

Project: Weld County, CO
Site: SEC 34 T8N-R66W
Well: Luseland 7-66-3-10-2
Wellbore: Original Wellbore
Design: Plan 4

Reference Details

Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Latitude: 40° 36' 45.241 N
 Longitude: 104° 45' 30.110 W
 Grid Convergence: 0.48° West
 Ground Elevation: 4993.0
 KB Elevation: KB @ 5018.0usft



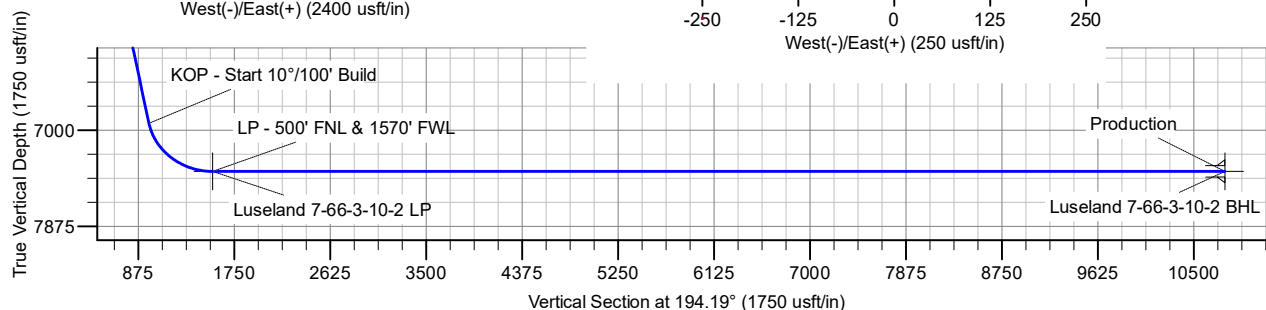
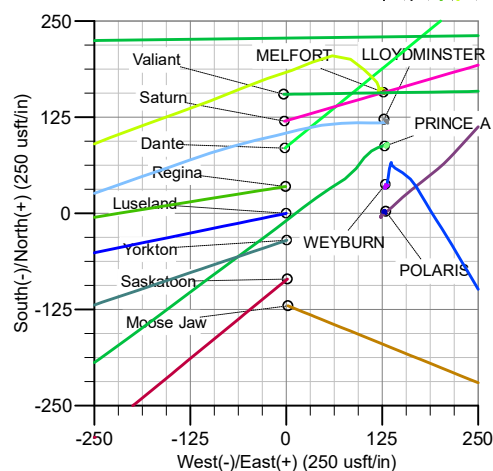
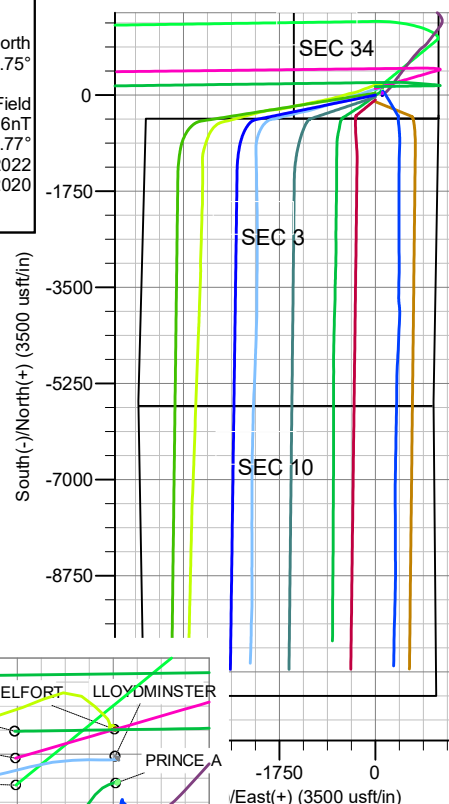
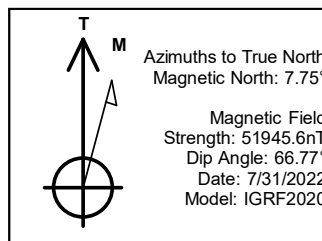
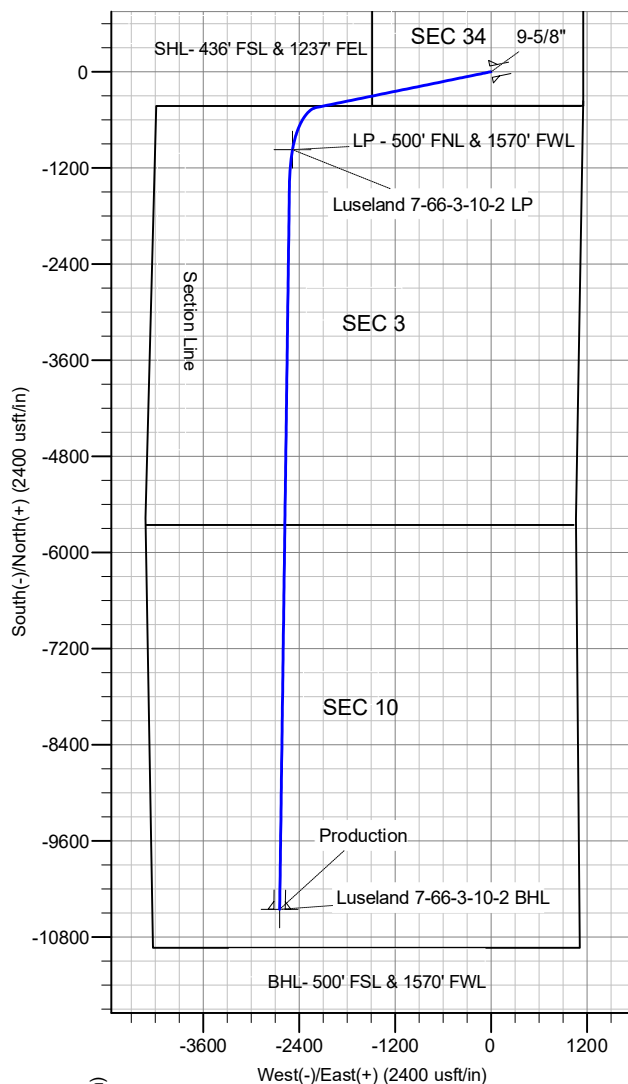
RPM Consulting, Inc.
 1600 Broadway, Suite 1480
 Denver, CO 80202
 303-595-7625

