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DISTRICT II-ARTESIA O.C.D.

**5D Survey Report****Apache Corporation**

Field Name: *Apache NM (Nad 83 NMEZ)*
Site Name: *Palmillo 26 State COM (315H,316H,214H)*
Well Name: *Palmillo 26 State COM 316H ST01*
File number: *13324437*
Survey: *Definitive survey*

5 September 2018





Palmillo 26 State COM 316H ST01

Field Name:	Map Units: US ft Company Name: Apache Corporation Vertical Reference Datum (VRD): Mean Sea Level Projected Coordinate System: NAD83 / New Mexico East (ftUS) Comment:		
Site:	Units: US ft North Reference: Grid Convergence Angle: 0.10 Position: Northing: 595474.30 US ft Latitude: 32.636858387 Easting: 600953.20 US ft Longitude: -104.139666791 Elevation above MSL: 3360.00 US ft Comment: Eddy Co. New Mexico		
Slot:	Position (Relative to Site Centre) +N/-S: 40.00 US ft Northing: 595514.30 US ft Latitude: 32.636968336 +E/-W: -0.10 US ft Easting: 600953.10 US ft Longitude: -104.139666879 Slot TVD Reference: Ground Elevation Elevation above MSL: 3359.00 US ft Comment:		
Well:	Type: Sidetrack UWI: Parent: Palmillo 26 State COM 316H Tie Point Method: MD File Number: Comment: H&P 482 13324437 Closure Distance: 4858.16 US ft Closure Azimuth: 275.46° Vertical Section: Position of Origin (Relative to Slot centre) +N/-S: -0.00 US ft +E/-W: -0.00 US ft Az: 270.00°		

Drill floor: Survey Name: Definitive Survey
Rig Height (Drill Floor): 26.00 US ft **Elevation above MSL:** 3385.00 US ft **Inclination:** 0.00° **Azimuth:** 0.00°

Survey Name: Definitive Survey

Date: 28/Aug/2018 **Survey Tool:** See Survey **Comment:** **Company:**
Tool Ranges below.

Magnetic Model:

Model Name: Surcon **Date:** 06/Aug/2018 **Field Strength:** **Declination:** 7.48° **Dip:** 60.42°
IFRI 48017.0nT

5D Survey Report

Tie Point:
MD: 11303.00 US **Inclination:** 91.61° **Azimuth:** 270.34° **TVD:** 8575.37 US ft **North Offset:** 360.08 US ft **East Offset:** -2687.37 US ft

Survey Tool Ranges:

Name	Start MD(USFt)	End MD(USFt)	Source Survey
VES GyroFlex V3	0.00	8085.00	VES Gyros
MWD + IFR + MS	8085.00	8385.00	MWD 5
MWD + IFR + MS	8385.00	8907.00	MWD 6
MWD + IFR + Sag Corr + MS	8907.00	9506.00	MWD 7
MWD + IFR + Sag Corr + MS	9506.00	11303.00	MWD 8
MWD + IFR + Sag Corr + MS	11303.00	13468.00	MWD 2 ST01

Wellpath created using minimum curvature:

Survey Points: (Relative to Slot centre)(TVD relative to Drill Floor)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N.Offset (US ft)	E.Offset (US ft)	DLS (°/100US ft)	Northing (US ft)	Easting (US ft)	Comment
0.00	0.00	0.00	-0.00	-0.00	-0.00	-0.00	0.00	595514.30	600953.10	
161.28	2.08	146.90	161.24	-1.60	-2.45	1.60	1.29	595511.85	600954.70	
255.61	2.47	154.98	255.50	-3.39	-5.73	3.39	0.53	595508.57	600956.49	
349.94	2.91	130.81	349.73	-6.07	-9.13	6.07	1.28	595505.17	600959.17	
444.27	3.32	144.89	443.92	-9.45	-12.93	9.45	0.92	595501.37	600962.55	
538.60	2.20	142.48	538.14	-12.12	-16.61	12.12	1.19	595497.69	600965.22	
632.93	2.27	135.18	632.40	-14.54	-19.37	14.54	0.31	595494.93	600967.64	
727.26	1.79	110.07	726.67	-17.24	-21.20	17.24	1.06	595493.10	600970.34	
821.59	1.61	65.82	820.96	-19.84	-21.16	19.84	1.37	595493.14	600972.94	
915.92	1.79	51.99	915.25	-22.20	-19.71	22.20	0.47	595494.59	600975.30	
1010.25	1.02	32.57	1009.55	-23.82	-18.09	23.82	0.95	595496.21	600976.92	
1104.58	0.98	19.36	1103.87	-24.54	-16.63	24.54	0.25	595497.67	600977.64	
1198.91	0.93	13.31	1198.19	-24.98	-15.12	24.98	0.12	595499.18	600978.08	
1293.24	0.61	302.39	1292.51	-24.73	-14.11	24.73	0.99	595500.19	600977.83	
1387.57	0.85	281.29	1386.83	-23.62	-13.70	23.62	0.38	595500.60	600976.72	
1481.90	0.72	284.15	1481.15	-22.36	-13.42	22.36	0.14	595500.88	600975.46	
1576.23	0.82	269.99	1575.47	-21.11	-13.27	21.11	0.23	595501.03	600974.21	
1670.56	0.87	277.58	1669.79	-19.73	-13.18	19.73	0.13	595501.12	600972.83	
1764.89	0.89	274.69	1764.11	-18.29	-13.02	18.29	0.05	595501.28	600971.39	
1859.22	0.92	268.51	1858.43	-16.80	-12.98	16.80	0.11	595501.32	600969.90	
1953.55	0.93	271.01	1952.75	-15.28	-12.99	15.28	0.04	595501.31	600968.38	
2047.88	0.90	268.12	2047.07	-13.77	-13.00	13.77	0.06	595501.30	600966.87	
2142.21	0.89	268.48	2141.39	-12.30	-13.05	12.30	0.01	595501.25	600965.40	
2236.54	0.90	267.78	2235.70	-10.83	-13.09	10.83	0.02	595501.21	600963.93	
2330.87	0.91	265.12	2330.02	-9.34	-13.19	9.34	0.05	595501.11	600962.44	
2425.20	0.97	266.44	2424.34	-7.80	-13.30	7.80	0.07	595501.00	600960.90	
2519.53	0.97	264.91	2518.66	-6.20	-13.42	6.20	0.03	595500.88	600959.30	
2613.86	1.01	263.20	2612.97	-4.58	-13.59	4.58	0.05	595500.71	600957.68	
2708.19	1.01	289.90	2707.29	-2.98	-13.40	2.98	0.49	595500.90	600956.08	
2802.52	1.02	286.20	2801.60	-1.39	-12.89	1.39	0.07	595501.41	600954.49	
2896.85	1.02	263.64	2895.92	0.25	-12.75	-0.25	0.42	595501.55	600952.85	
2991.18	0.63	299.49	2990.24	1.54	-12.58	-1.54	0.67	595501.72	600951.56	
3085.51	1.30	355.89	3084.56	2.07	-11.26	-2.07	1.15	595503.04	600951.03	
3179.84	2.40	8.92	3178.84	1.84	-8.24	-1.84	1.24	595506.06	600951.26	
3274.17	3.41	17.84	3273.04	0.67	-3.62	-0.67	1.17	595510.68	600952.43	
3368.50	4.64	19.25	3367.14	-1.45	2.65	1.45	1.31	595516.95	600954.55	
3462.83	4.81	22.51	3461.15	-4.22	9.91	4.22	0.34	595524.21	600957.32	
3557.16	5.09	21.01	3555.13	-7.23	17.47	7.23	0.33	595531.77	600960.33	
3651.49	5.13	19.73	3649.08	-10.16	25.34	10.16	0.13	595539.64	600963.26	
3745.82	4.97	18.88	3743.05	-12.90	33.18	12.90	0.19	595547.48	600966.00	
3840.15	4.82	59.52	3837.06	-17.64	39.06	17.64	3.60	595553.36	600970.74	
3934.48	6.12	29.13	3930.98	-23.51	45.46	23.51	3.31	595559.76	600976.61	
4028.81	5.89	9.88	4024.80	-26.78	54.62	26.78	2.14	595568.92	600979.88	
4123.14	5.89	12.67	4118.63	-28.68	64.11	28.68	0.30	595578.41	600981.78	

