



PHOENIX

TECHNOLOGY SERVICES USA INC.

Celebrating 20 Years of Focused Solutions

3610 Elkins Road, Midland, Texas 79705 T. 432.684.0057 F. 432.686.7964 www.phxtech.com

November 13, 2015

Apache Corporation
Attention: Regulatory Department
303 Veterans Airpark Lane, Suite 3000,
Midland, TX 79705

Re: Apache Corporation
Raven Federal Com #22H
Eddy County, NM
API #30-015-43361
Job No. 1514598

Dear Regulatory Department;

Phoenix Technology Services, Inc. has filed the Survey Data Certification, Surveys, and Lease Plat for the above referenced well with the State of New Mexico Oil Conservation Division – District 2 via certified mail. A copy of the filing is attached for your records.

Name of Surveyor	Drain Hole Number	Surveyed Depths		Dates Performed		Type of Survey
		From	To	Start	End	
Noe Garza	22H	0	4,662	11/07/15	11/07/15	Gyro

Thank you for the opportunity to be of service. Please contact me if you have any questions or require additional information.

Best Regards,

Alicia Marquez
Operations Administrator



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November 13, 2015

Oil Conservation Division
State of New Mexico
811 S. First St.
Artesia, New Mexico 88210

Dear District 2 - Artesia

Attention: Regulatory Department

Re: Apache Corporation
Raven Federal Com #22H
Eddy County, NM
API #30-015-43361
Job No. 1514598

Enclosed please find the Survey Data Certification, and the original Plat and one copy of the Survey Report performed on the above referenced Well by Phoenix Technology Services, Inc. (P-5 No. 664171). Other information required by your office is as follows:

Name & Title of Surveyor	Drain Hole Number	Surveyed Depths		Dates Performed		Type of Survey
		From	To	Start	End	
Noe Garza	22H	0	4,662	11/07/15	11/07/15	Gyro

A certified plat on which the bottom hole location is oriented both to the surface location and to the lease lines (or unit lines in case of pooling) is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.

Best Regards,

Alicia Marquez
Operations Administrator



PHOENIX

TECHNOLOGY SERVICES

Company: Apache
Well: Raven Federal Com # 22H
Location: Eddy Co., New Mexico
Rig: Capstar 114

Job Number: 1514598
Grid Corr.: -0.23
Lat: 32.84
Long: -103.92

Date: 11/07/15
Calculation Method: Minimum Curvature
Proposed Azimuth: 11 Feet
RKB - MSL in feet: Surface
Tie Into: _____

Survey Tool Type	Survey Depth (ft)	Inclination (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates N/S (ft)	E/W (ft)	Closure Distance (ft)	Closure Angle (deg)	Dogleg Severity (d/100')	Build Rate (d/100')	Walk Rate (d/100')
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Enter Tie-In Survey on Line 10

FIELD COPY, NON-DEFINITIVE

TIE IN	0			0	0	0	0	0					
Gyro	100.00	0.43	161.38	100	100.00	-0.36	0.36 S	0.12 E	0.38	161.38	0.43	0.43	161.38
	200.00	0.57	288.73	100	200.00	-0.55	0.55 S	0.23 W	0.60	202.77	0.90	0.14	127.35
	300.00	0.94	242.65	100	299.99	-0.77	0.77 S	1.43 W	1.62	241.76	0.68	0.37	-46.08
	400.00	1.06	132.38	100	399.98	-1.77	1.77 S	1.48 W	2.30	219.85	1.64	0.12	-110.27
	500.00	1.05	128.12	100	499.96	-2.96	2.96 S	0.07 W	2.96	181.40	0.08	-0.01	-4.26
	600.00	1.02	120.74	100	599.95	-3.98	3.98 S	1.41 E	4.22	160.44	0.14	-0.03	-7.38
	700.00	0.99	116.98	100	699.93	-4.83	4.83 S	2.95 E	5.65	148.58	0.07	-0.03	-3.76
	800.00	0.96	110.35	100	799.92	-5.51	5.51 S	4.50 E	7.12	140.73	0.12	-0.03	-6.63
	900.00	0.84	346.77	100	899.91	-5.09	5.09 S	5.12 E	7.22	134.80	1.59	-0.12	236.42
	1000.00	1.13	77.14	100	999.90	-4.15	4.15 S	5.92 E	7.23	125.08	1.41	0.29	-269.63
	1100.00	1.20	81.91	100	1099.88	-3.79	3.79 S	7.91 E	8.77	115.57	0.12	0.07	4.77
	1200.00	1.27	81.91	100	1199.86	-3.48	3.48 S	10.05 E	10.63	109.12	0.07	0.07	0.00
	1300.00	1.41	95.37	100	1299.83	-3.44	3.44 S	12.37 E	12.84	105.55	0.34	0.14	13.46
	1400.00	1.37	105.80	100	1399.80	-3.88	3.88 S	14.74 E	15.25	104.75	0.26	-0.04	10.43
	1500.00	1.31	113.55	100	1499.77	-4.67	4.67 S	16.94 E	17.57	105.40	0.19	-0.06	7.75
	1600.00	1.20	114.80	100	1599.75	-5.56	5.56 S	18.94 E	19.74	106.36	0.11	-0.11	1.25
	1700.00	1.14	117.83	100	1699.73	-6.46	6.46 S	20.77 E	21.75	107.29	0.09	-0.06	3.03
	1800.00	1.04	120.32	100	1799.71	-7.39	7.39 S	22.43 E	23.62	108.23	0.11	-0.10	2.49
	1900.00	0.88	134.04	100	1899.70	-8.38	8.38 S	23.77 E	25.20	109.42	0.28	-0.16	13.72
	2000.00	0.75	124.26	100	1999.69	-9.28	9.28 S	24.86 E	26.54	110.47	0.19	-0.13	-9.78
	2100.00	0.69	96.97	100	2099.68	-9.72	9.72 S	26.00 E	27.76	110.50	0.34	-0.06	-27.29
	2200.00	0.66	257.50	100	2199.68	-9.92	9.92 S	26.04 E	27.86	110.86	1.33	-0.03	160.53
	2300.00	0.62	114.40	100	2299.67	-10.27	10.27 S	25.97 E	27.92	111.58	1.21	-0.04	-143.10
	2400.00	0.62	99.55	100	2399.67	-10.58	10.58 S	26.99 E	28.99	111.41	0.16	0.00	-14.85
	2500.00	0.59	88.41	100	2499.66	-10.66	10.66 S	28.04 E	30.00	110.81	0.12	-0.03	-11.14
	2600.00	0.60	236.26	100	2599.66	-10.93	10.93 S	28.12 E	30.17	111.25	1.14	0.01	147.85
	2700.00	0.46	220.84	100	2699.66	-11.53	11.53 S	27.42 E	29.75	112.80	0.20	-0.14	-15.42



