



NM OIL CONSERVATION
ARTESIA DISTRICT

NOV 21 2014

RECEIVED

Yates Petroleum Corp.

Eddy, NM (NAD83)

Sec 24-TW26S-RNG27E

Cassiopeia BQD St Com No.2H

30-015-41797

ST1

Design: ST1

Standard Survey Report

15 August, 2014





Childress Directional Drilling

Survey Report



Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well Cassiopeia BQD St Com No.2H
Project:	Eddy, NM (NAD83)	TVD Reference:	KB @ 3134.0usft (McVay #8)
Site:	Sec 24-TW26S-RNG27E	MD Reference:	KB @ 3134.0usft (McVay #8)
Well:	Cassiopeia BQD St Com No.2H	North Reference:	Grid
Wellbore:	ST1	Survey Calculation Method:	Minimum Curvature
Design:	ST1	Database:	EDM 5000.1 Single User Db

Project	Eddy, NM (NAD83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Sec 24-TW26S-RNG27E		
Site Position:		Northing:	371,246.00 usft
From:	Map	Easting:	601,766.42 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 1' 13.747 N
		Longitude:	104° 8' 18.062 W
		Grid Convergence:	0.10 °

Well	Cassiopeia BQD St Com No.2H		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
		Latitude:	32° 1' 13.747 N
		Longitude:	104° 8' 18.062 W
		Ground Level:	3,109.0 usft

Wellbore	ST1		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	2014/07/07	7.46
			Dip Angle
			(°)
			59.83
			Field Strength
			(nT)
			48,128

Design	ST1		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	6,751.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			3.59

Survey Program	Date: 2014/08/15		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
100.0	329.0	MS Gyro (Original Hole)	Gyro
503.0	6,751.0	Childress MWD (Original Hole)	MWD
6,817.0	12,482.0	ST1 (ST1)	MWD
			Description
			Camera based gyro multishot
			MWD v3:standard declination
			MWD v3:standard declination

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
100.0	0.30	204.24	100.0	-0.2	-0.1	-0.2	0.30	0.30	0.00	
200.0	0.59	199.05	200.0	-1.0	-0.4	-1.0	0.29	0.29	-5.19	
300.0	0.96	195.88	300.0	-2.3	-0.8	-2.3	0.37	0.37	-3.17	
329.0	0.84	194.74	329.0	-2.7	-0.9	-2.7	0.42	-0.41	-3.93	
503.0	0.60	158.20	503.0	-4.8	-0.9	-4.8	0.29	-0.14	-21.00	
540.0	0.70	145.70	540.0	-5.1	-0.7	-5.2	0.47	0.27	-33.78	
677.0	3.90	96.70	676.8	-6.4	4.4	-6.1	2.54	2.34	-35.77	
764.0	5.00	90.30	763.6	-6.7	11.1	-6.0	1.39	1.26	-7.36	



