

Results of Directional Survey

API number:	30-025-40328		
OGRID:		Operator:	CIMAREX ENERGY CO. OF COLORADO
		Property:	CHAPARRAL 33 FEDERAL COM # 4H

surface	ULSTR:	B	33	T	19S	R	34E
				330	FNL	2010	FEL

BH Loc	ULSTR:	O	33	T	19S	R	34E
15306	MD	10846.6	TVD	338	FSL	2026	FEL
				4942	FNL		

Top Perf/OH	ULSTR:	B	33	T	19S	R	34E
10620	MD	10602.6	TVD	354	FNL	2065	FEL

Bot Perf/OH	ULSTR:	O	33	T	19S	R	34E
15273	MD	10846.5	TVD	371	FSL	2026	FEL
				4909	FNL		

	MD	N/S	E/W	VD
	10591	-8.76	-59.90	10578.14
TOP PERFS/OH	10620	-23.69	-55.27	10602.55
	10623	-25.23	-54.79	10605.08
	15234	-4539.92	-16.06	10846.34
BOT PERFS/OH	15273	-4578.91	-16.12	10846.50
	15306	-4611.91	-16.17	10846.64

NEXT TO LAST	15234	-4539.92	-16.06	10846.34
LAST READING	15306	-4611.91	-16.17	10846.64
TD	15306	-4611.91	-16.17	10846.64

Surface Location	330	FN	2010	FE
Projected BHL	4942	FN	2026	FE
Location of				
Top Perfs/OH	354	FN	2065	FE
Bottom Perfs/OH	4909	FN	2026	FE

SUMMARY of Subsurface Locations

Surface Location	B-33-19S-34E	330	FN	2010	FE	Vert. Depth
Top Perfs/OH	B-33-19S-34E	354	FN	2065	FE	10602.55
Bottom Perfs/OH	O-33-19S-34E	4909	FN	2026	FE	10846.50
Projected TD	O-33-19S-34E	4942	FN	2026	FE	10846.64

JAN 29 2014



Cimarex

PATHFINDER
A Schlumberger Company

WELL	Chaparral 33 Federal Com #4H	FIELD	NM Lea County	STRUCTURE	ScanDrill Eagle
Maptech Properties	Model: BOOM 301	Dip: 60.49°	Date: July 01, 2013	Surface Location	510043 New Mexico State Trans. Far from Texas US Post
Mag Dec: 7.416°		SS: 1044.250'	Lat: N 32.5723 135	Neighboring	50121.69 815
			Long: W 103.3341 121	Grid Cont: 0.415°	Scale Part: 0.415°/131
				Site Plan	Chaparral 33 Federal Com #4HVD R/L EX/ROT/16.8 above 355.1
				Rev: 105 22-July-13	Trig Date: July 01, 2013



Grid North
Tot Corr (M-G 7.0507°)
Mag Dec (7.466°)
Grid Conv (0.415°)

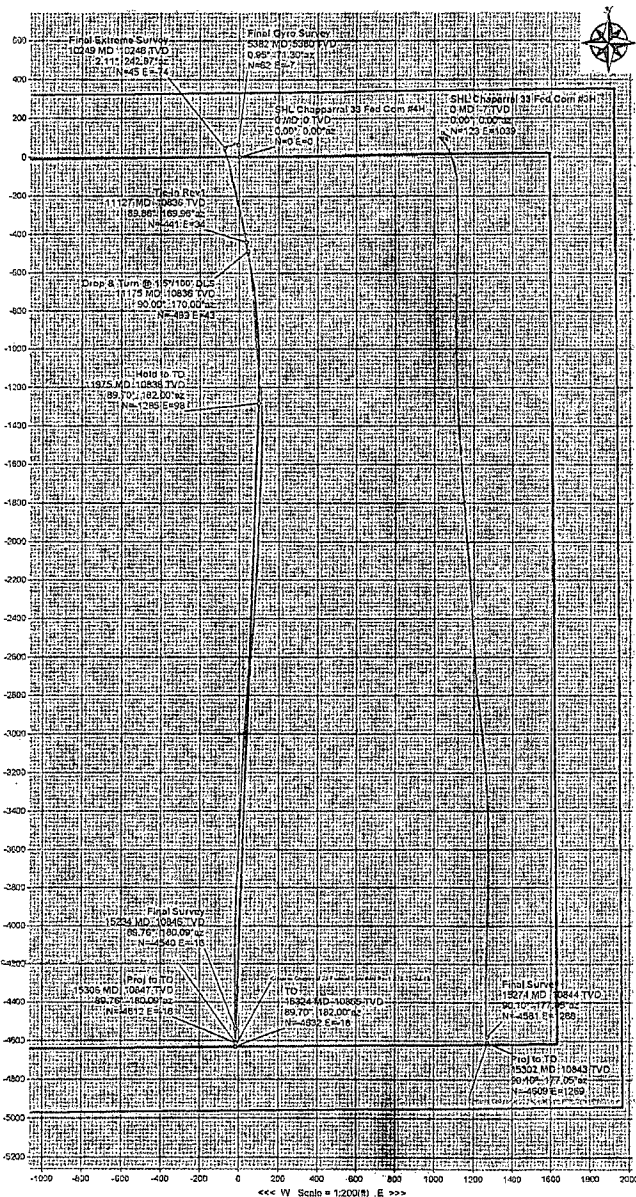
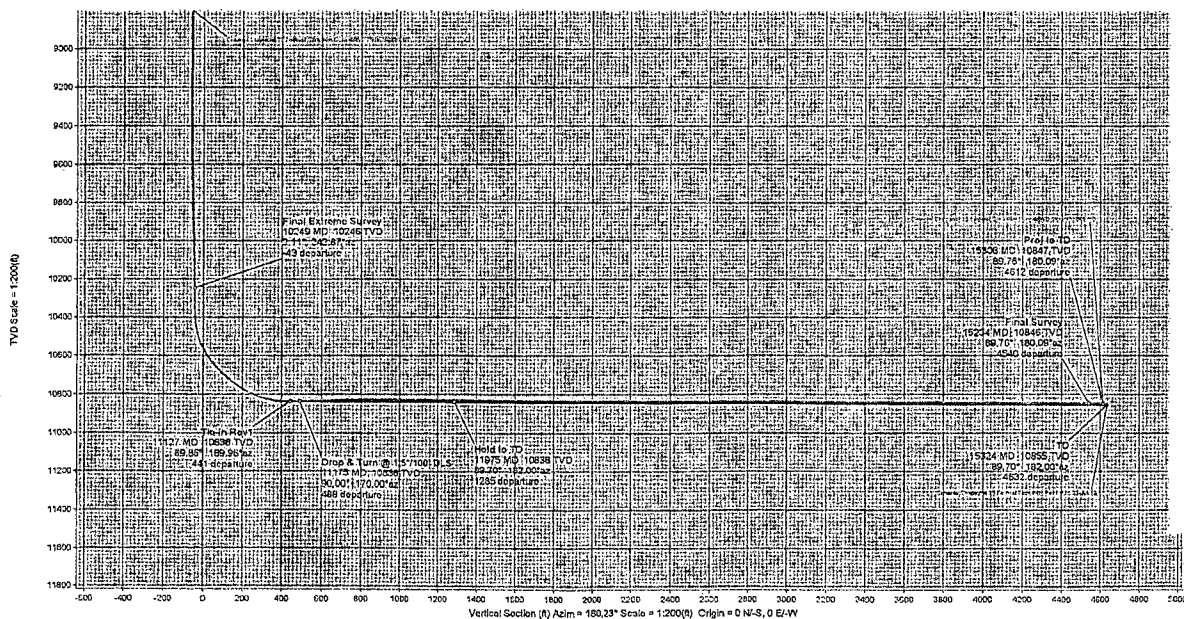
Legend

