

Reservoir Development
Drilling & Measurements
4301 SW 44th St
Oklahoma City, Oklahoma 73119 USA
Phone: (405) 682-2284
Fax: (405) 682-3937



January 14, 2015

Cimarex
600 N MARIENFELD STREET SUITE 600

MIDLAND, TX 79701

Re:

S24-T25S-R26E 330 FNL 660 FWL
N 32.12179 W 104.25281

CLIENT: Cimarex Energy Co.
WELL: Liberty 24 Fed Com 04H
FIELD: Cottenwood Draw; BS
RIG: Cactus 116
COUNTY: Eddy
API NO: 30-015-42262
JOB NO: 14MLD0503

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>
Kyle St. John MWD	Liberty 24 Fed Com 04H Original Hole	6652.00 Ft to 11660.00 Ft	August 19, 2014 to August 23, 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
Drilling & Measurements
4301 SW 44th St
Oklahoma City, Oklahoma 73119 USA
Phone: (405) 682-2284
Fax: (405) 682-3937



Well Reference:
S24-T25S-R26E 330 FNL 660 FWL
N 32.12179 W 104.25281

I, Kyle St. John certify that; I am employed by PathFinder, a division of Schlumberger Technology Corporation; that I did on the day(s) of August 19, 2014 through August 23, 2014, conduct or supervise the taking of the SlimPulse surveys from a depth of 6652.00 feet to a depth of 11660.00 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 Liberty 24 Fed Com 04H Well (Original Hole) API No. 30-015-42262 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
Kyle St. John
MWD

Subscribed and Sworn to before me this 14 day of January (month) 2015 (yr)

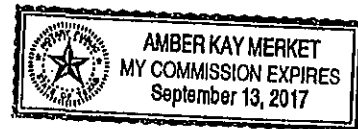
My Commission expires:

September 13, 2017

Amber Kay Market
Notary Public

Midland County, Texas
(County State)

(signature)



SCHLUMBERGER

Survey Report

14-Jan-2015

Client.....: Cimarex Energy Co.
Field.....: Cottonwood Draw; BS

Well.....: Liberty 24 Fed Corn 4H
API number.....: 30-015-42262
Engineer.....: Kyle St. John

Spud date.....: 8-Aug-14
Last survey date.....: 22-Aug-14
Total accepted surveys...: 62
MD of first survey.....: 6652.00 ft
MD of last survey.....: 11660.00 ft

County.....: Eddy
State.....: New Mexico
Rig.....: Cactus 116

Latitude.....: 32° 7' 18.453" N
Longitude.....: 104° 15' 10.127" 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.....: 3276.00
KB above permanent.....: 3294.00
DF above permanent.....: 3294.00

----- Vertical section origin-----
Latitude (+N/-).....: 0.00 ft
Departure (+E/-).....: 0.00 ft

----- Grid Coordinates -----
NAD27 Texas State Plane, Central Zone, US Feet
X.....: 566264.77 ft
Y.....: 408053.50 ft

Azimuth from Vsect Origin to target: 179.27 degrees

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

-----Run1----- Calculation Date: 18-Aug-2014
Location G.....: 998.94325 mgn Tolerance G.....: 2.50 mgn
Location B.....: 48116.57 nT Tolerance B.....: 300.00 nT
Magnetic Dip: 59.8837 degrees Tolerance Dip: 0.45 degrees

