



## **Entek GRB, Inc.**

**Moffat Co., CO  
Sec.24-T12N-R89W  
SD Federal 24-9DL**

**Wellbore #2-ST  
Wellbore #2-ST**

## **Anticollision Report**

**20 September, 2011**





# Great White Directional Services, LLC

## Anticollision Report



<b>Company:</b>	Entek GRB, Inc.	<b>Local Co-ordinate Reference:</b>	Well SD Federal 24-9DL
<b>Project:</b>	Moffat Co., CO	<b>TVD Reference:</b>	WELL @ 7062.00usft
<b>Reference Site:</b>	Sec.24-T12N-R89W	<b>MD Reference:</b>	WELL @ 7062.00usft
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	SD Federal 24-9DL	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #2-ST	<b>Database:</b>	EDM 5000.1 EDMDBBW
<b>Reference Design:</b>	Wellbore #2-ST	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Wellbore #2-ST		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	Stations	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 10,000.00 usft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma	<b>Casing Method:</b>	Not applied

<b>Survey Program</b>	<b>Date</b>	09/20/11		
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
157.00	3,110.00	Survey #1-OH (Wellbore #2-ST)	MWD	MWD - Standard
3,110.00	8,105.00	Survey #2-ST (Wellbore #2-ST)	MWD	MWD - Standard

<b>Summary</b>						
<b>Site Name</b>	<b>Reference Measured Depth (usft)</b>	<b>Offset Measured Depth (usft)</b>	<b>Distance Between Centres (usft)</b>	<b>Distance Between Ellipses (usft)</b>	<b>Separation Factor</b>	<b>Warning</b>
<b>Offset Well - Wellbore - Design</b>						
Sec.24-T12N-R89W						
SD Federal 24-9DL - Wellbore #1-OH - Wellbore #1-OH	3,110.00	3,110.00	0.00	-13.20	0.000	Level 1, CC, SF
SD Federal 24-9DL - Wellbore #1-OH - Wellbore #1-OH	3,128.31	3,128.31	0.04	-13.43	0.003	Level 1, ES

<b>Offset Design</b>	Sec.24-T12N-R89W - SD Federal 24-9DL - Wellbore #1-OH - Wellbore #1-OH												<b>Offset Site Error:</b>	0.00 usft
<b>Survey Program:</b>	157-MWD												<b>Offset Well Error:</b>	0.00 usft
<b>Reference</b>	<b>Offset</b>	<b>Semi Major Axis</b>		<b>Distance</b>										
<b>Measured Depth (usft)</b>	<b>Vertical Depth (usft)</b>	<b>Measured Depth (usft)</b>	<b>Vertical Depth (usft)</b>	<b>Reference (usft)</b>	<b>Offset (usft)</b>	<b>Azimuth from North (°)</b>	<b>Offset Wellbore Centre +N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Between Centres (usft)</b>	<b>Between Ellipses (usft)</b>	<b>Minimum Separation (usft)</b>	<b>Separation Factor</b>	<b>Warning</b>	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	Level 1	
157.00	157.00	157.00	157.00	0.17	0.17	0.00	-0.16	-0.08	0.00	-0.33	0.33	0.000	Level 1	
279.00	279.00	279.00	279.00	0.43	0.43	0.00	-0.35	-0.40	0.00	-0.86	0.86	0.000	Level 1	
371.00	371.00	371.00	371.00	0.63	0.63	0.00	-0.28	-1.08	0.00	-1.25	1.25	0.000	Level 1	
464.00	463.99	464.00	463.99	0.83	0.83	0.00	-0.03	-2.18	0.00	-1.66	1.66	0.000	Level 1	
556.00	555.98	556.00	555.98	1.03	1.03	0.00	0.46	-3.62	0.00	-2.07	2.07	0.000	Level 1	
648.00	647.95	648.00	647.95	1.24	1.24	0.00	1.29	-5.54	0.00	-2.47	2.47	0.000	Level 1	
739.00	738.92	739.00	738.92	1.44	1.44	0.00	2.43	-7.89	0.00	-2.88	2.88	0.000	Level 1	
834.00	833.87	834.00	833.87	1.65	1.65	0.00	3.44	-10.76	0.00	-3.28	3.28	0.000	Level 1	
928.00	927.82	928.00	927.82	1.85	1.85	0.00	2.70	-13.65	0.00	-3.68	3.68	0.000	Level 1	
990.00	989.78	990.00	989.78	1.98	1.98	0.00	1.73	-15.37	0.00	-3.92	3.92	0.000	Level 1	
1,053.00	1,052.77	1,053.00	1,052.77	2.10	2.10	0.00	1.43	-16.86	0.00	-4.16	4.16	0.000	Level 1	
1,117.00	1,116.76	1,117.00	1,116.76	2.23	2.23	0.00	1.39	-17.92	0.00	-4.41	4.41	0.000	Level 1	
1,180.00	1,179.75	1,180.00	1,179.75	2.35	2.35	0.00	1.42	-18.46	0.00	-4.66	4.66	0.000	Level 1	
1,244.00	1,243.75	1,244.00	1,243.75	2.48	2.48	0.00	1.71	-19.00	0.00	-4.93	4.93	0.000	Level 1	
1,275.00	1,274.75	1,275.00	1,274.75	2.55	2.55	0.00	1.97	-19.25	0.00	-5.08	5.08	0.000	Level 1	
1,307.00	1,306.75	1,307.00	1,306.75	2.61	2.61	0.00	2.25	-19.26	0.00	-5.21	5.21	0.000	Level 1	
1,339.00	1,338.75	1,339.00	1,338.75	2.67	2.67	0.00	2.41	-18.98	0.00	-5.30	5.30	0.000	Level 1	
1,370.00	1,369.74	1,370.00	1,369.74	2.73	2.73	0.00	2.36	-18.37	0.00	-5.42	5.42	0.000	Level 1	
1,401.00	1,400.72	1,401.00	1,400.72	2.79	2.79	0.00	2.04	-17.48	0.00	-5.55	5.55	0.000	Level 1	
1,432.00	1,431.70	1,432.00	1,431.70	2.85	2.85	0.00	1.40	-16.36	0.00	-5.67	5.67	0.000	Level 1	
1,464.00	1,463.65	1,464.00	1,463.65	2.92	2.92	0.00	0.36	-15.02	0.00	-5.80	5.80	0.000	Level 1	
1,495.00	1,494.59	1,495.00	1,494.59	2.98	2.98	0.00	-1.02	-13.70	0.00	-5.93	5.93	0.000	Level 1	
1,527.00	1,526.51	1,527.00	1,526.51	3.04	3.04	0.00	-2.81	-12.36	0.00	-6.06	6.06	0.000	Level 1	