5D Survey Report

Survey Points: (Relative to Slot centre)(TVD relative to Drill Floor)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N.Offset (US ft)	E.Offset (US ft)	DLS (°/100US ft)	Northing (US ft)	Easting (US ft)	Comment
4217.47	5.51	9.32	4212.50	-30.47	73.31	30.47	0.54	595587.61	600983.57	
4311.80	6.07	10.54	4306.34	-32.12	82.68	32.12	0.61	595596.98	600985.22	
4406.13	6.05	12.17	4400.15	-34.08	92.44	34.08	0.18	595606.74	600987.18	
4500.46	5.89	12.88	4493.97	-36.20	102.02	36.20	0.19	595616.32	600989.30	
4594.79	6.40	11.87	4587.75	-38.37	111.88	38.37	0.55	595626.18	600991.47	
4689.12	6.50	10.15	4681.49	-40.39	122.28	40.39	0.23	595636.58	600993.49	
4783.45	6.88	12.10	4775.17	-42.51	133.06	42.51	0.47	595647.36	600995.61	
4877.78	7.06	13.52	4868.81	-45.05	144.22	45.05	0.26	595658.52	600998.15	
4972.11	6.17	16.19	4962.51	-47.82	154.73	47.82	1.00	595669.03	601000.92	
5066.44	6.08	17.32	5056.30	-50.72	164.36	50.72	0.16	595678.66	601003.82	
5160.77	6.30	15.40	5150.08	-53.58	174.12	53.58	0.32	595688.42	601006.68	
5255.10	6.59	15.82	5243.81	-56.43	184.32	56.43	0.31	595698.62	601009.53	
5349.43	5.94	13.23	5337.58	-59.03	194.28	59.03	0.75	595708.58	601012.13	
5443.76	5.97	16.20	5431.40	-61.51	203.74	61.51	0.33	595718.04	601014.61	
5538.09	6.20	13.68	5525.20	-64.08	213.40	64.08	0.37	595727.70	601017.18	
5632.42	6.30	13.26	5618.97	-66.48	223.39	66.48	0.12	595737.69	601019.58	
5726.75	6.29	13.35	5712.73	-68.86	233.45	68.86	0.01	595747.75	601021.96	
5821.08	6.12	13.14	5806.51	-71.19	243.38	71.19	0.18	595757.68	601024.29	
5915.41	5.79	14.65	5900.33	-73.54	252.88	73.54	0.39	595767.18	601026.64	
6009.74	5.42	8.75	5994.21	-75.42	261.89	75.42	0.73	595776.19	601028.52	
6104.07	5.04	6.99	6088.15	-76.60	270.40	76.60	0.44	595784.70	601029.70	
6198.40	4.69	0.47	6182.14	-77.14	278.37	77.14	0.69	595792.67	601030.24	
6292.73	4.42	359.93	6276.17	-77.17	285.86	77.17	0.29	595800.16	601030.27	
6387.06	4.00	357.47	6370.24	-77.02	292.78	77.02	0.48	595807.08	601030.12	
6481.39	4.02	8.92	6464.34	-77.38	299.34	77.38	0.85	595813.64	601030.48	
6575.72	3.94	11.58	6558.45	-78.55	305.78	78.55	0.21	595820.08	601031.65	
6670.05	3.94	12.64	6652.55	-79.91	312.12	79.91	0.08	595826.42	601033.01	
6764.38	4.21	24.34	6746.65	-82.04	318.43	82.04	0.92	595832.73	601035.14	
6858.71	4.38	27.19	6840.71	-85.12	324.79	85.12	0.29	595839.09	601038.22	
6953.04	3.89	22.97	6934.80	-88.01	330.94	88.01	0.61	595845.24	601041.11	
7047.37	3.06	13.18	7028.95	-89.83	336.34	89.83	1.08	595850.64	601042.93	
7141.70	2.84	21.18	7123.16	-91.25	340.97	91.25	0.49	595855.27	601044.35	
7236.03	3.73	32.28	7217.33	-93.73	345.74	93.73	1.16	595860.04	601046.83	
7330.36	3.71	39.65	7311.46	-97.32	350.69	97.32	0.51	595864.99	601050.42	
7424.69	3.71	36.54	7405.60	-101.09	355.49	101.09	0.21	595869.79	601054.19	
7519.02	3.20	41.10	7499.76	-104.63	359.93	104.63	0.61	595874.23	601057.73	
7613.35	3.00	46.47	7593.95	-108.15	363.61	108.15	0.37	595877.91	601061.25	
7707.68	2.58	40.76	7688.17	-111.33	366.92	111.33	0.53	595881.22	601064.43	
7802.01	1.85	38.11	7782.42	-113.66	369.72	113.66	0.78	595884.02	601066.76	
7896.34	1.85	37.98	7876.71	-115.53	372.12	115.53	0.00	595886.42	601068.63	
7990.67	1.76	26.54	7970.99	-117.12	374.62	117.12	0.39	595888.92	601070.22	
8085.00	2.30	36.10	8065.26	-118.88	377.44	118.88	0.67	595891.74	601071.98	VES Gyro Tieon
8149.00	2.31	28.56	8129.21	-120.25	379.61	120.25	0.47	595893.91	601073.35	First WFT MWD Svy
8196.00	3.25	299.38	8176.17	-119.54	381.10	119.54	8.42	595895.40	601072.64	
8243.00	6.82	278.28	8222.98	-115.62	382.16	115.62	8.43	595896.46	601068.72	
8290.00	11.87	274.36	8269.35	-108.03	382.93	108.03	10.82	595897.23	601061.13	
8338.00	16.65	272.62	8315.85	-96.23	383.62	96.23	10.00	595897.92	601049.33	
8385.00	20.14	271.40	8360.45	-81.41	384.12	81.41	7.47	595898.42	601034.51	
8434.00	22.64	270.11	8406.07	-63.55	384.35	63.55	5.19	595898.65	601016.65	
8481.00	27.83	269.83	8448.57	-43.52	384.33	43.52	11.05	595898.63	600996.62	
8528.00	33.92	270.86	8488.89	-19.41	384.49	19.41	13.01	595898.79	600972.51	
8575.00	41.64	272.81	8526.01	9.34	385.46	-9.34	16.62	595899.76	600943.76	
8623.00	48.29	273.98	8559.95	43.18	387.49	-43.18	13.96	595901.79	600909.92	
8670.00	53.95	273.66	8589.44	79.67	389.92	-79.67	12.05	595904.22	600873.43	
8717.00	58.82	271.97	8615.46	118.75	391.82	-118.75	10.79	595906.12	600834.35	
8764.00	64.46	269.61	8637.77	160.09	392.37	-160.09	12.79	595906.67	600793.01	
8812.00	68.89	269.27	8656.77	204.15	391.94	-204.15	9.25	595906.24	600748.95	