SECTION DETAILS

CASING 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
3246.7	26.20	258.44	3186.4	-78.6	-384.5	1.50	258.44	170.5
7426.2	26.20	258.44	6936.5	-448.3	-2192.4	0.00	0.00	972.1
8235.5	90.00	189.37	7375.0	-973.7	-2483.3	10.00	288.94	1552.8
8665.5	90.00	180.77	7375.0	-1401.6	-2521.3	2.00	-90.00	1976.9
17719.2	90.00	180.77	7375.0	-10454.6	-2643.4	0.00	0.00	10783.6

TVD	MD	Name
1500.0	1500.0	Surface
7375.0	17719.2	Production



Enerplus Resources (USA) Corporation

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

Original Wellbore

Plan: Plan 4

Standard Planning Report

07 June, 2022

Planning Report

Database:	EDM Server Database	Local Co-ordinate Reference:	Well Luseland 7-66-3-10-2
Company:	Enerplus Resources (USA) Corporation	TVD Reference:	KB @ 5018.0usft
Project:	Weld County, CO	MD Reference:	KB @ 5018.0usft
Site:	SEC 34 T8N-R66W	North Reference:	True
Well:	Luseland 7-66-3-10-2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	Plan 4		

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
From:	Lat/Long	Easting:	3,205,908.72 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	40° 36' 43.362 N
		Longitude:	104° 45' 30.060 W

Well	Luseland 7-66-3-10-2		
Well Position	+N/-S	0.0 usft	Northing: 1,466,860.91 usft
	+E/-W	0.0 usft	Easting: 3,205,903.24 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
Grid Convergence:	0.48 °	Ground Level:	4,993.0 usft

Wellbore	Original Wellbore				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	7/31/2022	7.75	66.77	51,945.55349283

Design	Plan 4				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.0	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	194.19	

Plan Survey Tool Program	Date	6/7/2022			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.0	17,718.8	Plan 4 (Original Wellbore)	MWD	
			OWSG MWD - Standard		

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	
3,246.7	26.20	258.44	3,186.4	-78.6	-384.5	1.50	1.50	0.00	258.44	
7,426.2	26.20	258.44	6,936.5	-448.3	-2,192.4	0.00	0.00	0.00	0.00	
8,235.5	90.00	189.37	7,375.0	-973.7	-2,483.3	10.00	7.88	-8.54	288.94	
8,665.5	90.00	180.77	7,375.0	-1,401.6	-2,521.3	2.00	0.00	-2.00	-90.00	
17,719.2	90.00	180.77	7,375.0	-10,454.6	-2,643.4	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:	KB @ 5018.0usft
Project:	Weld County, CO	MD Reference:	KB @ 5018.0usft
Site:	SEC 34 T8N-R66W	North Reference:	True
Well:	Luseland 7-66-3-10-2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	Plan 4		

