

Reservoir Development

Drilling & Measurements (Anadrill)

4301 SW 44th St

Oklahoma City, Oklahoma 73119 USA

Phone: (405) 682-2284

Fax: (405) 682-3937

March 13, 2013

Cimarex

600 N MARIENFELD STREET SUITE 600

MIDLAND ,TX 79701

Re:

CLIENT: Cimarex Energy Co. of Colorado

WELL: Irwin 23-14 Federal 4

FIELD: Benson; Bone Spring

RIG: Cactus 101

COUNTY: Eddy

API NO: 30-015-39894

JOB NO: 13MLD0031

1300' FNL & 785' FEL 23-19S-30E

N 32.64952 W 103.93664

Enclosed, please find the original copy of the survey performed on the referenced well by Drilling & Measurements , 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>
Dev Kumar MWD	Irwin 23-14 Federal 4 Original Hole	8015.00 Ft to 12991.00 Ft	March 1, 2013 to March 10, 2013	SlimPulse

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

Sincerely,

Jasem Alharer

Field Service Manager

Reservoir Development

Drilling & Measurements (Anadrill)

4301 SW 44th St

Oklahoma City, Oklahoma 73119 USA

Phone: (405) 682-2284

Fax: (405) 682-3937

Well Reference:

1300' FNL & 785' FEL 23-19S-30E

N 32.64952 W 103.93664

I, Dev Kumar certify that; I am employed by Drilling & Measurements (formerly Anadrill), a division of Schlumberger Technology Corporation; that I did on the day(s) of March 01, 2013 through March 10, 2013, conduct or supervise the taking of the SlimPulse surveys from a depth of 8015.00 feet to a depth of 12991.00 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. of Colorado for the Irwin 23-14 Federal 4 Well (Original Hole) API No. 30-015-39894 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
Dev Kumar
MWD

Dev Kumar By *Lendsey Kell*

Subscribed and Sworn to before me this 19th day of MARCH (month) 2013 (yr)

My Commission expires:

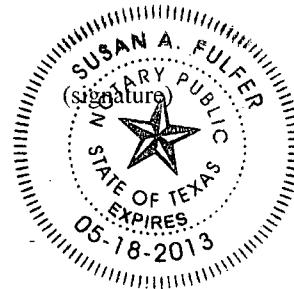
5-18-13

Notary Public

Susan A. Fulfer

(County State)

MIDLAND TEXAS



29-Mar-2013

SCHLUMBERGER

Survey Report

Client: Cimarex Energy Co. of Colorado
Field: Benson, Bone Spring

Well: Irwin 23-14 Federal 4
API number: 30-015-39894
Engineer: D. Kumar
County: Eddy
State: New Mexico
Fig: Cactus 101
Latitude: 32° 38' 56.11, 917" N
Longitude: 103° 56' 11.917" W

Survey calculation methods:
Method for positions: Minimum curvature
Method for DLS: Lubinski

Depth reference

Permanent datum: MSL

Driller's Depth

GL above permanent: 3281.00

KB above permanent: 3299.00

DF above permanent: 3299.00

Vertical section origin

Latitude (+N/-): 0.00 ft

Departure (+E/W-): 0.00 ft

Grid Coordinates

NAD27 Texas State Plane, Central Zone, US Feet

X: 600252.80 ft

Y: 663432.20 ft

Azimuth from Vsect Origin to target: 300.16 degrees

MWD Survey Reference Criteria

Run1
Calculation Date: 1-Mar-2013
Location G.: 998.94325 mgn
Location B.: 48639.02 nT
Magnetic Dip: 60.437 degrees
Tolerance G.: 2.50 mgn
Tolerance B.: 300.00 nT
Tolerance Dip: 0.45 degrees

Run2
Calculation Date: 3-Mar-2013
Location G.: 998.94325 mgn
Location B.: 48638.32 nT
Magnetic Dip: 60.4368 degrees
Tolerance G.: 2.50 mgn
Tolerance B.: 300.00 nT
Tolerance Dip: 0.45 degrees

Run3
Calculation Date: 4-Mar-2013
Location G.: 998.94325 mgn
Location B.: 48637.97 nT
Magnetic Dip: 60.4367 degrees
Tolerance G.: 2.50 mgn
Tolerance B.: 300.00 nT
Tolerance Dip: 0.45 degrees

Run4
Calculation Date: 6-Mar-2013
Location G.: 998.94325 mgn
Location B.: 48637.27 nT
Magnetic Dip: 60.4365 degrees
Tolerance G.: 2.50 mgn
Tolerance B.: 300.00 nT
Tolerance Dip: 0.45 degrees

Run5
Calculation Date: 9-Mar-2013
Location G.: 998.94325 mgn
Location B.: 48636.21 nT
Magnetic Dip: 60.4362 degrees
Tolerance G.: 2.50 mgn
Tolerance B.: 300.00 nT
Tolerance Dip: 0.45 degrees

BGM Model: 2012

Run1
Grid Conv (+E/W-): 0.2145 degrees
Total Azim Corr (+E/W-): 7.47 degrees

Run2
Magnetic dec (+E/W-): 7.6838 degrees
Grid Conv (+E/W-): 0.2138 degrees
Total Azim Corr (+E/W-): 7.47 degrees

Run3
Magnetic dec (+E/W-): 7.6835 degrees
Grid Conv (+E/W-): 0.2135 degrees
Total Azim Corr (+E/W-): 7.47 degrees

