

Cimarex Cotton Draw 9L Federal #4H Preliminary 04Aug16 Proposal

Report

(Non-Def Plan)



Report Date: August 17, 2016 - 04:28 PM
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 Preliminary 04Aug16
Survey Date: August 04, 2016
Tort / AHD / DDI / ERD Ratio: 90.955 ° / 4496.791 ft / 5.760 / 0.426
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: 2.9.370.0

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: Unknown RKB
TVD Reference Elevation: 3431.500 ft above MSL
Seabed / Ground Elevation: 3431.500 ft above MSL
Magnetic Declination: 6.944 °
Total Gravity Field Strength: 998.4304mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 48135.115 nT
Magnetic Dip Angle: 59.890 °
Declination Date: August 04, 2016
Magnetic Declination Model: HDGM 2016
North Reference: Grid North
Grid Convergence Used: 0.3443 °
Total Corr Mag North->Grid North: 6.5992 °
Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
Cotton Draw 9L Federal #4H SHL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	414873.04	741671.23	N 32 8 20.08 W 103 41	9.96
	100.00	0.00	24.40	100.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W 103 41	9.96
	200.00	0.00	24.40	200.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W 103 41	9.96
	300.00	0.00	24.40	300.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W 103 41	9.96
	400.00	0.00	24.40	400.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W 103 41	9.96
	500.00	0.00	24.40	500.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W 103 41	9.96
	600.00	0.00	24.40	600.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W 103 41	9.96
	700.00	0.00	24.40	700.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W 103 41	9.96
	800.00	0.00	24.40	800.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W 103 41	9.96
	900.00	0.00	24.40	900.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W 103 41	9.96
	1000.00	0.00	24.40	1000.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W 103 41	9.96
	1100.00	0.00	24.40	1100.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W 103 41	9.96
	1200.00	0.00	24.40	1200.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W 103 41	9.96
	1300.00	0.00	24.40	1300.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W 103 41	9.96
	1400.00	0.00	24.40	1400.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W 103 41	9.96
	1500.00	0.00	24.40	1500.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W 103 41	9.96
	1600.00	0.00	24.40	1600.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W 103 41	9.96
	1700.00	0.00	24.40	1700.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W 103 41	9.96
	1800.00	0.00	24.40	1800.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W 103 41	9.96
	1900.00	0.00	24.40	1900.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W 103 41	9.96
	2000.00	0.00	24.40	2000.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W 103 41	9.96
	2100.00	0.00	24.40	2100.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W 103 41	9.96
	2200.00	0.00	24.40	2200.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W 103 41	9.96
	2300.00	0.00	24.40	2300.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W 103 41	9.96
	2400.00	0.00	24.40	2400.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W 103 41	9.96

