

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
4N-68W-13 SBJ 22-13HZ PAD
SBJ 13-8HZ**

Plan C

Plan: PERMIT REV-2

Standard Planning Report

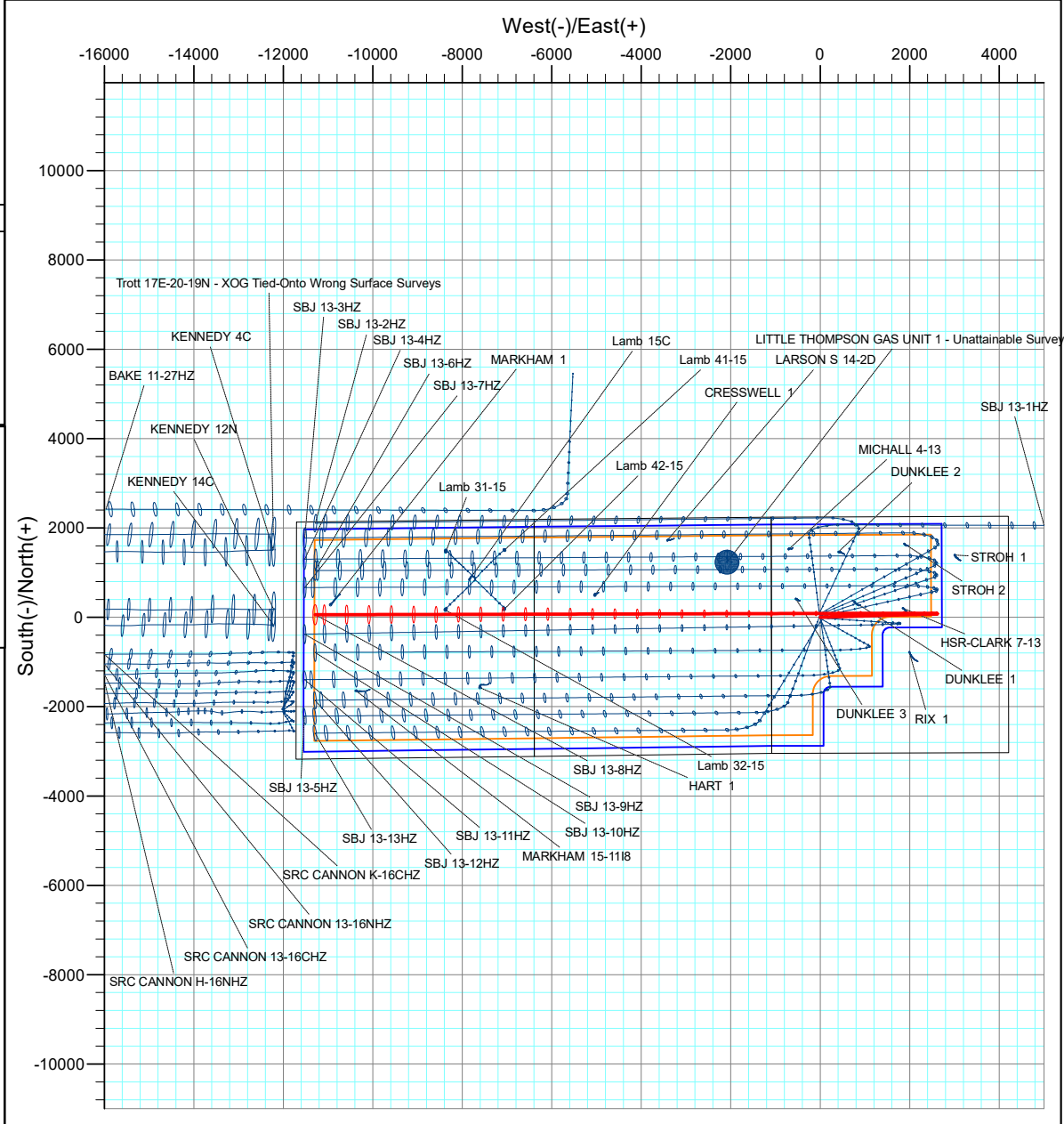
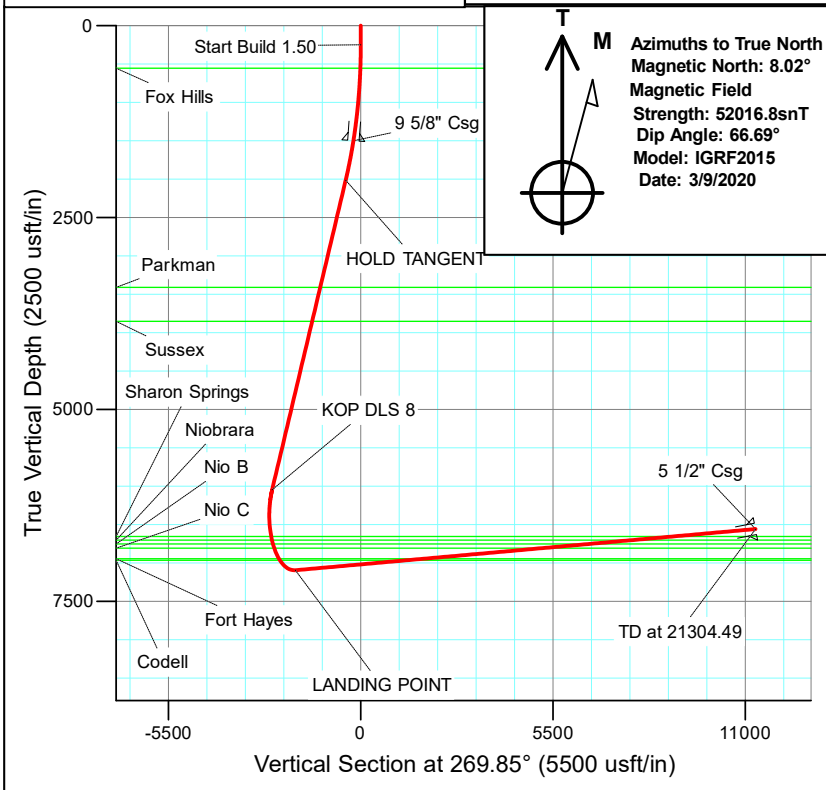
04 May, 2021

