

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

3N-67W-12 DB FARMS 40-12HZ

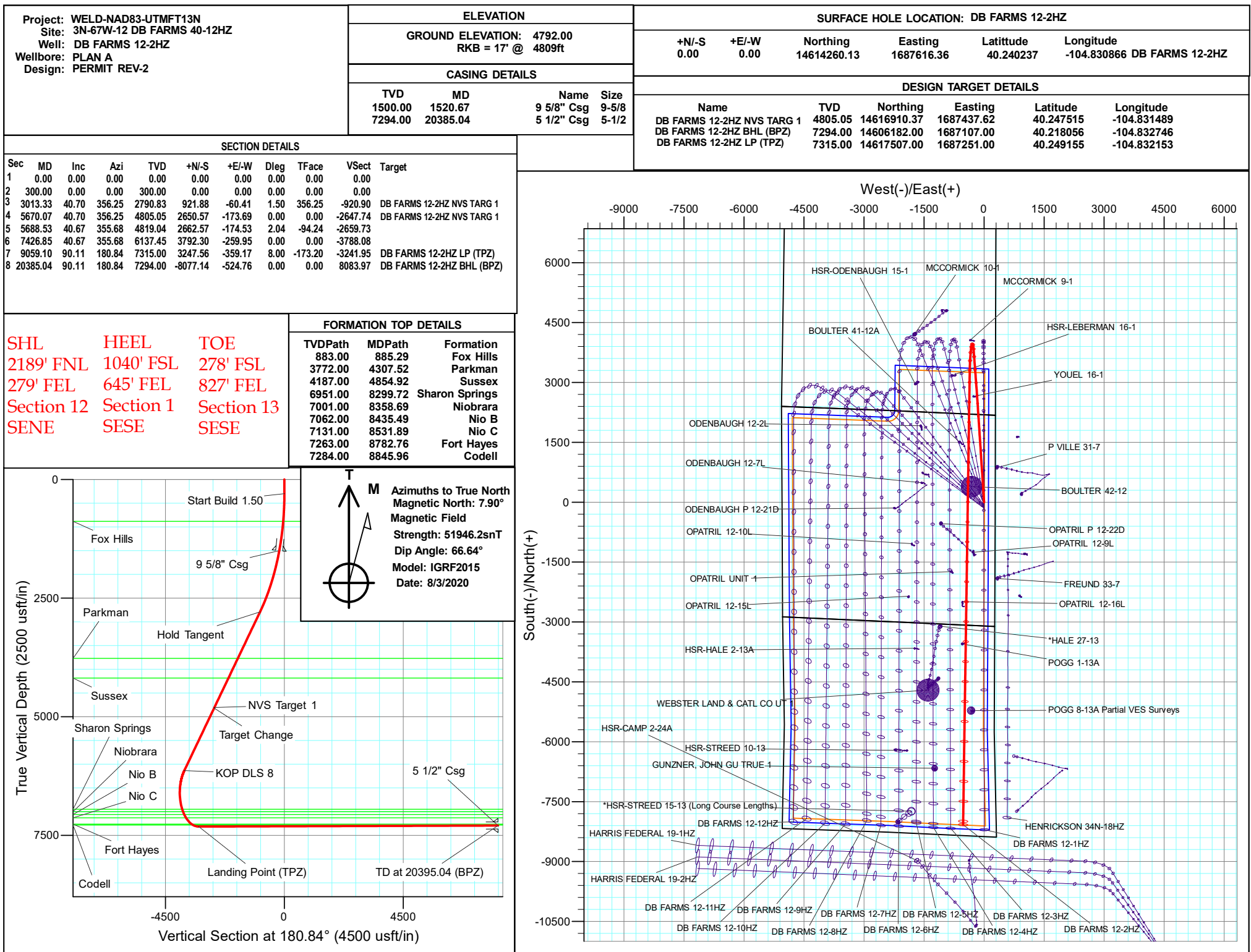
DB FARMS 12-2HZ - Slot DB FARMS 12-2HZ

PLAN A

Plan: PERMIT REV-2

Standard Planning Report

14 May, 2021



Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well DB FARMS 12-2HZ - Slot DB FARMS 12-2HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	17' RKB @ 4809.00usft
Project:	WELD-NAD83-UTMFT13N	MD Reference:	17' RKB @ 4809.00usft
Site:	3N-67W-12 DB FARMS 40-12HZ	North Reference:	True
Well:	DB FARMS 12-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT REV-2		

Project	WELD-NAD83-UTMFT13N		
Map System:	Universal Transverse Mercator (US Survey Feet)	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Zone 13N (108 W to 102 W)		

