

NM OIL CONSERVATION
ARTESIA DISTRICT

OCT 02 2018

RECEIVED



Weatherford

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: June 19, 2018

30.015-44982

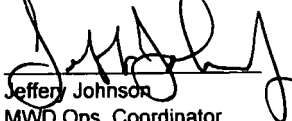
Attention: John Vacek

Re: Apache Corporation
Well: Cedar Lake Fed CA 953H
Eddy County, New Mexico

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	953H	4,604 MD 15,244 MD	6/11/2018 6/18/2018	Measurement While Drilling

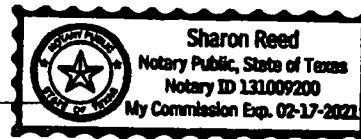
A notarized plan vs. actual is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.


Jeffery Johnson
MWD Ops. Coordinator

On this, the 19th day of June, 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: *Cedar Lake Fed CA (953H, 954H)*

Well Name: *Cedar Lake Fed CA 953H*

File number: *13221198*

Survey: *Definitive survey*

19 June 2018




Weatherford
Cedar Lake Fed CA 953H

Field Name: Apache NM (Nad S3 NHEZ)
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: 0.25

Site:
 Cedar Lake Fed CA (953H, 954H)
Elevation above MSL: 3875.00 US ft
Comment: Eddy Co., New Mexico

Slot:
 Cedar Lake Fed CA 953H
Slot TVD Reference: Ground Elevation
Elevation above MSL: 3875.00 US ft
Comment:

Well:
 Cedar Lake Fed CA 953H
Type: Main well
UWI:
File Number: 13221198
Comment: H&P 482
Closure Distance: 10419.5US ft
Closure Azimuth: 268.44°
Vertical Section: Position of Origin (Relative to Slot centre)
+N/-S: -0.00 US ft
+E/-W: 0.00 US ft
Az: 268.48°

Drill floor: Survey Name: Definitive Survey
Rig Height (Drill Floor): 26.00US ft
Elevation above MSL: 3901.00US ft
Inclination: 0.00°
Azimuth: 0.00°

Survey Name: Definitive Survey

Date: 02/Apr/2018
Survey Tool: See Survey
Comment:
Company:
 Tool Ranges below.

Magnetic Model:
Model Name: Surcon-
Date: 03/Jun/2018
Field Strength: 48317.0nT
Declination: 7.31°
Dip: 60.75°
MVHD

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(US ft)	End MD(US ft)	Source Survey
VES Gyro	0.00	4436.00	VES Gyro
MWD + HDGM + Sag Corr + RS_OW	4436.00	4698.00	MWD 3
MWD + HDGM + Sag Corr + RS_OW	4698.00	5361.00	MWD 4
MWD + HDGM + Sag Corr + RS_OW	5361.00	15305.00	MWD 5

5D Survey Report

Wellpath created using minimum curvature.

