



## **Directional**

# **NOBLE ENERGY INC WELD COUNTY CO**

**SEC.17-T3N-R64W**

**LDS D17-24D Pad Sec.17-T3N-R64W**

**LDS D17-24D**

**Wellbore #1**

**Noble LDS D17-24D Plan #1 (1-6-12)**

## **Anticollision Report**

**06 January, 2012**



Company: NOBLE ENERGY INC WELD COUNTY CO  
Project: SEC.17-T3N-R64W  
Reference Site: LDS D17-24D Pad Sec.17-T3N-R64W  
Site Error: 0.0ft  
Reference Well: LDS D17-24D  
Well Error: 0.0ft  
Reference Wellbore: Wellbore #1  
Reference Design: Noble LDS D17-24D Plan #1 (1-6-12)

Local Co-ordinate Reference: Well LDS D17-24D  
TVD Reference: WELL @ 4765.0ft (Original Well Elev)  
MD Reference: WELL @ 4765.0ft (Original Well Elev)  
North Reference: True  
Survey Calculation Method: Minimum Curvature  
Output errors are at: 2.00 sigma  
Database: Landmark  
Offset TVD Reference: Offset Datum

Reference	Noble LDS D17-24D Plan #1 (1-6-12)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program Date 1/6/2012

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	7,727.8	Noble LDS D17-24D Plan #1 (1-6-12) (We	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						
LDS D17-24D Pad Sec.17-T3N-R64W						
LDS D17-25D - Wellbore #1 - Noble LDS D17-25D Plan :	1,052.9	1,053.1	20.5	16.1	4.608	CC, ES
LDS D17-25D - Wellbore #1 - Noble LDS D17-25D Plan :	1,100.0	1,100.0	21.2	16.6	4.567	SF
LDS Red D17-11 (Exist.) - Wellbore #1 - Design #1	2,722.4	2,672.8	369.1	354.1	24.670	CC, ES
LDS Red D17-11 (Exist.) - Wellbore #1 - Design #1	7,727.8	7,589.0	707.3	671.1	19.573	SF

Offset Design LDS D17-24D Pad Sec.17-T3N-R64W - LDS D17-25D - Wellbore #1 - Noble LDS D17-25D Plan #1 (1-6													Offset Site Error: 0.0ft
Survey Program: 0-MWD													Offset Well Error: 0.0ft
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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	0.00	21.9	0.0	21.9				
100.0	100.0	100.0	100.0	0.1	0.1	0.00	21.9	0.0	21.9	21.6	0.22	97.248	
200.0	200.0	200.0	200.0	0.3	0.3	0.00	21.9	0.0	21.9	21.2	0.67	32.416	
300.0	300.0	300.0	300.0	0.6	0.6	0.00	21.9	0.0	21.9	20.7	1.12	19.450	
400.0	400.0	400.0	400.0	0.8	0.8	0.00	21.9	0.0	21.9	20.3	1.57	13.893	
500.0	500.0	500.0	500.0	1.0	1.0	0.00	21.9	0.0	21.9	19.8	2.02	10.805	
600.0	600.0	600.0	600.0	1.2	1.2	0.00	21.9	0.0	21.9	19.4	2.47	8.841	
700.0	700.0	700.0	700.0	1.5	1.5	0.00	21.9	0.0	21.9	18.9	2.92	7.481	
800.0	800.0	800.0	800.0	1.7	1.7	0.00	21.9	0.0	21.9	18.5	3.37	6.483	
900.0	900.0	900.1	900.1	1.9	1.9	-1.09	21.7	-0.4	21.7	17.9	3.81	5.696	
1,000.0	1,000.0	1,000.3	1,000.2	2.1	2.1	-10.23	20.5	-3.7	20.8	16.6	4.23	4.926	
1,050.0	1,050.0	1,050.2	1,050.0	2.2	2.2	-18.65	19.5	-6.6	20.5	16.1	4.45	4.620	
1,052.9	1,052.9	1,053.1	1,052.9	2.3	2.2	165.36	19.4	-6.8	20.5	16.1	4.46	4.608	CC, ES
1,100.0	1,100.0	1,100.0	1,099.7	2.3	2.3	155.59	18.1	-10.2	21.2	16.6	4.65	4.567	SF
1,200.0	1,199.9	1,199.5	1,198.7	2.5	2.5	136.36	14.1	-19.7	27.0	21.9	5.04	5.356	
1,300.0	1,299.7	1,298.4	1,296.6	2.7	2.8	124.06	8.0	-31.8	37.9	32.4	5.45	6.950	
1,400.0	1,399.1	1,396.4	1,393.2	2.9	3.1	117.35	-0.2	-46.4	52.9	47.0	5.89	8.972	
1,500.0	1,498.2	1,493.6	1,488.3	3.1	3.4	113.71	-10.3	-63.4	71.4	65.0	6.39	11.178	
1,600.0	1,596.6	1,589.7	1,581.7	3.4	3.8	111.67	-22.3	-82.7	93.2	86.2	6.95	13.413	
1,700.0	1,694.4	1,684.6	1,673.1	3.7	4.2	110.46	-36.1	-104.1	118.0	110.4	7.58	15.569	
1,800.0	1,791.5	1,778.3	1,762.5	4.1	4.7	109.70	-51.5	-127.6	145.8	137.5	8.30	17.574	
1,900.0	1,887.6	1,870.5	1,849.5	4.5	5.2	109.19	-68.5	-152.9	176.5	167.4	9.10	19.389	
1,939.2	1,925.0	1,907.3	1,884.0	4.7	5.4	109.07	-75.7	-163.5	189.2	179.7	9.45	20.025	

