

HOBBS OCD

MAY 18 2015

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Cactus 104

Cimarex

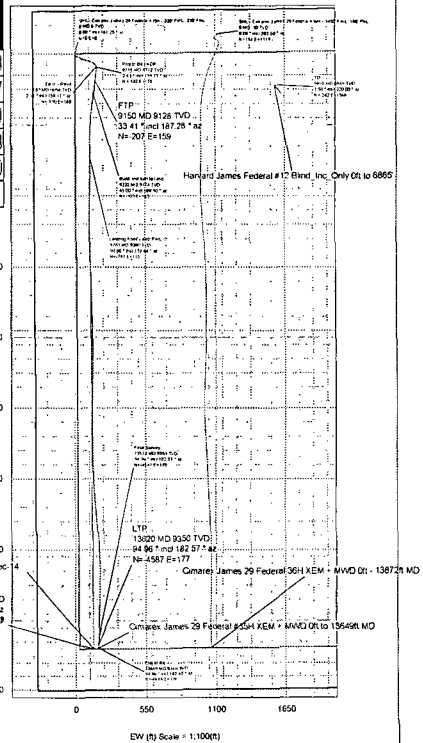
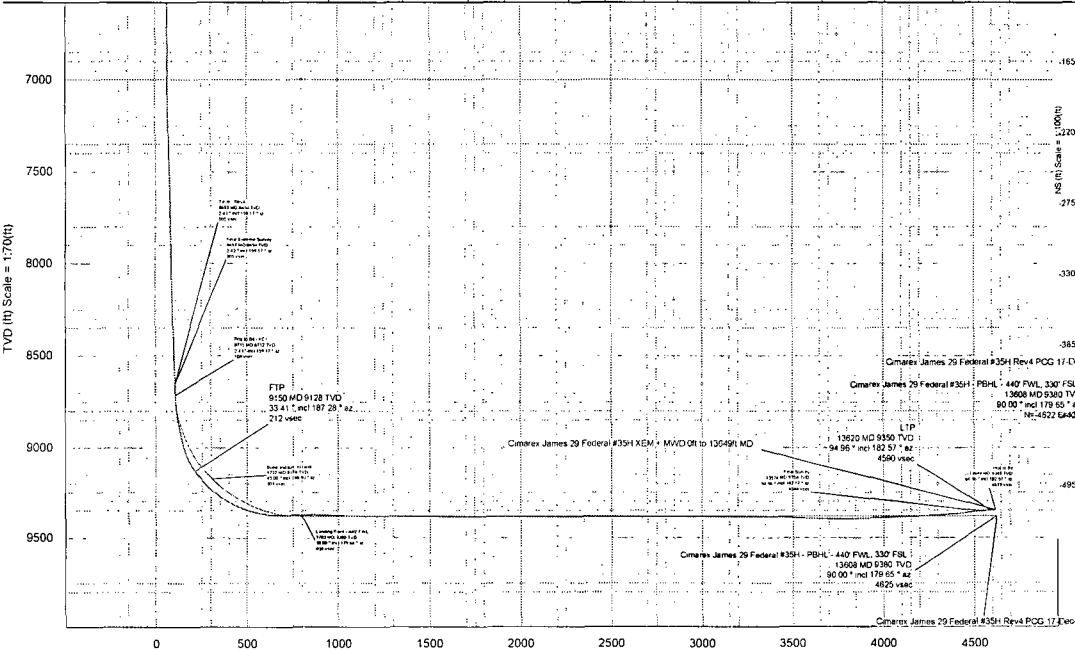
Rev4



Borehole:	Well:	Field:	Structure:
Original Borehole	James 29 Federal #35	NM Lea County	Cactus 104

Gravity & Magnetic Parameters	Survey Location	Grid Coordinates	Other Parameters
Model: HDGM 2014 MagDec: 7.191°	Dep: 80.120° Date: 17-Dec-2014 FB: 48411.735m Gravity: 9.806653000	North: 48852.8108 East: 73578.3108 Grid Conv: 0.3381° Scale Fact: 0.999924	Site: James 29 Federal #35H TVD Ref: 9.7828728 above WSL Plan: Real

Comments	Survey MD(ft)	Inclination(deg)	Azimuth(deg)	TVD(ft)	Sub-Sea TVD	VS(ft)	HS(ft)	EW(ft)	Latitude(deg)	Longitude(deg)	East(ftUS)	North(ftUS)	OLSP(100ft)	Tool Face(deg)
SHL - Cimarex James 29 Federal #35H - 330 FWL 330 FHL	0.00	0.00	151.25	0.00	3672.00	0.00	0.00	0.00	N 32 16 54.784 W 103 42 14.825	73578.3108	466852.60			62.53
Tie In - Real	8557.00	2.43	159.17	8553.66	4581.65	105.21	-100.19	159.23	N 32 16 53.782 W 103 42 12.851	735958.52	466752.41	0.00		159.17
Prop to GA - KOP	8715.00	2.43	159.17	8711.51	5039.51	107.54	-102.49	170.11	N 32 16 53.750 W 103 42 12.851	735959.40	466750.11	0.00		188.90
Build and Turn to Land	9231.67	45.00	188.90	9174.20	5502.20	395.83	-302.64	144.53	N 32 16 51.781 W 103 42 13.152	735933.83	466549.96	8.30		-12.98
Landing Point - 440 FWL	9782.51	90.00	179.64	9380.00	5708.00	800.07	-797.00	114.52	N 32 16 46.891 W 103 42 13.545	735903.82	466855.54	8.30		90.00
Cimarex James 29 Federal #35H - PBHL - 440 FWL 330 FSL	13608.01	90.00	179.64	9380.00	5708.00	4524.50	-4522.43	136.41	N 32 16 9.037 W 103 42 13.529	735927.70	462230.40	0.00		



