

Project: Weld County, Colorado NAD83 (Northern)
Site: Sec 16-T8N-R60W
Well: State 16-8-60 2H
Wellbore: Original Hole
Final Surveys
Rig: SST 53

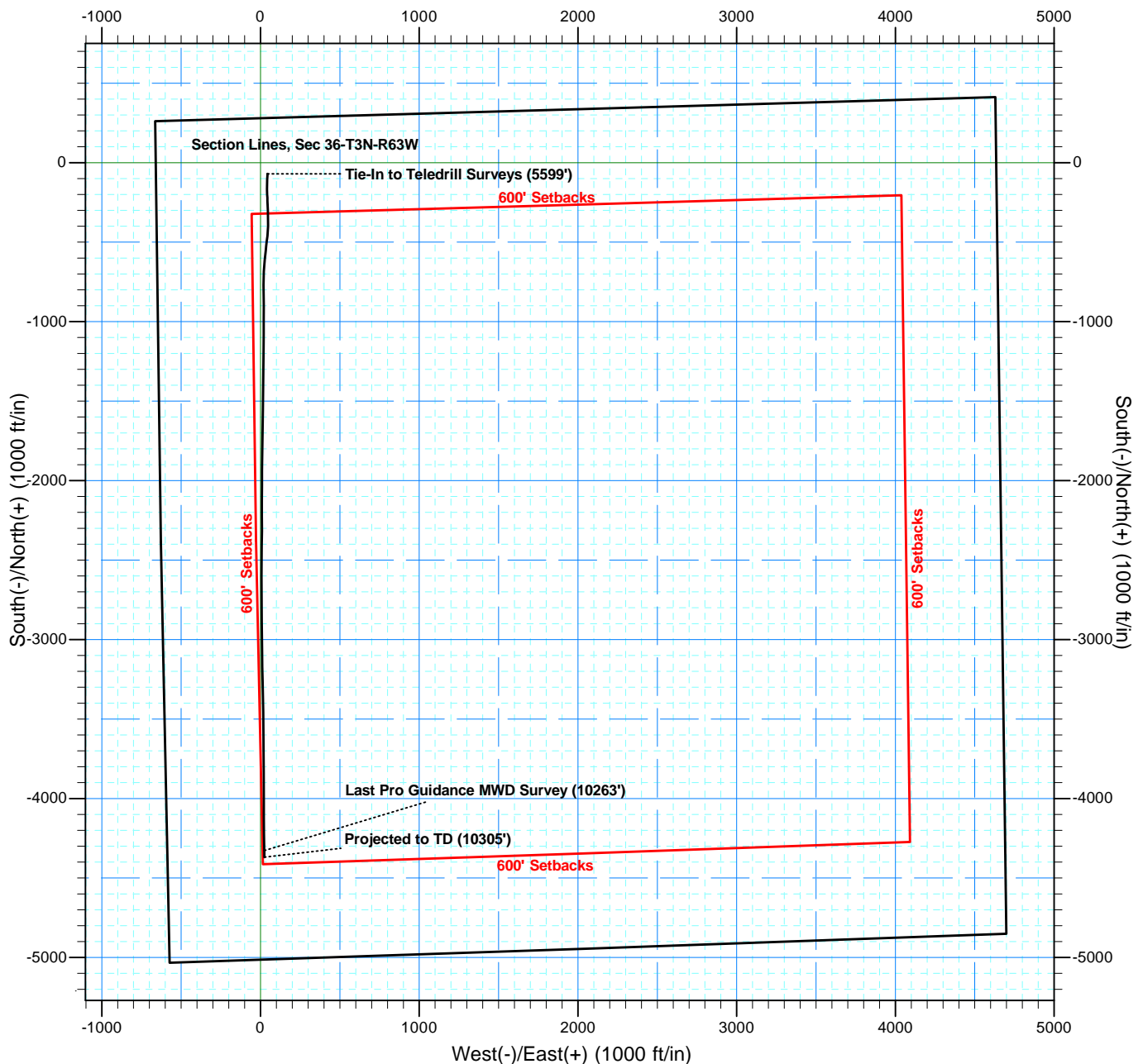
Surface Location:
SHL 280' FNL & 660' FWL Sec 16-T8N-R60W

