

Results of Directional Survey

API number:	30-025-41179		
OGRID:		Operator:	CIMAREX ENERGY CO. OF COLORADO
		Property:	EAST LUSK 15 FEDERAL COM # 3H

surface	ULSTR:	H	15	T 19S	R 32E
				1980 FNL	330 FEL

BH Loc	ULSTR:	E	15	T 19S	R 32E
13912	MD	9456.8	TVD	1808 FNL	323 FWL
				4957 FEL	

Top Perf/OH	ULSTR:	H	15	T 19S	R 32E
9540	MD	9463.5	TVD	2035 FNL	618 FEL

Bot Perf/OH	ULSTR:	E	15	T 19S	R 32E
13880	MD	9457.0	TVD	1810 FNL	355 FWL
				4925 FEL	

	MD	N/S	E/W	VD
	9518	-55.43	-270.18	9450.16
TOP PERFS/OH	9540	-55.33	-287.68	9463.48
	9550	-55.28	-295.64	9469.54
	13835	166.16	-4550.05	9457.31
BOT PERFS/OH	13880	169.80	-4594.90	9456.99
	13912	172.38	-4626.80	9456.76

NEXT TO LAST	13835	166.16	-4550.05	9457.31
LAST READING	13912	172.38	-4626.80	9456.76
TD	13912	172.38	-4626.80	9456.76

Surface Location	1980	FN	330	FE
Projected BHL	1808	FN	4957	FE
Location of				
Top Perfs/OH	2035	FN	618	FE
Bottom Perfs/OH	1810	FN	4925	FE

SUMMARY of Subsurface Locations

Surface Location	H-15-19S-32E	1980	FN	330	FE	Vert. Depth
Top Perfs/OH	H-15-19S-32E	2035	FN	618	FE	9463.48
Bottom Perfs/OH	E-15-19S-32E	1810	FN	4925	FE	9456.99
Projected TD	E-15-19S-32E	1808	FN	4957	FE	9456.76

JAN 09 2014

WELL		FIELD		STRUCTURE	
East Lusk 15 Federal Com #3H		NM Lea County		Cactus 148	
Magnetic Parameters		Surface Location		Miscellaneous	
Model	INCOM 2013	Lat	N 12.39 41.965	NAD83 New Mexico State Plane, Eastern Zone, US Feet	Spot
Mag Dec	7.500°	Long	W 103.64 47.533	Grid Cont.	0.5179
		Easting	721970.30 US	Scale Fact	0.999948614
				Plan	East Lusk 15 Federal Com #3H TVD Ref. RKB/56558 above MSL
				Rev	Rev: TP-30-Jun-13
				Svy Date	October 17, 2012

