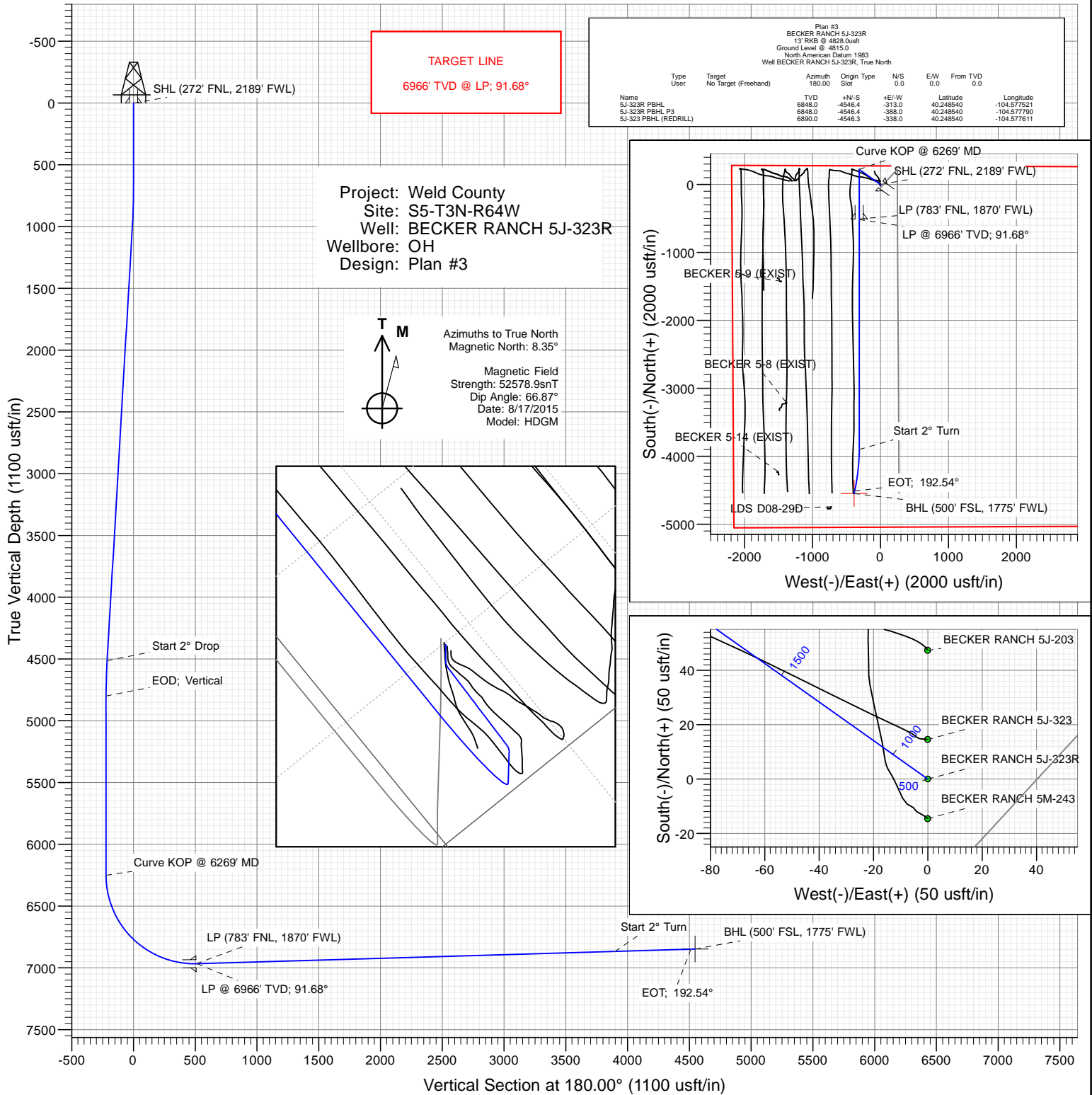




Petroleum Development Corporation

#### SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	700.0	0.00	0.00	700.0	0.0	0.0	0.00	0.00	0.0	
3	987.4	5.75	305.35	986.9	8.3	-11.7	2.00	305.35	-8.3	
4	4531.4	5.75	305.35	4513.1	213.7	-301.3	0.00	0.00	-213.7	
5	4818.8	0.00	0.00	4800.0	222.0	-313.0	2.00	180.00	-222.0	
6	6269.3	0.00	0.00	6250.5	222.0	-313.0	0.00	0.00	-222.0	
7	7415.3	91.68	180.00	6966.4	-515.2	-313.0	8.00	180.00	515.2	
8	10800.2	91.68	180.00	6867.2	-3898.6	-313.0	0.00	0.00	3898.6	
9	11419.2	91.67	192.54	6849.0	-4512.4	-380.4	2.02	89.85	4512.4	
10	11454.0	91.67	192.54	6848.0	-4546.4	-388.0	0.00	0.00	4546.4	5J-323R PBHL P3



#### WELL DETAILS: BECKER RANCH 5J-323R

+N/-S	+E/-W	Northing	Ground Level: Easting	4815.0	Latitude	Longitude
0.0	0.0	1339273.46	3257754.84		40.261020	-104.576400

CATHEDRAL





# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Company:</b>	Petroleum Development Corp.	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Project:</b>	Weld County	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site:</b>	S5-T3N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #3		

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

Site		S5-T3N-R64W			
Site Position:		Northing:	1,339,314.55 usft	Latitude:	40.261170
From:	Lat/Long	Easting:	3,256,448.24 usft	Longitude:	-104.581080
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.59 °

Well	BECKER RANCH 5J-323R					
Well Position	+N/-S	0.0 usft	Northing:	1,339,273.46 usft	Latitude:	40.261020
	+E/-W	0.0 usft	Easting:	3,257,754.84 usft	Longitude:	-104.576400
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	4,815.0 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	8/17/2015	8.35	66.87	52,579

Design	Plan #3			
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	180.00

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	
700.0	0.00	0.00	700.0	0.0	0.0	0.00	0.00	0.00	0.00	
987.4	5.75	305.35	986.9	8.3	-11.7	2.00	2.00	0.00	305.35	
4,531.4	5.75	305.35	4,513.1	213.7	-301.3	0.00	0.00	0.00	0.00	
4,818.8	0.00	0.00	4,800.0	222.0	-313.0	2.00	-2.00	0.00	180.00	
6,269.3	0.00	0.00	6,250.5	222.0	-313.0	0.00	0.00	0.00	0.00	
7,415.3	91.68	180.00	6,966.4	-515.2	-313.0	8.00	8.00	0.00	180.00	
10,800.2	91.68	180.00	6,867.2	-3,898.6	-313.0	0.00	0.00	0.00	0.00	
11,419.2	91.67	192.54	6,849.0	-4,512.4	-380.4	2.02	0.00	2.03	89.85	
11,454.0	91.67	192.54	6,848.0	-4,546.4	-388.0	0.00	0.00	0.00	0.00	5J-323R PBHL P3

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Company:</b>	Petroleum Development Corp.	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Project:</b>	Weld County	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site:</b>	S5-T3N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #3		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	SHL (272' FNL, 2189' FWL)
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	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	KOP @ 700' MD
800.0	2.00	305.35	800.0	1.0	-1.4	-1.0	2.00	2.00	
900.0	4.00	305.35	899.8	4.0	-5.7	-4.0	2.00	2.00	
987.4	5.75	305.35	986.9	8.3	-11.7	-8.3	2.00	2.00	EOB; 5.75°
1,000.0	5.75	305.35	999.5	9.1	-12.8	-9.1	0.00	0.00	
1,100.0	5.75	305.35	1,099.0	14.9	-20.9	-14.9	0.00	0.00	
1,200.0	5.75	305.35	1,198.4	20.7	-29.1	-20.7	0.00	0.00	
1,300.0	5.75	305.35	1,297.9	26.4	-37.3	-26.4	0.00	0.00	
1,400.0	5.75	305.35	1,397.4	32.2	-45.5	-32.2	0.00	0.00	
1,500.0	5.75	305.35	1,496.9	38.0	-53.6	-38.0	0.00	0.00	
1,600.0	5.75	305.35	1,596.4	43.8	-61.8	-43.8	0.00	0.00	
1,700.0	5.75	305.35	1,695.9	49.6	-70.0	-49.6	0.00	0.00	
1,800.0	5.75	305.35	1,795.4	55.4	-78.1	-55.4	0.00	0.00	
1,900.0	5.75	305.35	1,894.9	61.2	-86.3	-61.2	0.00	0.00	
2,000.0	5.75	305.35	1,994.4	67.0	-94.5	-67.0	0.00	0.00	
2,100.0	5.75	305.35	2,093.9	72.8	-102.6	-72.8	0.00	0.00	
2,200.0	5.75	305.35	2,193.4	78.6	-110.8	-78.6	0.00	0.00	
2,300.0	5.75	305.35	2,292.9	84.4	-119.0	-84.4	0.00	0.00	
2,400.0	5.75	305.35	2,392.4	90.2	-127.1	-90.2	0.00	0.00	
2,500.0	5.75	305.35	2,491.9	96.0	-135.3	-96.0	0.00	0.00	
2,600.0	5.75	305.35	2,591.4	101.8	-143.5	-101.8	0.00	0.00	
2,700.0	5.75	305.35	2,690.9	107.6	-151.6	-107.6	0.00	0.00	
2,800.0	5.75	305.35	2,790.4	113.4	-159.8	-113.4	0.00	0.00	
2,900.0	5.75	305.35	2,889.9	119.1	-168.0	-119.1	0.00	0.00	
3,000.0	5.75	305.35	2,989.4	124.9	-176.2	-124.9	0.00	0.00	
3,100.0	5.75	305.35	3,088.9	130.7	-184.3	-130.7	0.00	0.00	
3,200.0	5.75	305.35	3,188.4	136.5	-192.5	-136.5	0.00	0.00	
3,300.0	5.75	305.35	3,287.9	142.3	-200.7	-142.3	0.00	0.00	
3,400.0	5.75	305.35	3,387.4	148.1	-208.8	-148.1	0.00	0.00	
3,500.0	5.75	305.35	3,486.9	153.9	-217.0	-153.9	0.00	0.00	
3,600.0	5.75	305.35	3,586.4	159.7	-225.2	-159.7	0.00	0.00	
3,700.0	5.75	305.35	3,685.9	165.5	-233.3	-165.5	0.00	0.00	
3,800.0	5.75	305.35	3,785.4	171.3	-241.5	-171.3	0.00	0.00	
3,900.0	5.75	305.35	3,884.9	177.1	-249.7	-177.1	0.00	0.00	
4,000.0	5.75	305.35	3,984.4	182.9	-257.8	-182.9	0.00	0.00	
4,100.0	5.75	305.35	4,083.9	188.7	-266.0	-188.7	0.00	0.00	
4,200.0	5.75	305.35	4,183.4	194.5	-274.2	-194.5	0.00	0.00	
4,300.0	5.75	305.35	4,282.9	200.3	-282.3	-200.3	0.00	0.00	
4,400.0	5.75	305.35	4,382.4	206.1	-290.5	-206.1	0.00	0.00	
4,500.0	5.75	305.35	4,481.9	211.8	-298.7	-211.8	0.00	0.00	
4,531.4	5.75	305.35	4,513.1	213.7	-301.3	-213.7	0.00	0.00	Start 2° Drop
4,600.0	4.38	305.35	4,581.4	217.2	-306.2	-217.2	2.00	-2.00	
4,700.0	2.38	305.35	4,681.3	220.6	-311.0	-220.6	2.00	-2.00	
4,800.0	0.38	305.35	4,781.2	222.0	-312.9	-222.0	2.00	-2.00	
4,818.8	0.00	0.00	4,800.0	222.0	-313.0	-222.0	2.00	-2.00	EOD; Vertical



# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Company:</b>	Petroleum Development Corp.	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Project:</b>	Weld County	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site:</b>	S5-T3N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #3		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
4,900.0	0.00	0.00	4,881.2	222.0	-313.0	-222.0	0.00	0.00	
5,000.0	0.00	0.00	4,981.2	222.0	-313.0	-222.0	0.00	0.00	
5,100.0	0.00	0.00	5,081.2	222.0	-313.0	-222.0	0.00	0.00	
5,200.0	0.00	0.00	5,181.2	222.0	-313.0	-222.0	0.00	0.00	
5,300.0	0.00	0.00	5,281.2	222.0	-313.0	-222.0	0.00	0.00	
5,400.0	0.00	0.00	5,381.2	222.0	-313.0	-222.0	0.00	0.00	
5,500.0	0.00	0.00	5,481.2	222.0	-313.0	-222.0	0.00	0.00	
5,600.0	0.00	0.00	5,581.2	222.0	-313.0	-222.0	0.00	0.00	
5,700.0	0.00	0.00	5,681.2	222.0	-313.0	-222.0	0.00	0.00	
5,800.0	0.00	0.00	5,781.2	222.0	-313.0	-222.0	0.00	0.00	
5,900.0	0.00	0.00	5,881.2	222.0	-313.0	-222.0	0.00	0.00	
6,000.0	0.00	0.00	5,981.2	222.0	-313.0	-222.0	0.00	0.00	
6,100.0	0.00	0.00	6,081.2	222.0	-313.0	-222.0	0.00	0.00	
6,200.0	0.00	0.00	6,181.2	222.0	-313.0	-222.0	0.00	0.00	
6,269.3	0.00	0.00	6,250.5	222.0	-313.0	-222.0	0.00	0.00	Curve KOP @ 6269' MD
6,300.0	2.45	180.00	6,281.2	221.3	-313.0	-221.3	8.00	8.00	
6,350.0	6.45	180.00	6,331.0	217.5	-313.0	-217.5	8.00	8.00	
6,400.0	10.45	180.00	6,380.5	210.1	-313.0	-210.1	8.00	8.00	
6,450.0	14.45	180.00	6,429.3	199.3	-313.0	-199.3	8.00	8.00	
6,500.0	18.45	180.00	6,477.3	185.2	-313.0	-185.2	8.00	8.00	
6,550.0	22.45	180.00	6,524.1	167.7	-313.0	-167.7	8.00	8.00	
6,600.0	26.45	180.00	6,569.6	147.0	-313.0	-147.0	8.00	8.00	
6,650.0	30.45	180.00	6,613.5	123.2	-313.0	-123.2	8.00	8.00	
6,700.0	34.45	180.00	6,655.7	96.4	-313.0	-96.4	8.00	8.00	
6,750.0	38.45	180.00	6,695.9	66.7	-313.0	-66.7	8.00	8.00	
6,800.0	42.45	180.00	6,734.0	34.2	-313.0	-34.2	8.00	8.00	
6,850.0	46.45	180.00	6,769.7	-0.8	-313.0	0.8	8.00	8.00	
6,900.0	50.45	180.00	6,802.8	-38.2	-313.0	38.2	8.00	8.00	
6,950.0	54.45	180.00	6,833.3	-77.8	-313.0	77.8	8.00	8.00	
7,000.0	58.45	180.00	6,860.9	-119.5	-313.0	119.5	8.00	8.00	
7,050.0	62.45	180.00	6,885.6	-163.0	-313.0	163.0	8.00	8.00	
7,100.0	66.45	180.00	6,907.1	-208.1	-313.0	208.1	8.00	8.00	
7,150.0	70.45	180.00	6,925.5	-254.6	-313.0	254.6	8.00	8.00	
7,200.0	74.45	180.00	6,940.5	-302.2	-313.0	302.2	8.00	8.00	
7,250.0	78.45	180.00	6,952.2	-350.8	-313.0	350.8	8.00	8.00	
7,300.0	82.45	180.00	6,960.5	-400.1	-313.0	400.1	8.00	8.00	
7,350.0	86.45	180.00	6,965.4	-449.9	-313.0	449.9	8.00	8.00	
7,400.0	90.45	180.00	6,966.7	-499.9	-313.0	499.9	8.00	8.00	
7,407.3	91.04	180.00	6,966.6	-507.2	-313.0	507.2	8.00	8.00	LP (783' FNL, 1870' FWL)
7,415.3	91.68	180.00	6,966.4	-515.2	-313.0	515.2	8.00	8.00	LP @ 6966' TVD; 91.68°
7,500.0	91.68	180.00	6,964.0	-599.8	-313.0	599.8	0.00	0.00	
7,600.0	91.68	180.00	6,961.0	-699.8	-313.0	699.8	0.00	0.00	
7,700.0	91.68	180.00	6,958.1	-799.7	-313.0	799.7	0.00	0.00	
7,800.0	91.68	180.00	6,955.2	-899.7	-313.0	899.7	0.00	0.00	
7,900.0	91.68	180.00	6,952.2	-999.7	-313.0	999.7	0.00	0.00	
8,000.0	91.68	180.00	6,949.3	-1,099.6	-313.0	1,099.6	0.00	0.00	
8,100.0	91.68	180.00	6,946.4	-1,199.6	-313.0	1,199.6	0.00	0.00	
8,200.0	91.68	180.00	6,943.4	-1,299.5	-313.0	1,299.5	0.00	0.00	
8,300.0	91.68	180.00	6,940.5	-1,399.5	-313.0	1,399.5	0.00	0.00	
8,400.0	91.68	180.00	6,937.6	-1,499.4	-313.0	1,499.4	0.00	0.00	
8,500.0	91.68	180.00	6,934.6	-1,599.4	-313.0	1,599.4	0.00	0.00	
8,600.0	91.68	180.00	6,931.7	-1,699.4	-313.0	1,699.4	0.00	0.00	

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Company:</b>	Petroleum Development Corp.	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Project:</b>	Weld County	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site:</b>	S5-T3N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #3		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
8,700.0	91.68	180.00	6,928.8	-1,799.3	-313.0	1,799.3	0.00	0.00	
8,800.0	91.68	180.00	6,925.8	-1,899.3	-313.0	1,899.3	0.00	0.00	
8,900.0	91.68	180.00	6,922.9	-1,999.2	-313.0	1,999.2	0.00	0.00	
9,000.0	91.68	180.00	6,920.0	-2,099.2	-313.0	2,099.2	0.00	0.00	
9,100.0	91.68	180.00	6,917.0	-2,199.1	-313.0	2,199.1	0.00	0.00	
9,200.0	91.68	180.00	6,914.1	-2,299.1	-313.0	2,299.1	0.00	0.00	
9,300.0	91.68	180.00	6,911.2	-2,399.1	-313.0	2,399.1	0.00	0.00	
9,400.0	91.68	180.00	6,908.2	-2,499.0	-313.0	2,499.0	0.00	0.00	
9,500.0	91.68	180.00	6,905.3	-2,599.0	-313.0	2,599.0	0.00	0.00	
9,600.0	91.68	180.00	6,902.4	-2,698.9	-313.0	2,698.9	0.00	0.00	
9,700.0	91.68	180.00	6,899.5	-2,798.9	-313.0	2,798.9	0.00	0.00	
9,800.0	91.68	180.00	6,896.5	-2,898.8	-313.0	2,898.8	0.00	0.00	
9,900.0	91.68	180.00	6,893.6	-2,998.8	-313.0	2,998.8	0.00	0.00	
10,000.0	91.68	180.00	6,890.7	-3,098.8	-313.0	3,098.8	0.00	0.00	
10,100.0	91.68	180.00	6,887.7	-3,198.7	-313.0	3,198.7	0.00	0.00	
10,200.0	91.68	180.00	6,884.8	-3,298.7	-313.0	3,298.7	0.00	0.00	
10,300.0	91.68	180.00	6,881.9	-3,398.6	-313.0	3,398.6	0.00	0.00	
10,400.0	91.68	180.00	6,878.9	-3,498.6	-313.0	3,498.6	0.00	0.00	
10,500.0	91.68	180.00	6,876.0	-3,598.5	-313.0	3,598.5	0.00	0.00	
10,600.0	91.68	180.00	6,873.1	-3,698.5	-313.0	3,698.5	0.00	0.00	
10,700.0	91.68	180.00	6,870.1	-3,798.5	-313.0	3,798.5	0.00	0.00	
10,800.2	91.68	180.00	6,867.2	-3,898.6	-313.0	3,898.6	0.00	0.00	Start 2° Turn
10,900.0	91.68	182.02	6,864.3	-3,998.3	-314.8	3,998.3	2.02	0.00	
11,000.0	91.69	184.05	6,861.3	-4,098.2	-320.1	4,098.2	2.02	0.00	
11,100.0	91.69	186.07	6,858.4	-4,197.7	-328.9	4,197.7	2.02	0.00	
11,200.0	91.68	188.10	6,855.4	-4,296.9	-341.2	4,296.9	2.02	0.00	
11,300.0	91.68	190.12	6,852.5	-4,395.6	-357.0	4,395.6	2.02	0.00	
11,400.0	91.67	192.15	6,849.6	-4,493.7	-376.3	4,493.7	2.02	-0.01	
11,419.2	91.67	192.54	6,849.0	-4,512.4	-380.4	4,512.4	2.02	-0.01	EOT; 192.54°
11,454.0	91.67	192.54	6,848.0	-4,546.4	-388.0	4,546.4	0.00	0.00	PBHL @ 11454' MD

Targets									
Target Name	- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	
- Shape									Latitude Longitude
5J-323 PBHL (REDRILL)		0.00	0.00	6,890.0	-4,546.3	-338.0	1,334,723.91	3,257,464.18	40.248540 -104.577611
- plan misses target center by 64.1usft at 11441.8usft MD (6848.4 TVD, -4534.5 N, -385.4 E)									
- Point									
5J-323R PBHL		0.00	0.00	6,848.0	-4,546.4	-313.0	1,334,724.05	3,257,489.21	40.248540 -104.577521
- plan misses target center by 73.2usft at 11437.8usft MD (6848.5 TVD, -4530.5 N, -384.5 E)									
- Point									
5J-323R PBHL P3		0.00	0.00	6,848.0	-4,546.4	-388.0	1,334,723.26	3,257,414.22	40.248540 -104.577790
- plan hits target center									
- Point									

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Company:</b>	Petroleum Development Corp.	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Project:</b>	Weld County	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site:</b>	S5-T3N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #3		

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
7,407.3	6,966.6	LP (783' FNL, 1870' FWL)		
0.0	0.0	SHL (272' FNL, 2189' FWL)		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
700.0	700.0	0.0	0.0	KOP @ 700' MD
987.4	986.9	8.3	-11.7	EOB; 5.75°
4,531.4	4,513.1	213.7	-301.3	Start 2° Drop
4,818.8	4,800.0	222.0	-313.0	EOD; Vertical
6,269.3	6,250.5	222.0	-313.0	Curve KOP @ 6269' MD
7,415.3	6,966.4	-515.2	-313.0	LP @ 6966' TVD; 91.68°
10,800.2	6,867.2	-3,898.6	-313.0	Start 2° Turn
11,419.2	6,849.0	-4,512.4	-380.4	EOT; 192.54°
11,454.0	6,848.0	-4,546.4	-388.0	PBHL @ 11454' MD



# **Petroleum Development Corp.**

**Weld County**

**S5-T3N-R64W**

**BECKER RANCH 5J-323R**

**OH**

**Plan #3**

## **Anticollision Report**

**19 August, 2015**

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Reference	Plan #3		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 5,280.0usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date	8/19/2015		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	11,453.8	Plan #3 (OH)	MWD	Geolink MWD	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
S5-T3N-R64W						
BECKER 5-14 (EXIST) - PDC - GYRO	11,403.8	6,757.7	1,151.0	1,064.1	13.248	CC
BECKER 5-14 (EXIST) - PDC - GYRO	11,419.2	6,756.7	1,151.1	1,064.1	13.229	ES
BECKER 5-14 (EXIST) - PDC - GYRO	11,454.0	6,754.4	1,151.9	1,064.6	13.202	SF
BECKER 5-8 (EXIST) - PDC - GYRO	10,224.4	6,879.5	1,171.6	1,104.5	17.450	CC, ES
BECKER 5-8 (EXIST) - PDC - GYRO	10,500.0	6,892.8	1,203.5	1,132.0	16.833	SF
BECKER 5-9 (EXIST) - PDC - GYRO	3,517.3	3,534.5	2,000.6	1,989.7	183.905	CC, ES
BECKER 5-9 (EXIST) - PDC - GYRO	10,100.0	4,300.0	3,419.1	3,387.9	109.669	SF
BECKER RANCH 5E-223 - OH - FINAL OH	542.5	547.6	1,300.4	1,298.6	700.084	CC, ES
BECKER RANCH 5E-223 - OH - FINAL OH	8,900.0	8,406.0	1,478.3	1,407.2	20.770	SF
BECKER RANCH 5E-223 - SIDETRACK - FINAL STK	542.5	547.6	1,300.4	1,298.6	700.084	CC
BECKER RANCH 5E-223 - SIDETRACK - FINAL STK	11,454.0	11,338.2	1,322.7	1,157.9	8.029	ES, SF
BECKER RANCH 5E-403 - OH - FINAL	0.0	0.0	1,335.1			
BECKER RANCH 5E-403 - OH - FINAL	11,454.0	11,599.0	1,649.9	1,485.5	10.034	SF
BECKER RANCH 5J-103 - OH - FINAL	7,814.8	7,671.6	683.3	641.1	16.170	CC
BECKER RANCH 5J-103 - OH - FINAL	8,400.0	8,232.1	692.3	632.5	11.572	ES
BECKER RANCH 5J-103 - OH - FINAL	8,700.0	8,438.0	713.8	646.5	10.609	SF
BECKER RANCH 5J-203 - OH - FINAL	0.0	0.0	47.4			
BECKER RANCH 5J-203 - OH - FINAL	100.0	99.8	47.6	47.3	152.829	ES
BECKER RANCH 5J-203 - OH - FINAL	11,454.0	11,523.0	325.7	160.7	1.974	SF
BECKER RANCH 5J-303 - OH - FINAL	11,454.0	11,473.0	660.9	495.9	4.005	CC, ES, SF
BECKER RANCH 5J-323 - OH - FINAL	0.0	0.0	14.6			
BECKER RANCH 5J-323 - OH - FINAL	11,300.0	11,281.9	61.2	-69.4	0.469	Level 1, ES, SF
BECKER RANCH 5J-343 - OH - FINAL	11,454.0	11,500.0	979.7	814.7	5.937	CC, ES, SF
BECKER RANCH 5M-243 - OH - OH	751.2	751.3	12.1	8.4	3.283	CC
BECKER RANCH 5M-243 - OH - OH	800.0	800.1	12.2	8.3	3.107	ES
BECKER RANCH 5M-243 - OH - OH	900.0	900.0	13.8	9.3	3.086	SF
BECKER RANCH 5M-303 - OH - PLAN #1	700.0	701.0	43.7	41.3	18.211	CC, ES
BECKER RANCH 5M-303 - OH - PLAN #1	11,200.0	11,300.3	614.5	459.7	3.970	SF
LDS D08-29D - NOBLE - GYRO	11,454.0	6,772.4	450.0	374.6	5.968	CC, ES, SF



<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER 5-14 (EXIST) - PDC - GYRO													Offset Site Error:	0.0 usft
Survey Program: 100--Gyro													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)						
0.0	0.0	0.0	0.0	0.0	0.0	-160.31	-4,223.8	-1,511.5	4,486.6					
100.0	100.0	29.1	29.1	0.2	0.0	-160.31	-4,223.9	-1,511.5	4,486.2	0.18	N/A			
200.0	200.0	115.3	115.3	0.3	0.1	-160.31	-4,224.1	-1,511.8	4,486.6	0.43	N/A			
300.0	300.0	235.9	235.9	0.5	0.2	-160.30	-4,224.0	-1,512.5	4,486.6	0.71	6,345.671			
400.0	400.0	319.5	319.4	0.7	0.3	-160.29	-4,224.0	-1,513.0	4,486.9	0.95	4,700.538			
500.0	500.0	415.7	415.7	0.8	0.4	-160.29	-4,224.4	-1,513.4	4,487.3	1.21	3,699.294			
600.0	600.0	500.0	500.0	1.0	0.4	-160.29	-4,224.8	-1,513.3	4,487.8	1.46	3,071.873			
700.0	700.0	585.8	585.8	1.2	0.5	-160.30	-4,225.7	-1,512.9	4,488.6	1.71	2,624.537			
800.0	800.0	679.6	679.6	1.4	0.6	-105.65	-4,227.1	-1,512.4	4,490.4	1.97	2,281.838			
900.0	899.8	792.2	792.1	1.6	0.7	-105.68	-4,228.6	-1,512.2	4,493.0	2.25	1,997.419			
987.4	986.9	889.6	889.6	1.7	0.8	-105.73	-4,229.3	-1,512.7	4,495.7	2.51	1,792.992			
1,000.0	999.5	900.0	900.0	1.8	0.8	-105.74	-4,229.4	-1,512.7	4,496.2	2.54	1,768.676			
1,100.0	1,099.0	964.7	964.6	2.0	0.8	-105.81	-4,230.0	-1,513.1	4,500.1	2.81	1,603.249			
1,200.0	1,198.4	1,125.6	1,125.5	2.2	1.0	-106.01	-4,231.7	-1,514.2	4,504.3	3.16	1,424.026			
1,300.0	1,297.9	1,240.0	1,240.0	2.4	1.1	-106.14	-4,231.4	-1,514.6	4,506.9	3.48	1,293.768			
1,400.0	1,397.4	1,320.2	1,320.2	2.6	1.2	-106.23	-4,231.4	-1,514.9	4,509.8	3.78	1,193.782			
1,500.0	1,496.9	1,425.8	1,425.8	2.9	1.2	-106.36	-4,231.6	-1,515.4	4,512.9	4.10	1,101.498			
1,600.0	1,596.4	1,536.5	1,536.4	3.1	1.3	-106.49	-4,231.5	-1,515.8	4,515.8	4.42	1,020.982			
1,700.0	1,695.9	1,635.4	1,635.3	3.3	1.4	-106.61	-4,231.4	-1,515.9	4,518.6	4.74	953.225			
1,800.0	1,795.4	1,727.4	1,727.4	3.6	1.5	-106.72	-4,231.3	-1,516.1	4,521.5	5.05	894.839			
1,900.0	1,894.9	1,829.0	1,829.0	3.8	1.6	-106.84	-4,231.3	-1,516.4	4,524.5	5.37	841.780			
2,000.0	1,994.4	1,928.5	1,928.4	4.1	1.7	-106.95	-4,231.3	-1,516.7	4,527.5	5.70	794.873			
2,100.0	2,093.9	2,035.3	2,035.2	4.3	1.8	-107.08	-4,231.3	-1,516.9	4,530.5	6.02	752.068			
2,200.0	2,193.4	2,143.4	2,143.4	4.5	1.9	-107.21	-4,230.8	-1,517.3	4,533.2	6.35	713.431			
2,300.0	2,292.9	2,229.3	2,229.2	4.8	1.9	-107.30	-4,230.4	-1,518.3	4,536.0	6.66	680.574			
2,400.0	2,392.4	2,313.3	2,313.2	5.0	2.0	-107.38	-4,230.2	-1,519.5	4,539.2	6.97	650.822			
2,500.0	2,491.9	2,421.4	2,421.3	5.3	2.1	-107.50	-4,230.0	-1,520.7	4,542.4	7.31	621.755			
2,600.0	2,591.4	2,500.0	2,499.9	5.5	2.2	-107.59	-4,230.2	-1,521.1	4,545.8	7.61	597.290			
2,700.0	2,690.9	2,613.4	2,613.3	5.8	2.3	-107.73	-4,230.8	-1,520.9	4,549.4	7.95	572.503			
2,800.0	2,790.4	2,706.2	2,706.1	6.0	2.4	-107.85	-4,231.4	-1,520.5	4,552.9	8.26	550.914			
2,900.0	2,889.9	2,822.1	2,822.0	6.2	2.5	-107.99	-4,231.8	-1,520.2	4,556.2	8.60	529.634			
3,000.0	2,989.4	2,921.4	2,921.3	6.5	2.6	-108.11	-4,231.8	-1,520.4	4,559.4	8.93	510.783			
3,100.0	3,088.9	3,023.2	3,023.1	6.7	2.6	-108.22	-4,231.7	-1,521.1	4,562.6	9.25	493.111			
3,200.0	3,188.4	3,100.0	3,099.9	7.0	2.7	-108.30	-4,231.6	-1,521.8	4,566.0	9.56	477.783			
3,300.0	3,287.9	3,184.1	3,184.0	7.2	2.8	-108.39	-4,231.9	-1,522.8	4,569.9	9.87	463.134			
3,400.0	3,387.4	3,266.4	3,266.3	7.5	2.9	-108.48	-4,232.6	-1,523.7	4,574.1	10.18	449.511			
3,500.0	3,486.9	3,450.3	3,450.2	7.7	3.0	-108.72	-4,234.2	-1,522.2	4,578.2	10.57	432.953			
3,600.0	3,586.4	3,586.8	3,586.6	8.0	3.1	-108.92	-4,233.4	-1,519.1	4,580.2	10.93	419.051			
3,700.0	3,685.9	3,694.2	3,694.0	8.2	3.2	-109.07	-4,232.5	-1,516.7	4,582.0	11.26	406.923			
3,800.0	3,785.4	3,772.3	3,772.1	8.5	3.3	-109.18	-4,231.8	-1,515.2	4,583.9	11.56	396.370			
3,900.0	3,884.9	3,850.1	3,849.9	8.7	3.4	-109.29	-4,231.5	-1,513.9	4,586.4	11.87	386.419			
4,000.0	3,984.4	3,928.3	3,928.0	8.9	3.4	-109.40	-4,231.6	-1,512.5	4,589.3	12.17	377.003			
4,100.0	4,083.9	4,011.8	4,011.6	9.2	3.5	-109.51	-4,232.1	-1,511.2	4,592.8	12.48	367.949			
4,200.0	4,183.4	4,125.4	4,125.1	9.4	3.6	-109.67	-4,232.4	-1,509.2	4,595.9	12.82	358.563			
4,300.0	4,282.9	4,200.0	4,199.7	9.7	3.7	-109.78	-4,233.1	-1,508.1	4,599.7	13.12	350.637			
4,400.0	4,382.4	4,279.2	4,278.9	9.9	3.7	-109.89	-4,234.2	-1,506.9	4,604.1	13.42	343.004			
4,500.0	4,481.9	4,345.9	4,345.6	10.2	3.8	-109.98	-4,235.3	-1,505.6	4,608.6	13.72	336.020			
4,531.4	4,513.1	4,363.7	4,363.4	10.3	3.8	-110.01	-4,235.7	-1,505.4	4,610.3	13.80	333.976			
4,600.0	4,581.4	4,400.0	4,399.6	10.4	3.8	-110.12	-4,236.7	-1,504.8	4,613.9	13.98	330.051			
4,700.0	4,681.3	4,467.3	4,466.9	10.6	3.9	-110.28	-4,238.9	-1,504.0	4,618.8	14.21	324.966			
4,800.0	4,781.2	4,553.1	4,552.7	10.7	4.0	-110.41	-4,242.3	-1,503.1	4,623.2	14.43	320.360			

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER 5-14 (EXIST) - PDC - GYRO													Offset Site Error:	0.0 usft
Survey Program: 100--Gyro													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
4,818.8	4,800.0	4,573.4	4,573.0	10.8	4.0	-165.08	-4,243.1	-1,503.0	4,623.9	4,609.4	14.48	319.436		
4,900.0	4,881.2	4,661.8	4,661.3	10.9	4.1	-165.09	-4,246.3	-1,502.8	4,626.7	4,612.0	14.67	315.461		
5,000.0	4,981.2	4,820.7	4,820.0	11.0	4.2	-165.10	-4,251.1	-1,502.9	4,629.7	4,614.7	14.95	309.681		
5,100.0	5,081.2	4,956.8	4,956.2	11.1	4.3	-165.12	-4,253.3	-1,502.1	4,631.0	4,615.8	15.21	304.421		
5,200.0	5,181.2	5,047.6	5,047.0	11.3	4.4	-165.13	-4,254.8	-1,501.8	4,632.5	4,617.0	15.43	300.148		
5,300.0	5,281.2	5,154.7	5,154.0	11.4	4.5	-165.14	-4,256.6	-1,501.0	4,634.0	4,618.3	15.67	295.695		
5,400.0	5,381.2	5,270.5	5,269.8	11.6	4.6	-165.16	-4,258.3	-1,500.2	4,635.2	4,619.3	15.92	291.195		
5,500.0	5,481.2	5,365.3	5,364.6	11.7	4.7	-165.16	-4,259.4	-1,500.0	4,636.2	4,620.1	16.15	287.153		
5,600.0	5,581.2	5,448.1	5,447.4	11.8	4.8	-165.17	-4,260.5	-1,500.2	4,637.6	4,621.2	16.36	283.416		
5,700.0	5,681.2	5,546.2	5,545.5	12.0	4.9	-165.17	-4,262.2	-1,500.2	4,639.2	4,622.6	16.60	279.547		
5,800.0	5,781.2	5,652.7	5,651.9	12.1	4.9	-165.18	-4,263.8	-1,500.0	4,640.6	4,623.8	16.84	275.629		
5,900.0	5,881.2	5,761.3	5,760.6	12.3	5.0	-165.19	-4,265.4	-1,499.8	4,642.1	4,625.0	17.08	271.779		
6,000.0	5,981.2	5,861.3	5,860.6	12.4	5.1	-165.20	-4,266.8	-1,499.1	4,643.2	4,625.9	17.32	268.136		
6,100.0	6,081.2	5,955.6	5,954.8	12.6	5.2	-165.20	-4,268.1	-1,499.3	4,644.6	4,627.0	17.55	264.675		
6,200.0	6,181.2	6,081.7	6,080.9	12.7	5.3	-165.20	-4,269.5	-1,499.7	4,645.8	4,628.0	17.81	260.850		
6,269.3	6,250.5	6,173.9	6,173.1	12.8	5.4	-165.21	-4,270.2	-1,498.8	4,646.1	4,628.1	18.00	258.172		
6,300.0	6,281.2	6,236.6	6,235.8	12.9	5.5	14.80	-4,270.4	-1,498.2	4,645.5	4,627.4	18.10	256.724		
6,350.0	6,331.0	6,397.7	6,396.8	12.9	5.6	14.92	-4,268.1	-1,497.1	4,641.0	4,622.7	18.30	253.607		
6,400.0	6,380.5	6,500.0	6,499.1	12.9	5.7	15.17	-4,264.5	-1,497.3	4,632.2	4,613.8	18.44	251.150		
6,450.0	6,429.3	6,541.1	6,540.2	13.0	5.7	15.48	-4,262.7	-1,497.7	4,619.9	4,601.4	18.53	249.327		
6,500.0	6,477.3	6,580.3	6,579.3	13.0	5.8	15.88	-4,261.1	-1,498.3	4,604.5	4,585.9	18.61	247.460		
6,550.0	6,524.1	6,642.5	6,641.5	13.0	5.8	16.44	-4,258.4	-1,499.6	4,585.9	4,567.2	18.70	245.273		
6,600.0	6,569.6	6,700.0	6,698.9	13.0	5.9	17.12	-4,255.6	-1,500.6	4,564.0	4,545.2	18.78	243.060		
6,650.0	6,613.5	6,735.5	6,734.4	13.0	5.9	17.89	-4,253.9	-1,501.1	4,539.2	4,520.3	18.83	241.012		
6,700.0	6,655.7	6,761.0	6,759.9	13.0	5.9	18.80	-4,252.7	-1,501.5	4,511.7	4,492.8	18.88	239.003		
6,750.0	6,695.9	6,800.0	6,798.8	13.0	5.9	19.94	-4,251.1	-1,502.2	4,481.7	4,462.7	18.93	236.793		
6,800.0	6,734.0	6,800.0	6,798.8	13.1	5.9	21.14	-4,251.1	-1,502.2	4,449.2	4,430.2	18.94	234.902		
6,850.0	6,769.7	6,833.1	6,831.9	13.1	6.0	22.76	-4,249.9	-1,502.9	4,414.4	4,395.4	18.98	232.609		
6,900.0	6,802.8	6,855.3	6,854.0	13.2	6.0	24.66	-4,249.1	-1,503.4	4,377.5	4,358.5	19.00	230.356		
6,950.0	6,833.3	6,875.6	6,874.3	13.4	6.0	26.97	-4,248.5	-1,504.0	4,338.6	4,319.6	19.02	228.049		
7,000.0	6,860.9	6,900.0	6,898.7	13.6	6.0	29.88	-4,247.7	-1,504.6	4,297.9	4,278.9	19.05	225.634		
7,050.0	6,885.6	6,900.0	6,898.7	13.8	6.0	33.19	-4,247.7	-1,504.6	4,255.7	4,236.6	19.05	223.369		
7,100.0	6,907.1	6,900.0	6,898.7	14.1	6.0	37.31	-4,247.7	-1,504.6	4,212.1	4,193.0	19.06	221.032		
7,150.0	6,925.5	6,900.0	6,898.7	14.4	6.0	42.47	-4,247.7	-1,504.6	4,167.3	4,148.2	19.06	218.622		
7,200.0	6,940.5	6,900.0	6,898.7	14.8	6.0	48.97	-4,247.7	-1,504.6	4,121.5	4,102.5	19.07	216.140		
7,250.0	6,952.2	6,900.0	6,898.7	15.2	6.0	57.11	-4,247.7	-1,504.6	4,075.0	4,055.9	19.08	213.589		
7,300.0	6,960.5	6,900.0	6,898.7	15.7	6.0	67.07	-4,247.7	-1,504.6	4,027.9	4,008.8	19.09	210.971		
7,350.0	6,965.4	6,900.0	6,898.7	16.2	6.0	78.68	-4,247.7	-1,504.6	3,980.4	3,961.3	19.11	208.292		
7,400.0	6,966.7	6,900.0	6,898.7	16.7	6.0	91.19	-4,247.7	-1,504.6	3,932.7	3,913.6	19.13	205.557		
7,415.3	6,966.4	6,900.0	6,898.7	16.9	6.0	95.02	-4,247.7	-1,504.6	3,918.1	3,899.0	19.14	204.709		
7,500.0	6,964.0	6,900.0	6,898.7	17.9	6.0	95.02	-4,247.7	-1,504.6	3,837.6	3,818.4	19.19	199.937		
7,600.0	6,961.0	6,900.0	6,898.7	19.1	6.0	95.02	-4,247.7	-1,504.6	3,742.7	3,723.4	19.28	194.095		
7,700.0	6,958.1	6,900.0	6,898.7	20.4	6.0	95.02	-4,247.7	-1,504.6	3,648.1	3,628.7	19.40	188.018		
7,800.0	6,955.2	6,900.0	6,898.7	21.8	6.0	95.02	-4,247.7	-1,504.6	3,553.7	3,534.2	19.56	181.701		
7,900.0	6,952.2	6,900.0	6,898.7	23.2	6.0	95.02	-4,247.7	-1,504.6	3,459.7	3,440.0	19.75	175.141		
8,000.0	6,949.3	6,900.0	6,898.7	24.7	6.0	95.02	-4,247.7	-1,504.6	3,366.1	3,346.1	20.00	168.343		
8,100.0	6,946.4	6,900.0	6,898.7	26.2	6.0	95.02	-4,247.7	-1,504.6	3,272.8	3,252.5	20.29	161.317		
8,200.0	6,943.4	6,900.0	6,898.7	27.7	6.0	95.02	-4,247.7	-1,504.6	3,179.9	3,159.3	20.64	154.083		
8,300.0	6,940.5	6,900.0	6,898.7	29.3	6.0	95.02	-4,247.7	-1,504.6	3,087.5	3,066.5	21.05	146.668		
8,400.0	6,937.6	6,900.0	6,898.7	30.8	6.0	95.02	-4,247.7	-1,504.6	2,995.6	2,974.0	21.53	139.108		
8,500.0	6,934.6	6,900.0	6,898.7	32.4	6.0	95.02	-4,247.7	-1,504.6	2,904.2	2,882.1	22.09	131.446		
8,600.0	6,931.7	6,900.0	6,898.7	34.0	6.0	95.02	-4,247.7	-1,504.6	2,813.3	2,790.6	22.74	123.730		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER 5-14 (EXIST) - PDC - GYRO												Offset Site Error:	0.0 usft
Survey Program: 100--Gyro												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
8,700.0	6,928.8	6,900.0	6,898.7	35.7	6.0	95.02	-4,247.7	-1,504.6	2,723.2	2,699.7	23.47	116.014	
8,800.0	6,925.8	6,900.0	6,898.7	37.3	6.0	95.02	-4,247.7	-1,504.6	2,633.7	2,609.4	24.31	108.353	
8,900.0	6,922.9	6,900.0	6,898.7	39.0	6.0	95.02	-4,247.7	-1,504.6	2,545.0	2,519.8	25.25	100.802	
9,000.0	6,920.0	6,900.0	6,898.7	40.6	6.0	95.02	-4,247.7	-1,504.6	2,457.2	2,430.9	26.30	93.416	
9,100.0	6,917.0	6,887.7	6,886.4	42.3	6.0	94.44	-4,248.1	-1,504.3	2,370.3	2,342.8	27.48	86.266	
9,200.0	6,914.1	6,882.9	6,881.6	43.9	6.0	94.21	-4,248.2	-1,504.1	2,284.5	2,255.7	28.79	79.358	
9,300.0	6,911.2	6,878.0	6,876.7	45.6	6.0	93.97	-4,248.4	-1,504.0	2,199.9	2,169.6	30.24	72.746	
9,400.0	6,908.2	6,873.0	6,871.7	47.3	6.0	93.74	-4,248.6	-1,503.9	2,116.6	2,084.7	31.85	66.461	
9,500.0	6,905.3	6,868.0	6,866.7	49.0	6.0	93.50	-4,248.7	-1,503.8	2,034.7	2,001.1	33.62	60.529	
9,600.0	6,902.4	6,862.9	6,861.6	50.7	6.0	93.25	-4,248.9	-1,503.6	1,954.6	1,919.0	35.56	54.967	
9,700.0	6,899.5	6,857.8	6,856.5	52.4	6.0	93.01	-4,249.1	-1,503.5	1,876.4	1,838.7	37.69	49.787	
9,800.0	6,896.5	6,852.6	6,851.3	54.1	6.0	92.76	-4,249.2	-1,503.4	1,800.2	1,760.2	40.01	44.995	
9,900.0	6,893.6	6,847.3	6,846.0	55.8	6.0	92.50	-4,249.4	-1,503.3	1,726.6	1,684.0	42.53	40.593	
10,000.0	6,890.7	6,841.9	6,840.7	57.5	6.0	92.25	-4,249.6	-1,503.1	1,655.6	1,610.3	45.26	36.577	
10,100.0	6,887.7	6,836.5	6,835.2	59.2	6.0	91.99	-4,249.8	-1,503.0	1,587.8	1,539.6	48.20	32.940	
10,200.0	6,884.8	6,831.0	6,829.7	60.9	6.0	91.72	-4,250.0	-1,502.9	1,523.5	1,472.1	51.34	29.672	
10,300.0	6,881.9	6,825.4	6,824.2	62.6	6.0	91.46	-4,250.2	-1,502.8	1,463.1	1,408.5	54.67	26.762	
10,400.0	6,878.9	6,819.7	6,818.5	64.3	6.0	91.19	-4,250.4	-1,502.6	1,407.3	1,349.1	58.16	24.196	
10,500.0	6,876.0	6,814.0	6,812.8	66.0	6.0	90.91	-4,250.6	-1,502.5	1,356.5	1,294.8	61.78	21.959	
10,600.0	6,873.1	6,808.2	6,807.0	67.8	5.9	90.63	-4,250.8	-1,502.4	1,311.4	1,245.9	65.45	20.036	
10,700.0	6,870.1	6,800.0	6,798.8	69.5	5.9	90.24	-4,251.1	-1,502.2	1,272.5	1,203.4	69.12	18.411	
10,800.2	6,867.2	6,800.0	6,798.8	71.2	5.9	90.24	-4,251.1	-1,502.2	1,240.4	1,167.7	72.70	17.061	
10,900.0	6,864.3	6,790.1	6,788.9	72.9	5.9	89.82	-4,251.5	-1,502.1	1,214.1	1,138.0	76.04	15.966	
11,000.0	6,861.3	6,783.8	6,782.6	74.7	5.9	89.57	-4,251.8	-1,501.9	1,191.9	1,112.9	79.08	15.072	
11,100.0	6,858.4	6,777.5	6,776.3	76.4	5.9	89.32	-4,252.0	-1,501.8	1,174.4	1,092.6	81.75	14.366	
11,200.0	6,855.4	6,771.0	6,769.9	78.1	5.9	89.05	-4,252.3	-1,501.7	1,161.6	1,077.6	83.97	13.834	
11,300.0	6,852.5	6,764.6	6,763.4	79.9	5.9	88.79	-4,252.6	-1,501.6	1,153.8	1,068.1	85.68	13.466	
11,400.0	6,849.6	6,758.0	6,756.8	81.6	5.9	88.52	-4,252.9	-1,501.5	1,151.0	1,064.2	86.85	13.253	
11,403.8	6,849.5	6,757.7	6,756.6	81.6	5.9	88.51	-4,252.9	-1,501.5	1,151.0	1,064.1	86.88	13.248 CC	
11,419.2	6,849.0	6,756.7	6,755.5	81.9	5.9	88.47	-4,252.9	-1,501.5	1,151.1	1,064.1	87.01	13.229 ES	
11,454.0	6,848.0	6,754.4	6,753.2	82.5	5.9	88.35	-4,253.0	-1,501.4	1,151.9	1,064.6	87.25	13.202 SF	