US State Plane 1983
Colorado Northern Zone
Elevation: 4918.5' GL + 22' KB @ 4940.50ft (SST 53)
Northing 1489545.98 **Easting** 3387465.87 **Latitude** 40° 40' 7.727 N **Longitude** 104° 6' 11.592 W



To convert a Magnetic Direction to a Grid Direction, Add 7.55°

Magnetic Model: IGRF2010 Date: 10-Jan-12
Azimuths & Coordinates to NAD27 Grid



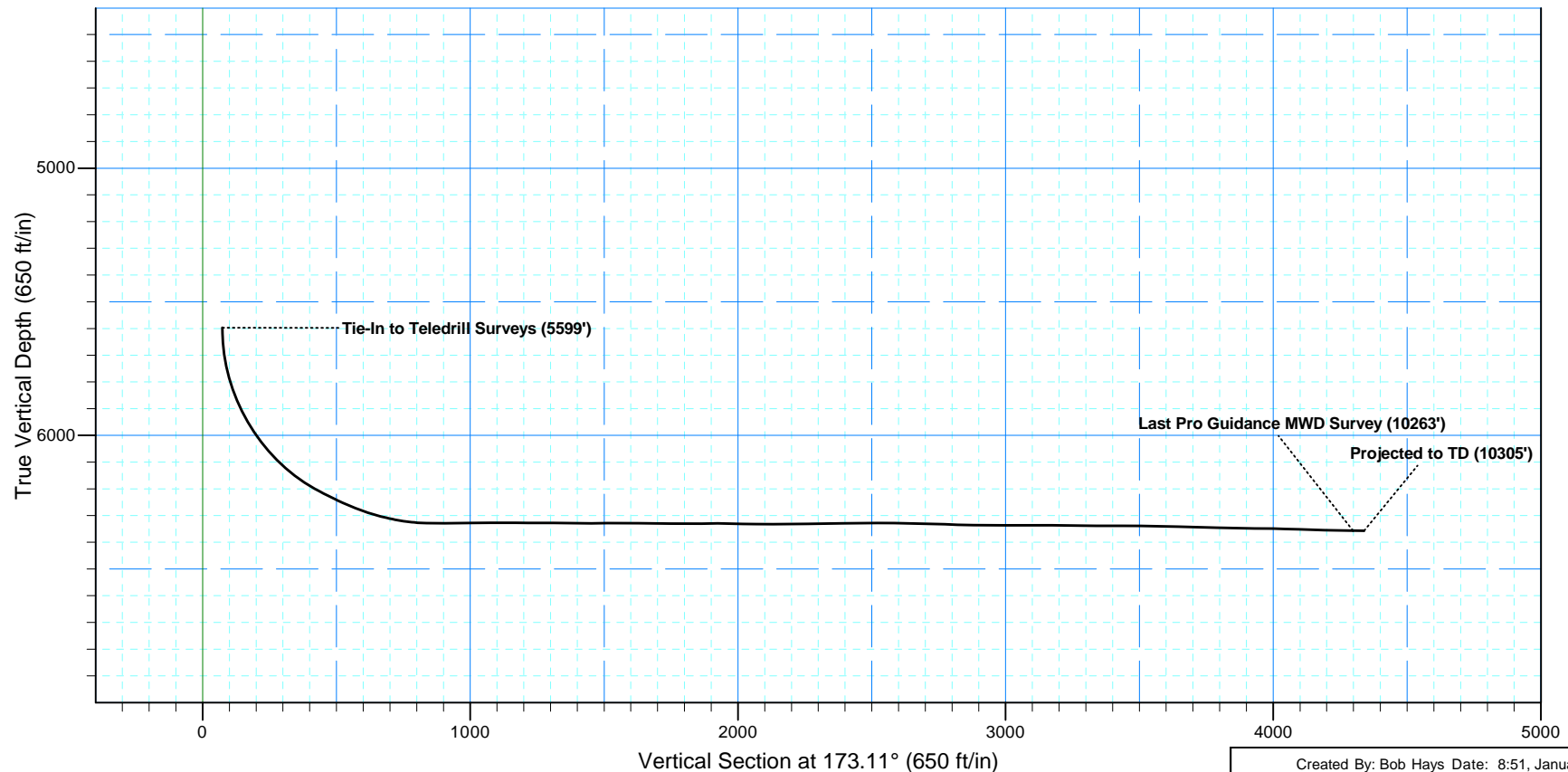
Chesapeake Operating Inc.