Run4

Seq	MD	Incl	Azim	Course	TVD	V Sec	N-S	E-W	Closure	at Azi	DLS	Tool	Correction
1	0.00	0.00	0.00	-999.25	0.00	0.00	0.00	0.00	0.00	0	90.00	0.00	TIP
2	269.59	0.31	292.54	269.59	0.72	0.72	0.28	-0.67	0.73	292.54	0.11	SingleShot	0
3	295.00	0.22	349.14	295.00	0.82	0.79	0.35	-0.75	0.83	295.37	1.04	SingleShot	0
4	350.00	0.31	75.32	350.00	0.58	0.58	0.50	-0.62	0.8	308.52	0.67	SingleShot	0
5	408.00	0.22	85.73	408.00	0.58	0.58	0.54	-0.36	0.65	326.51	0.18	SingleShot	0
6	465.00	0.31	143.35	465.00	0.35	0.35	0.43	-0.16	0.46	339.70	0.47	SingleShot	0
7	523.00	0.22	121.64	523.00	0.10	0.10	0.24	0.03	0.25	7.08	0.23	SingleShot	0
8	582.00	0.31	159.52	582.00	-0.14	-0.14	0.03	0.18	0.19	79.30	0.33	SingleShot	0
9	738.00	0.22	135.74	737.99	-0.87	-0.87	-0.45	0.74	0.87	121.47	0.13	SingleShot	0
10	746.00	0.31	118.00	645.99	-0.45	-0.45	0.21	0.40	0.45	117.83	0.34	SingleShot	0
11	833.00	0.40	118.43	832.99	-1.37	-1.37	-0.74	1.16	1.37	122.61	0.21	SingleShot	0
12	929.00	0.62	97.42	928.99	-2.19	-2.19	-0.97	1.97	2.19	116.18	0.30	SingleShot	0
13	1026.00	0.79	88.02	1025.98	-3.24	-3.24	-1.01	3.16	3.31	107.78	0.21	SingleShot	0
14	1119.00	0.88	79.84	1118.97	-4.32	-4.32	-0.86	4.50	4.58	100.87	0.16	SingleShot	0
15	1213.00	1.19	72.42	1212.96	-5.53	-5.53	-0.44	6.14	6.16	94.12	0.36	SingleShot	0
16	1307.00	0.88	24.74	1306.94	-6.12	-6.12	0.51	7.37	7.39	86.05	0.94	SingleShot	0
17	1405.00	1.32	352.22	1404.92	-5.35	-5.35	2.31	7.54	7.88	72.95	0.76	SingleShot	0
18	1500.00	1.80	334.24	1499.89	-3.45	-3.45	4.74	6.74	8.24	54.89	0.72	SingleShot	0
19	1595.00	2.02	331.21	1594.84	-0.78	-0.78	7.55	5.28	9.22	34.99	0.25	SingleShot	0
20	1691.00	1.80	326.73	1690.78	2.02	2.02	10.29	3.64	10.92	-19.49	0.28	SingleShot	0
21	1775.00	1.41	317.63	1774.75	4.19	4.19	12.16	2.22	12.36	10.36	0.55	SingleShot	0
22	1880.00	1.58	316.23	1879.71	6.81	6.81	14.16	0.35	14.16	1.42	0.17	SingleShot	0
23	1976.00	1.41	303.44	1975.68	9.26	9.26	15.77	-1.55	15.84	354.38	0.99	SingleShot	0
24	2070.00	1.58	303.61	2069.65	11.71	11.71	17.12	-3.60	17.49	348.14	0.18	SingleShot	0
25	2166.00	1.80	304.54	2165.61	14.53	14.53	18.71	-5.94	19.63	342.39	0.23	SingleShot	0
26	2260.00	1.89	300.63	2259.56	17.56	17.56	20.33	-8.49	22.04	337.34	0.16	SingleShot	0
27	2355.00	1.80	280.94	2354.51	20.53	20.53	21.42	-11.30	24.22	332.18	0.67	SingleShot	0
28	2450.00	2.02	263.71	2449.46	23.29	23.29	21.52	-14.43	25.91	326.15	0.64	SingleShot	0
29	2545.00	2.50	261.91	2544.39	26.26	26.26	21.04	-18.15	27.79	319.22	0.51	SingleShot	0
30	2647.00	1.80	238.75	2646.31	28.78	28.78	19.90	-21.72	29.45	312.49	1.08	SingleShot	0
31	2738.00	1.58	206.32	2737.28	29.38	29.38	18.03	-23.50	29.62	307.50	1.06	SingleShot	0
32	2832.00	1.71	208.82	2831.24	29.26	29.26	15.64	-24.75	29.28	302.29	0.16	SingleShot	0
33	2926.00	1.71	208.03	2925.20	29.17	29.17	13.17	-26.08	29.22	296.80	0.03	SingleShot	0
34	3021.00	1.71	207.11	3020.15	29.04	29.04	10.66	-27.39	29.4	291.26	0.03	SingleShot	0
35	3118.00	1.58	205.92	3117.11	28.87	28.87	8.17	-28.64	29.78	285.92	0.14	SingleShot	0
36	3213.00	1.71	199.64	3212.08	28.51	28.51	5.66	-29.69	29.79	280.79	0.23	SingleShot	0
37	3307.00	1.80	200.65	3306.03	28.01	28.01	2.95	-30.68	30.82	275.50	0.10	SingleShot	0
38	3403.00	1.89	206.01	3401.98	27.65	27.65	0.12	-31.91	31.91	270.22	0.20	SingleShot	0
39	3498.00	1.80	209.83	3496.93	27.53	27.53	-2.58	-33.34	33.43	265.57	0.16	SingleShot	0
40	3573.00	1.80	226.62	3571.90	27.85	27.85	-4.41	-34.78	35.06	262.77	0.70	SingleShot	0
41	3668.00	1.71	215.33	3666.85	28.40	28.40	-6.59	-36.68	37.27	259.81	0.38	SingleShot	0
42	3768.00	0.88	259.71	3766.83	29.12	29.12	-7.95	-38.30	39.12	258.28	1.24	SingleShot	0
43	3863.00	2.90	321.85	3861.78	31.91	31.91	-6.19	-40.50	40.97	261.31	2.74	SingleShot	0
44	3959.00	5.41	347.65	3957.52	37.23	37.23	0.14	-42.97	42.97	270.19	3.20	SingleShot	0
45	4051.00	6.11	356.44	4049.06	42.87	42.87	9.27	-44.20	45.16	281.84	1.22	SingleShot	0
46	4146.00	5.89	355.73	4143.54	44.44	44.44	19.17	-44.88	48.8	293.13	0.24	SingleShot	0
47	4242.00	5.58	358.15	4239.06	53.70	53.70	28.75	-45.40	53.74	302.35	0.41	SingleShot	0
48	4338.00	3.60	8.04	4334.75	57.31	57.31	36.40	-45.13	57.98	308.89	2.21	SingleShot	0
49	4432.00	2.42	40.03	4428.62	58.08	58.08	40.84	-43.44	59.62	313.24	2.14	SingleShot	0
50	4528.00	2.20	70.04	4524.55	56.55	56.55	43.02	-40.40	59.02	316.80	1.27	SingleShot	0
51	4622.00	2.42	79.14	4618.47	53.89	53.89	44.01	-36.76	57.34	320.13	0.45	SingleShot	0
52	4717.00	1.32	116.63	4713.42	51.29	51.29	43.90	-33.81	55.41	322.40	1.67	SingleShot	0
53	4813.00	0.88	155.91	4809.41	49.59	49.59	42.73	-32.52	53.7	322.73	0.88	SingleShot	0
54	4909.00	0.88	174.55	4905.40	48.56	48.56	41.33	-32.15	52.36	322.12	0.30	SingleShot	0
55	5004.00	1.19	184.35	5000.38	47.70	47.70	39.62	-32.15	51.02	320.94	0.37	SingleShot	0
56	5099.00	1.80	184.52	5095.35	46.63	46.63	37.15	-32.35	49.25	318.95	0.64	SingleShot	0
57	5195.00	2.42	187.95	5191.28	45.21	45.21	33.63	-32.74	46.94	315.77	0.66	SingleShot	0
58	5289.00	1.80	178.63	5285.22	43.69	43.69	30.19	-32.98	44.72	312.47	0.75	SingleShot	0
59	5384.00	0.88	159.65	5380.19	42.35	42.35	28.02	-32.69	43.06	310.60	1.06	SingleShot	0
60	5480.00	0.79	173.84	5476.18	41.38	41.38	26.67	-32.37	41.94	309.49	0.23	SingleShot	0
61	5575.00	0.62	177.31	5571.18	40.72	40.72	25.50	-32.27	41.13	308.32	0.18	SingleShot	0
62	5672.00	0.48	185.53	5668.17	40.26	40.26	24.58	-32.29	40.58	307.28	0.17	SingleShot	0
63	5767.00	0.31	190.23	5763.17	40.01	40.01	23.93	-32.37	40.25	306.47	0.18	SingleShot	0
64	5862.00	0.22	171.91	5858.17	39.81	39.81	23.49	-32.39	40.01	305.95	0.13	SingleShot	0
65	5957.00	0.09	171.12	5953.17	39.65	39.65	23.24	-32.35	39.84	305.68	0.14	SingleShot	0
66	6053.00	0.09	346.81	6049.17	39.65	39.65	23.24	-32.36	39.84	305.68	0.19	SingleShot	0
67	6150.00	0.40	77.03	6146.17	39.46	39.46	23.39	-32.05	39.67	306.12	0.42	SingleShot	0
68	6245.00	0.70	103.93	6241.16	38.66	38.66	23.32	-31.16	38.92	306.81	0.41	SingleShot	0
69	6340.00	1.01	92.32	6336.15	37.36	37.36	23.15	-29.76	37.7	307.88	0.37	SingleShot	0