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

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Survey Calculation Method: Minimum Curvature  
Output errors are at: 2.00 sigma  
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Offset Design LDS D17-24D Pad Sec.17-T3N-R64W - LDS D17-25D - Wellbore #1 - Noble LDS D17-25D Plan #1 (1-6-12)													Offset Site Error: 0.0ft
Survey Program: 0-MWD													Offset Well Error: 0.0ft
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
2,000.0	1,982.9	1,964.8	1,937.9	5.0	5.8	109.35	-86.9	-180.0	209.0	199.0	10.01	20.875	
2,100.0	2,078.1	2,059.3	2,026.5	5.5	6.4	109.72	-105.4	-207.3	241.7	230.7	10.98	22.015	
2,200.0	2,173.3	2,153.8	2,115.1	6.1	7.1	109.99	-123.9	-234.5	274.3	262.4	11.98	22.905	
2,300.0	2,268.6	2,248.3	2,203.7	6.6	7.7	110.21	-142.3	-261.8	307.0	294.0	13.00	23.610	
2,400.0	2,363.8	2,342.8	2,292.3	7.2	8.4	110.39	-160.8	-289.0	339.7	325.6	14.05	24.177	
2,500.0	2,459.0	2,437.3	2,380.9	7.8	9.0	110.54	-179.3	-316.2	372.3	357.2	15.11	24.638	
2,600.0	2,554.2	2,531.8	2,469.5	8.3	9.7	110.66	-197.8	-343.5	405.0	388.8	16.19	25.018	
2,700.0	2,649.4	2,626.3	2,558.0	8.9	10.3	110.76	-216.2	-370.7	437.7	420.4	17.28	25.335	
2,800.0	2,744.7	2,720.8	2,646.6	9.5	11.0	110.85	-234.7	-398.0	470.4	452.0	18.37	25.603	
2,900.0	2,839.9	2,815.4	2,735.2	10.1	11.7	110.93	-253.2	-425.2	503.0	483.6	19.47	25.830	
3,000.0	2,935.1	2,909.9	2,823.8	10.7	12.4	111.00	-271.7	-452.4	535.7	515.1	20.58	26.026	
3,100.0	3,030.3	3,004.4	2,912.4	11.3	13.0	111.06	-290.1	-479.7	568.4	546.7	21.70	26.195	
3,200.0	3,125.5	3,098.9	3,001.0	11.9	13.7	111.11	-308.6	-506.9	601.1	578.3	22.82	26.343	
3,300.0	3,220.8	3,193.4	3,089.6	12.5	14.4	111.16	-327.1	-534.2	633.7	609.8	23.94	26.473	
3,400.0	3,316.0	3,287.9	3,178.2	13.2	15.1	111.20	-345.5	-561.4	666.4	641.4	25.07	26.587	
3,500.0	3,411.2	3,382.4	3,266.8	13.8	15.8	111.24	-364.0	-588.6	699.1	672.9	26.19	26.689	
3,600.0	3,506.4	3,476.9	3,355.4	14.4	16.5	111.28	-382.5	-615.9	731.8	704.5	27.33	26.780	
3,700.0	3,601.7	3,571.4	3,444.0	15.0	17.1	111.31	-401.0	-643.1	764.5	736.0	28.46	26.861	
3,800.0	3,696.9	3,665.9	3,532.6	15.6	17.8	111.34	-419.4	-670.4	797.1	767.5	29.60	26.935	
3,900.0	3,792.1	3,760.4	3,621.2	16.2	18.5	111.37	-437.9	-697.6	829.8	799.1	30.73	27.001	
4,000.0	3,887.3	3,855.0	3,709.7	16.8	19.2	111.40	-456.4	-724.8	862.5	830.6	31.87	27.062	
4,100.0	3,982.5	3,949.5	3,798.3	17.5	19.9	111.42	-474.8	-752.1	895.2	862.2	33.01	27.117	
4,200.0	4,077.8	4,044.0	3,886.9	18.1	20.6	111.44	-493.3	-779.3	927.9	893.7	34.15	27.167	
4,249.6	4,125.0	4,090.9	3,930.9	18.4	20.9	111.45	-502.5	-792.8	944.1	909.4	34.72	27.191	