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



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<b>Reference Well:</b>	SD Federal 24-9DL	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #2-ST	<b>Database:</b>	EDM 5000.1 EDMDBBW
<b>Reference Design:</b>	Wellbore #2-ST	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 157-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
1,559.00	1,558.42	1,559.00	1,558.42	3.11	3.11	0.00	-4.91	-11.04	0.00	-6.19	6.19	0.000	Level 1	
1,591.00	1,590.29	1,591.00	1,590.29	3.18	3.18	0.00	-7.40	-9.67	0.00	-6.32	6.32	0.000	Level 1	
1,622.00	1,621.12	1,622.00	1,621.12	3.25	3.25	0.00	-10.31	-8.30	0.00	-6.44	6.44	0.000	Level 1	
1,654.00	1,652.90	1,654.00	1,652.90	3.32	3.32	0.00	-13.85	-6.95	0.00	-6.56	6.56	0.000	Level 1	
1,686.00	1,684.63	1,686.00	1,684.63	3.39	3.39	0.00	-17.81	-5.83	0.00	-6.69	6.69	0.000	Level 1	
1,718.00	1,716.33	1,718.00	1,716.33	3.46	3.46	0.00	-22.12	-5.02	0.00	-6.82	6.82	0.000	Level 1	
1,750.00	1,747.98	1,750.00	1,747.98	3.54	3.54	0.00	-26.80	-4.66	0.00	-6.95	6.95	0.000	Level 1	
1,782.00	1,779.58	1,782.00	1,779.58	3.63	3.63	0.00	-31.83	-5.05	0.00	-7.08	7.08	0.000	Level 1	
1,814.00	1,811.13	1,814.00	1,811.13	3.71	3.71	0.00	-37.07	-6.17	0.00	-7.22	7.22	0.000	Level 1	
1,845.00	1,841.65	1,845.00	1,841.65	3.80	3.80	0.00	-42.28	-7.72	0.00	-7.35	7.35	0.000	Level 1	
1,877.00	1,873.10	1,877.00	1,873.10	3.89	3.89	0.00	-47.81	-9.74	0.00	-7.49	7.49	0.000	Level 1	
1,909.00	1,904.53	1,909.00	1,904.53	3.98	3.98	0.00	-53.43	-11.98	0.00	-7.63	7.63	0.000	Level 1	
1,941.00	1,935.93	1,941.00	1,935.93	4.08	4.08	0.00	-59.08	-14.34	0.00	-7.77	7.77	0.000	Level 1	
1,973.00	1,967.33	1,973.00	1,967.33	4.17	4.17	0.00	-64.77	-16.72	0.00	-7.91	7.91	0.000	Level 1	
2,004.00	1,997.75	2,004.00	1,997.75	4.26	4.26	0.00	-70.30	-18.96	0.00	-8.05	8.05	0.000	Level 1	
2,035.00	2,028.18	2,035.00	2,028.18	4.36	4.36	0.00	-75.79	-21.22	0.00	-8.19	8.19	0.000	Level 1	
2,066.00	2,058.59	2,066.00	2,058.59	4.45	4.45	0.00	-81.35	-23.46	0.00	-8.32	8.32	0.000	Level 1	
2,129.00	2,120.33	2,129.00	2,120.33	4.65	4.65	0.00	-93.12	-27.84	0.00	-8.59	8.59	0.000	Level 1	
2,193.00	2,183.01	2,193.00	2,183.01	4.86	4.86	0.00	-105.25	-32.31	0.00	-8.89	8.89	0.000	Level 1	
2,257.00	2,245.68	2,257.00	2,245.68	5.08	5.08	0.00	-117.42	-36.80	0.00	-9.18	9.18	0.000	Level 1	
2,319.00	2,306.42	2,319.00	2,306.42	5.28	5.28	0.00	-129.26	-40.69	0.00	-9.47	9.47	0.000	Level 1	
2,382.00	2,368.18	2,382.00	2,368.18	5.48	5.48	0.00	-141.18	-44.12	0.00	-9.75	9.75	0.000	Level 1	
2,476.00	2,460.44	2,476.00	2,460.44	5.80	5.80	0.00	-158.70	-48.29	0.00	-10.20	10.20	0.000	Level 1	
2,539.00	2,522.32	2,539.00	2,522.32	6.01	6.01	0.00	-170.29	-50.80	0.00	-10.48	10.48	0.000	Level 1	
2,634.00	2,615.77	2,634.00	2,615.77	6.33	6.33	0.00	-186.93	-54.55	0.00	-10.95	10.95	0.000	Level 1	
