

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

1N-65W-08 ENGLISH FARMS 15-8HZ PAD

ENGLISH FARMS 8-11HZ

Plan A

Plan: Permit Rev-2

SHL Lat/Long: 40.059585/-104.686763

Survey Program: MWD+IFR+MSA

Standard Planning Report

18 October, 2017

Project: WELD-NAD83-UTMFT13N
Site: 1N-65W-08 ENGLISH FARMS 15-8HZ PAD
Well: ENGLISH FARMS 8-11HZ
Wellbore: Plan A
Design: Permit Rev-2

US ROCKIES WATTENBERG PLANNING

CASING DETAILS		
TVD	MD	Size
1500.00	1508.79	9-5/8
7118.00	7506.10	5-1/2

WELL DETAILS: ENGLISH FARMS 8-11HZ
GL = 4945'
RKB = 17' @ 4962.00usft (Drilling Rig)

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	783.33	8.00	312.00	781.60	24.87	-27.63	1.50	312.00	-24.85	
4	3233.33	8.00	312.00	3207.76	253.03	-281.02	0.00	0.00	-252.78	
5	3633.33	0.00	0.00	3606.46	271.69	-301.74	2.00	180.00	-271.42	
6	6508.25	0.00	0.00	6481.38	271.69	-301.74	0.00	0.00	-271.42	
7	7506.10	89.81	180.05	7118.00	-362.78	-302.30	9.00	180.05	363.05	
8	20231.32	89.81	180.05	7161.00	-13087.93	-313.51	0.00	0.00	13088.19	ENGLISH FARMS 8-11HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
ENGLISH FARMS 8-11HZ_SHL	0.00	0.00	0.00	40.059585	-104.686763
ENGLISH FARMS 8-11HZ_BHL	7161.00	-13087.93	-313.51	40.023644	-104.687883

