



Drilling Services
10000 West County Rd. 116
P.O. Box 61028
Midland, TX USA 79711
Tel. (432) 561-8892 Fax (432) 561-8895

Apache Corporation
303 Veterans Airpark Lane
Midland, TX, 79705

Date: May 29, 2018

Attention: John Vacek

Re: Apache Corporation
Well: Palmillo 14 15 State 205H
Eddy County, New Mexico

30-015-44667

NM OIL CONSERVATION
ARTESIA DISTRICT

OCT 22 2018

RECEIVED

Enclosed, please find the original survey performed on the referenced well by Precision Energy Services, Inc. (P-5 No. 676004), a Weatherford company. Other information required by your office is as follows:

Name & Title Of Surveyor	Well Number	Surveyed Depths	Dates Performed	Type of Survey
Jeff Johnson MWD Supervisor	205H	6,636 MD 12,438 MD	5/24/2018 5/29/2018	Measurement While Drilling

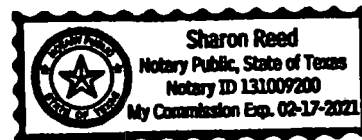
A notarized plan vs. actual is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.

Jeffery Johnson
MWD Ops. Coordinator

On this, the 30th day of May, 2018, before me a notary public, the undersigned officer, personally appeared Jeffery Johnson, known to me (or satisfactorily proven) to be the person whose name is subscribed to the within instrument, and acknowledged that he executed the same for the purposes therein contained.

In witness hereof, I hereunto set my hand and official seal.

Notary Public





5D Survey Report

Apache Corporation

Field Name: *Apache NM (Nad 83 NMEZ)*

Site Name: *Palmillo 14-15 State 205H*

Well Name: *Palmillo 14-15 State 205H*

File number: *13150786*

Survey: *Definitive survey*

29 May 2018



Weatherford®



Palmillo 14-15 State 205H

Field Name: Apache NM (Nad S3 (NMEZ))
Map Units: US ft
Company Name: Apache Corporation
Vertical Reference Datum (VRD): Mean Sea Level
Projected Coordinate System: NAD83 / New Mexico East (ftUS)
Comment:

Units: US ft
North Reference: Grid
Convergence Angle: 0.10

Site:
 Palmillo 14-15 State 205H
Elevation above MSL: 3433.00 US ft
Comment: Eddy Co., NM

Slot:
 Palmillo 14-15 State 205H
Slot TVD Reference: Ground Elevation
Elevation above MSL: 3433.00 US ft
Comment:

Well:
 Palmillo 14-15 State 205H
Type: Main well
UWI:
File Number: 13150786
Comment: H&P 482
Closure Distance: 5470.16 US ft
Closure Azimuth: 266.69°
Vertical Section: Position of Origin (Relative to Slot centre)
+N/-S: -0.00 US ft
+E/-W: 0.00 US ft
Az: 267.03°

Drill floor: Survey Name: Definitive Survey
Rig Height (Drill Floor): 26.00 US ft
Elevation above MSL: 3459.00 US ft
Inclination: 0.00°
Azimuth: 0.00°

Survey Name: Definitive Survey

Date: 15/Mar/2018
Survey Tool: See Survey Tool Ranges below.
Comment:
Company:

Magnetic Model:
Model Name: HDGM
Date: 25/May/2018
Field Strength: 48085.0 nT
Declination: 7.32°
Dip: 60.50°

Tie Point:
MD: 0.00 US ft
Inclination: 0.00°
Azimuth: 0.00°
TVD: 0.00 US ft
North Offset: -0.00 US ft
East Offset: 0.00 US ft

Survey Tool Ranges:

Name	Start MD(usft)	End MD(usft)	Source Survey
VES Gyro	0.00	6553.00	VES Gyro

SD Survey Report

Survey Tool Ranges:			
Name	Start MD(usrf)	End MD(usrf)	Source Survey
MWD 4	6553.00	6636.00	MWD 4
MWD 6	6636.00	7673.00	MWD 6
MWD 7	7673.00	12520.00	MWD 7

Wellpath created using minimum curvature.

