

Borehole:	Original Borehole	Well:	Cotton Draw 9L Federal #4H	Field:	NM Lea County (NAD 83)	Structure:	Cimarex Cotton Draw 9L Federal #4H
Gravity & Magnetic Parameters	Model: HDGM 2017	Dip: 59.839°	Date: 11-Sep-2017	Surface Location	NAED3 New Mexico State Plane, Eastern Zone, US Feet	Miscellaneous	Slot: Cotton Draw 9L Federal #4H
MagDec: 6.848°	FB: 48007.373mT	Gravity FS: 998.425mgm (9.80665 Based)		Lat: N 32 5 20.08	Northings: 414873.04RUS	Grid Conv: 0.3443°	TVD Ref: RKB(3455.5ft above MSL)
				Lon: W 103 41 9.96	Easting: 741671.23RUS	Scale Fact: 0.99995506	Plan: Cimarex Cotton Draw 9L Federal #4H, MWD Final

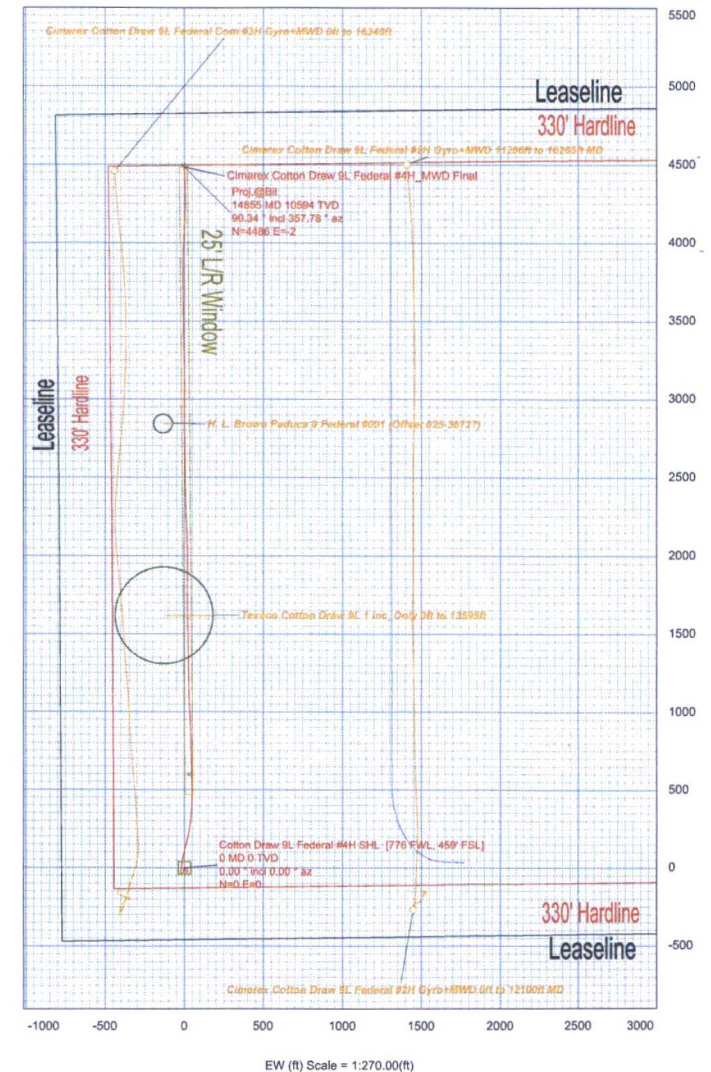
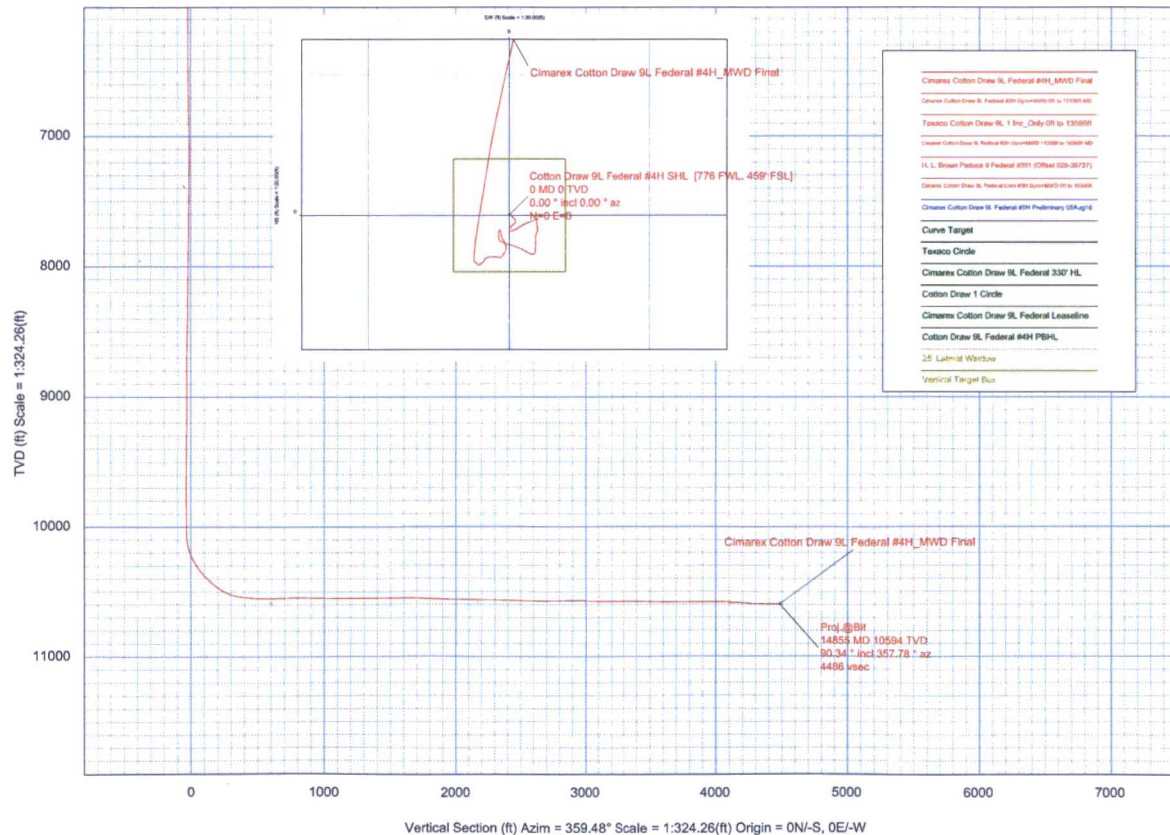
Critical Points								
Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
Cotton Draw 9L Federal #4H SHL [776 FWL, 459' FSL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Proj.@Bit	14855.00	90.34	357.78	10594.50	4486.03	4486.20	-1.75	0.00



Grid
True
Mag

Grid North
Tot Corr (M-G 6.504°)
Mag Dec (6.848°)
Grid Conv (0.344°)

CONTROLLED	
Plan ref	Cimarex Cotton Draw 9L Federal #4H, MWD Final
Drawing ref	
Copy number	of 3
Date	09-Dec-2017
1. Draw	
2. Draw	
3. Draw	
4. Draw	
Copy number	for



Cimarex Cotton Draw 9L Federal #4H 0ft-Update Survey Report

(Def Survey)

Report Date: October 03, 2017 - 09:31 AM
Client: Cimarex
Field: NM Lea County (NAD 83)
Structure / Slot: Cimarex Cotton Draw 9L Federal #4H / Cotton Draw 9L Federal #4H
Well: Cotton Draw 9L Federal #4H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Cotton Draw 9L Federal #4H MWD 0ft-Update
Survey Date: September 11, 2017
Tort / AHD / DDI / ERD Ratio: 188.923 ° / 4670.347 ft / 6.092 / 0.441
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 8' 20.07576", W 103° 41' 9.95613"
Location Grid N/E Y/X: N 414873.040 ftUS, E 741671.230 ftUS
CRS Grid Convergence Angle: 0.3443 °
Grid Scale Factor: 0.99995506
Version / Patch: 2.10.254.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 359.480 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3455.500 ft above MSL
Seabed / Ground Elevation: 3431.500 ft above MSL
Magnetic Declination: 6.848 °
