

Project: Weld County, CO
Site: SEC 34, T8N-R66W
Well: Luseland 7-66-3-10-2C
Wellbore: Hz
Design: Plan 1

Reference Details

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Latitude: 40° 36' 44.895 N
Longitude: 104° 45' 30.100 W
Grid Convergence: 0.48° West
Ground Elevation: 4997.0
KB Elevation: Well @ 5013.0usft

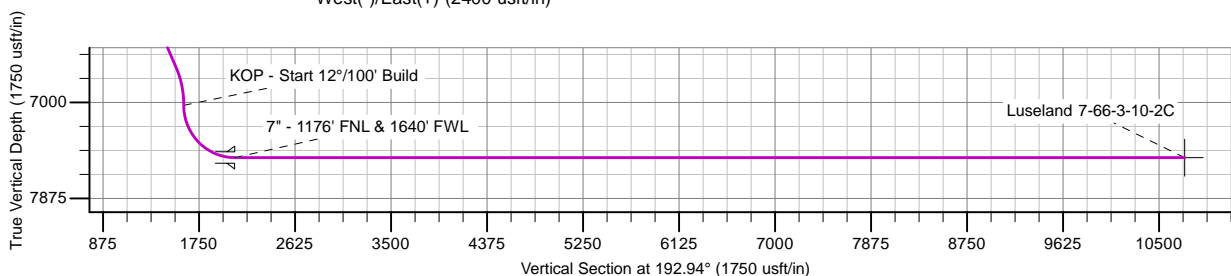
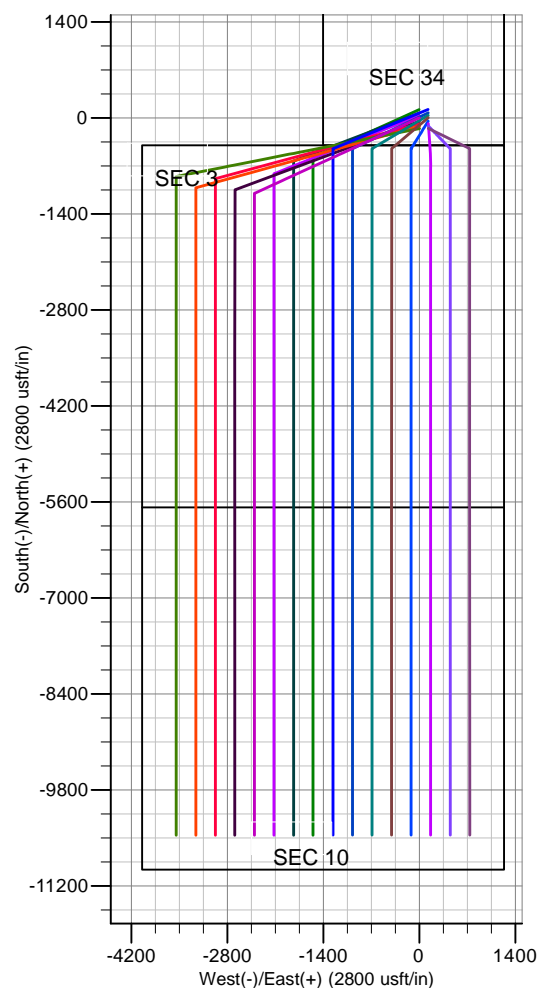
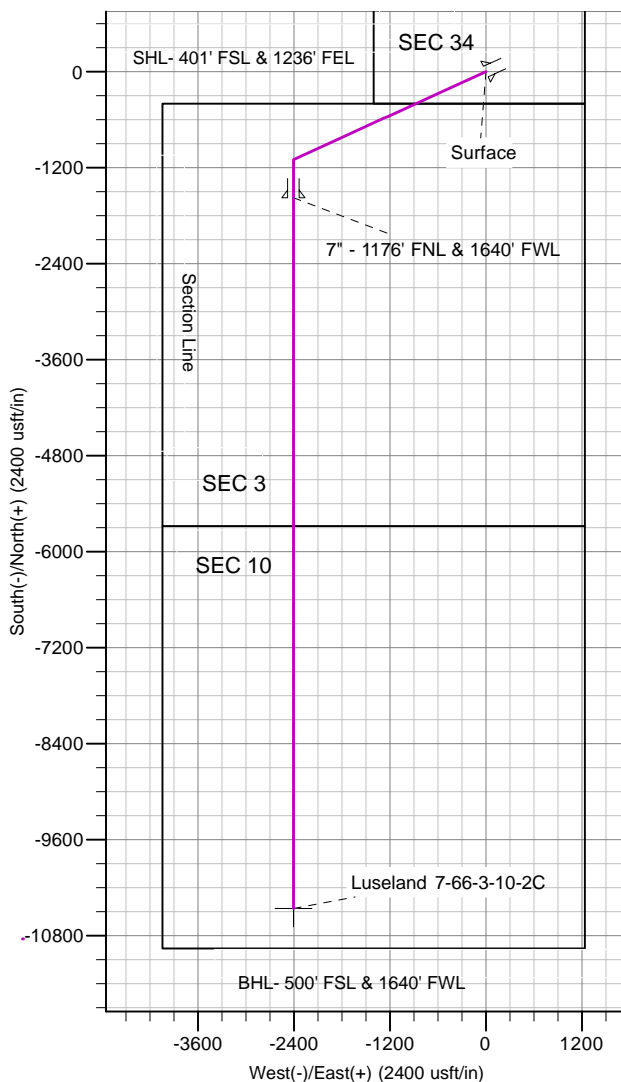
RPM Consulting, Inc.
1600 Broadway, Suite 1510
Denver, CO 80013
303-595-7625