Grid North True Mag Dec (7.191°) Grid Conv (0.338°)	CONTROLLED Drawn by: [] Checked by: [] Date: [] Scale: [] Project: [] Well: [] Sheet: [] Revision: []
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MAY 19 2015



Cimarex James 29 Federal #35H XEM + MWD 0ft to 13649ft MD Survey
Geodetic Report
(Def Survey)



Report Date: March 27, 2015 - 10:38 AM
Client: Cimarex
Field: NW Lea County (NAD 83)
Structure / Slot: Cimarex James 29 Federal #35H / James 29 Federal #35H
Well: James 29 Federal #35
Borehole: Original Borehole
UW / API#: Unknown / Unknown
Survey Name: Cimarex James 29 Federal #35H XEM + MWD 0ft to 13649ft MD
Survey Date: December 05, 2014
Tilt / AHD / DDI / ERD Ratio: 168.771' / 4734.983 ft / 6.065 / 0.504
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 16' 54.78356" W 103° 42' 14.82528"
Location Grid N/E Y/X: N 466852.600 ftUS, E 735789.300 ftUS
CRS Grid Convergence Angle: 0.3361 °
Grid Scale Factor: 0.9999524
Version / Patch: 2.7.1043.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 178.285 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RK5
TVD Reference Elevation: 3672.000 ft above MSL
Seabed / Ground Elevation: 3652.000 ft above MSL
Magnetic Declination: 7.191 °
Total Gravity Field Strength: 998.435mgm (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 48411.735 nT
Magnetic Dip Angle: 60.125 °
Declination Date: December 17, 2014
Magnetic Declination Model: HDGM 2014
North Reference: Grid North
Grid Convergence Used: 0.3361 °
Total Corr Mag North->Grid: 6.8549 °
North:
Local Coord Referenced To: Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Closure Azimuth (°)	Closure (ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')	TF (°)
SHL - Cimarex James 29 Federal #35H - 330 FWL, 330 FNL	0.00	0.00	181.25	0.00	-3672.00	0.00	0.00	0.00	N/A	0.00	0.00	466852.60	735789.30	N 32 16 54.78	W 103 42 14.83	62.53M
	49.00	0.49	62.53	49.00	-3623.00	-0.09	0.10	0.19	1.00	62.53	0.21	466852.70	735789.49	N 32 16 54.78	W 103 42 14.82	181.16M
	165.00	2.03	181.16	164.98	-3507.02	1.75	-1.73	0.58	1.99	181.32	1.83	466850.87	735789.88	N 32 16 54.77	W 103 42 14.82	100.12M
	199.00	0.88	100.12	197.97	-3474.03	2.38	-2.36	0.82	6.31	160.78	2.50	466850.24	735790.12	N 32 16 54.76	W 103 42 14.82	97.52M
	255.00	0.80	97.52	254.96	-3417.04	2.54	-2.49	1.65	0.16	146.48	2.98	466850.11	735790.95	N 32 16 54.76	W 103 42 14.81	133.92M
	316.00	0.80	133.92	315.96	-3356.04	2.91	-2.84	2.38	0.82	140.06	3.70	466849.76	735791.68	N 32 16 54.75	W 103 42 14.80	96.42M
	377.00	0.71	96.42	376.95	-3295.05	3.27	-3.18	3.06	0.81	136.07	4.41	466849.42	735792.36	N 32 16 54.75	W 103 42 14.79	95.89M
	403.00	0.71	95.89	402.95	-3269.05	3.31	-3.21	3.38	0.03	133.53	4.66	466849.39	735792.68	N 32 16 54.75	W 103 42 14.79	95.21M
	437.00	0.62	95.20	436.95	-3235.05	3.36	-3.25	3.77	0.26	130.77	4.98	466849.35	735793.07	N 32 16 54.75	W 103 42 14.78	97.67M
	495.00	0.40	97.67	494.94	-3177.06	3.44	-3.31	4.28	0.38	127.71	5.42	466849.29	735793.58	N 32 16 54.75	W 103 42 14.78	99.11M
	544.00	0.49	99.11	543.94	-3128.06	3.51	-3.37	4.68	0.19	125.86	5.75	466849.23	735793.96	N 32 16 54.75	W 103 42 14.77	101.93M
