



Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well 8509A-33 E34 496
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 8324.0ft (Original Well Elev)
Project:	Story Gulch	MD Reference:	WELL @ 8324.0ft (Original Well Elev)
Site:	S33-T4S-R96W (E34 496)	North Reference:	True
Well:	8509A-33 E34 496	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Project	Story Gulch		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site		S33-T4S-R96W (E34 496)			
Site Position:		Northing:	1,676,257.20 ft	Latitude:	39° 39' 36.020 N
From:	Lat/Long	Easting:	2,251,040.13 ft	Longitude:	108° 9' 38.140 W
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.68 °

Well	8509A-33 E34 496					
Well Position	+N/-S	0.0 ft	Northing:	1,676,209.84 ft	Latitude:	39° 39' 35.550 N
	+E/-W	0.0 ft	Easting:	2,251,032.49 ft	Longitude:	108° 9' 38.220 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	8,301.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/19/2012	10.32	65.82	52,197

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	256.83

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
250.0	0.00	0.00	250.0	0.0	0.0	0.00	0.00	0.00	0.00	
902.1	19.56	256.98	889.5	-24.8	-107.4	3.00	3.00	0.00	256.98	
7,218.7	19.56	256.98	6,841.5	-501.4	-2,168.3	0.00	0.00	0.00	0.00	
7,870.9	0.00	0.00	7,481.0	-526.2	-2,275.7	3.00	-3.00	0.00	180.00	E34 496 8509A-33 TC
7,961.0	0.23	236.47	7,571.1	-526.3	-2,275.8	0.25	0.25	-137.08	236.47	
12,498.9	0.23	236.47	12,109.0	-536.2	-2,290.7	0.00	0.00	0.00	0.00	E34 496 8509A-33 PE
12,648.9	0.23	236.47	12,259.0	-536.5	-2,291.2	0.00	0.00	0.00	0.00	