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" - Begin 1.5° Nudge - Surface									
1,600.0	1.50	258.44	1,600.0	-0.3	-1.3	0.6	1.50	1.50	0.00
1,687.1	2.81	258.44	1,687.0	-0.9	-4.5	2.0	1.50	1.50	0.00
Pierre									
1,700.0	3.00	258.44	1,699.9	-1.0	-5.1	2.3	1.50	1.50	0.00
1,800.0	4.50	258.44	1,799.7	-2.4	-11.5	5.1	1.50	1.50	0.00
1,900.0	6.00	258.44	1,899.3	-4.2	-20.5	9.1	1.50	1.50	0.00
2,000.0	7.50	258.44	1,998.6	-6.5	-32.0	14.2	1.50	1.50	0.00
2,100.0	9.00	258.44	2,097.5	-9.4	-46.1	20.4	1.50	1.50	0.00
2,200.0	10.50	258.44	2,196.1	-12.8	-62.7	27.8	1.50	1.50	0.00
2,300.0	12.00	258.44	2,294.2	-16.7	-81.8	36.3	1.50	1.50	0.00
2,400.0	13.50	258.44	2,391.7	-21.1	-103.4	45.8	1.50	1.50	0.00
2,500.0	15.00	258.44	2,488.6	-26.1	-127.5	56.5	1.50	1.50	0.00
2,600.0	16.50	258.44	2,584.9	-31.5	-154.1	68.3	1.50	1.50	0.00
2,700.0	18.00	258.44	2,680.4	-37.5	-183.2	81.2	1.50	1.50	0.00
2,800.0	19.50	258.44	2,775.0	-43.9	-214.7	95.2	1.50	1.50	0.00
2,900.0	21.00	258.44	2,868.9	-50.8	-248.6	110.2	1.50	1.50	0.00
3,000.0	22.50	258.44	2,961.7	-58.3	-284.9	126.3	1.50	1.50	0.00
3,100.0	24.00	258.44	3,053.6	-66.2	-323.5	143.4	1.50	1.50	0.00
3,200.0	25.50	258.44	3,144.4	-74.5	-364.6	161.6	1.50	1.50	0.00
3,246.7	26.20	258.44	3,186.5	-78.6	-384.5	170.5	1.50	1.50	0.00
Begin 26.20° Tangent									
3,300.0	26.20	258.44	3,234.3	-83.3	-407.6	180.7	0.00	0.00	0.00
3,400.0	26.20	258.44	3,324.0	-92.2	-450.8	199.9	0.00	0.00	0.00
3,500.0	26.20	258.44	3,413.7	-101.0	-494.1	219.1	0.00	0.00	0.00
3,600.0	26.20	258.44	3,503.5	-109.9	-537.3	238.2	0.00	0.00	0.00
3,700.0	26.20	258.44	3,593.2	-118.7	-580.6	257.4	0.00	0.00	0.00
3,800.0	26.20	258.44	3,682.9	-127.6	-623.8	276.6	0.00	0.00	0.00
3,900.0	26.20	258.44	3,772.6	-136.4	-667.1	295.8	0.00	0.00	0.00
4,000.0	26.20	258.44	3,862.4	-145.3	-710.3	315.0	0.00	0.00	0.00
4,100.0	26.20	258.44	3,952.1	-154.1	-753.6	334.1	0.00	0.00	0.00
4,136.7	26.20	258.44	3,985.0	-157.3	-769.5	341.2	0.00	0.00	0.00
Richards									
4,200.0	26.20	258.44	4,041.8	-162.9	-796.9	353.3	0.00	0.00	0.00
4,300.0	26.20	258.44	4,131.5	-171.8	-840.1	372.5	0.00	0.00	0.00
4,400.0	26.20	258.44	4,221.3	-180.6	-883.4	391.7	0.00	0.00	0.00
4,500.0	26.20	258.44	4,311.0	-189.5	-926.6	410.8	0.00	0.00	0.00

Planning Report

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Project:	Weld County, CO	MD Reference:	KB @ 5018.0usft
Site:	SEC 34 T8N-R66W	North Reference:	True
Well:	Luseland 7-66-3-10-2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	Plan 4		