	624.00	0.40	101.93	623.94	-3048.06	3.64	-3.48	5.27	0.12	123.43	6.32	466849.12	735794.57	N 32 16 54.75	W 103 42 14.76	101.53M
	685.00	0.31	101.93	684.94	-2987.06	3.73	-3.56	5.64	0.15	122.24	6.67	466849.04	735794.94	N 32 16 54.75	W 103 42 14.76	87.78M
	743.00	0.22	87.78	742.94	-2929.06	3.76	-3.59	5.91	0.19	121.27	6.91	466849.01	735795.21	N 32 16 54.75	W 103 42 14.76	121.98M
	802.00	0.09	121.98	801.94	-2870.06	3.79	-3.61	6.06	0.26	120.77	7.05	466848.99	735795.36	N 32 16 54.75	W 103 42 14.75	150.05M
	831.00	0.22	150.05	830.94	-2841.06	3.85	-3.67	6.11	0.51	120.99	7.12	466848.93	735795.41	N 32 16 54.75	W 103 42 14.75	177.64M
	924.00	0.22	177.64	923.94	-2748.06	4.18	-4.00	6.20	0.11	122.82	7.38	466848.60	735795.50	N 32 16 54.74	W 103 42 14.75	183.37M
	1019.00	0.31	183.37	1018.94	-2653.06	4.62	-4.44	6.19	0.10	125.63	7.62	466848.16	735795.49	N 32 16 54.74	W 103 42 14.75	213.64M
	1114.00	0.40	213.64	1113.94	-2558.06	5.15	-4.97	6.00	0.22	129.67	7.79	466847.63	735795.30	N 32 16 54.73	W 103 42 14.76	212.23M
	1185.00	0.40	212.23	1184.93	-2487.07	5.56	-5.39	5.73	0.01	133.25	7.86	466847.21	735795.03	N 32 16 54.73	W 103 42 14.76	205.62M
	1304.00	0.40	205.62	1303.93	-2388.07	6.27	-6.11	5.33	0.04	138.94	8.11	466846.49	735794.62	N 32 16 54.72	W 103 42 14.76	203.9M
	1399.00	0.31	203.90	1398.93	-2273.07	6.80	-6.65	5.08	0.10	142.63	8.36	466845.95	735794.38	N 32 16 54.72	W 103 42 14.77	230.08M
	1494.00	0.40	230.08	1493.93	-2178.07	7.23	-7.10	4.72	0.19	146.37	8.52	466845.51	735794.02	N 32 16 54.71	W 103 42 14.77	212.23M
	1550.00	0.49	212.23	1549.92	-2082.08	7.78	-7.66	4.24	0.17	151.01	8.75	466844.94	735793.54	N 32 16 54.71	W 103 42 14.78	227.65M
	1685.00	0.40	227.65	1684.92	-1987.08	8.33	-8.22	3.78	0.16	153.31	9.05	466844.38	735793.08	N 32 16 54.70	W 103 42 14.78	226.15M
	1780.00	0.62	226.15	1779.92	-1892.08	8.89	-8.80	3.17	0.23	160.22	9.36	466843.80	735792.47	N 32 16 54.70	W 103 42 14.79	237.48M
	1875.00	0.62	237.48	1874.91	-1797.09	9.50	-9.44	2.36	0.13	165.95	9.73	466843.16	735791.66	N 32 16 54.69	W 103 42 14.80	178.95M
	1970.00	0.71	178.95	1969.91	-1702.09	10.35	-10.30	1.54	0.09	169.32	10.48	466842.30	735791.24	N 32 16 54.68	W 103 42 14.80	167.72M
	2062.00	0.71	167.72	2061.90	-1610.10	11.49	-11.43	2.08	0.15	169.70	11.82	466841.17	735791.38	N 32 16 54.67	W 103 42 14.80	174.73M
	2158.00	0.82	174.73	2157.89	-1514.11	12.59	-12.53	2.25	0.13	169.81	12.73	466840.07	735791.55	N 32 16 54.66	W 103 42 14.80	179.84M
	2252.00	0.71	179.84	2251.89	-1420.11	13.68	-13.62	2.30	0.11	170.41	13.81	466838.88	735791.60	N 32 16 54.65	W 103 42 14.80	136.83M
	2348.00	0.49	136.83	2347.88	-1324.12	14.58	-14.51	2.58	0.51	169.91	14.74	466838.09	735791.88	N 32 16 54.64	W 103 42 14.80	123.17M
	2443.00	0.49	123.17	2442.88	-1229.12	15.12	-15.03	3.20	0.12	167.98	15.36	466837.57	735792.50	N 32 16 54.63	W 103 42 14.79	115.15M
	2634.00	0.62	115.15	2633.87	-1038.13	16.05	-15.91	4.82	0.08	163.15	16.63	466836.69	735794.12	N 32 16 54.63	W 103 42 14.77	117.66M
	2727.00	0.71	117.66	2726.86	-945.14	16.56	-16.40	5.78	0.10	160.57	17.39	466836.21	735795.08	N 32 16 54.62	W 103 42 14.76	116.47M

