



Reservoir Development
PathFinder, a Schlumberger Company
9200 West Reno Avenue
Oklahoma City, Oklahoma 73127 USA
Phone: (405) 789-1515
Fax: (405) 789-1519

June 12, 2014

Cimarex
600 N MARIENFELD STREET SUITE 600

MIDLAND, TX 79701

Re:

CLIENT: Cimarex Energy Co.
WELL: Lee Federal 20H
FIELD: Avalon; Bone Spring, East
RIG: Scandriil Eagle
COUNTY: Eddy
API NO: 30-015-39917
JOB NO: 14MLD0479

Sec. 25, T20S, R28E Eddy NM
N 32.53908 W 104.12374

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>
John Gilchrist MWD	Lee Federal 20H Original Hole	7093.00 Ft to 11995.00 Ft	June 8, 2014 to June 12, 2014	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

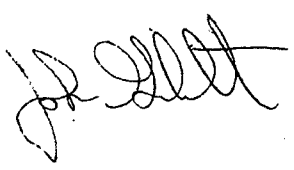
PathFinder, a Schlumberger Company
9200 West Reno Avenue
Oklahoma City, Oklahoma 73127 USA
Phone: (405) 789-1515
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Well Reference:

Sec 25, T20S, R28E Eddy NM
N 32.53908 W 104.12374

I, John Gilchrist certify that; I am employed by PathFinder, a division of Schlumberger Technology Corporation; that I did on the day(s) of June 08, 2014 through June 12, 2014, conduct or supervise the taking of the SlimPulse surveys from a depth of 7093.00 feet to a depth of 11995.00 feet referenced to driller's depth; that the data is true, correct, complete and within the limitations of the tool as set forth by Drilling & Measurements, 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 Lee Federal 20H Well (Original Hole) API No. 30-015-39917 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.

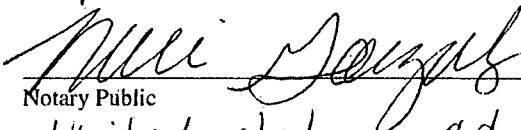
By
John Gilchrist
MWD



Subscribed and Sworn to before me this 14 day of June (month) 2014 (yr)

My Commission expires:

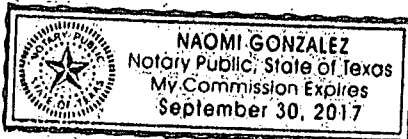
Sept. 30, 2017



Notary Public

(signature)

United States Odessa TX
(County State)



SCHLUMBERGER

Survey Report

30-Sep-2014

Client..... Cimarex Energy Co.
Field..... Avalon; Bone Spring, East

Well..... Lee Federal 20H
API number..... 30-015-39917
Engineer..... John Gilchrist

Spud date..... 25-May-14
Last survey date..... 12-May-14
Total accepted surveys..... 58
MD of first survey..... 7093.00 ft
MD of last survey..... 11995.00 ft

County..... Eddy
State..... New Mexico
Rig..... Scan Eagle

Latitude..... 32° 32' 20.69" N
Longitude..... 104° 7' 25.48" 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..... 3232.00
KB above permanent..... 3257.00
DF above permanent..... 3257.00

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

Latitude (+N/-)..... 0.00 ft
Departure (+E/-)..... 0.00 ft

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

NAD27 Texas State Plane, Central Zone, US Feet
X..... 559911.80 ft
Y..... 605924.90 ft

Azimuth from Vsect Origin to target: 269.86 degrees

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

-----Run1----- Calculation Date: 9-Jun-2014
Location G..... 998.94325 mgn Tolerance G..... 2.50 mgn
Location B..... 48418.04 nT Tolerance B..... 300.00 nT
Magnetic Dip: 60.2932 degrees Tolerance Dip: 0.45 degrees

