

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

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

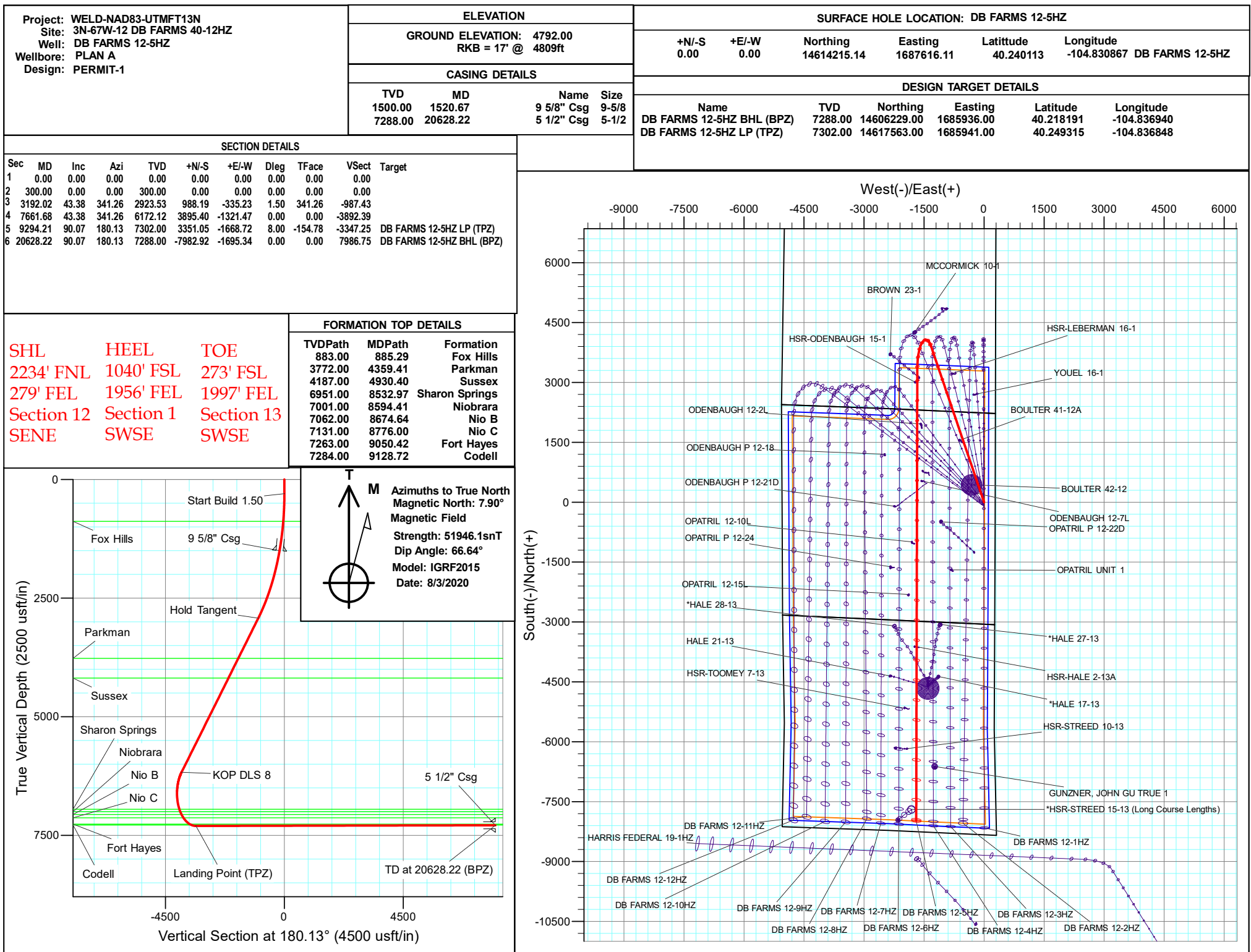
DB FARMS 12-5HZ - Slot DB FARMS 12-5HZ

PLAN A

Plan: PERMIT-1

Standard Planning Report

07 May, 2021



Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well DB FARMS 12-5HZ - Slot DB FARMS 12-5HZ
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 12-5HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT-1		

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 12-5HZ - Slot DB FARMS 12-5HZ		
Well Position	+N/-S	-59.98 usft	Northing:
	+E/-W	-0.45 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	51,946.09331272