Total Gravity Field Strength: 998.4304mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 48007.373 nT
Magnetic Dip Angle: 59.839 °
Declination Date: September 11, 2017
Magnetic Declination Model: HDGM 2017
North Reference: Grid North
Grid Convergence Used: 0.3443 °
Total Corr Mag North->Grid North: 6.5036 °
Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (N/S ft)	EW (E/W ft)	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)	TF (°)
Cotton Draw 9L Federal #4H SHL [776 FWL, 459' FSL]	0.00	0.00	0.00	0.00	0.00	N 0.00	E 0.00	0.00	0.00	N/A	37.7M
	121.00	0.49	37.70	121.00	0.41	N 0.41	E 0.32	0.52	37.70	0.40	136.98M
	219.00	0.80	136.98	218.99	0.23	N 0.24	E 1.04	1.07	76.96	1.02	138.79M
	310.00	0.88	138.79	309.98	-0.77	S 0.75	E 1.93	2.07	111.19	0.09	126.41M
	401.00	0.71	126.41	400.98	-1.64	S 1.61	E 2.85	3.27	119.48	0.26	142.89M
	491.00	0.49	142.89	490.97	-2.28	S 2.25	E 3.53	4.18	122.50	0.31	136.1M
	582.00	0.40	136.10	581.97	-2.82	S 2.79	E 3.98	4.86	124.98	0.11	163.6M
	673.00	0.49	163.60	672.97	-3.43	S 3.39	E 4.31	5.49	128.16	0.25	214.19M
	854.00	0.22	214.19	853.96	-4.46	S 4.42	E 4.34	6.19	135.54	0.22	185.41M
	945.00	0.40	185.41	944.96	-4.92	S 4.88	E 4.21	6.44	139.22	0.26	211.02M
	1039.00	0.49	211.02	1038.96	-5.59	S 5.55	E 3.97	6.82	144.42	0.23	237.81M
	1134.00	0.49	237.81	1133.95	-6.15	S 6.12	E 3.42	7.01	150.80	0.24	239.09M
	1228.00	0.49	239.09	1227.95	-6.56	S 6.54	E 2.73	7.08	157.31	0.01	214.59M
	1323.00	0.49	214.59	1322.95	-7.10	S 7.08	E 2.15	7.40	163.08	0.22	221.99M
	1417.00	0.62	221.99	1416.94	-7.80	S 7.79	E 1.58	7.95	168.50	0.16	213.7M
	1511.00	0.49	213.70	1510.94	-8.51	S 8.50	E 1.02	8.56	173.15	0.16	229M
	1605.00	0.31	229.00	1604.94	-9.01	S 9.00	E 0.61	9.02	176.14	0.22	225.51M
	1700.00	0.31	225.51	1699.94	-9.35	S 9.35	E 0.23	9.35	178.59	0.02	202.82M

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (N/S ft)	EW (E/W ft)	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)	TF (°)
	1794.00	0.40	202.82	1793.93	-9.83	S 9.83	W 0.08	9.83	180.46	0.18	179.91M
	1889.00	0.31	179.91	1888.93	-10.39	S 10.39	W 0.21	10.40	181.14	0.18	140.82M
	1983.00	0.09	140.82	1982.93	-10.70	S 10.71	W 0.16	10.71	180.86	0.26	140.51M