BGGM Model: 2013

-----Run1-----

Magnetic dec (+E/-)..... 7.663 degrees
Grid Conv (+E/-)..... 0.113 degrees
Total Azim Corr (+E/-)..... 7.55 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	100.00	0.53	17.01	100.00	100.00	-0.14	0.44	0.14	0.46	17.01	0.53	SingleShot	0
3	156.20	0.53	17.18	56.20	156.20	-0.29	0.94	0.29	0.98	17.05	0.00	SingleShot	0
4	250.80	0.64	22.53	94.60	250.79	-0.62	1.85	0.62	1.95	18.57	0.13	SingleShot	0
5	345.30	0.19	31.80	94.50	345.29	-0.91	2.47	0.90	2.63	20.15	0.48	SingleShot	0
6	439.80	0.58	139.55	94.50	439.79	-1.30	2.24	1.30	2.58	30.14	0.70	SingleShot	0
7	534.40	0.85	144.10	94.60	534.38	-2.02	1.30	2.02	2.4	57.18	0.29	SingleShot	0
8	628.90	0.90	148.99	94.50	628.87	-2.81	0.10	2.81	2.81	88.00	0.10	SingleShot	0
9	723.50	1.15	120.08	94.60	723.45	-4.01	-1.01	4.02	4.14	104.17	0.60	SingleShot	0
10	818.00	1.26	100.62	94.50	817.93	-5.85	-1.68	5.86	6.1	106.01	0.45	SingleShot	0
11	912.50	1.36	96.60	94.50	912.41	-7.99	-2.00	7.99	8.24	104.06	0.14	SingleShot	0
12	1007.10	1.47	96.24	94.60	1006.98	-10.31	-2.26	10.32	10.56	102.37	0.12	SingleShot	0
13	1101.60	1.70	94.46	94.50	1101.44	-12.91	-2.50	12.92	13.16	100.97	0.25	SingleShot	0
14	1196.20	2.04	95.75	94.60	1195.99	-15.99	-2.78	15.99	16.23	99.86	0.36	SingleShot	0
15	1290.70	2.25	97.65	94.50	1290.43	-19.50	-3.20	19.50	19.76	99.31	0.23	SingleShot	0
16	1385.20	2.52	97.33	94.50	1384.84	-23.39	-3.71	23.40	23.7	99.00	0.29	SingleShot	0
17	1479.80	2.03	96.60	94.60	1479.37	-27.12	-4.17	27.13	27.45	98.73	0.52	SingleShot	0
18	1574.30	2.19	94.68	94.50	1573.81	-30.58	-4.51	30.59	30.92	98.38	0.19	SingleShot	0
19	1668.90	2.27	94.88	94.60	1668.33	-34.25	-4.81	34.26	34.6	98.00	0.08	SingleShot	0
20	1763.40	2.47	95.55	94.50	1762.75	-38.14	-5.17	38.15	38.5	97.72	0.21	SingleShot	0
21	1857.90	2.53	93.49	94.50	1857.16	-42.25	-5.49	42.26	42.62	97.41	0.11	SingleShot	0
22	1952.50	2.08	95.29	94.60	1951.69	-46.04	-5.78	46.05	46.42	97.15	0.48	SingleShot	0