Design	PERMIT-1			
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	180.13

Plan Survey Tool Program		Date 5/7/2021		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	2,000.00	PERMIT-1 (PLAN A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:crustal field declination
2	2,000.00	20,628.22	PERMIT-1 (PLAN A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:Rockies, crustal dec +

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Wellbore:	PLAN A		
Design:	PERMIT-1		

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	
3,192.02	43.38	341.26	2,923.53	988.19	-335.23	1.50	1.50	0.00	341.26	
7,661.68	43.38	341.26	6,172.12	3,895.40	-1,321.47	0.00	0.00	0.00	0.00	
9,294.21	90.07	180.13	7,302.00	3,351.05	-1,668.72	8.00	2.86	-9.87	-154.78	DB FARMS 12-5HZ L
20,628.22	90.07	180.13	7,288.00	-7,982.92	-1,695.34	0.00	0.00	0.00	0.00	DB FARMS 12-5HZ B

Corporate
Planning Report

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Well:	DB FARMS 12-5HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT-1		

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	341.26	399.99	1.24	-0.42	-1.24	1.50	1.50	0.00
500.00	3.00	341.26	499.91	4.96	-1.68	-4.95	1.50	1.50	0.00
600.00	4.50	341.26	599.69	11.15	-3.78	-11.14	1.50	1.50	0.00
700.00	6.00	341.26	699.27	19.82	-6.72	-19.80	1.50	1.50	0.00
800.00	7.50	341.26	798.57	30.95	-10.50	-30.92	1.50	1.50	0.00
885.29	8.78	341.26	883.00	42.38	-14.38	-42.35	1.50	1.50	0.00
Fox Hills									
900.00	9.00	341.26	897.54	44.53	-15.11	-44.50	1.50	1.50	0.00
1,000.00	10.50	341.26	996.09	60.57	-20.55	-60.52	1.50	1.50	0.00
1,100.00	12.00	341.26	1,094.16	79.05	-26.82	-78.98	1.50	1.50	0.00
1,200.00	13.50	341.26	1,191.70	99.94	-33.91	-99.87	1.50	1.50	0.00
1,300.00	15.00	341.26	1,288.62	123.25	-41.81	-123.16	1.50	1.50	0.00
1,400.00	16.50	341.26	1,384.86	148.96	-50.53	-148.84	1.50	1.50	0.00
1,500.00	18.00	341.26	1,480.36	177.04	-60.06	-176.90	1.50	1.50	0.00
1,520.67	18.31	341.26	1,500.00	183.14	-62.13	-183.00	1.50	1.50	0.00
9 5/8" Csg									
1,600.00	19.50	341.26	1,575.05	207.48	-70.38	-207.32	1.50	1.50	0.00
1,700.00	21.00	341.26	1,668.86	240.26	-81.50	-240.07	1.50	1.50	0.00
1,800.00	22.50	341.26	1,761.74	275.35	-93.41	-275.13	1.50	1.50	0.00
1,900.00	24.00	341.26	1,853.62	312.73	-106.09	-312.49	1.50	1.50	0.00
2,000.00	25.50	341.26	1,944.43	352.37	-119.54	-352.10	1.50	1.50	0.00
2,100.00	27.00	341.26	2,034.12	394.26	-133.75	-393.95	1.50	1.50	0.00
2,200.00	28.50	341.26	2,122.61	438.35	-148.70	-438.01	1.50	1.50	0.00
2,300.00	30.00	341.26	2,209.86	484.62	-164.40	-484.24	1.50	1.50	0.00
2,400.00	31.50	341.26	2,295.80	533.04	-180.83	-532.63	1.50	1.50	0.00
2,500.00	33.00	341.26	2,380.37	583.57	-197.97	-583.12	1.50	1.50	0.00
2,600.00	34.50	341.26	2,463.51	636.18	-215.82	-635.69	1.50	1.50	0.00
2,700.00	36.00	341.26	2,545.17	690.83	-234.36	-690.30	1.50	1.50	0.00
2,800.00	37.50	341.26	2,625.30	747.49	-253.58	-746.91	1.50	1.50	0.00
2,900.00	39.00	341.26	2,703.83	806.12	-273.47	-805.50	1.50	1.50	0.00
3,000.00	40.50	341.26	2,780.71	866.67	-294.01	-866.00	1.50	1.50	0.00
3,100.00	42.00	341.26	2,855.89	929.11	-315.19	-928.39	1.50	1.50	0.00
3,192.02	43.38	341.26	2,923.53	988.19	-335.23	-987.43	1.50	1.50	0.00
Hold Tangent									
3,200.00	43.38	341.26	2,929.33	993.38	-336.99	-992.62	0.00	0.00	0.00
3,300.00	43.38	341.26	3,002.01	1,058.43	-359.06	-1,057.61	0.00	0.00	0.00
3,400.00	43.38	341.26	3,074.69	1,123.47	-381.12	-1,122.60	0.00	0.00	0.00
3,500.00	43.38	341.26	3,147.37	1,188.51	-403.19	-1,187.59	0.00	0.00	0.00
3,600.00	43.38	341.26	3,220.05	1,253.55	-425.25	-1,252.59	0.00	0.00	0.00
3,700.00	43.38	341.26	3,292.73	1,318.60	-447.32	-1,317.58	0.00	0.00	0.00
3,800.00	43.38	341.26	3,365.41	1,383.64	-469.38	-1,382.57	0.00	0.00	0.00
3,900.00	43.38	341.26	3,438.09	1,448.68	-491.45	-1,447.57	0.00	0.00	0.00
4,000.00	43.38	341.26	3,510.77	1,513.73	-513.51	-1,512.56	0.00	0.00	0.00
4,100.00	43.38	341.26	3,583.46	1,578.77	-535.58	-1,577.55	0.00	0.00	0.00
4,200.00	43.38	341.26	3,656.14	1,643.81	-557.64	-1,642.54	0.00	0.00	0.00
4,300.00	43.38	341.26	3,728.82	1,708.86	-579.71	-1,707.54	0.00	0.00	0.00
4,359.41	43.38	341.26	3,772.00	1,747.50	-592.82	-1,746.15	0.00	0.00	0.00

