

Results of Directional Survey

API number:	30-025-40818	H	
OGRID:		Operator:	CIMAREX ENERGY CO.
		Property:	TRES EQUIS 5 STATE # 2Y

surface	ULSTR:	C	05	T 24S	R 33E
				330 FNL	2130 FWL

BH Loc	ULSTR:	N	05	T 24S	R 33E
15531 MD		11155.0	TVD	345 FSL	2083 FWL
				4935 FNL	

Top Perf/OH	ULSTR:	C	05	T 24S	R 33E
10950 MD		10929.6	TVD	414 FNL	2135 FWL

Bot Perf/OH	ULSTR:	N	05	T 24S	R 33E
15501 MD		11154.8	TVD	375 FSL	2082 FWL
				4905 FNL	

	MD	N/S	E/W	VD
	10935	-74.93	5.72	10917.75
TOP PERFS/OH	10950	-84.18	5.41	10929.55
	10966	-94.05	5.08	10942.13
	15484	-4558.18	-48.38	11154.62
BOT PERFS/OH	15501	-4575.17	-47.92	11154.76
	15531	-4605.16	-47.11	11155.01

NEXT TO LAST	15484	-4558.18	-48.38	11154.62
LAST READING	15531	-4605.16	-47.11	11155.01
TD	15531	-4605.16	-47.11	11155.01

Surface Location	330 FN	2130 FW
Projected BHL	4935 FN	2083 FW
Location of		
Top Perfs/OH	414 FN	2135 FW
Bottom Perfs/OH	4905 FN	2082 FW

SUMMARY of Subsurface Locations

Surface Location	C-05-24S-33E	330 FN	2130 FW	Vert. Depth
Top Perfs/OH	C-05-24S-33E	414 FN	2135 FW	10929.55
Bottom Perfs/OH	N-05-24S-33E	4905 FN	2082 FW	11154.76
Projected TD	N-05-24S-33E	4935 FN	2083 FW	11155.01

MAR 14 2013

HOBBS OCD
FEB 11 2013

TRES EQUIS 5 STATE #2Y

#	MD	INC	AZI	TVD	CL	SECT	RCN	RCE	CLDIST	CLDIR	DLS
#	feet	deg	deg	feet	feet	feet	feet	feet	feet	deg	deg/100ft
	100	0.96	296.44	99.99		0	-0.37	0.38	-0.74	0.83	296.83
	200	0.96	297.52	199.98		100	-1.11	1.14	-2.24	2.51	296.93
	300	0.96	299.52	299.97		100	-1.89	1.94	-3.71	4.18	297.57
	400	0.8	294.71	399.95		100	-2.57	2.64	-5.07	5.72	297.5
	500	0.69	294.02	499.95		100	-3.09	3.18	-6.26	7.02	296.93
	600	0.45	298.85	599.94		100	-3.52	3.61	-7.15	8.01	296.8
	700	0.31	327.6	699.94		100	-3.93	4.03	-7.64	8.64	297.82
	800	0.1	249.88	799.94		100	-4.12	4.23	-7.87	8.93	298.26
	918.5	0.28	256.63	918.44		118.5	-4.02	4.13	-8.24	9.22	296.59
	1013.2	0.34	234.76	1013.14		94.7	-3.79	3.91	-8.7	9.54	294.2
	1107.8	0.37	227.3	1107.73		94.6	-3.42	3.54	-9.15	9.81	291.15
	1202.5	0.18	227.68	1202.43		94.7	-3.11	3.23	-9.49	10.02	288.82
	1297.1	0.04	240.8	1297.03		94.6	-2.99	3.12	-9.63	10.12	287.94
	1391.8	0.07	255.44	1391.73		94.7	-2.96	3.09	-9.71	10.19	287.63
	1486.5	0.14	252.28	1486.43		94.7	-2.91	3.04	-9.88	10.33	287.09
	1581.1	0.28	257.72	1581.03		94.6	-2.82	2.95	-10.21	10.63	286.12
	1675.8	0.32	253.47	1675.73		94.7	-2.69	2.83	-10.69	11.06	284.82
	1770.4	0.32	226.78	1770.33		94.6	-2.42	2.57	-11.14	11.43	283
	1865.1	0.32	211.52	1865.03		94.7	-2.01	2.17	-11.47	11.67	280.69
	1959.8	0.34	202.33	1959.73		94.7	-1.52	1.68	-11.71	11.83	278.16
	2054.4	0.33	198.63	2054.32		94.6	-1	1.16	-11.91	11.96	275.57
	2149.1	0.32	194.12	2149.02		94.7	-0.49	0.65	-12.06	12.08	273.07
	2243.7	0.31	183.71	2243.62		94.6	0.03	0.14	-12.14	12.14	270.64
	2338.4	0.32	173.81	2338.32		94.7	0.54	-0.38	-12.13	12.13	268.19
	2433.1	0.32	162.13	2433.02		94.7	1.06	-0.9	-12.02	12.05	265.73
	2527.7	0.31	152.14	2527.62		94.6	1.53	-1.38	-11.82	11.9	263.36
	2622.4	0.22	120.73	2622.32		94.7	1.85	-1.69	-11.54	11.67	261.65
	2717	0.26	89.83	2716.91		94.6	1.93	-1.79	-11.17	11.31	260.91