23	2047.00	2.07	84.44	94.50	2046.13	-49.45	-5.77	49.46	49.8	96.66	0.42	SingleShot	0
24	2141.60	1.91	79.82	94.60	2140.67	-52.70	-5.33	52.71	52.98	95.77	0.24	SingleShot	0
25	2236.10	2.14	89.60	94.50	2235.11	-56.02	-5.04	56.03	56.25	95.14	0.44	SingleShot	0
26	2330.60	2.20	90.24	94.50	2329.54	-59.59	-5.03	59.61	59.82	94.82	0.07	SingleShot	0
27	2425.20	2.29	90.09	94.60	2424.07	-63.30	-5.04	63.31	63.51	94.55	0.10	SingleShot	0
28	2519.70	2.43	90.42	94.50	2518.49	-67.19	-5.06	67.20	67.39	94.31	0.15	SingleShot	0
29	2614.30	2.37	91.12	94.60	2613.01	-71.15	-5.11	71.16	71.35	94.11	0.07	SingleShot	0
30	2708.80	2.31	92.81	94.50	2707.43	-75.01	-5.24	75.02	75.2	94.00	0.10	SingleShot	0
31	2803.30	2.33	94.81	94.50	2801.85	-78.82	-5.50	78.84	79.03	93.99	0.09	SingleShot	0
32	2897.90	2.49	94.75	94.60	2896.37	-82.79	-5.83	82.80	83	94.03	0.17	SingleShot	0
33	2960.90	2.58	94.47	63.00	2959.30	-85.56	-6.05	85.58	85.79	94.05	0.14	SingleShot	0
34	3039.00	2.50	100.05	78.10	3037.33	-88.99	-6.49	89.01	89.24	94.17	0.33	SingleShot	0
35	3135.00	2.59	88.63	96.00	3133.23	-93.22	-6.80	93.24	93.48	94.17	0.54	SingleShot	0
36	3230.00	1.71	148.04	95.00	3228.18	-96.11	-7.95	96.13	96.46	94.73	2.38	SingleShot	0
37	3325.00	3.30	183.16	95.00	3323.09	-96.70	-11.89	96.73	97.46	97.01	2.25	SingleShot	0
38	3421.00	3.12	208.16	96.00	3418.94	-95.31	-16.95	95.35	96.84	100.08	1.46	SingleShot	0
39	3516.00	4.22	239.84	95.00	3513.75	-91.05	-20.98	91.10	93.49	102.97	2.38	SingleShot	0
40	3611.00	4.48	253.03	95.00	3608.48	-84.48	-23.82	84.53	87.83	105.74	1.09	SingleShot	0
41	3706.00	5.19	287.44	95.00	3703.16	-76.83	-23.62	76.88	80.43	107.08	3.09	SingleShot	0
42	3801.00	3.60	284.84	95.00	3797.88	-69.85	-21.57	69.90	73.15	107.15	1.69	SingleShot	0
43	3896.00	2.59	280.54	95.00	3892.74	-64.86	-20.41	64.91	68.04	107.46	1.09	SingleShot	0
44	3991.00	1.19	253.64	95.00	3987.69	-61.80	-20.30	61.85	65.1	108.17	1.71	SingleShot	0
45	4086.00	0.48	146.86	95.00	4082.68	-61.07	-20.91	61.12	64.6	108.88	1.48	SingleShot	0
46	4182.00	0.31	186.85	96.00	4178.68	-61.26	-21.50	61.31	64.97	109.33	0.33	SingleShot	0
47	4277.00	0.48	204.25	95.00	4273.68	-61.06	-22.12	61.12	65	109.90	0.22	SingleShot	0
48	4372.00	0.62	242.83	95.00	4368.67	-60.44	-22.72	60.50	64.62	110.58	0.41	SingleShot	0
49	4468.00	0.79	253.34	96.00	4464.67	-59.34	-23.14	59.40	63.75	111.29	0.22	SingleShot	0
50	4562.00	1.10	266.65	94.00	4558.65	-57.82	-23.38	57.88	62.42	112.00	0.40	SingleShot	0