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Project:	Story Gulch	MD Reference:	WELL @ 8324.0ft (Original Well Elev)
Site:	S33-T4S-R96W (E34 496)	North Reference:	True
Well:	8509A-33 E34 496	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
250.0	0.00	0.00	250.0	0.0	0.0	0.0	0.00	0.00	KOP @ 250'
300.0	1.50	256.98	300.0	-0.1	-0.6	0.7	3.00	3.00	
400.0	4.50	256.98	399.8	-1.3	-5.7	5.9	3.00	3.00	
500.0	7.50	256.98	499.3	-3.7	-15.9	16.3	3.00	3.00	
600.0	10.50	256.98	598.0	-7.2	-31.2	32.0	3.00	3.00	
700.0	13.50	256.98	695.8	-11.9	-51.4	52.8	3.00	3.00	
800.0	16.50	256.98	792.4	-17.7	-76.6	78.6	3.00	3.00	
900.0	19.50	256.98	887.5	-24.7	-106.7	109.5	3.00	3.00	
902.1	19.56	256.98	889.5	-24.8	-107.4	110.3	3.00	3.00	EOB; Inc=19.56°
1,000.0	19.56	256.98	981.8	-32.2	-139.4	143.0	0.00	0.00	
1,100.0	19.56	256.98	1,076.0	-39.8	-172.0	176.5	0.00	0.00	
1,199.8	19.56	256.98	1,170.0	-47.3	-204.5	209.9	0.00	0.00	A_GROOVE_TVD
1,200.0	19.56	256.98	1,170.2	-47.3	-204.6	210.0	0.00	0.00	
1,300.0	19.56	256.98	1,264.4	-54.9	-237.2	243.5	0.00	0.00	
1,366.4	19.56	256.98	1,327.0	-59.9	-258.9	265.7	0.00	0.00	B_GROOVE_TVD
1,400.0	19.56	256.98	1,358.7	-62.4	-269.9	277.0	0.00	0.00	
1,407.8	19.56	256.98	1,366.0	-63.0	-272.4	279.6	0.00	0.00	B_GROOVE_BASE_TVD
1,500.0	19.56	256.98	1,452.9	-69.9	-302.5	310.5	0.00	0.00	
1,600.0	19.56	256.98	1,547.1	-77.5	-335.1	344.0	0.00	0.00	
1,700.0	19.56	256.98	1,641.3	-85.0	-367.7	377.4	0.00	0.00	
1,800.0	19.56	256.98	1,735.6	-92.6	-400.4	410.9	0.00	0.00	
1,900.0	19.56	256.98	1,829.8	-100.1	-433.0	444.4	0.00	0.00	
2,000.0	19.56	256.98	1,924.0	-107.7	-465.6	477.9	0.00	0.00	
2,100.0	19.56	256.98	2,018.2	-115.2	-498.2	511.4	0.00	0.00	
2,200.0	19.56	256.98	2,112.5	-122.7	-530.9	544.9	0.00	0.00	
2,300.0	19.56	256.98	2,206.7	-130.3	-563.5	578.4	0.00	0.00	
2,343.8	19.56	256.98	2,248.0	-133.6	-577.8	593.0	0.00	0.00	GARDEN_GULCH_TVD
2,400.0	19.56	256.98	2,300.9	-137.8	-596.1	611.8	0.00	0.00	
2,500.0	19.56	256.98	2,395.1	-145.4	-628.7	645.3	0.00	0.00	
2,600.0	19.56	256.98	2,489.4	-152.9	-661.4	678.8	0.00	0.00	
2,700.0	19.56	256.98	2,583.6	-160.5	-694.0	712.3	0.00	0.00	
2,800.0	19.56	256.98	2,677.8	-168.0	-726.6	745.8	0.00	0.00	
2,900.0	19.56	256.98	2,772.1	-175.6	-759.2	779.3	0.00	0.00	
3,000.0	19.56	256.98	2,866.3	-183.1	-791.9	812.8	0.00	0.00	
3,100.0	19.56	256.98	2,960.5	-190.6	-824.5	846.2	0.00	0.00	
3,200.0	19.56	256.98	3,054.7	-198.2	-857.1	879.7	0.00	0.00	
3,300.0	19.56	256.98	3,149.0	-205.7	-889.7	913.2	0.00	0.00	
3,400.0	19.56	256.98	3,243.2	-213.3	-922.4	946.7	0.00	0.00	
3,418.9	19.56	256.98	3,261.0	-214.7	-928.5	953.0	0.00	0.00	WASATCH_FM_TVD
3,500.0	19.56	256.98	3,337.4	-220.8	-955.0	980.2	0.00	0.00	
3,600.0	19.56	256.98	3,431.6	-228.4	-987.6	1,013.7	0.00	0.00	
3,700.0	19.56	256.98	3,525.9	-235.9	-1,020.3	1,047.2	0.00	0.00	
3,800.0	19.56	256.98	3,620.1	-243.5	-1,052.9	1,080.7	0.00	0.00	
3,900.0	19.56	256.98	3,714.3	-251.0	-1,085.5	1,114.1	0.00	0.00	
4,000.0	19.56	256.98	3,808.5	-258.5	-1,118.1	1,147.6	0.00	0.00	
4,100.0	19.56	256.98	3,902.8	-266.1	-1,150.8	1,181.1	0.00	0.00	
4,200.0	19.56	256.98	3,997.0	-273.6	-1,183.4	1,214.6	0.00	0.00	
4,300.0	19.56	256.98	4,091.2	-281.2	-1,216.0	1,248.1	0.00	0.00	
4,400.0	19.56	256.98	4,185.5	-288.7	-1,248.6	1,281.6	0.00	0.00	