Vertical Section (V) Azim = 180.23° Scale = 1:2000 (ft) Origin = 0 N-S, 0 E-W

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JAN 24 2014

JOHNS OGD



Drawn By: R. Schneider
Date Created: July 22, 2013 10:57:38 AM
Checked By:
Checked Date:
Approved By:
Approved Date:



Cimarex Chaparral 33 Federal Com #4H Gyro+MWD 0ft to 15306ft MD

(Def Survey)

Report Date: July 26, 2013 - 08:18 AM
Client: Cimarex
Field: NM Lea County (NAD 83)
Structure / Slot: ScanDrill Eagle / Cimarex Chaparral 33 Federal Com #4H
Well: Cimarex Chaparral 33 Federal Com #4H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Chaparral 33 Federal Com #4H Gyro+MWD 0ft to 15306ft MD
Survey Date: July 11, 2013
Tort / AHD / DDI / ERD Ratio: 160.349 ° / 4854.634 ft / 6.041 / 0.448
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 37' 23.13472", W 103° 33' 46.32252"
Location Grid N/E Y/X: N 591271.900 ftUS, E 778546.500 ftUS
CRS Grid Convergence Angle: 0.4154 °
Grid Scale Factor: 0.99997353

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 180.228 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3716.000 ft above MSL
Seabed / Ground Elevation: 3691.000 ft above MSL
Magnetic Declination: 7.463 °
Total Gravity Field Strength: 998.4923mgn (9.80665 Based)
Total Magnetic Field Strength: 48640.992 nT
Magnetic Dip Angle: 60.499 °
Declination Date: July 11, 2013
Magnetic Declination Model: BGGM 2013
North Reference: Grid North
Grid Convergence Used: 0.4154 °
Total Corr Mag North->Grid North: 7.0476 °
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 Chapparral 33 Fed Com #4H	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	350.17M
	100.00	0.77	350.17	100.00	-0.66	0.66	-0.11	0.67	350.17	0.77	359.29M
	200.00	1.81	359.29	199.97	-2.90	2.90	-0.25	2.91	355.10	1.06	354.76M
	300.00	2.17	354.76	299.91	-6.37	6.37	-0.44	6.38	356.03	0.39	354.31M
	400.00	3.02	354.31	399.81	-10.87	10.87	-0.88	10.91	355.40	0.85	0.11M
	500.00	4.22	0.11	499.61	-17.17	17.18	-1.13	17.21	356.24	1.25	2.21M
	600.00	5.07	2.21	599.28	-25.27	25.27	-0.95	25.29	357.84	0.87	0.3M
	700.00	5.12	0.30	698.88	-34.14	34.15	-0.76	34.16	358.73	0.18	0.6M
	812.40	4.89	0.60	810.85	-43.95	43.95	-0.68	43.96	359.11	0.21	3.09M
	907.60	3.81	3.09	905.78	-51.17	51.17	-0.47	51.17	359.47	1.15	3.54M
	1002.80	2.72	3.54	1000.82	-56.58	56.58	-0.16	56.58	359.84	1.15	4.79M
	1098.00	1.78	4.79	1085.95	-60.31	60.31	0.10	60.31	0.10	0.99	0.67M
	1193.20	1.46	0.67	1191.11	-63.00	63.00	0.24	63.00	0.22	0.36	351.47M
	1288.40	0.81	351.47	1286.29	-64.87	64.87	0.16	64.87	0.14	0.71	308.77M
	1383.60	0.38	308.77	1381.48	-65.74	65.74	-0.19	65.74	359.83	0.62	255.9M
	1478.80	0.63	255.90	1476.68	-65.80	65.81	-0.94	65.81	359.18	0.53	245.03M
	1574.00	1.40	245.03	1571.87	-65.18	65.19	-2.51	65.24	357.80	0.83	243.41M