2,731.00	2,711.57	2,731.00	2,711.57	6.64	6.64	0.00	-201.46	-59.02	0.00	-11.43	11.43	0.000	Level 1	
2,826.00	2,805.41	2,826.00	2,805.41	6.95	6.95	0.00	-215.02	-64.90	0.00	-11.86	11.86	0.000	Level 1	
2,919.00	2,896.95	2,919.00	2,896.95	7.28	7.28	0.00	-230.08	-71.35	0.00	-12.27	12.27	0.000	Level 1	
3,015.00	2,991.50	3,015.00	2,991.50	7.61	7.61	0.00	-245.45	-77.59	0.00	-12.74	12.74	0.000	Level 1	
3,110.00	3,085.35	3,110.00	3,085.35	7.92	7.92	0.00	-259.08	-83.30	0.00	-13.20	13.20	0.000	Level 1, CC, SF	
3,128.31	3,103.44	3,128.31	3,103.44	7.96	7.98	-178.98	-261.68	-84.41	0.04	-13.43	13.47	0.003	Level 1, ES	
3,146.00	3,120.92	3,146.00	3,120.90	8.00	8.04	-179.00	-264.29	-85.50	0.16	-13.37	13.54	0.012	Level 1	
3,174.00	3,148.60	3,173.99	3,148.49	8.03	8.14	-173.01	-268.65	-87.25	0.62	-12.85	13.47	0.046	Level 1	
3,205.00	3,179.19	3,204.98	3,178.99	8.07	8.24	-172.45	-273.79	-89.20	1.16	-12.36	13.52	0.085	Level 1	
3,237.00	3,210.74	3,236.95	3,210.39	8.12	8.37	-173.04	-279.47	-91.15	1.80	-11.82	13.62	0.132	Level 1	
3,268.00	3,241.35	3,267.89	3,240.72	8.16	8.48	-174.10	-285.36	-92.89	3.13	-10.60	13.74	0.228	Level 1	
3,299.00	3,272.02	3,298.77	3,270.91	8.21	8.60	-177.18	-291.61	-94.49	5.25	-8.65	13.91	0.378	Level 1	
3,331.00	3,303.74	3,330.77	3,302.22	8.25	8.72	-179.12	-298.06	-95.99	7.79	-6.27	14.06	0.554	Level 1	
3,362.00	3,334.51	3,361.82	3,332.70	8.28	8.84	-179.15	-303.83	-97.28	10.17	-4.04	14.21	0.716	Level 1	
3,394.00	3,366.31	3,393.91	3,364.29	8.32	8.95	-176.85	-309.31	-98.45	12.50	-1.90	14.40	0.868	Level 1	
3,426.00	3,398.11	3,426.03	3,396.00	8.35	9.06	-174.80	-314.32	-99.62	14.53	-0.05	14.58	0.996	Level 1	
3,458.00	3,429.91	3,458.21	3,427.83	8.39	9.16	-172.84	-318.90	-100.97	16.16	1.39	14.77	1.094	Level 2	
3,489.00	3,460.70	3,489.39	3,458.72	8.43	9.26	-171.39	-322.90	-102.44	17.30	2.35	14.94	1.157	Level 2	
3,521.00	3,492.46	3,521.27	3,490.28	8.47	9.37	-170.58	-326.96	-104.26	18.21	3.12	15.09	1.206	Level 2	
3,553.00	3,524.19	3,553.15	3,521.79	8.51	9.47	-171.08	-331.28	-106.52	19.03	3.86	15.17	1.254	Level 3	
3,585.00	3,555.94	3,584.99	3,553.18	8.56	9.58	-173.17	-335.85	-109.19	20.15	4.99	15.17	1.329	Level 3	
3,616.00	3,586.68	3,615.68	3,583.37	8.60	9.69	-175.88	-340.59	-111.95	21.35	6.22	15.13	1.411	Level 3	
3,647.00	3,617.39	3,646.34	3,613.48	8.65	9.81	-178.82	-345.72	-114.73	22.62	7.53	15.09	1.499	Level 3	
3,678.00	3,648.09	3,677.00	3,643.50	8.70	9.93	-177.77	-351.25	-117.52	24.25	9.21	15.04	1.613		
3,703.00	3,672.85	3,701.91	3,667.88	8.74	10.02	-174.42	-355.89	-119.74	25.64	10.65	14.99	1.710		
3,735.00	3,704.55	3,733.85	3,699.16	8.80	10.15	-170.31	-361.81	-122.41	27.56	12.60	14.97	1.842		
3,767.00	3,736.28	3,765.82	3,730.48	8.85	10.27	-167.23	-367.70	-124.87	29.66	14.66	15.00	1.978		