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Project:	Story Gulch	MD Reference:	WELL @ 8324.0ft (Original Well Elev)
Site:	S33-T4S-R96W (E34 496)	North Reference:	True
Well:	8509A-33 E34 496	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,500.0	19.56	256.98	4,279.7	-296.3	-1,281.3	1,315.1	0.00	0.00	
4,600.0	19.56	256.98	4,373.9	-303.8	-1,313.9	1,348.5	0.00	0.00	
4,700.0	19.56	256.98	4,468.1	-311.3	-1,346.5	1,382.0	0.00	0.00	
4,800.0	19.56	256.98	4,562.4	-318.9	-1,379.1	1,415.5	0.00	0.00	
4,900.0	19.56	256.98	4,656.6	-326.4	-1,411.8	1,449.0	0.00	0.00	
5,000.0	19.56	256.98	4,750.8	-334.0	-1,444.4	1,482.5	0.00	0.00	
5,100.0	19.56	256.98	4,845.0	-341.5	-1,477.0	1,516.0	0.00	0.00	
5,200.0	19.56	256.98	4,939.3	-349.1	-1,509.6	1,549.5	0.00	0.00	
5,300.0	19.56	256.98	5,033.5	-356.6	-1,542.3	1,583.0	0.00	0.00	
5,400.0	19.56	256.98	5,127.7	-364.2	-1,574.9	1,616.4	0.00	0.00	
5,500.0	19.56	256.98	5,221.9	-371.7	-1,607.5	1,649.9	0.00	0.00	
5,600.0	19.56	256.98	5,316.2	-379.2	-1,640.1	1,683.4	0.00	0.00	
5,642.3	19.56	256.98	5,356.0	-382.4	-1,653.9	1,697.6	0.00	0.00	WASATCH_G_TVD
5,700.0	19.56	256.98	5,410.4	-386.8	-1,672.8	1,716.9	0.00	0.00	
5,800.0	19.56	256.98	5,504.6	-394.3	-1,705.4	1,750.4	0.00	0.00	
5,900.0	19.56	256.98	5,598.9	-401.9	-1,738.0	1,783.9	0.00	0.00	
6,000.0	19.56	256.98	5,693.1	-409.4	-1,770.6	1,817.4	0.00	0.00	
6,100.0	19.56	256.98	5,787.3	-417.0	-1,803.3	1,850.8	0.00	0.00	
6,200.0	19.56	256.98	5,881.5	-424.5	-1,835.9	1,884.3	0.00	0.00	
6,300.0	19.56	256.98	5,975.8	-432.1	-1,868.5	1,917.8	0.00	0.00	
6,400.0	19.56	256.98	6,070.0	-439.6	-1,901.2	1,951.3	0.00	0.00	
6,500.0	19.56	256.98	6,164.2	-447.1	-1,933.8	1,984.8	0.00	0.00	
6,600.0	19.56	256.98	6,258.4	-454.7	-1,966.4	2,018.3	0.00	0.00	
6,700.0	19.56	256.98	6,352.7	-462.2	-1,999.0	2,051.8	0.00	0.00	
6,800.0	19.56	256.98	6,446.9	-469.8	-2,031.7	2,085.3	0.00	0.00	
6,900.0	19.56	256.98	6,541.1	-477.3	-2,064.3	2,118.7	0.00	0.00	
7,000.0	19.56	256.98	6,635.3	-484.9	-2,096.9	2,152.2	0.00	0.00	
7,100.0	19.56	256.98	6,729.6	-492.4	-2,129.5	2,185.7	0.00	0.00	
7,200.0	19.56	256.98	6,823.8	-499.9	-2,162.2	2,219.2	0.00	0.00	
7,218.7	19.56	256.98	6,841.5	-501.4	-2,168.3	2,225.5	0.00	0.00	Start Drop -3.00
7,300.0	17.13	256.98	6,918.6	-507.1	-2,193.2	2,251.0	3.00	-3.00	
7,400.0	14.13	256.98	7,014.9	-513.2	-2,219.4	2,278.0	3.00	-3.00	
7,500.0	11.13	256.98	7,112.4	-518.1	-2,240.7	2,299.8	3.00	-3.00	
7,600.0	8.13	256.98	7,211.0	-521.9	-2,257.0	2,316.6	3.00	-3.00	
7,700.0	5.13	256.98	7,310.3	-524.5	-2,268.3	2,328.1	3.00	-3.00	
7,800.0	2.13	256.98	7,410.1	-525.9	-2,274.4	2,334.4	3.00	-3.00	
7,870.9	0.00	0.00	7,481.0	-526.2	-2,275.7	2,335.7	3.00	-3.00	EOD; Inc=0° - WILLIAMS_FORK_TVD - E34 496
7,900.0	0.07	236.47	7,510.1	-526.2	-2,275.7	2,335.8	0.25	0.25	
7,961.0	0.23	236.47	7,571.1	-526.3	-2,275.8	2,335.9	0.25	0.25	
8,000.0	0.23	236.47	7,610.1	-526.4	-2,276.0	2,336.0	0.00	0.00	
8,100.0	0.23	236.47	7,710.1	-526.6	-2,276.3	2,336.4	0.00	0.00	
8,200.0	0.23	236.47	7,810.1	-526.8	-2,276.6	2,336.8	0.00	0.00	
8,300.0	0.23	236.47	7,910.1	-527.0	-2,277.0	2,337.2	0.00	0.00	
8,400.0	0.23	236.47	8,010.1	-527.3	-2,277.3	2,337.5	0.00	0.00	
8,500.0	0.23	236.47	8,110.1	-527.5	-2,277.6	2,337.9	0.00	0.00	
8,600.0	0.23	236.47	8,210.1	-527.7	-2,277.9	2,338.3	0.00	0.00	
8,700.0	0.23	236.47	8,310.1	-527.9	-2,278.3	2,338.6	0.00	0.00	
8,800.0	0.23	236.47	8,410.1	-528.1	-2,278.6	2,339.0	0.00	0.00	
8,900.0	0.23	236.47	8,510.1	-528.3	-2,278.9	2,339.4	0.00	0.00	
9,000.0	0.23	236.47	8,610.1	-528.6	-2,279.3	2,339.7	0.00	0.00	
9,100.0	0.23	236.47	8,710.1	-528.8	-2,279.6	2,340.1	0.00	0.00	
9,200.0	0.23	236.47	8,810.1	-529.0	-2,279.9	2,340.5	0.00	0.00	