BGGM Model: 2014

-----Run1-----
Magnetic dec (+E/-).....: 7.6658 degrees
Grid Conv (+E/-).....: 0.0458 degrees
Total Azim Corr (+E/-).....: 7.62 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	85.00	0.88	32.23	85.00	85.00	-0.55	0.55	0.35	0.65	32.23	1.04	Other	0
3	120.00	0.88	5.60	35.00	119.99	-1.04	1.05	0.52	1.17	26.31	1.16	Other	0
4	146.00	0.88	19.31	26.00	145.99	-1.43	1.43	0.60	1.56	22.81	0.81	Other	0
5	177.00	1.01	25.11	31.00	176.99	-1.90	1.91	0.80	2.07	22.71	0.52	Other	0
6	237.00	1.19	4.19	60.00	236.97	-2.99	3.01	1.07	3.19	19.55	0.73	Other	0
7	264.00	1.32	2.52	27.00	263.97	-3.58	3.60	1.10	3.76	17.03	0.50	Other	0
8	326.00	1.19	357.03	62.00	325.95	-4.94	4.95	1.10	5.07	12.52	0.29	Other	0
9	365.00	1.19	3.80	39.00	364.94	-5.75	5.76	1.11	5.87	10.86	0.36	Other	0
10	440.00	1.32	358.31	75.00	439.93	-7.39	7.40	1.13	7.49	8.69	0.24	Other	0
11	495.00	1.10	352.59	55.00	494.91	-8.54	8.56	1.05	8.62	6.96	0.46	Other	0
12	553.00	1.41	6.39	58.00	552.90	-9.81	9.82	1.05	9.88	6.12	0.74	Other	0
13	613.00	1.41	0.81	60.00	612.88	-11.28	11.29	1.15	11.35	5.80	0.22	Other	0
14	641.00	1.19	7.93	28.00	640.88	-11.91	11.92	1.19	11.98	5.71	0.97	Other	0
15	735.00	1.10	4.22	94.00	734.86	-13.77	13.79	1.39	13.86	5.77	0.12	Other	0
16	826.00	1.19	358.18	91.00	825.84	-15.59	15.61	1.43	15.67	5.23	0.17	Other	0
17	976.00	1.41	350.86	150.00	975.80	-18.97	18.99	1.08	19.02	3.27	0.18	Other	0
18	1096.00	1.59	8.50	120.00	1095.76	-22.07	22.09	1.10	22.12	2.84	0.41	Other	0
19	1193.00	1.72	9.30	97.00	1192.72	-24.84	24.86	1.53	24.9	3.52	0.14	Other	0
20	1286.00	1.59	27.98	93.00	1285.68	-27.34	27.37	2.36	27.48	4.93	0.59	Other	0
21	1380.00	1.59	29.48	94.00	1379.64	-29.61	29.66	3.62	29.88	6.95	0.04	Other	0
22	1477.00	1.90	33.97	97.00	1476.60	-32.10	32.17	5.18	32.58	9.14	0.35	Other	0