Site	3N-67W-12 DB FARMS 40-12HZ		
Site Position:		Northing:	14,614,275.12 usft
From:	Map	Easting:	1,687,616.45 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	40.240278
		Longitude:	-104.830866
		Grid Convergence:	0.11 °

Well	DB FARMS 12-2HZ - Slot DB FARMS 12-2HZ		
Well Position	+N/-S	-14.99 usft	Northing:
	+E/-W	-0.12 usft	Easting:
Position Uncertainty	3.28 usft		Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	PLAN A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	8/3/2020	7.90	66.64	51,946.15740505

Design	PERMIT REV-2			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	180.84

Plan Survey Tool Program	Date	5/14/2021		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	2,000.00	PERMIT REV-2 (PLAN A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:crustal field declination
2	2,000.00	20,385.04	PERMIT REV-2 (PLAN A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:Rockies, crustal dec +

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Well:	DB FARMS 12-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT REV-2		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,013.33	40.70	356.25	2,790.83	921.88	-60.41	1.50	1.50	0.00	356.25	DB FARMS 12-2HZ N
5,670.07	40.70	356.25	4,805.05	2,650.57	-173.69	0.00	0.00	0.00	0.00	DB FARMS 12-2HZ N
5,688.53	40.67	355.68	4,819.04	2,662.57	-174.53	2.04	-0.14	-3.11	-94.24	
7,426.85	40.67	355.68	6,137.45	3,792.30	-259.95	0.00	0.00	0.00	0.00	
9,059.10	90.11	180.84	7,315.00	3,247.56	-359.17	8.00	3.03	-10.71	-173.20	DB FARMS 12-2HZ L
20,385.04	90.11	180.84	7,294.00	-8,077.14	-524.76	0.00	0.00	0.00	0.00	DB FARMS 12-2HZ B

Corporate
Planning Report

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Project:	WELD-NAD83-UTMFT13N	MD Reference:	17' RKB @ 4809.00usft
Site:	3N-67W-12 DB FARMS 40-12HZ	North Reference:	True
Well:	DB FARMS 12-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT REV-2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 1.50									
400.00	1.50	356.25	399.99	1.31	-0.09	-1.30	1.50	1.50	0.00
500.00	3.00	356.25	499.91	5.22	-0.34	-5.22	1.50	1.50	0.00
600.00	4.50	356.25	599.69	11.75	-0.77	-11.74	1.50	1.50	0.00
700.00	6.00	356.25	699.27	20.88	-1.37	-20.86	1.50	1.50	0.00
800.00	7.50	356.25	798.57	32.61	-2.14	-32.57	1.50	1.50	0.00
885.29	8.78	356.25	883.00	44.66	-2.93	-44.61	1.50	1.50	0.00
Fox Hills									
900.00	9.00	356.25	897.54	46.93	-3.07	-46.88	1.50	1.50	0.00
1,000.00	10.50	356.25	996.09	63.82	-4.18	-63.76	1.50	1.50	0.00
1,100.00	12.00	356.25	1,094.16	83.29	-5.46	-83.20	1.50	1.50	0.00
1,200.00	13.50	356.25	1,191.70	105.31	-6.90	-105.20	1.50	1.50	0.00
1,300.00	15.00	356.25	1,288.62	129.88	-8.51	-129.74	1.50	1.50	0.00
1,400.00	16.50	356.25	1,384.86	156.96	-10.29	-156.79	1.50	1.50	0.00
1,500.00	18.00	356.25	1,480.36	186.55	-12.22	-186.35	1.50	1.50	0.00
1,520.67	18.31	356.25	1,500.00	192.98	-12.65	-192.77	1.50	1.50	0.00
9 5/8" Csg									
1,600.00	19.50	356.25	1,575.05	218.62	-14.33	-218.39	1.50	1.50	0.00
1,700.00	21.00	356.25	1,668.86	253.16	-16.59	-252.89	1.50	1.50	0.00
1,800.00	22.50	356.25	1,761.74	290.14	-19.01	-289.83	1.50	1.50	0.00
1,900.00	24.00	356.25	1,853.62	329.53	-21.59	-329.17	1.50	1.50	0.00
2,000.00	25.50	356.25	1,944.43	371.30	-24.33	-370.90	1.50	1.50	0.00
2,100.00	27.00	356.25	2,034.12	415.43	-27.22	-414.99	1.50	1.50	0.00
2,200.00	28.50	356.25	2,122.61	461.89	-30.27	-461.40	1.50	1.50	0.00
2,300.00	30.00	356.25	2,209.86	510.65	-33.46	-510.10	1.50	1.50	0.00
2,400.00	31.50	356.25	2,295.80	561.67	-36.80	-561.07	1.50	1.50	0.00
2,500.00	33.00	356.25	2,380.37	614.91	-40.29	-614.26	1.50	1.50	0.00
2,600.00	34.50	356.25	2,463.51	670.35	-43.93	-669.63	1.50	1.50	0.00
2,700.00	36.00	356.25	2,545.17	727.94	-47.70	-727.16	1.50	1.50	0.00
2,800.00	37.50	356.25	2,625.30	787.64	-51.61	-786.80	1.50	1.50	0.00
2,900.00	39.00	356.25	2,703.83	849.42	-55.66	-848.51	1.50	1.50	0.00
3,000.00	40.50	356.25	2,780.71	913.22	-59.84	-912.25	1.50	1.50	0.00
3,013.33	40.70	356.25	2,790.83	921.88	-60.41	-920.90	1.50	1.50	0.00
Hold Tangent									
3,100.00	40.70	356.25	2,856.54	978.28	-64.10	-977.23	0.00	0.00	0.00
3,200.00	40.70	356.25	2,932.35	1,043.35	-68.37	-1,042.23	0.00	0.00	0.00
3,300.00	40.70	356.25	3,008.16	1,108.42	-72.63	-1,107.23	0.00	0.00	0.00
3,400.00	40.70	356.25	3,083.98	1,173.49	-76.90	-1,172.23	0.00	0.00	0.00
3,500.00	40.70	356.25	3,159.79	1,238.56	-81.16	-1,237.23	0.00	0.00	0.00
3,600.00	40.70	356.25	3,235.60	1,303.63	-85.42	-1,302.23	0.00	0.00	0.00
3,700.00	40.70	356.25	3,311.42	1,368.70	-89.69	-1,367.24	0.00	0.00	0.00
3,800.00	40.70	356.25	3,387.23	1,433.77	-93.95	-1,432.24	0.00	0.00	0.00
3,900.00	40.70	356.25	3,463.04	1,498.84	-98.22	-1,497.24	0.00	0.00	0.00
4,000.00	40.70	356.25	3,538.86	1,563.91	-102.48	-1,562.24	0.00	0.00	0.00
4,100.00	40.70	356.25	3,614.67	1,628.98	-106.74	-1,627.24	0.00	0.00	0.00
4,200.00	40.70	356.25	3,690.49	1,694.05	-111.01	-1,692.24	0.00	0.00	0.00
4,300.00	40.70	356.25	3,766.30	1,759.12	-115.27	-1,757.24	0.00	0.00	0.00
4,307.52	40.70	356.25	3,772.00	1,764.01	-115.59	-1,762.13	0.00	0.00	0.00

