



US ROCKIES REGION PLANNING

**KERR MCGEE OIL & GAS ONSHORE LP
WELD_NORTHGLENN STATE 7 PAD
P_NORTHGLENN STATE 41-36**

P_NORTHGLENN STATE 41-36

Plan: PLAN #1 10-09-09 RHS

Standard Planning Report

09 October, 2009





Azimuths to True North
Magnetic North: 9.12°
Magnetic Field
Strength: 53100.7nT
Dip Angle: 66.77°
Date: 10/9/2009
Model: IGRF200510

WELL DETAILS: P_NORTHGLENN STATE 41-36

+N/-S	+E/-W	Northing	Ground Level:	Easting	Latitude	Longitude	Slot
0.00	0.00	1247583.10	5103.00	3154667.72	40° 0' 42.048 N	104° 56' 52.152 W	

FORMATION TOP DETAILS

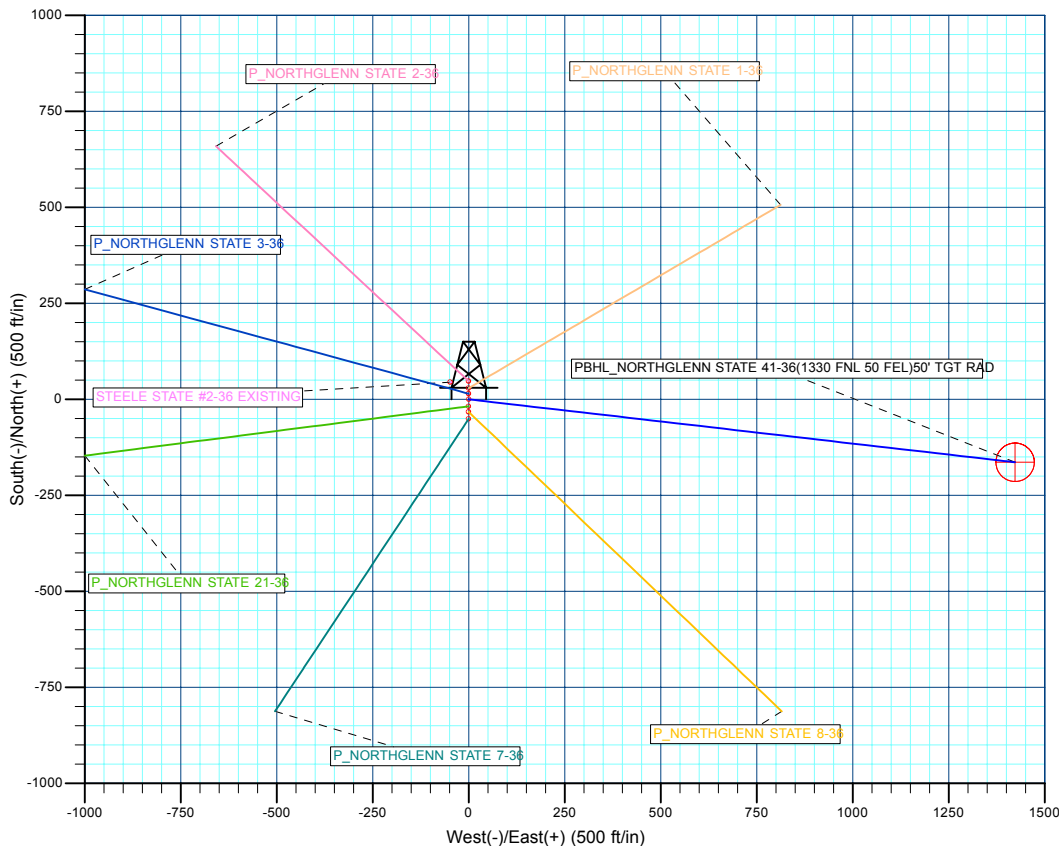
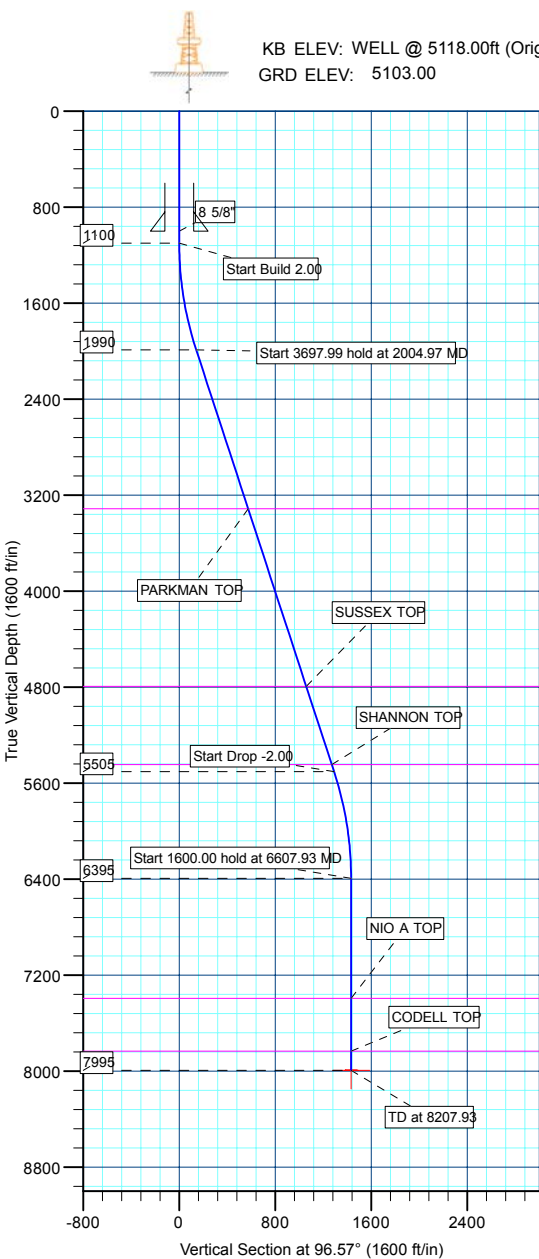
TVDPath	MDPath	Formation
3315.00	3398.95	PARKMAN TOP
4795.00	4956.00	SUSSEX TOP
5445.00	5639.83	SHANNON TOP
7395.00	7607.93	NIO A TOP
7835.00	8047.93	CODELL TOP

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	0.00	0.00	
2004.97	18.10	96.57	1990.00	-16.22	140.82	2.00	96.57	141.75	
5702.96	18.10	96.57	5505.00	-147.65	1282.13	0.00	0.00	1290.60	
6607.93	0.00	0.00	6395.00	-163.87	1422.95	2.00	180.00	1432.35	
8207.93	0.00	0.00	7995.00	-163.87	1422.95	0.00	0.00	1432.35	PBHL_NORTHGLENN STATE 41-36(1330 FNL 50 FEL)50'

CASING DETAILS

TVD	MD	Name	Size
1000.00	1000.00	8 5/8"	8.62



WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL	7995.00	-163.87	1422.95	1247428.09	3156091.66	40° 0' 40.428 N	104° 56' 33.864 W	Circle (Radius: 50.00)

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_NORTHGLENN STATE 41-36
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 5118.00ft (Original Well Elev)
Project:	KERR MCGEE OIL & GAS ONSHORE LP	MD Reference:	WELL @ 5118.00ft (Original Well Elev)
Site:	WELD_NORTHGLENN STATE 7 PAD	North Reference:	True
Well:	P_NORTHGLENN STATE 41-36	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_NORTHGLENN STATE 41-36		
Design:	PLAN #1 10-09-09 RHS		

Project	KERR MCGEE OIL & GAS ONSHORE LP, KERR MCGEE OIL & GAS ONSHORE LP		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site						WELD_NORTHGLENN STATE 7 PAD, SECTION 36 T1N R68W											
Site Position:						Northing:			1,247,612.25 ft			Latitude:			40° 0' 42.336 N		
From:			Lat/Long			Easting:			3,154,667.53 ft			Longitude:			104° 56' 52.152 W		
Position Uncertainty:			0.00 ft			Slot Radius:			in			Grid Convergence:			0.36 °		

Well	P_NORTHGLENN STATE 41-36					
Well Position	+N/-S	-29.15 ft	Northing:	1,247,583.10 ft	Latitude:	40° 0' 42.048 N
	+E/-W	0.00 ft	Easting:	3,154,667.72 ft	Longitude:	104° 56' 52.152 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	5,103.00 ft

Wellbore	P_NORTHGLENN STATE 41-36				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	10/9/2009	9.12	66.77	53,101

Design	PLAN #1 10-09-09 RHS			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	96.57

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,004.97	18.10	96.57	1,990.00	-16.22	140.82	2.00	2.00	0.00	96.57	
5,702.96	18.10	96.57	5,505.00	-147.65	1,282.13	0.00	0.00	0.00	0.00	
6,607.93	0.00	0.00	6,395.00	-163.87	1,422.95	2.00	-2.00	0.00	180.00	
8,207.93	0.00	0.00	7,995.00	-163.87	1,422.95	0.00	0.00	0.00	0.00	PBHL_NORTHGLE

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_NORTHGLENN STATE 41-36
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Project:	KERR MCGEE OIL & GAS ONSHORE LP	MD Reference:	WELL @ 5118.00ft (Original Well Elev)
Site:	WELD_NORTHGLENN STATE 7 PAD	North Reference:	True
Well:	P_NORTHGLENN STATE 41-36	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_NORTHGLENN STATE 41-36		
Design:	PLAN #1 10-09-09 RHS		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
Start Build 2.00									
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	2.00	96.57	1,199.98	-0.20	1.73	1.75	2.00	2.00	0.00
1,300.00	4.00	96.57	1,299.84	-0.80	6.93	6.98	2.00	2.00	0.00
1,400.00	6.00	96.57	1,399.45	-1.80	15.59	15.69	2.00	2.00	0.00
1,500.00	8.00	96.57	1,498.70	-3.19	27.70	27.88	2.00	2.00	0.00
1,600.00	10.00	96.57	1,597.47	-4.98	43.24	43.52	2.00	2.00	0.00
1,700.00	12.00	96.57	1,695.62	-7.16	62.19	62.60	2.00	2.00	0.00
1,800.00	14.00	96.57	1,793.06	-9.74	84.54	85.10	2.00	2.00	0.00
1,900.00	16.00	96.57	1,889.64	-12.70	110.25	110.98	2.00	2.00	0.00
2,000.00	18.00	96.57	1,985.27	-16.04	139.29	140.21	2.00	2.00	0.00
Start 3697.99 hold at 2004.97 MD									
2,004.97	18.10	96.57	1,990.00	-16.22	140.82	141.75	2.00	2.00	0.00
2,100.00	18.10	96.57	2,080.32	-19.59	170.15	171.28	0.00	0.00	0.00
2,200.00	18.10	96.57	2,175.37	-23.15	201.01	202.34	0.00	0.00	0.00
2,300.00	18.10	96.57	2,270.43	-26.70	231.88	233.41	0.00	0.00	0.00
2,400.00	18.10	96.57	2,365.48	-30.26	262.74	264.48	0.00	0.00	0.00
2,500.00	18.10	96.57	2,460.53	-33.81	293.60	295.54	0.00	0.00	0.00
2,600.00	18.10	96.57	2,555.58	-37.37	324.46	326.61	0.00	0.00	0.00
2,700.00	18.10	96.57	2,650.63	-40.92	355.33	357.68	0.00	0.00	0.00
2,800.00	18.10	96.57	2,745.68	-44.47	386.19	388.74	0.00	0.00	0.00
2,900.00	18.10	96.57	2,840.74	-48.03	417.05	419.81	0.00	0.00	0.00
3,000.00	18.10	96.57	2,935.79	-51.58	447.92	450.88	0.00	0.00	0.00
3,100.00	18.10	96.57	3,030.84	-55.14	478.78	481.94	0.00	0.00	0.00
3,200.00	18.10	96.57	3,125.89	-58.69	509.64	513.01	0.00	0.00	0.00
3,300.00	18.10	96.57	3,220.94	-62.25	540.50	544.08	0.00	0.00	0.00
PARKMAN TOP									
3,398.95	18.10	96.57	3,315.00	-65.76	571.04	574.82	0.00	0.00	0.00
3,400.00	18.10	96.57	3,316.00	-65.80	571.37	575.14	0.00	0.00	0.00
3,500.00	18.10	96.57	3,411.05	-69.35	602.23	606.21	0.00	0.00	0.00
3,600.00	18.10	96.57	3,506.10	-72.91	633.09	637.28	0.00	0.00	0.00
3,700.00	18.10	96.57	3,601.15	-76.46	663.96	668.34	0.00	0.00	0.00
3,800.00	18.10	96.57	3,696.20	-80.02	694.82	699.41	0.00	0.00	0.00
3,900.00	18.10	96.57	3,791.26	-83.57	725.68	730.48	0.00	0.00	0.00
4,000.00	18.10	96.57	3,886.31	-87.13	756.54	761.54	0.00	0.00	0.00
4,100.00	18.10	96.57	3,981.36	-90.68	787.41	792.61	0.00	0.00	0.00
4,200.00	18.10	96.57	4,076.41	-94.23	818.27	823.68	0.00	0.00	0.00
4,300.00	18.10	96.57	4,171.46	-97.79	849.13	854.74	0.00	0.00	0.00
4,400.00	18.10	96.57	4,266.51	-101.34	880.00	885.81	0.00	0.00	0.00
4,500.00	18.10	96.57	4,361.57	-104.90	910.86	916.88	0.00	0.00	0.00
4,600.00	18.10	96.57	4,456.62	-108.45	941.72	947.95	0.00	0.00	0.00
4,700.00	18.10	96.57	4,551.67	-112.01	972.58	979.01	0.00	0.00	0.00
4,800.00	18.10	96.57	4,646.72	-115.56	1,003.45	1,010.08	0.00	0.00	0.00
4,900.00	18.10	96.57	4,741.77	-119.11	1,034.31	1,041.15	0.00	0.00	0.00
SUSSEX TOP									
4,956.00	18.10	96.57	4,795.00	-121.10	1,051.59	1,058.54	0.00	0.00	0.00
5,000.00	18.10	96.57	4,836.83	-122.67	1,065.17	1,072.21	0.00	0.00	0.00
5,100.00	18.10	96.57	4,931.88	-126.22	1,096.04	1,103.28	0.00	0.00	0.00
5,200.00	18.10	96.57	5,026.93	-129.78	1,126.90	1,134.35	0.00	0.00	0.00
5,300.00	18.10	96.57	5,121.98	-133.33	1,157.76	1,165.41	0.00	0.00	0.00
5,400.00	18.10	96.57	5,217.03	-136.88	1,188.62	1,196.48	0.00	0.00	0.00
5,500.00	18.10	96.57	5,312.08	-140.44	1,219.49	1,227.55	0.00	0.00	0.00
5,600.00	18.10	96.57	5,407.14	-143.99	1,250.35	1,258.61	0.00	0.00	0.00