Survey Points: (Relative to Slot centre)(TVD relative to Drill Floor)										
MD (usrf)	Inc (°)	API (°)	TD (usrf)	VS (usrf)	Roll (usrf)	Pitch (usrf)	YPR (usrf)	Heading (usrf)	Fastened (usrf)	Comment
6553.00	0.95	213.73	6552.17	7.17	22.34	-8.34	0.21	602226.04	596301.86	TieOn VES Gyro
6636.00	0.63	220.06	6635.16	7.90	21.41	-9.02	0.40	602225.11	596301.18	First WFT MWD SVY
6727.00	1.53	237.06	6726.15	9.29	20.37	-10.36	1.04	602224.07	596299.84	
6822.00	15.47	259.38	6819.88	23.01	17.33	-23.94	14.81	602221.03	596286.26	
6869.00	22.74	263.12	6864.26	38.31	15.08	-39.14	15.68	602218.78	596271.06	
6917.00	25.98	262.30	6907.98	58.05	12.56	-58.78	6.79	602216.26	596251.42	
6964.00	29.67	259.40	6949.54	79.85	9.04	-80.42	8.36	602212.74	596229.78	
7011.00	34.18	257.26	6989.43	104.40	3.99	-104.75	9.89	602207.69	596205.45	
7058.00	37.17	256.16	7027.60	131.36	-2.32	-131.42	6.51	602201.38	596178.78	
7106.00	39.18	256.74	7065.33	160.52	-9.27	-160.26	4.25	602194.43	596149.94	
7153.00	42.73	257.18	7100.82	190.85	-16.21	-190.27	7.58	602187.49	596119.93	
7200.00	47.94	257.39	7133.85	223.79	-23.56	-222.86	11.09	602180.14	596087.34	
7247.00	51.02	255.64	7164.39	258.90	-31.91	-257.60	7.14	602171.79	596052.60	
7295.00	54.59	253.67	7193.40	296.24	-42.04	-294.46	8.12	602161.66	596015.74	
7342.00	59.07	252.67	7219.11	334.42	-53.43	-332.10	9.70	602150.27	595978.10	
7389.00	62.76	253.51	7241.95	374.28	-65.37	-371.39	8.00	602138.33	595938.81	
7436.00	65.86	254.66	7262.32	415.55	-76.98	-412.12	6.95	602126.72	595898.08	
7484.00	67.69	254.95	7281.25	458.66	-88.54	-454.68	3.85	602115.16	595855.52	
7531.00	70.83	255.10	7297.89	501.65	-99.90	-497.14	6.69	602103.80	595813.06	
7578.00	75.86	257.69	7311.36	545.89	-110.47	-540.89	11.93	602093.23	595769.31	
7625.00	81.16	259.23	7320.72	591.41	-119.68	-586.00	11.72	602084.02	595724.20	
7673.00	84.75	259.75	7326.61	638.63	-128.36	-632.83	7.56	602075.34	595677.37	
7703.00	87.62	260.52	7328.60	668.35	-133.49	-662.32	9.90	602070.21	595647.88	
7795.00	92.72	259.97	7328.33	759.67	-149.07	-752.96	5.58	602054.63	595557.24	
7890.00	93.57	259.27	7323.12	853.73	-166.16	-846.26	1.16	602037.54	595463.94	
7985.00	94.98	258.79	7316.04	947.55	-184.19	-939.26	1.57	602019.51	595370.94	
8079.00	94.55	258.43	7308.23	1040.21	-202.69	-1031.09	0.60	602001.01	595279.11	
8174.00	93.57	259.34	7301.50	1134.01	-220.96	-1124.08	1.41	601982.74	595186.12	
8269.00	94.61	260.68	7294.73	1228.06	-237.40	-1217.39	1.78	601966.30	595092.81	
8363.00	94.61	261.98	7287.17	1321.29	-251.52	-1310.02	1.38	601952.18	595000.18	
8458.00	93.50	264.81	7280.45	1415.85	-262.42	-1404.14	3.19	601941.28	594906.06	
8552.00	92.87	268.29	7275.23	1509.69	-268.06	-1497.81	3.76	601935.64	594812.39	
8647.00	93.86	271.23	7269.65	1604.40	-268.46	-1592.63	3.26	601935.24	594717.57	
8742.00	91.61	272.91	7265.12	1698.92	-265.03	-1687.45	2.95	601938.67	594622.75	
8836.00	91.40	272.29	7262.65	1792.44	-260.77	-1781.32	0.70	601942.93	594528.88	
8931.00	91.75	271.93	7260.04	1887.03	-257.27	-1876.22	0.53	601946.43	594433.98	
9025.00	92.24	271.43	7256.77	1980.67	-254.52	-1970.12	0.74	601949.18	594340.08	
9120.00	90.42	271.48	7254.56	2075.35	-252.11	-2065.06	1.92	601951.59	594245.14	
9214.00	90.28	270.89	7253.99	2169.10	-250.16	-2159.04	0.65	601953.54	594151.16	
9309.00	90.35	270.68	7253.46	2263.90	-248.86	-2254.03	0.23	601954.84	594056.17	
9404.00	90.42	270.11	7252.83	2358.73	-248.21	-2349.03	0.60	601955.49	593961.17	
9498.00	90.28	269.83	7252.25	2452.61	-248.26	-2443.03	0.33	601955.44	593867.17	
9593.00	90.56	269.67	7251.56	2547.50	-248.67	-2538.02	0.34	601955.03	593772.18	
9687.00	92.39	269.08	7249.14	2641.38	-249.70	-2631.98	2.05	601954.00	593678.22	
9782.00	92.65	268.95	7244.96	2736.23	-251.33	-2726.87	0.31	601952.37	593583.33	
9876.00	92.95	269.46	7240.37	2830.05	-252.63	-2820.75	0.63	601951.07	593489.45	
9971.00	93.86	269.56	7234.72	2924.80	-253.44	-2915.58	0.96	601950.26	593394.62	
10066.00	93.84	271.38	7228.35	3019.41	-252.66	-3010.36	1.91	601951.04	593299.84	
10160.00	93.56	272.41	7222.28	3112.87	-249.56	-3104.11	1.13	601954.14	593206.09	