4,300.0	4,173.1	4,138.5	3,975.6	18.6	21.3	111.76	-511.8	-806.6	960.4	925.1	35.31	27.200	
4,400.0	4,269.3	4,233.4	4,064.5	19.1	21.9	112.19	-530.3	-833.9	991.8	955.5	36.36	27.276	
4,500.0	4,366.5	4,328.5	4,153.7	19.4	22.6	112.42	-548.9	-861.3	1,022.1	984.7	37.37	27.347	
4,600.0	4,464.4	4,423.8	4,243.0	19.8	23.3	112.46	-567.6	-888.8	1,051.1	1,012.7	38.33	27.418	
4,700.0	4,562.9	4,519.1	4,332.3	20.1	24.0	112.33	-586.2	-916.3	1,078.9	1,039.7	39.24	27.496	
4,800.0	4,662.0	4,614.3	4,421.6	20.3	24.7	112.05	-604.8	-943.7	1,105.6	1,065.6	40.08	27.584	
4,900.0	4,761.5	4,709.3	4,510.6	20.5	25.4	111.62	-623.4	-971.1	1,131.3	1,090.5	40.86	27.689	
5,000.0	4,861.2	4,803.9	4,599.3	20.7	26.1	111.05	-641.9	-998.4	1,156.1	1,114.6	41.56	27.816	
5,100.0	4,961.2	4,932.5	4,720.7	20.9	26.9	110.03	-665.5	-1,033.3	1,178.8	1,136.6	42.21	27.929	
5,138.8	5,000.0	4,983.7	4,769.6	20.9	27.1	-74.95	-674.1	-1,045.9	1,186.6	1,144.2	42.41	27.983	
5,200.0	5,061.2	5,065.4	4,848.1	21.0	27.5	-75.78	-686.8	-1,064.6	1,198.0	1,155.3	42.66	28.086	
5,300.0	5,161.2	5,201.7	4,980.4	21.1	28.0	-76.95	-705.1	-1,091.6	1,214.4	1,171.3	43.03	28.219	
5,400.0	5,261.2	5,340.9	5,117.0	21.2	28.5	-77.87	-720.1	-1,113.8	1,227.7	1,184.3	43.37	28.307	
5,500.0	5,361.2	5,482.5	5,257.1	21.3	28.9	-78.56	-731.6	-1,130.7	1,237.8	1,194.1	43.69	28.334	
5,600.0	5,461.2	5,625.7	5,399.7	21.4	29.1	-79.00	-739.2	-1,141.9	1,244.5	1,200.5	43.97	28.302	
5,700.0	5,561.2	5,770.0	5,543.9	21.5	29.3	-79.21	-742.8	-1,147.3	1,247.6	1,203.4	44.23	28.206	
5,800.0	5,661.2	5,887.3	5,661.2	21.6	29.4	-79.23	-743.1	-1,147.7	1,247.9	1,203.4	44.46	28.066	
5,900.0	5,761.2	5,987.3	5,761.2	21.7	29.5	-79.23	-743.1	-1,147.7	1,247.9	1,203.2	44.67	27.934	
6,000.0	5,861.2	6,087.3	5,861.2	21.8	29.6	-79.23	-743.1	-1,147.7	1,247.9	1,203.0	44.89	27.802	
6,100.0	5,961.2	6,187.3	5,961.2	21.9	29.7	-79.23	-743.1	-1,147.7	1,247.9	1,202.8	45.10	27.668	
6,200.0	6,061.2	6,287.3	6,061.2	22.0	29.8	-79.23	-743.1	-1,147.7	1,247.9	1,202.6	45.32	27.534	
6,300.0	6,161.2	6,387.3	6,161.2	22.1	29.9	-79.23	-743.1	-1,147.7	1,247.9	1,202.3	45.55	27.399	
6,400.0	6,261.2	6,487.3	6,261.2	22.2	30.0	-79.23	-743.1	-1,147.7	1,247.9	1,202.1	45.77	27.263	
6,500.0	6,361.2	6,587.3	6,361.2	22.4	30.1	-79.23	-743.1	-1,147.7	1,247.9	1,201.9	46.00	27.127	
6,600.0	6,461.2	6,687.3	6,461.2	22.5	30.1	-79.23	-743.1	-1,147.7	1,247.9	1,201.7	46.24	26.990	
6,700.0	6,561.2	6,787.3	6,561.2	22.6	30.2	-79.23	-743.1	-1,147.7	1,247.9	1,201.4	46.47	26.853	
6,800.0	6,661.2	6,887.3	6,661.2	22.7	30.3	-79.23	-743.1	-1,147.7	1,247.9	1,201.2	46.71	26.715	
6,900.0	6,761.2	6,987.3	6,761.2	22.9	30.4	-79.23	-743.1	-1,147.7	1,247.9	1,200.9	46.95	26.577	

