

A Gyrodata Directional Survey

FINAL DEFINITIVE COPY

for

APACHE CORPORATION

Lease: Fire Eagle State San Andres Unit Well: 2H,
Location: Norton #2, Lea County, New Mexico

30-025-43313

Job Number: MD0716GDM432

Run Date: 14 Jul 2016

Report Generated: 19 Jul 2016 10:34

Surveyor: Brandon Bulot

Calculation Method: MINIMUM CURVATURE

Survey surface coordinates obtained from: Company Man

Survey Latitude: 33.461663 deg. N Longitude: 103.219179 deg. W

UL H 2600' FNL + 380' FEL 11-105-36E

LEA COUNTY, NM

Azimuth Correction:

Gyro: -0.61000 deg to Grid North

Depth Reference: Rotary Table

Air Gap (RKB to Ground / RKB to MSL): 17.00

Vertical Section Calculated from Well Head Location

Closure Calculated from Well Head Location

Horizontal Coordinates Calculated from Well Head Location

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MEASURED DEPTH feet	INCL deg.	AZIMUTH deg.	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. feet	AZIMUTH deg.	HORIZONTAL COORDINATES feet
0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.00 N 0.00 E
0 - 5229.52 FT. RATE GYROSCOPIC MULTISHOT SURVEY RUN INSIDE 4.5 INCH DRILLPIPE ALL MEASURED DEPTHS AND COORDINATES REFERENCED TO NORTON #2 R.K.B. OF 17 FT.							
118.75	0.13	178.60	0.11	118.75	0.1	178.6	0.13 S 0.00 E
211.26	0.13	196.75	0.04	211.26	0.3	184.1	0.34 S 0.02 W
302.07	0.17	262.47	0.18	302.07	0.5	202.3	0.46 S 0.19 W
391.47	0.00	6.27	0.19	391.47	0.6	214.0	0.47 S 0.32 W
475.88	0.28	153.59	0.33	475.88	0.7	199.0	0.66 S 0.23 W
570.65	0.36	171.45	0.13	570.65	1.2	184.0	1.16 S 0.08 W
665.42	0.34	200.29	0.19	665.42	1.7	184.4	1.72 S 0.13 W
760.14	0.29	194.66	0.06	760.13	2.2	187.5	2.21 S 0.29 W
854.84	0.38	198.77	0.10	854.83	2.8	189.4	2.74 S 0.45 W
949.50	0.52	177.15	0.23	949.49	3.5	188.7	3.47 S 0.53 W
1044.19	0.52	194.48	0.17	1044.18	4.4	188.2	4.31 S 0.62 W
1138.93	0.68	200.69	0.18	1138.91	5.3	190.0	5.26 S 0.93 W
1233.67	0.58	192.55	0.14	1233.65	6.4	191.1	6.25 S 1.23 W
1328.41	0.64	198.85	0.09	1328.38	7.4	191.8	7.22 S 1.50 W
1423.13	0.41	177.68	0.31	1423.10	8.2	191.6	8.06 S 1.66 W
1517.94	0.54	181.17	0.14	1517.90	9.0	190.6	8.84 S 1.66 W
1612.72	0.50	185.53	0.06	1612.68	9.9	190.0	9.70 S 1.70 W
1707.43	0.21	157.40	0.35	1707.39	10.4	189.3	10.27 S 1.68 W
1802.26	0.24	179.37	0.10	1802.22	10.8	188.6	10.63 S 1.61 W