Legend

Command: Galt: Loan 15 Federal Govt P34 Lease

Command: Galt: Loan 15 Federal Govt P34 320 716

Command: Galt: Loan 15 Federal Govt P34 320 716 30 Jun 13

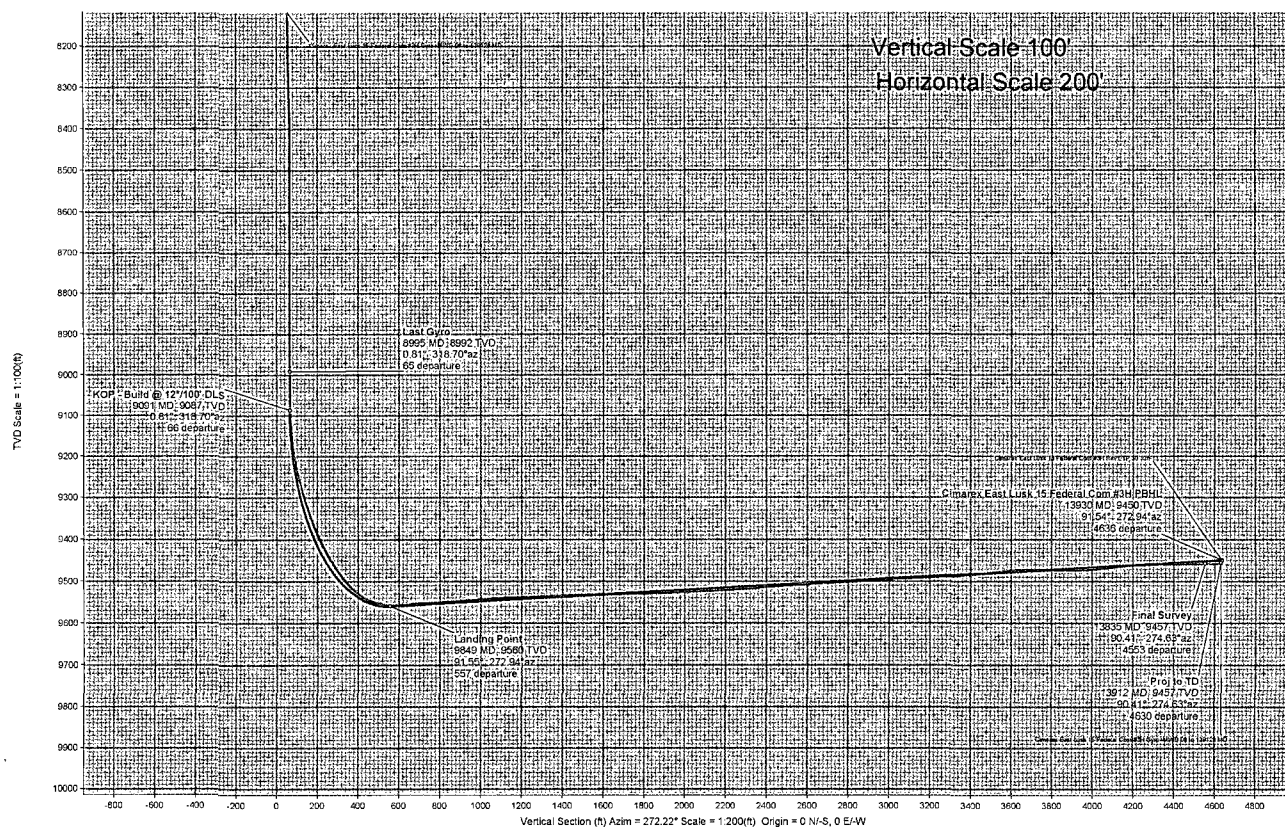
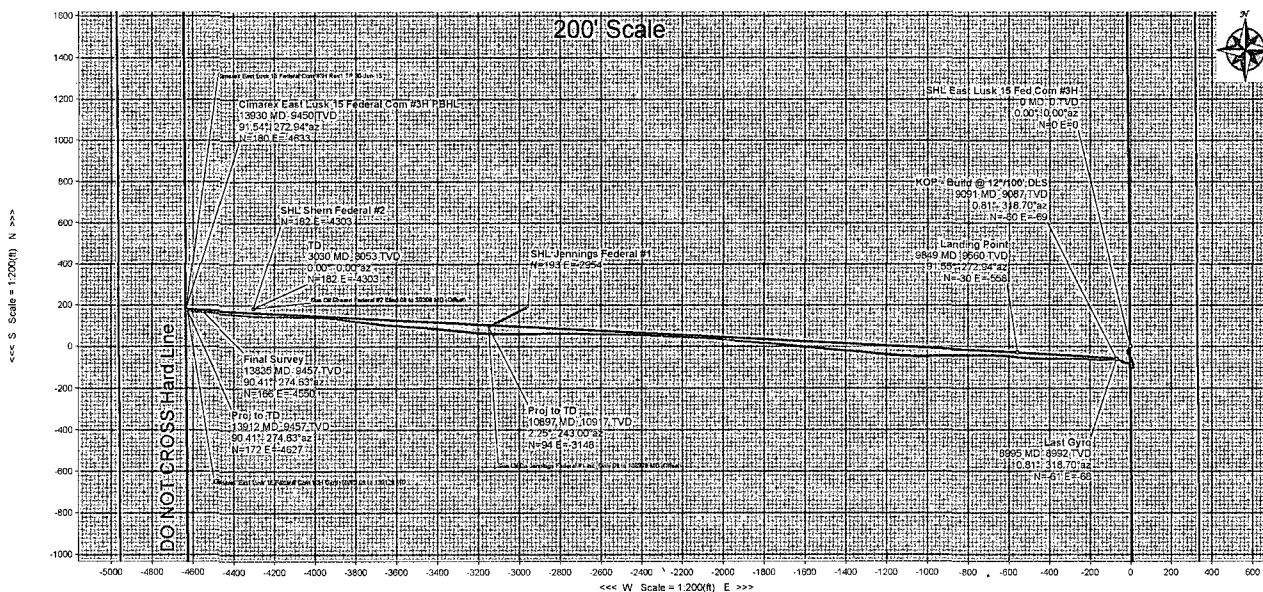
Look the Shown Federal P34 320 716 30 Jun 13