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Closure Azimuth (°)	Closure (ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')	TF (°)
	2822.00	0.80	116.47	2821.85	-850.15	17.16	-16.96	6.90	0.10	157.87	18.31	466835.64	735796.20	N 32 16 54.62	W 103 42 14.75	113.25M
	2917.00	1.02	113.25	2916.64	-755.16	17.83	-17.59	8.27	0.24	154.62	19.44	466835.01	735797.57	N 32 16 54.61	W 103 42 14.73	107.63M
	3012.00	1.02	107.63	3011.83	-660.17	18.47	-18.19	9.65	0.10	151.55	20.68	466834.41	735799.15	N 32 16 54.60	W 103 42 14.71	106.95M
	3108.00	1.10	106.95	3107.81	-564.19	19.05	-18.72	11.55	0.09	148.33	21.99	466833.88	735800.85	N 32 16 54.60	W 103 42 14.69	108.86M
	3203.00	1.19	108.85	3202.79	-469.21	19.69	-19.30	13.35	0.10	145.32	23.47	466833.30	735802.65	N 32 16 54.59	W 103 42 14.67	105.63M
	3298.00	1.19	105.63	3297.77	-374.23	20.33	-19.89	15.24	0.07	142.54	25.05	466832.72	735804.54	N 32 16 54.59	W 103 42 14.65	103.65M
	3391.00	1.33	103.65	3390.75	-281.25	20.91	-20.40	17.22	0.16	139.84	26.69	466832.20	735806.51	N 32 16 54.58	W 103 42 14.63	104.13M
	3485.00	1.33	104.13	3484.72	-187.28	21.49	-20.92	19.33	0.01	137.26	28.49	466831.68	735808.63	N 32 16 54.58	W 103 42 14.60	102.94M
	3581.00	1.33	102.94	3580.70	-91.30	22.08	-21.45	21.50	0.03	134.93	30.37	466831.16	735810.80	N 32 16 54.57	W 103 42 14.58	105.85M
	3676.00	1.33	105.85	3675.67	3.67	22.69	-21.99	23.63	0.07	132.94	32.28	466830.61	735812.93	N 32 16 54.56	W 103 42 14.55	108.32M
	3771.00	1.33	108.32	3770.65	98.65	23.40	-22.64	25.74	0.06	131.33	34.28	466829.96	735815.04	N 32 16 54.56	W 103 42 14.53	106.42M
	3866.00	1.33	106.42	3865.62	193.62	24.12	-23.30	27.85	0.05	129.92	36.31	466829.30	735817.14	N 32 16 54.55	W 103 42 14.50	106.12M
	3962.00	1.33	106.12	3961.59	289.59	24.91	-24.01	30.30	0.41	128.40	38.66	466828.59	735819.60	N 32 16 54.54	W 103 42 14.47	114.44M
	4058.00	2.12	114.44	4057.53	385.53	25.13	-25.15	33.30	0.51	127.06	41.73	466827.45	735822.60	N 32 16 54.53	W 103 42 14.44	117.88M
	4150.00	2.43	117.88	4149.46	477.46	27.85	-26.77	36.57	0.37	126.20	45.32	466825.84	735825.87	N 32 16 54.52	W 103 42 14.40	119.56M
	4245.00	2.61	119.56	4244.37	572.37	29.97	-28.77	40.23	0.20	125.57	49.46	466823.83	735829.53	N 32 16 54.50	W 103 42 14.36	122.07M
	4340.00	2.92	122.07	4339.26	667.26	32.43	-31.13	44.17	0.36	125.17	54.03	466821.48	735833.48	N 32 16 54.47	W 103 42 14.31	124.88M
	4435.00	3.40	124.88	4434.11	762.11	35.46	-34.02	48.53	0.53	125.03	59.27	466818.58	735837.83	N 32 16 54.44	W 103 42 14.26	121.76M
	4529.00	2.30	121.76	4528.00	856.00	38.15	-36.60	52.42	1.16	124.92	63.94	466816.00	735841.72	N 32 16 54.42	W 103 42 14.22	118.37M
	4619.00	1.59	118.37	4617.94	945.94	39.78	-38.15	55.06	0.80	124.72	66.98	466814.46	735844.35	N 32 16 54.40	W 103 42 14.19	123.7M
	4724.00	1.59	123.70	4722.90	1050.90	41.35	-39.65	57.55	0.14	124.56	69.89	466812.96	735846.85	N 32 16 54.39	W 103 42 14.16	106.95M
	4820.00	1.50	106.95	4818.87	1146.87	42.53	-40.75	59.66	0.48	124.25	72.42	466811.85	735849.16	N 32 16 54.38	W 103 42 14.13	121.67M
	4915.00	1.50	121.67	4913.84	1241.84	43.61	-41.77	62.11	0.40	123.92	74.85	466810.83	735851.41	N 32 16 54.37	W 103 42 14.10	121.19M
	5011.00	1.50	121.19	5009.80	1337.80	45.02	-43.12	64.32	0.09	123.84	77.43	466809.49	735853.61	N 32 16 54.35	W 103 42 14.08	117.04M
	5106.00	1.90	117.04	5104.76	1432.76	46.50	-44.52	66.85	0.35	123.66	80.31	466808.09	735856.14	N 32 16 54.34	W 103 42 14.05	112.77M
	5200.00	1.50	112.77	5198.72	1526.72	47.76	-45.70	69.37	0.45	123.38	83.07	466806.90	735858.67	N 32 16 54.33	W 103 42 14.02	115.68M
	5300.00	1.81	115.68	5388.64	1716.64	50.17	-47.96	74.37	0.17	122.82	88.49	466804.64	735863.66	N 32 16 54.30	W 103 42 13.96	108.32M
	5485.00	1.59	108.32	5483.59	1811.59	51.31	-49.03	76.97	0.33	122.50	91.26	466803.58	735866.27	N 32 16 54.29	W 103 42 13.93	103.34M
	5581.00	1.50	103.34	5579.56	1907.56	52.09	-49.74	79.46	0.17	122.04	93.74	466802.87	735868.75	N 32 16 54.29	W 103 42 13.90	110.74M
	5676.00	1.72	110.74	5674.52	2002.52	52.96	-50.53	82.00	0.32	121.64	96.32	466802.08	735871.30	N 32 16 54.28	W 103 42 13.87	99.81M
