Chesapeake Energy - Rockies District

Weld - DJ Basin
State 16-3-61 1H
State 16-3-61 1H

State 16-3-61 1H

Plan: State 16-3-61 1H

Standard Planning Report

14 December, 2011

Database:	Drilling Database	**Local Co-ordinate Reference:**	Well State 16-3-61 1H
Company:	Chesapeake Energy - Rockies District	**TVD Reference:**	WELL @ 0.0usft (Original Well Elev)
Project:	Weld - DJ Basin	**MD Reference:**	WELL @ 0.0usft (Original Well Elev)
Site:	State 16-3-61 1H	**North Reference:**	Grid
Well:	State 16-3-61 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	State 16-3-61 1H		
Design:	State 16-3-61 1H		

Project Weld - DJ Basin

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Colorado North 501		

Site State 16-3-61 1H

Site Position:		**Northing:**	329,814.19 ft	**Latitude:**	40° 13' 53.55840000 N
From:	Lat/Long	**Easting:**	2,360,599.50 ft	**Longitude:**	104° 12' 30.49560000 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13.200 in	**Grid Convergence:**	0.83 °

Well State 16-3-61 1H

Well Position	**+N/-S**	0.0 usft	**Northing:**	329,814.19 ft	**Latitude:**	40° 13' 53.55835721 N
	+E/-W	0.0 usft	**Easting:**	2,360,599.50 ft	**Longitude:**	104° 12' 30.49560000 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**		**Ground Level:**	0.0 usft

Wellbore State 16-3-61 1H

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/14/2011	8.44	67.00	53,111

Design State 16-3-61 1H

Audit Notes:

Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	178.41

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
5,858.6	0.00	0.00	5,858.6	0.0	0.0	0.00	0.00	0.00	0.00	
6,759.6	90.10	178.41	6,431.6	-573.7	16.0	10.00	10.00	0.00	178.41	
10,542.5	90.10	178.41	6,425.0	-4,355.1	121.2	0.00	0.00	0.00	0.00	State 16-3-61 1H

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Project:	Weld - DJ Basin	**MD Reference:**	WELL @ 0.0usft (Original Well Elev)
Site:	State 16-3-61 1H	**North Reference:**	Grid
Well:	State 16-3-61 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	State 16-3-61 1H		
Design:	State 16-3-61 1H		

Planned 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	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00

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Wellbore:	State 16-3-61 1H		
Design:	State 16-3-61 1H		