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Chesapeake Operating Inc.

Weld County, Colorado NAD83 (Northern)

Sec 16-T8N-R60W

State 16-8-60 2H

Original Hole

Design: Final Surveys

Standard Survey Report

16 January, 2012



Company:	Chesapeake Operating Inc.	Local Co-ordinate Reference:	Well State 16-8-60 2H
Project:	Weld County, Colorado NAD83 (Northern)	TVD Reference:	4918.5' GL + 22' KB @ 4940.50ft (SST 53)
Site:	Sec 16-T8N-R60W	MD Reference:	4918.5' GL + 22' KB @ 4940.50ft (SST 53)
Well:	State 16-8-60 2H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Final Surveys	Database:	EDM 5000.1 Single User Db

Project	Weld County, Colorado NAD83 (Northern)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site	Sec 16-T8N-R60W		
Site Position:		Northing:	1,489,545.99 ft
From:	Lat/Long	Easting:	3,387,465.86 ft
Position Uncertainty:	0.00 ft	Slot Radius:	1.10000 ft
		Latitude:	40° 40' 7.727 N
		Longitude:	104° 6' 11.592 W
		Grid Convergence:	0.90 °

Well	State 16-8-60 2H		
Well Position	+N/-S	0.00 ft	Northing:
	+E/-W	0.00 ft	Easting:
Position Uncertainty	0.00 ft	Wellhead Elevation:	ft
		Latitude:	40° 40' 7.727 N
		Longitude:	104° 6' 11.592 W
		Ground Level:	4,918.50 ft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	01/10/12	8.45	67.36	53,280

Survey Program	Date	01/16/12			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
275.00	5,599.00	Teledrill Surveys (Original Hole)	MWD	MWD	
5,622.00	10,263.00	Pro Guidance MWD Surveys (Original Hol	MWD	MWD	
10,305.00	10,305.00	Projected to TD (Original Hole)	Projection	Projection	

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,599.00	0.90	190.30	5,597.10	-69.00	43.55	73.73	0.35	-0.31	7.49
Tie-In to Teledrill Surveys (5599')									
5,622.00	1.50	176.20	5,620.10	-69.48	43.54	74.20	2.89	2.61	-61.30
5,654.00	3.70	167.30	5,652.06	-70.90	43.80	75.64	6.97	6.88	-27.81
5,685.00	6.90	172.30	5,682.93	-73.73	44.27	78.50	10.42	10.32	16.13
5,717.00	9.90	180.10	5,714.58	-78.38	44.52	83.16	10.01	9.38	24.38
5,749.00	12.90	184.70	5,745.95	-84.70	44.22	89.39	9.79	9.38	14.38
5,781.00	15.30	185.80	5,776.98	-92.46	43.50	97.01	7.55	7.50	3.44
5,812.00	17.50	184.40	5,806.72	-101.17	42.73	105.57	7.21	7.10	-4.52
5,844.00	20.30	183.10	5,836.99	-111.52	42.06	115.76	8.85	8.75	-4.06
5,876.00	22.80	181.40	5,866.75	-123.26	41.61	127.36	8.05	7.81	-5.31
5,908.00	25.20	180.30	5,895.98	-136.27	41.42	140.26	7.63	7.50	-3.44
5,940.00	28.20	178.90	5,924.57	-150.65	41.53	154.54	9.58	9.38	-4.38
5,971.00	31.20	178.00	5,951.49	-166.00	41.95	169.83	9.78	9.68	-2.90
6,002.00	33.60	177.90	5,977.66	-182.60	42.55	186.38	7.74	7.74	-0.32