Survey Points: (Relative to Slot centre)(TVD relative to Drill Floor)										
TD (US ft)	Inc (°)	Alt (ft)	True (US ft)	VS (US ft)	Horizontal (US ft)	Vertical (US ft)	DIS (ft 1000 ft)	Horizontal (US ft)	Vertical (US ft)	Comment
4436.00	0.88	321.26	4435.67	6.49	-13.92	-6.12	1.29	674417.10	680043.79	VES Gyro TieOn
4604.00	2.24	290.62	4603.60	10.31	-11.76	-10.00	0.92	674419.26	680039.91	First WFT MWD Svy
4651.00	6.82	280.40	4650.45	13.90	-10.93	-13.61	9.86	674420.09	680036.30	
4698.00	10.64	278.22	4696.89	20.91	-9.81	-20.65	8.16	674421.22	680029.26	
4745.00	15.62	279.54	4742.65	31.40	-8.14	-31.19	10.61	674422.89	680018.72	
4793.00	22.39	278.63	4788.01	46.76	-5.69	-46.62	14.12	674425.33	680003.29	
4840.00	30.72	277.37	4830.01	67.47	-2.80	-67.42	17.76	674428.22	679982.50	
4888.00	35.04	275.51	4870.31	93.27	0.09	-93.30	9.24	674431.12	679956.61	
4935.00	39.07	274.17	4907.82	121.41	2.47	-121.52	8.74	674433.49	679928.39	
4982.00	43.50	274.29	4943.12	152.26	4.76	-152.44	9.43	674435.78	679897.48	
5029.00	48.22	271.73	4975.85	185.87	6.50	-186.10	10.77	674437.52	679863.81	
5077.00	55.48	268.33	5005.49	223.57	6.46	-223.82	16.11	674437.48	679826.09	
5124.00	59.89	268.00	5030.60	263.28	5.18	-263.51	9.40	674436.21	679786.40	
5171.00	63.54	268.57	5052.87	304.66	3.95	-304.87	7.84	674434.97	679745.04	
5218.00	66.63	268.48	5072.67	347.28	2.85	-347.48	6.58	674433.88	679702.43	
5266.00	69.50	269.23	5090.60	391.80	1.97	-391.99	6.15	674432.99	679657.92	
5313.00	74.42	268.99	5105.15	436.47	1.27	-436.66	10.48	674432.30	679613.25	
5361.00	81.58	268.48	5115.12	483.39	0.23	-483.57	14.95	674431.26	679566.34	
5401.00	84.18	267.00	5120.08	523.07	-1.33	-523.22	7.47	674429.69	679526.69	
5495.00	88.74	263.79	5125.88	616.72	-8.87	-616.70	5.93	674422.15	679433.21	
5590.00	90.84	262.80	5126.23	711.33	-19.96	-711.05	2.44	674411.06	679338.86	
5684.00	91.12	262.32	5124.62	804.81	-32.13	-804.24	0.59	674398.89	679245.67	
5779.00	90.56	265.24	5123.23	899.47	-42.42	-898.66	3.13	674388.60	679151.25	
5874.00	90.21	267.03	5122.59	994.38	-48.83	-993.44	1.92	674382.20	679056.47	
5968.00	90.35	267.49	5122.13	1088.36	-53.32	-1087.33	0.51	674377.71	678962.58	
6063.00	92.38	268.76	5119.87	1183.33	-56.43	-1182.25	2.52	674374.60	678867.67	
6157.00	92.10	268.76	5116.20	1277.25	-58.46	-1276.15	0.30	674372.57	678773.76	
6252.00	92.17	268.38	5112.66	1372.19	-60.83	-1371.06	0.41	674370.20	678678.86	
6346.00	92.59	270.33	5108.75	1466.09	-61.89	-1464.96	2.12	674369.14	678584.95	
6441.00	92.52	270.05	5104.52	1560.95	-61.57	-1559.87	0.30	674369.45	678490.04	
6535.00	92.38	270.31	5100.50	1654.83	-61.28	-1653.78	0.31	674369.75	678396.13	
6630.00	90.70	270.54	5097.95	1749.73	-60.57	-1748.74	1.78	674370.45	678301.17	
6725.00	90.14	270.56	5097.25	1844.67	-59.66	-1843.73	0.59	674371.37	678206.18	
6819.00	89.86	270.38	5097.25	1938.61	-58.89	-1937.73	0.35	674372.14	678112.18	
6914.00	89.93	270.37	5097.43	2033.56	-58.27	-2032.73	0.07	674372.76	678017.18	
7008.00	90.21	268.83	5097.31	2127.54	-58.92	-2126.72	1.67	674372.10	677923.19	
7103.00	89.86	268.19	5097.25	2222.54	-61.39	-2221.69	0.77	674369.63	677828.22	
7197.00	90.84	267.74	5096.68	2316.53	-64.73	-2315.63	1.15	674366.29	677734.28	
7292.00	91.05	267.09	5095.11	2411.50	-69.01	-2410.52	0.72	674362.01	677639.39	
7386.00	92.80	266.99	5091.95	2505.41	-73.87	-2504.34	1.86	674357.16	677545.57	
7481.00	93.78	267.21	5086.50	2600.23	-78.66	-2599.06	1.06	674352.36	677450.85	
7575.00	93.64	268.66	5080.42	2694.03	-82.04	-2692.80	1.55	674348.98	677357.11	
7670.00	91.68	269.59	5076.01	2788.91	-83.49	-2787.68	2.28	674347.53	677262.23	
7765.00	91.26	270.04	5073.57	2883.85	-83.80	-2882.65	0.65	674347.23	677167.27	
7859.00	90.56	269.81	5072.08	2977.81	-83.92	-2976.63	0.78	674347.10	677073.28	
7954.00	92.03	269.38	5069.93	3072.77	-84.59	-3071.60	1.61	674346.43	676978.31	
8049.00	91.96	269.06	5066.63	3167.70	-85.89	-3166.54	0.34	674345.14	676883.37	
8143.00	91.47	268.53	5063.81	3261.66	-87.86	-3260.47	0.77	674343.16	676789.44	
8238.00	91.61	268.30	5061.26	3356.62	-90.49	-3355.40	0.28	674340.54	676694.51	
8332.00	91.33	268.11	5058.85	3450.59	-93.43	-3449.33	0.36	674337.59	676600.59	
8427.00	91.68	267.89	5056.35	3545.55	-96.75	-3544.23	0.44	674334.28	676505.68	
8522.00	91.68	267.57	5053.57	3640.50	-100.51	-3639.12	0.34	674330.52	676410.79	
8616.00	91.82	267.28	5050.70	3734.44	-104.73	-3732.98	0.34	674326.30	676316.93	
8711.00	91.82	268.68	5047.68	3829.39	-108.08	-3827.87	1.47	674322.95	676222.04	
8806.00	88.74	268.93	5047.22	3924.38	-110.06	-3922.84	3.25	674320.97	676127.07	
8900.00	88.88	269.54	5049.17	4018.35	-111.31	-4016.81	0.67	674319.71	676033.10	