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)	TF (°)
	1669.20	2.28	243.41	1667.02	-63.83	63.85	-5.25	64.07	355.30	0.93	239.25M
	1764.40	2.26	239.25	1762.14	-62.01	62.04	-8.56	62.63	352.14	0.17	200.26M
	1859.60	1.01	200.26	1857.30	-60.25	60.30	-10.46	61.20	350.15	1.69	74.76M
	1954.80	0.29	74.76	1952.50	-59.53	59.57	-10.52	60.49	349.98	1.26	351.8M
	2050.00	0.30	351.80	2047.70	-59.84	59.88	-10.32	60.77	350.22	0.41	307.26M
	2145.20	0.22	307.26	2142.90	-60.20	60.24	-10.51	61.15	350.11	0.22	287.88M
	2240.40	0.13	287.88	2238.10	-60.34	60.38	-10.75	61.33	349.90	0.11	333.56M
	2335.60	0.05	333.56	2333.30	-60.41	60.45	-10.88	61.42	349.80	0.11	291.89M
	2430.80	0.10	291.89	2428.50	-60.48	60.52	-10.97	61.51	349.73	0.07	2.99M
	2526.00	0.01	2.99	2523.70	-60.52	60.56	-11.05	61.56	349.66	0.10	48.59M
	2621.20	0.11	48.59	2618.90	-60.59	60.63	-10.98	61.62	349.74	0.11	30.57M
	2716.40	0.24	30.57	2714.10	-60.82	60.86	-10.81	61.81	349.93	0.15	5.11M
	2811.60	0.25	5.11	2809.29	-61.20	61.24	-10.69	62.17	350.10	0.11	5.81M
	2906.80	0.16	5.81	2904.49	-61.54	61.58	-10.66	62.50	350.18	0.09	23.35M
	3002.00	0.14	23.35	2999.69	-61.78	61.82	-10.60	62.72	350.27	0.05	29.89M
	3097.20	0.12	29.89	3094.89	-61.97	62.01	-10.50	62.90	350.39	0.03	51.64M
	3192.40	0.15	51.64	3190.09	-62.13	62.18	-10.35	63.03	350.55	0.06	22.22M
	3287.60	0.14	22.22	3285.29	-62.32	62.36	-10.21	63.19	350.70	0.08	59.46M
	3382.80	0.08	59.46	3380.49	-62.46	62.50	-10.11	63.32	350.81	0.09	59.56M
	3478.00	0.10	59.56	3475.69	-62.54	62.58	-9.98	63.37	350.94	0.02	36.96M
	3573.20	0.08	36.96	3570.89	-62.63	62.67	-9.87	63.45	351.05	0.04	85.2M
	3668.40	0.15	85.20	3666.09	-62.70	62.74	-9.71	63.48	351.20	0.12	52.62M
	3763.60	0.11	52.62	3761.29	-62.76	62.80	-9.51	63.52	351.39	0.09	198.68M
	3858.80	0.11	198.68	3856.49	-62.73	62.77	-9.47	63.48	351.42	0.22	126.59M
	3954.00	0.17	126.59	3951.69	-62.56	62.60	-9.38	63.30	351.48	0.18	47.91M
	4049.20	0.17	47.91	4046.89	-62.57	62.61	-9.16	63.28	351.67	0.23	312.5M
	4144.40	0.13	312.50	4142.09	-62.74	62.78	-9.14	63.44	351.72	0.23	232.26M
	4239.60	0.05	232.26	4237.29	-62.79	62.83	-9.25	63.50	351.62	0.14	111.83M
	4334.80	0.17	111.83	4332.49	-62.71	62.75	-9.15	63.41	351.70	0.21	70.02M
	4430.00	0.21	70.02	4427.69	-62.72	62.76	-8.86	63.38	351.97	0.15	45.2M
	4525.20	0.19	45.20	4522.89	-62.89	62.93	-8.58	63.51	352.23	0.09	3.62M
	4620.40	0.17	3.62	4618.09	-63.14	63.18	-8.46	63.74	352.37	0.14	343.56M
	4715.60	0.18	343.56	4713.29	-63.43	63.46	-8.49	64.03	352.38	0.06	301.35M
	4810.80	0.07	301.35	4808.49	-63.60	63.64	-8.59	64.21	352.32	0.14	145.21M
	4906.00	0.23	145.21	4903.69	-63.48	63.51	-8.53	64.08	352.35	0.31	64.28M
	5001.20	0.48	64.28	4998.89	-63.49	63.53	-8.06	64.04	352.77	0.52	339.22M
	5096.40	0.61	339.22	5094.08	-64.14	64.17	-7.88	64.66	353.00	0.78	223.82M
	5191.60	0.70	223.82	5189.28	-64.19	64.23	-8.46	64.78	352.49	1.16	147.49M
Final Gyro Survey	5286.80	1.21	147.49	5284.47	-62.93	62.96	-8.32	63.51	352.47	1.31	71.3M
	5382.00	0.95	71.30	5379.66	-62.34	62.37	-7.04	62.76	353.56	1.42	334.23M
	5517.00	1.10	334.23	5514.64	-63.87	63.89	-6.54	64.23	354.16	1.14	312.83M
	5706.00	1.32	312.83	5703.60	-66.97	67.01	-8.93	67.60	352.41	0.26	300.57M
	5895.00	1.01	300.57	5892.56	-69.28	69.33	-11.96	70.36	350.22	0.21	281.94M
	6085.00	1.01	281.94	6082.53	-70.47	70.53	-15.04	72.12	347.97	0.17	268.14M

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)	TF (°)
	6274.00	0.79	268.14	6271.51	-70.76	70.83	-17.97	73.08	345.77	0.16	237.16M