-----Run5-----
Magnetic dec (+E/W)-..... 7.6819 degrees
Grid Conv (+E/W)-..... 0.2119 degrees
Total Azim Corr (+E/W)-... 7.47 degrees

-----Run4-----
Magnetic dec (+E/W)-..... 7.6829 degrees
Grid Conv (+E/W)-..... 0.2129 degrees
Total Azim Corr (+E/W)-... 7.47 degrees

Survey Correction Index Description-----
0 = Uncorrected 1 = Sag Corrected
2 = DMAG Corrected 3 = Sag + DMAG Corrected

===== Survey List =====
Seq MD Incl Azim Course TVD V Sec N-S E-W Closure at Azi DLS Tool Correction

70	6434.00	1.19	82.61	94.00	6430.13	35.86	23.24	-27.97	36.36	309.73	0.28	SingleShot	0
71	6528.00	1.10	80.94	94.00	6524.12	34.38	23.51	-26.11	35.13	312.00	0.10	SingleShot	0
72	6622.00	0.88	71.63	94.00	6618.10	33.21	23.88	-24.53	34.23	314.23	0.29	SingleShot	0
73	6716.00	0.70	50.84	94.00	6712.09	32.53	24.47	-23.40	33.86	316.28	0.36	SingleShot	0
74	6824.00	1.32	49.13	108.00	6820.08	31.89	25.70	-21.95	33.8	319.50	0.57	SingleShot	0
75	6911.00	1.58	42.84	87.00	6907.05	31.30	27.23	-20.37	34.01	323.20	0.35	SingleShot	0
76	7006.00	2.02	39.81	95.00	7002.00	30.73	29.48	-18.41	34.76	328.01	0.47	SingleShot	0
77	7100.00	1.80	38.62	94.00	7095.95	30.24	31.91	-16.43	35.89	332.75	0.24	SingleShot	0
78	7196.00	1.32	20.03	96.00	7191.91	30.21	34.12	-15.11	37.32	336.12	0.72	SingleShot	0
79	7290.00	0.88	123.44	94.00	7285.90	29.68	34.74	-14.14	37.51	337.86	1.86	SingleShot	0
80	7385.00	1.71	137.02	95.00	7380.88	27.59	33.30	-12.56	35.59	339.33	0.93	SingleShot	0
81	7481.00	1.89	184.35	96.00	7476.83	25.53	30.68	-11.70	32.83	339.12	1.51	SingleShot	0
82	7575.00	2.50	212.82	94.00	7570.77	24.95	27.41	-12.93	30.31	334.74	1.31	SingleShot	0
83	7671.00	2.50	220.03	96.00	7666.68	25.41	24.05	-15.42	28.56	327.34	0.33	SingleShot	0
84	7768.00	2.11	218.23	97.00	7763.60	26.02	21.02	-17.88	27.6	319.62	0.41	SingleShot	0
85	7862.00	1.89	229.04	94.00	7857.54	26.77	18.65	-20.12	27.43	312.82	0.46	SingleShot	0
86	8015.00	2.09	245.81	153.00	8010.45	29.21	15.85	-24.57	29.24	302.83	0.40	SlimPulse	0
87	8049.00	2.49	249.43	34.00	8044.42	30.03	15.34	-25.82	30.04	300.71	1.27	SlimPulse	0
88	8080.00	3.49	242.94	31.00	8075.38	30.97	14.67	-27.30	30.99	298.26	3.40	SlimPulse	0
89	8112.00	5.38	266.80	32.00	8107.29	32.75	14.15	-29.66	32.86	295.50	8.13	SlimPulse	0
90	8144.00	9.34	284.46	32.00	8139.02	36.51	14.71	-33.68	36.75	293.60	14.13	SlimPulse	0
91	8176.00	13.76	291.26	32.00	8170.37	42.77	16.74	-39.74	43.12	292.84	14.43	SlimPulse	0
92	8208.00	15.15	291.08	32.00	8201.35	50.66	19.63	-47.19	51.11	292.58	4.33	SlimPulse	0
93	8239.00	19.41	292.23	31.00	8230.94	59.77	23.03	-55.74	60.32	292.45	13.80	SlimPulse	0
94	8273.00	23.86	294.87	34.00	8262.54	72.22	28.07	-67.22	72.84	292.66	13.39	SlimPulse	0
95	8301.00	27.62	295.59	28.00	8287.76	84.33	33.25	-78.22	84.99	293.03	13.46	SlimPulse	0
96	8335.00	30.68	297.11	34.00	8317.45	100.86	40.61	-93.05	101.53	293.58	9.27	SlimPulse	0
97	8367.00	31.04	303.41	32.00	8344.93	117.25	48.88	-107.21	117.82	294.51	10.15	SlimPulse	0
98	8399.00	32.20	306.13	32.00	8372.18	133.97	58.45	-120.98	134.36	295.79	5.75	SlimPulse	0
99	8431.00	36.80	307.10	32.00	8398.54	151.97	69.27	-135.52	152.19	297.07	14.47	SlimPulse	0
100	8463.00	41.16	308.02	32.00	8423.41	171.93	81.54	-151.47	172.02	298.30	13.74	SlimPulse	0
101	8494.00	45.39	307.23	31.00	8445.98	193.00	94.51	-168.30	193.02	299.32	13.74	SlimPulse	0
102	8527.00	51.09	306.06	33.00	8467.95	217.44	109.18	-188.04	217.44	300.14	17.48	SlimPulse	0
103	8559.00	56.47	305.58	32.00	8486.85	243.12	124.28	-208.97	243.14	300.74	16.85	SlimPulse	0
104	8589.00	60.21	305.29	30.00	8502.60	268.54	139.08	-229.77	268.59	301.19	12.50	SlimPulse	0
105	8623.00	65.83	304.94	34.00	8518.02	298.72	156.50	-254.55	298.81	301.58	16.56	SlimPulse	0
106	8655.00	70.86	303.63	32.00	8529.82	328.37	173.24	-279.12	328.51	301.83	16.18	SlimPulse	0
107	8683.00	75.36	302.97	28.00	8537.95	355.12	187.95	-301.51	355.29	301.94	16.23	SlimPulse	0
108	8718.00	81.75	302.55	35.00	8544.89	389.37	206.50	-330.34	389.57	302.01	18.29	SlimPulse	0
109	8750.00	87.32	302.21	32.00	8547.94	421.19	223.55	-357.23	421.41	302.04	17.42	SlimPulse	0
110	8782.00	89.93	302.76	32.00	8548.71	453.15	240.73	-384.22	453.4	302.07	8.36	SlimPulse	0
111	8813.00	90.58	302.62	31.00	8548.57	484.12	257.47	-410.31	484.4	302.11	2.16	SlimPulse	0
