

Reservoir Development

Pathfinder, a Schlumberger Company
9200 West Reno Avenue
Oklahoma City, Oklahoma 73127 USA
Phone: (405) 789-1515
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PATHFINDER

A Schlumberger Company

May 29, 2015

Cimarex
600 N MARIENFELD STREET SUITE 600

MIDLAND, TX 79701

Re:

S33-T26S-R27E 210 FSL 1980 FWL
N 32.00060 W 104.19692

CLIENT: Cimarex Energy Co.
WELL: Klein 33 Federal Com 5H
FIELD: Wolfcamp
RIG: Cactus 112
COUNTY: Eddy
API NO: 30-015-42098
JOB NO: 14MLD0405

Enclosed, please find the original copy of the survey performed on the referenced well by PathFinder, a division of Schlumberger Technology Corporation.

Other information required by your office is as follows.

<u>Name & Title of Surveyor</u>	<u>Drainhole Number</u>	<u>Surveyed Depths</u>	<u>Dates Performed</u>	<u>Type of Survey</u>
Barry Hessefort MWD	Klein 33 Federal Com 5H Original Hole	6888.00 Ft to 14058.00 Ft	January 16, 2015 to January 28, 2015	SlimPulse

If any other information is required, please contact the undersigned at the above letterhead and phone number.
Sincerely,

Joseph Hogan
Field Service Manager

Reservoir Development

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Oklahoma City, Oklahoma 73127 USA
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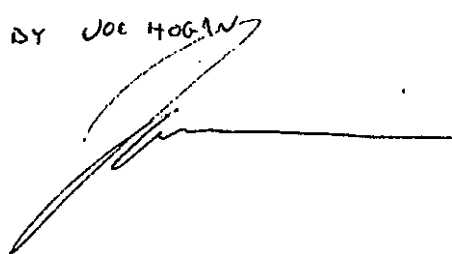
Well Reference:

S33-T26S-R27E 210 FSL 1980 FWL
N 32.00060 W 104.19692

I, Barry Hessefort certify that; I am employed by PathFinder, a division of Schlumberger Technology Corporation; that I did on the day(s) of January 16, 2015 through January 28, 2015, conduct or supervise the taking of the SlimPulse surveys from a depth of 6888.00 feet to a depth of 14058.00 feet referenced to driller's depth; that the data is true, correct, complete and within the limitations of the tool as set forth by PathFinder, a division of Schlumberger Technology Corporation; that I am authorized and qualified to make this report; that this survey was conducted at the request of Cimarex Energy Co. for the Klein 33 Federal Com 5H Well (Original Hole) API No. 30-015-42098 and that I have reviewed this report and find that it conforms to the principals and procedures as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation.

SIGNED ON BEHALF OF BARRY HESSEFORT BY JOE HOGAN

By
Barry Hessefort
MWD



Subscribed and Sworn to before me this 29th day of May (month) 2015 (yr)

My Commission expires:

September 5, 2016

Michelle Ellwood

Notary Public

(signature)

Midland, TX
(County State)



SCHLUMBERGER

Survey Report

11-Jan-2015

Client.....: Climarex Energy Co
Field.....: Wolfcamp

Well.....: Klein 33 Federal Com SH
API number.....: 30-015-42098
Engineer.....: Barry Hessefort

Spud date.....: 8-Jan-15
Last survey date.....: 28-Jan-15
Total accepted surveys...: 96
MD of first survey.....: 6888.00 ft
MD of last survey.....: 14058.00 ft

County.....: Eddy
State.....: New Mexico
Rig.....: Cactus 112

Latitude.....: 32° 0' 2.16" N
Longitude.....: 104° 11' 48.91" W

----- Survey calculation methods -----

Method for positions...: Minimum curvature
Method for DLS.....: Lubinski

----- Depth reference -----

Permanent datum.....: MSL
Depth reference.....: Driller's Depth
GL above permanent.....: 3186.00
KB above permanent.....: 3211.00
DF above permanent.....: 3211.00

----- Vertical section origin -----

Latitude (+N/S).....: 0.00 ft
Departure (+E/W).....: 0.00 ft

----- Grid Coordinates -----

NAD83 New Mexico State Plane, Eastern Zone, US Feet
X.....: 583623.88 ft
Y.....: 363983.98 ft

Azimuth from Vsect Origin to target: 359.48 degrees

----- MWD Survey Reference Criteria -----

-----Run1----- Calculation Date: 15-Jan-2015
Location G.....: 998.63244 mgn Tolerance G.....: 2.50 mgn
Location B.....: 48190.91 nT Tolerance B.....: 300.00 nT
Magnetic Dip: 59.723 degrees Tolerance Dip: 0.45 degrees

-----Run2----- Calculation Date: 19-Jan-2015
Location G.....: 998.63244 mgn Tolerance G.....: 2.50 mgn
Location B.....: 48190.91 nT Tolerance B.....: 300.00 nT
Magnetic Dip: 59.723 degrees Tolerance Dip: 0.45 degrees

-----Run3----- Calculation Date: 23-Jan-2015
Location G.....: 998.63244 mgn Tolerance G.....: 2.50 mgn
Location B.....: 48190.91 nT Tolerance B.....: 300.00 nT
Magnetic Dip: 59.72 degrees Tolerance Dip: 0.45 degrees

-----Run4----- Calculation Date: 26-Jan-2015
Location G.....: 998.63244 mgn Tolerance G.....: 2.50 mgn
Location B.....: 48190.91 nT Tolerance B.....: 300.00 nT
Magnetic Dip: 59.72 degrees Tolerance Dip: 0.45 degrees

BGGM Model: 2014

-----Run1-----
Magnetic dec (+E/W).....: 7.61 degrees
Grid Conv (+E/W).....: 0.07 degrees
Total Azim Corr (+E/W).....: 7.54 degrees

-----Run2-----
Magnetic dec (+E/W).....: 7.61 degrees
Grid Conv (+E/W).....: 0.07 degrees
Total Azim Corr (+E/W).....: 7.54 degrees

-----Run3-----
Magnetic dec (+E/W).....: 7.61 degrees
Grid Conv (+E/W).....: 0.07 degrees
Total Azim Corr (+E/W).....: 7.54 degrees

-----Run4-----
Magnetic dec (+E/W).....: 7.61 degrees
Grid Conv (+E/W).....: 0.07 degrees
Total Azim Corr (+E/W).....: 7.54 degrees

