

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

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

DB FARMS 12-1HZ - Slot DB FARMS 12-1HZ

PLAN A

Plan: PERMIT REV-1

Standard Planning Report

07 May, 2021

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well DB FARMS 12-1HZ - Slot DB FARMS 12-1HZ
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 12-1HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT REV-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 12-1HZ - Slot DB FARMS 12-1HZ					
Well Position	+N/-S	0.00 usft	Northing:	14,614,275.12 usft	Latitude:	40.240278
	+E/-W	0.00 usft	Easting:	1,687,616.45 usft	Longitude:	-104.830866
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	4,792.00 usft

Wellbore	PLAN A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	8/3/2020	7.90	66.64	51,946.17876211

Design	PERMIT REV-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	179.91

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 REV-1 (PLAN A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:crustal field declination	
2	2,000.00	20,501.19	PERMIT REV-1 (PLAN A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:Rockies, crustal dec +	

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Wellbore:	PLAN A		
Design:	PERMIT REV-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	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,976.95	41.65	359.80	2,738.71	965.74	-3.29	1.50	1.50	0.00	359.80	
7,320.12	41.65	359.80	5,983.80	3,852.34	-13.13	0.00	0.00	0.00	0.00	
8,967.10	90.10	179.91	7,176.00	3,315.91	-14.13	8.00	2.94	-10.92	-179.86	DB FARMS 12-1HZ L
20,501.19	90.10	179.91	7,155.00	-8,218.14	4.88	0.00	0.00	0.00	0.00	DB FARMS 12-1HZ B

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Well:	DB FARMS 12-1HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT REV-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	
Start Build 1.50										
300.00	1.50	359.80	299.99	1.31	0.00	-1.31	1.50	1.50	0.00	
400.00	3.00	359.80	399.91	5.23	-0.02	-5.23	1.50	1.50	0.00	
500.00	4.50	359.80	499.69	11.77	-0.04	-11.77	1.50	1.50	0.00	
600.00	6.00	359.80	599.27	20.92	-0.07	-20.92	1.50	1.50	0.00	
700.00	7.50	359.80	698.57	32.68	-0.11	-32.68	1.50	1.50	0.00	
800.00	9.00	359.80	797.54	47.03	-0.16	-47.03	1.50	1.50	0.00	
886.69	10.30	359.80	883.00	61.56	-0.21	-61.56	1.50	1.50	0.00	
Fox Hills										
900.00	10.50	359.80	896.09	63.96	-0.22	-63.96	1.50	1.50	0.00	
1,000.00	12.00	359.80	994.16	83.47	-0.28	-83.47	1.50	1.50	0.00	