Planned 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)
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00
5,858.6	0.00	0.00	5,858.6	0.0	0.0	0.0	0.00	0.00	0.00
5,900.0	4.14	178.41	5,900.0	-1.5	0.0	1.5	10.00	10.00	0.00
5,950.0	9.14	178.41	5,949.6	-7.3	0.2	7.3	10.00	10.00	0.00
6,000.0	14.14	178.41	5,998.6	-17.3	0.5	17.3	10.00	10.00	0.00
6,050.0	19.14	178.41	6,046.5	-31.6	0.9	31.7	10.00	10.00	0.00
6,100.0	24.14	178.41	6,092.9	-50.1	1.4	50.1	10.00	10.00	0.00
6,150.0	29.14	178.41	6,137.6	-72.5	2.0	72.5	10.00	10.00	0.00
6,200.0	34.14	178.41	6,180.2	-98.7	2.7	98.7	10.00	10.00	0.00
6,250.0	39.14	178.41	6,220.3	-128.5	3.6	128.5	10.00	10.00	0.00
6,300.0	44.14	178.41	6,257.6	-161.7	4.5	161.7	10.00	10.00	0.00
6,350.0	49.14	178.41	6,291.9	-198.0	5.5	198.1	10.00	10.00	0.00
6,400.0	54.14	178.41	6,323.0	-237.2	6.6	237.3	10.00	10.00	0.00
6,450.0	59.14	178.41	6,350.5	-278.9	7.8	279.0	10.00	10.00	0.00
6,500.0	64.14	178.41	6,374.2	-322.9	9.0	323.0	10.00	10.00	0.00
6,550.0	69.14	178.41	6,394.0	-368.8	10.3	368.9	10.00	10.00	0.00
6,600.0	74.14	178.41	6,409.8	-416.2	11.6	416.3	10.00	10.00	0.00
6,650.0	79.14	178.41	6,421.3	-464.8	12.9	465.0	10.00	10.00	0.00
6,700.0	84.14	178.41	6,428.6	-514.2	14.3	514.4	10.00	10.00	0.00
6,750.0	89.14	178.41	6,431.5	-564.1	15.7	564.3	10.00	10.00	0.00
6,759.6	90.10	178.41	6,431.6	-573.7	16.0	574.0	10.00	10.00	0.00
6,800.0	90.10	178.41	6,431.5	-614.1	17.1	614.3	0.00	0.00	0.00
6,900.0	90.10	178.41	6,431.4	-714.0	19.9	714.3	0.00	0.00	0.00
7,000.0	90.10	178.41	6,431.2	-814.0	22.7	814.3	0.00	0.00	0.00
7,100.0	90.10	178.41	6,431.0	-914.0	25.4	914.3	0.00	0.00	0.00
7,200.0	90.10	178.41	6,430.8	-1,013.9	28.2	1,014.3	0.00	0.00	0.00
7,300.0	90.10	178.41	6,430.7	-1,113.9	31.0	1,114.3	0.00	0.00	0.00
7,400.0	90.10	178.41	6,430.5	-1,213.8	33.8	1,214.3	0.00	0.00	0.00
7,500.0	90.10	178.41	6,430.3	-1,313.8	36.6	1,314.3	0.00	0.00	0.00
7,600.0	90.10	178.41	6,430.1	-1,413.8	39.4	1,414.3	0.00	0.00	0.00
7,700.0	90.10	178.41	6,430.0	-1,513.7	42.1	1,514.3	0.00	0.00	0.00
7,800.0	90.10	178.41	6,429.8	-1,613.7	44.9	1,614.3	0.00	0.00	0.00
7,900.0	90.10	178.41	6,429.6	-1,713.6	47.7	1,714.3	0.00	0.00	0.00
8,000.0	90.10	178.41	6,429.4	-1,813.6	50.5	1,814.3	0.00	0.00	0.00
8,100.0	90.10	178.41	6,429.3	-1,913.6	53.3	1,914.3	0.00	0.00	0.00
8,200.0	90.10	178.41	6,429.1	-2,013.5	56.1	2,014.3	0.00	0.00	0.00
8,300.0	90.10	178.41	6,428.9	-2,113.5	58.8	2,114.3	0.00	0.00	0.00
8,400.0	90.10	178.41	6,428.7	-2,213.5	61.6	2,214.3	0.00	0.00	0.00
8,500.0	90.10	178.41	6,428.6	-2,313.4	64.4	2,314.3	0.00	0.00	0.00
8,600.0	90.10	178.41	6,428.4	-2,413.4	67.2	2,414.3	0.00	0.00	0.00
8,700.0	90.10	178.41	6,428.2	-2,513.3	70.0	2,514.3	0.00	0.00	0.00
8,800.0	90.10	178.41	6,428.0	-2,613.3	72.8	2,614.3	0.00	0.00	0.00
8,900.0	90.10	178.41	6,427.9	-2,713.3	75.5	2,714.3	0.00	0.00	0.00
9,000.0	90.10	178.41	6,427.7	-2,813.2	78.3	2,814.3	0.00	0.00	0.00
9,100.0	90.10	178.41	6,427.5	-2,913.2	81.1	2,914.3	0.00	0.00	0.00
9,200.0	90.10	178.41	6,427.3	-3,013.1	83.9	3,014.3	0.00	0.00	0.00
9,300.0	90.10	178.41	6,427.2	-3,113.1	86.7	3,114.3	0.00	0.00	0.00
9,400.0	90.10	178.41	6,427.0	-3,213.1	89.5	3,214.3	0.00	0.00	0.00
9,500.0	90.10	178.41	6,426.8	-3,313.0	92.2	3,314.3	0.00	0.00	0.00
9,600.0	90.10	178.41	6,426.6	-3,413.0	95.0	3,414.3	0.00	0.00	0.00

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Wellbore:	State 16-3-61 1H		
Design:	State 16-3-61 1H		

Planned 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)
9,700.0	90.10	178.41	6,426.5	-3,512.9	97.8	3,514.3	0.00	0.00	0.00
9,800.0	90.10	178.41	6,426.3	-3,612.9	100.6	3,614.3	0.00	0.00	0.00
9,900.0	90.10	178.41	6,426.1	-3,712.9	103.4	3,714.3	0.00	0.00	0.00
10,000.0	90.10	178.41	6,425.9	-3,812.8	106.2	3,814.3	0.00	0.00	0.00
10,100.0	90.10	178.41	6,425.8	-3,912.8	108.9	3,914.3	0.00	0.00	0.00
10,200.0	90.10	178.41	6,425.6	-4,012.8	111.7	4,014.3	0.00	0.00	0.00
10,300.0	90.10	178.41	6,425.4	-4,112.7	114.5	4,114.3	0.00	0.00	0.00
10,400.0	90.10	178.41	6,425.2	-4,212.7	117.3	4,214.3	0.00	0.00	0.00
10,500.0	90.10	178.41	6,425.1	-4,312.6	120.1	4,314.3	0.00	0.00	0.00
10,542.5	90.10	178.41	6,425.0	-4,355.1	121.2	4,356.8	0.00	0.00	0.00