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Well:	DB FARMS 12-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT REV-2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
Parkman									
4,400.00	40.70	356.25	3,842.11	1,824.19	-119.53	-1,822.24	0.00	0.00	0.00
4,500.00	40.70	356.25	3,917.93	1,889.26	-123.80	-1,887.24	0.00	0.00	0.00
4,600.00	40.70	356.25	3,993.74	1,954.33	-128.06	-1,952.24	0.00	0.00	0.00
4,700.00	40.70	356.25	4,069.55	2,019.40	-132.33	-2,017.24	0.00	0.00	0.00
4,800.00	40.70	356.25	4,145.37	2,084.47	-136.59	-2,082.24	0.00	0.00	0.00
4,854.92	40.70	356.25	4,187.00	2,120.21	-138.93	-2,117.94	0.00	0.00	0.00
Sussex									
4,900.00	40.70	356.25	4,221.18	2,149.54	-140.85	-2,147.25	0.00	0.00	0.00
5,000.00	40.70	356.25	4,296.99	2,214.61	-145.12	-2,212.25	0.00	0.00	0.00
5,100.00	40.70	356.25	4,372.81	2,279.68	-149.38	-2,277.25	0.00	0.00	0.00
5,200.00	40.70	356.25	4,448.62	2,344.75	-153.65	-2,342.25	0.00	0.00	0.00
5,300.00	40.70	356.25	4,524.43	2,409.82	-157.91	-2,407.25	0.00	0.00	0.00
5,400.00	40.70	356.25	4,600.25	2,474.89	-162.17	-2,472.25	0.00	0.00	0.00
5,500.00	40.70	356.25	4,676.06	2,539.96	-166.44	-2,537.25	0.00	0.00	0.00
5,600.00	40.70	356.25	4,751.87	2,605.03	-170.70	-2,602.25	0.00	0.00	0.00
5,670.07	40.70	356.25	4,805.05	2,650.57	-173.69	-2,647.74	0.00	0.00	0.00
NVS Target 1									
5,688.53	40.67	355.68	4,819.04	2,662.57	-174.53	-2,659.73	2.04	-0.14	-3.11
Target Change									
5,700.00	40.67	355.68	4,827.74	2,670.03	-175.10	-2,667.18	0.00	0.00	0.00
5,800.00	40.67	355.68	4,903.59	2,735.02	-180.01	-2,732.09	0.00	0.00	0.00
5,900.00	40.67	355.68	4,979.43	2,800.01	-184.92	-2,797.00	0.00	0.00	0.00
6,000.00	40.67	355.68	5,055.27	2,865.00	-189.84	-2,861.91	0.00	0.00	0.00
6,100.00	40.67	355.68	5,131.12	2,929.99	-194.75	-2,926.82	0.00	0.00	0.00
6,200.00	40.67	355.68	5,206.96	2,994.98	-199.66	-2,991.73	0.00	0.00	0.00
6,300.00	40.67	355.68	5,282.80	3,059.97	-204.58	-3,056.64	0.00	0.00	0.00
6,400.00	40.67	355.68	5,358.65	3,124.96	-209.49	-3,121.55	0.00	0.00	0.00
6,500.00	40.67	355.68	5,434.49	3,189.95	-214.41	-3,186.46	0.00	0.00	0.00
6,600.00	40.67	355.68	5,510.33	3,254.93	-219.32	-3,251.37	0.00	0.00	0.00
6,700.00	40.67	355.68	5,586.18	3,319.92	-224.23	-3,316.28	0.00	0.00	0.00
6,800.00	40.67	355.68	5,662.02	3,384.91	-229.15	-3,381.19	0.00	0.00	0.00
6,900.00	40.67	355.68	5,737.86	3,449.90	-234.06	-3,446.10	0.00	0.00	0.00
7,000.00	40.67	355.68	5,813.71	3,514.89	-238.98	-3,511.01	0.00	0.00	0.00
7,100.00	40.67	355.68	5,889.55	3,579.88	-243.89	-3,575.92	0.00	0.00	0.00
7,200.00	40.67	355.68	5,965.39	3,644.87	-248.80	-3,640.83	0.00	0.00	0.00
7,300.00	40.67	355.68	6,041.24	3,709.86	-253.72	-3,705.74	0.00	0.00	0.00
7,400.00	40.67	355.68	6,117.08	3,774.85	-258.63	-3,770.65	0.00	0.00	0.00
7,426.85	40.67	355.68	6,137.45	3,792.30	-259.95	-3,788.08	0.00	0.00	0.00
KOP DLS 8									
7,500.00	34.87	354.47	6,195.24	3,836.92	-263.77	-3,832.64	8.00	-7.94	-1.65
7,600.00	26.96	352.09	6,280.97	3,887.91	-269.65	-3,883.54	8.00	-7.91	-2.38
7,700.00	19.12	347.94	6,372.93	3,926.44	-276.20	-3,921.97	8.00	-7.84	-4.15
7,800.00	11.50	338.47	6,469.32	3,951.77	-283.29	-3,947.20	8.00	-7.62	-9.47
7,900.00	5.14	301.52	6,568.28	3,963.41	-290.79	-3,958.72	8.00	-6.35	-36.95
8,000.00	6.96	220.20	6,667.87	3,961.12	-298.53	-3,956.32	8.00	1.82	-81.33
8,100.00	14.08	198.83	6,766.16	3,944.95	-306.38	-3,940.04	8.00	7.12	-21.37
8,200.00	21.81	192.00	6,861.23	3,915.22	-314.18	-3,910.19	8.00	7.73	-6.83
8,299.73	29.66	188.66	6,951.00	3,872.64	-321.76	-3,867.50	8.00	7.87	-3.35
Sharon Springs									
8,300.00	29.68	188.65	6,951.24	3,872.50	-321.78	-3,867.37	8.00	7.90	-2.52
8,358.69	34.33	187.36	7,001.00	3,841.71	-326.09	-3,836.51	8.00	7.91	-2.21