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER 5-8 (EXIST) - PDC - GYRO													Offset Site Error:	0.0 usft
Survey Program: 100--Gyro													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
0.0	0.0	0.0	0.0	0.0	0.0	-156.47	-3,201.7	-1,393.9	3,492.3					
100.0	100.0	45.2	45.2	0.2	0.0	-156.47	-3,201.7	-1,393.9	3,492.0	3,491.8	0.19	N/A		
200.0	200.0	140.7	140.7	0.3	0.1	-156.47	-3,202.0	-1,394.2	3,492.4	3,491.9	0.45	7,775.174		
300.0	300.0	246.8	246.8	0.5	0.2	-156.46	-3,202.0	-1,394.7	3,492.6	3,491.9	0.72	4,875.308		
400.0	400.0	343.4	343.4	0.7	0.3	-156.46	-3,202.1	-1,395.0	3,492.8	3,491.8	0.98	3,581.510		
500.0	500.0	458.7	458.7	0.8	0.4	-156.46	-3,202.3	-1,395.1	3,493.0	3,491.8	1.25	2,793.705		
600.0	600.0	564.3	564.3	1.0	0.5	-156.47	-3,202.2	-1,394.3	3,492.6	3,491.1	1.52	2,302.337		
700.0	700.0	653.5	653.5	1.2	0.6	-156.48	-3,202.4	-1,393.5	3,492.5	3,490.7	1.77	1,973.737		
701.5	701.5	654.8	654.8	1.2	0.6	-101.83	-3,202.4	-1,393.5	3,492.5	3,490.7	1.77	1,969.621		
800.0	800.0	760.7	760.7	1.4	0.7	-101.87	-3,202.8	-1,392.5	3,492.8	3,490.8	2.04	1,713.055		
900.0	899.8	862.5	862.5	1.6	0.8	-101.96	-3,202.9	-1,391.6	3,493.6	3,491.2	2.31	1,511.317		
987.4	986.9	950.1	950.0	1.7	0.8	-102.07	-3,203.0	-1,390.7	3,494.9	3,492.4	2.56	1,364.134		
1,000.0	999.5	963.8	963.8	1.8	0.8	-102.09	-3,203.1	-1,390.5	3,495.1	3,492.5	2.60	1,344.358		
1,100.0	1,099.0	1,069.1	1,069.1	2.0	0.9	-102.28	-3,203.3	-1,388.9	3,496.8	3,493.9	2.90	1,205.047		
1,200.0	1,198.4	1,149.8	1,149.7	2.2	1.0	-102.43	-3,203.4	-1,387.9	3,498.7	3,495.5	3.19	1,096.952		
1,300.0	1,297.9	1,233.0	1,232.9	2.4	1.1	-102.58	-3,204.2	-1,386.9	3,501.3	3,497.8	3.48	1,004.812		
1,400.0	1,397.4	1,331.3	1,331.2	2.6	1.2	-102.76	-3,205.1	-1,385.8	3,503.9	3,500.1	3.80	922.920		
1,500.0	1,496.9	1,413.7	1,413.6	2.9	1.2	-102.91	-3,206.1	-1,385.2	3,507.0	3,502.9	4.10	855.932		
1,600.0	1,596.4	1,545.3	1,545.2	3.1	1.4	-103.14	-3,207.4	-1,384.2	3,509.8	3,505.4	4.44	789.846		
1,700.0	1,695.9	1,659.7	1,659.6	3.3	1.5	-103.33	-3,207.4	-1,383.5	3,511.9	3,507.2	4.78	735.317		
1,800.0	1,795.4	1,758.9	1,758.8	3.6	1.5	-103.50	-3,207.2	-1,383.1	3,514.0	3,508.9	5.10	689.459		
1,900.0	1,894.9	1,851.3	1,851.2	3.8	1.6	-103.65	-3,207.3	-1,382.5	3,516.1	3,510.7	5.41	649.637		
2,000.0	1,994.4	1,932.3	1,932.2	4.1	1.7	-103.79	-3,207.5	-1,382.0	3,518.6	3,512.9	5.72	615.258		
2,100.0	2,093.9	2,000.0	1,999.9	4.3	1.8	-103.91	-3,208.3	-1,381.6	3,521.8	3,515.8	6.01	585.585		
2,200.0	2,193.4	2,082.2	2,082.1	4.5	1.8	-104.05	-3,209.6	-1,381.6	3,525.8	3,519.5	6.32	557.688		
2,300.0	2,292.9	2,206.0	2,205.9	4.8	1.9	-104.24	-3,211.4	-1,382.4	3,529.9	3,523.2	6.67	529.389		
2,400.0	2,392.4	2,331.0	2,330.8	5.0	2.0	-104.44	-3,212.2	-1,382.4	3,532.9	3,525.9	7.02	503.615		
2,500.0	2,491.9	2,406.4	2,406.3	5.3	2.1	-104.56	-3,212.7	-1,382.5	3,536.2	3,528.9	7.32	483.192		
2,600.0	2,591.4	2,500.0	2,499.9	5.5	2.2	-104.72	-3,214.0	-1,382.5	3,539.9	3,532.3	7.64	463.453		
2,700.0	2,690.9	2,586.8	2,586.6	5.8	2.3	-104.85	-3,215.2	-1,382.9	3,544.0	3,536.0	7.95	445.710		
2,800.0	2,790.4	2,676.7	2,676.5	6.0	2.3	-104.98	-3,216.4	-1,384.2	3,548.3	3,540.1	8.27	429.190		
2,900.0	2,889.9	2,800.0	2,799.8	6.2	2.4	-105.15	-3,217.8	-1,386.3	3,552.6	3,544.0	8.61	412.442		
3,000.0	2,989.4	2,883.5	2,883.2	6.5	2.5	-105.26	-3,218.4	-1,388.1	3,556.7	3,547.8	8.92	398.539		
3,100.0	3,088.9	3,007.4	3,007.2	6.7	2.6	-105.42	-3,219.3	-1,390.5	3,560.8	3,551.5	9.27	384.052		
3,200.0	3,188.4	3,100.0	3,099.7	7.0	2.7	-105.54	-3,219.8	-1,392.2	3,564.6	3,555.0	9.59	371.666		
3,300.0	3,287.9	3,200.3	3,200.1	7.2	2.8	-105.68	-3,220.6	-1,393.7	3,568.5	3,558.6	9.92	359.837		
3,400.0	3,387.4	3,300.0	3,299.7	7.5	2.9	-105.81	-3,221.2	-1,395.3	3,572.3	3,562.1	10.24	348.768		
3,500.0	3,486.9	3,380.5	3,380.2	7.7	3.0	-105.91	-3,221.6	-1,397.2	3,576.4	3,565.8	10.55	338.967		
3,600.0	3,586.4	3,448.3	3,448.0	8.0	3.0	-105.97	-3,222.2	-1,399.8	3,581.3	3,570.4	10.85	330.147		
3,700.0	3,685.9	3,514.9	3,514.4	8.2	3.1	-106.02	-3,222.9	-1,403.9	3,587.1	3,575.9	11.14	321.918		
3,800.0	3,785.4	3,600.0	3,599.3	8.5	3.2	-106.06	-3,224.2	-1,410.3	3,593.7	3,582.3	11.46	313.681		
3,900.0	3,884.9	3,735.7	3,734.6	8.7	3.3	-106.13	-3,225.9	-1,420.2	3,600.1	3,588.3	11.82	304.540		
4,000.0	3,984.4	3,842.5	3,841.2	8.9	3.4	-106.19	-3,226.4	-1,427.2	3,605.5	3,593.4	12.16	296.547		
4,100.0	4,083.9	3,942.5	3,941.0	9.2	3.5	-106.25	-3,227.3	-1,433.4	3,611.2	3,598.7	12.49	289.160		
4,200.0	4,183.4	4,092.0	4,090.3	9.4	3.6	-106.38	-3,228.0	-1,440.5	3,616.0	3,603.2	12.87	281.059		
4,300.0	4,282.9	4,196.2	4,194.4	9.7	3.7	-106.50	-3,228.3	-1,443.5	3,620.1	3,606.9	13.20	274.307		
4,400.0	4,382.4	4,262.3	4,260.5	9.9	3.8	-106.58	-3,229.0	-1,444.8	3,624.5	3,611.0	13.49	268.648		
4,500.0	4,481.9	4,330.3	4,328.4	10.2	3.8	-106.67	-3,230.4	-1,446.0	3,629.9	3,616.1	13.79	263.290		
4,531.4	4,513.1	4,353.0	4,351.2	10.3	3.8	-106.70	-3,231.0	-1,446.4	3,631.8	3,617.9	13.88	261.647		
4,600.0	4,581.4	4,400.0	4,398.2	10.4	3.9	-106.84	-3,232.4	-1,447.0	3,635.9	3,621.8	14.07	258.498		
4,700.0	4,681.3	4,488.0	4,486.1	10.6	4.0	-107.03	-3,235.7	-1,448.0	3,641.5	3,627.2	14.32	254.325		
4,800.0	4,781.2	4,557.7	4,555.7	10.7	4.0	-107.16	-3,238.7	-1,448.7	3,646.7	3,632.1	14.52	251.172		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER 5-8 (EXIST) - PDC - GYRO													Offset Site Error:	0.0 usft
Survey Program: 100--Gyro													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
4,818.8	4,800.0	4,570.3	4,568.3	10.8	4.0	-161.83	-3,239.3	-1,448.9	3,647.6	3,633.1	14.55	250.615		
4,900.0	4,881.2	4,633.4	4,631.3	10.9	4.1	-161.84	-3,242.6	-1,449.7	3,652.0	3,637.3	14.72	248.105		
5,000.0	4,981.2	4,717.6	4,715.3	11.0	4.2	-161.84	-3,247.3	-1,450.8	3,657.7	3,642.8	14.93	244.993		
5,100.0	5,081.2	4,800.0	4,797.6	11.1	4.2	-161.85	-3,252.5	-1,452.2	3,664.2	3,649.0	15.14	242.033		
5,200.0	5,181.2	4,896.9	4,894.2	11.3	4.3	-161.85	-3,258.8	-1,454.4	3,671.0	3,655.6	15.37	238.917		
5,300.0	5,281.2	4,989.8	4,987.0	11.4	4.4	-161.84	-3,264.5	-1,456.5	3,677.6	3,662.0	15.59	235.934		
5,400.0	5,381.2	5,099.2	5,096.1	11.6	4.5	-161.84	-3,271.4	-1,458.9	3,684.2	3,668.4	15.83	232.767		
5,500.0	5,481.2	5,307.4	5,304.1	11.7	4.7	-161.83	-3,281.2	-1,462.7	3,689.3	3,673.1	16.17	228.172		
5,600.0	5,581.2	5,465.2	5,461.8	11.8	4.9	-161.82	-3,284.8	-1,464.5	3,691.7	3,675.3	16.46	224.312		
5,700.0	5,681.2	5,565.0	5,561.6	12.0	5.0	-161.80	-3,286.2	-1,466.4	3,693.6	3,676.9	16.69	221.275		
5,800.0	5,781.2	5,652.3	5,648.8	12.1	5.0	-161.77	-3,287.4	-1,468.6	3,695.7	3,678.8	16.92	218.479		
5,900.0	5,881.2	5,772.6	5,769.1	12.3	5.1	-161.74	-3,289.4	-1,471.3	3,698.0	3,680.9	17.17	215.358		
6,000.0	5,981.2	5,904.3	5,900.7	12.4	5.3	-161.69	-3,289.9	-1,474.9	3,699.3	3,681.8	17.44	212.114		
6,100.0	6,081.2	6,000.0	5,996.4	12.6	5.3	-161.65	-3,289.9	-1,477.9	3,700.3	3,682.6	17.67	209.351		
6,200.0	6,181.2	6,091.6	6,088.0	12.7	5.4	-161.61	-3,290.2	-1,480.4	3,701.4	3,683.5	17.91	206.718		
6,269.3	6,250.5	6,142.4	6,138.8	12.8	5.5	-161.60	-3,290.6	-1,481.6	3,702.4	3,684.4	18.05	205.077		
6,300.0	6,281.2	6,164.0	6,160.4	12.9	5.5	18.41	-3,290.8	-1,482.2	3,702.4	3,684.3	18.12	204.381		
6,350.0	6,331.0	6,200.0	6,196.3	12.9	5.5	18.51	-3,291.3	-1,483.4	3,699.8	3,681.6	18.21	203.215		
6,400.0	6,380.5	6,249.6	6,245.9	12.9	5.6	18.71	-3,292.0	-1,484.8	3,694.0	3,675.7	18.30	201.839		
6,450.0	6,429.3	6,299.9	6,296.2	13.0	5.6	19.02	-3,292.9	-1,486.0	3,684.9	3,666.5	18.39	200.385		
6,500.0	6,477.3	6,339.6	6,335.8	13.0	5.7	19.42	-3,293.6	-1,486.7	3,672.7	3,654.2	18.46	198.975		
6,550.0	6,524.1	6,378.4	6,374.7	13.0	5.7	19.93	-3,294.6	-1,487.3	3,657.4	3,638.9	18.52	197.501		
6,600.0	6,569.6	6,400.0	6,396.2	13.0	5.7	20.52	-3,295.1	-1,487.5	3,639.2	3,620.6	18.56	196.128		
6,650.0	6,613.5	6,445.5	6,441.7	13.0	5.7	21.31	-3,296.6	-1,487.8	3,618.1	3,599.5	18.61	194.434		
6,700.0	6,655.7	6,476.0	6,472.2	13.0	5.8	22.22	-3,297.7	-1,488.0	3,594.3	3,575.6	18.64	192.813		
6,750.0	6,695.9	6,500.0	6,496.2	13.0	5.8	23.28	-3,298.7	-1,488.0	3,567.8	3,549.2	18.66	191.171		
6,800.0	6,734.0	6,530.3	6,526.4	13.1	5.8	24.58	-3,300.0	-1,488.1	3,538.9	3,520.2	18.69	189.382		
6,850.0	6,769.7	6,554.4	6,550.5	13.1	5.8	26.10	-3,301.2	-1,488.1	3,507.6	3,488.9	18.70	187.563		
6,900.0	6,802.8	6,577.2	6,573.3	13.2	5.9	27.90	-3,302.4	-1,488.2	3,474.1	3,455.4	18.71	185.663		
6,950.0	6,833.3	6,600.0	6,596.0	13.4	5.9	30.06	-3,303.7	-1,488.2	3,438.6	3,419.8	18.72	183.667		
7,000.0	6,860.9	6,621.1	6,617.1	13.6	5.9	32.65	-3,305.0	-1,488.2	3,401.1	3,382.4	18.73	181.589		
7,050.0	6,885.6	6,642.0	6,637.9	13.8	5.9	35.76	-3,306.3	-1,488.2	3,361.8	3,343.1	18.74	179.411		
7,100.0	6,907.1	6,660.7	6,656.6	14.1	5.9	39.52	-3,307.6	-1,488.1	3,321.0	3,302.3	18.75	177.148		
7,150.0	6,925.5	6,677.2	6,673.1	14.4	6.0	44.03	-3,308.7	-1,488.0	3,278.8	3,260.0	18.76	174.799		
7,200.0	6,940.5	6,700.0	6,695.8	14.8	6.0	49.69	-3,310.3	-1,487.9	3,235.4	3,216.6	18.78	172.296		
7,250.0	6,952.2	6,700.0	6,695.8	15.2	6.0	55.83	-3,310.3	-1,487.9	3,191.0	3,172.2	18.78	169.871		
7,300.0	6,960.5	6,714.8	6,710.5	15.7	6.0	63.58	-3,311.4	-1,487.7	3,145.9	3,127.1	18.81	167.228		
7,350.0	6,965.4	6,722.6	6,718.3	16.2	6.0	72.22	-3,312.0	-1,487.6	3,100.2	3,081.4	18.84	164.540		
7,400.0	6,966.7	6,727.3	6,723.0	16.7	6.0	81.55	-3,312.3	-1,487.6	3,054.2	3,035.3	18.88	161.782		
7,415.3	6,966.4	6,728.1	6,723.8	16.9	6.0	84.48	-3,312.4	-1,487.6	3,040.1	3,021.2	18.89	160.924		
7,500.0	6,964.0	6,731.7	6,727.4	17.9	6.0	84.65	-3,312.7	-1,487.5	2,962.2	2,943.2	18.98	156.052		
7,600.0	6,961.0	6,736.1	6,731.8	19.1	6.0	84.86	-3,313.0	-1,487.4	2,870.8	2,851.6	19.14	149.998		
7,700.0	6,958.1	6,740.5	6,736.2	20.4	6.0	85.08	-3,313.3	-1,487.4	2,779.9	2,760.5	19.36	143.612		
7,800.0	6,955.2	6,745.0	6,740.7	21.8	6.0	85.30	-3,313.7	-1,487.3	2,689.7	2,670.0	19.65	136.901		
7,900.0	6,952.2	6,749.6	6,745.3	23.2	6.0	85.52	-3,314.0	-1,487.2	2,600.1	2,580.1	20.02	129.887		
8,000.0	6,949.3	6,754.3	6,749.9	24.7	6.0	85.74	-3,314.4	-1,487.2	2,511.4	2,490.9	20.48	122.610		
8,100.0	6,946.4	6,759.0	6,754.6	26.2	6.0	85.97	-3,314.8	-1,487.1	2,423.5	2,402.5	21.05	115.125		
8,200.0	6,943.4	6,763.8	6,759.5	27.7	6.0	86.21	-3,315.1	-1,487.0	2,336.6	2,314.9	21.73	107.506		
8,300.0	6,940.5	6,768.8	6,764.4	29.3	6.0	86.45	-3,315.5	-1,486.9	2,250.8	2,228.2	22.54	99.836		
8,400.0	6,937.6	6,773.8	6,769.3	30.8	6.1	86.69	-3,315.9	-1,486.8	2,166.1	2,142.6	23.49	92.206		
8,500.0	6,934.6	6,778.9	6,774.4	32.4	6.1	86.94	-3,316.3	-1,486.7	2,082.8	2,058.2	24.59	84.707		
8,600.0	6,931.7	6,784.1	6,779.6	34.0	6.1	87.19	-3,316.7	-1,486.6	2,001.1	1,975.2	25.85	77.425		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER 5-8 (EXIST) - PDC - GYRO											Offset Site Error: 0.0 usft		
Survey Program: 100--Gyro											Offset Well Error: 0.0 usft		
Reference		Offset		Semi Major Axis			Distance					Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis		Separation Factor
8,700.0	6,928.8	6,789.3	6,784.9	35.7	6.1	87.45	-3,317.2	-1,486.5	1,921.0	1,893.7	27.27	70.439	
8,800.0	6,925.8	6,794.7	6,790.2	37.3	6.1	87.71	-3,317.6	-1,486.4	1,842.9	1,814.0	28.88	63.813	
8,900.0	6,922.9	6,800.3	6,795.8	39.0	6.1	87.98	-3,318.0	-1,486.2	1,767.0	1,736.3	30.68	57.598	
9,000.0	6,920.0	6,807.4	6,802.8	40.6	6.1	88.32	-3,318.6	-1,486.1	1,693.5	1,660.8	32.67	51.832	
9,100.0	6,917.0	6,814.2	6,809.7	42.3	6.1	88.66	-3,319.2	-1,485.9	1,622.9	1,588.0	34.87	46.538	
9,200.0	6,914.1	6,820.9	6,816.3	43.9	6.1	88.98	-3,319.7	-1,485.7	1,555.5	1,518.2	37.28	41.726	
9,300.0	6,911.2	6,827.4	6,822.7	45.6	6.1	89.30	-3,320.2	-1,485.6	1,491.7	1,451.8	39.89	37.399	
9,400.0	6,908.2	6,833.6	6,829.0	47.3	6.1	89.60	-3,320.7	-1,485.4	1,432.0	1,389.3	42.69	33.548	
9,500.0	6,905.3	6,839.8	6,835.1	49.0	6.1	89.90	-3,321.2	-1,485.2	1,377.0	1,331.4	45.66	30.161	
9,600.0	6,902.4	6,845.7	6,841.1	50.7	6.1	90.19	-3,321.6	-1,485.0	1,327.3	1,278.5	48.76	27.219	
9,700.0	6,899.5	6,851.5	6,846.8	52.4	6.1	90.48	-3,322.1	-1,484.9	1,283.4	1,231.4	51.96	24.700	
9,800.0	6,896.5	6,857.2	6,852.5	54.1	6.1	90.75	-3,322.5	-1,484.7	1,246.0	1,190.8	55.18	22.581	
9,900.0	6,893.6	6,862.7	6,857.9	55.8	6.1	91.02	-3,322.9	-1,484.6	1,215.6	1,157.3	58.34	20.836	
10,000.0	6,890.7	6,868.0	6,863.3	57.5	6.1	91.28	-3,323.3	-1,484.4	1,192.9	1,131.5	61.36	19.441	
10,100.0	6,887.7	6,873.2	6,868.5	59.2	6.1	91.54	-3,323.7	-1,484.2	1,178.2	1,114.1	64.14	18.369	
10,200.0	6,884.8	6,878.3	6,873.5	60.9	6.2	91.78	-3,324.1	-1,484.1	1,171.9	1,105.3	66.60	17.596	
10,224.4	6,884.1	6,879.5	6,874.7	61.3	6.2	91.84	-3,324.2	-1,484.0	1,171.6	1,104.5	67.14	17.450 CC, ES	
10,300.0	6,881.9	6,883.3	6,878.5	62.6	6.2	92.03	-3,324.4	-1,483.9	1,174.1	1,105.4	68.67	17.097	
10,400.0	6,878.9	6,888.1	6,883.3	64.3	6.2	92.26	-3,324.8	-1,483.7	1,184.7	1,114.4	70.31	16.850	
10,500.0	6,876.0	6,892.8	6,888.0	66.0	6.2	92.49	-3,325.1	-1,483.6	1,203.5	1,132.0	71.50	16.833 SF	
10,600.0	6,873.1	6,897.4	6,892.6	67.8	6.2	92.72	-3,325.4	-1,483.4	1,230.2	1,158.0	72.26	17.025	
10,700.0	6,870.1	6,901.9	6,897.1	69.5	6.2	92.94	-3,325.8	-1,483.3	1,264.3	1,191.7	72.63	17.407	
10,800.2	6,867.2	6,900.0	6,895.2	71.2	6.2	92.84	-3,325.6	-1,483.3	1,305.2	1,232.6	72.66	17.963	
10,900.0	6,864.3	6,900.0	6,895.2	72.9	6.2	92.85	-3,325.6	-1,483.3	1,350.6	1,278.2	72.42	18.649	
11,000.0	6,861.3	6,900.0	6,895.2	74.7	6.2	92.85	-3,325.6	-1,483.3	1,398.8	1,326.8	71.94	19.443	
11,100.0	6,858.4	6,900.0	6,895.2	76.4	6.2	92.85	-3,325.6	-1,483.3	1,449.3	1,378.0	71.26	20.337	
11,200.0	6,855.4	6,900.0	6,895.2	78.1	6.2	92.85	-3,325.6	-1,483.3	1,501.8	1,431.4	70.42	21.326	
11,300.0	6,852.5	6,900.0	6,895.2	79.9	6.2	92.85	-3,325.6	-1,483.3	1,556.1	1,486.7	69.44	22.409	
11,400.0	6,849.6	6,900.0	6,895.2	81.6	6.2	92.84	-3,325.6	-1,483.3	1,611.9	1,543.6	68.35	23.582	
11,419.2	6,849.0	6,900.0	6,895.2	81.9	6.2	92.84	-3,325.6	-1,483.3	1,622.8	1,554.7	68.13	23.819	
11,454.0	6,848.0	6,900.0	6,895.2	82.5	6.2	92.84	-3,325.6	-1,483.3	1,642.8	1,575.1	67.72	24.258	

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER 5-9 (EXIST) - PDC - GYRO													Offset Site Error:	0.0 usft
Survey Program: 100--Gyro													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance			Total Uncertainty Axis	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)				Between Ellipses (usft)	
0.0	0.0	46.4	46.4	0.0	0.0	-134.25	-1,424.3	-1,462.2	2,041.2					
100.0	100.0	148.3	148.3	0.2	0.1	-134.24	-1,423.9	-1,462.4	2,041.1	2,040.8	0.28	7,252.278		
185.8	185.8	230.8	230.8	0.3	0.2	-134.22	-1,423.4	-1,462.7	2,041.0	2,040.5	0.50	4,055.008		
200.0	200.0	243.5	243.5	0.3	0.2	-134.22	-1,423.3	-1,462.8	2,041.0	2,040.4	0.54	3,785.576		
300.0	300.0	342.0	342.0	0.5	0.3	-134.21	-1,423.4	-1,463.0	2,041.2	2,040.4	0.80	2,552.916		
389.6	389.6	434.6	434.6	0.7	0.4	-134.21	-1,423.3	-1,463.1	2,041.2	2,040.1	1.04	1,968.534		
400.0	400.0	443.9	443.9	0.7	0.4	-134.21	-1,423.2	-1,463.1	2,041.2	2,040.1	1.06	1,920.097		
500.0	500.0	540.3	540.3	0.8	0.5	-134.20	-1,423.3	-1,463.5	2,041.4	2,040.1	1.32	1,544.591		
600.0	600.0	639.3	639.2	1.0	0.6	-134.21	-1,423.4	-1,463.5	2,041.6	2,040.0	1.58	1,290.087		
700.0	700.0	735.4	735.4	1.2	0.6	-134.21	-1,423.8	-1,463.8	2,042.1	2,040.2	1.84	1,109.305		
800.0	800.0	844.6	844.6	1.4	0.7	-79.61	-1,424.1	-1,463.8	2,041.9	2,039.8	2.11	966.812		
900.0	899.8	940.8	940.8	1.6	0.8	-79.78	-1,424.4	-1,463.6	2,041.0	2,038.7	2.38	857.743		
987.4	986.9	1,023.4	1,023.4	1.7	0.9	-80.00	-1,424.8	-1,463.7	2,040.1	2,037.4	2.63	776.986		
1,000.0	999.5	1,037.5	1,037.5	1.8	0.9	-80.04	-1,424.8	-1,463.7	2,039.9	2,037.2	2.66	765.794		
1,100.0	1,099.0	1,138.2	1,138.2	2.0	1.0	-80.32	-1,425.0	-1,463.7	2,038.4	2,035.4	2.96	688.171		
1,200.0	1,198.4	1,227.9	1,227.9	2.2	1.1	-80.58	-1,425.7	-1,463.8	2,037.3	2,034.0	3.26	625.292		
1,300.0	1,297.9	1,326.3	1,326.3	2.4	1.2	-80.86	-1,426.4	-1,464.2	2,036.5	2,032.9	3.57	570.859		
1,400.0	1,397.4	1,429.3	1,429.3	2.6	1.2	-81.15	-1,427.0	-1,464.7	2,035.6	2,031.8	3.88	523.998		
1,500.0	1,496.9	1,532.2	1,532.2	2.9	1.3	-81.45	-1,427.6	-1,464.8	2,034.6	2,030.4	4.21	483.815		
1,600.0	1,596.4	1,628.3	1,628.3	3.1	1.4	-81.73	-1,428.3	-1,464.8	2,033.7	2,029.2	4.52	449.675		
1,700.0	1,695.9	1,726.0	1,726.0	3.3	1.5	-82.01	-1,429.1	-1,465.0	2,033.0	2,028.2	4.84	419.761		
1,800.0	1,795.4	1,823.9	1,823.9	3.6	1.6	-82.28	-1,429.5	-1,465.7	2,032.4	2,027.2	5.17	393.434		
1,900.0	1,894.9	1,914.7	1,914.7	3.8	1.7	-82.50	-1,429.5	-1,467.1	2,032.1	2,026.6	5.48	370.604		
1,932.6	1,927.4	1,946.2	1,946.1	3.9	1.7	-82.58	-1,429.4	-1,467.8	2,032.1	2,026.5	5.59	363.600		
2,000.0	1,994.4	2,011.5	2,011.4	4.1	1.8	-82.71	-1,428.9	-1,469.6	2,032.1	2,026.3	5.81	349.925		
2,100.0	2,093.9	2,111.3	2,111.2	4.3	1.8	-82.88	-1,427.3	-1,473.4	2,032.2	2,026.1	6.14	331.206		
2,200.0	2,193.4	2,220.3	2,220.0	4.5	1.9	-83.04	-1,424.8	-1,478.1	2,032.2	2,025.8	6.47	313.900		
2,300.0	2,292.9	2,352.1	2,351.6	4.8	2.1	-83.22	-1,420.2	-1,483.4	2,031.2	2,024.3	6.83	297.180		
2,400.0	2,392.4	2,487.8	2,487.1	5.0	2.2	-83.40	-1,413.9	-1,487.3	2,028.4	2,021.2	7.20	281.749		
2,500.0	2,491.9	2,580.8	2,579.9	5.3	2.3	-83.53	-1,409.2	-1,489.1	2,024.9	2,017.4	7.53	269.000		
2,600.0	2,591.4	2,700.0	2,699.0	5.5	2.4	-83.73	-1,403.6	-1,490.8	2,021.2	2,013.4	7.88	256.579		
2,700.0	2,690.9	2,794.8	2,793.7	5.8	2.5	-83.91	-1,399.4	-1,491.2	2,017.1	2,008.9	8.21	245.784		
2,800.0	2,790.4	2,878.6	2,877.4	6.0	2.5	-84.07	-1,396.1	-1,491.7	2,013.5	2,005.0	8.53	236.119		
2,900.0	2,889.9	2,972.9	2,971.7	6.2	2.6	-84.26	-1,392.9	-1,492.8	2,010.6	2,001.8	8.86	227.012		
3,000.0	2,989.4	3,074.9	3,073.7	6.5	2.7	-84.47	-1,389.7	-1,493.5	2,007.7	1,998.6	9.19	218.396		
3,100.0	3,088.9	3,164.2	3,163.0	6.7	2.8	-84.66	-1,386.9	-1,494.3	2,005.0	1,995.5	9.52	210.641		
3,200.0	3,188.4	3,253.1	3,251.8	7.0	2.9	-84.85	-1,384.7	-1,495.3	2,002.9	1,993.1	9.84	203.459		
3,300.0	3,287.9	3,337.5	3,336.1	7.2	3.0	-85.01	-1,382.5	-1,497.0	2,001.4	1,991.2	10.17	196.863		
3,400.0	3,387.4	3,420.0	3,418.6	7.5	3.0	-85.18	-1,381.3	-1,499.0	2,000.9	1,990.4	10.49	190.810		
3,500.0	3,486.9	3,521.3	3,519.8	7.7	3.1	-85.38	-1,379.7	-1,501.6	2,000.6	1,989.8	10.82	184.830		
3,517.3	3,504.1	3,534.5	3,533.1	7.8	3.1	-85.41	-1,379.5	-1,502.0	2,000.6	1,989.7	10.88	183.905 CC, ES		
3,600.0	3,586.4	3,600.0	3,598.5	8.0	3.2	-85.55	-1,379.1	-1,503.8	2,001.0	1,989.8	11.14	179.622		
3,700.0	3,685.9	3,700.0	3,698.5	8.2	3.3	-85.79	-1,379.3	-1,506.1	2,001.8	1,990.3	11.47	174.477		
3,800.0	3,785.4	3,788.7	3,787.2	8.5	3.4	-86.02	-1,380.1	-1,507.6	2,002.9	1,991.1	11.80	169.787		
3,900.0	3,884.9	3,901.1	3,899.5	8.7	3.5	-86.31	-1,381.1	-1,509.8	2,004.2	1,992.0	12.14	165.061		
4,000.0	3,984.4	4,000.3	3,998.7	8.9	3.5	-86.58	-1,381.8	-1,511.3	2,005.1	1,992.6	12.47	160.732		
4,100.0	4,083.9	4,109.0	4,107.4	9.2	3.6	-86.85	-1,382.0	-1,513.2	2,005.8	1,992.9	12.82	156.479		
4,200.0	4,183.4	4,200.0	4,198.4	9.4	3.7	-87.06	-1,381.9	-1,515.2	2,006.5	1,993.4	13.15	152.645		
4,300.0	4,282.9	4,300.0	4,298.4	9.7	3.8	-87.31	-1,382.0	-1,517.3	2,007.4	1,993.9	13.48	148.916		
4,400.0	4,382.4	4,300.0	4,298.4	9.9	3.8	-87.31	-1,382.0	-1,517.3	2,010.9	1,997.2	13.71	146.629		
4,500.0	4,481.9	4,300.0	4,298.4	10.2	3.8	-87.31	-1,382.0	-1,517.3	2,019.3	2,005.4	13.93	144.961		
4,531.4	4,513.1	4,300.0	4,298.4	10.3	3.8	-87.31	-1,382.0	-1,517.3	2,023.0	2,009.0	13.99	144.560		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER 5-9 (EXIST) - PDC - GYRO													Offset Site Error:	0.0 usft
Survey Program: 100--Gyro													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
4,600.0	4,581.4	4,300.0	4,298.4	10.4	3.8	-87.50	-1,382.0	-1,517.3	2,032.7	2,018.6	14.11	144.070		
4,700.0	4,681.3	4,300.0	4,298.4	10.6	3.8	-87.87	-1,382.0	-1,517.3	2,051.0	2,036.8	14.22	144.204		
4,800.0	4,781.2	4,300.0	4,298.4	10.7	3.8	-88.35	-1,382.0	-1,517.3	2,074.1	2,059.8	14.28	145.219		
4,818.8	4,800.0	4,300.0	4,298.4	10.8	3.8	-143.10	-1,382.0	-1,517.3	2,078.9	2,064.7	14.29	145.475		
4,900.0	4,881.2	4,300.0	4,298.4	10.9	3.8	-143.10	-1,382.0	-1,517.3	2,101.8	2,087.4	14.32	146.762		
5,000.0	4,981.2	4,300.0	4,298.4	11.0	3.8	-143.10	-1,382.0	-1,517.3	2,133.8	2,119.4	14.35	148.731		
5,100.0	5,081.2	4,300.0	4,298.4	11.1	3.8	-143.10	-1,382.0	-1,517.3	2,169.9	2,155.6	14.36	151.099		
5,200.0	5,181.2	4,300.0	4,298.4	11.3	3.8	-143.10	-1,382.0	-1,517.3	2,210.0	2,195.6	14.37	153.839		
5,300.0	5,281.2	4,300.0	4,298.4	11.4	3.8	-143.10	-1,382.0	-1,517.3	2,253.8	2,239.5	14.36	156.926		
5,400.0	5,381.2	4,300.0	4,298.4	11.6	3.8	-143.10	-1,382.0	-1,517.3	2,301.1	2,286.8	14.35	160.333		
5,500.0	5,481.2	4,300.0	4,298.4	11.7	3.8	-143.10	-1,382.0	-1,517.3	2,351.8	2,337.4	14.34	164.032		
5,600.0	5,581.2	4,300.0	4,298.4	11.8	3.8	-143.10	-1,382.0	-1,517.3	2,405.5	2,391.2	14.32	167.998		
5,700.0	5,681.2	4,300.0	4,298.4	12.0	3.8	-143.10	-1,382.0	-1,517.3	2,462.1	2,447.8	14.30	172.205		
5,800.0	5,781.2	4,300.0	4,298.4	12.1	3.8	-143.10	-1,382.0	-1,517.3	2,521.4	2,507.1	14.28	176.630		
5,900.0	5,881.2	4,300.0	4,298.4	12.3	3.8	-143.10	-1,382.0	-1,517.3	2,583.2	2,569.0	14.25	181.249		
6,000.0	5,981.2	4,300.0	4,298.4	12.4	3.8	-143.10	-1,382.0	-1,517.3	2,647.4	2,633.2	14.23	186.040		
6,100.0	6,081.2	4,300.0	4,298.4	12.6	3.8	-143.10	-1,382.0	-1,517.3	2,713.7	2,699.5	14.21	190.982		
6,200.0	6,181.2	4,300.0	4,298.4	12.7	3.8	-143.10	-1,382.0	-1,517.3	2,782.1	2,767.9	14.19	196.055		
6,269.3	6,250.5	4,300.0	4,298.4	12.8	3.8	-143.10	-1,382.0	-1,517.3	2,830.5	2,816.4	14.18	199.640		
6,300.0	6,281.2	4,300.0	4,298.4	12.9	3.8	35.49	-1,382.0	-1,517.3	2,851.9	2,837.7	14.17	201.286		
6,350.0	6,331.0	4,300.0	4,298.4	12.9	3.8	33.45	-1,382.0	-1,517.3	2,885.4	2,871.2	14.14	204.061		
6,400.0	6,380.5	4,300.0	4,298.4	12.9	3.8	31.68	-1,382.0	-1,517.3	2,917.2	2,903.1	14.10	206.884		
6,450.0	6,429.3	4,300.0	4,298.4	13.0	3.8	30.14	-1,382.0	-1,517.3	2,947.2	2,933.1	14.05	209.730		
6,500.0	6,477.3	4,300.0	4,298.4	13.0	3.8	28.80	-1,382.0	-1,517.3	2,975.2	2,961.2	14.00	212.569		
6,550.0	6,524.1	4,300.0	4,298.4	13.0	3.8	27.64	-1,382.0	-1,517.3	3,001.4	2,987.4	13.94	215.371		
6,600.0	6,569.6	4,300.0	4,298.4	13.0	3.8	26.64	-1,382.0	-1,517.3	3,025.4	3,011.5	13.87	218.098		
6,650.0	6,613.5	4,300.0	4,298.4	13.0	3.8	25.78	-1,382.0	-1,517.3	3,047.4	3,033.6	13.81	220.712		
6,700.0	6,655.7	4,300.0	4,298.4	13.0	3.8	25.04	-1,382.0	-1,517.3	3,067.1	3,053.4	13.74	223.170		
6,750.0	6,695.9	4,300.0	4,298.4	13.0	3.8	24.41	-1,382.0	-1,517.3	3,084.7	3,071.0	13.68	225.427		
6,800.0	6,734.0	4,300.0	4,298.4	13.1	3.8	23.89	-1,382.0	-1,517.3	3,099.9	3,086.3	13.63	227.434		
6,850.0	6,769.7	4,300.0	4,298.4	13.1	3.8	23.46	-1,382.0	-1,517.3	3,112.9	3,099.3	13.58	229.141		
6,900.0	6,802.8	4,300.0	4,298.4	13.2	3.8	23.11	-1,382.0	-1,517.3	3,123.4	3,109.9	13.55	230.500		
6,950.0	6,833.3	4,300.0	4,298.4	13.4	3.8	22.85	-1,382.0	-1,517.3	3,131.6	3,118.1	13.53	231.462		
7,000.0	6,860.9	4,300.0	4,298.4	13.6	3.8	22.67	-1,382.0	-1,517.3	3,137.4	3,123.9	13.52	231.983		
7,050.0	6,885.6	4,300.0	4,298.4	13.8	3.8	22.57	-1,382.0	-1,517.3	3,140.8	3,127.3	13.54	232.025		
7,100.0	6,907.1	4,300.0	4,298.4	14.1	3.8	22.54	-1,382.0	-1,517.3	3,141.8	3,128.2	13.57	231.557		
7,150.0	6,925.5	4,300.0	4,298.4	14.4	3.8	22.58	-1,382.0	-1,517.3	3,140.3	3,126.7	13.62	230.558		
7,200.0	6,940.5	4,300.0	4,298.4	14.8	3.8	22.70	-1,382.0	-1,517.3	3,136.4	3,122.7	13.69	229.019		
7,250.0	6,952.2	4,300.0	4,298.4	15.2	3.8	22.90	-1,382.0	-1,517.3	3,130.1	3,116.3	13.79	226.942		
7,300.0	6,960.5	4,300.0	4,298.4	15.7	3.8	23.18	-1,382.0	-1,517.3	3,121.4	3,107.5	13.91	224.342		
7,350.0	6,965.4	4,300.0	4,298.4	16.2	3.8	23.54	-1,382.0	-1,517.3	3,110.3	3,096.3	14.06	221.244		
7,400.0	6,966.7	4,300.0	4,298.4	16.7	3.8	23.99	-1,382.0	-1,517.3	3,096.9	3,082.7	14.23	217.685		
7,415.3	6,966.4	4,300.0	4,298.4	16.9	3.8	24.15	-1,382.0	-1,517.3	3,092.3	3,078.0	14.28	216.506		
7,500.0	6,964.0	4,300.0	4,298.4	17.9	3.8	24.15	-1,382.0	-1,517.3	3,067.5	3,052.8	14.62	209.753		
7,600.0	6,961.0	4,300.0	4,298.4	19.1	3.8	24.15	-1,382.0	-1,517.3	3,040.9	3,025.8	15.09	201.579		
7,700.0	6,958.1	4,300.0	4,298.4	20.4	3.8	24.15	-1,382.0	-1,517.3	3,017.4	3,001.8	15.60	193.370		
7,800.0	6,955.2	4,300.0	4,298.4	21.8	3.8	24.15	-1,382.0	-1,517.3	2,997.1	2,980.9	16.17	185.292		
7,900.0	6,952.2	4,300.0	4,298.4	23.2	3.8	24.15	-1,382.0	-1,517.3	2,980.0	2,963.2	16.79	177.479		
8,000.0	6,949.3	4,300.0	4,298.4	24.7	3.8	24.15	-1,382.0	-1,517.3	2,966.1	2,948.7	17.44	170.033		
8,100.0	6,946.4	4,300.0	4,298.4	26.2	3.8	24.15	-1,382.0	-1,517.3	2,955.6	2,937.5	18.13	163.026		
8,200.0	6,943.4	4,300.0	4,298.4	27.7	3.8	24.15	-1,382.0	-1,517.3	2,948.5	2,929.6	18.84	156.500		
8,300.0	6,940.5	4,300.0	4,298.4	29.3	3.8	24.15	-1,382.0	-1,517.3	2,944.7	2,925.1	19.57	150.480		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER 5-9 (EXIST) - PDC - GYRO													Offset Site Error:	0.0 usft
Survey Program: 100--Gyro													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (")	Offset Wellbore Centre		Distance		Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
8,361.3	6,938.7	4,300.0	4,298.4	30.2	3.8	24.15	-1,382.0	-1,517.3	2,944.1	2,924.0	20.02	147.035		
8,400.0	6,937.6	4,300.0	4,298.4	30.8	3.8	24.15	-1,382.0	-1,517.3	2,944.3	2,924.0	20.31	144.969		
8,500.0	6,934.6	4,300.0	4,298.4	32.4	3.8	24.15	-1,382.0	-1,517.3	2,947.3	2,926.3	21.06	139.961		
8,600.0	6,931.7	4,300.0	4,298.4	34.0	3.8	24.15	-1,382.0	-1,517.3	2,953.7	2,931.9	21.81	135.442		
8,700.0	6,928.8	4,300.0	4,298.4	35.7	3.8	24.15	-1,382.0	-1,517.3	2,963.5	2,940.9	22.55	131.388		
8,800.0	6,925.8	4,300.0	4,298.4	37.3	3.8	24.15	-1,382.0	-1,517.3	2,976.6	2,953.3	23.29	127.777		
8,900.0	6,922.9	4,300.0	4,298.4	39.0	3.8	24.15	-1,382.0	-1,517.3	2,992.9	2,968.9	24.02	124.581		
9,000.0	6,920.0	4,300.0	4,298.4	40.6	3.8	24.15	-1,382.0	-1,517.3	3,012.5	2,987.8	24.74	121.773		
9,100.0	6,917.0	4,300.0	4,298.4	42.3	3.8	24.15	-1,382.0	-1,517.3	3,035.3	3,009.9	25.44	119.327		
9,200.0	6,914.1	4,300.0	4,298.4	43.9	3.8	24.15	-1,382.0	-1,517.3	3,061.2	3,035.1	26.12	117.215		
9,300.0	6,911.2	4,300.0	4,298.4	45.6	3.8	24.15	-1,382.0	-1,517.3	3,090.1	3,063.3	26.77	115.415		
9,400.0	6,908.2	4,300.0	4,298.4	47.3	3.8	24.15	-1,382.0	-1,517.3	3,121.9	3,094.5	27.41	113.901		
9,500.0	6,905.3	4,300.0	4,298.4	49.0	3.8	24.15	-1,382.0	-1,517.3	3,156.6	3,128.6	28.02	112.652		
9,600.0	6,902.4	4,300.0	4,298.4	50.7	3.8	24.15	-1,382.0	-1,517.3	3,194.0	3,165.4	28.61	111.647		
9,700.0	6,899.5	4,300.0	4,298.4	52.4	3.8	24.15	-1,382.0	-1,517.3	3,234.1	3,204.9	29.17	110.868		
9,800.0	6,896.5	4,300.0	4,298.4	54.1	3.8	24.15	-1,382.0	-1,517.3	3,276.8	3,247.1	29.71	110.296		
9,900.0	6,893.6	4,300.0	4,298.4	55.8	3.8	24.15	-1,382.0	-1,517.3	3,321.9	3,291.7	30.22	109.915		
10,000.0	6,890.7	4,300.0	4,298.4	57.5	3.8	24.15	-1,382.0	-1,517.3	3,369.4	3,338.7	30.71	109.711		
10,100.0	6,887.7	4,300.0	4,298.4	59.2	3.8	24.15	-1,382.0	-1,517.3	3,419.1	3,387.9	31.18	109.669 SF		
10,200.0	6,884.8	4,300.0	4,298.4	60.9	3.8	24.15	-1,382.0	-1,517.3	3,471.0	3,439.4	31.62	109.778		
10,300.0	6,881.9	4,300.0	4,298.4	62.6	3.8	24.15	-1,382.0	-1,517.3	3,525.0	3,493.0	32.04	110.025		
10,400.0	6,878.9	4,300.0	4,298.4	64.3	3.8	24.15	-1,382.0	-1,517.3	3,581.0	3,548.6	32.44	110.399		
10,500.0	6,876.0	4,300.0	4,298.4	66.0	3.8	24.15	-1,382.0	-1,517.3	3,638.9	3,606.0	32.81	110.892		
10,600.0	6,873.1	4,300.0	4,298.4	67.8	3.8	24.15	-1,382.0	-1,517.3	3,698.5	3,665.3	33.17	111.493		
10,700.0	6,870.1	4,300.0	4,298.4	69.5	3.8	24.15	-1,382.0	-1,517.3	3,759.9	3,726.4	33.51	112.196		
10,800.2	6,867.2	4,300.0	4,298.4	71.2	3.8	24.15	-1,382.0	-1,517.3	3,823.0	3,789.2	33.83	112.993		
10,900.0	6,864.3	4,300.0	4,298.4	72.9	3.8	25.73	-1,382.0	-1,517.3	3,886.9	3,852.7	34.15	113.821		
11,000.0	6,861.3	4,300.0	4,298.4	74.7	3.8	27.31	-1,382.0	-1,517.3	3,951.2	3,916.8	34.44	114.738		
11,100.0	6,858.4	4,300.0	4,298.4	76.4	3.8	28.88	-1,382.0	-1,517.3	4,015.8	3,981.1	34.70	115.736		
11,200.0	6,855.4	4,300.0	4,298.4	78.1	3.8	30.43	-1,382.0	-1,517.3	4,080.5	4,045.5	34.93	116.809		
11,300.0	6,852.5	4,300.0	4,298.4	79.9	3.8	31.97	-1,382.0	-1,517.3	4,145.3	4,110.1	35.14	117.950		
11,400.0	6,849.6	4,300.0	4,298.4	81.6	3.8	33.48	-1,382.0	-1,517.3	4,210.0	4,174.7	35.33	119.152		
11,419.2	6,849.0	4,300.0	4,298.4	81.9	3.8	33.76	-1,382.0	-1,517.3	4,222.4	4,187.1	35.36	119.399		
11,454.0	6,848.0	4,300.0	4,298.4	82.5	3.8	33.76	-1,382.0	-1,517.3	4,245.1	4,209.6	35.42	119.855		