Company:	Chesapeake Operating Inc.	Local Co-ordinate Reference:	Well State 16-8-60 2H
Project:	Weld County, Colorado NAD83 (Northern)	TVD Reference:	4918.5' GL + 22' KB @ 4940.50ft (SST 53)
Site:	Sec 16-T8N-R60W	MD Reference:	4918.5' GL + 22' KB @ 4940.50ft (SST 53)
Well:	State 16-8-60 2H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Final Surveys	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
6,034.00	35.00	179.40	6,004.10	-200.62	42.97	204.33	5.11	4.38	4.69
6,066.00	37.70	179.60	6,029.87	-219.59	43.13	223.18	8.45	8.44	0.63
6,098.00	40.80	179.60	6,054.65	-239.83	43.27	243.29	9.69	9.69	0.00
6,129.00	43.30	177.80	6,077.67	-260.59	43.75	263.95	8.95	8.06	-5.81
6,161.00	45.20	175.70	6,100.59	-282.88	45.02	286.23	7.50	5.94	-6.56
6,193.00	48.30	175.90	6,122.51	-306.12	46.73	309.51	9.70	9.69	0.63
6,225.00	51.30	178.10	6,143.17	-330.52	48.00	333.89	10.74	9.38	6.88
6,255.00	54.50	179.40	6,161.26	-354.44	48.52	357.70	11.21	10.67	4.33
6,287.00	57.90	181.10	6,179.06	-381.02	48.39	384.08	11.51	10.63	5.31
6,319.00	60.50	183.90	6,195.45	-408.48	47.18	411.19	11.07	8.13	8.75
6,350.00	62.50	185.10	6,210.24	-435.64	45.04	437.89	7.29	6.45	3.87
6,382.00	63.80	185.40	6,224.69	-464.07	42.43	465.81	4.15	4.06	0.94
6,414.00	64.10	185.80	6,238.74	-492.68	39.63	493.87	1.46	0.94	1.25
6,446.00	66.20	185.90	6,252.19	-521.56	36.67	522.20	6.57	6.56	0.31
6,477.00	68.30	185.80	6,264.18	-550.00	33.75	550.08	6.78	6.77	-0.32
6,509.00	70.10	185.80	6,275.54	-579.76	30.73	579.26	5.63	5.63	0.00
6,541.00	71.00	185.90	6,286.20	-609.78	27.65	608.69	2.83	2.81	0.31
6,573.00	73.80	185.50	6,295.87	-640.12	24.63	638.46	8.83	8.75	-1.25
6,604.00	76.20	184.20	6,303.89	-669.96	22.10	667.77	8.74	7.74	-4.19
6,636.00	77.30	181.80	6,311.23	-701.06	20.47	698.46	8.07	3.44	-7.50
6,668.00	79.90	180.90	6,317.55	-732.42	19.73	729.50	8.58	8.13	-2.81
6,700.00	82.40	180.00	6,322.48	-764.03	19.48	760.86	8.29	7.81	-2.81
6,731.00	85.00	180.00	6,325.88	-794.84	19.48	791.44	8.39	8.39	0.00
6,763.00	87.80	179.60	6,327.89	-826.78	19.59	823.16	8.84	8.75	-1.25
6,826.00	89.90	179.60	6,329.15	-889.76	20.03	885.74	3.33	3.33	0.00
6,922.00	91.10	179.80	6,328.31	-985.75	20.54	981.10	1.27	1.25	0.21
7,017.00	90.80	180.40	6,326.74	-1,080.74	20.37	1,075.38	0.71	-0.32	0.63
7,112.00	88.90	180.70	6,326.99	-1,175.73	19.46	1,169.58	2.02	-2.00	0.32
7,207.00	90.20	180.70	6,327.73	-1,270.72	18.30	1,263.74	1.37	1.37	0.00
7,302.00	89.10	180.60	6,328.31	-1,365.71	17.22	1,357.92	1.16	-1.16	-0.11
7,397.00	89.80	180.60	6,329.23	-1,460.70	16.23	1,452.11	0.74	0.74	0.00
7,493.00	90.90	180.40	6,328.64	-1,556.69	15.39	1,547.31	1.16	1.15	-0.21
7,588.00	88.80	180.80	6,328.89	-1,651.68	14.39	1,641.49	2.25	-2.21	0.42
7,683.00	89.50	181.10	6,330.30	-1,746.65	12.82	1,735.59	0.80	0.74	0.32
7,778.00	90.80	181.20	6,330.05	-1,841.63	10.91	1,829.66	1.37	1.37	0.11
7,873.00	89.50	180.30	6,329.80	-1,936.62	9.67	1,923.81	1.66	-1.37	-0.95
7,968.00	88.60	180.40	6,331.37	-2,031.61	9.09	2,018.04	0.95	-0.95	0.11
8,064.00	90.10	180.20	6,332.46	-2,127.60	8.59	2,113.28	1.58	1.56	-0.21
8,159.00	90.20	179.60	6,332.22	-2,222.59	8.75	2,207.61	0.64	0.11	-0.63
8,254.00	92.00	179.90	6,330.39	-2,317.57	9.17	2,301.95	1.92	1.89	0.32
8,349.00	89.50	180.50	6,329.15	-2,412.56	8.83	2,396.21	2.71	-2.63	0.63
8,444.00	91.10	180.80	6,328.65	-2,507.54	7.76	2,490.39	1.71	1.68	0.32
8,539.00	89.30	180.30	6,328.32	-2,602.54	6.84	2,584.58	1.97	-1.89	-0.53