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TECHNOLOGY SERVICES

Company: Apache
Well: Raven Federal Com # 22H
Location: Eddy Co., New Mexico
Rig: Capstar 114

Job Number: 1514598
Grid Corr.: -0.23
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Survey Tool Type	Survey Depth (ft)	Inclination (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates		Closure		Dogleg Severity (d/100')	Build Rate (d/100')	Walk Rate (d/100')
	2800.00	0.45	133.21	100	2799.65	-12.10	12.10 S	27.45 E	30.00	113.79	0.63	-0.01	-87.63
	2900.00	0.36	135.15	100	2899.65	-12.59	12.59 S	27.95 E	30.66	114.25	0.09	-0.09	1.94
	3000.00	0.39	34.28	100	2999.65	-12.53	12.53 S	28.37 E	31.01	113.84	0.58	0.03	-100.87
	3100.00	0.26	290.31	100	3099.65	-12.17	12.17 S	28.35 E	30.85	113.24	0.52	-0.13	256.03
	3200.00	0.12	347.00	100	3199.65	-11.99	11.99 S	28.11 E	30.56	113.11	0.22	-0.14	56.69
	3300.00	0.36	334.10	100	3299.65	-11.61	11.61 S	27.95 E	30.26	112.56	0.24	0.24	-12.90
	3400.00	0.55	51.68	100	3399.65	-11.03	11.03 S	28.19 E	30.27	111.37	0.59	0.19	-282.42
	3500.00	0.64	358.82	100	3499.64	-10.17	10.17 S	28.55 E	30.31	109.61	0.54	0.09	307.14
	3600.00	0.59	141.63	100	3599.64	-10.02	10.02 S	28.86 E	30.55	109.14	1.17	-0.05	-217.19
	3700.00	0.73	26.17	100	3699.63	-9.85	9.85 S	29.46 E	31.07	108.49	1.12	0.14	-115.46
	3800.00	0.89	323.50	100	3799.63	-8.65	8.65 S	29.28 E	30.53	106.47	0.85	0.16	297.33
	3900.00	0.86	28.17	100	3899.62	-7.37	7.37 S	29.17 E	30.09	104.17	0.94	-0.03	-295.33
	4000.00	0.91	30.16	100	3999.61	-6.02	6.02 S	29.93 E	30.53	101.37	0.06	0.05	1.99
	4100.00	0.93	35.20	100	4099.59	-4.67	4.67 S	30.79 E	31.15	98.62	0.08	0.02	5.04
	4200.00	0.47	45.16	100	4199.58	-3.72	3.72 S	31.55 E	31.77	96.72	0.47	-0.46	9.96
	4300.00	0.66	136.82	100	4299.58	-3.85	3.85 S	32.24 E	32.47	96.81	0.82	0.19	91.66
	4400.00	0.81	53.74	100	4399.58	-3.85	3.85 S	33.20 E	33.42	96.62	0.98	0.15	-83.08
	4500.00	0.50	153.50	100	4499.57	-3.82	3.82 S	33.97 E	34.18	96.42	1.02	-0.31	99.76
	4600.00	0.48	186.55	100	4599.57	-4.63	4.63 S	34.11 E	34.43	97.73	0.28	-0.02	33.05
	4662.00	0.42	98.08	62	4661.57	-4.92	4.92 S	34.31 E	34.66	98.16	1.02	-0.10	-142.69