112	8848.00	90.45	301.02	35.00	8548.25	519.10	275.93	-440.04	519.4	302.09	4.58	SlimPulse	0
113	8880.00	90.55	300.87	32.00	8547.98	551.10	292.38	-467.49	551.39	302.02	0.58	SlimPulse	0
114	8912.00	90.48	300.76	32.00	8547.69	583.09	308.77	-494.97	583.38	301.96	0.40	SlimPulse	0
115	9007.00	90.38	300.36	95.00	8546.98	678.09	357.07	-576.77	678.35	301.76	0.44	SlimPulse	0
116	9103.00	90.89	300.51	96.00	8545.91	774.08	405.70	-659.53	774.33	301.60	0.56	SlimPulse	0
117	9198.00	91.03	300.32	95.00	8544.32	869.07	453.79	-741.45	869.29	301.47	0.25	SlimPulse	0
118	9294.00	90.93	300.59	96.00	8542.67	965.05	502.44	-824.19	965.27	301.37	0.30	SlimPulse	0
119	9389.00	90.89	300.49	95.00	8541.16	1060.04	550.71	-906.00	1060.24	301.29	0.11	SlimPulse	0
120	9485.00	90.96	300.78	96.00	8539.61	1156.02	599.61	-988.60	1156.23	301.24	0.31	SlimPulse	0
121	9580.00	90.96	301.11	95.00	8538.01	1251.00	648.45	-1070.06	1251.21	301.22	0.35	SlimPulse	0
122	9676.00	90.79	301.29	96.00	8536.54	1346.97	698.18	-1152.17	1347.2	301.21	0.26	SlimPulse	0
123	9771.00	90.93	301.84	95.00	8535.12	1441.93	747.90	-1233.11	1442.19	301.24	0.60	SlimPulse	0
124	9864.00	91.13	302.04	93.00	8533.44	1534.87	797.09	-1312.01	1535.17	301.28	0.31	SlimPulse	0
125	9959.00	91.17	301.82	95.00	8531.54	1629.81	847.33	-1392.62	1630.14	301.32	0.23	SlimPulse	0
126	10055.00	91.20	301.21	96.00	8529.55	1725.76	897.50	-1474.44	1726.12	301.33	0.64	SlimPulse	0
127	10150.00	90.76	300.99	95.00	8527.92	1820.73	946.56	-1555.78	1821.1	301.32	0.52	SlimPulse	0
128	10245.00	90.76	299.24	95.00	8526.67	1915.72	994.21	-1637.95	1916.07	301.26	1.84	SlimPulse	0
129	10340.00	91.14	297.61	95.00	8525.10	2010.66	1039.42	-1721.48	2010.95	301.12	1.76	SlimPulse	0
130	10436.00	91.41	295.77	96.00	8522.97	2106.46	1082.53	-1807.23	2106.64	300.92	1.94	SlimPulse	0
131	10531.00	91.93	295.62	95.00	8520.20	2201.13	1123.70	-1892.80	2201.23	300.70	0.56	SlimPulse	0
132	10626.00	91.55	294.99	95.00	8517.33	2295.74	1164.29	-1978.64	2295.78	300.47	0.78	SlimPulse	0
133	10722.00	91.27	295.33	96.00	8514.97	2391.35	1205.10	-2065.51	2391.35	300.26	0.46	SlimPulse	0
134	10817.00	91.31	295.99	95.00	8512.83	2486.03	1246.22	-2151.11	2486.03	300.09	0.69	SlimPulse	0
135	10913.00	91.27	297.00	96.00	8510.67	2581.81	1289.04	-2237.01	2581.83	299.95	1.06	SlimPulse	0
136	11008.00	91.38	297.91	95.00	8508.47	2676.68	1332.83	-2321.29	2676.71	299.86	0.96	SlimPulse	0
137	11103.00	91.41	298.59	95.00	8506.16	2771.60	1377.78	-2404.95	2771.65	299.81	0.72	SlimPulse	0
138	11199.00	91.41	298.98	96.00	8503.80	2867.54	1423.99	-2489.06	2867.6	299.77	0.40	SlimPulse	0
139	11294.00	91.13	299.92	95.00	8501.69	2962.51	1470.68	-2571.76	2962.58	299.76	1.03	SlimPulse	0
140	11390.00	91.65	300.55	96.00	8499.36	3058.48	1519.00	-2654.68	3058.55	299.78	0.85	SlimPulse	0
141	11485.00	91.31	301.42	95.00	8496.91	3153.44	1567.90	-2736.10	3153.49	299.81	0.99	SlimPulse	0
142	11581.00	91.14	302.36	96.00	8494.86	3249.37	1618.61	-2817.58	3249.41	299.88	0.99	SlimPulse	0
143	11676.00	90.82	304.10	95.00	8493.24	3344.22	1670.66	-2897.03	3344.23	299.97	1.85	SlimPulse	0
144	11772.00	90.69	306.21	96.00	8491.97	3439.84	1725.93	-2975.51	3439.84	300.12	2.21	SlimPulse	0
145	11863.00	90.65	304.97	91.00	8490.91	3530.42	1778.89	-3049.50	3530.42	300.26	1.36	SlimPulse	0
146	11958.00	90.65	303.89	95.00	8489.82	3625.15	1832.60	-3127.85	3625.17	300.37	1.14	SlimPulse	0
147	12053.00	90.86	303.23	95.00	8488.57	3719.97	1885.11	-3207.01	3720.02	300.45	0.72	SlimPulse	0
148	12148.00	91.38	302.86	95.00	8486.72	3814.83	1936.91	-3286.62	3814.91	300.51	0.67	SlimPulse	0
149	12244.00	92.10	302.29	96.00	8483.81	3910.70	1988.57	-3367.48	3910.8	300.56	0.96	SlimPulse	0
150	12341.00	92.37	301.64	97.00	8480.02	4007.58	2039.88	-3449.71	4007.7	300.60	0.73	SlimPulse	0
151	12436.00	92.58	300.59	95.00	8475.92	4102.48	2088.92	-3530.97	4102.6	300.61	1.12	SlimPulse	0
152	12532.00	92.17	300.04	96.00	8471.95	4198.39	2137.34	-3613.77	4198.52	300.60	0.71	SlimPulse	0
153	12627.00	92.37	299.12	95.00	8468.19	4293.31	2184.20	-3696.32	4293.43	300.58	1.00	SlimPulse	0
154	12722.00	92.30	298.21	95.00	8464.31	4388.20	2229.73	-3779.61	4388.3				



Cimarex Irwin 23-14 Federal #4H MWD 0ft to 13065ft MD

(Def Survey)