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## Anticollision Report



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<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	SD Federal 24-9DL	<b>Survey Calculation Method:</b>	Minimum Curvature
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<b>Reference Wellbore</b>	Wellbore #2-ST	<b>Database:</b>	EDM 5000.1 EDMDBBW
<b>Reference Design:</b>	Wellbore #2-ST	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 157-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
3,798.00	3,767.03	3,796.68	3,760.73	8.90	10.39	-165.16	-373.37	-127.20	31.87	16.81	15.06	2.116		
3,830.00	3,798.82	3,828.50	3,791.89	8.94	10.51	-163.74	-379.23	-129.74	34.60	19.46	15.14	2.285		
3,862.00	3,830.63	3,860.28	3,823.01	8.99	10.64	-162.90	-385.10	-132.44	37.61	22.38	15.23	2.469		
3,893.00	3,861.43	3,891.31	3,853.40	9.04	10.76	-162.21	-390.80	-135.07	40.38	25.06	15.32	2.635		
3,924.00	3,892.22	3,922.38	3,883.86	9.09	10.88	-161.66	-396.42	-137.55	42.90	27.49	15.41	2.783		
3,956.00	3,924.01	3,954.47	3,915.34	9.14	11.00	-161.60	-402.14	-139.94	45.53	30.02	15.51	2.935		
3,988.00	3,955.83	3,986.54	3,946.84	9.19	11.12	-162.13	-407.80	-142.09	48.24	32.63	15.61	3.090		
4,019.00	3,986.66	4,017.61	3,977.37	9.23	11.23	-162.96	-413.23	-143.92	50.87	35.16	15.71	3.238		
4,051.00	4,018.49	4,049.69	4,008.93	9.28	11.35	-163.98	-418.81	-145.52	53.45	37.63	15.82	3.380		
4,082.00	4,049.29	4,080.26	4,038.99	9.33	11.46	-165.35	-424.18	-146.90	55.83	39.91	15.93	3.505		
4,114.00	4,081.06	4,111.75	4,069.92	9.38	11.58	-167.09	-429.93	-148.30	58.38	42.32	16.06	3.635		
4,145.00	4,111.82	4,142.23	4,099.82	9.44	11.70	-168.66	-435.68	-149.64	60.95	44.75	16.20	3.763		
4,176.00	4,142.56	4,172.42	4,129.39	9.49	11.82	-170.10	-441.64	-150.90	63.60	47.26	16.34	3.893		
4,209.00	4,175.29	4,204.46	4,160.69	9.55	11.95	-171.40	-448.35	-152.12	66.74	50.25	16.49	4.047		
4,239.00	4,205.05	4,233.52	4,189.02	9.61	12.07	-172.29	-454.79	-153.10	69.91	53.28	16.63	4.205		
4,270.00	4,235.79	4,264.78	4,219.45	9.67	12.20	-173.30	-461.85	-154.05	73.21	56.44	16.77	4.365		
4,292.00	4,257.59	4,287.24	4,241.36	9.71	12.29	-174.16	-466.74	-154.67	75.34	58.45	16.89	4.462		
4,334.00	4,299.20	4,330.20	4,283.38	9.80	12.47	-175.66	-475.62	-155.74	78.92	61.80	17.12	4.611		
4,365.00	4,329.94	4,361.18	4,313.73	9.86	12.59	-176.58	-481.76	-156.43	81.40	64.13	17.27	4.713		
4,397.00	4,361.70	4,393.04	4,344.96	9.92	12.71	-177.35	-488.07	-157.13	84.12	66.69	17.43	4.826		
4,428.00	4,392.49	4,423.89	4,375.19	9.98	12.83	-178.01	-494.19	-157.79	86.98	69.40	17.58	4.949		
4,460.00	4,424.30	4,455.88	4,406.54	10.04	12.95	-178.59	-500.50	-158.51	90.18	72.46	17.73	5.087		
4,492.00	4,456.15	4,487.89	4,437.92	10.09	13.07	-178.90	-506.75	-159.33	93.58	75.72	17.86	5.239		
4,523.00	4,487.02	4,518.88	4,468.32	10.14	13.19	-179.11	-512.74	-160.23	97.10	79.13	17.98	5.401		
4,555.00	4,518.92	4,550.75	4,499.58	10.19	13.32	-179.28	-518.84	-161.24	100.94	82.84	18.10	5.576		
4,586.00	4,549.81	4,581.62	4,529.87	10.24	13.43	-179.39	-524.72	-162.25	104.56	86.34	18.23	5.737		
4,617.00	4,580.66	4,612.53	4,560.20	10.29	13.55	-179.59	-530.59	-163.32	107.84	89.49	18.35	5.877		
4,642.00	4,605.52	4,636.74	4,583.95	10.34	13.65	-179.84	-535.23	-164.13	110.32	91.86	18.46	5.976		
4,681.00	4,644.22	4,674.10	4,620.52	10.42	13.80	-179.64	-542.77	-165.08	113.82	95.19	18.63	6.108		
4,712.00	4,674.91	4,703.79	4,649.53	10.49	13.92	-179.35	-549.10	-165.55	116.24	97.47	18.77	6.193		
4,744.00	4,706.67	4,735.90	4,680.85	10.56	14.05	-179.07	-556.14	-165.92	119.51	100.60	18.91	6.320		
4,776.00	4,738.52	4,768.51	4,712.71	10.61	14.18	-178.69	-563.08	-166.48	123.59	104.54	19.05	6.487		
4,808.00	4,770.38	4,801.12	4,744.62	10.67	14.31	-178.28	-569.79	-167.22	127.84	108.65	19.20	6.660		
4,839.00	4,801.26	4,832.22	4,775.07	10.72	14.43	-177.95	-576.02	-168.07	132.03	112.68	19.35	6.824		
4,871.00	4,833.15	4,864.20	4,806.40	10.77	14.56	-177.65	-582.36	-169.02	136.42	116.93	19.49	7.001		
4,903.00	4,865.03	4,896.17	4,837.74	10.83	14.68	-177.28	-588.64	-170.02	140.90	121.26	19.63	7.176		
4,934.00	4,895.89	4,926.40	4,867.36	10.88	14.81	-176.81	-594.57	-171.03	145.40	125.62	19.78	7.351		
4,966.00	4,927.70	4,957.38	4,897.69	10.94	14.93	-176.17	-600.78	-172.12	150.10	130.13	19.97	7.516		
4,998.00	4,959.44	4,988.41	4,928.04	11.00	15.06	-175.49	-607.13	-173.25	154.34	134.15	20.19	7.645		
5,030.00	4,991.12	5,019.37	4,958.30	11.07	15.19	-174.81	-613.60	-174.40	158.07	137.67	20.40	7.749		
5,062.00	5,022.76	5,050.32	4,988.51	11.15	15.32	-174.19	-620.22	-175.49	161.38	140.77	20.61	7.829		
5,092.00	5,052.38	5,079.37	5,016.84	11.23	15.44	-173.71	-626.58	-176.45	164.08	143.29	20.80	7.890		
5,123.00	5,082.98	5,108.97	5,045.67	11.31	15.57	-173.31	-633.21	-177.36	166.80	145.83	20.97	7.953		
5,155.00	5,114.56	5,139.28	5,075.14	11.40	15.71	-173.08	-640.26	-178.15	169.51	148.38	21.13	8.021		
5,187.00	5,146.14	5,169.57	5,104.53	11.48	15.84	-173.03	-647.57	-178.80	172.25	150.97	21.28	8.096		
5,219.00	5,177.79	5,201.43	5,135.40	11.56	15.99	-173.19	-655.45	-179.35	175.50	154.09	21.42	8.194		
5,250.00	5,208.48	5,233.98	5,166.98	11.64	16.13	-173.53	-663.26	-179.82	178.58	157.07	21.51	8.302		
5,282.00	5,240.12	5,267.65	5,199.75	11.71	16.28	-174.02	-671.01	-180.21	181.08	159.51	21.57	8.393		
5,313.00	5,270.76	5,301.24	5,232.53	11.78	16.41	-174.56	-678.36	-180.58	183.18	161.53	21.65	8.460		
5,345.00	5,302.44	5,336.51	5,267.07	11.85	16.55	-175.28	-685.49	-181.21	185.21	163.50	21.71	8.532		
5,375.00	5,332.18	5,369.59	5,299.56	11.91	16.68	-176.03	-691.61	-182.04	186.90	165.16	21.74	8.596		
5,407.00	5,363.92	5,400.27	5,329.74	11.98	16.80	-176.69	-697.08	-182.94	188.63	166.85	21.78	8.661		