1,100.00	13.50	359.80	1,091.70	105.54	-0.36	-105.54	1.50	1.50	0.00	
1,200.00	15.00	359.80	1,188.62	130.15	-0.44	-130.15	1.50	1.50	0.00	
1,300.00	16.50	359.80	1,284.86	157.30	-0.54	-157.30	1.50	1.50	0.00	
1,400.00	18.00	359.80	1,380.36	186.95	-0.64	-186.95	1.50	1.50	0.00	
1,500.00	19.50	359.80	1,475.05	219.09	-0.75	-219.09	1.50	1.50	0.00	
1,526.50	19.90	359.80	1,500.00	228.03	-0.78	-228.03	1.50	1.50	0.00	
9 5/8" Csg										
1,600.00	21.00	359.80	1,568.86	253.70	-0.86	-253.70	1.50	1.50	0.00	
1,700.00	22.50	359.80	1,661.74	290.76	-0.99	-290.76	1.50	1.50	0.00	
1,800.00	24.00	359.80	1,753.62	330.23	-1.13	-330.23	1.50	1.50	0.00	
1,900.00	25.50	359.80	1,844.43	372.09	-1.27	-372.10	1.50	1.50	0.00	
2,000.00	27.00	359.80	1,934.12	416.32	-1.42	-416.32	1.50	1.50	0.00	
2,100.00	28.50	359.80	2,022.61	462.88	-1.58	-462.88	1.50	1.50	0.00	
2,200.00	30.00	359.80	2,109.86	511.74	-1.74	-511.74	1.50	1.50	0.00	
2,300.00	31.50	359.80	2,195.80	562.87	-1.92	-562.87	1.50	1.50	0.00	
2,400.00	33.00	359.80	2,280.37	616.23	-2.10	-616.23	1.50	1.50	0.00	
2,500.00	34.50	359.80	2,363.51	671.78	-2.29	-671.79	1.50	1.50	0.00	
2,600.00	36.00	359.80	2,445.17	729.50	-2.49	-729.50	1.50	1.50	0.00	
2,700.00	37.50	359.80	2,525.30	789.33	-2.69	-789.33	1.50	1.50	0.00	
2,800.00	39.00	359.80	2,603.83	851.23	-2.90	-851.24	1.50	1.50	0.00	
2,900.00	40.50	359.80	2,680.71	915.18	-3.12	-915.18	1.50	1.50	0.00	
2,976.95	41.65	359.80	2,738.71	965.74	-3.29	-965.74	1.50	1.50	0.00	
Hold Tangent										
3,000.00	41.65	359.80	2,755.94	981.06	-3.34	-981.06	0.00	0.00	0.00	
3,100.00	41.65	359.80	2,830.65	1,047.52	-3.57	-1,047.52	0.00	0.00	0.00	
3,200.00	41.65	359.80	2,905.37	1,113.98	-3.80	-1,113.99	0.00	0.00	0.00	
3,300.00	41.65	359.80	2,980.09	1,180.45	-4.02	-1,180.45	0.00	0.00	0.00	
3,400.00	41.65	359.80	3,054.80	1,246.91	-4.25	-1,246.91	0.00	0.00	0.00	
3,500.00	41.65	359.80	3,129.52	1,313.37	-4.48	-1,313.38	0.00	0.00	0.00	
3,600.00	41.65	359.80	3,204.24	1,379.84	-4.70	-1,379.84	0.00	0.00	0.00	
3,700.00	41.65	359.80	3,278.96	1,446.30	-4.93	-1,446.30	0.00	0.00	0.00	
3,800.00	41.65	359.80	3,353.67	1,512.76	-5.16	-1,512.77	0.00	0.00	0.00	
3,900.00	41.65	359.80	3,428.39	1,579.22	-5.38	-1,579.23	0.00	0.00	0.00	
4,000.00	41.65	359.80	3,503.11	1,645.69	-5.61	-1,645.69	0.00	0.00	0.00	
4,100.00	41.65	359.80	3,577.82	1,712.15	-5.84	-1,712.16	0.00	0.00	0.00	
4,200.00	41.65	359.80	3,652.54	1,778.61	-6.06	-1,778.62	0.00	0.00	0.00	
4,300.00	41.65	359.80	3,727.26	1,845.08	-6.29	-1,845.08	0.00	0.00	0.00	
4,359.88	41.65	359.80	3,772.00	1,884.88	-6.43	-1,884.88	0.00	0.00	0.00	