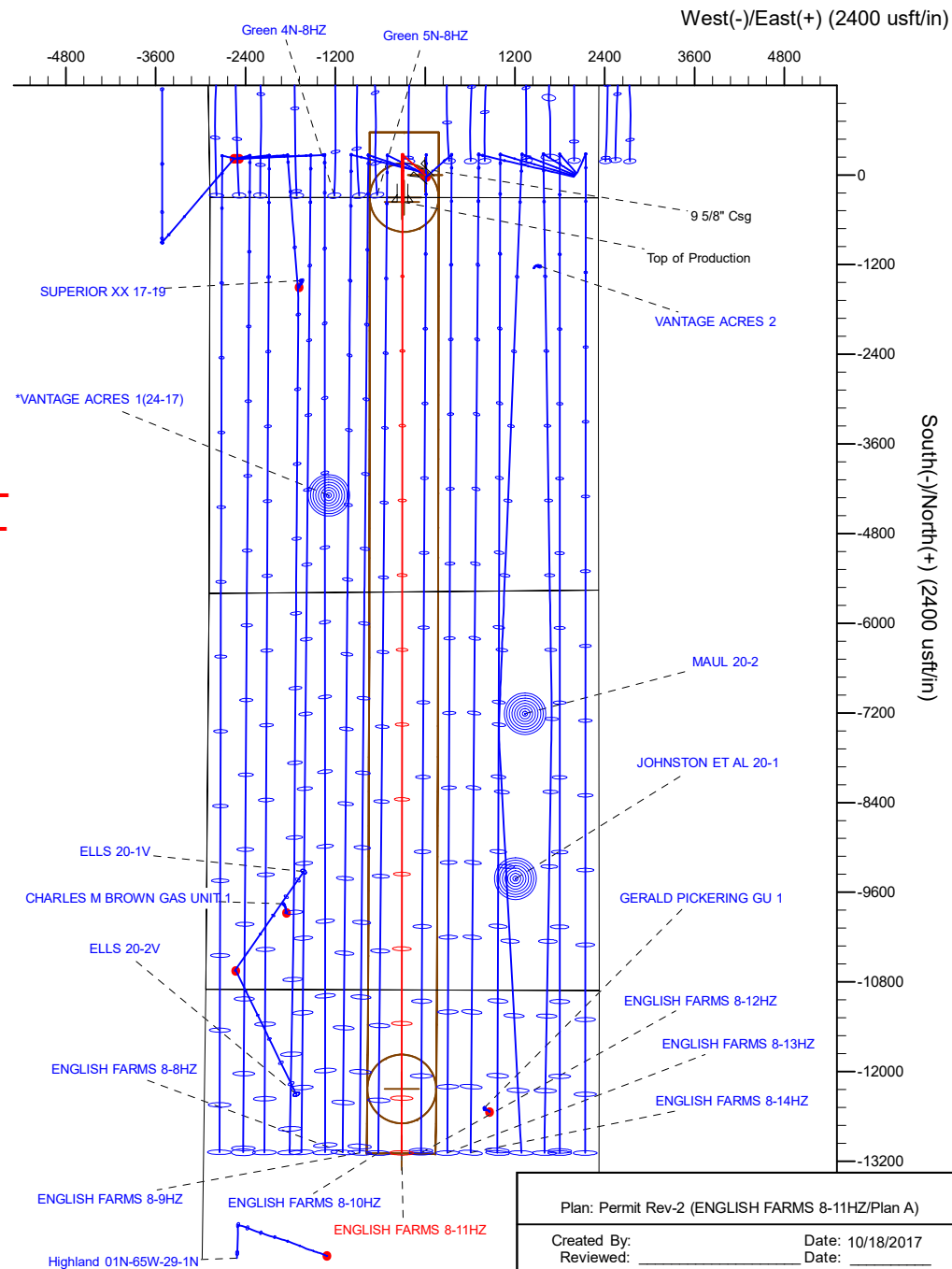
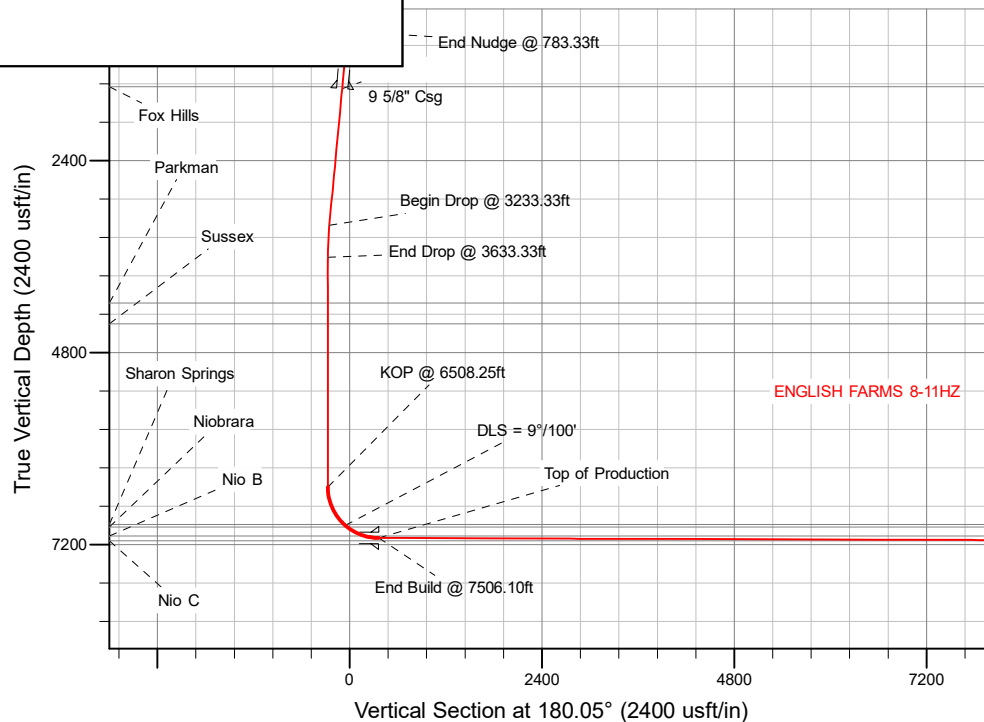
FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1473.00	1481.53	Fox Hills
4180.00	4206.87	Parkman
4439.00	4465.87	Sussex
6947.00	7030.51	Sharon Springs
6981.00	7082.72	Niobrara
7091.00	7322.18	Nio B
7152.00	17568.12	Nio C

SHL
303' FSL
2316' FEL

HEEL
50' FNL
2595' FWL

TOE
2181' FNL
2635' FEL



Plan: Permit Rev-2 (ENGLISH FARMS 8-11HZ/Plan A)

Created By: _____ Date: 10/18/2017
Reviewed: _____ Date: _____

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well ENGLISH FARMS 8-11HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4962.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4962.00usft (Drilling Rig)
Site:	1N-65W-08 ENGLISH FARMS 15-8HZ PAD	North Reference:	True
Well:	ENGLISH FARMS 8-11HZ	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		1N-65W-08 ENGLISH FARMS 15-8HZ PAD			
Site Position:		Northing:	14,548,619.57 usft	Latitude:	40.059680
From:	Lat/Long	Easting:	1,728,034.10 usft	Longitude:	-104.686865
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.20 °

Well	ENGLISH FARMS 8-11HZ					
Well Position	+N/-S	-34.59 usft	Northing:	14,548,585.08 usft	Latitude:	40.059585
	+E/-W	28.54 usft	Easting:	1,728,062.76 usft	Longitude:	-104.686763
Position Uncertainty		3.28 usft	Wellhead Elevation:		Ground Level:	4,945.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/8/2017	7.94	66.57	52,295.15695684

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	180.05

Plan Survey Tool Program	Date	10/18/2017		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	1,500.00	Permit Rev-2 (Plan A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:crustal field declinatio
2	1,500.00	20,231.32	Permit Rev-2 (Plan A)	APC_ISCWSA REV 2 MWD+I Fixed:v2:Rockies, crustal dec +