23	1665.00	2.21	54.86	188.00	1664.48	-36.71	36.84	9.88	38.14	15.02	0.43	Other	0
24	1762.00	2.61	52.75	97.00	1761.40	-39.08	39.25	13.17	41.4	18.55	0.42	Other	0
25	1858.00	2.61	55.26	96.00	1857.30	-41.60	41.82	16.71	45.03	21.77	0.12	Other	0
26	1946.00	2.21	58.74	88.00	1945.22	-43.59	43.84	19.80	48.11	24.31	0.48	Other	0
27	2040.00	2.03	56.05	94.00	2039.15	-45.42	45.71	22.73	51.05	26.44	0.22	Other	0
28	2135.00	2.12	57.15	95.00	2134.09	-47.27	47.60	25.60	54.05	28.27	0.10	Other	0
29	2199.00	2.12	54.02	64.00	2198.05	-48.59	48.94	27.56	56.17	29.38	0.18	Other	0
30	2229.00	2.12	54.25	30.00	2228.03	-49.23	49.59	28.46	57.18	29.85	0.03	Other	0
31	2323.00	2.03	54.73	94.00	2321.96	-51.17	51.57	31.23	60.29	31.20	0.10	Other	0
32	2416.00	1.81	56.45	93.00	2414.91	-52.90	53.33	33.80	63.14	32.36	0.24	Other	0
33	2512.00	1.81	55.26	96.00	2510.86	-54.57	55.03	36.30	65.93	33.41	0.04	Other	0
34	2606.00	1.72	53.54	94.00	2604.82	-56.22	56.72	38.66	68.64	34.28	0.11	Other	0
35	2702.00	1.59	53.94	96.00	2700.78	-57.83	58.36	40.89	71.26	35.02	0.14	Other	0
36	2795.00	1.41	51.25	93.00	2793.75	-59.28	59.83	42.83	73.58	35.60	0.21	Other	0
37	2890.00	1.33	58.17	95.00	2888.72	-60.57	61.15	44.68	75.73	36.15	0.19	Other	0
38	2986.00	1.19	57.46	96.00	2984.70	-61.67	62.27	46.47	77.7	36.73	0.15	Other	0
39	3079.00	1.19	58.96	93.00	3077.68	-62.67	63.29	48.11	79.5	37.24	0.03	Other	0
40	3174.00	1.10	56.62	95.00	3172.66	-63.66	64.30	49.71	81.28	37.71	0.11	Other	0
41	3269.00	0.88	54.16	95.00	3267.64	-64.57	65.23	51.07	82.84	38.06	0.24	Other	0
42	3363.00	0.80	47.90	94.00	3361.63	-65.42	66.09	52.14	84.18	38.27	0.13	Other	0
43	3457.00	0.71	41.11	94.00	3455.63	-66.29	66.97	53.01	85.41	38.36	0.13	Other	0
44	3552.00	0.31	34.90	95.00	3550.62	-66.94	67.62	53.54	86.25	38.37	0.42	Other	0
45	3646.00	0.49	32.08	94.00	3644.62	-67.48	68.17	53.90	86.91	38.33	0.19	Other	0
46	3834.00	0.40	29.96	188.00	3832.61	-68.72	69.42	54.66	88.36	38.21	0.05	Other	0
47	3928.00	0.40	23.97	94.00	3926.61	-69.30	70.01	54.95	89	38.13	0.04	Other	0
48	4022.00	0.31	18.94	94.00	4020.61	-69.84	70.55	55.17	89.56	38.03	0.10	Other	0
49	4117.00	0.88	29.48	95.00	4115.60	-70.71	71.42	55.61	90.52	37.90	0.61	Other	0
50	4216.00	0.49	29.48	99.00	4214.60	-71.73	72.45	56.19	91.69	37.80	0.39	Other	0
51	4312.00	0.09	92.05	96.00	4310.60	-72.09	72.81	56.47	92.14	37.80	0.47	Other	0
52	4404.00	0.09	121.71	92.00	4402.60	-72.04	72.77	56.60	92.19	37.88	0.05	Other	0
53	4499.00	0.09	184.29	95.00	4497.60	-71.93	72.66	56.66	92.14	37.95	0.10	Other	0
54	4594.00	1.02	205.04	95.00	4592.59	-71.09	71.81	56.30	91.25	38.09	0.99	Other	0
55	4689.00	0.49	345.05	95.00	4687.59	-70.73	71.44	55.84	90.67	38.01	1.51	Other	0
56	4782.00	0.31	135.15	93.00	4780.59	-70.93	71.65	55.91	90.88	37.97	0.83	Other	0
57	4876.00	0.09	206.85	94.00	4874.58	-70.68	71.40	56.06	90.78	38.14	0.31	Other	0
58	4972.00	0.09	178.78	96.00	4970.58	-70.54	71.26	56.02	90.65	38.18	0.05	Other	0
59	5068.00	0.31	216.41	96.00	5066.58	-70.26	70.97	55.87	90.33	38.21	0.26	Other	0
60	5162.00	0.70	230.42	94.00	5160.58	-69.69	70.40	55.28	89.51	38.14	0.43	Other	0
61	5257.00	0.40	216.10	95.00	5255.58	-69.06	69.77	54.64	88.61	38.07	0.34	Other	0
62	5351.00	0.22	224.40	94.00	5349.57	-68.67	69.37	54.32	88.11	38.06	0.20	Other	0
63	5446.00	0.22	233.41	95.00	5444.57	-68.44	69.13	54.04	87.75	38.02	0.04	Other	0
64	5540.00	0.31	178.61	94.00	5538.57	-68.08	68.77	53.90	87.38	38.09	0.27	Other	0
65	5633.00	0.22	153.92	93.00	5631.57	-67.67	68.36	53.99	87.11	38.30	0.15	Other	0