Project: WELD-NAD83-UTMFT13N Site: 4N-68W-13 SBJ 22-13HZ PAD Well: SBJ 13-8HZ Wellbore: Plan C Design: PERMIT REV-2	ELEVATION		SURFACE HOLE LOCATION: SBJ 13-8HZ												
	GROUND ELEVATION: 4859.00 RKB = 17' @ 4876ft		+N/-S 0.00	+E/-W 0.00	Northing 14641401.89	Easting 1652450.47	Latitude 40.314885	Longitude -104.956831							
	CASING DETAILS		DESIGN TARGET DETAILS												
TVD 1500.00 6560.00		MD 1523.46 21304.49		Name 9 5/8" Csg 5 1/2" Csg		Size 9-5/8 5-1/2									
				Name SBJ 13-8HZ BHL SBJ 13-8HZ LP		TVD 6560.00 7096.00		Northing 14641453.00 14641493.00		Easting 1641162.00 1654322.00		Latitude 40.315033 40.315132		Longitude -104.997326 -104.950117	

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	
3	2086.72	27.55	88.28	2016.75	13.01	432.96	1.50	88.28	-432.99	
4	6635.12	27.55	88.28	6049.37	76.17	2535.80	0.00	0.00	-2535.99	
5	8133.52	92.33	269.85	7096.00	90.20	1871.57	8.00	-178.19	-1871.80	SBJ 13-8HZ LP
6	21304.49	92.33	269.85	6560.00	56.62	-11288.45	0.00	0.00	11288.26	SBJ 13-8HZ BHL

SHL			HEEL			TOE		
2247' FNL	2164' FNL	2079' FNL						
1085' FWL	2336' FEL	421' FWL						
Section 13	Section 13	Section 15						
SWNW	SWNE	SWNW						

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
556.00	556.33	Fox Hills
3411.00	3659.29	Parkman
3854.00	4158.96	Sussex
6656.00	7262.21	Sharon Springs
6703.00	7313.96	Niobrara
6755.00	7373.53	Nio B
6808.00	7437.56	Nio C
6947.00	7632.97	Fort Hayes
6967.00	7666.71	Codell



Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SBJ 13-8HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4876.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4876.00usft (Drilling Rig)
Site:	4N-68W-13 SBJ 22-13HZ PAD	North Reference:	True
Well:	SBJ 13-8HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan C		
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	4N-68W-13 SBJ 22-13HZ PAD				
Site Position:		Northing:	14,641,145.55 usft	Latitude:	40.314181
From:	Lat/Long	Easting:	1,652,517.50 usft	Longitude:	-104.956591
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.03 °

Well	SBJ 13-8HZ					
Well Position	+N/-S	256.37 usft	Northing:	14,641,401.88 usft	Latitude:	40.314885
	+E/-W	-66.90 usft	Easting:	1,652,450.47 usft	Longitude:	-104.956831
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	4,859.00 usft

Wellbore	Plan C				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	3/9/2020	8.02	66.69	52,016.76055008

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	269.85

Plan Survey Tool Program	Date	5/4/2021			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	2,000.00	PERMIT REV-2 (Plan C)	APC_ISCWSA REV 2 MWD Fixed:v2:standard declination	
2	2,000.00	21,304.49	PERMIT REV-2 (Plan C)	APC_ISCWSA REV 2 MWD+II Fixed:v2:Rockies, crustal dec +	

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	
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,086.72	27.55	88.28	2,016.75	13.01	432.96	1.50	1.50	0.00	88.28	
6,635.12	27.55	88.28	6,049.37	76.17	2,535.80	0.00	0.00	0.00	0.00	
8,133.52	92.33	269.85	7,096.00	90.20	1,871.57	8.00	4.32	-11.91	-178.19	SBJ 13-8HZ LP
21,304.49	92.33	269.85	6,560.00	56.62	-11,288.45	0.00	0.00	0.00	0.00	SBJ 13-8HZ BHL