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0
1500.0	0.00	0.00	1500.0	0.0	0.0	0.00	0.00	0.0
2889.2	0.00	0.00	2889.2	0.0	0.0	0.00	0.00	0.0
3239.2	35.00	245.41	3217.9	-43.1	-94.2	10.00	245.41	63.1
7486.3	35.00	245.41	6696.9	-1056.9	-2309.3	0.00	0.00	1547.2
7836.3	0.00	0.00	7025.5	-1100.0	-2403.5	10.00	180.00	1610.4
8586.3	90.00	180.00	7503.0	-1577.5	-2403.5	12.00	180.00	2075.7
8618.7	90.00	180.00	7503.0	-1609.9	-2403.5	0.01	94.02	2107.3
17469.8	90.00	180.00	7503.0	-10461.0	-2404.0	0.00	0.00	10733.7

CASING DETAILS

TVD	MD	Name
1500.0	1500.0	Surface
7503.0	8586.3	Intermediate



Enerplus Resources (USA) Corporation

**Weld County, CO
SEC 34, T8N-R66W
Luseland 7-66-3-10-2C**

Hz

Plan: Plan 1

Standard Planning Report

05 May, 2017

Planning Report

Database:	EDM	Local Co-ordinate Reference:	Well Luseland 7-66-3-10-2C
Company:	Enerplus Resources (USA) Corporation	TVD Reference:	Well @ 5013.0usft
Project:	Weld County, CO	MD Reference:	Well @ 5013.0usft
Site:	SEC 34, T8N-R66W	North Reference:	True
Well:	Luseland 7-66-3-10-2C	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan 1		

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

Site		SEC 34, T8N-R66W			
Site Position:		Northing:	1,466,670.78 usft	Latitude:	40° 36' 43.362 N
From:	Lat/Long	Easting:	3,205,908.72 usft	Longitude:	104° 45' 30.060 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.48 °

Well		Luseland 7-66-3-10-2C				
Well Position	+N/-S	155.2 usft	Northing:	1,466,825.94 usft	Latitude:	40° 36' 44.895 N
	+E/-W	-3.1 usft	Easting:	3,205,904.37 usft	Longitude:	104° 45' 30.100 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	4,997.0 usft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/4/2017	8.08	67.02	52,621

Design	Plan 1			
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	192.94

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	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,889.2	0.00	0.00	2,889.2	0.0	0.0	0.00	0.00	0.00	0.00	
3,239.2	35.00	245.41	3,217.9	-43.1	-94.2	10.00	10.00	0.00	245.41	
7,486.3	35.00	245.41	6,696.9	-1,056.9	-2,309.3	0.00	0.00	0.00	0.00	
7,836.3	0.00	0.00	7,025.5	-1,100.0	-2,403.5	10.00	-10.00	0.00	180.00	
8,586.3	90.00	180.00	7,503.0	-1,577.5	-2,403.5	12.00	12.00	0.00	180.00	
8,618.7	90.00	180.00	7,503.0	-1,609.9	-2,403.5	0.01	0.00	0.01	94.02	
17,469.8	90.00	180.00	7,503.0	-10,461.0	-2,404.0	0.00	0.00	0.00	0.00	Luseland 7-66-3-10-2