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MEASURED DEPTH feet	INCL deg.	AZIMUTH deg.	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. feet	AZIMUTH deg.	HORIZONTAL COORDINATES feet
1896.91	0.03	3.16	0.29	1896.87	10.9	188.4	10.81 S 1.61 W
1991.00	0.24	336.67	0.23	1990.96	10.7	189.0	10.60 S 1.68 W
2085.63	0.31	326.36	0.09	2085.58	10.4	190.6	10.21 S 1.90 W
2179.39	0.26	291.03	0.19	2179.34	10.2	192.7	9.92 S 2.24 W
2273.80	0.26	270.26	0.10	2273.75	10.2	195.1	9.84 S 2.66 W
2367.91	0.44	224.72	0.34	2367.86	10.6	197.2	10.10 S 3.12 W
2462.09	0.56	218.56	0.14	2462.04	11.3	198.9	10.71 S 3.66 W
2556.19	0.60	230.00	0.13	2556.13	12.2	200.8	11.39 S 4.33 W
2650.43	0.65	241.68	0.14	2650.37	13.0	203.4	11.96 S 5.18 W
2744.37	0.59	244.83	0.07	2744.30	13.8	206.1	12.42 S 6.08 W
2838.63	0.60	229.42	0.17	2838.56	14.7	208.0	12.95 S 6.90 W
2933.04	0.65	229.18	0.05	2932.96	15.6	209.4	13.62 S 7.68 W
3027.65	0.69	240.33	0.14	3027.56	16.6	211.1	14.25 S 8.58 W
3122.39	0.51	248.69	0.21	3122.30	17.5	212.8	14.69 S 9.47 W
3216.49	0.34	231.21	0.23	3216.40	18.1	213.9	15.01 S 10.08 W
3310.26	0.14	268.61	0.26	3310.17	18.4	214.4	15.19 S 10.41 W
3404.03	0.48	325.01	0.45	3403.93	18.3	215.9	14.87 S 10.75 W
3498.69	0.63	345.36	0.26	3498.59	17.9	218.3	14.04 S 11.11 W
3592.83	0.70	347.61	0.08	3592.72	17.2	221.2	12.98 S 11.36 W
3686.79	0.58	356.99	0.17	3686.68	16.6	223.9	11.95 S 11.51 W
3780.67	0.53	6.23	0.11	3780.55	15.9	226.1	11.04 S 11.49 W

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MEASURED DEPTH feet	INCL deg.	AZIMUTH deg.	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. feet	AZIMUTH deg.	HORIZONTAL COORDINATES feet
3874.27	0.40	26.04	0.22	3874.15	15.3	227.6	10.32 S 11.30 W
3968.88	0.49	55.74	0.26	3968.76	14.6	227.8	9.79 S 10.82 W
4063.14	0.49	55.68	0.00	4063.01	13.8	227.4	9.34 S 10.15 W
4157.09	0.41	62.94	0.10	4156.96	13.1	226.7	8.96 S 9.52 W
4250.91	0.28	72.35	0.15	4250.78	12.5	225.9	8.73 S 9.00 W
4344.92	0.25	14.25	0.28	4344.79	12.2	225.9	8.47 S 8.73 W
4439.29	0.26	8.35	0.03	4439.16	11.8	227.0	8.06 S 8.65 W
4532.90	0.27	15.91	0.04	4532.77	11.5	228.3	7.63 S 8.56 W
4627.23	0.22	8.65	0.06	4627.10	11.1	229.5	7.24 S 8.47 W
4721.25	0.23	0.07	0.04	4721.11	10.9	230.9	6.87 S 8.44 W
4814.91	0.22	357.65	0.01	4814.77	10.7	232.4	6.51 S 8.45 W
4908.88	0.34	349.15	0.13	4908.74	10.4	234.6	6.05 S 8.51 W
5002.94	0.36	346.89	0.03	5002.80	10.2	237.5	5.49 S 8.63 W
5097.35	0.47	337.05	0.14	5097.21	10.1	241.3	4.84 S 8.85 W
5190.90	0.51	320.55	0.16	5190.76	10.2	245.8	4.17 S 9.26 W
5229.52	0.54	318.36	0.09	5229.37	10.3	247.7	3.90 S 9.49 W

Final Station Closure: Distance: 10.26 ft Az: 247.66 deg.