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Site:	3N-67W-12 DB FARMS 40-12HZ	North Reference:	True
Well:	DB FARMS 12-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT REV-2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
Niobrara									
8,400.00	37.60	186.62	7,034.43	3,817.63	-329.03	-3,812.40	8.00	7.93	-1.79
8,435.49	40.42	186.06	7,062.00	3,795.43	-331.49	-3,790.17	8.00	7.94	-1.56
Nio B									
8,500.00	45.55	185.20	7,109.18	3,751.68	-335.79	-3,746.35	8.00	7.95	-1.33
8,531.89	48.08	184.83	7,131.00	3,728.52	-337.82	-3,723.16	8.00	7.96	-1.16
Nio C									
8,600.00	53.51	184.13	7,174.04	3,675.92	-341.93	-3,670.51	8.00	7.96	-1.03
8,700.00	61.47	183.26	7,227.74	3,591.83	-347.33	-3,586.35	8.00	7.97	-0.87
8,782.76	68.07	182.63	7,263.00	3,517.11	-351.16	-3,511.58	8.00	7.97	-0.76
Fort Hayes									
8,800.00	69.44	182.51	7,269.25	3,501.05	-351.88	-3,495.52	8.00	7.97	-0.71
8,845.96	73.11	182.19	7,284.00	3,457.57	-353.67	-3,452.02	8.00	7.97	-0.69
Codell									
8,900.00	77.42	181.84	7,297.75	3,405.35	-355.50	-3,399.78	8.00	7.97	-0.66
9,000.00	85.39	181.20	7,312.68	3,306.59	-358.12	-3,300.99	8.00	7.98	-0.63
9,059.10	90.11	180.84	7,315.00	3,247.56	-359.17	-3,241.95	8.00	7.98	-0.62
Landing Point (TPZ)									
9,100.00	90.11	180.84	7,314.92	3,206.67	-359.76	-3,201.05	0.00	0.00	0.00
9,200.00	90.11	180.84	7,314.74	3,106.68	-361.23	-3,101.05	0.00	0.00	0.00
9,300.00	90.11	180.84	7,314.55	3,006.69	-362.69	-3,001.05	0.00	0.00	0.00
9,400.00	90.11	180.84	7,314.37	2,906.70	-364.15	-2,901.05	0.00	0.00	0.00
9,500.00	90.11	180.84	7,314.18	2,806.71	-365.61	-2,801.05	0.00	0.00	0.00
9,600.00	90.11	180.84	7,314.00	2,706.72	-367.07	-2,701.05	0.00	0.00	0.00
9,700.00	90.11	180.84	7,313.81	2,606.73	-368.53	-2,601.05	0.00	0.00	0.00
9,800.00	90.11	180.84	7,313.63	2,506.74	-369.99	-2,501.05	0.00	0.00	0.00
9,900.00	90.11	180.84	7,313.44	2,406.76	-371.45	-2,401.05	0.00	0.00	0.00
10,000.00	90.11	180.84	7,313.26	2,306.77	-372.91	-2,301.05	0.00	0.00	0.00
10,100.00	90.11	180.84	7,313.07	2,206.78	-374.37	-2,201.05	0.00	0.00	0.00
10,200.00	90.11	180.84	7,312.89	2,106.79	-375.84	-2,101.05	0.00	0.00	0.00
10,300.00	90.11	180.84	7,312.70	2,006.80	-377.30	-2,001.05	0.00	0.00	0.00
10,400.00	90.11	180.84	7,312.52	1,906.81	-378.76	-1,901.05	0.00	0.00	0.00
10,500.00	90.11	180.84	7,312.33	1,806.82	-380.22	-1,801.05	0.00	0.00	0.00
10,600.00	90.11	180.84	7,312.15	1,706.83	-381.68	-1,701.05	0.00	0.00	0.00
10,700.00	90.11	180.84	7,311.96	1,606.84	-383.14	-1,601.05	0.00	0.00	0.00
10,800.00	90.11	180.84	7,311.78	1,506.85	-384.60	-1,501.05	0.00	0.00	0.00
10,900.00	90.11	180.84	7,311.59	1,406.86	-386.06	-1,401.05	0.00	0.00	0.00
11,000.00	90.11	180.84	7,311.40	1,306.87	-387.52	-1,301.05	0.00	0.00	0.00