	5865.00	1.90	99.81	5863.43	2191.43	54.67	-52.07	87.74	0.21	120.69	102.03	466800.54	735877.04	N 32 16 54.26	W 103 42 13.81	104.31M
	5960.00	1.90	104.31	5958.38	2286.38	55.42	-52.72	90.82	0.16	120.14	105.01	466799.88	735880.11	N 32 16 54.26	W 103 42 13.77	96.02M
	6056.00	1.72	96.02	6054.33	2382.33	56.05	-53.27	93.79	0.33	119.59	107.86	466799.34	735883.09	N 32 16 54.25	W 103 42 13.74	107.53M
	6151.00	2.03	107.53	6149.28	2477.28	56.80	-53.92	96.82	0.51	119.12	110.82	466798.68	735886.11	N 32 16 54.24	W 103 42 13.70	98.23M
	6247.00	1.90	98.23	6245.22	2573.22	57.63	-54.66	100.01	0.36	118.66	113.98	466797.94	735889.31	N 32 16 54.24	W 103 42 13.66	108.85M
	6342.00	1.72	108.85	6340.17	2669.17	58.41	-55.35	102.92	0.40	118.27	116.86	466797.25	735892.21	N 32 16 54.23	W 103 42 13.63	100.43M
	6436.00	1.90	100.43	6434.13	2762.13	59.23	-56.09	105.79	0.34	117.83	119.74	466796.51	735895.08	N 32 16 54.22	W 103 42 13.60	112.64M
	6532.00	1.90	112.64	6530.08	2858.08	60.22	-56.98	108.62	0.42	117.84	122.84	466795.81	735898.12	N 32 16 54.21	W 103 42 13.56	113.34M
	6627.00	1.90	113.34	6625.02	2953.02	61.54	-58.22	111.72	0.02	117.52	125.98	466794.38	735901.92	N 32 16 54.20	W 103 42 13.53	103.52M
	6722.00	1.81	103.52	6719.97	3047.97	62.60	-59.19	114.63	0.35	117.31	129.01	466793.41	735903.92	N 32 16 54.19	W 103 42 13.49	108.05M
	6818.00	1.90	108.05	6815.92	3143.92	63.53	-60.04	117.61	0.18	117.04	132.05	466792.56	735906.91	N 32 16 54.18	W 103 42 13.46	106.56M
	6911.00	1.81	106.56	6908.87	3236.87	64.52	-60.94	120.49	0.11	116.83	135.02	466791.67	735909.78	N 32 16 54.17	W 103 42 13.43	107.44M
	7006.00	1.90	107.44	7003.82	3331.82	65.50	-61.84	123.43	0.10	116.61	138.05	466790.77	735912.72	N 32 16 54.16	W 103 42 13.39	109.95M
	7100.00	2.03	109.95	7097.77	3425.77	66.63	-62.87	126.48	0.17	116.43	141.24	466789.73	735915.77	N 32 16 54.15	W 103 42 13.36	113.96M
	7195.00	1.72	113.96	7192.72	3520.72	67.67	-64.03	129.36	0.35	116.33	144.34	466788.58	735918.66	N 32 16 54.14	W 103 42 13.32	116.78M
	7291.00	1.90	116.78	7288.67	3616.67	69.25	-65.33	132.10	0.21	116.31	147.37	466787.28	735921.39	N 32 16 54.13	W 103 42 13.29	119.47M
	7386.00	2.12	119.47	7383.61	3711.61	70.91	-66.90	135.04	0.25	116.36	150.70	466785.70	735924.33	N 32 16 54.11	W 103 42 13.26	123.08M
	7481.00	2.52	123.08	7478.53	3806.53	73.01	-68.91	138.32	0.45	116.48	154.53	466783.70	735927.61	N 32 16 54.09	W 103 42 13.22	117.04M
	7577.00	2.61	117.04	7574.44	3902.44	75.27	-71.05	142.03	0.30	116.58	158.81	466781.55	735931.32	N 32 16 54.07	W 103 42 13.18	121.49M
	7673.00	2.46	121.49	7670.34	3998.34	77.45	-73.12	145.73	0.26	116.64	163.05	466779.48	735935.03	N 32 16 54.05	W 103 42 13.13	122.86M
	7768.00	1.81	122.86	7765.28	4093.28	79.42	-75.00	148.73	0.69	116.78	166.57	466777.60	735938.03	N 32 16 54.03	W 103 42 13.10	127.97M
	7861.00	2.30	127.97	7858.22	4186.22	81.44	-76.95	151.44	0.56	116.93	169.87	466775.66	735940.73	N 32 16 54.01	W 103 42 13.07	133.79M
	7957.00	2.30	133.79	7954.14	4282.14	84.05	-79.48	154.35	0.24	117.24	173.60	466773.14	735943.64	N 32 16 53.99	W 103 42 13.03	138.95M
	8052.00	2.21	138.95	8049.07	4377.07	86.82	-82.16	156.93	0.23	117.64	177.14	466770.44	735946.22	N 32 16 53.96	W 103 42 13.00	134.71M
	8147.00	1.81	134.71	8144.01	4472.01	89.33	-84.60	159.20	0.45	117.99	180.28	466768.00	735948.49	N 32 16 53.94	W 103 42 12.98	141.63M
	8242.00	1.81	141.63	8238.96	4568.96	91.62	-86.83	161.19	0.23	118.31	183.09	466765.77	735950.49	N 32 16 53.92	W 103 42 12.95	142.25M
	8337.00	2.30	142.25	8333.90	4661.90	94.36	-89.52	163.29	0.52	118.73	186.22	466763.09	735952.56	N 32 16 53.89	W 103 42 12.93	146.64M
	8431.00	2.03	146.64	8427.83	4755.83	97.31	-92.40	165.36	0.34	119.19	189.43	466760.21	735954.65	N 32 16 53.86	W 103 42 12.91	151.37M
	8527.00	2.12	151.37	8523.77	4851.77	100.34	-95.38	167.15	0.20	119.71	192.44	466757.23	735956.44	N 32 16 53.83	W 103 42 12.88	159.17M
	8621.00	2.43	159.17	8617.70	4945.70	103.77	-98.77	168.69	0.47	120.35	195.48	466753.84	735957.98	N 32 16 53.80	W 103 42 12.87	159.17M
Final Extreme Survey	8657.00	2.43	159.17	8653.66	4981.66	105.21										