8/18/2016 12:50 PM Page 2 of 4

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	8400.00	0.00	24.40	8400.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W	103 41 9.96
	8500.00	0.00	24.40	8500.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W	103 41 9.96
	8600.00	0.00	24.40	8600.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W	103 41 9.96
	8700.00	0.00	24.40	8700.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W	103 41 9.96
	8800.00	0.00	24.40	8800.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W	103 41 9.96
	8900.00	0.00	24.40	8900.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W	103 41 9.96
	9000.00	0.00	24.40	9000.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W	103 41 9.96
	9100.00	0.00	24.40	9100.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W	103 41 9.96
	9200.00	0.00	24.40	9200.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W	103 41 9.96
	9300.00	0.00	24.40	9300.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W	103 41 9.96
	9400.00	0.00	24.40	9400.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W	103 41 9.96
	9500.00	0.00	24.40	9500.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W	103 41 9.96
	9600.00	0.00	24.40	9600.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W	103 41 9.96
	9700.00	0.00	24.40	9700.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W	103 41 9.96
	9800.00	0.00	24.40	9800.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W	103 41 9.96
	9900.00	0.00	24.40	9900.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W	103 41 9.96
	10000.00	0.00	24.40	10000.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W	103 41 9.96
Build 12° DLS	10080.00	0.00	24.40	10080.00	0.00	0.00	0.00	0.00	414873.04	741671.23	N 32 8 20.08 W	103 41 9.96
	10100.00	2.40	24.40	10099.99	0.38	0.38	0.17	12.00	414873.42	741671.40	N 32 8 20.08 W	103 41 9.95
Penetration Point	10139.15	7.10	24.40	10139.00	3.32	3.33	1.51	12.00	414876.37	741672.74	N 32 8 20.11 W	103 41 9.94
	10164.74	10.17	24.40	10164.30	6.80	6.83	3.10	12.00	414879.87	741674.33	N 32 8 20.14 W	103 41 9.92
Build 12° DLS	10165.59	10.17	24.40	10165.13	6.94	6.97	3.16	0.00	414880.01	741674.39	N 32 8 20.14 W	103 41 9.92
	10200.00	14.01	17.11	10198.77	13.67	13.72	5.64	12.00	414886.76	741676.87	N 32 8 20.21 W	103 41 9.89
	10300.00	25.69	8.52	10292.69	46.73	46.84	12.44	12.00	414919.88	741683.67	N 32 8 20.54 W	103 41 9.81
	10400.00	37.56	5.12	10377.70	98.65	98.82	18.39	12.00	414971.86	741689.62	N 32 8 21.05 W	103 41 9.74
	10500.00	49.48	3.18	10450.08	167.16	167.38	23.24	12.00	415040.41	741694.47	N 32 8 21.73 W	103 41 9.67
	10600.00	61.43	1.84	10506.68	249.27	249.52	26.77	12.00	415122.55	741698.00	N 32 8 22.54 W	103 41 9.63
	10700.00	73.39	0.77	10545.02	341.39	341.66	28.84	12.00	415214.69	741700.07	N 32 8 23.45 W	103 41 9.60
	10800.00	85.36	359.83	10563.43	439.48	439.77	29.34	12.00	415312.79	741700.57	N 32 8 24.43 W	103 41 9.58
Landing Point	10838.80	90.00	359.48	10565.00	478.24	478.53	29.11	12.00	415351.54	741700.33	N 32 8 24.81 W	103 41 9.58
	10900.00	90.00	359.48	10565.00	539.44	539.72	28.55	0.00	415412.73	741699.78	N 32 8 25.41 W	103 41 9.59
	10960.80	90.00	359.48	10565.00	600.24	600.52	28.00	0.00	415473.53	741699.23	N 32 8 26.02 W	103 41 9.59
	11000.00	90.00	359.48	10565.00	639.44	639.72	27.64	0.00	415512.73	741698.87	N 32 8 26.40 W	103 41 9.59
	11100.00	90.00	359.48	10565.00	739.44	739.71	26.74	0.00	415612.72	741697.97	N 32 8 27.39 W	103 41 9.59
	11200.00	90.00	359.48	10565.00	839.44	839.71	25.83	0.00	415712.71	741697.06	N 32 8 28.38 W	103 41 9.60
	11300.00	90.00	359.48	10565.00	939.44	939.70	24.93	0.00	415812.70	741696.15	N 32 8 29.37 W	103 41 9.60
	11400.00	90.00	359.48	10565.00	1039.44	1039.70	24.02	0.00	415912.69	741695.25	N 32 8 30.36 W	103 41 9.60
	11500.00	90.00	359.48	10565.00	1139.44	1139.70	23.11	0.00	416012.68	741694.34	N 32 8 31.35 W	103 41 9.61
	11600.00	90.00	359.48	10565.00	1239.44	1239.69	22.21	0.00	416112.67	741693.44	N 32 8 32.34 W	103 41 9.61
	11700.00	90.00	359.48	10565.00	1339.44	1339.69	21.30	0.00	416212.66	741692.53	N 32 8 33.33 W	103 41 9.61
	11800.00	90.00	359.48	10565.00	1439.44	1439.68	20.39	0.00	416312.66	741691.62	N 32 8 34.32 W	103 41 9.62
	11900.00	90.00	359.48	10565.00	1539.44	1539.68	19.49	0.00	416412.65	741690.72	N 32 8 35.31 W	103 41 9.62
	12000.00	90.00	359.48	10565.00	1639.44	1639.68	18.58	0.00	416512.64	741689.81	N 32 8 36.30 W	103 41 9.63
	12100.00	90.00	359.48	10565.00	1739.44	1739.67	17.68	0.00	416612.63	741688.90	N 32 8 37.29 W	103 41 9.63
	12200.00	90.00	359.48	10565.00	1839.44	1839.67	16.77	0.00	416712.62	741688.00	N 32 8 38.28 W	103 41 9.63
	12300.00	90.00	359.48	10565.00	1939.44	1939.66	15.86	0.00	416812.61	741687.09	N 32 8 39.27 W	103 41 9.64
	12400.00	90.00	359.48	10565.00	2039.44	2039.66	14.96	0.00	416912.60	741686.19	N 32 8 40.26 W	103 41 9.64
	12500.00	90.00	359.48	10565.00	2139.44	2139.65	14.05	0.00	417012.59	741685.28	N 32 8 41.25 W	103 41 9.64
	12600.00	90.00	359.48	10565.00	2239.44	2239.65	13.14	0.00	417112.59	741684.37	N 32 8 42.24 W	103 41 9.65
	12700.00	90.00	359.48	10565.00	2339.44	2339.65	12.24	0.00	417212.58	741683.47	N 32 8 43.23 W	103 41 9.65
	12800.00	90.00	359.48	10565.00	2439.44	2439.64	11.33	0.00	417312.57	741682.56	N 32 8 44.22 W	103 41 9.65
	12900.00	90.00	359.48	10565.00	2539.44	2539.64	10.42	0.00	417412.56	741681.65	N 32 8 45.21 W	103 41 9.66
	13000.00	90.00	359.48	10565.00	2639.44	2639.63	9.52	0.00	417512.55	741680.75	N 32 8 46.19 W	103 41 9.66
	13100.00	90.00	359.48	10565.00	2739.44	2739.63	8.61	0.00	417612.54	741679.84	N 32 8 47.18 W	103 41 9.66
	13200.00	90.00	359.48	10565.00	2839.44	2839.63	7.71	0.00	417712.53	741678.94	N 32 8 48.17 W	103 41 9.67
	13300.00	90.00	359.48	10565.00	2939.44	2939.62	6.80	0.00	417812.52	741678.03	N 32 8 49.16 W	103 41 9.67
	13400.00	90.00	359.48	10565.00	3039.44	3039.62	5.89	0.00	417912.51	741677.12	N 32 8 50.15 W	103 41 9.68
	13500.00	90.00	359.48	10565.00	3139.44	3139.61	4.99	0.00	418012.51	741676.22	N 32 8 51.14 W	103 41 9.68