Planning Report

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Company:	Enerplus Resources (USA) Corporation	TVD Reference:	Well @ 5013.0usft
Project:	Weld County, CO	MD Reference:	Well @ 5013.0usft
Site:	SEC 34, T8N-R66W	North Reference:	True
Well:	Luseland 7-66-3-10-2C	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan 1		

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
9-5/8" - Surface									
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
2,889.2	0.00	0.00	2,889.2	0.0	0.0	0.0	0.00	0.00	0.00
Begin Nudge									
2,900.0	1.08	245.41	2,900.0	0.0	-0.1	0.1	9.97	9.97	0.00
3,000.0	11.08	245.41	2,999.3	-4.4	-9.7	6.5	10.00	10.00	0.00
3,100.0	21.08	245.41	3,095.3	-16.0	-34.9	23.4	10.00	10.00	0.00
3,200.0	31.08	245.41	3,185.0	-34.2	-74.8	50.1	10.00	10.00	0.00
3,239.2	35.00	245.41	3,217.9	-43.1	-94.2	63.1	10.00	10.00	0.00
3,300.0	35.00	245.41	3,267.6	-57.6	-125.9	84.4	0.00	0.00	0.00
3,400.0	35.00	245.41	3,349.6	-81.5	-178.1	119.3	0.00	0.00	0.00
3,500.0	35.00	245.41	3,431.5	-105.4	-230.2	154.3	0.00	0.00	0.00
3,600.0	35.00	245.41	3,513.4	-129.2	-282.4	189.2	0.00	0.00	0.00
3,700.0	35.00	245.41	3,595.3	-153.1	-334.5	224.1	0.00	0.00	0.00
3,800.0	35.00	245.41	3,677.2	-177.0	-386.7	259.1	0.00	0.00	0.00
3,900.0	35.00	245.41	3,759.1	-200.8	-438.8	294.0	0.00	0.00	0.00
4,000.0	35.00	245.41	3,841.1	-224.7	-491.0	329.0	0.00	0.00	0.00
4,100.0	35.00	245.41	3,923.0	-248.6	-543.2	363.9	0.00	0.00	0.00
4,200.0	35.00	245.41	4,004.9	-272.5	-595.3	398.9	0.00	0.00	0.00
4,300.0	35.00	245.41	4,086.8	-296.3	-647.5	433.8	0.00	0.00	0.00
4,400.0	35.00	245.41	4,168.7	-320.2	-699.6	468.7	0.00	0.00	0.00
4,500.0	35.00	245.41	4,250.6	-344.1	-751.8	503.7	0.00	0.00	0.00
4,600.0	35.00	245.41	4,332.5	-367.9	-803.9	538.6	0.00	0.00	0.00
4,700.0	35.00	245.41	4,414.5	-391.8	-856.1	573.6	0.00	0.00	0.00
4,800.0	35.00	245.41	4,496.4	-415.7	-908.2	608.5	0.00	0.00	0.00
4,900.0	35.00	245.41	4,578.3	-439.5	-960.4	643.5	0.00	0.00	0.00

Planning Report

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Project:	Weld County, CO	MD Reference:	Well @ 5013.0usft
Site:	SEC 34, T8N-R66W	North Reference:	True
Well:	Luseland 7-66-3-10-2C	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan 1		