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Project:	KERR MCGEE OIL & GAS ONSHORE LP	MD Reference:	WELL @ 5118.00ft (Original Well Elev)
Site:	WELD_NORTHGLENN STATE 7 PAD	North Reference:	True
Well:	P_NORTHGLENN STATE 41-36	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_NORTHGLENN STATE 41-36		
Design:	PLAN #1 10-09-09 RHS		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
SHANNON TOP									
5,639.83	18.10	96.57	5,445.00	-145.41	1,262.64	1,270.99	0.00	0.00	0.00
5,700.00	18.10	96.57	5,502.19	-147.55	1,281.21	1,289.68	0.00	0.00	0.00
Start Drop -2.00									
5,702.96	18.10	96.57	5,505.00	-147.65	1,282.13	1,290.60	0.00	0.00	0.00
5,800.00	16.16	96.57	5,597.73	-150.92	1,310.52	1,319.18	2.00	-2.00	0.00
5,900.00	14.16	96.57	5,694.25	-153.91	1,336.49	1,345.33	2.00	-2.00	0.00
6,000.00	12.16	96.57	5,791.62	-156.52	1,359.11	1,368.09	2.00	-2.00	0.00
6,100.00	10.16	96.57	5,889.72	-158.73	1,378.33	1,387.44	2.00	-2.00	0.00
6,200.00	8.16	96.57	5,988.44	-160.55	1,394.14	1,403.36	2.00	-2.00	0.00
6,300.00	6.16	96.57	6,087.66	-161.98	1,406.52	1,415.82	2.00	-2.00	0.00
6,400.00	4.16	96.57	6,187.25	-163.01	1,415.46	1,424.81	2.00	-2.00	0.00
6,500.00	2.16	96.57	6,287.09	-163.64	1,420.93	1,430.32	2.00	-2.00	0.00
6,600.00	0.16	96.57	6,387.07	-163.87	1,422.94	1,432.34	2.00	-2.00	0.00
Start 1600.00 hold at 6607.93 MD									
6,607.93	0.00	0.00	6,395.00	-163.87	1,422.95	1,432.35	2.00	-2.00	-1,217.09
6,700.00	0.00	0.00	6,487.07	-163.87	1,422.95	1,432.35	0.00	0.00	0.00
6,800.00	0.00	0.00	6,587.07	-163.87	1,422.95	1,432.35	0.00	0.00	0.00
6,900.00	0.00	0.00	6,687.07	-163.87	1,422.95	1,432.35	0.00	0.00	0.00
7,000.00	0.00	0.00	6,787.07	-163.87	1,422.95	1,432.35	0.00	0.00	0.00
7,100.00	0.00	0.00	6,887.07	-163.87	1,422.95	1,432.35	0.00	0.00	0.00
7,200.00	0.00	0.00	6,987.07	-163.87	1,422.95	1,432.35	0.00	0.00	0.00
7,300.00	0.00	0.00	7,087.07	-163.87	1,422.95	1,432.35	0.00	0.00	0.00
7,400.00	0.00	0.00	7,187.07	-163.87	1,422.95	1,432.35	0.00	0.00	0.00
7,500.00	0.00	0.00	7,287.07	-163.87	1,422.95	1,432.35	0.00	0.00	0.00
7,600.00	0.00	0.00	7,387.07	-163.87	1,422.95	1,432.35	0.00	0.00	0.00
NIO A TOP									
7,607.93	0.00	0.00	7,395.00	-163.87	1,422.95	1,432.35	0.00	0.00	0.00
7,700.00	0.00	0.00	7,487.07	-163.87	1,422.95	1,432.35	0.00	0.00	0.00
7,800.00	0.00	0.00	7,587.07	-163.87	1,422.95	1,432.35	0.00	0.00	0.00
7,900.00	0.00	0.00	7,687.07	-163.87	1,422.95	1,432.35	0.00	0.00	0.00
8,000.00	0.00	0.00	7,787.07	-163.87	1,422.95	1,432.35	0.00	0.00	0.00
CODELL TOP									
8,047.93	0.00	0.00	7,835.00	-163.87	1,422.95	1,432.35	0.00	0.00	0.00
8,100.00	0.00	0.00	7,887.07	-163.87	1,422.95	1,432.35	0.00	0.00	0.00
8,200.00	0.00	0.00	7,987.07	-163.87	1,422.95	1,432.35	0.00	0.00	0.00
PBHL_NORTHGLENN STATE 41-36(1330 FNL 50 FEL)50'									
8,207.93	0.00	0.00	7,995.00	-163.87	1,422.95	1,432.35	0.00	0.00	0.00

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL_NORTHGLENNI	0.00	0.00	7,995.00	-163.87	1,422.95	1,247,428.09	3,156,091.66	40° 0' 40.428 N	104° 56' 33.864 W
- plan hits target center									
- Circle (radius 50.00)									

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Project:	KERR MCGEE OIL & GAS ONSHORE LP	MD Reference:	WELL @ 5118.00ft (Original Well Elev)
Site:	WELD_NORTHGLENN STATE 7 PAD	North Reference:	True
Well:	P_NORTHGLENN STATE 41-36	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_NORTHGLENN STATE 41-36		
Design:	PLAN #1 10-09-09 RHS		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,000.00	1,000.00	8 5/8"	8.62	11.00	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,398.95	3,315.00	PARKMAN TOP				
4,956.00	4,795.00	SUSSEX TOP				
5,639.83	5,445.00	SHANNON TOP				
7,607.93	7,395.00	NIO A TOP				
8,047.93	7,835.00	CODELL TOP				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,100.00	1,100.00	0.00	0.00	Start Build 2.00	
2,004.97	1,990.00	-16.22	140.82	Start 3697.99 hold at 2004.97 MD	
5,702.96	5,505.00	-147.65	1,282.13	Start Drop -2.00	
6,607.93	6,395.00	-163.87	1,422.95	Start 1600.00 hold at 6607.93 MD	
8,207.93	7,995.00	-163.87	1,422.95	TD at 8207.93	



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WELD_NORTHGLENN STATE 7 PAD
P_NORTHGLENN STATE 41-36**

**P_NORTHGLENN STATE 41-36
PLAN #1 10-09-09 RHS**

Anticollision Report

09 October, 2009



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NORTHGLENN STATE 41-36
Project:	KERR MCGEE OIL & GAS ONSHORE LP	TVD Reference:	WELL @ 5118.00ft (Original Well Elev)
Reference Site:	WELD_NORTHGLENN STATE 7 PAD	MD Reference:	WELL @ 5118.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NORTHGLENN STATE 41-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NORTHGLENN STATE 41-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 10-09-09 RHS	Offset TVD Reference:	Offset Datum

Reference	PLAN #1 10-09-09 RHS		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	0.00 to 20,000.00ft	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.00ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date	10/9/2009		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	8,207.93	PLAN #1 10-09-09 RHS (P_NORTHGLEN	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
WELD_NORTHGLENN STATE 7 PAD						
P_NORTHGLENN STATE 1-36 - P_NORTHGLENN STA	1,100.00	1,100.00	29.15	24.47	6.221	CC, ES
P_NORTHGLENN STATE 1-36 - P_NORTHGLENN STA	1,200.00	1,199.48	30.23	25.12	5.912	SF
P_NORTHGLENN STATE 21-36 - P_NORTHGLENN ST	1,100.00	1,100.00	18.21	13.53	3.887	CC
P_NORTHGLENN STATE 21-36 - P_NORTHGLENN ST	1,124.76	1,124.74	18.22	13.43	3.802	ES
P_NORTHGLENN STATE 21-36 - P_NORTHGLENN ST	1,200.00	1,199.80	18.56	13.46	3.635	SF
P_NORTHGLENN STATE 2-36 - P_NORTHGLENN STA	1,100.00	1,100.00	47.36	42.67	10.106	CC, ES
P_NORTHGLENN STATE 2-36 - P_NORTHGLENN STA	1,200.00	1,198.78	48.83	43.71	9.546	SF
P_NORTHGLENN STATE 3-36 - P_NORTHGLENN STA	1,100.00	1,100.00	14.58	9.89	3.110	CC, ES, SF
P_NORTHGLENN STATE 7-36 - P_NORTHGLENN STA	1,100.00	1,100.00	50.99	46.31	10.881	CC, ES
P_NORTHGLENN STATE 7-36 - P_NORTHGLENN STA	1,200.00	1,198.45	52.30	47.20	10.269	SF
P_NORTHGLENN STATE 8-36 - P_NORTHGLENN STA	1,100.00	1,100.00	32.78	28.10	6.996	CC, ES
P_NORTHGLENN STATE 8-36 - P_NORTHGLENN STA	1,200.00	1,199.20	33.79	28.69	6.629	SF
STEELE STATE #2-36 EXISTING - STEELE STATE #2-	1,100.00	1,100.00	65.83	21.79	1.495	Level 3, CC
STEELE STATE #2-36 EXISTING - STEELE STATE #2-	1,200.00	1,199.98	67.24	19.00	1.394	Level 3, ES
STEELE STATE #2-36 EXISTING - STEELE STATE #2-	1,300.00	1,299.84	71.56	19.20	1.367	Level 3, SF

Offset Design	WELD_NORTHGLENN STATE 7 PAD - P_NORTHGLENN STATE 1-36 - P_NORTHGLENN STATE 1-36										Offset Site Error:	0.00 ft
Survey Program:	0-MWD										Offset Well Error:	0.00 ft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Separation Factor		Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor
0.00	0.00	0.00	0.00	0.00	0.00	0.00	29.15	0.00	29.15			
100.00	100.00	100.00	100.00	0.10	0.10	0.00	29.15	0.00	29.15	28.96	0.19	152.601
200.00	200.00	200.00	200.00	0.32	0.32	0.00	29.15	0.00	29.15	28.51	0.64	45.513
300.00	300.00	300.00	300.00	0.55	0.55	0.00	29.15	0.00	29.15	28.06	1.09	26.745
400.00	400.00	400.00	400.00	0.77	0.77	0.00	29.15	0.00	29.15	27.62	1.54	18.936
500.00	500.00	500.00	500.00	0.99	0.99	0.00	29.15	0.00	29.15	27.17	1.99	14.657
600.00	600.00	600.00	600.00	1.22	1.22	0.00	29.15	0.00	29.15	26.72	2.44	11.955
700.00	700.00	700.00	700.00	1.44	1.44	0.00	29.15	0.00	29.15	26.27	2.89	10.094
800.00	800.00	800.00	800.00	1.67	1.67	0.00	29.15	0.00	29.15	25.82	3.34	8.735
900.00	900.00	900.00	900.00	1.89	1.89	0.00	29.15	0.00	29.15	25.37	3.79	7.698
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	0.00	29.15	0.00	29.15	24.92	4.24	6.881
1,100.00	1,100.00	1,100.00	1,100.00	2.34	2.34	0.00	29.15	0.00	29.15	24.47	4.69	6.221
1,200.00	1,199.98	1,199.48	1,199.46	2.55	2.56	-96.99	30.03	1.49	30.23	25.12	5.11	5.912

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

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NORTHGLENN STATE 41-36
Project:	KERR MCGEE OIL & GAS ONSHORE LP	TVD Reference:	WELL @ 5118.00ft (Original Well Elev)
Reference Site:	WELD_NORTHGLENN STATE 7 PAD	MD Reference:	WELL @ 5118.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NORTHGLENN STATE 41-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NORTHGLENN STATE 41-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 10-09-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_NORTHGLENN STATE 7 PAD - P_NORTHGLENN STATE 1-36 - P_NORTHGLENN STATE 1-36												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
1,300.00	1,299.84	1,298.88	1,298.72	2.76	2.78	-98.10	32.65	5.95	33.48	27.95	5.53	6.053	
1,400.00	1,399.45	1,398.14	1,397.60	2.97	3.00	-99.52	37.01	13.36	38.91	32.94	5.97	6.518	
1,500.00	1,498.70	1,497.18	1,495.91	3.21	3.24	-100.93	43.08	23.70	46.52	40.08	6.44	7.222	
1,600.00	1,597.47	1,595.95	1,593.47	3.48	3.51	-102.14	50.85	36.92	56.32	49.36	6.96	8.089	
1,700.00	1,695.62	1,694.72	1,690.51	3.78	3.80	-103.32	60.18	52.81	68.19	60.64	7.55	9.035	
1,800.00	1,793.06	1,793.78	1,787.71	4.14	4.13	-106.05	69.86	69.29	81.22	73.03	8.19	9.913	
1,900.00	1,889.64	1,892.55	1,884.62	4.55	4.46	-109.92	79.51	85.72	95.55	86.66	8.89	10.747	
2,004.97	1,990.00	1,995.76	1,985.89	5.05	4.83	-114.56	89.60	102.88	112.49	102.82	9.66	11.643	
2,100.00	2,080.32	2,088.93	2,077.32	5.55	5.17	-118.59	98.70	118.38	129.16	118.77	10.39	12.432	
2,200.00	2,175.37	2,186.98	2,173.53	6.10	5.54	-121.83	108.28	134.69	147.23	136.06	11.17	13.184	
2,300.00	2,270.43	2,285.04	2,269.74	6.67	5.91	-124.36	117.86	151.00	165.66	153.70	11.95	13.857	
2,400.00	2,365.48	2,383.09	2,365.95	7.25	6.29	-126.39	127.44	167.30	184.33	171.58	12.75	14.457	
2,500.00	2,460.53	2,481.14	2,462.16	7.84	6.68	-128.04	137.03	183.61	203.19	189.64	13.55	14.993	
2,600.00	2,555.58	2,579.19	2,558.37	8.45	7.07	-129.41	146.61	199.92	222.18	207.82	14.36	15.473	
2,700.00	2,650.63	2,677.25	2,654.58	9.06	7.46	-130.57	156.19	216.23	241.28	226.11	15.17	15.904	
2,800.00	2,745.68	2,775.30	2,750.79	9.67	7.85	-131.55	165.77	232.54	260.46	244.47	15.99	16.291	
2,900.00	2,840.74	2,873.35	2,847.00	10.29	8.25	-132.40	175.35	248.85	279.70	262.89	16.81	16.642	
3,000.00	2,935.79	2,971.40	2,943.21	10.92	8.64	-133.14	184.93	265.15	298.99	281.36	17.63	16.960	
3,100.00	3,030.84	3,069.46	3,039.43	11.54	9.04	-133.79	194.51	281.46	318.33	299.87	18.45	17.250	
3,200.00	3,125.89	3,167.51	3,135.64	12.17	9.45	-134.37	204.09	297.77	337.70	318.42	19.28	17.514	
3,300.00	3,220.94	3,265.56	3,231.85	12.81	9.85	-134.88	213.67	314.08	357.10	336.99	20.11	17.757	
3,400.00	3,316.00	3,363.61	3,328.06	13.44	10.25	-135.35	223.25	330.39	376.52	355.58	20.94	17.980	
3,500.00	3,411.05	3,461.67	3,424.27	14.08	10.66	-135.76	232.83	346.70	395.97	374.19	21.77	18.185	
3,600.00	3,506.10	3,559.72	3,520.48	14.72	11.06	-136.14	242.42	363.00	415.43	392.82	22.61	18.375	
3,700.00	3,601.15	3,657.77	3,616.69	15.36	11.47	-136.48	252.00	379.31	434.91	411.47	23.44	18.552	
3,800.00	3,696.20	3,755.82	3,712.90	16.00	11.88	-136.79	261.58	395.62	454.41	430.13	24.28	18.715	
3,900.00	3,791.26	3,853.88	3,809.11	16.64	12.29	-137.08	271.16	411.93	473.91	448.80	25.12	18.868	
4,000.00	3,886.31	3,951.93	3,905.32	17.28	12.70	-137.35	280.74	428.24	493.43	467.47	25.96	19.010	
4,100.00	3,981.36	4,049.98	4,001.53	17.92	13.11	-137.59	290.32	444.54	512.96	486.16	26.80	19.144	
4,200.00	4,076.41	4,148.03	4,097.75	18.57	13.52	-137.82	299.90	460.85	532.49	504.85	27.64	19.269	
4,300.00	4,171.46	4,246.09	4,193.96	19.21	13.93	-138.03	309.48	477.16	552.03	523.56	28.48	19.386	
4,400.00	4,266.51	4,344.14	4,290.17	19.86	14.34	-138.23	319.06	493.47	571.58	542.26	29.32	19.496	
4,500.00	4,361.57	4,442.19	4,386.38	20.50	14.75	-138.41	328.64	509.78	591.13	560.97	30.16	19.600	
4,600.00	4,456.62	4,540.24	4,482.59	21.15	15.16	-138.58	338.22	526.09	610.69	579.69	31.00	19.699	
4,700.00	4,551.67	4,638.30	4,578.80	21.79	15.57	-138.74	347.81	542.39	630.26	598.41	31.84	19.792	
4,800.00	4,646.72	4,736.35	4,675.01	22.44	15.98	-138.90	357.39	558.70	649.83	617.14	32.69	19.880	
4,900.00	4,741.77	4,834.40	4,771.22	23.09	16.40	-139.04	366.97	575.01	669.40	635.87	33.53	19.963	
5,000.00	4,836.83	4,932.45	4,867.43	23.74	16.81	-139.17	376.55	591.32	688.98	654.60	34.38	20.042	
5,100.00	4,931.88	5,030.51	4,963.64	24.38	17.22	-139.30	386.13	607.63	708.56	673.34	35.22	20.118	
5,200.00	5,026.93	5,128.56	5,059.85	25.03	17.64	-139.42	395.71	623.93	728.14	692.08	36.07	20.189	
5,300.00	5,121.98	5,226.61	5,156.07	25.68	18.05	-139.53	405.29	640.24	747.73	710.82	36.91	20.257	
5,400.00	5,217.03	5,324.66	5,252.28	26.33	18.46	-139.64	414.87	656.55	767.32	729.56	37.76	20.323	
5,500.00	5,312.08	5,422.72	5,348.49	26.98	18.88	-139.74	424.45	672.86	786.91	748.31	38.60	20.385	
5,600.00	5,407.14	5,520.77	5,444.70	27.63	19.29	-139.84	434.03	689.17	806.51	767.06	39.45	20.444	
5,702.96	5,505.00	5,621.72	5,543.76	28.30	19.72	-139.94	443.90	705.96	826.68	786.36	40.32	20.503	
5,800.00	5,597.73	5,717.12	5,637.36	28.83	20.12	-140.18	453.22	721.82	844.46	803.32	41.15	20.523	
5,900.00	5,694.25	5,815.85	5,734.23	29.27	20.54	-140.25	462.87	738.25	860.19	818.22	41.97	20.497	
6,000.00	5,791.62	5,914.89	5,831.42	29.65	20.96	-140.14	472.55	754.72	873.26	830.47	42.79	20.408	
6,100.00	5,889.72	6,012.02	5,926.75	29.99	21.34	-139.88	481.96	770.74	883.75	840.18	43.58	20.280	
6,200.00	5,988.44	6,104.97	6,018.40	30.28	21.62	-139.63	489.80	784.10	892.20	847.99	44.21	20.180	
6,300.00	6,087.66	6,200.00	6,112.56	30.52	21.88	-139.40	496.27	795.10	898.75	853.99	44.76	20.079	
6,400.00	6,187.25	6,291.69	6,203.78	30.71	22.08	-139.22	501.00	803.15	903.38	858.18	45.20	19.986	