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER RANCH 5E-223 - OH - FINAL OH													Offset Site Error:	0.0 usft
Survey Program:		162-MWD											Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	5.2	5.2	0.0	0.0	-87.60	54.7	-1,306.1	1,307.2					
100.0	100.0	109.1	109.1	0.2	0.2	-87.60	54.8	-1,305.9	1,307.1	1,306.8	0.33	3,997.422		
200.0	200.0	221.7	221.7	0.3	0.4	-87.59	55.0	-1,305.2	1,306.5	1,305.8	0.69	1,891.289		
300.0	300.0	329.5	329.5	0.5	0.6	-87.58	55.1	-1,303.3	1,304.7	1,303.7	1.05	1,238.693		
400.0	400.0	438.0	438.0	0.7	0.8	-87.60	54.6	-1,300.9	1,302.5	1,301.1	1.42	919.161		
500.0	500.0	517.8	517.7	0.8	0.9	-87.60	54.6	-1,299.4	1,300.6	1,298.9	1.73	751.346		
542.5	542.5	547.6	547.5	0.9	0.9	-87.58	54.8	-1,299.3	1,300.4	1,298.6	1.86	700.084	CC, ES	
600.0	600.0	584.9	584.8	1.0	1.0	-87.56	55.4	-1,299.5	1,300.9	1,298.8	2.02	642.929		
700.0	700.0	651.3	651.2	1.2	1.1	-87.48	57.4	-1,301.4	1,303.7	1,301.4	2.31	563.276		
800.0	800.0	716.0	715.7	1.4	1.2	-32.70	59.9	-1,304.6	1,307.6	1,305.0	2.60	502.336		
900.0	899.8	787.6	787.1	1.6	1.4	-32.60	63.7	-1,310.0	1,310.9	1,308.0	2.91	450.080		
987.4	986.9	859.7	858.6	1.7	1.5	-32.50	69.0	-1,316.8	1,313.2	1,310.0	3.21	409.053		
1,000.0	999.5	871.1	869.9	1.8	1.6	-32.49	69.9	-1,317.9	1,313.4	1,310.2	3.26	403.406		
1,100.0	1,099.0	960.5	958.6	2.0	1.8	-32.39	77.5	-1,327.0	1,315.7	1,312.0	3.62	363.234		
1,200.0	1,198.4	1,038.0	1,035.3	2.2	2.0	-32.28	84.6	-1,335.3	1,318.6	1,314.6	3.97	332.371		
1,300.0	1,297.9	1,130.0	1,126.1	2.4	2.2	-32.14	93.3	-1,347.0	1,323.3	1,318.9	4.35	303.921		
1,400.0	1,397.4	1,191.6	1,186.7	2.6	2.4	-32.06	99.1	-1,356.3	1,330.1	1,325.5	4.66	285.203		
1,500.0	1,496.9	1,287.6	1,281.2	2.9	2.7	-32.00	106.4	-1,371.8	1,338.3	1,333.3	5.04	265.445		
1,600.0	1,596.4	1,390.9	1,383.0	3.1	3.1	-32.05	111.7	-1,388.4	1,346.2	1,340.8	5.43	247.862		
1,700.0	1,695.9	1,501.2	1,491.8	3.3	3.4	-32.12	116.7	-1,405.7	1,353.7	1,347.8	5.83	232.061		
1,800.0	1,795.4	1,609.1	1,598.4	3.6	3.7	-32.26	120.2	-1,421.9	1,360.4	1,354.2	6.22	218.777		
1,900.0	1,894.9	1,717.0	1,705.2	3.8	4.0	-32.51	120.7	-1,437.5	1,366.4	1,359.8	6.60	207.172		
2,000.0	1,994.4	1,813.9	1,801.1	4.1	4.3	-32.68	122.6	-1,451.3	1,372.4	1,365.4	6.97	196.942		
2,100.0	2,093.9	1,918.4	1,904.4	4.3	4.6	-32.77	126.7	-1,466.2	1,378.5	1,371.1	7.36	187.288		
2,200.0	2,193.4	2,015.7	2,000.7	4.5	4.9	-32.84	130.9	-1,479.6	1,384.0	1,376.3	7.75	178.560		
2,300.0	2,292.9	2,107.1	2,090.9	4.8	5.2	-32.76	138.3	-1,492.8	1,390.4	1,382.2	8.13	170.933		
2,400.0	2,392.4	2,205.9	2,188.3	5.0	5.5	-32.71	145.6	-1,507.2	1,396.9	1,388.4	8.53	163.814		
2,500.0	2,491.9	2,310.9	2,292.0	5.3	5.9	-32.71	152.0	-1,522.6	1,403.4	1,394.5	8.93	157.172		
2,600.0	2,591.4	2,412.1	2,392.0	5.5	6.2	-32.77	156.5	-1,537.0	1,409.5	1,400.2	9.31	151.330		
2,700.0	2,690.9	2,515.9	2,494.7	5.8	6.5	-32.91	159.4	-1,551.9	1,415.5	1,405.8	9.70	145.962		
2,800.0	2,790.4	2,626.0	2,603.7	6.0	6.8	-33.01	163.5	-1,567.0	1,421.1	1,411.0	10.11	140.504		
2,900.0	2,889.9	2,742.8	2,719.4	6.2	7.2	-33.08	168.9	-1,581.7	1,425.4	1,414.9	10.54	135.273		
3,000.0	2,989.4	2,844.1	2,819.9	6.5	7.5	-33.15	173.0	-1,594.0	1,429.4	1,418.4	10.93	130.819		
3,100.0	3,088.9	2,936.6	2,911.7	6.7	7.7	-33.23	176.6	-1,605.2	1,433.2	1,421.9	11.31	126.774		
3,200.0	3,188.4	3,020.8	2,995.0	7.0	8.0	-33.20	182.3	-1,616.4	1,438.4	1,426.7	11.67	123.228		
3,300.0	3,287.9	3,133.5	3,106.4	7.2	8.3	-33.17	189.8	-1,631.0	1,443.2	1,431.2	12.10	119.306		
3,400.0	3,387.4	3,240.6	3,212.5	7.5	8.6	-33.18	196.0	-1,644.4	1,447.6	1,435.1	12.50	115.775		
3,500.0	3,486.9	3,366.6	3,337.5	7.7	9.0	-33.28	200.9	-1,659.0	1,451.0	1,438.1	12.94	112.134		
3,600.0	3,586.4	3,450.1	3,420.4	8.0	9.2	-33.34	204.1	-1,668.1	1,453.7	1,440.4	13.31	109.242		
3,700.0	3,685.9	3,557.4	3,526.9	8.2	9.5	-33.35	210.3	-1,680.6	1,457.2	1,443.5	13.71	106.256		
3,800.0	3,785.4	3,687.5	3,656.2	8.5	9.8	-33.47	214.9	-1,693.7	1,459.0	1,444.9	14.15	103.079		
3,900.0	3,884.9	3,808.5	3,776.7	8.7	10.1	-33.65	217.2	-1,703.8	1,459.1	1,444.5	14.57	100.125		
4,000.0	3,984.4	3,915.7	3,883.7	8.9	10.3	-33.85	218.4	-1,711.7	1,458.1	1,443.2	14.97	97.419		
4,100.0	4,083.9	4,014.7	3,982.4	9.2	10.5	-34.02	219.8	-1,718.9	1,457.1	1,441.7	15.35	94.922		
4,200.0	4,183.4	4,115.4	4,082.9	9.4	10.7	-34.18	221.4	-1,726.2	1,456.1	1,440.4	15.74	92.530		
4,300.0	4,282.9	4,288.2	4,255.3	9.7	11.0	-34.40	225.8	-1,734.6	1,452.8	1,436.6	16.23	89.495		
4,400.0	4,382.4	4,401.4	4,368.5	9.9	11.2	-34.70	224.7	-1,736.2	1,445.9	1,429.3	16.63	86.970		
4,500.0	4,481.9	4,499.8	4,466.9	10.2	11.3	-34.98	223.3	-1,737.6	1,439.1	1,422.1	17.00	84.636		
4,531.4	4,513.1	4,530.2	4,497.3	10.3	11.3	-35.07	222.9	-1,738.0	1,436.9	1,419.8	17.12	83.925		
4,600.0	4,581.4	4,591.7	4,558.8	10.4	11.4	-35.18	222.1	-1,739.0	1,433.1	1,415.8	17.37	82.515		
4,700.0	4,681.3	4,730.0	4,697.0	10.6	11.6	-35.33	221.8	-1,740.0	1,429.0	1,411.2	17.77	80.439		
4,784.9	4,766.1	4,790.3	4,757.4	10.7	11.7	-35.34	222.0	-1,740.0	1,427.2	1,409.2	18.02	79.207		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER RANCH 5E-223 - OH - FINAL OH													Offset Site Error:	0.0 usft
Survey Program: 162-MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
4,800.0	4,781.2	4,811.0	4,778.0	10.7	11.7	-35.34	222.0	-1,740.3	1,427.4	1,409.3	18.08	78.967		
4,818.8	4,800.0	4,815.7	4,782.8	10.8	11.7	-90.00	222.0	-1,740.4	1,427.5	1,409.4	18.12	78.783		
4,900.0	4,881.2	4,896.0	4,863.0	10.9	11.8	-89.98	222.5	-1,741.6	1,428.8	1,410.4	18.38	77.719		
5,000.0	4,981.2	4,999.2	4,966.3	11.0	12.0	-89.95	223.2	-1,743.2	1,430.3	1,411.6	18.71	76.439		
5,100.0	5,081.2	5,097.0	5,064.0	11.1	12.1	-89.95	223.3	-1,744.6	1,431.8	1,412.8	19.04	75.220		
5,200.0	5,181.2	5,197.3	5,164.3	11.3	12.3	-89.95	223.2	-1,746.2	1,433.4	1,414.0	19.36	74.037		
5,300.0	5,281.2	5,303.2	5,270.2	11.4	12.4	-89.98	222.6	-1,747.6	1,434.7	1,415.0	19.69	72.857		
5,400.0	5,381.2	5,403.8	5,370.7	11.6	12.6	-90.01	221.7	-1,748.7	1,435.8	1,415.8	20.02	71.720		
5,500.0	5,481.2	5,500.3	5,467.3	11.7	12.7	-90.02	221.6	-1,749.7	1,436.9	1,416.5	20.35	70.622		
5,600.0	5,581.2	5,608.9	5,575.9	11.8	12.9	-89.98	222.6	-1,751.6	1,438.6	1,417.9	20.69	69.542		
5,700.0	5,681.2	5,748.7	5,715.7	12.0	13.0	-89.97	222.6	-1,749.5	1,436.8	1,415.8	21.06	68.241		
5,800.0	5,781.2	5,848.1	5,815.1	12.1	13.1	-90.00	222.0	-1,747.5	1,434.8	1,413.4	21.38	67.101		
5,900.0	5,881.2	5,938.5	5,905.3	12.3	13.2	-90.04	221.1	-1,746.0	1,433.1	1,411.4	21.70	66.028		
6,000.0	5,981.2	6,053.7	6,020.6	12.4	13.4	-90.09	219.7	-1,744.0	1,431.4	1,409.4	22.05	64.931		
6,100.0	6,081.2	6,151.1	6,117.9	12.6	13.5	-90.15	218.3	-1,741.7	1,429.1	1,406.7	22.37	63.874		
6,200.0	6,181.2	6,244.1	6,210.9	12.7	13.6	-90.19	217.2	-1,739.9	1,427.1	1,404.4	22.70	62.871		
6,269.3	6,250.5	6,385.0	6,351.2	12.8	13.7	-90.54	208.6	-1,733.3	1,423.6	1,400.6	22.95	62.033		
6,300.0	6,281.2	6,411.4	6,377.2	12.9	13.7	89.48	204.5	-1,731.5	1,421.5	1,398.5	23.03	61.721		
6,350.0	6,331.0	6,450.5	6,415.5	12.9	13.7	89.54	197.1	-1,729.1	1,418.5	1,395.3	23.14	61.308		
6,400.0	6,380.5	6,492.2	6,455.9	12.9	13.7	89.59	186.9	-1,726.8	1,415.7	1,392.5	23.21	60.986		
6,450.0	6,429.3	6,532.4	6,493.8	13.0	13.7	89.60	173.8	-1,724.8	1,413.3	1,390.1	23.27	60.742		
6,500.0	6,477.3	6,576.0	6,533.5	13.0	13.7	89.53	155.9	-1,722.9	1,411.1	1,387.8	23.31	60.547		
6,550.0	6,524.1	6,600.5	6,555.1	13.0	13.7	89.53	144.4	-1,722.1	1,409.5	1,386.2	23.33	60.414		
6,600.0	6,569.6	6,624.0	6,575.3	13.0	13.7	89.48	132.4	-1,721.7	1,408.8	1,385.4	23.35	60.343		
6,624.0	6,590.9	6,635.7	6,585.2	13.0	13.7	89.44	126.1	-1,721.7	1,408.8	1,385.4	23.36	60.312		
6,650.0	6,613.5	6,648.7	6,596.0	13.0	13.7	89.38	118.9	-1,721.8	1,409.0	1,385.6	23.37	60.287		
6,700.0	6,655.7	6,680.7	6,622.0	13.0	13.8	89.24	100.2	-1,722.5	1,410.0	1,386.6	23.42	60.207		
6,750.0	6,695.9	6,767.0	6,685.5	13.0	13.9	88.82	41.9	-1,723.1	1,410.4	1,386.8	23.60	59.770		
6,800.0	6,734.0	6,815.0	6,716.6	13.1	14.0	88.52	5.4	-1,722.8	1,410.3	1,386.5	23.78	59.316		
6,803.0	6,736.2	6,815.0	6,716.6	13.1	14.0	88.52	5.4	-1,722.8	1,410.3	1,386.5	23.78	59.301		
6,850.0	6,769.7	6,851.8	6,738.4	13.1	14.1	88.28	-24.3	-1,722.8	1,410.5	1,386.5	23.99	58.789		
6,900.0	6,802.8	6,924.3	6,776.2	13.2	14.4	87.77	-86.1	-1,722.2	1,410.3	1,385.9	24.40	57.811		
6,950.0	6,833.3	6,979.1	6,800.1	13.4	14.6	87.38	-135.3	-1,720.9	1,409.6	1,384.8	24.84	56.751		
7,000.0	6,860.9	7,029.6	6,818.4	13.6	14.9	87.01	-182.3	-1,719.4	1,408.6	1,383.2	25.36	55.550		
7,050.0	6,885.6	7,064.8	6,828.9	13.8	15.2	86.78	-215.9	-1,718.4	1,407.7	1,381.8	25.89	54.370		
7,100.0	6,907.1	7,101.0	6,837.8	14.1	15.4	86.53	-251.0	-1,717.8	1,407.4	1,380.9	26.51	53.086		
7,111.0	6,911.4	7,101.0	6,837.8	14.2	15.4	86.53	-251.0	-1,717.8	1,407.4	1,380.8	26.62	52.866		
7,150.0	6,925.5	7,125.0	6,842.5	14.4	15.6	86.35	-274.5	-1,717.7	1,407.6	1,380.4	27.16	51.831		
7,200.0	6,940.5	7,148.0	6,845.9	14.8	15.8	86.14	-297.3	-1,717.6	1,408.2	1,380.3	27.86	50.541		
7,250.0	6,952.2	7,188.0	6,849.2	15.2	16.2	85.80	-337.2	-1,718.0	1,409.2	1,380.5	28.74	49.028		
7,300.0	6,960.5	7,223.5	6,850.4	15.7	16.5	85.51	-372.6	-1,718.7	1,410.7	1,381.0	29.68	47.525		
7,350.0	6,965.4	7,266.5	6,850.9	16.2	16.9	85.24	-415.6	-1,719.7	1,412.2	1,381.5	30.72	45.974		
7,400.0	6,966.7	7,312.0	6,850.4	16.7	17.4	85.06	-461.1	-1,720.9	1,413.6	1,381.8	31.82	44.424		
7,415.3	6,966.4	7,327.4	6,850.1	16.9	17.6	85.03	-476.5	-1,721.3	1,414.0	1,381.9	32.19	43.933		
7,500.0	6,964.0	7,409.9	6,847.8	17.9	18.5	85.04	-559.0	-1,723.4	1,416.2	1,381.9	34.24	41.354		
7,600.0	6,961.0	7,502.3	6,845.3	19.1	19.7	85.06	-651.3	-1,726.2	1,419.1	1,382.3	36.79	38.571		
7,700.0	6,958.1	7,613.0	6,842.7	20.4	21.1	85.10	-761.9	-1,729.4	1,422.0	1,382.4	39.62	35.890		
7,800.0	6,955.2	7,753.0	6,841.4	21.8	23.0	85.22	-901.9	-1,731.5	1,423.4	1,380.6	42.79	33.262		
7,900.0	6,952.2	7,881.0	6,840.0	23.2	24.8	85.31	-1,029.8	-1,729.6	1,421.8	1,375.8	45.96	30.935		
8,000.0	6,949.3	8,009.7	6,836.4	24.7	26.7	85.30	-1,158.4	-1,726.0	1,419.1	1,369.9	49.20	28.845		
8,100.0	6,946.4	8,098.1	6,834.5	26.2	28.0	85.32	-1,246.6	-1,721.5	1,414.1	1,361.9	52.20	27.092		
8,200.0	6,943.4	8,153.0	6,831.2	27.7	28.9	85.24	-1,301.5	-1,720.4	1,412.3	1,357.3	54.98	25.688		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER RANCH 5E-223 - OH - FINAL OH													Offset Site Error: 0.0 usft
Survey Program: 162-MWD													Offset Well Error: 0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
8,300.0	6,940.5	8,266.1	6,823.2	29.3	30.6	85.05	-1,414.2	-1,719.0	1,411.4	1,353.2	58.24	24.233	
8,396.2	6,937.7	8,344.0	6,819.8	30.8	31.9	85.00	-1,492.1	-1,718.4	1,410.8	1,349.6	61.18	23.061	
8,400.0	6,937.6	8,347.6	6,819.7	30.8	31.9	85.00	-1,495.7	-1,718.4	1,410.8	1,349.5	61.30	23.016	
8,400.0	6,937.6	8,347.7	6,819.7	30.8	31.9	85.00	-1,495.8	-1,718.4	1,410.8	1,349.5	61.30	23.015	
8,500.0	6,934.6	8,406.0	6,817.9	32.4	32.8	85.00	-1,554.1	-1,718.4	1,411.4	1,347.3	64.16	21.997	
8,600.0	6,931.7	8,406.0	6,817.9	34.0	32.8	85.00	-1,554.1	-1,718.4	1,417.9	1,351.6	66.34	21.372	
8,700.0	6,928.8	8,406.0	6,817.9	35.7	32.8	85.00	-1,554.1	-1,718.4	1,431.4	1,363.1	68.25	20.973	
8,800.0	6,925.8	8,406.0	6,817.9	37.3	32.8	85.00	-1,554.1	-1,718.4	1,451.6	1,381.7	69.86	20.779	
8,900.0	6,922.9	8,406.0	6,817.9	39.0	32.8	85.00	-1,554.1	-1,718.4	1,478.3	1,407.2	71.18	20.770 SF	
9,000.0	6,920.0	8,406.0	6,817.9	40.6	32.8	85.00	-1,554.1	-1,718.4	1,511.2	1,439.0	72.21	20.929	
9,100.0	6,917.0	8,406.0	6,817.9	42.3	32.8	85.00	-1,554.1	-1,718.4	1,549.9	1,476.9	72.98	21.239	
9,200.0	6,914.1	8,406.0	6,817.9	43.9	32.8	85.00	-1,554.1	-1,718.4	1,593.9	1,520.4	73.51	21.684	
9,300.0	6,911.2	8,406.0	6,817.9	45.6	32.8	85.00	-1,554.1	-1,718.4	1,642.8	1,569.0	73.83	22.252	
9,400.0	6,908.2	8,406.0	6,817.9	47.3	32.8	85.00	-1,554.1	-1,718.4	1,696.2	1,622.3	73.97	22.931	
9,500.0	6,905.3	8,406.0	6,817.9	49.0	32.8	85.00	-1,554.1	-1,718.4	1,753.7	1,679.8	73.97	23.708	
9,600.0	6,902.4	8,406.0	6,817.9	50.7	32.8	85.00	-1,554.1	-1,718.4	1,814.9	1,741.1	73.85	24.575	
9,700.0	6,899.5	8,406.0	6,817.9	52.4	32.8	85.00	-1,554.1	-1,718.4	1,879.4	1,805.8	73.64	25.523	
9,800.0	6,896.5	8,406.0	6,817.9	54.1	32.8	85.00	-1,554.1	-1,718.4	1,947.0	1,873.6	73.35	26.543	
9,900.0	6,893.6	8,406.0	6,817.9	55.8	32.8	85.00	-1,554.1	-1,718.4	2,017.2	1,944.2	73.01	27.629	
10,000.0	6,890.7	8,406.0	6,817.9	57.5	32.8	85.00	-1,554.1	-1,718.4	2,089.8	2,017.2	72.63	28.774	
10,100.0	6,887.7	8,406.0	6,817.9	59.2	32.8	85.00	-1,554.1	-1,718.4	2,164.7	2,092.4	72.22	29.972	
10,200.0	6,884.8	8,406.0	6,817.9	60.9	32.8	85.00	-1,554.1	-1,718.4	2,241.4	2,169.6	71.80	31.219	
10,300.0	6,881.9	8,406.0	6,817.9	62.6	32.8	85.00	-1,554.1	-1,718.4	2,320.0	2,248.6	71.36	32.510	
10,400.0	6,878.9	8,406.0	6,817.9	64.3	32.8	85.00	-1,554.1	-1,718.4	2,400.2	2,329.2	70.93	33.839	
10,500.0	6,876.0	8,406.0	6,817.9	66.0	32.8	85.00	-1,554.1	-1,718.4	2,481.8	2,411.3	70.49	35.205	
10,600.0	6,873.1	8,406.0	6,817.9	67.8	32.8	85.00	-1,554.1	-1,718.4	2,564.7	2,494.6	70.07	36.603	
10,700.0	6,870.1	8,406.0	6,817.9	69.5	32.8	85.00	-1,554.1	-1,718.4	2,648.7	2,579.1	69.65	38.030	
10,800.2	6,867.2	8,406.0	6,817.9	71.2	32.8	85.00	-1,554.1	-1,718.4	2,734.1	2,664.8	69.24	39.487	
10,900.0	6,864.3	8,406.0	6,817.9	72.9	32.8	85.33	-1,554.1	-1,718.4	2,819.1	2,750.3	68.85	40.943	
11,000.0	6,861.3	8,406.0	6,817.9	74.7	32.8	85.64	-1,554.1	-1,718.4	2,903.5	2,835.0	68.45	42.415	
11,100.0	6,858.4	8,406.0	6,817.9	76.4	32.8	85.92	-1,554.1	-1,718.4	2,987.0	2,918.9	68.04	43.899	
11,200.0	6,855.4	8,406.0	6,817.9	78.1	32.8	86.19	-1,554.1	-1,718.4	3,069.5	3,001.9	67.62	45.397	
11,300.0	6,852.5	8,406.0	6,817.9	79.9	32.8	86.44	-1,554.1	-1,718.4	3,151.1	3,083.9	67.18	46.907	
11,400.0	6,849.6	8,406.0	6,817.9	81.6	32.8	86.67	-1,554.1	-1,718.4	3,231.7	3,165.0	66.73	48.431	
11,419.2	6,849.0	8,406.0	6,817.9	81.9	32.8	86.71	-1,554.1	-1,718.4	3,247.1	3,180.4	66.64	48.728	
11,454.0	6,848.0	8,406.0	6,817.9	82.5	32.8	86.71	-1,554.1	-1,718.4	3,275.0	3,208.5	66.47	49.269	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER RANCH 5E-223 - SIDETRACK - FINAL STK													Offset Site Error: 0.0 usft	
Survey Program: 162-MWD, 7820-MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	5.2	5.2	0.0	0.0	-87.60	54.7	-1,306.1	1,307.2					
100.0	100.0	109.1	109.1	0.2	0.2	-87.60	54.8	-1,305.9	1,307.1	1,306.8	0.33	3,997.422		
200.0	200.0	221.7	221.7	0.3	0.4	-87.59	55.0	-1,305.2	1,306.5	1,305.8	0.69	1,891.289		
300.0	300.0	329.5	329.5	0.5	0.6	-87.58	55.1	-1,303.3	1,304.7	1,303.7	1.05	1,238.693		
400.0	400.0	438.0	438.0	0.7	0.8	-87.60	54.6	-1,300.9	1,302.5	1,301.1	1.42	919.161		
500.0	500.0	517.8	517.7	0.8	0.9	-87.60	54.6	-1,299.4	1,300.6	1,298.9	1.73	751.346		
542.5	542.5	547.6	547.5	0.9	0.9	-87.58	54.8	-1,299.3	1,300.4	1,298.6	1.86	700.084	CC	
600.0	600.0	584.9	584.8	1.0	1.0	-87.56	55.4	-1,299.5	1,300.9	1,298.8	2.02	642.929		
700.0	700.0	651.3	651.2	1.2	1.1	-87.48	57.4	-1,301.4	1,303.7	1,301.4	2.31	563.276		
800.0	800.0	716.0	715.7	1.4	1.2	-32.70	59.9	-1,304.6	1,307.6	1,305.0	2.60	502.336		
900.0	899.8	787.6	787.1	1.6	1.4	-32.60	63.7	-1,310.0	1,310.9	1,308.0	2.91	450.080		
987.4	986.9	859.7	858.6	1.7	1.5	-32.50	69.0	-1,316.8	1,313.2	1,310.0	3.21	409.053		
1,000.0	999.5	871.1	869.9	1.8	1.6	-32.49	69.9	-1,317.9	1,313.4	1,310.2	3.26	403.406		
1,100.0	1,099.0	960.5	958.6	2.0	1.8	-32.39	77.5	-1,327.0	1,315.7	1,312.0	3.62	363.234		
1,200.0	1,198.4	1,038.0	1,035.3	2.2	2.0	-32.28	84.6	-1,335.3	1,318.6	1,314.6	3.97	332.371		
1,300.0	1,297.9	1,130.0	1,126.1	2.4	2.2	-32.14	93.3	-1,347.0	1,323.3	1,318.9	4.35	303.921		
1,400.0	1,397.4	1,191.6	1,186.7	2.6	2.4	-32.06	99.1	-1,356.3	1,330.1	1,325.5	4.66	285.203		
1,500.0	1,496.9	1,287.6	1,281.2	2.9	2.7	-32.00	106.4	-1,371.8	1,338.3	1,333.3	5.04	265.445		
1,600.0	1,596.4	1,390.9	1,383.0	3.1	3.1	-32.05	111.7	-1,388.4	1,346.2	1,340.8	5.43	247.862		
1,700.0	1,695.9	1,501.2	1,491.8	3.3	3.4	-32.12	116.7	-1,405.7	1,353.7	1,347.8	5.83	232.061		
1,800.0	1,795.4	1,609.1	1,598.4	3.6	3.7	-32.26	120.2	-1,421.9	1,360.4	1,354.2	6.22	218.777		
1,900.0	1,894.9	1,717.0	1,705.2	3.8	4.0	-32.51	120.7	-1,437.5	1,366.4	1,359.8	6.60	207.172		
2,000.0	1,994.4	1,813.9	1,801.1	4.1	4.3	-32.68	122.6	-1,451.3	1,372.4	1,365.4	6.97	196.942		
2,100.0	2,093.9	1,918.4	1,904.4	4.3	4.6	-32.77	126.7	-1,466.2	1,378.5	1,371.1	7.36	187.288		
2,200.0	2,193.4	2,015.7	2,000.7	4.5	4.9	-32.84	130.9	-1,479.6	1,384.0	1,376.3	7.75	178.560		
2,300.0	2,292.9	2,107.1	2,090.9	4.8	5.2	-32.76	138.3	-1,492.8	1,390.4	1,382.2	8.13	170.933		
2,400.0	2,392.4	2,205.9	2,188.3	5.0	5.5	-32.71	145.6	-1,507.2	1,396.9	1,388.4	8.53	163.814		
2,500.0	2,491.9	2,310.9	2,292.0	5.3	5.9	-32.71	152.0	-1,522.6	1,403.4	1,394.5	8.93	157.172		
2,600.0	2,591.4	2,412.1	2,392.0	5.5	6.2	-32.77	156.5	-1,537.0	1,409.5	1,400.2	9.31	151.330		
2,700.0	2,690.9	2,515.9	2,494.7	5.8	6.5	-32.91	159.4	-1,551.9	1,415.5	1,405.8	9.70	145.962		
2,800.0	2,790.4	2,626.0	2,603.7	6.0	6.8	-33.01	163.5	-1,567.0	1,421.1	1,411.0	10.11	140.504		
2,900.0	2,889.9	2,742.8	2,719.4	6.2	7.2	-33.08	168.9	-1,581.7	1,425.4	1,414.9	10.54	135.273		
3,000.0	2,989.4	2,844.1	2,819.9	6.5	7.5	-33.15	173.0	-1,594.0	1,429.4	1,418.4	10.93	130.819		
3,100.0	3,088.9	2,936.6	2,911.7	6.7	7.7	-33.23	176.6	-1,605.2	1,433.2	1,421.9	11.31	126.774		
3,200.0	3,188.4	3,020.8	2,995.0	7.0	8.0	-33.20	182.3	-1,616.4	1,438.4	1,426.7	11.67	123.228		
3,300.0	3,287.9	3,133.5	3,106.4	7.2	8.3	-33.17	189.8	-1,631.0	1,443.2	1,431.2	12.10	119.306		
3,400.0	3,387.4	3,240.6	3,212.5	7.5	8.6	-33.18	196.0	-1,644.4	1,447.6	1,435.1	12.50	115.775		
3,500.0	3,486.9	3,366.6	3,337.5	7.7	9.0	-33.28	200.9	-1,659.0	1,451.0	1,438.1	12.94	112.134		
3,600.0	3,586.4	3,450.1	3,420.4	8.0	9.2	-33.34	204.1	-1,668.1	1,453.7	1,440.4	13.31	109.242		
3,700.0	3,685.9	3,557.4	3,526.9	8.2	9.5	-33.35	210.3	-1,680.6	1,457.2	1,443.5	13.71	106.256		
3,800.0	3,785.4	3,687.5	3,656.2	8.5	9.8	-33.47	214.9	-1,693.7	1,459.0	1,444.9	14.15	103.079		
3,900.0	3,884.9	3,808.5	3,776.7	8.7	10.1	-33.65	217.2	-1,703.8	1,459.1	1,444.5	14.57	100.125		
4,000.0	3,984.4	3,915.7	3,883.7	8.9	10.3	-33.85	218.4	-1,711.7	1,458.1	1,443.2	14.97	97.419		
4,100.0	4,083.9	4,014.7	3,982.4	9.2	10.5	-34.02	219.8	-1,718.9	1,457.1	1,441.7	15.35	94.922		
4,200.0	4,183.4	4,115.4	4,082.9	9.4	10.7	-34.18	221.4	-1,726.2	1,456.1	1,440.4	15.74	92.530		
4,300.0	4,282.9	4,288.2	4,255.3	9.7	11.0	-34.40	225.8	-1,734.6	1,452.8	1,436.6	16.23	89.495		
4,400.0	4,382.4	4,401.4	4,368.5	9.9	11.2	-34.70	224.7	-1,736.2	1,445.9	1,429.3	16.63	86.970		
4,500.0	4,481.9	4,499.8	4,466.9	10.2	11.3	-34.98	223.3	-1,737.6	1,439.1	1,422.1	17.00	84.636		
4,531.4	4,513.1	4,530.2	4,497.3	10.3	11.3	-35.07	222.9	-1,738.0	1,436.9	1,419.8	17.12	83.925		
4,600.0	4,581.4	4,591.7	4,558.8	10.4	11.4	-35.18	222.1	-1,739.0	1,433.1	1,415.8	17.37	82.515		
4,700.0	4,681.3	4,730.0	4,697.0	10.6	11.6	-35.33	221.8	-1,740.0	1,429.0	1,411.2	17.77	80.439		
4,784.9	4,766.1	4,790.3	4,757.4	10.7	11.7	-35.34	222.0	-1,740.0	1,427.2	1,409.2	18.02	79.207		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER RANCH 5E-223 - SIDETRACK - FINAL STK												Offset Site Error:	0.0 usft
Survey Program: 162-MWD, 7820-MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
4,800.0	4,781.2	4,811.0	4,778.0	10.7	11.7	-35.34	222.0	-1,740.3	1,427.4	1,409.3	18.08	78.967	
4,818.8	4,800.0	4,815.7	4,782.8	10.8	11.7	-90.00	222.0	-1,740.4	1,427.5	1,409.4	18.12	78.783	
4,900.0	4,881.2	4,896.0	4,863.0	10.9	11.8	-89.98	222.5	-1,741.6	1,428.8	1,410.4	18.38	77.719	
5,000.0	4,981.2	4,999.2	4,966.3	11.0	12.0	-89.95	223.2	-1,743.2	1,430.3	1,411.6	18.71	76.439	
5,100.0	5,081.2	5,097.0	5,064.0	11.1	12.1	-89.95	223.3	-1,744.6	1,431.8	1,412.8	19.04	75.220	
5,200.0	5,181.2	5,197.3	5,164.3	11.3	12.3	-89.95	223.2	-1,746.2	1,433.4	1,414.0	19.36	74.037	
5,300.0	5,281.2	5,303.2	5,270.2	11.4	12.4	-89.98	222.6	-1,747.6	1,434.7	1,415.0	19.69	72.857	
5,400.0	5,381.2	5,403.8	5,370.7	11.6	12.6	-90.01	221.7	-1,748.7	1,435.8	1,415.8	20.02	71.720	
5,500.0	5,481.2	5,500.3	5,467.3	11.7	12.7	-90.02	221.6	-1,749.7	1,436.9	1,416.5	20.35	70.622	
5,600.0	5,581.2	5,608.9	5,575.9	11.8	12.9	-89.98	222.6	-1,751.6	1,438.6	1,417.9	20.69	69.542	
5,700.0	5,681.2	5,748.7	5,715.7	12.0	13.0	-89.97	222.6	-1,749.5	1,436.8	1,415.8	21.06	68.241	
5,800.0	5,781.2	5,848.1	5,815.1	12.1	13.1	-90.00	222.0	-1,747.5	1,434.8	1,413.4	21.38	67.101	
5,900.0	5,881.2	5,938.5	5,905.3	12.3	13.2	-90.04	221.1	-1,746.0	1,433.1	1,411.4	21.70	66.028	
6,000.0	5,981.2	6,053.7	6,020.6	12.4	13.4	-90.09	219.7	-1,744.0	1,431.4	1,409.4	22.05	64.931	
6,100.0	6,081.2	6,151.1	6,117.9	12.6	13.5	-90.15	218.3	-1,741.7	1,429.1	1,406.7	22.37	63.874	
6,200.0	6,181.2	6,244.1	6,210.9	12.7	13.6	-90.19	217.2	-1,739.9	1,427.1	1,404.4	22.70	62.871	
6,269.3	6,250.5	6,385.0	6,351.2	12.8	13.7	-90.54	208.6	-1,733.3	1,423.6	1,400.6	22.95	62.033	
6,300.0	6,281.2	6,411.4	6,377.2	12.9	13.7	89.48	204.5	-1,731.5	1,421.5	1,398.5	23.03	61.721	
6,350.0	6,331.0	6,450.5	6,415.5	12.9	13.7	89.54	197.1	-1,729.1	1,418.5	1,395.3	23.14	61.308	
6,400.0	6,380.5	6,492.2	6,455.9	12.9	13.7	89.59	186.9	-1,726.8	1,415.7	1,392.5	23.21	60.986	
6,450.0	6,429.3	6,532.4	6,493.8	13.0	13.7	89.60	173.8	-1,724.8	1,413.3	1,390.1	23.27	60.742	
6,500.0	6,477.3	6,576.0	6,533.5	13.0	13.7	89.53	155.9	-1,722.9	1,411.1	1,387.8	23.31	60.547	
6,550.0	6,524.1	6,600.5	6,555.1	13.0	13.7	89.53	144.4	-1,722.1	1,409.5	1,386.2	23.33	60.414	
6,600.0	6,569.6	6,624.0	6,575.3	13.0	13.7	89.48	132.4	-1,721.7	1,408.8	1,385.4	23.35	60.343	
6,624.0	6,590.9	6,635.7	6,585.2	13.0	13.7	89.44	126.1	-1,721.7	1,408.8	1,385.4	23.36	60.312	
6,650.0	6,613.5	6,648.7	6,596.0	13.0	13.7	89.38	118.9	-1,721.8	1,409.0	1,385.6	23.37	60.287	
6,700.0	6,655.7	6,680.7	6,622.0	13.0	13.8	89.24	100.2	-1,722.5	1,410.0	1,386.6	23.42	60.207	
6,750.0	6,695.9	6,767.0	6,685.5	13.0	13.9	88.82	41.9	-1,723.1	1,410.4	1,386.8	23.60	59.770	
6,800.0	6,734.0	6,815.0	6,716.6	13.1	14.0	88.52	5.4	-1,722.8	1,410.3	1,386.5	23.78	59.316	
6,803.0	6,736.2	6,815.0	6,716.6	13.1	14.0	88.52	5.4	-1,722.8	1,410.3	1,386.5	23.78	59.301	
6,850.0	6,769.7	6,851.8	6,738.4	13.1	14.1	88.28	-24.3	-1,722.8	1,410.5	1,386.5	23.99	58.789	
6,900.0	6,802.8	6,924.3	6,776.2	13.2	14.4	87.77	-86.1	-1,722.2	1,410.3	1,385.9	24.40	57.811	
6,950.0	6,833.3	6,979.1	6,800.1	13.4	14.6	87.38	-135.3	-1,720.9	1,409.6	1,384.8	24.84	56.751	
7,000.0	6,860.9	7,029.6	6,818.4	13.6	14.9	87.01	-182.3	-1,719.4	1,408.6	1,383.2	25.36	55.550	
7,050.0	6,885.6	7,064.8	6,828.9	13.8	15.2	86.78	-215.9	-1,718.4	1,407.7	1,381.8	25.89	54.370	
7,100.0	6,907.1	7,101.0	6,837.8	14.1	15.4	86.53	-251.0	-1,717.8	1,407.4	1,380.9	26.51	53.086	
7,111.0	6,911.4	7,101.0	6,837.8	14.2	15.4	86.53	-251.0	-1,717.8	1,407.4	1,380.8	26.62	52.866	
7,150.0	6,925.5	7,125.0	6,842.5	14.4	15.6	86.35	-274.5	-1,717.7	1,407.6	1,380.4	27.16	51.831	
7,200.0	6,940.5	7,148.0	6,845.9	14.8	15.8	86.14	-297.3	-1,717.6	1,408.2	1,380.3	27.86	50.541	
7,250.0	6,952.2	7,188.0	6,849.2	15.2	16.2	85.80	-337.2	-1,718.0	1,409.2	1,380.5	28.74	49.028	
7,300.0	6,960.5	7,223.5	6,850.4	15.7	16.5	85.51	-372.6	-1,718.7	1,410.7	1,381.0	29.68	47.525	
7,350.0	6,965.4	7,266.5	6,850.9	16.2	16.9	85.24	-415.6	-1,719.7	1,412.2	1,381.5	30.72	45.974	
7,400.0	6,966.7	7,312.0	6,850.4	16.7	17.4	85.06	-461.1	-1,720.9	1,413.6	1,381.8	31.82	44.424	
7,415.3	6,966.4	7,327.4	6,850.1	16.9	17.6	85.03	-476.5	-1,721.3	1,414.0	1,381.9	32.19	43.933	
7,500.0	6,964.0	7,409.9	6,847.8	17.9	18.5	85.04	-559.0	-1,723.4	1,416.2	1,381.9	34.24	41.354	
7,600.0	6,961.0	7,502.3	6,845.3	19.1	19.7	85.06	-651.3	-1,726.2	1,419.1	1,382.3	36.79	38.571	
7,700.0	6,958.1	7,613.0	6,842.7	20.4	21.1	85.10	-761.9	-1,729.4	1,422.0	1,382.4	39.62	35.890	
7,800.0	6,955.2	7,753.0	6,841.4	21.8	23.0	85.22	-901.9	-1,731.5	1,423.4	1,380.6	42.79	33.262	
7,894.4	6,952.4	7,842.0	6,843.8	23.1	24.3	85.42	-990.8	-1,731.2	1,422.7	1,377.2	45.54	31.240	
7,900.0	6,952.2	7,842.0	6,843.8	23.2	24.3	85.42	-990.8	-1,731.2	1,422.8	1,377.1	45.66	31.157	
8,000.0	6,949.3	7,910.1	6,849.0	24.7	25.3	85.71	-1,058.6	-1,733.1	1,424.5	1,376.1	48.44	29.411	
8,100.0	6,946.4	8,019.1	6,850.5	26.2	26.9	85.91	-1,167.6	-1,735.9	1,426.8	1,375.2	51.61	27.648	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER RANCH 5E-223 - SIDETRACK - FINAL STK													Offset Site Error:	0.0 usft
Survey Program: 162-MWD, 7820-MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Between Centres (usft)	Between Ellipses (usft)				Offset	Well Error	Site Error
8,200.0	6,943.4	8,121.7	6,852.4	27.7	28.5	86.11	-1,270.1	-1,738.3	1,428.8	1,374.1	54.77	26.088		
8,300.0	6,940.5	8,229.9	6,853.9	29.3	30.2	86.30	-1,378.3	-1,740.3	1,430.4	1,372.4	58.03	24.651		
8,400.0	6,937.6	8,338.3	6,853.1	30.8	31.9	86.40	-1,486.7	-1,741.5	1,431.4	1,370.1	61.31	23.345		
8,500.0	6,934.6	8,434.6	6,852.2	32.4	33.4	86.48	-1,583.0	-1,742.4	1,432.2	1,367.6	64.53	22.194		
8,600.0	6,931.7	8,557.8	6,849.3	34.0	35.4	86.51	-1,706.1	-1,742.9	1,432.5	1,364.5	67.99	21.069		
8,700.0	6,928.8	8,667.5	6,843.2	35.7	37.1	86.39	-1,815.6	-1,741.3	1,431.3	1,359.9	71.35	20.060		
8,794.5	6,926.0	8,743.0	6,840.9	37.2	38.4	86.39	-1,891.1	-1,740.8	1,430.7	1,356.3	74.33	19.249		
8,800.0	6,925.8	8,743.0	6,840.9	37.3	38.4	86.39	-1,891.1	-1,740.8	1,430.7	1,356.2	74.46	19.214		
8,900.0	6,922.9	8,827.5	6,840.1	39.0	39.7	86.45	-1,975.6	-1,741.6	1,431.5	1,353.8	77.66	18.433		
9,000.0	6,920.0	8,942.0	6,839.0	40.6	41.6	86.55	-2,090.1	-1,743.0	1,432.6	1,351.4	81.13	17.657		
9,100.0	6,917.0	9,063.6	6,837.4	42.3	43.6	86.63	-2,211.7	-1,742.7	1,432.3	1,347.6	84.67	16.916		
9,200.0	6,914.1	9,176.8	6,836.1	43.9	45.5	86.71	-2,324.9	-1,741.0	1,430.6	1,342.5	88.14	16.230		
9,300.0	6,911.2	9,262.7	6,836.0	45.6	47.0	86.80	-2,410.8	-1,739.6	1,428.9	1,337.5	91.42	15.630		
9,400.0	6,908.2	9,360.4	6,836.2	47.3	48.6	86.92	-2,508.5	-1,739.5	1,428.6	1,333.8	94.80	15.070		
9,500.0	6,905.3	9,483.2	6,837.4	49.0	50.7	87.11	-2,631.2	-1,737.4	1,426.6	1,328.2	98.38	14.501		
9,600.0	6,902.4	9,568.9	6,838.6	50.7	52.1	87.25	-2,716.9	-1,735.8	1,424.5	1,322.8	101.69	14.009		
9,700.0	6,899.5	9,678.9	6,838.7	52.4	54.0	87.39	-2,826.9	-1,734.4	1,423.2	1,318.0	105.18	13.531		
9,800.0	6,896.5	9,776.3	6,838.2	54.1	55.6	87.48	-2,924.3	-1,732.4	1,421.0	1,312.5	108.58	13.087		
9,900.0	6,893.6	9,865.6	6,837.6	55.8	57.1	87.55	-3,013.5	-1,731.1	1,419.5	1,307.5	111.93	12.682		
10,000.0	6,890.7	9,976.2	6,836.7	57.5	59.0	87.65	-3,124.1	-1,729.7	1,418.1	1,302.7	115.44	12.284		
10,100.0	6,887.7	10,061.1	6,835.8	59.2	60.5	87.71	-3,209.0	-1,728.5	1,416.7	1,297.9	118.77	11.928		
10,200.0	6,884.8	10,156.2	6,835.4	60.9	62.1	87.80	-3,304.1	-1,728.0	1,416.1	1,293.9	122.17	11.591		
10,300.0	6,881.9	10,316.2	6,833.9	62.6	64.8	87.93	-3,464.0	-1,723.7	1,413.2	1,287.2	126.00	11.216		
10,400.0	6,878.9	10,416.7	6,831.9	64.3	66.5	87.96	-3,564.4	-1,718.7	1,408.2	1,278.8	129.45	10.878		
10,500.0	6,876.0	10,526.5	6,829.8	66.0	68.4	88.00	-3,674.1	-1,713.5	1,403.4	1,270.5	132.94	10.557		
10,600.0	6,873.1	10,639.8	6,828.0	67.8	70.3	88.05	-3,787.1	-1,706.6	1,397.3	1,260.9	136.43	10.242		
10,700.0	6,870.1	10,705.2	6,827.7	69.5	71.4	88.11	-3,852.4	-1,703.1	1,392.0	1,252.2	139.75	9.961		
10,800.2	6,867.2	10,781.3	6,828.5	71.2	72.8	88.23	-3,928.5	-1,701.2	1,389.2	1,246.2	143.08	9.710		
10,900.0	6,864.3	10,868.2	6,829.7	72.9	74.2	88.44	-4,015.4	-1,699.4	1,385.3	1,238.8	146.45	9.459		
11,000.0	6,861.3	10,937.0	6,830.2	74.7	75.4	88.60	-4,084.2	-1,699.6	1,380.1	1,230.5	149.65	9.222		
11,100.0	6,858.4	11,032.0	6,830.8	76.4	77.1	88.79	-4,179.2	-1,700.6	1,372.3	1,219.2	153.06	8.966		
11,200.0	6,855.4	11,128.0	6,831.3	78.1	78.7	88.97	-4,275.1	-1,702.0	1,361.3	1,204.8	156.48	8.699		
11,300.0	6,852.5	11,205.4	6,831.2	79.9	80.1	89.11	-4,352.6	-1,704.2	1,348.1	1,188.5	159.69	8.442		
11,400.0	6,849.6	11,296.7	6,830.3	81.6	81.7	89.24	-4,443.7	-1,707.4	1,332.2	1,169.2	163.03	8.172		
11,419.2	6,849.0	11,314.2	6,830.0	81.9	82.0	89.25	-4,461.3	-1,708.0	1,328.8	1,165.1	163.67	8.119		
11,454.0	6,848.0	11,338.2	6,829.5	82.5	82.4	89.26	-4,485.2	-1,709.0	1,322.7	1,157.9	164.74	8.029 ES, SF		



