

PETROLEUM DEVELOPMENT CORP DJ Basin

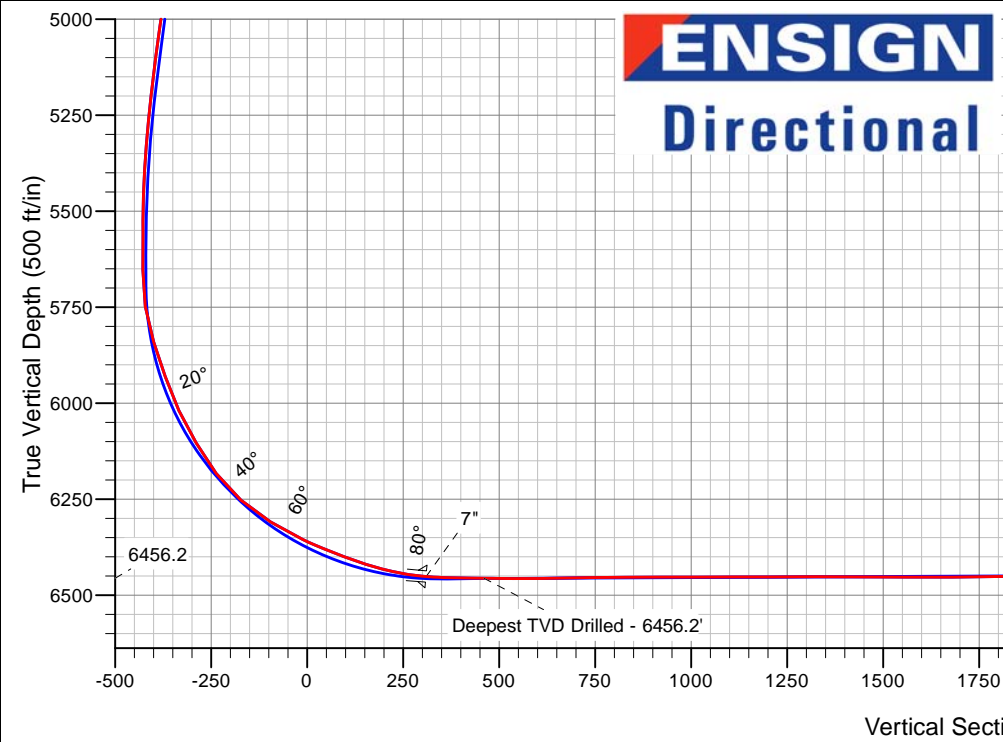
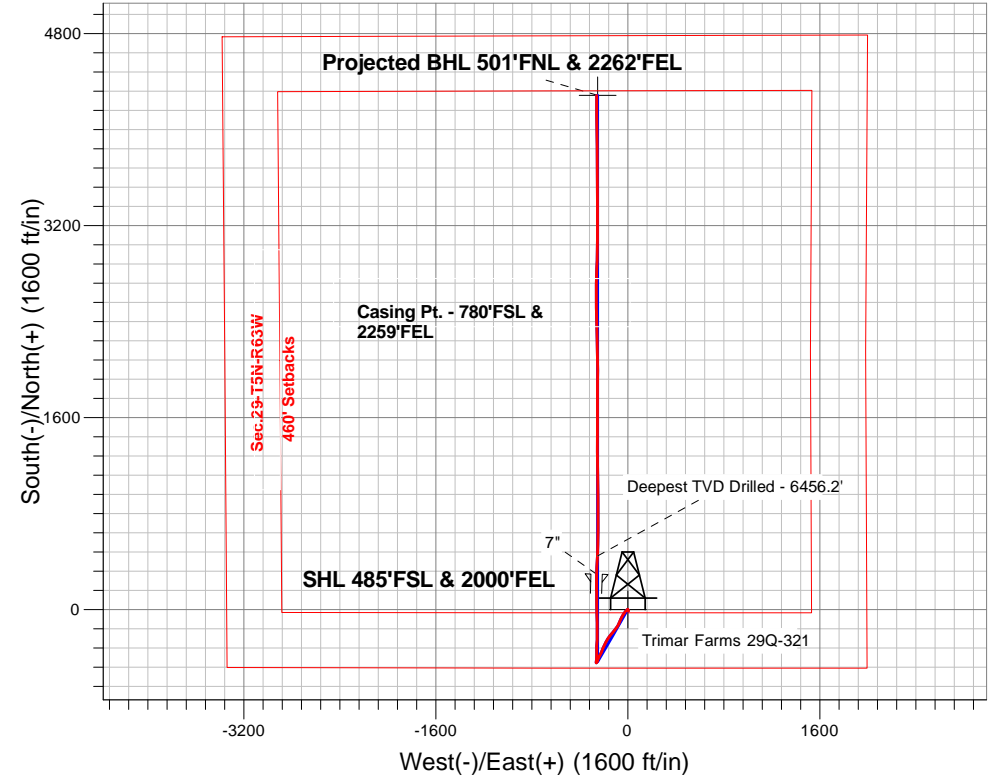
Well Name: **Trimar Farms 29Q-321**