30-025-43313

H-11-10S-36E
2600' FUL + 380' FEL
LEA CO. NM

1/3



Job #: 60255
 Client: Apache
 Well: Fire Eagle State San Andreas
 Field: San Andreas
 Rig: Norton #2
 Phoenix Rep: Bernard Caldwell

Wellbore Name

OWB

North Type: Grid

Total Correction: 6.19 degrees

Target TVD: 4909 feet

Vertical Section Dir.: 359.66 degrees

Dip Angle: 61.2

TMF: 0.48855

TGF: 1.0000

SURVEY DATA

No.	Date	Time	M. Depth	Bit to DU	SD	INC	AZM	C.L	TVD	VS	N-S	E-W	DLS	B/D.	BHA
0	xxx	xxx	0.00	0.00	0	0.00	0.00	*****	0.00	0.00	0.00	0.00	*****	*****	*****
1					211	0.13	196.75	(211)	211.3	-0.23	-0.23	-0.07	0.06	0.06	Sperry
2					302	0.17	262.47	91	302.1	-0.34	-0.35	-0.23	0.18	0.04	Sperry
3					392	0	6.27	90	391.5	-0.36	-0.36	-0.36	0.19	0.00	Sperry
4					476	0.28	153.59	84	475.9	-0.55	-0.55	-0.27	0.33	0.33	Sperry
5					571	0.36	171.45	95	570.7	-1.05	-1.05	-0.12	0.13	0.08	Sperry
6					665	0.34	200.29	94	665.4	-1.61	-1.61	-0.18	0.19	-0.02	Sperry
7					760	0.29	194.66	95	760.09	-2.1	-2.1	-0.34	0.06	-0.05	Sperry
8					855	0.38	198.77	95	854.79	-2.63	-2.63	-0.5	0.1	0.09	Sperry
9					950	0.52	177.15	95	949.49	-3.36	-3.36	-0.58	0.23	0.15	Sperry
10					1044	0.52	194.48	94	1044.19	-4.2	-4.2	-0.66	0.17	0.00	Sperry
11					1139	0.68	200.69	95	1138.88	-5.14	-5.15	-0.97	0.18	0.17	Sperry
12					1234	0.58	192.55	95	1233.68	-6.13	-6.14	-1.27	0.14	-0.11	Sperry
13					1328	0.64	198.85	94	1328.37	-7.1	-7.11	-1.55	0.09	0.06	Sperry
14					1423	0.41	177.68	95	1423.07	-7.94	-7.95	-1.7	0.31	-0.24	Sperry
15					1518	0.54	181.17	95	1517.86	-8.72	-8.73	-1.7	0.14	0.14	Sperry
16					1613	0.5	185.53	95	1612.66	-9.58	-9.59	-1.75	0.06	-0.04	Sperry
17					1707	0.21	157.4	94	1707.36	-10.15	-10.16	-1.72	0.35	-0.31	Sperry
18					1802	0.24	179.37	95	1802.26	-10.51	-10.52	-1.65	0.1	0.03	Sperry
19					1897	0.03	3.16	95	1896.86	-10.69	-10.7	-1.65	0.29	-0.22	Sperry
20					1991	0.24	336.67	94	1990.96	-10.48	-10.49	-1.73	0.23	0.22	Sperry
21					2086	0.31	326.36	95	2085.55	-10.08	-10.1	-1.95	0.09	0.07	Sperry
22					2179	0.26	291.03	93	2179.35	-9.79	-9.81	-2.29	0.19	-0.05	Sperry
23					2274	0.26	270.26	95	2273.75	-9.71	-9.73	-2.7	0.1	0.00	Sperry
24					2368	0.44	224.72	94	2367.85	-9.97	-9.99	-3.17	0.34	0.19	Sperry
25					2462	0.56	218.56	94	2462.05	-10.58	-10.6	-3.71	0.14	0.13	Sperry
26					2556	0.6	230	94	2556.14	-11.25	-11.28	-4.37	0.13	0.04	Sperry
27					2650	0.65	241.68	94	2650.34	-11.82	-11.85	-5.22	0.14	0.05	Sperry
28					2744	0.59	244.83	94	2744.33	-12.27	-12.31	-6.13	0.07	-0.06	Sperry