Childress Directional Drilling

Survey Report



Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well Cassiopeia BQD St Com No.2H
Project:	Eddy, NM (NAD83)	TVD Reference:	KB @ 3134.0usft (McVay #8)
Site:	Sec 24-TW26S-RNG27E	MD Reference:	KB @ 3134.0usft (McVay #8)
Well:	Cassiopeia BQD St Com No.2H	North Reference:	Grid
Wellbore:	ST1	Survey Calculation Method:	Minimum Curvature
Design:	ST1	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
849.0	4.30	95.10	848.3	-7.0	18.0	-5.9	0.94	-0.82	5.65
936.0	4.50	83.00	935.0	-6.9	24.7	-5.4	1.09	0.23	-13.91
1,063.0	5.90	75.70	1,061.5	-4.7	35.9	-2.4	1.22	1.10	-5.75
1,157.0	5.00	71.90	1,155.1	-2.2	44.5	0.6	1.03	-0.96	-4.04
1,251.0	4.50	71.20	1,248.8	0.2	51.9	3.5	0.54	-0.53	-0.74
1,345.0	3.80	74.80	1,342.5	2.2	58.4	5.9	0.79	-0.74	3.83
1,439.0	4.30	64.30	1,436.3	4.6	64.6	8.6	0.95	0.53	-11.17
1,533.0	4.80	62.40	1,530.0	7.9	71.2	12.4	0.56	0.53	-2.02
1,627.0	4.30	67.00	1,623.7	11.1	78.0	16.0	0.66	-0.53	4.89
1,721.0	4.40	66.10	1,717.4	14.0	84.5	19.2	0.13	0.11	-0.96
1,815.0	2.80	67.70	1,811.2	16.3	89.9	21.9	1.71	-1.70	1.70
1,909.0	3.10	75.40	1,905.1	17.8	94.5	23.7	0.53	0.32	8.19
2,003.0	2.00	69.70	1,999.0	19.0	98.5	25.1	1.20	-1.17	-6.06
2,097.0	1.90	17.70	2,093.0	21.1	100.5	27.3	1.82	-0.11	-55.32
2,191.0	2.10	8.10	2,186.9	24.3	101.2	30.6	0.41	0.21	-10.21
2,285.0	1.40	6.90	2,280.9	27.1	101.6	33.4	0.75	-0.74	-1.28
2,379.0	1.30	4.20	2,374.8	29.3	101.8	35.6	0.13	-0.11	-2.87
2,487.0	0.80	6.00	2,482.8	31.3	102.0	37.6	0.46	-0.46	1.67
2,581.0	0.80	1.90	2,576.8	32.6	102.1	38.9	0.06	0.00	-4.36
2,675.0	0.80	19.40	2,670.8	33.9	102.3	40.2	0.26	0.00	18.62
2,863.0	0.40	21.20	2,858.8	35.7	103.0	42.1	0.21	-0.21	0.96
3,051.0	0.40	345.40	3,046.8	37.0	103.1	43.3	0.13	0.00	-19.04
3,239.0	0.30	310.80	3,234.8	37.9	102.5	44.3	0.12	-0.05	-18.40
3,428.0	0.30	323.80	3,423.8	38.6	101.9	44.9	0.04	0.00	6.88
3,616.0	0.30	326.20	3,611.8	39.4	101.3	45.7	0.01	0.00	1.28
3,804.0	0.40	272.10	3,799.8	39.9	100.4	46.1	0.18	0.05	-28.78
3,992.0	0.50	254.30	3,987.8	39.7	98.9	45.8	0.09	0.05	-9.47
4,180.0	0.60	280.20	4,175.8	39.6	97.2	45.6	0.14	0.05	13.78
4,368.0	0.40	249.30	4,363.8	39.6	95.6	45.5	0.17	-0.11	-16.44
4,556.0	0.60	232.60	4,551.8	38.7	94.2	44.6	0.13	0.11	-8.88
4,745.0	0.60	223.50	4,740.7	37.4	92.7	43.2	0.05	0.00	-4.81
4,933.0	0.60	218.40	4,928.7	35.9	91.4	41.6	0.03	0.00	-2.71
5,121.0	0.90	209.80	5,116.7	33.9	90.1	39.5	0.17	0.16	-4.57
5,310.0	0.70	176.10	5,305.7	31.5	89.4	37.0	0.27	-0.11	-17.83
5,498.0	0.90	192.40	5,493.7	28.9	89.2	34.4	0.16	0.11	8.67
5,687.0	1.20	188.40	5,682.7	25.5	88.6	31.0	0.16	0.16	-2.12
5,875.0	1.40	201.90	5,870.6	21.4	87.4	26.8	0.19	0.11	7.18
6,063.0	1.80	211.80	6,058.5	16.7	85.0	22.0	0.26	0.21	5.27
6,251.0	1.50	221.70	6,246.5	12.4	81.8	17.5	0.22	-0.16	5.27
6,439.0	1.50	266.60	6,434.4	10.4	77.7	15.3	0.61	0.00	23.88
6,626.0	0.80	343.70	6,621.4	11.5	74.9	16.2	0.82	-0.37	41.23
6,751.0	2.80	28.60	6,746.3	15.0	76.1	19.8	1.84	1.60	35.92
6,817.0	4.60	356.80	6,812.2	19.1	76.8	23.9	4.04	2.73	-48.18