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)
5,000.0	35.00	245.41	4,660.2	-463.4	-1,012.5	678.4	0.00	0.00	0.00
5,084.0	35.00	245.41	4,729.0	-483.5	-1,056.4	707.8	0.00	0.00	0.00
TERRY									
5,100.0	35.00	245.41	4,742.1	-487.3	-1,064.7	713.4	0.00	0.00	0.00
5,200.0	35.00	245.41	4,824.0	-511.1	-1,116.9	748.3	0.00	0.00	0.00
5,300.0	35.00	245.41	4,905.9	-535.0	-1,169.0	783.2	0.00	0.00	0.00
5,400.0	35.00	245.41	4,987.9	-558.9	-1,221.2	818.2	0.00	0.00	0.00
5,500.0	35.00	245.41	5,069.8	-582.8	-1,273.3	853.1	0.00	0.00	0.00
5,596.7	35.00	245.41	5,149.0	-605.8	-1,323.8	886.9	0.00	0.00	0.00
HYGENE									
5,600.0	35.00	245.41	5,151.7	-606.6	-1,325.5	888.1	0.00	0.00	0.00
5,700.0	35.00	245.41	5,233.6	-630.5	-1,377.6	923.0	0.00	0.00	0.00
5,800.0	35.00	245.41	5,315.5	-654.4	-1,429.8	958.0	0.00	0.00	0.00
5,900.0	35.00	245.41	5,397.4	-678.2	-1,481.9	992.9	0.00	0.00	0.00
6,000.0	35.00	245.41	5,479.4	-702.1	-1,534.1	1,027.9	0.00	0.00	0.00
6,100.0	35.00	245.41	5,561.3	-726.0	-1,586.3	1,062.8	0.00	0.00	0.00
6,200.0	35.00	245.41	5,643.2	-749.8	-1,638.4	1,097.7	0.00	0.00	0.00
6,300.0	35.00	245.41	5,725.1	-773.7	-1,690.6	1,132.7	0.00	0.00	0.00
6,400.0	35.00	245.41	5,807.0	-797.6	-1,742.7	1,167.6	0.00	0.00	0.00
6,500.0	35.00	245.41	5,888.9	-821.5	-1,794.9	1,202.6	0.00	0.00	0.00
6,600.0	35.00	245.41	5,970.8	-845.3	-1,847.0	1,237.5	0.00	0.00	0.00
6,700.0	35.00	245.41	6,052.8	-869.2	-1,899.2	1,272.5	0.00	0.00	0.00
6,800.0	35.00	245.41	6,134.7	-893.1	-1,951.3	1,307.4	0.00	0.00	0.00
6,900.0	35.00	245.41	6,216.6	-916.9	-2,003.5	1,342.4	0.00	0.00	0.00
6,909.0	35.00	245.41	6,224.0	-919.1	-2,008.2	1,345.5	0.00	0.00	0.00
Lower Pierre marker									
7,000.0	35.00	245.41	6,298.5	-940.8	-2,055.6	1,377.3	0.00	0.00	0.00
7,100.0	35.00	245.41	6,380.4	-964.7	-2,107.8	1,412.2	0.00	0.00	0.00
7,200.0	35.00	245.41	6,462.3	-988.5	-2,160.0	1,447.2	0.00	0.00	0.00
7,300.0	35.00	245.41	6,544.3	-1,012.4	-2,212.1	1,482.1	0.00	0.00	0.00
7,400.0	35.00	245.41	6,626.2	-1,036.3	-2,264.3	1,517.1	0.00	0.00	0.00
7,486.3	35.00	245.41	6,696.9	-1,056.9	-2,309.3	1,547.2	0.00	0.00	0.00
7,500.0	33.63	245.41	6,708.2	-1,060.1	-2,316.3	1,551.9	10.00	-10.00	0.00
7,600.0	23.63	245.41	6,795.8	-1,080.0	-2,359.8	1,581.1	10.00	-10.00	0.00
7,700.0	13.63	245.41	6,890.5	-1,093.3	-2,388.8	1,600.5	10.00	-10.00	0.00
7,800.0	3.63	245.41	6,989.2	-1,099.5	-2,402.5	1,609.7	10.00	-10.00	0.00
7,836.3	0.00	245.41	7,025.5	-1,100.0	-2,403.5	1,610.4	10.00	-10.00	0.00
KOP - Start 12°/100' Build									
7,900.0	7.64	180.00	7,089.0	-1,104.2	-2,403.5	1,614.5	12.00	12.00	-102.68
7,930.4	11.29	180.00	7,119.0	-1,109.2	-2,403.5	1,619.4	12.00	12.00	0.00
SHARON SPRINGS									
7,996.8	19.26	180.00	7,183.0	-1,126.7	-2,403.5	1,636.4	12.00	12.00	0.00
NIOBRARA A CHALK									
8,000.0	19.64	180.00	7,186.0	-1,127.8	-2,403.5	1,637.4	12.00	12.00	0.00
8,020.3	22.08	180.00	7,205.0	-1,135.0	-2,403.5	1,644.5	12.00	12.00	0.00
NIOBRARA A MARL									
8,072.3	28.32	180.00	7,252.0	-1,157.1	-2,403.5	1,666.1	12.00	12.00	0.00
NIOBRARA B TOP									
8,100.0	31.64	180.00	7,276.0	-1,171.0	-2,403.5	1,679.5	12.00	12.00	0.00
8,133.7	35.68	180.00	7,304.0	-1,189.6	-2,403.5	1,697.7	12.00	12.00	0.00
NIOBRARA B CHALK									
8,200.0	43.64	180.00	7,355.0	-1,231.9	-2,403.5	1,738.9	12.00	12.00	0.00
NIOBRARA B MARL									