RECEIVED

2811.7	0.3	60.3	2811.61	94.7	1.81	-1.66	-10.74	10.87	261.2	0.16
2906.4	0.39	45.07	2906.31	94.7	1.45	-1.31	-10.3	10.38	262.74	0.13
3001	0.52	37.08	3000.91	94.6	0.87	-0.74	-9.81	9.84	265.67	0.15
3095.7	0.5	27.68	3095.61	94.7	0.16	-0.03	-9.36	9.36	269.79	0.09
3190.3	0.48	17.61	3190.2	94.6	-0.59	0.71	-9.05	9.08	274.48	0.09
3285	0.6	12.85	3284.9	94.7	-1.45	1.57	-8.82	8.96	280.1	0.13
3379.7	0.57	358.23	3379.59	94.7	-2.41	2.52	-8.72	9.08	286.15	0.16
3474.3	0.71	353.92	3474.19	94.6	-3.46	3.58	-8.8	9.5	292.13	0.16
3569	0.76	342.52	3568.88	94.7	-4.64	4.76	-9.05	10.23	297.75	0.16
3663.6	0.75	316.52	3663.47	94.6	-5.68	5.81	-9.66	11.28	301.01	0.36
3758.3	0.67	277.6	3758.16	94.7	-6.19	6.33	-10.64	12.38	300.76	0.51
3853	0.7	220.92	3852.86	94.7	-5.81	5.97	-11.57	13.02	297.29	0.69
3947.6	0.98	193.78	3947.45	94.6	-4.58	4.75	-12.14	13.03	291.35	0.51
4042.3	0.88	175.71	4042.14	94.7	-3.07	3.23	-12.28	12.7	284.75	0.32
4136.9	0.57	144.53	4136.73	94.6	-1.97	2.13	-11.95	12.14	280.09	0.52
4231.6	0.33	73	4231.43	94.7	-1.67	1.82	-11.42	11.56	279.07	0.59
4326.3	0.44	61.01	4326.12	94.7	-1.93	2.08	-10.84	11.03	280.85	0.14
4420.9	0.49	84.02	4420.72	94.6	-2.16	2.3	-10.12	10.37	282.79	0.2
4515.6	0.22	78.57	4515.42	94.7	-2.25	2.37	-9.54	9.83	283.98	0.29
4610.2	0.18	72.31	4610.02	94.6	-2.33	2.46	-9.22	9.54	284.92	0.05
4704.9	0.76	94.31	4704.72	94.7	-2.34	2.45	-8.45	8.8	286.19	0.63
4799.6	1.39	85.8	4799.4	94.7	-2.4	2.49	-6.68	7.13	290.46	0.68
4894.2	1.63	74.53	4893.97	94.6	-2.88	2.93	-4.23	5.15	304.71	0.4
4988.9	1.07	44.72	4988.64	94.7	-3.89	3.92	-2.31	4.55	329.45	0.93
5083.5	0.52	19.53	5083.23	94.6	-4.93	4.95	-1.55	5.19	342.63	0.68
5178.2	0.18	345.03	5177.93	94.7	-5.48	5.5	-1.44	5.69	345.29	0.41
5272.9	0.14	312.15	5272.63	94.7	-5.7	5.72	-1.57	5.93	344.67	0.1
5367.5	0.12	279.11	5367.23	94.6	-5.79	5.82	-1.75	6.07	343.24	0.08
5462.2	0.05	228.28	5461.93	94.7	-5.78	5.8	-1.88	6.1	342.05	0.1
5556.8	0.05	191.32	5556.53	94.6	-5.71	5.74	-1.92	6.05	341.5	0.03
5651.5	0.03	150.97	5651.23	94.7	-5.65	5.67	-1.92	5.99	341.34	0.03
5746.2	0.04	15.2	5745.93	94.7	-5.66	5.68	-1.89	5.99	341.56	0.07

5840.8	0.12	39.94	5840.53	94.6	-5.77	5.79	-1.82	6.07	342.53	0.09
5935.5	0.38	40.99	5935.23	94.7	-6.08	6.11	-1.55	6.3	345.73	0.27
6030.1	0.56	31.88	6029.82	94.6	-6.72	6.73	-1.1	6.82	350.7	0.21
6124.8	0.38	2.69	6124.52	94.7	-7.43	7.44	-0.84	7.49	353.53	0.31
6219.5	0.34	327.97	6219.22	94.7	-7.98	7.99	-0.98	8.05	353.02	0.23
6314.1	0.32	313.6	6313.82	94.6	-8.4	8.41	-1.32	8.52	351.09	0.09
6408.8	0.15	290.26	6408.52	94.7	-8.62	8.64	-1.63	8.79	349.34	0.2
6503.4	0.06	230.2	6503.12	94.6	-8.63	8.65	-1.78	8.83	348.37	0.14
6598.1	0.18	246.41	6597.82	94.7	-8.53	8.56	-1.95	8.78	347.13	0.13
6692.8	0.29	247.9	6692.52	94.7	-8.38	8.41	-2.31	8.72	344.62	0.12
6787.4	0.44	241.39	6787.11	94.6	-8.11	8.14	-2.85	8.63	340.69	0.16
6882.1	0.65	238.1	6881.81	94.7	-7.64	7.69	-3.63	8.5	334.73	0.22
6976.7	0.73	212.23	6976.4	94.6	-6.83	6.89	-4.41	8.18	327.41	0.34
7071.4	0.8	189.2	7071.1	94.7	-5.67	5.73	-4.83	7.5	319.85	0.33
7166.1	0.85	166.7	7165.79	94.7	-4.33	4.39	-4.78	6.49	312.61	0.34
7260.7	0.88	139.86	7260.38	94.6	-3.1	3.16	-4.15	5.21	307.27	0.43
7355.4	0.73	121.22	7355.06	94.7	-2.25	2.29	-3.16	3.9	305.87	0.32
7450	0.74	101.59	7449.66	94.6	-1.83	1.85	-2.05	2.76	312.11	0.27
7544.7	0.96	92.03	7544.35	94.7	-1.69	1.7	-0.66	1.82	338.87	0.28
7639.4	0.73	64.26	7639.04	94.7	-1.94	1.94	0.68	2.05	19.32	0.49
7734	0.71	59.95	7733.63	94.6	-2.51	2.49	1.73	3.03	34.77	0.06
7828.7	0.69	72.06	7828.32	94.7	-3	2.96	2.78	4.06	43.19	0.16
7923.3	0.62	82.78	7922.92	94.6	-3.25	3.2	3.83	4.99	50.11	0.15
8018	0.52	76.27	8017.61	94.7	-3.43	3.37	4.75	5.83	54.7	0.13
8112.7	0.45	83.38	8112.31	94.7	-3.58	3.51	5.54	6.56	57.64	0.1
8207.3	0.5	86.86	8206.91	94.6	-3.66	3.58	6.32	7.26	60.5	0.06
8302	0.3	81.15	8301.6	94.7	-3.73	3.64	6.98	7.87	62.48	0.21
8396.6	0.22	74.02	8396.2	94.6	-3.82	3.73	7.4	8.28	63.28	0.09
8491.3	0.1	70.28	8490.9	94.7	-3.9	3.8	7.65	8.55	63.57	0.13
8586	0.05	263.31	8585.6	94.7	-3.93	3.83	7.69	8.59	63.54	0.16
8680.6	0.11	268.36	8680.2	94.6	-3.92	3.82	7.56	8.47	63.19	0.06
8775.3	0.17	264.66	8774.9	94.7	-3.9	3.8	7.33	8.25	62.56	0.06

