

5D Survey Report



NM OIL CONSERVATION
ARTESIA DISTRICT

FEB 26 2018

RECEIVED

5D Survey Report

30-015-42169

Cimarex Energy

Field Name: *Cimarex Nad 83 NMEZ*
Site Name: *Hornsby 35 Federal Com 7H,8H Pad*
Well Name: *Hornsby 35 Federal Com 8H*
Survey: *Definitive survey*

29 August 2017

**Provide Signature Page for
Directional Survey**



Weatherford®



Weatherford



Hornsby 35 Federal Com 8H

Field Name: Cimarex Nad 83 NMEZ	Map Units: US ft		Company Name: Cimarex Energy	
	Vertical Reference Datum (VRD): Mean Sea Level			
	Projected Coordinate System: NAD83 / New Mexico East (ftUS)			
	Comment:			
Site: Hornsby 35 Federal Com 7H,8H Pad	Units: US ft	North Reference: Grid	Convergence Angle: 0.09	
	Position:	Northing: 364072.12 US ft	Latitude: 32° 0' 2.86"	
		Easting: 595424.85 US ft	Longitude: -104° 9' 31.86"	
	Elevation above MSL: 3241.00 US ft		Comment: Eddy Co, NM	
Slot: Hornsby 35 Federal Com 8H	Position (Relative to Site Centre)			
	+N/-S: 0.01 US ft	Northing: 364072.13 US ft	Latitude: 32°0'2.86"	
	+E/-W: 20.01 US ft	Easting: 595444.86 US ft	Longitude: -104°9'31.63"	
	Elevation above MSL: 3240.00 US ft		Comment: Eddy Co, NM	
Well: Hornsby 35 Federal Com 8H	Type: Main well	UWI:		
	File Number:	Comment:		
	Closure Distance: 6815.39 US ft	Closure Azimuth: 2.65°		
	Vertical Section: Position of Origin (Relative to Slot centre)			
	+N/-S: 0.00 US ft	+E/-W: 0.00 US ft	Az: 359.87°	

Drill floor: Survey Name: Definitive Survey			
Rig Height (Drill Floor): 25.00 US ft	Elevation above MSL: 3265.00 US ft	Inclination: 0.00°	Azimuth: 0.00°

Survey Name: Definitive Survey			
Date: 29/Jun/2017	Survey Tool: See Survey Tool Ranges below.	Comment:	Company:

Magnetic Model:				
Model Name: bggm2017	Date: 25/Jul/2017	Field Strength: 47805.2 nT	Declination: 7.28°	Dip: 59.72°

Tie Point:				
MD: 0.00 US ft	Inclination: 0.00°	Azimuth: 0.00°	TVD: 0.00 US ft	North Offset: 0.00 US ft
				East Offset: 0.00 US ft

Survey Tool Ranges:			
Name	Start MD(USFt)	End MD(USFt)	Source Survey
MWD	0.00	301.00	Extreme Svy_1
MWD	301.00	2137.00	Extreme Svy_2
MWD	2137.00	5202.00	Extreme Svy_3
MWD	5202.00	7201.00	Extreme Svy_4
MWD	7201.00	8067.00	WFT MWD Svy (5)
MWD	8067.00	14465.00	WFT MWD Svy (6)

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Casing Points: (Relative to Slot centre)(TVD relative to Drill Floor)								
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	Northing (US ft)	Easting (US ft)	Name
412.00	1.08	296.82	411.94	1.28	-6.33	364073.41	595438.53	13 3/8 in

Wellpath created using minimum curvature.