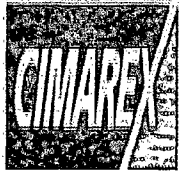
Look the Shown Federal P34 320 716 30 Jun 13

Command: Galt: Loan 15 Federal Govt P34 320 716 30 Jun 13

Command: Galt: Loan 15 Federal Govt P34 320 716 30 Jun 13

Grid North
Tot Corr (M->G 7.2498°)
Mag Dec (7.566°)
Grid Conv (0.317°)





HOBBS OCD

JAN - 2 2014

RECEIVED

Cimarex East Lusk 15 Federal Com #3H Gyro+MWD 0ft to 13912ft MD



(Def Survey)

Report Date: July 09, 2013 - 08:19 AM
Client: Cimarex
Field: NM Lea County (NAD 83)
Structure / Slot: Cactus 148 / Cimarex East Lusk 15 Federal Com #3H
Well: Cimarex East Lusk 15 Federal Com #3H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Cimarex East Lusk 15 Federal Com #3H Gyro+MWD 0ft to 13912ft MD
Survey Date: June 30, 2013
Tort / AHD / DDI / ERD Ratio: 182.016 ° / 4783.244 ft / 6.103 / 0.500
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 39' 41.96524", W 103° 44' 47.53334"
Location Grid N/E Y/X: N 604940.900 ftUS, E 721920.300 ftUS
CRS Grid Convergence Angle: 0.3167 °
Grid Scale Factor: 0.99994644

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 272.220 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3656.000 ft above MSL
Seabed / Ground Elevation: 3631.000 ft above MSL
Magnetic Declination: 7.558 °
Total Gravity Field Strength: 998.5012mgn (9.80665 Based)
Total Magnetic Field Strength: 48624.321 nT
Magnetic Dip Angle: 60.471 °
Declination Date: June 30, 2013
Magnetic Declination Model: BGGM 2012
North Reference: Grid North
Grid Convergence Used: 0.3167 °
Total Corr Mag North->Grid North: 7.2413 °
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 East Lusk 15 Fed Com #3H	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	177.69M
	100.00	0.19	177.69	100.00	-0.01	-0.17	0.01	0.17	177.69	0.19	226.56M
	200.00	0.38	226.56	200.00	0.21	-0.56	-0.23	0.60	202.12	0.29	256.76M
	300.00	0.32	256.76	300.00	0.71	-0.85	-0.74	1.13	221.00	0.19	253.78M
	400.00	0.34	253.78	400.00	1.26	-1.00	-1.30	1.64	232.41	0.03	240.3M
	500.00	0.36	240.30	499.99	1.81	-1.24	-1.85	2.23	236.30	0.08	220.8M
	600.00	0.26	220.80	599.99	2.21	-1.56	-2.28	2.76	235.50	0.14	210.67M
	700.00	0.25	210.67	699.99	2.46	-1.92	-2.54	3.18	232.81	0.05	190.77M
	800.00	0.57	190.77	799.99	2.64	-2.60	-2.74	3.78	226.50	0.35	202.23M
	900.00	0.81	202.23	899.98	2.95	-3.74	-3.10	4.86	219.63	0.28	207.39M
	1000.00	0.90	207.39	999.97	3.53	-5.09	-3.73	6.31	216.20	0.12	216.24M
	1040.40	0.85	216.24	1040.37	3.83	-5.62	-4.05	6.93	215.80	0.36	219.59M
	1135.50	0.64	219.59	1135.46	4.55	-6.60	-4.81	8.16	216.08	0.23	220.32M
	1230.60	0.67	220.32	1230.55	5.21	-7.43	-5.51	9.25	216.54	0.03	215.32M
	1325.70	0.77	215.32	1325.64	5.91	-8.37	-6.23	10.44	216.67	0.12	211.65M
	1420.80	0.94	211.65	1420.73	6.64	-9.56	-7.01	11.86	216.26	0.19	212.23M
	1515.80	0.98	212.23	1515.72	7.43	-10.91	-7.86	13.44	215.75	0.04	210.18M