Corporate Planning Report

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4962.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4962.00usft (Drilling Rig)
Site:	1N-65W-08 ENGLISH FARMS 15-8HZ PAD	North Reference:	True
Well:	ENGLISH FARMS 8-11HZ	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	
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	
783.33	8.00	312.00	781.60	24.87	-27.63	1.50	1.50	0.00	312.00	
3,233.33	8.00	312.00	3,207.76	253.03	-281.02	0.00	0.00	0.00	0.00	
3,633.33	0.00	0.00	3,606.46	271.69	-301.74	2.00	-2.00	0.00	180.00	
6,508.25	0.00	0.00	6,481.38	271.69	-301.74	0.00	0.00	0.00	0.00	
7,506.10	89.81	180.05	7,118.00	-362.78	-302.30	9.00	9.00	-18.03	180.05	
20,231.32	89.81	180.05	7,161.00	-13,087.93	-313.51	0.00	0.00	0.00	0.00	ENGLISH FARMS 8-

Corporate
Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well ENGLISH FARMS 8-11HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4962.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4962.00usft (Drilling Rig)
Site:	1N-65W-08 ENGLISH FARMS 15-8HZ PAD	North Reference:	True
Well:	ENGLISH FARMS 8-11HZ	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
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 250.00ft									
300.00	0.75	312.00	300.00	0.22	-0.24	-0.22	1.50	1.50	0.00
400.00	2.25	312.00	399.96	1.97	-2.19	-1.97	1.50	1.50	0.00
500.00	3.75	312.00	499.82	5.47	-6.08	-5.47	1.50	1.50	0.00
600.00	5.25	312.00	599.51	10.72	-11.91	-10.71	1.50	1.50	0.00
700.00	6.75	312.00	698.96	17.72	-19.68	-17.70	1.50	1.50	0.00
783.33	8.00	312.00	781.60	24.87	-27.63	-24.85	1.50	1.50	0.00
End Nudge @ 783.33ft									
800.00	8.00	312.00	798.11	26.43	-29.35	-26.40	0.00	0.00	0.00
900.00	8.00	312.00	897.13	35.74	-39.69	-35.70	0.00	0.00	0.00
1,000.00	8.00	312.00	996.16	45.05	-50.03	-45.01	0.00	0.00	0.00
1,100.00	8.00	312.00	1,095.19	54.36	-60.38	-54.31	0.00	0.00	0.00
1,200.00	8.00	312.00	1,194.21	63.68	-70.72	-63.61	0.00	0.00	0.00
1,300.00	8.00	312.00	1,293.24	72.99	-81.06	-72.92	0.00	0.00	0.00
1,400.00	8.00	312.00	1,392.27	82.30	-91.40	-82.22	0.00	0.00	0.00
1,481.53	8.00	312.00	1,473.00	89.89	-99.84	-89.81	0.00	0.00	0.00
Fox Hills									
1,500.00	8.00	312.00	1,491.29	91.61	-101.75	-91.52	0.00	0.00	0.00
1,508.79	8.00	312.00	1,500.00	92.43	-102.66	-92.34	0.00	0.00	0.00
9 5/8" Csg									
1,600.00	8.00	312.00	1,590.32	100.93	-112.09	-100.83	0.00	0.00	0.00
1,700.00	8.00	312.00	1,689.35	110.24	-122.43	-110.13	0.00	0.00	0.00
1,800.00	8.00	312.00	1,788.37	119.55	-132.77	-119.43	0.00	0.00	0.00
1,900.00	8.00	312.00	1,887.40	128.86	-143.12	-128.74	0.00	0.00	0.00
2,000.00	8.00	312.00	1,986.43	138.18	-153.46	-138.04	0.00	0.00	0.00
2,100.00	8.00	312.00	2,085.46	147.49	-163.80	-147.35	0.00	0.00	0.00
2,200.00	8.00	312.00	2,184.48	156.80	-174.14	-156.65	0.00	0.00	0.00
2,300.00	8.00	312.00	2,283.51	166.11	-184.49	-165.95	0.00	0.00	0.00
2,400.00	8.00	312.00	2,382.54	175.43	-194.83	-175.26	0.00	0.00	0.00
2,500.00	8.00	312.00	2,481.56	184.74	-205.17	-184.56	0.00	0.00	0.00
2,600.00	8.00	312.00	2,580.59	194.05	-215.52	-193.86	0.00	0.00	0.00
2,700.00	8.00	312.00	2,679.62	203.36	-225.86	-203.17	0.00	0.00	0.00
2,800.00	8.00	312.00	2,778.64	212.68	-236.20	-212.47	0.00	0.00	0.00
2,900.00	8.00	312.00	2,877.67	221.99	-246.54	-221.77	0.00	0.00	0.00
3,000.00	8.00	312.00	2,976.70	231.30	-256.89	-231.08	0.00	0.00	0.00
3,100.00	8.00	312.00	3,075.72	240.61	-267.23	-240.38	0.00	0.00	0.00
3,200.00	8.00	312.00	3,174.75	249.93	-277.57	-249.68	0.00	0.00	0.00
3,233.33	8.00	312.00	3,207.76	253.03	-281.02	-252.78	0.00	0.00	0.00
Begin Drop @ 3233.33ft									
3,300.00	6.67	312.00	3,273.88	258.72	-287.34	-258.47	2.00	-2.00	0.00
3,400.00	4.67	312.00	3,373.39	265.33	-294.68	-265.07	2.00	-2.00	0.00
3,500.00	2.67	312.00	3,473.18	269.61	-299.43	-269.35	2.00	-2.00	0.00
3,600.00	0.67	312.00	3,573.13	271.56	-301.59	-271.29	2.00	-2.00	0.00
3,633.33	0.00	0.00	3,606.46	271.69	-301.74	-271.42	2.00	-2.00	0.00
End Drop @ 3633.33ft									
3,700.00	0.00	0.00	3,673.13	271.69	-301.74	-271.42	0.00	0.00	0.00
3,800.00	0.00	0.00	3,773.13	271.69	-301.74	-271.42	0.00	0.00	0.00
3,900.00	0.00	0.00	3,873.13	271.69	-301.74	-271.42	0.00	0.00	0.00
4,000.00	0.00	0.00	3,973.13	271.69	-301.74	-271.42	0.00	0.00	0.00