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)
4,600.0	26.20	258.44	4,400.7	-198.3	-969.9	430.0	0.00	0.00	0.00
4,700.0	26.20	258.44	4,490.4	-207.2	-1,013.1	449.2	0.00	0.00	0.00
4,748.5	26.20	258.44	4,534.0	-211.5	-1,034.1	458.5	0.00	0.00	0.00
Terry									
4,800.0	26.20	258.44	4,580.2	-216.0	-1,056.4	468.4	0.00	0.00	0.00
4,900.0	26.20	258.44	4,669.9	-224.9	-1,099.6	487.6	0.00	0.00	0.00
5,000.0	26.20	258.44	4,759.6	-233.7	-1,142.9	506.7	0.00	0.00	0.00
5,100.0	26.20	258.44	4,849.3	-242.6	-1,186.2	525.9	0.00	0.00	0.00
5,200.0	26.20	258.44	4,939.1	-251.4	-1,229.4	545.1	0.00	0.00	0.00
5,300.0	26.20	258.44	5,028.8	-260.2	-1,272.7	564.3	0.00	0.00	0.00
5,400.0	26.20	258.44	5,118.5	-269.1	-1,315.9	583.5	0.00	0.00	0.00
5,489.7	26.20	258.44	5,199.0	-277.0	-1,354.7	600.7	0.00	0.00	0.00
Hygeine									
5,500.0	26.20	258.44	5,208.3	-277.9	-1,359.2	602.6	0.00	0.00	0.00
5,600.0	26.20	258.44	5,298.0	-286.8	-1,402.4	621.8	0.00	0.00	0.00
5,700.0	26.20	258.44	5,387.7	-295.6	-1,445.7	641.0	0.00	0.00	0.00
5,800.0	26.20	258.44	5,477.4	-304.5	-1,488.9	660.2	0.00	0.00	0.00
5,900.0	26.20	258.44	5,567.2	-313.3	-1,532.2	679.3	0.00	0.00	0.00
6,000.0	26.20	258.44	5,656.9	-322.2	-1,575.5	698.5	0.00	0.00	0.00
6,100.0	26.20	258.44	5,746.6	-331.0	-1,618.7	717.7	0.00	0.00	0.00
6,130.5	26.20	258.44	5,774.0	-333.7	-1,631.9	723.6	0.00	0.00	0.00
Lower Pierre zero									
6,200.0	26.20	258.44	5,836.3	-339.9	-1,662.0	736.9	0.00	0.00	0.00
6,300.0	26.20	258.44	5,926.1	-348.7	-1,705.2	756.1	0.00	0.00	0.00
6,400.0	26.20	258.44	6,015.8	-357.5	-1,748.5	775.2	0.00	0.00	0.00
6,500.0	26.20	258.44	6,105.5	-366.4	-1,791.7	794.4	0.00	0.00	0.00
6,600.0	26.20	258.44	6,195.2	-375.2	-1,835.0	813.6	0.00	0.00	0.00
6,629.8	26.20	258.44	6,222.0	-377.9	-1,847.9	819.3	0.00	0.00	0.00
Lower Pierre 1									
6,700.0	26.20	258.44	6,285.0	-384.1	-1,878.2	832.8	0.00	0.00	0.00
6,800.0	26.20	258.44	6,374.7	-392.9	-1,921.5	852.0	0.00	0.00	0.00
6,900.0	26.20	258.44	6,464.4	-401.8	-1,964.8	871.1	0.00	0.00	0.00
7,000.0	26.20	258.44	6,554.1	-410.6	-2,008.0	890.3	0.00	0.00	0.00
7,100.0	26.20	258.44	6,643.9	-419.5	-2,051.3	909.5	0.00	0.00	0.00
7,200.0	26.20	258.44	6,733.6	-428.3	-2,094.5	928.7	0.00	0.00	0.00
7,300.0	26.20	258.44	6,823.3	-437.2	-2,137.8	947.8	0.00	0.00	0.00
7,393.3	26.20	258.44	6,907.0	-445.4	-2,178.1	965.7	0.00	0.00	0.00
Lower Pierre 2									
7,400.0	26.20	258.44	6,913.0	-446.0	-2,181.0	967.0	0.00	0.00	0.00
7,426.2	26.20	258.44	6,936.5	-448.3	-2,192.4	972.1	0.00	0.00	0.00
KOP - Start 10°/100' Build									
7,500.0	29.38	244.10	7,001.9	-459.5	-2,224.7	990.8	10.00	4.30	-19.43
7,600.0	35.56	229.38	7,086.4	-489.2	-2,268.9	1,030.5	10.00	6.19	-14.73
7,685.4	41.90	220.19	7,153.0	-527.2	-2,306.2	1,076.5	10.00	7.42	-10.76
Lower Pierre 3									
7,700.0	43.04	218.85	7,163.8	-534.8	-2,312.5	1,085.4	10.00	7.86	-9.16
7,800.0	51.25	211.02	7,231.8	-595.0	-2,354.1	1,153.9	10.00	8.20	-7.83
7,803.5	51.54	210.78	7,234.0	-597.4	-2,355.5	1,156.5	10.00	8.45	-6.84
Sharon Springs									
7,836.7	54.37	208.60	7,254.0	-620.4	-2,368.6	1,182.1	10.00	8.52	-6.56
Nio A Chalk									
7,876.2	57.78	206.21	7,276.0	-649.4	-2,383.7	1,213.9	10.00	8.64	-6.07