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Output errors are at: 2.00 sigma  
Database: Landmark  
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Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning	
Reference	Offset	Reference	Offset	Reference	Offset		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
7,000.0	6,861.2	7,087.3	6,861.2	23.0	30.5	-79.23	-743.1	-1,147.7	1,247.9	1,200.7	47.20	26.439		
7,100.0	6,961.2	7,187.3	6,961.2	23.1	30.6	-79.23	-743.1	-1,147.7	1,247.9	1,200.4	47.45	26.301		
7,200.0	7,061.2	7,287.3	7,061.2	23.2	30.7	-79.23	-743.1	-1,147.7	1,247.9	1,200.2	47.70	26.162		
7,300.0	7,161.2	7,387.3	7,161.2	23.4	30.8	-79.23	-743.1	-1,147.7	1,247.9	1,199.9	47.95	26.023		
7,400.0	7,261.2	7,487.3	7,261.2	23.5	30.9	-79.23	-743.1	-1,147.7	1,247.9	1,199.7	48.21	25.884		
7,500.0	7,361.2	7,587.3	7,361.2	23.6	31.0	-79.23	-743.1	-1,147.7	1,247.9	1,199.4	48.47	25.745		
7,600.0	7,461.2	7,687.3	7,461.2	23.8	31.2	-79.23	-743.1	-1,147.7	1,247.9	1,199.2	48.73	25.607		
7,700.0	7,561.2	7,787.3	7,561.2	23.9	31.3	-79.23	-743.1	-1,147.7	1,247.9	1,198.9	49.00	25.468		
7,727.8	7,589.0	7,815.2	7,589.0	23.9	31.3	-79.23	-743.1	-1,147.7	1,247.9	1,198.8	49.06	25.434		

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Offset TVD Reference: Offset Datum