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER RANCH 5E-403 - OH - FINAL													Offset Site Error:	0.0 usft
Survey Program: 162-MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
0.0	0.0	0.0	0.0	0.0	0.0	-87.65	54.7	-1,334.0	1,335.1					
100.0	100.0	96.3	96.3	0.2	0.2	-87.66	54.4	-1,334.3	1,335.5	1,335.2	0.31	4,350.399		
200.0	200.0	187.5	187.4	0.3	0.3	-87.69	53.8	-1,335.2	1,336.4	1,335.8	0.63	2,115.264		
300.0	300.0	253.0	253.0	0.5	0.4	-87.71	53.5	-1,336.3	1,338.4	1,337.5	0.92	1,454.143		
400.0	400.0	346.0	345.9	0.7	0.6	-87.72	53.4	-1,340.1	1,342.5	1,341.2	1.26	1,068.122		
500.0	500.0	383.4	383.2	0.8	0.7	-87.72	53.6	-1,343.0	1,349.5	1,348.0	1.49	903.562		
600.0	600.0	438.0	437.4	1.0	0.8	-87.70	54.1	-1,349.0	1,360.4	1,358.6	1.76	773.359		
700.0	700.0	488.9	487.8	1.2	1.0	-87.67	55.1	-1,356.2	1,374.6	1,372.6	2.02	681.681		
800.0	800.0	560.1	557.9	1.4	1.2	-32.81	57.3	-1,368.5	1,390.4	1,388.1	2.31	601.610		
900.0	899.8	669.1	665.2	1.6	1.6	-32.68	61.0	-1,387.3	1,403.4	1,400.7	2.68	522.851		
987.4	986.9	754.4	749.2	1.7	1.9	-32.62	64.7	-1,401.7	1,412.1	1,409.1	3.00	471.145		
1,000.0	999.5	766.0	760.6	1.8	1.9	-32.62	65.2	-1,403.6	1,413.2	1,410.1	3.04	464.688		
1,100.0	1,099.0	862.2	855.3	2.0	2.3	-32.69	69.6	-1,420.2	1,422.3	1,418.9	3.40	417.917		
1,200.0	1,198.4	958.9	950.4	2.2	2.6	-32.72	74.7	-1,437.0	1,431.5	1,427.7	3.77	379.611		
1,300.0	1,297.9	1,056.1	1,045.9	2.4	2.9	-32.76	79.7	-1,454.1	1,440.9	1,436.8	4.14	347.919		
1,400.0	1,397.4	1,158.6	1,146.7	2.6	3.3	-32.83	84.4	-1,472.1	1,450.3	1,445.8	4.52	320.619		
1,500.0	1,496.9	1,258.7	1,245.2	2.9	3.7	-32.91	88.5	-1,489.6	1,459.6	1,454.7	4.90	297.827		
1,600.0	1,596.4	1,358.1	1,343.0	3.1	4.0	-33.00	92.1	-1,506.9	1,468.9	1,463.6	5.28	278.407		
1,700.0	1,695.9	1,506.6	1,489.5	3.3	4.5	-33.19	96.3	-1,531.3	1,477.3	1,471.5	5.75	257.013		
1,800.0	1,795.4	1,618.3	1,600.0	3.6	4.9	-33.26	101.2	-1,546.6	1,482.8	1,476.6	6.16	240.722		
1,900.0	1,894.9	1,724.9	1,705.6	3.8	5.2	-33.31	106.3	-1,560.7	1,487.8	1,481.2	6.56	226.961		
2,000.0	1,994.4	1,820.6	1,800.3	4.1	5.5	-33.40	109.6	-1,572.9	1,492.4	1,485.5	6.93	215.428		
2,100.0	2,093.9	1,904.6	1,883.5	4.3	5.7	-33.48	112.7	-1,584.6	1,498.0	1,490.7	7.28	205.731		
2,200.0	2,193.4	1,987.1	1,965.0	4.5	6.0	-33.50	117.0	-1,596.7	1,504.6	1,496.9	7.63	197.081		
2,300.0	2,292.9	2,059.1	2,035.9	4.8	6.3	-33.54	120.4	-1,608.4	1,512.7	1,504.8	7.96	190.052		
2,400.0	2,392.4	2,158.0	2,133.3	5.0	6.6	-33.63	123.9	-1,625.5	1,521.8	1,513.4	8.34	182.496		
2,500.0	2,491.9	2,258.5	2,232.2	5.3	7.0	-33.77	126.3	-1,642.9	1,530.9	1,522.2	8.72	175.590		
2,600.0	2,591.4	2,358.2	2,330.5	5.5	7.3	-33.93	127.9	-1,659.8	1,539.7	1,530.6	9.10	169.250		
2,700.0	2,690.9	2,433.9	2,404.9	5.8	7.6	-34.05	129.1	-1,673.5	1,549.6	1,540.1	9.42	164.414		
2,800.0	2,790.4	2,546.9	2,516.0	6.0	8.0	-34.26	130.3	-1,694.2	1,559.7	1,549.8	9.83	158.625		
2,900.0	2,889.9	2,650.6	2,618.0	6.2	8.4	-34.41	132.4	-1,712.5	1,569.2	1,559.0	10.23	153.430		
3,000.0	2,989.4	2,776.4	2,741.9	6.5	8.8	-34.51	136.9	-1,734.2	1,578.4	1,567.7	10.68	147.835		
3,100.0	3,088.9	2,883.9	2,848.0	6.7	9.2	-34.55	142.3	-1,750.7	1,585.6	1,574.5	11.09	143.018		
3,200.0	3,188.4	2,981.5	2,944.3	7.0	9.5	-34.58	147.2	-1,765.9	1,593.0	1,581.5	11.47	138.831		
3,300.0	3,287.9	3,082.8	3,044.3	7.2	9.8	-34.63	151.8	-1,781.6	1,600.4	1,588.6	11.87	134.853		
3,400.0	3,387.4	3,169.1	3,129.3	7.5	10.1	-34.65	156.2	-1,795.3	1,608.2	1,595.9	12.24	131.379		
3,500.0	3,486.9	3,270.4	3,229.0	7.7	10.5	-34.61	163.1	-1,811.9	1,616.4	1,603.8	12.64	127.879		
3,600.0	3,586.4	3,370.9	3,327.9	8.0	10.8	-34.57	170.1	-1,828.1	1,624.5	1,611.4	13.05	124.487		
3,700.0	3,685.9	3,474.0	3,429.4	8.2	11.2	-34.50	178.3	-1,844.3	1,632.1	1,618.7	13.46	121.277		
3,800.0	3,785.4	3,547.7	3,502.0	8.5	11.5	-34.46	183.8	-1,856.4	1,640.5	1,626.7	13.80	118.890		
3,900.0	3,884.9	3,651.3	3,603.6	8.7	11.9	-34.41	191.1	-1,874.8	1,650.2	1,636.0	14.21	116.164		
4,000.0	3,984.4	3,761.0	3,711.6	8.9	12.2	-34.42	197.5	-1,893.0	1,658.6	1,644.0	14.62	113.419		
4,100.0	4,083.9	3,856.0	3,805.1	9.2	12.6	-34.41	203.4	-1,909.0	1,667.3	1,652.3	15.02	111.034		
4,200.0	4,183.4	3,903.8	3,851.9	9.4	12.8	-34.40	206.5	-1,917.9	1,677.9	1,662.6	15.29	109.772		
4,300.0	4,282.9	3,963.0	3,909.7	9.7	13.1	-34.40	210.0	-1,930.6	1,691.1	1,675.5	15.58	108.573		
4,400.0	4,382.4	4,063.2	4,007.1	9.9	13.5	-34.40	216.0	-1,952.9	1,705.4	1,689.4	15.97	106.757		
4,500.0	4,481.9	4,172.6	4,113.8	10.2	14.0	-34.47	220.3	-1,976.9	1,719.2	1,702.8	16.39	104.912		
4,531.4	4,513.1	4,205.6	4,146.0	10.3	14.1	-34.50	221.3	-1,984.1	1,723.5	1,707.0	16.51	104.360		
4,600.0	4,581.4	4,388.3	4,325.4	10.4	14.7	-34.81	224.3	-2,018.1	1,731.7	1,714.6	17.04	101.615		
4,700.0	4,681.3	4,563.5	4,499.2	10.6	15.2	-34.94	229.2	-2,039.8	1,738.9	1,721.4	17.55	99.076		
4,800.0	4,781.2	4,715.0	4,649.9	10.7	15.5	-34.97	232.9	-2,054.5	1,747.0	1,729.0	17.97	97.214		
4,818.8	4,800.0	4,735.5	4,670.4	10.8	15.6	-89.63	233.2	-2,056.1	1,748.3	1,730.3	18.03	96.945		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER RANCH 5E-403 - OH - FINAL												Offset Site Error:	0.0 usft
Survey Program: 162-MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
4,900.0	4,881.2	4,810.0	4,744.6	10.9	15.7	-89.60	234.1	-2,062.0	1,754.8	1,736.5	18.29	95.951	
5,000.0	4,981.2	5,043.3	4,977.5	11.0	16.0	-89.67	232.3	-2,072.4	1,759.5	1,740.7	18.78	93.701	
5,100.0	5,081.2	5,141.9	5,076.1	11.1	16.1	-89.69	231.5	-2,072.9	1,760.0	1,740.9	19.10	92.143	
5,200.0	5,181.2	5,238.9	5,173.1	11.3	16.3	-89.71	230.8	-2,073.6	1,760.6	1,741.2	19.42	90.653	
5,300.0	5,281.2	5,338.8	5,273.0	11.4	16.4	-89.74	229.8	-2,074.3	1,761.4	1,741.7	19.75	89.199	
5,400.0	5,381.2	5,503.9	5,438.1	11.6	16.5	-89.80	228.2	-2,072.8	1,760.6	1,740.5	20.13	87.452	
5,500.0	5,481.2	5,604.4	5,538.6	11.7	16.5	-89.82	227.5	-2,069.9	1,757.7	1,737.2	20.46	85.900	
5,600.0	5,581.2	5,707.2	5,641.3	11.8	16.6	-89.83	227.3	-2,066.7	1,754.6	1,733.8	20.79	84.380	
5,700.0	5,681.2	5,802.7	5,736.7	12.0	16.7	-89.83	227.0	-2,063.8	1,751.5	1,730.4	21.12	82.936	
5,800.0	5,781.2	5,899.9	5,834.0	12.1	16.7	-89.87	226.1	-2,061.2	1,748.8	1,727.4	21.45	81.547	
5,900.0	5,881.2	6,004.9	5,938.9	12.3	16.8	-89.90	225.1	-2,058.1	1,745.9	1,724.1	21.78	80.161	
6,000.0	5,981.2	6,101.3	6,035.2	12.4	16.9	-89.93	224.2	-2,055.2	1,742.9	1,720.8	22.11	78.838	
6,100.0	6,081.2	6,182.2	6,116.1	12.6	16.9	-89.95	223.4	-2,053.2	1,740.5	1,718.1	22.42	77.625	
6,200.0	6,181.2	6,256.9	6,190.8	12.7	17.0	-90.00	222.1	-2,052.6	1,739.6	1,716.9	22.73	76.539	
6,269.3	6,250.5	6,328.4	6,262.3	12.8	17.1	-90.04	220.9	-2,052.4	1,739.4	1,716.4	22.96	75.753	
6,300.0	6,281.2	6,358.1	6,292.0	12.9	17.1	-89.98	220.5	-2,052.3	1,739.3	1,716.2	23.05	75.448	
6,350.0	6,331.0	6,405.2	6,339.1	12.9	17.2	90.09	219.9	-2,052.1	1,739.1	1,716.0	23.17	75.052	
6,384.4	6,365.1	6,437.3	6,371.2	12.9	17.2	90.22	219.5	-2,052.1	1,739.1	1,715.9	23.24	74.843	
6,400.0	6,380.5	6,451.8	6,385.6	12.9	17.2	90.30	219.3	-2,052.1	1,739.1	1,715.9	23.26	74.757	
6,450.0	6,429.3	6,497.7	6,431.5	13.0	17.3	90.58	218.4	-2,052.1	1,739.2	1,715.9	23.33	74.547	
6,500.0	6,477.3	6,539.9	6,473.7	13.0	17.3	90.91	217.0	-2,052.3	1,739.6	1,716.2	23.37	74.426	
6,550.0	6,524.1	6,587.7	6,521.2	13.0	17.3	91.25	212.1	-2,052.8	1,740.3	1,716.9	23.40	74.363	
6,600.0	6,569.6	6,687.2	6,617.5	13.0	17.4	91.82	187.2	-2,051.8	1,739.8	1,716.4	23.46	74.172	
6,650.0	6,613.5	6,723.3	6,650.9	13.0	17.4	91.98	173.7	-2,051.5	1,739.5	1,716.0	23.48	74.073	
6,668.7	6,629.6	6,741.5	6,667.4	13.0	17.4	92.04	166.1	-2,051.4	1,739.5	1,716.0	23.50	74.010	
6,700.0	6,655.7	6,777.4	6,699.4	13.0	17.4	92.17	149.8	-2,051.3	1,739.5	1,716.0	23.54	73.888	
6,750.0	6,695.9	6,868.1	6,776.3	13.0	17.4	92.45	101.9	-2,049.9	1,738.9	1,715.2	23.67	73.475	
6,800.0	6,734.0	6,914.7	6,812.5	13.1	17.5	92.57	72.6	-2,049.0	1,738.0	1,714.2	23.81	72.990	
6,850.0	6,769.7	6,957.0	6,843.3	13.1	17.5	92.65	43.6	-2,048.4	1,737.3	1,713.3	24.01	72.366	
6,887.2	6,794.6	6,983.3	6,861.6	13.2	17.6	92.70	24.7	-2,048.2	1,737.2	1,713.0	24.20	71.794	
6,900.0	6,802.8	6,992.3	6,867.8	13.2	17.6	92.71	18.2	-2,048.2	1,737.2	1,712.9	24.26	71.596	
6,950.0	6,833.3	7,034.4	6,895.7	13.4	17.7	92.78	-13.4	-2,048.4	1,737.6	1,713.0	24.60	70.620	
7,000.0	6,860.9	7,101.6	6,935.2	13.6	17.9	92.84	-67.7	-2,048.9	1,738.1	1,713.0	25.09	69.269	
7,050.0	6,885.6	7,274.6	7,014.0	13.8	18.5	92.73	-221.2	-2,043.3	1,735.7	1,709.6	26.06	66.596	
7,100.0	6,907.1	7,304.5	7,023.8	14.1	18.7	92.84	-249.5	-2,041.9	1,732.9	1,706.3	26.67	64.970	
7,150.0	6,925.5	7,339.0	7,033.1	14.4	18.9	92.89	-282.7	-2,040.7	1,730.9	1,703.5	27.38	63.213	
7,200.0	6,940.5	7,396.6	7,042.2	14.8	19.3	92.76	-339.5	-2,038.9	1,729.0	1,700.7	28.30	61.105	
7,250.0	6,952.2	7,429.5	7,043.6	15.2	19.6	92.67	-372.4	-2,038.3	1,727.6	1,698.5	29.18	59.216	
7,300.0	6,960.5	7,469.0	7,044.6	15.7	19.9	92.55	-411.8	-2,037.9	1,726.8	1,696.6	30.15	57.273	
7,350.0	6,965.4	7,503.9	7,044.9	16.2	20.2	92.48	-446.8	-2,037.8	1,726.4	1,695.2	31.16	55.399	
7,353.2	6,965.6	7,506.0	7,044.9	16.2	20.2	92.47	-448.8	-2,037.8	1,726.4	1,695.2	31.23	55.280	
7,400.0	6,966.7	7,536.1	7,044.1	16.7	20.5	92.40	-478.9	-2,038.0	1,726.7	1,694.5	32.21	53.603	
7,415.3	6,966.4	7,545.9	7,043.7	16.9	20.6	92.37	-488.7	-2,038.2	1,726.9	1,694.4	32.54	53.068	
7,500.0	6,964.0	7,607.8	7,039.2	17.9	21.2	92.28	-550.4	-2,039.9	1,729.0	1,694.5	34.48	50.143	
7,600.0	6,961.0	7,696.8	7,036.1	19.1	22.2	92.26	-639.3	-2,042.9	1,732.3	1,695.3	37.01	46.802	
7,700.0	6,958.1	7,793.2	7,036.4	20.4	23.3	92.36	-735.7	-2,046.3	1,736.1	1,696.3	39.73	43.701	
7,800.0	6,955.2	7,889.6	7,035.8	21.8	24.5	92.43	-831.9	-2,049.9	1,739.9	1,697.3	42.55	40.891	
7,900.0	6,952.2	7,989.6	7,035.7	23.2	25.8	92.52	-931.8	-2,054.2	1,744.3	1,698.8	45.49	38.348	
8,000.0	6,949.3	8,169.5	7,038.5	24.7	28.2	92.77	-1,111.7	-2,056.8	1,745.9	1,696.8	49.06	35.590	
8,100.0	6,946.4	8,275.4	7,041.2	26.2	29.7	92.97	-1,217.6	-2,054.9	1,744.3	1,692.2	52.17	33.436	
8,133.6	6,945.4	8,293.7	7,041.7	26.7	29.9	93.00	-1,235.8	-2,054.8	1,744.2	1,691.1	53.12	32.838	
8,200.0	6,943.4	8,342.0	7,042.6	27.7	30.6	93.08	-1,284.1	-2,055.2	1,744.9	1,689.8	55.07	31.686	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER RANCH 5E-403 - OH - FINAL													Offset Site Error: 0.0 usft	
Survey Program: 162-MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
8,300.0	6,940.5	8,559.0	7,048.0	29.3	33.7	93.48	-1,500.8	-2,046.8	1,739.8	1,680.8	58.97	29.505		
8,400.0	6,937.6	8,652.4	7,048.1	30.8	35.1	93.58	-1,594.0	-2,041.4	1,734.2	1,672.1	62.13	27.911		
8,500.0	6,934.6	8,723.0	7,048.0	32.4	36.2	93.66	-1,664.6	-2,038.0	1,729.6	1,664.4	65.20	26.530		
8,600.0	6,931.7	8,782.9	7,047.7	34.0	37.1	93.71	-1,724.4	-2,036.3	1,727.1	1,658.9	68.20	25.322		
8,700.0	6,928.8	8,916.6	7,047.1	35.7	39.2	93.82	-1,858.1	-2,034.5	1,726.2	1,654.5	71.70	24.077		
8,800.0	6,925.8	9,044.3	7,047.1	37.3	41.2	93.96	-1,985.7	-2,028.8	1,721.9	1,646.8	75.15	22.913		
8,900.0	6,922.9	9,105.0	7,047.2	39.0	42.1	94.03	-2,046.3	-2,025.8	1,717.6	1,639.3	78.24	21.953		
9,000.0	6,920.0	9,164.3	7,046.8	40.6	43.1	94.08	-2,105.6	-2,024.2	1,715.5	1,634.2	81.30	21.101		
9,005.0	6,919.8	9,166.5	7,046.7	40.7	43.1	94.08	-2,107.7	-2,024.2	1,715.5	1,634.1	81.44	21.064		
9,100.0	6,917.0	9,217.8	7,045.5	42.3	43.9	94.08	-2,159.0	-2,025.1	1,717.0	1,632.7	84.29	20.370		
9,200.0	6,914.1	9,319.8	7,043.3	43.9	45.6	94.10	-2,261.0	-2,027.4	1,719.3	1,631.6	87.66	19.612		
9,300.0	6,911.2	9,413.2	7,043.0	45.6	47.1	94.18	-2,354.3	-2,029.9	1,722.1	1,631.2	90.97	18.931		
9,400.0	6,908.2	9,537.8	7,041.7	47.3	49.2	94.25	-2,479.0	-2,032.1	1,724.0	1,629.4	94.54	18.235		
9,500.0	6,905.3	9,778.7	7,040.5	49.0	53.1	94.46	-2,719.6	-2,028.1	1,724.3	1,625.5	98.73	17.464		
9,600.0	6,902.4	9,921.5	7,041.9	50.7	55.5	94.67	-2,862.0	-2,016.3	1,716.4	1,614.2	102.22	16.791		
9,700.0	6,899.5	10,002.4	7,039.0	52.4	56.8	94.68	-2,942.5	-2,008.7	1,707.1	1,601.5	105.56	16.171		
9,800.0	6,896.5	10,058.0	7,036.4	54.1	57.7	94.65	-2,997.9	-2,005.0	1,700.2	1,591.4	108.81	15.625		
9,900.0	6,893.6	10,132.8	7,033.4	55.8	59.0	94.64	-3,072.5	-2,001.5	1,695.5	1,583.4	112.11	15.123		
10,000.0	6,890.7	10,249.0	7,034.0	57.5	60.9	94.79	-3,188.6	-1,995.8	1,690.8	1,575.3	115.58	14.629		
10,100.0	6,887.7	10,303.2	7,036.0	59.2	61.8	94.91	-3,242.7	-1,993.2	1,686.9	1,568.2	118.75	14.206		
10,180.5	6,885.4	10,344.0	7,036.9	60.6	62.5	94.99	-3,283.5	-1,992.6	1,686.0	1,564.8	121.23	13.908		
10,200.0	6,884.8	10,344.0	7,036.9	60.9	62.5	94.99	-3,283.5	-1,992.6	1,686.1	1,564.4	121.74	13.850		
10,300.0	6,881.9	10,424.7	7,038.3	62.6	63.9	95.11	-3,364.2	-1,993.3	1,687.5	1,562.5	124.98	13.502		
10,400.0	6,878.9	10,522.9	7,040.0	64.3	65.5	95.26	-3,462.3	-1,995.4	1,690.0	1,561.7	128.37	13.165		
10,500.0	6,876.0	10,584.9	7,040.8	66.0	66.6	95.34	-3,524.3	-1,997.2	1,693.4	1,562.0	131.41	12.886		
10,600.0	6,873.1	10,659.9	7,039.9	67.8	67.9	95.37	-3,599.2	-2,001.6	1,699.2	1,564.7	134.56	12.628		
10,700.0	6,870.1	10,821.0	7,037.7	69.5	70.6	95.44	-3,760.1	-2,007.8	1,703.0	1,564.4	138.62	12.285		
10,800.2	6,867.2	10,883.9	7,037.4	71.2	71.7	95.49	-3,822.9	-2,009.5	1,706.2	1,564.5	141.68	12.042		
10,900.0	6,864.3	10,963.7	7,037.7	72.9	73.1	95.62	-3,902.6	-2,014.0	1,710.3	1,565.4	144.87	11.805		
11,000.0	6,861.3	11,091.9	7,037.7	74.7	75.3	95.80	-4,030.6	-2,020.1	1,710.0	1,561.4	148.60	11.507		
11,100.0	6,858.4	11,217.0	7,037.5	76.4	77.4	96.02	-4,155.7	-2,024.1	1,704.6	1,552.4	152.26	11.196		
11,200.0	6,855.4	11,315.4	7,037.1	78.1	79.1	96.21	-4,254.1	-2,026.6	1,695.2	1,539.5	155.64	10.891		
11,300.0	6,852.5	11,419.9	7,036.0	79.9	80.9	96.42	-4,358.6	-2,029.3	1,682.2	1,523.1	159.07	10.575		
11,400.0	6,849.6	11,599.0	7,034.4	81.6	84.0	96.79	-4,537.5	-2,027.9	1,661.9	1,499.0	162.90	10.202		
11,419.2	6,849.0	11,599.0	7,034.4	81.9	84.0	96.81	-4,537.5	-2,027.9	1,657.5	1,494.0	163.46	10.140		
11,454.0	6,848.0	11,599.0	7,034.4	82.5	84.0	96.81	-4,537.5	-2,027.9	1,649.9	1,485.5	164.43	10.034 SF		