11,100.00	90.11	180.84	7,311.22	1,206.89	-388.98	-1,201.05	0.00	0.00	0.00
11,200.00	90.11	180.84	7,311.03	1,106.90	-390.45	-1,101.05	0.00	0.00	0.00
11,300.00	90.11	180.84	7,310.85	1,006.91	-391.91	-1,001.05	0.00	0.00	0.00
11,400.00	90.11	180.84	7,310.66	906.92	-393.37	-901.05	0.00	0.00	0.00
11,500.00	90.11	180.84	7,310.48	806.93	-394.83	-801.05	0.00	0.00	0.00
11,600.00	90.11	180.84	7,310.29	706.94	-396.29	-701.05	0.00	0.00	0.00
11,700.00	90.11	180.84	7,310.11	606.95	-397.75	-601.05	0.00	0.00	0.00
11,800.00	90.11	180.84	7,309.92	506.96	-399.21	-501.05	0.00	0.00	0.00
11,900.00	90.11	180.84	7,309.74	406.97	-400.67	-401.05	0.00	0.00	0.00
12,000.00	90.11	180.84	7,309.55	306.98	-402.13	-301.05	0.00	0.00	0.00
12,100.00	90.11	180.84	7,309.37	206.99	-403.59	-201.05	0.00	0.00	0.00
12,200.00	90.11	180.84	7,309.18	107.00	-405.06	-101.06	0.00	0.00	0.00
12,300.00	90.11	180.84	7,309.00	7.02	-406.52	-1.06	0.00	0.00	0.00
12,400.00	90.11	180.84	7,308.81	-92.97	-407.98	98.94	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well DB FARMS 12-2HZ - Slot DB FARMS 12-2HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	17' RKB @ 4809.00usft
Project:	WELD-NAD83-UTMFT13N	MD Reference:	17' RKB @ 4809.00usft
Site:	3N-67W-12 DB FARMS 40-12HZ	North Reference:	True
Well:	DB FARMS 12-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT REV-2		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
12,500.00	90.11	180.84	7,308.63	-192.96	-409.44	198.94	0.00	0.00	0.00	
12,600.00	90.11	180.84	7,308.44	-292.95	-410.90	298.94	0.00	0.00	0.00	
12,700.00	90.11	180.84	7,308.26	-392.94	-412.36	398.94	0.00	0.00	0.00	
12,800.00	90.11	180.84	7,308.07	-492.93	-413.82	498.94	0.00	0.00	0.00	
12,900.00	90.11	180.84	7,307.88	-592.92	-415.28	598.94	0.00	0.00	0.00	
13,000.00	90.11	180.84	7,307.70	-692.91	-416.74	698.94	0.00	0.00	0.00	
13,100.00	90.11	180.84	7,307.51	-792.90	-418.20	798.94	0.00	0.00	0.00	
13,200.00	90.11	180.84	7,307.33	-892.89	-419.67	898.94	0.00	0.00	0.00	
13,300.00	90.11	180.84	7,307.14	-992.88	-421.13	998.94	0.00	0.00	0.00	
13,400.00	90.11	180.84	7,306.96	-1,092.87	-422.59	1,098.94	0.00	0.00	0.00	
13,500.00	90.11	180.84	7,306.77	-1,192.85	-424.05	1,198.94	0.00	0.00	0.00	
13,600.00	90.11	180.84	7,306.59	-1,292.84	-425.51	1,298.94	0.00	0.00	0.00	
13,700.00	90.11	180.84	7,306.40	-1,392.83	-426.97	1,398.94	0.00	0.00	0.00	
13,800.00	90.11	180.84	7,306.22	-1,492.82	-428.43	1,498.94	0.00	0.00	0.00	
13,900.00	90.11	180.84	7,306.03	-1,592.81	-429.89	1,598.94	0.00	0.00	0.00	
14,000.00	90.11	180.84	7,305.85	-1,692.80	-431.35	1,698.94	0.00	0.00	0.00	
14,100.00	90.11	180.84	7,305.66	-1,792.79	-432.81	1,798.94	0.00	0.00	0.00	