Surface Location: Trimar Farms 5N63W29T Pad Sec.29-T5N-R63W
 North American Datum 1983 , US State Plane 1983, Colorado Northern Zone
 Ground Elevation: 4572.0

+N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 377371.45 3290452.96 40.364600 -104.457640
 RKB - 13' WELL @ 4585.0ft (RKB - 13')

FINAL SURVEY

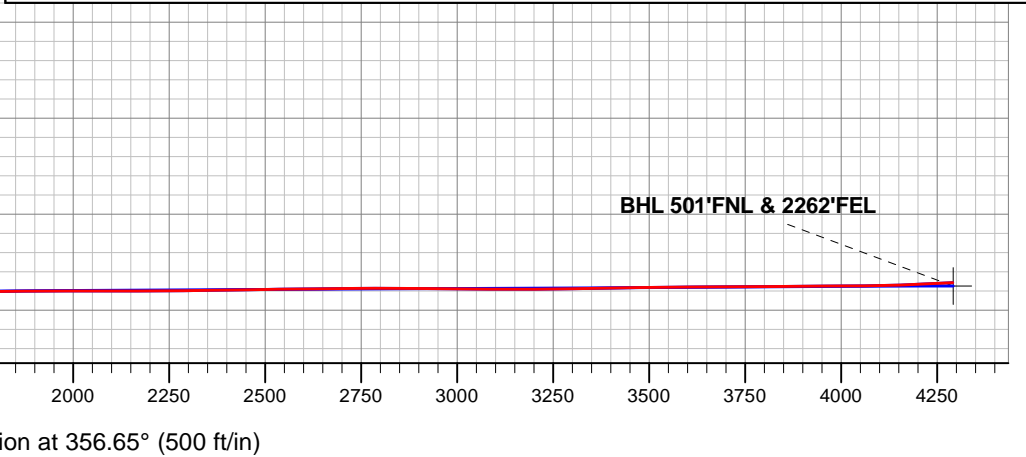
Projected Bottom Hole Location
10878'MD 6429'TVD 4283'N & 259'W of SHL
92.6 degree Incl @ 0.2 degree AZM



Trimar Farms 5N63W29T Pad Sec.29-T5N-R63W
 Trimar Farms 29Q-321
 Wellbore #1
 9:14, November 04 2015

ANNOTATIONS		
TVD	MD	Annotation
6456.2	7041.0	Deepest TVD Drilled - 6456.2'

LEGEND	
	Wellbore #1
	Trimar Farms 29Q-321, Wellbore #1, Plan #3 (10-23-15) R V0
	Survey #1





PETROLEUM DEVELOPMENT CORP DJ Basin

SEC.29-T5N-R63W

Trimar Farms 5N63W29T Pad Sec.29-T5N-R63W

Trimar Farms 29Q-321

Wellbore #1

Survey: Survey #1

Standard Survey Report

04 November, 2015



Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Trimar Farms 29Q-321
Project:	SEC.29-T5N-R63W	TVD Reference:	WELL @ 4585.0ft (RKB - 13')
Site:	Trimar Farms 5N63W29T Pad Sec.29-T5N-R63W	MD Reference:	WELL @ 4585.0ft (RKB - 13')
Well:	Trimar Farms 29Q-321	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	US_EDM