5D Survey Report

Survey Points: (Relative to Slot centre)(TVD relative to Drill Floor)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N.Offset (US ft)	E.Offset (US ft)	DLS (°/100US ft)	Northing (US ft)	Easting (US ft)	Comment
8859.00	74.56	268.94	8671.51	248.76	391.24	-248.76	12.08	595905.54	600704.34	
8907.00	81.50	267.76	8681.46	295.66	389.88	-295.66	14.66	595904.18	600657.44	
9032.00	90.42	266.10	8690.25	420.04	383.20	-420.04	7.26	595897.50	600533.06	
9127.00	92.80	266.73	8687.59	514.81	377.26	-514.81	2.59	595891.56	600438.29	
9222.00	93.85	267.11	8682.08	609.51	372.17	-609.51	1.18	595886.47	600343.59	
9316.00	93.99	268.04	8675.65	703.21	368.20	-703.21	1.00	595882.50	600249.89	
9411.00	92.73	268.70	8670.08	798.01	365.50	-798.01	1.50	595879.80	600155.09	
9506.00	92.38	269.09	8665.85	892.89	363.67	-892.89	0.55	595877.97	600060.21	
9600.00	92.87	268.66	8661.54	986.78	361.83	-986.78	0.69	595876.13	599966.32	
9694.00	94.05	269.44	8655.87	1080.59	360.27	-1080.59	1.50	595874.57	599872.51	
9789.00	93.64	271.06	8649.50	1175.37	360.69	-1175.37	1.76	595874.99	599777.73	
9884.00	93.57	270.63	8643.52	1270.17	362.08	-1270.17	0.46	595876.38	599682.93	
9978.00	93.99	270.48	8637.33	1363.96	362.99	-1363.96	0.47	595877.29	599589.14	
10073.00	91.75	270.29	8632.57	1458.84	363.63	-1458.84	2.37	595877.93	599494.26	
10167.00	93.43	270.50	8628.32	1552.73	364.28	-1552.73	1.80	595878.58	599400.37	
10262.00	92.73	270.12	8623.22	1647.60	364.79	-1647.60	0.84	595879.09	599305.50	
10356.00	93.64	269.86	8618.00	1741.45	364.77	-1741.45	1.01	595879.07	599211.65	
10451.00	93.57	269.59	8612.02	1836.26	364.32	-1836.26	0.29	595878.62	599116.84	
10546.00	93.01	270.13	8606.57	1931.10	364.09	-1931.10	0.82	595878.39	599022.00	
10640.00	92.17	269.48	8602.32	2025.00	363.77	-2025.00	1.13	595878.07	598928.10	
10735.00	92.17	269.31	8598.73	2119.93	362.77	-2119.93	0.18	595877.07	598833.17	
10829.00	93.71	269.31	8593.90	2213.80	361.64	-2213.80	1.64	595875.94	598739.30	
10924.00	93.08	269.05	8588.28	2308.62	360.28	-2308.62	0.72	595874.58	598644.48	
11019.00	92.45	269.43	8583.70	2403.50	359.02	-2403.50	0.77	595873.32	598549.60	
11113.00	90.91	270.27	8580.94	2497.46	358.77	-2497.46	1.87	595873.07	598455.64	
11208.00	92.10	270.48	8578.45	2592.42	359.40	-2592.42	1.27	595873.70	598360.68	
11303.00	91.61	270.34	8575.37	2687.37	360.08	-2687.37	0.54	595874.38	598265.73	Tie Onto WFT MWD
11397.00	88.95	272.39	8574.91	2781.33	362.31	-2781.33	3.57	595876.61	598171.77	First WFT MWD Svy
11410.00	87.20	274.02	8575.35	2794.30	363.04	-2794.30	18.39	595877.34	598158.80	
11492.00	84.25	278.14	8581.46	2875.58	371.69	-2875.58	6.17	595885.99	598077.52	
11586.00	88.74	276.07	8587.21	2968.66	383.29	-2968.66	5.26	595897.59	597984.44	
11681.00	92.38	274.07	8586.28	3063.26	391.68	-3063.26	4.37	595905.98	597889.84	
11776.00	93.78	270.79	8581.17	3158.02	395.71	-3158.02	3.75	595910.01	597795.08	
11870.00	92.45	269.81	8576.07	3251.88	396.20	-3251.88	1.76	595910.50	597701.22	
11965.00	90.56	270.70	8573.57	3346.84	396.62	-3346.84	2.20	595910.92	597606.26	
12059.00	91.82	272.77	8571.62	3440.77	399.47	-3440.77	2.58	595913.77	597512.33	
12154.00	92.94	271.86	8567.67	3535.61	403.30	-3535.61	1.52	595917.60	597417.49	
12248.00	93.64	271.58	8562.28	3629.41	406.12	-3629.41	0.80	595920.42	597323.69	
12343.00	94.13	271.23	8555.84	3724.16	408.44	-3724.16	0.63	595922.74	597228.94	
12438.00	95.40	271.24	8547.95	3818.81	410.48	-3818.81	1.34	595924.78	597134.29	
12532.00	96.52	273.24	8538.19	3912.23	414.13	-3912.23	2.43	595928.43	597040.87	
12627.00	95.75	273.39	8528.04	4006.52	419.60	-4006.52	0.83	595933.90	596946.58	
12721.00	97.36	275.23	8517.31	4099.64	426.61	-4099.64	2.59	595940.91	596853.46	
12816.00	96.31	273.03	8506.00	4193.71	433.40	-4193.71	2.55	595947.70	596759.39	
12911.00	94.84	271.79	8496.77	4288.17	437.38	-4288.17	2.02	595951.68	596664.93	
13005.00	94.62	274.31	8489.02	4381.71	442.36	-4381.71	2.68	595956.66	596571.39	
13120.00	98.29	275.17	8476.09	4495.57	451.80	-4495.57	3.28	595966.10	596457.53	
13221.00	101.34	272.44	8458.87	4594.85	458.41	-4594.85	4.03	595972.71	596358.25	
13289.00	102.70	271.38	8444.71	4661.32	460.63	-4661.32	2.51	595974.93	596291.78	
13384.00	102.27	270.11	8424.17	4754.06	461.84	-4754.06	1.38	595976.14	596199.04	
13397.00	102.28	270.09	8421.41	4766.77	461.86	-4766.77	0.17	595976.16	596186.33	Last WFT MWD Svy
13468.00	102.28	270.09	8406.31	4836.14	461.97	-4836.14	0.00	595976.27	596116.96	Proj to TD

Comp
C105
H2



Marathon Oil

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APR 11 2019

DISTRICT II-ARTESIA O.C.D.