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)	TF (°)
	1610.90	1.18	210.18	1610.80	8.29	-12.45	-8.78	15.23	215.21	0.21	207.14M
	1706.00	1.37	207.14	1705.88	9.23	-14.30	-9.79	17.33	214.40	0.21	205.71M
	1801.10	1.39	205.71	1800.95	10.17	-16.35	-10.81	19.60	213.47	0.04	206.43M
	1896.20	1.45	206.43	1896.02	11.12	-18.47	-11.85	21.94	212.68	0.07	202.37M
	1991.30	1.40	202.37	1991.09	12.02	-20.62	-12.83	24.29	211.88	0.12	198.54M
	2086.40	1.35	198.54	2086.17	12.73	-22.76	-13.62	26.53	210.90	0.11	191.27M
	2181.50	1.28	191.27	2181.24	13.21	-24.86	-14.19	28.63	209.71	0.19	183.51M
	2276.60	1.11	183.51	2276.32	13.40	-26.82	-14.45	30.47	208.31	0.25	169.83M
	2371.70	1.04	169.83	2371.40	13.24	-28.59	-14.36	31.99	206.66	0.28	162.25M
	2466.70	1.10	162.25	2466.39	12.74	-30.31	-13.92	33.36	204.67	0.16	141.11M
	2561.80	1.42	141.11	2561.46	11.65	-32.10	-12.91	34.59	201.91	0.59	139.02M
	2656.90	1.59	139.02	2656.53	9.98	-34.01	-11.30	35.84	198.38	0.19	137.43M
	2752.00	1.90	137.43	2751.59	7.96	-36.17	-9.37	37.36	194.52	0.33	138.96M
	2847.10	2.23	138.96	2846.63	5.58	-38.72	-7.09	39.37	190.37	0.35	143.97M
	2942.20	2.35	143.97	2941.65	3.11	-41.70	-4.73	41.96	186.47	0.25	146.31M
	3037.30	2.47	146.31	3036.67	0.70	-44.98	-2.44	45.04	183.11	0.16	146.11M
	3132.40	1.90	146.11	3131.70	-1.43	-47.99	-0.43	47.99	180.51	0.60	153.92M
	3227.50	1.04	153.92	3226.76	-2.77	-50.08	0.83	50.08	179.05	0.93	154.64M
	3322.60	1.12	154.64	3321.85	-3.61	-51.69	1.61	51.72	178.22	0.09	152.66M
	3417.60	1.13	152.66	3416.83	-4.50	-53.36	2.44	53.42	177.39	0.04	159.75M
	3512.70	1.14	159.75	3511.91	-5.33	-55.08	3.19	55.17	176.68	0.15	159.42M
	3607.80	1.31	159.42	3606.99	-6.11	-56.99	3.90	57.12	176.08	0.18	159.19M
	3702.90	1.33	159.19	3702.06	-6.96	-59.04	4.68	59.22	175.47	0.02	160.83M
	3798.00	1.30	160.83	3797.14	-7.79	-61.09	5.42	61.33	174.93	0.05	156.3M
	3893.10	1.32	156.30	3892.21	-8.66	-63.11	6.22	63.41	174.37	0.11	155.01M
	3988.20	1.25	155.01	3987.29	-9.61	-65.05	7.10	65.44	173.77	0.08	154.36M
	4083.30	1.31	154.36	4082.37	-10.59	-66.97	8.01	67.45	173.18	0.06	164.01M
	4178.40	1.41	164.01	4177.44	-11.47	-69.08	8.80	69.64	172.74	0.26	159.31M
	4273.50	1.17	159.31	4272.51	-12.21	-71.11	9.46	71.74	172.42	0.28	166.72M
	4368.50	1.29	166.72	4367.49	-12.87	-73.06	10.05	73.75	172.17	0.21	176.62M
	4463.60	1.37	176.62	4462.57	-13.27	-75.24	10.37	75.95	172.16	0.26	170.44M
	4558.70	1.23	170.44	4557.64	-13.59	-77.38	10.60	78.10	172.20	0.21	173.06M
	4653.80	1.12	173.06	4652.72	-13.95	-79.31	10.88	80.05	172.19	0.13	163.7M
	4748.90	1.20	163.70	4747.80	-14.41	-81.18	11.28	81.96	172.09	0.22	158.64M
	4844.00	1.58	158.64	4842.87	-15.25	-83.36	12.03	84.23	171.79	0.42	164.13M
	4939.10	1.74	164.13	4937.94	-16.23	-85.97	12.90	86.93	171.46	0.24	167.65M
	5034.20	1.91	167.65	5032.99	-17.07	-88.91	13.64	89.95	171.28	0.21	172.23M
	5129.30	1.67	172.23	5128.04	-17.71	-91.83	14.17	92.92	171.23	0.29	177.92M
	5224.40	1.56	177.92	5223.10	-18.05	-94.50	14.40	95.59	171.34	0.20	189.91M
	5319.40	1.60	189.91	5318.07	-17.97	-97.09	14.22	98.13	171.67	0.35	187.94M
	5414.50	1.60	187.94	5413.13	-17.66	-99.72	13.81	100.67	172.12	0.06	186.43M
	5509.60	0.97	186.43	5508.21	-17.47	-101.83	13.53	102.73	172.43	0.66	280.42M
	5604.70	0.48	280.42	5603.30	-17.01	-102.56	13.05	103.39	172.75	1.17	319.09M
	5699.80	1.63	319.09	5698.38	-15.69	-101.47	11.77	102.15	173.38	1.36	323.86M