Corporate Planning Report

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Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4876.00usft (Drilling Rig)
Site:	4N-68W-13 SBJ 22-13HZ PAD	North Reference:	True
Well:	SBJ 13-8HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan C		
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
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 1.50									
300.00	0.75	88.28	300.00	0.01	0.33	-0.33	1.50	1.50	0.00
400.00	2.25	88.28	399.96	0.09	2.94	-2.94	1.50	1.50	0.00
500.00	3.75	88.28	499.82	0.25	8.17	-8.18	1.50	1.50	0.00
556.33	4.59	88.28	556.00	0.37	12.27	-12.27	1.50	1.50	0.00
Fox Hills									
600.00	5.25	88.28	599.51	0.48	16.02	-16.02	1.50	1.50	0.00
700.00	6.75	88.28	698.96	0.79	26.46	-26.47	1.50	1.50	0.00
800.00	8.25	88.28	798.10	1.19	39.51	-39.51	1.50	1.50	0.00
900.00	9.75	88.28	896.87	1.66	55.15	-55.15	1.50	1.50	0.00
1,000.00	11.25	88.28	995.19	2.20	73.36	-73.37	1.50	1.50	0.00
1,100.00	12.75	88.28	1,093.00	2.83	94.14	-94.15	1.50	1.50	0.00
1,200.00	14.25	88.28	1,190.24	3.53	117.48	-117.49	1.50	1.50	0.00
1,300.00	15.75	88.28	1,286.83	4.31	143.35	-143.36	1.50	1.50	0.00
1,400.00	17.25	88.28	1,382.71	5.16	171.73	-171.75	1.50	1.50	0.00
1,500.00	18.75	88.28	1,477.81	6.09	202.62	-202.64	1.50	1.50	0.00
1,523.46	19.10	88.28	1,500.00	6.31	210.23	-210.24	1.50	1.50	0.00
9 5/8" Csg									
1,600.00	20.25	88.28	1,572.07	7.09	235.99	-236.00	1.50	1.50	0.00
1,700.00	21.75	88.28	1,665.43	8.16	271.80	-271.83	1.50	1.50	0.00
1,800.00	23.25	88.28	1,757.81	9.31	310.05	-310.08	1.50	1.50	0.00
1,900.00	24.75	88.28	1,849.16	10.53	350.71	-350.74	1.50	1.50	0.00
2,000.00	26.25	88.28	1,939.42	11.83	393.74	-393.77	1.50	1.50	0.00
2,086.72	27.55	88.28	2,016.75	13.01	432.96	-432.99	1.50	1.50	0.00
HOLD TANGENT									
2,100.00	27.55	88.28	2,028.53	13.19	439.10	-439.13	0.00	0.00	0.00
2,200.00	27.55	88.28	2,117.19	14.58	485.33	-485.37	0.00	0.00	0.00
2,300.00	27.55	88.28	2,205.85	15.97	531.56	-531.60	0.00	0.00	0.00
2,400.00	27.55	88.28	2,294.51	17.36	577.79	-577.84	0.00	0.00	0.00
2,500.00	27.55	88.28	2,383.17	18.75	624.03	-624.07	0.00	0.00	0.00
2,600.00	27.55	88.28	2,471.83	20.13	670.26	-670.31	0.00	0.00	0.00
2,700.00	27.55	88.28	2,560.49	21.52	716.49	-716.55	0.00	0.00	0.00
2,800.00	27.55	88.28	2,649.15	22.91	762.72	-762.78	0.00	0.00	0.00
2,900.00	27.55	88.28	2,737.81	24.30	808.96	-809.02	0.00	0.00	0.00
3,000.00	27.55	88.28	2,826.47	25.69	855.19	-855.25	0.00	0.00	0.00
3,100.00	27.55	88.28	2,915.13	27.08	901.42	-901.49	0.00	0.00	0.00
3,200.00	27.55	88.28	3,003.79	28.47	947.65	-947.73	0.00	0.00	0.00
3,300.00	27.55	88.28	3,092.45	29.86	993.89	-993.96	0.00	0.00	0.00
3,400.00	27.55	88.28	3,181.11	31.24	1,040.12	-1,040.20	0.00	0.00	0.00
3,500.00	27.55	88.28	3,269.77	32.63	1,086.35	-1,086.43	0.00	0.00	0.00
3,600.00	27.55	88.28	3,358.43	34.02	1,132.58	-1,132.67	0.00	0.00	0.00
3,659.29	27.55	88.28	3,411.00	34.84	1,160.00	-1,160.09	0.00	0.00	0.00
Parkman									
3,700.00	27.55	88.28	3,447.09	35.41	1,178.82	-1,178.91	0.00	0.00	0.00
3,800.00	27.55	88.28	3,535.75	36.80	1,225.05	-1,225.14	0.00	0.00	0.00
3,900.00	27.55	88.28	3,624.41	38.19	1,271.28	-1,271.38	0.00	0.00	0.00
4,000.00	27.55	88.28	3,713.07	39.58	1,317.52	-1,317.61	0.00	0.00	0.00
4,100.00	27.55	88.28	3,801.73	40.97	1,363.75	-1,363.85	0.00	0.00	0.00
4,158.96	27.55	88.28	3,854.00	41.78	1,391.00	-1,391.11	0.00	0.00	0.00