	6558.00	0.79	237.16	6555.49	-69.62	69.71	-21.57	72.97	342.81	0.15	241.07M
	6842.00	1.19	241.07	6839.44	-67.12	67.22	-25.80	72.00	339.01	0.14	238.56M
	7125.00	1.10	238.56	7122.39	-64.26	64.38	-30.69	71.32	334.52	0.04	237.33M
	7409.00	0.88	237.33	7406.34	-61.64	61.78	-34.85	70.93	330.58	0.08	233.86M
	7693.00	0.70	233.86	7690.32	-59.43	59.58	-38.08	70.71	327.41	0.07	233.33M
	7976.00	0.79	233.33	7973.29	-57.23	57.40	-41.04	70.56	324.43	0.03	195.67M
	8261.00	0.40	195.67	8258.28	-55.09	55.27	-42.89	69.96	322.19	0.19	302.63M
	8545.00	0.48	302.63	8542.27	-54.78	54.95	-44.16	70.50	321.22	0.25	335.33M
	8829.00	0.48	335.33	8826.26	-56.49	56.67	-45.66	72.78	321.14	0.10	278.46M
	9113.00	0.88	278.46	9110.25	-57.88	58.08	-48.31	75.54	320.24	0.26	251.75M
	9397.00	1.19	251.75	9394.20	-57.26	57.47	-53.27	78.36	317.17	0.20	237.46M
	9681.00	1.32	237.46	9678.13	-54.56	54.79	-58.83	80.39	312.97	0.12	234.17M
	9965.00	2.02	234.17	9962.01	-49.84	50.10	-65.64	82.58	307.35	0.25	242.87M
Final Extreme Survey	10249.00	2.11	242.87	10245.83	-44.49	44.79	-74.35	86.80	301.06	0.11	258.33M
	10339.00	2.04	258.33	10335.77	-43.40	43.71	-77.40	88.89	299.45	0.62	232.44M
	10370.00	1.66	232.44	10366.75	-43.01	43.32	-78.29	89.48	298.96	2.93	178.27M
	10402.00	4.18	178.27	10398.71	-41.56	41.87	-78.63	89.08	298.04	10.87	165.98M
	10433.00	8.26	165.98	10429.53	-38.27	38.58	-78.05	87.07	296.30	13.77	24.3L
	10465.00	12.23	157.76	10461.01	-32.91	33.21	-76.21	83.13	293.55	13.19	8.34L
	10496.00	16.56	155.54	10491.03	-25.86	26.15	-73.14	77.67	289.67	14.08	10.92R
	10528.00	21.00	157.92	10521.32	-16.40	16.68	-69.09	71.08	283.57	14.08	11.68R
	10560.00	25.27	159.98	10550.74	-4.69	4.94	-64.60	64.79	274.38	13.58	11.15R
	10591.00	30.46	161.99	10578.14	8.99	-8.76	-59.90	60.54	261.68	17.01	10.63R
Survey 21-Jul-13	10623.00	34.79	163.41	10605.08	25.44	-25.23	-54.78	60.31	245.27	13.74	42.87R
	10654.00	37.32	167.19	10630.14	43.07	-42.87	-50.17	65.99	229.49	10.86	17.01R
	10686.00	41.69	169.19	10654.83	62.98	-62.79	-46.02	77.85	216.24	14.22	11.31R
	10717.00	46.41	170.49	10677.11	84.17	-84.00	-42.23	94.02	206.69	15.50	34.57L
	10749.00	48.14	168.90	10698.82	107.28	-107.13	-38.02	113.68	199.54	6.52	34.81L
	10780.00	50.69	166.63	10718.98	130.26	-130.13	-33.03	134.26	194.24	9.93	18.8L
	10812.00	53.83	165.31	10738.57	154.78	-154.68	-26.89	157.00	189.86	10.34	14.07R
	10843.00	56.84	166.21	10756.20	179.47	-179.39	-20.62	180.57	186.56	10.00	19.4R
	10875.00	59.97	167.48	10772.96	205.98	-205.93	-14.42	206.43	184.01	10.35	17.54L
	10906.00	62.76	166.49	10787.82	232.46	-232.43	-8.29	232.58	182.04	9.43	3.55R
	10938.00	66.61	166.75	10801.50	260.57	-260.57	-1.60	260.57	180.35	12.05	10.48R
	10969.00	70.75	167.56	10812.77	288.70	-288.72	4.82	288.76	179.04	13.57	4.85R
	11001.00	75.43	167.97	10822.07	318.58	-318.63	11.30	318.83	177.97	14.68	6.77R
	11032.00	79.66	168.48	10828.76	348.19	-348.26	17.48	348.70	177.13	13.74	7.5R
Survey 22-Jul-13	11064.00	84.35	169.10	10833.21	379.24	-379.33	23.63	380.07	176.43	14.78	10.43R
	11096.00	88.70	169.90	10835.14	410.61	-410.73	29.45	411.79	175.90	13.82	2.96R
	11127.00	89.86	169.96	10835.53	441.11	-441.25	34.87	442.63	175.48	3.75	19.65L
	11148.00	90.14	169.86	10835.53	461.77	-461.93	38.55	463.53	175.23	1.42	57.32R
	11241.00	91.48	171.95	10834.22	553.52	-553.74	53.25	556.30	174.51	2.67	75.36R
	11336.00	92.24	174.87	10831.14	647.79	-648.05	64.15	651.22	174.35	3.17	101.43R