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER RANCH 5J-103 - OH - FINAL													Offset Site Error:	0.0 usft
Survey Program: 157-MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)						
0.0	0.0	4.0	4.0	0.0	0.0	-87.49	54.7	-1,244.7	1,245.9					
100.0	100.0	104.2	104.2	0.2	0.2	-87.47	55.0	-1,244.7	1,245.9	1,245.6	0.32	3,902.194		
200.0	200.0	211.0	211.0	0.3	0.3	-87.43	55.9	-1,244.5	1,245.7	1,245.1	0.67	1,848.679		
300.0	300.0	318.1	318.1	0.5	0.5	-87.36	57.3	-1,243.4	1,244.8	1,243.8	1.04	1,200.520		
400.0	400.0	421.6	421.6	0.7	0.7	-87.29	58.8	-1,242.0	1,243.5	1,242.1	1.39	891.588		
500.0	500.0	521.7	521.7	0.8	0.9	-87.19	60.8	-1,240.5	1,242.1	1,240.3	1.75	710.755		
600.0	600.0	623.1	623.0	1.0	1.1	-87.09	63.0	-1,238.9	1,240.6	1,238.5	2.10	589.864		
700.0	700.0	724.8	724.7	1.2	1.3	-86.97	65.4	-1,237.1	1,239.0	1,236.6	2.46	503.634		
800.0	800.0	832.1	831.9	1.4	1.5	-32.28	67.9	-1,234.9	1,235.6	1,232.8	2.83	437.077		
900.0	899.8	951.7	951.4	1.6	1.7	-32.39	70.5	-1,231.3	1,228.3	1,225.1	3.22	381.757		
987.4	986.9	1,038.3	1,037.9	1.7	1.8	-32.58	72.5	-1,227.8	1,218.7	1,215.2	3.53	345.095		
1,000.0	999.5	1,050.7	1,050.3	1.8	1.9	-32.59	72.8	-1,227.3	1,217.1	1,213.6	3.58	340.275		
1,100.0	1,099.0	1,152.2	1,151.7	2.0	2.1	-32.72	75.4	-1,223.2	1,204.8	1,200.8	3.95	305.312		
1,200.0	1,198.4	1,250.0	1,249.4	2.2	2.3	-32.82	78.5	-1,219.1	1,192.3	1,188.0	4.31	276.403		
1,300.0	1,297.9	1,344.0	1,343.2	2.4	2.4	-32.87	82.3	-1,215.4	1,180.2	1,175.5	4.68	252.196		
1,400.0	1,397.4	1,436.2	1,435.3	2.6	2.6	-32.91	86.4	-1,212.3	1,168.6	1,163.6	5.04	231.648		
1,500.0	1,496.9	1,539.9	1,538.8	2.9	2.8	-32.95	91.1	-1,209.0	1,157.2	1,151.7	5.43	213.002		
1,600.0	1,596.4	1,639.8	1,638.5	3.1	3.0	-32.99	95.6	-1,205.3	1,145.3	1,139.5	5.81	196.991		
1,700.0	1,695.9	1,734.3	1,732.9	3.3	3.2	-33.03	99.8	-1,202.3	1,133.9	1,127.7	6.19	183.222		
1,800.0	1,795.4	1,832.7	1,831.1	3.6	3.4	-33.05	104.6	-1,199.2	1,122.6	1,116.0	6.57	170.809		
1,900.0	1,894.9	1,929.7	1,928.0	3.8	3.6	-33.07	109.5	-1,196.4	1,111.5	1,104.5	6.96	159.798		
2,000.0	1,994.4	2,037.7	2,035.7	4.1	3.8	-33.04	115.9	-1,193.1	1,100.3	1,092.9	7.37	149.322		
2,100.0	2,093.9	2,171.8	2,169.3	4.3	4.1	-33.00	123.6	-1,185.9	1,086.8	1,079.0	7.81	139.194		
2,200.0	2,193.4	2,258.1	2,255.4	4.5	4.3	-33.09	126.4	-1,180.7	1,072.5	1,064.3	8.17	131.306		
2,300.0	2,292.9	2,355.9	2,353.1	4.8	4.5	-33.19	129.6	-1,175.2	1,058.7	1,050.2	8.55	123.896		
2,400.0	2,392.4	2,449.9	2,446.9	5.0	4.7	-33.31	132.4	-1,170.3	1,045.3	1,036.4	8.92	117.242		
2,500.0	2,491.9	2,542.3	2,539.2	5.3	4.9	-33.42	135.5	-1,166.0	1,032.4	1,023.1	9.29	111.157		
2,600.0	2,591.4	2,631.0	2,627.7	5.5	5.0	-33.49	138.9	-1,162.7	1,020.4	1,010.7	9.66	105.678		
2,700.0	2,690.9	2,728.3	2,724.9	5.8	5.2	-33.57	142.8	-1,159.7	1,009.1	999.1	10.04	100.525		
2,800.0	2,790.4	2,839.9	2,836.2	6.0	5.4	-33.61	148.2	-1,155.1	996.8	986.4	10.45	95.431		
2,900.0	2,889.9	2,932.2	2,928.5	6.2	5.6	-33.72	151.2	-1,151.5	984.6	973.8	10.81	91.051		
3,000.0	2,989.4	3,029.4	3,025.6	6.5	5.8	-33.87	154.0	-1,148.2	973.0	961.8	11.19	86.929		
3,100.0	3,088.9	3,140.5	3,136.4	6.7	6.0	-33.96	158.6	-1,143.9	961.0	949.4	11.60	82.831		
3,200.0	3,188.4	3,239.1	3,234.8	7.0	6.2	-33.98	163.7	-1,139.0	947.8	935.8	11.99	79.049		
3,300.0	3,287.9	3,326.8	3,322.4	7.2	6.4	-34.06	167.3	-1,135.5	935.6	923.3	12.36	75.716		
3,400.0	3,387.4	3,433.1	3,428.6	7.5	6.6	-34.22	170.6	-1,132.0	924.2	911.5	12.75	72.483		
3,500.0	3,486.9	3,525.1	3,520.4	7.7	6.8	-34.33	174.0	-1,128.1	911.8	898.6	13.12	69.475		
3,600.0	3,586.4	3,616.2	3,611.4	8.0	7.0	-34.46	176.9	-1,125.9	901.1	887.6	13.50	66.728		
3,700.0	3,685.9	3,708.8	3,703.8	8.2	7.2	-34.44	182.5	-1,123.6	890.6	876.7	13.89	64.111		
3,800.0	3,785.4	3,813.2	3,808.1	8.5	7.4	-34.41	188.8	-1,122.3	881.2	866.9	14.30	61.611		
3,900.0	3,884.9	3,916.3	3,910.7	8.7	7.6	-34.25	196.9	-1,119.2	870.1	855.3	14.72	59.124		
4,000.0	3,984.4	4,043.0	4,037.0	8.9	7.9	-34.10	206.2	-1,114.4	858.2	843.1	15.15	56.640		
4,100.0	4,083.9	4,138.0	4,131.8	9.2	8.1	-34.19	210.1	-1,108.9	844.3	828.8	15.52	54.390		
4,200.0	4,183.4	4,227.6	4,221.2	9.4	8.2	-34.41	211.9	-1,104.7	831.4	815.5	15.89	52.314		
4,300.0	4,282.9	4,309.7	4,303.3	9.7	8.4	-34.61	213.6	-1,102.2	820.1	803.8	16.25	50.457		
4,400.0	4,382.4	4,447.7	4,441.0	9.9	8.7	-34.75	219.5	-1,096.1	807.5	790.8	16.69	48.372		
4,500.0	4,481.9	4,541.1	4,534.1	10.2	8.9	-34.72	225.2	-1,090.1	793.0	775.9	17.08	46.416		
4,531.4	4,513.1	4,572.7	4,565.5	10.3	9.0	-34.73	226.7	-1,088.2	788.5	771.3	17.20	45.831		
4,600.0	4,581.4	4,636.6	4,629.3	10.4	9.1	-34.69	229.0	-1,084.2	779.4	761.9	17.46	44.641		
4,700.0	4,681.3	4,718.3	4,710.8	10.6	9.2	-34.58	231.8	-1,080.6	770.1	752.3	17.80	43.257		
4,800.0	4,781.2	4,807.0	4,799.5	10.7	9.4	-34.41	234.6	-1,078.3	765.6	747.5	18.13	42.234		
4,818.8	4,800.0	4,821.2	4,813.7	10.8	9.4	-89.03	234.9	-1,078.1	765.3	747.1	18.18	42.088		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER RANCH 5J-103 - OH - FINAL												Offset Site Error:	0.0 usft
Survey Program: 157-MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
4,876.4	4,857.6	4,869.2	4,861.6	10.8	9.5	-88.97	235.8	-1,077.8	764.9	746.5	18.36	41.670	
4,900.0	4,881.2	4,888.8	4,881.3	10.9	9.5	-88.95	236.0	-1,077.8	765.0	746.5	18.43	41.514	
5,000.0	4,981.2	4,981.6	4,974.0	11.0	9.7	-88.94	236.2	-1,078.8	766.1	747.3	18.74	40.889	
5,100.0	5,081.2	5,083.6	5,076.0	11.1	9.8	-89.01	235.2	-1,080.3	767.5	748.4	19.06	40.272	
5,200.0	5,181.2	5,188.7	5,181.1	11.3	10.0	-89.13	233.6	-1,081.2	768.3	749.0	19.38	39.642	
5,300.0	5,281.2	5,291.6	5,283.9	11.4	10.1	-89.32	231.1	-1,081.6	768.7	749.0	19.70	39.021	
5,400.0	5,381.2	5,396.5	5,388.9	11.6	10.3	-89.53	228.3	-1,081.6	768.6	748.6	20.03	38.382	
5,500.0	5,481.2	5,502.5	5,494.8	11.7	10.4	-89.65	226.7	-1,080.5	767.5	747.2	20.36	37.701	
5,600.0	5,581.2	5,596.6	5,589.0	11.8	10.6	-89.68	226.2	-1,079.6	766.6	745.9	20.68	37.071	
5,644.2	5,625.4	5,637.1	5,629.4	11.9	10.7	-89.69	226.2	-1,079.5	766.5	745.7	20.82	36.816	
5,700.0	5,681.2	5,690.2	5,682.5	12.0	10.7	-89.69	226.2	-1,079.6	766.6	745.6	21.00	36.506	
5,800.0	5,781.2	5,790.4	5,782.7	12.1	10.9	-89.65	226.7	-1,080.0	767.0	745.7	21.33	35.952	
5,900.0	5,881.2	5,895.0	5,887.3	12.3	11.1	-89.57	227.7	-1,080.2	767.2	745.5	21.67	35.396	
6,000.0	5,981.2	5,996.7	5,989.0	12.4	11.3	-89.53	228.3	-1,079.4	766.5	744.4	22.01	34.825	
6,100.0	6,081.2	6,128.7	6,120.9	12.6	11.4	-89.80	224.7	-1,077.8	765.6	743.3	22.35	34.262	
6,200.0	6,181.2	6,233.9	6,224.5	12.7	11.6	-91.07	207.8	-1,072.4	760.5	737.9	22.63	33.614	
6,269.3	6,250.5	6,286.0	6,275.1	12.8	11.6	-92.01	195.5	-1,070.1	757.8	735.0	22.82	33.212	
6,300.0	6,281.2	6,308.6	6,296.8	12.9	11.6	87.61	189.3	-1,069.4	757.1	734.2	22.89	33.079	
6,350.0	6,331.0	6,347.5	6,333.7	12.9	11.6	86.95	177.1	-1,068.5	756.6	733.6	22.98	32.923	
6,367.5	6,348.4	6,361.1	6,346.5	12.9	11.7	86.72	172.4	-1,068.3	756.6	733.6	23.01	32.886	
6,400.0	6,380.5	6,387.2	6,370.8	12.9	11.7	86.30	163.0	-1,068.1	756.7	733.6	23.05	32.828	
6,450.0	6,429.3	6,432.7	6,412.8	13.0	11.7	85.65	145.3	-1,067.9	757.1	734.0	23.11	32.757	
6,500.0	6,477.3	6,488.0	6,462.9	13.0	11.8	85.03	122.2	-1,067.3	757.1	734.0	23.19	32.652	
6,550.0	6,524.1	6,536.4	6,505.8	13.0	11.8	84.59	99.7	-1,066.6	757.0	733.7	23.25	32.558	
6,600.0	6,569.6	6,602.8	6,582.2	13.0	11.9	84.01	64.7	-1,064.4	755.9	732.6	23.38	32.331	
6,650.0	6,613.5	6,654.9	6,604.0	13.0	12.0	83.61	33.8	-1,061.4	753.8	730.3	23.50	32.075	
6,700.0	6,655.7	6,716.0	6,649.8	13.0	12.2	83.09	-6.3	-1,057.1	751.2	727.5	23.71	31.686	
6,750.0	6,695.9	6,790.0	6,700.4	13.0	12.5	82.36	-59.6	-1,048.3	746.0	722.0	24.07	30.991	
6,800.0	6,734.0	6,823.4	6,721.0	13.1	12.7	82.22	-85.6	-1,044.1	741.0	716.8	24.25	30.556	
6,850.0	6,769.7	6,858.0	6,740.4	13.1	12.9	82.02	-113.9	-1,040.5	737.0	712.5	24.48	30.110	
6,900.0	6,802.8	6,916.4	6,768.5	13.2	13.3	81.32	-164.6	-1,033.7	732.7	707.7	24.98	29.335	
6,950.0	6,833.3	6,954.0	6,783.2	13.4	13.6	80.92	-198.8	-1,028.4	727.6	702.2	25.36	28.691	
7,000.0	6,860.9	6,991.4	6,795.0	13.6	13.9	80.45	-233.9	-1,023.3	722.9	697.1	25.81	28.006	
7,050.0	6,885.6	7,030.9	6,804.2	13.8	14.3	79.86	-272.0	-1,018.4	718.9	692.5	26.35	27.281	
7,100.0	6,907.1	7,068.0	6,809.8	14.1	14.6	79.26	-308.4	-1,013.7	715.0	688.1	26.93	26.553	
7,150.0	6,925.5	7,100.8	6,812.3	14.4	15.0	78.69	-340.8	-1,009.7	711.8	684.2	27.52	25.867	
7,200.0	6,940.5	7,153.4	6,813.0	14.8	15.6	77.65	-393.1	-1,003.3	708.6	680.2	28.39	24.961	
7,250.0	6,952.2	7,202.1	6,813.1	15.2	16.1	76.96	-441.3	-996.9	704.6	675.3	29.29	24.059	
7,300.0	6,960.5	7,238.5	6,813.1	15.7	16.6	76.73	-477.4	-992.5	700.4	670.3	30.13	23.248	
7,350.0	6,965.4	7,274.8	6,812.9	16.2	17.0	76.67	-513.5	-988.7	696.5	665.4	31.03	22.445	
7,400.0	6,966.7	7,311.7	6,812.5	16.7	17.5	76.80	-550.3	-985.5	692.7	660.7	32.01	21.642	
7,415.3	6,966.4	7,323.3	6,812.4	16.9	17.6	76.87	-561.8	-984.6	691.5	659.2	32.33	21.393	
7,500.0	6,964.0	7,395.0	6,811.1	17.9	18.5	76.86	-633.4	-980.6	686.6	652.4	34.23	20.056	
7,600.0	6,961.0	7,464.1	6,809.7	19.1	19.4	76.89	-702.5	-978.9	683.8	647.3	36.43	18.767	
7,700.0	6,958.1	7,558.3	6,807.6	20.4	20.7	76.94	-796.7	-978.9	683.6	644.5	39.06	17.500	
7,800.0	6,955.2	7,657.2	6,804.6	21.8	22.1	76.93	-895.6	-978.6	683.3	641.5	41.84	16.331	
7,814.8	6,954.7	7,671.6	6,804.4	22.0	22.3	76.94	-909.9	-978.7	683.3	641.1	42.26	16.170 CC	
7,900.0	6,952.2	7,746.3	6,803.5	23.2	23.4	77.07	-984.6	-979.5	683.9	639.4	44.59	15.338	
8,000.0	6,949.3	7,843.9	6,803.1	24.7	24.9	77.31	-1,082.2	-982.1	686.0	638.4	47.55	14.425	
8,100.0	6,946.4	7,944.3	6,802.3	26.2	26.4	77.53	-1,182.5	-984.4	687.8	637.1	50.61	13.589	
8,200.0	6,943.4	8,050.2	6,802.7	27.7	28.1	77.86	-1,288.4	-986.8	689.3	635.5	53.83	12.805	
8,300.0	6,940.5	8,148.5	6,801.3	29.3	29.6	78.00	-1,386.7	-988.0	690.1	633.2	56.94	12.120	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER RANCH 5J-103 - OH - FINAL												Offset Site Error:	0.0 usft
Survey Program: 157-MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
8,400.0	6,937.6	8,232.1	6,798.5	30.8	30.9	78.00	-1,470.3	-989.7	692.3	632.5	59.82	11.572 ES	
8,500.0	6,934.6	8,311.8	6,795.4	32.4	32.2	78.01	-1,549.7	-993.8	697.5	634.9	62.63	11.137	
8,600.0	6,931.7	8,438.0	6,789.8	34.0	34.3	77.98	-1,675.6	-1,001.3	704.0	637.7	66.30	10.618	
8,700.0	6,928.8	8,438.0	6,789.8	35.7	34.3	77.98	-1,675.6	-1,001.3	713.8	646.5	67.28	10.609 SF	
8,800.0	6,925.8	8,438.0	6,789.8	37.3	34.3	77.98	-1,675.6	-1,001.3	737.1	669.9	67.24	10.962	
8,900.0	6,922.9	8,438.0	6,789.8	39.0	34.3	77.98	-1,675.6	-1,001.3	772.8	706.5	66.37	11.644	
9,000.0	6,920.0	8,438.0	6,789.8	40.6	34.3	77.98	-1,675.6	-1,001.3	819.3	754.3	64.93	12.617	
9,100.0	6,917.0	8,438.0	6,789.8	42.3	34.3	77.98	-1,675.6	-1,001.3	874.7	811.5	63.18	13.845	
9,200.0	6,914.1	8,438.0	6,789.8	43.9	34.3	77.98	-1,675.6	-1,001.3	937.5	876.2	61.31	15.291	
9,300.0	6,911.2	8,438.0	6,789.8	45.6	34.3	77.98	-1,675.6	-1,001.3	1,006.4	946.9	59.47	16.922	
9,400.0	6,908.2	8,438.0	6,789.8	47.3	34.3	77.98	-1,675.6	-1,001.3	1,080.2	1,022.4	57.74	18.708	
9,500.0	6,905.3	8,438.0	6,789.8	49.0	34.3	77.98	-1,675.6	-1,001.3	1,157.9	1,101.7	56.15	20.621	
9,600.0	6,902.4	8,438.0	6,789.8	50.7	34.3	77.98	-1,675.6	-1,001.3	1,238.8	1,184.1	54.72	22.637	
9,700.0	6,899.5	8,438.0	6,789.8	52.4	34.3	77.98	-1,675.6	-1,001.3	1,322.3	1,268.8	53.45	24.738	
9,800.0	6,896.5	8,438.0	6,789.8	54.1	34.3	77.98	-1,675.6	-1,001.3	1,408.0	1,355.6	52.33	26.905	
9,900.0	6,893.6	8,438.0	6,789.8	55.8	34.3	77.98	-1,675.6	-1,001.3	1,495.4	1,444.1	51.34	29.125	
10,000.0	6,890.7	8,438.0	6,789.8	57.5	34.3	77.98	-1,675.6	-1,001.3	1,584.4	1,533.9	50.48	31.386	
10,100.0	6,887.7	8,438.0	6,789.8	59.2	34.3	77.98	-1,675.6	-1,001.3	1,674.5	1,624.8	49.72	33.678	
10,200.0	6,884.8	8,438.0	6,789.8	60.9	34.3	77.98	-1,675.6	-1,001.3	1,765.8	1,716.7	49.06	35.993	
10,300.0	6,881.9	8,438.0	6,789.8	62.6	34.3	77.98	-1,675.6	-1,001.3	1,857.9	1,809.4	48.48	38.326	
10,400.0	6,878.9	8,438.0	6,789.8	64.3	34.3	77.98	-1,675.6	-1,001.3	1,950.8	1,902.9	47.97	40.669	
10,500.0	6,876.0	8,438.0	6,789.8	66.0	34.3	77.98	-1,675.6	-1,001.3	2,044.4	1,996.9	47.52	43.021	
10,600.0	6,873.1	8,438.0	6,789.8	67.8	34.3	77.98	-1,675.6	-1,001.3	2,138.6	2,091.5	47.13	45.376	
10,700.0	6,870.1	8,438.0	6,789.8	69.5	34.3	77.98	-1,675.6	-1,001.3	2,233.3	2,186.5	46.79	47.732	
10,800.2	6,867.2	8,438.0	6,789.8	71.2	34.3	77.98	-1,675.6	-1,001.3	2,328.6	2,282.1	46.49	50.092	
10,900.0	6,864.3	8,438.0	6,789.8	72.9	34.3	79.24	-1,675.6	-1,001.3	2,423.4	2,377.1	46.23	52.424	
11,000.0	6,861.3	8,438.0	6,789.8	74.7	34.3	80.31	-1,675.6	-1,001.3	2,517.7	2,471.7	45.96	54.775	
11,100.0	6,858.4	8,438.0	6,789.8	76.4	34.3	81.23	-1,675.6	-1,001.3	2,611.3	2,565.6	45.70	57.138	
11,200.0	6,855.4	8,438.0	6,789.8	78.1	34.3	82.03	-1,675.6	-1,001.3	2,704.1	2,658.6	45.44	59.510	
11,300.0	6,852.5	8,438.0	6,789.8	79.9	34.3	82.73	-1,675.6	-1,001.3	2,796.1	2,750.9	45.18	61.885	
11,400.0	6,849.6	8,438.0	6,789.8	81.6	34.3	83.35	-1,675.6	-1,001.3	2,887.3	2,842.3	44.93	64.260	
11,419.2	6,849.0	8,438.0	6,789.8	81.9	34.3	83.46	-1,675.6	-1,001.3	2,904.7	2,859.8	44.88	64.721	
11,454.0	6,848.0	8,438.0	6,789.8	82.5	34.3	83.46	-1,675.6	-1,001.3	2,936.3	2,891.5	44.79	65.558	

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER RANCH 5J-203 - OH - FINAL													Offset Site Error:	0.0 usft
Survey Program: 155-MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	0.00	47.4	0.0	47.4					
100.0	100.0	99.8	99.8	0.2	0.2	-0.17	47.6	-0.1	47.6	47.3	0.31	152.829 ES		
200.0	200.0	199.2	199.2	0.3	0.3	-0.94	48.5	-0.8	48.5	47.8	0.65	74.180		
300.0	300.0	298.7	298.6	0.5	0.5	-4.35	50.7	-3.9	50.8	49.8	1.01	50.279		
400.0	400.0	397.9	397.5	0.7	0.7	-10.77	53.3	-10.1	54.3	52.9	1.39	39.188		
500.0	500.0	496.8	495.9	0.8	1.0	-20.46	56.2	-21.0	60.1	58.3	1.78	33.762		
600.0	600.0	596.0	594.0	1.0	1.3	-30.97	58.1	-34.9	68.1	65.9	2.16	31.458		
700.0	700.0	694.8	691.8	1.2	1.6	-39.05	60.0	-48.7	77.7	75.2	2.53	30.763		
800.0	800.0	793.3	789.3	1.4	1.9	9.57	62.3	-62.8	87.4	84.5	2.88	30.325		
900.0	899.8	891.5	886.3	1.6	2.2	4.58	64.7	-78.1	95.4	92.2	3.23	29.546		
987.4	986.9	977.6	971.1	1.7	2.5	0.69	67.1	-92.5	101.1	97.5	3.52	28.673		
1,000.0	999.5	990.0	983.4	1.8	2.5	0.16	67.4	-94.6	101.8	98.2	3.57	28.539		
1,100.0	1,099.0	1,094.0	1,086.1	2.0	2.8	-3.67	70.2	-110.8	106.3	102.4	3.91	27.187		
1,200.0	1,198.4	1,194.2	1,185.4	2.2	3.1	-6.60	72.2	-123.4	108.2	104.0	4.24	25.500		
1,300.0	1,297.9	1,294.5	1,284.9	2.4	3.4	-9.69	73.7	-136.0	110.2	105.7	4.58	24.087		
1,400.0	1,397.4	1,394.1	1,383.8	2.6	3.7	-11.65	76.9	-147.7	112.4	107.5	4.90	22.928		
1,500.0	1,496.9	1,493.6	1,482.5	2.9	3.9	-13.08	81.0	-159.2	114.9	109.6	5.24	21.914		
1,600.0	1,596.4	1,592.3	1,580.4	3.1	4.2	-14.37	85.6	-171.5	118.5	112.9	5.58	21.228		
1,700.0	1,695.9	1,693.2	1,680.3	3.3	4.5	-15.92	89.6	-184.2	122.1	116.1	5.93	20.578		
1,800.0	1,795.4	1,794.1	1,780.5	3.6	4.8	-17.72	92.7	-196.3	124.8	118.5	6.29	19.845		
1,900.0	1,894.9	1,892.9	1,878.5	3.8	5.1	-19.38	95.6	-207.9	127.4	120.8	6.64	19.189		
2,000.0	1,994.4	1,992.0	1,976.7	4.1	5.4	-20.26	100.5	-220.3	131.5	124.5	7.00	18.783		
2,100.0	2,093.9	2,092.3	2,076.2	4.3	5.7	-21.73	104.0	-233.2	135.4	128.1	7.37	18.378		
2,200.0	2,193.4	2,193.2	2,176.2	4.5	5.9	-23.84	105.7	-246.1	139.0	131.3	7.75	17.928		
2,300.0	2,292.9	2,290.4	2,272.5	4.8	6.2	-25.75	107.4	-258.7	143.1	134.9	8.14	17.583		
2,400.0	2,392.4	2,390.6	2,371.7	5.0	6.5	-27.33	110.0	-272.8	148.4	139.9	8.53	17.393		
2,500.0	2,491.9	2,491.9	2,472.1	5.3	6.8	-29.50	110.8	-286.4	153.1	144.1	8.95	17.099		
2,600.0	2,591.4	2,592.9	2,572.3	5.5	7.1	-32.12	109.9	-298.9	156.8	147.4	9.40	16.689		
2,700.0	2,690.9	2,688.6	2,667.1	5.8	7.4	-34.10	110.1	-312.0	162.1	152.3	9.83	16.496		
2,800.0	2,790.4	2,787.3	2,764.7	6.0	7.7	-34.88	113.6	-326.7	168.9	158.6	10.24	16.491		
2,900.0	2,889.9	2,886.2	2,862.3	6.2	8.0	-35.34	118.0	-342.0	176.2	165.6	10.64	16.555		
3,000.0	2,989.4	2,986.8	2,961.5	6.5	8.4	-35.96	121.8	-357.8	183.8	172.8	11.07	16.612		
3,100.0	3,088.9	3,090.1	3,063.6	6.7	8.7	-36.22	126.8	-372.5	189.9	178.4	11.49	16.534		
3,200.0	3,188.4	3,192.5	3,165.2	7.0	9.0	-36.81	130.7	-385.5	194.5	182.6	11.91	16.327		
3,300.0	3,287.9	3,294.0	3,265.9	7.2	9.2	-37.61	133.7	-397.2	198.0	185.6	12.36	16.018		
3,400.0	3,387.4	3,392.5	3,363.6	7.5	9.5	-37.85	138.4	-408.5	201.3	188.5	12.77	15.761		
3,500.0	3,486.9	3,490.5	3,460.8	7.7	9.8	-37.88	143.8	-420.9	205.8	192.6	13.17	15.622		
3,600.0	3,586.4	3,586.9	3,556.0	8.0	10.1	-37.94	148.9	-433.9	211.2	197.7	13.56	15.574		
3,700.0	3,685.9	3,686.5	3,654.5	8.2	10.4	-38.27	153.1	-448.9	218.2	204.2	13.98	15.602		
3,800.0	3,785.4	3,785.6	3,752.5	8.5	10.8	-38.75	156.6	-463.3	224.7	210.3	14.42	15.586		
3,900.0	3,884.9	3,884.7	3,850.4	8.7	11.1	-38.98	161.0	-478.3	231.8	216.9	14.83	15.625		
4,000.0	3,984.4	3,985.9	3,950.3	8.9	11.4	-39.32	164.9	-493.4	238.7	223.4	15.27	15.636		
4,100.0	4,083.9	4,091.1	4,054.5	9.2	11.7	-39.96	167.9	-507.6	244.3	228.5	15.73	15.526		
4,200.0	4,183.4	4,190.0	4,152.6	9.4	12.0	-40.48	171.0	-520.1	249.0	232.8	16.18	15.384		
4,300.0	4,282.9	4,282.7	4,244.1	9.7	12.3	-40.39	176.2	-533.5	255.3	238.7	16.57	15.405		
4,400.0	4,382.4	4,386.5	4,346.5	9.9	12.6	-40.16	182.6	-549.2	262.2	245.2	16.98	15.444		
4,500.0	4,481.9	4,489.4	4,448.4	10.2	13.0	-40.37	187.1	-563.1	267.7	250.3	17.42	15.370		
4,531.4	4,513.1	4,521.6	4,480.3	10.3	13.1	-40.39	188.7	-567.2	269.2	251.6	17.56	15.332		
4,600.0	4,581.4	4,591.1	4,549.1	10.4	13.3	-40.11	193.5	-576.0	272.8	254.9	17.80	15.319		
4,700.0	4,681.3	4,690.1	4,647.1	10.6	13.5	-39.58	199.3	-588.5	280.4	262.3	18.10	15.487		
4,800.0	4,781.2	4,788.5	4,744.7	10.7	13.8	-39.37	201.6	-600.5	290.6	272.2	18.39	15.798		
4,818.8	4,800.0	4,805.7	4,761.7	10.8	13.9	-94.00	201.7	-602.7	293.0	274.5	18.44	15.885		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER RANCH 5J-203 - OH - FINAL												Offset Site Error:	0.0 usft
Survey Program: 155-MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
4,900.0	4,881.2	4,880.9	4,836.2	10.9	14.1	-93.78	202.1	-613.4	304.4	285.7	18.66	16.312	
5,000.0	4,981.2	4,979.0	4,933.1	11.0	14.4	-93.32	203.7	-628.4	319.6	300.6	18.94	16.872	
5,100.0	5,081.2	5,080.6	5,033.6	11.1	14.7	-92.97	204.9	-643.0	333.9	314.6	19.24	17.350	
5,200.0	5,181.2	5,174.7	5,126.7	11.3	15.0	-92.78	205.3	-657.1	348.8	329.2	19.53	17.860	
5,300.0	5,281.2	5,272.7	5,223.4	11.4	15.4	-92.54	206.0	-673.0	365.0	345.2	19.83	18.407	
5,400.0	5,381.2	5,377.4	5,327.0	11.6	15.7	-92.29	207.0	-688.4	379.6	359.4	20.16	18.825	
5,500.0	5,481.2	5,480.5	5,429.0	11.7	16.0	-91.86	209.3	-703.1	393.8	373.3	20.47	19.234	
5,600.0	5,581.2	5,586.2	5,533.9	11.8	16.3	-91.51	211.4	-716.1	406.0	385.2	20.80	19.517	
5,700.0	5,681.2	5,688.8	5,635.8	12.0	16.5	-91.06	214.3	-727.7	417.3	396.2	21.10	19.772	
5,800.0	5,781.2	5,812.2	5,758.7	12.1	16.8	-90.69	216.9	-738.4	426.0	404.6	21.45	19.857	
5,900.0	5,881.2	5,912.8	5,859.1	12.3	17.0	-90.36	219.3	-743.7	431.3	409.5	21.76	19.819	
6,000.0	5,981.2	6,021.4	5,967.6	12.4	17.1	-90.14	220.9	-747.9	435.2	413.1	22.08	19.708	
6,100.0	6,081.2	6,125.0	6,071.1	12.6	17.3	-89.98	222.2	-751.4	438.5	416.1	22.40	19.578	
6,200.0	6,181.2	6,242.4	6,188.5	12.7	17.4	-90.28	219.9	-751.0	438.1	415.4	22.73	19.274	
6,269.3	6,250.5	6,311.0	6,257.1	12.8	17.4	-90.47	218.4	-749.8	436.8	413.9	22.97	19.017	
6,300.0	6,281.2	6,337.0	6,283.0	12.9	17.4	89.48	217.3	-749.5	436.5	413.4	23.07	18.919	
6,329.0	6,310.2	6,363.9	6,309.8	12.9	17.5	89.45	215.3	-749.3	436.4	413.2	23.14	18.859	
6,350.0	6,331.0	6,384.0	6,329.8	12.9	17.5	89.42	213.2	-749.4	436.4	413.2	23.19	18.824	
6,400.0	6,380.5	6,420.5	6,365.9	12.9	17.5	89.39	208.1	-750.1	437.4	414.1	23.25	18.808	
6,450.0	6,429.3	6,468.6	6,413.3	13.0	17.6	89.49	199.4	-751.9	439.2	415.9	23.29	18.855	
6,500.0	6,477.3	6,526.0	6,469.0	13.0	17.6	89.74	185.9	-753.5	440.6	417.3	23.32	18.891	
6,550.0	6,524.1	6,579.8	6,519.9	13.0	17.7	89.90	168.6	-754.2	441.3	417.9	23.35	18.901	
6,600.0	6,569.6	6,628.7	6,565.2	13.0	17.7	90.10	150.0	-754.8	441.8	418.4	23.37	18.908	
6,650.0	6,613.5	6,679.7	6,611.7	13.0	17.7	90.55	129.2	-755.4	442.4	419.0	23.40	18.911	
6,700.0	6,655.7	6,728.3	6,655.5	13.0	17.8	91.24	108.2	-755.5	442.7	419.2	23.45	18.880	
6,750.0	6,695.9	6,765.0	6,687.9	13.0	17.8	91.82	91.0	-757.1	444.8	421.3	23.55	18.891	
6,800.0	6,734.0	6,801.0	6,718.9	13.1	17.9	92.36	72.9	-759.7	448.7	424.9	23.73	18.904	
6,850.0	6,769.7	6,867.5	6,774.0	13.1	18.0	93.61	36.0	-763.8	452.3	428.3	23.97	18.867	
6,900.0	6,802.8	6,937.7	6,828.4	13.2	18.1	94.90	-8.3	-765.0	453.7	429.5	24.24	18.716	
6,950.0	6,833.3	7,009.8	6,878.8	13.4	18.3	96.02	-59.8	-763.9	453.5	429.0	24.54	18.485	
7,000.0	6,860.9	7,061.5	6,909.4	13.6	18.4	96.45	-101.4	-762.2	452.2	427.2	25.01	18.078	
7,044.2	6,882.9	7,099.0	6,929.0	13.8	18.6	96.64	-133.4	-761.7	451.7	426.2	25.58	17.663	
7,050.0	6,885.6	7,104.7	6,931.8	13.8	18.6	96.67	-138.3	-761.7	451.7	426.1	25.65	17.613	
7,100.0	6,907.1	7,161.1	6,957.4	14.1	18.8	96.85	-188.5	-761.5	451.8	425.5	26.28	17.188	
7,150.0	6,925.5	7,235.4	6,981.7	14.4	19.2	96.59	-258.6	-760.1	450.6	423.8	26.84	16.792	
7,200.0	6,940.5	7,295.2	6,994.4	14.8	19.6	96.17	-317.0	-757.1	447.6	420.0	27.59	16.225	
7,250.0	6,952.2	7,348.1	7,003.6	15.2	19.9	96.03	-369.0	-754.1	444.5	416.0	28.48	15.605	
7,300.0	6,960.5	7,406.1	7,009.7	15.7	20.4	95.91	-426.5	-750.5	441.1	411.7	29.39	15.009	
7,350.0	6,965.4	7,462.0	7,012.2	16.2	20.8	95.90	-482.3	-746.4	437.2	406.8	30.37	14.393	
7,400.0	6,966.7	7,507.1	7,012.0	16.7	21.2	96.04	-527.2	-743.2	433.4	401.9	31.56	13.731	
7,415.3	6,966.4	7,519.6	7,011.7	16.9	21.3	96.11	-539.7	-742.5	432.5	400.6	31.96	13.534	
7,500.0	6,964.0	7,597.9	7,009.8	17.9	22.1	96.22	-617.9	-738.9	428.7	394.6	34.11	12.571	
7,600.0	6,961.0	7,698.7	7,007.9	19.1	23.1	96.41	-718.6	-735.0	425.0	388.3	36.66	11.593	
7,700.0	6,958.1	7,786.6	7,006.2	20.4	24.2	96.57	-806.5	-732.1	421.9	382.3	39.60	10.655	
7,749.8	6,956.6	7,831.1	7,005.8	21.1	24.7	96.69	-850.9	-731.8	421.7	380.6	41.10	10.260	
7,800.0	6,955.2	7,881.9	7,005.1	21.8	25.3	96.81	-901.7	-731.7	421.7	379.2	42.51	9.919	
7,900.0	6,952.2	7,986.8	7,003.2	23.2	26.7	96.98	-1,006.6	-730.9	421.1	375.8	45.33	9.289	
8,000.0	6,949.3	8,095.3	7,000.9	24.7	28.1	97.15	-1,115.1	-728.4	418.8	370.7	48.13	8.703	
8,100.0	6,946.4	8,186.8	6,997.2	26.2	29.4	97.03	-1,206.5	-726.2	416.4	365.0	51.39	8.102	
8,200.0	6,943.4	8,287.3	6,991.9	27.7	30.8	96.72	-1,306.8	-725.3	415.2	360.6	54.53	7.613	
8,300.0	6,940.5	8,382.6	6,987.4	29.3	32.2	96.50	-1,402.0	-724.6	414.3	356.5	57.83	7.165	
8,324.0	6,939.8	8,405.5	6,986.3	29.6	32.5	96.45	-1,424.9	-724.7	414.3	355.7	58.62	7.067	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER RANCH 5J-203 - OH - FINAL												Offset Site Error:	0.0 usft
Survey Program: 155-MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
8,400.0	6,937.6	8,478.0	6,984.4	30.8	33.6	96.47	-1,497.4	-724.9	414.6	353.5	61.13	6.782	
8,500.0	6,934.6	8,590.3	6,983.5	32.4	35.3	96.81	-1,609.6	-723.9	414.0	349.9	64.02	6.466	
8,600.0	6,931.7	8,692.9	6,980.7	34.0	36.8	96.89	-1,712.1	-721.1	411.2	344.0	67.19	6.120	
8,700.0	6,928.8	8,784.9	6,976.6	35.7	38.3	96.73	-1,804.0	-719.7	409.5	338.9	70.69	5.793	
8,800.0	6,925.8	8,884.9	6,972.0	37.3	39.8	96.50	-1,903.9	-719.3	409.0	334.9	74.02	5.525	
8,900.0	6,922.9	8,990.5	6,967.7	39.0	41.5	96.36	-2,009.4	-717.6	407.2	330.0	77.20	5.275	
9,000.0	6,920.0	9,088.7	6,962.7	40.6	43.1	96.08	-2,107.4	-715.9	405.3	324.6	80.61	5.027	
9,100.0	6,917.0	9,185.0	6,955.6	42.3	44.6	95.50	-2,203.5	-714.9	403.8	319.7	84.14	4.799	
9,141.1	6,915.8	9,222.9	6,952.4	43.0	45.2	95.20	-2,241.3	-715.0	403.6	318.0	85.64	4.713	
9,200.0	6,914.1	9,282.3	6,946.9	43.9	46.2	94.67	-2,300.4	-715.4	403.8	316.1	87.68	4.605	
9,300.0	6,911.2	9,382.6	6,937.7	45.6	47.8	93.77	-2,400.3	-715.4	403.2	312.1	91.16	4.423	
9,305.5	6,911.0	9,387.6	6,937.3	45.7	47.9	93.74	-2,405.3	-715.4	403.2	311.9	91.36	4.414	
9,400.0	6,908.2	9,480.7	6,931.1	47.3	49.4	93.24	-2,498.1	-716.1	403.8	309.1	94.65	4.266	
9,500.0	6,905.3	9,587.7	6,924.2	49.0	51.2	92.71	-2,604.9	-715.9	403.4	305.5	97.91	4.120	
9,600.0	6,902.4	9,685.0	6,918.5	50.7	52.8	92.31	-2,702.1	-714.5	401.9	300.5	101.42	3.963	
9,629.7	6,901.5	9,712.1	6,917.0	51.2	53.2	92.21	-2,729.1	-714.5	401.8	299.3	102.50	3.920	
9,700.0	6,899.5	9,783.5	6,913.3	52.4	54.4	91.98	-2,800.4	-714.5	401.8	296.9	104.89	3.831	
9,800.0	6,896.5	9,887.3	6,907.8	54.1	56.1	91.63	-2,904.1	-713.8	401.0	292.8	108.22	3.706	
9,900.0	6,893.6	9,987.8	6,901.3	55.8	57.8	91.12	-3,004.4	-712.5	399.6	288.0	111.66	3.579	
9,954.4	6,892.0	10,037.0	6,897.6	56.7	58.6	90.80	-3,053.4	-712.1	399.1	285.4	113.69	3.511	
10,000.0	6,890.7	10,075.4	6,894.7	57.5	59.3	90.55	-3,091.7	-712.5	399.5	284.1	115.42	3.461	
10,100.0	6,887.7	10,172.6	6,888.0	59.2	60.9	89.99	-3,188.6	-715.1	402.2	283.3	118.93	3.382	
10,200.0	6,884.8	10,271.3	6,881.0	60.9	62.6	89.41	-3,287.1	-717.6	404.7	282.4	122.39	3.307	
10,300.0	6,881.9	10,374.0	6,873.1	62.6	64.3	88.72	-3,389.4	-720.2	407.4	281.7	125.76	3.240	
10,400.0	6,878.9	10,475.7	6,865.0	64.3	66.0	88.01	-3,490.8	-722.1	409.4	280.2	129.14	3.170	
10,500.0	6,876.0	10,575.3	6,857.0	66.0	67.7	87.32	-3,590.1	-723.7	411.2	278.7	132.54	3.103	
10,600.0	6,873.1	10,681.9	6,848.8	67.8	69.5	86.62	-3,696.3	-724.7	412.4	276.7	135.77	3.038	
10,700.0	6,870.1	10,789.2	6,839.9	69.5	71.3	85.81	-3,803.2	-723.5	411.7	272.8	138.91	2.964	
10,800.2	6,867.2	10,886.9	6,833.1	71.2	73.0	85.25	-3,900.7	-722.2	410.7	268.3	142.34	2.885	
10,900.0	6,864.3	10,987.0	6,827.8	72.9	74.7	84.94	-4,000.6	-721.3	408.2	262.5	145.70	2.802	
11,000.0	6,861.3	11,087.9	6,822.6	74.7	76.4	84.59	-4,101.4	-720.1	401.9	252.9	149.02	2.697	
11,100.0	6,858.4	11,187.0	6,820.0	76.4	78.1	84.54	-4,200.5	-719.1	392.1	239.7	152.44	2.572	
11,200.0	6,855.4	11,287.9	6,820.1	78.1	79.8	84.85	-4,301.4	-718.3	378.7	222.9	155.85	2.430	
11,300.0	6,852.5	11,391.0	6,820.2	79.9	81.6	85.10	-4,404.5	-716.4	361.0	201.9	159.11	2.269	
11,400.0	6,849.6	11,491.3	6,819.1	81.6	83.3	85.10	-4,504.6	-713.3	338.5	176.2	162.34	2.085	
11,419.2	6,849.0	11,509.9	6,819.0	81.9	83.6	85.10	-4,523.2	-712.7	333.8	170.8	162.99	2.048	
11,454.0	6,848.0	11,523.0	6,818.9	82.5	83.8	85.10	-4,536.4	-712.3	325.7	160.7	165.00	1.974 SF	