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Site:	4N-68W-13 SBJ 22-13HZ PAD	North Reference:	True
Well:	SBJ 13-8HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan C		
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)	
Sussex										
4,200.00	27.55	88.28	3,890.39	42.35	1,409.98	-1,410.09	0.00	0.00	0.00	
4,300.00	27.55	88.28	3,979.05	43.74	1,456.21	-1,456.32	0.00	0.00	0.00	
4,400.00	27.55	88.28	4,067.71	45.13	1,502.45	-1,502.56	0.00	0.00	0.00	
4,500.00	27.55	88.28	4,156.37	46.52	1,548.68	-1,548.79	0.00	0.00	0.00	
4,600.00	27.55	88.28	4,245.03	47.91	1,594.91	-1,595.03	0.00	0.00	0.00	
4,700.00	27.55	88.28	4,333.69	49.30	1,641.14	-1,641.27	0.00	0.00	0.00	
4,800.00	27.55	88.28	4,422.35	50.69	1,687.38	-1,687.50	0.00	0.00	0.00	
4,900.00	27.55	88.28	4,511.01	52.08	1,733.61	-1,733.74	0.00	0.00	0.00	
5,000.00	27.55	88.28	4,599.67	53.46	1,779.84	-1,779.97	0.00	0.00	0.00	
5,100.00	27.55	88.28	4,688.33	54.85	1,826.07	-1,826.21	0.00	0.00	0.00	
5,200.00	27.55	88.28	4,776.99	56.24	1,872.31	-1,872.45	0.00	0.00	0.00	
5,300.00	27.55	88.28	4,865.65	57.63	1,918.54	-1,918.68	0.00	0.00	0.00	
5,400.00	27.55	88.28	4,954.31	59.02	1,964.77	-1,964.92	0.00	0.00	0.00	
5,500.00	27.55	88.28	5,042.97	60.41	2,011.00	-2,011.15	0.00	0.00	0.00	
5,600.00	27.55	88.28	5,131.63	61.80	2,057.24	-2,057.39	0.00	0.00	0.00	
5,700.00	27.55	88.28	5,220.29	63.19	2,103.47	-2,103.63	0.00	0.00	0.00	
5,800.00	27.55	88.28	5,308.95	64.57	2,149.70	-2,149.86	0.00	0.00	0.00	
5,900.00	27.55	88.28	5,397.61	65.96	2,195.93	-2,196.10	0.00	0.00	0.00	
6,000.00	27.55	88.28	5,486.27	67.35	2,242.17	-2,242.34	0.00	0.00	0.00	
6,100.00	27.55	88.28	5,574.93	68.74	2,288.40	-2,288.57	0.00	0.00	0.00	
6,200.00	27.55	88.28	5,663.59	70.13	2,334.63	-2,334.81	0.00	0.00	0.00	
6,300.00	27.55	88.28	5,752.25	71.52	2,380.86	-2,381.04	0.00	0.00	0.00	
6,400.00	27.55	88.28	5,840.91	72.91	2,427.10	-2,427.28	0.00	0.00	0.00	
6,500.00	27.55	88.28	5,929.57	74.30	2,473.33	-2,473.52	0.00	0.00	0.00	
6,600.00	27.55	88.28	6,018.23	75.68	2,519.56	-2,519.75	0.00	0.00	0.00	
6,635.12	27.55	88.28	6,049.37	76.17	2,535.80	-2,535.99	0.00	0.00	0.00	
KOP DLS 8										
6,700.00	22.36	87.85	6,108.17	77.09	2,563.15	-2,563.34	8.00	-8.00	-0.66	
6,800.00	14.37	86.61	6,203.00	78.54	2,594.60	-2,594.80	8.00	-7.99	-1.24	
6,900.00	6.40	82.39	6,301.28	80.01	2,612.55	-2,612.75	8.00	-7.97	-4.22	
7,000.00	1.85	296.82	6,401.11	81.48	2,616.64	-2,616.84	8.00	-4.55	-145.57	
7,100.00	9.69	274.81	6,500.53	82.92	2,606.80	-2,607.01	8.00	7.84	-22.01	
7,200.00	17.67	272.52	6,597.62	84.29	2,583.21	-2,583.43	8.00	7.98	-2.29	
7,262.21	22.64	271.90	6,656.00	85.11	2,561.80	-2,562.01	8.00	7.99	-1.00	
Sharon Springs										
7,300.00	25.66	271.63	6,690.48	85.58	2,546.35	-2,546.56	8.00	7.99	-0.70	
7,313.96	26.78	271.55	6,703.00	85.75	2,540.18	-2,540.39	8.00	8.00	-0.60	
Niobrara										
7,373.53	31.54	271.25	6,755.00	86.46	2,511.17	-2,511.39	8.00	8.00	-0.50	
Nio B										
7,400.00	33.66	271.15	6,777.30	86.76	2,496.91	-2,497.13	8.00	8.00	-0.40	
7,437.56	36.66	271.02	6,808.00	87.16	2,475.29	-2,475.51	8.00	8.00	-0.35	
Nio C										
7,500.00	41.66	270.83	6,856.40	87.80	2,435.87	-2,436.09	8.00	8.00	-0.29	
7,600.00	49.66	270.60	6,926.24	88.68	2,364.42	-2,364.64	8.00	8.00	-0.23	
7,632.97	52.29	270.54	6,947.00	88.93	2,338.81	-2,339.03	8.00	8.00	-0.19	
Fort Hayes										
7,666.71	54.99	270.48	6,967.00	89.17	2,311.64	-2,311.86	8.00	8.00	-0.18	
Codell										
7,700.00	57.66	270.42	6,985.46	89.39	2,283.94	-2,284.17	8.00	8.00	-0.17	
7,800.00	65.65	270.27	7,032.90	89.91	2,196.00	-2,196.23	8.00	8.00	-0.15	
7,900.00	73.65	270.13	7,067.64	90.24	2,102.32	-2,102.55	8.00	8.00	-0.13	