	2077.00	0.31	140.51	2076.93	-10.96	S 10.96	E 0.05	10.96	179.75	0.23	93.31M
	2172.00	0.31	93.31	2171.93	-11.18	S 11.17	E 0.47	11.18	177.60	0.26	90.32M
	2266.00	0.49	90.32	2265.93	-11.20	S 11.19	E 1.12	11.24	174.26	0.19	70.79M
	2360.00	1.02	70.79	2359.92	-10.94	S 10.92	E 2.32	11.16	168.02	0.62	61.5M
	2455.00	1.19	61.50	2454.90	-10.20	S 10.17	E 3.98	10.92	158.62	0.26	60.06M
	2549.00	1.50	60.06	2548.88	-9.14	S 9.09	E 5.91	10.84	146.98	0.33	57.88M
	2644.00	1.81	57.88	2643.84	-7.74	S 7.67	E 8.25	11.27	132.90	0.33	63.61M
	2738.00	1.41	63.61	2737.80	-6.46	S 6.37	E 10.55	12.32	121.11	0.46	67.71M
	2832.00	1.10	67.71	2831.78	-5.62	S 5.51	E 12.42	13.58	113.92	0.34	74.41M
	2927.00	1.19	74.41	2926.76	-5.03	S 4.90	E 14.21	15.03	109.02	0.17	67.89M
	3021.00	1.19	67.89	3020.74	-4.41	S 4.27	E 16.06	16.61	104.89	0.14	67.8M
	3115.00	1.41	67.80	3114.71	-3.63	S 3.46	E 18.03	18.36	100.87	0.23	73.22M
	3209.00	0.62	73.22	3208.70	-3.06	S 2.88	E 19.59	19.80	98.36	0.85	323.7M
	3304.00	0.09	323.70	3303.69	-2.85	S 2.67	E 20.04	20.21	97.59	0.69	53.39M
	3398.00	0.31	53.39	3397.69	-2.64	S 2.46	E 20.20	20.35	96.95	0.34	118.39M
	3492.00	0.09	118.39	3491.69	-2.53	S 2.34	E 20.47	20.60	96.53	0.30	206.21M
	3587.00	0.71	206.21	3586.69	-3.09	S 2.91	E 20.27	20.48	98.16	0.75	200M
	3681.00	0.88	200.00	3680.68	-4.29	S 4.11	E 19.77	20.19	101.74	0.20	176.38M
	3775.00	1.10	176.38	3774.67	-5.86	S 5.69	E 19.58	20.39	106.20	0.49	165.19M
	3870.00	1.59	165.19	3869.64	-8.05	S 7.87	E 19.97	21.47	111.51	0.58	181.71M
	3964.00	1.41	181.71	3963.61	-10.47	S 10.29	E 20.27	22.73	116.91	0.50	216.79M
	4059.00	1.10	216.79	4058.59	-12.36	S 12.19	E 19.69	23.16	121.75	0.85	191.58M
	4153.00	1.19	191.58	4152.57	-14.04	S 13.87	E 18.95	23.48	126.19	0.54	180.21M
	4247.00	1.50	180.21	4246.54	-16.22	S 16.05	E 18.75	24.69	130.56	0.43	178.41M
	4342.00	1.81	178.41	4341.51	-18.96	S 18.80	E 18.79	26.58	135.01	0.33	182.99M
	4418.00	1.68	182.99	4417.47	-21.28	S 21.11	E 18.77	28.24	138.36	0.25	180.79M
	4519.00	1.59	180.79	4518.43	-24.16	S 23.99	E 18.67	30.40	142.11	0.11	194.4M
	4614.00	1.02	194.40	4613.40	-26.29	S 26.12	E 18.44	31.98	144.78	0.68	234.9M