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Design:	PERMIT REV-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	41.65	359.80	3,801.97	1,911.54	-6.52	-1,911.55	0.00	0.00	0.00
4,500.00	41.65	359.80	3,876.69	1,978.00	-6.74	-1,978.01	0.00	0.00	0.00
4,600.00	41.65	359.80	3,951.41	2,044.47	-6.97	-2,044.47	0.00	0.00	0.00
4,700.00	41.65	359.80	4,026.12	2,110.93	-7.20	-2,110.94	0.00	0.00	0.00
4,800.00	41.65	359.80	4,100.84	2,177.39	-7.42	-2,177.40	0.00	0.00	0.00
4,900.00	41.65	359.80	4,175.56	2,243.85	-7.65	-2,243.86	0.00	0.00	0.00
4,915.31	41.65	359.80	4,187.00	2,254.03	-7.68	-2,254.04	0.00	0.00	0.00
Sussex									
5,000.00	41.65	359.80	4,250.28	2,310.32	-7.88	-2,310.33	0.00	0.00	0.00
5,100.00	41.65	359.80	4,324.99	2,376.78	-8.10	-2,376.79	0.00	0.00	0.00
5,200.00	41.65	359.80	4,399.71	2,443.24	-8.33	-2,443.25	0.00	0.00	0.00
5,300.00	41.65	359.80	4,474.43	2,509.71	-8.56	-2,509.72	0.00	0.00	0.00
5,400.00	41.65	359.80	4,549.14	2,576.17	-8.78	-2,576.18	0.00	0.00	0.00
5,500.00	41.65	359.80	4,623.86	2,642.63	-9.01	-2,642.64	0.00	0.00	0.00
5,600.00	41.65	359.80	4,698.58	2,709.10	-9.24	-2,709.11	0.00	0.00	0.00
5,700.00	41.65	359.80	4,773.29	2,775.56	-9.46	-2,775.57	0.00	0.00	0.00
5,800.00	41.65	359.80	4,848.01	2,842.02	-9.69	-2,842.03	0.00	0.00	0.00
5,900.00	41.65	359.80	4,922.73	2,908.48	-9.92	-2,908.50	0.00	0.00	0.00
6,000.00	41.65	359.80	4,997.44	2,974.95	-10.14	-2,974.96	0.00	0.00	0.00
6,100.00	41.65	359.80	5,072.16	3,041.41	-10.37	-3,041.42	0.00	0.00	0.00
6,200.00	41.65	359.80	5,146.88	3,107.87	-10.60	-3,107.89	0.00	0.00	0.00
6,300.00	41.65	359.80	5,221.59	3,174.34	-10.82	-3,174.35	0.00	0.00	0.00
6,400.00	41.65	359.80	5,296.31	3,240.80	-11.05	-3,240.81	0.00	0.00	0.00
6,500.00	41.65	359.80	5,371.03	3,307.26	-11.28	-3,307.28	0.00	0.00	0.00
6,600.00	41.65	359.80	5,445.75	3,373.73	-11.50	-3,373.74	0.00	0.00	0.00
6,700.00	41.65	359.80	5,520.46	3,440.19	-11.73	-3,440.20	0.00	0.00	0.00
6,800.00	41.65	359.80	5,595.18	3,506.65	-11.96	-3,506.67	0.00	0.00	0.00
6,900.00	41.65	359.80	5,669.90	3,573.11	-12.18	-3,573.13	0.00	0.00	0.00
7,000.00	41.65	359.80	5,744.61	3,639.58	-12.41	-3,639.59	0.00	0.00	0.00
7,100.00	41.65	359.80	5,819.33	3,706.04	-12.64	-3,706.06	0.00	0.00	0.00
7,200.00	41.65	359.80	5,894.05	3,772.50	-12.86	-3,772.52	0.00	0.00	0.00
7,300.00	41.65	359.80	5,968.76	3,838.97	-13.09	-3,838.98	0.00	0.00	0.00
7,320.12	41.65	359.80	5,983.80	3,852.34	-13.13	-3,852.36	0.00	0.00	0.00
KOP DLS 8									
7,400.00	35.26	359.78	6,046.31	3,902.00	-13.31	-3,902.01	8.00	-8.00	-0.03
7,500.00	27.26	359.73	6,131.72	3,953.85	-13.53	-3,953.87	8.00	-8.00	-0.05
7,600.00	19.26	359.65	6,223.52	3,993.31	-13.74	-3,993.33	8.00	-8.00	-0.08
7,700.00	11.26	359.45	6,319.91	4,019.62	-13.94	-4,019.64	8.00	-8.00	-0.19
7,800.00	3.27	358.33	6,419.03	4,032.25	-14.11	-4,032.27	8.00	-8.00	-1.13
7,900.00	4.74	180.99	6,518.94	4,030.97	-14.27	-4,030.99	8.00	1.47	-177.34
8,000.00	12.74	180.30	6,617.70	4,015.79	-14.40	-4,015.81	8.00	8.00	-0.69
8,100.00	20.74	180.14	6,713.39	3,987.02	-14.50	-3,987.04	8.00	8.00	-0.16
8,200.00	28.74	180.07	6,804.14	3,945.21	-14.58	-3,945.23	8.00	8.00	-0.07
8,300.00	36.74	180.03	6,888.18	3,891.18	-14.62	-3,891.19	8.00	8.00	-0.04
8,382.07	43.30	180.00	6,951.00	3,838.43	-14.63	-3,838.45	8.00	8.00	-0.03
Sharon Springs									
8,400.00	44.74	180.00	6,963.90	3,825.97	-14.63	-3,825.99	8.00	8.00	-0.03
8,454.33	49.08	179.98	7,001.00	3,786.31	-14.62	-3,786.32	8.00	8.00	-0.02
Niobrara									
8,500.00	52.74	179.97	7,029.79	3,750.86	-14.61	-3,750.88	8.00	8.00	-0.02
8,556.14	57.23	179.96	7,062.00	3,704.90	-14.59	-3,704.92	8.00	8.00	-0.02