8869.9	0.17	254.27	8869.5	94.6	-3.85	3.75	7.05	7.99	61.98	0.03
8964.6	0.15	234.46	8964.2	94.7	-3.73	3.64	6.82	7.73	61.88	0.06
9059.3	0.18	193.68	9058.9	94.7	-3.51	3.43	6.68	7.51	62.85	0.13
9153.9	0.09	143.49	9153.5	94.6	-3.31	3.22	6.69	7.42	64.28	0.15
9248.6	0.34	19.45	9248.2	94.7	-3.52	3.43	6.83	7.64	63.35	0.42
9343.2	0.69	24.91	9342.8	94.6	-4.3	4.21	7.16	8.3	59.56	0.37
9437.9	1.05	21.07	9437.48	94.7	-5.64	5.53	7.71	9.49	54.33	0.38
9532.6	0.66	4.88	9532.17	94.7	-6.99	6.89	8.07	10.61	49.52	0.48
9627.2	0.48	5.36	9626.77	94.6	-7.93	7.83	8.15	11.3	46.18	0.19
9721.2	0.39	43.52	9720.77	94	-8.56	8.45	8.41	11.92	44.87	0.32
9816.5	0.36	219.44	9816.07	95.3	-8.56	8.45	8.44	11.95	44.97	0.79
9911.2	0.6	226.24	9910.76	94.7	-7.98	7.88	7.9	11.16	45.06	0.26
10005.9	0.51	221.25	10005.46	94.7	-7.32	7.22	7.26	10.24	45.16	0.11
10100.5	0.32	255.17	10100.06	94.6	-6.93	6.84	6.73	9.59	44.54	0.32
10195.2	0.34	266.08	10194.75	94.7	-6.83	6.75	6.19	9.16	42.53	0.07
10289.8	0.37	253.17	10289.35	94.6	-6.72	6.64	5.62	8.7	40.23	0.09
10384.5	0.33	236.29	10384.05	94.7	-6.47	6.4	5.1	8.18	38.54	0.12
10452.5	0.21	249.6	10452.05	68	-6.31	6.25	4.82	7.89	37.64	0.2
10557	0.18	269	10556.55	104.5	-6.24	6.18	4.48	7.63	35.92	0.07
10651	1.14	199.78	10650.54	94	-5.35	5.3	4.01	6.65	37.14	1.16
10682	2.55	230.81	10681.53	31	-4.62	4.57	3.37	5.68	36.42	5.42
10714	6.24	178.51	10713.44	32	-2.42	2.38	2.87	3.73	50.27	15.92
10746	10.2	170.87	10745.1	32	2.11	-2.16	3.36	3.99	122.67	12.81
10777	14.42	172.8	10775.38	31	8.64	-8.7	4.28	9.69	153.79	13.68
10809	18.47	175.44	10806.07	32	17.64	-17.71	5.18	18.45	163.68	12.87
10840	22.6	177.64	10835.09	31	28.48	-28.56	5.82	29.15	168.48	13.55
10872	27	179.48	10864.13	32	41.89	-41.97	6.14	42.42	171.68	13.96
10903	31.57	180.71	10891.17	31	57.05	-57.13	6.1	57.46	173.9	14.87
10935	36.05	181.68	10917.75	32	74.85	-74.93	5.72	75.15	175.63	14.1
10966	40.19	182.12	10942.13	31	93.98	-94.05	5.08	94.19	176.91	13.38
10998	43.97	182.82	10965.88	32	115.41	-115.47	4.16	115.55	177.94	11.9
11029	47.92	182.12	10987.43	31	137.67	-137.73	3.2	137.76	178.67	12.84

11061	51.18	183.88	11008.19	32	162	-162.04	1.92	162.05	179.32	11.01
11092	54.96	181.42	11026.81	31	186.76	-186.78	0.79	186.79	179.76	13.74
11124	58.56	181.33	11044.35	32	213.52	-213.54	0.14	213.54	179.96	11.25
11156	61.55	181.42	11060.32	32	241.24	-241.25	-0.52	241.25	180.12	9.35
11187	65.51	181.59	11074.14	31	268.98	-268.99	-1.25	268.99	180.27	12.78
11218	69.47	181.42	11086	31	297.61	-297.61	-2	297.62	180.39	12.78
11250	73.25	182.12	11096.23	32	327.92	-327.91	-2.94	327.93	180.51	11.99
11282	76.5	181.42	11104.58	32	358.81	-358.79	-3.89	358.81	180.62	10.37
11313	80.28	181.06	11110.82	31	389.16	-389.14	-4.55	389.16	180.67	12.25
11345	83.8	181.06	11115.25	32	420.85	-420.82	-5.14	420.85	180.7	11
11376	86.17	180.18	11117.96	31	451.73	-451.7	-5.47	451.73	180.69	8.15
11407	88.29	180.1	11119.45	31	482.69	-482.66	-5.55	482.69	180.66	6.84
11439	89.25	179.75	11120.14	32	514.68	-514.65	-5.5	514.68	180.61	3.19
11533	89.69	179.66	11121.01	94	608.66	-608.64	-5.02	608.67	180.47	0.48
11628	89.52	178.95	11121.67	95	703.62	-703.64	-3.87	703.65	180.31	0.77
11723	89.96	178.34	11122.1	95	798.56	-798.61	-1.62	798.61	180.12	0.79
11817	89.96	179.83	11122.16	94	892.52	-892.59	-0.12	892.59	180.01	1.59
11912	89.87	180.18	11122.3	95	987.51	-987.59	-0.13	987.59	180.01	0.38
12006	90.57	180.45	11121.94	94	1081.5	-1081.59	-0.65	1081.59	180.03	0.8
12101	88.11	181.06	11123.04	95	1176.49	-1176.57	-1.9	1176.57	180.09	2.67
12196	87.93	180.62	11126.32	95	1271.43	-1271.5	-3.29	1271.5	180.15	0.5
12291	88.37	180.62	11129.39	95	1366.38	-1366.44	-4.32	1366.45	180.18	0.46
12386	88.9	180.36	11131.65	95	1461.35	-1461.41	-5.13	1461.42	180.2	0.62
12481	89.34	180.27	11133.11	95	1556.34	-1556.4	-5.65	1556.41	180.21	0.47
12576	88.46	179.31	11134.93	95	1651.31	-1651.38	-5.3	1651.39	180.18	1.37
12671	89.69	180.01	11136.46	95	1746.27	-1746.36	-4.74	1746.37	180.16	1.49
12766	90.4	179.66	11136.39	95	1841.26	-1841.36	-4.47	1841.37	180.14	0.83
12861	90.48	181.33	11135.66	95	1936.25	-1936.35	-5.29	1936.36	180.16	1.76
12956	89.96	181.15	11135.3	95	2031.25	-2031.33	-7.34	2031.34	180.21	0.58
13051	90.4	181.68	11135	95	2126.24	-2126.3	-9.69	2126.32	180.26	0.72
13146	89.25	181.68	11135.29	95	2221.23	-2221.26	-12.47	2221.29	180.32	1.21
13241	88.9	181.42	11136.82	95	2316.21	-2316.21	-15.04	2316.26	180.37	0.46