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Wellbore:	Plan C		
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)	
8,000.00	81.65	270.01	7,089.00	90.36	2,004.71	-2,004.94	8.00	8.00	-0.12	
8,100.00	89.65	269.89	7,096.58	90.27	1,905.08	-1,905.31	8.00	8.00	-0.12	
8,133.52	92.33	269.85	7,096.00	90.20	1,871.57	-1,871.80	8.00	8.00	-0.12	
LANDING POINT										
8,200.00	92.33	269.85	7,093.29	90.03	1,805.14	-1,805.37	0.00	0.00	0.00	
8,300.00	92.33	269.85	7,089.23	89.78	1,705.23	-1,705.46	0.00	0.00	0.00	
8,400.00	92.33	269.85	7,085.16	89.52	1,605.31	-1,605.54	0.00	0.00	0.00	
8,500.00	92.33	269.85	7,081.09	89.27	1,505.39	-1,505.62	0.00	0.00	0.00	
8,600.00	92.33	269.85	7,077.02	89.01	1,405.48	-1,405.71	0.00	0.00	0.00	
8,700.00	92.33	269.85	7,072.95	88.76	1,305.56	-1,305.79	0.00	0.00	0.00	
8,800.00	92.33	269.85	7,068.88	88.50	1,205.64	-1,205.87	0.00	0.00	0.00	
8,900.00	92.33	269.85	7,064.81	88.25	1,105.73	-1,105.95	0.00	0.00	0.00	
9,000.00	92.33	269.85	7,060.74	87.99	1,005.81	-1,006.04	0.00	0.00	0.00	
9,100.00	92.33	269.85	7,056.67	87.74	905.89	-906.12	0.00	0.00	0.00	
9,200.00	92.33	269.85	7,052.60	87.48	805.98	-806.20	0.00	0.00	0.00	
9,300.00	92.33	269.85	7,048.53	87.23	706.06	-706.29	0.00	0.00	0.00	
9,400.00	92.33	269.85	7,044.46	86.97	606.14	-606.37	0.00	0.00	0.00	
9,500.00	92.33	269.85	7,040.39	86.72	506.23	-506.45	0.00	0.00	0.00	
9,600.00	92.33	269.85	7,036.32	86.46	406.31	-406.53	0.00	0.00	0.00	
9,700.00	92.33	269.85	7,032.25	86.21	306.39	-306.62	0.00	0.00	0.00	
9,800.00	92.33	269.85	7,028.18	85.95	206.48	-206.70	0.00	0.00	0.00	
9,900.00	92.33	269.85	7,024.11	85.70	106.56	-106.78	0.00	0.00	0.00	
10,000.00	92.33	269.85	7,020.04	85.44	6.64	-6.87	0.00	0.00	0.00	
10,100.00	92.33	269.85	7,015.97	85.19	-93.28	93.05	0.00	0.00	0.00	
10,200.00	92.33	269.85	7,011.90	84.93	-193.19	192.97	0.00	0.00	0.00	
10,300.00	92.33	269.85	7,007.83	84.68	-293.11	292.89	0.00	0.00	0.00	
10,400.00	92.33	269.85	7,003.76	84.42	-393.03	392.80	0.00	0.00	0.00	
10,500.00	92.33	269.85	6,999.69	84.17	-492.94	492.72	0.00	0.00	0.00	
10,600.00	92.33	269.85	6,995.63	83.91	-592.86	592.64	0.00	0.00	0.00	
10,700.00	92.33	269.85	6,991.56	83.66	-692.78	692.55	0.00	0.00	0.00	
10,800.00	92.33	269.85	6,987.49	83.40	-792.69	792.47	0.00	0.00	0.00	
10,900.00	92.33	269.85	6,983.42	83.15	-892.61	892.39	0.00	0.00	0.00	
11,000.00	92.33	269.85	6,979.35	82.89	-992.53	992.31	0.00	0.00	0.00	
11,100.00	92.33	269.85	6,975.28	82.64	-1,092.44	1,092.22	0.00	0.00	0.00	
11,200.00	92.33	269.85	6,971.21	82.38	-1,192.36	1,192.14	0.00	0.00	0.00	
11,300.00	92.33	269.85	6,967.14	82.13	-1,292.28	1,292.06	0.00	0.00	0.00	
11,400.00	92.33	269.85	6,963.07	81.87	-1,392.19	1,391.97	0.00	0.00	0.00	
11,500.00	92.33	269.85	6,959.00	81.62	-1,492.11	1,491.89	0.00	0.00	0.00	
11,600.00	92.33	269.85	6,954.93	81.36	-1,592.03	1,591.81	0.00	0.00	0.00	
11,700.00	92.33	269.85	6,950.86	81.11	-1,691.94	1,691.73	0.00	0.00	0.00	
11,800.00	92.33	269.85	6,946.79	80.85	-1,791.86	1,791.64	0.00	0.00	0.00	
11,900.00	92.33	269.85	6,942.72	80.60	-1,891.78	1,891.56	0.00	0.00	0.00	
12,000.00	92.33	269.85	6,938.65	80.34	-1,991.70	1,991.48	0.00	0.00	0.00	
12,100.00	92.33	269.85	6,934.58	80.09	-2,091.61	2,091.40	0.00	0.00	0.00	
12,200.00	92.33	269.85	6,930.51	79.83	-2,191.53	2,191.31	0.00	0.00	0.00	
12,300.00	92.33	269.85	6,926.44	79.58	-2,291.45	2,291.23	0.00	0.00	0.00	
12,400.00	92.33	269.85	6,922.37	79.32	-2,391.36	2,391.15	0.00	0.00	0.00	
12,500.00	92.33	269.85	6,918.30	79.07	-2,491.28	2,491.06	0.00	0.00	0.00	
12,600.00	92.33	269.85	6,914.23	78.81	-2,591.20	2,590.98	0.00	0.00	0.00	
12,700.00	92.33	269.85	6,910.16	78.56	-2,691.11	2,690.90	0.00	0.00	0.00	
12,800.00	92.33	269.85	6,906.10	78.30	-2,791.03	2,790.82	0.00	0.00	0.00	
12,900.00	92.33	269.85	6,902.03	78.05	-2,890.95	2,890.73	0.00	0.00	0.00	
13,000.00	92.33	269.85	6,897.96	77.79	-2,990.86	2,990.65	0.00	0.00	0.00	