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)	TF (°)
	11432.00	91.93	176.40	10827.64	743.42	-743.71	71.45	747.13	174.51	1.63	173.52R
	11526.00	90.17	176.60	10825.92	837.20	-837.51	77.18	841.06	174.73	1.88	125.22L
	11621.00	89.45	175.58	10826.24	931.95	-932.29	83.66	936.04	174.87	1.31	85.4L
	11716.00	89.52	174.71	10827.09	1026.57	-1026.94	91.70	1031.03	174.90	0.92	153.44R
	11810.00	89.42	174.76	10827.96	1120.14	-1120.54	100.33	1125.03	174.88	0.12	75.13R
	11905.00	89.59	175.40	10828.78	1214.75	-1215.19	108.47	1220.02	174.90	0.70	91.95R
	12000.00	89.52	177.46	10829.52	1309.53	-1310.00	114.39	1314.98	175.01	2.17	83.03R
	12095.00	89.76	179.42	10830.11	1404.48	-1404.96	116.98	1409.82	175.24	2.08	89.22R
	12189.00	89.79	181.61	10830.48	1498.47	-1498.95	116.13	1503.44	175.57	2.33	104.04R
	12284.00	89.66	182.13	10830.94	1593.43	-1593.89	113.03	1597.90	175.94	0.56	45R
	12379.00	89.72	182.19	10831.45	1688.38	-1688.82	109.45	1692.37	176.29	0.09	90R
	12474.00	89.72	182.55	10831.92	1783.31	-1783.74	105.52	1786.86	176.61	0.38	113.2L
	12568.00	89.69	182.48	10832.40	1877.23	-1877.65	101.40	1880.39	176.91	0.08	67.62L
	12663.00	89.76	182.31	10832.86	1972.16	-1972.57	97.43	1974.97	177.17	0.19	68.75R
	12758.00	89.83	182.49	10833.20	2067.09	-2067.48	93.45	2069.59	177.41	0.20	100.92R
Survey 24-Jul-13	12852.00	89.72	183.06	10833.57	2161.00	-2161.37	88.90	2163.20	177.64	0.62	68.75R
	12947.00	89.79	183.24	10833.97	2255.88	-2256.23	83.68	2257.78	177.88	0.20	86.48R
	13042.00	89.83	183.89	10834.29	2350.71	-2351.04	77.77	2352.33	178.11	0.69	92.63R
	13136.00	89.79	184.76	10834.60	2444.47	-2444.77	70.68	2445.79	178.34	0.93	100.01L
	13231.00	89.73	184.42	10835.00	2539.20	-2539.47	63.08	2540.25	178.58	0.36	83.42R
	13326.00	89.79	184.94	10835.40	2633.91	-2634.15	55.33	2634.73	178.80	0.55	112.38L
	13421.00	89.72	184.77	10835.80	2728.60	-2728.81	47.29	2729.22	179.01	0.19	112.48L
	13515.00	89.48	184.19	10836.46	2822.34	-2822.52	39.95	2822.80	179.19	0.67	38.16L
	13610.00	89.76	183.97	10837.09	2917.12	-2917.27	33.19	2917.46	179.35	0.37	173.88R
	13704.00	89.48	184.00	10837.71	3010.91	-3011.04	26.65	3011.16	179.49	0.30	50.86L
	13799.00	89.83	183.57	10838.28	3105.73	-3105.83	20.38	3105.90	179.62	0.58	102.64L
	13894.00	89.59	182.50	10838.76	3200.61	-3200.70	15.35	3200.74	179.73	1.15	77.2L
	13988.00	89.69	182.06	10839.35	3294.55	-3294.62	11.61	3294.64	179.80	0.48	79.15R
	14083.00	89.83	182.79	10839.75	3389.48	-3389.54	7.59	3389.54	179.87	0.78	137.86L
	14178.00	89.62	182.60	10840.21	3484.39	-3484.43	3.13	3484.43	179.95	0.30	54.46R
	14273.00	89.72	182.74	10840.76	3579.30	-3579.32	-1.30	3579.33	180.02	0.18	113.2R
	14368.00	89.66	182.88	10841.27	3674.20	-3674.21	-5.95	3674.21	180.09	0.16	90R
	14463.00	89.66	182.98	10841.83	3769.10	-3769.08	-10.81	3769.10	180.16	0.11	97.01L
	14558.00	89.52	181.84	10842.51	3864.02	-3864.00	-14.80	3864.02	180.22	1.21	60.26L
	14652.00	89.76	181.42	10843.10	3957.99	-3957.96	-17.48	3957.99	180.25	0.51	95.71L
Survey 25-Jul-13	14748.00	89.66	180.42	10843.59	4053.98	-4053.94	-19.02	4053.98	180.27	1.05	90L
	14843.00	89.66	179.87	10844.15	4148.98	-4148.94	-19.26	4148.98	180.27	0.58	119.58L
	14939.00	89.45	179.50	10844.90	4244.97	-4244.93	-18.73	4244.97	180.25	0.44	68.88L
	15034.00	89.62	179.06	10845.67	4339.96	-4339.92	-17.54	4339.96	180.23	0.50	57.15R
	15130.00	89.93	179.54	10846.05	4435.94	-4435.91	-16.37	4435.94	180.21	0.60	107.18R
Final Survey Proj to TD	15234.00	89.76	180.09	10846.33	4539.94	-4539.91	-16.03	4539.94	180.20	0.55	HS
	15306.00	89.76	180.09	10846.63	4611.94	-4611.91	-16.14	4611.94	180.20	0.00	