Survey Points: (Relative to Slot centre)(TVD relative to Drill Floor)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N. Offset (US ft)	E. Offset (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100US ft)	Comment
0.00	0.00	0.00	0.00	0.00	0.00	0.00	364072.13	595444.86	0.00	
202.00	1.19	273.97	201.99	0.15	0.15	-2.09	364072.28	595442.77	0.59	
301.00	1.28	284.51	300.96	0.50	0.49	-4.19	364072.62	595440.67	0.25	
412.00	1.08	296.82	411.94	1.29	1.28	-6.33	364073.41	595438.53	0.29	13 3/8 in
458.00	1.02	303.19	457.93	1.71	1.70	-7.06	364073.83	595437.80	0.29	
490.00	1.10	298.48	489.93	2.02	2.00	-7.56	364074.13	595437.30	0.37	
581.00	0.40	16.31	580.92	2.74	2.72	-8.24	364074.85	595436.62	1.20	
673.00	0.49	34.69	672.92	3.37	3.35	-7.93	364075.48	595436.93	0.18	
765.00	0.49	23.58	764.91	4.05	4.04	-7.55	364076.17	595437.31	0.10	
856.00	0.40	8.38	855.91	4.72	4.71	-7.35	364076.84	595437.51	0.16	
951.00	0.40	66.28	950.91	5.19	5.17	-6.99	364077.30	595437.87	0.41	
1046.00	0.80	117.19	1045.90	5.01	5.00	-6.10	364077.13	595438.76	0.66	
1141.00	1.02	127.49	1140.89	4.19	4.18	-4.84	364076.31	595440.02	0.29	
1235.00	1.10	153.01	1234.88	2.88	2.87	-3.77	364075.00	595441.09	0.50	
1330.00	0.80	149.48	1329.86	1.49	1.49	-3.02	364073.62	595441.84	0.32	
1425.00	0.71	130.98	1424.85	0.53	0.53	-2.23	364072.66	595442.63	0.27	
1520.00	0.80	150.19	1519.85	-0.43	-0.43	-1.46	364071.70	595443.40	0.28	
1615.00	0.88	126.88	1614.84	-1.45	-1.45	-0.55	364070.68	595444.31	0.37	
1709.00	1.41	112.60	1708.82	-2.33	-2.32	1.10	364069.81	595445.96	0.64	
1804.00	1.19	107.97	1803.79	-3.09	-3.08	3.12	364069.05	595447.98	0.26	
1899.00	1.59	98.10	1898.77	-3.58	-3.57	5.36	364068.56	595450.22	0.49	
1993.00	2.30	95.19	1992.71	-3.94	-3.92	8.53	364068.21	595453.39	0.76	
2087.00	2.70	106.08	2086.62	-4.73	-4.71	12.53	364067.42	595457.39	0.66	
2137.00	2.39	110.48	2136.57	-5.43	-5.40	14.64	364066.73	595459.50	0.73	
2267.00	2.12	109.60	2266.47	-7.20	-7.15	19.45	364064.98	595464.31	0.21	
2361.00	2.39	106.30	2360.40	-8.34	-8.29	22.97	364063.84	595467.83	0.32	
2455.00	2.00	106.59	2454.33	-9.36	-9.30	26.42	364062.83	595471.28	0.42	
2550.00	2.39	109.78	2549.26	-10.52	-10.45	29.87	364061.68	595474.73	0.43	
2645.00	2.21	110.18	2644.18	-11.83	-11.75	33.46	364060.38	595478.32	0.19	
2739.00	2.12	113.88	2738.12	-13.16	-13.08	36.75	364059.05	595481.61	0.18	
2834.00	2.30	107.31	2833.05	-14.45	-14.36	40.17	364057.77	595485.03	0.33	
2930.00	1.99	105.99	2928.98	-15.49	-15.39	43.61	364056.74	595488.47	0.33	
3024.00	1.81	107.18	3022.93	-16.38	-16.28	46.60	364055.85	595491.46	0.20	
3119.00	1.50	109.69	3117.89	-17.25	-17.14	49.21	364054.99	595494.07	0.34	
3214.00	2.39	88.67	3212.83	-17.63	-17.51	52.36	364054.62	595497.22	1.19	
3309.00	2.52	82.90	3307.74	-17.34	-17.21	56.41	364054.92	595501.27	0.29	
3403.00	3.00	90.70	3401.64	-17.12	-16.98	60.92	364055.15	595505.78	0.65	
3498.00	3.18	94.58	3496.50	-17.37	-17.22	66.03	364054.91	595510.89	0.29	
3594.00	3.09	91.09	3592.35	-17.65	-17.49	71.27	364054.64	595516.13	0.22	
3688.00	4.02	96.60	3686.17	-18.09	-17.91	77.08	364054.22	595521.94	1.05	
3783.00	4.02	95.68	3780.94	-18.82	-18.63	83.70	364053.50	595528.56	0.07	
3878.00	4.42	108.28	3875.68	-20.31	-20.10	90.49	364052.03	595535.35	1.06	
3972.00	4.02	110.09	3969.43	-22.59	-22.37	97.02	364049.76	595541.88	0.45	
4067.00	3.71	110.09	4064.21	-24.80	-24.57	103.04	364047.56	595547.90	0.33	
4161.00	3.58	111.28	4158.02	-26.93	-26.68	108.63	364045.45	595553.49	0.16	
4256.00	3.58	112.38	4252.84	-29.15	-28.89	114.14	364043.24	595559.00	0.07	
4351.00	3.80	112.20	4347.64	-31.48	-31.20	119.79	364040.93	595564.65	0.23	
4446.00	3.40	111.98	4442.45	-33.73	-33.45	125.32	364038.68	595570.18	0.42	
4541.00	3.00	117.01	4537.30	-35.93	-35.63	130.15	364036.50	595575.01	0.51	
4709.00	3.58	108.10	4705.03	-39.57	-39.26	139.05	364032.87	595583.91	0.46	
4730.00	3.31	109.78	4725.99	-39.99	-39.67	140.24	364032.46	595585.10	1.37	