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Well:	DB FARMS 12-1HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT REV-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)
Nio B									
8,600.00	60.74	179.96	7,084.60	3,667.32	-14.56	-3,667.33	8.00	8.00	-0.02
8,700.00	68.74	179.94	7,127.24	3,576.95	-14.48	-3,576.97	8.00	8.00	-0.02
8,710.56	69.58	179.94	7,131.00	3,567.09	-14.47	-3,567.10	8.00	8.00	-0.01
Nio C									
8,800.00	76.74	179.93	7,156.90	3,481.54	-14.37	-3,481.56	8.00	8.00	-0.01
8,900.00	84.74	179.91	7,172.98	3,382.92	-14.23	-3,382.94	8.00	8.00	-0.01
8,967.10	90.10	179.91	7,176.00	3,315.91	-14.13	-3,315.93	8.00	8.00	-0.01
Landing Point (TPZ)									
9,000.00	90.10	179.91	7,175.94	3,283.01	-14.07	-3,283.03	0.00	0.00	0.00
9,100.00	90.10	179.91	7,175.76	3,183.01	-13.91	-3,183.03	0.00	0.00	0.00
9,200.00	90.10	179.91	7,175.58	3,083.01	-13.74	-3,083.03	0.00	0.00	0.00
9,300.00	90.10	179.91	7,175.39	2,983.02	-13.58	-2,983.03	0.00	0.00	0.00
9,400.00	90.10	179.91	7,175.21	2,883.02	-13.41	-2,883.03	0.00	0.00	0.00
9,500.00	90.10	179.91	7,175.03	2,783.02	-13.25	-2,783.03	0.00	0.00	0.00
9,600.00	90.10	179.91	7,174.85	2,683.02	-13.08	-2,683.03	0.00	0.00	0.00
9,700.00	90.10	179.91	7,174.67	2,583.02	-12.92	-2,583.03	0.00	0.00	0.00
9,800.00	90.10	179.91	7,174.48	2,483.02	-12.76	-2,483.03	0.00	0.00	0.00
9,900.00	90.10	179.91	7,174.30	2,383.02	-12.59	-2,383.03	0.00	0.00	0.00
10,000.00	90.10	179.91	7,174.12	2,283.02	-12.43	-2,283.03	0.00	0.00	0.00
10,100.00	90.10	179.91	7,173.94	2,183.02	-12.26	-2,183.03	0.00	0.00	0.00
10,200.00	90.10	179.91	7,173.76	2,083.02	-12.10	-2,083.03	0.00	0.00	0.00
10,300.00	90.10	179.91	7,173.57	1,983.02	-11.93	-1,983.03	0.00	0.00	0.00
10,400.00	90.10	179.91	7,173.39	1,883.02	-11.77	-1,883.03	0.00	0.00	0.00
10,500.00	90.10	179.91	7,173.21	1,783.02	-11.60	-1,783.03	0.00	0.00	0.00
10,600.00	90.10	179.91	7,173.03	1,683.02	-11.44	-1,683.03	0.00	0.00	0.00
10,700.00	90.10	179.91	7,172.85	1,583.02	-11.27	-1,583.04	0.00	0.00	0.00
10,800.00	90.10	179.91	7,172.66	1,483.02	-11.11	-1,483.04	0.00	0.00	0.00
10,900.00	90.10	179.91	7,172.48	1,383.02	-10.95	-1,383.04	0.00	0.00	0.00
11,000.00	90.10	179.91	7,172.30	1,283.02	-10.78	-1,283.04	0.00	0.00	0.00
11,100.00	90.10	179.91	7,172.12	1,183.02	-10.62	-1,183.04	0.00	0.00	0.00
11,200.00	90.10	179.91	7,171.94	1,083.02	-10.45	-1,083.04	0.00	0.00	0.00
11,300.00	90.10	179.91	7,171.75	983.02	-10.29	-983.04	0.00	0.00	0.00
11,400.00	90.10	179.91	7,171.57	883.02	-10.12	-883.04	0.00	0.00	0.00
11,500.00	90.10	179.91	7,171.39	783.02	-9.96	-783.04	0.00	0.00	0.00
11,600.00	90.10	179.91	7,171.21	683.02	-9.79	-683.04	0.00	0.00	0.00
11,700.00	90.10	179.91	7,171.03	583.02	-9.63	-583.04	0.00	0.00	0.00
11,800.00	90.10	179.91	7,170.85	483.02	-9.46	-483.04	0.00	0.00	0.00
11,900.00	90.10	179.91	7,170.66	383.02	-9.30	-383.04	0.00	0.00	0.00
12,000.00	90.10	179.91	7,170.48	283.02	-9.13	-283.04	0.00	0.00	0.00
12,100.00	90.10	179.91	7,170.30	183.02	-8.97	-183.04	0.00	0.00	0.00
12,200.00	90.10	179.91	7,170.12	83.02	-8.81	-83.04	0.00	0.00	0.00
12,300.00	90.10	179.91	7,169.94	-16.98	-8.64	16.96	0.00	0.00	0.00
12,400.00	90.10	179.91	7,169.75	-116.98	-8.48	116.96	0.00	0.00	0.00
12,500.00	90.10	179.91	7,169.57	-216.98	-8.31	216.96	0.00	0.00	0.00
12,600.00	90.10	179.91	7,169.39	-316.98	-8.15	316.96	0.00	0.00	0.00
12,700.00	90.10	179.91	7,169.21	-416.97	-7.98	416.96	0.00	0.00	0.00
12,800.00	90.10	179.91	7,169.03	-516.97	-7.82	516.96	0.00	0.00	0.00
12,900.00	90.10	179.91	7,168.84	-616.97	-7.65	616.96	0.00	0.00	0.00
13,000.00	90.10	179.91	7,168.66	-716.97	-7.49	716.96	0.00	0.00	0.00
13,100.00	90.10	179.91	7,168.48	-816.97	-7.32	816.96	0.00	0.00	0.00
13,200.00	90.10	179.91	7,168.30	-916.97	-7.16	916.96	0.00	0.00	0.00