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)	TF (°)
----------	------------	-------------	------------------	-------------	--------------	------------	------------	-----------------	---------------------------	------------------	-----------

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	25.000	Act Stns	30.000	30.000	SLB_NSG+MSHOT-Depth Only	Original Borehole / Cimarex Chaparral 33 Federal Com #4H Gyro+MWD 0ft to 15306ft MD
	25.000	5382.000	Act Stns	30.000	30.000	SLB_NSG+MSHOT	Original Borehole / Cimarex Chaparral 33 Federal Com #4H
	5382.000	10249.000	Act Stns	30.000	30.000	SLB_MWD-POOR	Original Borehole / Cimarex Chaparral 33 Federal Com #4H
	10249.000	15234.000	Act Stns	30.000	30.000	SLB_MWD-STD	Original Borehole / Cimarex Chaparral 33 Federal Com #4H
	15234.000	15306.000	Act Stns	30.000	30.000	SLB_BLIND+TREND	Original Borehole / Cimarex Chaparral 33 Federal Com #4H

Schlumberger

Reservoir Development

Drilling & Measurements (Anadrill)

4301 SW 44th St

Oklahoma City, Oklahoma 73119 USA

Phone: (405) 682-2284

Fax: (405) 682-3937

HOBBS OCD

JAN 09 2014

RECEIVED

August 29, 2013

Cimarex

600 N MARIENFELD STREET SUITE 600

MIDLAND, TX 79701

Re:

B-S33-T19S-R34E 330 FNL 2010 FEL
N 32.62309 W 103.56316

CLIENT: Cimarex Energy Co. of Colorado
WELL: Chaparral 33 Federal Com No. 4H
FIELD: Quail Ridge; Bone Spring, South
RIG: Scandril Eagle
COUNTY: Lea, New Mexico
API NO: 30-025-40328
JOB NO: 13MLD0398

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>
Tim Sellers MWD	Chaparral 33 Federal Com No. 4H Original Hole	10339.00 Ft to 15234.00 Ft	July 20, 2013 to July 25, 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

HOBBS OGD

JAN 09 2011

Well Reference:

B-S33-T19S-R34E 330 FNL 2010 FEL

N 32.62309 W 103.56316

RECEIVED

I, Tim Sellers certify that; I am employed by Drilling & Measurements (formerly Anadrill), a division of Schlumberger Technology Corporation; that I did on the day(s) of July 20, 2013 through July 25, 2013, conduct or supervise the taking of the SlimPulse surveys from a depth of 10339.00 feet to a depth of 15234.00 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 Chaparral 33 Federal Com No. 4H Well (Original Hole) API No. 30-025-40328 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.

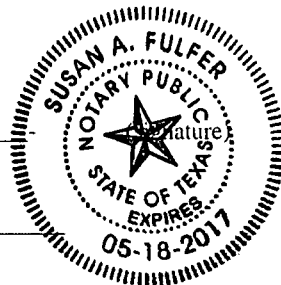
By
Tim Sellers
MWD

Timothy Sellers
on behalf of Tim Sellers

Subscribed and Sworn to before me this 29th day of August (month) 2013 (yr)

My Commission expires:

5/18/17
Susan A. Fulfer
Notary Public
Midland TX
(County State)



SCHLUMBERGER
Survey Report

5-Aug-2013

Client.....: Cimarex Energy Co. of Colorado
Field.....: Quail Ridge; Bone Spring, South

Well.....: Chaparral 33 Federal Com No. 4H
API number.....: 30-025-40328
Engineer.....: Tim Sellers

Spud date.....: 7-Jul-13
Last survey date.....: 25-Jul-13
Total accepted surveys....: 70
MD of first survey.....: 10339.00 ft
MD of last survey.....: 15234.00 ft

County.....: Lea
State.....: New Mexico
Rig.....: Scandril Eagle

Latitude.....: 32° 37' 23.135" N
Longitude.....: 103° 33' 46.323" 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.....: 3691.00
KB above permanent.....: 3716.00
DF above permanent.....: 3716.00

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

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

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

NAD27 Texas State Plane, Central Zone, US Feet
X.....: 591271.90 ft
Y.....: 778546.50 ft

Azimuth from Vsect Origin to target: 180.23 degrees

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

-----Run1----- Calculation Date: 19-Jul-2013
Location G.....: 998.94325 mgn Tolerance G.....: 2.50 mgn
Location B.....: 48644.18 nT Tolerance B.....: 300.00 nT
Magnetic Dip: 60.499 degrees Tolerance Dip: 0.45 degrees

-----Run2----- Calculation Date: 20-Jul-2013
Location G.....: 998.94325 mgn Tolerance G.....: 2.50 mgn
Location B.....: 48644.19 nT Tolerance B.....: 300.00 nT
Magnetic Dip: 60.499 degrees Tolerance Dip: 0.45 degrees

-----Run3----- Calculation Date: 22-Jul-2013
Location G.....: 998.94325 mgn Tolerance G.....: 2.50 mgn
Location B.....: 48644.19 nT Tolerance B.....: 300.00 nT
Magnetic Dip: 60.49 degrees Tolerance Dip: 0.45 degrees

BGGM Model: 2013

-----Run1-----

Magnetic dec (+E/W-).....: 7.466 degrees
Grid Conv (+E/W-).....: 0.416 degrees
Total Azim Corr (+E/W-)...: 7.05 degrees

-----Run2-----

Magnetic dec (+E/W-).....: 7.466 degrees
Grid Conv (+E/W-).....: 0.416 degrees
Total Azim Corr (+E/W-)...: 7.05 degrees