----- Survey Correction Index Description -----

0 = Uncorrected 1 = Sag Corrected

2 = DMAG Corrected 3 = Sag + DMAG Corrected

Survey List													
Seq	MD (ft)	Incl (deg)	Azim (deg)	Course (ft)	TVD (ft)	V Sec (ft)	N/-S (ft)	E/-W (ft)	Closure (ft)	at Azi (deg)	DLS (deg/100ft)	Tool	Correction
1	0.00	0.00	0.00	-999.25	0.00	0.00	0.00	0.00	0	90.00	0.00	TIP	0
2	84.45	1.10	53.66	84.45	84.44	0.47	0.48	0.65	0.81	53.66	1.30	SingleShot	0
3	112.71	1.10	312.86	28.26	112.70	0.82	0.83	0.67	1.06	39.17	6.00	SingleShot	0
4	142.62	1.50	39.42	29.91	142.61	1.32	1.32	0.71	1.5	28.24	6.04	SingleShot	0
5	173.15	1.59	37.31	30.53	173.13	1.96	1.97	1.22	2.32	31.81	0.35	SingleShot	0
6	204.07	1.59	40.61	30.92	204.03	2.62	2.64	1.76	3.17	33.74	0.30	SingleShot	0
7	237.45	1.72	33.91	33.38	237.40	3.38	3.40	2.34	4.13	34.53	0.70	SingleShot	0
8	268.21	1.81	31.97	30.76	268.14	4.17	4.20	2.86	5.08	34.23	0.35	SingleShot	0
9	347.22	1.81	29.20	79.01	347.12	6.31	6.35	4.13	7.57	33.03	0.11	SingleShot	0
10	414.00	1.81	37.39	66.78	413.86	8.06	8.10	5.28	9.67	33.09	0.39	SingleShot	0
11	440.59	1.02	28.36	26.59	440.44	8.59	8.65	5.65	10.33	33.15	3.08	SingleShot	0
12	502.97	0.22	0.98	62.38	502.82	9.20	9.25	5.91	10.98	32.58	1.33	SingleShot	0
13	596.33	0.22	229.53	93.36	596.18	9.26	9.32	5.78	10.97	31.81	0.43	SingleShot	0
14	751.92	0.09	194.23	155.59	751.77	8.95	9.01	5.52	10.56	31.52	0.10	SingleShot	0
15	844.42	0.22	23.16	92.50	844.27	9.05	9.10	5.58	10.67	31.50	0.33	SingleShot	0
16	938.00	0.09	149.50	93.58	937.85	9.15	9.20	5.68	10.81	31.70	0.30	SingleShot	0
17	1030.12	0.09	187.31	92.12	1029.97	9.01	9.07	5.71	10.71	32.21	0.06	SingleShot	0
18	1123.08	0.22	171.67	92.96	1122.93	8.76	8.82	5.73	10.51	33.01	0.15	SingleShot	0
19	1214.42	0.09	96.49	91.84	1214.77	8.58	8.63	5.82	10.42	34.00	0.23	SingleShot	0
20	1306.42	0.09	168.98	91.50	1306.27	8.50	8.56	5.91	10.4	34.63	0.12	SingleShot	0
21	1399.36	0.22	331.81	92.94	1399.21	8.59	8.64	5.84	10.43	34.05	0.33	SingleShot	0
22	1493.25	0.09	2.79	93.89	1493.10	8.82	8.87	5.76	10.58	32.98	0.16	SingleShot	0
23	1589.17	0.09	75.60	95.92	1589.02	8.91	8.97	5.83	10.7	33.05	0.11	SingleShot	0
24	1683.36	0.09	359.09	94.19	1683.21	9.01	9.06	5.90	10.81	33.09	0.12	SingleShot	0
25	1778.60	0.22	94.24	95.24	1778.45	9.07	9.12	6.09	10.97	33.71	0.26	SingleShot	0
26	1837.19	0.22	51.06	58.59	1837.04	9.13	9.18	6.29	11.13	34.39	0.28	SingleShot	0
27	1981.72	0.09	282.19	144.53	1981.57	9.32	9.38	6.39	11.35	34.26	0.20	SingleShot	0
28	2075.92	0.31	256.19	94.20	2075.77	9.28	9.34	6.07	11.14	33.03	0.25	SingleShot	0
29	2171.17	0.31	264.83	95.25	2171.01	9.20	9.25	5.56	10.8	31.02	0.05	SingleShot	0
30	2265.72	0.40	277.56	94.55	2265.56	9.23	9.27	4.98	10.53	28.25	0.13	SingleShot	0
31	2360.96	0.40	289.02	95.24	2360.80	9.39	9.42	4.34	10.38	24.72	0.08	SingleShot	0
32	2456.37	0.40	274.87	95.41	2456.21	9.53	9.56	3.69	10.25	21.11	0.10	SingleShot	0
33	2551.40	0.62	270.16	95.03	2551.23	9.56	9.59	2.85	10	16.53	0.24	SingleShot	0
34	2646.33	0.71	258.13	94.93	2646.16	9.46	9.47	1.76	9.63	10.51	0.17	SingleShot	0
35	2740.92	0.88	250.59	94.59	2740.74	9.10	9.11	0.50	9.12	3.13	0.21	SingleShot	0
36	2836.07	0.88	252.40	95.15	2835.88	8.65	8.65	-0.89	8.69	354.14	0.03	SingleShot	0
37	2930.82	0.80	250.90	94.75	2930.62	8.23	8.21	-2.21	8.5	344.96	0.09	SingleShot	0
38	3026.01	0.80	251.52	95.19	3025.80	7.81	7.78	-3.46	8.52	336.01	0.01	SingleShot	0
39	3120.53	0.80	252.00	94.52	3120.31	7.41	7.37	-4.72	8.75	327.37	0.01	SingleShot	0
40	3215.86	0.80	250.50	95.33	3215.63	6.99	6.94	-5.98	9.16	319.26	0.02	SingleShot	0
41	3310.80	0.80	249.40	94.94	3310.56	6.55	6.49	-7.22	9.71	311.93	0.02	SingleShot	0
42	3406.08	0.80	248.70	95.28	3405.83	6.09	6.01	-8.46	10.38	305.38	0.01	SingleShot	0
43	3500.70	0.88	245.08	94.62	3500.44	5.55	5.46	-9.74	11.17	299.30	0.10	SingleShot	0
44	3595.64	1.02	243.06	94.94	3595.37	4.88	4.77	-11.15	12.13	293.17	0.15	SingleShot	0
45	3690.28	1.10	241.96	94.64	3689.99	4.08	3.97	-12.71	13.31	287.33	0.09	SingleShot	0
46	3785.80	1.10	237.77	95.52	3785.49	3.18	3.05	-14.29	14.61	282.03	0.08	SingleShot	0
47	3879.85	1.19	234.24	94.05	3879.52	2.14	1.99	-15.85	15.97	277.17	0.12	SingleShot	0
48	3975.12	1.33	230.54	95.27	3974.77	0.87	0.71	-17.50	17.52	272.33	0.17	SingleShot	0
49	4070.07	1.10	231.95	94.95	4069.70	-0.38	-0.55	-19.07	19.08	268.35	0.24	SingleShot	0
50	4164.89	1.10	233.85	94.82	4164.50	-1.46	-1.65	-20.52	20.59	265.41	0.04	SingleShot	0
51	4260.34	1.10	227.94	95.45	4259.94	-2.60	-2.80	-21.94	22.12	262.72	0.12	SingleShot	0
52	4355.05	1.33	223.31	94.71	4354.62	-4.00	-4.21	-23.37	23.75	259.79	0.26	SingleShot	0
53	4450.94	0.88	215.38	95.89	4450.50	-5.40	-5.62	-24.56	25.2	257.11	0.49	SingleShot	0
54	4545.58	0.88	217.73	94.64	4545.12	-6.56	-6.79	-25.43	26.32	255.05	0.04	SingleShot	0
55	4638.90	1.33	217.01	93.32	4638.43	-7.98	-8.22	-26.52	27.76	252.78	0.48	SingleShot	0
56	4733.27	1.02	221.20	94.37	4732.78	-9.47	-9.73	-27.73	29.39	250.67	0.34	SingleShot	0
57	4828.21	1.10	217.59	94.94	4827.70	-10.82	-11.08	-28.84	30.9	248.98	0.11	SingleShot	0
58	4923.10	1.10	211.77	94.89	4922.57	-12.31	-12.58	-29.88	32.42	247.17	0.12	SingleShot	0
59	5018.35	1.19	206.79	95.25	5017.80	-13.96	-14.24	-30.81	33.94	245.19	0.14	SingleShot	0
60	5112.00	1.19	215.12	93.65	5111.43	-15.61	-15.90	-31.80	35.56	243.43	0.18	SingleShot	0
61	5207.83	1.19	215.69	95.83	5207.24	-17.23	-17.53	-32.96	37.33	242.00	0.01	SingleShot	0
62	5302.75	1.41	212.08	94.92	5302.14	-19.01	-19.32	-34.15	39.24	240.51	0.25	SingleShot	0
63	5397.72	1.50	216.00	94.97	5397.08	-20.99	-21.31	-35.50	41.41	239.02	0.14	SingleShot	0
64	5492.71	1.50	221.90	94.99	5492.04	-22.91	-23.24	-37.06	43.75	237.91	0.16	SingleShot	0
65	5587.79	1.50	224.64	95.08	5587.08	-24.70	-25.05	-38.77	46.16	237.13	0.08	SingleShot	0
66	5683.31	1.50	243.98	95.52	5682.57	-26.12	-26.49	-40.77	48.62	236.99	0.53	SingleShot	0
67	5777.80	1.90	253.10	94.49	5777.02	-27.10	-27.49	-43.38	51.36	237.64	0.51	SingleShot	0
68	5872.37	2.03	256.50	94.57	5871.53	-27.91	-28.34	-46.51	54.46	238.65	0.18	SingleShot	0
69	5967.96	1.81	259.23	95.59	5967.07	-28.56	-29.01	-49.64	57.5	239.69	0.25	SingleShot	0
70	6062.06	1.72	262.62	94.10	6061.13	-29.00	-29.47	-52.50	60.21	240.69	0.15	SingleShot	0
71	6157.56	1.59	253.10	95.50	6156.59	-29.54	-30.04	-55.19	62.84	241.44	0.32	SingleShot	0
72	6251.91	1.59	241.56	94.35	6250.90	-30.52	-31.05	-57.59	65.43	241.67	0.34	SingleShot	0
73	6346.84	1.81	269.36	94.93	6345.79	-31.14	-31.69	-60.25	68.08	242.26	0.89	SingleShot	0
74	6451.14	2.03	280.29	104.30	6450.03	-30.80	-31.38	-63.71	71.02	243.78	0.41	SingleShot	0
75	6535.82	1.59	262.23	84.68	6534.67	-30.67	-31.27	-66.35	73.35	244.77	0.84	SingleShot	0
76	6630.00	1.59	262.31	94.18	6628.81	-30.99	-31.62	-68.94	75.85	245.36	0.00	SingleShot	0
77	6725.81	1.50	266.63	95.81	6724.59	-31.22	-31.87	-71.51	78.29	245.98	0.15	SingleShot	0
78	6821.81	1.59	298.14	96.00	6820.56	-30.65	-31.32	-73.94	80.3	247.04	0.88	SingleShot	0
79	6860.73	1.81	305.54	38.92	6859.46	-30.03	-30.71	-74.92	80.97	247.71	0.80	SingleShot	0
80	6888.00	1.74	297.86	27.27	6886.72	-29.58	-30.26	-75.63	81.46	248.19	0.91	SlimPulse	0
81	6920.00	3.02	300.78	32.00	6918.69	-28.91	-29.61	-76.79	82.3	248.92	4.03	SlimPulse	0
82	6951.00	5.94	306.78	31.00	6949.59	-27.51	-28.23	-78.77	83.68	250.29	9.53	SlimPulse	0
83	6983.00	9.32	310.25	32.00	6981.30	-24.81	-25.56	-82.08	85.97	252.70	10.65	SlimPulse	0
84	7015.00	13.82	312.06	32.00	7012.64	-20.53	-21.32	-86.90	89.47	256.21	14.10	SlimPulse	0
85	7047.00	17.32	313.57	32.00	7043.46	-14.63	-15.48	-93.19	94.46	260.57	11.01	SlimPulse	0