Offset Design													Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
0.0	0.0	2.0	2.0	0.0	0.0	-140.12	-404.4	-337.9	527.0						
100.0	100.0	102.0	102.0	0.1	0.1	-140.12	-404.4	-337.9	527.0	526.7	0.23	2,298.509			
200.0	200.0	202.0	202.0	0.3	0.3	-140.12	-404.4	-337.9	527.0	526.3	0.68	776.318			
300.0	300.0	302.0	302.0	0.6	0.6	-140.12	-404.4	-337.9	527.0	525.8	1.13	467.028			
400.0	400.0	402.0	402.0	0.8	0.8	-140.12	-404.4	-337.9	527.0	525.4	1.58	333.971			
500.0	500.0	502.0	502.0	1.0	1.0	-140.12	-404.4	-337.9	527.0	524.9	2.03	259.920			
600.0	600.0	602.0	602.0	1.2	1.2	-140.12	-404.4	-337.9	527.0	524.5	2.48	212.748			
700.0	700.0	702.0	702.0	1.5	1.5	-140.12	-404.4	-337.9	527.0	524.0	2.93	180.068			
800.0	800.0	802.0	802.0	1.7	1.7	-140.12	-404.4	-337.9	527.0	523.6	3.38	156.091			
900.0	900.0	902.0	902.0	1.9	1.9	-140.12	-404.4	-337.9	527.0	523.1	3.83	137.749			
1,000.0	1,000.0	1,002.0	1,002.0	2.1	2.1	-140.12	-404.4	-337.9	527.0	522.7	4.28	123.264			
1,050.0	1,050.0	1,052.0	1,052.0	2.2	2.3	-140.12	-404.4	-337.9	527.0	522.5	4.50	117.107			
1,100.0	1,100.0	1,102.0	1,102.0	2.3	2.4	44.50	-404.4	-337.9	526.6	521.9	4.71	111.816			
1,200.0	1,199.9	1,201.9	1,201.9	2.5	2.6	44.80	-404.4	-337.9	524.2	519.1	5.11	102.661			
1,300.0	1,299.7	1,301.7	1,301.7	2.7	2.8	45.41	-404.4	-337.9	519.2	513.7	5.51	94.245			
1,400.0	1,399.1	1,401.1	1,401.1	2.9	3.0	46.35	-404.4	-337.9	511.9	506.0	5.92	86.424			
1,500.0	1,498.2	1,500.2	1,500.2	3.1	3.3	47.63	-404.4	-337.9	502.4	496.0	6.35	79.070			
1,600.0	1,596.6	1,598.6	1,598.6	3.4	3.5	49.29	-404.4	-337.9	490.8	484.0	6.81	72.087			
1,700.0	1,694.4	1,696.4	1,696.4	3.7	3.7	51.37	-404.4	-337.9	477.3	470.0	7.30	65.410			
1,800.0	1,791.5	1,793.5	1,793.5	4.1	3.9	53.91	-404.4	-337.9	462.4	454.5	7.84	59.010			
1,900.0	1,887.6	1,889.6	1,889.6	4.5	4.1	56.97	-404.4	-337.9	446.3	437.9	8.44	52.898			
1,939.2	1,925.0	1,927.0	1,927.0	4.7	4.2	58.32	-404.4	-337.9	439.8	431.1	8.69	50.592			
2,000.0	1,982.9	1,984.9	1,984.9	5.0	4.3	60.35	-404.4	-337.9	430.0	420.9	9.12	47.159			
2,100.0	2,078.1	2,080.1	2,080.1	5.5	4.6	63.88	-404.4	-337.9	415.2	405.3	9.85	42.130			
2,200.0	2,173.3	2,175.3	2,175.3	6.1	4.8	67.63	-404.4	-337.9	402.1	391.5	10.63	37.821			
2,300.0	2,268.6	2,270.6	2,270.6	6.6	5.0	71.59	-404.4	-337.9	391.0	379.6	11.44	34.174			
2,400.0	2,363.8	2,365.8	2,365.8	7.2	5.2	75.75	-404.4	-337.9	382.0	369.7	12.27	31.126			
2,500.0	2,459.0	2,461.0	2,461.0	7.8	5.4	80.06	-404.4	-337.9	375.3	362.2	13.11	28.616			
2,600.0	2,554.2	2,556.2	2,556.2	8.3	5.6	84.49	-404.4	-337.9	371.0	357.0	13.95	26.586			
2,700.0	2,649.4	2,651.4	2,651.4	8.9	5.8	88.99	-404.4	-337.9	369.2	354.4	14.78	24.978			
2,722.4	2,670.8	2,672.8	2,672.8	9.1	5.9	90.00	-404.4	-337.9	369.1	354.1	14.96	24.670 CC, ES			
2,800.0	2,744.7	2,746.7	2,746.7	9.5	6.1	93.50	-404.4	-337.9	369.9	354.3	15.58	23.743			
2,900.0	2,839.9	2,841.9	2,841.9	10.1	6.3	97.97	-404.4	-337.9	373.1	356.7	16.34	22.830			
3,000.0	2,935.1	2,937.1	2,937.1	10.7	6.5	102.34	-404.4	-337.9	378.7	361.6	17.06	22.196			
3,100.0	3,030.3	3,032.3	3,032.3	11.3	6.7	106.57	-404.4	-337.9	386.7	369.0	17.74	21.801			
3,200.0	3,125.5	3,127.5	3,127.5	11.9	6.9	110.62	-404.4	-337.9	396.9	378.5	18.37	21.607			
3,300.0	3,220.8	3,222.8	3,222.8	12.5	7.1	114.47	-404.4	-337.9	409.1	390.1	18.95	21.583			
3,400.0	3,316.0	3,318.0	3,318.0	13.2	7.3	118.10	-404.4	-337.9	423.2	403.7	19.50	21.698			
3,500.0	3,411.2	3,413.2	3,413.2	13.8	7.6	121.50	-404.4	-337.9	438.9	418.9	20.02	21.927			
3,600.0	3,506.4	3,508.4	3,508.4	14.4	7.8	124.66	-404.4	-337.9	456.1	435.6	20.50	22.249			
3,700.0	3,601.7	3,603.7	3,603.7	15.0	8.0	127.61	-404.4	-337.9	474.7	453.8	20.96	22.645			
3,800.0	3,696.9	3,698.9	3,698.9	15.6	8.2	130.33	-404.4	-337.9	494.5	473.1	21.41	23.099			
3,900.0	3,792.1	3,794.1	3,794.1	16.2	8.4	132.86	-404.4	-337.9	515.4	493.5	21.84	23.597			
4,000.0	3,887.3	3,889.3	3,889.3	16.8	8.6	135.19	-404.4	-337.9	537.1	514.9	22.26	24.128			
4,100.0	3,982.5	3,984.5	3,984.5	17.5	8.8	137.35	-404.4	-337.9	559.7	537.0	22.68	24.682			
4,200.0	4,077.8	4,079.8	4,079.8	18.1	9.1	139.34	-404.4	-337.9	583.0	559.9	23.09	25.253			
4,249.6	4,125.0	4,127.0	4,127.0	18.4	9.2	140.27	-404.4	-337.9	594.8	571.5	23.29	25.540			
4,300.0	4,173.1	4,175.1	4,175.1	18.6	9.3	141.31	-404.4	-337.9	606.6	583.1	23.48	25.839			
4,400.0	4,269.3	4,271.3	4,271.3	19.1	9.5	143.11	-404.4	-337.9	628.4	604.6	23.81	26.393			
4,500.0	4,366.5	4,368.5	4,368.5	19.4	9.7	144.59	-404.4	-337.9	647.8	623.7	24.15	26.820			
4,600.0	4,464.4	4,466.4	4,466.4	19.8	9.9	145.80	-404.4	-337.9	664.7	640.2	24.51	27.125			
4,700.0	4,562.9	4,564.9	4,564.9	20.1	10.1	146.76	-404.4	-337.9	678.9	654.0	24.86	27.312			

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

Company: NOBLE ENERGY INC WELD COUNTY CO  
Project: SEC.17-T3N-R64W  
Reference Site: LDS D17-24D Pad Sec.17-T3N-R64W  
Site Error: 0.0ft  
Reference Well: LDS D17-24D  
Well Error: 0.0ft  
Reference Wellbore: Wellbore #1  
Reference Design: Noble LDS D17-24D Plan #1 (1-6-12)