Planning Report

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Well:	Luseland 7-66-3-10-2C	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan 1		

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)
8,241.8	48.66	180.00	7,384.0	-1,262.1	-2,403.5	1,768.4	12.00	12.00	0.00
NIORARA C CHALK									
8,300.0	55.64	180.00	7,419.7	-1,308.0	-2,403.5	1,813.1	12.00	12.00	0.00
8,317.0	57.68	180.00	7,429.0	-1,322.2	-2,403.5	1,826.9	12.00	12.00	0.00
NIORARA C MARL									
8,368.2	63.82	180.00	7,454.0	-1,366.8	-2,403.5	1,870.4	12.00	12.00	0.00
NIORARA D CHALK									
8,400.0	67.64	180.00	7,467.1	-1,395.9	-2,403.5	1,898.7	12.00	12.00	0.00
8,437.6	72.16	180.00	7,480.0	-1,431.2	-2,403.5	1,933.1	12.00	12.00	0.00
FORT HAYS									
8,500.0	79.64	180.00	7,495.2	-1,491.6	-2,403.5	1,992.0	12.00	12.00	0.00
8,586.3	90.00	180.00	7,503.0	-1,577.5	-2,403.5	2,075.7	12.00	12.00	0.00
7" - 1176' FNL & 1640' FWL - CODELL - Intermediate									
8,600.0	90.00	180.00	7,503.0	-1,591.2	-2,403.5	2,089.0	0.01	0.00	0.01
8,618.7	90.00	180.00	7,503.0	-1,609.9	-2,403.5	2,107.3	0.01	0.00	0.01
8,700.0	90.00	180.00	7,503.0	-1,691.2	-2,403.5	2,186.5	0.00	0.00	0.00
8,800.0	90.00	180.00	7,503.0	-1,791.2	-2,403.5	2,284.0	0.00	0.00	0.00
8,900.0	90.00	180.00	7,503.0	-1,891.2	-2,403.5	2,381.4	0.00	0.00	0.00
9,000.0	90.00	180.00	7,503.0	-1,991.2	-2,403.5	2,478.9	0.00	0.00	0.00
9,100.0	90.00	180.00	7,503.0	-2,091.2	-2,403.5	2,576.4	0.00	0.00	0.00
9,200.0	90.00	180.00	7,503.0	-2,191.2	-2,403.5	2,673.8	0.00	0.00	0.00
9,300.0	90.00	180.00	7,503.0	-2,291.2	-2,403.5	2,771.3	0.00	0.00	0.00
9,400.0	90.00	180.00	7,503.0	-2,391.2	-2,403.5	2,868.7	0.00	0.00	0.00
9,500.0	90.00	180.00	7,503.0	-2,491.2	-2,403.6	2,966.2	0.00	0.00	0.00
9,600.0	90.00	180.00	7,503.0	-2,591.2	-2,403.6	3,063.7	0.00	0.00	0.00
9,700.0	90.00	180.00	7,503.0	-2,691.2	-2,403.6	3,161.1	0.00	0.00	0.00
9,800.0	90.00	180.00	7,503.0	-2,791.2	-2,403.6	3,258.6	0.00	0.00	0.00
9,900.0	90.00	180.00	7,503.0	-2,891.2	-2,403.6	3,356.0	0.00	0.00	0.00
10,000.0	90.00	180.00	7,503.0	-2,991.2	-2,403.6	3,453.5	0.00	0.00	0.00