<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER RANCH 5J-303 - OH - FINAL													Offset Site Error:	0.0 usft
Survey Program: 159-MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)						
0.0	0.0	4.0	4.0	0.0	0.0	-87.52	54.7	-1,259.7	1,260.9					
100.0	100.0	104.9	104.9	0.2	0.2	-87.50	55.0	-1,259.6	1,260.8	1,260.5	0.32	3,930.139		
200.0	200.0	209.2	209.2	0.3	0.3	-87.45	56.2	-1,259.4	1,260.7	1,260.0	0.67	1,875.715		
300.0	300.0	312.0	311.9	0.5	0.5	-87.31	59.1	-1,258.7	1,260.1	1,259.0	1.04	1,213.162		
400.0	400.0	406.0	405.8	0.7	0.7	-87.06	64.6	-1,258.0	1,259.6	1,258.2	1.40	900.192		
500.0	500.0	513.6	513.1	0.8	1.0	-86.70	72.4	-1,257.3	1,259.4	1,257.6	1.81	696.773		
600.0	600.0	615.3	614.3	1.0	1.2	-86.27	81.9	-1,255.9	1,258.6	1,256.4	2.21	568.355		
700.0	700.0	719.3	717.9	1.2	1.4	-85.84	91.2	-1,254.2	1,257.6	1,255.0	2.63	478.884		
800.0	800.0	821.9	820.1	1.4	1.7	-30.83	100.4	-1,252.3	1,254.9	1,251.9	3.04	412.997		
900.0	899.8	925.6	923.4	1.6	1.9	-30.60	109.4	-1,250.1	1,249.0	1,245.6	3.45	361.858		
987.4	986.9	1,010.3	1,007.8	1.7	2.1	-30.52	116.3	-1,248.1	1,241.2	1,237.4	3.80	326.971		
1,000.0	999.5	1,020.4	1,017.8	1.8	2.1	-30.51	117.1	-1,247.9	1,239.9	1,236.1	3.84	322.942		
1,100.0	1,099.0	1,105.2	1,102.4	2.0	2.3	-30.45	122.5	-1,247.1	1,230.9	1,226.7	4.20	293.311		
1,200.0	1,198.4	1,212.9	1,209.9	2.2	2.5	-30.40	129.0	-1,246.5	1,222.2	1,217.6	4.60	265.775		
1,300.0	1,297.9	1,318.5	1,315.4	2.4	2.7	-30.40	134.2	-1,244.8	1,212.3	1,207.4	4.99	242.966		
1,400.0	1,397.4	1,432.1	1,428.8	2.6	2.9	-30.42	139.5	-1,242.7	1,202.4	1,197.0	5.39	222.952		
1,500.0	1,496.9	1,534.1	1,530.7	2.9	3.1	-30.44	144.0	-1,239.7	1,191.2	1,185.4	5.78	206.114		
1,600.0	1,596.4	1,625.7	1,622.2	3.1	3.3	-30.44	148.4	-1,237.3	1,180.4	1,174.2	6.15	191.939		
1,700.0	1,695.9	1,742.6	1,738.9	3.3	3.5	-30.48	153.4	-1,233.8	1,169.1	1,162.6	6.56	178.324		
1,800.0	1,795.4	1,835.3	1,831.5	3.6	3.7	-30.51	157.2	-1,230.6	1,157.4	1,150.5	6.93	167.101		
1,900.0	1,894.9	1,930.2	1,926.3	3.8	3.9	-30.52	161.5	-1,228.0	1,146.4	1,139.1	7.30	157.037		
2,000.0	1,994.4	2,043.4	2,039.4	4.1	4.1	-30.63	164.8	-1,223.9	1,134.4	1,126.7	7.69	147.570		
2,100.0	2,093.9	2,135.0	2,130.8	4.3	4.3	-30.73	167.3	-1,220.7	1,122.5	1,114.5	8.05	139.495		
2,200.0	2,193.4	2,225.4	2,221.2	4.5	4.4	-30.82	170.0	-1,218.2	1,111.4	1,103.0	8.40	132.246		
2,300.0	2,292.9	2,316.2	2,311.9	4.8	4.6	-30.94	172.2	-1,216.4	1,101.0	1,092.3	8.76	125.745		
2,400.0	2,392.4	2,410.3	2,406.0	5.0	4.7	-31.10	173.9	-1,215.3	1,091.4	1,082.3	9.11	119.777		
2,500.0	2,491.9	2,513.1	2,508.8	5.3	4.9	-31.27	176.0	-1,214.2	1,081.9	1,072.4	9.49	114.013		
2,600.0	2,591.4	2,627.0	2,622.5	5.5	5.2	-31.32	180.7	-1,211.6	1,071.4	1,061.5	9.91	108.142		
2,700.0	2,690.9	2,727.7	2,723.0	5.8	5.4	-31.25	187.1	-1,208.4	1,060.1	1,049.8	10.31	102.809		
2,800.0	2,790.4	2,822.2	2,817.2	6.0	5.6	-31.19	193.0	-1,205.7	1,049.1	1,038.4	10.70	98.061		
2,900.0	2,889.9	2,920.3	2,915.1	6.2	5.8	-31.14	198.7	-1,203.2	1,038.5	1,027.4	11.10	93.583		
3,000.0	2,989.4	3,014.4	3,009.0	6.5	6.0	-31.05	205.1	-1,200.9	1,028.0	1,016.5	11.49	89.489		
3,100.0	3,088.9	3,107.0	3,101.4	6.7	6.2	-31.01	210.4	-1,199.5	1,018.3	1,006.4	11.87	85.821		
3,200.0	3,188.4	3,217.6	3,211.9	7.0	6.4	-31.05	215.3	-1,197.9	1,008.7	996.4	12.27	82.223		
3,300.0	3,287.9	3,324.1	3,318.3	7.2	6.6	-31.10	219.8	-1,194.9	997.6	984.9	12.66	78.776		
3,400.0	3,387.4	3,425.7	3,419.7	7.5	6.8	-31.14	224.1	-1,191.8	986.3	973.2	13.05	75.569		
3,500.0	3,486.9	3,516.8	3,510.8	7.7	6.9	-31.22	227.2	-1,189.2	975.2	961.8	13.41	72.712		
3,600.0	3,586.4	3,607.2	3,601.1	8.0	7.1	-31.42	228.5	-1,187.7	965.0	951.3	13.76	70.142		
3,700.0	3,685.9	3,692.9	3,686.8	8.2	7.2	-31.70	228.4	-1,187.3	956.0	941.9	14.09	67.828		
3,800.0	3,785.4	3,787.0	3,781.0	8.5	7.4	-32.04	227.7	-1,188.1	948.3	933.9	14.44	65.662		
3,900.0	3,884.9	3,885.3	3,879.2	8.7	7.5	-32.41	226.9	-1,189.0	940.7	925.9	14.80	63.573		
4,000.0	3,984.4	3,981.2	3,975.1	8.9	7.6	-32.77	226.2	-1,190.2	933.5	918.3	15.15	61.607		
4,100.0	4,083.9	4,075.0	4,068.9	9.2	7.8	-33.13	225.5	-1,191.9	926.8	911.3	15.51	59.771		
4,200.0	4,183.4	4,169.1	4,163.0	9.4	7.9	-33.50	224.8	-1,194.1	920.8	904.9	15.86	58.053		
4,300.0	4,282.9	4,270.7	4,264.6	9.7	8.1	-33.90	224.2	-1,196.9	915.1	898.9	16.23	56.370		
4,400.0	4,382.4	4,394.0	4,387.8	9.9	8.3	-34.28	225.2	-1,198.5	908.2	891.5	16.65	54.538		
4,500.0	4,481.9	4,490.0	4,483.8	10.2	8.4	-34.51	227.0	-1,198.6	900.1	883.1	17.03	52.863		
4,531.4	4,513.1	4,523.9	4,517.7	10.3	8.5	-34.60	227.5	-1,198.7	897.6	880.4	17.15	52.343		
4,600.0	4,581.4	4,601.2	4,595.0	10.4	8.6	-34.74	228.2	-1,198.1	892.1	874.7	17.41	51.236		
4,700.0	4,681.3	4,695.9	4,689.7	10.6	8.8	-34.81	229.4	-1,197.5	886.6	868.8	17.76	49.931		
4,800.0	4,781.2	4,804.2	4,797.9	10.7	9.0	-34.79	230.6	-1,196.2	883.4	865.3	18.10	48.814		
4,818.8	4,800.0	4,821.4	4,815.2	10.8	9.0	-89.44	230.7	-1,196.0	883.1	864.9	18.16	48.637		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER RANCH 5J-303 - OH - FINAL												Offset Site Error:	0.0 usft
Survey Program: 159-MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
4,900.0	4,881.2	4,895.6	4,889.3	10.9	9.1	-89.39	231.4	-1,195.3	882.4	863.9	18.41	47.922	
4,940.3	4,921.5	4,931.7	4,925.5	10.9	9.2	-89.37	231.6	-1,195.2	882.3	863.7	18.54	47.592	
5,000.0	4,981.2	4,990.8	4,984.5	11.0	9.3	-89.35	232.0	-1,195.3	882.4	863.7	18.73	47.110	
5,100.0	5,081.2	5,100.6	5,094.4	11.1	9.5	-89.35	232.0	-1,194.6	881.7	862.6	19.07	46.244	
5,200.0	5,181.2	5,201.6	5,195.4	11.3	9.6	-89.39	231.4	-1,193.5	880.6	861.3	19.39	45.421	
5,300.0	5,281.2	5,301.8	5,295.5	11.4	9.8	-89.48	230.0	-1,192.3	879.4	859.7	19.71	44.620	
5,400.0	5,381.2	5,397.0	5,390.7	11.6	9.9	-89.58	228.4	-1,191.4	878.5	858.4	20.03	43.866	
5,497.0	5,478.2	5,488.5	5,482.2	11.7	10.1	-89.66	227.2	-1,191.2	878.2	857.8	20.33	43.192	
5,500.0	5,481.2	5,491.4	5,485.1	11.7	10.1	-89.67	227.1	-1,191.2	878.2	857.8	20.34	43.171	
5,600.0	5,581.2	5,590.0	5,583.7	11.8	10.2	-89.77	225.5	-1,191.4	878.4	857.7	20.66	42.508	
5,700.0	5,681.2	5,692.7	5,686.3	12.0	10.4	-89.87	224.0	-1,191.4	878.4	857.4	20.99	41.842	
5,800.0	5,781.2	5,793.2	5,786.9	12.1	10.6	-89.91	223.3	-1,191.2	878.2	856.9	21.32	41.182	
5,851.4	5,832.6	5,843.0	5,836.6	12.2	10.7	-89.91	223.3	-1,191.1	878.1	856.6	21.49	40.854	
5,900.0	5,881.2	5,888.2	5,881.9	12.3	10.7	-89.89	223.7	-1,191.2	878.2	856.6	21.65	40.559	
6,000.0	5,981.2	5,986.5	5,980.1	12.4	10.9	-89.81	224.9	-1,191.8	878.8	856.8	21.98	39.976	
6,100.0	6,081.2	6,088.1	6,081.7	12.6	11.1	-89.79	225.3	-1,192.3	879.3	857.0	22.32	39.400	
6,200.0	6,181.2	6,189.2	6,182.9	12.7	11.2	-89.78	225.4	-1,192.6	879.6	857.0	22.65	38.832	
6,269.3	6,250.5	6,259.8	6,253.5	12.8	11.4	-89.79	225.2	-1,192.7	879.7	856.8	22.88	38.446	
6,300.0	6,281.2	6,285.9	6,279.5	12.9	11.4	90.20	224.6	-1,192.8	879.8	856.9	22.96	38.314	
6,350.0	6,331.0	6,335.8	6,329.3	12.9	11.5	90.24	221.8	-1,193.2	880.3	857.2	23.08	38.140	
6,400.0	6,380.5	6,377.9	6,371.2	12.9	11.5	90.32	217.5	-1,193.6	880.8	857.6	23.16	38.036	
6,450.0	6,429.3	6,429.1	6,421.7	13.0	11.6	90.42	209.1	-1,194.6	881.8	858.5	23.22	37.979	
6,500.0	6,477.3	6,497.1	6,487.5	13.0	11.6	90.55	192.0	-1,195.0	882.0	858.7	23.27	37.903	
6,529.7	6,505.2	6,523.4	6,512.5	13.0	11.6	90.60	183.9	-1,194.9	882.0	858.7	23.29	37.875	
6,550.0	6,524.1	6,541.0	6,529.1	13.0	11.6	90.64	178.0	-1,194.9	882.0	858.7	23.30	37.860	
6,600.0	6,569.6	6,578.9	6,564.2	13.0	11.6	90.70	163.7	-1,195.3	882.5	859.2	23.31	37.852	
6,650.0	6,613.5	6,619.8	6,600.9	13.0	11.7	90.71	145.7	-1,196.3	883.7	860.4	23.34	37.857	
6,700.0	6,655.7	6,674.4	6,647.7	13.0	11.7	90.69	117.6	-1,197.9	885.2	861.8	23.41	37.816	
6,750.0	6,695.9	6,759.2	6,715.5	13.0	11.8	90.63	66.8	-1,198.2	885.3	861.8	23.56	37.575	
6,800.0	6,734.0	6,826.7	6,765.1	13.1	12.0	90.56	21.0	-1,196.7	884.2	860.4	23.76	37.213	
6,850.0	6,769.7	6,888.1	6,806.7	13.1	12.2	90.52	-24.0	-1,194.2	882.2	858.1	24.04	36.703	
6,900.0	6,802.8	6,938.5	6,838.8	13.2	12.4	90.58	-62.8	-1,192.0	879.9	855.6	24.36	36.127	
6,950.0	6,833.3	6,990.7	6,869.4	13.4	12.6	90.68	-104.9	-1,189.7	877.7	852.9	24.77	35.436	
7,000.0	6,860.9	7,040.1	6,895.6	13.6	12.9	90.78	-146.8	-1,187.3	875.3	850.0	25.26	34.651	
7,050.0	6,885.6	7,088.6	6,919.2	13.8	13.3	90.93	-189.1	-1,185.3	873.2	847.4	25.84	33.797	
7,100.0	6,907.1	7,132.8	6,939.0	14.1	13.6	91.14	-228.6	-1,183.5	871.1	844.7	26.48	32.899	
7,150.0	6,925.5	7,171.5	6,955.0	14.4	13.9	91.38	-263.8	-1,182.5	869.9	842.7	27.17	32.019	
7,200.0	6,940.5	7,221.0	6,974.1	14.8	14.3	91.75	-309.5	-1,181.3	868.9	840.9	28.01	31.019	
7,250.0	6,952.2	7,264.8	6,989.4	15.2	14.8	92.15	-350.5	-1,180.7	868.3	839.4	28.89	30.054	
7,300.0	6,960.5	7,333.4	7,006.8	15.7	15.5	92.62	-416.8	-1,179.3	867.5	837.4	30.06	28.859	
7,350.0	6,965.4	7,386.3	7,015.5	16.2	16.1	92.97	-468.9	-1,177.7	866.1	834.9	31.18	27.781	
7,400.0	6,966.7	7,461.6	7,020.7	16.7	17.0	93.34	-543.9	-1,174.6	864.2	831.6	32.56	26.538	
7,415.3	6,966.4	7,475.5	7,020.4	16.9	17.2	93.40	-557.8	-1,173.9	863.4	830.5	32.92	26.230	
7,500.0	6,964.0	7,574.1	7,014.6	17.9	18.5	93.23	-656.0	-1,168.4	858.6	823.4	35.17	24.410	
7,600.0	6,961.0	7,667.8	7,011.6	19.1	19.8	93.23	-749.5	-1,162.5	852.2	814.4	37.75	22.573	
7,700.0	6,958.1	7,754.0	7,007.9	20.4	21.0	93.17	-835.6	-1,158.4	847.4	807.0	40.39	20.982	
7,800.0	6,955.2	7,844.5	7,005.4	21.8	22.3	93.19	-926.0	-1,155.3	843.9	800.8	43.16	19.553	
7,900.0	6,952.2	7,939.0	7,003.5	23.2	23.7	93.26	-1,020.4	-1,152.8	841.4	795.3	46.06	18.267	
8,000.0	6,949.3	8,039.8	7,002.1	24.7	25.3	93.37	-1,121.2	-1,150.4	839.1	790.0	49.10	17.092	
8,100.0	6,946.4	8,148.8	6,999.3	26.2	27.0	93.42	-1,230.1	-1,147.3	836.3	784.0	52.28	15.996	
8,200.0	6,943.4	8,248.1	6,995.6	27.7	28.5	93.38	-1,329.2	-1,143.6	832.6	777.1	55.42	15.024	
8,300.0	6,940.5	8,362.8	6,992.3	29.3	30.4	93.40	-1,443.9	-1,139.3	828.9	770.1	58.75	14.110	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER RANCH 5J-303 - OH - FINAL												Offset Site Error:	0.0 usft
Survey Program: 159-MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
8,400.0	6,937.6	8,453.7	6,989.1	30.8	31.9	93.38	-1,534.6	-1,134.8	823.9	762.0	61.87	13.316	
8,500.0	6,934.6	8,564.2	6,984.2	32.4	33.7	93.28	-1,644.8	-1,130.1	819.6	754.4	65.22	12.566	
8,600.0	6,931.7	8,657.3	6,979.6	34.0	35.2	93.17	-1,737.7	-1,125.5	814.6	746.2	68.43	11.904	
8,700.0	6,928.8	8,732.1	6,977.9	35.7	36.4	93.22	-1,812.5	-1,123.1	811.4	740.0	71.45	11.357	
8,744.7	6,927.5	8,765.0	6,977.6	36.4	37.0	93.26	-1,845.3	-1,122.8	811.1	738.4	72.78	11.146	
8,800.0	6,925.8	8,821.0	6,977.1	37.3	37.9	93.34	-1,901.4	-1,122.8	811.1	736.5	74.61	10.872	
8,850.6	6,924.4	8,871.0	6,976.6	38.1	38.7	93.41	-1,951.3	-1,122.6	811.1	734.8	76.28	10.633	
8,900.0	6,922.9	8,912.8	6,976.5	39.0	39.4	93.49	-1,993.2	-1,122.8	811.3	733.5	77.82	10.426	
9,000.0	6,920.0	9,018.5	6,977.3	40.6	41.2	93.76	-2,098.8	-1,123.8	812.5	731.3	81.21	10.005	
9,100.0	6,917.0	9,129.2	6,975.5	42.3	43.1	93.87	-2,209.5	-1,123.0	811.9	727.2	84.69	9.586	
9,200.0	6,914.1	9,235.6	6,972.6	43.9	44.9	93.89	-2,315.9	-1,121.4	810.4	722.3	88.13	9.195	
9,300.0	6,911.2	9,332.9	6,969.9	45.6	46.5	93.91	-2,413.1	-1,119.7	808.7	717.2	91.47	8.841	
9,400.0	6,908.2	9,454.6	6,966.7	47.3	48.6	93.95	-2,534.7	-1,116.2	805.9	710.8	95.07	8.476	
9,500.0	6,905.3	9,569.7	6,964.3	49.0	50.5	94.05	-2,649.6	-1,109.8	800.3	701.7	98.57	8.118	
9,600.0	6,902.4	9,662.8	6,964.3	50.7	52.1	94.28	-2,742.5	-1,104.0	794.3	692.4	101.89	7.796	
9,700.0	6,899.5	9,745.2	6,965.5	52.4	53.5	94.56	-2,824.8	-1,100.4	790.3	685.2	105.10	7.519	
9,800.0	6,896.5	9,843.0	6,966.7	54.1	55.2	94.87	-2,922.6	-1,097.3	787.4	679.0	108.45	7.261	
9,900.0	6,893.6	9,949.0	6,966.7	55.8	57.0	95.12	-3,028.5	-1,093.6	784.2	672.3	111.88	7.009	
10,000.0	6,890.7	10,049.8	6,963.8	57.5	58.8	95.15	-3,129.2	-1,090.0	780.7	665.4	115.29	6.772	
10,100.0	6,887.7	10,159.1	6,959.8	59.2	60.6	95.12	-3,238.4	-1,085.5	776.5	657.8	118.79	6.537	
10,200.0	6,884.8	10,259.4	6,956.0	60.9	62.4	95.09	-3,338.4	-1,080.4	771.3	649.1	122.22	6.311	
10,300.0	6,881.9	10,350.6	6,949.8	62.6	63.9	94.85	-3,429.4	-1,076.7	767.0	641.4	125.62	6.106	
10,400.0	6,878.9	10,443.0	6,943.7	64.3	65.5	94.61	-3,521.5	-1,074.0	763.8	634.7	129.02	5.919	
10,500.0	6,876.0	10,540.6	6,938.0	66.0	67.2	94.42	-3,618.9	-1,071.9	761.4	628.9	132.47	5.748	
10,600.0	6,873.1	10,642.1	6,931.9	67.8	69.0	94.20	-3,720.2	-1,069.4	758.7	622.7	135.96	5.580	
10,700.0	6,870.1	10,734.0	6,926.6	69.5	70.5	94.01	-3,812.0	-1,067.5	756.4	617.1	139.35	5.428	
10,800.2	6,867.2	10,829.8	6,921.9	71.2	72.2	93.86	-3,907.6	-1,066.7	755.4	612.7	142.77	5.291	
10,900.0	6,864.3	10,938.7	6,915.7	72.9	74.1	93.72	-4,016.3	-1,065.2	752.2	605.8	146.35	5.139	
11,000.0	6,861.3	11,037.5	6,909.6	74.7	75.8	93.58	-4,114.9	-1,063.0	744.5	594.7	149.81	4.969	
11,100.0	6,858.4	11,138.5	6,906.6	76.4	77.5	93.70	-4,215.8	-1,061.0	733.7	580.5	153.26	4.788	
11,200.0	6,855.4	11,246.9	6,904.9	78.1	79.4	93.99	-4,324.1	-1,057.8	718.6	561.8	156.71	4.585	
11,300.0	6,852.5	11,354.0	6,903.1	79.9	81.3	94.31	-4,431.2	-1,053.1	698.6	538.5	160.10	4.363	
11,400.0	6,849.6	11,452.3	6,902.2	81.6	83.0	94.73	-4,529.3	-1,048.1	674.4	511.0	163.40	4.127	
11,419.2	6,849.0	11,470.8	6,902.0	81.9	83.3	94.82	-4,547.8	-1,047.1	669.4	505.4	164.03	4.081	
11,454.0	6,848.0	11,473.0	6,902.0	82.5	83.3	94.83	-4,550.0	-1,047.0	660.9	495.9	164.99	4.005 CC, ES, SF	

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER RANCH 5J-323 - OH - FINAL													Offset Site Error:	0.0 usft
Survey Program:		151-MWD											Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-0.01	14.6	0.0	14.6					
100.0	100.0	100.0	100.0	0.2	0.2	-1.58	14.6	-0.4	14.6	14.3	0.31	46.803		
200.0	200.0	200.0	200.0	0.3	0.3	-6.05	14.7	-1.6	14.8	14.2	0.66	22.598		
300.0	300.0	300.0	299.9	0.5	0.5	-11.14	14.9	-2.9	15.2	14.2	1.01	15.092		
400.0	400.0	400.0	400.0	0.7	0.7	-13.38	15.1	-3.6	15.6	14.2	1.35	11.487		
500.0	500.0	499.9	499.9	0.8	0.9	-15.04	15.4	-4.2	16.0	14.3	1.70	9.394		
600.0	600.0	599.7	599.7	1.0	1.0	-18.00	16.4	-5.3	17.3	15.2	2.05	8.419		
700.0	700.0	699.3	699.2	1.2	1.2	-25.37	18.2	-8.6	20.1	17.7	2.40	8.377		
800.0	800.0	798.5	798.1	1.4	1.4	20.77	21.2	-15.0	24.4	21.6	2.75	8.849		
900.0	899.8	897.7	896.7	1.6	1.6	13.66	25.7	-24.5	28.8	25.7	3.10	9.290		
987.4	986.9	984.7	983.2	1.7	1.9	9.30	30.3	-33.9	31.5	28.0	3.41	9.233		
1,000.0	999.5	997.3	995.6	1.8	1.9	8.78	31.0	-35.4	31.7	28.3	3.45	9.192		
1,100.0	1,099.0	1,097.3	1,094.8	2.0	2.1	4.89	36.6	-46.7	33.9	30.2	3.80	8.939		
1,200.0	1,198.4	1,197.2	1,194.0	2.2	2.4	1.42	42.2	-57.9	36.2	32.1	4.14	8.739		
1,300.0	1,297.9	1,297.0	1,292.9	2.4	2.7	-1.90	47.7	-69.4	38.9	34.4	4.49	8.660		
1,400.0	1,397.4	1,397.1	1,392.2	2.6	2.9	-5.10	53.0	-81.1	41.6	36.8	4.84	8.607		
1,500.0	1,496.9	1,497.0	1,491.3	2.9	3.2	-8.27	58.0	-92.8	44.3	39.2	5.19	8.550		
1,600.0	1,596.4	1,597.2	1,590.6	3.1	3.5	-11.66	62.5	-104.6	47.1	41.6	5.54	8.495		
1,700.0	1,695.9	1,697.9	1,690.6	3.3	3.7	-14.41	67.0	-115.5	49.0	43.1	5.92	8.289		
1,800.0	1,795.4	1,798.3	1,790.4	3.6	4.0	-11.31	75.4	-123.1	49.5	43.2	6.26	7.903		
1,900.0	1,894.9	1,898.3	1,889.8	3.8	4.2	-7.56	84.3	-130.2	49.9	43.3	6.60	7.563		
2,000.0	1,994.4	1,997.5	1,988.3	4.1	4.5	-4.55	92.8	-137.7	50.7	43.8	6.93	7.312		
2,100.0	2,093.9	2,097.5	2,087.5	4.3	4.8	-3.87	100.3	-147.6	53.1	45.8	7.28	7.295		
2,200.0	2,193.4	2,197.7	2,187.1	4.5	5.0	-4.99	106.1	-157.9	54.9	47.2	7.64	7.187		
2,300.0	2,292.9	2,298.1	2,286.8	4.8	5.3	-7.13	110.7	-168.2	56.1	48.2	8.00	7.022		
2,400.0	2,392.4	2,398.0	2,386.1	5.0	5.6	-10.15	114.4	-178.7	57.3	48.9	8.37	6.848		
2,500.0	2,491.9	2,499.8	2,487.4	5.3	5.8	-11.31	119.0	-187.0	56.7	48.0	8.74	6.490		
2,600.0	2,591.4	2,599.5	2,586.8	5.5	6.0	-11.36	124.0	-193.6	55.0	45.9	9.09	6.048		
2,699.3	2,690.2	2,698.0	2,684.9	5.8	6.3	-12.23	128.7	-201.3	54.3	44.8	9.46	5.741		
2,700.0	2,690.9	2,698.7	2,685.6	5.8	6.3	-12.23	128.7	-201.4	54.3	44.8	9.46	5.739		
2,800.0	2,790.4	2,798.2	2,784.5	6.0	6.5	-11.66	135.3	-209.9	55.0	45.2	9.80	5.610		
2,900.0	2,889.9	2,897.8	2,883.5	6.2	6.8	-11.25	141.8	-218.9	56.1	45.9	10.15	5.525		
3,000.0	2,989.4	2,997.5	2,982.5	6.5	7.0	-12.07	147.7	-229.3	58.3	47.8	10.52	5.540		
3,100.0	3,088.9	3,097.6	3,081.9	6.7	7.3	-13.51	152.9	-239.8	60.1	49.2	10.90	5.516		
3,200.0	3,188.4	3,198.0	3,181.6	7.0	7.6	-14.57	158.3	-250.1	62.0	50.7	11.29	5.490		
3,300.0	3,287.9	3,297.2	3,280.1	7.2	7.8	-15.82	163.2	-260.1	63.4	51.8	11.67	5.436		
3,400.0	3,387.4	3,397.2	3,379.4	7.5	8.1	-17.89	167.8	-271.9	66.5	54.4	12.09	5.502		
3,500.0	3,486.9	3,496.6	3,478.1	7.7	8.4	-20.29	171.5	-283.2	69.1	56.6	12.54	5.511		
3,600.0	3,586.4	3,597.5	3,578.1	8.0	8.7	-23.11	174.7	-295.4	72.3	59.3	13.03	5.552		
3,700.0	3,685.9	3,697.3	3,677.3	8.2	8.9	-25.00	178.6	-306.1	74.4	61.0	13.50	5.516		
3,800.0	3,785.4	3,797.2	3,776.4	8.5	9.2	-24.90	184.9	-316.8	77.0	63.2	13.87	5.555		
3,900.0	3,884.9	3,896.7	3,875.1	8.7	9.5	-25.10	190.9	-327.8	79.9	65.7	14.25	5.606		
4,000.0	3,984.4	3,996.9	3,974.5	8.9	9.8	-25.54	196.6	-339.1	83.0	68.3	14.65	5.662		
4,100.0	4,083.9	4,097.9	4,074.9	9.2	10.0	-26.61	201.3	-349.8	85.2	70.1	15.10	5.642		
4,200.0	4,183.4	4,196.8	4,173.1	9.4	10.3	-28.04	205.2	-360.4	87.5	72.0	15.56	5.623		
4,300.0	4,282.9	4,297.1	4,272.7	9.7	10.6	-29.48	209.1	-371.6	90.3	74.2	16.04	5.626		
4,400.0	4,382.4	4,397.7	4,372.7	9.9	10.8	-31.04	212.7	-382.2	92.4	75.9	16.54	5.587		
4,500.0	4,481.9	4,498.1	4,472.5	10.2	11.1	-32.66	216.0	-392.5	94.3	77.3	17.06	5.530		
4,531.4	4,513.1	4,530.2	4,504.4	10.3	11.1	-33.31	216.8	-395.5	94.7	77.5	17.23	5.495		
4,600.0	4,581.4	4,600.3	4,574.3	10.4	11.3	-34.84	217.8	-401.3	95.4	77.8	17.62	5.417		
4,700.0	4,681.3	4,703.1	4,676.8	10.6	11.5	-36.05	219.3	-407.6	96.7	78.6	18.07	5.352		
4,800.0	4,781.2	4,805.9	4,779.6	10.7	11.6	-36.82	219.5	-410.7	97.8	79.4	18.44	5.303		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER RANCH 5J-323 - OH - FINAL												Offset Site Error:	0.0 usft
Survey Program: 151-MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
4,818.8	4,800.0	4,825.2	4,798.9	10.8	11.6	-91.61	219.2	-411.0	98.0	79.5	18.51	5.296	
4,900.0	4,881.2	4,906.9	4,880.6	10.9	11.7	-92.37	217.9	-411.4	98.5	79.6	18.83	5.230	
5,000.0	4,981.2	5,007.2	4,980.9	11.0	11.9	-92.67	217.4	-412.0	99.1	79.9	19.18	5.168	
5,100.0	5,081.2	5,107.3	5,081.0	11.1	12.0	-91.60	219.2	-412.1	99.2	79.8	19.41	5.108	
5,200.0	5,181.2	5,207.0	5,180.6	11.3	12.2	-90.38	221.3	-412.6	99.6	80.0	19.64	5.072	
5,300.0	5,281.2	5,306.9	5,280.5	11.4	12.3	-89.44	223.0	-413.3	100.3	80.4	19.89	5.040	
5,400.0	5,381.2	5,406.1	5,379.7	11.6	12.5	-88.89	224.0	-414.2	101.3	81.1	20.18	5.017	
5,500.0	5,481.2	5,505.8	5,479.4	11.7	12.6	-88.55	224.6	-415.9	103.0	82.5	20.48	5.027	
5,600.0	5,581.2	5,607.2	5,580.8	11.8	12.7	-88.55	224.6	-417.1	104.2	83.4	20.80	5.007	
5,700.0	5,681.2	5,707.7	5,681.3	12.0	12.9	-88.60	224.5	-417.2	104.2	83.1	21.13	4.931	
5,735.1	5,716.3	5,742.7	5,716.3	12.0	12.9	-88.50	224.7	-417.2	104.2	83.0	21.24	4.905	
5,800.0	5,781.2	5,807.3	5,780.9	12.1	13.0	-88.30	225.1	-417.2	104.3	82.8	21.45	4.863	
5,900.0	5,881.2	5,906.2	5,879.8	12.3	13.2	-88.01	225.7	-418.0	105.1	83.3	21.76	4.830	
6,000.0	5,981.2	6,006.7	5,980.3	12.4	13.3	-87.65	226.4	-419.1	106.2	84.1	22.07	4.812	
6,100.0	6,081.2	6,106.8	6,080.4	12.6	13.5	-87.40	226.9	-419.8	106.9	84.6	22.38	4.778	
6,200.0	6,181.2	6,205.4	6,179.0	12.7	13.6	-87.09	227.5	-421.2	108.4	85.7	22.70	4.775	
6,269.3	6,250.5	6,276.8	6,250.4	12.8	13.7	-87.23	227.3	-422.4	109.6	86.7	22.92	4.780	
6,300.0	6,281.2	6,309.0	6,282.5	12.9	13.8	-87.27	225.6	-422.3	109.4	86.4	23.03	4.751	
6,350.0	6,331.0	6,359.8	6,333.0	12.9	13.8	-91.63	220.4	-421.6	108.7	85.5	23.18	4.689	
6,400.0	6,380.5	6,408.5	6,380.9	12.9	13.8	-90.91	211.8	-421.2	108.2	84.9	23.30	4.644	
6,402.9	6,383.4	6,411.3	6,383.7	12.9	13.8	-90.86	211.2	-421.2	108.2	84.9	23.31	4.642	
6,450.0	6,429.3	6,457.9	6,428.8	13.0	13.8	-90.02	199.5	-421.4	108.5	85.1	23.40	4.635	
6,500.0	6,477.3	6,508.8	6,477.3	13.0	13.8	-89.56	184.3	-421.5	108.5	85.1	23.45	4.628	
6,537.1	6,512.1	6,545.4	6,511.6	13.0	13.8	-89.34	171.4	-421.4	108.4	84.9	23.46	4.619	
6,550.0	6,524.1	6,557.9	6,523.1	13.0	13.8	-89.22	166.5	-421.4	108.4	84.9	23.46	4.619	
6,600.0	6,569.6	6,603.5	6,564.2	13.0	13.9	-88.65	146.8	-422.2	109.4	85.9	23.46	4.663	
6,650.0	6,613.5	6,649.0	6,603.7	13.0	13.9	-87.99	124.4	-425.2	112.6	89.2	23.44	4.805	
6,700.0	6,655.7	6,697.3	6,643.5	13.0	14.0	-86.97	97.3	-429.5	117.1	93.7	23.47	4.990	
6,750.0	6,695.9	6,747.0	6,682.0	13.0	14.0	-85.74	66.3	-433.8	121.6	98.0	23.56	5.162	
6,800.0	6,734.0	6,796.8	6,718.6	13.1	14.1	-84.78	32.8	-437.9	125.9	102.2	23.67	5.317	
6,850.0	6,769.7	6,847.3	6,753.0	13.1	14.3	-83.70	-3.9	-441.6	129.7	105.9	23.85	5.440	
6,900.0	6,802.8	6,894.6	6,781.6	13.2	14.4	-82.02	-41.5	-444.7	133.4	109.4	24.05	5.548	
6,950.0	6,833.3	6,942.3	6,805.3	13.4	14.6	-79.26	-82.7	-447.8	137.8	113.5	24.26	5.679	
7,000.0	6,860.9	6,998.4	6,828.5	13.6	14.8	-75.61	-133.8	-449.7	141.2	116.8	24.48	5.770	
7,050.0	6,885.6	7,058.8	6,851.0	13.8	15.1	-72.19	-189.7	-446.7	140.7	116.0	24.70	5.695	
7,100.0	6,907.1	7,114.0	6,870.3	14.1	15.4	-69.75	-241.0	-440.1	136.3	111.4	24.96	5.461	
7,150.0	6,925.5	7,164.5	6,886.7	14.4	15.6	-68.18	-288.1	-432.2	129.7	104.4	25.31	5.125	
7,200.0	6,940.5	7,209.8	6,900.1	14.8	15.9	-67.44	-330.7	-425.0	122.4	96.6	25.85	4.736	
7,250.0	6,952.2	7,251.4	6,910.4	15.2	16.3	-67.20	-370.8	-420.0	116.6	90.0	26.67	4.373	
7,300.0	6,960.5	7,293.1	6,917.9	15.7	16.6	-67.20	-411.6	-417.0	113.0	85.3	27.74	4.074	
7,350.0	6,965.4	7,338.9	6,923.2	16.2	17.1	-67.41	-457.0	-415.2	110.8	82.0	28.86	3.840	
7,400.0	6,966.7	7,386.7	6,926.7	16.7	17.6	-68.39	-504.7	-414.1	108.8	78.7	30.10	3.615	
7,415.3	6,966.4	7,401.9	6,927.4	16.9	17.7	-68.90	-519.9	-413.6	108.0	77.5	30.49	3.543	
7,500.0	6,964.0	7,486.5	6,929.4	17.9	18.7	-70.58	-604.4	-410.5	103.5	70.9	32.61	3.174	
7,600.0	6,961.0	7,586.6	6,929.4	19.1	19.8	-71.24	-704.4	-405.6	97.9	62.8	35.09	2.791	
7,700.0	6,958.1	7,685.8	6,927.9	20.4	21.1	-70.98	-803.4	-400.2	92.4	54.7	37.66	2.453	
7,800.0	6,955.2	7,783.7	6,928.0	21.8	22.4	-72.19	-901.2	-397.3	88.6	47.9	40.73	2.175	
7,889.8	6,952.5	7,871.2	6,928.2	23.1	23.6	-73.82	-988.7	-396.8	87.3	43.5	43.74	1.995	
7,900.0	6,952.2	7,881.0	6,928.2	23.2	23.8	-74.02	-998.6	-396.9	87.3	43.2	44.10	1.979	
8,000.0	6,949.3	7,978.6	6,927.7	24.7	25.2	-75.99	-1,096.1	-399.8	89.5	42.0	47.55	1.883	
8,100.0	6,946.4	8,079.2	6,926.4	26.2	26.7	-77.54	-1,196.6	-403.6	92.8	42.1	50.74	1.829	
8,200.0	6,943.4	8,180.2	6,926.9	27.7	28.3	-79.90	-1,297.6	-406.1	94.6	40.5	54.06	1.750	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER RANCH 5J-323 - OH - FINAL													Offset Site Error:	0.0 usft
Survey Program: 151-MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
8,300.0	6,940.5	8,279.5	6,928.1	29.3	29.8	82.59	-1,396.8	-408.6	96.4	38.8	57.59	1.674		
8,400.0	6,937.6	8,379.0	6,929.3	30.8	31.4	85.15	-1,496.3	-411.9	99.3	38.2	61.04	1.626		
8,500.0	6,934.6	8,479.9	6,927.7	32.4	33.0	86.05	-1,597.2	-414.6	101.8	37.6	64.26	1.585		
8,600.0	6,931.7	8,581.8	6,925.1	34.0	34.6	86.32	-1,699.1	-415.8	103.0	35.6	67.36	1.529		
8,700.0	6,928.8	8,684.6	6,926.0	35.7	36.3	88.48	-1,801.8	-414.8	101.8	31.4	70.45	1.445	Level 3	
8,800.0	6,925.8	8,783.7	6,927.9	37.3	37.9	91.22	-1,900.8	-412.5	99.6	25.7	73.85	1.348	Level 3	
8,900.0	6,922.9	8,883.4	6,927.8	39.0	39.5	92.88	-2,000.5	-411.2	98.3	21.2	77.13	1.275	Level 3	
9,000.0	6,920.0	8,983.9	6,926.7	40.6	41.1	94.02	-2,101.1	-409.7	96.9	16.6	80.30	1.207	Level 2	
9,100.0	6,917.0	9,084.4	6,925.5	42.3	42.8	95.15	-2,201.4	-407.6	95.0	11.5	83.47	1.138	Level 2	
9,200.0	6,914.1	9,184.4	6,924.0	43.9	44.4	96.13	-2,301.4	-405.3	92.8	6.2	86.68	1.071	Level 2	
9,300.0	6,911.2	9,285.5	6,923.2	45.6	46.1	97.77	-2,402.5	-402.1	89.9	0.4	89.58	1.004	Level 2	
9,400.0	6,908.2	9,384.8	6,922.8	47.3	47.8	99.68	-2,501.7	-398.6	86.9	-5.7	92.57	0.938	Level 1	
9,500.0	6,905.3	9,483.7	6,922.1	49.0	49.4	101.40	-2,600.6	-396.2	84.9	-10.6	95.56	0.889	Level 1	
9,600.0	6,902.4	9,583.5	6,922.0	50.7	51.1	103.56	-2,700.4	-394.4	83.8	-14.4	98.15	0.854	Level 1	
9,700.0	6,899.5	9,684.3	6,921.4	52.4	52.8	105.50	-2,801.1	-392.4	82.4	-18.2	100.53	0.819	Level 1	
9,800.0	6,896.5	9,784.3	6,920.1	54.1	54.5	107.19	-2,901.1	-389.3	79.9	-23.1	102.97	0.776	Level 1	
9,900.0	6,893.6	9,882.8	6,919.4	55.8	56.2	109.08	-2,999.6	-387.8	79.1	-26.3	105.39	0.751	Level 1	
9,913.8	6,893.2	9,896.6	6,919.2	56.0	56.4	109.24	-3,013.4	-387.7	79.1	-26.6	105.74	0.748	Level 1	
10,000.0	6,890.7	9,981.8	6,917.3	57.5	57.9	109.56	-3,098.5	-387.9	79.5	-29.0	108.47	0.733	Level 1	
10,100.0	6,887.7	10,080.7	6,916.0	59.2	59.6	110.17	-3,197.5	-389.7	81.8	-29.7	111.42	0.734	Level 1	
10,200.0	6,884.8	10,181.3	6,916.2	60.9	61.3	111.90	-3,298.0	-391.0	84.0	-29.3	113.35	0.741	Level 1	
10,300.0	6,881.9	10,282.5	6,918.0	62.6	63.0	115.01	-3,399.2	-390.4	85.4	-28.4	113.85	0.750	Level 1	
10,400.0	6,878.9	10,382.4	6,916.9	64.3	64.7	116.36	-3,499.1	-389.7	85.6	-30.2	115.76	0.739	Level 1	
10,500.0	6,876.0	10,480.9	6,915.7	66.0	66.4	117.04	-3,597.6	-390.6	87.1	-31.2	118.35	0.736	Level 1	
10,600.0	6,873.1	10,579.7	6,912.8	67.8	68.1	116.09	-3,696.3	-394.0	90.3	-32.2	122.47	0.737	Level 1	
10,700.0	6,870.1	10,679.5	6,909.6	69.5	69.8	114.71	-3,795.9	-398.5	94.2	-32.7	126.95	0.742	Level 1	
10,800.2	6,867.2	10,780.9	6,903.6	71.2	71.6	111.86	-3,897.0	-403.6	97.7	-35.0	132.67	0.736	Level 1	
10,900.0	6,864.3	10,882.8	6,896.0	72.9	73.3	108.97	-3,998.6	-407.3	97.8	-40.4	138.18	0.708	Level 1	
11,000.0	6,861.3	10,982.5	6,890.5	74.7	75.1	108.34	-4,098.0	-408.9	93.5	-48.5	142.06	0.659	Level 1	
11,100.0	6,858.4	11,082.5	6,888.6	76.4	76.8	110.77	-4,198.0	-409.5	86.1	-57.2	143.34	0.601	Level 1	
11,200.0	6,855.4	11,182.0	6,887.8	78.1	78.5	115.90	-4,297.5	-409.2	75.3	-66.2	141.51	0.532	Level 1	
11,300.0	6,852.5	11,281.9	6,888.2	79.9	80.2	126.52	-4,397.4	-406.7	61.2	-69.4	130.58	0.469 Level 1, ES, SF		
11,400.0	6,849.6	11,379.9	6,888.1	81.6	81.9	147.44	-4,495.3	-402.0	46.3	-47.9	94.23	0.491 Level 1		
11,419.2	6,849.0	11,398.4	6,888.1	81.9	82.2	153.37	-4,513.7	-400.9	44.1	-37.4	81.47	0.541 Level 1		
11,454.0	6,848.0	11,430.0	6,888.0	82.5	82.8	164.68	-4,545.3	-399.0	41.5	-14.3	55.81	0.744 Level 1		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER RANCH 5J-343 - OH - FINAL													Offset Site Error: 0.0 usft	
Survey Program: 163-MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	5.0	5.0	0.0	0.0	-87.55	54.7	-1,275.4	1,276.6					
100.0	100.0	104.8	104.8	0.2	0.2	-87.53	55.0	-1,275.4	1,276.6	1,276.3	0.32	3,975.902		
200.0	200.0	212.1	212.1	0.3	0.3	-87.49	56.0	-1,275.2	1,276.5	1,275.8	0.68	1,889.182		
300.0	300.0	316.2	316.2	0.5	0.5	-87.44	57.0	-1,274.2	1,275.6	1,274.5	1.03	1,234.968		
400.0	400.0	413.7	413.7	0.7	0.7	-87.39	58.1	-1,273.4	1,274.8	1,273.4	1.38	924.571		
500.0	500.0	514.8	514.8	0.8	0.9	-87.34	59.1	-1,272.7	1,274.1	1,272.4	1.73	736.331		
600.0	600.0	615.2	615.1	1.0	1.1	-87.30	60.0	-1,271.9	1,273.3	1,271.2	2.08	611.783		
673.1	673.1	678.1	678.1	1.2	1.2	-87.25	61.0	-1,271.5	1,273.0	1,270.7	2.32	548.529		
700.0	700.0	700.6	700.5	1.2	1.2	-87.23	61.4	-1,271.5	1,273.0	1,270.6	2.41	528.722		
800.0	800.0	802.8	802.7	1.4	1.4	-32.53	63.8	-1,271.9	1,272.0	1,269.2	2.76	460.074		
900.0	899.8	897.4	897.3	1.6	1.6	-32.58	66.3	-1,272.1	1,268.0	1,264.8	3.11	407.396		
987.4	986.9	985.8	985.6	1.7	1.7	-32.72	68.8	-1,272.3	1,262.0	1,258.6	3.43	367.923		
1,000.0	999.5	996.9	996.8	1.8	1.7	-32.73	69.1	-1,272.3	1,261.0	1,257.6	3.47	363.058		
1,100.0	1,099.0	1,083.5	1,083.3	2.0	1.9	-32.83	71.7	-1,273.2	1,253.7	1,249.9	3.82	328.214		
1,200.0	1,198.4	1,170.0	1,169.6	2.2	2.1	-32.80	77.1	-1,274.9	1,247.5	1,243.3	4.17	298.825		
1,300.0	1,297.9	1,260.0	1,259.4	2.4	2.2	-32.80	82.2	-1,277.4	1,242.1	1,237.6	4.53	273.933		
1,400.0	1,397.4	1,343.1	1,342.4	2.6	2.4	-32.81	86.4	-1,280.6	1,237.8	1,232.9	4.88	253.582		
1,500.0	1,496.9	1,424.4	1,423.5	2.9	2.6	-32.89	89.4	-1,285.1	1,235.0	1,229.8	5.22	236.657		
1,600.0	1,596.4	1,525.5	1,524.3	3.1	2.7	-33.02	92.4	-1,291.4	1,233.0	1,227.4	5.60	220.304		
1,700.0	1,695.9	1,635.4	1,634.0	3.3	3.0	-33.15	95.9	-1,297.6	1,230.3	1,224.3	5.99	205.269		
1,800.0	1,795.4	1,753.6	1,752.0	3.6	3.2	-33.26	100.1	-1,303.4	1,227.0	1,220.6	6.41	191.441		
1,900.0	1,894.9	1,861.0	1,859.2	3.8	3.4	-33.33	104.7	-1,306.8	1,221.9	1,215.1	6.81	179.466		
2,000.0	1,994.4	1,976.0	1,974.1	4.1	3.6	-33.41	109.6	-1,309.7	1,216.2	1,209.0	7.22	168.492		
2,100.0	2,093.9	2,069.0	2,067.0	4.3	3.8	-33.50	112.8	-1,312.0	1,210.4	1,202.8	7.59	159.549		
2,200.0	2,193.4	2,159.5	2,157.4	4.5	4.0	-33.60	115.7	-1,315.1	1,205.6	1,197.6	7.95	151.638		
2,300.0	2,292.9	2,254.1	2,251.9	4.8	4.1	-33.73	118.4	-1,318.4	1,200.8	1,192.5	8.32	144.343		
2,400.0	2,392.4	2,364.2	2,361.9	5.0	4.4	-33.90	121.2	-1,322.0	1,195.8	1,187.1	8.72	137.162		
2,500.0	2,491.9	2,466.8	2,464.5	5.3	4.5	-34.03	124.4	-1,325.0	1,190.5	1,181.4	9.11	130.753		
2,600.0	2,591.4	2,572.5	2,570.1	5.5	4.7	-34.18	127.2	-1,327.2	1,184.3	1,174.8	9.50	124.680		
2,700.0	2,690.9	2,663.0	2,660.4	5.8	4.9	-34.24	131.1	-1,329.6	1,178.7	1,168.8	9.87	119.375		
2,800.0	2,790.4	2,760.4	2,757.6	6.0	5.1	-34.24	136.7	-1,332.6	1,173.6	1,163.3	10.26	114.338		
2,900.0	2,889.9	2,856.7	2,853.7	6.2	5.3	-34.22	142.4	-1,335.6	1,168.6	1,157.9	10.65	109.691		
3,000.0	2,989.4	2,950.6	2,947.4	6.5	5.5	-34.22	147.9	-1,339.1	1,164.1	1,153.1	11.03	105.505		
3,100.0	3,088.9	3,047.4	3,044.0	6.7	5.7	-34.28	152.2	-1,343.0	1,160.0	1,148.6	11.42	101.594		
3,200.0	3,188.4	3,139.1	3,135.5	7.0	5.9	-34.35	156.0	-1,347.1	1,156.2	1,144.5	11.79	98.107		
3,300.0	3,287.9	3,250.9	3,247.2	7.2	6.1	-34.56	158.3	-1,352.7	1,153.0	1,140.8	12.19	94.580		
3,400.0	3,387.4	3,366.0	3,362.1	7.5	6.3	-34.73	161.4	-1,356.2	1,147.9	1,135.3	12.60	91.096		
3,500.0	3,486.9	3,471.2	3,467.4	7.7	6.5	-34.94	163.3	-1,358.7	1,142.0	1,129.0	12.99	87.911		
3,600.0	3,586.4	3,567.0	3,563.1	8.0	6.7	-35.12	165.2	-1,360.8	1,136.0	1,122.6	13.37	84.970		
3,700.0	3,685.9	3,652.1	3,648.1	8.2	6.8	-35.25	167.6	-1,363.4	1,130.9	1,117.1	13.73	82.341		
3,800.0	3,785.4	3,748.4	3,744.3	8.5	7.0	-35.39	170.5	-1,367.2	1,126.7	1,112.6	14.11	79.832		
3,900.0	3,884.9	3,827.0	3,822.8	8.7	7.2	-35.50	172.9	-1,371.1	1,123.5	1,109.0	14.47	77.652		
4,000.0	3,984.4	3,924.6	3,920.1	8.9	7.4	-35.56	177.4	-1,377.4	1,121.7	1,106.8	14.86	75.497		
4,100.0	4,083.9	4,023.2	4,018.3	9.2	7.6	-35.62	181.9	-1,383.4	1,119.7	1,104.4	15.25	73.419		
4,200.0	4,183.4	4,153.0	4,147.9	9.4	7.9	-35.68	184.4	-1,390.1	1,116.6	1,100.9	15.71	71.093		
4,300.0	4,282.9	4,250.1	4,244.7	9.7	8.1	-35.69	193.7	-1,393.7	1,112.2	1,096.1	16.10	69.084		
4,400.0	4,382.4	4,354.8	4,349.2	9.9	8.3	-35.74	198.9	-1,397.8	1,107.9	1,091.4	16.50	67.131		
4,500.0	4,481.9	4,468.4	4,462.6	10.2	8.5	-35.78	204.7	-1,400.8	1,102.4	1,085.5	16.93	65.130		
4,531.4	4,513.1	4,500.6	4,494.8	10.3	8.6	-35.79	206.4	-1,401.5	1,100.5	1,083.5	17.05	64.537		
4,600.0	4,581.4	4,571.3	4,565.3	10.4	8.7	-35.74	210.2	-1,402.9	1,097.0	1,079.7	17.32	63.329		
4,700.0	4,681.3	4,678.7	4,672.6	10.6	8.9	-35.60	215.9	-1,404.8	1,093.9	1,076.2	17.69	61.826		
4,800.0	4,781.2	4,808.0	4,801.8	10.7	9.1	-35.52	218.8	-1,404.9	1,092.0	1,074.0	18.06	60.477		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER RANCH 5J-343 - OH - FINAL												Offset Site Error:	0.0 usft
Survey Program: 163-MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
4,818.8	4,800.0	4,824.9	4,818.8	10.8	9.2	-90.17	218.8	-1,404.6	1,091.7	1,073.6	18.12	60.260	
4,900.0	4,881.2	4,893.2	4,887.1	10.9	9.3	-90.14	219.3	-1,404.2	1,091.2	1,072.8	18.37	59.405	
4,902.5	4,883.7	4,895.4	4,889.2	10.9	9.3	-90.14	219.4	-1,404.2	1,091.2	1,072.8	18.38	59.380	
5,000.0	4,981.2	4,989.1	4,983.0	11.0	9.4	-90.08	220.5	-1,404.3	1,091.3	1,072.6	18.69	58.389	
5,100.0	5,081.2	5,094.0	5,087.8	11.1	9.6	-90.00	222.0	-1,404.3	1,091.3	1,072.3	19.03	57.356	
5,140.0	5,121.2	5,132.4	5,126.2	11.2	9.7	-89.97	222.6	-1,404.3	1,091.3	1,072.1	19.16	56.967	
5,200.0	5,181.2	5,189.0	5,182.8	11.3	9.8	-89.94	223.1	-1,404.4	1,091.4	1,072.1	19.35	56.410	
5,300.0	5,281.2	5,290.7	5,284.5	11.4	9.9	-89.90	223.8	-1,404.8	1,091.8	1,072.1	19.68	55.479	
5,400.0	5,381.2	5,398.3	5,392.1	11.6	10.1	-89.88	224.3	-1,404.5	1,091.5	1,071.5	20.02	54.532	
5,500.0	5,481.2	5,498.6	5,492.4	11.7	10.3	-89.90	223.9	-1,404.1	1,091.1	1,070.8	20.34	53.641	
5,600.0	5,581.2	5,607.1	5,600.9	11.8	10.4	-89.94	223.1	-1,402.7	1,089.8	1,069.1	20.68	52.705	
5,700.0	5,681.2	5,698.9	5,692.7	12.0	10.6	-89.97	222.6	-1,401.9	1,088.9	1,067.9	21.00	51.854	
5,800.0	5,781.2	5,796.1	5,789.9	12.1	10.7	-89.93	223.3	-1,401.5	1,088.5	1,067.1	21.33	51.030	
5,900.0	5,881.2	5,899.6	5,893.3	12.3	10.9	-89.86	224.6	-1,401.1	1,088.1	1,066.4	21.67	50.217	
6,000.0	5,981.2	6,001.1	5,994.9	12.4	11.1	-89.81	225.6	-1,400.1	1,087.2	1,065.2	22.00	49.410	
6,100.0	6,081.2	6,097.1	6,090.9	12.6	11.2	-89.76	226.5	-1,399.6	1,086.6	1,064.3	22.33	48.660	
6,200.0	6,181.2	6,194.6	6,188.3	12.7	11.4	-89.76	226.5	-1,399.3	1,086.3	1,063.6	22.66	47.940	
6,269.3	6,250.5	6,262.7	6,256.4	12.8	11.5	-89.77	226.4	-1,399.2	1,086.2	1,063.3	22.89	47.457	
6,300.0	6,281.2	6,293.6	6,287.3	12.9	11.6	90.27	226.4	-1,399.2	1,086.2	1,063.2	22.98	47.263	
6,350.0	6,331.0	6,344.2	6,338.0	12.9	11.6	90.47	226.3	-1,399.1	1,086.1	1,063.0	23.11	47.005	
6,386.9	6,367.6	6,381.0	6,374.7	12.9	11.7	90.69	225.3	-1,399.0	1,086.1	1,062.9	23.18	46.860	
6,400.0	6,380.5	6,392.4	6,386.2	12.9	11.7	90.77	224.8	-1,399.0	1,086.1	1,062.9	23.20	46.814	
6,450.0	6,429.3	6,429.0	6,422.7	13.0	11.8	91.06	223.2	-1,399.1	1,086.5	1,063.2	23.26	46.705	
6,500.0	6,477.3	6,469.4	6,463.0	13.0	11.8	91.44	220.4	-1,399.7	1,087.4	1,064.1	23.31	46.659	
6,550.0	6,524.1	6,505.8	6,499.1	13.0	11.9	91.77	216.4	-1,400.6	1,089.1	1,065.8	23.33	46.679	
6,600.0	6,569.6	6,540.5	6,533.5	13.0	11.9	92.07	211.4	-1,402.0	1,091.7	1,068.3	23.36	46.742	
6,650.0	6,613.5	6,572.0	6,564.4	13.0	11.9	92.31	206.0	-1,403.7	1,095.2	1,071.8	23.38	46.840	
6,700.0	6,655.7	6,611.6	6,603.1	13.0	12.0	92.68	197.9	-1,406.3	1,099.6	1,076.1	23.43	46.923	
6,750.0	6,695.9	6,637.5	6,628.2	13.0	12.0	92.75	191.6	-1,408.4	1,104.9	1,081.4	23.49	47.034	
6,800.0	6,734.0	6,666.0	6,655.3	13.1	12.1	92.79	183.4	-1,411.5	1,111.8	1,088.2	23.59	47.126	
6,850.0	6,769.7	6,697.7	6,684.7	13.1	12.1	92.81	172.5	-1,415.6	1,119.8	1,096.0	23.74	47.169	
6,900.0	6,802.8	6,756.7	6,737.0	13.2	12.1	93.25	146.5	-1,423.8	1,128.3	1,104.3	23.97	47.066	
6,950.0	6,833.3	7,004.0	6,902.0	13.4	12.7	93.98	-32.0	-1,440.1	1,129.8	1,105.2	24.58	45.974	
7,000.0	6,860.9	7,064.2	6,922.3	13.6	13.0	93.26	-88.6	-1,441.0	1,129.9	1,104.8	25.10	45.020	
7,050.0	6,885.6	7,156.9	6,938.9	13.8	13.6	91.79	-179.6	-1,440.8	1,129.0	1,103.1	25.90	43.594	
7,100.0	6,907.1	7,264.2	6,942.5	14.1	14.5	89.82	-286.7	-1,435.7	1,125.8	1,098.8	26.98	41.721	
7,150.0	6,925.5	7,319.2	6,942.4	14.4	15.0	89.09	-341.6	-1,431.6	1,122.1	1,094.2	27.83	40.321	
7,200.0	6,940.5	7,371.9	6,942.0	14.8	15.5	88.56	-394.1	-1,427.4	1,118.2	1,089.4	28.75	38.891	
7,250.0	6,952.2	7,412.8	6,941.3	15.2	16.0	88.33	-434.9	-1,424.1	1,114.4	1,084.7	29.67	37.561	
7,300.0	6,960.5	7,448.0	6,940.5	15.7	16.4	88.24	-470.0	-1,421.6	1,111.1	1,080.5	30.61	36.302	
7,350.0	6,965.4	7,485.0	6,939.5	16.2	16.8	88.22	-506.9	-1,419.5	1,108.4	1,076.8	31.61	35.069	
7,400.0	6,966.7	7,532.4	6,938.3	16.7	17.4	88.29	-554.2	-1,417.2	1,106.0	1,073.2	32.76	33.759	
7,415.3	6,966.4	7,547.5	6,938.0	16.9	17.6	88.35	-569.3	-1,416.4	1,105.2	1,072.1	33.13	33.364	
7,500.0	6,964.0	7,637.6	6,937.5	17.9	18.7	88.45	-659.3	-1,411.9	1,100.9	1,065.6	35.28	31.205	
7,600.0	6,961.0	7,742.8	6,937.6	19.1	20.1	88.61	-764.2	-1,405.8	1,095.1	1,057.1	37.96	28.847	
7,700.0	6,958.1	7,837.5	6,937.9	20.4	21.5	88.76	-858.8	-1,400.4	1,089.3	1,048.6	40.69	26.769	
7,800.0	6,955.2	7,916.0	6,936.8	21.8	22.6	88.83	-937.2	-1,396.7	1,084.6	1,041.2	43.39	24.997	
7,900.0	6,952.2	8,005.4	6,934.3	23.2	24.0	88.83	-1,026.5	-1,394.5	1,082.0	1,035.8	46.26	23.392	
8,000.0	6,949.3	8,109.6	6,931.3	24.7	25.5	88.83	-1,130.7	-1,391.3	1,079.0	1,029.7	49.33	21.875	
8,100.0	6,946.4	8,197.4	6,929.9	26.2	26.9	88.89	-1,218.5	-1,389.1	1,076.5	1,024.2	52.31	20.580	
8,200.0	6,943.4	8,293.6	6,927.9	27.7	28.4	88.93	-1,314.6	-1,387.9	1,075.2	1,019.8	55.41	19.405	
8,300.0	6,940.5	8,393.3	6,924.5	29.3	30.0	88.90	-1,414.2	-1,386.2	1,073.5	1,014.9	58.59	18.322	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER RANCH 5J-343 - OH - FINAL													Offset Site Error:	0.0 usft
Survey Program: 163-MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (")	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
8,400.0	6,937.6	8,480.7	6,921.1	30.8	31.4	88.86	-1,501.6	-1,385.4	1,072.6	1,011.0	61.68	17.390		
8,421.4	6,936.9	8,499.4	6,920.7	31.2	31.7	88.86	-1,520.2	-1,385.4	1,072.6	1,010.3	62.35	17.203		
8,500.0	6,934.6	8,586.4	6,920.2	32.4	33.1	88.97	-1,607.2	-1,385.4	1,072.6	1,007.7	64.99	16.506		
8,600.0	6,931.7	8,683.3	6,920.9	34.0	34.7	89.16	-1,704.2	-1,384.3	1,071.4	1,003.2	68.23	15.703		
8,625.8	6,930.9	8,703.9	6,921.0	34.5	35.1	89.20	-1,724.7	-1,384.3	1,071.4	1,002.4	69.03	15.521		
8,700.0	6,928.8	8,780.7	6,921.3	35.7	36.3	89.34	-1,801.5	-1,384.4	1,071.5	1,000.0	71.50	14.986		
8,800.0	6,925.8	8,887.2	6,922.5	37.3	38.1	89.57	-1,908.0	-1,383.8	1,070.8	995.9	74.88	14.300		
8,900.0	6,922.9	9,012.1	6,921.7	39.0	40.2	89.72	-2,032.9	-1,381.6	1,069.1	990.7	78.44	13.629		
9,000.0	6,920.0	9,106.0	6,921.7	40.6	41.7	89.87	-2,126.7	-1,378.4	1,065.7	984.0	81.74	13.039		
9,100.0	6,917.0	9,180.8	6,920.9	42.3	43.0	89.94	-2,201.5	-1,376.9	1,063.9	979.1	84.85	12.538		
9,122.9	6,916.4	9,201.0	6,920.4	42.7	43.3	89.95	-2,221.7	-1,377.0	1,064.0	978.4	85.60	12.430		
9,200.0	6,914.1	9,281.8	6,917.7	43.9	44.7	89.93	-2,302.5	-1,377.1	1,064.1	975.9	88.23	12.060		
9,238.7	6,913.0	9,317.1	6,916.2	44.6	45.3	89.90	-2,337.7	-1,377.0	1,064.0	974.5	89.50	11.888		
9,300.0	6,911.2	9,365.2	6,914.2	45.6	46.1	89.87	-2,385.8	-1,377.3	1,064.4	972.9	91.43	11.641		
9,400.0	6,908.2	9,478.1	6,910.3	47.3	48.0	89.84	-2,498.7	-1,378.5	1,065.6	970.6	94.96	11.221		
9,500.0	6,905.3	9,580.2	6,907.4	49.0	49.7	89.85	-2,600.7	-1,378.4	1,065.4	967.0	98.38	10.829		
9,600.0	6,902.4	9,699.2	6,905.2	50.7	51.8	89.91	-2,719.7	-1,376.8	1,064.0	962.0	101.97	10.434		
9,700.0	6,899.5	9,784.6	6,904.1	52.4	53.2	89.99	-2,805.0	-1,375.7	1,062.7	957.4	105.25	10.097		
9,728.6	6,898.6	9,807.1	6,903.9	52.9	53.6	90.01	-2,827.5	-1,375.6	1,062.6	956.4	106.16	10.009		
9,800.0	6,896.5	9,869.0	6,903.4	54.1	54.7	90.08	-2,889.4	-1,376.1	1,063.1	954.6	108.50	9.799		
9,900.0	6,893.6	9,946.4	6,903.2	55.8	56.0	90.20	-2,966.8	-1,377.8	1,065.3	953.7	111.64	9.543		
10,000.0	6,890.7	10,046.1	6,903.5	57.5	57.7	90.37	-3,066.5	-1,381.0	1,068.5	953.5	115.06	9.287		
10,100.0	6,887.7	10,134.8	6,903.5	59.2	59.2	90.51	-3,155.1	-1,384.1	1,072.0	953.7	118.33	9.059		
10,200.0	6,884.8	10,269.1	6,904.5	60.9	61.5	90.77	-3,289.4	-1,387.6	1,074.7	952.5	122.21	8.794		
10,300.0	6,881.9	10,370.1	6,906.1	62.6	63.3	91.01	-3,390.3	-1,388.3	1,075.5	949.9	125.65	8.560		
10,400.0	6,878.9	10,471.6	6,908.1	64.3	65.0	91.28	-3,491.8	-1,389.1	1,076.4	947.3	129.10	8.338		
10,500.0	6,876.0	10,574.8	6,908.0	66.0	66.8	91.43	-3,594.9	-1,389.4	1,076.7	944.2	132.58	8.122		
10,600.0	6,873.1	10,670.1	6,906.7	67.8	68.4	91.51	-3,690.2	-1,390.1	1,077.5	941.5	135.97	7.925		
10,700.0	6,870.1	10,780.8	6,905.0	69.5	70.4	91.59	-3,800.9	-1,390.6	1,078.1	938.5	139.53	7.726		
10,800.2	6,867.2	10,887.1	6,903.2	71.2	72.2	91.66	-3,907.2	-1,389.9	1,077.4	934.3	143.05	7.531		
10,900.0	6,864.3	11,012.0	6,901.1	72.9	74.4	91.81	-4,032.1	-1,387.9	1,074.1	927.4	146.70	7.322		
11,000.0	6,861.3	11,108.3	6,899.9	74.7	76.0	91.98	-4,128.3	-1,385.0	1,065.9	915.8	150.11	7.101		
11,100.0	6,858.4	11,210.8	6,898.8	76.4	77.8	92.18	-4,230.8	-1,382.1	1,054.3	900.8	153.55	6.866		
11,200.0	6,855.4	11,333.1	6,897.5	78.1	79.9	92.42	-4,353.0	-1,376.7	1,037.7	880.6	157.05	6.607		
11,300.0	6,852.5	11,443.1	6,896.4	79.9	81.8	92.67	-4,462.8	-1,370.2	1,016.1	855.7	160.43	6.334		
11,400.0	6,849.6	11,500.0	6,895.9	81.6	82.8	92.86	-4,519.5	-1,366.4	991.3	827.6	163.68	6.056		
11,419.2	6,849.0	11,500.0	6,895.9	81.9	82.8	92.88	-4,519.5	-1,366.4	986.9	822.7	164.20	6.010		
11,454.0	6,848.0	11,500.0	6,895.9	82.5	82.8	92.88	-4,519.5	-1,366.4	979.7	814.7	165.02	5.937 CC, ES, SF		