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Survey Points: (Relative to Slot centre)(TVD relative to Drill Floor)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N. Offset (US ft)	E. Offset (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100US ft)	Comment
4823.00	2.92	112.29	4818.85	-41.80	-41.47	144.96	364030.66	595589.82	0.44	
4917.00	3.09	110.57	4912.72	-43.61	-43.27	149.55	364028.86	595594.41	0.20	
5012.00	3.31	101.89	5007.57	-45.09	-44.74	154.63	364027.39	595599.49	0.56	
5107.00	3.40	97.31	5102.41	-46.02	-45.66	160.11	364026.47	595604.97	0.30	
5202.00	4.29	98.41	5197.20	-46.92	-46.54	166.42	364025.59	595611.28	0.94	
5297.00	4.29	100.88	5291.93	-48.12	-47.73	173.42	364024.40	595618.28	0.19	
5392.00	4.02	105.20	5386.68	-49.68	-49.27	180.12	364022.86	595624.98	0.43	
5486.00	4.20	105.20	5480.44	-51.46	-51.04	186.63	364021.09	595631.49	0.19	
5581.00	3.89	111.28	5575.20	-53.56	-53.12	192.99	364019.01	595637.85	0.56	
5676.00	3.49	112.29	5670.01	-55.84	-55.39	198.66	364016.74	595643.52	0.43	
5770.00	3.40	112.20	5763.84	-57.99	-57.53	203.89	364014.60	595648.75	0.10	
5865.00	3.18	117.09	5858.68	-60.26	-59.79	208.85	364012.34	595653.71	0.38	
5960.00	2.61	114.67	5953.56	-62.38	-61.89	213.16	364010.24	595658.02	0.61	
6055.00	3.58	111.19	6048.42	-64.36	-63.87	217.89	364008.26	595662.75	1.04	
6149.00	3.71	117.58	6142.23	-66.84	-66.34	223.32	364005.79	595668.18	0.45	
6244.00	3.31	114.01	6237.05	-69.39	-68.88	228.55	364003.25	595673.41	0.48	
6339.00	2.61	104.80	6331.92	-71.07	-70.54	233.15	364001.59	595678.01	0.89	
6434.00	2.52	89.29	6426.83	-71.61	-71.07	237.33	364001.06	595682.19	0.73	
6529.00	2.21	85.59	6521.75	-71.45	-70.90	241.24	364001.23	595686.10	0.36	
6623.00	1.68	113.30	6615.70	-71.86	-71.31	244.31	364000.82	595689.17	1.13	
6717.00	1.90	111.98	6709.65	-73.00	-72.44	247.02	363999.69	595691.88	0.24	
6812.00	1.19	126.48	6804.62	-74.18	-73.61	249.28	363998.52	595694.14	0.85	
6908.00	1.41	138.51	6900.59	-75.66	-75.09	250.86	363997.04	595695.72	0.36	
7002.00	1.02	139.57	6994.57	-77.17	-76.59	252.17	363995.54	595697.03	0.42	
7097.00	1.19	160.10	7089.55	-78.74	-78.17	253.06	363993.96	595697.92	0.45	
7201.00	0.80	157.11	7193.54	-80.43	-79.85	253.71	363992.28	595698.57	0.38	WFT MWD Tie-In
7310.00	4.70	41.79	7302.42	-77.80	-77.22	256.98	363994.91	595701.84	4.67	First WFT Svy
7341.00	8.30	33.48	7333.22	-74.99	-74.41	259.06	363997.72	595703.92	11.97	
7373.00	12.16	30.75	7364.70	-70.18	-69.58	262.06	364002.55	595706.92	12.15	
7405.00	15.14	24.21	7395.80	-63.47	-62.87	265.50	364009.26	595710.36	10.47	
7437.00	19.15	18.23	7426.37	-54.68	-54.07	268.85	364018.06	595713.71	13.67	
7468.00	23.25	16.15	7455.27	-43.98	-43.36	272.15	364028.77	595717.01	13.44	
7499.00	25.77	17.83	7483.47	-31.69	-31.06	275.91	364041.07	595720.77	8.43	
7531.00	28.43	20.13	7511.96	-17.92	-17.29	280.67	364054.84	595725.53	8.93	
7563.00	31.69	20.25	7539.65	-2.90	-2.25	286.20	364069.88	595731.06	10.19	
7595.00	35.54	17.58	7566.29	13.85	14.51	291.92	364086.64	595736.78	12.88	
7626.00	39.22	13.10	7590.93	31.98	32.66	296.86	364104.79	595741.72	14.75	
7638.10	40.57	11.41	7600.21	39.56	40.24	298.51	364112.37	595743.37	14.30	FTP (7638.10'MD)
7658.00	42.84	8.83	7615.07	52.59	53.27	300.83	364125.40	595745.69	14.30	
7689.00	46.07	8.86	7637.19	74.03	74.72	304.17	364146.85	595749.03	10.42	
7720.00	48.74	9.23	7658.17	96.56	97.26	307.76	364169.39	595752.62	8.66	
7752.00	52.11	7.63	7678.56	120.94	121.65	311.36	364193.78	595756.22	11.21	
7783.00	55.47	5.10	7696.87	145.79	146.50	314.12	364218.63	595758.98	12.68	
7814.00	59.69	2.23	7713.49	171.89	172.61	315.78	364244.74	595760.64	15.69	
7846.00	64.27	0.96	7728.52	200.12	200.84	316.56	364272.97	595761.42	14.73	
7878.00	68.15	1.65	7741.42	229.39	230.11	317.23	364302.24	595762.09	12.28	
7909.00	71.81	1.95	7752.03	258.49	259.21	318.15	364331.34	595763.01	11.84	
7941.00	75.99	2.38	7760.91	289.21	289.93	319.31	364362.06	595764.17	13.13	
7972.00	78.52	3.19	7767.75	319.40	320.13	320.78	364392.26	595765.64	8.55	
8004.00	78.85	3.83	7774.02	350.71	351.45	322.70	364423.58	595767.56	2.22	
8035.00	81.56	3.70	7779.30	381.19	381.93	324.70	364454.06	595769.56	8.75	
8050.00	83.40	3.51	7781.26	396.03	396.77	325.64	364468.90	595770.50	12.33	
8067.00	85.44	3.72	7782.91	412.91	413.65	326.71	364485.78	595771.57	12.06	
8101.00	88.25	2.72	7784.78	446.80	447.54	328.61	364519.67	595773.47	8.77	
8162.00	89.29	1.50	7786.09	507.73	508.49	330.86	364580.62	595775.72	2.63	Cross lot 2 line (8162' MD)