Corporate
Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well DB FARMS 12-1HZ - Slot DB FARMS 12-1HZ
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 12-1HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT REV-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)
13,300.00	90.10	179.91	7,168.12	-1,016.97	-7.00	1,016.96	0.00	0.00	0.00
13,400.00	90.10	179.91	7,167.93	-1,116.97	-6.83	1,116.96	0.00	0.00	0.00
13,500.00	90.10	179.91	7,167.75	-1,216.97	-6.67	1,216.96	0.00	0.00	0.00
13,600.00	90.10	179.91	7,167.57	-1,316.97	-6.50	1,316.96	0.00	0.00	0.00
13,700.00	90.10	179.91	7,167.39	-1,416.97	-6.34	1,416.96	0.00	0.00	0.00
13,800.00	90.10	179.91	7,167.21	-1,516.97	-6.17	1,516.96	0.00	0.00	0.00
13,900.00	90.10	179.91	7,167.02	-1,616.97	-6.01	1,616.96	0.00	0.00	0.00
14,000.00	90.10	179.91	7,166.84	-1,716.97	-5.84	1,716.96	0.00	0.00	0.00
14,100.00	90.10	179.91	7,166.66	-1,816.97	-5.68	1,816.96	0.00	0.00	0.00
14,200.00	90.10	179.91	7,166.48	-1,916.97	-5.51	1,916.96	0.00	0.00	0.00
14,300.00	90.10	179.91	7,166.30	-2,016.97	-5.35	2,016.96	0.00	0.00	0.00
14,400.00	90.10	179.91	7,166.11	-2,116.97	-5.19	2,116.96	0.00	0.00	0.00
14,500.00	90.10	179.91	7,165.93	-2,216.97	-5.02	2,216.96	0.00	0.00	0.00
14,600.00	90.10	179.91	7,165.75	-2,316.97	-4.86	2,316.96	0.00	0.00	0.00
14,700.00	90.10	179.91	7,165.57	-2,416.97	-4.69	2,416.96	0.00	0.00	0.00
14,800.00	90.10	179.91	7,165.39	-2,516.97	-4.53	2,516.96	0.00	0.00	0.00
14,900.00	90.10	179.91	7,165.20	-2,616.97	-4.36	2,616.96	0.00	0.00	0.00
15,000.00	90.10	179.91	7,165.02	-2,716.97	-4.20	2,716.96	0.00	0.00	0.00
15,100.00	90.10	179.91	7,164.84	-2,816.97	-4.03	2,816.96	0.00	0.00	0.00
15,200.00	90.10	179.91	7,164.66	-2,916.97	-3.87	2,916.96	0.00	0.00	0.00
15,300.00	90.10	179.91	7,164.48	-3,016.97	-3.70	3,016.96	0.00	0.00	0.00
15,400.00	90.10	179.91	7,164.29	-3,116.97	-3.54	3,116.96	0.00	0.00	0.00
15,500.00	90.10	179.91	7,164.11	-3,216.97	-3.37	3,216.96	0.00	0.00	0.00
15,600.00	90.10	179.91	7,163.93	-3,316.97	-3.21	3,316.96	0.00	0.00	0.00
15,700.00	90.10	179.91	7,163.75	-3,416.97	-3.05	3,416.96	0.00	0.00	0.00
15,800.00	90.10	179.91	7,163.57	-3,516.97	-2.88	3,516.96	0.00	0.00	0.00
15,900.00	90.10	179.91	7,163.38	-3,616.97	-2.72	3,616.96	0.00	0.00	0.00
16,000.00	90.10	179.91	7,163.20	-3,716.96	-2.55	3,716.96	0.00	0.00	0.00
16,100.00	90.10	179.91	7,163.02	-3,816.96	-2.39	3,816.96	0.00	0.00	0.00