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Design:	Final Surveys	Database:	EDM 5000.1 Single User Db

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
8,634.00	88.70	179.60	6,329.98	-2,697.52	6.93	2,678.89	0.97	-0.63	-0.74	
8,729.00	87.60	179.30	6,333.04	-2,792.46	7.84	2,773.26	1.20	-1.16	-0.32	
8,824.00	88.80	179.40	6,336.03	-2,887.41	8.92	2,867.65	1.27	1.26	0.11	
8,919.00	90.60	179.40	6,336.53	-2,982.40	9.91	2,962.07	1.89	1.89	0.00	
9,014.00	90.00	179.40	6,336.03	-3,077.39	10.91	3,056.50	0.63	-0.63	0.00	
9,107.00	89.60	179.60	6,336.35	-3,170.39	11.72	3,148.92	0.48	-0.43	0.22	
9,203.00	88.90	178.80	6,337.61	-3,266.37	13.06	3,244.37	1.11	-0.73	-0.83	
9,298.00	90.10	178.40	6,338.44	-3,361.34	15.38	3,338.93	1.33	1.26	-0.42	
9,393.00	90.00	179.20	6,338.36	-3,456.31	17.37	3,433.46	0.85	-0.11	0.84	
9,488.00	89.30	179.40	6,338.94	-3,551.30	18.53	3,527.91	0.77	-0.74	0.21	
9,584.00	87.80	179.60	6,341.36	-3,647.27	19.37	3,623.28	1.58	-1.56	0.21	
9,679.00	88.70	179.60	6,344.27	-3,742.22	20.03	3,717.63	0.95	0.95	0.00	
9,774.00	89.30	179.90	6,345.92	-3,837.20	20.44	3,811.97	0.71	0.63	0.32	
9,869.00	88.90	179.50	6,347.42	-3,932.19	20.94	3,906.34	0.60	-0.42	-0.42	
9,964.00	89.10	179.90	6,349.07	-4,027.17	21.44	4,000.69	0.47	0.21	0.42	
10,059.00	87.80	179.60	6,351.64	-4,122.14	21.85	4,095.02	1.40	-1.37	-0.32	
10,155.00	88.70	179.60	6,354.58	-4,218.09	22.52	4,190.36	0.94	0.94	0.00	
10,250.00	89.40	178.90	6,356.15	-4,313.07	23.76	4,284.80	1.04	0.74	-0.74	
10,263.00	89.60	178.90	6,356.26	-4,326.06	24.01	4,297.74	1.54	1.54	0.00	
Last Pro Guidance MWD Survey (10263')										
10,305.00	89.60	178.90	6,356.56	-4,368.05	24.82	4,339.52	0.00	0.00	0.00	
Projected to TD (10305')										

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
5,599.00	5,597.10	-69.00	43.55	Tie-In to Teledrill Surveys (5599')	
10,263.00	6,356.26	-4,326.06	24.01	Last Pro Guidance MWD Survey (10263')	
10,305.00	6,356.56	-4,368.05	24.82	Projected to TD (10305')	