Corporate
Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well ENGLISH FARMS 8-11HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4962.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4962.00usft (Drilling Rig)
Site:	1N-65W-08 ENGLISH FARMS 15-8HZ PAD	North Reference:	True
Well:	ENGLISH FARMS 8-11HZ	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)
4,100.00	0.00	0.00	4,073.13	271.69	-301.74	-271.42	0.00	0.00	0.00
4,200.00	0.00	0.00	4,173.13	271.69	-301.74	-271.42	0.00	0.00	0.00
4,206.87	0.00	0.00	4,180.00	271.69	-301.74	-271.42	0.00	0.00	0.00
Parkman									
4,300.00	0.00	0.00	4,273.13	271.69	-301.74	-271.42	0.00	0.00	0.00
4,400.00	0.00	0.00	4,373.13	271.69	-301.74	-271.42	0.00	0.00	0.00
4,465.87	0.00	0.00	4,439.00	271.69	-301.74	-271.42	0.00	0.00	0.00
Sussex									
4,500.00	0.00	0.00	4,473.13	271.69	-301.74	-271.42	0.00	0.00	0.00
4,600.00	0.00	0.00	4,573.13	271.69	-301.74	-271.42	0.00	0.00	0.00
4,700.00	0.00	0.00	4,673.13	271.69	-301.74	-271.42	0.00	0.00	0.00
4,800.00	0.00	0.00	4,773.13	271.69	-301.74	-271.42	0.00	0.00	0.00
4,900.00	0.00	0.00	4,873.13	271.69	-301.74	-271.42	0.00	0.00	0.00
5,000.00	0.00	0.00	4,973.13	271.69	-301.74	-271.42	0.00	0.00	0.00
5,100.00	0.00	0.00	5,073.13	271.69	-301.74	-271.42	0.00	0.00	0.00
5,200.00	0.00	0.00	5,173.13	271.69	-301.74	-271.42	0.00	0.00	0.00
5,300.00	0.00	0.00	5,273.13	271.69	-301.74	-271.42	0.00	0.00	0.00
5,400.00	0.00	0.00	5,373.13	271.69	-301.74	-271.42	0.00	0.00	0.00
5,500.00	0.00	0.00	5,473.13	271.69	-301.74	-271.42	0.00	0.00	0.00
5,600.00	0.00	0.00	5,573.13	271.69	-301.74	-271.42	0.00	0.00	0.00
5,700.00	0.00	0.00	5,673.13	271.69	-301.74	-271.42	0.00	0.00	0.00
5,800.00	0.00	0.00	5,773.13	271.69	-301.74	-271.42	0.00	0.00	0.00
5,900.00	0.00	0.00	5,873.13	271.69	-301.74	-271.42	0.00	0.00	0.00
6,000.00	0.00	0.00	5,973.13	271.69	-301.74	-271.42	0.00	0.00	0.00
6,100.00	0.00	0.00	6,073.13	271.69	-301.74	-271.42	0.00	0.00	0.00
6,200.00	0.00	0.00	6,173.13	271.69	-301.74	-271.42	0.00	0.00	0.00
6,300.00	0.00	0.00	6,273.13	271.69	-301.74	-271.42	0.00	0.00	0.00
6,400.00	0.00	0.00	6,373.13	271.69	-301.74	-271.42	0.00	0.00	0.00
6,500.00	0.00	0.00	6,473.13	271.69	-301.74	-271.42	0.00	0.00	0.00
6,508.25	0.00	0.00	6,481.38	271.69	-301.74	-271.42	0.00	0.00	0.00
KOP @ 6508.25ft									
6,600.00	8.26	180.05	6,572.81	265.09	-301.74	-264.82	9.00	9.00	0.00
6,700.00	17.26	180.05	6,670.24	243.03	-301.76	-242.76	9.00	9.00	0.00
6,800.00	26.26	180.05	6,763.02	206.00	-301.79	-205.73	9.00	9.00	0.00
6,900.00	35.26	180.05	6,848.87	154.91	-301.84	-154.65	9.00	9.00	0.00
7,000.00	44.26	180.05	6,925.67	91.02	-301.90	-90.76	9.00	9.00	0.00
7,030.51	47.00	180.05	6,947.00	69.21	-301.92	-68.95	9.00	9.00	0.00
Sharon Springs									
7,050.00	48.76	180.05	6,960.07	54.76	-301.93	-54.49	9.00	9.00	0.00
DLS = 9°/100'									
7,082.72	51.70	180.05	6,981.00	29.61	-301.95	-29.35	9.00	9.00	0.00
Niobrara									
7,100.00	53.26	180.05	6,991.52	15.91	-301.96	-15.64	9.00	9.00	0.00
7,200.00	62.26	180.05	7,044.82	-68.59	-302.04	68.85	9.00	9.00	0.00
7,300.00	71.26	180.05	7,084.24	-160.38	-302.12	160.64	9.00	9.00	0.00
7,322.18	73.25	180.05	7,091.00	-181.50	-302.14	181.76	9.00	9.00	0.00
Nio B									
7,400.00	80.26	180.05	7,108.82	-257.20	-302.20	257.47	9.00	9.00	0.00
7,500.00	89.26	180.05	7,117.95	-356.68	-302.29	356.94	9.00	9.00	0.00
7,506.10	89.81	180.05	7,118.00	-362.78	-302.30	363.04	9.00	9.00	0.00
End Build @ 7506.10ft - Top of Production									
7,600.00	89.81	180.05	7,118.31	-456.68	-302.38	456.94	0.00	0.00	0.00
7,700.00	89.81	180.05	7,118.65	-556.68	-302.47	556.94	0.00	0.00	0.00