51	4658.00	1.41	268.45	96.00	4654.63	-55.72	-23.47	55.78	60.51	112.82	0.33	SingleShot	0
52	4753.00	1.58	273.24	95.00	4749.60	-53.25	-23.43	53.30	58.22	113.73	0.22	SingleShot	0
53	4849.00	1.80	276.93	96.00	4845.56	-50.43	-23.17	50.48	55.55	114.65	0.26	SingleShot	0
54	4944.00	0.48	265.55	95.00	4940.54	-48.55	-23.02	48.61	53.78	115.34	1.40	SingleShot	0
55	5040.00	0.48	260.94	96.00	5036.53	-47.75	-23.11	47.81	53.1	115.80	0.04	SingleShot	0
56	5135.00	0.70	268.37	95.00	5131.53	-46.78	-23.19	46.83	52.26	116.35	0.24	SingleShot	0
57	5231.00	0.88	273.16	96.00	5227.52	-45.46	-23.17	45.51	51.07	116.98	0.20	SingleShot	0
58	5326.00	1.10	275.28	95.00	5322.50	-43.82	-23.05	43.88	49.56	117.71	0.23	SingleShot	0
59	5421.00	1.41	275.53	95.00	5417.48	-41.75	-22.85	41.80	47.64	118.66	0.33	SingleShot	0
60	5517.00	1.58	277.95	96.00	5513.45	-39.26	-22.55	39.32	45.33	119.84	0.19	SingleShot	0
61	5612.00	2.02	277.15	95.00	5608.40	-36.31	-22.16	36.36	42.58	121.36	0.46	SingleShot	0
62	5707.00	0.88	311.96	95.00	5703.37	-34.10	-21.47	34.16	40.34	122.15	1.46	SingleShot	0
63	5803.00	1.19	292.36	96.00	5799.36	-32.64	-20.59	32.69	38.63	122.21	0.49	SingleShot	0
64	5898.00	1.80	281.33	95.00	5894.32	-30.26	-19.93	30.31	36.27	123.32	0.71	SingleShot	0
65	5993.00	2.20	274.74	95.00	5989.26	-26.98	-19.48	27.03	33.32	125.78	0.49	SingleShot	0
66	6088.00	1.01	266.74	95.00	6084.23	-24.33	-19.38	24.38	31.14	128.48	1.27	SingleShot	0
67	6183.00	1.01	258.35	95.00	6179.21	-22.67	-19.60	22.72	30	130.78	0.16	SingleShot	0
68	6279.00	1.32	243.67	96.00	6275.19	-20.85	-20.26	20.90	29.11	134.10	0.45	SingleShot	0
69	6374.00	1.41	246.26	95.00	6370.16	-18.80	-21.21	18.85	28.38	138.37	0.11	SingleShot	0
70	6469.00	1.58	235.05	95.00	6465.13	-16.65	-22.43	16.71	27.97	143.32	0.36	SingleShot	0
71	6565.00	1.58	226.66	96.00	6561.10	-14.60	-24.10	14.66	28.21	148.69	0.24	SingleShot	0
72	6660.00	1.71	230.26	95.00	6656.06	-12.56	-25.90	12.62	28.81	154.03	0.17	SingleShot	0
73	6756.00	1.89	230.66	96.00	6752.01	-10.23	-27.82	10.29	29.67	159.70	0.19	SingleShot	0
74	6852.00	2.50	235.14	96.00	6847.94	-7.28	-30.02	7.35	30.91	166.25	0.66	SingleShot	0
75	6947.00	3.12	238.60	95.00	6942.82	-3.37	-32.56	3.44	32.74	173.96	0.68	SingleShot	0
76	7042.00	3.60	234.97	95.00	7037.66	1.29	-35.61	-1.21	35.64	181.94	0.55	SingleShot	0
77	7093.00	3.74	234.91	51.00	7088.56	3.97	-37.49	-3.88	37.69	185.91	0.27	SlimPulse	0
78	7125.00	3.94	261.46	32.00	7120.49	5.91	-38.25	-5.82	38.69	188.65	5.54	SlimPulse	0
