.55	N 32 13 12.46	W 103 48	4.77
	13407.00	87.86	182.00	11799.33	1404.45	-1342.29	574.26	1.66	444129.05	705857.48	N 32 13 11.52	W 103 48	4.80
	13596.00	87.72	180.27	11806.62	1591.26	-1531.11	570.52	0.92	443940.25	705853.73	N 32 13 9.66	W 103 48	4.85
	13690.00	87.89	181.37	11810.22	1684.24	-1625.03	569.18	1.18	443846.33	705852.39	N 32 13 8.73	W 103 48	4.87
	13880.00	87.93	180.84	11817.15	1872.07	-1814.87	565.51	0.28	443656.51	705848.73	N 32 13 6.85	W 103 48	4.93
	13974.00	88.76	180.88	11819.87	1965.08	-1908.81	564.10	0.88	443562.56	705847.32	N 32 13 5.92	W 103 48	4.95
	14069.00	87.59	179.36	11822.89	2059.23	-2003.78	563.90	2.02	443467.62	705847.12	N 32 13 4.98	W 103 48	4.96
	14258.00	87.76	177.36	11830.56	2247.14	-2192.52	569.31	1.06	443278.88	705852.52	N 32 13 3.11	W 103 48	4.91
	14352.00	88.34	176.99	11833.76	2340.65	-2286.41	572.30	1.84	443184.99	705855.52	N 32 13 2.18	W 103 48	4.88
	14447.00	90.47	179.44	11834.75	2435.02	-2381.39	573.60	2.29	443090.01	705856.82	N 32 13 1.24	W 103 48	4.87
	14541.00	91.47	178.16	11833.16	2528.47	-2475.36	575.57	1.73	442996.06	705858.78	N 32 13 0.31	W 103 48	4.85
	14636.00	91.30	178.73	11830.66	2622.97	-2570.29	578.15	0.63	442901.13	705861.36	N 32 12 59.37	W 103 48	4.82
	14730.00	90.34	177.63	11829.51	2716.52	-2664.23	581.13	1.55	442807.19	705864.35	N 32 12 58.44	W 103 48	4.80
	14920.00	91.51	177.56	11826.45	2905.80	-2854.04	589.10	0.62	442617.40	705872.32	N 32 12 56.56	W 103 48	4.71
	15109.00	91.47	178.65	11821.53	3093.89	-3042.87	595.35	0.58	442428.58	705878.58	N 32 12 54.70	W 103 48	4.65
	15298.00	90.54	178.09	11818.22	3281.93	-3231.76	600.74	0.58	442239.70	705883.98	N 32 12 52.83	W 103 48	4.60
	15393.00	90.51	179.08	11817.35	3376.42	-3326.73	603.10	1.05	442144.74	705886.31	N 32 12 51.89	W 103 48	4.58
	15582.00	89.89	178.90	11816.69	3564.28	-3515.69	608.43	0.34	441955.78	705889.64	N 32 12 50.02	W 103 48	4.55
	15676.00	90.13	177.95	11816.67	3657.81	-3609.66	609.01	1.04	441861.83	705892.22	N 32 12 49.09	W 103 48	4.53
	15866.00	89.62	178.40	11817.06	3846.94	-3799.50	615.06	0.36	441671.94	705898.28	N 32 12 47.21	W 103 48	4.47
	16055.00	90.23	178.51	11817.33	4034.98	-3988.49	620.16	0.33	441483.02	705903.37	N 32 12 45.34	W 103 48	4.42
	16244.00	90.10	175.85	11816.79	4223.38	-4177.24	629.48	1.41	441294.28	705912.67	N 32 12 43.47	W 103 48	4.32
	16338.00	89.92	180.46	11816.77	4316.93	-4271.17	632.48	4.91	441200.36	705915.69	N 32 12 42.54	W 103 48	4.29
	16526.00	90.44	180.43	11816.17	4505.19	-4461.16	631.01	0.27	441010.36	705914.22	N 32 12 40.66	W 103 48	4.32
	16823.00	90.44	180.10	11815.45	4599.36	-4556.16	630.57	0.35	440915.39	705913.78	N 32 12 39.72	W 103 48	4.33
Bottom Perf Cross	*16830.00*	*90.39*	*180.19*	*11815.39*	*4606.30*	*-4563.16*	*630.55*	*1.50*	*440908.39*	*705913.76*	*N 32 12 39.65*	*W 103 48*	*4.33*
Final MWD Survey	16718.00	89.75	181.35	11815.29	4693.42	-4651.15	629.37	1.50	440820.40	705912.58	N 32 12 38.78	W 103 48	4.35
Proj to Bit	16764.00	89.75	181.35	11815.49	4738.90	-4697.13	628.29	0.00	440774.42	705911.49	N 32 12 38.33	W 103 48	4.36