Childress Directional Drilling

Survey Report



Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well Cassiopeia BQD St Com No.2H
Project:	Eddy, NM (NAD83)	TVD Reference:	KB @ 3134.0usft (McVay #8)
Site:	Sec 24-TW26S-RNG27E	MD Reference:	KB @ 3134.0usft (McVay #8)
Well:	Cassiopeia BQD St Com.No.2H	North Reference:	Grid
Wellbore:	ST1	Survey Calculation Method:	Minimum Curvature
Design:	ST1	Database:	EDM 5000.1 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
6,880.0	11.30	357.40	6,874.5	27.8	76.3	32.5	10.64	10.63	0.95	
6,911.0	11.70	357.00	6,904.9	34.0	76.0	38.7	1.32	1.29	-1.29	
6,943.0	11.50	356.20	6,936.3	40.4	75.7	45.0	0.80	-0.63	-2.50	
7,005.0	10.80	353.30	6,997.1	52.3	74.6	56.9	1.45	-1.13	-4.68	
7,068.0	10.50	352.60	7,059.0	63.9	73.1	68.3	0.52	-0.48	-1.11	
7,131.0	9.40	350.50	7,121.0	74.6	71.6	79.0	1.84	-1.75	-3.33	
7,194.0	8.40	348.50	7,183.3	84.2	69.8	88.4	1.66	-1.59	-3.17	
7,256.0	8.70	2.10	7,244.6	93.4	69.1	97.5	3.29	0.48	21.94	
7,287.0	8.60	4.90	7,275.3	98.0	69.3	102.2	1.40	-0.32	9.03	
7,319.0	8.50	5.60	7,306.9	102.7	69.8	106.9	0.45	-0.31	2.19	
7,350.0	11.00	7.40	7,337.4	108.0	70.4	112.2	8.12	8.06	5.81	
7,381.0	15.20	13.00	7,367.6	114.9	71.7	119.1	14.14	13.55	18.06	
7,413.0	18.10	16.60	7,398.3	123.7	74.0	128.1	9.61	9.06	11.25	
7,444.0	19.80	15.20	7,427.6	133.4	76.8	137.9	5.68	5.48	-4.52	
7,476.0	23.30	13.40	7,457.4	144.8	79.7	149.5	11.13	10.94	-5.63	
7,507.0	27.70	12.90	7,485.3	157.8	82.7	162.6	14.21	14.19	-1.61	
7,539.0	31.80	10.60	7,513.1	173.3	85.9	178.4	13.30	12.81	-7.19	
7,570.0	36.10	8.00	7,538.8	190.4	88.7	195.6	14.64	13.87	-8.39	
7,601.0	41.00	6.50	7,563.1	209.6	91.1	214.9	16.09	15.81	-4.84	
7,633.0	46.10	5.00	7,586.3	231.5	93.3	236.9	16.26	15.94	-4.69	
7,664.0	50.30	4.20	7,606.9	254.5	95.2	260.0	13.68	13.55	-2.58	
7,695.0	52.50	2.90	7,626.3	278.7	96.7	284.2	7.82	7.10	-4.19	
7,727.0	55.40	2.90	7,645.1	304.5	98.0	310.1	9.06	9.06	0.00	
7,758.0	59.00	2.90	7,661.9	330.6	99.3	336.1	11.61	11.61	0.00	
7,790.0	60.60	3.90	7,678.0	358.2	100.9	363.8	5.68	5.00	3.13	
7,821.0	63.00	4.30	7,692.6	385.4	102.9	391.1	7.82	7.74	1.29	
7,852.0	66.20	4.30	7,705.9	413.3	105.0	419.1	10.32	10.32	0.00	
7,884.0	69.70	4.80	7,717.9	442.9	107.3	448.7	11.03	10.94	1.56	
7,906.0	71.40	4.20	7,725.2	463.6	109.0	469.5	8.14	7.73	-2.73	
7,938.0	74.60	4.00	7,734.6	494.1	111.2	500.1	10.02	10.00	-0.63	
7,969.0	77.90	3.80	7,742.0	524.1	113.2	530.2	10.66	10.65	-0.65	
8,000.0	79.90	4.50	7,747.9	554.5	115.4	560.6	6.82	6.45	2.26	
8,032.0	81.50	5.80	7,753.1	585.9	118.2	592.2	6.41	5.00	4.06	
8,063.0	83.20	6.20	7,757.2	616.5	121.5	622.9	5.63	5.48	1.29	
8,094.0	84.60	7.40	7,760.5	647.1	125.1	653.6	5.93	4.52	3.87	
8,126.0	86.30	7.80	7,763.1	678.7	129.3	685.5	5.46	5.31	1.25	
8,157.0	88.30	8.00	7,764.5	709.4	133.6	716.3	6.48	6.45	0.65	
8,188.0	90.50	8.20	7,764.9	740.0	137.9	747.2	7.13	7.10	0.65	
8,220.0	91.80	8.10	7,764.2	771.7	142.5	779.1	4.07	4.06	-0.31	
8,251.0	91.70	7.60	7,763.3	802.4	146.7	810.0	1.64	-0.32	-1.61	
8,283.0	91.60	6.90	7,762.3	834.1	150.8	841.9	2.21	-0.31	-2.19	
8,314.0	91.70	7.00	7,761.4	864.9	154.5	872.9	0.46	0.32	0.32	
8,345.0	91.80	6.20	7,760.5	895.7	158.1	903.8	2.60	0.32	-2.58	