Report Date: March 11, 2013 - 08:29 AM
Client: Cimarex
Field: NM Eddy County (NAD 83)
Structure / Slot: Cactus 101 / Cimarex Irwin 23-14 Federal #4H
Well: Cimarex Irwin 23-14 Federal #4H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Irwin 23-14 Federal #4H MWD 0ft to 13065ft MD
Survey Date: February 15, 2013
Tort / AHD / DDI / ERD Ratio: 176.487 ° / 4924.454 ft / 6.123 / 0.576
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 38' 58.25666", W 103° 56' 11.91740"
Location Grid N/E Y/X: N 600252.800 ftUS, E 663432.200 ftUS
CRS Grid Convergence Angle: 0.2140 °
Grid Scale Factor: 0.99992616

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 300.160 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3299.000 ft above
Seabed / Ground Elevation: 3281.000 ft above
Magnetic Declination: 7.689 °
Total Gravity Field Strength: 998.5340mgn (9.80665 Based)
Total Magnetic Field Strength: 48643.945 nT
Magnetic Dip Angle: 60.438 °
Declination Date: February 15, 2013
Magnetic Declination Model: BGGM 2012
North Reference: Grid North
Grid Convergence Used: 0.2140 °
Total Corr Mag North->Grid North: 7.4749 °

Local Coord Referenced To: Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)	TF (°)
SHL Irwin 23-14 #4H	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	292.54M
	269.59	0.31	292.54	269.59	0.72	0.28	-0.67	0.73	292.54	0.11	349.14M
	295.00	0.22	349.14	295.00	0.82	0.35	-0.75	0.83	295.37	1.04	75.32M
	350.00	0.31	75.32	350.00	0.79	0.50	-0.62	0.80	308.52	0.67	85.73M
	408.00	0.22	85.73	408.00	0.58	0.54	-0.36	0.65	326.51	0.18	143.35M
	465.00	0.31	143.35	465.00	0.35	0.43	-0.16	0.46	339.70	0.47	121.64M
	523.00	0.22	121.64	523.00	0.10	0.24	0.03	0.25	7.08	0.23	159.52M
	582.00	0.31	159.52	582.00	-0.14	0.03	0.18	0.19	79.30	0.33	118M
	646.00	0.31	118.00	645.99	-0.45	-0.21	0.40	0.45	117.83	0.34	135.74M
	738.00	0.22	135.74	737.99	-0.87	-0.45	0.74	0.87	121.47	0.13	118.43M
	833.00	0.40	118.43	832.99	-1.37	-0.74	1.16	1.37	122.61	0.21	97.42M
	929.00	0.62	97.42	928.99	-2.19	-0.97	1.97	2.19	116.18	0.30	88.02M
	1026.00	0.79	88.02	1025.98	-3.24	-1.01	3.16	3.31	107.78	0.21	79.84M
	1119.00	0.88	79.84	1118.97	-4.32	-0.86	4.50	4.58	100.87	0.16	72.42M
	1213.00	1.19	72.42	1212.96	-5.53	-0.44	6.14	6.16	94.12	0.36	24.74M
	1307.00	0.88	24.74	1306.94	-6.12	0.51	7.37	7.39	86.05	0.94	352.22M
	1405.00	1.32	352.22	1404.92	-5.35	2.31	7.54	7.88	72.95	0.76	334.24M
	1500.00	1.80	334.24	1499.89	-3.45	4.74	6.74	8.24	54.89	0.72	331.21M
	1595.00	2.02	331.21	1594.84	-0.78	7.55	5.28	9.22	34.99	0.25	326.73M

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)	TF (°)
	1691.00	1.80	326.73	1690.78	2.02	10.29	3.64	10.92	19.49	0.28	317.63M
	1775.00	1.41	317.63	1774.75	4.19	12.16	2.22	12.36	10.36	0.55	316.23M
	1880.00	1.58	316.23	1879.71	6.81	14.16	0.35	14.16	1.42	0.17	303.44M
	1976.00	1.41	303.44	1975.68	9.26	15.77	-1.55	15.84	354.38	0.39	303.61M
	2070.00	1.58	303.61	2069.65	11.71	17.12	-3.60	17.49	348.14	0.18	304.54M
	2166.00	1.80	304.54	2165.61	14.53	18.71	-5.94	19.63	342.39	0.23	300.63M
	2260.00	1.89	300.63	2259.56	17.56	20.33	-8.49	22.04	337.34	0.16	280.94M
	2355.00	1.80	280.94	2354.51	20.53	21.42	-11.30	24.22	332.18	0.67	263.71M
	2450.00	2.02	263.71	2449.46	23.29	21.52	-14.43	25.91	326.15	0.64	261.91M
	2545.00	2.50	261.91	2544.39	26.26	21.04	-18.15	27.79	319.22	0.51	238.75M
	2647.00	1.80	238.75	2646.31	28.78	19.90	-21.72	29.45	312.49	1.08	206.32M
	2738.00	1.58	206.32	2737.28	29.38	18.03	-23.50	29.62	307.50	1.06	208.82M
	2832.00	1.71	208.82	2831.24	29.26	15.64	-24.75	29.28	302.29	0.16	208.03M
	2926.00	1.71	208.03	2925.20	29.17	13.17	-26.08	29.22	296.80	0.03	207.11M
	3021.00	1.71	207.11	3020.15	29.04	10.66	-27.39	29.40	291.26	0.03	205.92M
	3118.00	1.58	205.92	3117.11	28.87	8.17	-28.64	29.78	285.92	0.14	199.64M
	3213.00	1.71	199.64	3212.08	28.51	5.66	-29.69	30.22	280.79	0.23	200.65M
	3307.00	1.80	200.65	3306.03	28.01	2.95	-30.68	30.82	275.50	0.10	206.01M
	3403.00	1.89	206.01	3401.98	27.65	0.12	-31.91	31.91	270.22	0.20	209.83M
	3498.00	1.80	209.83	3496.93	27.53	-2.58	-33.34	33.43	265.57	0.16	226.62M
	3573.00	1.80	226.62	3571.90	27.85	-4.41	-34.78	35.06	262.77	0.70	215.33M
	3668.00	1.71	215.33	3666.85	28.40	-6.59	-36.68	37.27	259.81	0.38	259.71M
	3768.00	0.88	259.71	3766.83	29.12	-7.95	-38.30	39.12	258.28	1.24	321.85M
	3863.00	2.90	321.85	3861.78	31.91	-6.19	-40.50	40.97	261.31	2.74	347.65M
	3959.00	5.41	347.65	3957.52	37.23	0.14	-42.97	42.97	270.19	3.20	356.44M
	4051.00	6.11	356.44	4049.06	42.87	9.27	-44.20	45.16	281.84	1.22	355.73M
	4146.00	5.89	355.73	4143.54	48.44	19.17	-44.88	48.80	293.13	0.24	358.15M
	4242.00	5.58	358.15	4239.06	53.70	28.75	-45.40	53.74	302.35	0.41	8.04M
	4338.00	3.60	8.04	4334.75	57.31	36.40	-45.13	57.98	308.89	2.21	40.03M
	4432.00	2.42	40.03	4428.62	58.08	40.84	-43.44	59.62	313.24	2.14	70.04M
	4528.00	2.20	70.04	4524.55	56.55	43.02	-40.40	59.02	316.80	1.27	79.14M
	4622.00	2.42	79.14	4618.47	53.89	44.01	-36.76	57.34	320.13	0.45	116.63M
	4717.00	1.32	116.63	4713.42	51.29	43.90	-33.81	55.41	322.40	1.67	155.91M
	4813.00	0.88	155.91	4809.41	49.59	42.73	-32.52	53.70	322.73	0.88	174.55M
	4909.00	0.88	174.55	4905.40	48.56	41.33	-32.15	52.36	322.12	0.30	184.35M
	5004.00	1.19	184.35	5000.38	47.70	39.62	-32.15	51.02	320.94	0.37	184.52M
	5099.00	1.80	184.52	5095.35	46.63	37.15	-32.35	49.25	318.95	0.64	187.95M
	5195.00	2.42	187.95	5191.28	45.21	33.63	-32.74	46.94	315.77	0.66	178.63M
	5289.00	1.80	178.63	5285.22	43.69	30.19	-32.98	44.72	312.47	0.75	159.65M
	5384.00	0.88	159.65	5380.19	42.35	28.02	-32.69	43.06	310.60	1.06	173.84M
	5480.00	0.79	173.84	5476.18	41.38	26.67	-32.37	41.94	309.49	0.23	177.31M
	5575.00	0.62	177.31	5571.18	40.72	25.50	-32.27	41.13	308.32	0.18	185.53M
	5672.00	0.48	185.53	5668.17	40.26	24.58	-32.29	40.58	307.28	0.17	190.23M
	5767.00	0.31	190.23	5763.17	40.01	23.93	-32.37	40.25	306.47	0.18	171.91M