Marathon Oil

Eddy County, NM

Rick Deckard State 25-28-4 (12-14-15-18)

WXY #12H

OH

Design: MWD 174'-14243' PTB 14298'

Survey Report

15 November, 2018



Company: Marathon Oil
Project: Eddy County, NM
Site: Rick Deckard State 25-28-4 (12-14-15-18)
Well: WXY #12H
Wellbore: OH
Design: MWD 174'-14243' PTB 14298'

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well WXY #12H
 Well @ 2988.00usft (GL: 2963' + KB: 25' (Prec594))
 Well @ 2988.00usft (GL: 2963' + KB: 25' (Prec594))
 Grid
 Minimum Curvature
 WellPlanner1

Project Eddy County, NM

Map System: US State Plane 1927 (Exact solution)
Geo Datum: NAD 1927 (NADCON CONUS)
Map Zone: New Mexico East 3001

System Datum: Mean Sea Level

Site Rick Deckard State 25-28-4 (12-14-15-18)

Site Position:		Northing:	419,495.00 usft	Latitude:	32.153070
From:	Map	Easting:	576,032.96 usft	Longitude:	-104.087653
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.13 °

Well WXY #12H

Well Position	+N/-S	0.00 usft	Northing:	419,495.00 usft	Latitude:	32.153070
	+E/-W	0.00 usft	Easting:	576,032.96 usft	Longitude:	-104.087653
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	2,963.00 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	User Defined	8/24/2018	7.26	59.93	47,955.20

Design MWD 174'-14243' PTB 14298'

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	359.96

Survey Program Date 11/15/2018

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
174.00	14,298.00	Survey #1 (OH)	MWD+IFR1	OWSG MWD + IFR1

Company: Marathon Oil
Project: Eddy County, NM
Site: Rick Deckard State 25-28-4 (12-14-15-18)
Well: WXY #12H
Wellbore: OH
Design: MWD 174'-14243' PTB 14298'

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well WXY #12H
 Well @ 2988.00usft (GL: 2963' + KB: 25' (Prec594))
 Well @ 2988.00usft (GL: 2963' + KB: 25' (Prec594))
 Grid
 Minimum Curvature
 WellPlanner1

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	419,495.00	576,032.96	
[RickDeckard#12H]FTP											
174.00	0.60	92.70	174.00	-0.04	-0.04	0.91	0.91	92.70	419,494.96	576,033.87	
205.00	0.60	97.70	205.00	-0.07	-0.07	1.23	1.24	93.36	419,494.93	576,034.19	
297.00	0.90	119.80	296.99	-0.50	-0.50	2.34	2.39	101.98	419,494.50	576,035.30	
380.00	1.50	155.10	379.97	-1.81	-1.81	3.36	3.81	118.25	419,493.19	576,036.32	
480.00	3.00	182.80	479.89	-5.61	-5.61	3.78	6.76	145.99	419,489.39	576,036.74	
571.00	3.60	182.20	570.74	-10.84	-10.84	3.56	11.41	161.83	419,484.16	576,036.52	
662.00	3.10	197.50	661.59	-16.04	-16.04	2.71	16.27	170.42	419,478.96	576,035.67	
754.00	2.50	224.00	753.48	-19.86	-19.86	0.57	19.87	178.37	419,475.14	576,033.53	
845.00	1.50	253.70	844.43	-21.62	-21.62	-1.96	21.71	185.17	419,473.38	576,031.00	
936.00	1.60	307.90	935.40	-21.17	-21.17	-4.10	21.57	190.96	419,473.83	576,028.86	
1,027.00	1.90	318.70	1,026.36	-19.26	-19.26	-6.10	20.20	197.57	419,475.74	576,026.86	
1,116.00	1.50	323.90	1,115.32	-17.20	-17.21	-7.76	18.88	204.27	419,477.79	576,025.20	
1,205.00	1.00	320.50	1,204.29	-15.66	-15.67	-8.94	18.04	209.71	419,479.33	576,024.02	
1,295.00	0.80	318.20	1,294.28	-14.59	-14.60	-9.86	17.61	214.04	419,480.40	576,023.10	
1,384.00	1.00	319.40	1,383.27	-13.53	-13.54	-10.78	17.31	218.52	419,481.46	576,022.18	
1,473.00	1.20	350.80	1,472.26	-12.02	-12.03	-11.43	16.60	223.53	419,482.97	576,021.53	
1,563.00	1.80	19.10	1,562.23	-9.76	-9.77	-11.12	14.80	228.71	419,485.23	576,021.84	
1,652.00	3.10	31.60	1,651.14	-6.39	-6.40	-9.40	11.37	235.77	419,488.60	576,023.56	
1,741.00	4.00	44.80	1,739.97	-2.14	-2.14	-5.95	6.33	250.20	419,492.86	576,027.01	
1,830.00	4.30	61.40	1,828.74	1.66	1.66	-0.84	1.86	333.20	419,496.66	576,032.12	
1,920.00	3.10	93.20	1,918.56	3.13	3.14	4.56	5.53	55.46	419,498.14	576,037.52	
2,009.00	2.40	122.00	2,007.46	2.01	2.01	8.54	8.77	76.73	419,497.01	576,041.50	
2,098.00	0.40	185.80	2,096.44	0.71	0.72	10.09	10.11	85.93	419,495.72	576,043.05	
2,187.00	1.70	276.80	2,185.42	0.56	0.56	8.75	8.76	86.31	419,495.56	576,041.71	
2,277.00	1.40	269.70	2,275.39	0.71	0.72	6.32	6.36	83.53	419,495.72	576,039.28	

Company: Marathon Oil
Project: Eddy County, NM
Site: Rick Deckard State 25-28-4 (12-14-15-18)
Well: WXY #12H
Wellbore: OH
Design: MWD 174'-14243' PTB 14298'

Local Co-ordinate Reference: Well WXY #12H
TVD Reference: Well @ 2988.00usft (GL: 2963' + KB: 25' (Prec594))
MD Reference: Well @ 2988.00usft (GL: 2963' + KB: 25' (Prec594))
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)	
2,366.00	2.20	254.90	2,364.35	0.26	0.27	3.58	3.59	85.75	419,495.27	576,036.54	
2,455.00	2.80	256.60	2,453.26	-0.68	-0.68	-0.18	0.71	194.73	419,494.32	576,032.78	
2,494.00	2.70	257.10	2,492.22	-1.11	-1.11	-2.00	2.29	241.02	419,493.89	576,030.96	
2,665.00	4.80	257.20	2,662.84	-3.58	-3.59	-12.91	13.40	254.44	419,491.41	576,020.05	
2,755.00	7.00	244.90	2,752.36	-6.74	-6.75	-21.54	22.58	252.59	419,488.25	576,011.42	
2,844.00	9.70	239.60	2,840.41	-12.83	-12.85	-32.93	35.34	248.68	419,482.15	576,000.03	
2,933.00	12.40	240.90	2,927.75	-21.26	-21.29	-47.74	52.28	245.96	419,473.71	575,985.22	
3,023.00	15.60	244.40	3,015.07	-31.18	-31.22	-67.11	74.02	245.05	419,463.78	575,965.85	
3,112.00	16.90	243.60	3,100.51	-42.08	-42.15	-89.49	98.92	244.78	419,452.85	575,943.47	
3,201.00	15.20	245.60	3,186.04	-52.64	-52.72	-111.70	123.52	244.73	419,442.28	575,921.26	
3,291.00	15.10	246.40	3,272.91	-62.19	-62.29	-133.19	147.03	244.94	419,432.71	575,899.77	
3,380.00	14.20	245.50	3,359.02	-71.35	-71.46	-153.74	169.54	245.07	419,423.54	575,879.22	
3,469.00	13.70	243.40	3,445.39	-80.58	-80.70	-173.10	190.99	245.00	419,414.30	575,859.86	
3,558.00	13.80	243.90	3,531.84	-89.96	-90.09	-192.06	212.14	244.87	419,404.91	575,840.90	
3,647.00	13.90	243.40	3,618.26	-99.40	-99.55	-211.15	233.44	244.76	419,395.45	575,821.81	
3,736.00	13.90	243.10	3,704.65	-109.01	-109.17	-230.24	254.81	244.63	419,385.83	575,802.72	
3,826.00	14.00	249.40	3,792.00	-117.72	-117.89	-250.07	276.47	244.76	419,377.11	575,782.89	
3,915.00	13.90	250.20	3,878.37	-125.11	-125.30	-270.21	297.85	245.12	419,369.70	575,762.75	
4,004.00	13.80	249.60	3,964.79	-132.42	-132.62	-290.22	319.08	245.44	419,362.38	575,742.74	
4,094.00	13.50	248.10	4,052.25	-140.07	-140.28	-310.02	340.28	245.65	419,354.72	575,722.94	
4,183.00	13.50	248.10	4,138.79	-147.80	-148.03	-329.30	361.04	245.79	419,346.97	575,703.66	
4,272.00	13.40	248.90	4,225.35	-155.37	-155.62	-348.56	381.72	245.94	419,339.38	575,684.40	
4,361.00	13.50	248.90	4,311.90	-162.81	-163.07	-367.87	402.40	246.09	419,331.93	575,665.09	
4,451.00	13.40	247.00	4,399.44	-170.66	-170.93	-387.27	423.32	246.19	419,324.07	575,645.69	
4,540.00	13.50	247.30	4,486.00	-178.68	-178.97	-406.35	444.02	246.23	419,316.03	575,626.61	
4,629.00	12.80	246.50	4,572.66	-186.61	-186.91	-424.98	464.26	246.26	419,308.09	575,607.98	
4,718.00	12.60	245.40	4,659.48	-194.57	-194.88	-442.84	483.83	246.25	419,300.12	575,590.12	