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Wellbore:	PLAN A		
Design:	PERMIT-1		

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	43.38	341.26	3,801.50	1,773.90	-601.77	-1,772.53	0.00	0.00	0.00
4,500.00	43.38	341.26	3,874.18	1,838.94	-623.84	-1,837.52	0.00	0.00	0.00
4,600.00	43.38	341.26	3,946.86	1,903.99	-645.90	-1,902.52	0.00	0.00	0.00
4,700.00	43.38	341.26	4,019.54	1,969.03	-667.97	-1,967.51	0.00	0.00	0.00
4,800.00	43.38	341.26	4,092.22	2,034.07	-690.03	-2,032.50	0.00	0.00	0.00
4,900.00	43.38	341.26	4,164.90	2,099.11	-712.10	-2,097.49	0.00	0.00	0.00
4,930.40	43.38	341.26	4,187.00	2,118.89	-718.81	-2,117.25	0.00	0.00	0.00
Sussex									
5,000.00	43.38	341.26	4,237.59	2,164.16	-734.16	-2,162.49	0.00	0.00	0.00
5,100.00	43.38	341.26	4,310.27	2,229.20	-756.23	-2,227.48	0.00	0.00	0.00
5,200.00	43.38	341.26	4,382.95	2,294.24	-778.29	-2,292.47	0.00	0.00	0.00
5,300.00	43.38	341.26	4,455.63	2,359.29	-800.36	-2,357.47	0.00	0.00	0.00
5,400.00	43.38	341.26	4,528.31	2,424.33	-822.42	-2,422.46	0.00	0.00	0.00
5,500.00	43.38	341.26	4,600.99	2,489.37	-844.49	-2,487.45	0.00	0.00	0.00
5,600.00	43.38	341.26	4,673.67	2,554.42	-866.55	-2,552.44	0.00	0.00	0.00
5,700.00	43.38	341.26	4,746.35	2,619.46	-888.62	-2,617.44	0.00	0.00	0.00
5,800.00	43.38	341.26	4,819.03	2,684.50	-910.68	-2,682.43	0.00	0.00	0.00
5,900.00	43.38	341.26	4,891.71	2,749.55	-932.75	-2,747.42	0.00	0.00	0.00
6,000.00	43.38	341.26	4,964.40	2,814.59	-954.81	-2,812.41	0.00	0.00	0.00
6,100.00	43.38	341.26	5,037.08	2,879.63	-976.88	-2,877.41	0.00	0.00	0.00
6,200.00	43.38	341.26	5,109.76	2,944.67	-998.94	-2,942.40	0.00	0.00	0.00
6,300.00	43.38	341.26	5,182.44	3,009.72	-1,021.01	-3,007.39	0.00	0.00	0.00
6,400.00	43.38	341.26	5,255.12	3,074.76	-1,043.07	-3,072.39	0.00	0.00	0.00
6,500.00	43.38	341.26	5,327.80	3,139.80	-1,065.14	-3,137.38	0.00	0.00	0.00
6,600.00	43.38	341.26	5,400.48	3,204.85	-1,087.20	-3,202.37	0.00	0.00	0.00