Corporate Planning Report

Database: PLANNING
Company: US ROCKIES WATTENBERG PLANNING
Project: WELD-NAD83-UTMFT13N
Site: 1N-65W-08 ENGLISH FARMS 15-8HZ PAD
Well: ENGLISH FARMS 8-11HZ
Wellbore: Plan A
Design: Permit Rev-2

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Well ENGLISH FARMS 8-11HZ
RKB = 17' @ 4962.00usft (Drilling Rig)
RKB = 17' @ 4962.00usft (Drilling Rig)
True
Minimum Curvature

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)
7,800.00	89.81	180.05	7,118.99	-656.68	-302.56	656.94	0.00	0.00	0.00
7,900.00	89.81	180.05	7,119.33	-756.68	-302.64	756.94	0.00	0.00	0.00
8,000.00	89.81	180.05	7,119.67	-856.68	-302.73	856.94	0.00	0.00	0.00
8,100.00	89.81	180.05	7,120.00	-956.68	-302.82	956.94	0.00	0.00	0.00
8,200.00	89.81	180.05	7,120.34	-1,056.68	-302.91	1,056.94	0.00	0.00	0.00
8,300.00	89.81	180.05	7,120.68	-1,156.68	-303.00	1,156.94	0.00	0.00	0.00
8,400.00	89.81	180.05	7,121.02	-1,256.68	-303.08	1,256.94	0.00	0.00	0.00
8,500.00	89.81	180.05	7,121.36	-1,356.67	-303.17	1,356.94	0.00	0.00	0.00
8,600.00	89.81	180.05	7,121.69	-1,456.67	-303.26	1,456.94	0.00	0.00	0.00
8,700.00	89.81	180.05	7,122.03	-1,556.67	-303.35	1,556.94	0.00	0.00	0.00
8,800.00	89.81	180.05	7,122.37	-1,656.67	-303.44	1,656.94	0.00	0.00	0.00
8,900.00	89.81	180.05	7,122.71	-1,756.67	-303.52	1,756.94	0.00	0.00	0.00
9,000.00	89.81	180.05	7,123.05	-1,856.67	-303.61	1,856.94	0.00	0.00	0.00
9,100.00	89.81	180.05	7,123.38	-1,956.67	-303.70	1,956.94	0.00	0.00	0.00
9,200.00	89.81	180.05	7,123.72	-2,056.67	-303.79	2,056.93	0.00	0.00	0.00
9,300.00	89.81	180.05	7,124.06	-2,156.67	-303.88	2,156.93	0.00	0.00	0.00
9,400.00	89.81	180.05	7,124.40	-2,256.67	-303.97	2,256.93	0.00	0.00	0.00
9,500.00	89.81	180.05	7,124.73	-2,356.67	-304.05	2,356.93	0.00	0.00	0.00
9,600.00	89.81	180.05	7,125.07	-2,456.67	-304.14	2,456.93	0.00	0.00	0.00
9,700.00	89.81	180.05	7,125.41	-2,556.67	-304.23	2,556.93	0.00	0.00	0.00
9,800.00	89.81	180.05	7,125.75	-2,656.67	-304.32	2,656.93	0.00	0.00	0.00
9,900.00	89.81	180.05	7,126.09	-2,756.67	-304.41	2,756.93	0.00	0.00	0.00
10,000.00	89.81	180.05	7,126.42	-2,856.67	-304.49	2,856.93	0.00	0.00	0.00
10,100.00	89.81	180.05	7,126.76	-2,956.67	-304.58	2,956.93	0.00	0.00	0.00
10,200.00	89.81	180.05	7,127.10	-3,056.66	-304.67	3,056.93	0.00	0.00	0.00
10,300.00	89.81	180.05	7,127.44	-3,156.66	-304.76	3,156.93	0.00	0.00	0.00
10,400.00	89.81	180.05	7,127.78	-3,256.66	-304.85	3,256.93	0.00	0.00	0.00
10,500.00	89.81	180.05	7,128.11	-3,356.66	-304.93	3,356.93	0.00	0.00	0.00
10,600.00	89.81	180.05	7,128.45	-3,456.66	-305.02	3,456.93	0.00	0.00	0.00
10,700.00	89.81	180.05	7,128.79	-3,556.66	-305.11	3,556.93	0.00	0.00	0.00
10,800.00	89.81	180.05	7,129.13	-3,656.66	-305.20	3,656.93	0.00	0.00	0.00
10,900.00	89.81	180.05	7,129.47	-3,756.66	-305.29	3,756.93	0.00	0.00	0.00
11,000.00	89.81	180.05	7,129.80	-3,856.66	-305.38	3,856.92	0.00	0.00	0.00
11,100.00	89.81	180.05	7,130.14	-3,956.66	-305.46	3,956.92	0.00	0.00	0.00
11,200.00	89.81	180.05	7,130.48	-4,056.66	-305.55	4,056.92	0.00	0.00	0.00
11,300.00	89.81	180.05	7,130.82	-4,156.66	-305.64	4,156.92	0.00	0.00	0.00
11,400.00	89.81	180.05	7,131.16	-4,256.66	-305.73	4,256.92	0.00	0.00	0.00
11,500.00	89.81	180.05	7,131.49	-4,356.66	-305.82	4,356.92	0.00	0.00	0.00
11,600.00	89.81	180.05	7,131.83	-4,456.66	-305.90	4,456.92	0.00	0.00	0.00
11,700.00	89.81	180.05	7,132.17	-4,556.66	-305.99	4,556.92	0.00	0.00	0.00
11,800.00	89.81	180.05	7,132.51	-4,656.65	-306.08	4,656.92	0.00	0.00	0.00
11,900.00	89.81	180.05	7,132.85	-4,756.65	-306.17	4,756.92	0.00	0.00	0.00
12,000.00	89.81	180.05	7,133.18	-4,856.65	-306.26	4,856.92	0.00	0.00	0.00
12,100.00	89.81	180.05	7,133.52	-4,956.65	-306.34	4,956.92	0.00	0.00	0.00
12,200.00	89.81	180.05	7,133.86	-5,056.65	-306.43	5,056.92	0.00	0.00	0.00
12,300.00	89.81	180.05	7,134.20	-5,156.65	-306.52	5,156.92	0.00	0.00	0.00
12,400.00	89.81	180.05	7,134.54	-5,256.65	-306.61	5,256.92	0.00	0.00	0.00
12,500.00	89.81	180.05	7,134.87	-5,356.65	-306.70	5,356.92	0.00	0.00	0.00
12,600.00	89.81	180.05	7,135.21	-5,456.65	-306.79	5,456.92	0.00	0.00	0.00
12,700.00	89.81	180.05	7,135.55	-5,556.65	-306.87	5,556.92	0.00	0.00	0.00
12,800.00	89.81	180.05	7,135.89	-5,656.65	-306.96	5,656.91	0.00	0.00	0.00
12,900.00	89.81	180.05	7,136.22	-5,756.65	-307.05	5,756.91	0.00	0.00	0.00
13,000.00	89.81	180.05	7,136.56	-5,856.65	-307.14	5,856.91	0.00	0.00	0.00
13,100.00	89.81	180.05	7,136.90	-5,956.65	-307.23	5,956.91	0.00	0.00	0.00