Company:	Marathon Oil	Local Co-ordinate Reference:	Well WXY #12H
Project:	Eddy County, NM	TVD Reference:	Well @ 2988.00usft (GL: 2963' + KB: 25' (Prec594))
Site:	Rick Deckard State 25-28-4 (12-14-15-18)	MD Reference:	Well @ 2988.00usft (GL: 2963' + KB: 25' (Prec594))
Well:	WXY #12H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	MWD 174'-14243' PTB 14298'	Database:	WellPlanner1

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)	
4,807.00	13.40	248.00	4,746.20	-202.46	-202.78	-461.23	503.84	246.27	419,292.22	575,571.73	
4,897.00	13.50	250.60	4,833.74	-209.84	-210.18	-480.81	524.74	246.39	419,284.82	575,552.15	
4,986.00	12.90	249.90	4,920.38	-216.69	-217.04	-499.94	545.02	246.53	419,277.96	575,533.02	
5,075.00	12.30	250.20	5,007.24	-223.31	-223.67	-518.19	564.40	246.65	419,271.33	575,514.77	
5,165.00	11.80	248.40	5,095.26	-229.93	-230.30	-535.76	583.17	246.74	419,264.70	575,497.20	
5,254.00	11.80	248.80	5,182.38	-236.56	-236.94	-552.71	601.36	246.80	419,258.06	575,480.25	
5,343.00	12.00	247.70	5,269.46	-243.35	-243.75	-569.75	619.70	246.84	419,251.25	575,463.21	
5,433.00	11.80	248.70	5,357.53	-250.23	-250.64	-586.98	638.26	246.88	419,244.36	575,445.98	
5,522.00	11.20	246.30	5,444.74	-257.00	-257.42	-603.38	655.99	246.90	419,237.58	575,429.58	
5,611.00	12.40	247.80	5,531.86	-264.07	-264.50	-620.14	674.19	246.90	419,230.50	575,412.82	
5,701.00	14.20	250.70	5,619.44	-271.36	-271.80	-639.51	694.87	246.97	419,223.20	575,393.45	
5,790.00	13.50	250.30	5,705.86	-278.45	-278.91	-659.59	716.14	247.08	419,216.09	575,373.37	
5,879.00	13.20	250.20	5,792.45	-285.38	-285.86	-678.93	736.66	247.17	419,209.14	575,354.03	
5,969.00	12.80	250.30	5,880.14	-292.21	-292.70	-697.99	756.87	247.25	419,202.30	575,334.97	
6,058.00	12.30	250.50	5,967.02	-298.69	-299.19	-716.20	776.18	247.33	419,195.81	575,316.76	
6,147.00	13.10	249.70	6,053.84	-305.34	-305.85	-734.60	795.73	247.40	419,189.15	575,298.36	
6,237.00	13.10	249.10	6,141.50	-312.50	-313.03	-753.69	816.11	247.45	419,181.97	575,279.27	
6,326.00	12.00	246.60	6,228.37	-319.76	-320.30	-771.61	835.45	247.46	419,174.70	575,261.35	
6,415.00	10.60	248.20	6,315.64	-326.47	-327.02	-787.70	852.88	247.45	419,167.98	575,245.26	
6,504.00	9.50	245.60	6,403.28	-332.53	-333.09	-801.99	868.41	247.45	419,161.91	575,230.97	
6,593.00	8.50	248.30	6,491.18	-337.99	-338.56	-814.79	882.33	247.44	419,156.44	575,218.17	
6,683.00	7.30	249.60	6,580.32	-342.43	-343.01	-826.33	894.69	247.46	419,151.99	575,206.63	
6,772.00	6.40	252.70	6,668.69	-345.87	-346.46	-836.37	905.28	247.50	419,148.54	575,196.59	
6,861.00	6.00	248.20	6,757.17	-349.07	-349.66	-845.42	914.88	247.53	419,145.34	575,187.54	
6,951.00	5.10	243.20	6,846.75	-352.61	-353.21	-853.36	923.57	247.52	419,141.79	575,179.60	
7,040.00	6.40	248.80	6,935.30	-356.18	-356.79	-861.51	932.47	247.50	419,138.21	575,171.45	
7,129.00	6.30	249.00	7,023.75	-359.72	-360.33	-870.70	942.31	247.52	419,134.67	575,162.26	



Professional Directional Survey Report



Company: Marathon Oil
Project: Eddy County, NM
Site: Rick Deckard State 25-28-4 (12-14-15-18)
Well: WXY #12H
Wellbore: OH
Design: MWD 174'-14243' PTB 14298'

Local Co-ordinate Reference: Well WXY #12H
TVD Reference: Well @ 2988.00usft (GL: 2963' + KB: 25' (Prec594))
MD Reference: Well @ 2988.00usft (GL: 2963' + KB: 25' (Prec594))
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
7,219.00	6.30	243.70	7,113.21	-363.67	-364.29	-879.74	952.18	247.51	419,130.71	575,153.22
7,308.00	6.00	240.70	7,201.70	-368.11	-368.73	-888.17	961.67	247.45	419,126.27	575,144.79
7,397.00	6.30	242.80	7,290.18	-372.61	-373.24	-896.57	971.15	247.40	419,121.76	575,136.39
7,486.00	5.80	243.50	7,378.69	-376.84	-377.47	-904.94	980.51	247.36	419,117.53	575,128.02
7,576.00	5.10	240.70	7,468.28	-380.82	-381.46	-912.50	989.02	247.31	419,113.54	575,120.46
7,665.00	4.80	242.10	7,556.95	-384.50	-385.14	-919.24	996.66	247.27	419,109.86	575,113.72
7,751.00	5.40	245.70	7,642.61	-387.84	-388.49	-926.10	1,004.29	247.24	419,106.51	575,106.86
7,844.00	4.90	249.50	7,735.23	-391.03	-391.68	-933.81	1,012.63	247.24	419,103.32	575,099.15
7,933.00	4.20	253.00	7,823.95	-393.31	-393.96	-940.49	1,019.67	247.27	419,101.04	575,092.47
8,022.00	4.50	251.00	7,912.69	-395.39	-396.05	-946.91	1,026.40	247.30	419,098.95	575,086.05
8,112.00	4.20	253.80	8,002.44	-397.46	-398.12	-953.41	1,033.20	247.34	419,096.88	575,079.55
8,201.00	3.90	247.90	8,091.21	-399.50	-400.17	-959.34	1,039.46	247.36	419,094.83	575,073.62
8,291.00	3.70	243.20	8,181.02	-401.96	-402.63	-964.77	1,045.42	247.35	419,092.37	575,068.19
8,380.00	3.50	238.30	8,269.84	-404.68	-405.35	-969.65	1,050.97	247.31	419,089.65	575,063.31
8,470.00	3.00	230.60	8,359.70	-407.61	-408.29	-973.80	1,055.93	247.25	419,086.71	575,059.16
8,559.00	3.00	205.70	8,448.58	-411.19	-411.87	-976.61	1,059.91	247.13	419,083.13	575,056.35
8,649.00	2.60	201.40	8,538.47	-415.21	-415.89	-978.38	1,063.11	246.97	419,079.11	575,054.58
8,739.00	2.20	204.00	8,628.39	-418.69	-419.37	-979.83	1,065.80	246.83	419,075.63	575,053.13
8,828.00	1.40	257.50	8,717.35	-420.48	-421.17	-981.58	1,068.12	246.78	419,073.83	575,051.38
8,917.00	1.50	283.50	8,806.32	-420.44	-421.13	-983.78	1,070.13	246.83	419,073.87	575,049.18
9,002.00	1.50	290.70	8,891.30	-419.79	-420.48	-985.90	1,071.82	246.90	419,074.52	575,047.06
9,029.92	3.07	331.67	8,919.19	-419.00	-419.69	-986.60	1,072.15	246.96	419,075.31	575,046.36
[RickDeckard#12H]KOP										
9,092.00	7.70	348.20	8,980.99	-413.46	-414.15	-988.24	1,071.51	247.26	419,080.85	575,044.72
9,181.00	17.40	344.10	9,067.76	-394.78	-395.47	-993.12	1,068.96	248.29	419,099.53	575,039.84
9,270.00	26.20	347.70	9,150.31	-362.71	-363.41	-1,000.96	1,064.89	250.05	419,131.59	575,032.00
9,360.00	36.80	354.60	9,226.97	-316.31	-317.02	-1,007.75	1,056.44	252.54	419,177.98	575,025.21