29					2839	0.6	229.42	95	2838.53	-12.79	-12.84	-6.94	0.17	0.01	Sperry
30					2933	0.65	229.18	94	2932.92	-13.46	-13.51	-7.72	0.05	0.05	Sperry
31					3028	0.69	240.33	95	3027.61	-14.09	-14.14	-8.62	0.14	0.04	Sperry
32					3122	0.51	248.69	94	3122.31	-14.52	-14.58	-9.51	0.21	-0.19	Sperry
33					3217	0.34	231.21	95	3216.41	-14.84	-14.9	-10.12	0.23	-0.18	Sperry
34					3310	0.14	268.61	93	3310.21	-15.02	-15.08	-10.45	0.26	-0.22	Sperry
35					3404	0.48	325.01	94	3403.9	-14.7	-14.76	-10.79	0.45	0.36	Sperry
36					3499	0.63	345.36	95	3498.6	-13.87	-13.93	-11.15	0.26	0.16	Sperry
37					3593	0.7	347.61	94	3592.69	-12.8	-12.87	-11.4	0.08	0.07	Sperry
38					3687	0.58	356.99	94	3686.69	-11.77	-11.83	-11.55	0.17	-0.13	Sperry
39					3781	0.53	6.23	94	3780.58	-10.86	-10.93	-11.53	0.11	-0.05	Sperry
40					3874	0.4	26.04	93	3874.18	-10.14	-10.2	-11.34	0.22	-0.14	Sperry
41					3969	0.49	55.74	95	3968.78	-9.62	-9.68	-10.86	0.26	0.09	Sperry
42					4063	0.49	55.68	94	4062.97	-9.17	-9.23	-10.2	0	0.00	Sperry
43					4157	0.41	62.94	94	4156.97	-8.79	-8.85	-9.56	0.1	-0.09	Sperry
44					4251	0.28	72.35	94	4250.77	-8.57	-8.62	-9.05	0.15	-0.14	Sperry
45					4346	1.66	4.37	95	4345.85	-7.13	-7.18	-8.72	1.66	1.45	Sperry
46					4375	4.17	358.4	29	4374.81	-5.65	-5.7	-8.72	8.7	8.66	Sperry
47					4409	7.14	359.56	34	4408.65	-2.3	-2.35	-8.77	8.75	8.74	Sperry
48					4440	10.45	2.75	31	4439.28	2.44	2.38	-8.65	10.77	10.68	Sperry
49					4471	14.03	6.09	31	4469.57	8.98	8.93	-8.12	11.79	11.55	Sperry
50					4503	17.6	6.06	32	4500.35	17.64	17.6	-7.19	11.14	11.16	Sperry
51					4534	20.04	7.55	31	4529.69	27.56	27.53	-6	8.02	7.87	Sperry
52					4565	22.45	8.33	31	4558.58	38.68	38.65	-4.44	7.83	7.77	Sperry
53					4597	24.36	8.03	32	4587.95	51.25	51.23	-2.64	5.99	5.97	Sperry
54					4628	27.06	7.46	31	4615.88	64.56	64.56	-0.83	8.75	8.71	Sperry
55					4660	30.05	7.93	32	4643.98	79.71	79.71	1.22	9.37	9.34	Sperry
56					4691	33.14	6.79	31	4670.38	95.8	95.82	3.29	10.13	9.97	Sperry
57					4723	35.71	4.8	32	4696.78	113.78	113.81	5.11	8.77	8.03	Sperry
58					4754	38.56	2.55	31	4721.49	132.45	132.49	6.3	10.19	9.19	Sperry
59					4786	41.11	0.85	32	4746.06	152.93	152.97	6.9	8.65	7.97	Sperry
60					4817	43.96	0.16	31	4768.91	173.88	173.92	7.08	9.32	9.19	Sperry
61					4848	46.79	0.23	31	4790.68	195.94	195.98	7.15	9.13	9.13	Sperry
62					4880	49.7	358.83	32	4811.99	219.81	219.85	6.95	9.68	9.09	Sperry
63					4911	52.34	356.8	31	4831.49	243.89	243.93	6.02	9.91	8.52	Sperry
64					4943	54.36	355.4	32	4850.59	269.51	269.54	4.27	7.22	6.31	Sperry