	4708.00	0.80	234.90	4707.39	-27.47	S 27.31	E 17.70	32.54	147.06	0.71	281M
	4803.00	1.10	281.00	4802.38	-27.67	S 27.52	E 16.26	31.96	149.43	0.84	294.3M
	4897.00	1.19	294.30	4896.36	-27.08	S 26.95	E 14.48	30.59	151.74	0.30	302.59M
	4992.00	1.10	302.59	4991.34	-26.16	S 26.05	E 12.82	29.03	153.80	0.20	292.1M
	5086.00	0.80	292.10	5085.33	-25.42	S 25.32	E 11.45	27.78	155.67	0.37	297.61M
	5180.00	0.80	297.61	5179.32	-24.86	S 24.76	E 10.26	26.80	157.50	0.08	305.5M
	5275.00	0.80	305.50	5274.31	-24.15	S 24.07	E 9.13	25.74	159.23	0.12	288.09M
	5369.00	0.71	288.09	5368.30	-23.58	S 23.51	E 8.04	24.85	161.12	0.26	293.11M
	5464.00	0.71	293.11	5463.30	-23.16	S 23.10	E 6.94	24.12	163.27	0.07	295.58M
	5558.00	0.80	295.58	5557.29	-22.64	S 22.58	E 5.81	23.32	165.56	0.10	292.41M
	5653.00	0.88	292.41	5652.28	-22.06	S 22.02	E 4.54	22.48	168.35	0.10	293.91M
	5747.00	0.71	293.91	5746.27	-21.54	S 21.51	E 3.34	21.77	171.17	0.18	280.11M
	5841.00	0.80	280.11	5840.26	-21.18	S 21.16	E 2.16	21.27	174.16	0.22	286.42M
	5936.00	0.88	286.42	5935.25	-20.84	S 20.83	E 0.81	20.85	177.77	0.13	289.59M
	6030.00	0.71	289.59	6029.24	-20.43	S 20.44	W 0.43	20.44	181.21	0.19	293.11M
	6125.00	0.88	293.11	6124.23	-19.94	S 19.95	W 1.66	20.02	184.75	0.19	286.42M
	6219.00	0.88	286.42	6218.22	-19.44	S 19.46	W 3.01	19.70	188.80	0.11	290.69M
	6313.00	0.88	290.69	6312.21	-18.96	S 19.01	W 4.38	19.50	192.98	0.07	277.12M
	6408.00	0.80	277.12	6407.20	-18.61	S 18.67	W 5.72	19.52	197.04	0.23	320.48M
	6502.00	0.80	320.48	6501.19	-18.02	S 18.08	W 6.79	19.31	200.59	0.63	339.69M
	6597.00	1.02	339.69	6596.18	-16.70	S 16.77	W 7.51	18.38	204.11	0.39	354.98M
	6691.00	0.80	354.98	6690.17	-15.26	S 15.33	W 7.85	17.23	207.12	0.35	357.1M

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (N/S ft)	EW (E/W ft)	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)	TF (°)
	6786.00	0.71	357.10	6785.16	-14.01	S 14.09	W 7.94	16.17	209.41	0.10	3.18M
	6880.00	0.80	3.18	6879.15	-12.78	S 12.85	W 7.93	15.10	211.69	0.13	16.81M
	6975.00	0.71	16.81	6974.14	-11.55	S 11.62	W 7.73	13.96	213.61	0.21	31.71M
	7069.00	0.40	31.71	7068.14	-10.72	S 10.79	W 7.39	13.07	214.40	0.36	74.98M
	7163.00	0.40	74.98	7162.14	-10.36	S 10.42	W 6.90	12.50	213.49	0.31	163.82M