Project	SEC.29-T5N-R63W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	Trimar Farms 5N63W29T Pad Sec.29-T5N-R63W				
Site Position:		Northing:	1,377,291.98 usft	Latitude:	40.364380
From:	Lat/Long	Easting:	3,290,509.63 usft	Longitude:	-104.457440
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.67 °

Well	Trimar Farms 29Q-321					
Well Position	+N/-S	0.0 ft	Northing:	1,377,371.45 usft	Latitude:	40.364600
	+E/-W	0.0 ft	Easting:	3,290,452.96 usft	Longitude:	-104.457640
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,572.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/23/2015	8.11	66.92	52,687

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.0	0.0	0.0	356.65	

Survey Program	Date	11/4/2015			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
75.0	10,878.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	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	
1.0	0.01	299.70	1.0	0.0	0.0	0.0	0.67	0.67	0.00	
SHL 485'FSL & 2000'FEL										
75.0	0.50	299.70	75.0	0.2	-0.3	0.2	0.67	0.67	0.00	
260.0	0.40	125.40	260.0	0.2	-0.5	0.2	0.49	-0.05	-94.22	
352.0	0.20	178.60	352.0	-0.2	-0.2	-0.1	0.35	-0.22	57.83	
444.0	0.60	132.60	444.0	-0.6	0.2	-0.7	0.52	0.43	-50.00	
535.0	0.30	158.10	535.0	-1.2	0.6	-1.2	0.39	-0.33	28.02	
627.0	0.50	130.30	627.0	-1.7	1.0	-1.7	0.30	0.22	-30.22	
720.0	0.90	157.90	720.0	-2.6	1.6	-2.7	0.55	0.43	29.68	

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Trimar Farms 29Q-321
Project:	SEC.29-T5N-R63W	TVD Reference:	WELL @ 4585.0ft (RKB - 13')
Site:	Trimar Farms 5N63W29T Pad Sec.29-T5N-R63W	MD Reference:	WELL @ 4585.0ft (RKB - 13')
Well:	Trimar Farms 29Q-321	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	US_EDM