Planning Report

Database:	EDM Server Database	Local Co-ordinate Reference:	Well Luseland 7-66-3-10-2
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Well:	Luseland 7-66-3-10-2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	Plan 4		

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)
Nio A Marl									
7,900.0	59.86	204.85	7,288.3	-667.8	-2,392.5	1,233.9	10.00	8.73	-5.71
7,962.3	65.36	201.54	7,317.0	-718.7	-2,414.2	1,288.5	10.00	8.82	-5.31
Nio B upper									
8,000.0	68.72	199.69	7,331.7	-751.1	-2,426.4	1,323.0	10.00	8.91	-4.93
8,100.0	77.71	195.12	7,360.6	-842.4	-2,454.9	1,418.5	10.00	9.00	-4.57
8,141.1	81.43	193.34	7,368.0	-881.5	-2,464.8	1,458.9	10.00	9.05	-4.32
Nio B chalk									
8,200.0	86.78	190.85	7,374.1	-938.8	-2,477.1	1,517.4	10.00	9.08	-4.22
8,235.5	90.00	189.37	7,375.0	-973.8	-2,483.4	1,552.8	9.99	9.07	-4.18
LP - 500' FNL & 1570' FWL									
8,300.0	90.00	188.08	7,375.0	-1,037.5	-2,493.1	1,617.0	2.00	0.00	-2.00
8,400.0	90.00	186.08	7,375.0	-1,136.8	-2,505.5	1,716.2	2.00	0.00	-2.00
8,500.0	90.00	184.08	7,375.0	-1,236.4	-2,514.3	1,815.0	2.00	0.00	-2.00
8,600.0	90.00	182.08	7,375.0	-1,336.2	-2,519.7	1,913.1	2.00	0.00	-2.00
8,665.5	90.00	180.77	7,375.0	-1,401.6	-2,521.3	1,976.9	2.00	0.00	-2.00
8,700.0	90.00	180.77	7,375.0	-1,436.2	-2,521.8	2,010.5	0.00	0.00	0.00
8,800.0	90.00	180.77	7,375.0	-1,536.2	-2,523.1	2,107.8	0.00	0.00	0.00
8,900.0	90.00	180.77	7,375.0	-1,636.2	-2,524.5	2,205.1	0.00	0.00	0.00
9,000.0	90.00	180.77	7,375.0	-1,736.2	-2,525.8	2,302.3	0.00	0.00	0.00
9,100.0	90.00	180.77	7,375.0	-1,836.1	-2,527.2	2,399.6	0.00	0.00	0.00
9,200.0	90.00	180.77	7,375.0	-1,936.1	-2,528.5	2,496.9	0.00	0.00	0.00
9,300.0	90.00	180.77	7,375.0	-2,036.1	-2,529.9	2,594.2	0.00	0.00	0.00
9,400.0	90.00	180.77	7,375.0	-2,136.1	-2,531.2	2,691.4	0.00	0.00	0.00
9,500.0	90.00	180.77	7,375.0	-2,236.1	-2,532.6	2,788.7	0.00	0.00	0.00
9,600.0	90.00	180.77	7,375.0	-2,336.1	-2,533.9	2,886.0	0.00	0.00	0.00
9,700.0	90.00	180.77	7,375.0	-2,436.1	-2,535.3	2,983.2	0.00	0.00	0.00
9,800.0	90.00	180.77	7,375.0	-2,536.1	-2,536.6	3,080.5	0.00	0.00	0.00
9,900.0	90.00	180.77	7,375.0	-2,636.1	-2,538.0	3,177.8	0.00	0.00	0.00
10,000.0	90.00	180.77	7,375.0	-2,736.1	-2,539.3	3,275.1	0.00	0.00	0.00
10,100.0	90.00	180.77	7,375.0	-2,836.1	-2,540.7	3,372.3	0.00	0.00	0.00
10,200.0	90.00	180.77	7,375.0	-2,936.0	-2,542.0	3,469.6	0.00	0.00	0.00
10,300.0	90.00	180.77	7,375.0	-3,036.0	-2,543.4	3,566.9	0.00	0.00	0.00
10,400.0	90.00	180.77	7,375.0	-3,136.0	-2,544.7	3,664.1	0.00	0.00	0.00
10,500.0	90.00	180.77	7,375.0	-3,236.0	-2,546.1	3,761.4	0.00	0.00	0.00
10,600.0	90.00	180.77	7,375.0	-3,336.0	-2,547.4	3,858.7	0.00	0.00	0.00
10,700.0	90.00	180.77	7,375.0	-3,436.0	-2,548.8	3,955.9	0.00	0.00	0.00
10,800.0	90.00	180.77	7,375.0	-3,536.0	-2,550.1	4,053.2	0.00	0.00	0.00
10,900.0	90.00	180.77	7,375.0	-3,636.0	-2,551.5	4,150.5	0.00	0.00	0.00
11,000.0	90.00	180.77	7,375.0	-3,736.0	-2,552.8	4,247.8	0.00	0.00	0.00
11,100.0	90.00	180.77	7,375.0	-3,836.0	-2,554.2	4,345.0	0.00	0.00	0.00
11,200.0	90.00	180.77	7,375.0	-3,936.0	-2,555.5	4,442.3	0.00	0.00	0.00
11,300.0	90.00	180.77	7,375.0	-4,035.9	-2,556.8	4,539.6	0.00	0.00	0.00
11,400.0	90.00	180.77	7,375.0	-4,135.9	-2,558.2	4,636.8	0.00	0.00	0.00
11,500.0	90.00	180.77	7,375.0	-4,235.9	-2,559.5	4,734.1	0.00	0.00	0.00
11,600.0	90.00	180.77	7,375.0	-4,335.9	-2,560.9	4,831.4	0.00	0.00	0.00
11,700.0	90.00	180.77	7,375.0	-4,435.9	-2,562.2	4,928.7	0.00	0.00	0.00
11,800.0	90.00	180.77	7,375.0	-4,535.9	-2,563.6	5,025.9	0.00	0.00	0.00
11,900.0	90.00	180.77	7,375.0	-4,635.9	-2,564.9	5,123.2	0.00	0.00	0.00
12,000.0	90.00	180.77	7,375.0	-4,735.9	-2,566.3	5,220.5	0.00	0.00	0.00
12,100.0	90.00	180.77	7,375.0	-4,835.9	-2,567.6	5,317.7	0.00	0.00	0.00
12,200.0	90.00	180.77	7,375.0	-4,935.9	-2,569.0	5,415.0	0.00	0.00	0.00
12,300.0	90.00	180.77	7,375.0	-5,035.9	-2,570.3	5,512.3	0.00	0.00	0.00