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

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NORTHGLENN STATE 41-36
Project:	KERR MCGEE OIL & GAS ONSHORE LP	TVD Reference:	WELL @ 5118.00ft (Original Well Elev)
Reference Site:	WELD_NORTHGLENN STATE 7 PAD	MD Reference:	WELL @ 5118.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NORTHGLENN STATE 41-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NORTHGLENN STATE 41-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 10-09-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_NORTHGLENN STATE 7 PAD - P_NORTHGLENN STATE 1-36 - P_NORTHGLENN STATE 1-36													Offset Site Error: 0.00 ft
Survey Program: 0-MWD													Offset Well Error: 0.00 ft
Reference	Offset	Semi Major Axis		Distance									Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
6,500.00	6,287.09	6,385.36	6,297.21	30.87	22.26	-139.07	504.30	808.78	906.08	860.53	45.55	19.891	
6,607.93	6,395.00	6,486.60	6,398.38	30.98	22.42	-42.37	506.13	811.89	906.81	860.98	45.83	19.786	
6,684.03	6,471.09	6,559.31	6,471.09	31.05	22.51	-42.34	506.37	812.29	906.71	860.69	46.02	19.702	
6,700.00	6,487.07	6,575.29	6,487.07	31.06	22.53	-42.34	506.37	812.29	906.71	860.65	46.06	19.685	
6,800.00	6,587.07	6,675.29	6,587.07	31.16	22.67	-42.34	506.37	812.29	906.71	860.39	46.32	19.576	
6,900.00	6,687.07	6,775.29	6,687.07	31.26	22.80	-42.34	506.37	812.29	906.71	860.13	46.58	19.465	
7,000.00	6,787.07	6,875.29	6,787.07	31.36	22.94	-42.34	506.37	812.29	906.71	859.86	46.85	19.355	
7,100.00	6,887.07	6,975.29	6,887.07	31.46	23.09	-42.34	506.37	812.29	906.71	859.59	47.12	19.244	
7,200.00	6,987.07	7,075.29	6,987.07	31.57	23.23	-42.34	506.37	812.29	906.71	859.32	47.39	19.134	
7,300.00	7,087.07	7,175.29	7,087.07	31.67	23.37	-42.34	506.37	812.29	906.71	859.05	47.66	19.024	
7,400.00	7,187.07	7,275.29	7,187.07	31.78	23.52	-42.34	506.37	812.29	906.71	858.77	47.94	18.914	
7,500.00	7,287.07	7,375.29	7,287.07	31.89	23.66	-42.34	506.37	812.29	906.71	858.49	48.22	18.804	
7,600.00	7,387.07	7,475.29	7,387.07	31.99	23.81	-42.34	506.37	812.29	906.71	858.21	48.50	18.695	
7,700.00	7,487.07	7,575.29	7,487.07	32.10	23.96	-42.34	506.37	812.29	906.71	857.93	48.78	18.586	
7,800.00	7,587.07	7,675.29	7,587.07	32.21	24.11	-42.34	506.37	812.29	906.71	857.64	49.07	18.478	
7,900.00	7,687.07	7,775.29	7,687.07	32.33	24.26	-42.34	506.37	812.29	906.71	857.35	49.36	18.369	
8,000.00	7,787.07	7,875.29	7,787.07	32.44	24.42	-42.34	506.37	812.29	906.71	857.06	49.65	18.261	
8,100.00	7,887.07	7,975.29	7,887.07	32.55	24.57	-42.34	506.37	812.29	906.71	856.76	49.95	18.154	
8,207.93	7,995.00	8,083.22	7,995.00	32.68	24.74	-42.34	506.37	812.29	906.71	856.44	50.27	18.038	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NORTHGLENN STATE 41-36
Project:	KERR MCGEE OIL & GAS ONSHORE LP	TVD Reference:	WELL @ 5118.00ft (Original Well Elev)
Reference Site:	WELD_NORTHGLENN STATE 7 PAD	MD Reference:	WELL @ 5118.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NORTHGLENN STATE 41-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NORTHGLENN STATE 41-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 10-09-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Tooface (")	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
0.00	0.00	0.00	0.00	0.00	0.00	-180.00	-18.21	0.00	18.21				
100.00	100.00	100.00	100.00	0.10	0.10	-180.00	-18.21	0.00	18.21	18.02	0.19	95.334	
200.00	200.00	200.00	200.00	0.32	0.32	-180.00	-18.21	0.00	18.21	17.57	0.64	28.433	
300.00	300.00	300.00	300.00	0.55	0.55	-180.00	-18.21	0.00	18.21	17.12	1.09	16.708	
400.00	400.00	400.00	400.00	0.77	0.77	-180.00	-18.21	0.00	18.21	16.67	1.54	11.830	
500.00	500.00	500.00	500.00	0.99	0.99	-180.00	-18.21	0.00	18.21	16.22	1.99	9.156	
600.00	600.00	600.00	600.00	1.22	1.22	-180.00	-18.21	0.00	18.21	15.78	2.44	7.469	
700.00	700.00	700.00	700.00	1.44	1.44	-180.00	-18.21	0.00	18.21	15.33	2.89	6.306	
800.00	800.00	800.00	800.00	1.67	1.67	-180.00	-18.21	0.00	18.21	14.88	3.34	5.457	
900.00	900.00	900.00	900.00	1.89	1.89	-180.00	-18.21	0.00	18.21	14.43	3.79	4.809	
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	-180.00	-18.21	0.00	18.21	13.98	4.24	4.299	
1,100.00	1,100.00	1,100.00	1,100.00	2.34	2.34	-180.00	-18.21	0.00	18.21	13.53	4.69	3.887 CC	
1,124.76	1,124.76	1,124.74	1,124.74	2.40	2.39	84.10	-18.23	-0.11	18.22	13.43	4.79	3.802 ES	
1,200.00	1,199.98	1,199.80	1,199.78	2.55	2.55	94.14	-18.44	-1.72	18.56	13.46	5.11	3.635 SF	
1,300.00	1,299.84	1,298.89	1,298.73	2.76	2.75	120.19	-19.09	-6.84	22.93	17.43	5.50	4.168	
1,400.00	1,399.45	1,396.56	1,396.03	2.97	2.96	142.11	-20.17	-15.21	36.03	30.14	5.89	6.121	
1,500.00	1,498.70	1,492.19	1,490.96	3.21	3.19	153.98	-21.63	-26.58	57.85	51.59	6.26	9.239	
1,600.00	1,597.47	1,585.15	1,582.84	3.48	3.44	160.17	-23.43	-40.65	87.13	80.50	6.63	13.141	
1,700.00	1,695.62	1,674.94	1,671.09	3.78	3.71	163.65	-25.53	-57.03	123.10	116.11	6.99	17.603	
1,800.00	1,793.06	1,761.11	1,755.26	4.14	4.00	165.74	-27.88	-75.33	165.27	157.92	7.35	22.940	
1,900.00	1,889.64	1,848.55	1,840.30	4.55	4.33	167.17	-30.47	-95.48	212.30	204.60	7.71	27.540	
2,004.97	1,990.00	1,939.20	1,928.47	5.05	4.69	168.23	-33.15	-116.39	265.01	256.93	8.09	32.776	
2,100.00	2,080.32	2,020.38	2,007.42	5.55	5.03	169.11	-35.56	-135.12	314.26	305.75	8.51	36.949	
2,200.00	2,175.37	2,105.81	2,090.51	6.10	5.39	169.78	-38.09	-154.83	366.13	357.17	8.96	40.874	
2,300.00	2,270.43	2,191.24	2,173.60	6.67	5.77	170.28	-40.62	-174.54	418.02	408.60	9.42	44.381	
2,400.00	2,365.48	2,276.67	2,256.69	7.25	6.15	170.67	-43.15	-194.25	469.93	460.04	9.89	47.525	
2,500.00	2,460.53	2,362.10	2,339.77	7.84	6.54	170.99	-45.68	-213.95	521.86	511.49	10.36	50.354	
2,600.00	2,555.58	2,447.53	2,422.86	8.45	6.93	171.25	-48.21	-233.66	573.79	562.95	10.84	52.909	
2,700.00	2,650.63	2,532.96	2,505.95	9.06	7.33	171.46	-50.74	-253.37	625.74	614.40	11.33	55.224	
2,800.00	2,745.68	2,618.39	2,589.03	9.67	7.73	171.64	-53.27	-273.08	677.68	665.86	11.82	57.329	
2,900.00	2,840.74	2,703.82	2,672.12	10.29	8.14	171.80	-55.80	-292.79	729.64	717.32	12.31	59.249	
3,000.00	2,935.79	2,789.25	2,755.21	10.92	8.55	171.93	-58.33	-312.50	781.59	768.78	12.81	61.004	
3,100.00	3,030.84	2,874.68	2,838.29	11.54	8.96	172.05	-60.86	-332.21	833.55	820.24	13.31	62.616	
3,200.00	3,125.89	2,960.11	2,921.38	12.17	9.37	172.16	-63.39	-351.92	885.51	871.69	13.81	64.099	
3,300.00	3,220.94	3,045.54	3,004.47	12.81	9.78	172.25	-65.92	-371.62	937.47	923.15	14.32	65.468	
3,400.00	3,316.00	3,130.97	3,087.56	13.44	10.20	172.33	-68.45	-391.33	989.44	974.61	14.83	66.734	
3,500.00	3,411.05	3,216.40	3,170.64	14.08	10.61	172.41	-70.98	-411.04	1,041.40	1,026.07	15.34	67.909	
3,600.00	3,506.10	3,301.83	3,253.73	14.72	11.03	172.48	-73.51	-430.75	1,093.37	1,077.52	15.85	69.001	
3,700.00	3,601.15	3,387.26	3,336.82	15.36	11.45	172.54	-76.04	-450.46	1,145.34	1,128.98	16.36	70.018	
3,800.00	3,696.20	3,472.69	3,419.90	16.00	11.87	172.59	-78.57	-470.17	1,197.30	1,180.43	16.87	70.968	
3,900.00	3,791.26	3,558.12	3,502.99	16.64	12.29	172.65	-81.10	-489.88	1,249.27	1,231.89	17.39	71.857	
4,000.00	3,886.31	3,643.55	3,586.08	17.28	12.71	172.69	-83.63	-509.59	1,301.24	1,283.34	17.90	72.690	
4,100.00	3,981.36	3,728.98	3,669.17	17.92	13.13	172.74	-86.16	-529.29	1,353.21	1,334.80	18.42	73.472	
4,200.00	4,076.41	3,814.41	3,752.25	18.57	13.56	172.78	-88.69	-549.00	1,405.19	1,386.25	18.94	74.208	
4,300.00	4,171.46	3,899.84	3,835.34	19.21	13.98	172.82	-91.22	-568.71	1,457.16	1,437.70	19.45	74.902	
4,400.00	4,266.51	3,985.27	3,918.43	19.86	14.40	172.85	-93.75	-588.42	1,509.13	1,489.15	19.97	75.556	
4,500.00	4,361.57	4,070.70	4,001.51	20.50	14.83	172.88	-96.28	-608.13	1,561.10	1,540.61	20.49	76.174	
4,600.00	4,456.62	4,156.14	4,084.60	21.15	15.25	172.91	-98.81	-627.84	1,613.07	1,592.06	21.01	76.759	
4,700.00	4,551.67	4,241.57	4,167.69	21.79	15.68	172.94	-101.34	-647.55	1,665.05	1,643.51	21.54	77.314	
4,800.00	4,646.72	4,327.00	4,250.78	22.44	16.10	172.97	-103.87	-667.26	1,717.02	1,694.96	22.06	77.840	
4,900.00	4,741.77	4,412.43	4,333.86	23.09	16.53	173.00	-106.40	-686.97	1,768.99	1,746.41	22.58	78.340	
5,000.00	4,836.83	4,497.86	4,416.95	23.74	16.96	173.02	-108.93	-706.67	1,820.97	1,797.86	23.10	78.816	