86	7079.00	21.57	318.11	32.00	7073.63	-6.90	-7.81	-100.57	100.87	265.56	14.08	SlimPulse	0
87	7111.00	25.30	322.51	32.00	7102.99	2.98	1.99	-108.66	108.68	271.05	12.89	SlimPulse	0
88	7142.00	29.03	324.22	31.00	7130.57	14.42	13.36	-117.09	117.85	276.51	12.29	SlimPulse	0
89	7174.00	33.49	327.10	32.00	7157.92	28.22	27.08	-126.43	129.3	282.09	14.70	SlimPulse	0
90	7206.00	36.58	332.13	32.00	7184.12	44.16	42.93	-135.69	142.32	287.56	13.20	SlimPulse	0
91	7238.00	39.33	337.01	32.00	7209.35	62.01	60.70	-144.11	156.38	292.84	12.71	SlimPulse	0
92	7269.00	42.54	337.94	31.00	7232.77	80.84	79.46	-151.89	171.42	297.62	10.52	SlimPulse	0
93	7301.00	45.44	337.79	32.00	7255.79	101.50	100.05	-160.26	189.93	301.97	9.07	SlimPulse	0
94	7332.00	47.79	337.24	31.00	7277.08	122.39	120.86	-168.88	207.67	305.59	7.71	SlimPulse	0
95	7364.00	49.78	336.63	32.00	7298.17	144.62	143.01	-178.31	228.57	308.73	6.36	SlimPulse	0
96	7396.00	52.40	337.74	32.00	7318.27	167.65	165.96	-187.96	250.74	311.44	8.63	SlimPulse	0
97	7427.00	56.41	339.88	31.00	7336.31	191.24	189.46	-197.06	273.36	313.87	14.10	SlimPulse	0
98	7459.00	61.09	342.63	32.00	7352.91	217.21	215.35	-205.83	297.9	316.30	16.36	SlimPulse	0
99	7490.00	65.36	344.58	31.00	7366.87	243.83	241.90	-213.63	322.73	318.55	14.88	SlimPulse	0
100	7522.00	68.11	346.81	32.00	7379.51	272.38	270.38	-220.88	349.14	320.75	10.72	SlimPulse	0
101	7554.00	68.82	348.10	32.00	7391.26	301.49	299.44	-227.35	375.97	322.79	4.36	SlimPulse	0
102	7585.00	71.75	350.00	31.00	7401.72	330.19	328.08	-232.89	402.34	324.63	11.06	SlimPulse	0
103	7617.00	74.96	351.93	32.00	7410.88	360.50	358.36	-237.70	430.02	326.44	11.58	SlimPulse	0
104	7649.00	79.72	353.22	32.00	7417.89	391.49	389.31	-241.73	458.25	328.16	15.40	SlimPulse	0
105	7681.00	83.97	355.17	32.00	7422.43	423.02	420.82	-244.93	486.9	329.80	14.57	SlimPulse	0
106	7713.00	87.28	357.93	32.00	7424.88	454.88	452.66	-246.85	515.59	331.40	13.45	SlimPulse	0
107	7744.00	88.14	359.20	31.00	7426.11	485.85	483.62	-247.62	543.33	332.89	4.96	SlimPulse	0
108	7784.00	88.56	359.30	40.00	7427.26	525.83	523.60	-248.14	579.43	334.64	1.06	SlimPulse	0
109	7838.00	89.07	359.22	54.00	7428.38	579.82	577.58	-248.84	628.91	336.69	0.96	SlimPulse	0
110	7931.00	88.79	358.09	93.00	7430.12	672.79	670.54	-251.03	715.99	339.48	1.25	SlimPulse	0
111	8026.00	87.73	358.88	95.00	7433.00	767.73	765.46	-253.54	806.36	341.67	1.40	SlimPulse	0
112	8122.00	87.46	0.55	96.00	7437.03	863.64	861.37	-254.01	898.05	343.57	1.76	SlimPulse	0
113	8216.00	87.25	0.15	94.00	7441.37	957.53	955.27	-253.44	988.32	345.14	0.48	SlimPulse	0
114	8311.00	87.08	359.84	95.00	7446.08	1052.41	1050.15	-253.45	1080.3	346.43	0.37	SlimPulse	0
115	8407.00	86.97	1.18	96.00	7451.06	1148.26	1146.02	-252.59	1173.52	347.57	1.40	SlimPulse	0
116	8501.00	87.04	2.28	94.00	7455.97	1242.06	1239.85	-249.75	1264.75	348.61	1.17	SlimPulse	0
117	8596.00	87.11	1.37	95.00	7460.82	1336.86	1334.67	-246.73	1357.29	349.53	0.96	SlimPulse	0
118	8691.00	87.49	358.85	95.00	7465.30	1431.74	1429.56	-246.55	1450.66	350.21	2.68	SlimPulse	0
119	8786.00	88.18	357.93	95.00	7468.89	1526.65	1524.45	-249.21	1544.69	350.72	1.20	SlimPulse	0
120	8881.00	88.35	358.10	95.00	7471.77	1621.58	1619.35	-252.50	1638.92	351.14	0.25	SlimPulse	0
121	8976.00	88.80	357.34	95.00	7474.13	1716.50	1714.25	-256.28	1733.3	351.50	0.92	SlimPulse	0
122	9072.00	89.62	357.86	96.00	7475.46	1812.44	1810.15	-260.30	1828.77	351.82	1.01	SlimPulse	0
123	9167.00	90.21	359.01	95.00	7475.60	1907.42	1905.11	-262.90	1923.17	352.14	1.36	SlimPulse	0
124	9262.00	90.86	358.90	95.00	7474.72	2002.41	2000.09	-264.64	2017.52	352.46	0.70	SlimPulse	0
125	9357.00	90.86	359.32	95.00	7473.29	2097.40	2095.07	-266.12	2111.9	352.76	0.45	SlimPulse	0
126	9452.00	90.76	2.75	95.00	7471.95	2192.34	2190.03	-264.40	2205.93	353.12	3.60	SlimPulse	0
127	9548.00	90.79	3.39	96.00	7470.65	2288.14	2285.88	-259.27	2300.54	353.53	0.67	SlimPulse	0
128	9642.00	90.45	2.76	94.00	7469.63	2381.95	2379.74	-254.22	2393.28	353.90	0.76	SlimPulse	0
129	9738.00	90.86	3.33	96.00	7468.54	2477.76	2475.60	-249.12	2488.1	354.25	0.73	SlimPulse	0
130	9833.00	91.14	2.78	95.00	7466.88	2572.56	2570.45	-244.06	2582.01	354.58	0.65	SlimPulse	0
131	9928.00	91.14	0.44	95.00	7465.00	2667.47	2665.39	-241.39	2676.3	354.83	2.46	SlimPulse	0
132	10023.00	90.86	356.84	95.00	7463.35	2762.43	2760.33	-243.65	2771.06	354.96	3.80	SlimPulse	0
133	10118.00	91.07	356.31	95.00	7461.75	2857.29	2855.15	-249.32	2866.01	355.01	0.60	SlimPulse	0
134	10212.00	91.14	357.44	94.00	7459.94	2951.18	2948.98	-254.45	2959.95	355.07	1.20	SlimPulse	0
135	10307.00	91.10	357.77	95.00	7458.08	3046.11	3043.89	-258.42	3054.84	355.15	0.35	SlimPulse	0
136	10402.00	91.17	357.57	95.00	7456.20	3141.04	3138.79	-262.28	3149.73	355.22	0.22	SlimPulse	0
137	10497.00	91.31	357.39	95.00	7454.14	3235.96	3233.68	-266.46	3244.64	355.29	0.24	SlimPulse	0
138	10593.00	91.45	357.30	96.00	7451.84	3331.87	3329.55	-270.90	3340.55	355.35	0.17	SlimPulse	0
139	10688.00	91.24	357.32	95.00	7449.61	3426.77	3424.42	-275.35	3435.47	355.40	0.22	SlimPulse	0
140	10782.00	90.65	356.77	94.00	7448.06	3520.68	3518.28	-280.19	3529.42	355.45	0.85	SlimPulse	0
141	10877.00	90.03	357.83	95.00	7447.49	3615.60	3613.17	-284.65	3624.36	355.50	1.29	SlimPulse	0
142	10972.00	90.00	357.79	95.00	7447.46	3710.56	3708.10	-288.28	3719.29	355.55	0.06	SlimPulse	0
143	11067.00	91.07	358.55	95.00	7446.58	3805.53	3803.04	-291.32	3814.19	355.62	1.38	SlimPulse	0
144	11162.00	91.72	358.78	95.00	7444.27	3900.49	3897.99	-293.53	3909.03	355.69	0.73	SlimPulse	0
145	11257.00	91.89	358.08	95.00	7441.27	3995.43	3992.91	-296.13	4003.87	355.76	0.76	SlimPulse	0
146	11352.00	90.93	357.45	95.00	7438.94	4090.36	4087.80	-299.83	4098.79	355.81	1.21	SlimPulse	0
147	11447.00	90.96	357.60	95.00	7437.37	4185.29	4182.70	-303.92	4193.73	355.84	0.16	SlimPulse	0
148	11542.00	91.03	358.22	95.00	7435.71	4280.24	4277.63	-307.38	4288.65	355.89	0.65	SlimPulse	0
149	11637.00	91.07	358.68	95.00	7433.97	4375.21	4372.57	-309.95	4383.55	355.95	0.48	SlimPulse	0
150	11733.00	90.93	359.00	96.00	7432.30	4471.19	4468.54	-311.90	4479.41	356.01	0.37	SlimPulse	0
151	11828.00	90.79	359.98	95.00	7430.88	4566.17	4563.52	-312.74	4574.23	356.08	1.04	SlimPulse	0
152	11923.00	90.00	1.09	95.00	7430.22	4661.15	4658.52	-311.86	4668.94	356.17	1.43	SlimPulse	0
153	12019.00	89.86	0.76	96.00	7430.34	4757.12	4754.50	-310.31	4764.62	356.27	0.37	SlimPulse	0
154	12113.00	89.72	0.26	94.00	7430.67	4851.11	4848.50	-309.48	4858.37	356.35	0.55	SlimPulse	0
155	12208.00	89.52	358.93	95.00	7431.30	4946.10	4943.49	-310.16	4953.21	356.41	1.41	SlimPulse	0
156	12303.00	89.83	357.03	95.00	7431.84	5041.06	5038.43	-313.51	5048.17	356.44	2.02	SlimPulse	0
157	12398.00	89.45	355.42	95.00	7432.44	5135.91	5133.22	-319.76	5143.16	356.44	1.74	SlimPulse	0
158	12493.00	90.03	355.29	95.00	7432.87	5230.66	5227.90	-327.45	5238.15	356.42	0.63	SlimPulse	0
159	12588.00	91.31	356.53	95.00	7431.76	5325.46	5322.65	-334.23	5333.13	356.41	1.87	SlimPulse	0
160	12682.00	91.62	357.42	94.00	7429.36	5419.34	5416.49	-339.19	5427.1	356.42	1.00	SlimPulse	0
161	12777.00	91.93	358.22	95.00	7426.42	5514.26	5511.37	-342.81	5522.02	356.44	0.90	SlimPulse	0
162	12874.00	92.10	357.98	97.00	7423.01	5611.17	5608.26	-346.02	5618.92	356.47	0.30	SlimPulse	0
163	12970.00	90.17	358.27	96.00	7421.11	5707.12	5704.18	-349.16	5714.86	356.50	2.03	SlimPulse	0
164	13062.00	89.79	358.97	92.00	7421.14	5799.11	5796.16	-351.37	5806.8	356.53	0.87	SlimPulse	0
165	13157.00	89.86	359.81	95.00	7421.42	5894.10	5891.15	-352.38	5901.68	356.58	0.89	SlimPulse	0
166	13252.00	89.79	1.10	95.00	7421.71	5989.09	5986.14	-351.63	5996.46	356.64	1.36	SlimPulse	0
167	13346.00	89.93	2.15	94.00	7421.94	6083.02	6080.10	-348.96	6090.11	356.72	1.13	SlimPulse	0
168	13444.00	89.90	1.83	98.00	7422.08	6180.93	6178.05	-345.56	6187.7	356.80	0.33	SlimPulse	0
169	13536.00	89.69	0.54	92.00	7422.41	6272.88	6270.02	-343.66					