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)	TF (°)
	5794.90	2.10	323.86	5793.43	-13.69	-99.04	9.86	99.53	174.31	0.52	328M
	5890.00	2.32	328.00	5888.46	-11.52	-96.00	7.81	96.31	175.35	0.29	329.97M
	5985.10	2.37	329.97	5983.48	-9.39	-92.66	5.81	92.84	176.41	0.10	319.69M
	6080.20	2.19	319.69	6078.51	-7.12	-89.57	3.65	89.65	177.67	0.47	310.42M
	6175.30	1.86	310.42	6173.55	-4.67	-87.19	1.30	87.20	179.15	0.49	297.34M
	6270.30	1.65	297.34	6268.50	-2.22	-85.56	-1.09	85.57	180.73	0.47	300.74M
	6365.40	1.53	300.74	6363.57	0.13	-84.28	-3.40	84.35	182.31	0.16	299.05M
	6460.50	1.50	299.05	6458.63	2.36	-83.03	-5.58	83.22	183.84	0.06	302.06M
	6555.60	1.50	302.06	6553.70	4.55	-81.76	-7.72	82.13	185.39	0.08	299.04M
	6650.70	1.47	299.04	6648.77	6.72	-80.51	-9.84	81.11	186.97	0.09	290.97M
	6745.80	1.44	290.97	6743.84	8.94	-79.49	-12.02	80.40	188.60	0.22	289.87M
	6840.90	1.36	289.87	6838.91	11.14	-78.68	-14.20	79.95	190.23	0.09	277.85M
	6936.00	1.15	277.85	6933.99	13.17	-78.17	-16.21	79.83	191.71	0.35	273.06M
	7031.10	1.10	273.06	7029.07	15.03	-77.99	-18.06	80.05	193.04	0.11	276.11M
	7126.20	1.08	276.11	7124.15	16.84	-77.84	-19.87	80.34	194.32	0.06	263.84M
	7221.20	1.43	263.84	7219.13	18.90	-77.87	-21.94	80.91	195.73	0.46	275.75M
	7316.30	1.85	275.75	7314.19	21.61	-77.85	-24.64	81.66	197.57	0.57	290.36M
	7411.40	2.56	290.36	7409.22	25.16	-76.96	-28.16	81.95	200.10	0.95	304M
	7506.50	3.05	304.00	7504.21	29.33	-74.80	-32.25	81.46	203.32	0.87	295.42M
	7601.60	2.97	295.42	7599.18	33.74	-72.33	-36.57	81.05	206.82	0.48	293.99M
	7696.70	2.68	293.99	7694.16	38.07	-70.37	-40.83	81.36	210.12	0.31	293.33M
	7791.80	1.79	293.33	7789.19	41.52	-68.88	-44.23	81.85	212.70	0.94	289.1M
	7886.90	1.80	289.10	7884.24	44.34	-67.80	-47.00	82.50	214.73	0.14	294.08M
	7982.00	2.09	294.08	7979.29	47.38	-66.60	-49.99	83.28	216.89	0.35	283.47M
	8077.10	2.41	283.47	8074.31	50.95	-65.43	-53.52	84.53	219.28	0.55	266.02M
	8172.10	1.96	266.02	8169.24	54.52	-65.08	-57.09	86.57	221.26	0.84	262.31M
	8267.20	2.86	262.31	8264.26	58.48	-65.51	-61.06	89.55	222.99	0.96	268.74M
	8362.30	2.46	268.74	8359.26	62.85	-65.87	-65.45	92.86	224.82	0.52	59.46M
	8457.40	0.55	59.46	8454.33	64.50	-65.68	-67.10	93.90	225.61	3.10	36.39M
	8552.50	0.47	36.39	8549.43	63.90	-65.14	-66.47	93.07	225.58	0.23	3.24M
	8647.60	0.54	3.24	8644.52	63.67	-64.38	-66.22	92.35	225.81	0.31	342.44M
	8742.70	0.57	342.44	8739.62	63.83	-63.48	-66.33	91.81	226.26	0.21	338.28M
	8837.80	0.63	338.28	8834.72	64.20	-62.54	-66.67	91.41	226.83	0.08	326.82M
	8932.90	0.78	326.82	8929.81	64.79	-61.51	-67.22	91.12	227.54	0.22	318.7M
Last Gyro	8994.90	0.81	318.70	8991.80	65.33	-60.83	-67.74	91.04	228.08	0.19	326.39M
	9023.00	0.83	326.39	9019.90	65.59	-60.51	-67.98	91.01	228.33	0.40	314.69M
	9073.00	1.13	314.69	9069.89	66.16	-59.86	-68.53	91.00	228.86	0.72	275.01M
	9105.00	4.15	275.01	9101.86	67.55	-59.54	-69.91	91.83	229.58	10.50	266.73M
	9137.00	8.45	266.73	9133.66	71.05	-59.57	-73.41	94.54	230.94	13.70	1.59R
	9169.00	13.00	267.29	9165.09	76.98	-59.88	-79.36	99.42	232.97	14.22	1.06R
	9200.00	17.81	267.58	9194.97	85.19	-60.24	-87.58	106.30	235.48	15.52	3.16L
	9232.00	22.53	266.90	9225.00	96.17	-60.78	-98.60	115.83	238.35	14.77	3.28L
	9264.00	26.87	266.35	9254.06	109.48	-61.57	-111.95	127.76	241.19	13.58	2.78R
	9296.00	30.19	266.67	9282.17	124.68	-62.50	-127.20	141.73	243.83	10.39	27.89R