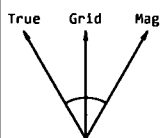
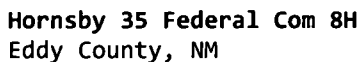
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Survey Points: (Relative to Slot centre)(TVD relative to Drill Floor)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N. Offset (US ft)	E. Offset (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100US ft)	Comment
8195.00	89.86	0.84	7786.33	540.72	541.48	331.53	364613.61	595776.39	2.63	
8290.00	90.98	0.37	7785.64	635.71	636.47	332.53	364708.60	595777.39	1.28	
8384.00	91.05	0.39	7783.97	729.69	730.45	333.16	364802.58	595778.02	0.08	
8478.00	91.33	1.03	7782.02	823.66	824.42	334.32	364896.55	595779.18	0.74	
8573.00	91.26	359.64	7779.87	918.63	919.40	334.88	364991.53	595779.74	1.46	
8666.00	90.63	358.46	7778.34	1011.61	1012.37	333.34	365084.50	595778.20	1.44	
8761.00	90.63	358.79	7777.30	1106.58	1107.33	331.06	365179.46	595775.92	0.35	
8856.00	90.21	359.08	7776.60	1201.56	1202.32	329.29	365274.45	595774.15	0.54	
8950.00	90.98	358.87	7775.62	1295.55	1296.29	327.61	365368.42	595772.47	0.85	
9044.00	90.84	358.48	7774.13	1389.52	1390.26	325.44	365462.39	595770.30	0.44	
9139.00	90.21	358.50	7773.26	1484.48	1485.22	322.93	365557.35	595767.79	0.66	
9234.00	90.70	358.20	7772.50	1579.45	1580.18	320.20	365652.31	595765.06	0.60	
9329.00	90.77	359.16	7771.29	1674.42	1675.14	318.01	365747.27	595762.87	1.01	
9424.00	91.47	0.52	7769.43	1769.40	1770.12	317.74	365842.25	595762.60	1.61	
9518.00	91.40	1.25	7767.08	1863.35	1864.08	319.19	365936.21	595764.05	0.78	
9612.00	90.77	0.89	7765.30	1957.31	1958.05	320.95	366030.18	595765.81	0.77	
9706.00	89.30	1.27	7765.24	2051.29	2052.03	322.72	366124.16	595767.58	1.62	
9801.00	90.84	0.71	7765.12	2146.27	2147.01	324.36	366219.14	595769.22	1.72	
9894.00	91.61	0.15	7763.13	2239.24	2239.98	325.06	366312.11	595769.92	1.02	
9989.00	91.54	0.45	7760.52	2334.20	2334.95	325.56	366407.08	595770.42	0.32	
10083.00	91.40	1.18	7758.11	2428.16	2428.91	326.89	366501.04	595771.75	0.79	
10178.00	90.84	1.30	7756.25	2523.11	2523.87	328.95	366596.00	595773.81	0.60	
10273.00	90.98	359.62	7754.75	2618.09	2618.85	329.71	366690.98	595774.57	1.77	
10367.00	90.77	359.57	7753.31	2712.08	2712.83	329.05	366784.96	595773.91	0.23	
10462.00	90.35	359.61	7752.38	2807.07	2807.83	328.37	366879.96	595773.23	0.44	
10558.00	90.28	0.29	7751.85	2903.07	2903.82	328.28	366975.95	595773.14	0.71	
10652.00	90.63	358.33	7751.11	2997.06	2997.81	327.15	367069.94	595772.01	2.12	