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well ENGLISH FARMS 8-11HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4962.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4962.00usft (Drilling Rig)
Site:	1N-65W-08 ENGLISH FARMS 15-8HZ PAD	North Reference:	True
Well:	ENGLISH FARMS 8-11HZ	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)	
13,200.00	89.81	180.05	7,137.24	-6,056.65	-307.31	6,056.91	0.00	0.00	0.00	
13,300.00	89.81	180.05	7,137.58	-6,156.65	-307.40	6,156.91	0.00	0.00	0.00	
13,400.00	89.81	180.05	7,137.91	-6,256.65	-307.49	6,256.91	0.00	0.00	0.00	
13,500.00	89.81	180.05	7,138.25	-6,356.64	-307.58	6,356.91	0.00	0.00	0.00	
13,600.00	89.81	180.05	7,138.59	-6,456.64	-307.67	6,456.91	0.00	0.00	0.00	
13,700.00	89.81	180.05	7,138.93	-6,556.64	-307.75	6,556.91	0.00	0.00	0.00	
13,800.00	89.81	180.05	7,139.27	-6,656.64	-307.84	6,656.91	0.00	0.00	0.00	
13,900.00	89.81	180.05	7,139.60	-6,756.64	-307.93	6,756.91	0.00	0.00	0.00	
14,000.00	89.81	180.05	7,139.94	-6,856.64	-308.02	6,856.91	0.00	0.00	0.00	
14,100.00	89.81	180.05	7,140.28	-6,956.64	-308.11	6,956.91	0.00	0.00	0.00	
14,200.00	89.81	180.05	7,140.62	-7,056.64	-308.20	7,056.91	0.00	0.00	0.00	
14,300.00	89.81	180.05	7,140.96	-7,156.64	-308.28	7,156.91	0.00	0.00	0.00	
14,400.00	89.81	180.05	7,141.29	-7,256.64	-308.37	7,256.91	0.00	0.00	0.00	
14,500.00	89.81	180.05	7,141.63	-7,356.64	-308.46	7,356.90	0.00	0.00	0.00	
14,600.00	89.81	180.05	7,141.97	-7,456.64	-308.55	7,456.90	0.00	0.00	0.00	
14,700.00	89.81	180.05	7,142.31	-7,556.64	-308.64	7,556.90	0.00	0.00	0.00	
14,800.00	89.81	180.05	7,142.65	-7,656.64	-308.72	7,656.90	0.00	0.00	0.00	
14,900.00	89.81	180.05	7,142.98	-7,756.64	-308.81	7,756.90	0.00	0.00	0.00	
15,000.00	89.81	180.05	7,143.32	-7,856.64	-308.90	7,856.90	0.00	0.00	0.00	
15,100.00	89.81	180.05	7,143.66	-7,956.63	-308.99	7,956.90	0.00	0.00	0.00	
15,200.00	89.81	180.05	7,144.00	-8,056.63	-309.08	8,056.90	0.00	0.00	0.00	
15,300.00	89.81	180.05	7,144.34	-8,156.63	-309.16	8,156.90	0.00	0.00	0.00	
15,400.00	89.81	180.05	7,144.67	-8,256.63	-309.25	8,256.90	0.00	0.00	0.00	
15,500.00	89.81	180.05	7,145.01	-8,356.63	-309.34	8,356.90	0.00	0.00	0.00	
15,600.00	89.81	180.05	7,145.35	-8,456.63	-309.43	8,456.90	0.00	0.00	0.00	
15,700.00	89.81	180.05	7,145.69	-8,556.63	-309.52	8,556.90	0.00	0.00	0.00	
15,800.00	89.81	180.05	7,146.03	-8,656.63	-309.61	8,656.90	0.00	0.00	0.00	
15,900.00	89.81	180.05	7,146.36	-8,756.63	-309.69	8,756.90	0.00	0.00	0.00	
16,000.00	89.81	180.05	7,146.70	-8,856.63	-309.78	8,856.90	0.00	0.00	0.00	
16,100.00	89.81	180.05	7,147.04	-8,956.63	-309.87	8,956.90	0.00	0.00	0.00	
16,200.00	89.81	180.05	7,147.38	-9,056.63	-309.96	9,056.90	0.00	0.00	0.00	
16,300.00	89.81	180.05	7,147.71	-9,156.63	-310.05	9,156.89	0.00	0.00	0.00	
16,400.00	89.81	180.05	7,148.05	-9,256.63	-310.13	9,256.89	0.00	0.00	0.00	
16,500.00	89.81	180.05	7,148.39	-9,356.63	-310.22	9,356.89	0.00	0.00	0.00	
16,600.00	89.81	180.05	7,148.73	-9,456.63	-310.31	9,456.89	0.00	0.00	0.00	
16,700.00	89.81	180.05	7,149.07	-9,556.63	-310.40	9,556.89	0.00	0.00	0.00	
16,800.00	89.81	180.05	7,149.40	-9,656.62	-310.49	9,656.89	0.00	0.00	0.00	
16,900.00	89.81	180.05	7,149.74	-9,756.62	-310.57	9,756.89	0.00	0.00	0.00	
17,000.00	89.81	180.05	7,150.08	-9,856.62	-310.66	9,856.89	0.00	0.00	0.00	
17,100.00	89.81	180.05	7,150.42	-9,956.62	-310.75	9,956.89	0.00	0.00	0.00	
17,200.00	89.81	180.05	7,150.76	-10,056.62	-310.84	10,056.89	0.00	0.00	0.00	
17,300.00	89.81	180.05	7,151.09	-10,156.62	-310.93	10,156.89	0.00	0.00	0.00	
17,400.00	89.81	180.05	7,151.43	-10,256.62	-311.01	10,256.89	0.00	0.00	0.00	
17,500.00	89.81	180.05	7,151.77	-10,356.62	-311.10	10,356.89	0.00	0.00	0.00	
17,568.12	89.81	180.05	7,152.00	-10,424.74	-311.16	10,425.00	0.00	0.00	0.00	
Nio C										
17,600.00	89.81	180.05	7,152.11	-10,456.62	-311.19	10,456.89	0.00	0.00	0.00	
17,700.00	89.81	180.05	7,152.45	-10,556.62	-311.28	10,556.89	0.00	0.00	0.00	
17,800.00	89.81	180.05	7,152.78	-10,656.62	-311.37	10,656.89	0.00	0.00	0.00	
17,900.00	89.81	180.05	7,153.12	-10,756.62	-311.46	10,756.89	0.00	0.00	0.00	
18,000.00	89.81	180.05	7,153.46	-10,856.62	-311.54	10,856.88	0.00	0.00	0.00	
18,100.00	89.81	180.05	7,153.80	-10,956.62	-311.63	10,956.88	0.00	0.00	0.00	
18,200.00	89.81	180.05	7,154.14	-11,056.62	-311.72	11,056.88	0.00	0.00	0.00	
18,300.00	89.81	180.05	7,154.47	-11,156.62	-311.81	11,156.88	0.00	0.00	0.00	