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



# Great White Directional Services, LLC

## Anticollision Report



<b>Company:</b>	Entek GRB, Inc.	<b>Local Co-ordinate Reference:</b>	Well SD Federal 24-9DL
<b>Project:</b>	Moffat Co., CO	<b>TVD Reference:</b>	WELL @ 7062.00usft
<b>Reference Site:</b>	Sec.24-T12N-R89W	<b>MD Reference:</b>	WELL @ 7062.00usft
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	SD Federal 24-9DL	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #2-ST	<b>Database:</b>	EDM 5000.1 EDMDBBW
<b>Reference Design:</b>	Wellbore #2-ST	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 157-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,439.00	5,395.68	5,430.30	5,359.22	12.05	16.91	177.11	-702.72	-183.76	190.68	168.84	21.84	8.730		
5,470.00	5,426.47	5,459.35	5,387.69	12.11	17.03	177.21	-708.45	-184.51	193.28	171.34	21.93	8.812		
5,502.00	5,458.28	5,489.48	5,417.16	12.18	17.15	177.13	-714.67	-185.29	196.73	174.67	22.06	8.919		
5,534.00	5,490.15	5,519.57	5,446.54	12.25	17.28	177.09	-721.13	-186.23	201.02	178.84	22.18	9.064		
5,566.00	5,522.06	5,549.53	5,475.72	12.30	17.41	177.19	-727.81	-187.34	206.02	183.73	22.30	9.240		
5,597.00	5,553.00	5,578.72	5,504.10	12.35	17.54	177.40	-734.53	-188.54	211.39	189.00	22.39	9.441		
5,629.00	5,584.96	5,608.90	5,533.40	12.40	17.68	177.60	-741.65	-189.78	217.45	194.98	22.48	9.674		
5,660.00	5,615.93	5,637.99	5,561.61	12.45	17.82	177.73	-748.67	-190.95	223.89	201.33	22.56	9.926		
5,692.00	5,647.89	5,668.52	5,591.17	12.49	17.96	177.75	-756.19	-192.16	231.10	208.46	22.64	10.209		
5,724.00	5,679.82	5,699.82	5,621.48	12.53	18.11	177.62	-763.90	-193.35	238.62	215.88	22.74	10.492		
5,755.00	5,710.73	5,730.09	5,650.81	12.58	18.25	177.37	-771.34	-194.45	246.04	223.16	22.88	10.755		
5,787.00	5,742.58	5,761.65	5,681.39	12.62	18.39	177.01	-779.05	-195.56	253.73	230.70	23.03	11.016		
5,819.00	5,774.39	5,793.77	5,712.53	12.67	18.54	176.61	-786.79	-196.83	261.53	238.36	23.17	11.287		
5,851.00	5,806.18	5,825.95	5,743.76	12.71	18.68	176.21	-794.43	-198.30	269.25	245.86	23.39	11.511		
5,882.00	5,836.94	5,857.63	5,774.53	12.76	18.82	175.85	-801.80	-199.92	276.25	252.65	23.60	11.704		
5,912.00	5,866.66	5,888.87	5,804.91	12.82	18.96	175.45	-808.87	-201.60	282.56	258.76	23.80	11.872		
5,944.00	5,898.32	5,922.38	5,837.55	12.88	19.11	175.02	-816.22	-203.48	288.64	264.57	24.08	11.989		
5,976.00	5,929.97	5,955.14	5,869.50	12.95	19.25	174.61	-823.20	-205.37	294.03	269.72	24.32	12.092		
6,008.00	5,961.59	5,987.12	5,900.71	13.03	19.38	174.22	-829.94	-207.23	298.65	274.05	24.60	12.140		
6,040.00	5,993.19	6,019.25	5,932.07	13.11	19.52	173.90	-836.67	-209.11	302.31	277.46	24.84	12.168		
6,071.00	6,023.83	6,052.13	5,964.18	13.20	19.65	173.75	-843.47	-211.01	305.30	280.24	25.06	12.185		
6,102.00	6,054.53	6,086.59	5,997.92	13.28	19.79	173.76	-850.23	-212.90	307.74	282.50	25.24	12.193		
6,134.00	6,086.26	6,122.23	6,032.90	13.36	19.93	173.86	-856.80	-214.71	309.79	284.40	25.39	12.200		