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SBJ 13-8HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4876.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4876.00usft (Drilling Rig)
Site:	4N-68W-13 SBJ 22-13HZ PAD	North Reference:	True
Well:	SBJ 13-8HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan C		
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)	
13,100.00	92.33	269.85	6,893.89	77.54	-3,090.78	3,090.57	0.00	0.00	0.00	
13,200.00	92.33	269.85	6,889.82	77.28	-3,190.70	3,190.48	0.00	0.00	0.00	
13,300.00	92.33	269.85	6,885.75	77.03	-3,290.61	3,290.40	0.00	0.00	0.00	
13,400.00	92.33	269.85	6,881.68	76.77	-3,390.53	3,390.32	0.00	0.00	0.00	
13,500.00	92.33	269.85	6,877.61	76.52	-3,490.45	3,490.24	0.00	0.00	0.00	
13,600.00	92.33	269.85	6,873.54	76.26	-3,590.36	3,590.15	0.00	0.00	0.00	
13,700.00	92.33	269.85	6,869.47	76.01	-3,690.28	3,690.07	0.00	0.00	0.00	
13,800.00	92.33	269.85	6,865.40	75.75	-3,790.20	3,789.99	0.00	0.00	0.00	
13,900.00	92.33	269.85	6,861.33	75.50	-3,890.11	3,889.90	0.00	0.00	0.00	
14,000.00	92.33	269.85	6,857.26	75.24	-3,990.03	3,989.82	0.00	0.00	0.00	
14,100.00	92.33	269.85	6,853.19	74.99	-4,089.95	4,089.74	0.00	0.00	0.00	
14,200.00	92.33	269.85	6,849.12	74.73	-4,189.87	4,189.66	0.00	0.00	0.00	
14,300.00	92.33	269.85	6,845.05	74.48	-4,289.78	4,289.57	0.00	0.00	0.00	
14,400.00	92.33	269.85	6,840.98	74.22	-4,389.70	4,389.49	0.00	0.00	0.00	
14,500.00	92.33	269.85	6,836.91	73.97	-4,489.62	4,489.41	0.00	0.00	0.00	
14,600.00	92.33	269.85	6,832.84	73.71	-4,589.53	4,589.32	0.00	0.00	0.00	
14,700.00	92.33	269.85	6,828.77	73.46	-4,689.45	4,689.24	0.00	0.00	0.00	
14,800.00	92.33	269.85	6,824.70	73.20	-4,789.37	4,789.16	0.00	0.00	0.00	
14,900.00	92.33	269.85	6,820.63	72.95	-4,889.28	4,889.08	0.00	0.00	0.00	
15,000.00	92.33	269.85	6,816.56	72.69	-4,989.20	4,988.99	0.00	0.00	0.00	
15,100.00	92.33	269.85	6,812.50	72.44	-5,089.12	5,088.91	0.00	0.00	0.00	
15,200.00	92.33	269.85	6,808.43	72.18	-5,189.03	5,188.83	0.00	0.00	0.00	
15,300.00	92.33	269.85	6,804.36	71.93	-5,288.95	5,288.74	0.00	0.00	0.00	
15,400.00	92.33	269.85	6,800.29	71.67	-5,388.87	5,388.66	0.00	0.00	0.00	