Childress Directional Drilling

Survey Report



Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well Cassiopeia BQD St Com No.2H
Project:	Eddy, NM (NAD83)	TVD Reference:	KB @ 3134.0usft (McVay #8)
Site:	Sec 24-TW26S-RNG27E	MD Reference:	KB @ 3134.0usft (McVay #8)
Well:	Cassiopeia BQD St Com No.2H	North Reference:	Grid
Wellbore:	ST1	Survey Calculation Method:	Minimum Curvature
Design:	ST1	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,377.0	91.40	5.40	7,759.6	927.5	161.3	935.8	2.79	-1.25	-2.50
8,408.0	91.30	5.10	7,758.9	958.4	164.1	966.8	1.02	-0.32	-0.97
8,439.0	91.50	5.30	7,758.1	989.2	166.9	997.7	0.91	0.65	0.65
8,471.0	91.70	5.40	7,757.2	1,021.1	169.9	1,029.7	0.70	0.63	0.31
8,502.0	91.20	4.80	7,756.4	1,051.9	172.7	1,060.7	2.52	-1.61	-1.94
8,533.0	90.80	4.60	7,755.9	1,082.8	175.2	1,091.7	1.44	-1.29	-0.65
8,628.0	90.20	3.30	7,755.1	1,177.6	181.8	1,186.7	1.51	-0.63	-1.37
8,722.0	89.90	1.80	7,755.0	1,271.5	185.9	1,280.7	1.63	-0.32	-1.60
8,816.0	90.20	1.60	7,754.9	1,365.5	188.7	1,374.6	0.38	0.32	-0.21
8,910.0	90.50	1.60	7,754.3	1,459.4	191.4	1,468.5	0.32	0.32	0.00
9,004.0	90.00	0.10	7,753.9	1,553.4	192.7	1,562.4	1.68	-0.53	-1.60
9,098.0	90.90	0.60	7,753.2	1,647.4	193.3	1,656.3	1.10	0.96	0.53
9,193.0	89.50	0.20	7,752.9	1,742.4	194.0	1,751.1	1.53	-1.47	-0.42
9,287.0	89.20	359.90	7,753.9	1,836.4	194.1	1,844.9	0.45	-0.32	-0.32
9,381.0	89.40	359.50	7,755.1	1,930.4	193.6	1,938.7	0.48	0.21	-0.43
9,475.0	89.30	0.00	7,756.1	2,024.4	193.2	2,032.5	0.54	-0.11	0.53
9,569.0	89.10	1.20	7,757.4	2,118.4	194.1	2,126.4	1.29	-0.21	1.28
9,663.0	89.40	0.70	7,758.7	2,212.3	195.7	2,220.3	0.62	0.32	-0.53
9,758.0	89.90	1.90	7,759.3	2,307.3	197.9	2,315.2	1.37	0.53	1.26
9,852.0	89.80	1.50	7,759.5	2,401.3	200.7	2,409.1	0.44	-0.11	-0.43
9,946.0	90.50	3.40	7,759.3	2,495.2	204.7	2,503.1	2.15	0.74	2.02
10,041.0	90.70	3.60	7,758.3	2,590.0	210.5	2,598.1	0.30	0.21	0.21
10,135.0	90.40	3.30	7,757.4	2,683.8	216.1	2,692.1	0.45	-0.32	-0.32
10,229.0	90.20	2.40	7,756.9	2,777.7	220.8	2,786.1	0.98	-0.21	-0.96
10,323.0	90.50	2.20	7,756.3	2,871.6	224.6	2,880.1	0.38	0.32	-0.21
10,417.0	90.90	2.30	7,755.1	2,965.6	228.3	2,974.0	0.44	0.43	0.11
10,511.0	89.30	2.20	7,755.0	3,059.5	232.0	3,068.0	1.71	-1.70	-0.11
10,605.0	88.80	2.80	7,756.5	3,153.4	236.1	3,162.0	0.83	-0.53	0.64
10,699.0	89.80	3.10	7,757.7	3,247.2	240.9	3,256.0	1.11	1.06	0.32
10,794.0	89.20	3.60	7,758.5	3,342.1	246.4	3,350.9	0.82	-0.63	0.53
10,887.0	91.80	1.70	7,757.7	3,435.0	250.7	3,443.9	3.46	2.80	-2.04
10,982.0	93.20	1.80	7,753.6	3,529.8	253.6	3,538.8	1.48	1.47	0.11
11,076.0	91.90	2.10	7,749.4	3,623.7	256.8	3,632.6	1.42	-1.38	0.32
11,171.0	90.20	2.50	7,747.6	3,718.6	260.6	3,727.6	1.84	-1.79	0.42
11,265.0	91.10	2.40	7,746.6	3,812.5	264.7	3,821.6	0.96	0.96	-0.11
11,359.0	90.10	2.20	7,745.6	3,906.4	268.4	3,915.5	1.08	-1.06	-0.21
11,452.0	89.20	2.50	7,746.2	3,999.3	272.2	4,008.5	1.02	-0.97	0.32
11,547.0	90.20	2.70	7,746.7	4,094.2	276.6	4,103.5	1.07	1.05	0.21
11,640.0	89.10	3.10	7,747.2	4,187.1	281.3	4,196.5	1.26	-1.18	0.43
11,734.0	89.90	2.90	7,748.0	4,281.0	286.2	4,290.5	0.88	0.85	-0.21
11,829.0	88.70	3.50	7,749.2	4,375.8	291.5	4,385.5	1.41	-1.26	0.63
11,923.0	89.90	3.60	7,750.4	4,469.6	297.3	4,479.5	1.28	1.28	0.11
12,017.0	87.70	2.90	7,752.3	4,563.4	302.6	4,573.4	2.46	-2.34	-0.74
12,111.0	86.70	2.70	7,756.9	4,657.2	307.2	4,667.3	1.08	-1.06	-0.21