Company: Marathon Oil
Project: Eddy County, NM
Site: Rick Deckard State 25-28-4 (12-14-15-18)
Well: WXY #12H
Wellbore: OH
Design: MWD 174'-14243' PTB 14298'

Local Co-ordinate Reference: Well WXY #12H
TVD Reference: Well @ 2988.00usft (GL: 2963' + KB: 25' (Prec594))
MD Reference: Well @ 2988.00usft (GL: 2963' + KB: 25' (Prec594))
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)	
9,449.00	48.70	358.90	9,292.22	-256.12	-256.82	-1,010.92	1,043.03	255.75	419,238.18	575,022.04	
9,539.00	56.90	359.00	9,346.59	-184.50	-185.21	-1,012.22	1,029.03	259.63	419,309.79	575,020.74	
9,628.00	67.10	0.20	9,388.32	-106.03	-106.74	-1,012.73	1,018.34	263.98	419,388.26	575,020.23	
9,718.00	76.40	3.40	9,416.48	-20.71	-21.41	-1,009.99	1,010.22	268.79	419,473.59	575,022.97	
9,749.00	80.90	3.00	9,422.58	9.63	8.93	-1,008.29	1,008.33	270.51	419,503.93	575,024.67	
9,831.00	87.40	1.90	9,430.93	91.08	90.38	-1,004.81	1,008.87	275.14	419,585.38	575,028.15	
9,925.00	89.00	1.10	9,433.88	185.00	184.30	-1,002.35	1,019.16	280.42	419,679.30	575,030.61	
10,019.00	87.60	0.00	9,436.67	278.95	278.25	-1,001.45	1,039.39	285.53	419,773.25	575,031.51	
10,114.00	92.00	1.00	9,437.00	373.92	373.22	-1,000.62	1,067.96	290.45	419,868.22	575,032.34	
10,208.00	91.60	0.50	9,434.05	467.86	467.16	-999.39	1,103.19	295.05	419,962.16	575,033.57	
10,302.00	92.10	0.00	9,431.01	561.81	561.11	-998.98	1,145.78	299.32	420,056.11	575,033.98	
10,396.00	90.20	359.60	9,429.13	655.79	655.09	-999.31	1,194.89	303.25	420,150.09	575,033.65	
10,491.00	90.10	359.80	9,428.88	750.78	750.09	-999.81	1,249.90	306.88	420,245.09	575,033.15	
10,585.00	88.80	0.30	9,429.78	844.78	844.08	-999.73	1,308.41	310.17	420,339.08	575,033.23	
10,679.00	90.90	1.40	9,430.03	938.76	938.06	-998.33	1,369.90	313.22	420,433.06	575,034.63	
10,773.00	89.80	1.20	9,429.45	1,032.73	1,032.04	-996.20	1,434.40	316.01	420,527.04	575,036.76	
10,867.00	89.10	0.60	9,430.36	1,126.71	1,126.02	-994.72	1,502.46	318.54	420,621.02	575,038.24	
10,963.00	90.80	1.10	9,430.44	1,222.70	1,222.00	-993.30	1,574.78	320.89	420,717.00	575,039.66	
11,056.00	89.40	359.80	9,430.28	1,315.69	1,315.00	-992.57	1,647.55	322.95	420,810.00	575,040.39	
11,150.00	88.40	1.00	9,432.08	1,409.67	1,408.97	-991.91	1,723.11	324.85	420,903.97	575,041.05	
11,244.00	88.00	0.70	9,435.03	1,503.61	1,502.92	-990.52	1,799.97	326.61	420,997.92	575,042.44	
11,339.00	90.60	1.90	9,436.19	1,598.57	1,597.88	-988.36	1,878.85	328.26	421,092.88	575,044.60	
11,433.00	86.90	0.70	9,438.25	1,692.50	1,691.81	-986.23	1,958.28	329.76	421,186.81	575,046.73	
11,527.00	89.10	1.10	9,441.53	1,786.42	1,785.74	-984.76	2,039.26	331.13	421,280.74	575,048.20	
11,621.00	92.00	1.40	9,440.62	1,880.39	1,879.70	-982.71	2,121.08	332.40	421,374.70	575,050.25	
11,716.00	88.10	359.30	9,440.54	1,975.36	1,974.67	-982.12	2,205.43	333.56	421,469.67	575,050.84	
11,810.00	87.20	358.30	9,444.39	2,069.26	2,068.57	-984.09	2,290.73	334.56	421,563.57	575,048.87	

Company: Marathon Oil
Project: Eddy County, NM
Site: Rick Deckard State 25-28-4 (12-14-15-18)
Well: WXY #12H
Wellbore: OH
Design: MWD 174'-14243' PTB 14298'