SURVEY DATA															
No.	Date	Time	M. Depth	Bit to DU	SD	INC	AZM	C.L	TVD	VS	N/-S	E/-W	DLS	B./D.	BHA
65					4974	56.5	355.5	31	4868.18	294.96	294.98	2.25	6.9	6.90	Sperry
66					5006	59.76	356.59	32	4885.08	322.08	322.09	0.38	10.59	10.19	Sperry
67					5037	62.39	357.49	31	4900.07	349.18	349.18	-1.02	8.86	8.48	Sperry
68					5068	65.65	358.44	31	4913.65	377.03	377.03	-2	10.89	10.52	Sperry
69					5100	68.34	359.04	32	4926.15	406.48	406.47	-2.65	8.57	8.41	Sperry
70					5131	71.31	359.14	31	4936.84	435.57	435.56	-3.11	9.58	9.58	Sperry
71					5162	75.29	359.71	31	4945.75	465.26	465.25	-3.41	12.97	12.84	Sperry
72					5193	78.46	359.35	31	4952.79	495.45	495.43	-3.66	10.27	10.23	Sperry
73					5225	81.11	0.39	32	4958.46	526.94	526.92	-3.73	8.88	8.28	Sperry
74					5256	84.15	2.24	31	4962.44	557.66	557.65	-3.02	11.46	9.81	Sperry
75					5287	86.28	0.98	31	4965.03	588.53	588.53	-2.16	7.96	6.87	Sperry
76					5318	87.02	0.79	31	4966.84	619.47	619.47	-1.68	2.46	2.39	Sperry
77					5350	87.21	0.44	32	4968.45	651.43	651.43	-1.34	1.27	0.59	Sperry
78					5381	87.93	1.09	31	4969.77	682.39	682.4	-0.92	3.13	2.32	Sperry
79					5412	90.28	0.92	31	4970.25	713.38	713.39	-0.38	7.59	7.58	Sperry
80					5443	91.17	0.59	31	4969.86	744.37	744.38	0.03	3.07	2.87	Sperry
81					5506	90.68	2.32	63	4968.84	807.33	807.35	1.63	2.85	-0.78	Sperry
82					5537	91.14	2.62	31	4968.35	838.29	838.32	2.96	1.78	1.48	Sperry
83					5631	90.22	3.2	94	4967.24	932.13	932.19	7.73	1.16	-0.98	Sperry
84					5686	90.22	3.46	55	4967.03	987.02	987.1	10.92	0.48	0.00	Sperry
85					5719	91.17	1.94	33	4966.63	1019.97	1020.06	12.47	5.45	2.88	Sperry
86					5780	92.77	2.16	61	4964.54	1080.88	1080.98	14.65	2.65	2.62	Sperry
87					5874	92.35	1.97	94	4960.34	1174.59	1174.72	18.08	0.49	-0.45	Sperry
88	29-Jul	8:37	5958	60	5898	92.10	2.20	24	4959.38	1198.66	1198.80	18.92	1.41	-1.04	Phoenix 1
89	29-Jul	8:37	5989	60	5929	92.20	2.40	31	4958.22	1229.61	1229.75	20.17	0.72	0.32	Phoenix 1
90	29-Jul	9:00	6021	60	5961	92.00	1.40	32	4957.04	1261.56	1261.71	21.23	3.18	-0.63	Phoenix 1
91	29-Jul	9:46	6052	60	5992	90.80	359.90	31	4956.29	1292.55	1292.70	21.58	6.20	-3.87	Phoenix 1
92	29-Jul	10:34	6083	60	6023	90.00	358.50	31	4956.07	1323.54	1323.69	21.14	5.20	-2.58	Phoenix 1