10,100.0	90.00	180.00	7,503.0	-3,091.2	-2,403.6	3,551.0	0.00	0.00	0.00
10,200.0	90.00	180.00	7,503.0	-3,191.2	-2,403.6	3,648.4	0.00	0.00	0.00
10,300.0	90.00	180.00	7,503.0	-3,291.2	-2,403.6	3,745.9	0.00	0.00	0.00
10,400.0	90.00	180.00	7,503.0	-3,391.2	-2,403.6	3,843.3	0.00	0.00	0.00
10,500.0	90.00	180.00	7,503.0	-3,491.2	-2,403.6	3,940.8	0.00	0.00	0.00
10,600.0	90.00	180.00	7,503.0	-3,591.2	-2,403.6	4,038.3	0.00	0.00	0.00
10,700.0	90.00	180.00	7,503.0	-3,691.2	-2,403.6	4,135.7	0.00	0.00	0.00
10,800.0	90.00	180.00	7,503.0	-3,791.2	-2,403.6	4,233.2	0.00	0.00	0.00
10,900.0	90.00	180.00	7,503.0	-3,891.2	-2,403.6	4,330.6	0.00	0.00	0.00
11,000.0	90.00	180.00	7,503.0	-3,991.2	-2,403.6	4,428.1	0.00	0.00	0.00
11,100.0	90.00	180.00	7,503.0	-4,091.2	-2,403.6	4,525.6	0.00	0.00	0.00
11,200.0	90.00	180.00	7,503.0	-4,191.2	-2,403.6	4,623.0	0.00	0.00	0.00
11,300.0	90.00	180.00	7,503.0	-4,291.2	-2,403.7	4,720.5	0.00	0.00	0.00
11,400.0	90.00	180.00	7,503.0	-4,391.2	-2,403.7	4,818.0	0.00	0.00	0.00
11,500.0	90.00	180.00	7,503.0	-4,491.2	-2,403.7	4,915.4	0.00	0.00	0.00
11,600.0	90.00	180.00	7,503.0	-4,591.2	-2,403.7	5,012.9	0.00	0.00	0.00
11,700.0	90.00	180.00	7,503.0	-4,691.2	-2,403.7	5,110.3	0.00	0.00	0.00
11,800.0	90.00	180.00	7,503.0	-4,791.2	-2,403.7	5,207.8	0.00	0.00	0.00
11,900.0	90.00	180.00	7,503.0	-4,891.2	-2,403.7	5,305.3	0.00	0.00	0.00
12,000.0	90.00	180.00	7,503.0	-4,991.2	-2,403.7	5,402.7	0.00	0.00	0.00
12,100.0	90.00	180.00	7,503.0	-5,091.2	-2,403.7	5,500.2	0.00	0.00	0.00
12,200.0	90.00	180.00	7,503.0	-5,191.2	-2,403.7	5,597.6	0.00	0.00	0.00
12,300.0	90.00	180.00	7,503.0	-5,291.2	-2,403.7	5,695.1	0.00	0.00	0.00
12,400.0	90.00	180.00	7,503.0	-5,391.2	-2,403.7	5,792.6	0.00	0.00	0.00

Planning Report

Database:	EDM	Local Co-ordinate Reference:	Well Luseland 7-66-3-10-2C
Company:	Enerplus Resources (USA) Corporation	TVD Reference:	Well @ 5013.0usft
Project:	Weld County, CO	MD Reference:	Well @ 5013.0usft
Site:	SEC 34, T8N-R66W	North Reference:	True
Well:	Luseland 7-66-3-10-2C	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan 1		