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER RANCH 5M-243 - OH - OH													Offset Site Error:	0.0 usft
Survey Program: 158-MWD+HDGM													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)						
0.0	0.0	0.0	0.0	0.0	0.0	-179.99	-14.6	0.0	14.6					
100.0	100.0	100.0	100.0	0.2	0.2	-179.57	-14.4	-0.1	14.4	14.1	0.32	45.609		
200.0	200.0	200.1	200.1	0.3	0.4	-178.09	-14.1	-0.5	14.1	13.3	0.74	19.104		
300.0	300.0	300.1	300.1	0.5	0.8	-174.39	-13.6	-1.3	13.6	12.4	1.27	10.748		
400.0	400.0	400.1	400.1	0.7	1.1	-169.73	-12.9	-2.3	13.1	11.3	1.80	7.288		
500.0	500.0	500.1	500.0	0.8	1.5	-164.71	-12.4	-3.4	12.8	10.5	2.34	5.496		
600.0	600.0	600.1	600.0	1.0	1.8	-160.38	-11.8	-4.2	12.5	9.7	2.87	4.374		
700.0	700.0	700.1	700.1	1.2	2.2	-157.12	-11.2	-4.7	12.2	8.8	3.40	3.589		
751.2	751.2	751.3	751.3	1.3	2.4	-103.24	-10.9	-4.9	12.1	8.4	3.67	3.283 CC		
800.0	800.0	800.1	800.0	1.4	2.6	-107.18	-10.6	-5.2	12.2	8.3	3.93	3.107 ES		
900.0	899.8	900.0	900.0	1.6	2.9	-121.83	-9.7	-6.5	13.8	9.3	4.47	3.086 SF		
987.4	986.9	987.4	987.3	1.7	3.2	-137.10	-8.7	-8.2	17.4	12.5	4.95	3.522		
1,000.0	999.5	1,000.0	999.9	1.8	3.3	-139.28	-8.5	-8.4	18.1	13.1	5.02	3.602		
1,100.0	1,099.0	1,099.9	1,099.8	2.0	3.6	-153.72	-5.4	-10.0	23.0	17.4	5.55	4.145		
1,200.0	1,198.4	1,199.6	1,199.4	2.2	4.0	-162.96	-2.3	-11.4	29.0	22.9	6.07	4.777		
1,300.0	1,297.9	1,299.3	1,299.0	2.4	4.3	-168.72	0.6	-12.9	35.6	29.0	6.60	5.389		
1,400.0	1,397.4	1,398.9	1,398.6	2.6	4.7	-172.30	3.2	-14.4	42.5	35.4	7.13	5.964		
1,500.0	1,496.9	1,499.2	1,498.8	2.9	5.1	-175.74	6.6	-15.6	49.3	41.7	7.66	6.441		
1,600.0	1,596.4	1,600.1	1,599.6	3.1	5.4	178.93	13.1	-16.7	54.6	46.4	8.19	6.668		
1,700.0	1,695.9	1,700.0	1,699.1	3.3	5.8	173.64	21.0	-18.4	59.0	50.3	8.73	6.765		
1,800.0	1,795.4	1,799.6	1,798.4	3.6	6.1	169.38	28.7	-20.1	64.0	54.7	9.27	6.902		
1,900.0	1,894.9	1,899.1	1,897.6	3.8	6.5	165.86	36.1	-21.5	69.6	59.7	9.83	7.080		
2,000.0	1,994.4	1,998.5	1,996.6	4.1	6.9	161.31	45.2	-21.8	75.9	65.6	10.39	7.307		
2,100.0	2,093.9	2,098.1	2,095.7	4.3	7.2	157.46	54.4	-22.1	82.6	71.7	10.97	7.532		
2,200.0	2,193.4	2,197.0	2,194.2	4.5	7.6	153.65	64.3	-21.4	90.5	79.0	11.56	7.832		
2,300.0	2,292.9	2,298.3	2,295.0	4.8	8.0	150.74	73.9	-21.4	98.2	86.0	12.16	8.077		
2,400.0	2,392.4	2,399.5	2,395.7	5.0	8.3	148.03	84.0	-23.5	103.9	91.1	12.76	8.138		
2,500.0	2,491.9	2,502.4	2,498.0	5.3	8.7	146.12	93.3	-27.2	108.3	95.0	13.37	8.103		
2,600.0	2,591.4	2,603.3	2,598.3	5.5	9.1	144.07	103.0	-33.4	110.3	96.3	13.98	7.889		
2,700.0	2,690.9	2,702.9	2,697.4	5.8	9.5	142.84	111.2	-39.6	112.3	97.7	14.57	7.705		
2,800.0	2,790.4	2,802.9	2,796.9	6.0	9.9	141.97	118.8	-45.6	114.5	99.3	15.16	7.552		
2,900.0	2,889.9	2,902.8	2,896.4	6.2	10.2	141.34	126.0	-51.5	116.8	101.1	15.75	7.418		
3,000.0	2,989.4	3,004.8	2,997.7	6.5	10.6	140.07	134.6	-58.7	118.2	101.8	16.36	7.224		
3,100.0	3,088.9	3,104.6	3,097.0	6.7	11.0	139.35	141.9	-66.4	118.8	101.8	16.95	7.006		
3,200.0	3,188.4	3,202.5	3,194.5	7.0	11.4	139.22	148.0	-73.0	120.2	102.6	17.53	6.855		
3,300.0	3,287.9	3,298.8	3,290.3	7.2	11.7	138.17	156.2	-77.0	124.5	106.4	18.13	6.868		
3,400.0	3,387.4	3,398.8	3,389.8	7.5	12.1	136.93	165.4	-79.9	130.1	111.3	18.75	6.937		
3,500.0	3,486.9	3,498.4	3,489.1	7.7	12.5	136.21	173.6	-83.2	135.3	115.9	19.35	6.990		
3,600.0	3,586.4	3,596.6	3,586.9	8.0	12.8	135.47	182.0	-85.1	141.8	121.9	19.95	7.108		
3,700.0	3,685.9	3,695.7	3,685.7	8.2	13.2	135.05	189.9	-86.9	148.5	127.9	20.54	7.226		
3,800.0	3,785.4	3,793.0	3,782.7	8.5	13.4	134.52	195.3	-87.3	161.8	141.6	20.19	8.012		
3,900.0	3,884.9	3,753.0	3,742.7	8.7	13.4	134.52	195.3	-87.3	216.6	200.3	16.31	13.277		
4,000.0	3,984.4	3,753.0	3,742.7	8.9	13.4	134.52	195.3	-87.3	296.0	282.8	13.26	22.328		
4,100.0	4,083.9	3,753.0	3,742.7	9.2	13.4	134.52	195.3	-87.3	385.2	373.7	11.45	33.627		
4,200.0	4,183.4	3,753.0	3,742.7	9.4	13.4	134.52	195.3	-87.3	478.7	468.3	10.39	46.087		
4,300.0	4,282.9	3,753.0	3,742.7	9.7	13.4	134.52	195.3	-87.3	574.3	564.6	9.73	59.045		
4,400.0	4,382.4	3,753.0	3,742.7	9.9	13.4	134.52	195.3	-87.3	671.3	661.9	9.31	72.122		
4,500.0	4,481.9	3,753.0	3,742.7	10.2	13.4	134.52	195.3	-87.3	769.0	759.9	9.04	85.106		
4,531.4	4,513.1	3,753.0	3,742.7	10.3	13.4	134.52	195.3	-87.3	799.8	790.8	8.97	89.143		
4,600.0	4,581.4	3,753.0	3,742.7	10.4	13.4	139.32	195.3	-87.3	867.1	858.3	8.85	97.958		
4,700.0	4,681.3	3,753.0	3,742.7	10.6	13.4	145.44	195.3	-87.3	965.2	956.5	8.71	110.831		
4,800.0	4,781.2	3,753.0	3,742.7	10.7	13.4	150.54	195.3	-87.3	1,063.1	1,054.5	8.60	123.662		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER RANCH 5M-243 - OH - OH												Offset Site Error:	0.0 usft
Survey Program: 158-MWD+HDGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
4,818.8	4,800.0	3,753.0	3,742.7	10.8	13.4	96.74	195.3	-87.3	1,081.5	1,072.9	8.58	126.060	
4,900.0	4,881.2	3,753.0	3,742.7	10.9	13.4	96.74	195.3	-87.3	1,161.0	1,152.5	8.52	136.289	
5,000.0	4,981.2	3,753.0	3,742.7	11.0	13.4	96.74	195.3	-87.3	1,259.2	1,250.7	8.48	148.533	
5,100.0	5,081.2	3,753.0	3,742.7	11.1	13.4	96.74	195.3	-87.3	1,357.7	1,349.2	8.46	160.390	
5,200.0	5,181.2	3,753.0	3,742.7	11.3	13.4	96.74	195.3	-87.3	1,456.4	1,447.9	8.47	171.867	
5,300.0	5,281.2	3,753.0	3,742.7	11.4	13.4	96.74	195.3	-87.3	1,555.2	1,546.7	8.50	182.980	
5,400.0	5,381.2	3,753.0	3,742.7	11.6	13.4	96.74	195.3	-87.3	1,654.2	1,645.7	8.54	193.745	
5,500.0	5,481.2	3,753.0	3,742.7	11.7	13.4	96.74	195.3	-87.3	1,753.3	1,744.7	8.59	204.179	
5,600.0	5,581.2	3,753.0	3,742.7	11.8	13.4	96.74	195.3	-87.3	1,852.5	1,843.9	8.64	214.300	
5,700.0	5,681.2	3,753.0	3,742.7	12.0	13.4	96.74	195.3	-87.3	1,951.8	1,943.1	8.71	224.124	
5,800.0	5,781.2	3,753.0	3,742.7	12.1	13.4	96.74	195.3	-87.3	2,051.2	2,042.4	8.78	233.667	
5,900.0	5,881.2	3,753.0	3,742.7	12.3	13.4	96.74	195.3	-87.3	2,150.6	2,141.7	8.85	242.943	
6,000.0	5,981.2	3,753.0	3,742.7	12.4	13.4	96.74	195.3	-87.3	2,250.0	2,241.1	8.93	251.966	
6,100.0	6,081.2	3,753.0	3,742.7	12.6	13.4	96.74	195.3	-87.3	2,349.5	2,340.5	9.01	260.750	
6,200.0	6,181.2	3,753.0	3,742.7	12.7	13.4	96.74	195.3	-87.3	2,449.1	2,440.0	9.09	269.304	
6,269.3	6,250.5	3,753.0	3,742.7	12.8	13.4	96.74	195.3	-87.3	2,518.1	2,509.0	9.15	275.107	
6,300.0	6,281.2	3,753.0	3,742.7	12.9	13.4	-59.17	195.3	-87.3	2,548.7	2,539.5	9.18	277.615	
6,350.0	6,331.0	3,753.0	3,742.7	12.9	13.4	-35.80	195.3	-87.3	2,598.3	2,589.0	9.23	281.526	
6,400.0	6,380.5	3,753.0	3,742.7	12.9	13.4	-24.59	195.3	-87.3	2,647.5	2,638.2	9.28	285.172	
6,450.0	6,429.3	3,753.0	3,742.7	13.0	13.4	-18.50	195.3	-87.3	2,696.1	2,686.7	9.35	288.505	
6,500.0	6,477.3	3,753.0	3,742.7	13.0	13.4	-14.77	195.3	-87.3	2,743.9	2,734.5	9.41	291.472	
6,550.0	6,524.1	3,753.0	3,742.7	13.0	13.4	-12.28	195.3	-87.3	2,790.7	2,781.2	9.49	294.023	
6,600.0	6,569.6	3,753.0	3,742.7	13.0	13.4	-10.51	195.3	-87.3	2,836.3	2,826.7	9.58	296.110	
6,650.0	6,613.5	3,753.0	3,742.7	13.0	13.4	-9.20	195.3	-87.3	2,880.6	2,870.9	9.68	297.692	
6,700.0	6,655.7	3,753.0	3,742.7	13.0	13.4	-8.20	195.3	-87.3	2,923.4	2,913.7	9.79	298.732	
6,750.0	6,695.9	3,753.0	3,742.7	13.0	13.4	-7.41	195.3	-87.3	2,964.7	2,954.7	9.91	299.208	
6,800.0	6,734.0	3,753.0	3,742.7	13.1	13.4	-6.77	195.3	-87.3	3,004.1	2,994.1	10.04	299.104	
6,850.0	6,769.7	3,753.0	3,742.7	13.1	13.4	-6.25	195.3	-87.3	3,041.7	3,031.5	10.19	298.417	
6,900.0	6,802.8	3,753.0	3,742.7	13.2	13.4	-5.83	195.3	-87.3	3,077.3	3,067.0	10.36	297.155	
6,950.0	6,833.3	3,753.0	3,742.7	13.4	13.4	-5.47	195.3	-87.3	3,110.8	3,100.3	10.53	295.336	
7,000.0	6,860.9	3,753.0	3,742.7	13.6	13.4	-5.17	195.3	-87.3	3,142.2	3,131.5	10.72	292.988	
7,050.0	6,885.6	3,753.0	3,742.7	13.8	13.4	-4.92	195.3	-87.3	3,171.3	3,160.3	10.93	290.144	
7,100.0	6,907.1	3,753.0	3,742.7	14.1	13.4	-4.71	195.3	-87.3	3,198.0	3,186.9	11.15	286.845	
7,150.0	6,925.5	3,753.0	3,742.7	14.4	13.4	-4.53	195.3	-87.3	3,222.3	3,211.0	11.38	283.135	
7,200.0	6,940.5	3,753.0	3,742.7	14.8	13.4	-4.38	195.3	-87.3	3,244.2	3,232.6	11.63	279.060	
7,250.0	6,952.2	3,753.0	3,742.7	15.2	13.4	-4.25	195.3	-87.3	3,263.5	3,251.6	11.88	274.665	
7,300.0	6,960.5	3,753.0	3,742.7	15.7	13.4	-4.15	195.3	-87.3	3,280.3	3,268.1	12.15	269.999	
7,350.0	6,965.4	3,753.0	3,742.7	16.2	13.4	-4.06	195.3	-87.3	3,294.4	3,282.0	12.43	265.103	
7,400.0	6,966.7	3,753.0	3,742.7	16.7	13.4	-4.00	195.3	-87.3	3,305.9	3,293.1	12.71	260.021	
7,415.3	6,966.4	3,753.0	3,742.7	16.9	13.4	-3.98	195.3	-87.3	3,308.8	3,296.0	12.80	258.426	
7,500.0	6,964.0	3,753.0	3,742.7	17.9	13.4	-3.98	195.3	-87.3	3,325.6	3,312.3	13.30	249.984	
7,600.0	6,961.0	3,753.0	3,742.7	19.1	13.4	-3.98	195.3	-87.3	3,348.1	3,334.2	13.89	241.037	
7,700.0	6,958.1	3,753.0	3,742.7	20.4	13.4	-3.98	195.3	-87.3	3,373.4	3,358.9	14.47	233.098	
7,800.0	6,955.2	3,753.0	3,742.7	21.8	13.4	-3.98	195.3	-87.3	3,401.5	3,386.4	15.05	226.066	
7,900.0	6,952.2	3,753.0	3,742.7	23.2	13.4	-3.98	195.3	-87.3	3,432.2	3,416.6	15.61	219.849	
8,000.0	6,949.3	3,753.0	3,742.7	24.7	13.4	-3.98	195.3	-87.3	3,465.6	3,449.4	16.17	214.363	
8,100.0	6,946.4	3,753.0	3,742.7	26.2	13.4	-3.98	195.3	-87.3	3,501.5	3,484.8	16.71	209.533	
8,200.0	6,943.4	3,753.0	3,742.7	27.7	13.4	-3.98	195.3	-87.3	3,539.8	3,522.6	17.24	205.291	
8,300.0	6,940.5	3,753.0	3,742.7	29.3	13.4	-3.98	195.3	-87.3	3,580.6	3,562.8	17.76	201.578	
8,400.0	6,937.6	3,753.0	3,742.7	30.8	13.4	-3.98	195.3	-87.3	3,623.6	3,605.3	18.27	198.341	
8,500.0	6,934.6	3,753.0	3,742.7	32.4	13.4	-3.98	195.3	-87.3	3,668.9	3,650.1	18.76	195.534	
8,600.0	6,931.7	3,753.0	3,742.7	34.0	13.4	-3.98	195.3	-87.3	3,716.3	3,697.0	19.24	193.113	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER RANCH 5M-243 - OH - OH													Offset Site Error: 0.0 usft
Survey Program: 158-MWD+HDGM													Offset Well Error: 0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	
8,700.0	6,928.8	3,753.0	3,742.7	35.7	13.4	-3.98	195.3	-87.3	3,765.7	3,746.0	19.71	191.042	
8,800.0	6,925.8	3,753.0	3,742.7	37.3	13.4	-3.98	195.3	-87.3	3,817.2	3,797.0	20.17	189.287	
8,900.0	6,922.9	3,753.0	3,742.7	39.0	13.4	-3.98	195.3	-87.3	3,870.5	3,849.9	20.61	187.820	
9,000.0	6,920.0	3,753.0	3,742.7	40.6	13.4	-3.98	195.3	-87.3	3,925.7	3,904.6	21.04	186.614	
9,100.0	6,917.0	3,753.0	3,742.7	42.3	13.4	-3.98	195.3	-87.3	3,982.6	3,961.1	21.45	185.644	
9,200.0	6,914.1	3,753.0	3,742.7	43.9	13.4	-3.98	195.3	-87.3	4,041.2	4,019.3	21.86	184.890	
9,300.0	6,911.2	3,753.0	3,742.7	45.6	13.4	-3.98	195.3	-87.3	4,101.4	4,079.1	22.25	184.334	
9,400.0	6,908.2	3,753.0	3,742.7	47.3	13.4	-3.98	195.3	-87.3	4,163.1	4,140.5	22.63	183.956	
9,500.0	6,905.3	3,753.0	3,742.7	49.0	13.4	-3.98	195.3	-87.3	4,226.3	4,203.3	23.00	183.743	
9,600.0	6,902.4	3,753.0	3,742.7	50.7	13.4	-3.98	195.3	-87.3	4,290.9	4,267.5	23.36	183.680	
9,700.0	6,899.5	3,753.0	3,742.7	52.4	13.4	-3.98	195.3	-87.3	4,356.8	4,333.1	23.71	183.754	
9,800.0	6,896.5	3,753.0	3,742.7	54.1	13.4	-3.98	195.3	-87.3	4,424.0	4,399.9	24.05	183.955	
9,900.0	6,893.6	3,753.0	3,742.7	55.8	13.4	-3.98	195.3	-87.3	4,492.4	4,468.0	24.38	184.271	
10,000.0	6,890.7	3,753.0	3,742.7	57.5	13.4	-3.98	195.3	-87.3	4,562.0	4,537.3	24.70	184.693	
10,100.0	6,887.7	3,753.0	3,742.7	59.2	13.4	-3.98	195.3	-87.3	4,632.7	4,607.7	25.01	185.212	
10,200.0	6,884.8	3,753.0	3,742.7	60.9	13.4	-3.98	195.3	-87.3	4,704.5	4,679.1	25.32	185.822	
10,300.0	6,881.9	3,753.0	3,742.7	62.6	13.4	-3.98	195.3	-87.3	4,777.2	4,751.6	25.61	186.514	
10,400.0	6,878.9	3,753.0	3,742.7	64.3	13.4	-3.98	195.3	-87.3	4,851.0	4,825.1	25.90	187.281	
10,500.0	6,876.0	3,753.0	3,742.7	66.0	13.4	-3.98	195.3	-87.3	4,925.7	4,899.5	26.18	188.119	
10,600.0	6,873.1	3,753.0	3,742.7	67.8	13.4	-3.98	195.3	-87.3	5,001.2	4,974.8	26.46	189.021	
10,700.0	6,870.1	3,753.0	3,742.7	69.5	13.4	-3.98	195.3	-87.3	5,077.6	5,050.9	26.73	189.982	
10,800.2	6,867.2	3,753.0	3,742.7	71.2	13.4	-3.98	195.3	-87.3	5,155.0	5,128.0	26.99	191.000	
10,900.0	6,864.3	3,753.0	3,742.7	72.9	13.4	-1.40	195.3	-87.3	5,232.9	5,205.6	27.25	192.052	