	7258.00	0.40	163.82	7257.14	-10.60	S 10.66	W 6.48	12.47	211.32	0.59	162.59M
	7352.00	0.62	162.59	7351.13	-11.40	S 11.46	W 6.24	13.05	208.58	0.23	181.49M
	7446.00	0.62	181.49	7445.13	-12.39	S 12.45	W 6.10	13.86	206.11	0.22	174.22M
	7541.00	0.80	174.22	7540.12	-13.57	S 13.62	W 6.05	14.91	203.94	0.21	152.79M
	7635.00	0.62	152.79	7634.11	-14.68	S 14.73	W 5.75	15.81	201.32	0.34	143.29M
	7729.00	0.62	143.29	7728.11	-15.54	S 15.59	W 5.21	16.44	198.49	0.11	155.01M
	7824.00	0.88	155.01	7823.10	-16.62	S 16.66	W 4.60	17.28	195.43	0.32	147.52M
	7918.00	0.62	147.52	7917.09	-17.71	S 17.74	W 4.02	18.19	192.76	0.30	157.78M
	8013.00	0.80	157.78	8012.08	-18.76	S 18.79	W 3.49	19.11	190.53	0.23	158M
	8107.00	0.70	158.00	8106.08	-19.90	S 19.93	W 3.03	20.16	188.64	0.11	158.4M
	8202.00	0.80	158.40	8201.07	-21.06	S 21.09	W 2.57	21.24	186.94	0.11	167.21M
	8296.00	0.80	167.21	8295.06	-22.32	S 22.34	W 2.18	22.44	185.58	0.13	190.7M
	8391.00	0.80	190.70	8390.05	-23.61	S 23.64	W 2.16	23.73	185.22	0.34	204.41M
	8485.00	1.28	204.41	8484.03	-25.21	S 25.24	W 2.71	25.38	186.14	0.57	213.88M
	8579.00	1.41	213.88	8578.01	-27.12	S 27.15	W 3.79	27.42	187.95	0.27	220.58M
	8674.00	1.59	220.58	8672.98	-29.07	S 29.12	W 5.30	29.60	190.32	0.26	281.08M
	8768.00	1.02	281.08	8766.95	-29.89	S 29.95	W 6.97	30.75	193.10	1.49	276.68M
	8863.00	0.88	276.68	8861.94	-29.63	S 29.71	W 8.52	30.91	196.01	0.17	275.09M
	8957.00	1.41	275.09	8955.92	-29.42	S 29.52	W 10.39	31.30	199.40	0.56	271.7M
	9050.00	1.68	271.70	9048.89	-29.26	S 29.38	W 12.90	32.08	203.70	0.31	244.51M
	9146.00	1.99	244.51	9144.84	-29.91	S 30.05	W 15.81	33.96	207.74	0.95	221.2M
	9240.00	0.62	221.20	9238.81	-30.98	S 31.14	W 17.62	35.78	209.50	1.53	180.92M
	9334.00	0.40	180.92	9332.81	-31.68	S 31.85	W 17.96	36.56	209.41	0.43	205.6M
	9429.00	0.71	205.60	9427.81	-32.54	S 32.71	W 18.22	37.44	209.11	0.40	244.6M
	9523.00	0.71	244.60	9521.80	-33.31	S 33.49	W 18.99	38.50	209.56	0.50	228.29M
	9618.00	1.41	228.29	9616.78	-34.33	S 34.52	W 20.40	40.09	210.58	0.80	264.51M
	9712.00	0.80	264.51	9710.77	-35.15	S 35.35	W 21.91	41.59	211.80	0.96	355.91M