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well ENGLISH FARMS 8-11HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4962.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4962.00usft (Drilling Rig)
Site:	1N-65W-08 ENGLISH FARMS 15-8HZ PAD	North Reference:	True
Well:	ENGLISH FARMS 8-11HZ	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)
18,400.00	89.81	180.05	7,154.81	-11,256.61	-311.90	11,256.88	0.00	0.00	0.00
18,500.00	89.81	180.05	7,155.15	-11,356.61	-311.98	11,356.88	0.00	0.00	0.00
18,600.00	89.81	180.05	7,155.49	-11,456.61	-312.07	11,456.88	0.00	0.00	0.00
18,700.00	89.81	180.05	7,155.83	-11,556.61	-312.16	11,556.88	0.00	0.00	0.00
18,800.00	89.81	180.05	7,156.16	-11,656.61	-312.25	11,656.88	0.00	0.00	0.00
18,900.00	89.81	180.05	7,156.50	-11,756.61	-312.34	11,756.88	0.00	0.00	0.00
19,000.00	89.81	180.05	7,156.84	-11,856.61	-312.42	11,856.88	0.00	0.00	0.00
19,100.00	89.81	180.05	7,157.18	-11,956.61	-312.51	11,956.88	0.00	0.00	0.00
19,200.00	89.81	180.05	7,157.51	-12,056.61	-312.60	12,056.88	0.00	0.00	0.00
19,300.00	89.81	180.05	7,157.85	-12,156.61	-312.69	12,156.88	0.00	0.00	0.00
19,400.00	89.81	180.05	7,158.19	-12,256.61	-312.78	12,256.88	0.00	0.00	0.00
19,500.00	89.81	180.05	7,158.53	-12,356.61	-312.87	12,356.88	0.00	0.00	0.00
19,600.00	89.81	180.05	7,158.87	-12,456.61	-312.95	12,456.88	0.00	0.00	0.00
19,700.00	89.81	180.05	7,159.20	-12,556.61	-313.04	12,556.88	0.00	0.00	0.00
19,800.00	89.81	180.05	7,159.54	-12,656.61	-313.13	12,656.87	0.00	0.00	0.00
19,900.00	89.81	180.05	7,159.88	-12,756.61	-313.22	12,756.87	0.00	0.00	0.00
20,000.00	89.81	180.05	7,160.22	-12,856.61	-313.31	12,856.87	0.00	0.00	0.00
20,100.00	89.81	180.05	7,160.56	-12,956.60	-313.39	12,956.87	0.00	0.00	0.00
20,200.00	89.81	180.05	7,160.89	-13,056.60	-313.48	13,056.87	0.00	0.00	0.00
20,231.32	89.81	180.05	7,161.00	-13,087.93	-313.51	13,088.19	0.00	0.00	0.00
TD Well @ 20231.42ft									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,508.79	1,500.00	9 5/8" Csg	9-5/8	13-1/2	
7,506.10	7,118.00	Top of Production	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,481.53	1,473.00	Fox Hills				
4,206.87	4,180.00	Parkman				
4,465.87	4,439.00	Sussex				
7,030.51	6,947.00	Sharon Springs				
7,082.72	6,981.00	Niobrara				
7,322.18	7,091.00	Nio B				
17,568.12	7,152.00	Nio C				

Corporate Planning Report

Database:	PLANNING	Local Co-ordinate Reference:	Well ENGLISH FARMS 8-11HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4962.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4962.00usft (Drilling Rig)
Site:	1N-65W-08 ENGLISH FARMS 15-8HZ PAD	North Reference:	True
Well:	ENGLISH FARMS 8-11HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

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	Begin Nudge @ 250.00ft
783.33	781.60	24.87	-27.63	End Nudge @ 783.33ft
3,233.33	3,207.76	253.03	-281.02	Begin Drop @ 3233.33ft
3,633.33	3,606.46	271.69	-301.74	End Drop @ 3633.33ft
6,508.25	6,481.38	271.69	-301.74	KOP @ 6508.25ft
7,050.00	6,960.07	54.76	-302.58	DLS = 9°/100'
7,506.10	7,118.00	-362.78	-304.20	End Build @ 7506.10ft
20,231.42	7,161.00	-13,087.93	-353.51	TD Well @ 20231.42ft