



Drilling Services  
 10000 West County Rd. 116  
 P.O. Box 61028  
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Apache Corporation  
 303 Veterans Airpark Lane  
 Midland, TX, 79705

Date: June 5, 2019

Attention: John Vacek

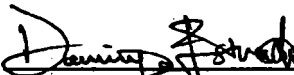
Re: Apache Corporation  
 Well: Ghost Rider 22-15 Fed Com 204H Lat  
 Lea County, New Mexico

30-025-45771  
 O 22 245 32E 431 FSL + 2210 FEL (SURF.)  
 J 15 245 32E 2579 FSL + 2301 FEL (BH)

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:

<u>Name &amp; Title Of Surveyor</u>	<u>Well Number</u>	<u>Surveyed Depths</u>	<u>Dates Performed</u>	<u>Type of Survey</u>
Jeff Johnson MWD Ops. Coordinator	204H Lat	10,532 MD 18,023 MD	5/22/2019 5/31/2019	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.

  
 Domingo Estrada  
 MWD Ops. Coordinator

On this, the 6<sup>th</sup> day of June, 2019, before me a notary public, the undersigned officer, personally appeared Domingo Estrada, 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



Survey Report



**5D Survey Report**

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**Apache Corporation**

**Field Name:** Apache NM (Nad 83 NMEZ)  
**Site Name:** Ghost Rider Pad 2S  
**Well Name:** Ghost Rider 22-15 FED COM 204H Lat  
**File number:** 13706246  
**Survey:** Definitive survey

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5 June 2019

30-025-45771

O 22 245 32E 431 FSL + 2210 FEL (Surf.)  
J 15 245 32E 2579 FSL + 2301 FEL (BH)



**Weatherford®**

# Apache



## Ghost Rider 22-15 FED COM 204H Lat

<b>Field Name:</b> Apache NM (Nad 83 NMEZ)	<b>Map Units:</b> US ft <b>Vertical Reference Datum (VRD):</b> Mean Sea Level <b>Projected Coordinate System:</b> NAD83 / New Mexico East (ftUS) <b>Comment:</b>	<b>Company Name:</b> Apache Corporation
<b>Site:</b> Ghost Rider Pad 2S	<b>Units:</b> US ft <b>Position:</b> Elevation above MSL: 3597.00 US ft <b>Comment:</b> Lea Co., NM	<b>North Reference:</b> Grid <b>Northing:</b> 435972.30 US ft <b>Easting:</b> 749076.20 US ft <b>Convergence Angle:</b> 0.36 <b>Latitude:</b> 32.196781772 <b>Longitude:</b> -103.661751089
<b>Slot:</b> Ghost Rider 22-15 FED COM 204H	<b>Position (Relative to Site Centre)</b> +N/-S: 76.70 US ft +E/-W: 193.70 US ft <b>Slot TVD Reference:</b> Ground Elevation Elevation above MSL: 3597.00 US ft <b>Comment:</b>	<b>Northing:</b> 436049.00 US ft <b>Easting:</b> 749269.90 US ft <b>Latitude:</b> 32.196989273 <b>Longitude:</b> -103.661123379
<b>Well:</b> Ghost Rider 22-15 FED COM 204H Lat	<b>Type:</b> Sidetrack <b>Parent:</b> Ghost Rider 22-15 FED COM 204H Pilot <b>File Number:</b> 13706246 <b>Closure Distance:</b> 7429.41 US ft <b>Vertical Section: Position of Origin (Relative to Slot centre)</b> +N/-S: 0.00 US ft	<b>UWI:</b> <b>Tie Point Method:</b> MD <b>Comment:</b> H&P 482 <b>Closure Azimuth:</b> 358.97° <b>Az:</b> 358.90°

**Drill floor: Survey Name:** Definitive Survey  
**Rig Height (Drill Floor):** 26.00 US ft **Elevation above MSL:** 3623.00 US ft **Inclination:** 0.00° **Azimuth:** 0.00°