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)	TF (°)
Survey 2-Jul-13	9327.00	33.01	269.38	9308.57	140.88	-63.05	-143.43	156.67	246.27	10.18	30.19R
	9359.00	36.12	272.41	9334.92	159.02	-62.74	-161.57	173.33	248.78	11.10	21.63R
	9391.00	39.06	274.25	9360.28	178.53	-61.60	-181.06	191.25	251.21	9.83	2.73R
	9423.00	41.42	274.42	9384.70	199.19	-60.04	-201.67	210.41	253.42	7.38	12.79R
	9454.00	44.58	275.44	9407.37	220.31	-58.21	-222.73	230.21	255.35	10.44	20.8L
	9486.00	48.00	273.70	9429.48	243.41	-56.38	-245.78	252.17	257.08	11.39	32.96L
	9518.00	51.49	270.84	9450.16	267.83	-55.43	-270.18	275.80	258.41	12.86	18.33L
	9550.00	53.96	269.83	9469.54	293.27	-55.28	-295.64	300.76	259.41	8.12	21.28L
	9582.00	55.92	268.91	9487.92	319.43	-55.58	-321.83	326.59	260.20	6.56	3.85L
	9613.00	60.45	268.56	9504.26	345.72	-56.16	-348.16	352.66	260.84	14.64	8.77R
Survey 3-Jul-13	9645.00	64.98	269.33	9518.92	374.10	-56.68	-376.58	380.82	261.44	14.32	5.35R
	9676.00	69.90	269.82	9530.81	402.69	-56.89	-405.20	409.18	262.01	15.94	6.32R
	9708.00	74.70	270.37	9540.54	433.15	-56.84	-435.68	439.37	262.57	15.09	12.69R
	9740.00	79.11	271.38	9547.79	464.30	-56.36	-466.83	470.22	263.12	14.12	25.74R
	9772.00	82.55	273.05	9552.89	495.88	-55.13	-498.39	501.44	263.69	11.92	18.98R
	9804.00	86.15	274.29	9556.04	527.71	-53.10	-530.17	532.82	264.28	11.89	5.49R
	9835.00	89.69	274.63	9557.16	558.66	-50.69	-561.05	563.33	264.84	11.47	15.85R
	9867.00	91.31	275.09	9556.88	590.63	-47.98	-592.93	594.87	265.37	5.26	75.25L
	9899.00	91.41	274.71	9556.12	622.58	-45.24	-624.81	626.44	265.86	1.23	84.68L
	9955.00	91.72	271.35	9554.59	678.55	-42.28	-680.70	682.01	266.45	6.02	87.48L
Survey 5-Jul-13	10049.00	91.79	269.74	9551.72	772.46	-41.39	-774.65	775.75	266.94	1.71	76.65L
	10144.00	92.06	268.60	9548.52	867.27	-42.77	-869.58	870.63	267.18	1.23	81.51L
	10239.00	92.13	268.13	9545.05	961.99	-45.48	-964.48	965.55	267.30	0.50	90.58R
	10335.00	92.10	270.87	9541.51	1057.81	-46.31	-1060.40	1061.41	267.50	2.85	106.67R
	10429.00	91.13	274.10	9538.86	1151.76	-42.24	-1154.26	1155.03	267.90	3.59	98.97R
	10525.00	90.79	276.25	9537.25	1247.61	-33.58	-1249.85	1250.30	268.46	2.27	93.36L
	10619.00	90.69	274.55	9536.04	1341.46	-24.74	-1343.42	1343.65	268.95	1.81	41.57R
	10714.00	91.31	275.10	9534.38	1436.34	-16.75	-1438.07	1438.17	269.33	0.87	123.69R
	10810.00	91.13	275.37	9532.33	1532.19	-7.99	-1533.65	1533.67	269.70	0.34	136.59L
	10904.00	90.76	275.02	9530.78	1626.05	0.52	-1627.25	1627.25	270.02	0.54	99.9R
Survey 5-Jul-13	11000.00	90.65	275.65	9529.60	1721.90	9.45	-1722.83	1722.85	270.31	0.67	90L
	11095.00	90.65	274.84	9528.52	1816.76	18.13	-1817.42	1817.51	270.57	0.85	60.8R
	11191.00	91.03	275.52	9527.12	1912.62	26.80	-1913.02	1913.21	270.80	0.81	74.92L
	11286.00	91.24	274.74	9525.23	2007.48	35.29	-2007.62	2007.93	271.01	0.85	97.16L
	11381.00	91.07	273.39	9523.32	2102.41	42.02	-2102.36	2102.78	271.15	1.43	48.07L
	11475.00	91.86	272.51	9520.92	2196.37	46.86	-2196.20	2196.70	271.22	1.26	13.23L
	11571.00	92.20	272.43	9517.52	2292.31	50.99	-2292.05	2292.62	271.27	0.36	113.97L
	11666.00	91.96	271.89	9514.07	2387.24	54.57	-2386.92	2387.54	271.31	0.62	79.37L
	11761.00	91.99	271.73	9510.79	2482.18	57.57	-2481.82	2482.48	271.33	0.17	78.18L
	11856.00	92.13	271.06	9507.38	2577.11	59.88	-2576.73	2577.42	271.33	0.72	155.86L
Survey 5-Jul-13	11951.00	91.55	270.80	9504.33	2672.04	61.42	-2671.66	2672.37	271.32	0.67	119.58L
	12046.00	91.34	270.43	9501.93	2766.97	62.44	-2766.63	2767.33	271.29	0.45	78.46L
	12140.00	91.55	269.40	9499.56	2860.86	62.30	-2860.60	2861.28	271.25	1.12	51.02L
	12235.00	91.93	268.93	9496.68	2955.68	60.92	-2955.54	2956.17	271.18	0.64	105.61R
	12426.00	91.07	272.00	9491.68	3146.51	62.47	-3146.45	3147.07	271.14	1.67	82.53R