93	29-Jul	11:24	6115	60	6055	89.50	357.10	32	4956.21	1355.53	1355.67	19.92	4.65	-1.56	Phoenix 1
94	29-Jul	12:02	6146	60	6086	89.90	355.90	31	4956.37	1386.48	1386.61	18.02	4.08	1.29	Phoenix 1
95	29-Jul	12:41	6177	60	6117	90.00	355.60	31	4956.40	1417.40	1417.52	15.73	1.02	0.32	Phoenix 1
96	29-Jul	13:23	6209	60	6149	90.00	356.00	32	4956.40	1449.33	1449.44	13.38	1.25	0.00	Phoenix 1
97	29-Jul	15:17	6303	60	6243	89.70	354.20	94	4956.64	1543.03	1543.09	5.35	1.94	-0.32	Phoenix 1
98	29-Jul	16:29	6397	60	6337	89.80	355.10	94	4957.05	1636.67	1636.68	-3.41	0.96	0.11	Phoenix 1
99	29-Jul	16:36	6491	60	6431	90.00	355.70	94	4957.22	1730.41	1730.37	-10.95	0.67	0.21	Phoenix 1
100	29-Jul	19:14	6585	60	6525	88.80	358.50	94	4958.20	1824.30	1824.24	-15.70	3.24	-1.28	Phoenix 1
101	29-Jul	20:30	6679	60	6619	90.20	0.20	94	4959.02	1918.29	1918.22	-16.77	2.34	1.49	Phoenix 1
102	29-Jul	21:35	6773	60	6713	89.80	1.20	94	4959.02	2012.27	2012.21	-15.62	1.15	-0.43	Phoenix 1
103	29-Jul	21:00	6867	60	6807	90.00	1.10	94	4959.19	2106.24	2106.20	-13.74	0.24	0.21	Phoenix 1
104	30-Jul	0:50	6961	60	6901	89.30	2.40	94	4959.76	2200.17	2200.15	-10.86	1.57	-0.74	Phoenix 1
105	30-Jul	4:40	7055	60	6995	89.50	1.80	94	4960.75	2294.08	2294.08	-7.42	0.67	0.21	Phoenix 1
106	31-Jul	2:15	7179	58	7121	91.20	358.00	(126)	4959.98	2420.05	2420.05	-7.64	3.30	1.35	Phoenix 2
107	31-Jul	3:40	7273	58	7215	92.30	357.30	94	4957.11	2513.95	2513.92	-11.49	1.39	1.17	Phoenix 2
108	31-Jul	4:40	7367	58	7309	92.70	357.80	94	4953.00	2607.79	2607.75	-15.51	0.68	0.43	Phoenix 2
109	31-Jul	5:30	7461	58	7403	91.30	359.00	94	4949.72	2701.71	2701.65	-18.13	1.96	-1.49	Phoenix 2
110	31-Jul	6:10	7555	58	7497	90.00	0.40	94	4948.66	2795.70	2795.64	-18.62	2.03	-1.38	Phoenix 2
111	31-Jul	8:00	7649	58	7591	90.30	0.60	94	4948.41	2889.69	2889.63	-17.80	0.38	0.32	Phoenix 2
112	31-Jul	10:11	7743	58	7685	90.40	1.90	94	4947.84	2983.65	2983.61	-15.75	1.39	0.11	Phoenix 2
113	31-Jul	13:41	7837	58	7779	91.10	0.30	94	4946.61	3077.61	3077.58	-13.95	1.86	0.74	Phoenix 2
114	31-Jul	14:22	7931	58	7873	91.50	359.00	94	4944.47	3171.58	3171.55	-14.52	1.45	0.43	Phoenix 2
115	31-Jul	15:08	8023	58	7965	91.10	359.80	92	4942.39	3263.55	3263.52	-15.48	0.97	-0.43	Phoenix 2
116	31-Jul	17:10	8113	58	8055	91.90	358.20	90	4940.03	3353.51	3353.47	-17.05	1.99	0.89	Phoenix 2