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Project:	Story Gulch	MD Reference:	WELL @ 8324.0ft (Original Well Elev)
Site:	S33-T4S-R96W (E34 496)	North Reference:	True
Well:	8509A-33 E34 496	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
9,300.0	0.23	236.47	8,910.1	-529.2	-2,280.2	2,340.8	0.00	0.00	
9,400.0	0.23	236.47	9,010.1	-529.4	-2,280.6	2,341.2	0.00	0.00	
9,500.0	0.23	236.47	9,110.1	-529.6	-2,280.9	2,341.6	0.00	0.00	
9,600.0	0.23	236.47	9,210.1	-529.9	-2,281.2	2,341.9	0.00	0.00	
9,700.0	0.23	236.47	9,310.1	-530.1	-2,281.5	2,342.3	0.00	0.00	
9,800.0	0.23	236.47	9,410.1	-530.3	-2,281.9	2,342.7	0.00	0.00	
9,900.0	0.23	236.47	9,510.1	-530.5	-2,282.2	2,343.0	0.00	0.00	
10,000.0	0.23	236.47	9,610.1	-530.7	-2,282.5	2,343.4	0.00	0.00	
10,100.0	0.23	236.47	9,710.1	-530.9	-2,282.9	2,343.8	0.00	0.00	
10,200.0	0.23	236.47	9,810.1	-531.2	-2,283.2	2,344.2	0.00	0.00	
10,300.0	0.23	236.47	9,910.1	-531.4	-2,283.5	2,344.5	0.00	0.00	
10,400.0	0.23	236.47	10,010.1	-531.6	-2,283.8	2,344.9	0.00	0.00	
10,500.0	0.23	236.47	10,110.1	-531.8	-2,284.2	2,345.3	0.00	0.00	
10,600.0	0.23	236.47	10,210.1	-532.0	-2,284.5	2,345.6	0.00	0.00	
10,700.0	0.23	236.47	10,310.1	-532.2	-2,284.8	2,346.0	0.00	0.00	
10,800.0	0.23	236.47	10,410.1	-532.5	-2,285.2	2,346.4	0.00	0.00	
10,900.0	0.23	236.47	10,510.1	-532.7	-2,285.5	2,346.7	0.00	0.00	
10,950.9	0.23	236.47	10,561.0	-532.8	-2,285.6	2,346.9	0.00	0.00	CAMEO_TVD
11,000.0	0.23	236.47	10,610.1	-532.9	-2,285.8	2,347.1	0.00	0.00	
11,100.0	0.23	236.47	10,710.1	-533.1	-2,286.1	2,347.5	0.00	0.00	
11,200.0	0.23	236.47	10,810.1	-533.3	-2,286.5	2,347.8	0.00	0.00	
11,300.0	0.23	236.47	10,910.1	-533.6	-2,286.8	2,348.2	0.00	0.00	
11,400.0	0.23	236.47	11,010.1	-533.8	-2,287.1	2,348.6	0.00	0.00	
11,454.9	0.23	236.47	11,065.0	-533.9	-2,287.3	2,348.8	0.00	0.00	ROLLINS_TVD
11,500.0	0.23	236.47	11,110.1	-534.0	-2,287.4	2,348.9	0.00	0.00	
11,600.0	0.23	236.47	11,210.1	-534.2	-2,287.8	2,349.3	0.00	0.00	
11,700.0	0.23	236.47	11,310.1	-534.4	-2,288.1	2,349.7	0.00	0.00	
11,706.9	0.23	236.47	11,317.0	-534.4	-2,288.1	2,349.7	0.00	0.00	COZZETTE_TVD
11,800.0	0.23	236.47	11,410.1	-534.6	-2,288.4	2,350.1	0.00	0.00	
11,897.9	0.23	236.47	11,508.0	-534.8	-2,288.8	2,350.4	0.00	0.00	CORCORAN_TVD
11,900.0	0.23	236.47	11,510.1	-534.9	-2,288.8	2,350.4	0.00	0.00	
12,000.0	0.23	236.47	11,610.1	-535.1	-2,289.1	2,350.8	0.00	0.00	
12,100.0	0.23	236.47	11,710.1	-535.3	-2,289.4	2,351.2	0.00	0.00	
12,198.9	0.23	236.47	11,809.0	-535.5	-2,289.7	2,351.5	0.00	0.00	UPPER_SEGO_TVD
12,200.0	0.23	236.47	11,810.1	-535.5	-2,289.7	2,351.5	0.00	0.00	
12,300.0	0.23	236.47	11,910.1	-535.7	-2,290.1	2,351.9	0.00	0.00	
12,348.9	0.23	236.47	11,959.0	-535.8	-2,290.2	2,352.1	0.00	0.00	SEGO_BASE_TARGET_TVD
12,400.0	0.23	236.47	12,010.1	-535.9	-2,290.4	2,352.3	0.00	0.00	
12,498.9	0.23	236.47	12,109.0	-536.2	-2,290.7	2,352.6	0.00	0.00	Drillers TD @ 12,498' MD - E34 496 8509A-33 I
12,500.0	0.23	236.47	12,110.1	-536.2	-2,290.7	2,352.6	0.00	0.00	
12,600.0	0.23	236.47	12,210.1	-536.4	-2,291.1	2,353.0	0.00	0.00	
12,648.9	0.23	236.47	12,259.0	-536.5	-2,291.2	2,353.2	0.00	0.00	Permit TD @ 12,648' MD