6,700.00	43.38	341.26	5,473.16	3,269.89	-1,109.27	-3,267.36	0.00	0.00	0.00
6,800.00	43.38	341.26	5,545.84	3,334.93	-1,131.33	-3,332.36	0.00	0.00	0.00
6,900.00	43.38	341.26	5,618.52	3,399.98	-1,153.40	-3,397.35	0.00	0.00	0.00
7,000.00	43.38	341.26	5,691.21	3,465.02	-1,175.46	-3,462.34	0.00	0.00	0.00
7,100.00	43.38	341.26	5,763.89	3,530.06	-1,197.53	-3,527.34	0.00	0.00	0.00
7,200.00	43.38	341.26	5,836.57	3,595.11	-1,219.59	-3,592.33	0.00	0.00	0.00
7,300.00	43.38	341.26	5,909.25	3,660.15	-1,241.66	-3,657.32	0.00	0.00	0.00
7,400.00	43.38	341.26	5,981.93	3,725.19	-1,263.73	-3,722.31	0.00	0.00	0.00
7,500.00	43.38	341.26	6,054.61	3,790.23	-1,285.79	-3,787.31	0.00	0.00	0.00
7,600.00	43.38	341.26	6,127.29	3,855.28	-1,307.86	-3,852.30	0.00	0.00	0.00
7,661.68	43.38	341.26	6,172.12	3,895.40	-1,321.47	-3,892.39	0.00	0.00	0.00
KOP DLS 8									
7,700.00	40.62	339.26	6,200.60	3,919.53	-1,330.11	-3,916.50	8.00	-7.19	-5.23
7,800.00	33.64	332.77	6,280.30	3,974.69	-1,354.36	-3,971.61	8.00	-6.99	-6.48
7,900.00	27.14	323.50	6,366.57	4,017.72	-1,380.64	-4,014.58	8.00	-6.50	-9.28
8,000.00	21.57	309.44	6,457.71	4,047.78	-1,408.45	-4,044.58	8.00	-5.56	-14.05
8,100.00	17.85	288.26	6,551.95	4,064.29	-1,437.24	-4,061.02	8.00	-3.73	-21.19
8,200.00	17.20	261.55	6,647.47	4,066.92	-1,466.47	-4,063.58	8.00	-0.65	-26.71
8,300.00	19.93	237.71	6,742.39	4,055.62	-1,495.55	-4,052.22	8.00	2.73	-23.83
8,400.00	24.96	221.27	6,834.88	4,030.62	-1,523.92	-4,027.15	8.00	5.03	-16.45
8,500.00	31.19	210.53	6,923.13	3,992.40	-1,551.03	-3,988.87	8.00	6.23	-10.74
8,532.97	33.39	207.82	6,951.00	3,977.02	-1,559.60	-3,973.47	8.00	6.69	-8.21
Sharon Springs									
8,594.41	37.64	203.54	7,001.00	3,944.85	-1,574.99	-3,941.27	8.00	6.91	-6.96
Niobrara									
8,600.00	38.03	203.19	7,005.42	3,941.70	-1,576.35	-3,938.11	8.00	7.03	-6.22

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Well:	DB FARMS 12-5HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT-1		