15,500.00	92.33	269.85	6,796.22	71.42	-5,488.78	5,488.58	0.00	0.00	0.00	
15,600.00	92.33	269.85	6,792.15	71.16	-5,588.70	5,588.50	0.00	0.00	0.00	
15,700.00	92.33	269.85	6,788.08	70.91	-5,688.62	5,688.41	0.00	0.00	0.00	
15,800.00	92.33	269.85	6,784.01	70.65	-5,788.53	5,788.33	0.00	0.00	0.00	
15,900.00	92.33	269.85	6,779.94	70.40	-5,888.45	5,888.25	0.00	0.00	0.00	
16,000.00	92.33	269.85	6,775.87	70.14	-5,988.37	5,988.16	0.00	0.00	0.00	
16,100.00	92.33	269.85	6,771.80	69.89	-6,088.29	6,088.08	0.00	0.00	0.00	
16,200.00	92.33	269.85	6,767.73	69.63	-6,188.20	6,188.00	0.00	0.00	0.00	
16,300.00	92.33	269.85	6,763.66	69.38	-6,288.12	6,287.92	0.00	0.00	0.00	
16,400.00	92.33	269.85	6,759.59	69.12	-6,388.04	6,387.83	0.00	0.00	0.00	
16,500.00	92.33	269.85	6,755.52	68.87	-6,487.95	6,487.75	0.00	0.00	0.00	
16,600.00	92.33	269.85	6,751.45	68.61	-6,587.87	6,587.67	0.00	0.00	0.00	
16,700.00	92.33	269.85	6,747.38	68.36	-6,687.79	6,687.58	0.00	0.00	0.00	
16,800.00	92.33	269.85	6,743.31	68.10	-6,787.70	6,787.50	0.00	0.00	0.00	
16,900.00	92.33	269.85	6,739.24	67.85	-6,887.62	6,887.42	0.00	0.00	0.00	
17,000.00	92.33	269.85	6,735.17	67.59	-6,987.54	6,987.34	0.00	0.00	0.00	
17,100.00	92.33	269.85	6,731.10	67.34	-7,087.45	7,087.25	0.00	0.00	0.00	
17,200.00	92.33	269.85	6,727.03	67.08	-7,187.37	7,187.17	0.00	0.00	0.00	
17,300.00	92.33	269.85	6,722.97	66.83	-7,287.29	7,287.09	0.00	0.00	0.00	
17,400.00	92.33	269.85	6,718.90	66.57	-7,387.20	7,387.00	0.00	0.00	0.00	
17,500.00	92.33	269.85	6,714.83	66.32	-7,487.12	7,486.92	0.00	0.00	0.00	
17,600.00	92.33	269.85	6,710.76	66.06	-7,587.04	7,586.84	0.00	0.00	0.00	
17,700.00	92.33	269.85	6,706.69	65.81	-7,686.95	7,686.76	0.00	0.00	0.00	
17,800.00	92.33	269.85	6,702.62	65.55	-7,786.87	7,786.67	0.00	0.00	0.00	
17,900.00	92.33	269.85	6,698.55	65.30	-7,886.79	7,886.59	0.00	0.00	0.00	
18,000.00	92.33	269.85	6,694.48	65.04	-7,986.71	7,986.51	0.00	0.00	0.00	
18,100.00	92.33	269.85	6,690.41	64.79	-8,086.62	8,086.42	0.00	0.00	0.00	
18,200.00	92.33	269.85	6,686.34	64.53	-8,186.54	8,186.34	0.00	0.00	0.00	
18,300.00	92.33	269.85	6,682.27	64.28	-8,286.46	8,286.26	0.00	0.00	0.00	
18,400.00	92.33	269.85	6,678.20	64.02	-8,386.37	8,386.18	0.00	0.00	0.00	