	9806.00	0.80	355.91	9804.76	-34.55	S 34.76	W 22.61	41.47	213.05	1.22	304.7M
	9901.00	0.71	304.70	9899.75	-33.55	S 33.76	W 23.15	40.93	214.43	0.69	261.1M
	9966.00	0.62	261.10	9964.75	-33.37	S 33.59	W 23.82	41.18	215.35	0.77	317.6M
	10049.00	1.13	317.60	10047.74	-32.82	S 33.05	W 24.82	41.33	216.90	1.14	358.1M
	10080.00	4.59	358.10	10078.70	-31.36	S 31.58	W 25.07	40.32	218.44	12.26	2.15M
	10112.00	8.04	2.15	10110.50	-27.84	S 28.07	W 25.03	37.60	221.72	10.86	11.2R
	10143.00	12.31	6.09	10141.01	-22.39	S 22.61	W 24.59	33.41	227.40	13.95	9R
	10174.00	16.06	8.23	10171.06	-14.87	S 15.08	W 23.63	28.03	237.45	12.21	6.31R
	10206.00	19.88	9.47	10201.49	-5.13	S 5.33	W 22.10	22.73	256.44	12.00	1.18L
	10238.00	24.27	9.25	10231.14	6.72	N 6.53	W 20.15	21.18	287.97	13.72	0.48R
	10269.00	28.24	9.32	10258.93	20.23	N 20.06	W 17.93	26.91	318.21	12.81	8.41L
	10301.00	31.81	8.32	10286.63	36.02	N 35.89	W 15.49	39.08	336.66	11.26	21.54R
	10332.00	34.76	10.35	10312.55	52.78	N 52.67	W 12.71	54.18	346.43	10.17	19.69R
	10363.00	38.22	12.34	10337.47	70.81	N 70.74	W 9.08	71.32	352.69	11.79	3.56R
	10395.00	40.74	12.58	10362.16	90.64	N 90.60	W 4.69	90.72	357.04	7.89	HS
	10426.00	43.04	12.58	10385.24	110.80	N 110.80	W 0.18	110.80	359.91	7.42	10.6R
	10458.00	45.64	13.26	10408.12	132.55	N 132.60	E 4.83	132.68	2.08	8.26	14.52R
	10489.00	48.60	14.28	10429.22	154.56	N 154.66	E 10.24	154.99	3.79	9.85	4.33L
	10521.00	52.15	13.94	10449.62	178.40	N 178.56	E 16.24	179.29	5.20	11.12	21.82L
	10552.00	55.52	12.31	10467.91	202.72	N 202.93	E 21.92	204.11	6.16	11.67	25.04L
	10584.00	58.89	10.48	10485.24	229.04	N 229.29	E 27.22	230.90	6.77	11.58	19.51L

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (N/S ft)	EW (E/W ft)	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)	TF (°)
	10615.00	63.03	8.84	10500.29	255.71	N 256.00	E 31.76	257.97	7.07	14.13	13.51L
	10647.00	67.38	7.71	10513.71	284.41	N 284.75	E 35.94	287.00	7.19	13.97	10.04L
	10678.00	72.45	6.77	10524.35	313.25	N 313.62	E 39.60	316.11	7.20	16.60	20.89L
	10710.00	78.11	4.57	10532.48	344.00	N 344.40	E 42.65	347.03	7.06	18.89	24.12L
	10772.00	85.04	1.47	10541.56	405.17	N 405.60	E 45.86	408.19	6.45	12.22	82.47L