16,200.00	90.10	179.91	7,162.84	-3,916.96	-2.22	3,916.96	0.00	0.00	0.00
16,300.00	90.10	179.91	7,162.66	-4,016.96	-2.06	4,016.96	0.00	0.00	0.00
16,400.00	90.10	179.91	7,162.47	-4,116.96	-1.89	4,116.96	0.00	0.00	0.00
16,500.00	90.10	179.91	7,162.29	-4,216.96	-1.73	4,216.96	0.00	0.00	0.00
16,600.00	90.10	179.91	7,162.11	-4,316.96	-1.56	4,316.96	0.00	0.00	0.00
16,700.00	90.10	179.91	7,161.93	-4,416.96	-1.40	4,416.96	0.00	0.00	0.00
16,800.00	90.10	179.91	7,161.75	-4,516.96	-1.24	4,516.95	0.00	0.00	0.00
16,900.00	90.10	179.91	7,161.56	-4,616.96	-1.07	4,616.95	0.00	0.00	0.00
17,000.00	90.10	179.91	7,161.38	-4,716.96	-0.91	4,716.95	0.00	0.00	0.00
17,100.00	90.10	179.91	7,161.20	-4,816.96	-0.74	4,816.95	0.00	0.00	0.00
17,200.00	90.10	179.91	7,161.02	-4,916.96	-0.58	4,916.95	0.00	0.00	0.00
17,300.00	90.10	179.91	7,160.84	-5,016.96	-0.41	5,016.95	0.00	0.00	0.00
17,400.00	90.10	179.91	7,160.65	-5,116.96	-0.25	5,116.95	0.00	0.00	0.00
17,500.00	90.10	179.91	7,160.47	-5,216.96	-0.08	5,216.95	0.00	0.00	0.00
17,600.00	90.10	179.91	7,160.29	-5,316.96	0.08	5,316.95	0.00	0.00	0.00
17,700.00	90.10	179.91	7,160.11	-5,416.96	0.25	5,416.95	0.00	0.00	0.00
17,800.00	90.10	179.91	7,159.93	-5,516.96	0.41	5,516.95	0.00	0.00	0.00
17,900.00	90.10	179.91	7,159.74	-5,616.96	0.58	5,616.95	0.00	0.00	0.00
18,000.00	90.10	179.91	7,159.56	-5,716.96	0.74	5,716.95	0.00	0.00	0.00
18,100.00	90.10	179.91	7,159.38	-5,816.96	0.90	5,816.95	0.00	0.00	0.00
18,200.00	90.10	179.91	7,159.20	-5,916.96	1.07	5,916.95	0.00	0.00	0.00
18,300.00	90.10	179.91	7,159.02	-6,016.96	1.23	6,016.95	0.00	0.00	0.00
18,400.00	90.10	179.91	7,158.83	-6,116.96	1.40	6,116.95	0.00	0.00	0.00
18,500.00	90.10	179.91	7,158.65	-6,216.96	1.56	6,216.95	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well DB FARMS 12-1HZ - Slot DB FARMS 12-1HZ
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 12-1HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	PERMIT REV-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)	
18,600.00	90.10	179.91	7,158.47	-6,316.96	1.73	6,316.95	0.00	0.00	0.00	
18,700.00	90.10	179.91	7,158.29	-6,416.96	1.89	6,416.95	0.00	0.00	0.00	
18,800.00	90.10	179.91	7,158.11	-6,516.96	2.06	6,516.95	0.00	0.00	0.00	
18,900.00	90.10	179.91	7,157.92	-6,616.96	2.22	6,616.95	0.00	0.00	0.00	
19,000.00	90.10	179.91	7,157.74	-6,716.96	2.39	6,716.95	0.00	0.00	0.00	