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well 8509A-33 E34 496
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 8324.0ft (Original Well Elev)
Project:	Story Gulch	MD Reference:	WELL @ 8324.0ft (Original Well Elev)
Site:	S33-T4S-R96W (E34 496)	North Reference:	True
Well:	8509A-33 E34 496	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
E34 496 8509A-33 TGT	0.00	0.00	7,481.0	-526.2	-2,275.7	1,675,750.50	2,248,742.35	39° 39' 30.348 N	108° 10' 7.318 W
- plan hits target center									
- Point									
E34 496 8509A-33 PBH	0.00	0.00	12,109.0	-536.2	-2,290.7	1,675,740.99	2,248,727.05	39° 39' 30.250 N	108° 10' 7.510 W
- plan hits target center									
- Rectangle (sides W30.0 H50.0 D0.0)									

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(ft)	(ft)			(°)	(°)	
1,199.8	1,170.0	A_GROOVE_TVD				
1,366.4	1,327.0	B_GROOVE_TVD				
1,407.8	1,366.0	B_GROOVE_BASE_TVD				
2,343.8	2,248.0	GARDEN_GULCH_TVD				
3,418.9	3,261.0	WASATCH_FM_TVD				
5,642.3	5,356.0	WASATCH_G_TVD				
7,870.9	7,481.0	WILLIAMS_FORK_TVD				
10,950.9	10,561.0	CAMEO_TVD				
11,454.9	11,065.0	ROLLINS_TVD				
11,706.9	11,317.0	COZZETTE_TVD				
11,897.9	11,508.0	CORCORAN_TVD				
12,198.9	11,809.0	UPPER_SEGO_TVD				
12,348.9	11,959.0	SEGO_BASE_TARGET_TVD				

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	Comment
250.0	250.0	0.0	0.0	KOP @ 250'
902.1	889.5	-24.8	-107.4	EOB; Inc=19.56°
7,218.7	6,841.5	-501.4	-2,168.3	Start Drop -3.00
7,870.9	7,481.0	-526.2	-2,275.7	EOD; Inc=0°
12,498.9	12,109.0	-526.3	-2,275.8	Drillers TD @ 12,498' MD
12,648.9	12,259.0	-536.2	-2,290.7	Permit TD @ 12,648' MD