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

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NORTHGLENN STATE 41-36
Project:	KERR MCGEE OIL & GAS ONSHORE LP	TVD Reference:	WELL @ 5118.00ft (Original Well Elev)
Reference Site:	WELD_NORTHGLENN STATE 7 PAD	MD Reference:	WELL @ 5118.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NORTHGLENN STATE 41-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NORTHGLENN STATE 41-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 10-09-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.00	4,931.88	4,583.29	4,500.04	24.38	17.38	173.04	-111.46	-726.38	1,872.94	1,849.31	23.63	79.269	
5,200.00	5,026.93	4,668.72	4,583.12	25.03	17.81	173.06	-113.99	-746.09	1,924.92	1,900.76	24.15	79.701	
5,300.00	5,121.98	4,754.15	4,666.21	25.68	18.24	173.08	-116.52	-765.80	1,976.89	1,952.21	24.68	80.113	
5,400.00	5,217.03	4,839.58	4,749.30	26.33	18.66	173.10	-119.05	-785.51	2,028.87	2,003.66	25.20	80.506	
5,500.00	5,312.08	4,925.01	4,832.39	26.98	19.09	173.12	-121.58	-805.22	2,080.84	2,055.11	25.73	80.883	
5,600.00	5,407.14	5,010.44	4,915.47	27.63	19.52	173.14	-124.11	-824.93	2,132.81	2,106.56	26.25	81.243	
5,702.96	5,505.00	5,098.40	5,001.02	28.30	19.96	173.16	-126.71	-845.22	2,186.33	2,159.53	26.79	81.598	
5,800.00	5,597.73	5,182.13	5,082.46	28.83	20.38	173.30	-129.19	-864.54	2,235.36	2,207.88	27.49	81.328	
5,900.00	5,694.25	5,270.09	5,168.01	29.27	20.82	173.42	-131.80	-884.83	2,282.91	2,254.77	28.15	81.107	
6,000.00	5,791.62	5,359.65	5,255.11	29.65	21.27	173.52	-134.45	-905.49	2,327.39	2,298.61	28.77	80.882	
6,100.00	5,889.72	5,450.70	5,343.66	29.99	21.73	173.60	-137.15	-926.50	2,368.73	2,339.36	29.37	80.657	
6,200.00	5,988.44	5,543.12	5,433.54	30.28	22.19	173.66	-139.88	-947.82	2,406.89	2,376.97	29.92	80.433	
6,300.00	6,087.66	5,636.80	5,524.66	30.52	22.66	173.70	-142.66	-969.43	2,441.82	2,411.38	30.44	80.213	
6,400.00	6,187.25	5,731.63	5,616.88	30.71	23.14	173.72	-145.47	-991.31	2,473.48	2,442.57	30.92	79.999	
6,500.00	6,287.09	5,827.49	5,710.11	30.87	23.62	173.73	-148.30	-1,013.42	2,501.84	2,470.48	31.35	79.792	
6,607.93	6,395.00	6,205.57	6,081.19	30.98	24.92	-89.85	-157.37	-1,084.05	2,526.57	2,494.22	32.35	78.097	
6,700.00	6,487.07	6,612.39	6,487.07	31.06	25.59	-89.92	-160.24	-1,106.43	2,529.38	2,496.16	33.22	76.135	
6,800.00	6,587.07	6,712.39	6,587.07	31.16	25.71	-89.92	-160.24	-1,106.43	2,529.38	2,495.82	33.56	75.369	
6,900.00	6,687.07	6,812.39	6,687.07	31.26	25.83	-89.92	-160.24	-1,106.43	2,529.38	2,495.48	33.90	74.614	
7,000.00	6,787.07	6,912.39	6,787.07	31.36	25.95	-89.92	-160.24	-1,106.43	2,529.38	2,495.14	34.24	73.868	
7,100.00	6,887.07	7,012.39	6,887.07	31.46	26.07	-89.92	-160.24	-1,106.43	2,529.38	2,494.79	34.59	73.131	
7,200.00	6,987.07	7,112.39	6,987.07	31.57	26.19	-89.92	-160.24	-1,106.43	2,529.38	2,494.44	34.93	72.404	
7,300.00	7,087.07	7,212.39	7,087.07	31.67	26.32	-89.92	-160.24	-1,106.43	2,529.38	2,494.09	35.28	71.687	
7,400.00	7,187.07	7,312.39	7,187.07	31.78	26.44	-89.92	-160.24	-1,106.43	2,529.38	2,493.74	35.64	70.980	
7,500.00	7,287.07	7,412.39	7,287.07	31.89	26.57	-89.92	-160.24	-1,106.43	2,529.38	2,493.39	35.99	70.282	
7,600.00	7,387.07	7,512.39	7,387.07	31.99	26.70	-89.92	-160.24	-1,106.43	2,529.38	2,493.03	36.35	69.593	
7,700.00	7,487.07	7,612.39	7,487.07	32.10	26.83	-89.92	-160.24	-1,106.43	2,529.38	2,492.67	36.70	68.914	
7,800.00	7,587.07	7,712.39	7,587.07	32.21	26.96	-89.92	-160.24	-1,106.43	2,529.38	2,492.31	37.06	68.245	
7,900.00	7,687.07	7,812.39	7,687.07	32.33	27.09	-89.92	-160.24	-1,106.43	2,529.38	2,491.95	37.43	67.585	
8,000.00	7,787.07	7,912.39	7,787.07	32.44	27.22	-89.92	-160.24	-1,106.43	2,529.38	2,491.59	37.79	66.934	
8,100.00	7,887.07	8,012.39	7,887.07	32.55	27.36	-89.92	-160.24	-1,106.43	2,529.38	2,491.22	38.15	66.292	
8,207.93	7,995.00	8,120.32	7,995.00	32.68	27.51	-89.92	-160.24	-1,106.43	2,529.38	2,490.83	38.55	65.610	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NORTHGLENN STATE 41-36
Project:	KERR MCGEE OIL & GAS ONSHORE LP	TVD Reference:	WELL @ 5118.00ft (Original Well Elev)
Reference Site:	WELD_NORTHGLENN STATE 7 PAD	MD Reference:	WELL @ 5118.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NORTHGLENN STATE 41-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NORTHGLENN STATE 41-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 10-09-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 ft	
Survey Program: 0-MWD												Offset Well Error:	0.00 ft	
Reference	Offset	Semi Major Axis		Distance								Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.36	0.00	47.36					
100.00	100.00	100.00	100.00	0.10	0.10	0.00	47.36	0.00	47.36	47.17	0.19	247.891		
200.00	200.00	200.00	200.00	0.32	0.32	0.00	47.36	0.00	47.36	46.72	0.64	73.933		
300.00	300.00	300.00	300.00	0.55	0.55	0.00	47.36	0.00	47.36	46.27	1.09	43.445		
400.00	400.00	400.00	400.00	0.77	0.77	0.00	47.36	0.00	47.36	45.82	1.54	30.760		
500.00	500.00	500.00	500.00	0.99	0.99	0.00	47.36	0.00	47.36	45.37	1.99	23.809		
600.00	600.00	600.00	600.00	1.22	1.22	0.00	47.36	0.00	47.36	44.92	2.44	19.420		
700.00	700.00	700.00	700.00	1.44	1.44	0.00	47.36	0.00	47.36	44.47	2.89	16.397		
800.00	800.00	800.00	800.00	1.67	1.67	0.00	47.36	0.00	47.36	44.02	3.34	14.189		
900.00	900.00	900.00	900.00	1.89	1.89	0.00	47.36	0.00	47.36	43.57	3.79	12.505		
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	0.00	47.36	0.00	47.36	43.12	4.24	11.178		
1,100.00	1,100.00	1,100.00	1,100.00	2.34	2.34	0.00	47.36	0.00	47.36	42.67	4.69	10.106 CC, ES		
1,200.00	1,199.98	1,198.78	1,198.76	2.55	2.56	-100.02	48.52	-1.25	48.83	43.71	5.11	9.546 SF		
1,300.00	1,299.84	1,296.92	1,296.76	2.76	2.78	-109.01	51.97	-4.95	54.17	48.64	5.53	9.796		
1,400.00	1,399.45	1,393.80	1,393.28	2.97	3.00	-120.07	57.61	-11.02	65.39	59.44	5.95	10.993		
1,500.00	1,498.70	1,488.83	1,487.63	3.21	3.23	-129.93	65.30	-19.29	83.79	77.44	6.36	13.178		
1,600.00	1,597.47	1,581.46	1,579.20	3.48	3.48	-137.35	74.84	-29.56	109.57	102.81	6.76	16.205		
1,700.00	1,695.62	1,671.22	1,667.45	3.78	3.75	-142.56	86.01	-41.57	142.27	135.11	7.16	19.879		
1,800.00	1,793.06	1,757.70	1,751.93	4.14	4.04	-146.16	98.54	-55.05	181.38	173.83	7.55	24.026		
1,900.00	1,889.64	1,840.53	1,832.31	4.55	4.35	-148.64	112.17	-69.71	226.41	218.47	7.94	28.509		
2,004.97	1,990.00	1,923.28	1,912.00	5.05	4.70	-150.43	127.36	-86.04	279.58	271.23	8.36	33.462		
2,100.00	2,080.32	1,997.43	1,982.85	5.55	5.04	-152.05	142.23	-102.04	331.32	322.53	8.79	37.680		
2,200.00	2,175.37	2,080.58	2,062.16	6.10	5.46	-153.38	159.24	-120.33	386.45	377.17	9.28	41.637		
2,300.00	2,270.43	2,163.72	2,141.47	6.67	5.89	-154.37	176.24	-138.62	441.68	431.90	9.78	45.150		
2,400.00	2,365.48	2,246.87	2,220.78	7.25	6.33	-155.14	193.25	-156.91	496.99	486.69	10.29	48.277		
2,500.00	2,460.53	2,330.02	2,300.08	7.84	6.78	-155.76	210.25	-175.20	552.34	541.53	10.82	51.068		
2,600.00	2,555.58	2,413.16	2,379.39	8.45	7.24	-156.27	227.26	-193.49	607.74	596.39	11.35	53.567		
2,700.00	2,650.63	2,496.31	2,458.70	9.06	7.71	-156.69	244.26	-211.78	663.16	651.27	11.88	55.810		
2,800.00	2,745.68	2,579.46	2,538.01	9.67	8.19	-157.04	261.27	-230.07	718.60	706.17	12.43	57.829		
2,900.00	2,840.74	2,662.61	2,617.31	10.29	8.67	-157.35	278.27	-248.36	774.05	761.08	12.98	59.656		
3,000.00	2,935.79	2,745.75	2,696.62	10.92	9.15	-157.62	295.28	-266.65	829.53	816.00	13.53	61.316		
3,100.00	3,030.84	2,828.90	2,775.93	11.54	9.63	-157.85	312.28	-284.94	885.01	870.92	14.09	62.827		
3,200.00	3,125.89	2,912.05	2,855.24	12.17	10.12	-158.05	329.29	-303.23	940.50	925.85	14.65	64.209		
3,300.00	3,220.94	2,995.19	2,934.55	12.81	10.62	-158.23	346.29	-321.52	996.00	980.78	15.21	65.474		
3,400.00	3,316.00	3,078.34	3,013.85	13.44	11.11	-158.40	363.30	-339.81	1,051.50	1,035.72	15.78	66.635		
3,500.00	3,411.05	3,161.49	3,093.16	14.08	11.61	-158.54	380.30	-358.10	1,107.01	1,090.66	16.35	67.705		
3,600.00	3,506.10	3,244.64	3,172.47	14.72	12.10	-158.67	397.31	-376.39	1,162.52	1,145.60	16.92	68.695		
3,700.00	3,601.15	3,327.78	3,251.78	15.36	12.60	-158.79	414.31	-394.68	1,218.04	1,200.54	17.50	69.611		
3,800.00	3,696.20	3,410.93	3,331.09	16.00	13.10	-158.90	431.32	-412.97	1,273.56	1,255.49	18.07	70.462		
3,900.00	3,791.26	3,494.08	3,410.39	16.64	13.61	-159.00	448.33	-431.26	1,329.09	1,310.43	18.65	71.253		
4,000.00	3,886.31	3,577.22	3,489.70	17.28	14.11	-159.10	465.33	-449.55	1,384.61	1,365.38	19.23	71.991		
4,100.00	3,981.36	3,660.37	3,569.01	17.92	14.61	-159.18	482.34	-467.84	1,440.14	1,420.33	19.81	72.680		
4,200.00	4,076.41	3,743.52	3,648.32	18.57	15.12	-159.26	499.34	-486.13	1,495.67	1,475.28	20.40	73.326		
4,300.00	4,171.46	3,826.67	3,727.63	19.21	15.62	-159.34	516.35	-504.42	1,551.21	1,530.23	20.98	73.931		
4,400.00	4,266.51	3,909.81	3,806.93	19.86	16.13	-159.40	533.35	-522.71	1,606.74	1,585.17	21.57	74.500		
4,500.00	4,361.57	3,992.96	3,886.24	20.50	16.63	-159.47	550.36	-541.00	1,662.28	1,640.12	22.15	75.035		
4,600.00	4,456.62	4,076.11	3,965.55	21.15	17.14	-159.53	567.36	-559.28	1,717.82	1,695.07	22.74	75.540		
4,700.00	4,551.67	4,159.68	4,046.98	21.79	17.64	-159.57	584.36	-577.56	1,773.36	1,749.62	23.33	76.045		
4,800.00	4,646.72	4,242.44	4,124.15	22.44	18.14	-160.07	601.36	-595.83	1,828.89	1,804.19	23.92	76.550		
4,900.00	4,741.77	4,325.20	4,201.01	23.09	18.64	-160.60	618.36	-614.10	1,884.42	1,858.72	24.51	77.055		
5,000.00	4,836.83	4,408.31	4,278.83	23.74	19.14	-161.30	635.36	-632.38	1,939.95	1,913.25	25.10	77.560		
5,100.00	4,931.88	4,491.36	4,356.88	24.38	19.64	-161.59	652.36	-650.67	1,995.48	1,967.78	25.69	78.065		
5,200.00	5,026.93	4,574.41	4,434.41	25.03	20.14	-161.88	669.36	-668.95	2,051.01	2,022.31	26.28	78.570		
5,300.00	5,121.98	4,657.46	4,511.96	25.68	20.64	-162.17	686.36	-687.22	2,106.54	2,076.84	26.87	79.075		
5,400.00	5,217.03	4,740.51	4,589.51	26.33	21.14	-162.46	703.36	-705.49	2,162.07	2,131.37	27.46	79.580		
5,500.00	5,312.08	4,823.56	4,667.06	26.98	21.64	-162.75	720.36	-723.76	2,217.60	2,185.90	28.05	80.085		
5,600.00	5,407.13	4,906.61	4,744.61	27.63	22.14	-163.04	737.36	-741.03	2,273.13	2,240.43	28.64	80.590		
5,700.00	5,502.18	4,989.66	4,822.16	28.28	22.64	-163.33	754.36	-758.30	2,328.66	2,294.96	29.23	81.095		
5,800.00	5,597.23	5,072.71	4,899.71	28.93	23.14	-163.62	771.36	-775.57	2,384.19	2,349.49	29.82	81.600		
5,900.00	5,692.28	5,155.76	4,977.26	29.58	23.64	-163.91	788.36	-793.84	2,439.72	2,403.02	30.41	82.105		
6,000.00	5,787.33	5,238.81	5,054.81	30.23	24.14	-164.20	805.36	-811.11	2,495.25	2,457.55	31.00	82.610		
6,100.00	5,882.38	5,321.86	5,132.36	30.88	24.64	-164.49	822.36	-828.38	2,550.78	2,512.08	31.59	83.115		
6,200.00	5,977.43	5,404.91	5,209.91	31.53	25.14	-164.78	839.36	-845.65	2,606.31	2,566.61	32.18	83.620		
6,300.00	6,072.48	5,487.96	5,287.46	32.18	25.64	-165.07	856.36	-862.92	2,661.84	2,621.14	32.77	84.125		
6,400.00	6,167.53	5,571.01	5,365.01	32.83	26.14	-165.36	873.36	-880.						