Cimarex Klein 33 Federal Com #5H XEM + MWD Off to 14134 Survey



Report

(Def Survey)

Report Date:

May 26, 2015 - 09:37 AM

Client:

Cimarex

Field:

NM Eddy County (NAD 83)

Structure / Slot:

Cimarex Klein 33 Federal Com #5H / Cimarex Klein 33 Federal Com

Well:

Cimarex Klein 33 Federal Com #5H

Borehole:

Original Borehole

UWI / API#:

Cactus 112 / Unknown

Survey Name:

Cimarex Klein 33 Federal Com #5H XEM + MWD Off to 14134

Survey Date:

January 08, 2015

Tort / AHD / DDI / ERD Ratio:

179.387° / 7055.081 ft / 6.379 / 0.944

Coordinate Reference System:

NAD83 New Mexico State Plane, Eastern Zone, US Feet

Location Lat / Long:

N 32° 0' 2.15516" W 104° 11' 48.91047"

Location Grid N/E Y/X:

N 363983.980 RUS, E 583623.880 RUS

CRS Grid Convergence Angle:

0.0723°

Grid Scale Factor:

0.99991114

Version / Patch:

2.8.572.0

Survey / DLS Computation:

Minimum Curvature / Lubinski

359.478° (Grid North)

0.000 ft, 0.000 ft

Vertical Section Azimuth:

RKB

Vertical Section Origin:

3211.000 ft above MSL

3186.000 ft above MSL

7.607°

998.4336mgn (9.80665 Based)

GARM

TVD Reference Datum:

48188.061 nT

59.723°

January 16, 2015

HDGM 2014

Grid North

0.0723°

7.5350°

Structure Reference Point

Local Coord Referenced To:

Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
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SHL Cimarex	0.00	0.00	318.50	0.00	0.00	0.00	0.00	N/A	363983.98	583623.85	N 32 0 2.16	W 104 11 48.91
Klein 33 Federal												
Com SH 1980												
FWL 210 FSL												
	84.45	1.10	53.66	84.44	0.47	0.48	0.65	1.30	363984.46	583624.53	N 32 0 2.16	W 104 11 48.90
	112.71	1.10	312.66	112.70	0.82	0.83	0.67	6.00	363984.81	583624.55	N 32 0 2.16	W 104 11 48.90
	142.62	1.50	39.42	142.61	1.32	1.32	0.71	6.04	363985.30	583624.59	N 32 0 2.17	W 104 11 48.90
	173.15	1.59	37.31	173.13	1.96	1.97	1.22	0.35	363985.95	583625.10	N 32 0 2.17	W 104 11 48.90
	204.07	1.59	40.61	204.03	2.62	2.64	1.76	0.30	363986.62	583625.64	N 32 0 2.18	W 104 11 48.89
	237.45	1.72	33.91	237.40	3.38	3.40	2.34	0.70	363987.38	583626.22	N 32 0 2.19	W 104 11 48.88
	268.21	1.81	31.97	268.14	4.17	4.20	2.86	0.35	363988.18	583626.74	N 32 0 2.20	W 104 11 48.88
	347.22	1.81	29.20	347.12	6.31	6.35	4.13	0.11	363990.33	583628.01	N 32 0 2.22	W 104 11 48.86
	414.00	1.81	37.39	413.86	8.06	8.10	5.28	0.39	363992.08	583629.16	N 32 0 2.24	W 104 11 48.85
	440.59	1.02	28.36	440.44	8.59	8.65	5.65	3.08	363992.63	583629.53	N 32 0 2.24	W 104 11 48.84
	502.97	0.22	0.96	502.82	9.20	9.25	5.91	1.33	363993.23	583629.79	N 32 0 2.25	W 104 11 48.84
	596.33	0.22	229.53	596.18	9.26	9.32	5.78	0.43	363993.30	583629.66	N 32 0 2.25	W 104 11 48.84
	751.92	0.09	194.23	751.77	8.95	9.01	5.52	0.10	363992.98	583629.40	N 32 0 2.24	W 104 11 48.85
	844.42	0.22	23.16	844.27	9.05	9.10	5.58	0.33	363993.08	583629.45	N 32 0 2.25	W 104 11 48.85
	938.00	0.09	149.50	937.85	9.15	9.20	5.68	0.30	363993.18	583629.56	N 32 0 2.25	W 104 11 48.84
	1030.12	0.09	187.31	1029.97	9.01	9.07	5.71	0.06	363993.05	583629.59	N 32 0 2.24	W 104 11 48.84
	1123.08	0.22	171.67	1122.93	8.76	8.82	5.73	0.15	363992.80	583629.61	N 32 0 2.24	W 104 11 48.84
	1214.92	0.09	96.49	1214.77	8.58	8.63	5.82	0.23	363992.61	583629.70	N 32 0 2.24	W 104 11 48.84
	1306.42	0.09	168.98	1306.27	8.50	8.56	5.91	0.12	363992.53	583629.79	N 32 0 2.24	W 104 11 48.84

Comments	MO (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')
	1399.36	0.22	331.81	1399.21	8.59	8.64	5.84	0.33	363992.62	583629.72	N 32 0 2.24	W 104 11 48.84
	1493.25	0.09	2.79	1493.10	8.82	8.87	5.76	0.16	363992.85	583629.64	N 32 0 2.24	W 104 11 48.84
	1589.17	0.09	75.60	1589.02	8.91	8.97	5.83	0.11	363992.95	583629.71	N 32 0 2.24	W 104 11 48.84
	1683.36	0.09	359.09	1683.21	9.01	9.06	5.90	0.12	363993.04	583629.78	N 32 0 2.24	W 104 11 48.84
	1778.60	0.22	94.24	1778.45	9.07	9.12	6.09	0.26	363993.10	583629.97	N 32 0 2.25	W 104 11 48.84
	1837.19	0.22	51.06	1837.04	9.13	9.18	6.29	0.28	363993.16	583630.16	N 32 0 2.25	W 104 11 48.84
	1981.72	0.09	282.19	1981.57	9.32	9.38	6.39	0.20	363993.36	583630.27	N 32 0 2.25	W 104 11 48.84
	2075.92	0.31	256.19	2075.77	9.28	9.34	6.07	0.25	363993.32	583629.95	N 32 0 2.25	W 104 11 48.84
	2171.17	0.31	264.83	2171.01	9.20	9.25	5.56	0.05	363993.23	583629.44	N 32 0 2.25	W 104 11 48.85
	2265.72	0.40	277.56	2265.56	9.23	9.27	4.98	0.13	363993.25	583628.86	N 32 0 2.25	W 104 11 48.85
	2360.96	0.40	289.02	2360.80	9.38	9.42	4.34	0.08	363993.40	583628.22	N 32 0 2.25	W 104 11 48.86
	2456.37	0.40	274.87	2456.21	9.53	9.56	3.69	0.10	363993.54	583627.57	N 32 0 2.25	W 104 11 48.87
	2551.40	0.62	270.16	2551.23	9.56	9.59	2.85	0.24	363993.57	583626.73	N 32 0 2.25	W 104 11 48.88
	2646.33	0.71	258.13	2646.16	9.46	9.47	1.76	0.17	363993.45	583625.64	N 32 0 2.25	W 104 11 48.89
	2740.92	0.88	250.59	2740.74	9.10	9.11	0.50	0.21	363993.09	583624.38	N 32 0 2.25	W 104 11 48.90
	2836.07	0.88	252.40	2835.88	8.65	8.65	-0.89	0.03	363992.63	583622.99	N 32 0 2.24	W 104 11 48.92
	2930.82	0.80	250.90	2930.62	8.23	8.21	-2.21	0.09	363992.19	583621.67	N 32 0 2.24	W 104 11 48.94
	3026.01	0.80	251.52	3025.80	7.81	7.78	-3.46	0.01	363991.76	583620.42	N 32 0 2.23	W 104 11 48.95
	3120.53	0.80	252.00	3120.31	7.41	7.37	-4.72	0.01	363991.35	583619.16	N 32 0 2.23	W 104 11 48.97
	3215.86	0.80	250.50	3215.63	6.99	6.94	-5.98	0.02	363990.92	583617.90	N 32 0 2.22	W 104 11 48.98
	3310.80	0.80	249.40	3310.56	6.55	6.49	-7.22	0.02	363990.47	583616.66	N 32 0 2.22	W 104 11 48.99
	3406.08	0.80	248.70	3405.83	6.09	6.01	-8.46	0.01	363989.99	583615.42	N 32 0 2.21	W 104 11 49.01
	3500.70	0.88	245.08	3500.44	5.55	5.46	-9.74	0.10	363989.44	583614.14	N 32 0 2.21	W 104 11 49.02
	3595.64	1.02	243.06	3595.37	4.88	4.77	-11.15	0.15	363988.75	583612.73	N 32 0 2.20	W 104 11 49.04
	3690.28	1.10	241.96	3689.99	4.08	3.97	-12.71	0.09	363987.95	583611.17	N 32 0 2.19	W 104 11 49.06
	3785.80	1.10	237.77	3785.49	3.18	3.05	-14.29	0.08	363987.03	583609.59	N 32 0 2.19	W 104 11 49.08
	3879.85	1.19	234.24	3879.52	2.14	1.99	-15.85	0.12	363985.97	583608.03	N 32 0 2.18	W 104 11 49.09
	3975.12	1.33	230.54	3974.77	0.87	0.71	-17.50	0.17	363984.69	583606.38	N 32 0 2.16	W 104 11 49.11
	4070.07	1.10	231.95	4069.70	-0.38	-0.55	-19.07	0.24	363983.43	583604.81	N 32 0 2.15	W 104 11 49.13
	4164.89	1.10	233.85	4164.50	-1.46	-1.65	-20.52	0.04	363982.33	583603.35	N 32 0 2.14	W 104 11 49.15
	4260.34	1.10	227.84	4259.94	-2.60	-2.80	-21.94	0.12	363981.18	583601.94	N 32 0 2.13	W 104 11 49.17
	4355.05	1.33	223.31	4354.62	-4.00	-4.21	-23.37	0.26	363979.77	583600.51	N 32 0 2.11	W 104 11 49.18
	4450.94	0.88	215.38	4450.50	-5.40	-5.62	-24.56	0.49	363978.36	583599.32	N 32 0 2.10	W 104 11 49.20
	4545.58	0.88	217.73	4545.12	-6.56	-6.79	-25.43	0.04	363977.19	583598.45	N 32 0 2.09	W 104 11 49.21
	4638.90	1.33	217.01	4638.43	-7.98	-8.22	-26.52	0.48	363975.76	583597.36	N 32 0 2.07	W 104 11 49.22
	4733.27	1.02	221.20	4732.78	-9.47	-9.73	-27.73	0.34	363974.25	583596.15	N 32 0 2.06	W 104 11 49.23
	4828.21	1.10	217.59	4827.70	-10.82	-11.08	-28.84	0.11	363972.90	583595.04	N 32 0 2.05	W 104 11 49.25
	4923.10	1.10	211.77	4922.57	-12.31	-12.58	-29.88	0.12	363971.40	583594.00	N 32 0 2.03	W 104 11 49.26
	5018.35	1.19	206.79	5017.80	-13.96	-14.24	-30.81	0.14	363969.74	583593.08	N 32 0 2.01	W 104 11 49.27
	5112.00	1.19	215.12	5111.43	-15.61	-15.90	-31.80	0.18	363968.08	583592.08	N 32 0 2.00	W 104 11 49.28
	5207.83	1.19	215.69	5207.24	-17.22	-17.53	-32.96	0.01	363966.46	583590.93	N 32 0 1.98	W 104 11 49.29
	5302.75	1.41	212.08	5302.14	-19.00	-19.32	-34.15	0.25	363964.67	583589.73	N 32 0 1.96	W 104 11 49.31
	5397.72	1.50	216.00	5397.08	-20.99	-21.31	-35.50	0.16	363962.67	583588.38	N 32 0 1.94	W 104 11 49.32
	5492.71	1.50	221.90	5492.04	-22.90	-23.24	-37.06	0.14	363960.74	583586.82	N 32 0 1.93	W 104 11 49.34
	5587.79	1.50	224.64	5587.08	-24.70	-25.05	-38.77	0.08	363958.93	583585.11	N 32 0 1.91	W 104 11 49.36
	5683.31	1.50	243.98	5682.57	-26.12	-26.49	-40.77	0.53	363957.49	583583.11	N 32 0 1.89	W 104 11 49.38
	5777.80	1.90	253.10	5777.02	-27.09	-27.49	-43.38	0.51	363956.49	583580.50	N 32 0 1.88	W 104 11 49.41
	5872.37	2.03	256.50	5871.53	-27.91	-28.34	-46.51	0.18	363955.65	583577.37	N 32 0 1.88	W 104 11 49.45