### Survey Name: Definitive Survey

**Date:** 09/Jul/2018 **Survey Tool:** See Survey Tool Ranges below. **Comment:** **Company:**

### Magnetic Model:

**Model Name:** Surcon IFR **Date:** 18/Apr/2019 **Field Strength:** 47887.0nT **Declination:** 6.80° **Dip:** 59.89°

**Tie Point:**  
**MD: 10327.00 US ft**    **Inclination: 0.49°**    **Azimuth: 244.78°**    **TVD: 10326.26 US ft**    **North Offset: -4.67 US ft**    **East Offset: -4.71 US ft**

**Survey Tool Ranges:**

Name	Start MD(usft)	End MD(usft)	Source Survey
VES Gyroflex V3	0.00	10327.00	VES Gyro
MWD + IFR + MS	10327.00	11270.00	WFT MWD 06
MWD + IFR + Sag Corr + MS	11270.00	18087.00	WFT MWD 07

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
10327.00	0.49	244.78	10326.26	-4.58	-4.67	-4.71	0.69	436044.33	749265.19	Tie on OH VES Gyro
10532.00	24.79	343.20	10524.94	37.09	36.75	-18.14	12.13	436085.75	749251.76	First WFT MWD Svy
10564.00	29.25	344.96	10553.44	51.15	50.73	-22.11	14.16	436099.73	749247.79	
10611.00	33.52	348.76	10593.56	75.08	74.56	-27.62	10.01	436123.56	749242.28	
10658.00	37.34	351.41	10631.85	102.00	101.40	-32.28	8.76	436150.40	749237.62	
10705.00	41.11	351.03	10668.25	131.45	130.76	-36.82	8.04	436179.76	749233.08	
10752.00	45.28	351.39	10702.51	163.32	162.55	-41.73	8.89	436211.55	749228.17	
10799.00	49.14	350.78	10734.43	197.48	196.62	-47.08	8.27	436245.62	749222.82	
10846.00	51.40	349.07	10764.47	233.18	232.20	-53.42	5.56	436281.20	749216.48	
10893.00	53.78	348.99	10793.02	269.96	268.85	-60.52	5.07	436317.85	749209.38	
10941.00	59.79	349.44	10819.30	309.53	308.28	-68.03	12.55	436357.28	749201.87	
10988.00	63.85	350.33	10841.49	350.44	349.05	-75.29	8.80	436398.05	749194.61	
11035.00	68.88	351.04	10860.33	393.04	391.53	-82.26	10.79	436440.53	749187.64	
11082.00	72.29	351.26	10875.95	436.95	435.32	-89.07	7.27	436484.32	749180.83	
11129.00	75.28	351.64	10889.08	481.70	479.95	-95.78	6.41	436528.95	749174.12	
11176.00	78.02	352.89	10899.93	527.12	525.26	-101.93	6.38	436574.26	749167.97	
11223.00	81.22	354.00	10908.39	573.13	571.18	-107.21	7.19	436620.18	749162.69	
11270.00	84.95	354.63	10914.05	619.63	617.60	-111.83	8.05	436666.60	749158.07	