Design Targets

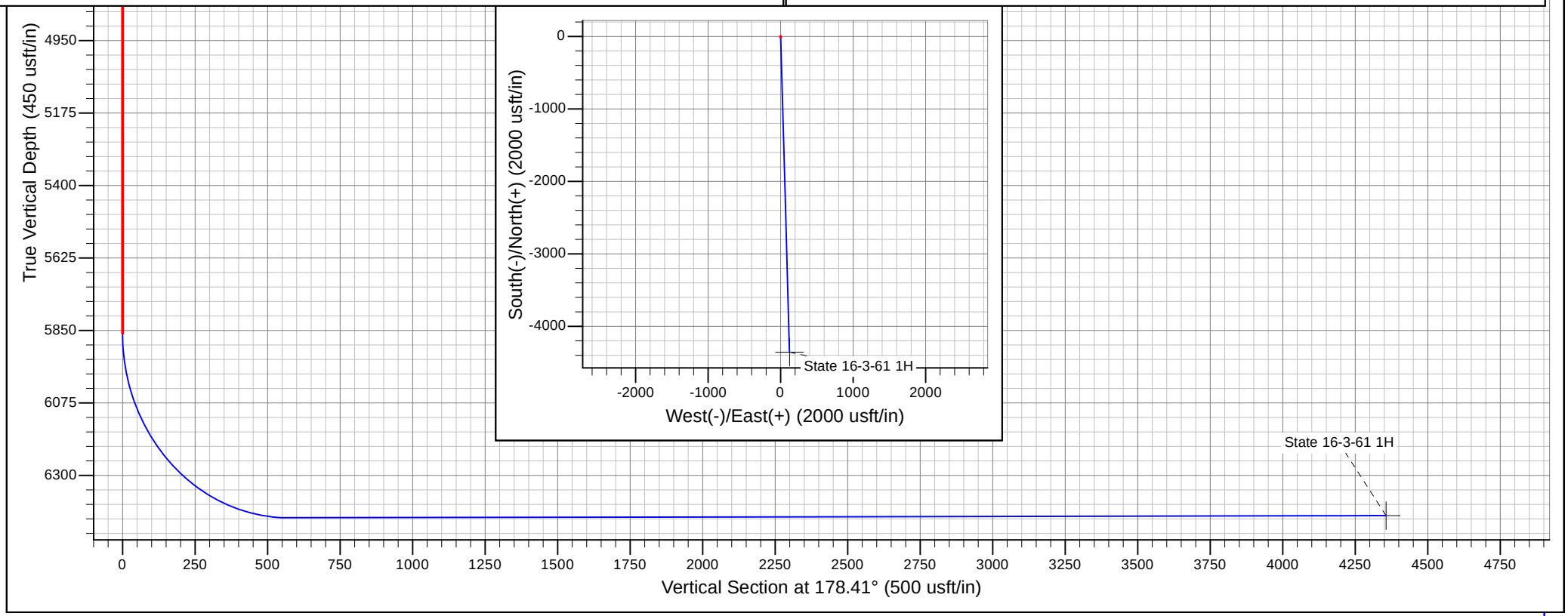
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (ft)	Easting (ft)	Latitude	Longitude
State 16-3-61 1H - plan hits target center - Point	0.00	0.00	6,425.0	-4,355.1	121.2	325,459.08	2,360,720.75	0° 13' 10.50595717 N	104° 12' 29.75040000 W

Project: Weld - DJ Basin
Site: State 16-3-61 1H
Well: State 16-3-61 1H
Wellbore: State 16-3-61 1H
Design: State 16-3-61 1H

PROJECT DETAILS: Weld - DJ Basin

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: Colorado North 501

System Datum: Mean Sea Level



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	5858.6	0.00	0.00	5858.6	0.0	0.0	0.00	0.00	0.0	
3	6759.6	90.10	178.41	6431.6	-573.7	16.0	10.00	178.41	574.0	
4	10542.5	90.10	178.41	6425.0	-4355.1	121.2	0.00	0.00	4356.8	State 16-3-61 1H

Well: State 16-3-61 1H
Zone of Interest: Greenhorn Shale

1.0) Summary of Operations

Drill 12-1/4" surface hole to section TD at 800'.