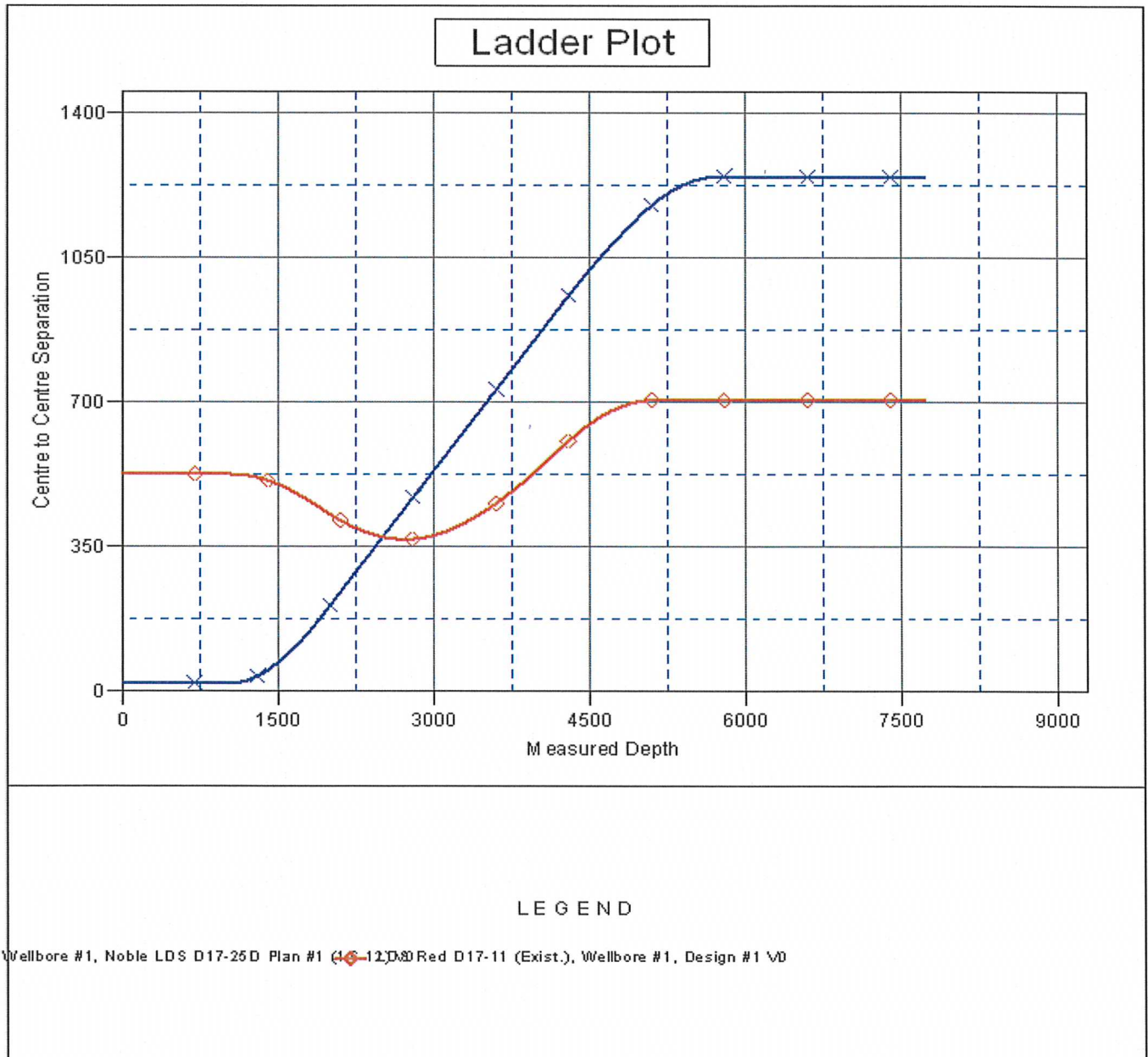
Local Co-ordinate Reference: Well LDS D17-24D  
TVD Reference: WELL @ 4765.0ft (Original Well Elev)  
MD Reference: WELL @ 4765.0ft (Original Well Elev)  
North Reference: True  
Survey Calculation Method: Minimum Curvature  
Output errors are at: 2.00 sigma  
Database: Landmark  
Offset TVD Reference: Offset Datum