117	31-Jul	17:53	8203	58	8145	92.20	357.80	90	4936.81	3443.42	3443.36	-20.19	0.56	0.33	Phoenix 2
118	31-Jul	18:35	8295	58	8237	91.40	357.80	92	4933.92	3535.32	3535.25	-23.72	0.87	-0.87	Phoenix 2
119	31-Jul	19:30	8386	58	8328	90.80	357.80	91	4932.17	3626.26	3626.16	-27.21	0.66	-0.66	Phoenix 2
120	31-Jul	20:40	8475	58	8417	90.50	356.90	89	4931.17	3715.18	3715.06	-31.33	1.07	-0.34	Phoenix 2
121	31-Jul	23:00	8564	58	8506	90.80	357.80	89	4930.16	3804.10	3803.96	-35.44	1.07	0.34	Phoenix 2
122	1-Aug	0:00	8654	58	8596	91.30	358.20	90	4928.51	3894.05	3893.89	-38.58	0.71	0.56	Phoenix 2
123	1-Aug	1:30	8745	58	8687	90.20	359.00	91	4927.32	3985.02	3984.85	-40.81	1.49	-1.21	Phoenix 2
124	1-Aug	2:20	8836	58	8778	91.00	359.00	91	4926.36	4076.01	4075.83	-42.40	0.88	0.88	Phoenix 2
125	1-Aug	3:30	8926	58	8868	89.10	0.80	90	4926.28	4166.00	4165.82	-42.55	2.91	-2.11	Phoenix 2
126	1-Aug	4:30	9015	58	8957	89.30	0.90	89	4927.53	4254.97	4254.80	-41.23	0.25	0.22	Phoenix 2
127	1-Aug	5:30	9106	58	9048	89.40	0.90	91	4928.56	4345.95	4345.79	-39.80	0.11	0.11	Phoenix 2
128	1-Aug	6:49	9197	58	9139	88.40	359.60	91	4930.31	4436.92	4436.77	-39.41	1.80	-1.10	Phoenix 2
129	1-Aug	9:00	9287	58	9229	90.00	358.50	90	4931.56	4526.90	4526.74	-40.90	2.16	1.78	Phoenix 2
130	1-Aug	12:48	9379	58	9321	92.40	358.20	92	4929.64	4618.85	4618.68	-43.55	2.63	2.61	Phoenix 2
131	3-Aug	3:15	9474	59	9415	90.10	359.90	94	4927.58	4712.82	4712.63	-45.10	3.04	-2.45	Phoenix 3
132	3-Aug	4:50	9566	59	9507	89.60	0.60	92	4927.83	4804.81	4804.63	-44.70	0.94	-0.54	Phoenix 3
133	3-Aug	6:10	9656	59	9597	91.30	0.90	90	4927.12	4894.79	4894.61	-43.52	1.92	1.89	Phoenix 3
134	3-Aug	7:29	9745	59	9686	92.20	0.70	89	4924.40	4983.73	4983.56	-42.28	1.04	1.01	Phoenix 3
135	3-Aug	8:50	9839	59	9780	92.70	1.40	94	4920.38	5077.61	5077.46	-40.56	0.91	0.53	Phoenix 3
136	3-Aug	14:30	9934	59	9875	88.80	1.50	95	4919.14	5172.54	5172.40	-38.16	4.11	-4.11	Phoenix 3
137	3-Aug	17:03	10028	59	9969	89.00	1.20	94	4920.94	5266.48	5266.36	-35.94	0.38	0.21	Phoenix 3
138	3-Aug	21:15	10122	59	10063	90.00	0.40	94	4921.76	5360.46	5360.35	-34.63	1.36	1.06	Phoenix 3
139	3-Aug	23:10	10217	59	10158	88.90	359.90	95	4922.68	5455.45	5455.34	-34.38	1.27	-1.16	Phoenix 3
140	4-Aug	1:00	10311	59	10252	89.40	0.60	94	4924.07	5549.43	5549.33	-33.97	0.92	0.53	Phoenix 3