-----Run3-----

Magnetic dec (+E/W-).....: 7.466 degrees
Grid Conv (+E/W-).....: 0.416 degrees
Total Azim Corr (+E/W-)...: 7.05 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	0.77	350.17	100.00	100.00	-0.66	0.66	-0.11	0.67	350.17	0.77	Other	0
3	200.00	1.81	359.29	100.00	199.97	-2.90	2.90	-0.25	2.91	355.10	1.06	Other	0
4	300.00	2.17	354.76	100.00	299.91	-6.37	6.37	-0.44	6.38	356.03	0.39	Other	0
5	400.00	3.02	354.31	100.00	399.81	-10.87	10.87	-0.88	10.91	355.40	0.85	Other	0
6	500.00	4.22	0.11	100.00	499.61	-17.17	17.18	-1.13	17.21	356.24	1.25	Other	0
7	600.00	5.07	2.21	100.00	599.28	-25.27	25.27	-0.95	25.29	357.84	0.87	Other	0
8	700.00	5.12	0.30	100.00	698.88	-34.14	34.15	-0.76	34.16	358.73	0.18	Other	0
9	812.40	4.89	0.60	112.40	810.85	-43.95	43.95	-0.68	43.96	359.11	0.21	Other	0
10	907.60	3.81	3.09	95.20	905.78	-51.17	51.17	-0.47	51.17	359.47	1.15	Other	0
11	1002.80	2.72	3.54	95.20	1000.82	-56.58	56.58	-0.16	56.58	359.84	1.15	Other	0
12	1098.00	1.78	4.79	95.20	1095.95	-60.31	60.31	0.10	60.31	0.10	0.99	Other	0
13	1193.20	1.46	0.67	95.20	1191.11	-63.00	63.00	0.24	63	0.22	0.36	Other	0
14	1288.40	0.81	351.47	95.20	1286.29	-64.87	64.87	0.16	64.87	0.14	0.71	Other	0
15	1383.60	0.38	308.77	95.20	1381.48	-65.74	65.74	-0.19	65.74	359.83	0.62	Other	0
16	1478.80	0.63	255.90	95.20	1476.68	-65.80	65.81	-0.94	65.81	359.18	0.53	Other	0
17	1574.00	1.40	245.03	95.20	1571.87	-65.18	65.19	-2.51	65.24	357.80	0.83	Other	0
18	1669.20	2.28	243.41	95.20	1667.02	-63.83	63.85	-5.25	64.07	355.30	0.93	Other	0
19	1764.40	2.26	239.25	95.20	1762.14	-62.01	62.04	-8.56	62.63	352.14	0.17	Other	0
20	1859.60	1.01	200.26	95.20	1857.30	-60.25	60.30	-10.46	61.2	350.15	1.69	Other	0
21	1954.80	0.29	74.76	95.20	1952.50	-59.53	59.57	-10.52	60.49	349.98	1.26	Other	0
22	2050.00	0.30	351.80	95.20	2047.70	-59.84	59.88	-10.32	60.77	350.22	0.41	Other	0
23	2145.20	0.22	307.26	95.20	2142.90	-60.20	60.24	-10.51	61.15	350.11	0.22	Other	0
24	2240.40	0.13	287.88	95.20	2238.10	-60.34	60.38	-10.75	61.33	349.90	0.11	Other	0
25	2335.60	0.05	333.56	95.20	2333.30	-60.41	60.45	-10.88	61.42	349.80	0.11	Other	0
26	2430.80	0.10	291.89	95.20	2428.50	-60.48	60.52	-10.97	61.51	349.73	0.07	Other	0
27	2526.00	0.01	2.99	95.20	2523.70	-60.52	60.56	-11.05	61.56	349.66	0.10	Other	0
28	2621.20	0.11	48.59	95.20	2618.90	-60.59	60.63	-10.98	61.62	349.74	0.11	Other	0
29	2716.40	0.24	30.57	95.20	2714.10	-60.82	60.86	-10.81	61.81	349.93	0.15	Other	0
30	2811.60	0.25	5.11	95.20	2809.29	-61.20	61.24	-10.69	62.17	350.10	0.11	Other	0
31	2906.80	0.16	5.81	95.20	2904.49	-61.54	61.58	-10.66	62.5	350.18	0.09	Other	0
32	3002.00	0.14	23.35	95.20	2999.69	-61.78	61.82	-10.60	62.72	350.27	0.05	Other	0
33	3097.20	0.12	29.89	95.20	3094.89	-61.97	62.01	-10.50	62.9	350.39	0.03	Other	0
34	3192.40	0.15	51.64	95.20	3190.09	-62.13	62.18	-10.35	63.03	350.55	0.06	Other	0
35	3287.60	0.14	22.22	95.20	3285.29	-62.32	62.36	-10.21	63.19	350.70	0.08	Other	0
36	3382.80	0.08	59.46	95.20	3380.49	-62.46	62.50	-10.11	63.32	350.81	0.09	Other	0
37	3478.00	0.10	59.56	95.20	3475.69	-62.54	62.58	-9.98	63.37	350.94	0.02	Other	0
38	3573.20	0.08	36.96	95.20	3570.89	-62.63	62.67	-9.87	63.45	351.05	0.04	Other	0
39	3668.40	0.15	85.20	95.20	3666.09	-62.70	62.74	-9.71	63.48	351.20	0.12	Other	0
40	3763.60	0.11	52.62	95.20	3761.29	-62.76	62.80	-9.51	63.52	351.39	0.09	Other	0
41	3858.80	0.11	198.68	95.20	3856.49	-62.73	62.77	-9.47	63.48	351.42	0.22	Other	0
42	3954.00	0.17	126.59	95.20	3951.69	-62.56	62.60	-9.38	63.3	351.48	0.18	Other	0
43	4049.20	0.17	47.91	95.20	4046.89	-62.57	62.61	-9.16	63.28	351.67	0.23	Other	0
44	4144.40	0.13	312.50	95.20	4142.09	-62.74	62.78	-9.14	63.44	351.72	0.23	Other	0
45	4239.60	0.05	232.26	95.20	4237.29	-62.79	62.83	-9.25	63.5	351.62	0.14	Other	0
46	4334.80	0.17	111.83	95.20	4332.49	-62.71	62.75	-9.15	63.41	351.70	0.21	Other	0
47	4430.00	0.21	70.02	95.20	4427.69	-62.72	62.76	-8.86	63.38	351.97	0.15	Other	0
48	4525.20	0.19	45.20	95.20	4522.89	-62.89	62.93	-8.58	63.51	352.23	0.09	Other	0
49	4620.40	0.17	3.62	95.20	4618.09	-63.14	63.18	-8.46	63.74	352.37	0.14	Other	0
50	4715.60	0.18	343.56	95.20	4713.29	-63.43	63.46	-8.49	64.03	352.38	0.06	Other	0
51	4810.80	0.07	301.35	95.20	4808.49	-63.60	63.64	-8.59	64.21	352.32	0.14	Other	0
52	4906.00	0.23	145.21	95.20	4903.69	-63.48	63.51	-8.53	64.08	352.35	0.31	Other	0
53	5001.20	0.48	64.28	95.20	4998.89	-63.49	63.53	-8.06	64.04	352.77	0.52	Other	0
54	5096.40	0.61	339.22	95.20	5094.08	-64.14	64.17	-7.88	64.66	353.00	0.78	Other	0
55	5191.60	0.70	223.82	95.20	5189.28	-64.19	64.23	-8.46	64.78	352.49	1.16	Other	0
56	5286.80	1.21	147.49	95.20	5284.47	-62.93	62.96	-8.32	63.51	352.47	1.31	Other	0
57	5382.00	0.95	71.30	95.20	5379.66	-62.34	62.37	-7.04	62.76	353.56	1.42	Other	0
58	5517.00	1.10	334.23	135.00	5514.64	-63.87	63.89	-6.54	64.23	354.16	1.14	Other	0
59	5706.00	1.32	312.83	189.00	5703.60	-66.97	67.01	-8.93	67.6	352.41	0.26	Other	0
60	5895.00	1.01	300.57	189.00	5892.56	-69.28	69.33	-11.96	70.36	350.22	0.21	Other	0
61	6085.00	1.01	281.94	190.00	6082.53	-70.47	70.53	-15.04	72.12	347.97	0.17	Other	0
62	6274.00	0.79	268.14	189.00	6271.51	-70.76	70.83	-17.97	73.08	345.77	0.16	Other	0
63	6558.00	0.79	237.16	284.00	6555.49	-69.62	69.71	-21.57	72.97	342.81	0.15	Other	0
64	6842.00	1.19	241.07	284.00	6839.44	-67.12	67.22	-25.80	72	339.01	0.14	Other	0
65	7125.00	1.10	238.56	283.00	7122.39	-64.26	64.38	-30.69	71.32	334.52	0.04	Other	0
66	7409.00	0.88	237.33	284.00	7406.34	-61.64	61.78	-34.85	70.93	330.58	0.08	Other	0
67	7693.00	0.70	233.86	284.00	7690.32	-59.43	59.58	-38.08	70.71	327.41	0.07	Other	0
68	7976.00	0.79	233.33	283.00	7973.29	-57.23	57.40	-41.04	70.56	324.43	0.03	Other	0
69	8261.00	0.40	195.67	285.00	8258.28	-55.09	55.27	-42.89	69.96	322.19	0.19	Other	0
70	8545.00	0.48	302.63	284.00	8542.27	-54.78	54.95	-44.16	70.5	321.22	0.25	Other	0
71	8829.00	0.48	335.33	284.00	8826.26	-56.49	56.67	-45.66	72.78	321.14	0.10	Other	0
72	9113.00	0.88	278.46	284.00	9110.25	-57.88	58.08	-48.31	75.54	320.24	0.26	Other	0
73	9397.00	1.19	251.75	284.00	9394.20	-57.26	57.47	-53.27	78.36	317.17	0.20	Other	0
74	9681.00	1.32	237.46	284.00	9678.13	-54.56	54.79	-58.83	80.39	312.97	0.12	Other	0
75	9965.00	2.02	234.17	284.00	9962.01	-49.84	50.10	-65.64	82.58	307.35	0.25	Other	0