SD Survey Report

Survey Points: (Relative to Slot centre)(TVD relative to Drill Floor)										
True NUS RT	Inc. °N	Az °E	TVD m	VS m/s	Pressure (kPa)	Pressure (kPa)	True NUS RT	Pressure (kPa)	Logging (kPa)	Comment
8995.00	88.88	269.37	5051.03	4113.32	-112.21	-4111.79	0.18	674318.81	675938.12	
9089.00	89.23	269.49	5052.58	4207.29	-113.15	-4205.77	0.39	674317.87	675844.14	
9184.00	89.23	269.49	5053.85	4302.27	-114.00	-4300.76	0.00	674317.03	675749.15	
9279.00	88.88	269.37	5055.42	4397.24	-114.94	-4395.74	0.39	674316.08	675654.17	
9373.00	89.93	268.22	5056.40	4491.23	-116.92	-4489.71	1.66	674314.11	675560.20	
9468.00	90.21	268.38	5056.28	4586.23	-119.74	-4584.67	0.34	674311.29	675465.24	
9562.00	91.96	268.10	5054.50	4680.21	-122.62	-4678.60	1.89	674308.40	675371.31	
9657.00	92.45	267.97	5050.84	4775.14	-125.88	-4773.48	0.53	674305.15	675276.43	
9752.00	92.52	267.71	5046.72	4870.04	-129.45	-4868.32	0.28	674301.57	675181.59	
9846.00	92.73	267.59	5042.42	4963.93	-133.30	-4962.14	0.26	674297.72	675087.77	
9941.00	92.80	267.73	5037.84	5058.81	-137.18	-5056.95	0.16	674293.85	674992.96	
10035.00	92.59	266.50	5033.42	5152.68	-141.90	-5150.73	1.33	674289.12	674899.18	
10130.00	92.52	266.74	5029.18	5247.53	-147.50	-5245.47	0.26	674283.52	674804.44	
10225.00	92.17	267.79	5025.29	5342.43	-152.03	-5340.28	1.16	674279.00	674709.63	
10319.00	91.82	267.67	5022.02	5436.37	-155.75	-5434.15	0.39	674275.27	674615.76	
10414.00	91.05	269.19	5019.64	5531.33	-158.35	-5529.08	1.79	674272.67	674520.83	
10509.00	91.05	269.38	5017.90	5626.31	-159.54	-5624.06	0.20	674271.49	674425.86	
10604.00	91.33	269.18	5015.93	5721.28	-160.73	-5719.03	0.36	674270.29	674330.88	
10698.00	91.05	271.08	5013.98	5815.21	-160.52	-5813.00	2.04	674270.51	674236.91	
10793.00	91.26	271.46	5012.06	5910.08	-158.41	-5907.96	0.46	674272.61	674141.95	
10885.00	90.63	271.52	5010.55	6001.94	-156.02	-5999.92	0.69	674275.00	674050.00	
10977.00	90.63	272.37	5009.53	6093.77	-152.90	-6091.86	0.92	674278.13	673958.06	
11069.00	91.33	271.25	5007.96	6185.60	-149.99	-6183.79	1.44	674281.03	673866.12	
11161.00	92.17	269.69	5005.15	6277.50	-149.24	-6275.74	1.93	674281.79	673774.17	
11253.00	92.45	268.13	5001.44	6369.41	-150.99	-6367.65	1.72	674280.04	673682.26	
11344.00	90.49	266.34	4999.11	6460.36	-155.37	-6458.51	2.92	674275.65	673591.40	
11436.00	90.14	265.85	4998.60	6552.27	-161.64	-6550.29	0.65	674269.38	673499.62	
11528.00	90.07	265.39	4998.43	6644.16	-168.67	-6642.02	0.51	674262.36	673407.89	
11619.00	90.42	265.50	4998.04	6735.03	-175.89	-6732.73	0.40	674255.13	673317.18	
11710.00	90.70	265.14	4997.15	6825.89	-183.32	-6823.43	0.50	674247.71	673226.49	
11802.00	91.40	265.57	4995.47	6917.73	-190.77	-6915.11	0.89	674240.26	673134.80	
11894.00	90.77	268.37	4993.73	7009.68	-195.63	-7006.95	3.12	674235.40	673042.96	
11987.00	91.05	268.53	4992.25	7102.66	-198.14	-7099.91	0.35	674232.88	672950.00	
12078.00	91.47	268.60	4990.25	7193.64	-200.42	-7190.86	0.47	674230.60	672859.06	
12169.00	91.89	268.16	4987.58	7284.60	-202.99	-7281.78	0.67	674228.03	672768.13	
12262.00	90.42	270.15	4985.71	7377.57	-204.36	-7374.74	2.66	674226.66	672675.17	
12354.00	90.56	270.05	4984.92	7469.53	-204.20	-7466.74	0.19	674226.82	672583.17	
12447.00	90.63	269.83	4983.95	7562.49	-204.30	-7559.73	0.25	674226.72	672490.18	
12538.00	90.70	269.95	4982.90	7653.46	-204.48	-7650.73	0.15	674226.55	672399.18	
12630.00	91.19	269.66	4981.38	7745.42	-204.79	-7742.72	0.62	674226.24	672307.20	
12723.00	91.19	269.46	4979.45	7838.39	-205.50	-7835.69	0.22	674225.52	672214.22	
12815.00	91.26	269.29	4977.48	7930.35	-206.51	-7927.67	0.20	674224.52	672122.25	
12908.00	91.75	269.12	4975.04	8023.31	-207.80	-8020.62	0.56	674223.23	672029.29	
13000.00	91.54	268.92	4972.40	8115.27	-209.37	-8112.57	0.32	674221.66	671937.34	
13093.00	91.75	268.79	4969.73	8208.23	-211.23	-8205.52	0.27	674219.80	671844.39	
13185.00	92.17	268.70	4966.58	8300.18	-213.24	-8297.44	0.47	674217.78	671752.47	
13278.00	92.38	268.54	4962.89	8393.10	-215.48	-8390.34	0.28	674215.55	671659.57	
13372.00	92.73	267.96	4958.70	8487.01	-218.35	-8484.20	0.72	674212.68	671565.71	
13467.00	91.05	267.19	4955.57	8581.94	-222.36	-8579.06	1.95	674208.66	671470.85	
13561.00	91.47	267.43	4953.50	8675.90	-226.77	-8672.93	0.51	674204.25	671376.98	
13656.00	91.89	267.69	4950.71	8770.84	-230.82	-8767.81	0.52	674200.21	671282.10	
13751.00	90.00	268.04	4949.15	8865.82	-234.35	-8862.72	2.02	674196.67	671187.19	
13845.00	90.28	267.87	4948.92	8959.82	-237.71	-8956.66	0.35	674193.32	671093.25	
13940.00	90.77	268.24	4948.05	9054.81	-240.93	-9051.60	0.65	674190.09	670998.31	
14034.00	91.33	268.57	4946.32	9148.79	-243.55	-9145.55	0.69	674187.48	670904.36	
14129.00	91.26	267.92	4944.18	9243.77	-246.46	-9240.48	0.69	674184.57	670809.43	
14223.00	91.61	267.53	4941.82	9337.73	-250.19	-9334.38	0.56	674180.84	670715.53	
14318.00	91.96	267.49	4938.86	9432.67	-254.31	-9429.24	0.37	674176.71	670620.67	
14412.00	92.03	266.88	4935.59	9526.59	-258.93	-9523.07	0.65	674172.10	670526.84	