11333.00	88.91	354.89	10917.43	682.37	680.23	-117.57	6.30	436729.23	749152.33	
11427.00	92.20	355.22	10916.52	776.14	773.87	-125.67	3.52	436822.87	749144.23	
11522.00	92.83	354.70	10912.35	870.82	868.41	-134.01	0.86	436917.41	749135.89	
11617.00	92.27	355.55	10908.12	965.52	962.97	-142.07	1.07	437011.97	749127.83	
11711.00	90.24	356.51	10906.06	1059.37	1056.71	-148.58	2.39	437105.71	749121.32	
11806.00	90.24	358.28	10905.66	1154.34	1151.61	-152.90	1.86	437200.61	749117.00	
11900.00	90.17	359.44	10905.33	1248.33	1245.59	-154.77	1.24	437294.59	749115.13	
11994.00	90.80	358.62	10904.53	1342.33	1339.57	-156.36	1.10	437388.57	749113.54	
12089.00	92.13	359.78	10902.10	1437.29	1434.53	-157.69	1.86	437483.53	749112.21	
12183.00	91.92	359.71	10898.78	1531.22	1528.47	-158.10	0.24	437577.47	749111.80	
12277.00	91.08	0.93	10896.32	1625.16	1622.43	-157.58	1.58	437671.43	749112.32	
12372.00	92.41	3.08	10893.43	1719.97	1717.32	-154.26	2.66	437766.32	749115.64	
12466.00	95.29	3.80	10887.12	1813.45	1810.93	-148.63	3.16	437859.93	749121.27	
12560.00	94.94	1.65	10878.73	1906.86	1904.45	-144.18	2.31	437953.45	749125.72	
12655.00	90.73	0.22	10874.04	2001.66	1999.29	-142.64	4.68	438048.29	749127.26	
12750.00	91.08	1.36	10872.54	2096.60	2094.27	-141.33	1.26	438143.27	749128.57	
12844.00	89.33	0.73	10872.20	2190.53	2188.25	-139.61	1.98	438237.25	749130.29	
12939.00	90.73	1.04	10872.15	2285.47	2283.24	-138.14	1.51	438332.24	749131.76	
13033.00	91.64	1.35	10870.21	2379.37	2377.19	-136.18	1.02	438426.19	749133.72	
13128.00	90.80	358.48	10868.18	2474.32	2472.16	-136.33	3.15	438521.16	749133.57	
13222.00	91.92	358.55	10865.95	2568.29	2566.10	-138.76	1.19	438615.10	749131.14	
13316.00	93.25	358.50	10861.71	2662.19	2659.97	-141.18	1.42	438708.97	749128.72	
13410.00	92.90	358.76	10856.67	2756.06	2753.81	-143.42	0.46	438802.81	749126.48	
13505.00	93.11	0.06	10851.69	2850.92	2848.67	-144.40	1.38	438897.67	749125.50	
13599.00	91.43	1.11	10847.97	2944.80	2942.59	-143.44	2.11	438991.59	749126.46	
13694.00	93.11	1.99	10844.20	3039.62	3037.48	-140.87	2.00	439086.48	749129.03	
13788.00	91.36	0.35	10840.54	3133.47	3131.38	-138.96	2.55	439180.38	749130.94	
13882.00	91.22	359.61	10838.42	3227.43	3225.35	-138.99	0.80	439274.35	749130.91	