Offset Design LDS D17-24D Pad Sec.17-T3N-R64W - LDS Red D17-11 (Exist.) - Wellbore #1 - Design #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 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	
4,800.0	4,662.0	4,664.0	4,664.0	20.3	10.4	147.50	-404.4	-337.9	690.3	665.1	25.20	27.388		
4,900.0	4,761.5	4,763.5	4,763.5	20.5	10.6	148.03	-404.4	-337.9	698.8	673.3	25.54	27.357		
5,000.0	4,861.2	4,863.2	4,863.2	20.7	10.8	148.37	-404.4	-337.9	704.4	678.5	25.87	27.226		
5,100.0	4,961.2	4,963.2	4,963.2	20.9	11.0	148.53	-404.4	-337.9	707.1	680.9	26.19	26.997		
5,138.8	5,000.0	5,002.0	5,002.0	20.9	11.1	-36.04	-404.4	-337.9	707.3	681.0	26.31	26.880		
5,200.0	5,061.2	5,063.2	5,063.2	21.0	11.3	-36.04	-404.4	-337.9	707.3	680.7	26.54	26.653		
5,300.0	5,161.2	5,163.2	5,163.2	21.1	11.5	-36.04	-404.4	-337.9	707.3	680.4	26.90	26.297		
5,400.0	5,261.2	5,263.2	5,263.2	21.2	11.7	-36.04	-404.4	-337.9	707.3	680.0	27.26	25.949		
5,500.0	5,361.2	5,363.2	5,363.2	21.3	11.9	-36.04	-404.4	-337.9	707.3	679.7	27.62	25.608		
5,600.0	5,461.2	5,463.2	5,463.2	21.4	12.2	-36.04	-404.4	-337.9	707.3	679.3	27.99	25.273		
5,700.0	5,561.2	5,563.2	5,563.2	21.5	12.4	-36.04	-404.4	-337.9	707.3	678.9	28.35	24.946		
5,800.0	5,661.2	5,663.2	5,663.2	21.6	12.6	-36.04	-404.4	-337.9	707.3	678.6	28.72	24.626		
5,900.0	5,761.2	5,763.2	5,763.2	21.7	12.8	-36.04	-404.4	-337.9	707.3	678.2	29.09	24.312		
6,000.0	5,861.2	5,863.2	5,863.2	21.8	13.1	-36.04	-404.4	-337.9	707.3	677.8	29.46	24.004		
6,100.0	5,961.2	5,963.2	5,963.2	21.9	13.3	-36.04	-404.4	-337.9	707.3	677.4	29.84	23.703		
6,200.0	6,061.2	6,063.2	6,063.2	22.0	13.5	-36.04	-404.4	-337.9	707.3	677.1	30.22	23.408		
6,300.0	6,161.2	6,163.2	6,163.2	22.1	13.7	-36.04	-404.4	-337.9	707.3	676.7	30.59	23.119		
6,400.0	6,261.2	6,263.2	6,263.2	22.2	14.0	-36.04	-404.4	-337.9	707.3	676.3	30.97	22.836		
6,500.0	6,361.2	6,363.2	6,363.2	22.4	14.2	-36.04	-404.4	-337.9	707.3	675.9	31.35	22.559		
6,600.0	6,461.2	6,463.2	6,463.2	22.5	14.4	-36.04	-404.4	-337.9	707.3	675.5	31.74	22.287		
6,700.0	6,561.2	6,563.2	6,563.2	22.6	14.6	-36.04	-404.4	-337.9	707.3	675.2	32.12	22.021		
6,800.0	6,661.2	6,663.2	6,663.2	22.7	14.9	-36.04	-404.4	-337.9	707.3	674.8	32.50	21.760		
6,900.0	6,761.2	6,763.2	6,763.2	22.9	15.1	-36.04	-404.4	-337.9	707.3	674.4	32.89	21.504		
7,000.0	6,861.2	6,863.2	6,863.2	23.0	15.3	-36.04	-404.4	-337.9	707.3	674.0	33.28	21.253		
7,100.0	6,961.2	6,963.2	6,963.2	23.1	15.5	-36.04	-404.4	-337.9	707.3	673.6	33.67	21.007		
7,200.0	7,061.2	7,063.2	7,063.2	23.2	15.8	-36.04	-404.4	-337.9	707.3	673.2	34.06	20.767		
7,300.0	7,161.2	7,163.2	7,163.2	23.4	16.0	-36.04	-404.4	-337.9	707.3	672.8	34.45	20.530		
7,400.0	7,261.2	7,263.2	7,263.2	23.5	16.2	-36.04	-404.4	-337.9	707.3	672.4	34.84	20.299		
7,500.0	7,361.2	7,363.2	7,363.2	23.6	16.4	-36.04	-404.4	-337.9	707.3	672.0	35.24	20.072		
7,600.0	7,461.2	7,463.2	7,463.2	23.8	16.7	-36.04	-404.4	-337.9	707.3	671.6	35.63	19.849		
7,700.0	7,561.2	7,563.2	7,563.2	23.9	16.9	-36.04	-404.4	-337.9	707.3	671.3	36.03	19.631		
7,717.8	7,579.0	7,581.0	7,581.0	23.9	16.9	-36.04	-404.4	-337.9	707.3	671.2	36.10	19.592		
7,727.8	7,589.0	7,589.0	7,589.0	23.9	16.9	-36.04	-404.4	-337.9	707.3	671.1	36.14	19.573 SF		

Company: NOBLE ENERGY INC WELD COUNTY CO  
Project: SEC.17-T3N-R64W  
Reference Site: LDS D17-24D Pad Sec.17-T3N-R64W  
Site Error: 0.0ft  
Reference Well: LDS D17-24D  
Well Error: 0.0ft  
Reference Wellbore: Wellbore #1  
Reference Design: Noble LDS D17-24D Plan #1 (1-6-12)