13336	88.99	181.06	11138.57	95	2411.19	-2411.17	-17.1	2411.23	180.41	0.39
13431	88.02	180.98	11141.05	95	2506.15	-2506.12	-18.79	2506.19	180.43	1.03
13526	88.81	181.15	11143.68	95	2601.11	-2601.07	-20.55	2601.15	180.45	0.85
13621	88.64	180.8	11145.79	95	2696.09	-2696.03	-22.17	2696.12	180.47	0.41
13716	88.02	180.1	11148.56	95	2791.05	-2790.99	-22.92	2791.08	180.47	0.98
13812	88.29	181.06	11151.65	96	2886.99	-2886.93	-23.89	2887.03	180.47	1.04
13907	89.16	181.15	11153.76	95	2981.97	-2981.89	-25.72	2982	180.49	0.92
14002	89.34	180.1	11155.01	95	3076.96	-3076.87	-26.75	3076.99	180.5	1.12
14097	89.69	180.45	11155.81	95	3171.95	-3171.87	-27.21	3171.99	180.49	0.52
14192	91.36	181.42	11154.94	95	3266.94	-3266.85	-28.76	3266.98	180.5	2.03
14287	89.78	180.01	11154	95	3361.93	-3361.83	-29.95	3361.96	180.51	2.23
14382	89.25	181.41	11154.8	95	3456.93	-3456.82	-31.12	3456.96	180.52	1.58
14477	88.64	182.12	11156.55	95	3551.89	-3551.75	-34.05	3551.92	180.55	0.98
14572	87.58	181.15	11159.68	95	3646.83	-3646.66	-36.76	3646.85	180.58	1.51
14667	88.72	182.12	11162.75	95	3741.77	-3741.57	-39.47	3741.78	180.6	1.58
14762	89.16	182.47	11164.51	95	3836.71	-3836.48	-43.27	3836.72	180.65	0.59
14857	89.38	182.33	11165.72	95	3931.67	-3931.39	-47.25	3931.67	180.69	0.27
14952	90.22	180.21	11166.05	95	4026.66	-4026.36	-49.35	4026.66	180.7	2.4
15047	90.75	180.35	11165.24	95	4121.65	-4121.35	-49.82	4121.65	180.69	0.58
15142	91.54	180.29	11163.35	95	4216.63	-4216.33	-50.35	4216.63	180.68	0.83
15237	92.42	179.66	11160.06	95	4311.56	-4311.27	-50.31	4311.57	180.67	1.14
15332	91.45	179.87	11156.86	95	4406.49	-4406.22	-49.92	4406.5	180.65	1.04
15427	91.01	179.5	11154.82	95	4501.45	-4501.19	-49.39	4501.46	180.63	0.6
15484	89.52	178.45	11154.55	57	4558.42	-4558.18	-48.38	4558.44	180.61	3.2
15531	89.52	178.45	11154.95	47	4605.38	-4605.16	-47.1	4605.4	180.59	-999.25



WELL		FIELD		STRUCTURE	
Tres Equis 5 State #2Y		NM Lea County		Noram 23	
Algebric Parameters Model: BQGM 2012 Dip: 60.138° Mag Dec: 7.5137° Date: October 12, 2012 FS: 484561aT		Surface Location Lat: N 32 15 11.032 Lon: W 103 35 45.597 Northing: 456580.90 JUS Easting: 769282.70 JUS NAD83 New Mexico State Plane, Eastern Zone, US Feet Cont. Coef. 0.394° Scale Fact. 0.99996560		Miscellaneous Plot: Tres Equis 5 State #2Y Plan: Rev 2 RJIS 1-Nov-12 TTYD Ref: RJIS/3600 (above MSL) Srvy Date: October 12, 2012	



Grid North
Tot Corr (M->G 7.1438°)
Mag Dec (7.537°)
Grid Conv (0.394°)

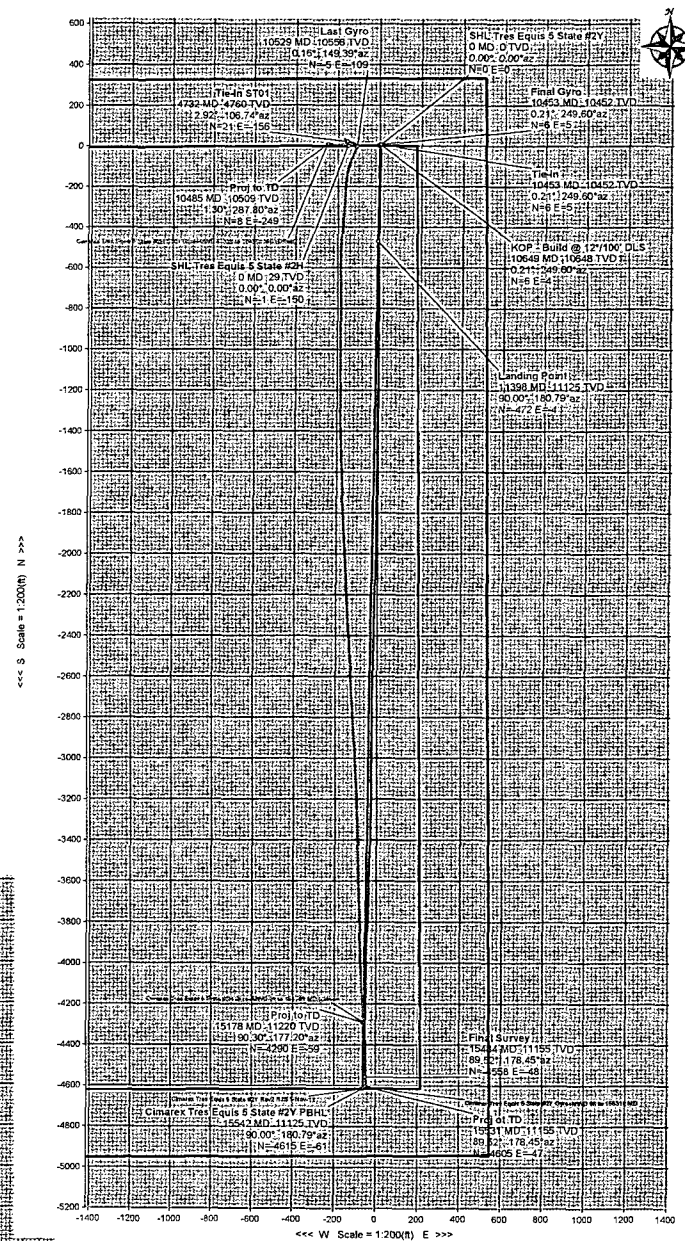
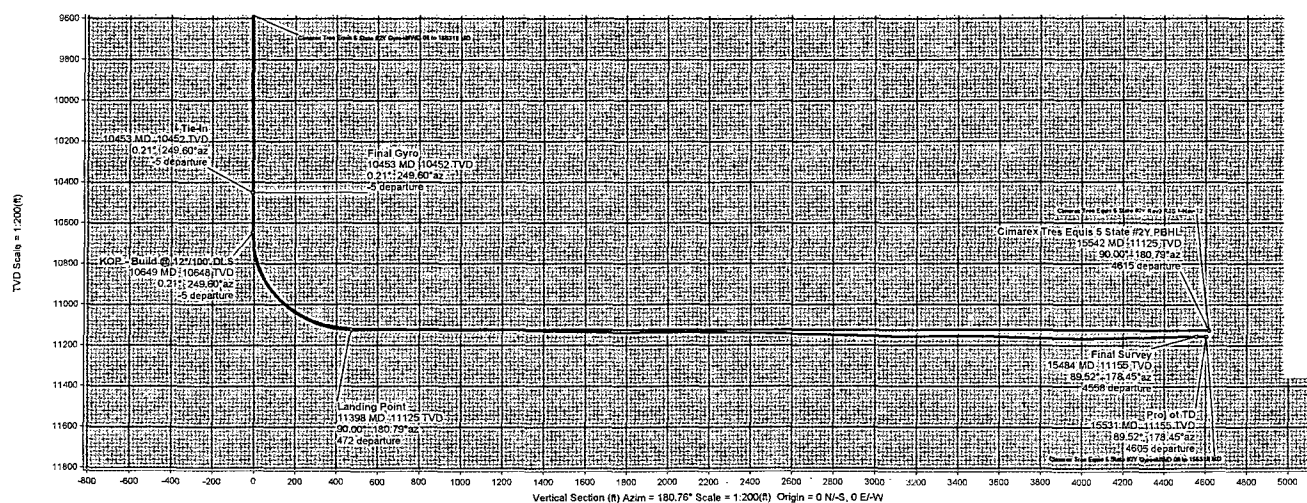
Legend