## Survey Points

Survey Points: (Relative to Slot centre)(TVD relative to Drill Floor)											
#D (US ft)	Inc (°)	As (°)	TVD (US ft)	VS (US ft)	N. Offset (US ft)	E. Offset (US ft)	DLS (%/100US ft)	Northing (US ft)	Easting (US ft)	Comment	
13977.00	90.17	359.33	10837.27	3322.42	3320.34	-139.87	1.14	439369.34	749130.03		
14071.00	90.17	359.79	10836.99	3416.41	3414.34	-140.59	0.49	439463.34	749129.31		
14165.00	90.52	359.64	10836.42	3510.40	3508.34	-141.06	0.41	439557.34	749128.84		
14260.00	90.10	358.54	10835.91	3605.39	3603.32	-142.57	1.24	439652.32	749127.33		
14354.00	90.38	358.15	10835.52	3699.39	3697.28	-145.28	0.51	439746.28	749124.62		
14448.00	91.01	357.64	10834.38	3793.37	3791.21	-148.73	0.86	439840.21	749121.17		
14542.00	91.43	359.53	10832.37	3887.34	3885.15	-151.05	2.06	439934.15	749118.85		
14636.00	90.60	1.52	10830.71	3981.28	3979.13	-150.19	2.29	440028.13	749119.71		
14731.00	92.07	2.20	10828.50	4076.12	4074.05	-147.11	1.70	440123.05	749122.79		
14825.00	90.88	0.66	10826.08	4170.00	4167.99	-144.76	2.07	440216.99	749125.14		
14919.00	91.79	0.20	10823.89	4263.94	4261.96	-144.06	1.08	440310.96	749125.84		
15013.00	92.21	0.49	10820.61	4357.85	4355.90	-143.49	0.54	440404.90	749126.41		
15107.00	90.74	359.35	10818.19	4451.80	4449.86	-143.63	1.98	440498.86	749126.27		
15201.00	90.46	359.10	10817.20	4545.79	4543.85	-144.90	0.40	440592.85	749125.00		
15296.00	90.95	358.32	10816.03	4640.78	4638.82	-147.04	0.97	440687.82	749122.86		
15390.00	91.44	0.10	10814.07	4734.76	4732.78	-148.33	1.96	440781.78	749121.57		
15485.00	90.60	359.81	10812.38	4829.73	4827.77	-148.41	0.94	440876.77	749121.49		
15579.00	91.72	359.39	10810.48	4923.70	4921.74	-149.06	1.27	440970.74	749120.84		
15674.00	90.60	0.66	10808.55	5018.66	5016.72	-149.02	1.78	441065.72	749120.88		
15768.00	91.23	0.69	10807.05	5112.60	5110.70	-147.91	0.67	441159.70	749121.99		
15863.00	90.53	0.30	10805.59	5207.55	5205.69	-147.09	0.84	441254.69	749122.81		
15957.00	90.95	359.94	10804.38	5301.52	5299.68	-146.90	0.59	441348.68	749123.00		
16052.00	90.88	359.42	10802.86	5396.50	5394.66	-147.43	0.55	441443.66	749122.47		
16146.00	91.79	0.13	10800.67	5490.46	5488.64	-147.80	1.23	441537.64	749122.10		
16241.00	89.41	0.49	10799.68	5585.42	5583.62	-147.28	2.53	441632.62	749122.62		
16335.00	89.76	0.72	10800.36	5679.38	5677.61	-146.29	0.45	441726.61	749123.61		
16429.00	90.39	0.63	10800.24	5773.33	5771.61	-145.18	0.68	441820.61	749124.72		
16524.00	90.88	0.61	10799.18	5868.28	5866.60	-144.15	0.52	441915.60	749125.75		
16618.00	91.79	0.81	10796.99	5962.21	5960.56	-142.99	0.99	442009.56	749126.91		
16713.00	92.42	1.53	10793.50	6057.07	6055.48	-141.05	1.01	442104.48	749128.85		
16807.00	90.88	359.90	10790.80	6150.98	6149.42	-139.88	2.39	442198.42	749130.02		
16901.00	91.72	0.26	10788.66	6244.93	6243.40	-139.75	0.97	442292.40	749130.15		
16996.00	90.25	359.79	10787.03	6339.90	6338.38	-139.71	1.62	442387.38	749130.19		
17090.00	90.39	359.52	10786.51	6433.89	6432.38	-140.27	0.32	442481.38	749129.63		
17185.00	91.23	359.74	10785.16	6528.87	6527.37	-140.89	0.91	442576.37	749129.01		
17279.00	91.86	0.48	10782.63	6622.81	6621.33	-140.71	1.03	442670.33	749129.19		
17373.00	92.28	0.94	10779.23	6716.70	6715.26	-139.54	0.66	442764.26	749130.36		
17468.00	91.65	359.54	10775.98	6811.62	6810.20	-139.14	1.62	442859.20	749130.76		
17562.00	90.67	359.90	10774.07	6905.59	6904.18	-139.60	1.11	442953.18	749130.30		
17656.00	91.37	0.81	10772.40	6999.54	6998.16	-139.02	1.22	443047.16	749130.88		
17750.00	91.05	0.67	10770.42	7093.47	7092.13	-137.81	0.37	443141.13	749132.09		
17844.00	92.42	0.79	10767.57	7187.38	7186.08	-136.61	1.46	443235.08	749133.29		
17939.00	94.38	0.73	10761.94	7282.16	7280.90	-135.35	2.06	443329.90	749134.55		
18023.00	95.79	1.04	10754.49	7365.77	7364.56	-134.06	1.72	443413.56	749135.84	Last WFT MWD Svy	
18087.00	95.79	1.04	10748.03	7429.40	7428.22	-132.90	0.00	443477.22	749137.00	TD@18087' MD / PTB	