Local Co-ordinate Reference: Well LDS D17-24D  
TVD Reference: WELL @ 4765.0ft (Original Well Elev)  
MD Reference: WELL @ 4765.0ft (Original Well Elev)  
North Reference: True  
Survey Calculation Method: Minimum Curvature  
Output errors are at: 2.00 sigma  
Database: Landmark  
Offset TVD Reference: Offset Datum

Reference Depths are relative to WELL @ 4765.0ft (Original Well Elev) Coordinates are relative to: LDS D17-24D  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000 °  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.60°

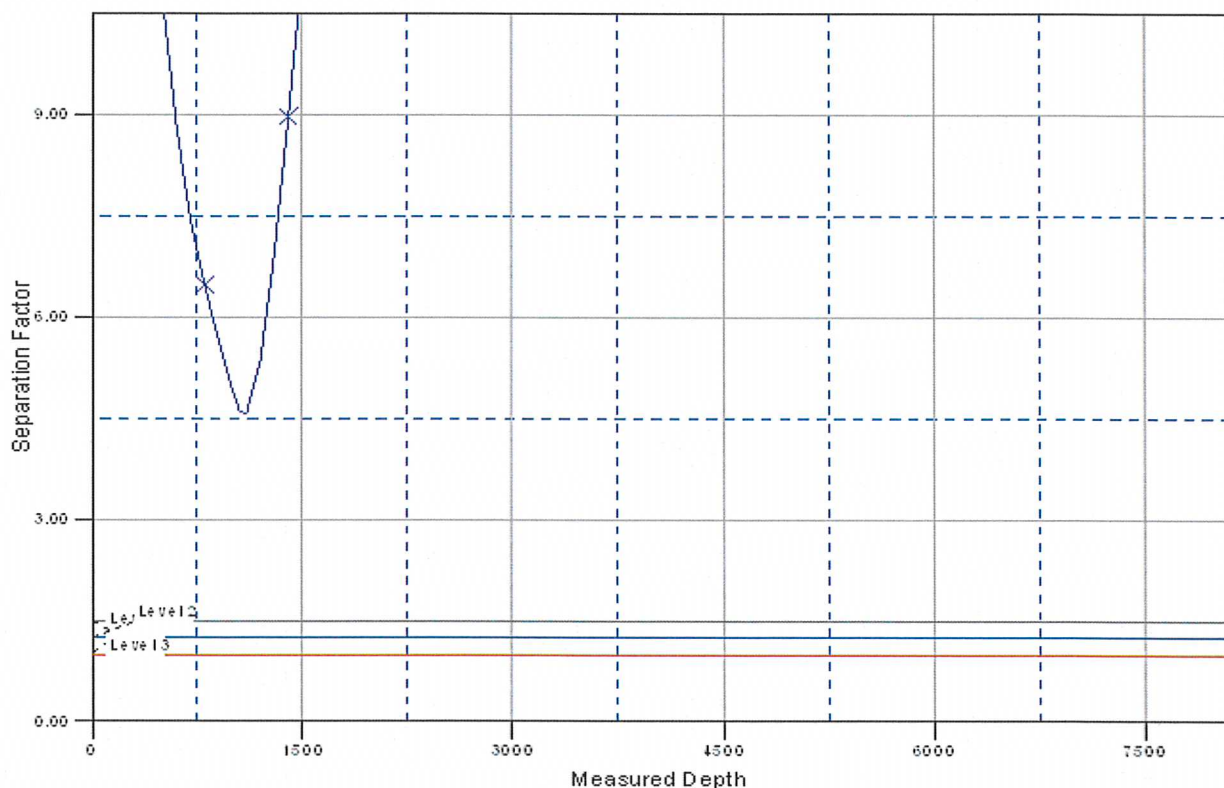


Company: NOBLE ENERGY INC WELD COUNTY CO  
Project: SEC.17-T3N-R64W  
Reference Site: LDS D17-24D Pad Sec.17-T3N-R64W  
Site Error: 0.0ft  
Reference Well: LDS D17-24D  
Well Error: 0.0ft  
Reference Wellbore: Wellbore #1  
Reference Design: Noble LDS D17-24D Plan #1 (1-6-12)

Local Co-ordinate Reference: Well LDS D17-24D  
TVD Reference: WELL @ 4765.0ft (Original Well Elev)  
MD Reference: WELL @ 4765.0ft (Original Well Elev)  
North Reference: True  
Survey Calculation Method: Minimum Curvature  
Output errors are at: 2.00 sigma  
Database: Landmark  
Offset TVD Reference: Offset Datum

Reference Depths are relative to WELL @ 4765.0ft (Original Well Elev) Coordinates are relative to: LDS D17-24D  
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone  
Central Meridian is -105.500000 ° Grid Convergence at Surface is: 0.60°

### Separation Factor Plot



### LEGEND

Wellbore #1, Noble LDS D17-25D Plan #1 (1-6-12) and Red D17-11 (Exist.), Wellbore #1, Design #1 V0