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)
8,674.64	43.36	199.06	7,062.00	3,896.31	-1,593.79	-3,892.68	8.00	7.15	-5.53
Nio B									
8,700.00	45.20	197.85	7,080.15	3,879.51	-1,599.39	-3,875.87	8.00	7.26	-4.80
8,776.00	50.79	194.61	7,131.00	3,825.30	-1,615.10	-3,821.62	8.00	7.35	-4.25
Nio C									
8,800.00	52.57	193.70	7,145.88	3,807.04	-1,619.70	-3,803.36	8.00	7.42	-3.80
8,900.00	60.06	190.31	7,201.31	3,725.71	-1,636.89	-3,721.98	8.00	7.49	-3.39
9,000.00	67.62	187.39	7,245.38	3,637.09	-1,650.61	-3,633.33	8.00	7.56	-2.91
9,050.42	71.45	186.05	7,263.00	3,590.18	-1,656.14	-3,586.41	8.00	7.60	-2.67
Fort Hayes									
9,100.00	75.23	184.78	7,277.21	3,542.90	-1,660.61	-3,539.13	8.00	7.62	-2.55
9,128.72	77.42	184.07	7,284.00	3,515.08	-1,662.77	-3,511.30	8.00	7.63	-2.48
Codell									
9,200.00	82.87	182.35	7,296.20	3,444.99	-1,666.69	-3,441.20	8.00	7.64	-2.41
9,294.21	90.07	180.13	7,302.00	3,351.05	-1,668.72	-3,347.25	8.00	7.65	-2.35
Landing Point (TPZ)									
9,300.00	90.07	180.13	7,301.99	3,345.26	-1,668.74	-3,341.47	0.00	0.00	0.00
9,400.00	90.07	180.13	7,301.87	3,245.26	-1,668.97	-3,241.47	0.00	0.00	0.00
9,500.00	90.07	180.13	7,301.75	3,145.26	-1,669.21	-3,141.47	0.00	0.00	0.00
9,600.00	90.07	180.13	7,301.62	3,045.26	-1,669.44	-3,041.47	0.00	0.00	0.00
9,700.00	90.07	180.13	7,301.50	2,945.26	-1,669.68	-2,941.47	0.00	0.00	0.00
9,800.00	90.07	180.13	7,301.38	2,845.26	-1,669.91	-2,841.47	0.00	0.00	0.00
9,900.00	90.07	180.13	7,301.25	2,745.26	-1,670.15	-2,741.47	0.00	0.00	0.00
10,000.00	90.07	180.13	7,301.13	2,645.27	-1,670.38	-2,641.47	0.00	0.00	0.00
10,100.00	90.07	180.13	7,301.00	2,545.27	-1,670.61	-2,541.47	0.00	0.00	0.00
10,200.00	90.07	180.13	7,300.88	2,445.27	-1,670.85	-2,441.47	0.00	0.00	0.00
10,300.00	90.07	180.13	7,300.76	2,345.27	-1,671.08	-2,341.47	0.00	0.00	0.00
10,400.00	90.07	180.13	7,300.63	2,245.27	-1,671.32	-2,241.47	0.00	0.00	0.00
10,500.00	90.07	180.13	7,300.51	2,145.27	-1,671.55	-2,141.47	0.00	0.00	0.00
10,600.00	90.07	180.13	7,300.39	2,045.27	-1,671.79	-2,041.47	0.00	0.00	0.00
10,700.00	90.07	180.13	7,300.26	1,945.27	-1,672.02	-1,941.47	0.00	0.00	0.00
10,800.00	90.07	180.13	7,300.14	1,845.27	-1,672.26	-1,841.47	0.00	0.00	0.00
10,900.00	90.07	180.13	7,300.02	1,745.27	-1,672.49	-1,741.47	0.00	0.00	0.00
11,000.00	90.07	180.13	7,299.89	1,645.27	-1,672.73	-1,641.47	0.00	0.00	0.00
11,100.00	90.07	180.13	7,299.77	1,545.27	-1,672.96	-1,541.47	0.00	0.00	0.00
11,200.00	90.07	180.13	7,299.65	1,445.27	-1,673.20	-1,441.47	0.00	0.00	0.00
11,300.00	90.07	180.13	7,299.52	1,345.27	-1,673.43	-1,341.47	0.00	0.00	0.00
11,400.00	90.07	180.13	7,299.40	1,245.27	-1,673.67	-1,241.47	0.00	0.00	0.00
11,500.00	90.07	180.13	7,299.28	1,145.27	-1,673.90	-1,141.47	0.00	0.00	0.00
11,600.00	90.07	180.13	7,299.15	1,045.27	-1,674.14	-1,041.47	0.00	0.00	0.00
11,700.00	90.07	180.13	7,299.03	945.27	-1,674.37	-941.47	0.00	0.00	0.00
11,800.00	90.07	180.13	7,298.90	845.27	-1,674.61	-841.47	0.00	0.00	0.00
11,900.00	90.07	180.13	7,298.78	745.27	-1,674.84	-741.47	0.00	0.00	0.00
12,000.00	90.07	180.13	7,298.66	645.27	-1,675.08	-641.47	0.00	0.00	0.00
12,100.00	90.07	180.13	7,298.53	545.27	-1,675.31	-541.47	0.00	0.00	0.00
12,200.00	90.07	180.13	7,298.41	445.27	-1,675.55	-441.47	0.00	0.00	0.00
12,300.00	90.07	180.13	7,298.29	345.27	-1,675.78	-341.47	0.00	0.00	0.00
12,400.00	90.07	180.13	7,298.16	245.27	-1,676.02	-241.47	0.00	0.00	0.00
12,500.00	90.07	180.13	7,298.04	145.27	-1,676.25	-141.47	0.00	0.00	0.00
12,600.00	90.07	180.13	7,297.92	45.27	-1,676.49	-41.47	0.00	0.00	0.00
12,700.00	90.07	180.13	7,297.79	-54.73	-1,676.72	58.53	0.00	0.00	0.00
12,800.00	90.07	180.13	7,297.67	-154.73	-1,676.95	158.53	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well DB FARMS 12-5HZ - Slot DB FARMS 12-5HZ
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 12-5HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT-1		