Local Co-ordinate Reference: Well WXY #12H
TVD Reference: Well @ 2988.00usft (GL: 2963' + KB: 25' (Prec594))
MD Reference: Well @ 2988.00usft (GL: 2963' + KB: 25' (Prec594))
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)	
11,905.00	88.10	359.00	9,448.29	2,164.15	2,163.46	-986.33	2,377.69	335.49	421,658.46	575,046.63	
11,999.00	87.40	358.60	9,451.98	2,258.06	2,257.37	-988.29	2,464.23	336.36	421,752.37	575,044.67	
12,094.00	87.70	359.40	9,456.04	2,352.96	2,352.27	-989.95	2,552.09	337.18	421,847.27	575,043.01	
12,189.00	89.30	357.60	9,458.53	2,447.89	2,447.20	-992.44	2,640.78	337.93	421,942.20	575,040.52	
12,283.00	92.20	357.40	9,457.30	2,541.78	2,541.09	-996.54	2,729.51	338.59	422,036.09	575,036.42	
12,375.00	92.40	357.30	9,453.61	2,633.61	2,632.92	-1,000.79	2,816.70	339.19	422,127.92	575,032.17	
12,471.00	91.20	356.10	9,450.59	2,729.41	2,728.71	-1,006.31	2,908.35	339.76	422,223.71	575,026.65	
12,565.00	88.50	355.80	9,450.84	2,823.17	2,822.46	-1,012.95	2,998.73	340.26	422,317.46	575,020.01	
12,659.00	90.30	359.80	9,451.82	2,917.07	2,916.37	-1,016.56	3,088.46	340.78	422,411.37	575,016.40	
12,753.00	90.40	0.00	9,451.25	3,011.07	3,010.36	-1,016.72	3,177.42	341.34	422,505.36	575,016.24	
12,848.00	91.50	0.60	9,449.67	3,106.06	3,105.35	-1,016.22	3,267.40	341.88	422,600.35	575,016.74	
12,943.00	91.30	0.80	9,447.35	3,201.02	3,200.31	-1,015.06	3,357.43	342.40	422,695.31	575,017.90	
13,036.00	89.90	1.10	9,446.38	3,294.00	3,293.29	-1,013.52	3,445.72	342.89	422,788.29	575,019.44	
13,130.00	88.70	0.80	9,447.53	3,387.97	3,387.27	-1,011.96	3,535.20	343.37	422,882.27	575,021.00	
13,224.00	87.10	0.20	9,450.97	3,481.90	3,481.20	-1,011.14	3,625.07	343.80	422,976.20	575,021.82	
13,318.00	91.00	2.10	9,452.53	3,575.85	3,575.14	-1,009.26	3,714.87	344.24	423,070.14	575,023.70	
13,412.00	88.90	0.00	9,452.61	3,669.82	3,669.12	-1,007.53	3,804.94	344.65	423,164.12	575,025.43	
13,507.00	92.60	359.60	9,451.37	3,764.80	3,764.09	-1,007.86	3,896.69	345.01	423,259.09	575,025.10	
13,601.00	88.80	358.30	9,450.22	3,858.75	3,858.05	-1,009.59	3,987.96	345.34	423,353.05	575,023.37	
13,695.00	91.30	359.40	9,450.14	3,952.73	3,952.02	-1,011.47	4,079.41	345.64	423,447.02	575,021.49	
13,789.00	90.80	359.40	9,448.41	4,046.71	4,046.00	-1,012.46	4,170.76	345.95	423,541.00	575,020.50	
13,883.00	91.00	359.20	9,446.94	4,140.69	4,139.98	-1,013.61	4,262.26	346.24	423,634.98	575,019.35	
13,979.00	87.90	357.70	9,447.86	4,236.64	4,235.93	-1,016.20	4,356.12	346.51	423,730.93	575,016.76	
14,073.00	90.30	359.40	9,449.34	4,330.59	4,329.88	-1,018.58	4,448.07	346.76	423,824.88	575,014.38	
14,167.00	88.30	359.10	9,450.48	4,424.57	4,423.86	-1,019.81	4,539.88	347.02	423,918.86	575,013.15	
14,243.00	86.90	358.20	9,453.67	4,500.48	4,499.77	-1,021.60	4,614.28	347.21	423,994.77	575,011.36	
Last Survey: 14243'MD, 9454'TVD - [RickDeckard#12H]LTP/BHL											

Company:	Marathon Oil	Local Co-ordinate Reference:	Well WXY #12H
Project:	Eddy County, NM	TVD Reference:	Well @ 2988.00usft (GL: 2963' + KB: 25' (Prec594))
Site:	Rick Deckard State 25-28-4 (12-14-15-18)	MD Reference:	Well @ 2988.00usft (GL: 2963' + KB: 25' (Prec594))
Well:	WXY #12H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	MWD 174'-14243' PTB 14298'	Database:	WellPlanner1

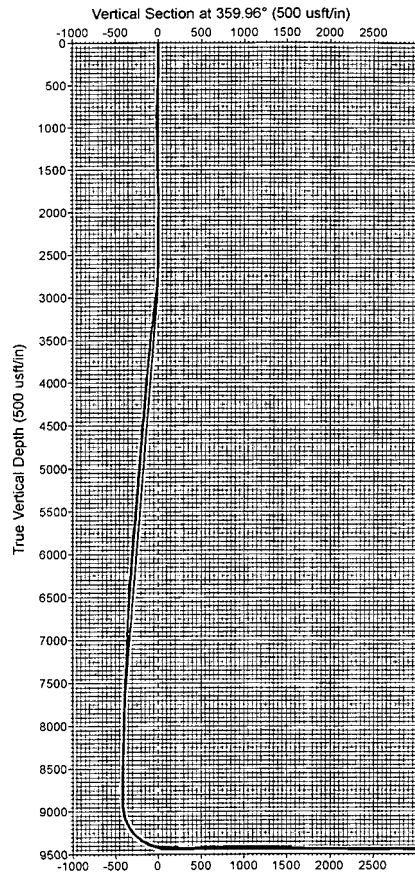
Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)	
14,298.00	86.90	358.20	9,456.64	4,555.37	4,554.66	-1,023.32	4,668.20	347.34	424,049.66	575,009.64	
PTB: 14298'MD, 9457'TVD											

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
14,243.00	9,453.67	4,499.77	-1,021.60	Last Survey: 14243'MD, 9454'TVD	
14,298.00	9,456.64	4,554.66	-1,023.32	PTB: 14298'MD, 9457'TVD	

Checked By: _____ Approved By: _____ Date: _____

Marathon Oil Corporation

Marathon Oil
Eddy County, NM
Rick Deckard State 25-28-4 (12-14-15-18)
WXY #12H
Plan #2
GL: 2963' + KB: 25' (Prec594)



RKB Elevation: Well @ 2988.00usft (GL: 2963' + KB: 25' (Prec594))

	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Spot
	0.00	0.00	419495.00	576032.96	32.153070	-104.087653	

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	Vsect
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	2500.00	0.00	0.00	2500.00	0.00	0.00	0.00	0.00
3	3100.00	12.00	247.82	3095.62	-23.63	-57.97	2.00	-23.59
4	7696.91	12.00	247.82	7592.08	-384.37	-943.03	0.00	-383.71
5	8296.91	0.00	0.00	8187.70	-408.00	-1001.00	2.00	-407.30
6	9027.21	0.00	0.00	8918.00	-408.00	-1001.00	0.00	-407.30
7	9845.37	90.00	359.96	9438.87	112.86	-1001.40	11.00	113.55
8	14242.01	90.00	359.96	9439.00	4509.49	-1004.78	0.00	4510.19
9	14287.01	90.00	359.96	9439.00	4554.49	-1004.81	0.00	4555.19

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting
[RickDeckard#12H]FTP	0.00	-178.93	-1001.25	419316.07	575031.71
[RickDeckard#12H]KOP	8918.00	-408.00	-1001.00	419087.00	575031.96
[RickDeckard#12H]LTP/BHL	9439.00	4509.49	-1004.78	424004.49	575028.18