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)	TF (°)
	5862.00	0.22	171.91	5858.17	39.81	23.49	-32.39	40.01	305.95	0.13	171.12M
	5957.00	0.09	171.12	5953.17	39.65	23.24	-32.35	39.84	305.69	0.14	346.81M
	6053.00	0.09	346.81	6049.17	39.65	23.24	-32.36	39.84	305.68	0.19	77.03M
	6150.00	0.40	77.03	6146.17	39.46	23.39	-32.05	39.67	306.12	0.42	103.93M
	6245.00	0.70	103.93	6241.16	38.66	23.32	-31.16	38.92	306.81	0.41	92.32M
	6340.00	1.01	92.32	6336.15	37.36	23.15	-29.76	37.70	307.88	0.37	82.61M
	6434.00	1.19	82.61	6430.13	35.86	23.24	-27.97	36.36	309.73	0.28	80.94M
	6528.00	1.10	80.94	6524.12	34.38	23.51	-26.11	35.13	312.00	0.10	71.63M
	6622.00	0.88	71.63	6618.10	33.21	23.88	-24.53	34.23	314.23	0.29	50.84M
	6716.00	0.70	50.84	6712.09	32.53	24.47	-23.40	33.86	316.28	0.36	49.13M
	6824.00	1.32	49.13	6820.08	31.89	25.70	-21.95	33.80	319.50	0.57	42.84M
	6911.00	1.58	42.84	6907.05	31.30	27.23	-20.37	34.01	323.20	0.35	39.81M
	7006.00	2.02	39.81	7002.00	30.73	29.48	-18.41	34.76	328.01	0.47	38.62M
	7100.00	1.80	38.62	7095.95	30.24	31.91	-16.43	35.89	332.75	0.24	20.03M
	7196.00	1.32	20.03	7191.91	30.21	34.12	-15.11	37.32	336.12	0.72	123.44M
	7290.00	0.88	123.44	7285.90	29.68	34.74	-14.14	37.51	337.86	1.86	137.02M
	7385.00	1.71	137.02	7380.88	27.59	33.30	-12.56	35.59	339.33	0.93	184.35M
	7481.00	1.89	184.35	7476.83	25.53	30.68	-11.70	32.83	339.12	1.51	212.82M
	7575.00	2.50	212.82	7570.77	24.95	27.41	-12.93	30.31	334.74	1.31	220.03M
	7671.00	2.50	220.03	7666.68	25.41	24.05	-15.42	28.56	327.34	0.33	218.23M
	7768.00	2.11	218.23	7763.60	26.02	21.02	-17.88	27.60	319.62	0.41	229.04M
	7862.00	1.89	229.04	7857.54	26.77	18.65	-20.12	27.43	312.82	0.46	245.81M
	8015.00	2.09	245.81	8010.45	29.21	15.85	-24.57	29.24	302.82	0.40	249.43M
	8049.00	2.49	249.43	8044.42	30.04	15.34	-25.83	30.04	300.70	1.25	242.94M
	8080.00	3.49	242.94	8075.38	30.98	14.67	-27.30	30.99	298.25	3.40	266.8M
	8112.00	5.38	266.80	8107.29	32.76	14.14	-29.67	32.87	295.49	8.13	284.46M
	8144.00	9.34	284.46	8139.02	36.51	14.71	-33.68	36.75	293.59	14.11	20.48R
Survey 3-Mar-13	8176.00	13.76	291.26	8170.37	42.77	16.74	-39.74	43.13	292.84	14.43	1.94L
	8208.00	15.15	291.08	8201.35	50.66	19.62	-47.19	51.11	292.58	4.35	5.14R
	8239.00	19.41	292.23	8230.95	59.77	23.03	-55.75	60.32	292.45	13.79	13.57R
	8273.00	23.86	294.87	8262.54	72.22	28.06	-67.22	72.84	292.66	13.39	5.08R
	8301.00	27.62	295.59	8287.76	84.33	33.25	-78.22	84.99	293.03	13.47	14.27R
	8335.00	30.68	297.11	8317.45	100.85	40.61	-93.05	101.52	293.58	9.26	86.35R
	8367.00	31.04	303.41	8344.93	117.25	48.87	-107.21	117.82	294.51	10.16	52.04R
	8399.00	32.20	306.13	8372.18	133.97	58.44	-120.98	134.36	295.78	5.74	7.21R
	8431.00	36.80	307.10	8398.54	151.97	69.26	-135.52	152.19	297.07	14.48	7.92R
	8463.00	41.16	308.02	8423.41	171.93	81.53	-151.47	172.02	298.29	13.74	7.59L
	8494.00	45.39	307.23	8445.98	192.99	94.50	-168.30	193.01	299.31	13.76	9.1L
	8527.00	51.09	306.06	8467.95	217.44	109.17	-188.05	217.44	300.14	17.47	4.26L
	8559.00	56.47	305.58	8486.85	243.12	124.27	-208.97	243.13	300.74	16.86	3.85L
	8589.00	60.21	305.29	8502.59	268.54	139.08	-229.78	268.59	301.19	12.49	3.26L
	8623.00	65.83	304.94	8518.01	298.72	156.50	-254.55	298.81	301.58	16.55	13.85L
Survey 6-Mar-13	8655.00	70.86	303.63	8529.82	328.37	173.24	-279.12	328.51	301.83	16.17	8.09L
	8683.00	75.36	302.97	8537.95	355.12	187.94	-301.51	355.29	301.94	16.23	3.73L