10746.00	91.33	358.53	7749.50	3091.02	3091.76	324.58	367163.89	595769.44	0.77	
10841.00	91.05	358.57	7747.53	3185.97	3186.71	322.17	367258.84	595767.03	0.30	
10935.00	90.63	358.56	7746.15	3279.93	3280.67	319.82	367352.80	595764.68	0.45	
11029.00	90.84	359.93	7744.94	3373.92	3374.65	318.58	367446.78	595763.44	1.47	
11123.00	90.56	0.25	7743.79	3467.91	3468.64	318.73	367540.77	595763.59	0.45	
11216.00	90.98	359.83	7742.54	3560.90	3561.63	318.79	367633.76	595763.65	0.64	
11311.00	91.33	0.03	7740.63	3655.88	3656.62	318.68	367728.75	595763.54	0.42	
11405.00	91.54	359.90	7738.28	3749.85	3750.59	318.62	367822.72	595763.48	0.26	
11500.00	91.96	359.61	7735.37	3844.81	3845.54	318.22	367917.67	595763.08	0.54	
11593.00	89.79	359.58	7733.95	3937.79	3938.52	317.56	368010.65	595762.42	2.33	
11688.00	90.42	0.47	7733.78	4032.79	4033.52	317.60	368105.65	595762.46	1.15	
11782.00	90.49	0.72	7733.03	4126.78	4127.51	318.58	368199.64	595763.44	0.28	
11877.00	90.28	0.53	7732.39	4221.77	4222.50	319.61	368294.63	595764.47	0.30	
11972.00	90.35	1.12	7731.87	4316.75	4317.49	320.98	368389.62	595765.84	0.63	
12067.00	90.70	0.30	7731.00	4411.74	4412.48	322.16	368484.61	595767.02	0.94	
12161.00	90.63	358.74	7729.91	4505.73	4506.47	321.37	368578.60	595766.23	1.66	
12256.00	91.05	359.06	7728.52	4600.70	4601.44	319.55	368673.57	595764.41	0.56	
12351.00	91.75	359.56	7726.20	4695.67	4696.40	318.40	368768.53	595763.26	0.91	
12445.00	90.91	359.34	7724.02	4789.64	4790.37	317.50	368862.50	595762.36	0.92	
12540.00	91.33	359.41	7722.16	4884.62	4885.35	316.46	368957.48	595761.32	0.45	
12635.00	91.12	359.49	7720.13	4979.59	4980.32	315.55	369052.45	595760.41	0.24	
12729.00	90.42	359.41	7718.86	5073.58	5074.31	314.65	369146.44	595759.51	0.75	
12824.00	91.68	359.07	7717.12	5168.56	5169.28	313.39	369241.41	595758.25	1.37	
12919.00	92.45	358.33	7713.70	5263.48	5264.20	311.24	369336.33	595756.10	1.12	
13014.00	93.43	359.11	7708.83	5358.33	5359.04	309.12	369431.17	595753.98	1.32	
13109.00	92.80	0.30	7703.67	5453.19	5453.90	308.63	369526.03	595753.49	1.42	
13203.00	93.08	0.21	7698.84	5547.06	5547.78	309.05	369619.91	595753.91	0.31	
13298.00	93.22	0.24	7693.62	5641.92	5642.63	309.42	369714.76	595754.28	0.15	
13393.00	93.15	0.52	7688.35	5736.76	5737.48	310.05	369809.61	595754.91	0.30	
13487.00	93.15	0.16	7683.18	5830.62	5831.34	310.61	369903.47	595755.47	0.38	
13582.00	93.29	359.95	7677.84	5925.47	5926.19	310.70	369998.32	595755.56	0.27	
13677.00	93.71	0.01	7672.04	6020.29	6021.01	310.66	370093.14	595755.52	0.45	