Projection to Bit

Well Info

Legal Well Name: FIRE EAGLE SAN ANDRES UNIT 2H
API/UWI: 3002543313
Spud Date: 7/10/2016
Original Drilling Rig Release: 8/10/2016
Target Formation: San_Andres
Field Name: Eunice; San Andres
County: Lea
State/Province: New Mexico
Surface Legal Location: SEC 11 T10S R36E

Bottom Hole Location:

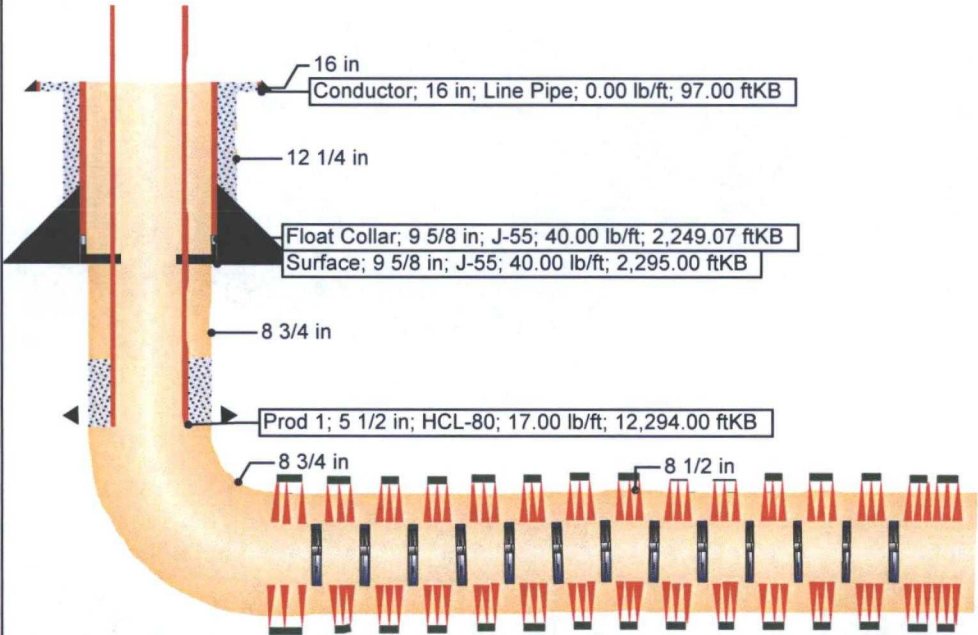
Bottom Hole Legal Location:
Fire Eagle State San Andres Unit #2H - 01 - Sidetrack 1
East-West Distance (ft): From E or W Line:
Fire Eagle State San Andres Unit #2H - 01 - Sidetrack 1
North-South Distance (ft): From N or S Line:
Original Drilling Rig Release: 8/10/2016
Original KB Elevation (ft): 4,014.0
Ground Elevation (ft): 3,997.0
KB-Ground Distance (ft): 17.0
Total Depth (All) (ftKB): Original Hole - 5,300.0; Sidetrack 1 - 12,297.0
Total Depth All (TVD) (ftKB): Sidetrack 1 - 4,927.7
Cement Info

Surface, 2,295.00ftKB			
Stage Number	Top Depth (ftKB)		Bottom Depth (ftKB)
1	17.00		2,295.00
Top Measurement Method			
Returns at Surface			
Obj	Yield (ft³/sack)	Amount (sacks)	Vol Pumped (bbl)
Lead	1.70	872	264.0
Tail	1.33	200	47.0
Fire Eagle State San Andres Unit #2H - Original Hole			
Stage Number	Top Depth (ftKB)		Bottom Depth (ftKB)
1	4,080.00		4,790.00
Top Measurement Method			
Estimated			
Obj	Yield (ft³/sack)	Amount (sacks)	Vol Pumped (bbl)
Plug	0.94	375	63.0
Prod 1, 12,294.00ftKB			
Stage Number	Top Depth (ftKB)		Bottom Depth (ftKB)
1	3,658.00		12,294.00
Top Measurement Method			
Calculated			
Obj	Yield (ft³/sack)	Amount (sacks)	Vol Pumped (bbl)
Lead	2.29	1,800	734.0
Tail	1.32	2,318	511.0

NEW DEV - Fire Eagle State San Andres Unit #2H - 01 - Sidetrack 1, 11/7/2016 9:36:18 AM

Directional schematic (actual)

HOBBS OCD
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Stimulation Jobs

Volume Clean Total (bbl): 41,595.00
Total Clean - Recovered Volume (bbl): 41,595.00
Proppant Total (lb): 1,814,190.0
Treat Rate Max (gpm):
Treat Pressure Max (psi):
Number of Treatment Intervals: 15
Min Top Depth (ftKB): 5,303.0
Max Btm Depth (ftKB): 12,211.0

Perforations

Top Depth (ftKB): 5,303
Top Depth (ftKB): 12,211
Bottom Depth (ftKB): 12,213

Kick Offs & Key Depths

Type: Kick Off
Total Depth (ftKB): 12,297.0
PBTD (All) (ftKB):
Top Depth (ftKB): 4,375.0