66	5729.00	0.40	131.72	96.00	5727.57	-67.27	67.97	54.32	87.01	38.63	0.22	Other	0
67	5824.00	0.62	139.11	95.00	5822.57	-66.66	67.36	54.90	86.9	39.18	0.24	Other	0
68	5918.00	1.01	217.50	94.00	5916.56	-65.62	66.32	54.73	85.99	39.53	1.14	Other	0
69	6013.00	0.88	177.51	95.00	6011.55	-64.23	64.93	54.25	84.61	39.88	0.69	Other	0
70	6108.00	1.32	132.69	95.00	6106.53	-62.75	63.46	55.09	84.03	40.96	0.98	Other	0
71	6202.00	1.58	117.09	94.00	6200.50	-61.40	62.13	57.04	84.34	42.55	0.50	Other	0
72	6297.00	2.02	92.13	95.00	6295.46	-60.71	61.47	59.88	85.82	44.25	0.94	Other	0
73	6392.00	1.89	64.53	95.00	6390.40	-61.28	62.08	62.97	88.43	45.40	0.99	Other	0
74	6487.00	1.80	63.30	95.00	6485.35	-62.59	63.43	65.71	91.33	46.01	0.10	Other	0
75	6581.00	1.49	46.60	94.00	6579.31	-64.06	64.93	67.92	93.96	46.29	0.60	Other	0
76	6652.00	0.95	32.41	71.00	6650.30	-65.18	66.06	68.91	95.46	46.21	0.86	SlimPulse	0
77	6683.00	2.80	207.97	31.00	6681.29	-64.73	65.61	68.69	94.99	46.31	12.09	SlimPulse	0
78	6715.00	7.17	208.69	32.00	6713.16	-62.31	63.17	67.36	92.35	46.84	13.65	SlimPulse	0
79	6746.00	11.19	208.56	31.00	6743.76	-58.00	58.83	65.00	87.67	47.85	12.99	SlimPulse	0
80	6777.00	14.83	200.30	31.00	6773.96	-51.67	52.46	62.18	81.36	49.85	13.15	SlimPulse	0
81	6809.00	17.54	192.78	32.00	6804.69	-43.16	43.92	59.69	74.11	53.66	10.68	SlimPulse	0
82	6840.00	19.20	185.87	31.00	6834.11	-33.55	34.29	58.14	67.5	59.47	8.82	SlimPulse	0
83	6872.00	20.82	174.33	32.00	6864.19	-22.65	23.40	58.16	62.69	68.09	13.31	SlimPulse	0
84	6903.00	22.97	168.16	31.00	6892.96	-11.23	11.99	59.95	61.13	78.69	-10.15	SlimPulse	0
85	6934.00	24.53	161.90	31.00	6921.34	0.85	-0.05	63.19	63.19	90.04	9.56	SlimPulse	0
86	6966.00	26.08	159.44	32.00	6950.27	13.81	-12.95	67.72	68.95	100.83	5.85	SlimPulse	0
87	6997.00	27.52	163.95	31.00	6977.94	27.13	-26.22	72.10	76.71	109.98	8.02	SlimPulse	0
88	7028.00	28.93	168.82	31.00	7005.26	41.41	-40.46	75.53	85.68	118.17	8.72	SlimPulse	0
89	7122.00	37.64	176.64	94.00	7083.80	92.57	-91.53	81.64	122.65	138.27	10.31	SlimPulse	0
90	7217.00	48.12	175.66	95.00	7153.32	157.02	-155.93	86.02	178.09	151.12	11.05	SlimPulse	0
91	7312.00	59.55	179.67	95.00	7209.31	233.53	-232.42	88.94	248.85	159.06	12.50	SlimPulse	0
92	7406.00	72.11	179.67	94.00	7247.71	319.12	-318.01	89.43	330.34	164.29	13.36	SlimPulse	0
93	7501.00	82.92	182.78	95.00	7268.22	411.67	-410.59	87.40	419.79	167.98	11.82	SlimPulse	0
94	7596.00	88.45	185.77	95.00	7275.36	505.99	-505.01	80.33	511.36	170.96	6.61	SlimPulse	0
95	7690.00	88.25	191.85	94.00	7278.07	598.61	-597.82	65.95	601.44	173.71	6.48	SlimPulse	0
96	7785.00	88.93	190.62	95.00	7280.41	691.51	-690.95	47.44	692.59	176.07	1.48	SlimPulse	0
97	7880.00	89.59	188.95	95.00	7281.63	784.91	-784.57	31.30	785.19	177.72	1.89	SlimPulse	0
98	7975.00	89.31	183.98	95.00	7282.55	879.12	-878.93	20.61	879.18	178.66	5.24	SlimPulse	0
99	8070.00	89.21	183.18	95.00	7283.77	973.85	-973.74	14.69	973.85	179.14	0.85	SlimPulse	0
100	8165.00	89.52	180.57	95.00	7284.83	1068.74	-1068.67	11.58	1068.74	179.38	2.77	SlimPulse	0
101	8259.00	89.55	180.42	94.00	7285.59	1162.71	-1162.67	10.77	1162.72	179.47	0.16	SlimPulse	0
102	8354.00	89.66	181.52	95.00	7286.25	1257.67	-1257.65	9.16	1257.68	179.58	1.16	SlimPulse	0
103	8448.00	89.59	178.45	94.00	7286.87	1351.64	-1351.64	9.18	1351.67	179.61	3.27	SlimPulse	0
104	8543.00	89.86	179.80	95.00	7287.32	1446.64	-1446.62	10.63	1446.66	179.58	1.45	SlimPulse	0
105	8637.00	90.10	180.57	94.00	7287.35	1540.63	-1540.62	10.33	1540.66	179.62	0.86	SlimPulse	0