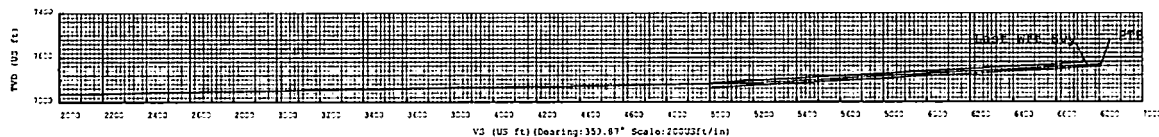
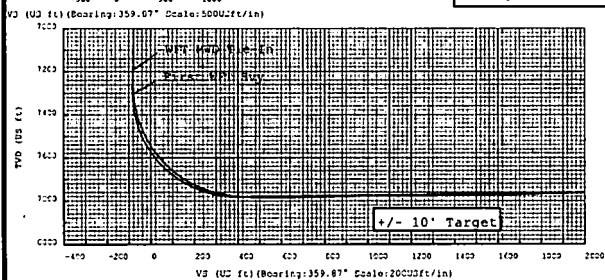
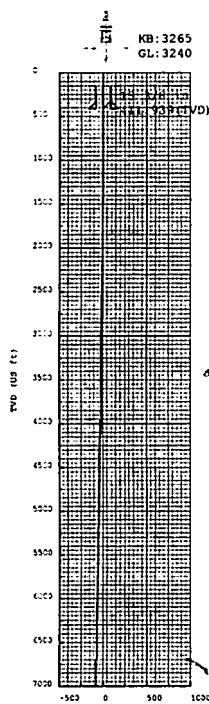
5D Survey Report