76	10249.00	2.11	242.87	284.00	10245.83	-44.49	44.79	-74.35	86.8	301.06	0.11	Other	0
77	10339.00	2.04	258.33	90.00	10335.77	-43.40	43.71	-77.40	88.89	299.45	0.62	SlimPulse	0
78	10370.00	1.66	232.44	31.00	10366.75	-43.01	43.32	-78.30	89.48	298.96	2.93	SlimPulse	0
79	10402.00	4.18	178.27	32.00	10398.71	-41.56	41.87	-78.63	89.08	298.04	10.86	SlimPulse	0
80	10433.00	8.26	165.98	31.00	10429.53	-38.27	38.58	-78.06	87.07	296.30	13.78	SlimPulse	1
81	10465.00	12.23	157.76	32.00	10461.01	-32.91	33.21	-76.22	83.14	293.55	13.19	SlimPulse	1
82	10496.00	16.56	155.54	31.00	10491.03	-25.86	26.15	-73.14	77.68	289.67	14.08	SlimPulse	1
83	10528.00	21.00	157.92	32.00	10521.32	-16.40	16.68	-69.10	71.08	283.57	14.08	SlimPulse	1
84	10560.00	25.27	159.98	32.00	10550.74	-4.69	4.94	-64.60	64.79	274.37	13.58	SlimPulse	1
85	10591.00	30.46	161.99	31.00	10578.14	9.00	-8.76	-59.90	60.54	261.68	17.01	SlimPulse	1
86	10623.00	34.79	163.41	32.00	10605.08	25.45	-25.23	-54.79	60.32	245.27	13.74	SlimPulse	1
87	10654.00	37.32	167.19	31.00	10630.14	43.07	-42.87	-50.18	66	229.49	10.86	SlimPulse	1
88	10686.00	41.69	169.19	32.00	10654.83	62.98	-62.79	-46.03	77.86	216.24	14.22	SlimPulse	1
89	10717.00	46.41	170.49	31.00	10677.10	84.17	-84.00	-42.24	94.03	206.69	15.50	SlimPulse	1
90	10749.00	48.14	168.90	32.00	10698.82	107.28	-107.13	-38.03	113.68	199.54	6.52	SlimPulse	1
91	10780.00	50.69	166.63	31.00	10718.98	130.26	-130.13	-33.03	134.26	194.24	9.93	SlimPulse	1
92	10812.00	53.83	165.31	32.00	10738.57	154.78	-154.68	-26.89	157	189.86	10.34	SlimPulse	1
93	10843.00	56.84	166.21	31.00	10756.20	179.47	-179.39	-20.62	180.57	186.56	10.00	SlimPulse	1
94	10875.00	59.97	167.48	32.00	10772.96	205.98	-205.93	-14.43	206.43	184.01	10.35	SlimPulse	1
95	10906.00	62.76	166.49	31.00	10787.82	232.46	-232.43	-8.30	232.58	182.04	9.43	SlimPulse	1
96	10938.00	66.61	166.75	32.00	10801.50	260.57	-260.57	-1.60	260.57	180.35	12.05	SlimPulse	1
97	10969.00	70.75	167.56	31.00	10812.77	288.70	-288.72	4.81	288.76	179.05	13.57	SlimPulse	1
98	11001.00	75.43	167.97	32.00	10822.07	318.58	-318.63	11.30	318.83	177.97	14.68	SlimPulse	1
99	11032.00	79.66	168.48	31.00	10828.76	348.19	-348.26	17.47	348.7	177.13	13.74	SlimPulse	1
100	11064.00	84.35	169.10	32.00	10833.21	379.24	-379.33	23.63	380.07	176.44	14.78	SlimPulse	1
101	11096.00	88.70	169.90	32.00	10835.14	410.61	-410.73	29.45	411.79	175.90	13.82	SlimPulse	1
102	11127.00	89.86	169.96	31.00	10835.53	441.11	-441.25	34.87	442.63	175.48	3.75	SlimPulse	1
103	11148.00	90.14	169.86	21.00	10835.53	461.77	-461.93	38.55	463.53	175.23	1.40	SlimPulse	0
104	11241.00	91.48	171.95	93.00	10834.22	553.53	-553.74	53.24	556.3	174.51	2.67	SlimPulse	0
105	11336.00	92.24	174.87	95.00	10831.14	647.79	-648.06	64.13	651.22	174.35	3.17	SlimPulse	0
106	11432.00	91.93	176.40	96.00	10827.65	743.42	-743.71	71.42	747.13	174.51	1.63	SlimPulse	0
107	11526.00	90.17	176.60	94.00	10825.93	837.20	-837.52	77.16	841.06	174.74	1.88	SlimPulse	0
108	11621.00	89.45	175.58	95.00	10826.24	931.95	-932.29	83.63	936.04	174.87	1.31	SlimPulse	0
109	11716.00	89.52	174.71	95.00	10827.10	1026.57	-1026.95	91.67	1031.03	174.90	0.92	SlimPulse	0
110	11810.00	89.42	174.76	94.00	10827.97	1120.14	-1120.55	100.30	1125.03	174.89	0.12	SlimPulse	0
111	11905.00	89.59	175.40	95.00	10828.80	1214.75	-1215.19	108.44	1220.02	174.90	0.70	SlimPulse	0
112	12000.00	89.52	177.46	95.00	10829.54	1309.54	-1310.00	114.36	1314.98	175.01	2.17	SlimPulse	0
113	12095.00	89.76	179.42	95.00	10830.14	1404.48	-1404.96	116.95	1409.82	175.24	2.07	SlimPulse	0
114	12189.00	89.79	181.61	94.00	10830.51	1498.47	-1498.95	116.10	1503.44	175.57	2.33	SlimPulse	0
115	12284.00	89.66	182.13	95.00	10830.96	1593.43	-1593.90	113.00	1597.9	175.94	0.56	SlimPulse	0
116	12379.00	89.72	182.19	95.00	10831.48	1688.38	-1688.83	109.43	1692.37	176.29	0.10	SlimPulse	0
117	12474.00	89.72	182.55	95.00	10831.93	1783.31	-1783.75	105.50	1786.86	176.62	0.38	SlimPulse	0
118	12568.00	89.69	182.48	94.00	10832.41	1877.24	-1877.65	101.37	1880.39	176.91	0.08	SlimPulse	0
119	12663.00	89.76	182.31	95.00	10832.87	1972.17	-1972.57	97.40	1974.97	177.17	0.19	SlimPulse	0
120	12758.00	89.83	182.49	95.00	10833.21	2067.10	-2067.48	93.41	2069.59	177.41	0.20	SlimPulse	0
121	12852.00	89.72	183.06	94.00	10833.58	2161.00	-2161.37	88.86	2163.2	177.65	0.62	SlimPulse	0
122	12947.00	89.79	183.24	95.00	10833.98	2255.88	-2256.23	83.64	2257.78	177.88	0.19	SlimPulse	0
123	13042.00	89.83	183.89	95.00	10834.29	2350.72	-2351.04	77.73	2352.33	178.11	0.69	SlimPulse	0
124	13136.00	89.79	184.76	94.00	10834.60	2444.47	-2444.77	70.64	2445.8	178.34	0.92	SlimPulse	0
125	13231.00	89.73	184.42	95.00	10835.00	2539.20	-2539.47	63.04	2540.25	178.58	0.36	SlimPulse	0
126	13326.00	89.79	184.94	95.00	10835.40	2633.91	-2634.15	55.29	2634.73	178.80	0.55	SlimPulse	0
127	13421.00	89.72	184.77	95.00	10835.80	2728.60	-2728.81	47.25	2729.22	179.01	0.18	SlimPulse	0
128	13515.00	89.48	184.19	94.00	10836.45	2822.34	-2822.52	39.90	2822.8	179.19	0.67	SlimPulse	0
129	13610.00	89.76	183.97	95.00	10837.07	2917.12	-2917.28	33.14	2917.46	179.35	0.37	SlimPulse	0
130	13704.00	89.48	184.00	94.00	10837.70	3010.92	-3011.05	26.60	3011.16	179.49	0.29	SlimPulse	0
131	13799.00	89.83	183.57	95.00	10838.27	3105.73	-3105.84	20.34	3105.9	179.62	0.58	SlimPulse	0
132	13894.00	89.59	182.50	95.00	10838.75	3200.62	-3200.70	15.31	3200.74	179.73	1.15	SlimPulse	0
133	13988.00	89.69	182.06	94.00	10839.34	3294.55	-3294.63	11.57	3294.65	179.80	0.48	SlimPulse	0
134	14083.00	89.83	182.79	95.00	10839.74	3389.48	-3389.54	7.55	3389.55	179.87	0.78	SlimPulse	0
135	14178.00	89.62	182.60	95.00	10840.20	3484.39	-3484.43	3.09	3484.43	179.95	0.30	SlimPulse	0
136	14273.00	89.72	182.74	95.00	10840.74	3579.31	-3579.33	-1.33	3579.33	180.02	0.18	SlimPulse	0
137	14368.00	89.66	182.88	95.00	10841.25	3674.21	-3674.21	-5.99	3674.22	180.09	0.17	SlimPulse	0
138	14463.00	89.66	182.98	95.00	10841.82	3769.10	-3769.09	-10.85	3769.1	180.16	0.11	SlimPulse	0
139	14558.00	89.52	181.84	95.00	10842.51	3864.03	-3864.00	-14.85	3864.03	180.22	1.21	SlimPulse	0
140	14652.00	89.76	181.42	94.00	10843.10	3958.00	-3957.96	-17.53	3958	180.25	0.52	SlimPulse	0
141	14748.00	89.66	180.42	96.00	10843.59	4053.99	-4053.94	-19.07	4053.99	180.27	1.05	SlimPulse	0
142	14843.00	89.66	179.87	95.00	10844.16	4148.98	-4148.94	-19.30	4148.99	180.27	0.58	SlimPulse	0
143	14939.00	89.45	179.50	96.00	10844.91	4244.98	-4244.94	-18.77	4244.98	180.25	0.44	SlimPulse	0
144	15034.00	89.62	179.06	95.00	10845.68	4339.96	-4339.93	-17.57	4339.96	180.23	0.50	SlimPulse	0
145	15130.00	89.93	179.54	96.00	10846.06	4435.95	-4435.92	-16.40	4435.95	180.21	0.60	SlimPulse	0
146	15234.00	89.76	180.09	104.00	10846.34	4539.94	-4539.92	-16.06	4539.94	180.20	0.55	SlimPulse	0
147	15306.00	89.76	180.09	72.00	10846.64	4611.94	-4611.91	-16.17	4611.94	180.20	0.01	PROJ	7