5D Survey Report

Survey Points: (Relative to Slot centre)(TVD relative to Drill Floor)										
TD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	Gravel (US ft)	Ember (US ft)	Dr S (+ 10205 ft)	Bottom (US ft)	Eastad (US ft)	Comment
14507.00	90.49	268.25	4933.50	9621.55	-262.96	-9617.96	2.17	674168.06	670431.95	
14602.00	90.42	268.29	4932.75	9716.55	-265.83	-9712.91	0.08	674165.20	670337.00	
14696.00	90.98	268.43	4931.60	9810.54	-268.52	-9806.87	0.61	674162.51	670243.05	
14791.00	91.68	268.52	4929.39	9905.51	-271.05	-9901.81	0.74	674159.98	670148.10	
14885.00	89.65	268.97	4928.30	9999.50	-273.11	-9995.77	2.21	674157.92	670054.14	
14980.00	89.72	268.75	4928.83	10094.50	-275.00	-10090.75	0.24	674156.03	669959.16	
15075.00	90.00	268.73	4929.06	10189.49	-277.08	-10185.73	0.30	674153.94	669864.18	
15169.00	90.14	268.33	4928.94	10283.49	-279.50	-10279.70	0.45	674151.53	669770.21	
15244.00	90.28	268.40	4928.67	10358.49	-281.64	-10354.67	0.21	674149.39	669695.24	Last WFT MWD Svy
15305.00	90.28	268.40	4928.37	10419.49	-283.34	-10415.64	0.00	674147.69	669634.27	Proj. to TD