	10804.00	85.11	0.94	10544.31	437.04	N 437.48	E 46.53	439.95	6.07	1.66	24.55L
	10899.00	88.66	359.32	10549.47	531.87	N 532.32	E 46.75	534.37	5.02	4.11	14.6L
	10993.00	91.31	358.63	10549.49	625.86	N 626.30	E 45.06	627.92	4.12	2.91	21.13L
	11087.00	92.06	358.34	10546.73	719.81	N 720.22	E 42.58	721.48	3.38	0.86	157.15R
	11181.00	89.52	359.41	10545.43	813.78	N 814.19	E 40.74	815.20	2.86	2.93	113.41L
	11276.00	88.59	357.26	10547.00	908.74	N 909.13	E 37.98	909.92	2.39	2.47	43.29L
	11370.00	89.28	356.61	10548.75	1002.63	N 1002.97	E 32.95	1003.52	1.88	1.01	84.98R
	11465.00	89.48	358.88	10549.77	1097.58	N 1097.89	E 29.21	1098.28	1.52	2.40	10.91L
	11559.00	90.31	358.72	10549.95	1191.57	N 1191.87	E 27.24	1192.18	1.31	0.90	152.49R
	11653.00	89.83	358.97	10549.83	1285.56	N 1285.85	E 25.35	1286.10	1.13	0.58	11.45L
	11748.00	90.62	358.81	10549.46	1380.56	N 1380.83	E 23.51	1381.03	0.98	0.85	145.55R
	11842.00	89.76	359.40	10549.15	1474.55	N 1474.81	E 22.04	1474.98	0.86	1.11	144.67L
	11937.00	88.97	358.84	10550.20	1569.55	N 1569.80	E 20.58	1569.93	0.75	1.02	9.96R
	12031.00	90.28	359.07	10550.81	1663.54	N 1663.78	E 18.87	1663.88	0.65	1.41	169.54R
	12125.00	87.14	359.65	10552.93	1757.50	N 1757.74	E 17.82	1757.83	0.58	3.40	37.34R
	12219.00	87.90	0.23	10557.00	1851.41	N 1851.65	E 17.72	1851.73	0.55	1.02	10.95R
	12314.00	88.52	0.35	10559.97	1946.35	N 1946.60	E 18.20	1946.68	0.54	0.66	31.51L
	12408.00	89.45	359.78	10561.63	2040.33	N 2040.58	E 18.31	2040.66	0.51	1.16	101.27L
	12502.00	89.04	357.72	10562.87	2134.31	N 2134.55	E 16.26	2134.61	0.44	2.23	29.33L
	12597.00	89.93	357.22	10563.72	2229.25	N 2229.45	E 12.06	2229.48	0.31	1.07	99.11R
	12691.00	89.76	358.28	10563.98	2323.20	N 2323.37	E 8.37	2323.39	0.21	1.14	169.2R
	12785.00	87.56	358.70	10566.18	2417.16	N 2417.31	E 5.90	2417.32	0.14	2.38	44.69R
	12880.00	88.49	359.62	10569.45	2512.10	N 2512.24	E 4.51	2512.25	0.10	1.38	9.01L
	12974.00	89.31	359.49	10571.25	2606.08	N 2606.22	E 3.78	2606.22	0.08	0.88	28.81L
	13067.00	90.31	358.94	10571.56	2699.08	N 2699.21	E 2.50	2699.21	0.05	1.23	100.3R
	13162.00	90.17	359.71	10571.16	2794.07	N 2794.20	E 1.38	2794.20	0.03	0.82	7.29R