Childress Directional Drilling Survey Report



Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well Cassiopeia BQD St Com No.2H
Project:	Eddy, NM (NAD83)	TVD Reference:	KB @ 3134.0usft (McVay #8)
Site:	Sec 24-TW26S-RNG27E	MD Reference:	KB @ 3134.0usft (McVay #8)
Well:	Cassiopeia BQD St Com No.2H	North Reference:	Grid
Wellbore:	ST1	Survey Calculation Method:	Minimum Curvature
Design:	ST1	Database:	EDM-5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,205.0	88.80	2.70	7,760.6	4,751.0	311.6	4,761.2	2.23	2.23	0.00
12,300.0	89.80	2.70	7,761.8	4,845.9	316.1	4,856.2	1.05	1.05	0.00
12,394.0	90.90	3.40	7,761.2	4,939.8	321.1	4,950.2	1.39	1.17	0.74
12,429.0	91.80	3.70	7,760.4	4,974.7	323.3	4,985.2	2.71	2.57	0.86
Cassiopeia 2H Plat PBHL									
12,482.0	91.80	3.70	7,758.7	5,027.6	326.7	5,038.2	0.00	0.00	0.00
TD Projection @ 12482.0' MD, 7758.7' TVD - 100' Past Hard Line									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
12,482.0	7,758.7	5,027.6	326.7	TD Projection @ 12482.0' MD, 7758.7' TVD

Checked By: _____ Approved By: _____ Date: _____



Yates Petroleum Corp.
Eddy, NM (NAD83)
Sec 24-TW26S-RNG27E
Cassiopeia BQD St Com No.2H
Plan #1



Surface Location

Ground Elevation: 3109.0 KB @ 3134.0usft (McVay #8)
+N/-S +E/-W Northing Easting Latitude Longitude
0.0 0.0 371246.00 601766.42 32° 1' 13.747 N 104° 8' 18.062 W