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NORTHGLENN STATE 41-36
Project:	KERR MCGEE OIL & GAS ONSHORE LP	TVD Reference:	WELL @ 5118.00ft (Original Well Elev)
Reference Site:	WELD_NORTHGLENN STATE 7 PAD	MD Reference:	WELL @ 5118.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NORTHGLENN STATE 41-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NORTHGLENN STATE 41-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 10-09-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
WELD_NORTHGLENN STATE 7 PAD - P_NORTHGLENN STATE 2-36 - P_NORTHGLENN STATE 2-36												Offset Well Error:	0.00 ft
Survey Program: 0-MWD													
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,200.00	5,026.93	5,151.41	5,026.93	25.03	19.97	-161.88	659.36	-658.23	1,951.77	1,924.94	26.83	72.734	
5,300.00	5,121.98	5,246.47	5,121.98	25.68	20.08	-162.16	659.36	-658.23	1,981.46	1,954.13	27.33	72.502	
5,400.00	5,217.03	5,341.52	5,217.03	26.33	20.20	-162.43	659.36	-658.23	2,011.19	1,983.36	27.82	72.281	
5,500.00	5,312.08	5,436.57	5,312.08	26.98	20.32	-162.69	659.36	-658.23	2,040.96	2,012.64	28.32	72.070	
5,600.00	5,407.14	5,531.62	5,407.14	27.63	20.44	-162.94	659.36	-658.23	2,070.76	2,041.95	28.81	71.867	
5,702.96	5,505.00	5,629.49	5,505.00	28.30	20.56	-163.20	659.36	-658.23	2,101.49	2,072.17	29.32	71.668	
5,800.00	5,597.73	5,722.22	5,597.73	28.83	20.68	-163.58	659.36	-658.23	2,128.97	2,098.99	29.99	70.998	
5,900.00	5,694.25	5,818.73	5,694.25	29.27	20.80	-163.92	659.36	-658.23	2,154.15	2,123.53	30.61	70.370	
6,000.00	5,791.62	5,916.10	5,791.62	29.65	20.93	-164.21	659.36	-658.23	2,176.08	2,144.88	31.19	69.758	
6,100.00	5,889.72	6,014.21	5,889.72	29.99	21.06	-164.45	659.36	-658.23	2,194.74	2,163.00	31.73	69.162	
6,200.00	5,988.44	6,112.93	5,988.44	30.28	21.19	-164.64	659.36	-658.23	2,210.09	2,177.86	32.23	68.580	
6,300.00	6,087.66	6,212.14	6,087.66	30.52	21.33	-164.79	659.36	-658.23	2,222.12	2,189.45	32.67	68.011	
6,400.00	6,187.25	6,311.73	6,187.25	30.71	21.46	-164.90	659.36	-658.23	2,230.80	2,197.73	33.07	67.454	
6,500.00	6,287.09	6,411.58	6,287.09	30.87	21.60	-164.96	659.36	-658.23	2,236.12	2,202.70	33.42	66.906	
6,607.93	6,395.00	6,519.49	6,395.00	30.98	21.75	-68.42	659.36	-658.23	2,238.08	2,204.34	33.75	66.317	
6,700.00	6,487.07	6,611.55	6,487.07	31.06	21.88	-68.42	659.36	-658.23	2,238.08	2,204.02	34.06	65.710	
6,800.00	6,587.07	6,711.55	6,587.07	31.16	22.03	-68.42	659.36	-658.23	2,238.08	2,203.68	34.40	65.052	
6,900.00	6,687.07	6,811.55	6,687.07	31.26	22.17	-68.42	659.36	-658.23	2,238.08	2,203.33	34.75	64.403	
7,000.00	6,787.07	6,911.55	6,787.07	31.36	22.32	-68.42	659.36	-658.23	2,238.08	2,202.98	35.10	63.763	
7,100.00	6,887.07	7,011.55	6,887.07	31.46	22.46	-68.42	659.36	-658.23	2,238.08	2,202.63	35.45	63.132	
7,200.00	6,987.07	7,111.55	6,987.07	31.57	22.61	-68.42	659.36	-658.23	2,238.08	2,202.28	35.80	62.509	
7,300.00	7,087.07	7,211.55	7,087.07	31.67	22.76	-68.42	659.36	-658.23	2,238.08	2,201.92	36.16	61.895	
7,400.00	7,187.07	7,311.55	7,187.07	31.78	22.91	-68.42	659.36	-658.23	2,238.08	2,201.57	36.52	61.290	
7,500.00	7,287.07	7,411.55	7,287.07	31.89	23.06	-68.42	659.36	-658.23	2,238.08	2,201.21	36.88	60.692	
7,600.00	7,387.07	7,511.55	7,387.07	31.99	23.22	-68.42	659.36	-658.23	2,238.08	2,200.85	37.24	60.104	
7,700.00	7,487.07	7,611.55	7,487.07	32.10	23.37	-68.42	659.36	-658.23	2,238.08	2,200.48	37.60	59.523	
7,800.00	7,587.07	7,711.55	7,587.07	32.21	23.53	-68.42	659.36	-658.23	2,238.08	2,200.12	37.96	58.951	
7,900.00	7,687.07	7,811.55	7,687.07	32.33	23.68	-68.42	659.36	-658.23	2,238.08	2,199.75	38.33	58.387	
8,000.00	7,787.07	7,911.55	7,787.07	32.44	23.84	-68.42	659.36	-658.23	2,238.08	2,199.38	38.70	57.832	
8,100.00	7,887.07	8,011.55	7,887.07	32.55	24.00	-68.42	659.36	-658.23	2,238.08	2,199.01	39.07	57.284	
8,207.93	7,995.00	8,119.49	7,995.00	32.68	24.17	-68.42	659.36	-658.23	2,238.08	2,198.61	39.47	56.702	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NORTHGLENN STATE 41-36
Project:	KERR MCGEE OIL & GAS ONSHORE LP	TVD Reference:	WELL @ 5118.00ft (Original Well Elev)
Reference Site:	WELD_NORTHGLENN STATE 7 PAD	MD Reference:	WELL @ 5118.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NORTHGLENN STATE 41-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NORTHGLENN STATE 41-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 10-09-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.58	0.00	14.58				
100.00	100.00	100.00	100.00	0.10	0.10	0.00	14.58	0.00	14.58	14.38	0.19	76.290	
200.00	200.00	200.00	200.00	0.32	0.32	0.00	14.58	0.00	14.58	13.93	0.64	22.753	
300.00	300.00	300.00	300.00	0.55	0.55	0.00	14.58	0.00	14.58	13.49	1.09	13.370	
400.00	400.00	400.00	400.00	0.77	0.77	0.00	14.58	0.00	14.58	13.04	1.54	9.467	
500.00	500.00	500.00	500.00	0.99	0.99	0.00	14.58	0.00	14.58	12.59	1.99	7.327	
600.00	600.00	600.00	600.00	1.22	1.22	0.00	14.58	0.00	14.58	12.14	2.44	5.977	
700.00	700.00	700.00	700.00	1.44	1.44	0.00	14.58	0.00	14.58	11.69	2.89	5.046	
800.00	800.00	800.00	800.00	1.67	1.67	0.00	14.58	0.00	14.58	11.24	3.34	4.367	
900.00	900.00	900.00	900.00	1.89	1.89	0.00	14.58	0.00	14.58	10.79	3.79	3.848	
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	0.00	14.58	0.00	14.58	10.34	4.24	3.440	
1,100.00	1,100.00	1,100.00	1,100.00	2.34	2.34	0.00	14.58	0.00	14.58	9.89	4.69	3.110	CC, ES, SF
1,200.00	1,199.98	1,199.60	1,199.55	2.55	2.56	-111.85	15.26	-2.51	16.03	10.92	5.11	3.137	
1,300.00	1,299.84	1,298.01	1,297.65	2.76	2.77	-139.24	17.26	-9.90	24.78	19.28	5.51	4.500	
1,400.00	1,399.45	1,394.10	1,392.94	2.97	3.00	-155.27	20.50	-21.81	44.03	38.13	5.89	7.473	
1,500.00	1,498.70	1,486.88	1,484.24	3.21	3.26	-162.74	24.82	-37.68	72.58	66.32	6.26	11.587	
1,600.00	1,597.47	1,575.48	1,570.58	3.48	3.55	-166.51	30.02	-56.82	109.36	102.73	6.63	16.502	
1,700.00	1,695.62	1,659.26	1,651.30	3.78	3.88	-168.60	35.89	-78.45	153.62	146.64	6.98	22.017	
1,800.00	1,793.06	1,737.73	1,725.95	4.14	4.25	-169.84	42.24	-101.80	204.76	197.44	7.31	27.993	
1,900.00	1,889.64	1,810.62	1,794.33	4.55	4.63	-170.61	48.84	-126.11	262.18	254.54	7.64	34.330	
2,004.97	1,990.00	1,880.96	1,859.38	5.05	5.07	-171.11	55.86	-151.95	328.59	320.63	7.96	41.269	
2,100.00	2,080.32	1,940.10	1,913.27	5.55	5.48	-171.61	62.25	-175.45	392.48	384.15	8.33	47.113	
2,200.00	2,175.37	2,000.00	1,967.06	6.10	5.93	-171.99	69.16	-200.88	461.99	453.27	8.72	52.983	
2,300.00	2,270.43	2,054.18	2,014.98	6.67	6.40	-172.24	75.79	-225.27	533.61	524.51	9.11	58.590	
2,400.00	2,365.48	2,100.00	2,054.93	7.25	6.79	-172.41	81.67	-246.92	607.22	597.74	9.48	64.051	
2,500.00	2,460.53	2,155.51	2,102.59	7.84	7.34	-172.57	89.13	-274.37	682.52	672.64	9.88	69.071	
2,600.00	2,555.58	2,200.00	2,140.18	8.45	7.78	-172.68	95.37	-297.33	759.48	749.22	10.26	74.022	
2,700.00	2,650.63	2,245.62	2,178.14	9.06	8.28	-172.76	102.00	-321.75	837.92	827.27	10.65	78.694	
2,800.00	2,745.68	2,300.00	2,222.59	9.67	8.89	-172.84	110.22	-351.99	917.86	906.81	11.05	83.044	
2,900.00	2,840.74	2,325.94	2,243.47	10.29	9.21	-172.88	114.26	-366.84	998.77	987.37	11.40	87.581	
3,000.00	2,935.79	2,362.83	2,272.80	10.92	9.67	-172.91	120.12	-388.43	1,080.97	1,069.19	11.78	91.775	
3,100.00	3,030.84	2,400.00	2,301.91	11.54	10.13	-172.95	126.18	-410.73	1,164.23	1,152.08	12.15	95.794	
3,200.00	3,125.89	2,430.80	2,325.69	12.17	10.54	-172.97	131.32	-429.62	1,248.45	1,235.93	12.52	99.728	
3,300.00	3,220.94	2,466.34	2,352.73	12.81	11.01	-172.99	137.36	-451.87	1,333.58	1,320.69	12.89	103.435	
3,400.00	3,316.00	2,510.80	2,386.30	13.44	11.63	-173.01	145.01	-480.01	1,419.22	1,405.93	13.29	106.803	
3,500.00	3,411.05	2,562.40	2,425.25	14.08	12.35	-173.03	153.89	-512.68	1,504.88	1,491.18	13.70	109.838	
3,600.00	3,506.10	2,614.00	2,464.19	14.72	13.08	-173.05	162.76	-545.34	1,590.54	1,576.42	14.11	112.696	
3,700.00	3,601.15	2,665.61	2,503.14	15.36	13.81	-173.07	171.64	-578.00	1,676.19	1,661.66	14.53	115.355	
3,800.00	3,696.20	2,717.21	2,542.09	16.00	14.55	-173.08	180.51	-610.66	1,761.85	1,746.90	14.95	117.862	
3,900.00	3,791.26	2,768.81	2,581.04	16.64	15.29	-173.10	189.39	-643.32	1,847.51	1,832.14	15.37	120.206	
4,000.00	3,886.31	2,820.41	2,619.99	17.28	16.03	-173.11	198.26	-675.99	1,933.17	1,917.38	15.79	122.418	
4,100.00	3,981.36	2,872.01	2,658.94	17.92	16.78	-173.12	207.14	-708.65	2,018.83	2,002.61	16.22	124.496	
4,200.00	4,076.41	2,923.61	2,697.89	18.57	17.53	-173.14	216.01	-741.31	2,104.49	2,087.84	16.64	126.458	
4,300.00	4,171.46	2,975.21	2,736.84	19.21	18.28	-173.15	224.89	-773.97	2,190.14	2,173.07	17.07	128.309	
4,400.00	4,266.51	3,026.81	2,775.79	19.86	19.03	-173.16	233.76	-806.63	2,275.80	2,258.30	17.50	130.060	
4,500.00	4,361.57	3,078.41	2,814.74	20.50	19.78	-173.16	242.64	-839.30	2,361.46	2,343.53	17.93	131.717	
4,600.00	4,456.62	3,130.01	2,853.69	21.15	20.54	-173.17	251.51	-871.96	2,447.12	2,428.76	18.36	133.286	
4,700.00	4,551.67	3,181.61	2,892.64	21.79	21.29	-173.18	260.39	-904.62	2,532.78	2,513.98	18.79	134.776	
4,800.00	4,646.72	3,233.21	2,931.59	22.44	22.05	-173.19	269.26	-937.28	2,618.44	2,599.21	19.23	136.189	
4,900.00	4,741.77	3,284.81	2,970.54	23.09	22.81	-173.19	278.14	-969.94	2,704.09	2,684.43	19.66	137.535	
5,000.00	4,836.83	3,336.41	3,009.48	23.74	23.57	-173.20	287.01	-1,002.61	2,789.75	2,769.66	20.10	138.812	
5,100.00	4,931.88	3,388.01	3,048.43	24.38	24.33	-173.21	295.89	-1,035.27	2,875.41	2,854.88	20.53	140.033	

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

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NORTHGLENN STATE 41-36
Project:	KERR MCGEE OIL & GAS ONSHORE LP	TVD Reference:	WELL @ 5118.00ft (Original Well Elev)
Reference Site:	WELD_NORTHGLENN STATE 7 PAD	MD Reference:	WELL @ 5118.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NORTHGLENN STATE 41-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NORTHGLENN STATE 41-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 10-09-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design		WELD_NORTHGLENN STATE 7 PAD - P_NORTHGLENN STATE 3-36 - P_NORTHGLENN STATE 3-36										Offset Site Error:		0.00 ft	
Survey Program: 0-MWD												Offset Well Error:		0.00 ft	
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
5,200.00	5,026.93	3,439.61	3,087.38	25.03	25.09	-173.21	304.77	-1,067.93	2,961.07	2,940.10	20.97	141.193			
5,300.00	5,121.98	3,491.21	3,126.33	25.68	25.85	-173.22	313.64	-1,100.59	3,046.73	3,025.32	21.41	142.304			
5,400.00	5,217.03	5,788.20	5,217.03	26.33	41.03	-174.16	510.06	-1,823.45	3,080.77	3,054.12	26.65	115.591			
5,500.00	5,312.08	5,883.25	5,312.08	26.98	41.09	-174.22	510.06	-1,823.45	3,111.69	3,084.59	27.11	114.796			
5,600.00	5,407.14	5,978.31	5,407.14	27.63	41.15	-174.28	510.06	-1,823.45	3,142.62	3,115.06	27.56	114.019			
5,702.96	5,505.00	6,076.17	5,505.00	28.30	41.21	-174.33	510.06	-1,823.45	3,174.46	3,146.43	28.03	113.238			
5,800.00	5,597.73	6,168.90	5,597.73	28.83	41.27	-174.44	510.06	-1,823.45	3,202.92	3,174.05	28.87	110.957			
5,900.00	5,694.25	6,265.42	5,694.25	29.27	41.33	-174.54	510.06	-1,823.45	3,228.95	3,199.29	29.67	108.845			
6,000.00	5,791.62	6,362.79	5,791.62	29.65	41.39	-174.62	510.06	-1,823.45	3,251.62	3,221.20	30.42	106.892			
6,100.00	5,889.72	6,460.89	5,889.72	29.99	41.46	-174.69	510.06	-1,823.45	3,270.89	3,239.76	31.13	105.083			
6,200.00	5,988.44	6,559.61	5,988.44	30.28	41.53	-174.74	510.06	-1,823.45	3,286.74	3,254.96	31.79	103.404			
6,300.00	6,087.66	6,658.83	6,087.66	30.52	41.60	-174.79	510.06	-1,823.45	3,299.15	3,266.76	32.39	101.844			
6,400.00	6,187.25	6,758.42	6,187.25	30.71	41.66	-174.82	510.06	-1,823.45	3,308.10	3,275.15	32.95	100.393			
6,500.00	6,287.09	6,858.26	6,287.09	30.87	41.74	-174.83	510.06	-1,823.45	3,313.59	3,280.14	33.46	99.042			
6,607.93	6,395.00	6,966.17	6,395.00	30.98	41.81	-78.27	510.06	-1,823.45	3,315.62	3,281.67	33.95	97.670			
6,700.00	6,487.07	7,058.24	6,487.07	31.06	41.88	-78.27	510.06	-1,823.45	3,315.62	3,281.37	34.24	96.824			
6,800.00	6,587.07	7,158.24	6,587.07	31.16	41.96	-78.27	510.06	-1,823.45	3,315.62	3,281.05	34.57	95.907			
6,900.00	6,687.07	7,258.24	6,687.07	31.26	42.03	-78.27	510.06	-1,823.45	3,315.62	3,280.72	34.90	95.000			
7,000.00	6,787.07	7,358.24	6,787.07	31.36	42.11	-78.27	510.06	-1,823.45	3,315.62	3,280.38	35.23	94.102			
7,100.00	6,887.07	7,458.24	6,887.07	31.46	42.19	-78.27	510.06	-1,823.45	3,315.62	3,280.05	35.57	93.215			
7,200.00	6,987.07	7,558.24	6,987.07	31.57	42.26	-78.27	510.06	-1,823.45	3,315.62	3,279.71	35.91	92.338			
7,300.00	7,087.07	7,658.24	7,087.07	31.67	42.34	-78.27	510.06	-1,823.45	3,315.62	3,279.37	36.25	91.471			
7,400.00	7,187.07	7,758.24	7,187.07	31.78	42.42	-78.27	510.06	-1,823.45	3,315.62	3,279.03	36.59	90.615			
7,500.00	7,287.07	7,858.24	7,287.07	31.89	42.51	-78.27	510.06	-1,823.45	3,315.62	3,278.68	36.94	89.768			
7,600.00	7,387.07	7,958.24	7,387.07	31.99	42.59	-78.27	510.06	-1,823.45	3,315.62	3,278.33	37.28	88.932			
7,700.00	7,487.07	8,058.24	7,487.07	32.10	42.67	-78.27	510.06	-1,823.45	3,315.62	3,277.99	37.63	88.107			
7,800.00	7,587.07	8,158.24	7,587.07	32.21	42.76	-78.27	510.06	-1,823.45	3,315.62	3,277.63	37.98	87.291			
7,900.00	7,687.07	8,258.24	7,687.07	32.33	42.84	-78.27	510.06	-1,823.45	3,315.62	3,277.28	38.34	86.486			
8,000.00	7,787.07	8,358.24	7,787.07	32.44	42.93	-78.27	510.06	-1,823.45	3,315.62	3,276.92	38.69	85.692			
8,100.00	7,887.07	8,458.24	7,887.07	32.55	43.02	-78.27	510.06	-1,823.45	3,315.62	3,276.57	39.05	84.907			
8,207.93	7,995.00	8,566.17	7,995.00	32.68	43.11	-78.27	510.06	-1,823.45	3,315.62	3,276.18	39.44	84.072			