Survey Points: (Relative to Slot centre)(TVD relative to Drill Floor)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100US ft)	Comment
13772.00	92.59	0.43	7666.82	6115.14	6115.87	311.03	370188.00	595755.89	1.26	
13866.00	92.38	0.54	7662.75	6209.05	6209.77	311.82	370281.90	595756.68	0.25	
13960.00	92.59	0.21	7658.67	6302.96	6303.68	312.44	370375.81	595757.30	0.42	
14055.00	92.59	0.12	7654.38	6397.86	6398.59	312.71	370470.72	595757.57	0.09	
14150.00	92.66	0.12	7650.03	6492.76	6493.49	312.91	370565.62	595757.77	0.07	
14245.00	92.80	0.25	7645.50	6587.65	6588.38	313.22	370660.51	595758.08	0.20	
14341.00	92.87	0.61	7640.76	6683.53	6684.26	313.94	370756.39	595758.80	0.38	
14405.00	92.87	0.54	7637.55	6747.44	6748.17	314.58	370820.30	595759.44	0.11	Last Wft Svy
14465.00	92.87	0.54	7634.55	6807.36	6808.10	315.14	370880.23	595760.00	0.00	PTB

Formation Points: (Relative to Slot centre)(TVD relative to Drill Floor)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	Name	Comment	
N/A	2.46	85.42	7855.00	-17.40	54.56	364054.73	595499.42	3rd BS Limestone		
1550.15	0.81	142.35	1550.00	-0.79	-1.22	364071.34	595443.64	Salado (Top Salt)		
2102.40	2.60	107.32	2102.00	-4.91	13.22	364067.22	595458.08	Castille (Base Salt)		
2260.52	2.13	109.65	2260.00	-7.07	19.22	364065.06	595464.08	Bell Canyon (Delaware)		
3291.24	2.49	83.93	3290.00	-17.30	55.64	364054.83	595500.50	Cherry Canyon		
4473.60	3.28	113.31	4470.00	-34.07	126.80	364038.06	595571.66	Brushy Canyon		
5741.11	3.43	112.23	5735.00	-56.88	202.30	364015.25	595647.16	Brushy Canyon Lower		
5941.42	2.72	115.22	5935.00	-61.53	212.37	364010.60	595657.23	Bone Spring		
6156.79	3.68	117.32	6150.00	-66.57	223.77	364005.56	595668.63	Bone Spring "A" Shale		
6557.27	2.01	92.31	6550.00	-70.88	242.28	364001.25	595687.14	Bone Spring "C" Shale		
6857.39	1.29	132.68	6850.00	-74.24	250.03	363997.89	595694.89	1st Bone Spring Ss		
7332.71	7.33	34.90	7325.00	-75.34	258.43	363996.79	595703.29	2nd Bone Spring Ss		
7983.37	78.64	3.42	7770.00	331.26	321.42	364403.39	595766.28	2nd BS Ss Horz Target		



Grid Convergence: 0.09°
Mag Declination: 7.28°
Bearing:
True = Mag + 7.28°
Grid = True - 0.09°
Total Correction 7.19°



Plan Data for Hornsby 35 Federal Com 8H

Plan Point Information:									
Dogleg Severity Unit: */100.00ft		Position offsets from Slot centre				DLS Comments			
MD	Az	TVD	+N/-S	+E/-W	VSec				
(USFt)	(°)	(°)	(USFt)	(USFt)	(USFt)	(USFt)	(DLSU)		
279.00	90.42	359.41	7718.86	5074.31	314.65	5073.58	0.75	Lat	Wft Svy
2923.11	93.00	1.75	7717.67	5248.31	316.41	5247.58	2.00	Turn	
2929.02	93.00	359.87	7708.76	5342.07	317.73	5341.34	2.00	Hold	
4465.54	93.00	359.87	7632.00	6888.58	317.39	6887.85	0.00	PHL	