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER RANCH 5M-303 - OH - PLAN #1													Offset Site Error:	0.0 usft
Survey Program:		0-MWD											Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
0.0	0.0	1.0	1.0	0.0	0.0	-180.00	-43.7	0.0	43.7					
100.0	100.0	101.0	101.0	0.2	0.2	-180.00	-43.7	0.0	43.7	43.4	0.31	143.090	CC, ES	
200.0	200.0	201.0	201.0	0.3	0.3	-180.00	-43.7	0.0	43.7	43.0	0.65	66.775		
300.0	300.0	301.0	301.0	0.5	0.5	-180.00	-43.7	0.0	43.7	42.7	1.00	43.549		
400.0	400.0	401.0	401.0	0.7	0.7	-180.00	-43.7	0.0	43.7	42.4	1.35	32.311		
500.0	500.0	501.0	501.0	0.8	0.9	-180.00	-43.7	0.0	43.7	42.0	1.70	25.683		
600.0	600.0	601.0	601.0	1.0	1.0	-180.00	-43.7	0.0	43.7	41.7	2.05	21.311	CC, ES	
700.0	700.0	701.0	701.0	1.2	1.2	-180.00	-43.7	0.0	43.7	41.3	2.40	18.211		
800.0	800.0	801.0	801.0	1.4	1.4	-127.15	-43.7	0.0	44.7	42.0	2.75	16.269		
900.0	899.8	900.8	900.8	1.6	1.5	-132.07	-43.7	0.0	48.1	45.0	3.10	15.491		
987.4	986.9	987.9	987.9	1.7	1.7	-137.92	-43.7	0.0	53.3	49.9	3.42	15.612		
1,000.0	999.5	1,000.5	1,000.5	1.8	1.7	-138.81	-43.7	0.0	54.3	50.8	3.46	15.682		
1,100.0	1,099.0	1,100.0	1,100.0	2.0	1.9	-144.89	-43.7	0.0	62.2	58.4	3.82	16.287		
1,200.0	1,198.4	1,199.4	1,199.4	2.2	2.1	-149.56	-43.7	0.0	70.6	66.5	4.17	16.927		
1,300.0	1,297.9	1,298.9	1,298.9	2.4	2.2	-153.22	-43.7	0.0	79.4	74.9	4.53	17.556		
1,400.0	1,397.4	1,398.4	1,398.4	2.6	2.4	-156.14	-43.7	0.0	88.5	83.6	4.88	18.153		
1,500.0	1,496.9	1,497.9	1,497.9	2.9	2.6	-158.51	-43.7	0.0	97.8	92.5	5.23	18.709		
1,600.0	1,596.4	1,597.4	1,597.4	3.1	2.8	-160.47	-43.7	0.0	107.1	101.6	5.57	19.223		
1,700.0	1,695.9	1,696.9	1,696.9	3.3	2.9	-162.12	-43.7	0.0	116.6	110.7	5.92	19.696		
1,800.0	1,795.4	1,796.4	1,796.4	3.6	3.1	-163.51	-43.7	0.0	126.2	119.9	6.27	20.130		
1,900.0	1,894.9	1,895.9	1,895.9	3.8	3.3	-164.71	-43.7	0.0	135.8	129.2	6.62	20.530		
2,000.0	1,994.4	1,995.4	1,995.4	4.1	3.5	-165.75	-43.7	0.0	145.5	138.6	6.96	20.897		
2,100.0	2,093.9	2,095.4	2,095.4	4.3	3.6	-167.25	-42.5	1.1	155.1	147.8	7.31	21.218		
2,200.0	2,193.4	2,195.1	2,195.0	4.5	3.8	-169.78	-38.8	4.5	164.6	156.9	7.65	21.505		
2,300.0	2,292.9	2,294.3	2,293.8	4.8	4.0	-173.15	-32.6	10.2	174.3	166.3	8.00	21.792		
2,400.0	2,392.4	2,392.7	2,391.5	5.0	4.2	-177.18	-24.0	18.2	184.8	176.4	8.36	22.116		
2,500.0	2,491.9	2,491.2	2,489.1	5.3	4.4	178.85	-14.4	27.0	196.3	187.6	8.73	22.485		
2,600.0	2,591.4	2,589.6	2,586.7	5.5	4.6	175.34	-4.8	35.8	208.7	199.6	9.12	22.879		
2,700.0	2,690.9	2,688.1	2,684.2	5.8	4.8	172.22	4.8	44.7	221.7	212.2	9.52	23.285		
2,800.0	2,790.4	2,786.5	2,781.8	6.0	5.1	169.45	14.4	53.5	235.4	225.4	9.93	23.694		
2,900.0	2,889.9	2,885.0	2,879.4	6.2	5.3	166.99	24.0	62.3	249.5	239.1	10.35	24.102		
3,000.0	2,989.4	2,983.4	2,977.0	6.5	5.5	164.79	33.5	71.2	264.0	253.2	10.77	24.504		
3,100.0	3,088.9	3,081.9	3,074.6	6.7	5.8	162.82	43.1	80.0	278.9	267.7	11.20	24.898		
3,200.0	3,188.4	3,180.3	3,172.2	7.0	6.0	161.05	52.7	88.8	294.0	282.4	11.63	25.282		
3,300.0	3,287.9	3,278.8	3,269.8	7.2	6.3	159.45	62.3	97.6	309.5	297.4	12.06	25.655		
3,400.0	3,387.4	3,377.2	3,367.4	7.5	6.5	158.01	71.9	106.5	325.1	312.6	12.50	26.016		
3,500.0	3,486.9	3,475.7	3,464.9	7.7	6.8	156.70	81.4	115.3	340.9	328.0	12.93	26.364		
3,600.0	3,586.4	3,574.1	3,562.5	8.0	7.0	155.50	91.0	124.1	356.9	343.5	13.36	26.701		
3,700.0	3,685.9	3,672.6	3,660.1	8.2	7.3	154.41	100.6	133.0	373.0	359.2	13.80	27.026		
3,800.0	3,785.4	3,771.0	3,757.7	8.5	7.6	153.41	110.2	141.8	389.2	375.0	14.24	27.338		
3,900.0	3,884.9	3,869.5	3,855.3	8.7	7.8	152.48	119.8	150.6	405.5	390.9	14.67	27.639		
4,000.0	3,984.4	3,968.0	3,952.9	8.9	8.1	151.63	129.4	159.4	422.0	406.9	15.11	27.929		
4,100.0	4,083.9	4,066.4	4,050.5	9.2	8.4	150.84	138.9	168.3	438.5	422.9	15.54	28.207		
4,200.0	4,183.4	4,164.9	4,148.1	9.4	8.6	150.11	148.5	177.1	455.1	439.1	15.98	28.476		
4,300.0	4,282.9	4,263.3	4,245.6	9.7	8.9	149.43	158.1	185.9	471.7	455.3	16.42	28.734		
4,400.0	4,382.4	4,361.8	4,343.2	9.9	9.2	148.80	167.7	194.8	488.4	471.6	16.85	28.983		
4,500.0	4,481.9	4,460.2	4,440.8	10.2	9.4	148.21	177.3	203.6	505.2	487.9	17.29	29.222		
4,531.4	4,513.1	4,491.1	4,471.4	10.3	9.5	148.03	180.3	206.4	510.5	493.1	17.43	29.296		
4,600.0	4,581.4	4,558.8	4,538.5	10.4	9.7	147.73	186.9	212.4	521.4	503.6	17.72	29.423		
4,700.0	4,681.3	4,657.6	4,636.5	10.6	10.0	147.11	196.5	221.3	534.8	516.7	18.13	29.489		
4,800.0	4,781.2	4,758.6	4,736.6	10.7	10.3	146.29	206.3	230.3	545.4	526.9	18.54	29.410		
4,818.8	4,800.0	4,780.0	4,757.8	10.8	10.3	91.45	208.2	232.1	547.0	528.4	18.63	29.361		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER RANCH 5M-303 - OH - PLAN #1													Offset Site Error:	0.0 usft
Survey Program:		O-MWD											Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
4,900.0	4,881.2	4,872.6	4,849.9	10.9	10.5	90.70	215.3	238.6	552.6	533.6	18.98	29.119		
5,000.0	4,981.2	4,987.3	4,964.4	11.0	10.8	90.11	220.9	243.8	557.1	537.7	19.37	28.762		
5,100.0	5,081.2	5,102.5	5,079.5	11.1	10.9	89.87	223.2	245.9	559.0	539.2	19.73	28.337		
5,200.0	5,181.2	5,205.2	5,182.2	11.3	11.1	89.87	223.3	246.0	559.0	539.0	20.04	27.887		
5,300.0	5,281.2	5,305.2	5,282.2	11.4	11.2	89.87	223.3	246.0	559.0	538.6	20.36	27.455		
5,400.0	5,381.2	5,405.2	5,382.2	11.6	11.4	89.87	223.3	246.0	559.0	538.3	20.68	27.033		
5,500.0	5,481.2	5,505.2	5,482.2	11.7	11.5	89.87	223.3	246.0	559.0	538.0	21.00	26.624		
5,600.0	5,581.2	5,605.2	5,582.2	11.8	11.7	89.87	223.3	246.0	559.0	537.7	21.32	26.225		
5,700.0	5,681.2	5,705.2	5,682.2	12.0	11.8	89.87	223.3	246.0	559.0	537.4	21.64	25.837		
5,800.0	5,781.2	5,805.2	5,782.2	12.1	11.9	89.87	223.3	246.0	559.0	537.0	21.96	25.460		
5,900.0	5,881.2	5,905.2	5,882.2	12.3	12.1	89.87	223.3	246.0	559.0	536.7	22.28	25.092		
6,000.0	5,981.2	6,005.2	5,982.2	12.4	12.2	89.87	223.3	246.0	559.0	536.4	22.60	24.734		
6,100.0	6,081.2	6,105.2	6,082.2	12.6	12.4	89.87	223.3	246.0	559.0	536.1	22.92	24.385		
6,200.0	6,181.2	6,205.2	6,182.2	12.7	12.5	89.87	223.3	246.0	559.0	535.8	23.25	24.045		
6,269.3	6,250.5	6,274.6	6,251.5	12.8	12.6	89.87	223.3	246.0	559.0	535.5	23.47	23.814		
6,300.0	6,281.2	6,305.2	6,282.2	12.9	12.7	-90.20	223.3	246.0	559.0	535.4	23.57	23.721		
6,350.0	6,331.0	6,355.1	6,332.0	12.9	12.8	-90.59	223.3	246.0	559.0	535.3	23.70	23.591		
6,400.0	6,380.5	6,404.5	6,381.5	12.9	12.8	-91.33	223.3	246.0	559.2	535.3	23.81	23.485		
6,450.0	6,429.3	6,453.3	6,430.3	13.0	12.9	-92.38	223.3	246.0	559.5	535.6	23.90	23.408		
6,500.0	6,477.3	6,504.2	6,481.1	13.0	13.0	-93.58	221.1	246.0	560.2	536.2	23.96	23.382		
6,550.0	6,524.1	6,556.5	6,532.9	13.0	13.0	-94.69	214.2	246.1	561.0	537.1	23.97	23.401		
6,600.0	6,569.6	6,610.0	6,585.1	13.0	13.0	-95.70	202.2	246.1	562.0	538.1	23.96	23.455		
6,650.0	6,613.5	6,664.8	6,637.1	13.0	13.0	-96.59	184.9	246.2	563.1	539.1	23.93	23.531		
6,700.0	6,655.7	6,720.8	6,688.2	13.0	12.9	-97.35	162.3	246.4	564.1	540.2	23.89	23.613		
6,750.0	6,695.9	6,777.7	6,737.7	13.0	12.9	-97.97	134.2	246.5	565.1	541.2	23.86	23.680		
6,800.0	6,734.0	6,835.4	6,784.8	13.1	12.9	-98.42	100.9	246.7	565.9	542.0	23.86	23.712		
6,850.0	6,769.7	6,893.7	6,828.8	13.1	12.9	-98.72	62.7	246.9	566.5	542.6	23.92	23.684		
6,900.0	6,802.8	6,952.3	6,868.8	13.2	12.9	-98.84	19.9	247.2	566.9	542.9	24.05	23.572		
6,950.0	6,833.3	7,011.0	6,904.3	13.4	13.0	-98.79	-26.8	247.4	567.1	542.8	24.28	23.356		
7,000.0	6,860.9	7,069.6	6,934.8	13.6	13.1	-98.56	-76.8	247.7	567.1	542.4	24.63	23.027		
7,050.0	6,885.6	7,127.7	6,959.8	13.8	13.3	-98.17	-129.2	248.0	566.8	541.7	25.10	22.586		
7,100.0	6,907.1	7,185.1	6,979.2	14.1	13.6	-97.62	-183.3	248.3	566.4	540.7	25.69	22.045		
7,150.0	6,925.5	7,241.7	6,992.9	14.4	13.9	-96.92	-238.1	248.7	565.8	539.4	26.41	21.423		
7,200.0	6,940.5	7,297.3	7,001.1	14.8	14.3	-96.08	-293.1	249.0	565.2	538.0	27.24	20.746		
7,250.0	6,952.2	7,351.7	7,003.9	15.2	14.7	-95.11	-347.4	249.3	564.6	536.4	28.17	20.040		
7,300.0	6,960.5	7,402.4	7,002.8	15.7	15.1	-94.18	-398.0	249.6	564.1	534.9	29.15	19.349		
7,348.2	6,965.3	7,450.1	7,001.4	16.2	15.6	-93.58	-445.8	249.9	564.0	533.8	30.16	18.698		
7,350.0	6,965.4	7,452.0	7,001.4	16.2	15.6	-93.57	-447.6	249.9	564.0	533.8	30.20	18.674		
7,400.0	6,966.7	7,501.9	7,000.0	16.7	16.1	-93.28	-497.5	250.2	564.1	532.8	31.28	18.036		
7,415.3	6,966.4	7,517.2	6,999.6	16.9	16.3	-93.26	-512.8	250.3	564.2	532.5	31.63	17.838		
7,500.0	6,964.0	7,601.9	6,997.2	17.9	17.2	-93.27	-597.5	250.7	564.7	531.1	33.62	16.797		
7,600.0	6,961.0	7,701.9	6,994.4	19.1	18.4	-93.28	-697.4	251.3	565.3	529.1	36.15	15.638		
7,700.0	6,958.1	7,801.9	6,991.6	20.4	19.7	-93.29	-797.4	251.9	565.8	527.0	38.83	14.574		
7,800.0	6,955.2	7,901.9	6,988.8	21.8	21.1	-93.30	-897.3	252.5	566.4	524.8	41.63	13.607		
7,900.0	6,952.2	8,001.9	6,986.0	23.2	22.5	-93.31	-997.3	253.1	567.0	522.5	44.53	12.734		
8,000.0	6,949.3	8,101.9	6,983.2	24.7	23.9	-93.32	-1,097.3	253.6	567.6	520.1	47.51	11.947		
8,100.0	6,946.4	8,201.9	6,980.4	26.2	25.4	-93.33	-1,197.2	254.2	568.2	517.6	50.56	11.238		
8,200.0	6,943.4	8,301.9	6,977.7	27.7	27.0	-93.34	-1,297.2	254.8	568.8	515.1	53.66	10.599		
8,300.0	6,940.5	8,401.9	6,974.9	29.3	28.5	-93.35	-1,397.1	255.4	569.3	512.5	56.81	10.022		
8,400.0	6,937.6	8,501.9	6,972.1	30.8	30.1	-93.36	-1,497.1	255.9	569.9	509.9	60.00	9.499		
8,500.0	6,934.6	8,601.9	6,969.3	32.4	31.7	-93.37	-1,597.0	256.5	570.5	507.3	63.22	9.024		
8,600.0	6,931.7	8,701.8	6,966.5	34.0	33.3	-93.38	-1,697.0	257.1	571.1	504.6	66.47	8.592		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - BECKER RANCH 5M-303 - OH - PLAN #1													Offset Site Error: 0.0 usft
Survey Program: 0-MWD													Offset Well Error: 0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	
8,700.0	6,928.8	8,801.8	6,963.7	35.7	34.9	-93.39	-1,797.0	257.7	571.7	501.9	69.74	8.197	
8,800.0	6,925.8	8,901.8	6,960.9	37.3	36.5	-93.40	-1,896.9	258.3	572.3	499.2	73.04	7.835	
8,900.0	6,922.9	9,001.8	6,958.1	39.0	38.2	-93.41	-1,996.9	258.8	572.9	496.5	76.35	7.503	
9,000.0	6,920.0	9,101.8	6,955.3	40.6	39.8	-93.43	-2,096.8	259.4	573.4	493.8	79.68	7.197	
9,100.0	6,917.0	9,201.8	6,952.5	42.3	41.5	-93.44	-2,196.8	260.0	574.0	491.0	83.02	6.914	
9,200.0	6,914.1	9,301.8	6,949.7	43.9	43.2	-93.45	-2,296.8	260.6	574.6	488.2	86.38	6.652	
9,300.0	6,911.2	9,401.8	6,946.9	45.6	44.8	-93.46	-2,396.7	261.1	575.2	485.5	89.74	6.409	
9,400.0	6,908.2	9,501.8	6,944.2	47.3	46.5	-93.47	-2,496.7	261.7	575.8	482.7	93.12	6.183	
9,500.0	6,905.3	9,601.8	6,941.4	49.0	48.2	-93.48	-2,596.6	262.3	576.4	479.9	96.50	5.972	
9,600.0	6,902.4	9,701.8	6,938.6	50.7	49.9	-93.49	-2,696.6	262.9	577.0	477.1	99.90	5.776	
9,700.0	6,899.5	9,801.8	6,935.8	52.4	51.6	-93.50	-2,796.5	263.5	577.5	474.2	103.30	5.591	
9,800.0	6,896.5	9,901.8	6,933.0	54.1	53.3	-93.51	-2,896.5	264.0	578.1	471.4	106.70	5.418	
9,900.0	6,893.6	10,001.8	6,930.2	55.8	55.0	-93.52	-2,996.5	264.6	578.7	468.6	110.11	5.256	
10,000.0	6,890.7	10,101.8	6,927.4	57.5	56.7	-93.53	-3,096.4	265.2	579.3	465.8	113.53	5.103	
10,100.0	6,887.7	10,201.8	6,924.6	59.2	58.4	-93.54	-3,196.4	265.8	579.9	462.9	116.95	4.958	
10,200.0	6,884.8	10,301.8	6,921.8	60.9	60.1	-93.55	-3,296.3	266.3	580.5	460.1	120.38	4.822	
10,300.0	6,881.9	10,401.8	6,919.0	62.6	61.8	-93.56	-3,396.3	266.9	581.1	457.2	123.81	4.693	
10,400.0	6,878.9	10,501.8	6,916.2	64.3	63.6	-93.57	-3,496.2	267.5	581.6	454.4	127.24	4.571	
10,500.0	6,876.0	10,601.8	6,913.4	66.0	65.3	-93.58	-3,596.2	268.1	582.2	451.5	130.68	4.455	
10,600.0	6,873.1	10,701.8	6,910.6	67.8	67.0	-93.59	-3,696.2	268.7	582.8	448.7	134.12	4.345	
10,700.0	6,870.1	10,801.8	6,907.9	69.5	68.7	-93.60	-3,796.1	269.2	583.4	445.8	137.56	4.241	
10,800.2	6,867.2	10,902.0	6,905.1	71.2	70.4	-93.61	-3,896.3	269.8	584.0	443.0	141.01	4.141	
10,900.0	6,864.3	11,001.8	6,902.3	72.9	72.2	-93.55	-3,996.0	270.4	586.3	441.9	144.45	4.059	
11,000.0	6,861.3	11,101.6	6,899.5	74.7	73.9	-93.48	-4,095.8	271.0	592.2	444.3	147.90	4.004	
11,100.0	6,858.4	11,201.2	6,896.7	76.4	75.6	-93.39	-4,195.3	271.5	601.6	450.2	151.34	3.975	
11,200.0	6,855.4	11,300.3	6,893.9	78.1	77.3	-93.29	-4,294.4	272.1	614.5	459.7	154.78	3.970 SF	
11,300.0	6,852.5	11,399.0	6,891.2	79.9	79.0	-93.17	-4,393.0	272.7	630.8	472.6	158.20	3.988	
11,400.0	6,849.6	11,497.0	6,888.4	81.6	80.7	-93.05	-4,491.0	273.2	650.7	489.1	161.60	4.026	
11,419.2	6,849.0	11,515.7	6,887.9	81.9	81.0	-93.02	-4,509.7	273.4	654.9	492.6	162.26	4.036	
11,454.0	6,848.0	11,548.6	6,887.0	82.5	81.6	-92.99	-4,542.6	273.5	662.6	499.2	163.42	4.055	



<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - LDS D08-29D - NOBLE - GYRO													Offset Site Error:	0.0 usft
Survey Program: 100--Gyro													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference  (usft)	Offset  (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
0.0	0.0	0.0	0.0	0.0	0.0	-171.30	-4,743.0	-725.8	4,798.8					
100.0	100.0	17.2	17.2	0.2	0.0	-171.30	-4,743.0	-725.8	4,798.2	4,798.0	0.17	N/A		
200.0	200.0	100.0	100.0	0.3	0.1	-171.30	-4,743.3	-726.2	4,798.7	4,798.3	0.41	N/A		
300.0	300.0	163.9	163.9	0.5	0.1	-171.29	-4,743.9	-726.7	4,799.6	4,799.0	0.64	7,450.736		
400.0	400.0	254.2	254.2	0.7	0.2	-171.29	-4,745.2	-727.3	4,801.1	4,800.2	0.90	5,348.724		
500.0	500.0	410.1	410.1	0.8	0.4	-171.28	-4,746.5	-728.3	4,802.1	4,800.9	1.21	3,974.063		
600.0	600.0	500.0	500.0	1.0	0.4	-171.27	-4,746.9	-728.8	4,802.6	4,801.1	1.46	3,286.023		
700.0	700.0	570.5	570.4	1.2	0.5	-171.27	-4,747.4	-729.3	4,803.4	4,801.7	1.70	2,829.523		
800.0	800.0	655.0	655.0	1.4	0.6	-116.59	-4,748.4	-729.9	4,805.5	4,803.6	1.95	2,468.105		
900.0	899.8	770.5	770.4	1.6	0.7	-116.58	-4,750.0	-730.6	4,809.2	4,807.0	2.23	2,156.736		
987.4	986.9	862.5	862.5	1.7	0.8	-116.59	-4,750.8	-730.9	4,813.4	4,811.0	2.48	1,940.685		
1,000.0	999.5	874.4	874.4	1.8	0.8	-116.60	-4,751.0	-730.9	4,814.1	4,811.6	2.52	1,913.549		
1,100.0	1,099.0	946.5	946.5	2.0	0.8	-116.68	-4,751.8	-731.1	4,819.9	4,817.1	2.78	1,732.253		
1,200.0	1,198.4	1,026.6	1,026.5	2.2	0.9	-116.76	-4,753.3	-731.7	4,826.3	4,823.3	3.06	1,576.215		
1,300.0	1,297.9	1,141.8	1,141.7	2.4	1.0	-116.88	-4,755.2	-731.9	4,832.5	4,829.1	3.38	1,431.113		
1,400.0	1,397.4	1,221.8	1,221.7	2.6	1.1	-116.96	-4,756.7	-732.1	4,838.9	4,835.3	3.66	1,320.768		
1,500.0	1,496.9	1,320.1	1,320.0	2.9	1.2	-117.06	-4,758.7	-732.8	4,845.6	4,841.6	3.97	1,220.694		
1,600.0	1,596.4	1,434.8	1,434.6	3.1	1.3	-117.18	-4,760.7	-733.8	4,852.1	4,847.8	4.29	1,130.554		
1,700.0	1,695.9	1,537.8	1,537.7	3.3	1.4	-117.28	-4,762.5	-734.1	4,858.4	4,853.8	4.60	1,055.046		
1,800.0	1,795.4	1,640.5	1,640.3	3.6	1.4	-117.39	-4,764.2	-734.7	4,864.7	4,859.8	4.92	988.961		
1,900.0	1,894.9	1,743.9	1,743.7	3.8	1.5	-117.49	-4,765.7	-735.1	4,870.9	4,865.7	5.23	930.507		
2,000.0	1,994.4	1,857.2	1,857.0	4.1	1.6	-117.60	-4,767.3	-736.0	4,877.1	4,871.5	5.56	877.172		
2,100.0	2,093.9	1,962.5	1,962.3	4.3	1.7	-117.71	-4,768.4	-736.8	4,882.8	4,877.0	5.88	830.585		
2,200.0	2,193.4	2,073.5	2,073.3	4.5	1.8	-117.81	-4,769.5	-737.9	4,888.6	4,882.4	6.20	788.069		
2,300.0	2,292.9	2,184.8	2,184.5	4.8	1.9	-117.91	-4,770.1	-739.1	4,894.1	4,887.6	6.53	749.647		
2,400.0	2,392.4	2,302.7	2,302.5	5.0	2.0	-118.02	-4,770.5	-740.5	4,899.3	4,892.4	6.86	714.175		
2,500.0	2,491.9	2,400.0	2,399.7	5.3	2.1	-118.11	-4,770.6	-741.7	4,904.3	4,897.1	7.17	683.668		
2,600.0	2,591.4	2,494.9	2,494.7	5.5	2.2	-118.19	-4,770.7	-743.5	4,909.4	4,901.9	7.49	655.851		
2,700.0	2,690.9	2,601.2	2,600.9	5.8	2.3	-118.27	-4,770.9	-745.6	4,914.5	4,906.7	7.81	629.442		
2,800.0	2,790.4	2,703.7	2,703.4	6.0	2.4	-118.36	-4,770.9	-747.3	4,919.5	4,911.4	8.13	605.353		
2,900.0	2,889.9	2,800.0	2,799.7	6.2	2.5	-118.43	-4,770.9	-749.4	4,924.5	4,916.1	8.44	583.431		
3,000.0	2,989.4	2,878.6	2,878.2	6.5	2.5	-118.49	-4,771.1	-751.5	4,929.8	4,921.1	8.74	564.143		
3,100.0	3,088.9	3,029.7	3,029.3	6.7	2.7	-118.60	-4,771.0	-754.8	4,934.8	4,925.7	9.10	542.133		
3,200.0	3,188.4	3,132.8	3,132.4	7.0	2.8	-118.68	-4,770.5	-756.8	4,939.4	4,929.9	9.42	524.194		
3,300.0	3,287.9	3,261.8	3,261.4	7.2	2.9	-118.79	-4,769.2	-759.3	4,943.4	4,933.7	9.77	506.171		
3,400.0	3,387.4	3,362.3	3,361.8	7.5	3.0	-118.87	-4,768.0	-760.7	4,947.2	4,937.1	10.08	490.620		
3,500.0	3,486.9	3,455.3	3,454.8	7.7	3.0	-118.95	-4,766.9	-761.9	4,951.1	4,940.7	10.39	476.344		
3,600.0	3,586.4	3,553.1	3,552.6	8.0	3.1	-119.03	-4,766.0	-763.1	4,955.1	4,944.4	10.71	462.729		
3,700.0	3,685.9	3,643.3	3,642.8	8.2	3.2	-119.11	-4,765.1	-764.0	4,959.2	4,948.2	11.02	450.191		
3,800.0	3,785.4	3,729.0	3,728.5	8.5	3.3	-119.19	-4,764.7	-764.7	4,963.6	4,952.3	11.32	438.533		
3,900.0	3,884.9	3,827.8	3,827.3	8.7	3.4	-119.28	-4,764.2	-765.4	4,968.2	4,956.5	11.63	427.060		
4,000.0	3,984.4	3,930.2	3,929.7	8.9	3.5	-119.37	-4,763.7	-766.4	4,972.7	4,960.8	11.95	416.071		
4,100.0	4,083.9	4,036.4	4,035.9	9.2	3.5	-119.47	-4,763.0	-767.8	4,977.1	4,964.8	12.27	405.513		
4,200.0	4,183.4	4,145.9	4,145.4	9.4	3.6	-119.55	-4,762.2	-769.6	4,981.5	4,968.9	12.60	395.395		
4,300.0	4,282.9	4,252.3	4,251.7	9.7	3.7	-119.64	-4,761.1	-770.9	4,985.5	4,972.6	12.92	385.862		
4,400.0	4,382.4	4,345.3	4,344.7	9.9	3.8	-119.72	-4,760.2	-772.1	4,989.7	4,976.4	13.23	377.152		
4,500.0	4,481.9	4,434.8	4,434.2	10.2	3.9	-119.80	-4,759.5	-772.9	4,994.0	4,980.4	13.54	368.950		
4,531.4	4,513.1	4,460.4	4,459.8	10.3	3.9	-119.82	-4,759.3	-773.2	4,995.4	4,981.7	13.63	366.517		
4,600.0	4,581.4	4,514.7	4,514.1	10.4	4.0	-119.91	-4,759.1	-773.7	4,998.2	4,984.3	13.82	361.712		
4,700.0	4,681.3	4,600.0	4,599.4	10.6	4.0	-120.01	-4,759.1	-774.5	5,001.2	4,987.2	14.07	355.479		
4,800.0	4,781.2	4,667.0	4,666.4	10.7	4.1	-120.05	-4,759.5	-774.9	5,003.0	4,988.7	14.27	350.507		
4,818.8	4,800.0	4,682.1	4,681.5	10.8	4.1	-174.70	-4,759.6	-775.0	5,003.2	4,988.9	14.31	349.544		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - LDS D08-29D - NOBLE - GYRO													Offset Site Error:	0.0 usft
Survey Program: 100--Gyro													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance			Total Uncertainty Axis	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)				Between Ellipses (usft)	
4,900.0	4,881.2	4,743.2	4,742.6	10.9	4.2	-174.70	-4,760.2	-775.1	5,004.0	4,989.5	14.48	345.532		
5,000.0	4,981.2	4,816.0	4,815.4	11.0	4.2	-174.70	-4,761.4	-774.9	5,005.5	4,990.8	14.69	340.795		
5,100.0	5,081.2	4,900.0	4,899.4	11.1	4.3	-174.71	-4,763.2	-774.7	5,007.6	4,992.7	14.90	335.977		
5,200.0	5,181.2	5,000.0	4,999.3	11.3	4.4	-174.71	-4,765.4	-774.5	5,009.8	4,994.7	15.14	330.950		
5,300.0	5,281.2	5,079.9	5,079.2	11.4	4.5	-174.72	-4,767.1	-774.4	5,012.0	4,996.6	15.35	326.461		
5,400.0	5,381.2	5,176.2	5,175.5	11.6	4.5	-174.72	-4,769.7	-774.3	5,014.6	4,999.0	15.58	321.790		
5,500.0	5,481.2	5,334.9	5,334.2	11.7	4.7	-174.73	-4,772.9	-774.1	5,016.6	5,000.8	15.87	316.034		
5,600.0	5,581.2	5,475.1	5,474.4	11.8	4.8	-174.73	-4,774.4	-774.2	5,017.7	5,001.6	16.15	310.740		
5,700.0	5,681.2	5,582.2	5,581.4	12.0	4.9	-174.72	-4,774.9	-774.4	5,018.2	5,001.8	16.39	306.146		
5,800.0	5,781.2	5,684.1	5,683.3	12.1	5.0	-174.72	-4,775.3	-774.7	5,018.6	5,002.0	16.63	301.758		
5,900.0	5,881.2	5,791.5	5,790.8	12.3	5.1	-174.72	-4,775.7	-774.8	5,019.0	5,002.1	16.88	297.393		
6,000.0	5,981.2	5,930.6	5,929.8	12.4	5.2	-174.72	-4,775.6	-774.7	5,018.9	5,001.7	17.15	292.624		
6,100.0	6,081.2	6,081.6	6,080.8	12.6	5.3	-174.72	-4,774.1	-774.8	5,018.0	5,000.6	17.44	287.777		
6,200.0	6,181.2	6,234.1	6,233.3	12.7	5.5	-174.71	-4,770.8	-775.4	5,015.8	4,998.1	17.72	282.984		
6,269.3	6,250.5	6,307.6	6,306.7	12.8	5.5	-174.70	-4,768.9	-776.0	5,014.0	4,996.1	17.90	280.171		
6,300.0	6,281.2	6,343.9	6,343.0	12.9	5.6	5.32	-4,767.8	-776.5	5,012.6	4,994.6	17.98	278.862		
6,350.0	6,331.0	6,400.0	6,399.1	12.9	5.6	5.38	-4,766.1	-777.7	5,007.3	4,989.2	18.10	276.671		
6,400.0	6,380.5	6,429.8	6,428.9	12.9	5.6	5.46	-4,765.2	-778.4	4,998.6	4,980.4	18.20	274.717		
6,450.0	6,429.3	6,457.9	6,457.0	13.0	5.7	5.57	-4,764.5	-779.1	4,986.8	4,968.5	18.29	272.667		
6,500.0	6,477.3	6,500.0	6,499.1	13.0	5.7	5.72	-4,763.7	-779.9	4,971.8	4,953.4	18.39	270.317		
6,550.0	6,524.1	6,500.0	6,499.1	13.0	5.7	5.87	-4,763.7	-779.9	4,953.7	4,935.3	18.46	268.404		
6,600.0	6,569.6	6,542.5	6,541.5	13.0	5.7	6.10	-4,763.1	-780.6	4,932.6	4,914.0	18.56	265.823		
6,650.0	6,613.5	6,570.3	6,569.4	13.0	5.8	6.37	-4,762.9	-781.1	4,908.5	4,889.9	18.64	263.325		
6,700.0	6,655.7	6,600.0	6,599.0	13.0	5.8	6.69	-4,762.7	-781.5	4,881.6	4,862.9	18.72	260.701		
6,750.0	6,695.9	6,633.6	6,632.6	13.0	5.8	7.08	-4,762.5	-781.9	4,851.9	4,833.1	18.81	257.931		
6,800.0	6,734.0	6,669.3	6,668.3	13.1	5.8	7.57	-4,762.4	-782.2	4,819.6	4,800.7	18.90	255.041		
6,850.0	6,769.7	6,703.4	6,702.4	13.1	5.9	8.16	-4,762.3	-782.5	4,784.7	4,765.7	18.98	252.084		
6,900.0	6,802.8	6,741.1	6,740.1	13.2	5.9	8.91	-4,762.2	-782.8	4,747.3	4,728.3	19.06	249.010		
6,950.0	6,833.3	6,775.6	6,774.7	13.4	5.9	9.84	-4,762.1	-783.0	4,707.8	4,688.7	19.15	245.902		
7,000.0	6,860.9	6,808.3	6,807.3	13.6	6.0	11.04	-4,761.9	-783.0	4,666.2	4,647.0	19.22	242.753		
7,050.0	6,885.6	6,841.7	6,840.8	13.8	6.0	12.62	-4,761.7	-783.1	4,622.8	4,603.5	19.30	239.544		
7,100.0	6,907.1	6,865.2	6,864.2	14.1	6.0	14.73	-4,761.6	-783.2	4,577.8	4,558.4	19.37	236.395		
7,150.0	6,925.5	6,883.2	6,882.2	14.4	6.0	17.66	-4,761.4	-783.3	4,531.4	4,512.0	19.43	233.264		
7,200.0	6,940.5	6,897.9	6,896.9	14.8	6.0	22.01	-4,761.3	-783.4	4,483.9	4,464.4	19.48	230.139		
7,250.0	6,952.2	6,909.2	6,908.2	15.2	6.1	28.92	-4,761.2	-783.4	4,435.5	4,416.0	19.54	227.028		
7,300.0	6,960.5	6,917.1	6,916.1	15.7	6.1	40.99	-4,761.2	-783.5	4,386.4	4,366.8	19.59	223.939		
7,350.0	6,965.4	6,921.5	6,920.6	16.2	6.1	63.41	-4,761.1	-783.5	4,336.9	4,317.3	19.63	220.882		
7,400.0	6,966.7	6,922.5	6,921.5	16.7	6.1	97.81	-4,761.1	-783.5	4,287.3	4,267.6	19.68	217.864		
7,415.3	6,966.4	6,922.1	6,921.1	16.9	6.1	108.25	-4,761.1	-783.5	4,272.0	4,252.3	19.69	216.949		
7,500.0	6,964.0	6,919.0	6,918.0	17.9	6.1	107.91	-4,761.1	-783.5	4,187.9	4,168.2	19.76	211.919		
7,600.0	6,961.0	6,915.3	6,914.3	19.1	6.1	107.50	-4,761.2	-783.5	4,088.6	4,068.8	19.85	206.021		
7,700.0	6,958.1	6,911.6	6,910.6	20.4	6.1	107.09	-4,761.2	-783.4	3,989.4	3,969.5	19.93	200.164		
7,800.0	6,955.2	6,907.9	6,906.9	21.8	6.1	106.68	-4,761.2	-783.4	3,890.2	3,870.2	20.02	194.346		
7,900.0	6,952.2	6,904.2	6,903.2	23.2	6.0	106.26	-4,761.3	-783.4	3,791.0	3,770.9	20.10	188.563		
8,000.0	6,949.3	6,900.4	6,899.5	24.7	6.0	105.85	-4,761.3	-783.4	3,691.9	3,671.7	20.19	182.811		
8,100.0	6,946.4	6,896.7	6,895.8	26.2	6.0	105.43	-4,761.3	-783.4	3,592.8	3,572.5	20.29	177.089		
8,200.0	6,943.4	6,893.0	6,892.1	27.7	6.0	105.01	-4,761.3	-783.4	3,493.7	3,473.3	20.38	171.390		
8,300.0	6,940.5	6,889.3	6,888.4	29.3	6.0	104.59	-4,761.4	-783.3	3,394.7	3,374.2	20.49	165.712		
8,400.0	6,937.6	6,885.6	6,884.7	30.8	6.0	104.17	-4,761.4	-783.3	3,295.8	3,275.2	20.59	160.050		
8,500.0	6,934.6	6,881.9	6,881.0	32.4	6.0	103.74	-4,761.4	-783.3	3,196.9	3,176.2	20.71	154.400		
8,600.0	6,931.7	6,878.2	6,877.3	34.0	6.0	103.32	-4,761.5	-783.3	3,098.1	3,077.3	20.83	148.756		
8,700.0	6,928.8	6,874.5	6,873.6	35.7	6.0	102.89	-4,761.5	-783.3	2,999.3	2,978.4	20.96	143.116		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Petroleum Development Corp.	<b>Local Co-ordinate Reference:</b>	Well BECKER RANCH 5J-323R
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	13' RKB @ 4828.0usft
<b>Reference Site:</b>	S5-T3N-R64W	<b>MD Reference:</b>	13' RKB @ 4828.0usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	BECKER RANCH 5J-323R	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S5-T3N-R64W - LDS D08-29D - NOBLE - GYRO													Offset Site Error:	0.0 usft
Survey Program: 100--Gyro													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)				Between Centres (usft)	Between Ellipses (usft)	
8,800.0	6,925.8	6,870.8	6,869.9	37.3	6.0	102.46	-4,761.5	-783.3	2,900.7	2,879.6	21.10	137.472		
8,900.0	6,922.9	6,867.1	6,866.2	39.0	6.0	102.03	-4,761.5	-783.2	2,802.1	2,780.9	21.26	131.821		
9,000.0	6,920.0	6,863.4	6,862.4	40.6	6.0	101.60	-4,761.6	-783.2	2,703.7	2,682.2	21.43	126.156		
9,100.0	6,917.0	6,859.7	6,858.7	42.3	6.0	101.17	-4,761.6	-783.2	2,605.3	2,583.7	21.63	120.474		
9,200.0	6,914.1	6,856.0	6,855.0	43.9	6.0	100.73	-4,761.6	-783.2	2,507.1	2,485.2	21.84	114.769		
9,300.0	6,911.2	6,852.3	6,851.3	45.6	6.0	100.30	-4,761.7	-783.2	2,409.0	2,386.9	22.09	109.038		
9,400.0	6,908.2	6,848.4	6,847.4	47.3	6.0	99.84	-4,761.7	-783.2	2,311.1	2,288.7	22.38	103.276		
9,500.0	6,905.3	6,844.2	6,843.3	49.0	6.0	99.34	-4,761.7	-783.1	2,213.3	2,190.6	22.70	97.483		
9,600.0	6,902.4	6,840.1	6,839.2	50.7	6.0	98.86	-4,761.7	-783.1	2,115.8	2,092.7	23.08	91.658		
9,700.0	6,899.5	6,836.1	6,835.1	52.4	6.0	98.38	-4,761.8	-783.1	2,018.4	1,994.9	23.52	85.803		
9,800.0	6,896.5	6,832.1	6,831.1	54.1	6.0	97.90	-4,761.8	-783.1	1,921.4	1,897.3	24.04	79.925		
9,900.0	6,893.6	6,828.2	6,827.2	55.8	6.0	97.43	-4,761.8	-783.1	1,824.7	1,800.0	24.65	74.034		
10,000.0	6,890.7	6,824.3	6,823.3	57.5	6.0	96.97	-4,761.9	-783.1	1,728.3	1,702.9	25.36	68.146		
10,100.0	6,887.7	6,820.5	6,819.5	59.2	6.0	96.51	-4,761.9	-783.1	1,632.3	1,606.1	26.21	62.281		
10,200.0	6,884.8	6,816.7	6,815.7	60.9	6.0	96.05	-4,761.9	-783.1	1,536.9	1,509.7	27.22	56.468		
10,300.0	6,881.9	6,813.0	6,812.0	62.6	6.0	95.61	-4,761.9	-783.0	1,442.1	1,413.6	28.42	50.742		
10,400.0	6,878.9	6,809.3	6,808.4	64.3	6.0	95.16	-4,761.9	-783.0	1,348.0	1,318.1	29.86	45.145		
10,500.0	6,876.0	6,805.7	6,804.7	66.0	6.0	94.73	-4,762.0	-783.0	1,254.8	1,223.2	31.59	39.725		
10,600.0	6,873.1	6,802.1	6,801.2	67.8	6.0	94.29	-4,762.0	-783.0	1,162.7	1,129.0	33.67	34.534		
10,700.0	6,870.1	6,798.6	6,797.6	69.5	6.0	93.86	-4,762.0	-783.0	1,072.1	1,035.9	36.18	29.629		
10,800.2	6,867.2	6,795.0	6,794.1	71.2	6.0	93.43	-4,762.0	-783.0	983.0	943.8	39.24	25.055		
10,900.0	6,864.3	6,791.5	6,790.5	72.9	6.0	93.27	-4,762.0	-783.0	895.8	853.0	42.79	20.937		
11,000.0	6,861.3	6,788.0	6,787.0	74.7	5.9	93.06	-4,762.0	-783.0	809.3	762.5	46.86	17.270		
11,100.0	6,858.4	6,784.5	6,783.5	76.4	5.9	92.79	-4,762.1	-783.0	724.4	672.8	51.58	14.044		
11,200.0	6,855.4	6,781.0	6,780.1	78.1	5.9	92.46	-4,762.1	-783.0	641.5	584.4	57.07	11.240		
11,300.0	6,852.5	6,777.6	6,776.6	79.9	5.9	92.08	-4,762.1	-783.0	561.9	498.4	63.50	8.849		
11,400.0	6,849.6	6,774.2	6,773.3	81.6	5.9	91.66	-4,762.1	-782.9	487.2	416.3	70.96	6.866		
11,419.2	6,849.0	6,773.6	6,772.6	81.9	5.9	91.57	-4,762.1	-782.9	473.7	401.1	72.51	6.532		
11,454.0	6,848.0	6,772.4	6,771.5	82.5	5.9	91.37	-4,762.1	-782.9	450.0	374.6	75.40	5.968 CC, ES, SF		

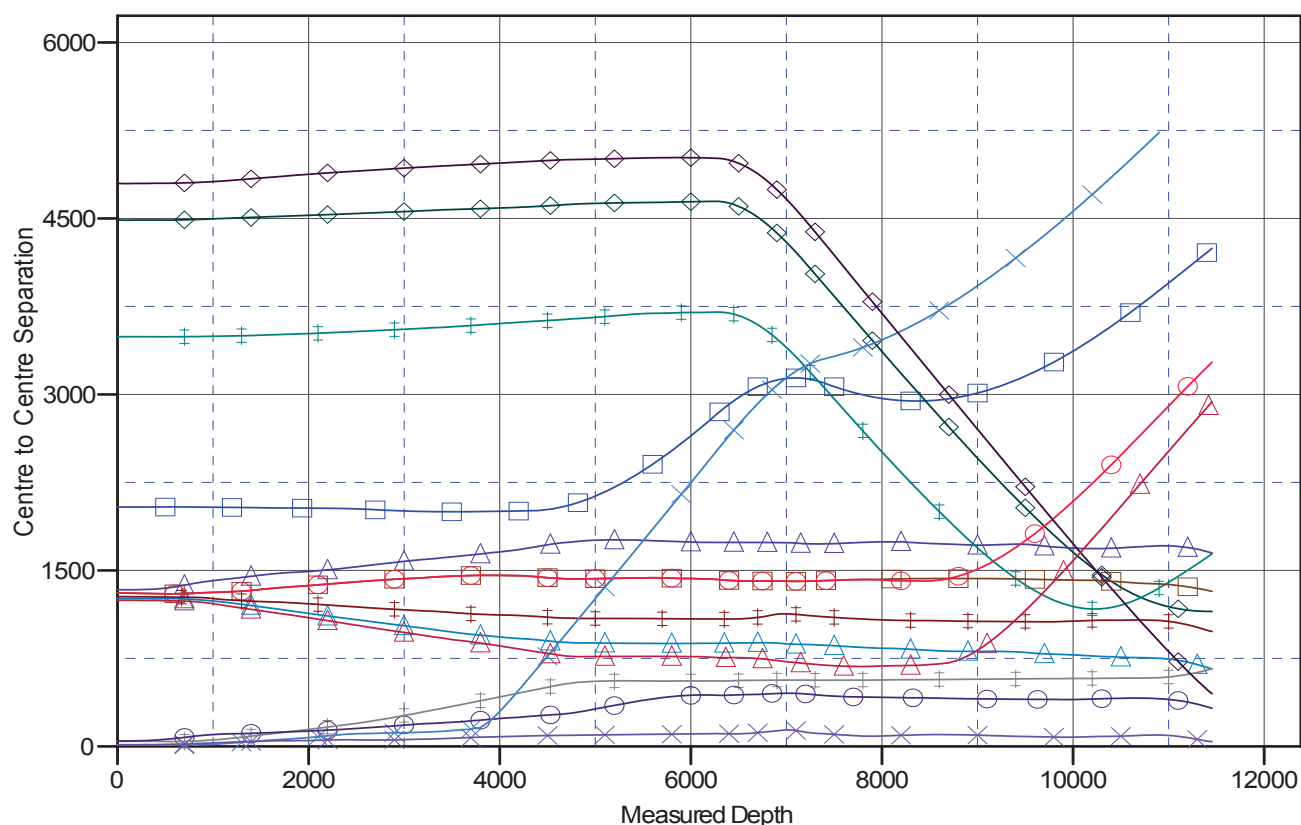
**Company:** Petroleum Development Corp.  
**Project:** Weld County  
**Reference Site:** S5-T3N-R64W  
**Site Error:** 0.0usft  
**Reference Well:** BECKER RANCH 5J-323R  
**Well Error:** 0.0usft  
**Reference Wellbore:** OH  
**Reference Design:** Plan #3

**Local Co-ordinate Reference:** Well BECKER RANCH 5J-323R  
**TVD Reference:** 13' RKB @ 4828.0usft  
**MD Reference:** 13' RKB @ 4828.0usft  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** USA EDM 5000 Multi Users DB  
**Offset TVD Reference:** Offset Datum

Reference Depths are relative to 13' RKB @ 4828.0usft  
 Offset Depths are relative to Offset Datum  
 Central Meridian is -105.500000 °

Coordinates are relative to: BECKER RANCH 5J-323R  
 Coordinate System is US State Plane 1983, Colorado Northern Zone  
 Grid Convergence at Surface is: 0.60°

### Ladder Plot



### LEGEND

BECKER RANCH 5J-303, OH, FINAL V0  
 BECKER RANCH 5M-303, OH, PLAN#1 V0  
 BECKER RANCH 5-9 (EXIST), PDC, GYRO V0  
 BECKER RANCH 5J-203, OH, FINAL V0  
 BECKER RANCH 5-14 (EXIST), PDC, GYRO V0  
 BECKER RANCH 5J-343, OH, FINAL V0  
 BECKER RANCH 5E-403, OH, FINAL V0  
 BECKER RANCH 5-8 (EXIST), PDC, GYRO V0  
 BECKER RANCH 5E-223, SIDETRACK, FINAL STK V0  
 BECKER RANCH 5E-223, OH, FINAL OH V0  
 BECKER RANCH 5M-243, OH, OH V0  
 LDS D08-29D, NOBLE, GYRO V0  
 BECKER RANCH 5J-323, OH, FINAL V0  
 BECKER RANCH 5J-103, OH, FINAL V0