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Project:	KERR MCGEE OIL & GAS ONSHORE LP	TVD Reference:	WELL @ 5118.00ft (Original Well Elev)
Reference Site:	WELD_NORTHGLENN STATE 7 PAD	MD Reference:	WELL @ 5118.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NORTHGLENN STATE 41-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NORTHGLENN STATE 41-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 10-09-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
0.00	0.00	0.00	0.00	0.00	0.00	-180.00	-50.99	0.00	50.99				
100.00	100.00	100.00	100.00	0.10	0.10	-180.00	-50.99	0.00	50.99	50.80	0.19	266.914	
200.00	200.00	200.00	200.00	0.32	0.32	-180.00	-50.99	0.00	50.99	50.35	0.64	79.606	
300.00	300.00	300.00	300.00	0.55	0.55	-180.00	-50.99	0.00	50.99	49.90	1.09	46.779	
400.00	400.00	400.00	400.00	0.77	0.77	-180.00	-50.99	0.00	50.99	49.45	1.54	33.121	
500.00	500.00	500.00	500.00	0.99	0.99	-180.00	-50.99	0.00	50.99	49.01	1.99	25.636	
600.00	600.00	600.00	600.00	1.22	1.22	-180.00	-50.99	0.00	50.99	48.56	2.44	20.910	
700.00	700.00	700.00	700.00	1.44	1.44	-180.00	-50.99	0.00	50.99	48.11	2.89	17.656	
800.00	800.00	800.00	800.00	1.67	1.67	-180.00	-50.99	0.00	50.99	47.66	3.34	15.278	
900.00	900.00	900.00	900.00	1.89	1.89	-180.00	-50.99	0.00	50.99	47.21	3.79	13.465	
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	-180.00	-50.99	0.00	50.99	46.76	4.24	12.036	
1,100.00	1,100.00	1,100.00	1,100.00	2.34	2.34	-180.00	-50.99	0.00	50.99	46.31	4.69	10.881 CC, ES	
1,200.00	1,199.98	1,198.45	1,198.43	2.55	2.54	86.30	-52.40	-0.93	52.30	47.20	5.09	10.269 SF	
1,300.00	1,299.84	1,296.39	1,296.24	2.76	2.72	93.97	-56.60	-3.72	56.93	51.46	5.47	10.406	
1,400.00	1,399.45	1,393.32	1,392.81	2.97	2.90	103.92	-63.50	-8.28	66.50	60.63	5.86	11.340	
1,500.00	1,498.70	1,488.77	1,487.57	3.21	3.11	113.41	-72.95	-14.54	82.31	76.04	6.27	13.130	
1,600.00	1,597.47	1,582.28	1,580.00	3.48	3.34	121.01	-84.76	-22.36	104.75	98.07	6.69	15.668	
1,700.00	1,695.62	1,673.46	1,669.64	3.78	3.60	126.60	-98.69	-31.59	133.59	126.47	7.12	18.763	
1,800.00	1,793.06	1,761.94	1,756.07	4.14	3.88	130.56	-114.47	-42.04	168.40	160.83	7.58	22.226	
1,900.00	1,889.64	1,847.43	1,838.98	4.55	4.20	133.33	-131.83	-53.53	208.77	200.70	8.06	25.893	
2,004.97	1,990.00	1,933.67	1,921.95	5.05	4.57	135.34	-151.41	-66.51	256.70	248.09	8.61	29.822	
2,100.00	2,080.32	2,011.27	1,996.01	5.55	4.93	137.19	-170.73	-79.30	303.60	294.44	9.16	33.131	
2,200.00	2,175.37	2,097.52	2,078.17	6.10	5.37	138.67	-192.63	-93.80	353.68	343.89	9.78	36.151	
2,300.00	2,270.43	2,183.77	2,160.32	6.67	5.82	139.77	-214.52	-108.30	403.88	393.46	10.43	38.739	
2,400.00	2,365.48	2,270.02	2,242.48	7.25	6.29	140.64	-236.42	-122.80	454.17	443.09	11.08	40.972	
2,500.00	2,460.53	2,356.27	2,324.63	7.84	6.77	141.33	-258.32	-137.30	504.53	492.77	11.76	42.910	
2,600.00	2,555.58	2,442.52	2,406.79	8.45	7.25	141.89	-280.21	-151.81	554.93	542.49	12.44	44.600	
2,700.00	2,650.63	2,528.77	2,488.94	9.06	7.75	142.37	-302.11	-166.31	605.36	592.23	13.14	46.082	
2,800.00	2,745.68	2,615.03	2,571.10	9.67	8.25	142.77	-324.00	-180.81	655.82	641.99	13.84	47.389	
2,900.00	2,840.74	2,701.28	2,653.25	10.29	8.75	143.11	-345.90	-195.31	706.31	691.76	14.55	48.549	
3,000.00	2,935.79	2,787.53	2,735.41	10.92	9.26	143.41	-367.80	-209.81	756.80	741.54	15.26	49.581	
3,100.00	3,030.84	2,873.78	2,817.57	11.54	9.78	143.67	-389.69	-224.31	807.31	791.33	15.98	50.506	
3,200.00	3,125.89	2,960.03	2,899.72	12.17	10.29	143.90	-411.59	-238.82	857.83	841.13	16.71	51.341	
3,300.00	3,220.94	3,046.28	2,981.88	12.81	10.81	144.10	-433.49	-253.32	908.37	890.93	17.44	52.096	
3,400.00	3,316.00	3,132.53	3,064.03	13.44	11.33	144.28	-455.38	-267.82	958.90	940.74	18.17	52.782	
3,500.00	3,411.05	3,218.79	3,146.19	14.08	11.85	144.45	-477.28	-282.32	1,009.45	990.55	18.90	53.409	
3,600.00	3,506.10	3,305.04	3,228.34	14.72	12.38	144.60	-499.18	-296.82	1,060.00	1,040.36	19.64	53.984	
3,700.00	3,601.15	3,391.29	3,310.50	15.36	12.90	144.73	-521.07	-311.32	1,110.55	1,090.18	20.37	54.512	
3,800.00	3,696.20	3,477.54	3,392.66	16.00	13.43	144.85	-542.97	-325.83	1,161.11	1,140.00	21.11	55.000	
3,900.00	3,791.26	3,563.79	3,474.81	16.64	13.96	144.97	-564.87	-340.33	1,211.68	1,189.82	21.85	55.451	
4,000.00	3,886.31	3,650.04	3,556.97	17.28	14.49	145.07	-586.76	-354.83	1,262.24	1,239.65	22.59	55.871	
4,100.00	3,981.36	3,736.29	3,639.12	17.92	15.02	145.17	-608.66	-369.33	1,312.81	1,289.48	23.33	56.263	
4,200.00	4,076.41	3,822.55	3,721.28	18.57	15.55	145.26	-630.56	-383.83	1,363.38	1,339.31	24.08	56.629	
4,300.00	4,171.46	3,908.80	3,803.43	19.21	16.08	145.34	-652.45	-398.33	1,413.96	1,389.14	24.82	56.971	
4,400.00	4,266.51	3,995.05	3,885.59	19.86	16.61	145.41	-674.35	-412.84	1,464.53	1,438.97	25.56	57.293	
4,500.00	4,361.57	4,081.30	3,967.75	20.50	17.14	145.49	-696.25	-427.34	1,515.11	1,488.80	26.31	57.597	
4,600.00	4,456.62	4,233.67	4,113.89	21.15	17.82	145.68	-732.12	-451.10	1,564.09	1,536.95	27.14	57.630	
4,700.00	4,551.67	4,402.80	4,278.53	21.79	18.45	146.06	-764.31	-472.42	1,608.77	1,580.81	27.96	57.546	
4,800.00	4,646.72	4,579.49	4,452.65	22.44	18.99	146.64	-789.23	-488.92	1,648.83	1,620.11	28.72	57.409	
4,900.00	4,741.77	4,762.82	4,634.90	23.09	19.41	147.40	-805.57	-499.74	1,684.03	1,654.59	29.44	57.196	
5,000.00	4,836.83	4,951.61	4,823.48	23.74	19.70	148.35	-812.21	-504.14	1,714.17	1,684.05	30.13	56.895	
5,100.00	4,931.88	5,060.00	4,931.88	24.38	19.82	148.95	-812.32	-504.21	1,741.12	1,710.45	30.67	56.761	

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

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Reference Site:	WELD_NORTHGLENN STATE 7 PAD	MD Reference:	WELL @ 5118.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NORTHGLENN STATE 41-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NORTHGLENN STATE 41-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 10-09-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
5,200.00	5,026.93	5,155.06	5,026.93	25.03	19.92	149.47	-812.32	-504.21	1,768.15	1,736.95	31.20	56.675	
5,300.00	5,121.98	5,250.11	5,121.98	25.68	20.02	149.96	-812.32	-504.21	1,795.32	1,763.60	31.72	56.602	
5,400.00	5,217.03	5,345.16	5,217.03	26.33	20.12	150.45	-812.32	-504.21	1,822.60	1,790.37	32.24	56.540	
5,500.00	5,312.08	5,440.21	5,312.08	26.98	20.22	150.92	-812.32	-504.21	1,850.01	1,817.26	32.75	56.490	
5,600.00	5,407.14	5,535.26	5,407.14	27.63	20.33	151.37	-812.32	-504.21	1,877.53	1,844.27	33.26	56.448	
5,702.96	5,505.00	5,633.13	5,505.00	28.30	20.44	151.83	-812.32	-504.21	1,905.98	1,872.20	33.78	56.415	
5,800.00	5,597.73	5,725.86	5,597.73	28.83	20.55	152.47	-812.32	-504.21	1,931.49	1,897.08	34.41	56.132	
5,900.00	5,694.25	5,822.37	5,694.25	29.27	20.66	153.04	-812.32	-504.21	1,954.91	1,919.94	34.97	55.898	
6,000.00	5,791.62	5,919.74	5,791.62	29.65	20.78	153.53	-812.32	-504.21	1,975.35	1,939.86	35.49	55.653	
6,100.00	5,889.72	6,017.85	5,889.72	29.99	20.89	153.93	-812.32	-504.21	1,992.77	1,956.80	35.97	55.397	
6,200.00	5,988.44	6,116.57	5,988.44	30.28	21.01	154.25	-812.32	-504.21	2,007.12	1,970.71	36.41	55.130	
6,300.00	6,087.66	6,215.78	6,087.66	30.52	21.14	154.51	-812.32	-504.21	2,018.37	1,981.58	36.80	54.852	
6,400.00	6,187.25	6,315.37	6,187.25	30.71	21.26	154.68	-812.32	-504.21	2,026.50	1,989.36	37.14	54.562	
6,500.00	6,287.09	6,415.22	6,287.09	30.87	21.39	154.79	-812.32	-504.21	2,031.49	1,994.05	37.44	54.260	
6,607.93	6,395.00	6,523.13	6,395.00	30.98	21.53	-108.60	-812.32	-504.21	2,033.33	1,995.61	37.72	53.909	
6,700.00	6,487.07	6,615.19	6,487.07	31.06	21.65	-108.60	-812.32	-504.21	2,033.33	1,995.34	37.99	53.528	
6,800.00	6,587.07	6,715.19	6,587.07	31.16	21.78	-108.60	-812.32	-504.21	2,033.33	1,995.04	38.28	53.111	
6,900.00	6,687.07	6,815.19	6,687.07	31.26	21.91	-108.60	-812.32	-504.21	2,033.33	1,994.74	38.59	52.697	
7,000.00	6,787.07	6,915.19	6,787.07	31.36	22.05	-108.60	-812.32	-504.21	2,033.33	1,994.44	38.89	52.285	
7,100.00	6,887.07	7,015.19	6,887.07	31.46	22.18	-108.60	-812.32	-504.21	2,033.33	1,994.13	39.20	51.876	
7,200.00	6,987.07	7,115.19	6,987.07	31.57	22.32	-108.60	-812.32	-504.21	2,033.33	1,993.82	39.51	51.470	
7,300.00	7,087.07	7,215.19	7,087.07	31.67	22.46	-108.60	-812.32	-504.21	2,033.33	1,993.51	39.82	51.067	
7,400.00	7,187.07	7,315.19	7,187.07	31.78	22.60	-108.60	-812.32	-504.21	2,033.33	1,993.19	40.13	50.666	
7,500.00	7,287.07	7,415.19	7,287.07	31.89	22.74	-108.60	-812.32	-504.21	2,033.33	1,992.88	40.45	50.269	
7,600.00	7,387.07	7,515.19	7,387.07	31.99	22.88	-108.60	-812.32	-504.21	2,033.33	1,992.56	40.77	49.875	
7,700.00	7,487.07	7,615.19	7,487.07	32.10	23.03	-108.60	-812.32	-504.21	2,033.33	1,992.24	41.09	49.484	
7,800.00	7,587.07	7,715.19	7,587.07	32.21	23.17	-108.60	-812.32	-504.21	2,033.33	1,991.91	41.41	49.097	
7,900.00	7,687.07	7,815.19	7,687.07	32.33	23.32	-108.60	-812.32	-504.21	2,033.33	1,991.58	41.74	48.713	
8,000.00	7,787.07	7,915.19	7,787.07	32.44	23.47	-108.60	-812.32	-504.21	2,033.33	1,991.26	42.07	48.332	
8,100.00	7,887.07	8,015.19	7,887.07	32.55	23.62	-108.60	-812.32	-504.21	2,033.33	1,990.92	42.40	47.954	
8,207.93	7,995.00	8,123.13	7,995.00	32.68	23.78	-108.60	-812.32	-504.21	2,033.33	1,990.56	42.76	47.551	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NORTHGLENN STATE 41-36
Project:	KERR MCGEE OIL & GAS ONSHORE LP	TVD Reference:	WELL @ 5118.00ft (Original Well Elev)
Reference Site:	WELD_NORTHGLENN STATE 7 PAD	MD Reference:	WELL @ 5118.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NORTHGLENN STATE 41-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NORTHGLENN STATE 41-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 10-09-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-180.00	-32.78	0.00	32.78				
100.00	100.00	100.00	100.00	0.10	0.10	-180.00	-32.78	0.00	32.78	32.59	0.19	171.602	
200.00	200.00	200.00	200.00	0.32	0.32	-180.00	-32.78	0.00	32.78	32.14	0.64	51.180	
300.00	300.00	300.00	300.00	0.55	0.55	-180.00	-32.78	0.00	32.78	31.69	1.09	30.075	
400.00	400.00	400.00	400.00	0.77	0.77	-180.00	-32.78	0.00	32.78	31.25	1.54	21.294	
500.00	500.00	500.00	500.00	0.99	0.99	-180.00	-32.78	0.00	32.78	30.80	1.99	16.482	
600.00	600.00	600.00	600.00	1.22	1.22	-180.00	-32.78	0.00	32.78	30.35	2.44	13.443	
700.00	700.00	700.00	700.00	1.44	1.44	-180.00	-32.78	0.00	32.78	29.90	2.89	11.351	
800.00	800.00	800.00	800.00	1.67	1.67	-180.00	-32.78	0.00	32.78	29.45	3.34	9.822	
900.00	900.00	900.00	900.00	1.89	1.89	-180.00	-32.78	0.00	32.78	29.00	3.79	8.656	
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	-180.00	-32.78	0.00	32.78	28.55	4.24	7.738	
1,100.00	1,100.00	1,100.00	1,100.00	2.34	2.34	-180.00	-32.78	0.00	32.78	28.10	4.69	6.996 CC, ES	
1,200.00	1,199.98	1,199.20	1,199.18	2.55	2.54	84.22	-33.97	1.24	33.79	28.69	5.10	6.629 SF	
1,300.00	1,299.84	1,298.33	1,298.18	2.76	2.73	86.33	-37.53	4.96	36.82	31.34	5.48	6.716	
1,400.00	1,399.45	1,397.32	1,396.79	2.97	2.93	89.15	-43.44	11.14	41.96	36.07	5.89	7.119	
1,500.00	1,498.70	1,496.10	1,494.84	3.21	3.15	92.07	-51.68	19.76	49.29	42.94	6.35	7.767	
1,600.00	1,597.47	1,594.59	1,592.14	3.48	3.40	94.72	-62.22	30.78	58.82	51.97	6.85	8.587	
1,700.00	1,695.62	1,692.74	1,688.52	3.78	3.69	96.94	-75.01	44.16	70.57	63.14	7.43	9.503	
1,800.00	1,793.06	1,790.47	1,783.80	4.14	4.03	98.71	-90.02	59.85	84.50	76.41	8.09	10.445	
1,900.00	1,889.64	1,887.73	1,877.84	4.55	4.42	100.09	-107.17	77.78	100.59	91.73	8.85	11.360	
2,004.97	1,990.00	1,989.27	1,975.05	5.05	4.89	101.19	-127.41	98.95	119.75	109.98	9.78	12.247	
2,100.00	2,080.32	2,080.70	2,061.66	5.55	5.38	101.69	-147.67	120.14	138.76	128.04	10.71	12.952	
2,200.00	2,175.37	2,176.37	2,151.22	6.10	5.95	101.03	-170.90	144.43	160.05	148.29	11.76	13.608	
2,300.00	2,270.43	2,271.27	2,238.91	6.67	6.59	99.60	-195.98	170.65	182.75	169.87	12.87	14.198	
2,400.00	2,365.48	2,365.88	2,325.12	7.25	7.29	97.70	-222.91	198.81	206.96	192.93	14.03	14.754	
2,500.00	2,460.53	2,462.53	2,412.79	7.84	8.04	95.95	-251.03	228.22	231.82	216.59	15.23	15.224	
2,600.00	2,555.58	2,559.17	2,500.45	8.45	8.82	94.54	-279.15	257.62	256.84	240.40	16.44	15.624	
2,700.00	2,650.63	2,655.81	2,588.11	9.06	9.60	93.38	-307.27	287.02	281.99	264.32	17.66	15.967	
2,800.00	2,745.68	2,752.46	2,675.77	9.67	10.40	92.41	-335.39	316.43	307.22	288.33	18.89	16.262	
2,900.00	2,840.74	2,849.10	2,763.43	10.29	11.21	91.59	-363.50	345.83	332.53	312.40	20.13	16.518	
3,000.00	2,935.79	2,945.74	2,851.10	10.92	12.02	90.88	-391.62	375.23	357.89	336.51	21.38	16.743	
3,100.00	3,030.84	3,042.39	2,938.76	11.54	12.84	90.27	-419.74	404.64	383.29	360.67	22.62	16.941	
3,200.00	3,125.89	3,139.03	3,026.42	12.17	13.66	89.73	-447.86	434.04	408.73	384.85	23.88	17.117	
3,300.00	3,220.94	3,235.67	3,114.08	12.81	14.48	89.26	-475.98	463.44	434.20	409.07	25.14	17.275	
3,400.00	3,316.00	3,332.31	3,201.74	13.44	15.31	88.84	-504.10	492.85	459.70	433.30	26.40	17.416	
3,500.00	3,411.05	3,428.96	3,289.41	14.08	16.14	88.46	-532.22	522.25	485.22	457.56	27.66	17.543	
3,600.00	3,506.10	3,525.60	3,377.07	14.72	16.98	88.12	-560.33	551.65	510.75	481.83	28.92	17.658	
3,700.00	3,601.15	3,622.24	3,464.73	15.36	17.81	87.81	-588.45	581.05	536.30	506.11	30.19	17.763	
3,800.00	3,696.20	3,718.89	3,552.39	16.00	18.65	87.53	-616.57	610.46	561.86	530.40	31.46	17.859	
3,900.00	3,791.26	3,823.59	3,647.66	16.64	19.46	87.32	-646.58	641.84	587.05	554.33	32.72	17.939	
4,000.00	3,886.31	3,935.11	3,750.69	17.28	20.16	87.40	-676.07	672.67	610.15	576.19	33.96	17.967	
4,100.00	3,981.36	4,047.67	3,856.29	17.92	20.81	87.81	-703.00	700.83	630.93	595.72	35.21	17.918	
4,200.00	4,076.41	4,160.93	3,964.00	18.57	21.40	88.50	-727.18	726.12	649.42	612.95	36.47	17.805	
4,300.00	4,171.46	4,274.55	4,073.36	19.21	21.94	89.47	-748.46	748.37	665.70	627.96	37.74	17.640	
4,400.00	4,266.51	4,388.17	4,183.85	19.86	22.41	90.70	-766.73	767.47	679.88	640.89	38.99	17.437	
4,500.00	4,361.57	4,501.43	4,294.95	20.50	22.82	92.17	-781.91	783.35	692.13	651.91	40.22	17.207	
4,600.00	4,456.62	4,613.98	4,406.14	21.15	23.16	93.89	-793.98	795.97	702.67	661.25	41.42	16.966	
4,700.00	4,551.67	4,725.48	4,516.88	21.79	23.43	95.82	-802.95	805.36	711.75	669.19	42.56	16.724	
4,800.00	4,646.72	4,835.63	4,626.68	22.44	23.64	97.98	-808.89	811.56	719.67	676.03	43.64	16.491	
4,900.00	4,741.77	4,944.12	4,735.08	23.09	23.79	100.33	-811.87	814.68	726.77	682.13	44.64	16.282	
5,000.00	4,836.83	5,045.87	4,836.83	23.74	23.89	102.72	-812.31	815.14	733.57	688.03	45.54	16.109	
5,100.00	4,931.88	5,140.92	4,931.88	24.38	23.97	104.95	-812.31	815.14	741.36	695.00	46.36	15.992	