	13256.00	91.03	359.82	10570.18	2888.07	N 2888.19	E 1.00	2888.19	0.02	0.92	178.32L
	13350.00	88.31	359.74	10570.72	2982.05	N 2982.18	E 0.64	2982.18	0.01	2.89	46.97L
	13445.00	88.45	359.59	10573.41	3077.02	N 3077.14	E 0.08	3077.14	0.00	0.22	9.34L
	13540.00	89.24	359.46	10575.32	3172.00	N 3172.12	W 0.71	3172.12	359.99	0.84	24.52L
	13634.00	90.38	358.94	10575.63	3265.99	N 3266.11	W 2.02	3266.11	359.96	1.33	46.17L
	13728.00	90.86	358.44	10574.62	3359.98	N 3360.08	W 4.17	3360.08	359.93	0.74	156.86R
	13823.00	88.52	359.44	10575.13	3454.96	N 3455.05	W 5.93	3455.06	359.90	2.68	108.12L
	13917.00	88.35	358.92	10577.70	3548.93	N 3549.01	W 7.27	3549.01	359.88	0.58	46.22R
	14011.00	89.04	359.64	10579.84	3642.90	N 3642.97	W 8.45	3642.98	359.87	1.06	45.36L
	14106.00	89.83	358.84	10580.78	3737.89	N 3737.96	W 9.71	3737.97	359.85	1.18	62.54R
	14200.00	90.62	0.36	10580.41	3831.89	N 3831.95	W 10.37	3831.97	359.84	1.82	102.96R
	14294.00	90.24	2.01	10579.70	3925.84	N 3925.93	W 8.42	3925.94	359.88	1.80	157.17R
	14389.00	89.86	2.17	10579.62	4020.74	N 4020.86	W 4.96	4020.87	359.93	0.43	150.58R
	14483.00	87.45	3.53	10581.82	4114.55	N 4114.71	W 0.29	4114.71	360.00	2.94	115.75L
	14577.00	86.35	1.24	10586.91	4208.28	N 4208.49	E 3.62	4208.49	0.05	2.70	67.32L
	14672.00	87.25	359.09	10592.21	4303.12	N 4303.33	E 3.89	4303.33	0.05	2.45	22.68L
	14766.00	89.62	358.10	10594.78	4397.06	N 4397.26	E 1.59	4397.26	0.02	2.73	23.96L
	14805.00	90.34	357.78	10594.79	4436.05	N 4436.23	E 0.19	4436.23	0.00	2.02	HS
PTB	14855.00	90.34	357.78	10594.50	4486.03	N 4486.20	W 1.75	4486.20	359.98	0.00	

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (N/S ft)	EW (E/W 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	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.000	24.000	1/98.425	30.000	30.000	NAL_MWD_PLUS_0.5_DEG- Depth Only	Original Borehole / Cimarex Cotton Draw 9L Federal #4H MWD 0ft- Update
	1	24.000	24.000	Act Stns	30.000	30.000	NAL_MWD_PLUS_0.5_DEG- Depth Only	Original Borehole / Cimarex Cotton Draw 9L Federal #4H MWD 0ft- Update
	1	24.000	14855.000	Act Stns	30.000	30.000	NAL_MWD_PLUS_0.5_DEG	Original Borehole / Cimarex Cotton Draw 9L Federal #4H MWD 0ft-