Casing Details

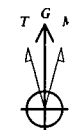
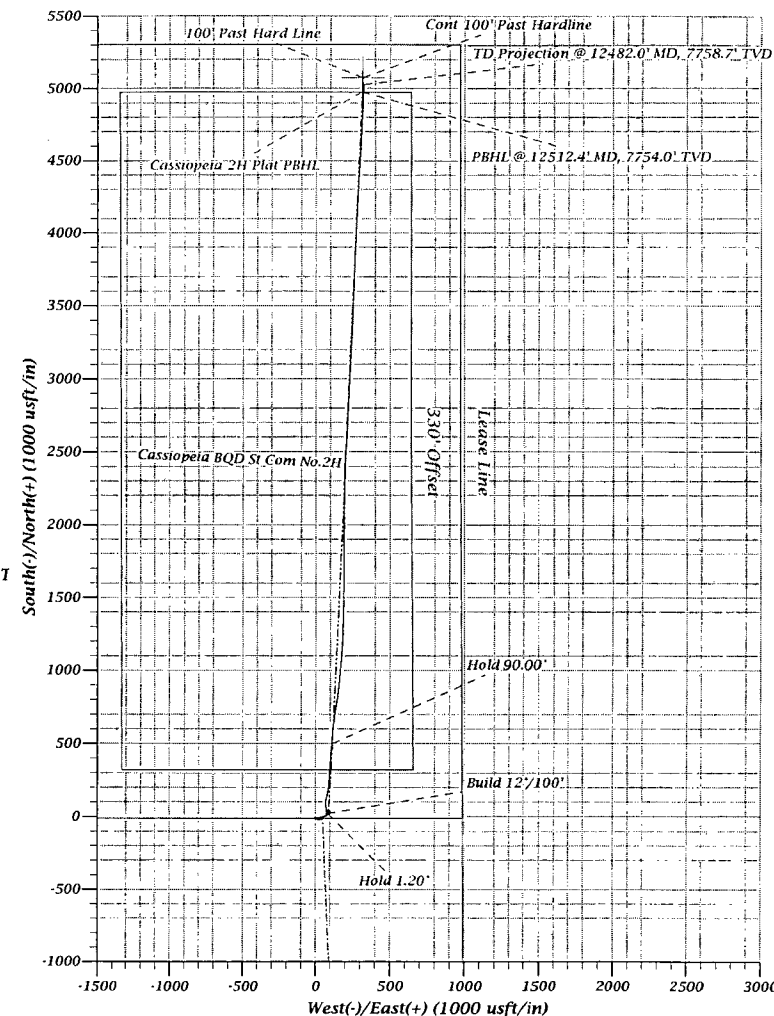
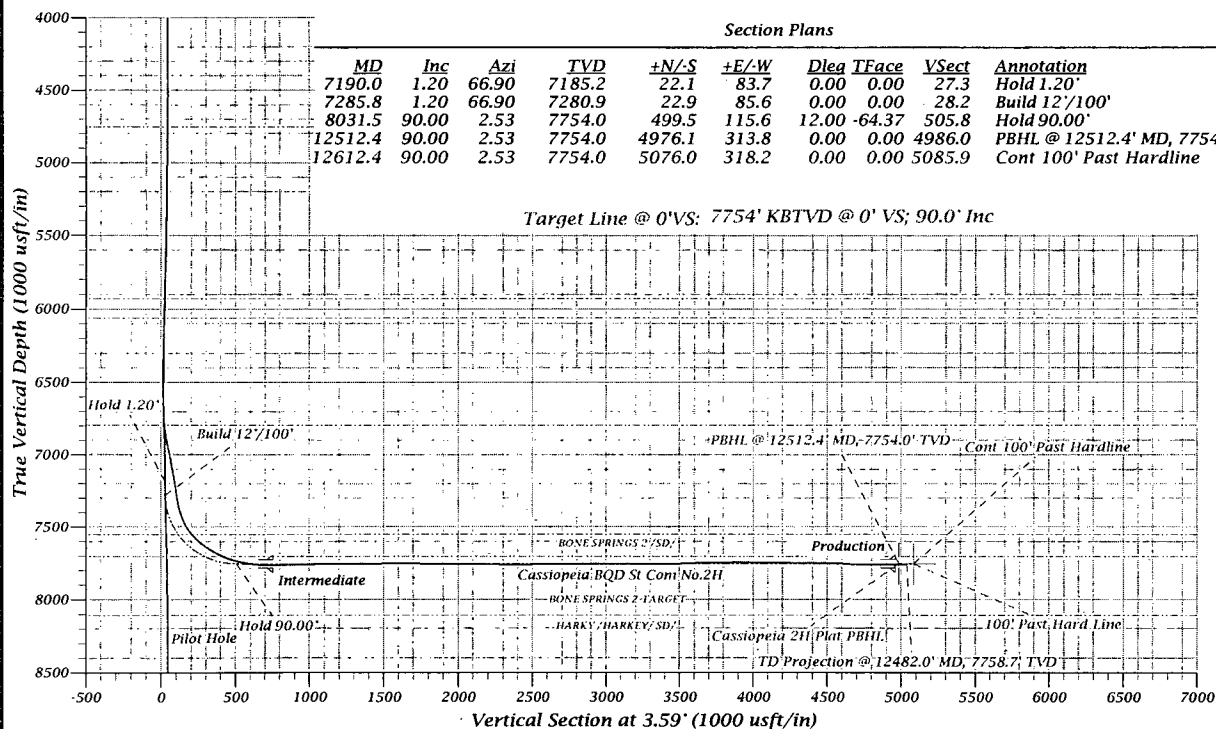
Targets

TVD	MD	Size	Name	TVD	+N/-S	+E/-W	Northing	Easting
7754.0	8280.0	Intermediate	Cassiopeia 2H Plat PBHL	7754.0	4976.1	313.8	376222.07	602080.22
7754.0	12488.0	Production	100' Past Hard Line	7754.0	5076.0	318.2	376321.97	602084.64

Section Plans

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
7190.0	1.20	66.90	7185.2	22.1	83.7	0.00	0.00	27.3	Hold 1.20'
7285.8	1.20	66.90	7280.9	22.9	85.6	0.00	0.00	28.2	Build 12'/100'
8031.5	90.00	2.53	7754.0	499.5	115.6	12.00	-64.37	505.8	Hold 90.00'
12512.4	90.00	2.53	7754.0	4976.1	313.8	0.00	0.00	4986.0	PBHL @ 12512.4' MD, 7754.0' TVD
12612.4	90.00	2.53	7754.0	5076.0	318.2	0.00	0.00	5085.9	Cont 100' Past Hardline