Set 9-5/8" 40# J-55 casing and cement with Lead and Tail cement (see details below). Cement will be circulated to surface.

Install 11" x 5,000 psi BOP and test as required

Drill 8-3/4" hole to KOP.

Kick off and drill 8-3/4" curve at 10 deg/100' to end of build.

Drill 7-7/8" open hole to well TD

Acquire shuttle logs: Triple combo and image logs in open hole

Set 4-1/2" x 5-1/2" casing and cement as shown below.

Suspend well and move drilling rig out in preparation for well completion

2.0 CASING AND CEMENTING PROGRAM

The proposed casing program will be as follows:

Purpose	Interval		Hole Size	Casing Size	Weight	Grade	Thread	Condition
	From	To	(")	(")	Lbs/Ft			
Surface	0	800	12 1/4	9 5/8	40	J-55	LTC	New
Production	0	5859	8 3/4	5 1/2	17	P-110	LTC	New
	5859	10543	8 3/4	4 1/2	11.6	P-110	LTC	New

Casing design subject to revision based on geologic conditions encountered.

Casing Safety Factors:

Interval	Casing	Burst	Collapse	Axial
Surface	9 5/8	2.03	2.03	4.78
Production	4 1/2	1.32	2.26	1.63

Centralizer Program

Casing	**9 5/8**		**4 1/2**
# of Bow-type spring centralizer	7		28

Cement Program

Surface Casing	Slurry Volume			Weight	Yield	Mix H2O	TOC
	% Excess	(BBLS)	(Sacks)	(PPG)	(cuft/sk)	(GPS)	
Lead Slurry	100%	67	127	11.50	2.95	17.88	0
Tail Slurry	100%	28	136	15.80	1.15	4.96	600

	Lead	Tail
Surface Casing with TOC at surface	Rockies LT 0.2 % Versaset (Additive Material) 0.2 % D-AIR 3000 (Additive Material) 0.125 lbm/sk Poly-E-Flake (Additive Material) 0.25 lbm/sk Kwik Seal (Additive Material)	Premium Cement, 94 lbm/sk Premium Cement (Cement) 1 % Calcium Chloride, Pellet (Accelerator) 0.125 lbm/sk Poly-E-Flake (Lost Circulation Additive)
Cement must be circulated to surface		

Production Casing Cement	Slurry Volume			Weight	Yield	Mix H2O	TOC
	% Excess	(BBLS)	(Sacks)	(PPG)	(cuft/sk)	(GPS)	
Lead Slurry	30%	182	465	12.00	2.20	12.30	2245'
Tail Slurry	30%	294	1132	14.60	1.46	6.10	

	Lead	Tail
Production Casing Cement	Poz Type I-II 50/50 1 % Bentonite (Light Weight Additive) 3 lbm/sk Silicalite Compacted (Additive Material) 3 % Microbond HT (Additive Material) 0.2 % Halad(R)-322 (Low Fluid Loss Control) 0.4 % Halad(R)-344 (Low Fluid Loss Control) 0.3 % HR-5 (Retarder)	50/50 Poz Premium 2 % Bentonite (Light Weight Additive) 5 lbm/sk Silicalite Compacted (Light Weight Additive) 0.5 % Versaset (Thixotropic Additive) 0.5 % Econolite (Cement Material) 0.6 % HR-7 (Retarder) 0.5 % D-AIR 3000 (Defoamer) 0.125 lbm/sk Poly-E-Flake (Lost Circulation Additive) 0.25 lbm/sk Kwik Seal (Lost Circulation Additive)

The cement must achieve a compressive strength of at least 500 psi at the shoe prior to casing test and drilling out the shoe track. WOC time shall be recorded in the driller's log.

3 MUD PROGRAM

Purpose	Interval		Hole Size	Mud Type	Mud Weight	Viscosity	Fluid Loss	pH
	From	To	(")	(")	Lbs/Ft			
Surface	0'	800'	12 1/4	WBM	8.4 – 8.8	28 – 32	N/C	9
Production	800'	6760'	8 3/4	WBM	8.5 – 9.5	35 – 46	4 – 6	9
	6760'	10543'	7 7/8	WBM	9.0 - 10.0	36 – 46	4 – 6	9

WBM = Water Based Mud