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 (in)	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 173H Gyro + MWD 0-16764' MD
	1	26.500	26.500	Act Stns	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / OXY Patton MDP1 17 Federal 173H Gyro + MWD 0-16764' MD
	1	26.500	713.130	Act Stns	30.000	30.000	NAL_NSG+MSHOT	Original Borehole / OXY Patton MDP1 17 Federal 173H Gyro +
	1	713.130	16764.000	Act Stns	30.000	30.000	NAL_MWD_IFR1+MS	Original Borehole / OXY Patton MDP1 17 Federal 173H Gyro +

Schlumberger

OXY

Borehole:	Well:	Field:	Structure:
Original Borehole	Patton MDP1 17 Federal 173H	NM Eddy County (NAD 83)	Oxy Patton MDP1 17 Federal 173H

Gravity & Magnetic Parameters

Model: HDGM 2018 Dip: 59.952° Date: 13-Sep-2018
MagDec: 6.862° FS: 47977.688nT Gravity FS: 998.428mgn (9.80665 Based)

Surface Location NAD83 New Mexico State Plane, Eastern Zone, US Feet

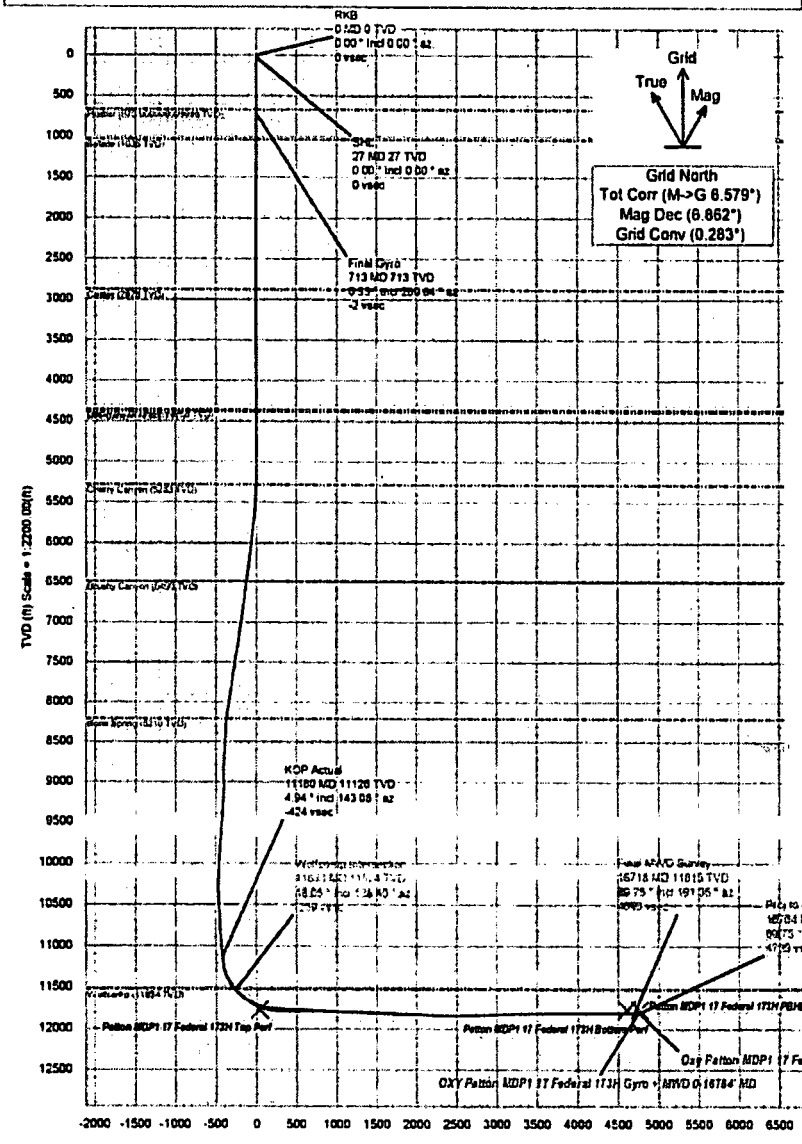
Lat: N 32 13 34.83 Northing: 443471.291US Grid Conv: 0.283°
Lon: W 103 49 11.41 Easting: 706283.291US Scale Fact: 0.99992367