79	7157.00	5.64	285.40	32.00	7152.38	8.51	-38.00	-8.42	38.92	192.50	8.09	SlimPulse	0
80	7188.00	8.70	291.05	31.00	7183.13	12.17	-36.75	-12.08	38.69	198.20	10.12	SlimPulse	0
81	7219.00	11.66	290.20	31.00	7213.64	17.29	-34.83	-17.21	38.85	206.30	9.56	SlimPulse	0
82	7251.00	14.44	288.59	32.00	7244.81	24.11	-32.44	-24.03	40.37	216.53	8.76	SlimPulse	0
83	7283.00	17.72	286.46	32.00	7275.55	32.55	-29.79	-32.48	44.07	227.48	10.41	SlimPulse	0
84	7314.00	20.60	285.50	31.00	7304.83	42.33	-26.99	-42.26	50.15	237.44	9.35	SlimPulse	0
85	7346.00	23.09	284.77	32.00	7334.53	53.81	-23.89	-53.76	58.83	246.04	7.83	SlimPulse	0
86	7441.00	30.57	280.30	95.00	7419.26	95.64	-14.80	-95.60	96.74	261.20	8.15	SlimPulse	0
87	7536.00	38.21	275.56	95.00	7497.61	148.72	-7.63	-148.70	148.9	267.06	8.52	SlimPulse	0
88	7631.00	44.67	278.71	95.00	7568.79	211.03	0.29	-211.03	211.03	270.08	7.14	SlimPulse	0
89	7726.00	51.58	282.53	95.00	7632.18	280.43	13.44	-280.46	280.78	272.74	7.86	SlimPulse	0
90	7822.00	58.69	282.36	96.00	7687.02	357.26	30.39	-357.33	358.62	274.86	7.41	SlimPulse	0
91	7918.00	65.87	279.48	96.00	7731.66	440.61	46.41	-440.72	443.16	276.01	7.94	SlimPulse	1
92	8013.00	73.68	278.64	95.00	7764.47	528.54	60.42	-528.69	532.13	276.52	8.26	SlimPulse	1
93	8108.00	81.38	278.24	95.00	7784.97	620.19	74.02	-620.37	624.77	276.80	8.12	SlimPulse	1
94	8203.00	89.36	277.75	95.00	7792.63	713.86	87.18	-714.06	719.37	276.96	8.42	SlimPulse	1
95	8298.00	89.84	275.29	95.00	7793.30	808.21	97.96	-808.44	814.35	276.91	2.64	SlimPulse	1
96	8393.00	90.18	273.38	95.00	7793.28	902.91	105.14	-903.16	909.26	276.64	2.04	SlimPulse	1
97	8489.00	90.08	271.84	96.00	7793.06	998.80	109.52	-999.06	1005.05	276.26	1.61	SlimPulse	1
98	8584.00	90.63	269.95	95.00	7792.47	1093.78	111.00	-1094.04	1099.66	275.79	2.07	SlimPulse	1
99	8680.00	90.70	268.64	96.00	7791.36	1189.76	109.82	-1190.03	1195.08	275.27	1.37	SlimPulse	1
100	8775.00	90.98	266.48	95.00	7789.97	1284.67	105.78	-1284.93	1289.27	274.71	2.29	SlimPulse	1
101	8870.00	92.11	265.47	95.00	7787.41	1379.41	99.11	-1379.65	1383.21	274.11	1.60	SlimPulse	1
102	8965.00	92.22	268.78	95.00	7783.82	1474.23	94.35	-1474.45	1477.47	273.66	3.48	SlimPulse	1
103	9061.00	92.53	268.97	96.00	7779.84	1570.13	92.47	-1570.35	1573.07	273.37	0.38	SlimPulse	1
104	9156.00	92.73	268.55	95.00	7775.48	1665.01	90.41	-1665.23	1667.68	273.11	0.49	SlimPulse	1
105	9250.00	92.63	268.33	94.00	7771.08	1758.88	87.86	-1759.09	1761.28	272.86	0.26	SlimPulse	1