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HOBBS OCD

FEB 11 2013

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Drawn By: R. Schneider
Date Created: November 01, 2012 04:54:47 PM
Checked By: _____
Checked Date: _____
Approved By: _____
Approved Date: _____



Cimarex Tres Equis 5 State #2Y Gyro+MWD 0ft to 15531ft MD

(Def Survey)

Report Date: November 12, 2012 - 08:38 AM
 Client: Cimarex
 Field: NM Lea County (NAD 83)
 Structure / Slot: Noram 23 / Cimarex Tres Equis 5 State #2Y
 Well: Cimarex Tres Equis 5 State #2Y
 Borehole: Original Borehole
 UWI / API#: Unknown / Unknown
 Survey Name: Cimarex Tres Equis 5 State #2Y Gyro+MWD 0ft to 15531ft MD
 Survey Date: November 01, 2012
 Tort / AHD / DDI / ERD Ratio: 158.005 ° / 4694.153 ft / 6.014 / 0.420
 Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
 Location Lat / Long: N 32° 15' 11.03190", W 103° 35' 45.50749"
 Location Grid N/E Y/X: N 456580.900 ftUS, E 769282.700 ftUS
 CRS Grid Convergence Angle: 0.3935 °
 Grid Scale Factor: 0.9999686

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 180.760 ° (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: RKB
 TVD Reference Elevation: 3690.000 ft above MSL
 Seabed / Ground Elevation: 3662.000 ft above MSL
 Magnetic Declination: 7.531 °
 Total Gravity Field Strength: 999.1416 mgn (9.8 based)
 Total Magnetic Field Strength: 48479.174 nT
 Magnetic Dip Angle: 60.137 °
 Declination Date: November 01, 2012
 Magnetic Declination Model: BGM 2012
 North Reference: Grid North
 Grid Convergence Used: 0.3935 °

Total Corr Mag North->Grid North: 7.1375 °

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 Tres Equis 5 State #2Y	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	296.44M
	100.00	0.96	296.44	100.00	-0.36	0.37	-0.75	0.84	296.44	0.96	297.52M
	200.00	0.96	297.52	199.98	-1.10	1.13	-2.24	2.51	296.80	0.02	299.52M
	300.00	0.96	299.52	299.97	-1.88	1.93	-3.72	4.19	297.49	0.03	294.71M
	400.00	0.80	294.71	399.96	-2.57	2.64	-5.08	5.72	297.45	0.18	294.02M
	500.00	0.69	294.02	499.95	-3.09	3.17	-6.26	7.02	296.88	0.11	298.85M
	600.00	0.45	298.85	599.94	-3.51	3.61	-7.16	8.01	296.76	0.24	327.6M
	700.00	0.31	327.60	699.94	-3.93	4.03	-7.65	8.64	297.78	0.23	249.88M
	800.00	0.10	249.88	799.94	-4.12	4.23	-7.87	8.93	298.22	0.30	256.63M
	918.50	0.28	256.63	818.44	-4.01	4.12	-8.25	9.22	296.55	0.15	234.76M
	1013.20	0.34	234.76	1013.14	-3.79	3.91	-8.71	9.54	294.17	0.14	227.3M
	1107.80	0.37	227.30	1107.74	-3.42	3.54	-9.16	9.82	291.12	0.06	227.68M
	1202.50	0.18	227.68	1202.43	-3.10	3.23	-9.49	10.03	288.79	0.20	240.8M
	1297.10	0.04	240.80	1297.03	-2.99	3.11	-9.63	10.12	287.92	0.15	255.44M
	1391.80	0.07	255.44	1391.73	-2.95	3.08	-9.72	10.20	287.61	0.03	252.28M
	1486.50	0.14	252.28	1486.43	-2.90	3.03	-9.88	10.34	287.06	0.07	257.72M
	1581.10	0.28	257.72	1581.03	-2.81	2.95	-10.22	10.64	286.10	0.15	253.47M
	1675.80	0.32	253.47	1675.73	-2.68	2.83	-10.70	11.07	284.79	0.05	226.78M
	1770.40	0.32	226.78	1770.33	-2.42	2.57	-11.15	11.44	282.98	0.16	211.52M
	1865.10	0.32	211.52	1865.03	-2.01	2.16	-11.48	11.68	280.67	0.09	202.33M
	1959.80	0.34	202.33	1959.73	-1.52	1.68	-11.72	11.84	278.14	0.06	198.63M
	2054.40	0.33	198.63	2054.33	-1.00	1.16	-11.91	11.97	275.56	0.03	194.12M
	2149.10	0.32	194.12	2149.02	-0.48	0.64	-12.07	12.08	273.06	0.03	183.71M
	2243.70	0.31	183.71	2243.62	0.03	0.13	-12.15	12.15	270.63	0.06	173.81M
	2338.40	0.32	173.81	2338.32	0.55	-0.39	-12.14	12.14	268.18	0.06	162.13M
	2433.10	0.32	162.13	2433.02	1.06	-0.90	-12.03	12.06	265.72	0.07	152.14M
	2527.70	0.31	152.14	2527.62	1.53	-1.38	-11.83	11.91	263.35	0.06	120.73M
	2622.40	0.22	120.73	2622.32	1.85	-1.70	-11.55	11.67	261.64	0.18	89.83M
	2717.00	0.26	89.83	2716.92	1.94	-1.79	-11.18	11.32	260.91	0.14	60.3M
	2811.70	0.30	60.30	2811.62	1.81	-1.67	-10.75	10.88	261.19	0.16	45.07M
	2906.40	0.39	45.07	2906.31	1.45	-1.32	-10.30	10.39	262.72	0.13	37.08M
	3001.00	0.52	37.08	3000.91	0.88	-0.75	-9.82	9.85	265.66	0.15	27.68M
	3095.70	0.50	27.68	3095.61	0.16	-0.04	-9.37	9.37	269.77	0.09	17.61M
	3190.30	0.48	17.61	3190.20	-0.59	0.71	-9.06	9.08	274.46	0.09	12.85M
	3285.00	0.60	12.85	3284.90	-1.45	1.57	-8.82	8.96	280.07	0.14	358.23M
	3379.70	0.57	358.23	3379.59	-2.41	2.52	-8.73	9.09	286.12	0.16	353.92M
	3474.30	0.71	353.92	3474.19	-3.46	3.58	-8.81	9.50	292.10	0.16	342.52M
	3569.00	0.76	342.52	3568.88	-4.64	4.76	-9.06	10.23	297.71	0.16	316.52M
	3663.60	0.75	316.52	3663.47	-5.68	5.81	-9.67	11.28	300.98	0.36	277.6M
	3758.30	0.67	277.60	3758.17	-6.19	6.33	-10.65	12.39	300.73	0.51	220.92M
	3853.00	0.70	220.92	3852.86	-5.81	5.96	-11.57	13.02	297.26	0.69	193.78M
	3947.60	0.98	193.78	3947.45	-4.58	4.74	-12.15	13.04	291.33	0.51	175.71M
	4042.30	0.88	175.71	4042.14	-3.07	3.23	-12.28	12.70	284.73	0.33	144.53M
	4136.90	0.57	144.53	4136.73	-1.96	2.12	-11.96	12.14	280.07	0.52	73M
	4231.60	0.33	73.00	4231.43	-1.67	1.82	-11.42	11.57	279.05	0.59	61.01M
	4326.30	0.44	61.01	4326.13	-1.93	2.07	-10.84	11.04	280.83	0.14	84.02M
	4420.90	0.49	84.02	4420.72	-2.16	2.29	-10.12	10.38	282.76	0.20	78.57M
	4515.60	0.22	78.57	4515.42	-2.24	2.37	-9.54	9.83	283.95	0.29	72.31M
	4610.20	0.18	72.31	4610.02	-2.33	2.45	-9.22	9.54	284.89	0.05	94.31M
	4704.90	0.76	94.31	4704.72	-2.34	2.45	-8.45	8.80	286.16	0.63	85.8M
	4799.60	1.39	85.80	4799.40	-2.40	2.49	-6.68	7.13	290.41	0.68	74.53M
	4894.20	1.63	74.53	4893.97	-2.87	2.93	-4.24	5.16	304.64	0.40	44.72M