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S °.′.″)	Longitude (E/W °.′.″)
	5967.96	1.81	259.23	5967.07	-28.56	-29.01	-49.64	0.25	363954.97	583574.24	N 32 0 1.87	W 104 11 49.49
	6062.06	1.72	262.62	6061.13	-28.99	-29.47	-52.50	0.15	363954.51	583571.38	N 32 0 1.86	W 104 11 49.52
	6157.56	1.59	253.10	6156.59	-29.54	-30.04	-55.19	0.32	363953.94	583568.70	N 32 0 1.86	W 104 11 49.55
	6251.91	1.59	241.56	6250.90	-30.52	-31.05	-57.59	0.34	363952.94	583566.29	N 32 0 1.85	W 104 11 49.58
	6346.84	1.81	269.36	6345.78	-31.14	-31.69	-60.25	0.89	363952.29	583563.64	N 32 0 1.84	W 104 11 49.61
	6451.14	2.03	280.29	6450.03	-30.80	-31.38	-63.71	0.41	363952.60	583560.17	N 32 0 1.85	W 104 11 49.65
	6535.82	1.59	262.23	6534.67	-30.66	-31.27	-66.35	0.84	363952.71	583557.53	N 32 0 1.85	W 104 11 49.68
	6630.00	1.59	262.31	6628.81	-30.99	-31.62	-68.94	0.00	363952.36	583554.94	N 32 0 1.84	W 104 11 49.71
	6725.81	1.50	266.63	6724.59	-31.22	-31.87	-71.51	0.15	363952.11	583552.37	N 32 0 1.84	W 104 11 49.74
	6821.81	1.59	298.14	6820.56	-30.64	-31.32	-73.94	0.88	363952.66	583549.94	N 32 0 1.85	W 104 11 49.77
	6860.73	1.81	305.54	6859.46	-30.02	-30.71	-74.92	0.80	363953.28	583548.97	N 32 0 1.86	W 104 11 49.78
	6888.00	1.74	297.86	6886.72	-29.57	-30.26	-75.63	0.91	363953.72	583546.25	N 32 0 1.86	W 104 11 49.79
	6920.00	3.02	300.78	6918.69	-28.90	-29.60	-76.79	4.02	363954.38	583547.10	N 32 0 1.86	W 104 11 49.80
	6951.00	5.94	306.78	6949.59	-27.51	-28.23	-78.78	9.53	363955.76	583545.11	N 32 0 1.88	W 104 11 49.83
	6983.00	9.32	310.25	6981.30	-24.81	-25.56	-82.08	10.66	363958.42	583541.81	N 32 0 1.90	W 104 11 49.86
	7015.00	13.82	312.06	7012.64	-20.53	-21.32	-86.90	14.11	363962.66	583536.99	N 32 0 1.95	W 104 11 49.92
	7047.00	17.32	313.57	7043.46	-14.63	-15.48	-93.19	11.01	363968.50	583530.70	N 32 0 2.00	W 104 11 49.99
	7079.00	21.57	318.11	7073.63	-6.90	-7.81	-100.57	14.09	363976.17	583523.32	N 32 0 2.08	W 104 11 50.08
	7111.00	25.30	322.51	7102.99	2.99	2.00	-108.66	12.87	363985.98	583516.23	N 32 0 2.18	W 104 11 50.17
	7142.00	29.03	324.22	7130.57	14.42	13.36	-117.10	12.29	363997.34	583506.79	N 32 0 2.29	W 104 11 50.27
	7174.00	33.49	327.10	7157.92	28.23	27.08	-126.44	14.70	364011.06	583497.46	N 32 0 2.42	W 104 11 50.38
	7206.00	36.58	332.13	7184.12	44.16	42.93	-135.69	13.21	364026.90	583488.20	N 32 0 2.58	W 104 11 50.49
	7238.00	39.33	337.01	7209.36	62.01	60.70	-144.11	12.72	364044.67	583479.78	N 32 0 2.76	W 104 11 50.58
	7269.00	42.54	337.94	7232.77	80.84	79.46	-151.89	10.54	364063.43	583472.00	N 32 0 2.94	W 104 11 50.67
	7301.00	45.44	337.79	7255.79	101.50	100.04	-160.26	9.07	364084.02	583463.63	N 32 0 3.15	W 104 11 50.77
	7331.00	47.71	337.26	7276.41	121.71	120.18	-168.59	7.69	364104.15	583455.30	N 32 0 3.35	W 104 11 50.87
	7362.00	47.79	337.24	7277.08	122.39	120.86	-168.88	7.69	364104.83	583455.01	N 32 0 3.35	W 104 11 50.87
	7364.00	49.78	336.53	7298.17	144.62	143.00	-178.31	6.38	364126.97	583445.58	N 32 0 3.57	W 104 11 50.98
	7396.00	52.40	337.74	7318.27	167.86	165.96	-187.96	8.62	364143.92	583435.93	N 32 0 3.80	W 104 11 51.09
	7427.00	56.41	339.88	7336.31	191.24	189.46	-197.06	14.10	364173.42	583426.84	N 32 0 4.03	W 104 11 51.20
	7459.00	61.09	342.63	7352.91	217.22	215.36	-205.83	16.36	364199.32	583418.07	N 32 0 4.29	W 104 11 51.30
	7490.00	65.36	344.58	7366.87	243.84	241.90	-213.63	14.87	364225.86	583410.27	N 32 0 4.55	W 104 11 51.39
	7522.00	68.11	346.81	7379.51	272.39	270.38	-220.89	10.72	364254.34	583403.01	N 32 0 4.83	W 104 11 51.47
	7554.00	68.82	348.10	7391.25	301.50	299.44	-227.36	4.36	364283.39	583396.55	N 32 0 5.12	W 104 11 51.55
	7585.00	71.75	350.00	7401.71	330.19	328.09	-232.89	11.07	364312.04	583391.01	N 32 0 5.40	W 104 11 51.61
	7617.00	74.96	351.93	7410.88	360.51	358.36	-237.70	11.58	364342.31	583386.20	N 32 0 5.70	W 104 11 51.67
	7649.00	79.72	353.22	7417.89	391.50	389.31	-241.73	15.39	364373.26	583382.17	N 32 0 6.01	W 104 11 51.71
	7681.00	83.97	355.17	7422.43	423.03	420.82	-244.93	14.59	364404.76	583378.97	N 32 0 6.32	W 104 11 51.75
	7713.00	87.28	357.93	7424.87	454.89	452.66	-246.85	13.45	364436.60	583377.05	N 32 0 6.64	W 104 11 51.77
	7744.00	88.14	359.20	7426.11	485.86	483.62	-247.63	4.94	364467.56	583376.28	N 32 0 6.94	W 104 11 51.78
	7784.00	88.56	359.30	7427.26	525.84	523.60	-248.15	1.08	364507.54	583375.75	N 32 0 7.34	W 104 11 51.78
	7838.00	89.07	359.22	7428.38	579.83	577.59	-248.85	0.96	364561.51	583375.06	N 32 0 7.87	W 104 11 51.79
	7931.00	88.79	358.09	7430.11	672.80	670.54	-251.03	1.25	364654.46	583372.87	N 32 0 8.79	W 104 11 51.82
	8026.00	87.73	358.88	7433.00	767.74	765.46	-253.54	1.39	364749.38	583370.36	N 32 0 9.73	W 104 11 51.84
	8122.00	87.46	0.55	7437.03	863.65	861.38	-254.02	1.76	364845.28	583369.89	N 32 0 10.68	W 104 11 51.85
	8216.00	87.25	0.15	7441.36	957.54	955.27	-253.44	0.48	364939.17	583370.45	N 32 0 11.61	W 104 11 51.84
	8311.00	87.08	359.84	7446.06	1052.42	1050.16	-253.45	0.37	365034.04	583370.45	N 32 0 12.55	W 104 11 51.84