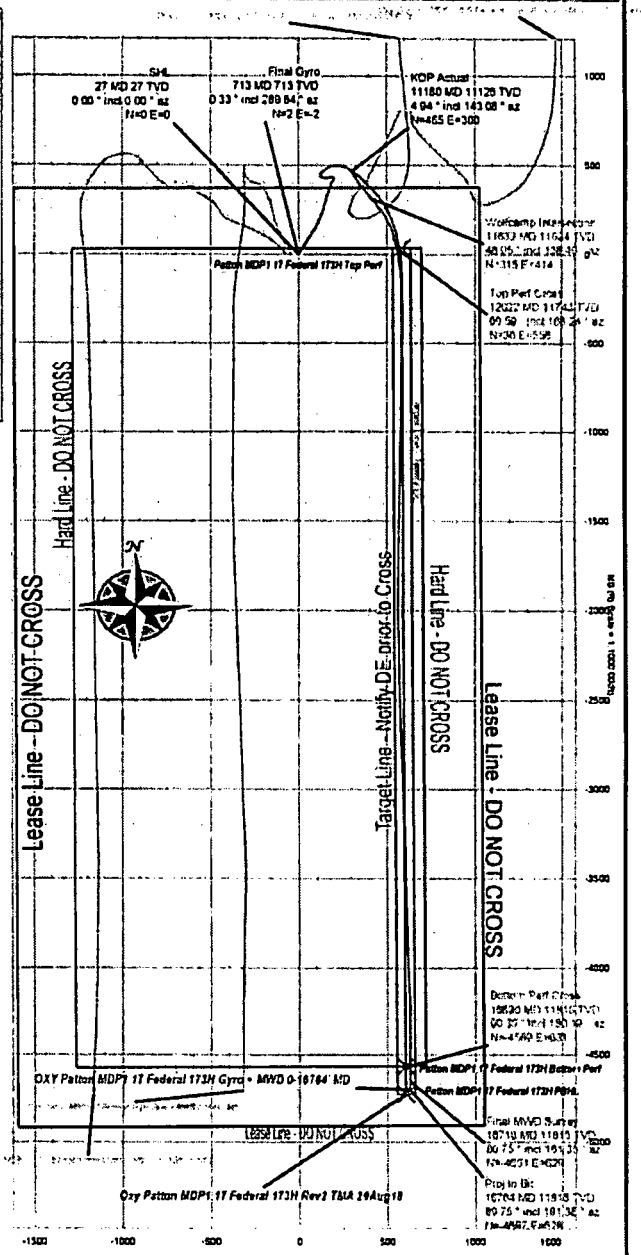
Miscellaneous

Slot: Patton MDP1 17 Federal 173H TVD Ref: RKB=26.5' (3659.2ft above MSL)
Plan: OXY Patton MDP1 17 Federal 173H Gyro + MWD 0-16784' MD

Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
RKB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
SHL	26.50	0.00	0.00	26.50	0.00	0.00	0.00	0.00
Final Gyro	713.13	0.33	289.84	713.12	-1.82	1.56	-2.17	0.27
KOP Actual	11180.00	4.94	143.08	11126.47	-423.52	465.46	299.92	0.74
KOP Actual	11180.00	4.94	143.08	11126.47	-423.52	465.46	299.92	0.74
Wolfcamp Intersection	11633.60	48.05	138.40	11523.68	-299.50	314.78	414.30	8.46
Top Perf Cross	12022.00	89.59	168.24	11743.13	35.25	36.10	558.41	11.12
Bottom Perf Cross	16830.00	90.39	180.19	11815.39	4606.30	-4563.16	630.55	1.50
Final MWD Survey	16718.00	89.75	181.35	11815.29	4693.42	-4651.15	629.37	1.50
Proj to Bit	16784.00	89.75	181.35	11815.49	4738.90	-4697.13	628.28	0.00





Vertical Section (ft) Azim = 172.69° Scale = 1:2200.00(ft) Origin = 0N/-0.0E/-W