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)	TF (°)
	8718.00	81.75	302.55	8544.89	389.37	206.49	-330.34	389.57	302.01	18.29	3.49L
	8750.00	87.32	302.21	8547.94	421.19	223.55	-357.23	421.41	302.04	17.44	11.9R
	8782.00	89.93	302.76	8548.71	453.15	240.73	-384.22	453.40	302.07	8.34	12.15L
Survey 7-Mar-13	8813.00	90.58	302.62	8548.57	484.12	257.47	-410.31	484.40	302.11	2.14	94.64L
	8848.00	90.45	301.02	8548.25	519.10	275.92	-440.04	519.40	302.09	4.59	56.31L
	8880.00	90.55	300.87	8547.97	551.10	292.38	-467.49	551.39	302.02	0.56	122.47L
	8912.00	90.48	300.76	8547.69	583.09	308.77	-494.97	583.38	301.96	0.41	104.04L
	9007.00	90.38	300.36	8546.97	678.09	357.07	-576.77	678.35	301.76	0.43	16.39R
	9103.00	90.89	300.51	8545.91	774.08	405.69	-659.54	774.32	301.60	0.55	53.61L
	9198.00	91.03	300.32	8544.32	869.07	453.78	-741.45	869.29	301.47	0.25	110.32R
	9294.00	90.93	300.59	8542.68	965.05	502.43	-824.19	965.27	301.37	0.30	111.8L
	9389.00	90.89	300.49	8541.17	1060.04	550.70	-906.01	1060.24	301.29	0.11	76.43R
	9485.00	90.96	300.78	8539.62	1156.02	599.61	-988.60	1156.23	301.24	0.31	90R
Survey 8-Mar-13	9580.00	90.96	301.11	8538.03	1251.00	648.46	-1070.06	1251.21	301.22	0.35	133.37R
	9676.00	90.79	301.29	8536.56	1346.97	698.18	-1152.17	1347.20	301.21	0.26	75.71R
	9771.00	90.93	301.84	8535.13	1441.93	747.90	-1233.10	1442.19	301.24	0.60	44.99R
	9864.00	91.13	302.04	8533.46	1534.87	797.10	-1312.01	1535.17	301.28	0.30	79.69L
	9959.00	91.17	301.82	8531.56	1629.81	847.33	-1392.62	1630.14	301.32	0.24	87.18L
	10055.00	91.20	301.21	8529.57	1725.76	897.50	-1474.44	1726.12	301.33	0.64	153.44L
	10150.00	90.76	300.99	8527.95	1820.73	946.56	-1555.78	1821.10	301.32	0.52	90L
	10245.00	90.76	299.24	8526.69	1915.72	994.22	-1637.94	1916.07	301.26	1.84	76.86L
	10340.00	91.14	297.61	8525.11	2010.66	1039.44	-1721.47	2010.95	301.12	1.76	81.63L
	10436.00	91.41	295.77	8522.97	2106.46	1082.54	-1807.22	2106.64	300.92	1.94	16.08L
	10531.00	91.93	295.62	8520.21	2201.13	1123.72	-1892.79	2201.22	300.70	0.57	121.1L
	10626.00	91.55	294.99	8517.32	2295.74	1164.30	-1978.63	2295.78	300.47	0.77	129.48R
	10722.00	91.27	295.33	8514.96	2391.35	1205.11	-2065.50	2391.35	300.26	0.46	86.52R
	10817.00	91.31	295.99	8512.82	2486.03	1246.23	-2151.11	2486.03	300.09	0.70	92.26R
	10913.00	91.27	297.00	8510.66	2581.81	1289.05	-2237.00	2581.83	299.95	1.05	83.1R
	11008.00	91.38	297.91	8508.46	2676.68	1332.84	-2321.28	2676.71	299.86	0.96	87.46R
	11103.00	91.41	298.59	8506.15	2771.60	1377.79	-2404.94	2771.65	299.81	0.72	90R
	11199.00	91.41	298.98	8503.79	2867.54	1424.00	-2489.05	2867.60	299.77	0.41	106.58R
	11294.00	91.13	299.92	8501.68	2962.51	1470.70	-2571.75	2962.58	299.76	1.03	50.45R
	11390.00	91.65	300.55	8499.35	3058.48	1519.02	-2654.67	3058.55	299.78	0.85	111.34R
	11485.00	91.31	301.42	8496.90	3153.43	1567.91	-2736.09	3153.49	299.81	0.98	100.24R
	11581.00	91.14	302.36	8494.85	3249.37	1618.62	-2817.58	3249.41	299.88	0.99	100.41R
	11676.00	90.82	304.10	8493.22	3344.21	1670.67	-2897.03	3344.23	299.97	1.86	93.51R
	11772.00	90.69	306.21	8491.96	3439.84	1725.93	-2975.50	3439.84	300.12	2.20	91.84L
Survey 10-Mar-13	11863.00	90.65	304.97	8490.89	3530.42	1778.89	-3049.50	3530.42	300.26	1.36	90L
	11958.00	90.65	303.89	8489.81	3625.15	1832.60	-3127.85	3625.17	300.37	1.14	72.34L
	12053.00	90.86	303.23	8488.56	3719.97	1885.11	-3207.01	3720.02	300.45	0.73	35.42L
	12148.00	91.38	302.86	8486.71	3814.83	1936.90	-3286.63	3814.91	300.51	0.67	38.35L
	12244.00	92.10	302.29	8483.79	3910.70	1988.57	-3367.48	3910.80	300.56	0.96	67.41L
	12341.00	92.37	301.64	8480.01	4007.58	2039.88	-3449.71	4007.70	300.60	0.73	78.66L
	12436.00	92.58	300.59	8475.91	4102.48	2088.92	-3530.97	4102.60	300.61	1.13	126.71L