6,166.00	6,118.04	6,156.07	6,066.19	13.44	20.06	173.98	-862.71	-216.35	311.82	286.29	25.52	12.216		
6,198.00	6,149.86	6,189.49	6,099.07	13.51	20.18	174.10	-868.38	-218.00	314.05	288.40	25.65	12.243		
6,229.00	6,180.72	6,221.85	6,130.95	13.58	20.30	174.23	-873.72	-219.63	316.44	290.67	25.76	12.283		
6,261.00	6,212.61	6,258.19	6,166.80	13.65	20.42	174.38	-879.40	-221.54	319.24	293.37	25.87	12.342		
6,293.00	6,244.54	6,294.85	6,203.02	13.70	20.55	174.52	-884.61	-223.63	322.42	296.48	25.95	12.427		
6,324.00	6,275.47	6,328.22	6,236.05	13.75	20.66	174.59	-888.90	-225.66	325.85	299.83	26.03	12.520		
6,356.00	6,307.37	6,357.25	6,264.76	13.80	20.76	174.55	-892.73	-227.61	329.68	303.51	26.17	12.597		
6,388.00	6,339.27	6,386.20	6,293.35	13.85	20.86	174.56	-896.80	-229.76	333.81	307.52	26.29	12.695		
6,419.00	6,370.20	6,415.00	6,321.72	13.90	20.96	174.68	-901.10	-232.09	338.27	311.86	26.40	12.811		
6,451.00	6,402.14	6,451.49	6,357.70	13.94	21.08	174.93	-906.40	-235.13	342.82	316.30	26.53	12.924		
6,514.00	6,464.99	6,523.69	6,429.13	14.03	21.31	175.30	-915.11	-240.99	350.01	323.20	26.81	13.054		
6,546.00	6,496.90	6,556.09	6,461.22	14.08	21.41	175.41	-918.63	-243.72	353.29	326.37	26.92	13.123		
6,578.00	6,528.79	6,588.48	6,493.30	14.13	21.51	175.49	-922.10	-246.59	356.74	329.72	27.03	13.199		
6,606.00	6,556.68	6,615.70	6,520.24	14.17	21.60	175.55	-925.00	-249.10	360.24	333.18	27.06	13.314		
6,660.00	6,610.45	6,665.41	6,569.41	14.22	21.75	175.69	-930.62	-253.75	368.72	341.53	27.19	13.560		
6,692.00	6,642.31	6,694.74	6,598.40	14.25	21.85	175.82	-934.17	-256.51	374.24	346.89	27.35	13.685		
6,724.00	6,674.21	6,725.63	6,628.91	14.28	21.95	176.00	-938.03	-259.41	379.79	352.33	27.47	13.828		
6,755.00	6,705.10	6,755.79	6,658.70	14.31	22.05	176.20	-941.82	-262.17	385.31	357.76	27.55	13.983		
6,787.00	6,737.01	6,786.91	6,689.45	14.33	22.15	176.41	-945.76	-264.96	390.96	363.25	27.71	14.108		
6,818.00	6,767.96	6,815.48	6,717.67	14.36	22.25	176.64	-949.44	-267.44	396.25	368.40	27.85	14.229		
6,850.00	6,799.92	6,844.50	6,746.33	14.38	22.34	176.90	-953.34	-269.83	401.80	373.86	27.94	14.379		
6,881.00	6,830.87	6,872.54	6,774.01	14.41	22.44	177.15	-957.28	-272.01	407.50	379.50	28.00	14.552		
6,913.00	6,862.82	6,902.06	6,803.13	14.43	22.54	177.40	-961.57	-274.17	413.80	385.72	28.07	14.740		
6,944.00	6,893.75	6,931.40	6,832.07	14.45	22.65	177.65	-965.92	-276.28	420.27	392.15	28.13	14.943		
6,976.00	6,925.67	6,961.59	6,861.84	14.46	22.75	177.95	-970.47	-278.43	427.29	399.07	28.22	15.141		
7,008.00	6,957.59	6,992.22	6,892.03	14.48	22.86	178.30	-975.14	-280.58	434.31	405.97	28.34	15.325		
7,040.00	6,989.52	7,024.32	6,923.69	14.49	22.97	178.64	-980.00	-282.70	441.17	412.77	28.40	15.534		
7,072.00	7,021.43	7,056.45	6,955.40	14.50	23.09	178.93	-984.80	-284.66	448.16	419.72	28.43	15.761		
7,103.00	7,052.33	7,087.52	6,986.08	14.52	23.19	179.17	-989.37	-286.39	455.14	426.65	28.49	15.975		