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

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NORTHGLENN STATE 41-36
Project:	KERR MCGEE OIL & GAS ONSHORE LP	TVD Reference:	WELL @ 5118.00ft (Original Well Elev)
Reference Site:	WELD_NORTHGLENN STATE 7 PAD	MD Reference:	WELL @ 5118.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NORTHGLENN STATE 41-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NORTHGLENN STATE 41-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 10-09-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design		WELD_NORTHGLENN STATE 7 PAD - P_NORTHGLENN STATE 8-36 - P_NORTHGLENN STATE 8-36										Offset Site Error:		0.00 ft	
Survey Program: 0-MWD												Offset Well Error:		0.00 ft	
Reference		Offset		Semi Major Axis		Distance							Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
5,200.00	5,026.93	5,235.97	5,026.93	25.03	24.06	107.14	-812.31	815.14	750.36	703.24	47.12	15.924			
5,300.00	5,121.98	5,331.03	5,121.98	25.68	24.15	109.28	-812.31	815.14	760.53	712.70	47.83	15.900			
5,400.00	5,217.03	5,426.08	5,217.03	26.33	24.24	111.37	-812.31	815.14	771.81	723.32	48.49	15.918			
5,500.00	5,312.08	5,521.13	5,312.08	26.98	24.33	113.39	-812.31	815.14	784.16	735.07	49.09	15.973			
5,600.00	5,407.14	5,616.18	5,407.14	27.63	24.42	115.36	-812.31	815.14	797.53	747.88	49.65	16.062			
5,702.96	5,505.00	5,714.05	5,505.00	28.30	24.52	117.32	-812.31	815.14	812.31	762.13	50.18	16.187			
5,800.00	5,597.73	5,806.78	5,597.73	28.83	24.61	119.27	-812.31	815.14	826.34	775.73	50.61	16.329			
5,900.00	5,694.25	5,903.29	5,694.25	29.27	24.71	121.02	-812.31	815.14	839.82	788.90	50.92	16.492			
6,000.00	5,791.62	6,000.66	5,791.62	29.65	24.81	122.51	-812.31	815.14	852.04	800.84	51.20	16.643			
6,100.00	5,889.72	6,098.77	5,889.72	29.99	24.92	123.76	-812.31	815.14	862.76	811.32	51.44	16.772			
6,200.00	5,988.44	6,197.49	5,988.44	30.28	25.02	124.77	-812.31	815.14	871.80	820.14	51.66	16.876			
6,300.00	6,087.66	6,296.70	6,087.66	30.52	25.13	125.56	-812.31	815.14	879.01	827.15	51.86	16.949			
6,400.00	6,187.25	6,396.29	6,187.25	30.71	25.24	126.11	-812.31	815.14	884.29	832.24	52.05	16.990			
6,500.00	6,287.09	6,496.14	6,287.09	30.87	25.35	126.45	-812.31	815.14	887.56	835.33	52.23	16.994			
6,607.93	6,395.00	6,604.05	6,395.00	30.98	25.47	-136.85	-812.31	815.14	888.77	836.35	52.42	16.956			
6,700.00	6,487.07	6,696.11	6,487.07	31.06	25.58	-136.85	-812.31	815.14	888.77	836.15	52.62	16.891			
6,800.00	6,587.07	6,796.11	6,587.07	31.16	25.69	-136.85	-812.31	815.14	888.77	835.93	52.84	16.819			
6,900.00	6,687.07	6,896.11	6,687.07	31.26	25.81	-136.85	-812.31	815.14	888.77	835.70	53.07	16.747			
7,000.00	6,787.07	6,996.11	6,787.07	31.36	25.93	-136.85	-812.31	815.14	888.77	835.47	53.30	16.675			
7,100.00	6,887.07	7,096.11	6,887.07	31.46	26.05	-136.85	-812.31	815.14	888.77	835.23	53.53	16.602			
7,200.00	6,987.07	7,196.11	6,987.07	31.57	26.17	-136.85	-812.31	815.14	888.77	835.00	53.77	16.529			
7,300.00	7,087.07	7,296.11	7,087.07	31.67	26.29	-136.85	-812.31	815.14	888.77	834.76	54.01	16.456			
7,400.00	7,187.07	7,396.11	7,187.07	31.78	26.42	-136.85	-812.31	815.14	888.77	834.52	54.25	16.382			
7,500.00	7,287.07	7,496.11	7,287.07	31.89	26.54	-136.85	-812.31	815.14	888.77	834.27	54.50	16.309			
7,600.00	7,387.07	7,596.11	7,387.07	31.99	26.67	-136.85	-812.31	815.14	888.77	834.02	54.74	16.235			
7,700.00	7,487.07	7,696.11	7,487.07	32.10	26.80	-136.85	-812.31	815.14	888.77	833.77	54.99	16.162			
7,800.00	7,587.07	7,796.11	7,587.07	32.21	26.93	-136.85	-812.31	815.14	888.77	833.52	55.24	16.088			
7,900.00	7,687.07	7,896.11	7,687.07	32.33	27.06	-136.85	-812.31	815.14	888.77	833.27	55.50	16.014			
8,000.00	7,787.07	7,996.11	7,787.07	32.44	27.19	-136.85	-812.31	815.14	888.77	833.01	55.76	15.940			
8,100.00	7,887.07	8,096.11	7,887.07	32.55	27.33	-136.85	-812.31	815.14	888.77	832.75	56.02	15.866			
8,207.93	7,995.00	8,204.05	7,995.00	32.68	27.47	-136.85	-812.31	815.14	888.77	832.47	56.30	15.787			

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NORTHGLENN STATE 41-36
Project:	KERR MCGEE OIL & GAS ONSHORE LP	TVD Reference:	WELL @ 5118.00ft (Original Well Elev)
Reference Site:	WELD_NORTHGLENN STATE 7 PAD	MD Reference:	WELL @ 5118.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NORTHGLENN STATE 41-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NORTHGLENN STATE 41-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 10-09-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_NORTHGLENN STATE 7 PAD - STEELE STATE #2-36 EXISTING - STEELE STATE #2-36 EXI												Offset Site Error:	0.00 ft
Survey Program: 0-UNKNOWN												Offset Well Error:	0.00 ft
Reference	Offset	Semi Major Axis					Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Tooface (")	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
0.00	0.00	0.00	0.00	0.00	0.00	-46.97	44.92	-48.12	65.83				
100.00	100.00	100.00	100.00	0.10	1.70	-46.97	44.92	-48.12	65.83	64.03	1.80	36.662	
200.00	200.00	200.00	200.00	0.32	5.70	-46.97	44.92	-48.12	65.83	59.81	6.02	10.934	
300.00	300.00	300.00	300.00	0.55	9.70	-46.97	44.92	-48.12	65.83	55.58	10.25	6.425	
400.00	400.00	400.00	400.00	0.77	13.70	-46.97	44.92	-48.12	65.83	51.36	14.47	4.549	
500.00	500.00	500.00	500.00	0.99	17.70	-46.97	44.92	-48.12	65.83	47.13	18.69	3.521	
600.00	600.00	600.00	600.00	1.22	21.70	-46.97	44.92	-48.12	65.83	42.91	22.92	2.872	
700.00	700.00	700.00	700.00	1.44	25.70	-46.97	44.92	-48.12	65.83	38.68	27.14	2.425	
800.00	800.00	800.00	800.00	1.67	29.70	-46.97	44.92	-48.12	65.83	34.46	31.37	2.099	
900.00	900.00	900.00	900.00	1.89	33.70	-46.97	44.92	-48.12	65.83	30.23	35.59	1.849	
1,000.00	1,000.00	1,000.00	1,000.00	2.12	37.70	-46.97	44.92	-48.12	65.83	26.01	39.82	1.653	
1,100.00	1,100.00	1,100.00	1,100.00	2.34	41.70	-46.97	44.92	-48.12	65.83	21.79	44.04	1.495 Level 3, CC	
1,200.00	1,199.98	1,199.98	1,199.98	2.55	45.70	-144.40	44.92	-48.12	67.24	19.00	48.24	1.394 Level 3, ES	
1,300.00	1,299.84	1,299.84	1,299.84	2.76	49.69	-146.79	44.92	-48.12	71.56	19.20	52.37	1.367 Level 3, SF	
1,400.00	1,399.45	1,399.45	1,399.45	2.97	53.68	-150.18	44.92	-48.12	79.00	22.58	56.42	1.400 Level 3	
1,500.00	1,498.70	1,498.70	1,498.70	3.21	57.65	-153.95	44.92	-48.12	89.79	29.43	60.36	1.488 Level 3	
1,600.00	1,597.47	1,597.47	1,597.47	3.48	61.60	-157.62	44.92	-48.12	104.10	39.92	64.18	1.622	
1,700.00	1,695.62	1,695.62	1,695.62	3.78	65.52	-160.91	44.92	-48.12	121.99	54.15	67.84	1.798	
1,800.00	1,793.06	1,793.06	1,793.06	4.14	69.42	-163.72	44.92	-48.12	143.47	72.14	71.33	2.011	
1,900.00	1,889.64	1,889.64	1,889.64	4.55	73.29	-166.06	44.92	-48.12	168.52	93.87	74.65	2.258	
2,004.97	1,990.00	1,990.00	1,990.00	5.05	77.30	-168.06	44.92	-48.12	198.59	120.67	77.92	2.549	
2,100.00	2,080.32	2,080.32	2,080.32	5.55	80.91	-169.60	44.92	-48.12	227.60	146.04	81.56	2.791	
2,200.00	2,175.37	2,175.37	2,175.37	6.10	84.71	-170.84	44.92	-48.12	258.26	172.85	85.41	3.024	
2,300.00	2,270.43	2,270.43	2,270.43	6.67	88.52	-171.82	44.92	-48.12	289.01	199.74	89.27	3.237	
2,400.00	2,365.48	2,365.48	2,365.48	7.25	92.32	-172.61	44.92	-48.12	319.82	226.67	93.14	3.434	
2,500.00	2,460.53	2,460.53	2,460.53	7.84	96.12	-173.26	44.92	-48.12	350.67	253.65	97.02	3.614	
2,600.00	2,555.58	2,555.58	2,555.58	8.45	99.92	-173.81	44.92	-48.12	381.56	280.65	100.91	3.781	
2,700.00	2,650.63	2,650.63	2,650.63	9.06	103.73	-174.28	44.92	-48.12	412.48	307.67	104.80	3.936	
2,800.00	2,745.68	2,745.68	2,745.68	9.67	107.53	-174.68	44.92	-48.12	443.41	334.72	108.70	4.079	
2,900.00	2,840.74	2,840.74	2,840.74	10.29	111.33	-175.02	44.92	-48.12	474.37	361.77	112.60	4.213	
3,000.00	2,935.79	2,935.79	2,935.79	10.92	115.13	-175.33	44.92	-48.12	505.33	388.84	116.50	4.338	
3,100.00	3,030.84	3,030.84	3,030.84	11.54	118.93	-175.60	44.92	-48.12	536.31	415.91	120.40	4.454	
3,200.00	3,125.89	3,125.89	3,125.89	12.17	122.74	-175.84	44.92	-48.12	567.30	442.99	124.31	4.564	
3,300.00	3,220.94	3,220.94	3,220.94	12.81	126.54	-176.06	44.92	-48.12	598.30	470.08	128.22	4.666	
3,400.00	3,316.00	3,316.00	3,316.00	13.44	130.34	-176.25	44.92	-48.12	629.30	497.17	132.13	4.763	
3,500.00	3,411.05	3,411.05	3,411.05	14.08	134.14	-176.43	44.92	-48.12	660.31	524.27	136.04	4.854	
3,600.00	3,506.10	3,506.10	3,506.10	14.72	137.94	-176.59	44.92	-48.12	691.33	551.37	139.95	4.940	
3,700.00	3,601.15	3,601.15	3,601.15	15.36	141.75	-176.73	44.92	-48.12	722.35	578.48	143.87	5.021	
3,800.00	3,696.20	3,696.20	3,696.20	16.00	145.55	-176.87	44.92	-48.12	753.37	605.59	147.78	5.098	
3,900.00	3,791.26	3,791.26	3,791.26	16.64	149.35	-176.99	44.92	-48.12	784.40	632.70	151.70	5.171	
4,000.00	3,886.31	3,886.31	3,886.31	17.28	153.15	-177.11	44.92	-48.12	815.42	659.81	155.61	5.240	
4,100.00	3,981.36	3,981.36	3,981.36	17.92	156.95	-177.21	44.92	-48.12	846.46	686.93	159.53	5.306	
4,200.00	4,076.41	4,076.41	4,076.41	18.57	160.76	-177.31	44.92	-48.12	877.49	714.04	163.45	5.369	
4,300.00	4,171.46	4,171.46	4,171.46	19.21	164.56	-177.40	44.92	-48.12	908.53	741.16	167.37	5.428	
4,400.00	4,266.51	4,266.51	4,266.51	19.86	168.36	-177.49	44.92	-48.12	939.57	768.28	171.29	5.485	
4,500.00	4,361.57	4,361.57	4,361.57	20.50	172.16	-177.57	44.92	-48.12	970.61	795.40	175.21	5.540	
4,600.00	4,456.62	4,456.62	4,456.62	21.15	175.96	-177.65	44.92	-48.12	1,001.65	822.52	179.13	5.592	
4,700.00	4,551.67	4,551.67	4,551.67	21.79	179.77	-177.72	44.92	-48.12	1,032.69	849.65	183.05	5.642	
4,800.00	4,646.72	4,646.72	4,646.72	22.44	183.57	-177.78	44.92	-48.12	1,063.74	876.77	186.97	5.689	
4,900.00	4,741.77	4,741.77	4,741.77	23.09	187.37	-177.85	44.92	-48.12	1,094.79	903.89	190.89	5.735	
5,000.00	4,836.83	4,836.83	4,836.83	23.74	191.17	-177.90	44.92	-48.12	1,125.83	931.02	194.81	5.779	
5,100.00	4,931.88	4,931.88	4,931.88	24.38	194.98	-177.96	44.92	-48.12	1,156.88	958.15	198.74	5.821	