PRODIRECTIONAL



Azimuths to Grid North
True North: -0.13°
Magnetic North: 7.13°

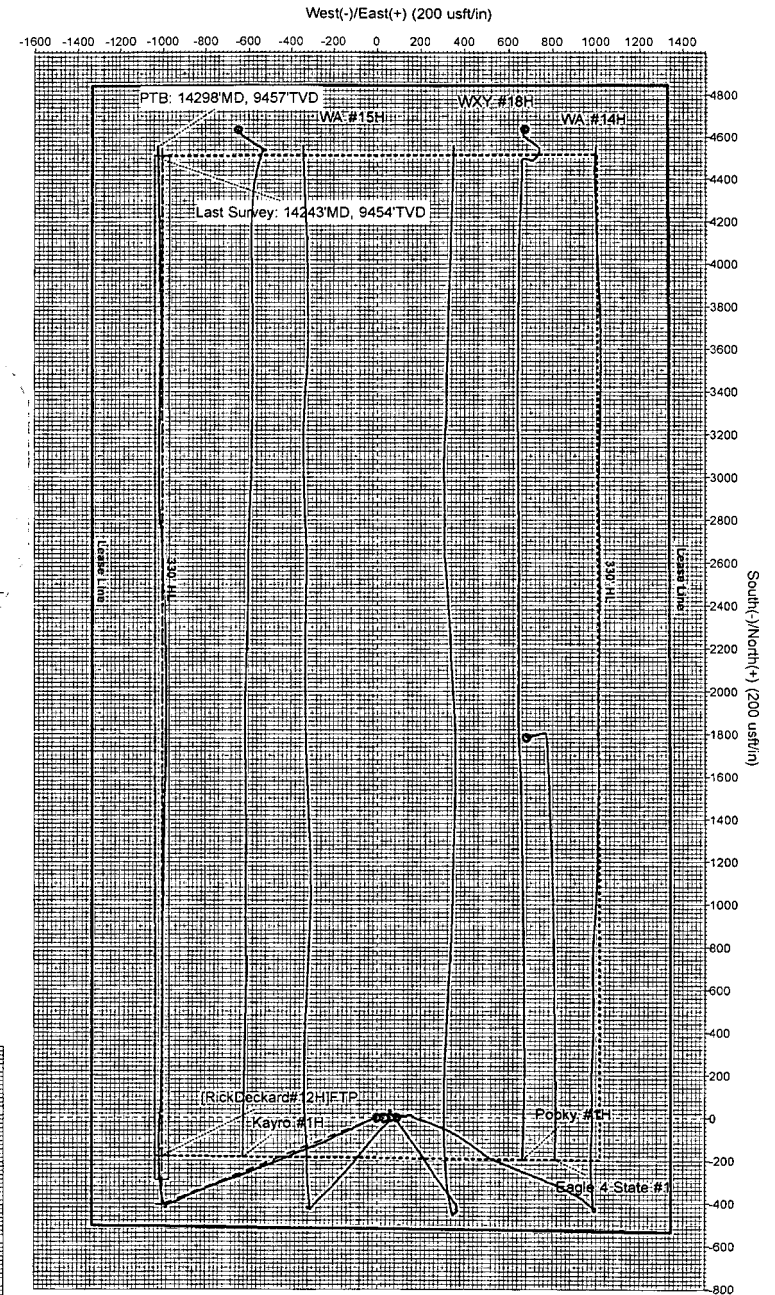
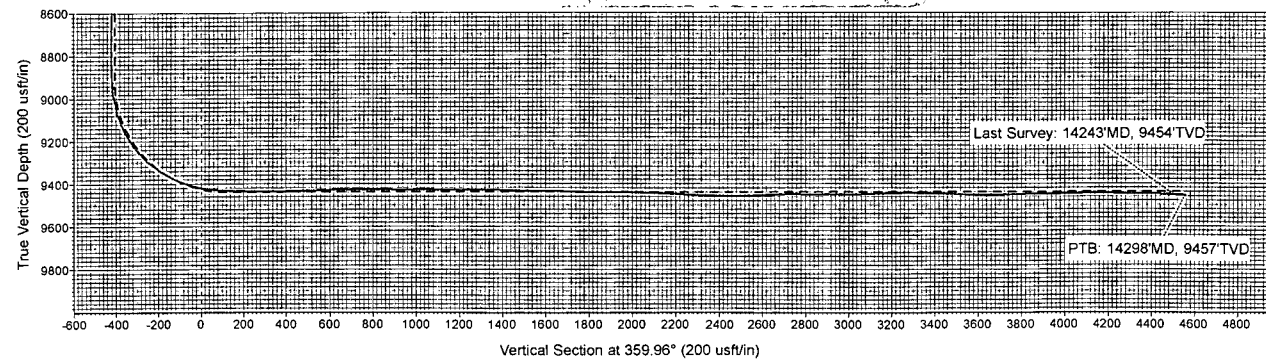
Magnetic Field
Strength: 47955.2nT
Dip Angle: 59.93°
Date: 8/24/2018
Model: USER DEFINED

Azimuth Corrections

Total Magnetic Corr. (M to G): 7.13°

Declination (M to T): 7.26° East

Target Line: 9439' TVD @ 0° VS: 90° INC





Wellbore Schematic

Well Name: RICK DECKARD STATE 25 28 4 WXY 12H

State/Province NEW MEXICO	Prospect Area MALAGA	Field Name	Well Subtype	Lat/Long Datum NAD27	Latitude (°) 32.153085	Longitude (°) -104.087623
Well Configuration Type HORIZONTAL	Well Objective EXPLOITATION	Well Status DRILLING	Ground Elevation (ft) 2,963.00	KB-Ground Distance (ft) 25.00		

HORIZONTAL - RICK DECKARD STATE 25 28 4 WXY 12H, 11/27/2018 1:31:57 PM

MD (ftKB)	TVD (ftKB)	Incl (°)	Vertical-schematic (actual)
24.9	24.9	0.6	
25.9	25.9	0.6	
26.3	26.3	0.6	
26.6	26.6	0.6	
145.0	145.0	0.6	
399.9	399.9	1.8	
401.2	401.2	1.8	
442.8	442.5	2.4	
444.2	444.1	2.5	
450.0	459.9	2.7	
2,513.4	2,513.6	3.0	
2,518.7	2,514.9	3.0	
2,558.4	2,556.5	3.5	
2,560.0	2,558.1	3.5	
2,573.1	2,573.2	3.7	
8,782.4	8,782.7	1.5	
8,785.7	8,785.0	1.5	
8,786.7	8,786.0	1.5	
8,791.2	8,791.2	1.5	
8,793.2	8,793.2	1.5	
9,741.5	9,421.1	79.8	
9,742.8	9,421.4	80.0	
9,754.4	9,426.2	83.7	
9,758.1	9,426.4	83.8	
9,759.9	9,427.8	84.9	
14,183.1	9,451.2	88.0	
14,182.2	9,451.6	87.8	
14,198.9	9,451.7	87.8	
14,200.1	9,451.9	87.7	
14,241.5	9,453.6	86.9	
14,243.1	9,453.7	86.9	
14,244.4	9,453.7	86.9	
14,255.2	9,456.0	86.9	
14,255.1	9,456.1	86.9	
14,297.9	9,456.6	86.9	

Directions to Well: FROM THE MARATHON OFFICE AT 4111 TIDWELL, CARLSBAD, NM, HEAD SOUTH ON TIDWELL RD TOWARD US HWY 285 N FOR 0.2 MILES. TURN LEFT ONTO US HWY 285 S, HEADING SOUTH, FOR 17.6 MILES TO A CALICHE ROAD. TURN RIGHT ONTO CALICHE ROAD, HEADING WEST, FOR 0.6 MILES TO CALICHE ROAD. TURN LEFT ONTO CALICHE ROAD, HEADING WEST, FOR 0.4 MILES TO THE PROPOSED LEASE ROAD FOR THE RICK DECKARD STATE 25 28 4 WXY #12H, WA #15, TB #14, WXY #18 WELL PAD LOCATION. TURN LEFT ONTO SAID PROPOSED LEASE ROAD, HEADING SOUTH, FOR 0.3 MILES. ENTERING THE NORTHEAST CORNER OF SAID WELL PAD LOCATION.