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)	TF (°)
	4988.90	1.07	44.72	4988.64	-3.89	3.92	-2.32	4.55	329.35	0.93	19.53M
	5083.50	0.52	19.53	5083.23	-4.93	4.95	-1.56	5.19	342.54	0.68	345.03M
	5178.20	0.18	345.03	5177.93	-5.48	5.50	-1.45	5.69	345.21	0.41	312.15M
	5272.90	0.14	312.15	5272.63	-5.70	5.72	-1.58	5.93	344.60	0.10	279.11M
	5367.50	0.12	279.11	5367.23	-5.79	5.81	-1.76	6.07	343.16	0.08	228.28M
	5462.20	0.05	228.28	5461.93	-5.78	5.80	-1.89	6.10	341.97	0.10	191.32M
	5556.80	0.05	191.32	5556.53	-5.71	5.73	-1.93	6.05	341.42	0.03	150.97M
	5651.50	0.03	150.97	5651.23	-5.65	5.67	-1.92	5.99	341.27	0.04	15.2M
	5746.20	0.04	15.20	5745.93	-5.66	5.68	-1.90	5.99	341.49	0.07	39.94M
	5840.80	0.12	39.94	5840.53	-5.76	5.79	-1.83	6.07	342.46	0.09	40.99M
	5935.50	0.38	40.99	5935.23	-6.08	6.10	-1.56	6.30	345.66	0.27	31.88M
	6030.10	0.56	31.88	6029.83	-6.72	6.73	-1.11	6.82	350.63	0.21	2.69M
	6124.80	0.38	2.69	6124.52	-7.43	7.44	-0.85	7.49	353.47	0.31	327.97M
	6219.50	0.34	327.97	6219.22	-7.98	7.99	-0.99	8.05	352.97	0.23	313.6M
	6314.10	0.32	313.60	6313.82	-8.39	8.41	-1.33	8.51	351.04	0.09	290.26M
	6408.80	0.15	290.26	6408.52	-8.61	8.64	-1.63	8.79	349.29	0.20	230.2M
	6503.40	0.06	230.20	6503.12	-8.62	8.65	-1.79	8.83	348.32	0.14	246.41M
	6598.10	0.18	246.41	6597.82	-8.53	8.56	-1.96	8.78	347.08	0.13	247.9M
	6692.80	0.29	247.90	6692.52	-8.37	8.41	-2.32	8.72	344.57	0.12	241.39M
	6787.40	0.44	241.39	6787.12	-8.10	8.14	-2.86	8.63	340.64	0.16	238.1M
	6882.10	0.65	238.10	6881.81	-7.64	7.68	-3.64	8.50	334.67	0.22	212.23M
	6976.70	0.73	212.23	6976.40	-6.83	6.89	-4.41	8.18	327.36	0.34	189.2M
	7071.40	0.80	189.20	7071.10	-5.66	5.73	-4.84	7.50	319.80	0.33	166.7M
	7166.10	0.85	166.70	7165.79	-4.33	4.39	-4.78	6.49	312.55	0.34	139.86M
	7260.70	0.88	139.86	7260.38	-3.10	3.15	-4.16	5.22	307.19	0.43	121.22M
	7355.40	0.73	121.22	7355.07	-2.24	2.28	-3.17	3.91	305.78	0.32	101.59M
	7450.00	0.74	101.59	7449.66	-1.82	1.85	-2.06	2.77	311.97	0.27	92.03M
	7544.70	0.96	92.03	7544.35	-1.69	1.70	-0.66	1.82	338.63	0.28	64.26M
	7639.40	0.73	64.26	7639.04	-1.94	1.93	0.67	2.05	19.16	0.49	59.95M
	7734.00	0.71	59.95	7733.63	-2.51	2.49	1.72	3.03	34.68	0.06	72.06M
	7828.70	0.69	72.06	7828.32	-2.99	2.96	2.77	4.05	43.15	0.16	82.78M
	7923.30	0.62	82.78	7922.92	-3.25	3.20	3.82	4.98	50.09	0.15	76.27M
	8018.00	0.52	76.27	8017.61	-3.43	3.36	4.75	5.82	54.68	0.13	83.38M
	8112.70	0.45	83.38	8112.31	-3.58	3.51	5.53	6.55	57.63	0.10	86.86M
	8207.30	0.50	86.86	8206.91	-3.66	3.57	6.32	7.26	60.50	0.06	81.15M
	8302.00	0.30	81.15	8301.61	-3.73	3.63	6.97	7.86	62.47	0.22	74.02M
	8396.60	0.22	74.02	8396.20	-3.82	3.72	7.39	8.28	63.27	0.09	70.28M
	8491.30	0.10	70.28	8490.90	-3.90	3.80	7.64	8.54	63.57	0.13	263.31M