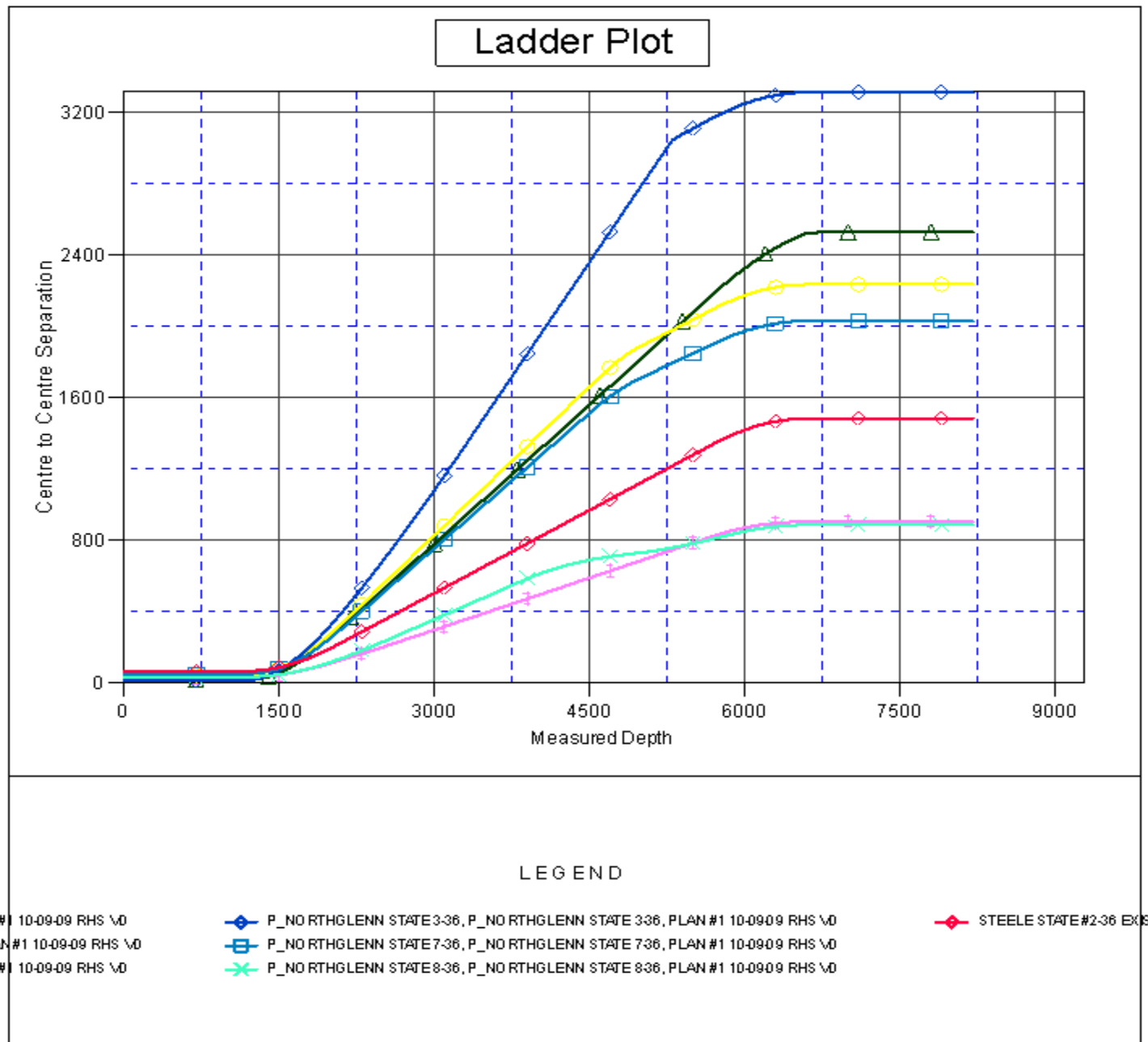
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NORTHGLENN STATE 41-36
Project:	KERR MCGEE OIL & GAS ONSHORE LP	TVD Reference:	WELL @ 5118.00ft (Original Well Elev)
Reference Site:	WELD_NORTHGLENN STATE 7 PAD	MD Reference:	WELL @ 5118.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NORTHGLENN STATE 41-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NORTHGLENN STATE 41-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 10-09-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-UNKNOWN												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,200.00	5,026.93	5,026.93	5,026.93	25.03	198.78	-178.01	44.92	-48.12	1,187.93	985.27	202.66	5.862	
5,300.00	5,121.98	5,121.98	5,121.98	25.68	202.58	-178.07	44.92	-48.12	1,218.98	1,012.40	206.58	5.901	
5,400.00	5,217.03	5,217.03	5,217.03	26.33	206.38	-178.11	44.92	-48.12	1,250.03	1,039.53	210.51	5.938	
5,500.00	5,312.08	5,312.08	5,312.08	26.98	210.18	-178.16	44.92	-48.12	1,281.09	1,066.66	214.43	5.974	
5,600.00	5,407.14	5,407.14	5,407.14	27.63	213.99	-178.20	44.92	-48.12	1,312.14	1,093.78	218.35	6.009	
5,702.96	5,505.00	5,505.00	5,505.00	28.30	217.90	-178.25	44.92	-48.12	1,344.11	1,121.72	222.39	6.044	
5,800.00	5,597.73	5,597.73	5,597.73	28.83	221.61	-178.30	44.92	-48.12	1,372.68	1,144.29	228.39	6.010	
5,900.00	5,694.25	5,694.25	5,694.25	29.27	225.47	-178.35	44.92	-48.12	1,398.82	1,164.41	234.41	5.967	
6,000.00	5,791.62	5,791.62	5,791.62	29.65	229.36	-178.39	44.92	-48.12	1,421.57	1,181.34	240.23	5.917	
6,100.00	5,889.72	5,889.72	5,889.72	29.99	233.29	-178.42	44.92	-48.12	1,440.91	1,195.08	245.83	5.861	
6,200.00	5,988.44	5,988.44	5,988.44	30.28	237.24	-178.45	44.92	-48.12	1,456.83	1,205.63	251.20	5.800	
6,300.00	6,087.66	6,087.66	6,087.66	30.52	241.21	-178.47	44.92	-48.12	1,469.28	1,212.98	256.30	5.733	
6,400.00	6,187.25	6,187.25	6,187.25	30.71	245.19	-178.48	44.92	-48.12	1,478.27	1,217.15	261.12	5.661	
6,500.00	6,287.09	6,287.09	6,287.09	30.87	249.18	-178.49	44.92	-48.12	1,483.78	1,218.14	265.64	5.586	
6,607.93	6,395.00	6,395.00	6,395.00	30.98	253.50	-81.92	44.92	-48.12	1,485.81	1,215.65	270.16	5.500	
6,700.00	6,487.07	6,487.07	6,487.07	31.06	257.18	-81.92	44.92	-48.12	1,485.81	1,211.81	274.00	5.423	
6,800.00	6,587.07	6,587.07	6,587.07	31.16	261.18	-81.92	44.92	-48.12	1,485.81	1,207.65	278.16	5.342	
6,900.00	6,687.07	6,687.07	6,687.07	31.26	265.18	-81.92	44.92	-48.12	1,485.81	1,203.48	282.33	5.263	
7,000.00	6,787.07	6,787.07	6,787.07	31.36	269.18	-81.92	44.92	-48.12	1,485.81	1,199.31	286.50	5.186	
7,100.00	6,887.07	6,887.07	6,887.07	31.46	273.18	-81.92	44.92	-48.12	1,485.81	1,195.14	290.67	5.112	
7,200.00	6,987.07	6,987.07	6,987.07	31.57	277.18	-81.92	44.92	-48.12	1,485.81	1,190.97	294.84	5.039	
7,300.00	7,087.07	7,087.07	7,087.07	31.67	281.18	-81.92	44.92	-48.12	1,485.81	1,186.80	299.01	4.969	
7,400.00	7,187.07	7,187.07	7,187.07	31.78	285.18	-81.92	44.92	-48.12	1,485.81	1,182.63	303.18	4.901	
7,500.00	7,287.07	7,287.07	7,287.07	31.89	289.18	-81.92	44.92	-48.12	1,485.81	1,178.45	307.36	4.834	
7,600.00	7,387.07	7,387.07	7,387.07	31.99	293.18	-81.92	44.92	-48.12	1,485.81	1,174.28	311.53	4.769	
7,700.00	7,487.07	7,487.07	7,487.07	32.10	297.18	-81.92	44.92	-48.12	1,485.81	1,170.10	315.71	4.706	
7,800.00	7,587.07	7,587.07	7,587.07	32.21	301.18	-81.92	44.92	-48.12	1,485.81	1,165.92	319.89	4.645	
7,900.00	7,687.07	7,687.07	7,687.07	32.33	305.18	-81.92	44.92	-48.12	1,485.81	1,161.74	324.07	4.585	
8,000.00	7,787.07	7,787.07	7,787.07	32.44	309.18	-81.92	44.92	-48.12	1,485.81	1,157.57	328.24	4.527	
8,100.00	7,887.07	7,887.07	7,887.07	32.55	313.18	-81.92	44.92	-48.12	1,485.81	1,153.38	332.43	4.470	
8,207.93	7,995.00	7,995.00	7,995.00	32.68	317.50	-81.92	44.92	-48.12	1,485.81	1,148.87	336.94	4.410	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NORTHGLENN STATE 41-36
Project:	KERR MCGEE OIL & GAS ONSHORE LP	TVD Reference:	WELL @ 5118.00ft (Original Well Elev)
Reference Site:	WELD_NORTHGLENN STATE 7 PAD	MD Reference:	WELL @ 5118.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NORTHGLENN STATE 41-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NORTHGLENN STATE 41-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 10-09-09 RHS	Offset TVD Reference:	Offset Datum

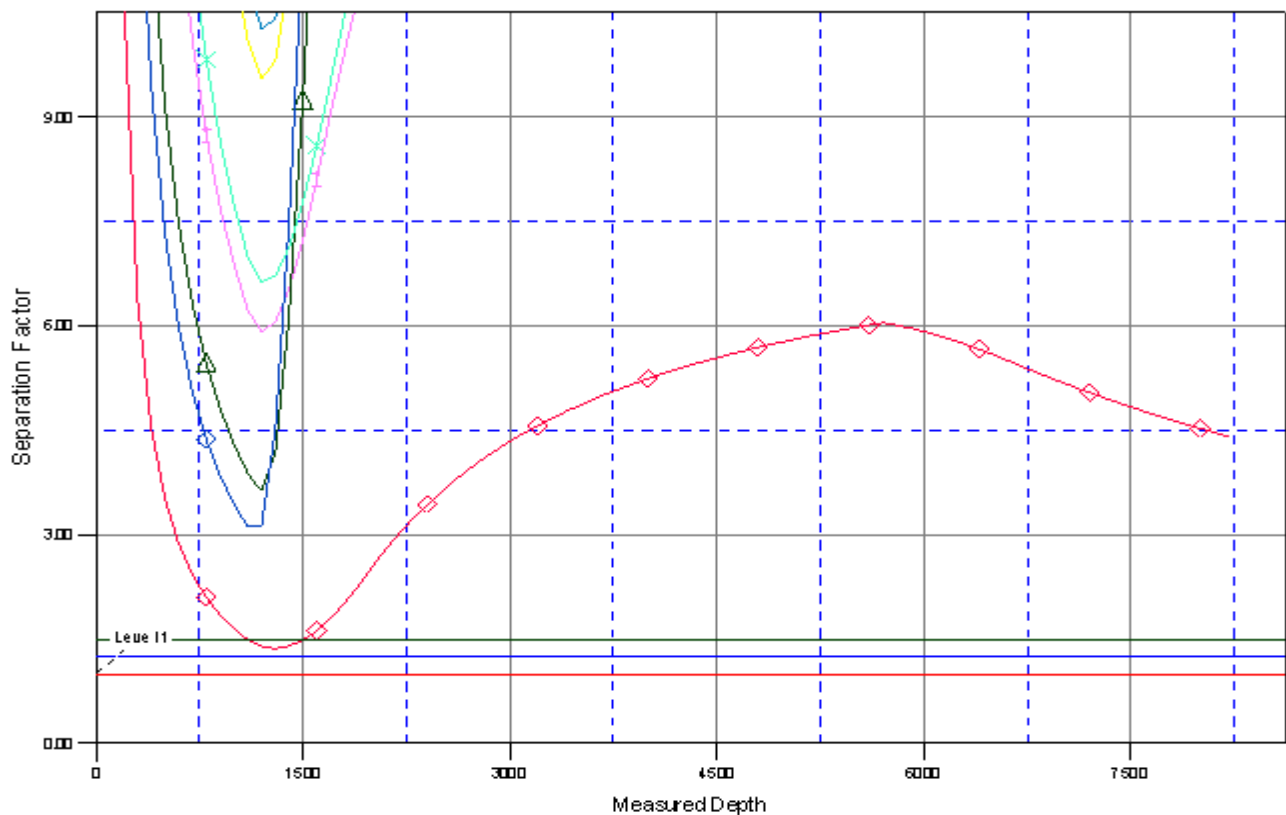
Reference Depths are relative to WELL @ 5118.00ft (Original Well Elev) Coordinates are relative to: P_NORTHGLENN STATE 41-36
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.36°



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_NORTHGLENN STATE 41-36
Project:	KERR MCGEE OIL & GAS ONSHORE LP	TVD Reference:	WELL @ 5118.00ft (Original Well Elev)
Reference Site:	WELD_NORTHGLENN STATE 7 PAD	MD Reference:	WELL @ 5118.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_NORTHGLENN STATE 41-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_NORTHGLENN STATE 41-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 10-09-09 RHS	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5118.00ft (Original Well Elev) Coordinates are relative to: P_NORTHGLENN STATE 41-36
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.36°

Separation Factor Plot



LEGEND

W# 10-09-09 RHS W/D	◆ P_NORTHGLENN STATE 3-36, P_NORTHGLENN STATE 3-36, PLAN #1 10-09-09 RHS W/D	◆ STEELE STATE #2-36 EX 15\"
AN #1 10-09-09 RHS W/D	◆ P_NORTHGLENN STATE 7-36, P_NORTHGLENN STATE 7-36, PLAN #1 10-09-09 RHS W/D	
W# 10-09-09 RHS W/D	◆ P_NORTHGLENN STATE 8-36, P_NORTHGLENN STATE 8-36, PLAN #1 10-09-09 RHS W/D	