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)	
12,900.00	90.07	180.13	7,297.55	-254.72	-1,677.19	258.53	0.00	0.00	0.00	
13,000.00	90.07	180.13	7,297.42	-354.72	-1,677.42	358.53	0.00	0.00	0.00	
13,100.00	90.07	180.13	7,297.30	-454.72	-1,677.66	458.53	0.00	0.00	0.00	
13,200.00	90.07	180.13	7,297.18	-554.72	-1,677.89	558.53	0.00	0.00	0.00	
13,300.00	90.07	180.13	7,297.05	-654.72	-1,678.13	658.53	0.00	0.00	0.00	
13,400.00	90.07	180.13	7,296.93	-754.72	-1,678.36	758.53	0.00	0.00	0.00	
13,500.00	90.07	180.13	7,296.81	-854.72	-1,678.60	858.53	0.00	0.00	0.00	
13,600.00	90.07	180.13	7,296.68	-954.72	-1,678.83	958.53	0.00	0.00	0.00	
13,700.00	90.07	180.13	7,296.56	-1,054.72	-1,679.07	1,058.53	0.00	0.00	0.00	
13,800.00	90.07	180.13	7,296.43	-1,154.72	-1,679.30	1,158.53	0.00	0.00	0.00	
13,900.00	90.07	180.13	7,296.31	-1,254.72	-1,679.54	1,258.53	0.00	0.00	0.00	
14,000.00	90.07	180.13	7,296.19	-1,354.72	-1,679.77	1,358.53	0.00	0.00	0.00	
14,100.00	90.07	180.13	7,296.06	-1,454.72	-1,680.01	1,458.53	0.00	0.00	0.00	
14,200.00	90.07	180.13	7,295.94	-1,554.72	-1,680.24	1,558.53	0.00	0.00	0.00	
14,300.00	90.07	180.13	7,295.82	-1,654.72	-1,680.48	1,658.53	0.00	0.00	0.00	
14,400.00	90.07	180.13	7,295.69	-1,754.72	-1,680.71	1,758.53	0.00	0.00	0.00	
14,500.00	90.07	180.13	7,295.57	-1,854.72	-1,680.95	1,858.53	0.00	0.00	0.00	
14,600.00	90.07	180.13	7,295.45	-1,954.72	-1,681.18	1,958.53	0.00	0.00	0.00	
14,700.00	90.07	180.13	7,295.32	-2,054.72	-1,681.42	2,058.53	0.00	0.00	0.00	
14,800.00	90.07	180.13	7,295.20	-2,154.72	-1,681.65	2,158.53	0.00	0.00	0.00	
14,900.00	90.07	180.13	7,295.08	-2,254.72	-1,681.89	2,258.53	0.00	0.00	0.00	
15,000.00	90.07	180.13	7,294.95	-2,354.72	-1,682.12	2,358.53	0.00	0.00	0.00	
15,100.00	90.07	180.13	7,294.83	-2,454.72	-1,682.36	2,458.53	0.00	0.00	0.00	
15,200.00	90.07	180.13	7,294.71	-2,554.72	-1,682.59	2,558.53	0.00	0.00	0.00	
15,300.00	90.07	180.13	7,294.58	-2,654.72	-1,682.83	2,658.53	0.00	0.00	0.00	
15,400.00	90.07	180.13	7,294.46	-2,754.72	-1,683.06	2,758.53	0.00	0.00	0.00	