Plan Data for Hornsby 35 Federal Com 8H

Field: Cimarex Mad 83 NMEZ
Map Unit: USFt Vertical Reference Datum (VRD): Mean Sea Level
Projected Coordinate System: NAD83 / New Mexico East (ftUS)

Site: Hornsby 35 Federal Com 7H,8H Pad

Unit: USFeet TVD Reference:
Company Name: Cimarex Energy
Position: Northing: 364072.12USft Latitude: 32.000794°
 Easting: 595424.85USft Longitude: -104.158850°
North Reference: Grid Grid Convergence: 0.09°
Elevation Above VRD: 3241.00USft
Comment: Eddy Co, NM

Slot: Hornsby 35 Federal Com BH
Position:
Offset is from Site centre
+N/-S: 0.01USft Northing: 364072.13USft Latitude: 32.000794°
+E/-W: 20.01USft Easting: 595444.86USft Longitude: -104.158785°
Elevation Above VRD: 3240.00USft
Comment: Eddy Co, NM

Well: Hornsby 35 Federal Com 8H
Type: Main-Well
File Number:

Plan Folder: P3 Plan: P3:V1
Vertical Section: Position offset of origin from Slot centre:
+N/-S: 0.00USft Azimuth: 359.87°
+E/-W: 0.00USft

Magnetic Parameters:

Model:	Field Strength:	Declination:	Dip:	Date:
bgm2017	47805(nT)	7.28°	59.72°	2017-07-25

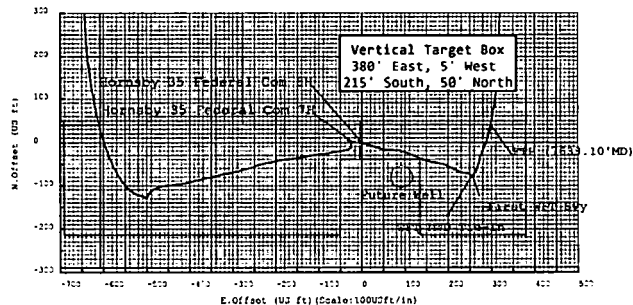
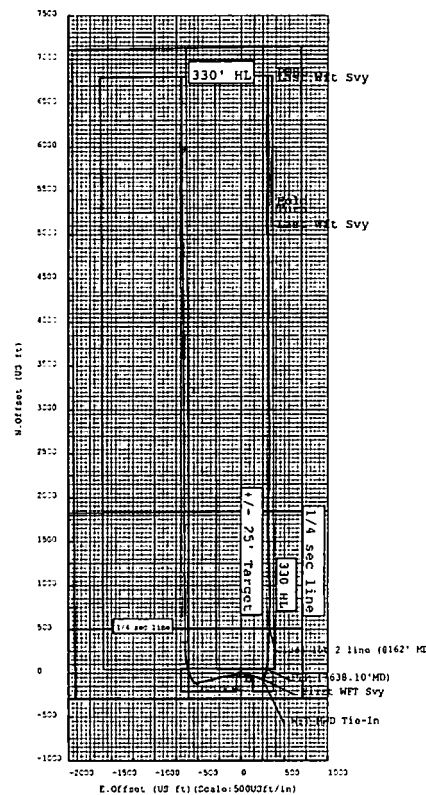
Plan Data for Hornsby 35 Federal Com 8H

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Target Set Information:
Name: Hornsby 35 Federal Com BH
Position offsets from Slot centre
Name      TVD      TVD SS      +N/-S      +E/-W      Northing      Easting
(Usft)    (Usft)    (Usft)      (Usft)      (Usft)      (Usft)
Lp Tgt 7782.58 -4517.58 408.30 328.70 364488.43 595773.56
Lp Plat 7781.58 -4516.58 600.25 328.27 364672.38 595737.33
4600 VS 7730.00 -4451.58 319.00 319.00 365072.87 595764.01
PBH1 7632.00 3367.00 308.58 320.30 370888.71 595759.25
Future Well 0.00 3265.00 -80.00 92.00 363992.13 595536.86
Comment: Target Well

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Hornsby	35	Federal	Com	8H	_____
Hornsby	35	Federal	Com	7H	_____
Hornsby	35	Federal	Com	8H	_____



Drawing By: GWR Date: 7/28/2017
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