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Closure Azimuth (°)	Closure (ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ° ' '')	Longitude (E/W ° ° ' '')	TF (°)
	8719.00	2.67	156.21	8715.61	5043.61	107.62	-102.57	170.30	1.46	121.06	168.80	466750.04	735059.59	N 32 16 53.76 W 103 42 12.85		170.94M
	8751.00	3.74	170.94	8747.56	5075.56	109.36	-104.29	170.74	4.00	121.42	200.07	466748.31	735060.03	N 32 16 53.74 W 103 42 12.84		177.96M
	8782.00	5.12	177.99	8778.47	5106.47	111.74	-106.67	170.95	4.78	121.96	201.50	466745.93	735060.24	N 32 16 53.72 W 103 42 12.84		180.45M
	8814.00	6.24	180.45	8810.31	5138.31	114.91	-109.84	170.98	3.58	122.72	203.22	466742.77	735060.28	N 32 16 53.69 W 103 42 12.84		183.86M
	8846.00	7.88	183.86	8842.06	5170.06	118.83	-113.77	170.82	5.29	123.66	205.24	466738.84	735060.11	N 32 16 53.65 W 103 42 12.84		187.81M
	8878.00	9.61	187.81	8873.89	5201.69	123.65	-118.60	170.31	5.72	124.65	207.54	466734.00	735059.60	N 32 16 53.60 W 103 42 12.85		25.63R
	8909.00	10.89	191.02	8904.20	5232.20	129.05	-124.04	169.40	4.52	126.21	209.96	466728.57	735058.69	N 32 16 53.55 W 103 42 12.86		25.32L
	8941.00	12.19	186.14	8935.55	5263.55	135.33	-130.35	168.34	4.44	127.75	212.91	466722.25	735057.64	N 32 16 53.48 W 103 42 12.87		18.41L
	8973.00	14.16	185.48	8966.71	5304.71	142.54	-137.58	167.49	6.44	128.40	216.78	466715.01	735056.78	N 32 16 53.41 W 103 42 12.88		21.05L
	9004.00	16.43	182.28	8996.61	5324.61	150.68	-145.75	166.96	7.81	131.12	221.62	466706.96	735056.25	N 32 16 53.33 W 103 42 12.89		11.18R
	9037.00	19.74	184.21	9027.97	5355.97	160.88	-155.97	166.36	10.19	133.15	228.04	466696.63	735055.65	N 32 16 53.23 W 103 42 12.90		21.44R
	9068.00	24.04	188.30	9056.73	5384.73	172.31	-167.45	165.06	14.71	135.41	235.13	466685.16	735054.38	N 32 16 53.12 W 103 42 12.91		8.27R
	9100.00	29.03	189.79	9085.35	5413.35	186.35	-181.56	162.80	15.73	138.12	243.88	466671.05	735052.09	N 32 16 52.98 W 103 42 12.94		5.91L
FTP	9131.00	32.17	189.18	9112.03	5440.03	201.83	-197.12	160.21	10.18	140.90	254.01	466655.49	735049.50	N 32 16 52.82 W 103 42 12.97		40.55L
	9150.00	33.41	187.28	9128.00	5456.00	211.96	-207.30	158.74	8.47	142.56	261.10	466645.31	735048.03	N 32 16 52.72 W 103 42 12.99		38.95L
	9163.00	34.27	186.05	9138.90	5466.80	219.12	-214.49	157.90	8.47	143.64	266.34	466638.12	735047.19	N 32 16 52.65 W 103 42 13.00		24.88L
	9195.00	37.27	183.77	9164.76	5482.76	237.70	-233.13	156.31	10.26	146.16	280.68	466619.48	735045.60	N 32 16 52.47 W 103 42 13.02		5.66L
	9226.00	40.88	183.21	9188.81	5516.81	257.18	-252.65	155.12	12.02	148.45	296.47	466599.96	735044.41	N 32 16 52.27 W 103 42 13.04		13.76R
	9258.00	44.82	184.54	9212.25	5540.25	278.85	-274.38	153.64	12.33	150.75	314.47	466578.24	735042.93	N 32 16 52.06 W 103 42 13.06		15.92R
	9290.00	49.13	186.18	9234.08	5562.08	302.06	-297.66	151.45	13.97	153.03	333.97	466564.95	735040.74	N 32 16 51.83 W 103 42 13.08		17.86R
	9321.00	51.82	187.26	9253.80	5581.80	325.71	-321.41	148.65	9.10	155.18	354.12	466551.21	735037.94	N 32 16 51.59 W 103 42 13.12		24.77R
	9353.00	54.10	188.55	9273.08	5601.08	350.89	-346.70	145.13	7.82	157.29	375.85	466505.92	735034.43	N 32 16 51.34 W 103 42 13.16		4.74R
	9385.00	57.78	188.91	9291.00	5615.00	376.96	-372.90	141.11	11.54	159.27	398.71	466479.72	735030.40	N 32 16 51.09 W 103 42 13.21		3.39L
	9416.00	62.42	188.60	9306.45	5634.45	403.38	-399.45	137.02	14.99	161.07	422.30	466453.17	735026.32	N 32 16 50.82 W 103 42 13.26		4.29L
	9448.00	66.20	189.20	9320.32	5648.32	431.75	-427.97	132.79	11.84	162.76	448.10	466424.65	735022.08	N 32 16 50.54 W 103 42 13.31		36.2L
	9480.00	68.33	186.62	9332.68	5660.68	460.69	-457.23	128.96	8.21	164.25	475.07	466398.39	735018.28	N 32 16 50.25 W 103 42 13.35		39.15L
	9511.00	70.97	184.36	9343.46	5671.46	489.72	-486.16	126.19	10.92	165.45	502.27	466366.46	735015.48	N 32 16 49.97 W 103 42 13.39		21.53L
	9543.00	74.22	183.03	9353.04	5681.04	520.12	-516.63	124.22	10.90	166.48	531.35	466336.00	735013.52	N 32 16 49.66 W 103 42 13.41		5.99L
	9575.00	77.48	182.68	9369.86	5688.86	551.04	-547.62	122.68	10.24	167.37	561.19	466305.01	735011.97	N 32 16 49.36 W 103 42 13.43		12.75L