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



# Great White Directional Services, LLC

## Anticollision Report



<b>Company:</b>	Entek GRB, Inc.	<b>Local Co-ordinate Reference:</b>	Well SD Federal 24-9DL
<b>Project:</b>	Moffat Co., CO	<b>TVD Reference:</b>	WELL @ 7062.00usft
<b>Reference Site:</b>	Sec.24-T12N-R89W	<b>MD Reference:</b>	WELL @ 7062.00usft
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	SD Federal 24-9DL	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #2-ST	<b>Database:</b>	EDM 5000.1 EDMDBBW
<b>Reference Design:</b>	Wellbore #2-ST	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Sec.24-T12N-R89W - SD Federal 24-9DL - Wellbore #1-OH - Wellbore #1-OH		Offset Site Error:		0.00 usft	
Survey Program: 157-MWD													Offset Well Error:		0.00 usft			
Reference		Offset		Semi Major Axis			Distance							Warning				
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft) +E/-W (usft)		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor						
7,135.00	7,084.22	7,119.50	7,017.68	14.53	23.30	179.37	-994.01	-287.99	462.41	433.83	28.58	16.179						
7,167.00	7,116.13	7,151.58	7,049.40	14.54	23.41	179.56	-998.61	-289.42	469.37	440.62	28.75	16.325						
7,198.00	7,147.07	7,182.89	7,080.37	14.56	23.51	179.74	-1,003.04	-290.64	475.68	446.81	28.87	16.476						
7,230.00	7,179.02	7,215.61	7,112.75	14.58	23.62	179.87	-1,007.58	-291.77	481.84	452.86	28.98	16.625						
7,262.00	7,210.98	7,248.41	7,145.23	14.61	23.72	179.94	-1,012.05	-292.78	487.72	458.62	29.10	16.760						
7,293.00	7,241.94	7,282.81	7,179.32	14.63	23.83	180.00	-1,016.60	-293.71	493.30	464.09	29.21	16.888						
7,325.00	7,273.90	7,322.77	7,218.98	14.66	23.94	-179.93	-1,021.33	-294.81	498.65	469.30	29.35	16.991						
7,356.00	7,304.87	7,361.72	7,257.71	14.69	24.06	-179.83	-1,025.30	-295.92	503.13	473.61	29.52	17.044						
7,388.00	7,336.85	7,394.87	7,290.71	14.72	24.14	-179.72	-1,028.35	-296.85	506.94	477.26	29.69	17.077						
7,452.00	7,400.85	7,461.20	7,356.76	14.79	24.31	-179.51	-1,034.22	-298.39	513.52	483.61	29.91	17.167						
7,515.00	7,463.84	7,533.89	7,429.21	14.86	24.48	-179.29	-1,039.75	-300.16	519.25	489.14	30.11	17.247						
7,578.00	7,526.82	7,603.19	7,498.36	14.93	24.64	-179.11	-1,043.86	-302.03	524.36	494.05	30.31	17.299						
7,641.00	7,589.80	7,673.84	7,568.93	15.00	24.78	-179.00	-1,047.24	-303.38	529.15	498.62	30.52	17.337						
7,705.00	7,653.76	7,749.59	7,644.64	15.06	24.91	-178.88	-1,049.32	-304.65	533.14	502.40	30.74	17.345						
7,768.00	7,716.71	7,817.82	7,712.85	15.12	25.02	-178.78	-1,050.13	-305.64	536.32	505.37	30.95	17.326						
7,832.00	7,780.66	7,885.62	7,780.64	15.19	25.12	-178.68	-1,050.33	-306.42	539.09	507.93	31.16	17.301						
7,895.00	7,843.59	7,952.07	7,847.09	15.24	25.21	-178.57	-1,050.11	-307.19	541.80	510.46	31.34	17.287						
7,958.00	7,906.51	8,019.22	7,914.23	15.30	25.29	-178.41	-1,049.39	-308.06	544.38	512.85	31.54	17.261						
8,023.00	7,971.41	8,090.03	7,985.02	15.35	25.37	-178.23	-1,047.99	-308.97	546.66	514.93	31.73	17.228						
8,055.00	8,003.35	8,124.79	8,019.76	15.38	25.41	-178.15	-1,047.02	-309.33	547.67	515.85	31.82	17.213						
8,105.00	8,053.25	8,177.18	8,072.12	15.42	25.47	-178.01	-1,045.31	-309.96	549.13	517.16	31.97	17.175						



Company:	Entek GRB, Inc.	Local Co-ordinate Reference:	Well SD Federal 24-9DL
Project:	Moffat Co., CO	TVD Reference:	WELL @ 7062.00usft
Reference Site:	Sec.24-T12N-R89W	MD Reference:	WELL @ 7062.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	SD Federal 24-9DL	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #2-ST	Database:	EDM 5000.1 EDMDBBW
Reference Design:	Wellbore #2-ST	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 7062.00usft

Offset Depths are relative to Offset Datum

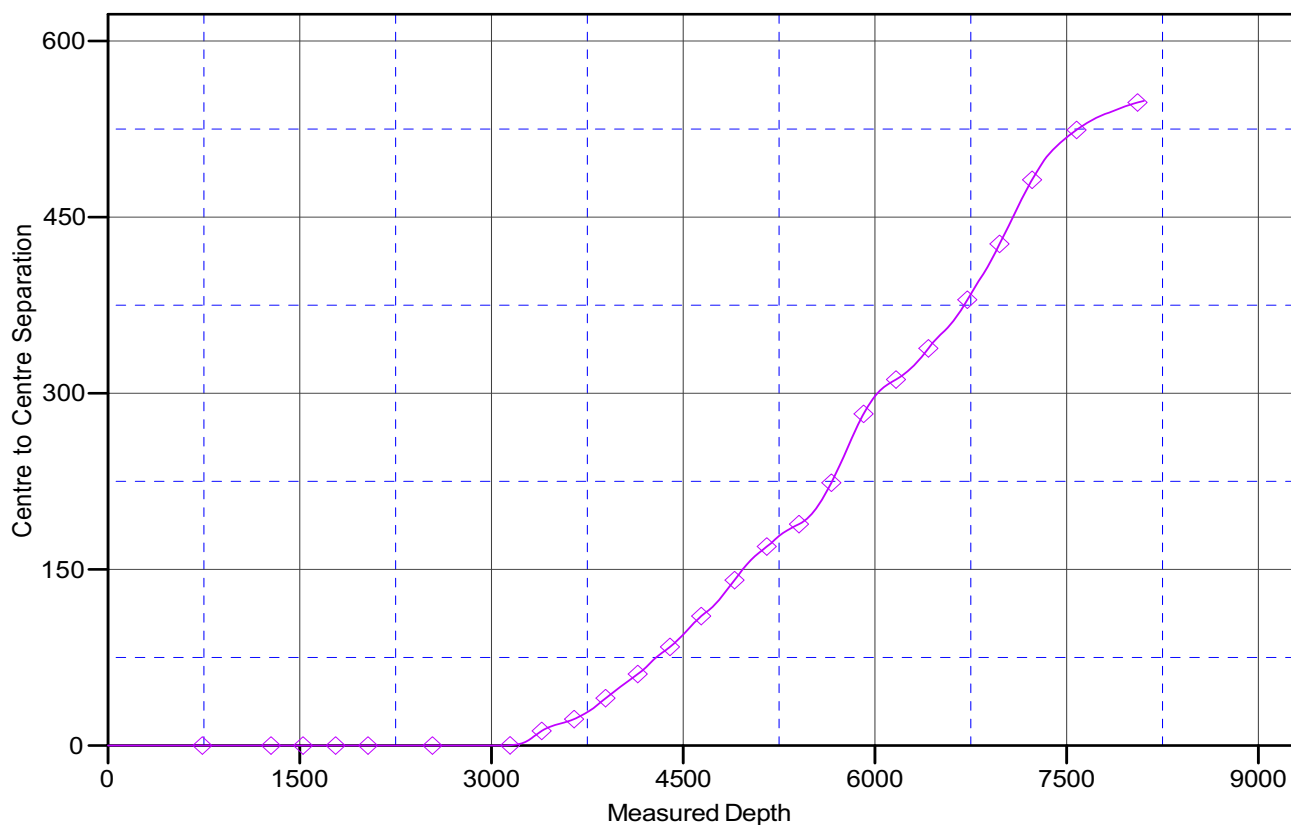
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: SD Federal 24-9DL