	8586.00	0.05	263.31	8585.60	-3.93	3.82	7.68	8.58	63.54	0.16	268.36M
	8680.60	0.11	268.36	8680.20	-3.92	3.82	7.55	8.46	63.18	0.06	264.66M
	8775.30	0.17	264.66	8774.90	-3.90	3.80	7.32	8.25	62.56	0.06	254.27M
	8869.90	0.17	254.27	8869.50	-3.84	3.75	7.04	7.98	61.98	0.03	234.46M
	8964.60	0.15	234.46	8964.20	-3.73	3.64	6.81	7.72	61.87	0.06	193.68M
	9059.30	0.18	193.68	9058.90	-3.51	3.42	6.67	7.50	62.84	0.12	143.49M
	9153.90	0.09	143.49	9153.50	-3.31	3.22	6.68	7.42	64.28	0.15	19.45M
	9248.60	0.34	19.45	9248.20	-3.51	3.42	6.82	7.63	63.34	0.42	24.91M
	9343.20	0.69	24.91	9342.80	-4.30	4.21	7.15	8.30	59.55	0.37	21.07M
	9437.90	1.05	21.07	9437.49	-5.63	5.53	7.70	9.48	54.32	0.38	4.88M
	9532.60	0.66	4.88	9532.18	-6.99	6.88	8.06	10.60	49.51	0.48	5.36M
	9627.20	0.48	5.36	9626.77	-7.93	7.82	8.15	11.29	46.16	0.19	43.52M
	9721.90	0.39	43.52	9721.47	-8.56	8.45	8.41	11.92	44.84	0.31	219.44M
	9816.50	0.36	219.44	9816.07	-8.57	8.45	8.44	11.95	44.94	0.79	226.24M
	9911.20	0.60	226.24	9910.76	-7.99	7.88	7.89	11.15	45.03	0.26	221.25M
	10005.90	0.51	221.25	10005.46	-7.32	7.22	7.25	10.24	45.13	0.11	255.17M
	10100.50	0.32	255.17	10100.06	-6.93	6.84	6.72	9.59	44.51	0.32	266.08M
	10195.20	0.34	266.08	10194.76	-6.83	6.75	6.19	9.16	42.50	0.07	253.17M
	10289.80	0.37	253.17	10289.35	-6.72	6.64	5.61	8.70	40.20	0.09	236.29M
	10384.50	0.33	236.29	10384.05	-6.47	6.40	5.09	8.18	38.50	0.12	249.6M
Final Gyro	10452.50	0.21	249.60	10452.05	-6.32	6.25	4.81	7.89	37.60	0.20	269M
	10557.00	0.18	269.00	10556.55	-6.24	6.18	4.47	7.63	35.87	0.07	199.78M
	10651.00	1.14	199.78	10650.54	-5.35	5.30	4.01	6.64	37.09	1.16	230.81M
	10682.00	2.55	230.81	10681.53	-4.62	4.57	3.37	5.68	36.37	5.42	178.51M
	10714.00	6.24	178.51	10713.44	-2.42	2.38	2.86	3.72	50.20	15.92	170.87M
	10746.00	10.20	170.87	10745.10	2.11	-2.15	3.36	3.99	122.69	12.81	6.51R
	10777.00	14.42	172.80	10775.38	8.64	-8.70	4.28	9.69	153.82	13.68	11.73R
	10809.00	18.47	175.44	10806.07	17.64	-17.71	5.18	18.45	163.70	12.87	11.62R
	10840.00	22.60	177.64	10835.09	28.48	-28.56	5.81	29.14	168.49	13.55	10.79R
	10872.00	27.00	179.48	10864.14	41.89	-41.97	6.13	42.42	171.69	13.96	8.04R
	10903.00	31.57	180.71	10891.17	57.04	-57.13	6.10	57.45	173.91	14.87	7.28R
	10935.00	36.05	181.68	10917.75	74.85	-74.93	5.72	75.15	175.64	14.10	3.93R
	10966.00	40.19	182.12	10942.13	93.97	-94.05	5.08	94.19	176.91	13.38	7.34R
	10998.00	43.97	182.82	10965.88	115.41	-115.47	4.15	115.54	177.94	11.90	7.5L
	11029.00	47.92	182.12	10987.43	137.67	-137.72	3.20	137.76	178.67	12.84	22.91R
	11061.00	51.18	183.88	11008.19	162.00	-162.04	1.91	162.05	179.32	11.01	28.23L
	11092.00	54.96	181.42	11026.81	186.76	-186.78	0.78	186.78	179.76	13.74	1.22L
	11124.00	58.56	181.33	11044.35	213.51	-213.54	0.14	213.54	179.96	11.25	1.52R