15,500.00	90.07	180.13	7,294.33	-2,854.72	-1,683.29	2,858.53	0.00	0.00	0.00	
15,600.00	90.07	180.13	7,294.21	-2,954.72	-1,683.53	2,958.53	0.00	0.00	0.00	
15,700.00	90.07	180.13	7,294.09	-3,054.71	-1,683.76	3,058.53	0.00	0.00	0.00	
15,800.00	90.07	180.13	7,293.96	-3,154.71	-1,684.00	3,158.53	0.00	0.00	0.00	
15,900.00	90.07	180.13	7,293.84	-3,254.71	-1,684.23	3,258.53	0.00	0.00	0.00	
16,000.00	90.07	180.13	7,293.72	-3,354.71	-1,684.47	3,358.53	0.00	0.00	0.00	
16,100.00	90.07	180.13	7,293.59	-3,454.71	-1,684.70	3,458.53	0.00	0.00	0.00	
16,200.00	90.07	180.13	7,293.47	-3,554.71	-1,684.94	3,558.53	0.00	0.00	0.00	
16,300.00	90.07	180.13	7,293.35	-3,654.71	-1,685.17	3,658.53	0.00	0.00	0.00	
16,400.00	90.07	180.13	7,293.22	-3,754.71	-1,685.41	3,758.53	0.00	0.00	0.00	
16,500.00	90.07	180.13	7,293.10	-3,854.71	-1,685.64	3,858.53	0.00	0.00	0.00	
16,600.00	90.07	180.13	7,292.98	-3,954.71	-1,685.88	3,958.53	0.00	0.00	0.00	
16,700.00	90.07	180.13	7,292.85	-4,054.71	-1,686.11	4,058.53	0.00	0.00	0.00	
16,800.00	90.07	180.13	7,292.73	-4,154.71	-1,686.35	4,158.53	0.00	0.00	0.00	
16,900.00	90.07	180.13	7,292.61	-4,254.71	-1,686.58	4,258.53	0.00	0.00	0.00	
17,000.00	90.07	180.13	7,292.48	-4,354.71	-1,686.82	4,358.53	0.00	0.00	0.00	
17,100.00	90.07	180.13	7,292.36	-4,454.71	-1,687.05	4,458.53	0.00	0.00	0.00	
17,200.00	90.07	180.13	7,292.23	-4,554.71	-1,687.29	4,558.53	0.00	0.00	0.00	
17,300.00	90.07	180.13	7,292.11	-4,654.71	-1,687.52	4,658.53	0.00	0.00	0.00	
17,400.00	90.07	180.13	7,291.99	-4,754.71	-1,687.76	4,758.53	0.00	0.00	0.00	
17,500.00	90.07	180.13	7,291.86	-4,854.71	-1,687.99	4,858.53	0.00	0.00	0.00	
17,600.00	90.07	180.13	7,291.74	-4,954.71	-1,688.23	4,958.53	0.00	0.00	0.00	
17,700.00	90.07	180.13	7,291.62	-5,054.71	-1,688.46	5,058.53	0.00	0.00	0.00	
17,800.00	90.07	180.13	7,291.49	-5,154.71	-1,688.70	5,158.53	0.00	0.00	0.00	
17,900.00	90.07	180.13	7,291.37	-5,254.71	-1,688.93	5,258.53	0.00	0.00	0.00	
18,000.00	90.07	180.13	7,291.25	-5,354.71	-1,689.17	5,358.53	0.00	0.00	0.00	
18,100.00	90.07	180.13	7,291.12	-5,454.71	-1,689.40	5,458.53	0.00	0.00	0.00	