	9607.00	79.83	182.14	9367.15	5695.15	582.33	-578.96	121.36	7.53	168.16	591.54	466273.67	735010.65	N 32 16 49.06 W 103 42 13.45		9.12L
	9638.00	82.55	181.70	9371.90	5699.90	612.90	-609.57	120.33	8.89	168.83	621.34	466243.06	735009.63	N 32 16 48.74 W 103 42 13.47		8.38L
	9670.00	85.80	181.22	9375.15	5703.15	644.68	-641.39	119.52	10.27	169.44	652.44	466211.24	735008.82	N 32 16 48.43 W 103 42 13.48		2.7L
	9701.00	89.83	181.03	9376.33	5704.33	675.62	-672.38	118.92	13.01	169.97	682.79	466180.27	735006.21	N 32 16 48.12 W 103 42 13.49		4L
	9733.00	91.69	180.90	9375.90	5703.90	707.58	-704.35	118.38	5.83	170.46	714.23	466148.28	735007.67	N 32 16 47.81 W 103 42 13.49		28.54L
	9832.00	92.48	180.47	9372.30	5700.30	806.42	-803.28	117.10	0.91	171.70	811.78	466049.36	735006.49	N 32 16 46.83 W 103 42 13.52		183.79L
	9928.00	88.35	179.27	9371.61	5699.61	902.36	-899.25	117.41	4.48	172.56	906.88	465953.39	735006.71	N 32 16 45.88 W 103 42 13.52		124.91R
	10023.00	87.18	180.95	9375.31	5703.31	997.24	-994.17	117.23	2.15	173.27	1001.06	465898.48	735006.52	N 32 16 44.84 W 103 42 13.53		6.96R
	10117.00	89.31	181.21	9378.19	5706.19	1091.08	-1088.11	115.45	2.28	173.94	1084.22	465764.55	735004.75	N 32 16 44.01 W 103 42 13.55		0.87L
	10213.00	89.97	181.20	9378.79	5706.79	1186.95	-1184.08	113.44	0.69	174.53	1189.51	465668.57	735002.74	N 32 16 43.06 W 103 42 13.58		95.79L
	10307.00	89.83	179.82	9378.96	5706.96	1280.88	-1278.08	112.60	1.48	174.96	1283.03	465574.59	735001.90	N 32 16 42.13 W 103 42 13.60		33.02L
	10402.00	90.03	179.69	9378.07	5707.07	1375.84	-1373.08	113.01	0.25	175.29	1377.72	465478.59	735002.30	N 32 16 41.19 W 103 42 13.60		95.34L
	10497.00	90.00	179.42	9378.06	5707.05	1470.62	-1468.07	113.75	0.29	175.57	1472.47	465384.60	735003.04	N 32 16 40.25 W 103 42 13.60		133.66L
	10592.00	88.35	177.69	9380.42	5708.42	1565.80	-1563.03	116.14	2.52	175.75	1567.34	465286.65	735005.44	N 32 16 39.31 W 103 42 13.56		13.19R
	10687.00	90.10	178.10	9381.70	5709.70	1660.79	-1657.95	119.63	1.89	175.87	1662.28	465184.73	735006.93	N 32 16 38.37 W 103 42 13.55		148.67L
	10782.00	89.41	177.68	9382.11	5710.11	1755.78	-1752.88	123.13	0.85	175.98	1757.20	465099.80	735012.42	N 32 16 37.43 W 103 42 13.51		32.15L
	10878.00	89.76	177.46	9382.80	5710.80	1851.77	-1848.80	127.20	0.43	176.06	1853.17	465003.99	735016.49	N 32 16 36.48 W 103 42 13.47		95.95R
	10972.00	89.66	178.42	9383.28	5711.28	1945.77	-1942.73	130.58	1.03	176.15	1947.12	464909.96	735019.87	N 32 16 35.55 W 103 42 13.44		25.2L
	11067.00	90.17	178.18	9383.42	5711.42	2040.77	-2037.69	133.40	0.59	176.25	2042.05	464815.01	735022.69	N 32 16 34.61 W 103 42 13.41		96.88R
	11163.00	90.10	178.76	9383.19	5711.19	2136.77	-2133.66	135.96	0.61	176.35	2137.98	464719.05	735025.25	N 32 16 33.66 W 103 42 13.39		95.71R
	11257.00	90.00	179.76	9383.11	5711.11	2230.75	-2227.65	137.17	1.07	176.48	2231.87	464625.06	735026.44	N 32 16 32.73 W 103 42 13.38		81.23R
	11352.00	90.28	180.27	9382.88	5710.88	2325.71	-2322.65	137.15	0.61	176.62	2326.69	464530.07	735026.48	N 32 16 31.79 W 103 42 13.39		162.98R
	11447.00	89.79	180.42	9382.82	5710.82	2420.65	-2417.64	136.58	0.54	176.77	2421.50	464435.08	735025.87	N 32 16 30.85 W 103 42 13.40		45.58R
	11542.00	90.28	180.92	9382.76	5710.76	2515.58	-2512.64	135.47	0.74	176.91	2516.29	464340.09	735024.76	N 32 16 29.91 W 103 42 13.42		143.13R
	11637.00	90.00	181.13	9382.53	5710.53	2610.46	-2607.62	133.77	0.37	177.06	2611.05	464245.11	735023.06	N 32 16 28.87 W 103 42 13.45		66.14L
	11733.00	90.38	180.31	9382.21	5710.21	2706.37	-2703.61	132.56	0.94	177.19	2706.86	464149.12	735021.85	N 32 16 28.02 W 103 42 13.47		66.24L
	11827.00	90.31	179.67	9381.65	5709.65	2800.32	-2797.61	132.58	0.88	177.29	2800.75	464055.13	735021.87	N 32 16 27.08 W 103 42 13.47		170.13L
	11922.00	89.62	179.55	9381.70	5709.70	2895.30	-2892.61	133.22	0.74	177.36	2895.67	463960.14	735022.52	N 32 16 26.15 W 103 42 13.47		18.21R
	12017.00	90.38	178.80	9381.70	5709.70	2990.27	-2987.60	133.76	0.84	177.44	2990.60	463865.14	735023.06	N 32 16 25.21 W 103 42 13.47		135.4L
	12112.00	89.66	179.06	9381.67	5708.67	3065.25	-3062.60	134.68	1.06	177.50	3065.54	463770.15	735023.96	N 32 16 24.27 W 103 42 13.47		