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SD 8.1.28 (64 bit) : 29 May 2018, 15:36:10 UTC-5

SD Survey Report

Survey Points: (Relative to Slot centre)(TVD relative to Drill Floor)									
TD TVD m	Drift m	Drift m	TVD TVD m	Drift TVD m	ALPHA ANGLE	LOGICAL ANGLE	Dist m	Weighted US m	Weighted US m
10255.00	91.33	271.54	7218.23	3207.42	-246.29	-3198.96	2.52	601957.41	593111.24
10349.00	89.30	269.99	7217.71	3301.22	-245.04	-3292.94	2.72	601958.66	593017.26
10444.00	89.51	270.20	7218.70	3396.07	-244.88	-3387.94	0.31	601958.82	592922.26
10538.00	90.07	270.62	7219.04	3489.91	-244.21	-3481.93	0.74	601959.49	592828.27
10633.00	88.32	271.46	7220.38	3584.66	-242.48	-3576.90	2.04	601961.22	592733.30
10728.00	88.60	271.31	7222.93	3679.36	-240.19	-3671.84	0.33	601963.51	592638.36
10822.00	88.95	271.60	7224.94	3773.05	-237.80	-3765.79	0.48	601965.90	592544.41
10917.00	88.95	270.23	7226.68	3867.82	-236.28	-3860.76	1.44	601967.42	592449.44
11011.00	87.97	268.80	7229.21	3961.69	-237.08	-3954.72	1.84	601966.62	592355.48
11106.00	87.34	268.02	7233.09	4056.58	-239.71	-4049.60	1.05	601963.99	592260.60
11201.00	86.70	267.48	7238.03	4151.45	-243.44	-4144.40	0.88	601960.26	592165.80
11295.00	87.07	267.06	7243.14	4245.31	-247.91	-4238.15	0.59	601955.79	592072.05
11390.00	88.25	266.12	7247.02	4340.22	-253.55	-4332.90	1.59	601950.15	591977.30
11484.00	89.37	265.78	7248.97	4434.18	-260.19	-4426.65	1.25	601943.51	591883.55
11579.00	89.16	265.82	7250.19	4529.15	-267.15	-4521.38	0.23	601936.55	591788.82
11674.00	90.77	266.45	7250.25	4624.14	-273.55	-4616.16	1.82	601930.15	591694.04
11768.00	91.26	266.13	7248.58	4718.11	-279.63	-4709.95	0.62	601924.07	591600.25
11863.00	90.14	267.59	7247.42	4813.10	-284.84	-4804.80	1.94	601918.86	591505.40
11957.00	90.00	267.13	7247.31	4907.10	-289.17	-4898.70	0.51	601914.53	591411.50
12052.00	89.51	266.29	7247.71	5002.10	-294.62	-4993.54	1.02	601909.08	591316.66
12146.00	89.51	266.85	7248.52	5096.09	-300.24	-5087.37	0.60	601903.46	591222.83
12241.00	90.14	268.24	7248.81	5191.08	-304.31	-5182.28	1.61	601899.39	591127.92
12335.00	89.44	267.53	7249.15	5285.07	-307.78	-5276.21	1.06	601895.92	591033.99
12430.00	89.86	267.42	7249.73	5380.07	-311.96	-5371.12	0.46	601891.74	590939.08
12438.00	90.00	267.30	7249.74	5388.07	-312.33	-5379.11	2.30	601891.37	590931.09
12520.00	90.00	267.30	7249.74	5470.07	-316.20	-5461.02	0.00	601887.50	590849.18

Last WFT
MWD Svy
Proj to TD