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)
12,500.0	90.00	180.00	7,503.0	-5,491.2	-2,403.7	5,890.0	0.00	0.00	0.00
12,600.0	90.00	180.00	7,503.0	-5,591.2	-2,403.7	5,987.5	0.00	0.00	0.00
12,700.0	90.00	180.00	7,503.0	-5,691.2	-2,403.7	6,084.9	0.00	0.00	0.00
12,800.0	90.00	180.00	7,503.0	-5,791.2	-2,403.7	6,182.4	0.00	0.00	0.00
12,900.0	90.00	180.00	7,503.0	-5,891.2	-2,403.7	6,279.9	0.00	0.00	0.00
13,000.0	90.00	180.00	7,503.0	-5,991.2	-2,403.7	6,377.3	0.00	0.00	0.00
13,100.0	90.00	180.00	7,503.0	-6,091.2	-2,403.8	6,474.8	0.00	0.00	0.00
13,200.0	90.00	180.00	7,503.0	-6,191.2	-2,403.8	6,572.2	0.00	0.00	0.00
13,300.0	90.00	180.00	7,503.0	-6,291.2	-2,403.8	6,669.7	0.00	0.00	0.00
13,400.0	90.00	180.00	7,503.0	-6,391.2	-2,403.8	6,767.2	0.00	0.00	0.00
13,500.0	90.00	180.00	7,503.0	-6,491.2	-2,403.8	6,864.6	0.00	0.00	0.00
13,600.0	90.00	180.00	7,503.0	-6,591.2	-2,403.8	6,962.1	0.00	0.00	0.00
13,700.0	90.00	180.00	7,503.0	-6,691.2	-2,403.8	7,059.6	0.00	0.00	0.00
13,800.0	90.00	180.00	7,503.0	-6,791.2	-2,403.8	7,157.0	0.00	0.00	0.00
13,900.0	90.00	180.00	7,503.0	-6,891.2	-2,403.8	7,254.5	0.00	0.00	0.00
14,000.0	90.00	180.00	7,503.0	-6,991.2	-2,403.8	7,351.9	0.00	0.00	0.00
14,100.0	90.00	180.00	7,503.0	-7,091.2	-2,403.8	7,449.4	0.00	0.00	0.00
14,200.0	90.00	180.00	7,503.0	-7,191.2	-2,403.8	7,546.9	0.00	0.00	0.00
14,300.0	90.00	180.00	7,503.0	-7,291.2	-2,403.8	7,644.3	0.00	0.00	0.00
14,400.0	90.00	180.00	7,503.0	-7,391.2	-2,403.8	7,741.8	0.00	0.00	0.00
14,500.0	90.00	180.00	7,503.0	-7,491.2	-2,403.8	7,839.2	0.00	0.00	0.00
14,600.0	90.00	180.00	7,503.0	-7,591.2	-2,403.8	7,936.7	0.00	0.00	0.00
14,700.0	90.00	180.00	7,503.0	-7,691.2	-2,403.8	8,034.2	0.00	0.00	0.00
14,800.0	90.00	180.00	7,503.0	-7,791.2	-2,403.8	8,131.6	0.00	0.00	0.00
14,900.0	90.00	180.00	7,503.0	-7,891.2	-2,403.9	8,229.1	0.00	0.00	0.00
15,000.0	90.00	180.00	7,503.0	-7,991.2	-2,403.9	8,326.5	0.00	0.00	0.00
15,100.0	90.00	180.00	7,503.0	-8,091.2	-2,403.9	8,424.0	0.00	0.00	0.00
15,200.0	90.00	180.00	7,503.0	-8,191.2	-2,403.9	8,521.5	0.00	0.00	0.00
15,300.0	90.00	180.00	7,503.0	-8,291.2	-2,403.9	8,618.9	0.00	0.00	0.00
15,400.0	90.00	180.00	7,503.0	-8,391.2	-2,403.9	8,716.4	0.00	0.00	0.00
15,500.0	90.00	180.00	7,503.0	-8,491.2	-2,403.9	8,813.8	0.00	0.00	0.00
15,600.0	90.00	180.00	7,503.0	-8,591.2	-2,403.9	8,911.3	0.00	0.00	0.00
15,700.0	90.00	180.00	7,503.0	-8,691.2	-2,403.9	9,008.8	0.00	0.00	0.00
15,800.0	90.00	180.00	7,503.0	-8,791.2	-2,403.9	9,106.2	0.00	0.00	0.00
15,900.0	90.00	180.00	7,503.0	-8,891.2	-2,403.9	9,203.7	0.00	0.00	0.00
16,000.0	90.00	180.00	7,503.0	-8,991.2	-2,403.9	9,301.2	0.00	0.00	0.00
16,100.0	90.00	180.00	7,503.0	-9,091.2	-2,403.9	9,398.6	0.00	0.00	0.00
16,200.0	90.00	180.00	7,503.0	-9,191.2	-2,403.9	9,496.1	0.00	0.00	0.00
16,300.0	90.00	180.00	7,503.0	-9,291.2	-2,403.9	9,593.5	0.00	0.00	0.00
16,400.0	90.00	180.00	7,503.0	-9,391.2	-2,403.9	9,691.0	0.00	0.00	0.00
16,500.0	90.00	180.00	7,503.0	-9,491.2	-2,403.9	9,788.5	0.00	0.00	0.00
16,600.0	90.00	180.00	7,503.0	-9,591.2	-2,404.0	9,885.9	0.00	0.00	0.00
16,700.0	90.00	180.00	7,503.0	-9,691.2	-2,404.0	9,983.4	0.00	0.00	0.00
16,800.0	90.00	180.00	7,503.0	-9,791.2	-2,404.0	10,080.8	0.00	0.00	0.00
16,900.0	90.00	180.00	7,503.0	-9,891.2	-2,404.0	10,178.3	0.00	0.00	0.00
17,000.0	90.00	180.00	7,503.0	-9,991.2	-2,404.0	10,275.8	0.00	0.00	0.00
17,100.0	90.00	180.00	7,503.0	-10,091.2	-2,404.0	10,373.2	0.00	0.00	0.00
17,200.0	90.00	180.00	7,503.0	-10,191.2	-2,404.0	10,470.7	0.00	0.00	0.00
17,300.0	90.00	180.00	7,503.0	-10,291.2	-2,404.0	10,568.1	0.00	0.00	0.00
17,400.0	90.00	180.00	7,503.0	-10,391.2	-2,404.0	10,665.6	0.00	0.00	0.00
17,469.8	90.00	180.00	7,503.0	-10,461.0	-2,404.0	10,733.6	0.00	0.00	0.00
Total Depth - Luseland 7-66-3-10-2C									