Planning Report

Database:	EDM Server Database	Local Co-ordinate Reference:	Well Luseland 7-66-3-10-2
Company:	Enerplus Resources (USA) Corporation	TVD Reference:	KB @ 5018.0usft
Project:	Weld County, CO	MD Reference:	KB @ 5018.0usft
Site:	SEC 34 T8N-R66W	North Reference:	True
Well:	Luseland 7-66-3-10-2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	Plan 4		

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)
12,400.0	90.00	180.77	7,375.0	-5,135.8	-2,571.7	5,609.5	0.00	0.00	0.00
12,500.0	90.00	180.77	7,375.0	-5,235.8	-2,573.0	5,706.8	0.00	0.00	0.00
12,600.0	90.00	180.77	7,375.0	-5,335.8	-2,574.4	5,804.1	0.00	0.00	0.00
12,700.0	90.00	180.77	7,375.0	-5,435.8	-2,575.7	5,901.4	0.00	0.00	0.00
12,800.0	90.00	180.77	7,375.0	-5,535.8	-2,577.1	5,998.6	0.00	0.00	0.00
12,900.0	90.00	180.77	7,375.0	-5,635.8	-2,578.4	6,095.9	0.00	0.00	0.00
13,000.0	90.00	180.77	7,375.0	-5,735.8	-2,579.8	6,193.2	0.00	0.00	0.00
13,100.0	90.00	180.77	7,375.0	-5,835.8	-2,581.1	6,290.4	0.00	0.00	0.00
13,200.0	90.00	180.77	7,375.0	-5,935.8	-2,582.5	6,387.7	0.00	0.00	0.00
13,300.0	90.00	180.77	7,375.0	-6,035.8	-2,583.8	6,485.0	0.00	0.00	0.00
13,400.0	90.00	180.77	7,375.0	-6,135.8	-2,585.2	6,582.3	0.00	0.00	0.00
13,500.0	90.00	180.77	7,375.0	-6,235.7	-2,586.5	6,679.5	0.00	0.00	0.00
13,600.0	90.00	180.77	7,375.0	-6,335.7	-2,587.9	6,776.8	0.00	0.00	0.00
13,700.0	90.00	180.77	7,375.0	-6,435.7	-2,589.2	6,874.1	0.00	0.00	0.00
13,800.0	90.00	180.77	7,375.0	-6,535.7	-2,590.6	6,971.3	0.00	0.00	0.00
13,900.0	90.00	180.77	7,375.0	-6,635.7	-2,591.9	7,068.6	0.00	0.00	0.00
14,000.0	90.00	180.77	7,375.0	-6,735.7	-2,593.2	7,165.9	0.00	0.00	0.00
14,100.0	90.00	180.77	7,375.0	-6,835.7	-2,594.6	7,263.1	0.00	0.00	0.00
14,200.0	90.00	180.77	7,375.0	-6,935.7	-2,595.9	7,360.4	0.00	0.00	0.00
14,300.0	90.00	180.77	7,375.0	-7,035.7	-2,597.3	7,457.7	0.00	0.00	0.00
14,400.0	90.00	180.77	7,375.0	-7,135.7	-2,598.6	7,555.0	0.00	0.00	0.00
14,500.0	90.00	180.77	7,375.0	-7,235.7	-2,600.0	7,652.2	0.00	0.00	0.00
14,600.0	90.00	180.77	7,375.0	-7,335.6	-2,601.3	7,749.5	0.00	0.00	0.00
14,700.0	90.00	180.77	7,375.0	-7,435.6	-2,602.7	7,846.8	0.00	0.00	0.00