Corporate
Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well DB FARMS 12-5HZ - Slot DB FARMS 12-5HZ
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 12-5HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT-1		

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)
18,200.00	90.07	180.13	7,291.00	-5,554.71	-1,689.63	5,558.53	0.00	0.00	0.00
18,300.00	90.07	180.13	7,290.88	-5,654.71	-1,689.87	5,658.53	0.00	0.00	0.00
18,400.00	90.07	180.13	7,290.75	-5,754.71	-1,690.10	5,758.53	0.00	0.00	0.00
18,500.00	90.07	180.13	7,290.63	-5,854.71	-1,690.34	5,858.53	0.00	0.00	0.00
18,600.00	90.07	180.13	7,290.51	-5,954.70	-1,690.57	5,958.53	0.00	0.00	0.00
18,700.00	90.07	180.13	7,290.38	-6,054.70	-1,690.81	6,058.53	0.00	0.00	0.00
18,800.00	90.07	180.13	7,290.26	-6,154.70	-1,691.04	6,158.53	0.00	0.00	0.00
18,900.00	90.07	180.13	7,290.13	-6,254.70	-1,691.28	6,258.53	0.00	0.00	0.00
19,000.00	90.07	180.13	7,290.01	-6,354.70	-1,691.51	6,358.53	0.00	0.00	0.00
19,100.00	90.07	180.13	7,289.89	-6,454.70	-1,691.75	6,458.52	0.00	0.00	0.00
19,200.00	90.07	180.13	7,289.76	-6,554.70	-1,691.98	6,558.52	0.00	0.00	0.00
19,300.00	90.07	180.13	7,289.64	-6,654.70	-1,692.22	6,658.52	0.00	0.00	0.00
19,400.00	90.07	180.13	7,289.52	-6,754.70	-1,692.45	6,758.52	0.00	0.00	0.00
19,500.00	90.07	180.13	7,289.39	-6,854.70	-1,692.69	6,858.52	0.00	0.00	0.00
19,600.00	90.07	180.13	7,289.27	-6,954.70	-1,692.92	6,958.52	0.00	0.00	0.00
19,700.00	90.07	180.13	7,289.15	-7,054.70	-1,693.16	7,058.52	0.00	0.00	0.00
19,800.00	90.07	180.13	7,289.02	-7,154.70	-1,693.39	7,158.52	0.00	0.00	0.00
19,900.00	90.07	180.13	7,288.90	-7,254.70	-1,693.63	7,258.52	0.00	0.00	0.00
20,000.00	90.07	180.13	7,288.78	-7,354.70	-1,693.86	7,358.52	0.00	0.00	0.00
20,100.00	90.07	180.13	7,288.65	-7,454.70	-1,694.10	7,458.52	0.00	0.00	0.00
20,200.00	90.07	180.13	7,288.53	-7,554.70	-1,694.33	7,558.52	0.00	0.00	0.00
20,300.00	90.07	180.13	7,288.41	-7,654.70	-1,694.57	7,658.52	0.00	0.00	0.00
20,400.00	90.07	180.13	7,288.28	-7,754.70	-1,694.80	7,758.52	0.00	0.00	0.00
20,500.00	90.07	180.13	7,288.16	-7,854.70	-1,695.04	7,858.52	0.00	0.00	0.00
20,600.00	90.07	180.13	7,288.04	-7,954.70	-1,695.27	7,958.52	0.00	0.00	0.00
20,628.22	90.07	180.13	7,288.00	-7,982.92	-1,695.34	7,986.74	0.00	0.00	0.00
TD at 20628.22 (BPZ) - 5 1/2" Csg									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
DB FARMS 12-5HZ BHL	0.00	0.00	7,288.00	-7,982.92	-1,695.34	14,606,229.00	1,685,936.00	40.218191	-104.836941
- plan hits target center									
- Point									
DB FARMS 12-5HZ LP	0.00	0.00	7,302.00	3,351.05	-1,668.72	14,617,563.00	1,685,941.00	40.249315	-104.836848
- plan hits target center									
- Point									

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	
20,628.22	7,288.00	5 1/2" Csg	5-1/2	7-7/8	

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well DB FARMS 12-5HZ - Slot DB FARMS 12-5HZ
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 12-5HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT-1		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
885.29	883.00	Fox Hills				
4,359.41	3,772.00	Parkman				
4,930.40	4,187.00	Sussex				
8,532.97	6,951.00	Sharon Springs				
8,594.41	7,001.00	Niobrara				
8,674.64	7,062.00	Nio B				
8,776.00	7,131.00	Nio C				
9,050.42	7,263.00	Fort Hayes				
9,128.72	7,284.00	Codell				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
300.00	300.00	0.00	0.00	Start Build 1.50	
3,192.02	2,923.53	988.19	-335.23	Hold Tangent	
7,661.68	6,172.12	3,895.40	-1,321.47	KOP DLS 8	
9,294.21	7,302.00	3,351.05	-1,668.72	Landing Point (TPZ)	
20,628.22	7,288.00	-7,982.92	-1,695.34	TD at 20628.22 (BPZ)	