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
812.0	1.00	168.30	812.0	-4.1	2.0	-4.2	0.22	0.11	11.30	
904.0	1.10	153.80	904.0	-5.6	2.6	-5.8	0.31	0.11	-15.76	
997.0	0.90	187.40	996.9	-7.2	2.9	-7.3	0.65	-0.22	36.13	
1,090.0	1.20	241.20	1,089.9	-8.4	1.9	-8.5	1.06	0.32	57.85	
1,183.0	0.80	162.80	1,182.9	-9.5	1.3	-9.5	1.40	-0.43	-84.30	
1,276.0	0.90	178.80	1,275.9	-10.8	1.5	-10.9	0.28	0.11	17.20	
1,369.0	1.10	12.70	1,368.9	-10.7	1.7	-10.7	2.13	0.22	-178.60	
1,462.0	1.30	8.60	1,461.9	-8.7	2.0	-8.9	0.23	0.22	-4.41	
1,557.0	1.30	346.50	1,556.9	-6.6	1.9	-6.7	0.52	0.00	-23.26	
1,649.0	1.10	347.20	1,648.8	-4.8	1.5	-4.8	0.22	-0.22	0.76	
1,740.0	1.10	348.90	1,739.8	-3.1	1.1	-3.1	0.04	0.00	1.87	
1,832.0	1.30	342.40	1,831.8	-1.2	0.7	-1.2	0.26	0.22	-7.07	
1,924.0	1.80	258.10	1,923.8	-0.5	-1.1	-0.4	2.30	0.54	-91.63	
2,016.0	3.00	236.40	2,015.7	-2.1	-4.5	-1.9	1.61	1.30	-23.59	
2,108.0	4.90	226.30	2,107.5	-6.2	-9.3	-5.6	2.19	2.07	-10.98	
2,201.0	6.60	226.10	2,200.0	-12.6	-16.1	-11.7	1.83	1.83	-0.22	
2,293.0	8.10	216.80	2,291.2	-21.5	-23.8	-20.1	2.08	1.63	-10.11	
2,385.0	7.70	215.20	2,382.4	-31.7	-31.2	-29.8	0.50	-0.43	-1.74	
2,478.0	9.00	212.00	2,474.4	-43.0	-38.6	-40.6	1.48	1.40	-3.44	
2,570.0	9.10	209.90	2,565.2	-55.4	-46.1	-52.6	0.38	0.11	-2.28	
2,663.0	9.20	207.30	2,657.1	-68.4	-53.1	-65.1	0.46	0.11	-2.80	
2,755.0	8.90	203.90	2,747.9	-81.4	-59.4	-77.8	0.67	-0.33	-3.70	
2,939.0	8.70	200.60	2,929.7	-107.4	-70.1	-103.2	0.30	-0.11	-1.79	
3,031.0	8.60	208.10	3,020.7	-120.0	-75.8	-115.4	1.23	-0.11	8.15	
3,123.0	8.00	203.60	3,111.7	-132.0	-81.6	-127.0	0.96	-0.65	-4.89	
3,216.0	8.90	214.10	3,203.7	-143.8	-88.2	-138.4	1.92	0.97	11.29	
3,308.0	9.80	219.20	3,294.5	-155.8	-97.1	-149.9	1.33	0.98	5.54	
3,404.0	9.40	218.30	3,389.2	-168.3	-107.1	-161.7	0.45	-0.42	-0.94	
3,499.0	9.80	219.00	3,482.8	-180.7	-117.0	-173.5	0.44	0.42	0.74	
3,594.0	10.00	219.00	3,576.4	-193.4	-127.3	-185.6	0.21	0.21	0.00	
3,690.0	10.00	218.90	3,671.0	-206.3	-137.8	-197.9	0.02	0.00	-0.10	
3,785.0	9.40	219.20	3,764.6	-218.7	-147.9	-209.7	0.63	-0.63	0.32	
3,881.0	8.70	217.30	3,859.4	-230.6	-157.2	-221.0	0.79	-0.73	-1.98	
3,976.0	9.10	212.20	3,953.3	-242.7	-165.6	-232.6	0.93	0.42	-5.37	
4,071.0	8.90	208.00	4,047.1	-255.5	-173.0	-245.0	0.72	-0.21	-4.42	
4,167.0	9.80	208.90	4,141.8	-269.2	-180.5	-258.2	0.95	0.94	0.94	
4,262.0	9.60	206.40	4,235.5	-283.4	-187.9	-271.9	0.49	-0.21	-2.63	
4,357.0	9.80	209.90	4,329.1	-297.5	-195.5	-285.6	0.66	0.21	3.68	
4,453.0	9.40	203.90	4,423.8	-311.8	-202.7	-299.4	1.12	-0.42	-6.25	
4,548.0	8.60	200.10	4,517.6	-325.5	-208.3	-312.8	1.05	-0.84	-4.00	
4,643.0	7.90	198.70	4,611.6	-338.4	-212.8	-325.4	0.77	-0.74	-1.47	
4,739.0	7.80	202.00	4,706.7	-350.7	-217.4	-337.4	0.48	-0.10	3.44	

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Site:	Trimar Farms 5N63W29T Pad Sec.29-T5N-R63W	MD Reference:	WELL @ 4585.0ft (RKB - 13')
Well:	Trimar Farms 29Q-321	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	US_EDM