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	13600.00	90.00	359.48	10565.00	3239.44	3239.61	4.08	0.00	418112.50	741675.31	N 32 8 52.13 W 103 41 9.68	
	13700.00	90.00	359.48	10565.00	3339.44	3339.61	3.17	0.00	418212.49	741674.40	N 32 8 53.12 W 103 41 9.69	
	13800.00	90.00	359.48	10565.00	3439.44	3439.60	2.27	0.00	418312.48	741673.50	N 32 8 54.11 W 103 41 9.69	
	13900.00	90.00	359.48	10565.00	3539.44	3539.60	1.36	0.00	418412.47	741672.59	N 32 8 55.10 W 103 41 9.69	
	14000.00	90.00	359.48	10565.00	3639.44	3639.59	0.46	0.00	418512.46	741671.69	N 32 8 56.09 W 103 41 9.70	
	14100.00	90.00	359.48	10565.00	3739.44	3739.59	-0.45	0.00	418612.45	741670.78	N 32 8 57.08 W 103 41 9.70	
	14200.00	90.00	359.48	10565.00	3839.44	3839.58	-1.36	0.00	418712.44	741669.87	N 32 8 58.07 W 103 41 9.70	
	14300.00	90.00	359.48	10565.00	3939.44	3939.58	-2.26	0.00	418812.44	741668.97	N 32 8 59.06 W 103 41 9.71	
	14400.00	90.00	359.48	10565.00	4039.44	4039.58	-3.17	0.00	418912.43	741668.06	N 32 9 0 05 W 103 41 9.71	
	14500.00	90.00	359.48	10565.00	4139.44	4139.57	-4.08	0.00	419012.42	741667.15	N 32 9 1 04 W 103 41 9.71	
	14600.00	90.00	359.48	10565.00	4239.44	4239.57	-4.98	0.00	419112.41	741666.25	N 32 9 2 03 W 103 41 9.72	
	14700.00	90.00	359.48	10565.00	4339.44	4339.56	-5.89	0.00	419212.40	741665.34	N 32 9 3 02 W 103 41 9.72	
	14800.00	90.00	359.48	10565.00	4439.44	4439.56	-6.80	0.00	419312.39	741664.43	N 32 9 4 01 W 103 41 9.72	
Cotton Draw 9L Federal #4H PBHL	14854.59	90.00	359.48	10565.00	4494.03	4494.15	-7.29	0.00	419366.98	741663.94	N 32 9 4 55 W 103 41 9.73	

Survey Type: Non-Def Plan

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)	Expected Max Inclination (deg)	Survey Tool Type	Borehole / Survey
	1	0.000	14854.593	1/100.000	0.000	0.000		NAL_MWD_PLUS_0.5_DEG	Original Borehole / Cimarex Cotton Draw 9L Federal #4H

Borehole:	Well:	Field:	Structure:
Original Borehole	Cotton Draw 9L Federal #4H	NM Lea County (NAD 83)	Cimarex Cotton Draw 9L Federal #4H
Gravity & Magnetic Parameters			
Model: HDGM 2016	Dip: 59.89°	Date: 04-Aug-2016	Surface Location
MagDec: 6.944°	FS: 48135.115mT	Gravity FS: 998.43mg (9.80665 Based)	Lat: N 32 8 20.08
			Northings: 414873.04ftUS
			Eastings: 741671.23ftUS
			Grid Conv: 0.3443°
			Scale Fact: 0.99995506
Miscellaneous			
		Slot: Cotton Draw 9L	TVD Ref: Unknown RKB(3431.5ft above MSL)
		Federal #4H	
		Plan: Cimarex Cotton Draw 9L Federal #4H Preliminary 04Aug16	