14,200.00	90.11	180.84	7,305.48	-1,892.78	-434.28	1,898.94	0.00	0.00	0.00	
14,300.00	90.11	180.84	7,305.29	-1,992.77	-435.74	1,998.94	0.00	0.00	0.00	
14,400.00	90.11	180.84	7,305.11	-2,092.76	-437.20	2,098.94	0.00	0.00	0.00	
14,500.00	90.11	180.84	7,304.92	-2,192.75	-438.66	2,198.94	0.00	0.00	0.00	
14,600.00	90.11	180.84	7,304.74	-2,292.74	-440.12	2,298.94	0.00	0.00	0.00	
14,700.00	90.11	180.84	7,304.55	-2,392.72	-441.58	2,398.94	0.00	0.00	0.00	
14,800.00	90.11	180.84	7,304.37	-2,492.71	-443.04	2,498.94	0.00	0.00	0.00	
14,900.00	90.11	180.84	7,304.18	-2,592.70	-444.50	2,598.94	0.00	0.00	0.00	
15,000.00	90.11	180.84	7,303.99	-2,692.69	-445.96	2,698.94	0.00	0.00	0.00	
15,100.00	90.11	180.84	7,303.81	-2,792.68	-447.42	2,798.94	0.00	0.00	0.00	
15,200.00	90.11	180.84	7,303.62	-2,892.67	-448.88	2,898.94	0.00	0.00	0.00	
15,300.00	90.11	180.84	7,303.44	-2,992.66	-450.35	2,998.94	0.00	0.00	0.00	
15,400.00	90.11	180.84	7,303.25	-3,092.65	-451.81	3,098.94	0.00	0.00	0.00	
15,500.00	90.11	180.84	7,303.07	-3,192.64	-453.27	3,198.94	0.00	0.00	0.00	
15,600.00	90.11	180.84	7,302.88	-3,292.63	-454.73	3,298.94	0.00	0.00	0.00	
15,700.00	90.11	180.84	7,302.70	-3,392.62	-456.19	3,398.94	0.00	0.00	0.00	
15,800.00	90.11	180.84	7,302.51	-3,492.60	-457.65	3,498.94	0.00	0.00	0.00	
15,900.00	90.11	180.84	7,302.33	-3,592.59	-459.11	3,598.94	0.00	0.00	0.00	
16,000.00	90.11	180.84	7,302.14	-3,692.58	-460.57	3,698.94	0.00	0.00	0.00	
16,100.00	90.11	180.84	7,301.96	-3,792.57	-462.03	3,798.94	0.00	0.00	0.00	
16,200.00	90.11	180.84	7,301.77	-3,892.56	-463.49	3,898.94	0.00	0.00	0.00	
16,300.00	90.11	180.84	7,301.59	-3,992.55	-464.96	3,998.94	0.00	0.00	0.00	
16,400.00	90.11	180.84	7,301.40	-4,092.54	-466.42	4,098.94	0.00	0.00	0.00	
16,500.00	90.11	180.84	7,301.22	-4,192.53	-467.88	4,198.94	0.00	0.00	0.00	
16,600.00	90.11	180.84	7,301.03	-4,292.52	-469.34	4,298.94	0.00	0.00	0.00	
16,700.00	90.11	180.84	7,300.85	-4,392.51	-470.80	4,398.94	0.00	0.00	0.00	
16,800.00	90.11	180.84	7,300.66	-4,492.50	-472.26	4,498.94	0.00	0.00	0.00	
16,900.00	90.11	180.84	7,300.47	-4,592.49	-473.72	4,598.94	0.00	0.00	0.00	
17,000.00	90.11	180.84	7,300.29	-4,692.47	-475.18	4,698.94	0.00	0.00	0.00	
17,100.00	90.11	180.84	7,300.10	-4,792.46	-476.64	4,798.94	0.00	0.00	0.00	
17,200.00	90.11	180.84	7,299.92	-4,892.45	-478.10	4,898.94	0.00	0.00	0.00	
17,300.00	90.11	180.84	7,299.73	-4,992.44	-479.57	4,998.94	0.00	0.00	0.00	
17,400.00	90.11	180.84	7,299.55	-5,092.43	-481.03	5,098.94	0.00	0.00	0.00	
17,500.00	90.11	180.84	7,299.36	-5,192.42	-482.49	5,198.94	0.00	0.00	0.00	
17,600.00	90.11	180.84	7,299.18	-5,292.41	-483.95	5,298.94	0.00	0.00	0.00	
17,700.00	90.11	180.84	7,298.99	-5,392.40	-485.41	5,398.94	0.00	0.00	0.00	