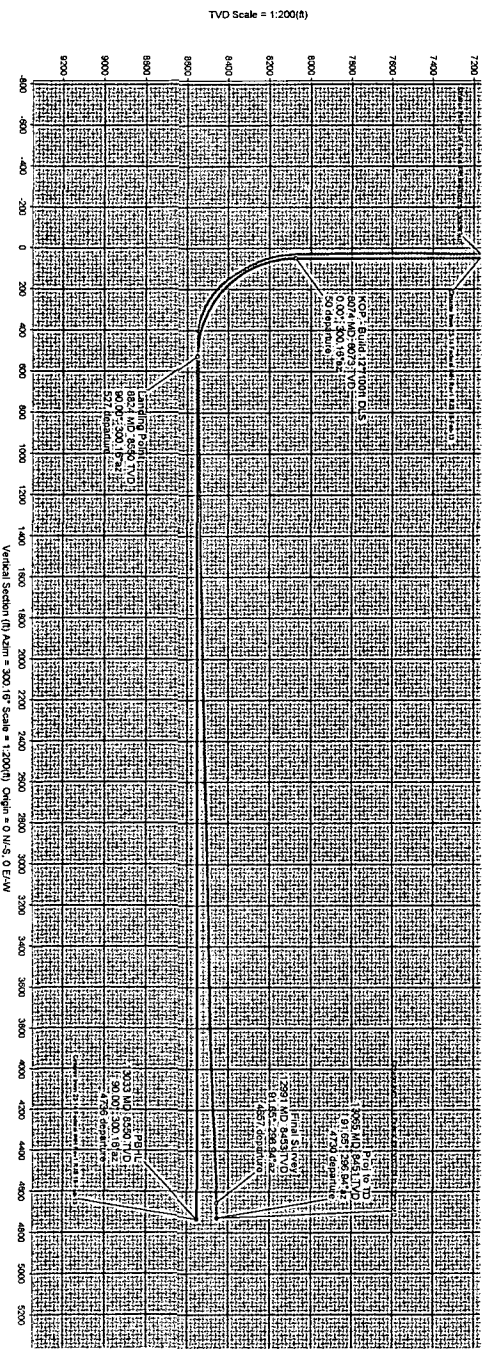
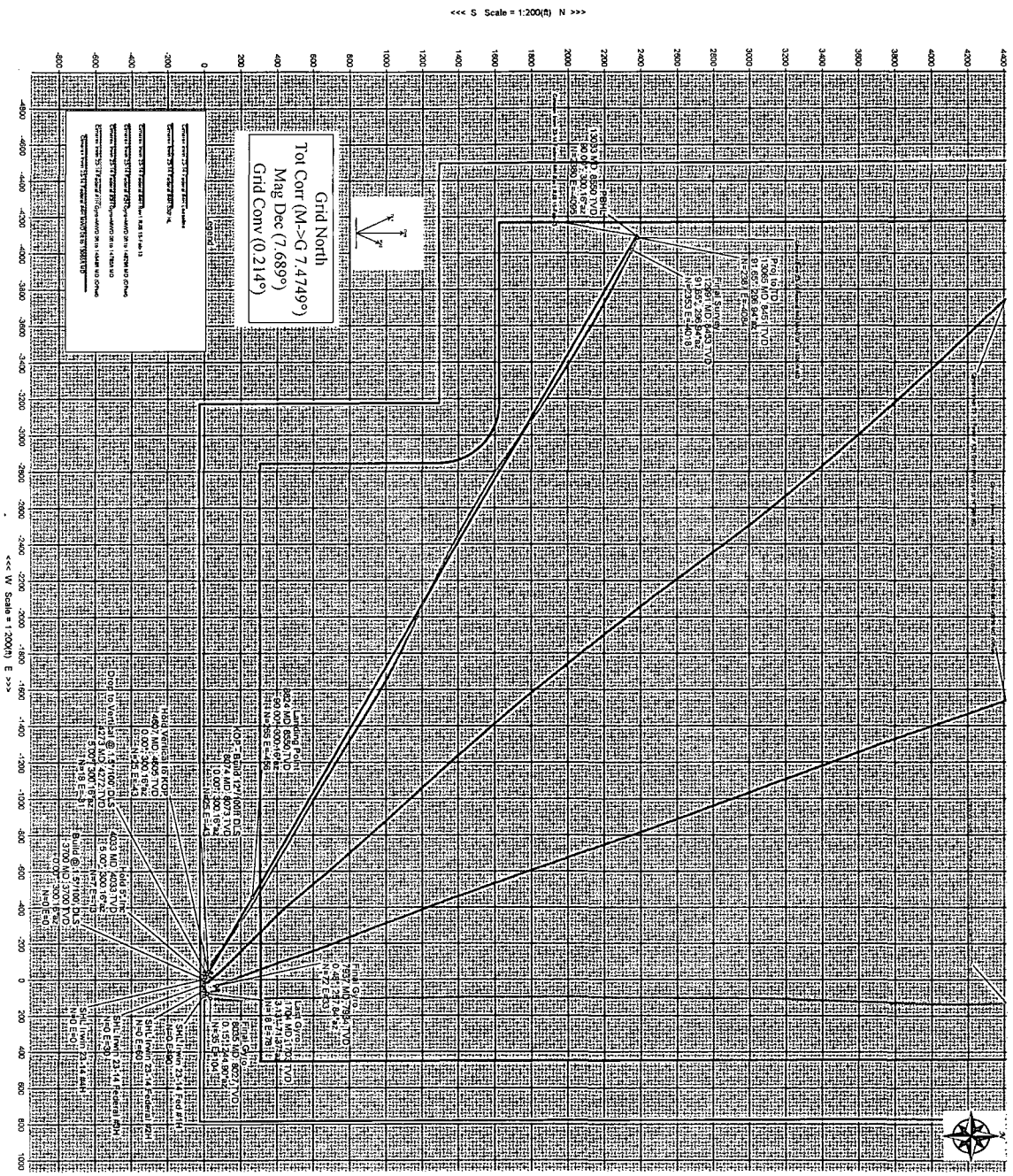
Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)	TF (°)
	12532.00	92.17	300.04	8471.93	4198.39	2137.34	-3613.77	4198.52	300.60	0.71	77.71L
	12627.00	92.37	299.12	8468.16	4293.31	2184.20	-3696.32	4293.43	300.58	0.99	94.38L
	12722.00	92.30	298.21	8464.29	4388.20	2229.73	-3779.61	4388.30	300.54	0.96	74.33L
	12817.00	92.51	297.46	8460.31	4483.04	2274.05	-3863.54	4483.11	300.48	0.82	101.97L
	12913.00	92.37	296.80	8456.22	4578.82	2317.79	-3948.90	4578.86	300.41	0.70	169R
Final Survey	12991.00	91.65	296.94	8453.48	4656.64	2353.02	-4018.44	4656.67	300.35	0.94	HS
Proj to TD	13065.00	91.65	296.94	8451.35	4730.49	2386.53	-4084.38	4730.51	300.30	0.00	

Survey Type: Def Survey

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

Description	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	0.000	18.000	Act Stns	30.000	30.000	SLB_MWD-STD-Depth Only	Original Borehole / Cimarex Irwin 23-14 Federal #4H MWD 0ft to
	18.000	12991.000	Act Stns	30.000	30.000	SLB_MWD-STD	Original Borehole / Cimarex Irwin 23-14 Federal #4H MWD 0ft to
	12991.000	13065.000	Act Stns	30.000	30.000	SLB_BLIND+TREND	Original Borehole / Cimarex Irwin 23-14 Federal #4H MWD 0ft to

WELL	FIELD	STRIKESLIDE
INW 23-14 Federal #4H	NM Eddy County	Cactus 101
Acquirer: Pacstream Model: BODN 2012 Dip: 60.03° Mag Dec: 7.48° Dat: February 15, 2013 FS: 40643 HRT	Sited Location Lat: N 31 39 58.375 Lon: W 103 05 11.917 Needing: 600152 BP 0115 Estimating: 645112 BP 0115 Old Cost: 0.214 Send Cost: 0.999316	Modifications Plot: (Inv: 23-14 Federal #4H) Start: (Inv: 23-14 Federal #4H) Stop: (Inv: 23-14 Federal #4H) By: Kef Date: February 15, 2013



Drawn By R. Schneider
 Date Created February 15, 2013 05:27:48 PM
 Checked By _____
 Checked Date _____
 Approved By _____
 Approved Date _____