106	8731.00	89.66	178.98	94.00	7287.55	1634.62	-1634.62	10.69	1634.65	179.63	1.75	SlimPulse	0
107	8826.00	89.42	180.17	95.00	7288.32	1729.62	-1729.61	11.40	1729.65	179.62	1.27	SlimPulse	0
108	8921.00	89.69	178.75	95.00	7289.06	1824.61	-1824.60	12.29	1824.64	179.61	1.52	SlimPulse	0
109	9016.00	89.66	177.45	95.00	7289.60	1919.59	-1919.54	15.43	1919.61	179.54	1.37	SlimPulse	0
110	9110.00	90.07	177.78	94.00	7289.83	2013.55	-2013.46	19.34	2013.56	179.45	0.56	SlimPulse	0
111	9205.00	91.20	177.39	95.00	7288.77	2108.50	-2108.37	23.35	2108.5	179.37	1.27	SlimPulse	0
112	9300.00	92.37	177.82	95.00	7285.81	2203.41	-2203.24	27.32	2203.41	179.29	1.31	SlimPulse	0
113	9394.00	92.10	178.42	94.00	7282.14	2297.32	-2297.12	30.40	2297.32	179.24	0.70	SlimPulse	0
114	9488.00	91.89	177.40	94.00	7278.87	2391.23	-2391.00	33.83	2391.24	179.19	1.11	SlimPulse	0
115	9583.00	92.13	176.35	95.00	7275.53	2486.09	-2485.79	39.01	2486.1	179.10	1.13	SlimPulse	0
116	9678.00	92.48	176.69	95.00	7271.71	2580.90	-2580.54	44.78	2580.93	179.01	0.51	SlimPulse	0
117	9772.00	91.99	179.14	94.00	7268.05	2674.80	-2674.40	48.19	2674.84	178.97	2.66	SlimPulse	0
118	9867.00	92.20	178.92	95.00	7264.57	2769.73	-2769.32	49.79	2769.77	178.97	0.32	SlimPulse	0
119	9961.00	93.27	179.31	94.00	7260.08	2863.62	-2863.20	51.25	2863.66	178.97	1.20	SlimPulse	0
120	10055.00	93.13	177.90	94.00	7254.84	2957.47	-2957.03	53.53	2957.51	178.96	1.50	SlimPulse	0
121	10149.00	93.13	178.87	94.00	7249.70	3051.32	-3050.85	56.18	3051.37	178.95	1.03	SlimPulse	0
122	10244.00	93.06	179.42	95.00	7244.57	3146.18	-3145.70	57.59	3146.23	178.95	0.59	SlimPulse	0
123	10338.00	92.58	178.39	94.00	7239.95	3240.06	-3239.57	59.38	3240.11	178.95	1.21	SlimPulse	0
124	10433.00	92.99	179.07	95.00	7235.33	3334.94	-3334.43	61.48	3335	178.94	0.84	SlimPulse	0
125	10527.00	92.41	179.39	94.00	7230.90	3428.84	-3428.32	62.75	3428.89	178.95	0.71	SlimPulse	0
126	10621.00	92.96	178.36	94.00	7226.50	3522.73	-3522.19	64.59	3522.79	178.95	1.24	SlimPulse	0
127	10715.00	93.34	181.67	94.00	7221.34	3616.57	-3616.04	64.56	3616.62	178.98	3.53	SlimPulse	0
128	10810.00	93.89	178.60	95.00	7215.34	3711.36	-3710.84	64.34	3711.4	179.01	3.27	SlimPulse	0
129	10905.00	93.30	180.11	95.00	7209.38	3806.17	-3805.64	65.40	3806.2	179.02	1.70	SlimPulse	0
130	10999.00	93.95	180.24	94.00	7203.43	3899.96	-3899.45	65.11	3900	179.04	0.71	SlimPulse	0
131	11094.00	93.82	179.36	95.00	7196.99	3994.74	-3994.23	65.44	3994.77	179.06	0.94	SlimPulse	0
132	11188.00	93.72	179.05	94.00	7190.81	4088.54	-4088.02	66.74	4088.56	179.06	0.34	SlimPulse	0
133	11282.00	93.82	178.70	94.00	7184.63	4182.33	-4181.80	68.57	4182.36	179.06	0.39	SlimPulse	0
134	11377.00	93.20	179.06	95.00	7178.81	4277.15	-4276.60	70.43	4277.18	179.06	0.75	SlimPulse	0
135	11472.00	90.48	179.83	95.00	7175.76	4372.09	-4371.54	71.35	4372.12	179.06	2.98	SlimPulse	0
136	11566.00	90.10	178.74	94.00	7175.28	4466.09	-4465.53	72.52	4466.12	179.07	1.22	SlimPulse	0
137	11660.00	89.79	177.98	94.00	7175.36	4560.08	-4559.49	75.21	4560.11	179.05	0.88	SlimPulse	0
138	11735.00	89.79	177.98	75.00	7175.64	4635.05	-4634.44	77.86	4635.09	179.04	0.01	Other	7