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well DB FARMS 12-2HZ - Slot DB FARMS 12-2HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	17' RKB @ 4809.00usft
Project:	WELD-NAD83-UTMFT13N	MD Reference:	17' RKB @ 4809.00usft
Site:	3N-67W-12 DB FARMS 40-12HZ	North Reference:	True
Well:	DB FARMS 12-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT REV-2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
17,800.00	90.11	180.84	7,298.81	-5,492.39	-486.87	5,498.94	0.00	0.00	0.00
17,900.00	90.11	180.84	7,298.62	-5,592.38	-488.33	5,598.94	0.00	0.00	0.00
18,000.00	90.11	180.84	7,298.44	-5,692.37	-489.79	5,698.94	0.00	0.00	0.00
18,100.00	90.11	180.84	7,298.25	-5,792.36	-491.25	5,798.93	0.00	0.00	0.00
18,200.00	90.11	180.84	7,298.07	-5,892.34	-492.71	5,898.93	0.00	0.00	0.00
18,300.00	90.11	180.84	7,297.88	-5,992.33	-494.18	5,998.93	0.00	0.00	0.00
18,400.00	90.11	180.84	7,297.70	-6,092.32	-495.64	6,098.93	0.00	0.00	0.00
18,500.00	90.11	180.84	7,297.51	-6,192.31	-497.10	6,198.93	0.00	0.00	0.00
18,600.00	90.11	180.84	7,297.33	-6,292.30	-498.56	6,298.93	0.00	0.00	0.00
18,700.00	90.11	180.84	7,297.14	-6,392.29	-500.02	6,398.93	0.00	0.00	0.00
18,800.00	90.11	180.84	7,296.95	-6,492.28	-501.48	6,498.93	0.00	0.00	0.00
18,900.00	90.11	180.84	7,296.77	-6,592.27	-502.94	6,598.93	0.00	0.00	0.00
19,000.00	90.11	180.84	7,296.58	-6,692.26	-504.40	6,698.93	0.00	0.00	0.00
19,100.00	90.11	180.84	7,296.40	-6,792.25	-505.86	6,798.93	0.00	0.00	0.00
19,200.00	90.11	180.84	7,296.21	-6,892.24	-507.32	6,898.93	0.00	0.00	0.00
19,300.00	90.11	180.84	7,296.03	-6,992.23	-508.79	6,998.93	0.00	0.00	0.00
19,400.00	90.11	180.84	7,295.84	-7,092.21	-510.25	7,098.93	0.00	0.00	0.00
19,500.00	90.11	180.84	7,295.66	-7,192.20	-511.71	7,198.93	0.00	0.00	0.00
19,600.00	90.11	180.84	7,295.47	-7,292.19	-513.17	7,298.93	0.00	0.00	0.00
19,700.00	90.11	180.84	7,295.29	-7,392.18	-514.63	7,398.93	0.00	0.00	0.00
19,800.00	90.11	180.84	7,295.10	-7,492.17	-516.09	7,498.93	0.00	0.00	0.00
19,900.00	90.11	180.84	7,294.92	-7,592.16	-517.55	7,598.93	0.00	0.00	0.00
20,000.00	90.11	180.84	7,294.73	-7,692.15	-519.01	7,698.93	0.00	0.00	0.00
20,100.00	90.11	180.84	7,294.55	-7,792.14	-520.47	7,798.93	0.00	0.00	0.00
20,200.00	90.11	180.84	7,294.36	-7,892.13	-521.93	7,898.93	0.00	0.00	0.00
20,300.00	90.11	180.84	7,294.18	-7,992.12	-523.40	7,998.93	0.00	0.00	0.00
20,385.04	90.11	180.84	7,294.00	-8,077.14	-524.76	8,083.97	0.00	0.00	0.00
TD at 20395.04 (BPZ)									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
DB FARMS 12-2HZ NV5 - plan hits target center - Point	0.00	0.00	4,805.05	2,650.57	-173.69	14,616,910.36	1,687,437.62	40.247515	-104.831489
DB FARMS 12-2HZ BHL - plan hits target center - Point	0.00	0.00	7,294.00	-8,077.14	-524.76	14,606,182.00	1,687,107.00	40.218056	-104.832746
DB FARMS 12-2HZ LP () - plan hits target center - Point	0.00	0.00	7,315.00	3,247.56	-359.17	14,617,507.00	1,687,251.00	40.249155	-104.832154