19,100.00	90.10	179.91	7,157.56	-6,816.96	2.55	6,816.95	0.00	0.00	0.00	
19,200.00	90.10	179.91	7,157.38	-6,916.96	2.71	6,916.95	0.00	0.00	0.00	
19,300.00	90.10	179.91	7,157.20	-7,016.95	2.88	7,016.95	0.00	0.00	0.00	
19,400.00	90.10	179.91	7,157.01	-7,116.95	3.04	7,116.95	0.00	0.00	0.00	
19,500.00	90.10	179.91	7,156.83	-7,216.95	3.21	7,216.95	0.00	0.00	0.00	
19,600.00	90.10	179.91	7,156.65	-7,316.95	3.37	7,316.95	0.00	0.00	0.00	
19,700.00	90.10	179.91	7,156.47	-7,416.95	3.54	7,416.95	0.00	0.00	0.00	
19,800.00	90.10	179.91	7,156.29	-7,516.95	3.70	7,516.95	0.00	0.00	0.00	
19,900.00	90.10	179.91	7,156.11	-7,616.95	3.87	7,616.95	0.00	0.00	0.00	
20,000.00	90.10	179.91	7,155.92	-7,716.95	4.03	7,716.95	0.00	0.00	0.00	
20,100.00	90.10	179.91	7,155.74	-7,816.95	4.20	7,816.95	0.00	0.00	0.00	
20,200.00	90.10	179.91	7,155.56	-7,916.95	4.36	7,916.95	0.00	0.00	0.00	
20,300.00	90.10	179.91	7,155.38	-8,016.95	4.53	8,016.95	0.00	0.00	0.00	
20,400.00	90.10	179.91	7,155.20	-8,116.95	4.69	8,116.95	0.00	0.00	0.00	
20,500.00	90.10	179.91	7,155.01	-8,216.95	4.85	8,216.95	0.00	0.00	0.00	
20,501.19	90.10	179.91	7,155.01	-8,218.14	4.86	8,218.14	0.00	0.00	0.00	
TD at 20501.19 (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 12-1HZ BHL	0.00	0.00	7,155.00	-8,218.14	4.88	14,606,057.00	1,687,637.00	40.217710	-104.830849	
- plan misses target center by 0.02usft at 20501.19usft MD (7155.01 TVD, -8218.14 N, 4.86 E)										
- Point										
DB FARMS 12-1HZ LP (0.00	0.00	7,176.00	3,315.91	-14.13	14,617,591.00	1,687,596.00	40.249384	-104.830917	
- plan hits target center										
- Point										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,526.50	1,500.00	9 5/8" Csg	9-5/8	13-1/2	
20,501.19	7,155.01	5 1/2" Csg	5-1/2	7-7/8	

Corporate Planning Report

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

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
886.69	883.00	Fox Hills				
4,359.88	3,772.00	Parkman				
4,915.31	4,187.00	Sussex				
8,382.07	6,951.00	Sharon Springs				
8,454.33	7,001.00	Niobrara				
8,556.14	7,062.00	Nio B				
8,710.56	7,131.00	Nio C				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
200.00	200.00	0.00	0.00	Start Build 1.50	
2,976.95	2,738.71	965.74	-3.29	Hold Tangent	
7,320.12	5,983.80	3,852.34	-13.13	KOP DLS 8	
8,967.10	7,176.00	3,315.91	-14.13	Landing Point (TPZ)	
20,501.19	7,155.00	-8,218.14	4.88	TD at 20501.19 (BPZ)	