14,800.0	90.00	180.77	7,375.0	-7,535.6	-2,604.0	7,944.0	0.00	0.00	0.00
14,900.0	90.00	180.77	7,375.0	-7,635.6	-2,605.4	8,041.3	0.00	0.00	0.00
15,000.0	90.00	180.77	7,375.0	-7,735.6	-2,606.7	8,138.6	0.00	0.00	0.00
15,100.0	90.00	180.77	7,375.0	-7,835.6	-2,608.1	8,235.9	0.00	0.00	0.00
15,200.0	90.00	180.77	7,375.0	-7,935.6	-2,609.4	8,333.1	0.00	0.00	0.00
15,300.0	90.00	180.77	7,375.0	-8,035.6	-2,610.8	8,430.4	0.00	0.00	0.00
15,400.0	90.00	180.77	7,375.0	-8,135.6	-2,612.1	8,527.7	0.00	0.00	0.00
15,500.0	90.00	180.77	7,375.0	-8,235.6	-2,613.5	8,624.9	0.00	0.00	0.00
15,600.0	90.00	180.77	7,375.0	-8,335.6	-2,614.8	8,722.2	0.00	0.00	0.00
15,700.0	90.00	180.77	7,375.0	-8,435.5	-2,616.2	8,819.5	0.00	0.00	0.00
15,800.0	90.00	180.77	7,375.0	-8,535.5	-2,617.5	8,916.8	0.00	0.00	0.00
15,900.0	90.00	180.77	7,375.0	-8,635.5	-2,618.9	9,014.0	0.00	0.00	0.00
16,000.0	90.00	180.77	7,375.0	-8,735.5	-2,620.2	9,111.3	0.00	0.00	0.00
16,100.0	90.00	180.77	7,375.0	-8,835.5	-2,621.6	9,208.6	0.00	0.00	0.00
16,200.0	90.00	180.77	7,375.0	-8,935.5	-2,622.9	9,305.8	0.00	0.00	0.00
16,300.0	90.00	180.77	7,375.0	-9,035.5	-2,624.3	9,403.1	0.00	0.00	0.00
16,400.0	90.00	180.77	7,375.0	-9,135.5	-2,625.6	9,500.4	0.00	0.00	0.00
16,500.0	90.00	180.77	7,375.0	-9,235.5	-2,627.0	9,597.6	0.00	0.00	0.00
16,600.0	90.00	180.77	7,375.0	-9,335.5	-2,628.3	9,694.9	0.00	0.00	0.00
16,700.0	90.00	180.77	7,375.0	-9,435.5	-2,629.7	9,792.2	0.00	0.00	0.00
16,800.0	90.00	180.77	7,375.0	-9,535.4	-2,631.0	9,889.5	0.00	0.00	0.00
16,900.0	90.00	180.77	7,375.0	-9,635.4	-2,632.3	9,986.7	0.00	0.00	0.00
17,000.0	90.00	180.77	7,375.0	-9,735.4	-2,633.7	10,084.0	0.00	0.00	0.00
17,100.0	90.00	180.77	7,375.0	-9,835.4	-2,635.0	10,181.3	0.00	0.00	0.00
17,200.0	90.00	180.77	7,375.0	-9,935.4	-2,636.4	10,278.5	0.00	0.00	0.00
17,300.0	90.00	180.77	7,375.0	-10,035.4	-2,637.7	10,375.8	0.00	0.00	0.00
17,400.0	90.00	180.77	7,375.0	-10,135.4	-2,639.1	10,473.1	0.00	0.00	0.00
17,500.0	90.00	180.77	7,375.0	-10,235.4	-2,640.4	10,570.4	0.00	0.00	0.00
17,600.0	90.00	180.77	7,375.0	-10,335.4	-2,641.8	10,667.6	0.00	0.00	0.00
17,700.0	90.00	180.77	7,375.0	-10,435.4	-2,643.1	10,764.9	0.00	0.00	0.00