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SBJ 13-8HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4876.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4876.00usft (Drilling Rig)
Site:	4N-68W-13 SBJ 22-13HZ PAD	North Reference:	True
Well:	SBJ 13-8HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan C		
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)
18,500.00	92.33	269.85	6,674.13	63.77	-8,486.29	8,486.09	0.00	0.00	0.00
18,600.00	92.33	269.85	6,670.06	63.51	-8,586.21	8,586.01	0.00	0.00	0.00
18,700.00	92.33	269.85	6,665.99	63.26	-8,686.12	8,685.93	0.00	0.00	0.00
18,800.00	92.33	269.85	6,661.92	63.00	-8,786.04	8,785.84	0.00	0.00	0.00
18,900.00	92.33	269.85	6,657.85	62.75	-8,885.96	8,885.76	0.00	0.00	0.00
19,000.00	92.33	269.85	6,653.78	62.49	-8,985.87	8,985.68	0.00	0.00	0.00
19,100.00	92.33	269.85	6,649.71	62.24	-9,085.79	9,085.60	0.00	0.00	0.00
19,200.00	92.33	269.85	6,645.64	61.98	-9,185.71	9,185.51	0.00	0.00	0.00
19,300.00	92.33	269.85	6,641.57	61.73	-9,285.62	9,285.43	0.00	0.00	0.00
19,400.00	92.33	269.85	6,637.50	61.47	-9,385.54	9,385.35	0.00	0.00	0.00
19,500.00	92.33	269.85	6,633.43	61.22	-9,485.46	9,485.26	0.00	0.00	0.00
19,600.00	92.33	269.85	6,629.37	60.96	-9,585.37	9,585.18	0.00	0.00	0.00
19,700.00	92.33	269.85	6,625.30	60.71	-9,685.29	9,685.10	0.00	0.00	0.00
19,800.00	92.33	269.85	6,621.23	60.45	-9,785.21	9,785.02	0.00	0.00	0.00
19,900.00	92.33	269.85	6,617.16	60.20	-9,885.13	9,884.93	0.00	0.00	0.00
20,000.00	92.33	269.85	6,613.09	59.94	-9,985.04	9,984.85	0.00	0.00	0.00
20,100.00	92.33	269.85	6,609.02	59.69	-10,084.96	10,084.77	0.00	0.00	0.00
20,200.00	92.33	269.85	6,604.95	59.43	-10,184.88	10,184.69	0.00	0.00	0.00
20,300.00	92.33	269.85	6,600.88	59.18	-10,284.79	10,284.60	0.00	0.00	0.00
20,400.00	92.33	269.85	6,596.81	58.92	-10,384.71	10,384.52	0.00	0.00	0.00
20,500.00	92.33	269.85	6,592.74	58.67	-10,484.63	10,484.44	0.00	0.00	0.00
20,600.00	92.33	269.85	6,588.67	58.41	-10,584.54	10,584.35	0.00	0.00	0.00
20,700.00	92.33	269.85	6,584.60	58.16	-10,684.46	10,684.27	0.00	0.00	0.00
20,800.00	92.33	269.85	6,580.53	57.90	-10,784.38	10,784.19	0.00	0.00	0.00
20,900.00	92.33	269.85	6,576.46	57.65	-10,884.29	10,884.11	0.00	0.00	0.00
21,000.00	92.33	269.85	6,572.39	57.39	-10,984.21	10,984.02	0.00	0.00	0.00
21,100.00	92.33	269.85	6,568.32	57.14	-11,084.13	11,083.94	0.00	0.00	0.00
21,200.00	92.33	269.85	6,564.25	56.88	-11,184.04	11,183.86	0.00	0.00	0.00
21,300.00	92.33	269.85	6,560.18	56.63	-11,283.96	11,283.77	0.00	0.00	0.00
21,304.49	92.33	269.85	6,560.00	56.62	-11,288.45	11,288.26	0.00	0.00	0.00
TD at 21304.49									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SBJ 13-8HZ BHL - plan hits target center - Point	0.00	0.00	6,560.00	56.62	-11,288.45	14,641,453.00	1,641,162.00	40.315033	-104.997327
SBJ 13-8HZ LP - plan hits target center - Point	0.00	0.00	7,096.00	90.20	1,871.57	14,641,493.00	1,654,322.00	40.315133	-104.950117

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,523.46	1,500.00	9 5/8" Csg	9-5/8	13-1/2	
21,304.49	6,560.00	5 1/2" Csg	5-1/2	7-7/8	

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well SBJ 13-8HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4876.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4876.00usft (Drilling Rig)
Site:	4N-68W-13 SBJ 22-13HZ PAD	North Reference:	True
Well:	SBJ 13-8HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan C		
Design:	PERMIT REV-2		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
556.33	556.00	Fox Hills				
3,659.29	3,411.00	Parkman				
4,158.96	3,854.00	Sussex				
7,262.21	6,656.00	Sharon Springs				
7,313.96	6,703.00	Niobrara				
7,373.53	6,755.00	Nio B				
7,437.56	6,808.00	Nio C				
7,632.97	6,947.00	Fort Hayes				
7,666.71	6,967.00	Codell				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			Comment
		+N/-S (usft)	+E/-W (usft)		
250.00	250.00	0.00	0.00		Start Build 1.50
2,086.72	2,016.75	13.01	432.96		HOLD TANGENT
6,635.12	6,049.37	76.17	2,535.80		KOP DLS 8
8,133.52	7,096.00	90.20	1,871.57		LANDING POINT
21,304.49	6,560.00	56.62	-11,288.45		TD at 21304.49