Cross Hard
Line

FTP

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N 32 0 13.50 W 104 11 51.63)	Longitude (E 104 11 51.63)
	8407.00	86.97	1.18	7451.05	1148.27	1146.02	-252.60	1.40	365129.90	583371.30	N 32 0 13.50 W 104 11 51.63	
	8501.00	87.04	2.28	7455.96	1242.07	1239.85	-243.77	1.17	365223.72	583374.14	N 32 0 14.43 W 104 11 51.79	
	8596.00	87.11	1.37	7460.80	1336.87	1334.68	-246.74	0.96	365318.53	583377.16	N 32 0 15.37 W 104 11 51.76	
	8691.00	87.49	358.85	7465.28	1431.75	1429.56	-246.56	2.68	365413.41	583377.34	N 32 0 16.30 W 104 11 51.75	
	8786.00	88.18	357.93	7468.87	1526.66	1524.46	-249.23	1.21	365503.30	583374.67	N 32 0 17.24 W 104 11 51.78	
	8881.00	88.35	358.10	7471.75	1621.59	1619.35	-252.52	0.25	365603.19	583371.38	N 32 0 18.18 W 104 11 51.82	
	8976.00	88.80	357.34	7474.11	1716.51	1714.25	-256.30	0.93	365698.07	583367.61	N 32 0 19.12 W 104 11 51.86	
	9072.00	89.62	357.86	7475.43	1812.45	1810.15	-260.32	1.01	365793.97	583363.59	N 32 0 20.07 W 104 11 51.91	
	9167.00	90.21	359.01	7475.57	1907.43	1905.12	-262.91	1.36	365888.92	583360.99	N 32 0 21.01 W 104 11 51.94	
	9262.00	90.86	358.90	7474.69	2002.42	2000.10	-264.64	0.69	365983.90	583359.26	N 32 0 21.96 W 104 11 51.95	
	9357.00	90.86	359.32	7473.26	2097.41	2095.07	-266.12	0.44	366078.66	583357.79	N 32 0 22.89 W 104 11 51.97	
	9452.00	90.76	2.75	7471.92	2192.35	2190.04	-264.40	3.61	366173.82	583359.50	N 32 0 23.83 W 104 11 51.95	
	9548.00	90.79	3.39	7470.62	2288.15	2285.89	-259.26	0.67	366269.66	583364.64	N 32 0 24.78 W 104 11 51.89	
	9642.00	90.45	2.76	7469.60	2381.96	2379.75	-254.22	0.76	366363.51	583359.68	N 32 0 25.71 W 104 11 51.83	
	9738.00	90.86	3.33	7468.50	2477.77	2475.60	-249.12	0.73	366459.36	583374.78	N 32 0 26.66 W 104 11 51.77	
	9833.00	91.14	2.78	7466.85	2572.57	2570.45	-244.06	0.65	366554.20	583379.84	N 32 0 27.59 W 104 11 51.71	
	9928.00	91.14	0.44	7464.96	2667.48	2665.39	-241.39	2.46	366649.13	583382.51	N 32 0 28.53 W 104 11 51.67	
	10023.00	90.86	358.84	7463.30	2762.44	2760.33	-243.64	3.80	366744.06	583380.26	N 32 0 29.47 W 104 11 51.70	
	10118.00	91.07	356.31	7461.70	2857.30	2855.15	-249.32	0.60	366838.87	583374.58	N 32 0 30.41 W 104 11 51.76	
	10212.00	91.14	357.44	7459.88	2951.19	2948.99	-254.44	1.20	366932.70	583366.46	N 32 0 31.34 W 104 11 51.82	
	10307.00	91.10	357.77	7458.03	3046.12	3043.89	-258.41	0.35	367027.59	583365.49	N 32 0 32.28 W 104 11 51.87	
	10402.00	91.17	357.57	7456.15	3141.05	3138.79	-262.27	0.22	367122.49	583361.63	N 32 0 33.22 W 104 11 51.91	
	10497.00	91.31	357.39	7454.09	3235.97	3233.68	-266.45	0.24	367217.37	583357.46	N 32 0 34.16 W 104 11 51.96	
	10593.00	91.45	357.30	7451.78	3331.88	3329.55	-270.89	0.17	367313.23	583353.01	N 32 0 35.11 W 104 11 52.01	
	10688.00	91.24	357.32	7449.55	3426.78	3424.42	-273.35	0.22	367408.09	583348.55	N 32 0 36.04 W 104 11 52.06	
	10782.00	90.65	356.77	7448.00	3520.69	3518.28	-280.20	0.85	367501.94	583343.71	N 32 0 36.97 W 104 11 52.11	
	10877.00	90.03	357.83	7447.43	3616.61	3613.17	-284.67	1.29	367596.82	583339.23	N 32 0 37.91 W 104 11 52.16	
	10972.00	90.00	357.79	7447.41	3710.57	3708.10	-288.30	0.05	367691.74	583335.60	N 32 0 38.85 W 104 11 52.20	
	11067.00	91.07	358.55	7446.52	3805.54	3803.05	-291.34	1.38	367786.68	583332.57	N 32 0 39.79 W 104 11 52.24	
	11162.00	91.72	358.78	7444.21	3900.50	3897.99	-293.55	0.73	367881.62	583330.36	N 32 0 40.73 W 104 11 52.26	
	11257.00	91.89	358.08	7441.22	3995.44	3992.91	-296.15	0.76	367976.53	583327.76	N 32 0 41.67 W 104 11 52.29	
	11352.00	90.93	357.45	7438.88	4090.37	4087.81	-299.85	1.21	368071.41	583324.05	N 32 0 42.61 W 104 11 52.33	
	11447.00	90.96	357.60	7437.31	4185.30	4182.70	-303.96	0.16	368166.30	583319.95	N 32 0 43.55 W 104 11 52.38	
	11542.00	91.03	358.22	7435.66	4280.25	4277.63	-307.42	0.66	-368261.22	583316.49	N 32 0 44.49 W 104 11 52.42	
	11637.00	91.07	358.68	7433.92	4375.22	4372.58	-309.99	0.49	368356.16	583313.92	N 32 0 45.43 W 104 11 52.45	
	11733.00	90.93	359.00	7432.25	4471.20	4468.54	-311.93	0.36	368452.11	583311.98	N 32 0 46.38 W 104 11 52.47	
	11828.00	90.79	359.98	7430.82	4566.18	4563.53	-312.78	1.04	368547.09	583311.13	N 32 0 47.32 W 104 11 52.48	
	11923.00	90.00	1.09	7430.17	4661.16	4658.52	-311.89	1.43	368642.07	583312.02	N 32 0 48.26 W 104 11 52.46	
	12019.00	89.86	0.76	7430.28	4757.13	4754.50	-310.34	0.37	368738.05	583313.57	N 32 0 49.21 W 104 11 52.45	
	12113.00	89.72	0.26	7430.63	4851.12	4848.50	-309.50	0.55	368832.04	583314.40	N 32 0 50.14 W 104 11 52.43	
	12208.00	89.52	358.93	7431.26	4946.11	4943.49	-310.18	1.42	368927.02	583313.73	N 32 0 51.08 W 104 11 52.44	
	12303.00	89.83	357.03	7431.80	5041.07	5038.43	-313.52	2.03	369021.95	583310.38	N 32 0 52.02 W 104 11 52.48	
	12398.00	89.45	355.42	7432.39	5135.92	5133.22	-313.78	1.74	369116.73	583304.13	N 32 0 52.95 W 104 11 52.55	
	12493.00	90.03	355.29	7432.82	5230.67	5227.90	-327.47	0.63	369211.41	583296.44	N 32 0 53.89 W 104 11 52.64	
	12588.00	91.31	356.53	7431.71	5325.47	5322.65	-334.25	1.88	369306.15	583289.66	N 32 0 54.83 W 104 11 52.71	
	12682.00	91.62	357.42	7429.31	5419.35	5416.49	-335.21	1.00	369399.98	583284.71	N 32 0 55.76 W 104 11 52.77	
	12777.00	91.93	356.22	7426.37	5514.27	5511.37	-342.82	0.90	369494.85	583281.09	N 32 0 56.70 W 104 11 52.81	
	12874.00	92.10	357.98	7422.96	5611.18	5608.26	-345.03	0.30	369591.73	583277.88	N 32 0 57.66 W 104 11 52.85	
	12970.00	90.17	358.27	7421.06	5707.13	5704.18	-349.17	2.03	369687.65	583274.74	N 32 0 58.61 W 104 11 52.88	