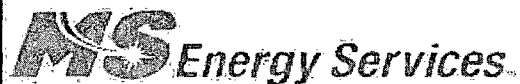
Target Line @ 0°VS: 7754' KBTV @ 0° VS; 90.0° Inc



Azimuths to Grid North
True North: -0.10°
Magnetic North: 7.35°
Magnetic Field
Strength: 48128.4snT
Dip Angle: 59.83°
Date: 2014/07/07
Model: IGRF2010

To convert a Magnetic Direction to a Grid Direction, Add 7.3

Well Planner: Mark Adair
10:12, August 15 2014



Job Number: SVMO-140976
 Company: Yates Petroleum Corporation
 Lease/Well: Cassiopeia BQD State Com 002H
 Location: Eddy County, NM
 Rig Name: McVay #8
 RKB: 17'
 G.L. or M.S.L.: GL

State/Country: New Mexico/USA
 Declination: 7.40°
 Grid: East To Grid North
 File name: Y:\WINSER~1\2014SU~1\YATES\MOICASSIO~1\002H.SVY
 Date/Time: 21-Jul-14 / 12:01
 Curve Name: Surface - 329' M.D. (Rate:Gyro)

MS Survey

WINSERVE SURVEY CALCULATIONS

Minimum Curvature Method

Vertical Section Plane .00

Vertical Section Referenced to Wellhead

Rectangular Coordinates Referenced to Wellhead

We hereby certify that our survey data from
 Surface MD to 329 MD is, to the best of
 our knowledge a true and accurate account of the
 well bore:

Travis Brackshaw 7/21/14
 MS Energy Services Date

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity
							Distance FT	Direction Deg	Deg/100
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
100.00	.30	204.24	100.00	-.24	-.11	-.24	.26	204.24	.30
200.00	.59	199.05	200.00	-.96	-.38	-.96	1.04	201.67	.29
300.00	.96	195.88	299.99	-2.26	-.78	-2.26	2.39	199.07	.37
Last Survey Depth Recorded									
329.00	.84	194.74	328.98	-2.70	-.90	-2.70	2.84	198.48	.42

**McVAY DRILLING COMPANY**

P.O. Box 2450
Hobbs, New Mexico 88241
(575) 397-3311
FAX: 39-DRILL

NM OIL CONSERVATION
ACT

RECEIVED

Well Name and Num: Cassiopeia "BQD" State Com #2H
Location: Sec 24, T26S, R27E
Operator: Yates
Drilling Contractor: McVay Drilling Company

The undersigned certifies that he is an authorized representative of the drilling contractor who drilled the above described well and that he has conducted deviation tests and obtained the following results:

<u>Degrees @</u>	<u>Depth</u>	<u>Degrees @</u>	<u>Depth</u>	<u>Degrees @</u>	<u>Depth</u>
1.12	200	1.20	5687	46.10	7633
0.60	503	1.40	5875	52.50	7695
3.90	677	1.80	6063	69.70	7884
5.00	764	1.50	6439	86.30	8126
4.50	1251	0.80	6626	91.20	8502
4.40	1721	1.90	6814	90.50	8910
1.90	2097	1.20	7190	89.20	9287
1.40	2285	1.50	7567	89.40	9663
1.30	2379	1.20	7973	90.70	10041
0.80	2581	0.20	8320	90.50	10323
0.30	3424	0.70	8697	88.80	10605
0.60	4180	1.10	9010	89.80	10699
0.40	4368	4.60	6817	91.90	11076
0.60	4556	10.80	7005	90.01	11303
0.60	4745	8.40	7194	89.90	11734
0.90	5121	8.10	7256	86.70	12111
0.70	5310	18.10	7413	91.80	12429

By: Hunter Crandall

Subscribed and sworn to before me this 19th day of August, 2014

Tina Flemens
Notary Public, Lea County, New Mexico