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
4,834.0	9.80	209.40	4,800.6	-363.7	-223.8	-350.0	2.41	2.11	7.79	
4,930.0	10.70	208.00	4,895.1	-378.7	-232.0	-364.5	0.97	0.94	-1.46	
5,025.0	9.80	205.70	4,988.5	-393.7	-239.6	-379.1	1.04	-0.95	-2.42	
5,120.0	8.20	200.90	5,082.4	-407.4	-245.5	-392.3	1.86	-1.68	-5.05	
5,215.0	6.70	199.40	5,176.6	-418.9	-249.8	-403.6	1.59	-1.58	-1.58	
5,311.0	5.90	197.30	5,272.0	-428.9	-253.1	-413.4	0.87	-0.83	-2.19	
5,407.0	4.70	200.60	5,367.6	-437.3	-256.0	-421.6	1.29	-1.25	3.44	
5,502.0	2.70	240.50	5,462.4	-442.0	-259.3	-426.1	3.31	-2.11	42.00	
5,597.0	1.00	252.30	5,557.3	-443.4	-262.0	-427.3	1.82	-1.79	12.42	
5,693.0	1.00	253.10	5,653.3	-443.9	-263.6	-427.7	0.01	0.00	0.83	
5,788.0	8.20	7.80	5,748.0	-437.4	-263.5	-421.3	9.12	7.58	120.74	
5,883.0	18.60	5.80	5,840.3	-415.6	-261.0	-399.6	10.96	10.95	-2.11	
5,979.0	18.30	1.80	5,931.4	-385.3	-259.0	-369.5	1.35	-0.31	-4.17	
6,074.0	26.10	357.60	6,019.3	-349.4	-259.4	-333.7	8.37	8.21	-4.42	
6,170.0	30.20	4.20	6,103.9	-304.2	-258.5	-288.6	5.36	4.27	6.88	
6,265.0	36.60	1.10	6,183.2	-252.0	-256.3	-236.6	6.97	6.74	-3.26	
6,360.0	49.00	0.60	6,252.8	-187.6	-255.3	-172.4	13.06	13.05	-0.53	
6,456.0	58.60	359.70	6,309.4	-110.2	-255.2	-95.1	10.03	10.00	-0.94	
6,551.0	64.30	358.40	6,354.8	-26.8	-256.6	-11.8	6.12	6.00	-1.37	
6,646.0	69.40	359.30	6,392.1	60.5	-258.3	75.5	5.44	5.37	0.95	
6,742.0	72.40	359.10	6,423.5	151.2	-259.6	166.1	3.13	3.13	-0.21	
6,856.0	82.70	0.60	6,448.1	262.3	-259.8	277.1	9.13	9.04	1.32	
6,888.9	84.99	1.36	6,451.6	295.0	-259.3	309.7	7.32	6.95	2.30	
7"										
6,948.0	89.10	2.70	6,454.6	354.0	-257.2	368.4	7.32	6.96	2.28	
7,041.0	89.00	2.80	6,456.2	446.9	-252.7	460.9	0.15	-0.11	0.11	
Deepest TVD Drilled - 6456.2'										
7,133.0	90.00	1.40	6,457.0	538.8	-249.4	552.5	1.87	1.09	-1.52	
7,225.0	91.00	0.50	6,456.2	630.8	-247.8	644.2	1.46	1.09	-0.98	
7,318.0	91.10	0.40	6,454.5	723.8	-247.1	737.0	0.15	0.11	-0.11	
7,410.0	90.10	359.30	6,453.5	815.8	-247.3	828.8	1.62	-1.09	-1.20	
7,505.0	90.00	359.20	6,453.4	910.8	-248.6	923.7	0.15	-0.11	-0.11	
7,595.0	90.30	359.30	6,453.2	1,000.8	-249.8	1,013.6	0.35	0.33	0.11	
7,690.0	90.10	359.50	6,452.9	1,095.8	-250.8	1,108.5	0.30	-0.21	0.21	
7,785.0	90.30	359.80	6,452.5	1,190.8	-251.3	1,203.4	0.38	0.21	0.32	
7,881.0	90.00	359.50	6,452.3	1,286.7	-251.9	1,299.3	0.44	-0.31	-0.31	
7,976.0	89.90	0.00	6,452.4	1,381.7	-252.3	1,394.1	0.54	-0.11	0.53	
8,072.0	89.80	0.20	6,452.6	1,477.7	-252.2	1,490.0	0.23	-0.10	0.21	
8,167.0	89.50	359.80	6,453.2	1,572.7	-252.2	1,584.8	0.53	-0.32	-0.42	
8,262.0	90.70	0.00	6,453.0	1,667.7	-252.3	1,679.6	1.28	1.26	0.21	
8,358.0	90.70	359.90	6,451.9	1,763.7	-252.4	1,775.5	0.10	0.00	-0.10	
8,453.0	90.40	0.00	6,450.9	1,858.7	-252.5	1,870.3	0.33	-0.32	0.11	
8,548.0	90.30	359.80	6,450.4	1,953.7	-252.7	1,965.2	0.24	-0.11	-0.21	

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Design:	Wellbore #1	Database:	US_EDM