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)	TF (°)
Survey 7-Jul-13	12522.00	91.62	276.22	9489.42	3242.40	69.35	-3242.15	3242.89	271.23	4.43	53.26L
	12617.00	92.06	275.63	9486.37	3337.16	79.15	-3336.59	3337.53	271.36	0.77	61.81L
	12712.00	92.44	274.92	9482.64	3431.95	87.87	-3431.12	3432.24	271.47	0.85	64.13L
	12807.00	92.89	273.99	9478.23	3526.77	95.25	-3525.73	3527.01	271.55	1.09	144.63R
	12902.00	92.51	274.26	9473.75	3621.61	102.07	-3620.38	3621.81	271.61	0.49	132.43R
	12998.00	90.03	276.97	9471.62	3717.40	111.46	-3715.88	3717.55	271.72	3.83	125.28R
	13092.00	89.28	278.03	9472.19	3811.00	123.73	-3809.07	3811.08	271.86	1.38	66.81L
	13187.00	90.03	276.28	9472.76	3905.64	135.56	-3903.32	3905.68	271.99	2.00	59.78L
	13282.00	92.20	272.55	9470.91	4000.53	142.87	-3998.00	4000.55	272.05	4.54	59.32L
	13377.00	93.20	270.86	9466.44	4095.42	145.70	-4092.85	4095.44	272.04	2.07	136.63L
Final Survey	13472.00	92.65	270.34	9461.59	4190.26	146.69	-4187.72	4190.29	272.01	0.80	131.44R
	13567.00	91.06	272.14	9458.51	4285.19	148.75	-4282.64	4285.22	271.99	2.53	125.72R
	13662.00	89.83	273.85	9457.77	4380.17	153.71	-4377.50	4380.20	272.01	2.22	27.76R
	13756.00	90.21	274.05	9457.74	4474.13	160.18	-4471.28	4474.15	272.05	0.46	70.97R
	13835.00	90.41	274.63	9457.31	4553.07	166.16	-4550.05	4553.08	272.09	0.78	HS
	Proj to TD	13912.00	90.41	274.63	9456.76	4630.00	172.38	-4626.80	4630.01	272.13	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	25.000	Act Stns	30.000	30.000	SLB_NSG+MSHOT-Depth Only	Original Borehole / Cimarex East Lusk 15 Federal Com #3H Gyro+MWD 0ft to 13912ft MD
	25.000	8932.900	Act Stns	30.000	30.000	SLB_NSG+MSHOT	Original Borehole / Cimarex East Lusk 15 Federal Com #3H
	8932.900	13835.000	Act Stns	30.000	30.000	SLB_MWD-STD	Original Borehole / Cimarex East Lusk 15 Federal Com #3H
	13835.000	13912.000	Act Stns	30.000	30.000	SLB_BLIND+TREND	Original Borehole / Cimarex East Lusk 15 Federal Com #3H