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well DB FARMS 12-2HZ - Slot DB FARMS 12-2HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	17' RKB @ 4809.00usft
Project:	WELD-NAD83-UTMFT13N	MD Reference:	17' RKB @ 4809.00usft
Site:	3N-67W-12 DB FARMS 40-12HZ	North Reference:	True
Well:	DB FARMS 12-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT REV-2		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,520.67	1,500.00	9 5/8" Csg	9-5/8	13-1/2	
20,385.04	7,294.00	5 1/2" Csg	5-1/2	7-7/8	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
885.29	883.00	Fox Hills			
4,307.52	3,772.00	Parkman			
4,854.92	4,187.00	Sussex			
8,299.73	6,951.00	Sharon Springs			
8,358.69	7,001.00	Niobrara			
8,435.49	7,062.00	Nio B			
8,531.89	7,131.00	Nio C			
8,782.76	7,263.00	Fort Hayes			
8,845.96	7,284.00	Codell			

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
300.00	300.00	0.00	0.00	Start Build 1.50
3,013.33	2,790.83	921.88	-60.41	Hold Tangent
5,670.07	4,805.05	2,650.57	-173.69	NVS Target 1
5,688.53	4,819.04	2,662.57	-174.53	Target Change
7,426.85	6,137.45	3,792.30	-259.95	KOP DLS 8
9,059.10	7,315.00	3,247.56	-359.17	Landing Point (TPZ)
20,385.04	7,294.00	-8,077.14	-524.76	TD at 20395.04 (BPZ)