Planning Report

Database:	EDM Server Database	Local Co-ordinate Reference:	Well Luseland 7-66-3-10-2
Company:	Enerplus Resources (USA) Corporation	TVD Reference:	KB @ 5018.0usft
Project:	Weld County, CO	MD Reference:	KB @ 5018.0usft
Site:	SEC 34 T8N-R66W	North Reference:	True
Well:	Luseland 7-66-3-10-2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	Plan 4		

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)	
17,719.2	90.00	180.77	7,375.0	-10,454.6	-2,643.4	10,783.6	0.00	0.00	0.00	
5-1/2" Production - PBHL - Production										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
- hit/miss target										
- Shape										
Luseland 7-66-3-10-2 LF	0.00	0.00	7,375.0	-973.7	-2,483.3	1,465,866.49	3,203,428.19	40° 36' 35.618 N	104° 46' 2.309 W	
- plan misses target center by 0.1usft at 8235.4usft MD (7375.1 TVD, -973.7 N, -2483.3 E)										
- Point										
Luseland 7-66-3-10-2 Bl	0.00	0.00	7,375.0	-10,454.6	-2,643.4	1,456,384.57	3,203,347.37	40° 35' 1.932 N	104° 46' 4.372 W	
- plan hits target center										
- Point										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,500.0	1,500.0	Surface	9-5/8	13-1/2	
17,719.2	7,375.0	Production	5-1/2	8-1/2	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,687.1	1,687.0	Pierre				
4,136.7	3,985.0	Richards				
4,748.5	4,534.0	Terry				
5,489.7	5,199.0	Hygeine				
6,130.5	5,774.0	Lower Pierre zero				
6,629.8	6,222.0	Lower Pierre 1				
7,393.3	6,907.0	Lower Pierre 2				
7,685.4	7,153.0	Lower Pierre 3				
7,803.5	7,234.0	Sharon Springs				
7,836.7	7,254.0	Nio A Chalk				
7,876.2	7,276.0	Nio A Marl				
7,962.3	7,317.0	Nio B upper				
8,141.1	7,368.0	Nio B chalk				

Planning Report

Database:	EDM Server Database	Local Co-ordinate Reference:	Well Luseland 7-66-3-10-2
Company:	Enerplus Resources (USA) Corporation	TVD Reference:	KB @ 5018.0usft
Project:	Weld County, CO	MD Reference:	KB @ 5018.0usft
Site:	SEC 34 T8N-R66W	North Reference:	True
Well:	Luseland 7-66-3-10-2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	Plan 4		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,500.0	1,500.0	0.0	0.0	9-5/8"
1,500.0	1,500.0	0.0	0.0	Begin 1.5° Nudge
3,246.7	3,186.5	-78.6	-384.5	Begin 26.20° Tangent
7,426.2	6,936.5	-448.3	-2,192.4	KOP - Start 10°/100' Build
8,235.5	7,375.0	-973.8	-2,483.4	LP - 500' FNL & 1570' FWL
17,719.2	7,375.0	-10,454.6	-2,643.4	5-1/2" Production - PBHL