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: -1.18°

## Ladder Plot



## LEGEND

Well SD Federal 24-9DL, Wellbore #1-OH, Wellbore #1-OH V0

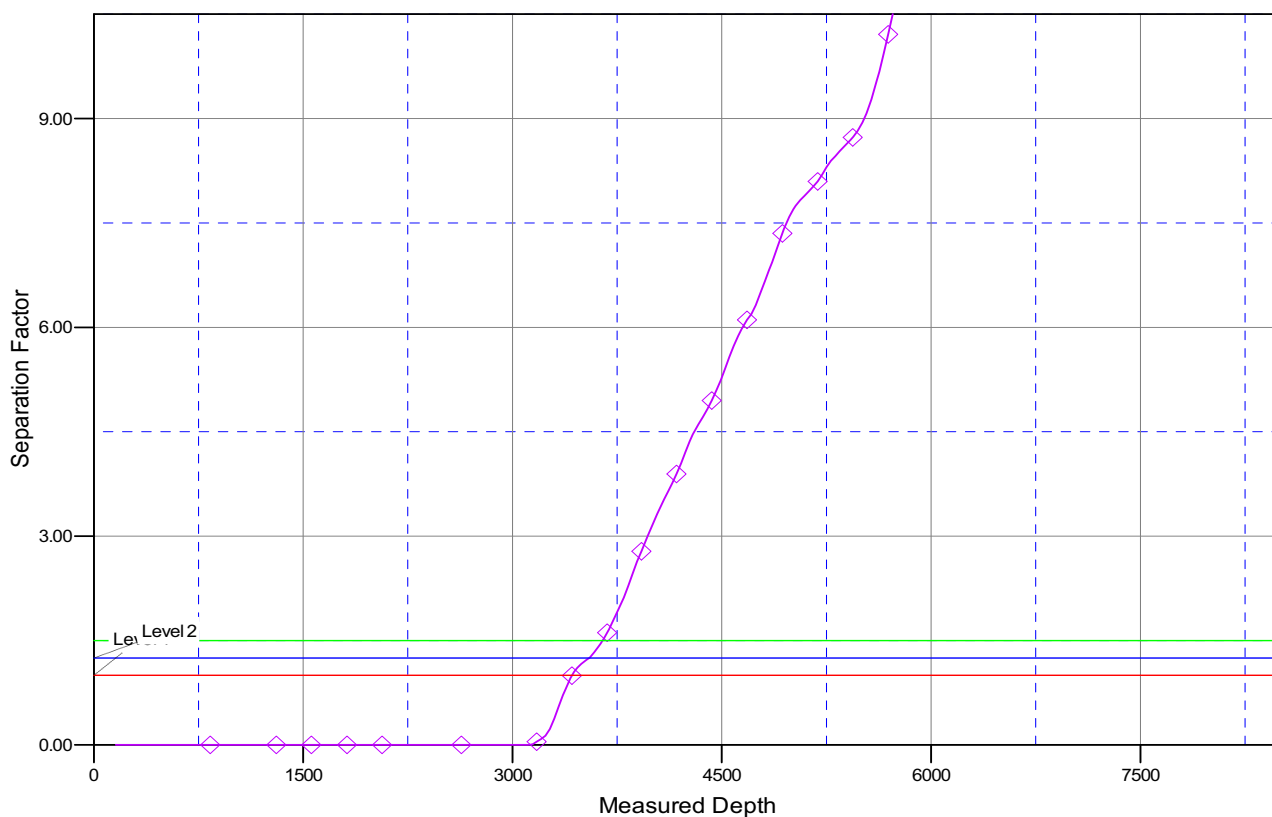


<b>Company:</b>	Entek GRB, Inc.	<b>Local Co-ordinate Reference:</b>	Well SD Federal 24-9DL
<b>Project:</b>	Moffat Co., CO	<b>TVD Reference:</b>	WELL @ 7062.00usft
<b>Reference Site:</b>	Sec.24-T12N-R89W	<b>MD Reference:</b>	WELL @ 7062.00usft
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	SD Federal 24-9DL	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #2-ST	<b>Database:</b>	EDM 5000.1 EDMDBBW
<b>Reference Design:</b>	Wellbore #2-ST	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 7062.00usft  
Offset Depths are relative to Offset Datum  
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: SD Federal 24-9DL  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: -1.18°

## Separation Factor Plot



## LEGEND

SD Federal 24-9DL, Wellbore #1-OH, Wellbore #1-OH V0