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Closure Azimuth (°)	Closure (ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")	TF (°)
	12591.00	87.94	175.33	9390.29	5718.29	3563.79	-3560.51	162.57	1.36	177.39	3504.22	463292.26	735951.86	N 32 16 19.54	W 103 42 13.16	23.57L
	12665.00	89.04	174.85	9392.76	5720.76	3657.60	-3654.14	170.61	1.28	177.33	3658.12	463198.85	735959.90	N 32 16 18.62	W 103 42 13.00	39.91R
	12780.00	90.14	175.77	9393.44	5721.44	3752.47	-3748.81	178.38	1.51	177.28	3753.05	463103.97	735967.67	N 32 16 17.66	W 103 42 13.00	49.23R
	12875.00	90.89	176.64	9392.59	5720.59	3847.40	-3843.60	184.66	1.21	177.25	3848.03	463009.19	735973.95	N 32 16 16.74	W 103 42 12.94	67.74R
	12970.00	91.72	176.67	9390.43	5718.43	3942.37	-3938.49	188.55	2.31	177.26	3943.00	462914.31	735977.84	N 32 16 15.80	W 103 42 12.90	70.91R
	13065.00	92.10	179.77	9387.26	5715.26	4037.30	-4033.43	189.84	1.22	177.31	4037.89	462819.37	735979.13	N 32 16 14.86	W 103 42 12.89	11.83R
	13160.00	92.72	179.90	9383.26	5711.26	4132.16	-4128.34	190.12	0.67	177.36	4132.72	462724.46	735979.41	N 32 16 13.92	W 103 42 12.89	63.6R
	13255.00	93.24	180.95	9378.33	5706.33	4226.99	-4223.21	189.41	1.23	177.43	4227.45	462629.60	735978.70	N 32 16 12.98	W 103 42 12.91	20.6R
	13350.00	93.93	181.21	9372.30	5700.39	4321.69	-4318.00	187.62	0.78	177.51	4322.08	462534.81	735976.92	N 32 16 12.05	W 103 42 12.94	55.43R
	13445.00	94.89	182.61	9365.08	5693.08	4416.21	-4412.67	184.47	1.78	177.61	4416.52	462440.15	735973.76	N 32 16 11.11	W 103 42 12.96	106.11L
Final Survey	13540.00	94.82	182.35	9357.04	5685.04	4510.62	-4507.24	180.37	0.28	177.71	4510.85	462345.59	735969.66	N 32 16 10.17	W 103 42 13.03	57.42R
LTP	13574.00	94.96	182.57	9354.14	5682.14	4544.40	-4541.08	178.82	0.76	177.74	4544.61	462311.74	735968.21	N 32 16 9.94	W 103 42 13.05	HS
Pre to Bit	13620.00	94.96	182.57	9350.16	5678.16	4590.10	-4586.86	176.86	0.00	177.79	4590.27	462265.96	735966.15	N 32 16 9.39	W 103 42 13.06	HS
	13649.00	94.96	182.57	9347.66	5675.66	4618.91	-4615.73	175.57	0.00	177.82	4619.06	462237.10	735964.86	N 32 16 9.10	W 103 42 13.10	

Survey Type: Def Survey

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

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.000	20.000	Act Sins	30.000	30.000	SLB_MWD-STD-Depth Only	Original Borehole / Cimarex James 29 Federal #35H XEM +
	1	20.000	13574.000	Act Sins	30.000	30.000	SLB_MWD-STD	Original Borehole / Cimarex James 29 Federal #35H XEM +
	1	13574.000	13649.000	Act Sins	30.000	30.000	SLB_BLIND+TREND	Original Borehole / Cimarex James 29 Federal #35H XEM +