Planning Report

Database:	EDM	Local Co-ordinate Reference:	Well Luseland 7-66-3-10-2C
Company:	Enerplus Resources (USA) Corporation	TVD Reference:	Well @ 5013.0usft
Project:	Weld County, CO	MD Reference:	Well @ 5013.0usft
Site:	SEC 34, T8N-R66W	North Reference:	True
Well:	Luseland 7-66-3-10-2C	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan 1		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
Luseland 7-66-3-10-2C	0.00	0.00	7,503.0	-10,461.0	-2,404.0	1,456,345.20	3,203,587.94	40° 35' 1.523 N	104° 46' 1.258 W
- plan hits target center									
- Point									

Casing Points					
Measured Depth	Vertical Depth	Name		Casing Diameter	Hole Diameter
(usft)	(usft)			(")	(")
1,500.0	1,500.0	Surface		9-5/8	9-5/8
8,586.3	7,503.0	Intermediate		7	7

Formations						
Measured Depth	Vertical Depth	Name		Lithology	Dip	Dip Direction
(usft)	(usft)				(°)	(°)
5,084.0	4,729.0	TERRY				
5,596.7	5,149.0	HYGENE				
6,909.0	6,224.0	Lower Pierre marker				
7,930.4	7,119.0	SHARON SPRINGS				
7,996.8	7,183.0	NIOBRARA A CHALK				
8,020.3	7,205.0	NIOBRARA A MARL				
8,072.3	7,252.0	NIOBRARA B TOP				
8,133.7	7,304.0	NIOBRARA B CHALK				
8,200.0	7,355.0	NIOBRARA B MARL				
8,241.8	7,384.0	NIOBRARA C CHALK				
8,317.0	7,429.0	NIOBRARA C MARL				
8,368.2	7,454.0	NIOBRARA D CHALK				
8,437.6	7,480.0	FORT HAYS				
8,586.3	7,503.0	CODELL				

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
1,500.0	1,500.0	0.0	0.0	9-5/8"
2,889.2	2,889.2	0.0	0.0	Begin Nudge
7,836.3	7,025.5	-1,100.0	-2,403.5	KOP - Start 12"/100' Build
8,586.3	7,503.0	-1,577.5	-2,403.5	7" - 1176' FNL & 1640' FWL
17,469.8	7,503.0	-10,461.0	-2,404.0	Total Depth