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
8,644.0	90.10	0.00	6,450.0	2,049.7	-252.8	2,061.0	0.29	-0.21	0.21	
8,739.0	89.90	359.50	6,450.0	2,144.7	-253.3	2,155.9	0.57	-0.21	-0.53	
8,834.0	90.50	358.60	6,449.7	2,239.7	-254.8	2,250.8	1.14	0.63	-0.95	
8,930.0	90.70	358.60	6,448.7	2,335.7	-257.2	2,346.7	0.21	0.21	0.00	
9,025.0	91.00	358.10	6,447.3	2,430.6	-259.9	2,441.7	0.61	0.32	-0.53	
9,120.0	90.70	359.50	6,445.9	2,525.6	-261.9	2,536.6	1.51	-0.32	1.47	
9,216.0	90.60	359.10	6,444.8	2,621.6	-263.1	2,632.5	0.43	-0.10	-0.42	
9,311.0	90.50	2.30	6,443.9	2,716.6	-261.9	2,727.2	3.37	-0.11	3.37	
9,407.0	89.80	1.60	6,443.6	2,812.5	-258.6	2,822.8	1.03	-0.73	-0.73	
9,502.0	89.80	1.30	6,444.0	2,907.5	-256.2	2,917.5	0.32	0.00	-0.32	
9,597.0	89.20	1.30	6,444.8	3,002.4	-254.1	3,012.2	0.63	-0.63	0.00	
9,693.0	89.50	0.40	6,445.9	3,098.4	-252.7	3,107.9	0.99	0.31	-0.94	
9,788.0	90.70	359.70	6,445.7	3,193.4	-252.6	3,202.7	1.46	1.26	-0.74	
9,884.0	90.90	0.20	6,444.4	3,289.4	-252.7	3,298.6	0.56	0.21	0.52	
9,979.0	91.30	359.80	6,442.5	3,384.4	-252.7	3,393.4	0.60	0.42	-0.42	
10,074.0	90.80	359.90	6,440.8	3,479.4	-252.9	3,488.2	0.54	-0.53	0.11	
10,170.0	90.00	359.50	6,440.1	3,575.4	-253.4	3,584.1	0.93	-0.83	-0.42	
10,265.0	90.60	359.50	6,439.6	3,670.4	-254.2	3,679.0	0.63	0.63	0.00	
10,361.0	90.30	359.70	6,438.9	3,766.4	-254.9	3,774.8	0.38	-0.31	0.21	
10,456.0	90.60	359.70	6,438.1	3,861.4	-255.4	3,869.7	0.32	0.32	0.00	
10,551.0	90.30	359.00	6,437.4	3,956.3	-256.5	3,964.6	0.80	-0.32	-0.74	
10,647.0	90.30	358.80	6,436.9	4,052.3	-258.3	4,060.5	0.21	0.00	-0.21	
10,742.0	92.40	0.20	6,434.6	4,147.3	-259.2	4,155.3	2.66	2.21	1.47	
10,822.0	92.60	0.20	6,431.2	4,227.2	-258.9	4,235.1	0.25	0.25	0.00	
10,878.0	92.60	0.20	6,428.6	4,283.2	-258.7	4,291.0	0.00	0.00	0.00	
BHL 500'FNL & 2254'FEL										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
SHL 485'FSL & 2000'FE - hit/miss target - Shape - survey hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,377,371.47	3,290,452.96	40.364600	-104.457640	
BHL 500'FNL & 2254'FE - survey misses target center by 11.6ft at 10878.0ft MD (6428.6 TVD, 4283.2 N, -258.7 E) - Point	0.00	0.00	6,437.0	4,284.3	-250.8	1,381,652.33	3,290,151.87	40.376360	-104.458540	

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well Trimar Farms 29Q-321
Project:	SEC.29-T5N-R63W	TVD Reference:	WELL @ 4585.0ft (RKB - 13')
Site:	Trimar Farms 5N63W29T Pad Sec.29-T5N-R63W	MD Reference:	WELL @ 4585.0ft (RKB - 13')
Well:	Trimar Farms 29Q-321	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	US_EDM

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
6,888.9	6,451.6	7"	7	8-3/4	

Survey Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
7,041.0	6,456.2	446.9	-252.7	Deepest TVD Drilled - 6456.2'	

Checked By: _____ Approved By: _____ Date: _____