106	9345.00	92.73	268.88	95.00	7766.64	1853.75	85.55	-1853.96	1855.93	272.64	0.59	SlimPulse	1
107	9440.00	92.94	268.91	95.00	7761.94	1948.62	83.72	-1948.83	1950.62	272.46	0.22	SlimPulse	1
108	9535.00	92.98	268.85	95.00	7757.04	2043.48	81.86	-2043.68	2045.32	272.29	0.08	SlimPulse	1
109	9630.00	92.79	268.86	95.00	7752.26	2138.35	79.97	-2138.54	2140.04	272.14	0.20	SlimPulse	1
110	9725.00	93.17	267.57	95.00	7747.32	2233.18	77.01	-2233.36	2234.69	271.97	1.41	SlimPulse	1
111	9819.00	92.82	267.44	94.00	7742.41	2326.97	72.92	-2327.15	2328.29	271.79	0.40	SlimPulse	1
112	9914.00	92.92	267.38	95.00	7737.65	2421.76	68.64	-2421.93	2422.9	271.62	0.12	SlimPulse	1
113	10008.00	92.82	267.69	94.00	7732.94	2515.57	64.60	-2515.73	2516.56	271.47	0.35	SlimPulse	1
114	10103.00	92.68	266.96	95.00	7728.38	2610.36	60.17	-2610.51	2611.21	271.32	0.78	SlimPulse	1
115	10197.00	92.65	267.13	94.00	7724.01	2704.15	55.33	-2704.29	2704.85	271.17	0.18	SlimPulse	1
116	10292.00	92.58	267.00	95.00	7719.68	2798.94	50.47	-2799.06	2799.52	271.03	0.16	SlimPulse	1
117	10387.00	92.61	267.31	95.00	7715.38	2893.73	45.76	-2893.85	2894.21	270.91	0.33	SlimPulse	1
118	10481.00	92.20	267.26	94.00	7711.43	2987.55	41.31	-2987.66	2987.95	270.79	0.44	SlimPulse	1
119	10575.00	92.92	267.50	94.00	7707.23	3081.37	37.02	-3081.47	3081.69	270.69	0.81	SlimPulse	1
120	10670.00	92.78	267.35	95.00	7702.51	3176.17	32.76	-3176.25	3176.42	270.59	0.22	SlimPulse	1
121	10765.00	92.76	267.23	95.00	7697.92	3270.96	28.27	-3271.04	3271.16	270.50	0.13	SlimPulse	1
122	10859.00	92.90	267.24	94.00	7693.28	3364.75	23.74	-3364.81	3364.9	270.40	0.15	SlimPulse	1
123	10954.00	92.66	267.27	95.00	7688.67	3459.54	19.20	-3459.59	3459.65	270.32	0.25	SlimPulse	1
124	11049.00	92.52	267.71	95.00	7684.38	3554.36	15.04	-3554.40	3554.44	270.24	0.49	SlimPulse	1
125	11143.00	92.62	267.42	94.00	7680.16	3648.19	11.05	-3648.22	3648.24	270.17	0.33	SlimPulse	1
126	11238.00	92.83	267.09	95.00	7675.65	3742.98	6.51	-3743.01	3743.01	270.10	0.41	SlimPulse	1
127	11332.00	92.73	267.15	94.00	7671.09	3836.76	1.79	-3836.78	3836.78	270.03	0.12	SlimPulse	1
128	11427.00	91.56	269.13	95.00	7667.53	3931.65	-1.29	-3931.66	3931.66	269.98	2.42	SlimPulse	1
129	11522.00	93.07	269.15	95.00	7663.69	4026.56	-2.72	-4026.56	4026.57	269.96	1.59	SlimPulse	1
130	11616.00	92.62	269.16	94.00	7659.03	4120.44	-4.10	-4120.44	4120.44	269.94	0.48	SlimPulse	1
131	11711.00	93.31	270.04	95.00	7654.12	4215.31	-4.76	-4215.31	4215.31	269.94	1.18	SlimPulse	1
132	11806.00	92.87	269.03	95.00	7648.99	4310.17	-5.53	-4310.16	4310.17	269.93	1.16	SlimPulse	1
133	11900.00	92.63	269.17	94.00	7644.48	4404.05	-7.01	-4404.04	4404.05	269.91	0.30	SlimPulse	1
134	11995.00	92.87	269.26	95.00	7639.93	4498.93	-8.31	-4498.93	4498.93	269.89	0.27	SlimPulse	1
135	12126.00	92.87	269.26	131.00	7633.37	4629.76	-10.00	-4629.75	4629.76	269.88	0.00	Proj. to Bit	7