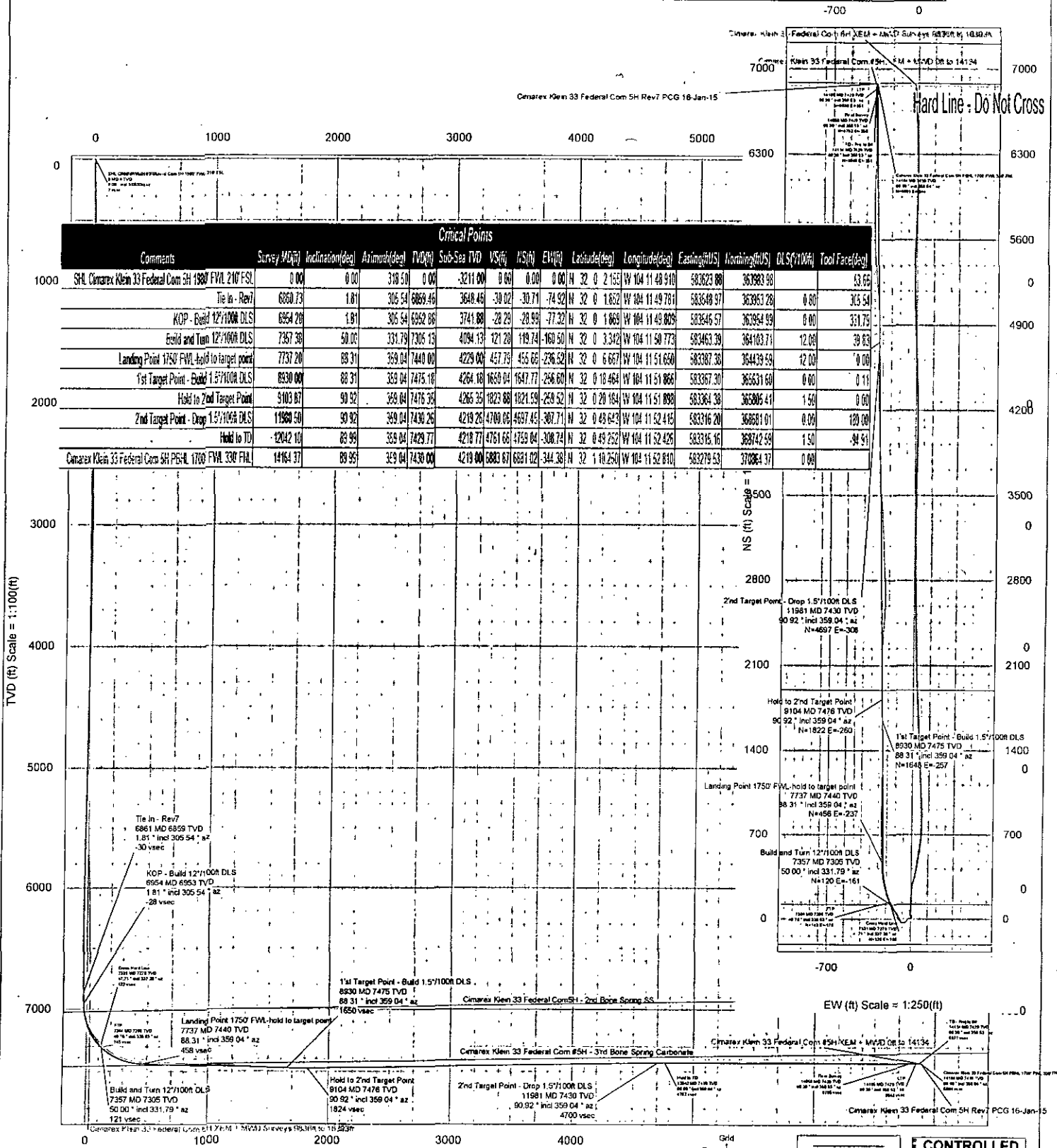
Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	13062.00	89.79	358.97	7421.09	5799.12	5796.15	-351.39	0.87	369775.61	583272.52	N 32 0 59.52 W	104 11 52.91
	13157.00	89.86	359.81	7421.38	5894.12	5891.15	-352.40	0.89	369874.60	583271.51	N 32 1 0.46 W	104 11 52.92
	13252.00	89.79	1.10	7421.67	5989.10	5986.14	-351.64	1.36	369969.58	583272.27	N 32 1 1.40 W	104 11 52.91
	13346.00	89.93	2.15	7421.90	6083.03	6080.11	-348.98	1.13	370063.53	583274.93	N 32 1 2.33 W	104 11 52.87
	13444.00	89.90	1.83	7422.04	6180.94	6178.05	-345.58	0.33	370161.46	583278.34	N 32 1 3.29 W	104 11 52.83
	13536.00	89.69	0.54	7422.37	6272.89	6270.02	-343.67	1.42	370253.43	583280.24	N 32 1 4.20 W	104 11 52.81
	13632.00	89.45	359.50	7423.09	6368.89	6366.02	-343.64	1.11	370349.42	583280.27	N 32 1 5.15 W	104 11 52.81
	13727.00	89.24	359.41	7424.18	6463.88	6461.01	-344.54	0.24	370444.40	583279.37	N 32 1 6.09 W	104 11 52.82
	13821.00	89.38	359.34	7425.31	6557.87	6555.00	-345.57	0.17	370538.38	583278.34	N 32 1 7.02 W	104 11 52.83
	13917.00	89.28	359.08	7426.43	6653.86	6650.98	-346.89	0.29	370634.36	583277.02	N 32 1 7.97 W	104 11 52.84
	14012.00	89.28	358.94	7427.63	6748.85	6745.96	-348.53	0.15	370729.33	583275.38	N 32 1 8.91 W	104 11 52.86
Final Survey	14058.00	89.38	358.53	7428.16	6794.85	6791.94	-349.55	0.92	370775.31	583274.36	N 32 1 9.37 W	104 11 52.87
LTP	14105.00	89.38	358.53	7428.67	6841.84	6838.93	-350.75	0.00	370822.29	583273.16	N 32 1 9.83 W	104 11 52.88
TD - Proj to Bit	14134.00	89.38	358.53	7428.99	6870.83	6867.92	-351.50	0.00	370851.27	583272.41	N 32 1 10.12 W	104 11 52.89

Survey Type: Def Survey

Survey Error Model:
Survey Program: ISOWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.000	25.000	1/98.425	30.000	30.000	SLB_MWD-STD-Depth Only	Original Borehole / Cimarex Klein 33 Federal Com #5H XEM +
	1	25.000	25.000	Act Sins	30.000	30.000	SLB_MWD-STD-Depth Only	Original Borehole / Cimarex Klein 33 Federal Com #5H XEM +
	1	25.000	14058.000	Act Sins	30.000	30.000	SLB_MWD-STD	Original Borehole / Cimarex Klein 33 Federal Com #5H XEM +
	1	14058.000	14134.000	Act Sins	30.000	30.000	SLB_BLIND+TREND	Original Borehole / Cimarex Klein 33 Federal Com #5H XEM +

Borehole:	Well:	Field:	Structure:
Original Borehole	Klein 33 Federal Com #5H	NM Eddy County (NAD 83)	Cactus 112
Gravity & Magnetic Parameters Model: HDGM 2014 Dip: 59.73° Date: 18-Jan-2016 MagDec: 7.607° PS: 46185 0616T Gravity PS: 958.43mgals (8.80488 Based)	Surface Location Loc: N 32 0 2.16 Lon: W 104 11 48 91	NAD83 New Mexico State Plane, Eastern Zone, US Feet Northing: 363983 8010US Grid Conv: 0.0722° Easting: 583623 8010US Scale Fact: 0.99991114	Magnetic Parameters Slot: 33 Federal Com TVD Ref: RK9321 (1m above MSL) Plan: 65H Klein 33 Federal Com #5H MWD Dr to 14134



Vertical Section (ft) Azim = 359.478° Scale = 1:250(ft) Origin = 0N/-S,

Grid North
Tot Corr (M-G 7.535°)
Mag Dec (7.607°)
Grid Conv (0.072°)

CONTROLLED	
Plan No.	Rev
Drawn by	Checked by
Date	24-May-2016
Original	Copy
2. All up on Authority	
3. Drawn by	
4. Check	
5. Number	10