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)	TF (°)
	11156.00	61.55	181.42	11060.32	241.24	-241.25	-0.53	241.25	180.13	9.35	2.24R
	11187.00	65.51	181.59	11074.14	268.98	-268.99	-1.26	268.99	180.27	12.78	2.3L
Survey 5-Nov-12	11218.00	69.47	181.42	11086.00	297.61	-297.61	-2.01	297.62	180.39	12.78	10.07R
	11250.00	73.25	182.12	11096.23	327.92	-327.91	-2.95	327.92	180.51	11.99	11.84L
	11282.00	76.50	181.42	11104.58	358.80	-358.78	-3.90	358.80	180.62	10.37	5.37L
	11313.00	80.28	181.06	11110.82	389.16	-389.14	-4.56	389.16	180.67	12.25	HS
	11345.00	83.80	181.06	11115.25	420.85	-420.82	-5.14	420.85	180.70	11.00	20.34L
Survey 6-Nov-12	11376.00	86.17	180.18	11117.96	451.73	-451.69	-5.48	451.73	180.69	8.15	2.16L
	11407.00	88.29	180.10	11119.46	482.69	-482.66	-5.55	482.69	180.66	6.84	20.03L
	11439.00	89.25	179.75	11120.14	514.68	-514.65	-5.51	514.68	180.61	3.19	11.56L
	11533.00	89.69	179.66	11121.01	608.66	-608.64	-5.03	608.66	180.47	0.48	103.47L
	11628.00	89.52	178.95	11121.67	703.62	-703.63	-3.87	703.64	180.32	0.77	54.2L
Survey 7-Nov-12	11723.00	89.96	178.34	11122.10	798.56	-798.61	-1.63	798.61	180.12	0.79	90R
	11817.00	89.96	179.83	11122.16	892.51	-892.59	-0.13	892.59	180.01	1.59	104.42R
	11912.00	89.87	180.18	11122.30	987.51	-987.59	-0.13	987.59	180.01	0.38	21.09R
	12006.00	90.57	180.45	11121.94	1081.50	-1081.59	-0.65	1081.59	180.03	0.80	166.08R
	12101.00	88.11	181.06	11123.04	1176.49	-1176.57	-1.90	1176.57	180.09	2.67	112.27L
	12196.00	87.93	180.62	11126.32	1271.43	-1271.50	-3.29	1271.50	180.15	0.50	HS
	12291.00	88.37	180.62	11129.39	1366.38	-1366.44	-4.32	1366.45	180.18	0.46	26.13L
	12386.00	88.90	180.36	11131.65	1461.35	-1461.41	-5.13	1461.42	180.20	0.62	11.56L
	12481.00	89.34	180.27	11133.11	1556.34	-1556.41	-5.66	1556.41	180.21	0.47	132.52L
	12576.00	88.46	179.31	11134.93	1651.30	-1651.38	-5.31	1651.39	180.18	1.37	29.65R
Survey 8-Nov-12	12671.00	89.69	180.01	11136.47	1746.27	-1746.36	-4.74	1746.37	180.16	1.49	26.24L
	12766.00	90.40	179.66	11136.39	1841.26	-1841.36	-4.47	1841.37	180.14	0.83	87.25R
	12861.00	90.48	181.33	11135.66	1936.25	-1936.35	-5.29	1936.36	180.16	1.76	160.91L
	12956.00	89.96	181.15	11135.30	2031.25	-2031.33	-7.35	2031.34	180.21	0.58	50.3R
	13051.00	90.40	181.68	11135.00	2126.24	-2126.30	-9.69	2126.32	180.26	0.73	LS
	13146.00	89.25	181.68	11135.29	2221.23	-2221.26	-12.48	2221.29	180.32	1.21	143.4L
	13241.00	88.90	181.42	11136.82	2316.20	-2316.21	-15.05	2316.26	180.37	0.46	75.96L
	13336.00	88.99	181.06	11138.57	2411.18	-2411.17	-17.10	2411.23	180.41	0.39	175.29L
	13431.00	88.02	180.98	11141.05	2506.15	-2506.12	-18.79	2506.19	180.43	1.02	12.14R
	13526.00	88.81	181.15	11143.68	2601.11	-2601.07	-20.56	2601.15	180.45	0.85	115.92L
Survey 11-Nov-12	13621.00	88.64	180.80	11145.79	2696.09	-2696.03	-22.17	2696.12	180.47	0.41	131.55L
	13716.00	88.02	180.10	11148.56	2791.04	-2790.99	-22.92	2791.08	180.47	0.98	74.3R
	13812.00	88.29	181.06	11151.65	2886.99	-2886.93	-23.89	2887.03	180.47	1.04	5.91R
	13907.00	89.16	181.15	11153.77	2981.97	-2981.89	-25.72	2982.00	180.49	0.92	80.28L
	14002.00	89.34	180.10	11155.01	3076.96	-3076.87	-26.76	3076.99	180.50	1.12	45R
	14097.00	89.69	180.45	11155.81	3171.95	-3171.87	-27.22	3171.98	180.49	0.52	30.15R
	14192.00	91.36	181.42	11154.94	3266.94	-3266.85	-28.77	3266.97	180.50	2.03	138.25L
	14287.00	89.78	180.01	11154.00	3361.93	-3361.83	-29.95	3361.96	180.51	2.23	110.74R
	14382.00	89.25	181.41	11154.80	3456.92	-3456.82	-31.13	3456.96	180.52	1.58	130.68R
	14477.00	88.64	182.12	11156.55	3551.89	-3551.75	-34.05	3551.92	180.55	0.99	137.57L
Survey 11-Nov-12	14572.00	87.58	181.15	11159.68	3646.83	-3646.66	-36.76	3646.85	180.58	1.51	40.4R
	14667.00	88.72	182.12	11162.75	3741.76	-3741.57	-39.47	3741.78	180.60	1.58	38.5R
	14762.00	89.16	182.47	11164.51	3836.71	-3836.48	-43.28	3836.72	180.65	0.59	37.87L
	14857.00	89.34	182.33	11165.75	3931.67	-3931.39	-47.25	3931.67	180.69	0.24	67.46L
	14952.00	90.22	180.21	11166.12	4026.66	-4026.35	-49.36	4026.66	180.70	2.42	14.8R
Survey 11-Nov-12	15047.00	90.75	180.35	11165.31	4121.65	-4121.35	-49.82	4121.65	180.69	0.58	4.34L
	15142.00	91.54	180.29	11163.41	4216.63	-4216.33	-50.35	4216.63	180.68	0.83	35.57L
	15237.00	92.42	179.66	11160.13	4311.56	-4311.27	-50.31	4311.56	180.67	1.14	167.79R
	15332.00	91.45	179.87	11156.92	4406.49	-4406.21	-49.92	4406.50	180.65	1.04	139.94L
	15427.00	91.01	179.50	11154.88	4501.45	-4501.19	-49.40	4501.46	180.63	0.61	144.82L
Final Survey Proj ot TD	15484.00	89.52	178.45	11154.62	4558.42	-4558.18	-48.38	4558.44	180.61	3.20	HS
	15531.00	89.52	178.45	11155.01	4605.38	-4605.16	-47.11	4605.40	180.59	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	28.000	Act Stns	30.000	30.000	SLB_NSG+MSHOT-Depth Only	Original Borehole / Cimarex Tres Equis 5 State #2Y Gyro+MWD Off to 15531ft MD
	28.000	10452.500	Act Stns	30.000	30.000	SLB_NSG+MSHOT	Original Borehole / Cimarex Tres Equis 5 State #2Y Gyro+MWD Off
	10452.500	15484.000	Act Stns	30.000	30.000	SLB_MWD-STD	Original Borehole / Cimarex Tres Equis 5 State #2Y Gyro+MWD Off
	15484.000	15531.000	Act Stns	30.000	30.000	SLB_BLIND+TREND	Original Borehole / Cimarex Tres Equis 5 State #2Y Gyro+MWD Off